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# Screening Techniques and Sources of Resistance to Downy Mildew and Rust in Pearl Millet

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Figures 3, 4, 8, 12, 14B, and 17A in this bulletin are ICRISAT photographs and have previously appeared in a feature article by the senior author; Singh, S.D., 1995. Downy mildew of pearl millet Plant Disease 79: 545-550.

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# Preface

Downy mildew and rust are two of the most important diseases of pearl millet. While downy mildew is the major biotic constraint to the full exploitation of high grain yield potential of improved cultivars in India, rust causes severe reductions in fodder yield and quality and grain yield in the USA. As pearl millet is grown on the poorest soils, under harsh climatic conditions, and generally by resource-poor farmers in the semi-arid tropics of western Africa and India, the use of host plant resistance is the most appropriate way to control these diseases. However, due to the highly variable nature of the two causal pathogens (*Sclerospora graminicola* and *Puccinia* spp.), resistant cultivars continue to succumb to these diseases and consequently need to be replaced with new resistant cultivars. This, in turn, calls for new sources of resistance.

Intensive research has been conducted on downy mildew, by scientists at International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and at several National Agricultural Research Systems (NARS) during the last three decades. Significant progress has been made in developing laboratory/greenhouse and field screening techniques and these have been transferred to the national programs of India and several countries in western Africa. Using these techniques, numerous sources with different types of resistance have been identified and many resistant cultivars developed. As a result of the large scale adoption of resistant cultivars, downy mildew is under control in India. Similar progress has been made in developing resistance to rust at the USDA-ARS, Forage and Turf Research Unit at Tifton, Georgia, and to some extent at ICRISAT Asia Center (IAC).

This bulletin has been prepared as a collaborative effort between the USDA-ARS, Tifton, Georgia, and ICRISAT, to communicate the current status of knowledge on important areas of research on these two diseases. It is comprehensive and particularly targeted at workers who have limited experience with these diseases and who do not have easy access to published literature. Relevant scientific journal articles and books have been listed in Appendix II to provide in-depth technical information and further consultation.

**J M Lenné**
Director, Crop Protection Division, ICRISAT

# Introduction

Downy mildew, caused by *Sclerospora graminicola* (Sacc.) Schröt., is the most widespread and destructive disease of pearl millet (*Pennisetum glaucum* (L.) R. Br.) in India and western Africa. During the last three decades, considerable progress has been made in the areas of pathogen biology and disease epidemiology, and in developing control measures, particularly host-plant resistance (Singh et al. 1993). However, the re-occurrence of downy mildew in 1995 after a gap of 7 years, on a few $F_1$ hybrids in some farmers' fields in the Indian states of Andhra Pradesh and Maharashtra, shows that the disease will continue to be a major limitation to the exploitation of the high yield potential of improved cultivars, particularly single-cross $F_1$ hybrids. Several promising cultivars that succumbed to the disease after being widely cultivated by farmers had to be withdrawn (Fig. 1). The use of resistant cultivars is, and will remain, the only feasible way to control downy mildew.

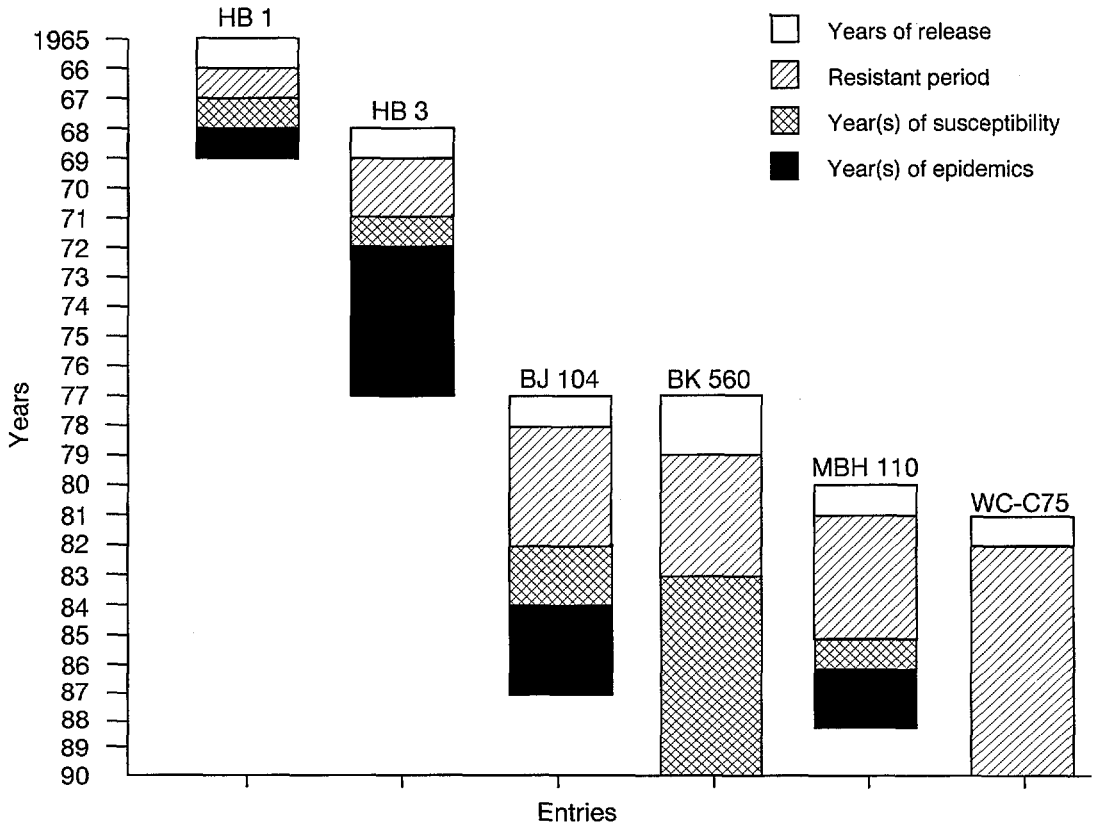


***Figure 1. Relative susceptibility and resistance periods (years) of six popular pearl millet cultivars grown in India, 1965–90.***

Therefore, from its inception in 1972/73, ICRISAT laid major emphasis on identifying host-plant resistance to this disease.

The development of resistant cultivars is a long process. It requires the development of reliable field/laboratory screening techniques, identification of sources of resistance, and their utilization in breeding programs. To achieve these objectives, resistance screening techniques have been developed and transferred to NARS in India and western Africa. Progress has been made in identifying sources of resistance in various groups of pearl millet germplasm accessions and in its wild relatives held in the genebank of ICRISAT's Genetic Resources Division. A methodology has been developed to select for resistance based on residual variability present within susceptible material (Singh et al. 1988, 1992).

Rust, caused by *Puccinia* spp. [*P. penniseti* Zimm., *P. substriata* Ell. & Barth. var. *indica*, and *P. stenotaphri* Cummins – note that the existance of these three species has not yet been fully accepted (Singh and King 1991)]—is a potentially important disease of pearl millet in India where it generally appears after the soft dough stage. Losses are not considered economically important in India, therefore, activities at ICRISAT have been restricted to the identification of resistance sources, and the evaluation of breeding material under natural epiphytotic conditions. Rust is, however, the most serious disease of pearl millet in the southeastern USA, where considerable progress has been made in the development of screening techniques, and the identification and utilization of resistance at the USDA-ARS, Forage and Turf Research Unit, Tifton.

The information on disease reactions of all the entries mentioned in the text is presented in Appendix I (Tables 1–31). Requests for seed pertaining to downy mildew or rust should be sent to the Genetic Resources Division, ICRISAT Asia Center, Patancheru 502 324, Andhra Pradesh, India using the Germplasm Request Form provided in Appendix III. Requests for rust alone should be sent to USDA-ARS, Forage and Turf Research Unit at the University of Georgia Costal Plain Experiment Station, Tifton, GA 31793, USA.

The help of the ICRISAT Genetic Resources Division (GRD) in supplying seed of all the germplasm accession listed in this Bulletin is acknowledged, as is the work of the GRD staff who collected most of the data on agronomic traits.

# Downy Mildew

## Symptoms

The disease is known by two names, 'downy mildew' and 'green ear', based on two types of symptoms that develop as a result of systemic infection. Downy mildew symptoms generally appear on the second leaf, and once they appear, all subsequent leaves and panicles also develop symptoms; except in the case of recovery resistance where plants outgrow the disease (Singh and King 1988). Symptoms can also appear on the first leaf under conditions that favor severe disease development. Leaf symptoms are first seen as chlorosis (yellowing) at the base of the leaf lamina, and successively younger leaves show a progression of greater leaf area coverage by symptoms (Fig. 2). Half-leaf symptoms (Fig. 3), characterized by a distinct margin between the diseased (basal portion) and non-diseased area towards the tip, occur in pearl millet. Under conditions of high (>95%) relative humidity (RH) and moderate

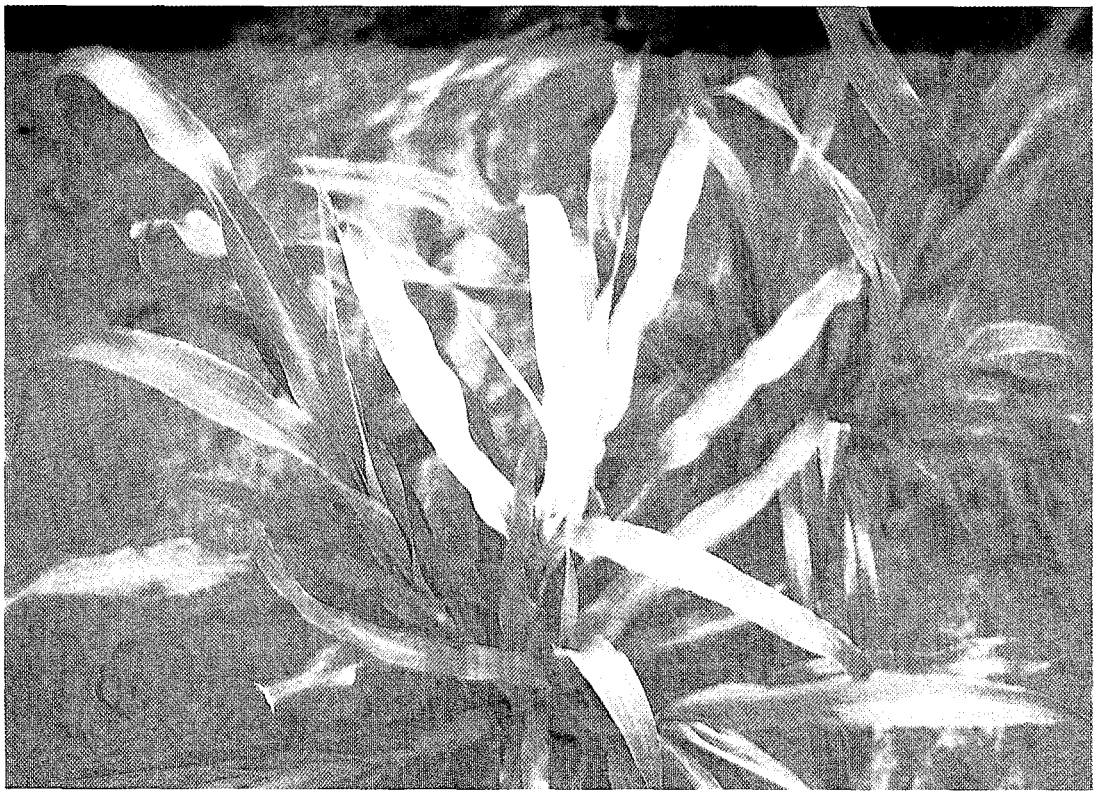

*Figure 2. A pearl millet plant showing a progression of downy mildew symptoms.*

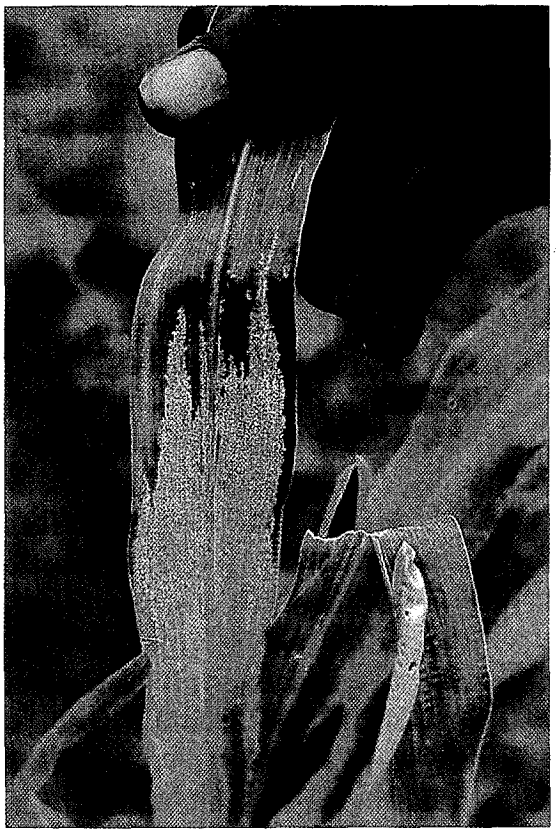

*Figure 3. A pearl millet leaf showing the typical half-leaf symptom of downy mildew infection.*

temperature (20–22°C), massive asexual sporulation occurs on infected chlorotic areas, generally on the abaxial surface of leaves, giving them a downy appearance. Severely infected plants are generally stunted, and do not produce panicles.

Green ear symptoms become visible at panicle emergence. Green ears develop because floral parts are transformed into leafy structures, which may vary in shape and size (Fig. 4); the transformation may be partial or total, depending on when the panicle is colonized by the pathogen. The leafy structures are chlorotic, and sometimes produce sporulation. In latent infections, green ear is the only manifestation of the disease.

Very rarely, local lesions are produced on the leaf lamina under certain conditions (Singh et al. 1993). These local lesions vary in shape and size, are chlorotic in the early stages, produce asexual spores, and later become necrotic.

## Screening techniques

### Laboratory/greenhouse

#### Production and storage of inocula

At IAC, the downy mildew pathogen (*Sclerospora graminicola*) is maintained throughout the year on two susceptible genotypes – NHB 3 and 7042(S), in a field heavily infested with oospores (i.e., a 'sick plot'). Five to 10 rows, each about 20-m long, are sown at monthly intervals depending on the need for inoculum. The high levels of RH necessary for disease development are provided by weekly furrow irrigation. Since sufficient oospore inoculum is present in the soil, artificial inoculation is not necessary. Disease-free plants and old diseased plants, are cut back at 20-day intervals to promote the growth of new tillers that are generally diseased. At maturity,

*Figure 4. Downy mildew free* (left) *and a range of earheads showing typical green ear symptoms resulting from systemic downy mildew infection.*

the crop is plowed into the soil. This operation ensures that sufficient numbers of oospores remain in the soil to infect each successive crop.

At IAC, the mean minimum and maximum temperatures (and their ranges) are 13°C (9–22°C) and 26°C (19–43°C). *Sclerospora graminicola* survives over this wide range of temperatures and is maintained on susceptible genotypes in oospore-infested plots at IAC. It could be similarly maintained throughout the year at many other millet-growing locations in the world.

On bright sunny days, systemically infected leaves are collected from the field and their old downy growth is removed with a wet cotton swab or camel-hair brush. The leaves are cut into small pieces, and placed in humidity chamber(s) prepared by lining the interiors of petridishes or plastic box lids, 45 cm × 30 cm × 10 cm size, with a wet, double layer of blotting paper. These chambers are kept at 20°C and >95% RH in the dark in an incubator for 6–6½ h. To encourage pathogen to sporulate the incubator is programmed to cool down to 5–6°C after this time. At this temperature, sporangia

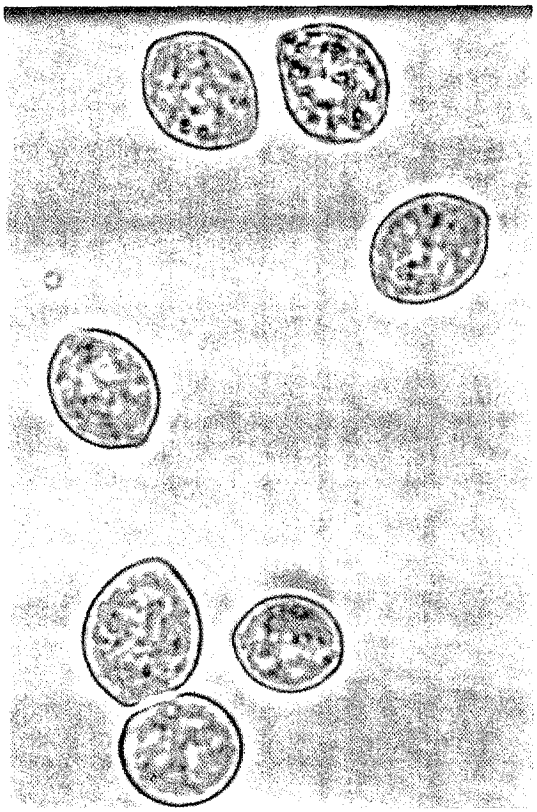

*Figure 5. Sporangia (asexual spores) of* Sclerospora graminicola *(×132).*

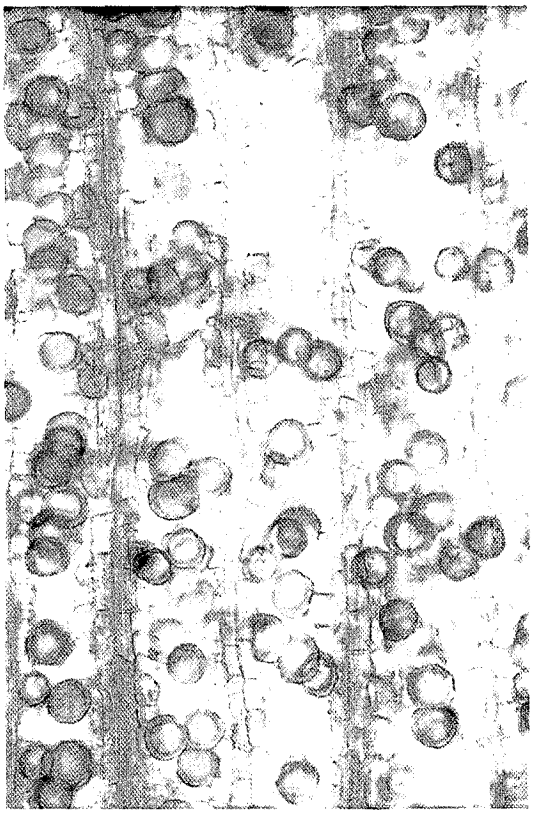

*Figure 6. Oospores (sexual spores) of* Sclerospora graminicola *inside infected pearl millet leaf (×33).*

(Fig. 5) remain intact (they neither collapse nor germinate) and can be kept for at least 12 h.

Sporangia produced on the leaves are washed off into cold water (5–6°C) in a beaker with a camel-hair brush or a wet cotton swab. The concentration of sporangia is adjusted using a hemacytometer to $1 \times 10^6$ sporangia $mL^{-1}$.

The fungus does not sporulate well on leaves parasitized by a mycoparasite (*Fusarium longipes* Wollenw and Reinking) that feeds on the mycelium of *S. graminicola* (Navi and Singh 1993), or on leaves collected from plants grown in insufficient light (cloudy weather). To produce sporangial inoculum under such conditions, diseased pearl millet plants are grown in pots in a greenhouse to minimize the chances of *Fusarium* infection. The potted plants are exposed to light in an incubator at 25–30°C and ≤70% RH for about 16 h or overnight. The following day, the leaves are detached and used to produce sporangia as described above.

For the production of oospores (Fig. 6), systemically infected necrotic leaves from the summer pearl millet crop, or *Fusarium*-free leaves from a rainy-season crop, are

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collected, dried in the shade, and ground to powder using a mill-cross beater. The powder is passed through three layers of muslin cloth, or a 50-μ mesh copper sieve. This oospore-infested powder is stored in the laboratory. Although oospores retain their viability for about 13 years under laboratory conditions, there is a gradual loss in viability over time (Singh and Navi 1996). It is therefore not advisable to use oospores that are more than 1–2 years old.

Laboratory screening techniques are needed for precise pathological studies (e.g., host-pathogen interaction), for mass screening of germplasm and breeding material, and for detecting escapes from field screenings. For the results to be reliable, it is essential that a technique is simple, repeatable, allows inoculation in a natural fashion (without human interference), does not over-emphasize the host or the pathogen, and exposes every plant to an equal amount of inoculum both by volume and spore number. It is also important to inoculate seedlings at the same growth stage. A description of all known inoculation techniques, with both sporangia and oospores, is given here, so that users can make a choice. The advantages/disadvantages associated with each technique are also described.

### Potting mixture

Healthy seedlings are needed for a good expression of disease reaction. It is advisable to test soil or potting mixture for seedling establishment prior to screening, since soil fertility levels vary among locations. Pearl millet seedlings do not establish well in soils with the high electrical conductivity that develops with the excessive use of farmyard manure. High soil fertility is not necessary in greenhouse screening since seedlings are only needed for 15–20 days. At IAC, a potting mixture (Alfisol, sand, and farmyard manure in a 2:1:1 ratio) with a small amount of diammonium phosphate (DAP) at 1 g $kg^{-1}$ of soil is used.

### Inoculation with oospores

The site of infection by oospores on pearl millet seedlings is still not clearly known. Therefore, oospore inoculum is placed below and above the seed to ensure that both emerging radicles and plumules come into contact with oospores. To achieve this, 10 g oospore powder is mixed with 1 kg potting mixture. Pots are filled with potting mixture, leaving the top 7 cm empty. A 2.5-cm layer of oospore potting mixture is spread on the surface of the potting mixture in the pots. Seeds are sown on top of this layer, and then covered with a 2.5-cm layer of oospore potting mixture. Pots are placed on greenhouse benches so the disease can develop and are irrigated daily. Seedling infection by oospores is good at 30–35°C.

### Disease record

The disease, incited by oospores, may begin to appear 8 days after inoculation, and continue to appear until panicle emergence. Infected leaves begin producing sporangia almost immediately. The sporangia produced on early-infected plants can infect surrounding seedlings, that could then be wrongly classified as oospore-infected seedlings. To avoid confusion, incidence records should begin 8 days after sowing (or with the first appearance of the disease) and continue twice a week for about 25 days after sowing. All infected plants should be removed from the pots at each rating.

### Inoculation of free seedlings with sporangia

Seedlings are grown in petridish humidity chambers in incubators at 25–30°C. About 100 seeds are sown in each 9-cm diameter petridish. As there is a continuous variation in seed germination and plumule and radicle growth in all pearl millet genotypes, it is important to sow at least three times more seeds than the required number of seedlings. This will ensure sufficient seedlings to select those at a uniform growth stage. Seedlings 24–96-h-old are inoculated with sporangia using the methods described below.

### Dip inoculation

A viable suspension of sporangia ($10^6$ sporangia $mL^{-1}$) is placed in the lower lid of a petridish. Seedlings 24-h-old are immersed in this suspension and the dishes placed in an incubator for 6–12 h at 20°C in light or dark. Seedlings immersed in water are used as controls. Inoculated seedlings are transplanted into pots, 10–15 seedlings per pot, depending on the size of the pots, and irrigated. Pots are kept in a greenhouse at 25–30°C for the disease to develop.

This technique allows the exposure of all seedlings to uniform inoculum concentration and time duration, which in turn, minimizes the chances of escape. It is a sure way to obtain infection and can be used when 100% resistance or immunity is tested. However, it has several disadvantages:

- the pathogen is over-emphasized, as the inoculation is done in an environment that favors the pathogen,
- host activities are suspended during the entire period of inoculation/incubation, and
- inoculated seedlings do not survive well after transplanting.

Therefore, this method is not appropriate for general screening purposes.

## Spray inoculation

Seedlings 24–96-h-old are evenly spread in a single layer in a petridish (Fig. 7). The number of seedlings per dish will depend on its size. A viable suspension of sporangia ($10^6$ spores $mL^{-1}$) is sprayed onto the seedlings with an atomizer. The inoculated seedlings are incubated at 20°C for 12–16 h, then transplanted into pots, about 15–20 seedlings per 12-cm diameter pot. The pots are then treated as above.

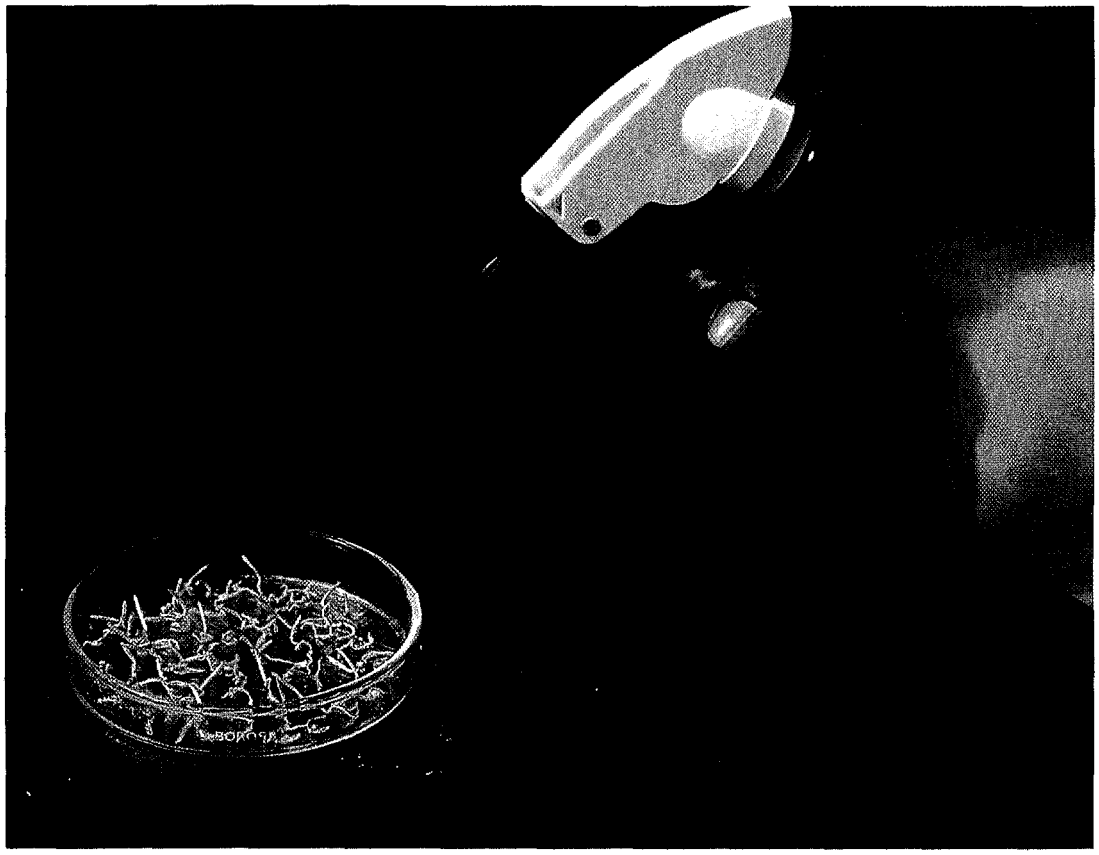

***Figure 7. Spray inoculating pearl millet seedlings in petridish with an aqueous suspension of downy mildew sporangia.***

This technique also exposes entire seedlings to inoculation, thus reducing the chances of escape. It is a sure method of getting infection, and can be used to test 100% resistance or immunity. Although less severe than dip-inoculation, this is also a forced-inoculation method, that may overcome natural defense mechanisms, and is therefore unsuitable for routine screening purposes.

## Inoculation of potted seedlings with sporangia

To achieve a uniform emergence of seedlings 12-cm diameter pots are filled with potting mixture, leaving the top 5 cm empty. Seeds are sown on the surface of the potting mixture and then covered with a 2-cm layer of potting mixture. The pots are irrigated daily and kept in the greenhouse until inoculation.

## Spray inoculation

Potted seedlings at coleoptile to one-leaf stage, or even later, are inoculated with a sporangial suspension using a pneumatic sprayer, in a chamber, maintained at 20±1 °C and >95% RH, (Fig. 8). Inoculated seedlings are covered with a moist polythene sheet and retained under these conditions for 12–16 h. The pots are then transferred to greenhouse benches (25–30 °C) for disease development (Singh and Gopinath 1985).

*Figure 8. A method of mass inoculation of seedlings with sporangia. This method is being routinely used to screen large number of seedlings under greenhouse conditions.*

This technique allows inoculation in a natural manner, at the desired stage of crop development, and with an appropriate inoculum concentration. The technique does not favor either the host or the pathogen. This is the most appropriate method for mass inoculation of breeding material, because it allows screening in a very small space (30–40 seedlings per 12-cm-diameter pot) and in a short time (about 20 days from

sowing to evaluation). There has been a good correlation between the results of field and this type of greenhouse screening. Following the routine use of this technique for mass screening at IAC, there has been a substantial increase in the levels of resistance in breeding materials, and considerable decrease in the demand for screening in field disease nurseries, resulting in a substantial saving in running the field nursery.

Seedling age at inoculation, and inoculum concentration greatly influence disease reaction; the younger the seedlings, the greater their susceptibility to downy mildew. Certain genotypes show increased levels of susceptibility if inoculated at an early seedling stage.

There are, however, genotypes that maintain their level of resistance irrespective of age at inoculation and/or inoculum concentration (Table 1).

## Drop inoculation

Seedlings are inoculated at the coleoptile to one-leaf stage (<10 mm above ground) using a micrometer syringe (Wellcome Reagents Limited, Beckenham, UK). A 25-µL drop of inoculum ($10^6$ sporangia $mL^{-1}$) is deposited on the tip of each seedling and allowed to flow down to the base, covering most of the above-ground surface area of the seedling (Fig. 9). Above-ground surface areas of older seedlings are only partially covered.

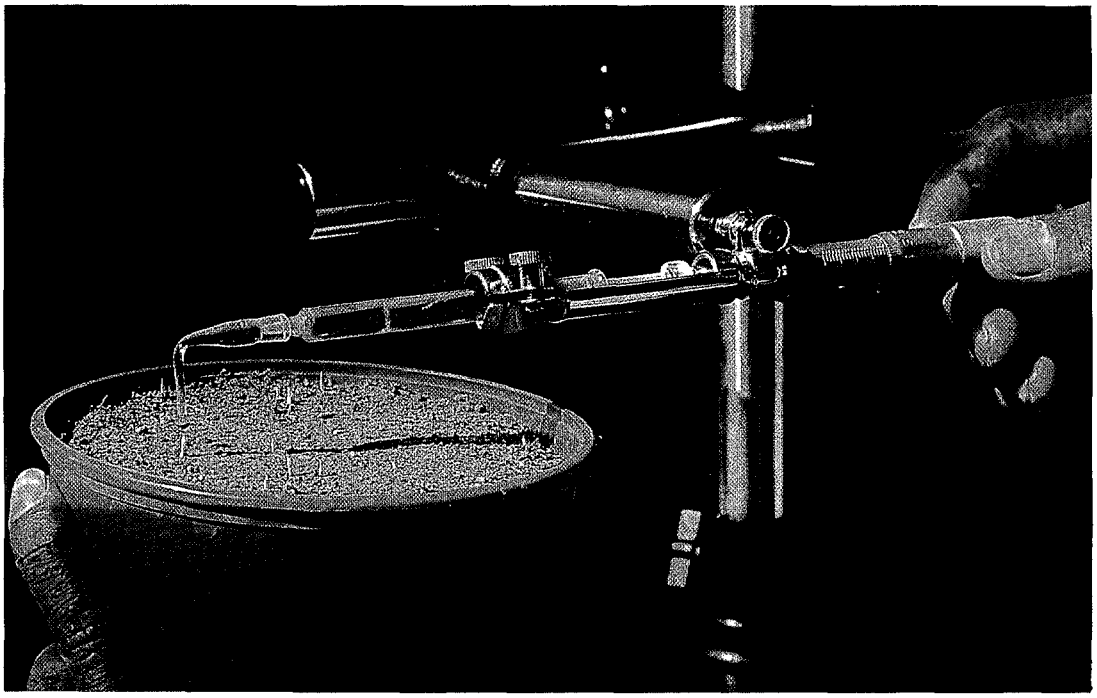

*Figure 9. A precise method of inoculating seedlings with sporangia, whereby each seedling is inoculated with a known volume of inoculum.*

Seedlings in which the first leaf is unfurled, are inoculated by placing a drop of inoculum in the leaf whorl. Inoculation is done in an inoculation chamber maintained at 20±1°C and >95 RH. Inoculated seedlings are marked with toothpicks to distinguish them from those that might emerge later. Seedlings that emerge late are removed from the pots. The pots are covered with moistened polythene bags and retained in the inoculation chamber for 12–16 h for the early processes of infection, then transferred to a greenhouse as described above.

This technique allows inoculation in a natural fashion with consistent inoculum uniformity (both by volume and spore numbers) on an individual plant basis, and does not disturb normal host activities. This is the ideal inoculation technique for precise studies. However, as individual seedlings are inoculated, it is not appropriate for mass screening of breeding material.

### Injection inoculation

Approximately 7–10 plants are grown in 12-cm diameter pots. Fifteen-day-old plants are inoculated in an inoculation chamber using a hypodermic needle to place inoculum right at the growing point of the seedling (Fig. 10). Each seedling can be inoculated with a known amount of inoculum both by volume and spore number. Inoculated plants are covered with a polythene sheet and then treated as described above.

This method provides forced inoculation, which might break natural defense mechanisms. Therefore, this is an inappropriate method for screening for resistance. It can, however, be used to detect immunity (100% resistance), to obtain 100% infection in susceptible cultivars, to produce disease in hypersensitive genotypes, or to produce disease when inoculum is in short supply.

### Settling tower inoculation

This method can be used to inoculate both free and potted seedlings. A sheet-tin box, 2′ × 1.5′ × 1.5′ dimension, open at the top and bottom, is used. A layer of muslin or cheese cloth is tightly spread over the top of the box. Pieces of systemically infected leaves, abaxial side down, are spread on the muslin cloth. The leaves are covered with multiple layers of moistened blotting paper, which in turn, is covered with a polythene sheet. The ends of the polythene sheet are tied down with a thread or rope. This is the 'settling tower' (Fig. 11).

If potted seedlings are to be inoculated, the pots are placed in a metal or plastic tray containing water 2–3 cm deep. The settling tower is then placed over the pots in the tray. If free seedlings are to be inoculated, they are spread in petridishes that are left

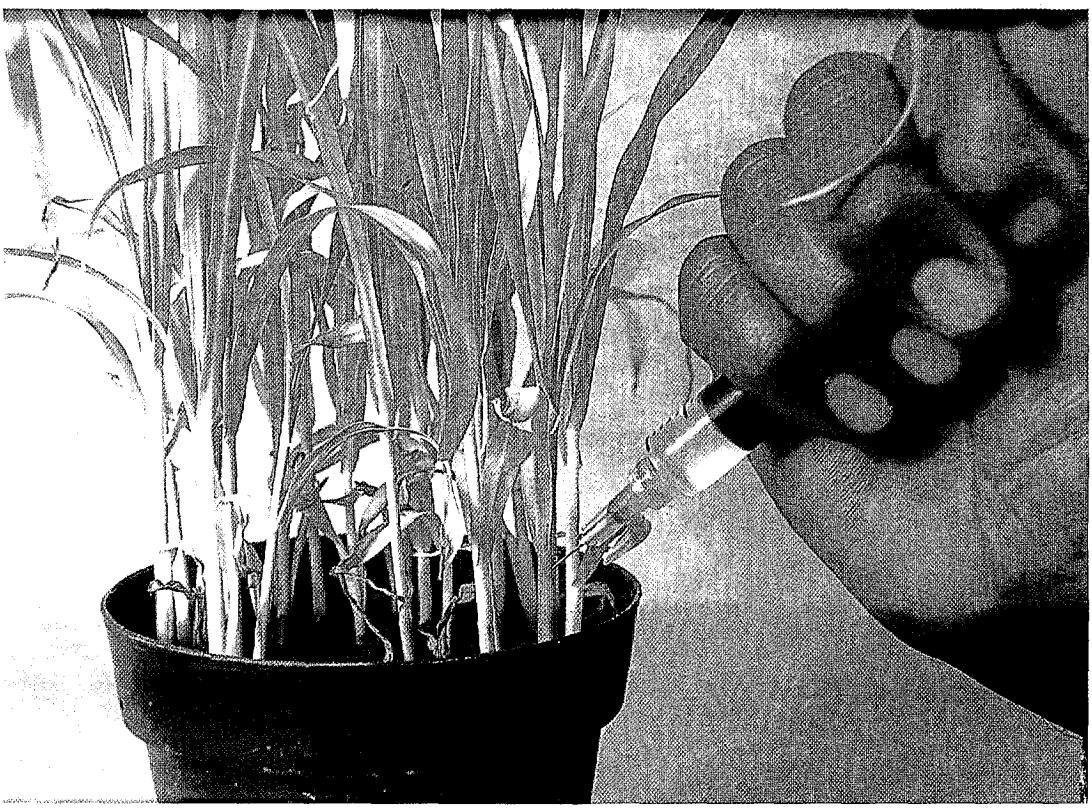

*Figure 10. A seedling inoculation method: sporangial inoculum is placed above the growing point using a hypodermic needle.*

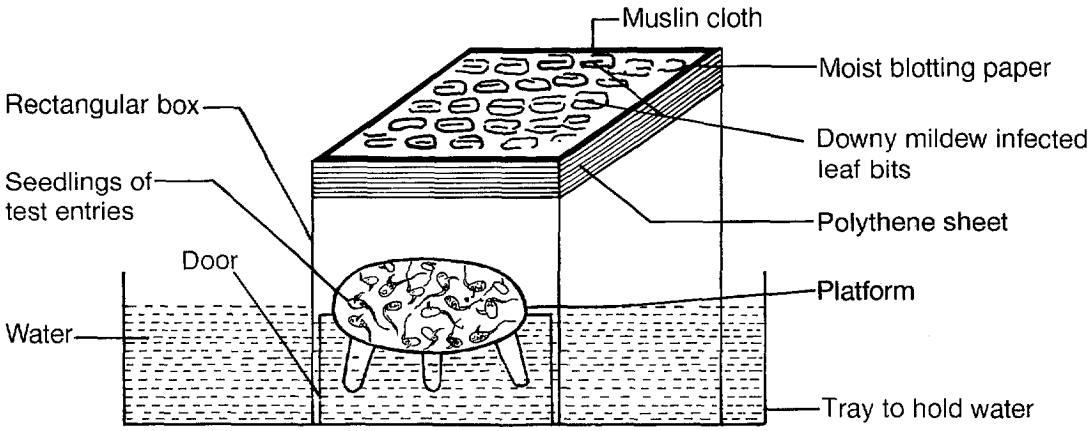


*Figure 11. A method of inoculation of pearl millet seedlings with sporangia of* Sclerospora graminicola *using a settling tower.*

open on a raised surface in the tray under the settling tower. The entire assembly is then kept in an incubator/inoculation chamber at 20±1°C and >95% RH for about 20 h. Under these favorable conditions of temperature the pathogen in the leaves sporulates, and mature sporangia fall through the muslin cloth onto the seedlings. This is followed by the processes of infection by zoospores. The seedlings are then treated as described previously.

This is a natural method of sporangial inoculation. However, it is not a reliable method because the number of sporangia that may lodge on different seedlings is highly variable. So, the method is not very appropriate for screening for resistance, but can usefully be employed to produce disease on susceptible genotypes.

### Disease record

Under optimum conditions, (90–95% RH, 20–25°C), symptoms develop within 5–8 days of inoculation and are seen as a distinct chlorosis of infected leaves. The fungus in the chlorotic areas of the leaves produces massive sporulation (sporangia). The presence of this downy growth is the sure symptom of the disease. Sometimes, it is necessary to look for the downy growth because similar, but not identical, chlorotic symptoms are also produced by nitrogen deficiency, or by viral infection. To avoid any confusion, infected leaves should be kept in a humidity chamber at 18–22°C for 8–10 h to allow sporulation to occur. Almost all infected leaves/seedlings will sporulate under these conditions, provided they have been exposed to sufficient light prior to their incubation. However, plants showing stunted growth may still not sporulate; such plants generally show very poor asexual sporulation. Although, the symptoms appear within 8 days, records are usually taken for 15–20 days after inoculation to allow for the slow expression of symptoms in some of the infected plants.

## Field

Screening under field conditions is necessary to identify resistances that remain effective in the field. An ideal field-screening technique should provide uniform distribution of inoculum, allow natural inoculation when the crop is at a susceptible stage, minimize escapes, and utilize both types of inocula (oospores and sporangia), while allowing breeding activities to be conducted in the same field. While these features are important for the repeatability of results, it is equally important that the technique should be cheap and simple. The infector-row technique (Fig. 12), developed at IAC (Williams et al. 1981), and modified subsequently (Singh et al. 1993), meets all these criteria. It is advisable to use the same field each year to allow

*Figure 12. An aerial view of downy mildew field-screening nursery at ICRISAT Asia Center. The taller, yellow colored rows running across the field are infector rows. The younger crop sown in between the infector rows is the test material. Note the presence of susceptible indicator rows among the test materials. In the background is the pearl millet breeding nursery..*

to oospore inoculum to build up in the soil (as in the sick plot). This technique has three basic components.

- **Infector rows.** These are inoculum donors containing a mixture of two to three susceptible genotypes. They are sown as every 5th or 9th row at least 3 weeks prior a viable sporangial suspension ($10^6$ sporangia $mL^{-1}$) during the late evening, after to the test material. At coleoptile to two-leaf stage, they are spray-inoculated with a viable sporangial suspension ($10^6$ sporangia $mL^{-1}$) during the late evening, after irrigation. Frequent furrow irrigations are given during the first 15 days to promote high humidity to encourage the development of a higher frequency of infected plants at an early growth stage.
- **Test rows.** These are the materials to be tested, they are sown in the intervening rows after the infector rows have developed 50–60% disease, usually 2–3 weeks after infector rows.
- **Indicator rows.** These are the rows of known susceptible genotypes, sown with the test material at regular intervals (after every 10 to 20 entries). They indicate the levels of disease pressure in the nursery.

This field-screening technique developed in 1981 (Williams et al. 1981) has since been modified considerably. Major improvements include:

- Inoculation of infector rows using infected potted plants (a massive operation involving huge amounts of money, time, and labor), was replaced by direct-spray inoculation with sporangia.

- Providing humidity using a perfo-spray system was replaced with furrow irrigation, given frequently during the first 15–20 days after sowing, followed by normal irrigation. This change not only saves the money needed to buy the perfo-set, its installation, operation, maintenance, and removal and reinstallation for each cultural operation, but also reduces much of the weed problem. However, the furrow irrigation method can not be used on sandy soils.

- Marking diseased plants with red-topped bamboo pegs was replaced by removing infected plants at the first count. However, some type of marking may be necessary if there is a need to distinguish resistant and susceptible test rows. This technique is used twice a year at IAC, and during the rainy season by NARS, both in India and in several countries in Africa.

## Scoring methods

Material in the field disease nursery is scored twice, at the seedling and soft dough stages. Seedling-stage evaluation is very critical, its actual timing will depend on the appearance of the disease and on environmental conditions. If the disease appears within a week of sowing and there are continuous rains with overcast sky, early infected seedlings die and disappear, either as a result of heavy rain or during cultural operations. Under such conditions, the first incidence record should be made between 10 and 15 days after sowing. Infected plants should be removed, otherwise they will die and disappear before the soft-dough stage record. This might lead to an underestimation of the susceptibility level of the material.

The soft-dough stage record is taken either as a measure of incidence, or of its severity. An incidence record is sufficient for the assessment of resistance of any material. However, a severity record is an important way of estimating the disease, yield loss relationship.

The severity record is taken on a 1–5 rating scale for reaction categories where:
1 = no disease symptom,
2 = disease only on the nodal tillers,
3 = less than 50% of the basal tillers of a plant infected,
4 = more than 50% of the basal tillers of a plant infected, and
5 = no productive panicle produced (Fig. 13).

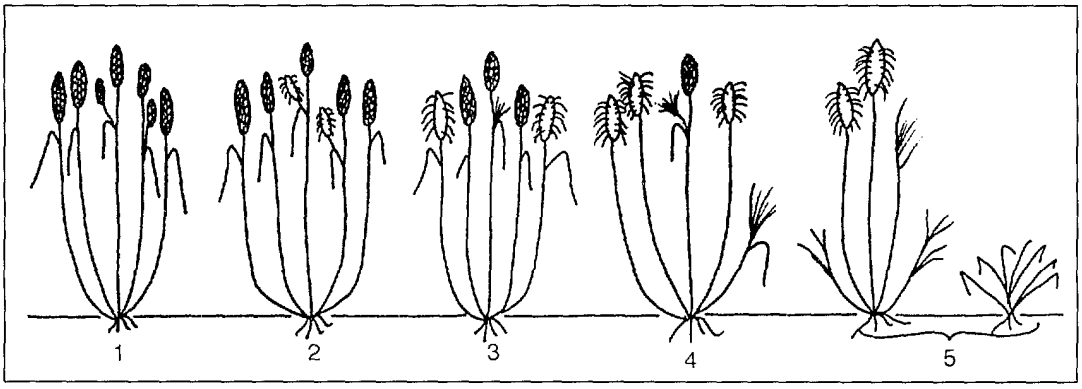


***Figure 13. Pearl millet plants showing five downy mildew reaction categories.***

The severity is calculated as in the following example:

| Genotype | Number of plants with downy mildew reaction categories | | | | | Incidence (%) | Disease severity[1] |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | | |
| 1 | 30 | 17 | 2 | 0 | 0 | 38.77 | 10.71 |
| 2 | 31 | 6 | 10 | 15 | 4 | 53.03 | 32.95 |
| 3 | 6 | 41 | 16 | 0 | 0 | 90.47 | 28.96 |
| 4 | 5 | 4 | 17 | 37 | 7 | 92.85 | 63.21 |
| 5 | 53 | 0 | 0 | 0 | 0 | 0.0 | 0.00 |
| 6 | 0 | 0 | 0 | 0 | 60 | 100.0 | 100.00 |

1. Disease severity (% Infection Index) $= \dfrac{Y(1-1) + Y(2-1) + Y(3-1) + Y(4-1) + Y(5-1)}{N \times 4} \times 100$

where:
Y = the number of plants in each reaction category (severity rating), and
N = the total number of plants in the genotype under test.

## Identification of resistance sources

Germplasm screening for the identification of downy mildew resistance has been continuous but slow. Since considerable levels of downy mildew resistance have been detected in many breeding materials, germplasm accessions were screened to identify higher levels of resistance, or different types of resistances that were not available in the breeding material. Until 1985, many good sources of downy mildew resistance were identified in the germplasm that normally flowers at IAC (Singh 1990). However, a concurrent study, conducted during the same period, revealed that all resistance sources can not be utilized in the breeding program. For instance, resistance from ICMP 423, a good source of stable resistance, could not be utilized successfully. However, there were other sources such as ICMP 85410 and P 7 that could be used effectively. Differences in combining abilities among several resistant sources as potential donors of resistance are presented in Table 2. From 1986 onward, a proportion of germplasm with different characteristics–photoperiod-sensitive, genetic. stocks, etc has been screened. In addition, a large number of wild relatives of pearl millet have also been tested. Promising material was also screened for rust resistance under conditions of natural rust occurrence at Bhavanisagar and IAC. A summary of the reactions of 4771 accessions that have been screened for downy mildew resistance is presented in Table 3.

### Normal flowering accessions

A total of 2800 accessions that flower at IAC during the rainy season were screened between 1976 and 1994. These accessions were first tested in the downy mildew nursery at IAC, their reactions are summarized in Table 4. Detailed information on accessions that showed ≤5% downy mildew, along with their rust resistance are presented in Table 5 (Data recorded at Bhavanisagar and/or at IAC). The downy mildew reactions of 48 good selections that were made uniform by repeated selfing and were screened in 3 successive years, both for downy mildew and rust, are shown in Table 6. Other sources of resistance reported in the literature are presented in Table 7. Accessions that showed >5% downy mildew are listed in Table 8.

## Genetic stocks - complete resistance

These accessions were developed by intermating selected genotypes and pedigree breeding, without selection for agronomic traits. They were made homozygous for several morphological marker traits during Mendelian genetic studies. These genetic stocks were screened with the objective of identifying complete resistance, possibly associated with a marker trait (Fig. 14 a and b). A summary of their downy mildew reactions is presented in Table 9. The accessions that developed ≤5% downy mildew are shown in Table 10. The reactions of accessions that were tested multilocationally over several years are presented in Table 11, and accessions showing >5% downy mildew are listed in Table 12.

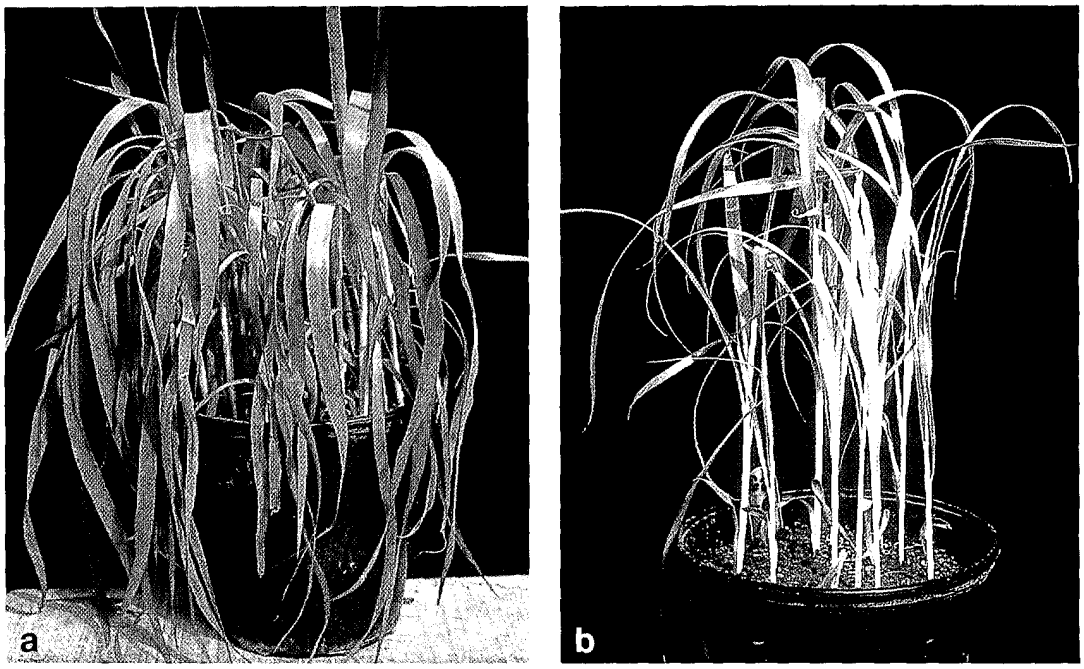


***Figure 14. Sources of resistance with marker traits: (a) midribles seedlings, and (b) seedlings with white leaf sheaths.***

## Photoperiod-sensitive accessions

These accessions do not flower at IAC. Therefore, the material has very limited use. However, with the availability of photoperiod -insensitive line ICML 22 (Singh et al. 1994), such material can be converted into day-neutral backgrounds (B S Talukdar

personal communication). A total of 1030 photoperiod-sensitive accessions were screened at IAC with the objective of identifying complete resistance/multiple disease resistance. A summary of the downy mildew reactions of these accessions is presented in Table 13. Detailed information on accessions that showed ≤5% downy mildew is presented in Table 14. The reactions of 17 accessions that were tested extensively for downy mildew resistance are presented in Table 15. Accessions that showed >5% downy mildew are listed in Table 16.

### Residual variability

Selections were made for residual variability for downy mildew resistance present within susceptible genotypes. The selections were made through pedigree breeding in the downy mildew nursery (Singh, et al. 1988, 1990, 1992). The developed sources of resistance include IPC 715, ICML 22, and a parental line ICMB 841, the maintainer line of ICMA 841 (Fig. 15).

*Figure 15. Pearl millet male-sterile line ICMA 841 developed from downy mildew susceptible line 5141 A.*

## Stable resistance

Accessions that developed ≤5% downy mildew in preliminary screening trials are evaluated multilocationally in an International Pearl Millet Downy Mildew Nursery (IPMDMN), operated annually since 1976 with the help of cooperators (Table 17) at key hot-spot locations in India and Africa. Each trial entry is tested for at least 3 years. Entries that show high levels of resistance across years and locations are classified as stable sources of resistance (Table 18). They are supplied to breeders for utilization in breeding programs. A scheme for the identification of stable resistance is shown in (Fig. 16). The scheme was modified in 1983 by eliminating pre-IPMDMN.

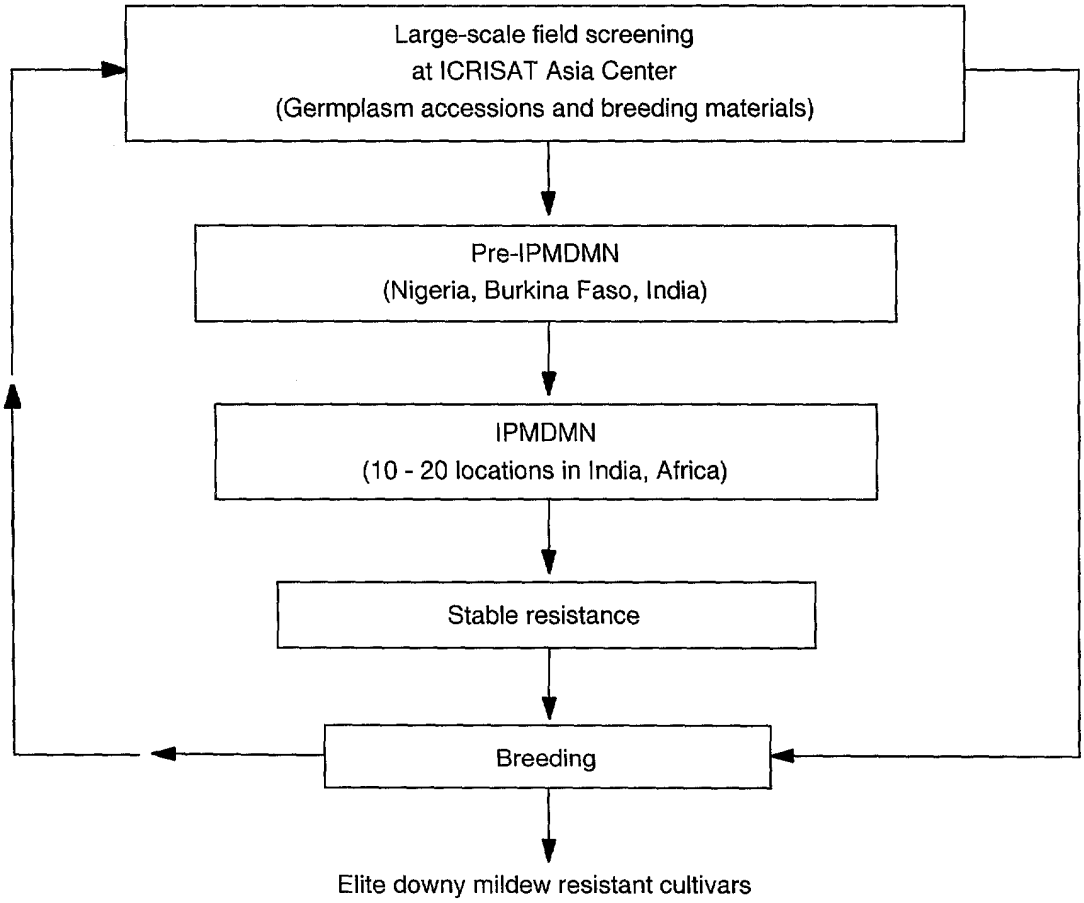


*Figure 16. A scheme showing the identification of stable resistance and its utilization.*

## Recovery resistance

This is a phenomenon in which systemically infected plants outgrow the disease (Fig. 17) and produce healthy panicles (Singh and King 1988). The trait has been increased through selection to a level where about 95% of the plants showing downy mildew symptoms recover from the disease. Genotypes possessing this trait do not interfere with the pathogen's spore germination, penetration, development of disease symptoms, or sporulation, thus allowing the pathogen to complete its life cycle. The trait allows the host and the pathogen to coexist without affecting grain or fodder yields. The unique feature of cultivars possessing recovery resistance is that if they become diseased, they quickly recover, and behave as resistant cultivars. The recovery resistance mechanism has been discovered in many accessions and breeding lines, but only a few had high levels of this type of resistance. These few sources include ICMB 1 (Singh and Talukdar 1996), SDN 503, and P 1449.

*Figure 17. Remission of downy mildew symptoms (recovery) after the development of systemic infection, (a) plant showing recovery on the same shoot, the infected leaves show abundant asexual sporulation, (b) the main plant failed to recover, but the basal tillers that emerged were downy mildew free.*

### Elite pollinators

ICRISAT has put major emphasis on producing elite downy mildew resistant pollinators. These are bred by selecting for downy mildew resistance in early generations, followed by selection for grain yield and combining ability in subsequent generations. Two hundred and forty elite pollinators were tested against three populations (Patancheru, Mysore, Aurangabad) of the pathogen using the greenhouse seedling inoculation technique. Twentytwo of these accessions showed extremely high levels of downy mildew resistance against the three populations (Table 19). Some of these can also be used as sources of resistance.

### Sweet-stalked accessions

Fifty accessions originating from 20 countries were tested in the greenhouse. Only two accessions – IP 10586 and IP 17696, developed ≤5% downy mildew. The downy mildew reactions of the other 48 accessions are presented in Table 20.

### Dwarfs

Sixty-three dwarf accessions originating from six countries were evaluated in a greenhouse. None of the accessions was highly resistant (≤5% downy mildew). The downy mildew reactions of all the accessions are presented in Table 21.

### Intermediate weedy forms

Fifty accessions were tested. None was free or highly resistant (≤5% downy mildew). The reactions of all the accessions are presented in Table 22.

### Wild relatives

A total of 534 wild relatives from 12 species originating from 17 countries were tested in both greenhouse and field disease nurseries at IAC and Mysore, India. A summary of the reactions of all the accessions is presented in Table 23. All the accessions, in order of their susceptibility to downy mildew, are listed in Table 24.

At ICRISAT Sahelian Center (ISC), Sadoré, Niger, 142 accessions of *Pennisetum violaceum* were tested in the greenhouse using a seedling screening technique. The detailed reactions of these accessions are presented in Table 25.

## Development of resistant cultivars

The screening techniques described here have been successfully used to produce commercial cultivars and parental lines (male-sterile lines and pollinators) in India and/or western Africa (Table 26). Many other hybrids, produced by private seed companies, (not listed here), have also been tested for downy mildew resistance using these techniques, particularly the field disease nursery. Some of the cultivars (WC-C75, ICTP 8203, ICMH 451, Pusa 23) and male-sterile lines (ICMA 1 and ICMA 841) withstood downy mildew attack for a long period, and are being grown over very large areas in India. Several open-pollinated varieties are being grown in various countries in Africa.

## Downy mildew scenario: past, present, and future

In India, pearl millet improvement work began in the late 1960s in the absence of reliable screening techniques and resistant sources. Several single-cross $F_1$ hybrids – HB 1 to HB 5, were produced. All these hybrids were genetically uniform and highly susceptible to downy mildew (Singh et al. 1987). Therefore, when they were grown in farmers' fields, it was just a matter of waiting for favorable weather to complete the 'disease triangle', as the pathogen was already present. In 1971/72, when the environment became favorable, the disease spread unhindered covering large areas every year for several years; and resulting in huge yield losses (Singh et al. 1987, Singh 1995). Neither resistant cultivars nor an effective fungicide were available.

A 1995 survey conducted in the pearl millet growing areas at India, revealed that about 37 cultivars (6 open-pollinated varieties, 30 single-cross hybrids, and 1 topcross hybrid) are being grown. Some cultivars, e.g., Pusa 23, are used extensively, while others have limited use, but all are being grown, providing a 'cultivar mosaic' pattern in the field. Many of these cultivars have a different genetic base, which in turn, provides a high degree of genetic heterogeneity in any given area. This has been the status for the last several years. The result is that there was minimal occurrence of downy mildew on only a few cultivars in the 7 years from 1988 to 94. In 1995, there were reports of downy mildew occurrence in a few single-cross hybrids, but since these were cultivar-specific and field-specific (the same cultivar grown 1 km away had little or no disease), epidemics did not develop. Such a situation has occurred in the past, and will continue to occur if a cultivar is grown on a large area for several successive years, a practice that must be discontinued. Overall, at the national level in India, during 1988–95 the disease has been firmly under control.

The downy mildew situation in western Africa remains unchanged. Landraces are still predominantly grown. Although fields showing more than 50% downy mildew have been seen, particularly in Mali, general disease incidence ranges between 10–30%.

The future seems to be much more promising, with the availability of:

- effective screening techniques (both field and greenhouse),
- sources of different types of resistances (stable, complete, recovery resistance),
- numerous resistances in wild relatives, several types of cultivars (single-cross hybrids, topcross hybrids, open-pollinated varieties, and local landrace cultivars),
- information on how the resistance becomes ineffective (Singh and Singh 1987; Thakur et al. 1992),
- opportunities to select resistance based on residual variability (Singh et al. 1992), and
- strategic redeployment of discarded cultivars (Singh 1994).

Downy mildew is unlikely to be a problem in future, provided the right steps are taken in time. In brief, it will solely depend on the ability to fully exploit the available opportunities and use the information in a judicious way. The most logical approach will be to further increase the proportion of topcross hybrid and open-pollinated variety components in farmers' fields in all areas to create a real 'mosaic pattern', and to utilize the recovery resistance mechanism. A combination of the recovery resistance mechanism with topcross hybrids would be the ideal strategy for the long-term control of this disease in hybrids under farmers' field conditions.

# Rust

## Symptoms

Pearl millet rust is caused by *Puccinia* sp. It is a long-cycle, heteroecious pathogen; as it requires two distinct host plants to complete its life cycle. The pathogen produces five spore forms (basidiospores, pycniospores, aeciospores, urediniospores, and teliospores) which appear in a definate succession. All spores except basidiospores, are produced in well-defined sorus (pl. sori); these are pycnia, aecia, uredinia, and telia.

Uredinia on pearl millet are minute, reddish-orange, round to elliptical pustules found on both leaf surfaces, but generally more on the upper surface (Fig. 18). The distal end of the leaf blade is initially infected. As the severity of infection increases, leaf tissue becomes necrotic from the distal to the basal parts of the leaf. Necrosis rarely forms around uredinia, and chlorosis is generally not associated with rust infection in pearl millet. In severe cases and on susceptible genotypes, uredinia may occur on the leaf sheaths, stem, and culm. Telia, which appear late in the season, are black, elliptical, and sub-epidermal. They may develop within uredinia or independently, and are produced on the leaf blade, leaf sheath, or culm. Spermogonia and aecia are produced on brinjal or eggplant (*Solanum melongena* L.), the alternate host of the pathogen. Infected leaf tissue develops circular hypertrophied lesions, yellow-green in color with a distinct orange border. Black, minute, dot-like spermogonia develop on the upper surface of the lesions. Salmon-colored aecia protrude from the lower surface (Ramakrishnan 1963).

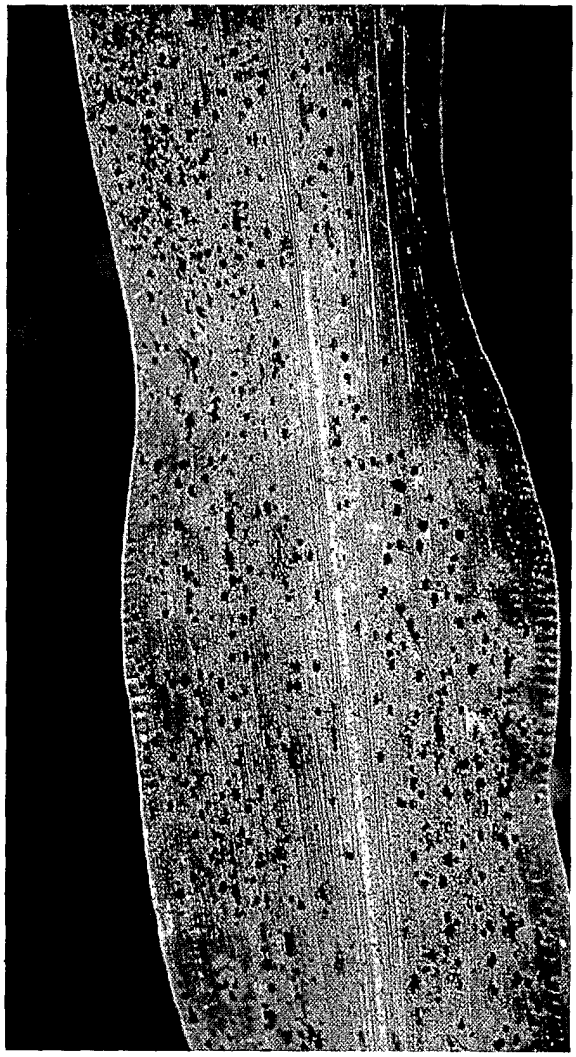

***Figure 18. Pearl millet leaf showing pustules resulting from rust infection.***

## Screening techniques

### Production and maintenance of inoculum

Urediniospores are used to inoculate pearl millet. Collection and maintenance of urediniospore inoculum is essential for screening pearl millet for rust resistance. At the USDA-ARS Forage and Turf Research Unit, Tifton, Georgia, USA, the following methods are used.

For general screening purposes, urediniospores are collected from field-grown plants with a vacuum spore collector. These urediniospores are spread onto waxed paper or aluminum foil overnight in an air-conditioned room to allow evaporation of excess moisture. Approximately 0.5 cc urediniospores are transferred into individual self-sealing plastic bags that are dated and stored at –80°C. Prior to use, plastic bags containing urediniospres are placed in a water bath at 40°C for approximately 10 min. The urediniospores are then suspended in water. A drop of a surfactant should be added to ensure the uniform distribution of spores in the water. The spore concentration can be adjusted by using a hemacytometer. For certain precise studies, single uredinial isolates are needed. To obtain useful isolates, bulk urediniospores are used to inoculate resistant pearl millet genotypes. A few uredinia will sometimes develop. Urediniospores from these uredinia should be collected and multiplied on a known rust-susceptible genotype in an isolated greenhouse, and stored as described above.

### Greenhouse

Seeds are sown in pots (approximately 10 seeds in each 10-cm diameter pot) or in flats in the greenhouse. Like the downy mildew pathogen, the rust pathogen is an obligate parasite, so conditions that promote optimum seedling health (potting mixture, light, temperature, and water) should be met for the most accurate assessments of resistance. A known susceptible genotype should be included as a control. At the 3- to 5-leaf stage, seedlings are inoculated with an aqueous suspension of urediniospores ($1 \times 10^5$ urediniospores $mL^{-1}$ water) using a sprayer. Inoculated seedlings are maintained in a moist chamber (>95% RH, 25±2°C) for about 18 h. Maintaining adequate moisture on leaf surfaces is essential for successful infection. After the incubation period, the moisture on the leaf surfaces is allowed to dry, and the pots are transferred to greenhouse benches. Under optimum conditions, uredinia develop in about 8 days after inoculation. However, if the conditions for plant growth are suboptimal, it may be necessary to wait up to 15 days before assessing rust reactions.

Seedlings are usually inoculated to evaluate the presence of genes for hypersensitive resistance. Resistance is assessed on a modification of the scale described by Stakman et al. (1962). Infection types 0, 1, and 2 indicate resistance, and infection types 3 and 4

indicate susceptibility. Modification of the scale is required when describing moderately resistant infection types 1 and 2. Well-developed chlorosis or necrosis rarely forms around the uredinia. Instead, host tissue usually turns a dark, reddish-brown color and the eruption of small uredinia is delayed. Infection types 3 and 4, that have no observable host reaction, usually indicate susceptibility, however, slow-rusting resistance may be present (Wilson 1994).

### Field

Greenhouse screening is useful for identifying resistance in large populations in a small space, and under relatively uniform conditions. However, field screening is necessary to identify resistance effective against the variable pathogen population encountered in the field (Wilson et al. 1993).

Several field-inoculation techniques have been compared at IAC. These include:

- Urediniospores supplied by earlier-sown infector rows,
- Spraying urediniospores suspended in water 25 and 40 days after sowing,
- Spreading uredinia-bearing leaves among the test plants 25–30 days after sowing.

Of these, spraying crops with urediniospores twice, at 25 and 40 days after sowing was found to be the most effective method (S D Singh unpublished). This method of inoculation is used to promote rust under field conditions if necessary. Rust severity is evaluated using a modified Cobb scale (Fig. 19), (Melchers and Parker 1992).Because rust is usually a late-season disease in the southeastern United States, rust nurseries are sown after early July, as compared to the normal mid-May sowing. Field plots are surrounded by border rows of a susceptible genotype. In large fields one or two additional spreader rows are sown; these subdivide the field and supply adequate inoculum within the nursery.

Border rows are inoculated about 30 days after sowing. A concentrated urediniospore suspension (approximately $5 \times 10^5$ urediniospores $mL^{-1}$ water) is prepared as described above. In the late afternoon, approximatly 3 to 5 mL of inoculum is dispensed from a plastic laboratory wash bottle into the whorls of plants in the border rows at approximately 10-m intervals. Inoculating into the whorl ensures that some moisture will be retained with the inoculum during the infection process, and the use of a concentrated urediniospore suspension increases the probability that some spores will infect. A 1-ha nursery can be inoculated in less than 30 min using this procedure. If an inoculated spot is marked with a surveyor's flag, the success of the inoculation can be determined within 7 to 10 days. If uredinia are observed, additional inoculation is unnecessary. Rust development will depend more on environmental conditions than on the addition of more inoculum.

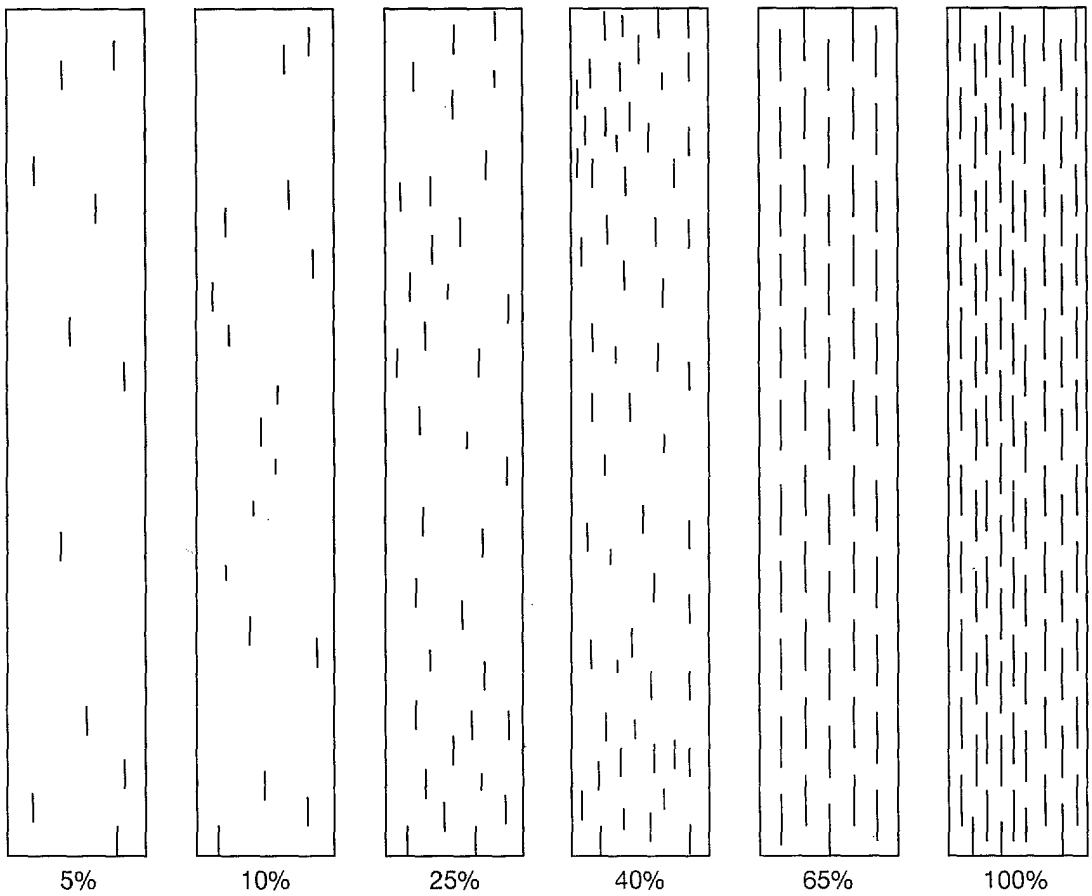


***Figure 19. Modified Cobb scale used to assess rust severity.***

Differences in the maturity of genotypes can confound screening for resistance in the field. For an effective field screening, it is helpful to have genotypes that flower at similar times so that comparisons can be made among severities of individual genotypes under similar disease pressure. When evaluating the resistance of selections with differing maturities, it is necessary to assess rust severity several times during epidemic development. The date of an easily identifiable growth stage, such as 50% anthesis, should be recorded. Logit transformations of the severity data can be regressed against days from anthesis. Logits of disease severities at 5-day intervals from anthesis to 30 days after anthesis can be estimated from the regression equation. Back-transformation of logit severities to percentages allows calculation of the area under the disease progress curve (AUDPC) for a specific interval of plants at similar stages of growth. The AUDPC will allow comparison of the relative rust susceptibility among genotypes with different maturities.

## Identification of resistance sources

At IAC, work on rust has been restricted to the identification of rust resistance sources, or evaluation of the reaction of breeding material under natural rust infection at IAC and at Bhavanisagar, Tamil Nadu, India. At Bhavanisagar rust appears every year in its most severe form. Systematic screening for rust resistance began in 1976 and continued until to 1988. Detailed information on accessions that showed 0–10% rust severity is presented in Table 27. The accessions that developed more than 10% rust are listed in Table 28. In addition, sources of rust resistance reported in the scientific literature are presented in Table 29.

The accessions that develop < 5% rust in the preliminary screening at IAC, Patancheru and/or Bhavanisagar are evaluated multilocationally in India in an International Pearl Millet Rust Nursery (IPMRN) which began in 1977 and continued until 1988, with the help of cooperators at key hot-spot locations in India (Table 30). An entry is tested for at least 3 successive years. Entries that show high levels of resistance across years and locations are classified as stable sources of resistance. Several stable sources of rust resistance have been identified (Table 31).

## Rust scenario: past, present, and future

In India, rust occurs on pearl millet in quite a severe form, but generally at, or after the soft dough stage. All commercial cultivars in India are highly and equally susceptible to rust, but none have been withdrawn because of their rust susceptibility. However, rust does appear to reduce yield, particularly in the summer crop (January to April) in Gujarat state (Singh and King 1991). A single dominant gene for rust resistance is available and can be used to produce resistant single-cross $F_1$ hybrids.

In the southeastern USA, rust causes significant losses to forage and grain (Wilson et al. 1991, Wilson et al. 1995). The use of single dominant genes is not recommended in the USA since a great deal of pathogenic variability exists in the rust population (Tapsoba and Wilson 1996). Current strategies for breeding in the southeastern United States include:

- Using different resistance genes for forage hybrids and for grain hybrids,
- Enhancing genetic heterogeneity for resistance in host populations (Wilson et al, 1994), and
- Incorporating slow-rusting resistance (Wilson 1994) into elite parents.

Research efforts in breeding for rust resistance in pearl millet are recent enough to afford the opportunity to study and learn from the successes and mistakes of breeding for rust resistance in other crops.

# Appendix I

**Table 1. Downy mildew incidence (%) in seven pearl millet genotypes following spray inoculation with sporangia at different growth stages, ICRISAT Asia Center, 1994.**

| | Downy mildew incidence (%)[1] | | | | |
|---|---|---|---|---|---|
| | Age of seedlings (h after sowing) | | | | |
| Genotypes | 24 | 48 | 72 | 96 | 120 |
| 700651 [ICML 16] | 84.9 | 47.8 | 18.9 | 13.8 | 10.8 |
| P7-4 [ICML 12] | 65.6 | 47.3 | 17.2 | 22.9 | 24.8 |
| P310-17 | 52.8 | 20.2 | 11.7 | 6.5 | 3.3 |
| P1449 | 17.2 | 16.9 | 3.2 | 3.8 | 1.5 |
| 7042 [ICML 22] | 5.7 | 4.5 | 4.1 | 3.9 | 3.5 |
| 7042 (Susceptible control) | 83.3 | 97.5 | 89.5 | 90.6 | 90.2 |
| HB-3 | 91.9 | 99.2 | 92.4 | 94.0 | 93.0 |

1. Mean of two repetitions each with two replications. Each treatment consisted of 5 pots each containing 25-30 seedlings.

**Table 2. General combining ability effects for downy mildew resistance (% incidence) in pearl millet genotypes in field disease nurseries and greenhouse at three Indian locations, 1989.**

| | Field | | | Greenhouse | | |
|---|---|---|---|---|---|---|
| Line/testers | IAC[1] | ABD[2] | MYS[3] | IAC[1] | ABD[2] | MYS[3] |
| **Lines** | | | | | | |
| K560-230-23 | 8.03 | 4.74 | 7.67 | 9.77 | -0.19 | 0.11 |
| AI B16 | 9.01 | 3.40 | 4.47 | -7.35 | -1.29 | 1.72 |
| J 2230 | -8.61 | -3.20 | -20.68 | 1.45 | -0.02 | -2.97 |
| ICMP 451 | -23.47 | -17.95 | -7.63 | -5.26 | 0.73 | 0.53 |
| H90/4-5 | -11.33 | 0.27 | -2.26 | 6.25 | 1.30 | -2.26 |
| ICMP 84814 | -1.33 | 2.91 | 0.73 | 6.72 | 0.83 | 0.75 |
| P310-17 | 12.69 | 0.89 | 5.01 | 6.21 | 0.35 | -0.62 |
| P1449-3 | 12.59 | 5.77 | 8.97 | 3.16 | 1.16 | 2.59 |
| ICMP 423 | 2.42 | 3.18 | 3.73 | -1.42 | -2.87 | 0.15 |
| SE | ±2.55 | ±2.10 | ±2.29 | ±1.77 | ±0.93 | ±1.02 |
| **Testers** | | | | | | |
| 7042(S) | -23.95 | -10.83 | -13.33 | 2.26 | -5.21 | -9.19 |
| J104 | -11.63 | -2.73 | -9.04 | 4.41 | 2.25 | 1.08 |
| ICMR 87030 | -4.85 | 2.88 | -0.44 | -6.38 | 0.64 | 3.32 |
| P7 | 17.16 | 6.11 | 10.21 | 1.91 | 0.15 | 0.93 |
| ICP 85410 | 18.04 | 6.22 | 11.87 | 1.31 | 1.27 | 2.10 |
| ICP 220 | 5.24 | -1.65 | 0.73 | -3.51 | 0.91 | 1.71 |
| SE | ±2.08 | ±1.71 | ±1.87 | ±1.44 | ±0.76 | ±0.83 |

1. ICRISAT Asia Center.
2. Aurangabad.
3. Mysore.

**Table 3. Downy mildew incidence (%) in different *Pennisetum* spp., recorded in field disease nurseries or greenhouse, ICRISAT Asia Center, 1976–94.**

| Groups of *Pennisetum* accessions | Total tested | Downy mildew incidence[1] (%) | | | | | |
|---|---|---|---|---|---|---|---|
| | | 0 | 1–5 | 6–10 | >10 | Min[4] | Max[5] |
| Normal flowering[2] | 2,800 | 1,090 | 742 | 324 | 644 | 0 | 100 |
| Photoperiod-sensitive[3] | 1,030 | 50 | 301 | 307 | 372 | 0 | 90 |
| Genetic stocks[3] | 237 | 48 | 56 | 29 | 104 | 0 | 100 |
| Dwarfs[3] | 70 | 3 | 4 | 6 | 57 | 0 | 98 |
| Sweet-stalked[3] | 50 | 0 | 2 | 1 | 47 | 5 | 79 |
| Intermediate weedy forms[3] | 50 | 0 | 0 | 6 | 44 | 6 | 91 |
| Wild relatives[3] | 534 | 237 | 14 | 37 | 246 | 0 | 95 |
| Total | 4,771 | 1,428 | 1,119 | 710 | 1,514 | | |

1. Mean of two repetitions, each with two replications
2. Tested in downy mildew field nursery.
3. Tested in greenhouse.
4. Minimum downy mildew incidence.
5. Maximum downy mildew incidence.

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**Table 4. Normal flowering pearl millet accessions, their countries of origin, and categories of reactions to downy mildew (DM) obtained in field disease nurseries, ICRISAT Asia Center, 1976–94.**

| Groups of accessions | Total tested | Number of accessions in DM incidence (%) categories | | | | | |
|---|---|---|---|---|---|---|---|
| | | 0 | 1–5 | 6–10 | >10 | Min[1] | Max[2] |
| Algeria | 4 | 1 | 0 | 0 | 3 | 0 | 100 |
| Australia | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Benin | 7 | 2 | 1 | 3 | 1 | 0 | 19 |
| Botswana | 41 | 20 | 15 | 3 | 3 | 0 | 35 |
| Burkina Faso | 48 | 21 | 8 | 12 | 7 | 0 | 23 |
| Central African Republic | 51 | 31 | 18 | 1 | 1 | 0 | 71 |
| Cameroon | 142 | 82 | 41 | 8 | 11 | 0 | 19 |
| Chad | 16 | 7 | 3 | 3 | 3 | 0 | 16 |
| Gambia | 1 | 1 | 0 | 0 | 0 | 0 | 3 |
| Germany | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Ghana | 120 | 48 | 25 | 22 | 25 | 0 | 33 |
| India | 188 | 21 | 13 | 22 | 132 | 0 | 100 |
| Kenya | 42 | 7 | 12 | 11 | 12 | 0 | 28 |
| Lebanon | 75 | 1 | 15 | 11 | 48 | 0 | 76 |
| Malawi | 205 | 60 | 115 | 19 | 11 | 0 | 67 |
| Mali | 327 | 221 | 80 | 14 | 12 | 0 | 12 |
| Morocco | 2 | 0 | 0 | 0 | 2 | 0 | 50 |
| Mauritius | 1 | 0 | 0 | 0 | 1 | 0 | 73 |
| Mozambique | 5 | 0 | 0 | 1 | 4 | 0 | 75 |
| Namibia | 3 | 1 | 0 | 1 | 1 | 0 | 35 |
| Niger | 458 | 278 | 116 | 28 | 36 | 0 | 53 |
| Nigeria | 230 | 92 | 87 | 22 | 29 | 0 | 25 |
| Pakistan | 4 | 0 | 0 | 1 | 3 | 4 | 44 |
| Russia and Commonwealth of Independent States (Former USSR) | 9 | 0 | 3 | 2 | 4 | 10 | 84 |
| Senegal | 140 | 105 | 29 | 2 | 4 | 0 | 100 |
| Sierra Leone | 5 | 0 | 1 | 1 | 3 | 0 | 59 |
| Somalia | 3 | 0 | 0 | 0 | 3 | 0 | 0 |
| South Africa | 7 | 4 | 1 | 1 | 1 | 0 | 78 |
| Sudan | 95 | 45 | 33 | 13 | 4 | 0 | 95 |
| Tanzania | 10 | 1 | 2 | 4 | 3 | 3 | 42 |
| Togo | 23 | 17 | 4 | 0 | 2 | 55 | 100 |
| Tunisia | 4 | 0 | 0 | 0 | 4 | 10 | 64 |
| Uganda | 40 | 2 | 11 | 12 | 15 | 0 | 10 |
| UK | - | - | - | - | - | - | 30 |
| USA | 14 | 1 | 1 | 1 | 11 | 0 | 94 |
| Yemen | 1 | 1 | 0 | 0 | 0 | 0 | 91 |
| Zambia | 87 | 3 | 18 | 14 | 52 | 15 | 64 |
| Zimbabwe | 389 | 15 | 90 | 92 | 192 | - | 11 |
| Total | 2,800 | 1,090 | 742 | 324 | 644 | | |

1. Minimum downy mildew incidence.
2. Maximum downy mildew incidence.

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**Table 5. Normal flowering pearl millet accessions that developed ≤5% downy mildew (DM) and their rust severity in field disease nurseries, ICRISAT Asia Center, 1976–94.**

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3040 | SAR 024 | India | 63 | 237 | 3.6 | 19.9 | 21.0 | 6 | 5.34 | 4 | *[9] |
| 3060 | SAR 044 | India | 63 | 240 | 6.2 | 17.9 | 19.0 | 6 | 4.82 | 0 | * |
| 3063 | SAR 047 | India | 101 | 202 | 5.0 | 18.4 | 17.6 | 4 | 3.19 | 0 | 25 |
| 3146 | SAR 143 | India | 60 | 231 | 2.4 | 32.0 | 24.8 | 6 | 8.88 | 4 | * |
| 3220 | SAR 228 | India | 47 | 178 | 6.4 | 16.5 | 18.0 | 6 | 9.00 | 4 | * |
| 3274 | SAR 289 | India | 68 | 269 | 4.4 | 24.9 | 26.4 | 6 | 6.85 | 5 | 10 |
| 3327 | SAR 354 | India | 62 | 206 | 4.0 | 23.3 | 17.0 | 4 | 7.59 | 5 | * |
| 3359 | SAR 391 | India | 65 | 247 | 4.6 | 26.6 | 17.8 | 4 | 8.38 | 4 | * |
| 3382 | SAR 418 | India | 65 | 248 | 2.0 | 33.5 | 19.2 | 4 | 8.40 | 3 | 25 |
| 3480 | SAR 711 | India | 100 | 339 | 6.4 | 17.9 | 14.8 | 4 | 4.85 | 4 | * |
| 3531 | SAR 785 | India | 65 | 222 | 6.2 | 17.8 | 17.4 | 4 | 5.40 | 0 | 0 |
| 3543 | SAR 797 | India | 102 | 332 | 1.8 | 37.2 | 22.0 | 6 | 5.90 | 0 | * |
| 4182 | SAR 1032 | India | 53 | 122 | 1.4 | 17.4 | 19.8 | 4 | 6.75 | 0 | * |
| 4386 | SAR 1810 | India | 54 | 140 | 3.4 | 17.0 | 21.5 | 4 | 8.00 | 0 | * |
| 4776 | MURADABAD 1 | India | 90 | 140 | 1.0 | 18.0 | 15.0 | 4 | 6.64 | 0 | 10 |
| 4819 | BAREILLY 1 | India | 67 | 261 | 2.4 | 29.9 | 22.0 | 6 | 8.23 | 5 | 10 |
| 4837 | NEP 11-5003 | Lebanon | 57 | 120 | 3.8 | 23.0 | 19.8 | 6 | 9.49 | 3 | 25 |
| 4849 | NEP 18-5016 | Lebanon | 58 | 163 | 1.6 | 22.8 | 17.4 | 1 | 8.78 | 1 | 10 |
| 4861 | NEP 18-5621 | Lebanon | 56 | 97 | 1.0 | 23.0 | 20.5 | 1 | 8.93 | 3 | 25 |
| 4864 | NEP 18-5626-2 | Lebanon | 75 | 141 | 3.8 | 25.7 | 22.2 | 1 | 8.50 | 1 | 25 |
| 4865 | NEP 18-5629 | Lebanon | 56 | 86 | 1.4 | 18.8 | 19.7 | 1 | 7.49 | 3 | 25 |
| 4868 | NEP 18-5632-2 | Lebanon | 57 | 113 | 2.0 | 18.6 | 19.9 | 1 | 8.30 | 3 | 25 |
| 4869 | NEP 18-5633-I | Lebanon | 60 | 168 | 3.0 | 24.6 | 22.8 | 1 | 7.52 | 3 | 25 |
| 4878 | NEP 18-5646 | Lebanon | 60 | 169 | 2.2 | 21.1 | 21.8 | 1 | 8.30 | 0 | 25 |
| 4880 | NEP 18-5654 | Lebanon | 55 | 122 | 2.8 | 19.0 | 20.3 | 6 | 8.28 | 3 | 25 |
| 4891 | NEP 104-5047 | Lebanon | 65 | 154 | 2.8 | 25.6 | 22.0 | 6 | 7.17 | 5 | 10 |
| 4894 | NEP 104-5672 | Lebanon | 60 | 165 | 2.6 | 21.0 | 20.0 | 6 | 6.00 | 1 | 10 |
| 4903 | NEP 218-5081 | Lebanon | 60 | 179 | 1.8 | 25.6 | 22.0 | 6 | 7.62 | 1 | 25 |
| 4906 | NEP 310-5685-2 | Lebanon | 58 | 130 | 4.6 | 22.4 | 27.4 | 1 | 8.27 | 1 | 25 |
| 4908 | NEP 588-5069 | Lebanon | 62 | 144 | 2.2 | 19.4 | 20.6 | 5 | 6.40 | 3 | 25 |
| 4909 | NEP 588-5690 | Lebanon | 70 | 155 | 1.6 | 20.4 | 23.6 | 1 | 7.98 | 2 | 10 |
| 4912 | NEP 1018-5075 | Lebanon | 55 | 188 | 4.8 | 20.8 | 21.6 | 4 | 7.31 | 2 | 33 |
| 4913 | P3 KOLO | Niger | 66 | 170 | 2.0 | 53.2 | 15.5 | 1 | 9.15 | 4 | 25 |
| 4916 | EX-BOUCHI | Nigeria | 63 | 225 | 3.4 | 36.5 | 22.0 | 5 | 8.12 | 0 | 25 |
| 4917 | EX-MOKWA | Nigeria | 84 | 362 | 4.0 | 34.0 | 31.0 | 6 | 9.60 | 1 | 25 |
| 4918 | EX-BORNU(NON-L) | Nigeria | 58 | 220 | 3.2 | 31.4 | 24.2 | 6 | 7.75 | 1 | 5 |
| 4919 | EX-BENU | Nigeria | 73 | 232 | 1.8 | 42.0 | 25.0 | 5 | 8.50 | 4 | 10 |
| 4936 | KG 70 | Nigeria | 58 | 181 | 1.6 | 25.0 | 22.0 | 6 | 8.17 | 4 | 10 |
| 4937 | SERERE 2A | Uganda | 65 | 130 | 5.0 | 30.0 | 31.0 | 4 | 11.69 | 0 | 23 |
| 4942 | SERERE 30 | Uganda | 67 | 211 | 2.6 | 21.2 | 22.0 | 2 | 9.83 | 3 | 10 |
| 4946 | SERERE 35 | Uganda | 58 | 154 | 2.6 | 18.4 | 20.9 | 6 | 7.90 | 5 | 25 |
| 4949 | SERERE 38 | Uganda | 69 | 156 | 3.0 | 27.2 | 15.8 | 6 | 6.70 | 0 | 25 |
| 4952 | SERERE 41 | Uganda | 63 | 183 | 3.2 | 23.1 | 20.4 | 4 | 10.80 | 4 | 10 |
| 4954 | SERERE 43 | Uganda | 76 | 182 | 3.6 | 24.4 | 21.8 | 6 | 10.30 | 2 | 25 |
| 4955 | SERERE 44 | Uganda | 63 | 226 | 4.8 | 24.0 | 23.4 | 6 | 7.25 | 5 | 10 |
| 4958 | SERERE 47 | Uganda | 63 | 146 | 4.0 | 21.8 | 24.0 | 6 | 6.69 | 3 | 10 |

1. Dtf = Days to 50% flowering, 2. Plht = Plant height (cm), 3. Til = Number of tillers, 4. Splg = Spike length (cm), 5. Sptk = Spike thickness (cm), 6. Gc = Grain color (1=Ivory, 2=Cream, 3= Yellow, 4= Gray, 5= Deep grey, 6= Grey-brown, 7= Brown, 8= Purple, 9=Purplish black, 10=Mixture of white and gray grains). 7. Grwt = 1000-grain mass (g). 8. DM = Downy mildew incidence (%). 9*. =Data not available.

*Continued....*

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Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4962 | SERERE 50 | Uganda | 58 | 188 | 3.0 | 25.6 | 23.3 | 6 | 7.90 | 1 | 40 |
| 4963 | SERERE 51 | Uganda | 66 | 169 | 2.4 | 16.8 | 19.2 | 6 | 8.57 | 4 | 25 |
| 4964 | SERERE 52 | Uganda | 65 | 242 | 1.8 | 25.2 | 22.8 | 6 | 9.07 | 5 | * |
| 4969 | SC 3(M) | Uganda | 59 | 176 | 3.4 | 21.0 | 22.9 | 5 | 7.23 | 2 | 10 |
| 4970 | SC 10(M) | Uganda | 57 | 143 | 1.4 | 17.2 | 18.8 | 4 | 7.30 | 3 | 25 |
| 4974 | 700111 | Nigeria | 67 | 220 | 2.5 | 25.0 | 27.0 | 6 | 6.70 | 2 | * |
| 4977 | 700144 | Nigeria | 64 | 210 | 2.0 | 27.0 | 25.0 | 4 | 8.70 | 0 | * |
| 4980 | 700166 | Nigeria | 60 | 230 | 2.5 | 25.0 | 25.0 | 5 | 6.68 | 0 | * |
| 4984 | 700251 | Nigeria | 63 | 200 | 1.5 | 38.0 | 28.0 | 4 | 9.30 | 0 | * |
| 4986 | 700254 | Nigeria | 63 | 200 | 3.5 | 27.0 | 23.0 | 4 | 7.73 | 2 | * |
| 4987 | 700255 | Nigeria | 65 | 210 | 2.0 | 29.0 | 20.0 | 4 | 6.48 | 5 | * |
| 4989 | 700272 | Nigeria | 60 | 210 | 3.5 | 33.0 | 22.0 | 5 | 8.25 | 0 | * |
| 4995 | 700331 | Nigeria | 57 | 230 | 2.0 | 27.0 | 24.0 | 6 | 7.23 | 0 | * |
| 4996 | 700335 | Nigeria | 70 | 210 | 1.5 | 33.0 | 22.0 | 6 | 8.25 | 0 | * |
| 4998 | 700349 | Nigeria | 57 | 230 | 2.0 | 28.0 | 20.0 | 6 | 8.99 | 0 | * |
| 5000 | 700355 | Nigeria | 61 | 225 | 1.5 | 28.0 | 28.0 | 6 | 7.74 | 0 | * |
| 5006 | 700404 | Nigeria | 59 | 230 | 1.5 | 24.0 | 22.0 | 4 | 8.51 | 3 | * |
| 5008 | 700429 | Nigeria | 60 | 240 | 1.0 | 25.0 | 26.0 | 6 | 8.42 | 0 | * |
| 5009 | 700430 | Nigeria | 64 | 210 | 1.0 | 25.0 | 22.0 | 4 | 9.72 | 0 | * |
| 5023 | 700466 | Nigeria | 58 | 210 | 2.0 | 25.0 | 18.0 | 6 | 7.63 | 0 | * |
| 5028 | 700474 | Nigeria | 70 | 220 | 1.0 | 35.0 | 27.0 | 5 | 6.67 | 0 | * |
| 5029 | 700479 | Nigeria | 59 | 225 | 2.5 | 23.0 | 28.0 | 6 | 7.34 | 5 | 3 |
| 5030 | 700481 | Nigeria | 67 | 265 | 2.0 | 35.0 | 25.0 | 5 | 6.58 | 0 | * |
| 5032 | 700483 | Nigeria | 67 | 210 | 1.5 | 25.0 | 29.0 | 5 | 7.07 | 0 | * |
| 5033 | 700486 | Nigeria | 59 | 235 | 2.5 | 35.0 | 18.0 | 6 | 7.80 | 1 | * |
| 5034 | 700487 | Nigeria | 58 | 240 | 2.5 | 30.0 | 23.0 | 6 | 9.02 | 0 | * |
| 5035 | 700489 | Nigeria | 67 | 270 | 2.0 | 30.0 | 24.5 | 6 | 10.44 | 1 | * |
| 5036 | 700490 | Nigeria | 58 | 260 | 1.0 | 30.0 | 20.0 | 6 | 8.36 | 3 | * |
| 5038 | 700492 | Nigeria | 53 | 220 | 2.0 | 35.0 | 23.0 | 6 | 10.64 | 5 | * |
| 5042 | 700536 | Nigeria | 51 | 265 | 3.0 | 21.0 | 25.0 | 5 | 9.92 | 0 | * |
| 5045 | 700544 | Nigeria | 56 | 280 | 2.0 | 28.0 | 19.0 | 6 | 8.87 | 0 | * |
| 5047 | 700548 | Nigeria | 63 | 285 | 1.5 | 38.0 | 23.0 | 4 | 8.15 | 2 | * |
| 5048 | 700549 | Nigeria | 58 | 250 | 1.0 | 35.0 | 23.0 | 5 | 8.67 | 0 | * |
| 5050 | 700556 | Nigeria | 58 | 230 | 2.0 | 32.0 | 27.0 | 6 | 7.41 | 0 | * |
| 5051 | 700560 | Nigeria | 55 | 225 | 2.0 | 30.0 | 19.0 | 6 | 9.71 | 0 | * |
| 5055 | 700566 | Nigeria | 57 | 250 | 1.0 | 30.0 | 28.0 | 6 | 7.13 | 0 | * |
| 5056 | 700568 | Nigeria | 68 | 270 | 2.0 | 38.0 | 22.0 | 6 | 7.88 | 0 | * |
| 5057 | 700572 | Nigeria | 63 | 260 | 1.0 | 30.0 | 20.0 | 6 | 9.31 | 2 | * |
| 5061 | 700582 | Nigeria | 57 | 260 | 1.0 | 20.0 | 22.0 | 8 | 8.90 | 1 | * |
| 5063 | 700585 | Nigeria | 48 | 240 | 3.5 | 22.0 | 20.0 | 6 | 11.47 | 0 | * |
| 5064 | 700590 | Nigeria | 62 | 280 | 1.0 | 33.0 | 24.0 | 4 | 10.05 | 2 | * |
| 5065 | 700593 | Nigeria | 54 | 240 | 2.0 | 26.0 | 27.0 | 5 | 8.34 | 5 | * |
| 5066 | 700596 | Nigeria | 57 | 270 | 2.5 | 25.0 | 29.0 | 6 | 7.72 | 0 | 40 |
| 5069 | 700602 | Nigeria | 69 | 240 | 3.0 | 25.0 | 27.0 | 6 | 9.81 | 5 | * |
| 5070 | 700612 | Nigeria | 64 | 260 | 1.0 | 32.0 | 22.0 | 5 | 7.35 | 2 | * |
| 5073 | 700621 | Nigeria | 57 | 270 | 1.0 | 35.0 | 24.0 | 6 | 8.65 | 0 | * |
| 5074 | 700622 | Nigeria | 55 | 250 | 3.0 | 30.0 | 28.0 | 5 | 8.18 | 4 | * |
| 5077 | 700627 | Nigeria | 57 | 230 | 2.5 | 25.0 | 20.0 | 6 | 8.86 | 3 | * |
| 5079 | 700638 | Nigeria | 63 | 235 | 2.5 | 27.0 | 20.0 | 6 | 7.33 | 4 | 40 |
| 5080 | 700646 | Nigeria | 67 | 220 | 1.5 | 27.0 | 24.0 | 6 | 8.64 | 0 | * |
| 5081 | 700647 | Nigeria | 63 | 225 | 1.0 | 29.0 | 27.0 | 6 | 7.30 | 1 | * |
| 5082 | 700651 | Nigeria | 57 | 250 | 1.5 | 27.0 | 22.0 | 6 | 8.33 | 5 | * |

*Continued....*

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**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5083 | 700687 | Nigeria | 58 | 250 | 1.0 | 35.0 | 30.0 | 6 | 7.40 | 0 | * |
| 5084 | 700688 | Nigeria | 63 | 235 | 2.5 | 35.0 | 20.0 | 6 | 7.66 | 4 | * |
| 5086 | 700708 | Nigeria | 69 | 130 | 1.0 | 27.0 | 16.0 | 6 | 8.54 | 3 | * |
| 5088 | 700723 | Nigeria | 70 | 140 | 1.0 | 20.0 | 14.0 | 6 | 5.85 | 0 | * |
| 5089 | 700724 | Nigeria | 52 | 230 | 2.8 | 25.0 | 21.0 | 6 | 7.61 | 3 | * |
| 5091 | 700727 | Nigeria | 52 | 230 | 3.0 | 30.0 | 27.0 | 6 | 8.23 | 1 | * |
| 5093 | 700742 | Nigeria | 81 | 120 | 1.0 | 19.0 | 22.0 | 6 | 6.46 | 1 | * |
| 5094 | 700743 | Nigeria | 63 | 240 | 3.0 | 32.0 | 25.0 | 6 | 7.00 | 1 | * |
| 5095 | 700760 | Nigeria | 59 | 220 | 3.5 | 22.0 | 23.0 | 6 | 8.67 | 0 | * |
| 5098 | 700772 | Nigeria | 57 | 220 | 1.5 | 27.0 | 21.0 | 6 | 7.34 | 4 | * |
| 5099 | 700780 | Nigeria | 63 | 235 | 1.0 | 26.0 | 23.0 | 4 | 9.10 | 4 | * |
| 5100 | 700781 | Nigeria | 56 | 250 | 4.0 | 30.0 | 23.0 | 6 | 7.34 | 0 | * |
| 5101 | 700787 | Nigeria | 55 | 245 | 2.5 | 35.0 | 23.0 | 4 | 9.42 | 5 | * |
| 5104 | 700799 | Nigeria | 70 | 160 | 2.0 | 41.0 | 20.0 | 6 | 8.25 | 4 | 0 |
| 5115 | D 161 | Niger | 77 | 274 | 2.0 | 70.0 | 28.0 | 6 | 10.16 | 0 | 10 |
| 5123 | D 194 | Niger | 77 | 282 | 2.0 | 46.0 | 35.0 | 5 | 7.38 | 3 | 10 |
| 5131 | D 235 | Niger | 77 | 275 | 2.0 | 40.0 | 26.0 | 6 | 10.40 | 0 | 10 |
| 5216 | D 129 | Niger | 96 | 220 | 5.2 | 30.6 | 18.6 | 4 | 8.75 | 1 | 10 |
| 5260 | D 220 | Niger | 85 | 299 | 1.0 | 57.8 | 22.0 | 6 | 12.93 | 3 | 18 |
| 5293 | D 296 | Niger | 68 | 260 | 1.0 | 45.0 | 26.0 | 5 | 7.40 | 1 | 5 |
| 5296 | D 301 | Niger | 106 | 363 | 1.0 | 78.0 | 27.0 | 6 | 9.05 | 1 | 10 |
| 5297 | D 219 | Niger | 73 | 230 | 1.0 | 30.0 | 20.0 | 6 | 7.05 | 0 | 10 |
| 5299 | ANKANTERS LOCAL | Niger | 77 | 247 | 1.0 | 44.0 | 34.0 | 6 | 10.80 | 0 | 10 |
| 5300 | MAIWA LOCAL | Niger | 88 | 263 | 1.8 | 42.2 | 34.8 | 4 | 12.51 | 0 | 10 |
| 5302 | SAMARU 769 | Niger | 63 | 260 | 1.0 | 43.0 | 20.0 | 4 | 9.85 | 0 | 5 |
| 5310 | HKP SHORT CY | Niger | 75 | 280 | 1.2 | 70.8 | 24.4 | 5 | 8.99 | 4 | 100 |
| 5312 | P 2582 | Niger | 68 | 232 | 1.4 | 31.0 | 20.0 | 4 | 9.96 | 0 | 25 |
| 5313 | P 2583 | Niger | 67 | 282 | 2.0 | 25.3 | 23.8 | 4 | 8.18 | 5 | 25 |
| 5314 | P 2584 | Niger | 61 | 222 | 2.5 | 16.7 | 20.0 | 5 | 6.90 | 5 | * |
| 5317 | P 2588 | Niger | 68 | 260 | 1.6 | 27.0 | 22.5 | 5 | 11.02 | 0 | 10 |
| 5318 | P 2589 | Niger | 58 | 290 | 2.5 | 25.0 | 20.0 | 7 | 8.40 | 0 | 40 |
| 5319 | P 2591 | Niger | 66 | 259 | 3.0 | 21.2 | 19.2 | 4 | 8.49 | 0 | 25 |
| 5320 | P 2593 | Niger | 65 | 212 | 1.2 | 23.2 | 19.9 | 7 | 7.95 | 0 | 25 |
| 5321 | P 2594 | Niger | 66 | 226 | 1.3 | 25.3 | 20.1 | 7 | 7.75 | 0 | 25 |
| 5322 | P 2595 | Niger | 66 | 210 | 2.0 | 17.6 | 23.0 | 4 | 10.15 | 4 | 25 |
| 5323 | P 2597 | Niger | 67 | 234 | 1.2 | 28.6 | 22.4 | 6 | 6.55 | 5 | 25 |
| 5324 | P 2598 | Niger | 67 | 213 | 1.4 | 28.6 | 19.7 | 4 | 9.03 | 0 | 65 |
| 5325 | P 2599 | Niger | 66 | 282 | 1.6 | 31.6 | 22.9 | 4 | 8.91 | 3 | 25 |
| 5326 | P 2600 | Niger | 67 | 252 | 1.4 | 32.8 | 21.3 | 6 | 8.80 | 5 | 40 |
| 5327 | P 2601 | Niger | 72 | 262 | 1.2 | 37.6 | 20.4 | 4 | 10.48 | 0 | 25 |
| 5328 | P 2602 | Niger | 68 | 268 | 1.0 | 39.5 | 19.5 | 4 | 9.53 | 4 | 25 |
| 5329 | P 2603 | Niger | 67 | 254 | 1.4 | 29.0 | 22.6 | 4 | 8.00 | 0 | 100 |
| 5330 | P 2604 | Niger | 68 | 252 | 1.6 | 32.4 | 22.1 | 6 | 8.03 | 0 | 40 |
| 5332 | P 2607 | Niger | 67 | 197 | 1.4 | 22.6 | 22.2 | 6 | 9.73 | 2 | 40 |
| 5333 | P 2609 | Niger | 83 | 261 | 1.6 | 32.2 | 28.7 | 6 | 11.17 | 0 | 25 |
| 5334 | P 2610 | Niger | 82 | 197 | 1.2 | 31.6 | 24.9 | 6 | 10.32 | 0 | 25 |
| 5335 | P 2612 | Niger | 80 | 294 | 1.4 | 76.4 | 20.3 | 6 | 11.18 | 0 | 5 |
| 5336 | P 2613 | Niger | 80 | 269 | 1.0 | 55.4 | 30.8 | 4 | 8.11 | 5 | 40 |
| 5337 | P 2614 | Niger | 73 | 266 | 1.0 | 76.6 | 20.4 | 5 | 8.30 | 0 | 25 |
| 5338 | P 2615 | Niger | 71 | 253 | 1.6 | 55.4 | 20.2 | 6 | 9.27 | 4 | 100 |
| 5339 | P 2616 | Niger | 67 | 272 | 1.6 | 39.6 | 26.1 | 4 | 9.92 | 0 | 40 |
| 5340 | P 2617 | Niger | 72 | 295 | 1.2 | 32.4 | 26.4 | 6 | 7.78 | 0 | 40 |

*Continued....*

**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5342 | P 2619 | Niger | 80 | 227 | 1.0 | 34.2 | 31.0 | 4 | 10.75 | 0 | 25 |
| 5343 | P 2620 | Niger | 70 | 238 | 1.4 | 47.0 | 22.4 | 6 | 9.22 | 0 | 10 |
| 5344 | P 2621 | Niger | 68 | 217 | 1.2 | 30.4 | 21.7 | 6 | 7.99 | 3 | 10 |
| 5345 | P 2622 | Niger | 68 | 238 | 1.3 | 28.2 | 22.5 | 5 | 8.50 | 0 | 25 |
| 5346 | P 2623 | Niger | 68 | 243 | 1.0 | 33.1 | 19.4 | 6 | 8.76 | 0 | 10 |
| 5347 | P 2624 | Niger | 71 | 212 | 1.4 | 32.2 | 19.8 | 4 | 8.22 | 0 | 25 |
| 5348 | P 2625 | Niger | 74 | 221 | 1.2 | 35.2 | 22.8 | 6 | 8.56 | 0 | * |
| 5349 | P 2627 | Niger | 79 | 243 | 1.4 | 35.0 | 25.9 | 4 | 8.81 | 0 | 25 |
| 5350 | P 2628 | Niger | 75 | 207 | 1.0 | 21.0 | 21.2 | 2 | 7.98 | 0 | 40 |
| 5351 | P 2629 | Niger | 68 | 244 | 1.4 | 30.8 | 17.9 | 4 | 8.79 | 0 | 25 |
| 5352 | P 2630 | Niger | 78 | * | 1.0 | 33.4 | 20.7 | 6 | 8.08 | 0 | 25 |
| 5353 | P 2631 | Niger | 70 | 259 | 1.2 | 37.0 | 21.7 | 4 | 10.36 | 4 | 10 |
| 5354 | P 2632 | Niger | 72 | 229 | 2.2 | 29.6 | 22.5 | 4 | 8.47 | 0 | 40 |
| 5355 | P 2633 | Niger | 68 | 246 | 1.8 | 44.2 | 21.6 | 6 | 7.45 | 4 | 40 |
| 5356 | P 2634 | Niger | 75 | 237 | 1.0 | 26.0 | 23.0 | 6 | 10.44 | 0 | 40 |
| 5357 | P 2635 | Niger | 68 | 235 | 1.0 | 27.0 | 23.5 | 6 | 8.50 | 0 | 40 |
| 5358 | P 2636 | Niger | 67 | 244 | 1.2 | 32.0 | 19.9 | 6 | 9.96 | 0 | 40 |
| 5359 | P 2637 | Niger | 71 | 260 | 1.0 | 29.2 | 20.0 | 6 | 10.32 | 0 | 10 |
| 5360 | P 2638 | Niger | 68 | 225 | 2.4 | 30.0 | 18.4 | 6 | 10.39 | 0 | 40 |
| 5361 | P 2639 | Niger | 67 | 244 | 1.0 | 27.6 | 21.6 | 6 | 9.13 | 0 | 25 |
| 5362 | P 2640 | Niger | 68 | 240 | 1.2 | 31.8 | 20.5 | 4 | 9.53 | 0 | 10 |
| 5363 | P 2641 | Niger | 71 | 243 | 1.2 | 38.0 | 19.8 | 6 | 8.59 | 0 | 25 |
| 5364 | P 2642 | Niger | 75 | 201 | 1.0 | 27.2 | 19.4 | 7 | 8.87 | 0 | 25 |
| 5365 | P 2644 | Niger | 72 | 244 | 1.8 | 34.0 | 20.2 | 4 | 10.36 | 0 | 40 |
| 5366 | P 2645 | Niger | 75 | 251 | 1.0 | 33.4 | 26.3 | 6 | 9.32 | 0 | 40 |
| 5367 | P 2646 | Niger | 79 | 244 | 1.7 | 30.2 | 21.3 | 6 | 9.24 | 0 | 65 |
| 5368 | P 2647 | Niger | 75 | 251 | 1.2 | 32.0 | 29.6 | 6 | 8.63 | 0 | 40 |
| 5369 | P 2648 | Niger | 68 | 258 | 1.4 | 26.6 | 20.7 | 4 | 7.64 | 0 | 40 |
| 5370 | P 2649 | Niger | 61 | 215 | 1.8 | 20.4 | 22.0 | 4 | 9.70 | 0 | 65 |
| 5371 | P 2650 | Niger | 63 | 250 | 3.2 | 24.0 | 20.7 | 6 | 6.90 | 3 | 40 |
| 5372 | P 2651 | Niger | 75 | 266 | 2.6 | 29.8 | 21.7 | 4 | 9.12 | 0 | 40 |
| 5373 | P 2652 | Niger | 82 | 267 | 1.0 | 41.8 | 27.7 | 6 | 10.85 | 0 | * |
| 5374 | P 2653 | Niger | 82 | 230 | 1.2 | 25.8 | 26.0 | 6 | 8.92 | 0 | 25 |
| 5375 | P 2654 | Niger | 82 | 257 | 1.0 | 25.2 | 26.0 | 6 | 7.17 | 0 | 25 |
| 5376 | P 2655 | Niger | 78 | 202 | 1.4 | 24.4 | 27.9 | 7 | 10.86 | 0 | 65 |
| 5377 | P 2656 | Niger | 81 | 242 | 1.2 | 35.0 | 21.3 | 5 | 7.89 | 0 | 40 |
| 5378 | P 2658 | Niger | 75 | 249 | 1.6 | 32.4 | 22.1 | 5 | 7.70 | 0 | 65 |
| 5379 | P 2659 | Niger | 76 | 244 | 1.4 | 25.4 | 25.5 | 6 | 7.93 | 0 | 25 |
| 5380 | P 2660 | Niger | 75 | 235 | 1.2 | 24.0 | 27.1 | 4 | 7.60 | 5 | * |
| 5381 | P 2661 | Niger | 82 | 258 | 1.6 | 27.3 | 18.7 | 5 | 8.55 | 0 | 100 |
| 5382 | P 2663 | Niger | 78 | 243 | 2.0 | 22.4 | 27.6 | 4 | 9.98 | 0 | 100 |
| 5383 | P 2664 | Niger | 80 | 275 | 1.0 | 27.5 | 30.4 | 6 | 10.86 | 5 | * |
| 5384 | P 2666 | Niger | 78 | 235 | 1.0 | 36.8 | 35.2 | 6 | 9.34 | 0 | 65 |
| 5385 | P 2668 | Niger | 76 | 231 | 2.0 | 22.2 | 32.6 | 6 | 9.75 | 4 | 40 |
| 5386 | P 2669 | Niger | 75 | 244 | 2.2 | 25.0 | 31.4 | 5 | 9.60 | 0 | 25 |
| 5387 | P 2670 | Niger | 78 | 207 | 1.8 | 20.9 | 29.8 | 6 | 12.51 | 2 | 10 |
| 5388 | P 2671 | Niger | 76 | 218 | 1.6 | 24.2 | 31.9 | 6 | 11.00 | 0 | 100 |
| 5389 | P 2672 | Niger | 72 | 248 | 2.2 | 27.2 | 28.4 | 6 | 9.81 | 4 | 65 |
| 5390 | P 2673 | Niger | 72 | 178 | 1.8 | 25.4 | 34.0 | 4 | 10.00 | 0 | 65 |
| 5391 | P 2674 | Niger | 75 | 266 | 1.4 | 31.0 | 31.6 | 6 | 8.63 | 3 | 40 |
| 5392 | P 2675 | Niger | 80 | 246 | 1.4 | 28.8 | 23.6 | 4 | 7.05 | 0 | 25 |
| 5393 | P 2676 | Niger | 78 | 243 | 1.2 | 27.2 | 28.1 | 6 | 7.60 | 0 | 10 |

*Continued....*

**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5394 | P 2677 | Niger | 80 | 234 | 1.4 | 26.1 | 32.0 | 6 | 9.05 | 0 | 25 |
| 5395 | P 2678 | Niger | 80 | 236 | 1.6 | 37.6 | 26.5 | 6 | 8.99 | 5 | 25 |
| 5397 | P 2680 | Niger | 75 | 259 | 1.0 | 39.0 | 24.8 | 6 | 8.39 | 0 | 25 |
| 5398 | P 2681 | Niger | 68 | 271 | 1.0 | 60.0 | 25.2 | 4 | 7.93 | 0 | 25 |
| 5399 | P 2682 | Niger | 112 | 261 | 2.2 | 34.0 | 16.2 | 4 | 9.06 | 0 | 25 |
| 5400 | P 2684 | Niger | 71 | 228 | 1.4 | 45.0 | 21.1 | 6 | 9.18 | 0 | 25 |
| 5401 | P 2686 | Niger | 70 | 246 | 2.0 | 32.0 | 19.4 | 4 | 10.49 | 0 | 25 |
| 5402 | P 2687 | Niger | 95 | 265 | 1.2 | 43.0 | 16.7 | 6 | 7.67 | 0 | 25 |
| 5403 | P 2688 | Niger | 69 | 251 | 1.4 | 48.6 | 19.8 | 4 | 7.12 | 0 | 10 |
| 5404 | P 2690 | Niger | 83 | 274 | 1.4 | 56.8 | 18.4 | 6 | 8.29 | 0 | 10 |
| 5405 | P 2691 | Niger | 75 | 248 | 1.2 | 49.0 | 19.5 | 4 | 9.05 | 0 | 10 |
| 5406 | P 2692 | Niger | 71 | 221 | 1.4 | 46.0 | 23.0 | 6 | 8.48 | 0 | 5 |
| 5407 | P 2693 | Niger | 72 | 259 | 1.4 | 59.6 | 20.6 | 6 | 10.25 | 0 | 10 |
| 5408 | P 2694 | Niger | 72 | 221 | 1.4 | 61.0 | 22.8 | 4 | 6.80 | 0 | 10 |
| 5409 | P 2695 | Niger | 76 | 243 | 1.6 | 56.4 | 23.6 | 6 | 9.25 | 0 | 25 |
| 5410 | P 2696 | Niger | 70 | 256 | 1.0 | 54.0 | 22.2 | 4 | 9.54 | 0 | 10 |
| 5411 | P 2697 | Niger | 74 | 288 | 1.4 | 75.6 | 20.8 | 6 | 8.07 | 0 | 65 |
| 5412 | P 2699 | Niger | 71 | 243 | 2.0 | 52.6 | 20.2 | 6 | 7.05 | 0 | 25 |
| 5413 | P 2701 | Niger | 74 | 259 | 1.0 | 50.4 | 24.6 | 6 | 6.71 | 0 | 25 |
| 5414 | P 2702 | Niger | 75 | 234 | 1.8 | 49.2 | 18.8 | 6 | 6.67 | 0 | 10 |
| 5415 | P 2703 | Niger | 76 | 274 | 2.1 | 24.2 | 30.3 | 5 | 7.52 | 0 | 10 |
| 5416 | P 2704 | Niger | 75 | 264 | 1.4 | 46.0 | 24.5 | 6 | 6.99 | 0 | * |
| 5417 | P 2705 | Niger | 75 | 216 | 1.0 | 25.4 | 25.4 | 6 | 7.18 | 0 | 10 |
| 5418 | P 2706 | Niger | 80 | 212 | 1.6 | 46.0 | 20.5 | 6 | 9.74 | 5 | 25 |
| 5419 | P 2707 | Niger | 74 | 208 | 1.5 | 26.8 | 32.2 | 6 | 5.68 | 0 | 40 |
| 5420 | P 2709 | Niger | 71 | 248 | 1.8 | 62.1 | 22.3 | 8 | 7.50 | 0 | 10 |
| 5422 | P 2711 | Niger | 70 | 264 | 1.4 | 28.0 | 28.6 | 6 | 6.54 | 4 | 25 |
| 5423 | P 2712 | Niger | 72 | 251 | 2.1 | 79.0 | 21.2 | 6 | 6.48 | 3 | 25 |
| 5424 | P 2713 | Niger | 78 | 216 | 1.6 | 39.6 | 35.9 | 6 | 7.07 | 5 | 10 |
| 5425 | P 2714 | Niger | 75 | 231 | 1.4 | 23.8 | 30.1 | 6 | 9.45 | 0 | 25 |
| 5426 | P 2715 | Niger | 72 | 284 | 1.8 | 57.0 | 18.1 | 6 | 6.24 | 0 | 10 |
| 5427 | P 2716 | Niger | 74 | 265 | 1.0 | 73.4 | 20.0 | 6 | 8.92 | 3 | 25 |
| 5428 | P 2717 | Niger | 71 | 267 | 1.6 | 76.6 | 20.0 | 6 | 7.13 | 0 | 5 |
| 5429 | P 2718 | Niger | 71 | 280 | 1.2 | 68.6 | 21.1 | 6 | 6.29 | 0 | 40 |
| 5430 | P 2719 | Niger | 68 | 270 | 1.4 | 72.8 | 22.3 | 5 | 6.76 | 3 | 40 |
| 5431 | P 2720 | Niger | 68 | 287 | 1.6 | 73.0 | 21.7 | 6 | 6.76 | 0 | 25 |
| 5432 | P 2721 | Niger | 80 | 292 | 1.2 | 56.2 | 20.3 | 6 | 7.87 | 0 | 25 |
| 5433 | P 2722 | Niger | 71 | 262 | 1.8 | 65.4 | 23.8 | 6 | 5.60 | 0 | 25 |
| 5434 | P 2723 | Niger | 71 | 250 | 1.5 | 60.0 | 18.0 | 6 | 6.13 | 0 | 5 |
| 5435 | P 2724 | Niger | 95 | 290 | 1.4 | 50.4 | 21.1 | 6 | 7.80 | 0 | 40 |
| 5436 | P 2725 | Niger | 99 | 312 | 1.2 | 62.6 | 21.7 | 6 | 5.60 | 0 | 40 |
| 5437 | P 2726 | Niger | 74 | 255 | 1.6 | 61.6 | 19.8 | 5 | 5.31 | 0 | 5 |
| 5438 | P 2727 | Niger | 75 | 298 | 1.0 | 63.0 | 21.4 | 6 | 6.78 | 0 | 25 |
| 5439 | P 2729 | Niger | 75 | 250 | 1.3 | 47.0 | 21.7 | 6 | 5.57 | 0 | 5 |
| 5440 | P 2730 | Niger | 75 | 261 | 1.4 | 61.6 | 22.5 | 6 | 5.55 | 0 | 10 |
| 5441 | P 2731 | Niger | 73 | 242 | 1.8 | 64.2 | 22.4 | 6 | 9.08 | 0 | 5 |
| 5442 | P 2732 | Niger | 68 | 257 | 1.2 | 59.0 | 22.8 | 6 | 4.57 | 4 | 25 |
| 5443 | P 2733 | Niger | 75 | 288 | 1.4 | 61.8 | 21.5 | 6 | 8.88 | 0 | 10 |
| 5444 | P 2734 | Niger | 68 | 272 | 1.8 | 58.4 | 21.7 | 6 | 6.48 | 0 | 10 |
| 5445 | P 2735 | Niger | 75 | 243 | 1.6 | 52.0 | 22.3 | 4 | 7.16 | 0 | 10 |
| 5446 | P 2736 | Niger | 72 | 227 | 1.2 | 60.7 | 22.0 | 6 | 5.59 | 0 | 40 |
| 5447 | P 2737 | Niger | 74 | 227 | 1.0 | 44.9 | 19.9 | 5 | 7.70 | 0 | 25 |

*Continued...* 44

**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5448 | P 2738 | Niger | 75 | 285 | 1.0 | 74.5 | 22.8 | 4 | 9.50 | 0 | 40 |
| 5449 | P 2739 | Niger | 71 | 256 | 1.4 | 64.1 | 20.3 | 4 | 8.49 | 0 | 25 |
| 5450 | P 2740 | Niger | 74 | 240 | 1.0 | 54.3 | 19.1 | 6 | 5.85 | 0 | 10 |
| 5451 | P 2741 | Niger | 82 | 233 | 1.0 | 55.1 | 16.6 | 6 | 5.50 | 0 | 10 |
| 5452 | P 2742 | Niger | 71 | 242 | 2.2 | 42.0 | 26.2 | 6 | 7.55 | 0 | 10 |
| 5453 | P 2743 | Niger | 72 | 205 | 1.6 | 28.1 | 22.1 | 5 | 5.85 | 0 | 25 |
| 5454 | P 2744 | Niger | 74 | 202 | 1.2 | 27.8 | 18.1 | 8 | 8.20 | 0 | 10 |
| 5455 | P 2745 | Niger | 67 | 218 | 1.4 | 31.2 | 16.3 | 5 | 7.50 | 3 | 40 |
| 5456 | P 2746 | Niger | 68 | 185 | 2.0 | 34.8 | 19.4 | 5 | 8.95 | 0 | 25 |
| 5457 | P 2748 | Niger | 64 | 185 | 2.2 | 34.0 | 18.2 | 5 | 9.30 | 0 | 65 |
| 5458 | P 2749 | Niger | 67 | 196 | 1.0 | 36.9 | 26.0 | 6 | 6.20 | 4 | 10 |
| 5459 | P 2751 | Niger | 64 | 236 | 2.0 | 39.0 | 25.0 | 5 | 9.30 | 0 | 10 |
| 5460 | P 2752 | Niger | 67 | 195 | 1.1 | 36.7 | 20.5 | 8 | 9.80 | 0 | 10 |
| 5461 | P 2753 | Niger | 73 | 265 | 1.0 | 45.2 | 20.8 | 5 | 6.15 | 0 | 5 |
| 5462 | P 2754 | Niger | 74 | 250 | 1.2 | 51.6 | 25.2 | 5 | 6.20 | 0 | 10 |
| 5463 | P 2755 | Niger | 70 | 262 | 1.6 | 57.6 | 23.7 | 5 | 5.00 | 0 | 10 |
| 5464 | P 2756 | Niger | 68 | 226 | 1.2 | 39.9 | 24.0 | 3 | 6.05 | 0 | 5 |
| 5466 | P 2759 | Niger | 76 | 210 | 1.8 | 53.8 | 25.3 | 8 | 9.40 | 0 | 10 |
| 5469 | P 2762 | Niger | 68 | 268 | 1.0 | 66.0 | 22.4 | 6 | 7.75 | 0 | 5 |
| 5470 | P 2763 | Niger | 72 | 256 | 2.4 | 47.7 | 21.8 | 6 | 6.85 | 0 | 10 |
| 5471 | P 2764 | Niger | 72 | 209 | 1.2 | 37.0 | 20.4 | 6 | 9.85 | 5 | * |
| 5472 | P 2765 | Niger | 74 | 226 | 1.8 | 41.0 | 18.7 | 8 | 7.74 | 5 | 10 |
| 5474 | P 2767 | Niger | 67 | 210 | 1.6 | 41.7 | 21.3 | 5 | 9.20 | 0 | 5 |
| 5478 | P 2771 | Niger | 76 | 269 | 1.2 | 42.6 | 22.5 | 6 | 9.15 | 4 | 5 |
| 5479 | P 2772 | Niger | 68 | 220 | 1.6 | 50.8 | 23.9 | 5 | 9.15 | 0 | 5 |
| 5480 | P 2773 | Niger | 84 | 260 | 2.0 | 52.0 | 19.8 | 5 | 9.35 | 0 | 5 |
| 5481 | P 2774 | Niger | 67 | 269 | 1.4 | 69.4 | 26.2 | 5 | 9.25 | 0 | 5 |
| 5482 | P 2775 | Niger | 80 | 273 | 1.4 | 50.2 | 22.8 | 6 | 8.89 | 0 | 40 |
| 5483 | P 2776 | Niger | 72 | 295 | 1.0 | 68.0 | 23.0 | 6 | 8.25 | 0 | 10 |
| 5484 | P 2777 | Niger | 72 | 284 | 1.0 | 56.6 | 25.1 | 5 | 9.75 | 0 | 10 |
| 5485 | P 2780 | Niger | 79 | 196 | 1.0 | 32.4 | 20.7 | 2 | 10.60 | 0 | 10 |
| 5486 | P 2781 | Niger | 80 | 216 | 1.6 | 45.0 | 23.3 | 6 | 10.70 | 3 | 0 |
| 5488 | P 2783 | Niger | 76 | 226 | 1.4 | 52.0 | 21.5 | 5 | 8.60 | 0 | 5 |
| 5490 | P 2785 | Niger | 68 | 206 | 1.2 | 28.8 | 26.9 | 6 | 6.40 | 0 | 5 |
| 5491 | P 2786 | Niger | 72 | 208 | 1.0 | 33.8 | 24.1 | 5 | 6.80 | 0 | 5 |
| 5492 | P 2787 | Niger | 75 | 250 | 1.0 | 49.4 | 33.8 | 6 | 9.40 | 0 | 5 |
| 5493 | P 2788 | Niger | 71 | 252 | 1.2 | 35.0 | 22.1 | 5 | 10.15 | 0 | 0 |
| 5494 | P 2789 | Niger | 71 | 270 | 1.6 | 35.2 | 22.7 | 5 | 7.45 | 0 | 10 |
| 5497 | P 2792 | Niger | 75 | 242 | 1.0 | 41.0 | 21.1 | 1 | 9.90 | 0 | 10 |
| 5498 | P 2793 | Niger | 74 | 245 | 1.2 | 38.9 | 21.4 | 6 | 8.45 | 0 | 10 |
| 5499 | P 2794 | Niger | 68 | 236 | 1.0 | 44.4 | 22.4 | 6 | 8.50 | 0 | 10 |
| 5500 | P 2795 | Niger | 76 | 246 | 1.0 | 48.5 | 19.5 | 4 | 8.60 | 0 | 25 |
| 5501 | P 2796 | Niger | 76 | 280 | 1.0 | 60.0 | 22.4 | 6 | 6.55 | 0 | 40 |
| 5502 | P 2797 | Niger | 66 | 218 | 1.6 | 43.2 | 23.4 | 6 | 5.10 | 0 | 40 |
| 5503 | P 2798 | Niger | 71 | 216 | 1.0 | 31.8 | 18.0 | 6 | 6.45 | 0 | 10 |
| 5504 | P 2799 | Niger | 67 | 236 | 1.4 | 49.1 | 22.7 | 6 | 6.55 | 0 | 10 |
| 5505 | P 2800 | Niger | 77 | 232 | 1.4 | 40.3 | 26.1 | 5 | 9.70 | 0 | 10 |
| 5506 | P 2801 | Niger | 71 | 222 | 1.0 | 35.7 | 22.6 | 2 | 10.10 | 0 | 25 |
| 5507 | P 2802 | Niger | 66 | 250 | 1.2 | 49.1 | 25.5 | 4 | 6.50 | 5 | 10 |
| 5508 | P 2803 | Niger | 71 | 232 | 2.4 | 43.0 | 27.3 | 6 | 5.70 | 0 | 10 |
| 5509 | P 2804 | Niger | 70 | 232 | 1.2 | 47.1 | 21.2 | 5 | 6.60 | 0 | 10 |
| 5510 | P 2805 | Niger | 70 | 202 | 2.0 | 44.3 | 15.9 | 5 | 5.60 | 4 | 10 |

*Continued....*

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Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5511 | P 2806 | Niger | 73 | 205 | 1.4 | 37.9 | 20.0 | 6 | 7.30 | 0 | 25 |
| 5512 | P 2807 | Niger | 70 | 252 | 1.6 | 22.1 | 23.3 | 5 | 6.65 | 0 | 10 |
| 5513 | P 2808 | Niger | 67 | 235 | 1.0 | 47.1 | 20.6 | 5 | 7.10 | 0 | 5 |
| 5514 | P 2809 | Niger | 120 | 256 | 1.2 | 48.2 | 18.8 | 6 | 8.10 | 5 | * |
| 5515 | P 2810 | Niger | 68 | 284 | 2.0 | 58.8 | 23.2 | 6 | 9.30 | 0 | 5 |
| 5516 | P 2811 | Niger | 76 | 186 | 1.4 | 33.5 | 16.3 | 5 | 7.20 | 4 | 10 |
| 5517 | P 2812 | Niger | 94 | 247 | 1.2 | 50.4 | 24.5 | 5 | 8.60 | 0 | 5 |
| 5518 | P 2813 | Niger | 70 | 297 | 1.2 | 60.0 | 23.0 | 4 | 8.30 | 0 | 0 |
| 5519 | P 2814 | Niger | 82 | 203 | 1.2 | 34.0 | 15.3 | 5 | 8.00 | 1 | 25 |
| 5520 | P 2816 | Niger | 79 | 218 | 1.2 | 48.6 | 16.0 | 6 | 7.25 | 0 | 25 |
| 5521 | P 2817 | Niger | 108 | 226 | 1.0 | 38.2 | 17.8 | 5 | 6.80 | 0 | 0 |
| 5522 | P 2818 | Niger | 79 | 226 | 1.0 | 49.0 | 17.4 | 5 | 9.70 | 0 | 0 |
| 5523 | P 2819 | Niger | 97 | 243 | 1.2 | 39.7 | 15.1 | 4 | 8.38 | 0 | 5 |
| 5524 | P 2820 | Niger | 79 | 244 | 1.4 | 45.6 | 17.3 | 6 | 7.45 | 0 | 25 |
| 5525 | P 2821 | Niger | 75 | 270 | 1.0 | 45.0 | 18.0 | 5 | 6.55 | 0 | 25 |
| 5526 | P 2822 | Niger | 113 | 216 | 1.0 | 35.6 | 17.3 | 5 | 8.05 | 0 | 25 |
| 5527 | P 2823 | Niger | 114 | 262 | 1.8 | 49.2 | 21.8 | 6 | 6.85 | 1 | 25 |
| 5528 | P 2824 | Niger | 68 | 236 | 1.0 | 48.7 | 21.8 | 8 | 7.25 | 0 | 5 |
| 5529 | P 2825 | Niger | 61 | 197 | 2.0 | 45.7 | 21.5 | 6 | 7.40 | 4 | 25 |
| 5530 | P 2826 | Niger | 68 | 252 | 1.4 | 58.4 | 22.5 | 5 | 5.70 | 0 | 5 |
| 5531 | P 2827 | Niger | 68 | 258 | 1.6 | 70.1 | 22.5 | 6 | 7.20 | 0 | 5 |
| 5532 | P 2828 | Niger | 120 | 229 | 1.2 | 44.4 | 17.4 | 6 | 6.95 | 0 | 18 |
| 5533 | P 2829 | Niger | 122 | 156 | 2.0 | 34.6 | 13.9 | 6 | 9.20 | 0 | 10 |
| 5534 | P 2830 | Niger | 79 | 197 | 1.0 | 49.3 | 18.4 | 6 | 6.45 | 2 | 25 |
| 5535 | P 2831 | Niger | 119 | 192 | 1.4 | 40.2 | 17.0 | 6 | 6.65 | 2 | 25 |
| 5536 | P 2832 | Niger | 67 | 204 | 1.0 | 49.8 | 19.6 | 6 | 9.50 | 0 | 5 |
| 5537 | P 2833 | Niger | 61 | 211 | 1.2 | 46.4 | 19.9 | 6 | 7.00 | 2 | 40 |
| 5538 | P 2834 | Niger | 113 | 240 | 1.0 | 41.8 | 16.5 | 5 | 7.60 | 0 | 10 |
| 5539 | P 2836 | Niger | 61 | 260 | 1.2 | 62.6 | 22.2 | 5 | 7.55 | 0 | 10 |
| 5540 | P 2837 | Niger | 111 | 235 | 1.4 | 47.4 | 18.6 | 6 | 8.95 | 0 | 5 |
| 5541 | P 2838 | Niger | 103 | 157 | 1.0 | 41.8 | 20.7 | 6 | 6.50 | 0 | 10 |
| 5542 | P 2839 | Niger | 61 | 225 | 2.0 | 57.2 | 20.4 | 1 | 9.60 | 0 | 40 |
| 5543 | P 2840 | Niger | 67 | 226 | 1.0 | 55.7 | 20.9 | 5 | 8.35 | 0 | 10 |
| 5544 | P 2841 | Niger | 68 | 260 | 1.0 | 59.6 | 23.8 | 5 | 8.45 | 0 | 0 |
| 5545 | P 2842 | Niger | 80 | 223 | 1.0 | 57.2 | 25.4 | 6 | 8.05 | 0 | 25 |
| 5546 | P 2843 | Niger | 68 | 239 | 1.0 | 62.8 | 18.2 | 6 | 8.30 | 0 | 40 |
| 5547 | P 2844 | Niger | 113 | 241 | 1.0 | 41.2 | 18.3 | 5 | 8.55 | 2 | 40 |
| 5548 | P 2845 | Niger | 112 | 229 | 1.2 | 50.8 | 20.6 | 6 | 8.60 | 0 | 25 |
| 5549 | P 2846 | Niger | 110 | 213 | 1.0 | 44.2 | 17.9 | 6 | 8.25 | 0 | 5 |
| 5550 | P 2847 | Niger | 70 | 244 | 1.0 | 66.0 | 18.2 | 6 | 7.50 | 0 | 5 |
| 5551 | P 2848 | Niger | 74 | 245 | 1.0 | 53.9 | 18.1 | 6 | 6.50 | 1 | 10 |
| 5552 | P 2849 | Niger | 71 | 244 | 1.2 | 43.0 | 21.0 | 8 | 7.15 | 0 | 5 |
| 5553 | P 2850 | Niger | 72 | 232 | 1.6 | 48.6 | 21.3 | 6 | 7.80 | 0 | 5 |
| 5554 | P 2851 | Niger | 103 | 282 | 1.2 | 43.4 | 19.0 | 6 | 9.00 | 0 | 5 |
| 5555 | P 2852 | Niger | 100 | 252 | 1.0 | 46.0 | 16.7 | 6 | 7.75 | 0 | 25 |
| 5556 | P 2853 | Niger | 103 | 245 | 1.0 | 48.8 | 19.7 | 6 | 6.80 | 0 | 10 |
| 5557 | P 2854 | Niger | 100 | 255 | 1.0 | 41.8 | 17.8 | 6 | 10.50 | 0 | 10 |
| 5558 | P 2855 | Niger | 67 | 250 | 1.4 | 41.4 | 31.8 | 6 | 7.70 | 0 | 0 |
| 5559 | P 2856 | Niger | 68 | 254 | 1.6 | 39.6 | 18.0 | 5 | 8.70 | 1 | 40 |
| 5560 | P 2857-1 | Niger | 79 | 282 | 1.2 | 37.8 | 55.0 | 5 | 8.00 | 0 | 65 |
| 5561 | P 2857-2 | Niger | 66 | 228 | 1.4 | 53.0 | 20.7 | 4 | 7.45 | 1 | 65 |
| 5562 | P 2858 | Niger | 67 | 277 | 1.6 | 47.8 | 25.3 | 2 | 6.30 | 4 | 1 |

*Continued...* 46

**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5563 | P 2859 | Niger | 79 | 267 | 1.0 | 50.0 | 20.1 | 6 | 9.35 | 3 | 65 |
| 5564 | P 2860 | Niger | 79 | 265 | 1.2 | 49.2 | 22.5 | 5 | 8.40 | 3 | 10 |
| 5565 | P 2861 | Niger | 66 | 258 | 1.0 | 64.6 | 26.0 | 7 | 8.50 | 0 | 65 |
| 5566 | P 2862 | Niger | 71 | 211 | 1.2 | 54.0 | 22.3 | 9 | 7.30 | 0 | 25 |
| 5567 | P 2863 | Niger | 75 | 175 | 1.2 | 34.0 | 21.4 | 6 | 6.65 | 0 | 40 |
| 5569 | P 2865 | Niger | 69 | 245 | 1.4 | 47.6 | 23.7 | 8 | 8.50 | 1 | 65 |
| 5570 | P 2866 | Niger | 66 | 268 | 1.0 | 59.2 | 22.6 | 6 | 8.45 | 2 | 65 |
| 5571 | P 2867 | Niger | 68 | 203 | 1.8 | 59.2 | 24.5 | 5 | 8.35 | 0 | 25 |
| 5572 | P 2868 | Niger | 68 | 278 | 1.6 | 58.8 | 31.3 | 6 | 8.10 | 0 | 5 |
| 5573 | P 2869 | Niger | 67 | 278 | 1.6 | 58.4 | 24.2 | 4 | 8.75 | 1 | 65 |
| 5574 | P 2870 | Niger | 68 | 284 | 1.6 | 55.4 | 25.1 | 5 | 6.25 | 0 | 65 |
| 5575 | P 2871 | Niger | 100 | 317 | 1.4 | 70.6 | 24.8 | 6 | 8.66 | 0 | 5 |
| 5576 | P 2872 | Niger | 72 | 252 | 1.4 | 44.1 | 24.0 | 6 | 9.41 | 0 | 0 |
| 5577 | P 2873 | Niger | 68 | 270 | 1.0 | 49.1 | 24.4 | 3 | 10.77 | 0 | 0 |
| 5578 | P 2874 | Niger | 66 | 230 | 1.0 | 49.6 | 20.5 | 7 | 8.61 | 4 | 65 |
| 5579 | P 2875 | Niger | 92 | 269 | 1.6 | 55.4 | 20.7 | 5 | 8.18 | 0 | 0 |
| 5580 | P 2876 | Niger | 69 | 264 | 1.2 | 65.4 | 25.8 | 6 | 6.60 | 5 | 65 |
| 5581 | P 2877 | Niger | 71 | 276 | 1.0 | 78.4 | 32.2 | 6 | 9.82 | 0 | 65 |
| 5582 | P 2878 | Niger | 72 | 264 | 1.6 | 70.0 | 25.9 | 8 | 6.03 | 0 | 0 |
| 5583 | P 2879 | Niger | 79 | 238 | 1.0 | 64.2 | 18.8 | 6 | 9.07 | 0 | 5 |
| 5584 | P 2880 | Niger | 114 | 270 | 1.0 | 59.2 | 22.0 | 4 | 7.87 | 3 | 65 |
| 5585 | P 2881 | Niger | 115 | 264 | 1.0 | 45.4 | 18.7 | 2 | 9.00 | 0 | 40 |
| 5586 | P 2882 | Niger | 109 | 278 | 2.0 | 46.0 | 18.8 | 6 | 7.20 | 0 | 10 |
| 5587 | P 2883 | Niger | 70 | 268 | 1.6 | 74.2 | 20.6 | 6 | 8.60 | 0 | 0 |
| 5588 | P 2884 | Niger | 107 | 278 | 3.0 | 46.4 | 20.8 | 6 | 7.98 | 2 | 40 |
| 5589 | P 2885 | Niger | 109 | 282 | 1.0 | 57.6 | 22.8 | 3 | 8.22 | 0 | 0 |
| 5590 | P 2886 | Niger | 70 | 286 | 1.0 | 57.2 | 23.0 | 6 | 8.15 | 0 | 0 |
| 5591 | P 2887 | Niger | 95 | 302 | 1.2 | 58.8 | 21.7 | 6 | 9.01 | 0 | 10 |
| 5592 | P 2888 | Niger | 66 | 222 | 1.8 | 52.4 | 25.8 | 3 | 8.11 | 0 | 0 |
| 5593 | P 2889 | Niger | 111 | 260 | 1.0 | 53.2 | 21.6 | 2 | 8.72 | 1 | 3 |
| 5594 | P 2890 | Niger | 112 | 300 | 1.0 | 42.4 | 18.4 | 6 | 10.99 | 0 | 0 |
| 5595 | P 2891 | Niger | 71 | 289 | 1.0 | 62.6 | 26.7 | 3 | 9.96 | 0 | 5 |
| 5596 | P 2892 | Niger | 92 | 312 | 2.2 | 44.4 | 18.8 | 4 | 8.67 | 0 | 0 |
| 5598 | P 2894 | Niger | 68 | 270 | 2.8 | 46.8 | 22.7 | 6 | 11.50 | 0 | 5 |
| 5599 | P 2895 | Niger | 75 | 309 | 3.0 | 53.0 | 24.5 | 3 | 7.26 | 3 | 0 |
| 5600 | P 2896 | Niger | 79 | 268 | 1.4 | 48.4 | 24.4 | 8 | 8.30 | 2 | 0 |
| 5602 | P 2898 | Niger | 83 | 254 | 1.2 | 58.0 | 20.5 | 6 | 7.24 | 1 | 0 |
| 5603 | P 2899 | Niger | 100 | 244 | 1.0 | 50.6 | 22.0 | 5 | 8.25 | 0 | 0 |
| 5604 | P 2900 | Niger | 73 | 218 | 1.6 | 43.4 | 21.6 | 6 | 8.43 | 1 | 0 |
| 5605 | P 2901 | Niger | 73 | 258 | 2.4 | 61.0 | 21.2 | 3 | 7.86 | 0 | 0 |
| 5606 | P 2902 | Niger | 75 | 292 | 1.6 | 66.8 | 23.3 | 6 | 6.85 | 0 | 0 |
| 5607 | P 2903 | Niger | 74 | 300 | 1.0 | 61.4 | 25.4 | 6 | 6.71 | 0 | 0 |
| 5608 | P 2904 | Niger | 90 | 326 | 1.4 | 60.4 | 19.4 | 7 | 5.70 | 2 | 0 |
| 5609 | P 2905 | Niger | 68 | 262 | 1.4 | 48.3 | 23.6 | 6 | 7.80 | 0 | 0 |
| 5610 | P 2906 | Niger | 75 | 299 | 2.0 | 48.3 | 18.6 | 6 | 7.89 | 2 | 20 |
| 5611 | P 2907 | Niger | 66 | 234 | 2.2 | 57.8 | 21.4 | 8 | 8.15 | 3 | 0 |
| 5612 | P 2908 | Niger | 68 | 294 | 3.0 | 60.4 | 22.0 | 7 | 7.15 | 1 | 0 |
| 5613 | P 2909 | Niger | 68 | 250 | 2.6 | 61.0 | 26.8 | 6 | 6.18 | 4 | 0 |
| 5614 | P 2910 | Niger | 71 | 236 | 2.0 | 64.2 | 25.3 | 8 | 6.28 | 2 | 0 |
| 5615 | P 2911 | Niger | 72 | 251 | 2.0 | 61.8 | 26.8 | 7 | 5.87 | 0 | 0 |
| 5616 | P 2912 | Niger | 75 | 278 | 1.8 | 55.2 | 18.9 | 8 | 7.00 | 0 | 0 |
| 5617 | P 2913 | Niger | 75 | 262 | 1.8 | 61.9 | 24.9 | 7 | 6.20 | 0 | 0 |

*Continued....*

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**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5618 | P 2914 | Niger | 81 | 291 | 1.4 | 65.6 | 24.2 | 5 | 9.97 | 0 | 0 |
| 5619 | P 2915 | Niger | 70 | 264 | 1.4 | 52.4 | 22.4 | 6 | 7.19 | 1 | 0 |
| 5620 | P 2916 | Niger | 68 | 272 | 2.4 | 57.2 | 27.6 | 7 | 9.96 | 1 | 5 |
| 5621 | P 2917 | Niger | 77 | 254 | 2.2 | 51.7 | 24.0 | 6 | 9.24 | 0 | 0 |
| 5622 | P 2918 | Niger | 96 | 296 | 2.8 | 42.6 | 21.9 | 4 | 9.42 | 2 | 0 |
| 5623 | P 2919 | Niger | 75 | 312 | 1.2 | 60.0 | 24.7 | 6 | 10.27 | 0 | 0 |
| 5624 | P 2920 | Niger | 67 | 253 | 2.2 | 47.8 | 23.4 | 6 | 8.23 | 0 | 0 |
| 5625 | P 2921 | Niger | 79 | 220 | 1.0 | 50.0 | 22.0 | 7 | 9.03 | 0 | 0 |
| 5626 | P 2922 | Niger | 68 | 314 | 3.0 | 49.0 | 20.1 | 6 | 9.28 | 2 | 0 |
| 5627 | P 2924 | Niger | 100 | 310 | 3.2 | 58.4 | 25.2 | 3 | 6.65 | 3 | 0 |
| 5628 | P 2925 | Niger | 78 | 288 | 1.4 | 60.0 | 25.4 | 6 | 8.98 | 0 | 0 |
| 5629 | P 2926 | Niger | 68 | 298 | 2.6 | 53.8 | 20.9 | 6 | 7.70 | 0 | 0 |
| 5630 | P 2927 | Niger | 75 | 311 | 2.0 | 68.8 | 25.5 | 7 | 10.60 | 0 | 10 |
| 5631 | P 2928 | Niger | 68 | 272 | 4.4 | 34.4 | 30.2 | 6 | 9.09 | 1 | 0 |
| 5632 | P 2929 | Niger | 81 | 234 | 1.2 | 50.0 | 24.7 | 7 | 10.04 | 2 | 0 |
| 5633 | P 2930 | Niger | 87 | 238 | 1.0 | 49.7 | 17.7 | 6 | 10.72 | 0 | 0 |
| 5634 | P 2931 | Niger | 84 | 254 | 1.8 | 54.8 | 19.9 | 6 | 10.10 | 0 | 0 |
| 5635 | P 2932 | Niger | 91 | 258 | 2.0 | 47.1 | 21.6 | 3 | 10.24 | 0 | 0 |
| 5636 | P 2933 | Niger | 76 | 232 | 2.0 | 49.2 | 21.4 | 6 | 8.89 | 2 | 0 |
| 5637 | P 2934 | Niger | 79 | 270 | 2.6 | 38.2 | 20.4 | 7 | 8.76 | 0 | 0 |
| 5638 | P 2935 | Niger | 80 | 288 | 1.4 | 55.1 | 25.0 | 6 | 9.93 | 2 | 0 |
| 5639 | P 2936 | Niger | 80 | 279 | 1.4 | 61.4 | 25.4 | 7 | 9.44 | 0 | 0 |
| 5640 | P 2937 | Niger | 96 | 310 | 1.0 | 42.8 | 21.0 | 4 | 10.16 | 0 | 0 |
| 5641 | P 2938 | Niger | 80 | 330 | 1.2 | 69.4 | 24.1 | 3 | 10.71 | 0 | 5 |
| 5642 | P 2939 | Niger | 76 | 280 | 2.2 | 49.0 | 21.1 | 3 | 9.66 | 0 | 0 |
| 5643 | P 2940 | Niger | 81 | 286 | 1.2 | 46.8 | 18.4 | 7 | 6.52 | 0 | 0 |
| 5644 | P 2941 | Niger | 83 | 262 | 1.6 | 60.2 | 23.2 | 6 | 8.11 | 0 | 0 |
| 5645 | P 2942 | Niger | 76 | 310 | 1.4 | 78.0 | 24.0 | 7 | 10.49 | 1 | 1 |
| 5646 | P 2943 | Niger | 80 | 284 | 1.8 | 61.2 | 20.3 | 4 | 8.55 | 0 | 0 |
| 5648 | P 2945 | Niger | 83 | 274 | 1.2 | 43.4 | 19.7 | 7 | 9.75 | 0 | 0 |
| 5649 | P 2946 | Niger | 80 | 299 | 1.0 | 59.0 | 20.9 | 3 | 11.00 | 0 | 0 |
| 5650 | P 2947 | Niger | 81 | 257 | 1.0 | 47.3 | 19.6 | 8 | 10.57 | 0 | 5 |
| 5651 | P 2948 | Niger | 93 | 288 | 1.4 | 61.0 | 23.3 | 6 | 9.86 | 0 | 5 |
| 5652 | P 2949 | Niger | 84 | 269 | 1.2 | 54.6 | 18.4 | 4 | 9.28 | 0 | 0 |
| 5653 | P 2950 | Niger | 84 | 280 | 1.8 | 56.6 | 25.1 | 3 | 8.75 | 0 | 0 |
| 5654 | P 2951 | Niger | 81 | 281 | 1.4 | 56.8 | 20.2 | 8 | 9.92 | 0 | 0 |
| 5655 | P 2952 | Niger | 97 | 294 | 1.2 | 64.8 | 22.6 | 6 | 10.62 | 3 | 25 |
| 5656 | P 2953 | Niger | 82 | 259 | 1.4 | 60.0 | 21.8 | 8 | 10.40 | 2 | 25 |
| 5657 | P 2954 | Niger | 80 | 302 | 1.6 | 59.0 | 21.7 | 8 | 9.95 | 0 | 10 |
| 5659 | P 2956 | Niger | 92 | 270 | 1.5 | 60.0 | 23.0 | 3 | 7.68 | 0 | 0 |
| 5660 | P 2957 | Niger | 80 | 304 | 1.8 | 65.4 | 26.7 | 8 | 8.11 | 2 | 10 |
| 5661 | P 2958 | Niger | 80 | 310 | 1.2 | 68.0 | 20.1 | 6 | 9.90 | 2 | 25 |
| 5662 | P 2960 | Niger | 81 | 317 | 1.0 | 54.4 | 21.6 | 3 | 9.39 | 0 | 25 |
| 5663 | P 2961 | Niger | 80 | 275 | 1.4 | 61.0 | 26.8 | 7 | 8.32 | 2 | 25 |
| 5664 | P 2962 | Niger | 82 | 316 | 1.8 | 52.4 | 17.3 | 7 | 9.93 | 0 | 0 |
| 5665 | P 2963 | Niger | 82 | 313 | 1.0 | 72.4 | 24.3 | 2 | 8.18 | 1 | 25 |
| 5667 | P 2965 | Niger | 84 | 221 | 1.2 | 54.0 | 18.6 | 3 | 11.35 | 0 | 0 |
| 5668 | P 2966 | Niger | 80 | 255 | 1.4 | 52.8 | 16.6 | 8 | 9.89 | 5 | 0 |
| 5669 | P 2967 | Niger | 80 | 295 | 1.2 | 67.4 | 21.0 | 6 | 10.19 | 4 | 0 |
| 5670 | P 2968 | Niger | 76 | 292 | 1.2 | 61.0 | 20.5 | 3 | 11.05 | 4 | 0 |
| 5671 | P 2969 | Niger | 75 | 317 | 1.4 | 70.0 | 19.5 | 6 | 4.30 | 4 | 0 |
| 5673 | P 2971 | Niger | 80 | 290 | 1.4 | 64.4 | 19.1 | 7 | 10.59 | 2 | 10 |

*Continued...*

Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5674 | P 2972 | Niger | 79 | 282 | 1.2 | 55.8 | 19.8 | 7 | 9.82 | 3 | 10 |
| 5675 | P 2973 | Niger | 80 | 248 | 1.0 | 44.0 | 19.6 | 7 | 9.43 | 5 | 25 |
| 5676 | P 2974 | Niger | 75 | 286 | 1.0 | 38.6 | 18.2 | 6 | 9.78 | 4 | 25 |
| 5677 | P 2975 | Niger | 80 | 313 | 1.2 | 78.6 | 24.2 | 7 | 10.85 | 0 | 25 |
| 5678 | P 2976 | Niger | 82 | 283 | 1.0 | 63.6 | 21.8 | 4 | 7.99 | 0 | 0 |
| 5679 | P 2977 | Niger | 79 | 262 | 1.2 | 56.4 | 20.6 | 8 | 10.10 | 4 | 25 |
| 5680 | P 2978 | Niger | 96 | 280 | 1.0 | 50.0 | 22.0 | 6 | 9.61 | 1 | 10 |
| 5681 | P 2979 | Niger | 100 | 299 | 1.4 | 57.4 | 19.9 | 3 | 9.08 | 3 | 10 |
| 5683 | P 2981 | Niger | 100 | 309 | 1.4 | 64.0 | 21.6 | 6 | 10.77 | 4 | 10 |
| 5684 | P 2982 | Niger | 80 | 271 | 1.2 | 50.8 | 20.1 | 7 | 9.55 | 0 | 25 |
| 5685 | P 2983 | Niger | 80 | 283 | 1.2 | 39.2 | 17.0 | 4 | 9.93 | 3 | 10 |
| 5687 | P 2986 | Niger | 95 | 308 | 1.0 | 62.6 | 19.3 | 6 | 9.14 | 0 | 23 |
| 5688 | 45-320 | Nigeria | 74 | 263 | 1.0 | 58.0 | 26.0 | 6 | 9.11 | 1 | 5 |
| 5689 | 45-321 | Nigeria | 74 | 230 | 1.0 | 58.0 | 27.0 | 4 | 6.97 | 1 | 25 |
| 5690 | 45-322 | Nigeria | 75 | 271 | 1.0 | 68.0 | 27.0 | 6 | 8.97 | 1 | 10 |
| 5691 | 45-323 | Nigeria | 78 | 294 | 1.0 | 51.0 | 24.0 | 6 | 8.22 | 1 | 8 |
| 5692 | 45-324 | Nigeria | 75 | 260 | 1.0 | 41.0 | 29.0 | 7 | 10.97 | 0 | 5 |
| 5693 | 45-325 | Nigeria | 79 | 287 | 1.0 | 57.0 | 29.0 | 6 | 7.00 | 0 | 5 |
| 5694 | 45-326 | Nigeria | 75 | 277 | 1.0 | 59.0 | 26.0 | 6 | 6.44 | 1 | 5 |
| 5695 | 45-327 | Nigeria | 81 | 310 | 1.0 | 53.0 | 23.0 | 7 | 7.95 | 0 | 5 |
| 5696 | 45-328 | Nigeria | 79 | 302 | 2.0 | 49.0 | 22.0 | 6 | 7.25 | 0 | 5 |
| 5698 | 45-330 | Nigeria | 77 | 301 | 1.0 | 51.0 | 21.0 | 6 | 6.68 | 0 | 15 |
| 5699 | 45-331 | Nigeria | 74 | 262 | 1.0 | 59.0 | 22.0 | 6 | 6.19 | 1 | 5 |
| 5700 | 45-332 | Nigeria | 78 | 278 | 1.0 | 60.0 | 22.0 | 6 | 6.67 | 0 | 5 |
| 5701 | 45-333 | Nigeria | 77 | 288 | 1.0 | 53.0 | 24.0 | 5 | 7.10 | 0 | 10 |
| 5702 | 45-334 | Nigeria | 78 | 273 | 1.0 | 60.0 | 25.0 | 4 | 6.88 | 0 | 5 |
| 5703 | 45-335 | Nigeria | 75 | 288 | 2.0 | 57.0 | 24.0 | 4 | 7.63 | 0 | 25 |
| 5704 | 45-336 | Nigeria | 74 | 299 | 2.0 | 56.0 | 24.0 | 4 | 6.42 | 0 | 5 |
| 5705 | 45-339 | Nigeria | 78 | 298 | 1.0 | 58.0 | 25.0 | 4 | 5.46 | 0 | 5 |
| 5706 | 45-340 | Nigeria | 78 | 280 | 1.0 | 63.0 | 20.0 | 6 | 7.07 | 1 | 10 |
| 5707 | 45-341 | Nigeria | 77 | 254 | 1.0 | 59.0 | 23.0 | 4 | 7.39 | 0 | 10 |
| 5708 | 45-343 | Nigeria | 81 | 324 | 1.0 | 63.0 | 25.0 | 6 | 7.74 | 0 | 10 |
| 5709 | 45-345 | Nigeria | 78 | 295 | 1.0 | 57.0 | 25.0 | 4 | 8.02 | 3 | 25 |
| 5710 | 45-346 | Nigeria | 75 | 302 | 1.0 | 50.0 | 20.0 | 4 | 6.73 | 1 | 10 |
| 5711 | 45-347 | Nigeria | 78 | 294 | 1.0 | 73.0 | 25.0 | 6 | 6.91 | 0 | 5 |
| 5712 | 45-348 | Nigeria | 79 | 273 | 1.0 | 55.0 | 21.0 | 6 | 6.16 | 0 | 5 |
| 5713 | 45-349 | Nigeria | 77 | 292 | 1.0 | 56.0 | 26.0 | 6 | 8.39 | 1 | 5 |
| 5714 | 45-351 | Nigeria | 81 | 277 | 1.0 | 68.0 | 19.0 | 6 | 6.91 | 2 | 5 |
| 5715 | 45-354 | Nigeria | 74 | 292 | 1.0 | 66.0 | 20.0 | 6 | 7.65 | 0 | 5 |
| 5716 | 45-356 | Nigeria | 74 | 268 | 1.0 | 58.0 | 18.0 | 4 | 8.38 | 1 | 10 |
| 5717 | 45-357 | Nigeria | 76 | 280 | 1.0 | 65.0 | 25.0 | 4 | 7.12 | 1 | 10 |
| 5718 | 45-358 | Nigeria | 73 | 272 | 1.0 | 65.0 | 25.0 | 4 | 8.69 | 0 | 10 |
| 5719 | 45-359 | Nigeria | 80 | 264 | 1.0 | 72.0 | 24.0 | 6 | 7.11 | 3 | 10 |
| 5720 | 45-361 | Nigeria | 74 | 274 | 1.0 | 83.0 | 21.0 | 4 | 6.23 | 1 | 5 |
| 5721 | 45-363 | Nigeria | 81 | 297 | 1.0 | 62.0 | 23.0 | 4 | 7.86 | 1 | 10 |
| 5723 | 45-367 | Nigeria | 77 | 264 | 1.0 | 66.0 | 27.0 | 6 | 8.11 | 0 | 25 |
| 5724 | 45-369 | Nigeria | 81 | 273 | 1.0 | 71.0 | 23.0 | 6 | 7.87 | 0 | 25 |
| 5725 | 45-370 | Nigeria | 74 | 245 | 1.0 | 67.0 | 23.0 | 6 | 8.14 | 0 | 5 |
| 5726 | 45-372 | Nigeria | 80 | 272 | 2.0 | 72.0 | 22.0 | 6 | 8.14 | 0 | 5 |
| 5727 | 45-373 | Nigeria | 74 | 298 | 1.0 | 68.0 | 24.0 | 6 | 8.12 | 0 | 25 |
| 5728 | 45-374 | Nigeria | 78 | 305 | 1.0 | 57.0 | 23.0 | 6 | 8.30 | 2 | 25 |
| 5729 | 45-376 | Nigeria | 75 | 302 | 1.0 | 63.0 | 25.0 | 4 | 7.48 | 1 | 10 |

*Continued....*

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Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5730 | 45-378 | Nigeria | 77 | 293 | 1.0 | 75.0 | 21.0 | 4 | 8.98 | 1 | 15 |
| 5731 | 45-379 | Nigeria | 74 | 302 | 1.4 | 61.0 | 23.0 | 6 | 7.15 | 0 | 10 |
| 5732 | 45-381 | Nigeria | 74 | 282 | 1.2 | 56.0 | 24.0 | 6 | 9.04 | 1 | 5 |
| 5733 | 45-382 | Nigeria | 73 | 248 | 3.0 | 42.0 | 24.0 | 4 | 7.26 | 1 | 5 |
| 5734 | 45-384 | Nigeria | 78 | 291 | 1.0 | 58.0 | 24.0 | 6 | 7.03 | 1 | 10 |
| 5736 | 45-386 | Nigeria | 74 | 333 | 2.0 | 86.0 | 26.0 | 6 | 9.04 | 0 | 5 |
| 5737 | 45-387 | Nigeria | 74 | 333 | 1.0 | 72.0 | 23.0 | 4 | 8.89 | 0 | 5 |
| 5738 | 45-388 | Nigeria | 74 | 323 | 1.0 | 84.0 | 25.0 | 6 | 9.33 | 0 | * |
| 5739 | 45-390 | Nigeria | 73 | 298 | 1.0 | 58.0 | 22.0 | 4 | 7.27 | 0 | 5 |
| 5740 | 45-392 | Nigeria | 83 | 314 | 2.0 | 25.0 | 26.0 | 4 | 6.80 | 1 | 5 |
| 5742 | 45-396 | Nigeria | 74 | 276 | 2.0 | 67.0 | 26.0 | 5 | 7.64 | 1 | 5 |
| 5743 | 45-397 | Nigeria | 77 | 309 | 2.0 | 34.0 | 21.0 | 5 | 9.51 | 0 | 10 |
| 5744 | 45-400 | Nigeria | 84 | 334 | 2.0 | 25.0 | 28.0 | 4 | 6.20 | 0 | 10 |
| 5745 | 45-402 | Nigeria | 86 | 342 | 3.0 | 28.0 | 24.0 | 5 | 8.74 | 0 | 25 |
| 5747 | 45-405 | Nigeria | 88 | 315 | 2.0 | 30.0 | 25.0 | 4 | 8.56 | 1 | 25 |
| 5748 | 45-406 | Nigeria | 77 | 321 | 3.0 | 26.0 | 24.0 | 5 | 7.99 | 0 | 10 |
| 5749 | 45-408 | Nigeria | 81 | 304 | 2.0 | 39.0 | 24.0 | 5 | 9.00 | 0 | 10 |
| 5750 | 45-409 | Nigeria | 75 | 302 | 1.0 | 30.0 | 28.0 | 5 | 7.58 | 1 | 5 |
| 5751 | 45-411 | Nigeria | 76 | 294 | 3.0 | 21.0 | 22.0 | 5 | 8.16 | 1 | 23 |
| 5752 | 45-412 | Nigeria | 76 | 282 | 3.0 | 20.0 | 25.0 | 5 | 9.66 | 1 | 5 |
| 5753 | 45-413 | Nigeria | 75 | 267 | 1.0 | 25.0 | 24.0 | 5 | 8.64 | 0 | 10 |
| 5754 | 45-414 | Nigeria | 75 | 277 | 1.0 | 27.0 | 25.0 | 6 | 9.36 | 0 | 10 |
| 5756 | 45-418 | Nigeria | 91 | 349 | 4.0 | 26.0 | 23.0 | 4 | 9.53 | 0 | 10 |
| 5757 | 45-420 | Nigeria | 83 | 313 | 1.0 | 24.0 | 29.0 | 4 | 7.34 | 0 | 10 |
| 5758 | 45-421 | Nigeria | 90 | 334 | 2.0 | 21.0 | 28.0 | 4 | 7.58 | 0 | 5 |
| 5759 | 45-422 | Nigeria | 88 | 334 | 3.0 | 18.0 | 25.0 | 4 | 8.17 | 0 | 5 |
| 5760 | 45-424 | Nigeria | 89 | 358 | 1.0 | 24.0 | 34.0 | 4 | 8.15 | 0 | 5 |
| 5761 | 45-425 | Nigeria | 84 | 324 | 2.0 | 18.0 | 27.0 | 4 | 8.70 | 1 | 5 |
| 5762 | 45-426 | Nigeria | 74 | 281 | 2.0 | 46.0 | 28.0 | 4 | 6.75 | 0 | 5 |
| 5763 | 45-427 | Nigeria | 78 | 299 | 1.0 | 37.0 | 26.0 | 4 | 7.03 | 1 | 5 |
| 5764 | 45-428 | Nigeria | 75 | 270 | 1.0 | 59.0 | 29.0 | 6 | 9.50 | 0 | 5 |
| 5765 | 45-429 | Nigeria | 76 | 297 | 2.0 | 50.0 | 27.0 | 7 | 8.80 | 0 | 10 |
| 5766 | 45-430 | Nigeria | 75 | 288 | 1.0 | 51.0 | 25.0 | 7 | 6.59 | 0 | 5 |
| 5767 | 45-431 | Nigeria | 78 | 271 | 2.0 | 47.0 | 27.0 | 7 | 6.34 | 0 | 5 |
| 5768 | 45-432 | Nigeria | 76 | 313 | 2.0 | 57.0 | 30.0 | 7 | 6.16 | 1 | 5 |
| 5769 | 45-433 | Nigeria | 78 | 287 | 1.0 | 53.0 | 26.0 | 7 | 6.12 | 0 | 5 |
| 5770 | 45-434 | Nigeria | 80 | 269 | 1.0 | 78.0 | 23.0 | 6 | 8.26 | 1 | 5 |
| 5771 | 45-435 | Nigeria | 78 | 268 | 1.0 | 62.0 | 25.0 | 6 | 8.67 | 0 | 5 |
| 5772 | 45-436 | Nigeria | 79 | 282 | 2.0 | 78.0 | 26.0 | 6 | 8.61 | 0 | 10 |
| 5773 | 45-437 | Nigeria | 75 | 327 | 1.0 | 76.0 | 24.0 | 7 | 8.24 | 0 | 5 |
| 5774 | 45-438 | Nigeria | 79 | 306 | 2.0 | 70.0 | 23.0 | 6 | 7.64 | 0 | 5 |
| 5775 | 45-439 | Nigeria | 75 | 282 | 1.0 | 67.0 | 23.0 | 6 | 7.82 | 1 | 5 |
| 5776 | 45-440 | Nigeria | 79 | 274 | 1.0 | 46.0 | 30.0 | 4 | 6.74 | 0 | 10 |
| 5777 | 45-441 | Nigeria | 79 | 282 | 1.0 | 47.0 | 27.0 | 6 | 8.26 | 1 | 10 |
| 5778 | 45-442 | Nigeria | 75 | 259 | 2.0 | 44.0 | 29.0 | 4 | 7.52 | 1 | 25 |
| 5779 | 45-443 | Nigeria | 80 | 292 | 1.0 | 52.0 | 24.0 | 6 | 9.13 | 1 | 5 |
| 5780 | 45-352 | Nigeria | 74 | 275 | 5.0 | 42.0 | 22.0 | 6 | 8.13 | 2 | 25 |
| 5781 | 45-360 | Nigeria | 74 | 288 | 3.0 | 51.0 | 18.0 | 6 | 9.45 | 1 | 10 |
| 5782 | 45-362 | Nigeria | 67 | 290 | 1.5 | 50.0 | 22.0 | 3 | 9.28 | 0 | 10 |
| 5783 | 45-364 | Nigeria | 59 | 270 | 2.0 | 50.0 | 18.0 | 6 | 6.16 | 3 | 25 |
| 5784 | 45-366 | Nigeria | 75 | 257 | 1.0 | 65.0 | 21.0 | 4 | 9.40 | 1 | 10 |
| 5785 | 45-371 | Nigeria | 76 | 288 | 2.0 | 71.0 | 21.0 | 7 | 10.20 | 0 | 10 |

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**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5786 | 45-375 | Nigeria | 75 | 280 | 5.0 | 58.0 | 20.0 | 4 | 6.30 | 1 | 5 |
| 5787 | 45-377 | Nigeria | 74 | 280 | 3.0 | 50.0 | 19.0 | 6 | 5.02 | 1 | 5 |
| 5788 | 45-394 | Nigeria | 59 | 210 | 1.2 | 33.0 | 22.0 | 6 | 8.57 | 0 | 5 |
| 5789 | 45-417 | Nigeria | 85 | 308 | 2.0 | 23.0 | 26.0 | 5 | 9.14 | 5 | 10 |
| 5792 | WJR 6/27150 | Russia | 52 | 210 | 3.5 | 20.0 | 27.0 | 6 | 6.84 | 3 | 40 |
| 5795 | WJR 12/73260 | Russia | 63 | 209 | 4.6 | 28.4 | 25.4 | 6 | 8.51 | 5 | 10 |
| 5799 | WRJ 33/210779 | Russia | 66 | 201 | 7.2 | 15.2 | 19.6 | 5 | 9.88 | 5 | 5 |
| 5800 | SENEGAL 1 | Senegal | 80 | 96 | 1.8 | 32.4 | 22.8 | 6 | 7.65 | 0 | 10 |
| 5804 | AUSTRALIA 1 | Australia | 72 | 227 | 6.4 | 21.9 | 25.2 | 6 | 8.51 | 0 | 10 |
| 5805 | P 1381/Sl.10 | Senegal | 78 | 206 | 1.6 | 29.8 | 21.8 | 5 | 8.10 | 0 | 40 |
| 5806 | P 1382/Sl.11 | Senegal | 71 | 234 | 1.4 | 31.6 | 24.9 | 6 | 8.05 | 0 | 40 |
| 5807 | P 1386/Sl.16 | Senegal | 74 | 223 | 1.0 | 34.2 | 18.2 | 5 | 8.10 | 0 | 10 |
| 5808 | P 1394/Sl.25 | Senegal | 68 | 232 | 1.4 | 29.1 | 20.4 | 5 | 7.60 | 3 | 65 |
| 5809 | P 1397/Sl.28 | Senegal | 73 | 218 | 1.4 | 34.4 | 21.4 | 5 | 7.60 | 0 | 25 |
| 5810 | P 1401/Sl.35 | Senegal | 74 | 228 | 2.0 | 35.2 | 22.8 | 6 | 7.75 | 0 | 10 |
| 5811 | P 1402/Sl.39 | Senegal | 80 | 197 | 1.4 | 32.2 | 18.5 | 2 | 6.70 | 0 | 10 |
| 5812 | P 1403/Sl.41 | Senegal | 76 | 190 | 1.2 | 38.2 | 18.0 | 6 | 7.10 | 0 | 25 |
| 5813 | P 1404-1/Sl.42 | Senegal | 75 | 250 | 1.3 | 35.8 | 21.1 | 5 | 8.25 | 0 | 25 |
| 5815 | P 1406/Sl.44 | Senegal | 76 | 222 | 1.2 | 30.7 | 16.9 | 6 | 9.05 | 0 | 0 |
| 5816 | P 1407/Sl.45 | Senegal | 78 | 231 | 1.4 | 41.5 | 22.1 | 6 | 7.90 | 5 | * |
| 5817 | P 1408/Sl.47 | Senegal | 81 | 252 | 2.2 | 26.6 | 18.2 | 5 | 7.25 | 3 | 10 |
| 5818 | P 1409/Sl.48 | Senegal | 81 | 219 | 1.2 | 33.5 | 17.7 | 5 | 8.35 | 0 | 40 |
| 5819 | P 1410/Sl.49 | Senegal | 65 | 226 | 1.2 | 21.8 | 29.2 | 6 | 9.56 | 0 | 10 |
| 5820 | P 1411/Sl.50 | Senegal | 80 | 236 | 1.2 | 34.8 | 18.3 | 6 | 7.75 | 4 | 40 |
| 5821 | P 1414/Sl.58 | Senegal | 81 | 246 | 1.0 | 48.2 | 19.3 | 6 | 8.26 | 0 | 25 |
| 5822 | P 1415/Sl.59 | Senegal | 78 | 230 | 1.2 | 36.6 | 24.4 | 6 | 8.85 | 0 | 10 |
| 5823 | P 1416/Sl.60 | Senegal | 75 | 270 | 1.2 | 42.0 | 21.1 | 5 | 8.00 | 4 | 10 |
| 5824 | P 1417/Sl.62 | Senegal | 76 | 236 | 1.2 | 39.6 | 19.1 | 6 | 8.65 | 4 | 10 |
| 5825 | P 1418/Sl.64 | Senegal | 75 | 239 | 1.0 | 31.1 | 18.4 | 6 | 6.95 | 0 | 65 |
| 5826 | P 1419/Sl.66 | Senegal | 79 | 230 | 1.4 | 40.2 | 18.1 | 6 | 6.70 | 0 | 10 |
| 5827 | P 1420/Sl.70 | Senegal | 73 | 226 | 1.6 | 39.8 | 19.8 | 6 | 7.15 | 0 | 10 |
| 5828 | P 1421/Sl.72 | Senegal | 80 | 270 | 1.8 | 39.6 | 19.3 | 6 | 9.15 | 0 | 25 |
| 5829 | P 1422/Sl.73 | Senegal | 75 | 238 | 1.4 | 38.4 | 18.9 | 6 | 5.95 | 0 | 10 |
| 5830 | P 1423/Sl.75 | Senegal | 80 | 242 | 1.6 | 40.6 | 26.3 | 4 | 8.98 | 4 | 10 |
| 5831 | P 1424/Sl.77 | Senegal | 78 | 256 | 1.6 | 39.6 | 19.2 | 6 | 5.65 | 0 | 5 |
| 5832 | P 1425/Sl.79 | Senegal | 77 | 250 | 1.8 | 34.9 | 17.7 | 6 | 6.80 | 0 | 10 |
| 5833 | P 1427/Sl.82 | Senegal | 74 | 244 | 1.4 | 39.7 | 19.1 | 6 | 7.00 | 0 | 0 |
| 5834 | P 1428/Sl.84 | Senegal | 75 | 212 | 1.2 | 28.2 | 18.0 | 6 | 7.50 | 0 | 10 |
| 5835 | P 1429/Sl.86 | Senegal | 73 | 238 | 1.0 | 37.9 | 29.2 | 6 | 5.95 | 0 | 10 |
| 5836 | P 1430/Sl.88 | Senegal | 75 | 234 | 1.4 | 32.2 | 21.2 | 6 | 7.75 | 0 | 40 |
| 5837 | P 1431/Sl.90 | Senegal | 80 | 202 | 1.2 | 32.0 | 21.8 | 6 | 7.70 | 0 | 25 |
| 5838 | P 1432/Sl.92 | Senegal | 76 | 246 | 1.8 | 37.5 | 27.7 | 6 | 6.70 | 0 | 25 |
| 5839 | P 1433-1/Sl.94 | Senegal | 74 | 214 | 1.0 | 35.9 | 25.0 | 6 | 6.68 | 0 | 10 |
| 5841 | P 1434/Sl.96 | Senegal | 74 | 246 | 1.2 | 39.5 | 26.0 | 6 | 5.35 | 0 | 10 |
| 5842 | P 1435/Sl.98 | Senegal | 71 | 226 | 1.8 | 33.7 | 20.3 | 6 | 5.15 | 0 | 65 |
| 5843 | P 1436/Sl.101 | Senegal | 75 | 256 | 1.0 | 42.4 | 22.1 | 6 | 6.85 | 0 | 25 |
| 5844 | P 1437 | Senegal | 100 | 298 | 2.0 | 31.8 | 17.0 | 6 | 6.80 | 0 | 40 |
| 5846 | P 1438/Sl.104 | Senegal | 74 | 216 | 1.2 | 36.0 | 23.9 | 6 | 7.20 | 0 | 65 |
| 5847 | P 1439/Sl.106 | Senegal | 78 | 220 | 1.6 | 27.0 | 17.6 | 4 | 9.05 | 0 | 65 |
| 5848 | P 1441/Sl.109 | Senegal | 77 | 236 | 2.0 | 31.5 | 18.3 | 6 | 6.50 | 0 | 10 |
| 5849 | P 1444/Sl.115 | Senegal | 82 | 229 | 1.8 | 46.6 | 20.0 | 6 | 5.75 | 3 | 10 |
| 5850 | P 1445/Sl.116 | Senegal | 95 | 220 | 2.0 | 37.8 | 19.2 | 6 | 6.20 | 0 | 25 |

*Continued....*

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**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5851 | P 1447/Sl.122 | Senegal | 82 | 249 | 2.0 | 24.6 | 21.3 | 6 | 6.50 | 4 | 40 |
| 5852 | P 1448/Sl.131 | Senegal | 81 | 270 | 1.4 | 42.4 | 22.2 | 5 | 7.25 | 0 | 65 |
| 5853 | P 1449/Sl.139 | Senegal | 96 | 237 | 1.0 | 30.8 | 17.2 | 6 | 8.00 | 0 | 40 |
| 5854 | P 1450/Sl.140 | Senegal | 80 | 240 | 1.2 | 38.8 | 24.4 | 4 | 8.95 | 5 | * |
| 5855 | P 1451/Sl.141 | Senegal | 80 | 283 | 1.8 | 39.8 | 21.5 | 6 | 7.45 | 0 | * |
| 5856 | P 1452/Sl.143 | Senegal | 75 | 282 | 1.8 | 34.2 | 22.9 | 6 | 7.65 | 0 | 25 |
| 5857 | P 1453/Sl.144 | Senegal | 93 | 250 | 1.4 | 30.2 | 20.4 | 6 | 7.75 | 3 | 10 |
| 5858 | P 1454/Sl.146 | Senegal | 80 | 250 | 1.6 | 38.4 | 20.5 | 6 | 8.00 | 3 | 40 |
| 5859 | P 1455/Sl.147 | Senegal | 78 | 240 | 1.0 | 34.4 | 20.2 | 6 | 5.70 | 0 | 25 |
| 5860 | P 1459/Sl.151 | Senegal | 67 | 234 | 2.6 | 30.2 | 16.2 | 5 | 8.55 | 2 | 40 |
| 5861 | P 1460/Sl.152 | Senegal | 73 | 236 | 2.6 | 39.6 | 23.9 | 6 | 7.75 | 0 | 25 |
| 5862 | P 1461/Sl.153 | Senegal | 74 | 187 | 1.0 | 41.4 | 19.5 | 6 | 7.65 | 0 | 40 |
| 5863 | P 1462/Sl.154 | Senegal | 78 | 205 | 1.2 | 30.4 | 18.3 | 6 | 5.75 | 0 | 10 |
| 5864 | P 1465/Sl.158 | Senegal | 76 | 188 | 4.0 | 29.0 | 15.9 | 6 | 7.25 | 0 | 25 |
| 5865 | P 1466/Sl.159 | Senegal | 74 | 213 | 1.6 | 38.5 | 19.1 | 6 | 6.90 | 0 | 65 |
| 5866 | P 1467/Sl.160 | Senegal | 76 | 232 | 1.8 | 29.3 | 19.8 | 6 | 7.80 | 0 | 65 |
| 5867 | P 1468/Sl.162 | Senegal | 73 | 212 | 1.2 | 31.1 | 18.7 | 6 | 6.75 | 0 | 65 |
| 5868 | P 1470/Sl.164 | Senegal | 86 | 232 | 2.0 | 37.7 | 16.3 | 6 | 7.15 | 0 | 40 |
| 5869 | P 1471/Sl.165 | Senegal | 71 | 246 | 2.0 | 37.5 | 21.2 | 6 | 6.15 | 0 | 40 |
| 5870 | P 1473/Sl.169 | Senegal | 74 | 270 | 1.8 | 33.6 | 20.6 | 4 | 7.03 | 5 | * |
| 5871 | P 1474/Sl.171 | Senegal | 97 | 230 | 1.6 | 38.2 | 20.1 | 6 | 8.40 | 0 | * |
| 5872 | P 1475/Sl.172 | Senegal | 74 | 158 | 1.2 | 30.2 | 20.0 | 6 | 6.20 | 3 | 25 |
| 5873 | P 1476/Sl.173 | Senegal | 75 | 215 | 1.4 | 35.7 | 20.9 | 6 | 6.79 | 0 | 65 |
| 5878 | P 1481/Sl.186 | Senegal | 74 | 180 | 2.0 | 27.1 | 15.5 | 6 | 6.70 | 0 | 65 |
| 5879 | P 1482/Sl.187 | Senegal | 75 | 210 | 2.0 | 34.7 | 20.6 | 6 | 6.80 | 0 | 100 |
| 5881 | P 1485 | Senegal | 71 | 221 | 1.8 | 38.4 | 20.0 | 6 | 5.90 | 3 | 100 |
| 5882 | P 1487/Sl.199 | Senegal | 72 | 237 | 2.6 | 38.4 | 16.8 | 6 | 6.35 | 3 | 25 |
| 5884 | P 1489/Sl.206 | Senegal | 80 | 244 | 1.4 | 36.9 | 21.8 | 4 | 7.38 | 0 | 100 |
| 5885 | P 1490/Sl.208 | Senegal | 75 | 228 | 1.0 | 37.3 | 19.4 | 6 | 5.30 | 0 | 40 |
| 5887 | P 1492/Sl.212 | Senegal | 74 | 194 | 2.4 | 24.6 | 13.0 | 6 | 5.90 | 0 | 65 |
| 5888 | P 1493/Sl.211 | Senegal | 76 | 201 | 2.2 | 33.2 | 18.2 | 6 | 6.30 | 0 | 40 |
| 5889 | P 1494-1/Sl.214 | Senegal | 76 | 236 | 1.8 | 40.0 | 21.1 | 4 | 7.15 | 0 | 40 |
| 5890 | P 1495/Sl.662 | Senegal | 71 | 269 | 1.4 | 49.4 | 24.3 | 4 | 6.70 | 0 | 40 |
| 5891 | P 1496/Sl.664 | Senegal | 74 | 236 | 2.8 | 38.9 | 17.6 | 6 | 7.15 | 0 | 40 |
| 5892 | P 1497/Sl.666 | Senegal | 74 | 217 | 1.6 | 33.6 | 17.9 | 6 | 5.75 | 0 | 25 |
| 5893 | P 1498/Sl.215 | Senegal | 79 | 220 | 1.4 | 39.0 | 17.5 | 2 | 7.05 | 0 | 65 |
| 5894 | P 1499/Sl.217 | Senegal | 75 | 266 | 1.6 | 48.1 | 22.4 | 4 | 9.15 | 3 | 65 |
| 5895 | P 1500/Sl.219 | Senegal | 74 | 272 | 1.6 | 31.0 | 18.9 | 4 | 8.25 | 0 | 40 |
| 5896 | P 1501/Sl.221 | Senegal | 74 | 197 | 1.8 | 36.2 | 19.1 | 6 | 5.50 | 0 | 65 |
| 5897 | P 1502/Sl.223 | Senegal | 75 | 230 | 1.0 | 40.2 | 22.2 | 6 | 5.40 | 0 | 25 |
| 5899 | P 1504/Sl.227 | Senegal | 75 | 197 | 1.4 | 36.6 | 22.4 | 6 | 6.30 | 0 | 25 |
| 5900 | P 1505/Sl.228 | Senegal | 76 | 190 | 1.2 | 30.8 | 16.4 | 6 | 7.75 | 0 | 100 |
| 5902 | P 1507/Sl.232 | Senegal | 74 | 197 | 1.4 | 25.0 | 15.4 | 6 | 6.85 | 0 | 40 |
| 5903 | P 1509/Sl.234 | Senegal | 74 | 175 | 2.4 | 29.6 | 17.9 | 5 | 6.95 | 0 | 25 |
| 5904 | P 1510/Sl.236 | Senegal | 75 | 218 | 1.0 | 36.6 | 19.6 | 5 | 7.79 | 0 | 10 |
| 5905 | P 1512/Sl.243 | Senegal | 75 | 213 | 1.2 | 34.0 | 17.6 | 5 | 5.61 | 4 | 40 |
| 5906 | P 1513/Sl.249 | Senegal | 77 | 183 | 1.2 | 35.4 | 17.5 | 5 | 5.36 | 0 | 40 |
| 5907 | P 1515/Sl.252 | Senegal | 82 | 216 | 1.0 | 43.8 | 21.6 | 4 | 9.03 | 0 | 65 |
| 5909 | P 1517/Sl.245 | Senegal | 84 | 220 | 1.4 | 29.8 | 22.2 | 4 | 8.07 | 0 | 5 |
| 5910 | P 1518/Sl.256 | Senegal | 75 | 247 | 1.8 | 35.6 | 20.4 | 5 | 6.08 | 0 | 10 |
| 5911 | P 1519/Sl.258 | Senegal | 75 | 221 | 1.0 | 41.0 | 18.8 | 5 | 7.59 | 0 | 65 |
| 5912 | P 1520/Sl.261 | Senegal | 70 | 262 | 1.2 | 40.3 | 24.4 | 4 | 7.32 | 0 | 25 |

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**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5913 | P 1521/Sl.262 | Senegal | 75 | 206 | 1.0 | 27.2 | 24.8 | 5 | 7.42 | 0 | 25 |
| 5914 | P 1522/Sl.264 | Senegal | 74 | 220 | 1.8 | 33.0 | 21.6 | 5 | 8.64 | 0 | 40 |
| 5916 | P 1524/Sl.269 | Senegal | 70 | 250 | 1.6 | 40.8 | 20.1 | 4 | 7.90 | 4 | 65 |
| 5919 | P 1527/Sl.281 | Senegal | 72 | 189 | 1.0 | 26.6 | 19.2 | 4 | 7.35 | 0 | 40 |
| 5923 | P 1531-1/Sl.293 | Senegal | 76 | 220 | 1.6 | 32.6 | 21.4 | 4 | 8.83 | 0 | 10 |
| 5926 | P 1533/Sl.296 | Senegal | 74 | 208 | 1.4 | 30.1 | 19.7 | 5 | 6.12 | 0 | 25 |
| 5927 | P 1534/Sl.298 | Senegal | 75 | 220 | 1.0 | 29.8 | 18.2 | 5 | 5.62 | 0 | * |
| 5928 | P 1535/Sl.299 | Senegal | 88 | 248 | 1.0 | 44.4 | 17.5 | 4 | 8.78 | 0 | * |
| 5930 | P 1537/Sl.302 | Senegal | 92 | 246 | 1.0 | 40.7 | 21.9 | 6 | 7.04 | 3 | 40 |
| 5931 | P 1538/Sl.305 | Senegal | 80 | 223 | 1.2 | 23.1 | 18.3 | 4 | 6.24 | 0 | 10 |
| 5933 | P 1540/Sl.313 | Senegal | 85 | 266 | 1.0 | 34.6 | 18.7 | 6 | 7.03 | 0 | 40 |
| 5934 | P 1541/Sl.325 | Senegal | 74 | 214 | 1.2 | 34.8 | 22.1 | 7 | 6.30 | 0 | 10 |
| 5935 | P 1542/Sl.336 | Senegal | 75 | 220 | 1.8 | 31.0 | 21.3 | 7 | 7.50 | 0 | 25 |
| 5936 | P 1543/Sl.338 | Senegal | 78 | 248 | 1.4 | 35.6 | 24.6 | 6 | 8.44 | 4 | 100 |
| 5939 | P 1546/Sl.351 | Senegal | 82 | 200 | 1.4 | 33.2 | 23.2 | 4 | 6.81 | 0 | 10 |
| 5942 | P 1550/Sl.360 | Senegal | 82 | 266 | 1.2 | 31.8 | 21.8 | 6 | 7.58 | 0 | 10 |
| 5945 | P 1553/Sl.368 | Senegal | 78 | 210 | 1.2 | 28.7 | 20.6 | 5 | 6.32 | 0 | 25 |
| 5947 | P 1555/Sl.371 | Senegal | 84 | 177 | 1.0 | 25.0 | 16.5 | 4 | 7.12 | 3 | 0 |
| 5948 | P 1556 | Senegal | 87 | 244 | 1.0 | 41.4 | 17.5 | 5 | 7.26 | 0 | 40 |
| 5949 | P 1557 | Senegal | 76 | 246 | 1.4 | 30.6 | 25.7 | 4 | 7.65 | 1 | 25 |
| 5950 | P 1558 | Senegal | 78 | 216 | 2.0 | 34.8 | 18.7 | 4 | 8.13 | 0 | 8 |
| 5951 | P 1559 | Senegal | 76 | 218 | 1.2 | 38.7 | 20.9 | 4 | 7.71 | 1 | 40 |
| 5958 | P 1566/Sl.402 | Senegal | 78 | 220 | 1.0 | 31.5 | 26.8 | 4 | 6.92 | 0 | * |
| 5959 | P 1567/Sl.401 | Senegal | 123 | 231 | 1.2 | 38.2 | 19.2 | 4 | 7.37 | 0 | * |
| 5977 | P 1589/Sl.484 | Senegal | 80 | 230 | 1.4 | 31.4 | 20.4 | 4 | 7.10 | 0 | 65 |
| 5978 | P 1590/Sl.485 | Senegal | 95 | 258 | 1.4 | 38.0 | 20.9 | 5 | 8.45 | 4 | 25 |
| 5983 | P 1595/Sl.501 | Senegal | 52 | 236 | 1.6 | 35.2 | 20.7 | 5 | 9.50 | 1 | 25 |
| 5994 | P 1607/Sl.544 | Senegal | 99 | 244 | 1.0 | 33.3 | 18.7 | 5 | 8.95 | 0 | 40 |
| 5995 | P 1608/Sl.545 | Senegal | 61 | 244 | 1.2 | 27.7 | 20.8 | 5 | 8.21 | 0 | 25 |
| 5996 | P 1609/Sl.549 | Senegal | 82 | 256 | 1.0 | 41.6 | 18.2 | 5 | 7.66 | 0 | 10 |
| 5997 | P 1610/Sl.546 | Senegal | 83 | 250 | 1.6 | 41.6 | 18.8 | 5 | 8.13 | 1 | 10 |
| 5999 | P 1614/Sl.563 | Senegal | 78 | 235 | 1.2 | 32.8 | 21.2 | 5 | 7.75 | 2 | 25 |
| 6000 | P 1616/Sl.562 | Senegal | 106 | 224 | 1.2 | 31.6 | 18.9 | 5 | 6.93 | 0 | * |
| 6020 | P 1638/Sl.643 | Senegal | 100 | 278 | 1.2 | 28.3 | 20.6 | 4 | 8.00 | 0 | 25 |
| 6021 | P 1639/Sl.624 | Senegal | 100 | 222 | 1.0 | 22.5 | 19.3 | 4 | 7.87 | 0 | 40 |
| 6031 | P 1651/Sl.654 | Senegal | 82 | 240 | 1.2 | 45.8 | 20.7 | 5 | 6.86 | 0 | * |
| 6034 | P 1654/Sl.658 | Senegal | 74 | 244 | 1.6 | 31.8 | 18.7 | 4 | 7.38 | 0 | 0 |
| 6036 | P 151 | Cent Afr Rep | 128 | 226 | 2.2 | 17.6 | 20.5 | 2 | 7.28 | 0 | 0 |
| 6037 | P 152 | Cent Afr Rep | 128 | 231 | 1.8 | 16.9 | 15.2 | 2 | 7.02 | 5 | 0 |
| 6039 | P 154 | Cent Afr Rep | 119 | 226 | 2.3 | 15.7 | 19.4 | 2 | 8.37 | 0 | 0 |
| 6040 | P 155 | Cent Afr Rep | 116 | 212 | 2.4 | 17.9 | 21.4 | 2 | 8.28 | 0 | 0 |
| 6041 | P 156 | Cent Afr Rep | 128 | 207 | 1.8 | 14.0 | 17.1 | 2 | 8.52 | 0 | * |
| 6042 | P 157 | Cent Afr Rep | 132 | 245 | 2.4 | 19.0 | 20.1 | 2 | 9.37 | 0 | 0 |
| 6043 | P 158 | Cent Afr Rep | 132 | 237 | 2.9 | 18.2 | 14.5 | 2 | 5.40 | 0 | 0 |
| 6044 | P 159 | Cent Afr Rep | 128 | 207 | 3.2 | 18.1 | 17.6 | 2 | 9.04 | 0 | 0 |
| 6045 | P 160 | Cent Afr Rep | 135 | 180 | 4.3 | 14.9 | 15.5 | 2 | 7.08 | 0 | 0 |
| 6046 | P 161 | Cent Afr Rep | 127 | 226 | 2.5 | 16.4 | 15.5 | 2 | 6.00 | 1 | 0 |
| 6047 | P 162 | Cent Afr Rep | 125 | 247 | 2.1 | 18.5 | 16.2 | 2 | 5.61 | 0 | 0 |
| 6048 | P 163 | Cent Afr Rep | 128 | 248 | 2.6 | 21.0 | 17.1 | 4 | 7.20 | 0 | 0 |
| 6049 | P 164 | Cent Afr Rep | 129 | 248 | 3.8 | 18.2 | 18.0 | 2 | 8.47 | 0 | * |
| 6050 | P 165 | Cent Afr Rep | 136 | 238 | 4.2 | 18.2 | 19.1 | 6 | 5.65 | 1 | 70 |
| 6051 | P 166 | Cent Afr Rep | 137 | 238 | 2.3 | 31.8 | 19.1 | 2 | 4.75 | 0 | 0 |

*Continued....*

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**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6052 | P 167 | Cent Afr Rep | 127 | 255 | 2.0 | 15.5 | 15.6 | 6 | 5.98 | 0 | 0 |
| 6054 | P 169 | Cent Afr Rep | 118 | 289 | 3.8 | 19.9 | 17.2 | 2 | 6.16 | 0 | 10 |
| 6055 | P 170 | Cent Afr Rep | 129 | 244 | 2.3 | 17.5 | 19.4 | 2 | 7.71 | 0 | 0 |
| 6056 | P 171 | Cent Afr Rep | 136 | 202 | 3.8 | 15.8 | 18.2 | 2 | 6.43 | 0 | * |
| 6058 | P 173 | Cent Afr Rep | 131 | 176 | 2.3 | 12.2 | 17.4 | 4 | 8.09 | 0 | 0 |
| 6059 | P 174 | Cent Afr Rep | 126 | 186 | 2.6 | 13.6 | 16.4 | 2 | 9.14 | 0 | 0 |
| 6061 | P 176 | Cent Afr Rep | 133 | 152 | 2.0 | 13.7 | 16.1 | 4 | 7.05 | 5 | * |
| 6062 | P 177 | Cent Afr Rep | 134 | 166 | 2.2 | 14.8 | 17.2 | 2 | 6.83 | 4 | 0 |
| 6063 | P 178 | Cent Afr Rep | 136 | 158 | 2.9 | 19.0 | 16.9 | 2 | 7.06 | 0 | 0 |
| 6065 | P 180 | Cent Afr Rep | 133 | 224 | 2.8 | 15.1 | 17.1 | 2 | 7.50 | 0 | 3 |
| 6066 | P 181 | Cent Afr Rep | 118 | 230 | 2.2 | 16.1 | 14.5 | 4 | 7.18 | 0 | 5 |
| 6068 | P 183 | Cent Afr Rep | 92 | 238 | 2.6 | 17.3 | 19.8 | 2 | 7.51 | 0 | 10 |
| 6069 | P 184 | Cent Afr Rep | 128 | 250 | 4.2 | 11.4 | 23.2 | 4 | 7.79 | 2 | 10 |
| 6070 | P 185 | Cent Afr Rep | 126 | 298 | 2.2 | 20.2 | 19.8 | 4 | 7.03 | 0 | 5 |
| 6071 | P 186 | Cent Afr Rep | 123 | 270 | 2.0 | 19.1 | 18.1 | 2 | 7.43 | 0 | 5 |
| 6072 | P 187 | Cent Afr Rep | 128 | 276 | 4.2 | 18.7 | 16.2 | 2 | 7.41 | 0 | 0 |
| 6073 | P 188 | Cent Afr Rep | 126 | 256 | 2.0 | 19.5 | 15.2 | 4 | 6.51 | 0 | 0 |
| 6074 | P 189 | Cent Afr Rep | 128 | 226 | 2.0 | 16.3 | 16.5 | 4 | 6.79 | 0 | 0 |
| 6075 | P 190 | Cent Afr Rep | 130 | 270 | 3.8 | 16.1 | 19.0 | 4 | 7.51 | 3 | 0 |
| 6076 | P 191 | Cent Afr Rep | 126 | 252 | 2.6 | 15.5 | 15.5 | 4 | 6.57 | 3 | 0 |
| 6077 | P 192 | Cent Afr Rep | 123 | 272 | 2.0 | 18.3 | 15.8 | 2 | 6.92 | 2 | 0 |
| 6078 | P 193 | Cent Afr Rep | 129 | 290 | 1.8 | 20.5 | 17.3 | 2 | 6.81 | 1 | 25 |
| 6079 | P 194 | Cent Afr Rep | 128 | 248 | 2.6 | 19.2 | 18.0 | 4 | 7.80 | 2 | 0 |
| 6080 | P 195 | Cent Afr Rep | 126 | 296 | 3.1 | 23.1 | 16.6 | 4 | 7.29 | 1 | 0 |
| 6081 | P 196 | Cent Afr Rep | 123 | 268 | 2.4 | 19.7 | 21.9 | 1 | 9.26 | 0 | * |
| 6082 | P 197 | Cent Afr Rep | 122 | 282 | 2.3 | 20.1 | 19.9 | 4 | 9.33 | 2 | 5 |
| 6083 | P 198 | Cent Afr Rep | 119 | 286 | 1.7 | 21.3 | 20.0 | 6 | 8.00 | 0 | * |
| 6084 | P 199 | Cent Afr Rep | 118 | 270 | 2.5 | 18.6 | 15.8 | 4 | 7.92 | 3 | 10 |
| 6085 | P 200 | Cent Afr Rep | 117 | 314 | 3.2 | 21.7 | 18.8 | 6 | 8.09 | 0 | 5 |
| 6086 | P 202 | Cent Afr Rep | 114 | 293 | 1.8 | 17.3 | 17.7 | 4 | 7.77 | 3 | 0 |
| 6087 | P 203 | Cent Afr Rep | 127 | 272 | 2.1 | 18.2 | 21.7 | 2 | 8.18 | 0 | 5 |
| 6089 | P 205 | Cent Afr Rep | 115 | 290 | 2.6 | 18.2 | 18.1 | 4 | 8.69 | 1 | 25 |
| 6092 | P 208 | Cent Afr Rep | 116 | 214 | 2.1 | 17.1 | 16.6 | 2 | 6.94 | 2 | 5 |
| 6093 | P 209 | Cent Afr Rep | 120 | 204 | 2.3 | 14.7 | 20.3 | 4 | 7.37 | 1 | 65 |
| 6095 | P 924 | Niger | 76 | 258 | 3.2 | 23.2 | 24.9 | 6 | 9.23 | 0 | * |
| 6097 | P 925 | Niger | 47 | 140 | 3.2 | 11.0 | 26.0 | 5 | 8.32 | 1 | 40 |
| 6107 | P 944 | Niger | 58 | 180 | 1.2 | 13.0 | 25.0 | 5 | 10.58 | 1 | 65 |
| 6112 | P 949 | Niger | 67 | 237 | 3.6 | 13.8 | 31.7 | 4 | 9.31 | 0 | 25 |
| 6113 | P 965 | Niger | 92 | 273 | 1.0 | 32.0 | 16.9 | 6 | 8.89 | 2 | 40 |
| 6114 | P 2 | Cameroon | 69 | 228 | 1.2 | 15.4 | 19.0 | 4 | 9.58 | 4 | 40 |
| 6115 | P 3 | Cameroon | 65 | 241 | 1.4 | 16.8 | 19.8 | 4 | 8.56 | 0 | 40 |
| 6116 | P 5 | Cameroon | 63 | 234 | 1.5 | 17.0 | 21.5 | 4 | 6.82 | 0 | 25 |
| 6118 | P 7 | Cameroon | 68 | 241 | 1.2 | 24.0 | 20.6 | 4 | 8.44 | 0 | 10 |
| 6119 | P 8 | Cameroon | 62 | 274 | 1.5 | 21.4 | 20.0 | 6 | 7.15 | 3 | 40 |
| 6120 | P 9 | Cameroon | 67 | 248 | 1.2 | 16.8 | 18.7 | 6 | 6.51 | 0 | 5 |
| 6121 | P 11 | Cameroon | 82 | 280 | 2.0 | 26.2 | 19.6 | 5 | 7.47 | 0 | 10 |
| 6122 | P 12 | Cameroon | 82 | 304 | 1.4 | 25.0 | 23.1 | 4 | 7.86 | 0 | * |
| 6123 | P 13 | Cameroon | 91 | 275 | 1.2 | 26.2 | 21.5 | 4 | 10.15 | 0 | 25 |
| 6124 | P 14 | Cameroon | 87 | 314 | 1.6 | 20.4 | 22.4 | 4 | 8.26 | 0 | 5 |
| 6125 | P 15 | Cameroon | 87 | 274 | 1.2 | 24.6 | 24.0 | 4 | 6.81 | 0 | 10 |
| 6126 | P 16 | Cameroon | 87 | 322 | 1.2 | 25.6 | 22.6 | 6 | 7.01 | 0 | * |
| 6128 | P 20 | Cameroon | 91 | 296 | 1.6 | 23.4 | 20.9 | 4 | 9.80 | 0 | 5 |

*Continued....*

Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6129 | P 21 | Cameroon | 83 | 274 | 1.8 | 23.4 | 22.0 | 6 | 6.88 | 4 | 10 |
| 6130 | P 22 | Cameroon | 82 | 283 | 1.2 | 26.0 | 19.3 | 4 | 7.91 | 0 | 25 |
| 6131 | P 23 | Cameroon | 80 | 260 | 1.0 | 20.2 | 21.3 | 4 | 8.15 | 0 | 10 |
| 6132 | P 24 | Cameroon | 100 | 276 | 1.2 | 22.0 | 18.4 | 2 | 8.89 | 0 | 10 |
| 6133 | P 25 | Cameroon | 81 | 268 | 1.4 | 23.2 | 21.2 | 4 | 6.88 | 0 | 5 |
| 6135 | P 27 | Cameroon | 102 | 286 | 2.3 | 23.6 | 16.9 | 2 | 7.89 | 0 | 0 |
| 6136 | P 28 | Cameroon | 111 | 264 | 2.3 | 21.7 | 16.7 | 2 | 8.17 | 0 | 0 |
| 6137 | P 29 | Cameroon | 108 | 286 | 1.8 | 28.2 | 17.0 | 2 | 7.49 | 0 | 5 |
| 6138 | P 30 | Cameroon | 106 | 276 | 1.4 | 21.6 | 17.9 | 2 | 7.17 | 0 | 0 |
| 6140 | P 34 | Cameroon | 110 | 218 | 2.3 | 19.4 | 16.0 | 2 | 7.87 | 0 | 5 |
| 6141 | P 35 | Cameroon | 100 | 290 | 1.2 | 24.8 | 19.2 | 3 | 8.07 | 4 | * |
| 6142 | P 38 | Cameroon | 79 | 248 | 1.8 | 18.4 | 19.6 | 5 | 8.87 | 0 | 5 |
| 6143 | P 39 | Cameroon | 91 | 277 | 1.4 | 25.6 | 17.8 | 7 | 9.00 | 0 | 5 |
| 6144 | P 40 | Cameroon | 91 | 268 | 1.3 | 24.4 | 20.2 | 4 | 8.80 | 0 | 10 |
| 6145 | P 41 | Cameroon | 111 | 270 | 1.4 | 20.6 | 22.3 | 2 | 8.10 | 2 | 5 |
| 6146 | P 42 | Cameroon | 69 | 228 | 1.2 | 15.4 | 19.1 | 2 | 8.93 | 0 | 0 |
| 6147 | P 43 | Cameroon | 114 | 265 | 2.3 | 23.6 | 17.5 | 2 | 7.20 | 0 | * |
| 6148 | P 44 | Cameroon | 116 | 234 | 1.8 | 17.6 | 19.4 | 2 | 7.24 | 0 | 0 |
| 6149 | P 45 | Cameroon | 109 | 250 | 2.6 | 18.8 | 20.4 | 2 | 8.08 | 0 | 0 |
| 6150 | P 46 | Cameroon | 100 | 234 | 1.4 | 23.4 | 17.7 | 2 | 7.18 | 0 | 0 |
| 6151 | P 47 | Cameroon | 108 | 154 | 1.8 | 16.4 | 15.8 | 2 | 8.19 | 0 | 0 |
| 6152 | P 48 | Cameroon | 110 | 258 | 2.3 | 19.6 | 19.0 | 2 | 8.64 | 0 | 0 |
| 6154 | P 50 | Cameroon | 97 | 258 | 2.2 | 22.9 | 18.0 | 2 | 8.00 | 0 | 0 |
| 6155 | P 51 | Cameroon | 112 | 148 | 1.8 | 12.2 | 16.2 | 2 | 8.50 | 0 | 0 |
| 6158 | P 54 | Cameroon | 118 | 183 | 1.2 | 14.8 | 19.9 | 2 | 6.14 | 0 | 5 |
| 6159 | P 55 | Cameroon | 100 | 210 | 1.8 | 20.0 | 16.2 | 6 | 7.74 | 0 | 0 |
| 6160 | P 56 | Cameroon | 106 | 246 | 2.4 | 21.2 | 18.1 | 4 | 8.25 | 0 | 0 |
| 6161 | P 57 | Cameroon | 115 | 242 | 2.6 | 20.4 | 17.5 | 4 | 8.48 | 0 | 5 |
| 6162 | P 58 | Cameroon | 99 | 238 | 1.4 | 21.0 | 18.6 | 2 | 8.55 | 0 | 25 |
| 6163 | P 59 | Cameroon | 112 | 210 | 2.5 | 20.4 | 15.1 | 2 | 7.36 | 5 | 10 |
| 6164 | P 60 | Cameroon | 110 | 238 | 1.8 | 21.2 | 16.0 | 2 | 8.19 | 0 | 0 |
| 6165 | P 61 | Cameroon | 99 | 224 | 2.6 | 19.9 | 16.2 | 2 | 6.55 | 0 | 5 |
| 6166 | P 62 | Cameroon | 98 | 238 | 1.5 | 19.7 | 16.3 | 2 | 7.55 | 0 | 10 |
| 6167 | P 63 | Cameroon | 90 | 288 | 1.2 | 22.0 | 19.2 | 5 | 7.69 | 0 | * |
| 6168 | P 64 | Cameroon | 103 | 270 | 2.1 | 25.5 | 16.2 | 2 | 7.65 | 5 | * |
| 6169 | P 65 | Cameroon | 102 | 212 | 1.8 | 21.6 | 18.4 | 1 | 7.07 | 3 | 5 |
| 6170 | P 66 | Cameroon | 95 | 252 | 1.0 | 25.2 | 18.1 | 4 | 6.12 | 0 | * |
| 6171 | P 67 | Cameroon | 83 | 236 | 2.3 | 21.7 | 18.5 | 5 | 10.23 | 0 | 10 |
| 6172 | P 68 | Cameroon | 90 | 260 | 1.8 | 21.0 | 16.1 | 4 | 7.15 | 4 | 25 |
| 6173 | P 69 | Cameroon | 91 | 214 | 2.2 | 19.8 | 17.1 | 4 | 6.61 | 0 | 25 |
| 6174 | P 70 | Cameroon | 99 | 224 | 1.6 | 24.6 | 20.9 | 4 | 7.35 | 0 | 25 |
| 6175 | P 71 | Cameroon | 94 | 224 | 1.4 | 20.4 | 18.8 | 5 | 7.73 | 0 | 25 |
| 6176 | P 72 | Cameroon | 90 | 238 | 1.2 | 23.7 | 17.8 | 5 | 7.75 | 0 | 10 |
| 6177 | P 73 | Cameroon | 98 | 208 | 1.8 | 18.3 | 17.3 | 5 | 6.60 | 0 | 10 |
| 6178 | P 74 | Cameroon | 90 | 240 | 2.2 | 18.1 | 17.7 | 4 | 8.95 | 0 | 25 |
| 6179 | P 75 | Cameroon | 96 | 292 | 2.4 | 21.5 | 18.2 | 2 | 7.93 | 5 | 10 |
| 6180 | P 76 | Cameroon | 87 | 264 | 1.8 | 22.0 | 19.9 | 4 | 7.85 | 0 | 10 |
| 6181 | P 77 | Cameroon | 87 | 268 | 1.2 | 22.3 | 22.7 | 4 | 6.22 | 0 | * |
| 6182 | P 78 | Cameroon | 96 | 211 | 1.8 | 22.2 | 17.2 | 5 | 7.40 | 0 | 5 |
| 6183 | P 79 | Cameroon | 112 | 230 | 2.4 | 20.2 | 16.3 | 2 | 7.76 | 0 | 5 |
| 6184 | P 80 | Cameroon | 98 | 210 | 1.8 | 18.8 | 14.6 | 4 | 7.17 | 4 | 10 |
| 6185 | P 81 | Cameroon | 96 | 210 | 1.4 | 18.2 | 17.8 | 6 | 8.57 | 5 | 5 |

*Continued....*

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**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6186 | P 82 | Cameroon | 92 | 229 | 1.8 | 21.9 | 17.8 | 2 | 9.02 | 0 | 10 |
| 6187 | P 83 | Cameroon | 90 | 248 | 1.6 | 21.6 | 18.4 | 4 | 7.06 | 0 | 10 |
| 6188 | P 84 | Cameroon | 90 | 264 | 2.4 | 23.1 | 19.2 | 4 | 6.96 | 3 | 10 |
| 6189 | P 85 | Cameroon | 87 | 264 | 1.5 | 18.9 | 18.2 | 4 | 7.36 | 1 | 8 |
| 6190 | P 86 | Cameroon | 80 | 244 | 1.0 | 18.1 | 19.2 | 4 | 9.47 | 1 | 5 |
| 6191 | P 87 | Cameroon | 87 | 268 | 1.4 | 25.5 | 19.0 | 5 | 8.53 | 0 | 10 |
| 6192 | P 88 | Cameroon | 87 | 274 | 2.2 | 29.0 | 19.6 | 5 | 7.44 | 0 | 25 |
| 6193 | P 89 | Cameroon | 90 | 264 | 1.8 | 23.4 | 17.6 | 4 | 7.79 | 2 | 10 |
| 6194 | P 91 | Cameroon | 91 | 237 | 1.6 | 18.6 | 16.7 | 5 | 8.67 | 0 | 10 |
| 6195 | P 92 | Cameroon | 90 | 236 | 1.8 | 23.5 | 17.1 | 4 | 8.52 | 0 | 5 |
| 6196 | P 93 | Cameroon | 90 | 238 | 2.2 | 21.7 | 16.1 | 4 | 8.33 | 2 | 10 |
| 6197 | P 94 | Cameroon | 104 | 250 | 2.3 | 20.7 | 17.7 | 4 | 9.84 | 0 | 10 |
| 6198 | P 95 | Cameroon | 97 | 278 | 1.4 | 25.0 | 20.5 | 4 | 8.11 | 0 | 5 |
| 6199 | P 96 | Cameroon | 96 | 220 | 1.2 | 20.0 | 16.1 | 4 | 7.97 | 1 | 10 |
| 6200 | P 97 | Cameroon | 98 | 252 | 1.6 | 22.8 | 18.1 | 4 | 8.47 | 0 | 5 |
| 6201 | P 98 | Cameroon | 92 | 260 | 1.8 | 20.3 | 18.6 | 4 | 8.23 | 2 | 25 |
| 6202 | P 99 | Cameroon | 95 | 270 | 2.2 | 21.4 | 18.3 | 4 | 8.35 | 0 | 10 |
| 6203 | P 100 | Cameroon | 96 | 254 | 1.8 | 14.9 | 18.5 | 2 | 7.20 | 5 | * |
| 6204 | P 101 | Cameroon | 98 | 268 | 1.2 | 18.4 | 19.7 | 4 | 6.60 | 0 | 10 |
| 6205 | P 104 | Cameroon | 98 | 248 | 1.4 | 18.0 | 17.7 | 4 | 6.73 | 1 | 25 |
| 6206 | P 105 | Cameroon | 99 | 220 | 1.6 | 25.2 | 18.5 | 4 | 7.79 | 0 | 10 |
| 6207 | P 106 | Cameroon | 100 | 222 | 1.8 | 19.3 | 18.4 | 4 | 7.80 | 3 | 10 |
| 6208 | P 107 | Cameroon | 101 | 216 | 2.4 | 21.8 | 17.4 | 4 | 7.63 | 3 | 10 |
| 6209 | P 108 | Cameroon | 99 | 224 | 1.2 | 16.9 | 14.8 | 4 | 9.64 | 0 | 5 |
| 6210 | P 109 | Cameroon | 98 | 208 | 1.2 | 17.0 | 17.2 | 4 | 8.44 | 0 | 5 |
| 6211 | P 110 | Cameroon | 111 | 186 | 2.6 | 18.2 | 16.6 | 4 | 9.59 | 0 | 5 |
| 6212 | P 111 | Cameroon | 112 | 180 | 2.4 | 23.5 | 21.7 | 6 | 14.32 | 0 | 10 |
| 6214 | P 114 | Cameroon | 110 | 172 | 1.8 | 18.2 | 15.1 | 4 | 9.36 | 2 | 10 |
| 6216 | P 116 | Cameroon | 99 | 191 | 2.2 | 21.0 | 16.2 | 6 | 7.01 | 0 | 10 |
| 6218 | P 118 | Cameroon | 110 | 165 | 1.8 | 16.0 | 16.3 | 4 | 9.19 | 0 | 5 |
| 6219 | P 119 | Cameroon | 89 | 242 | 1.6 | 20.3 | 20.8 | 6 | 8.01 | 0 | 5 |
| 6220 | P 120 | Cameroon | 92 | 252 | 1.2 | 20.0 | 19.8 | 4 | 8.55 | 5 | 5 |
| 6221 | P 121 | Cameroon | 93 | 277 | 1.8 | 19.4 | 19.7 | 6 | 8.71 | 2 | 5 |
| 6222 | P 122 | Cameroon | 115 | 254 | 1.2 | 15.4 | 20.1 | 4 | 8.52 | 2 | 5 |
| 6223 | P 123 | Cameroon | 118 | 226 | 1.4 | 18.8 | 19.6 | 4 | 7.99 | 0 | 5 |
| 6224 | P 124 | Cameroon | 100 | 288 | 1.6 | 20.8 | 14.9 | 4 | 6.76 | 0 | 3 |
| 6225 | P 125 | Cameroon | 110 | 231 | 1.2 | 23.0 | 15.9 | 4 | 7.68 | 1 | 10 |
| 6227 | P 127 | Cameroon | 119 | 162 | 1.2 | 11.6 | 16.8 | 4 | 8.19 | 4 | 10 |
| 6228 | P 128 | Cameroon | 118 | 177 | 1.6 | 16.2 | 19.5 | 4 | 8.23 | 0 | 5 |
| 6229 | P 129 | Cameroon | 108 | 178 | 1.4 | 17.0 | 17.8 | 6 | 9.74 | 2 | 5 |
| 6231 | P 131 | Cameroon | 120 | 175 | 1.4 | 16.0 | 16.4 | 1 | 8.40 | 0 | 10 |
| 6232 | P 132 | Cameroon | 98 | 184 | 2.3 | 19.4 | 17.9 | 4 | 6.91 | 2 | 10 |
| 6233 | P 133 | Cameroon | 116 | 200 | 3.4 | 18.2 | 22.5 | 2 | 6.04 | 0 | 5 |
| 6234 | P 134 | Cameroon | 112 | 240 | 2.6 | 15.6 | 16.4 | 4 | 6.24 | 0 | 10 |
| 6235 | P 135 | Cameroon | 114 | 198 | 5.6 | 14.8 | 13.4 | 4 | 5.85 | 2 | 10 |
| 6237 | P 137 | Cameroon | 123 | 187 | 2.8 | 16.4 | 18.3 | 4 | 6.64 | 0 | 5 |
| 6239 | P 139 | Cameroon | 125 | 169 | 2.4 | 16.2 | 14.7 | 2 | 8.70 | 5 | 5 |
| 6240 | P 140 | Cameroon | 135 | 155 | 1.8 | 21.2 | 18.8 | 4 | 9.62 | 2 | 5 |
| 6242 | P 142 | Cameroon | 125 | 172 | 2.4 | 15.4 | 23.1 | 4 | 7.85 | 2 | 5 |
| 6243 | P 143 | Cameroon | 129 | 158 | 1.8 | 17.2 | 18.5 | 6 | 8.02 | 3 | 5 |
| 6245 | P 145 | Cameroon | 124 | 133 | 1.4 | 15.0 | 17.4 | 4 | 8.60 | 2 | 5 |
| 6246 | P 146 | Cameroon | 123 | 149 | 2.3 | 14.8 | 18.2 | 6 | 8.89 | 2 | 10 |

*Continued...*

Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6247 | P 147 | Cameroon | 114 | 178 | 2.4 | 18.8 | 20.7 | 5 | 8.87 | 2 | 5 |
| 6248 | P 148 | Cameroon | 124 | 188 | 2.6 | 17.2 | 20.6 | 2 | 10.10 | 0 | 5 |
| 6249 | P 149 | Cameroon | 117 | 204 | 1.8 | 18.0 | 20.5 | 4 | 8.24 | 3 | 5 |
| 6251 | P 213 | Mali | 67 | 222 | 1.2 | 20.6 | 31.2 | 6 | 10.24 | 0 | 65 |
| 6252 | P 215 | Mali | 79 | 209 | 1.2 | 22.1 | 23.0 | 7 | 8.28 | 0 | 100 |
| 6253 | P 218 | Mali | 67 | 233 | 1.6 | 22.8 | 27.0 | 4 | 9.32 | 5 | 65 |
| 6254 | P 219 | Mali | 75 | 222 | 1.4 | 22.0 | 26.9 | 6 | 8.91 | 0 | 100 |
| 6255 | P 220 | Mali | 99 | 258 | 1.8 | 24.6 | 21.7 | 4 | 8.65 | 0 | 65 |
| 6256 | P 221 | Mali | 71 | 214 | 1.6 | 25.6 | 32.0 | 6 | 8.81 | 0 | 100 |
| 6257 | P 222 | Mali | 67 | 221 | 1.6 | 23.8 | 26.2 | 4 | 8.43 | 4 | 100 |
| 6258 | P 224 | Mali | 71 | 213 | 2.2 | 19.4 | 28.5 | 4 | 9.70 | 4 | 100 |
| 6259 | P 226 | Mali | 74 | 171 | 1.4 | 24.4 | 29.5 | 4 | 8.38 | 0 | 100 |
| 6260 | P 227 | Mali | 66 | 190 | 2.8 | 21.6 | 31.6 | 6 | 10.33 | 0 | 100 |
| 6261 | P 228 | Mali | 63 | 242 | 3.2 | 20.4 | 30.3 | 4 | 8.43 | 0 | 100 |
| 6262 | P 230 | Mali | 66 | 262 | 2.6 | 20.4 | 33.6 | 6 | 9.07 | 0 | 40 |
| 6263 | P 233 | Mali | 67 | 233 | 2.4 | 21.6 | 30.5 | 6 | 7.90 | 0 | * |
| 6264 | P 234 | Mali | 67 | 235 | 1.6 | 18.4 | 32.1 | 6 | 9.64 | 0 | 40 |
| 6265 | P 235 | Mali | 65 | 232 | 2.6 | 20.8 | 33.3 | 6 | 10.91 | 0 | 40 |
| 6266 | P 237 | Mali | 64 | 216 | 2.6 | 21.6 | 24.7 | 4 | 9.41 | 0 | 40 |
| 6267 | P 238 | Mali | 84 | 276 | 2.6 | 26.0 | 24.3 | 4 | 7.77 | 0 | 65 |
| 6268 | P 239 | Mali | 68 | 280 | 2.0 | 22.2 | 26.6 | 6 | 8.98 | 0 | * |
| 6269 | P 240 | Mali | 70 | 237 | 2.4 | 24.2 | 35.1 | 6 | 9.60 | 1 | 10 |
| 6270 | P 241 | Mali | 92 | 285 | 2.8 | 23.1 | 24.6 | 4 | 7.59 | 0 | * |
| 6271 | P 242 | Mali | 70 | 242 | 2.0 | 24.8 | 31.8 | 6 | 11.09 | 0 | 100 |
| 6272 | P 243 | Mali | 69 | 273 | 2.0 | 21.2 | 31.3 | 6 | 10.58 | 0 | 100 |
| 6273 | P 244 | Mali | 67 | 223 | 2.8 | 22.8 | 36.7 | 4 | 9.89 | 0 | 100 |
| 6274 | P 245 | Mali | 95 | 348 | 1.8 | 28.0 | 27.6 | 6 | 7.95 | 5 | 100 |
| 6275 | P 246 | Mali | 92 | 318 | 6.2 | 23.8 | 22.8 | 4 | 9.26 | 0 | 100 |
| 6276 | P 247 | Mali | 70 | 270 | 2.6 | 20.0 | 31.1 | 6 | 9.92 | 5 | 40 |
| 6277 | P 248 | Mali | 80 | 292 | 3.0 | 28.4 | 20.5 | 4 | 9.03 | 5 | 40 |
| 6278 | P 249 | Mali | 75 | 307 | 2.2 | 30.0 | 22.4 | 4 | 8.95 | 0 | 65 |
| 6280 | P 251 | Mali | 75 | 233 | 2.2 | 27.8 | 25.9 | 6 | 8.03 | 0 | 40 |
| 6282 | P 253 | Mali | 104 | 230 | 2.2 | 19.6 | 17.5 | 4 | 7.64 | 3 | 100 |
| 6283 | P 254 | Mali | 72 | 233 | 1.6 | 25.6 | 24.8 | 4 | 9.89 | 0 | 25 |
| 6284 | P 255 | Mali | 80 | 277 | 1.2 | 26.0 | 26.5 | 4 | 8.35 | 0 | 65 |
| 6285 | P 256 | Mali | 75 | 208 | 1.0 | 22.5 | 21.5 | 4 | 8.49 | 0 | 40 |
| 6286 | P 257 | Mali | 79 | 253 | 1.0 | 24.4 | 18.8 | 7 | 7.36 | 0 | 65 |
| 6287 | P 258 | Mali | 76 | 260 | 1.2 | 25.4 | 20.8 | 4 | 8.19 | 0 | 65 |
| 6288 | P 259 | Mali | 76 | 248 | 1.8 | 20.6 | 19.8 | 6 | 8.20 | 0 | 100 |
| 6289 | P 260 | Mali | 75 | 239 | 2.2 | 28.6 | 22.4 | 6 | 7.44 | 3 | 100 |
| 6290 | P 261 | Mali | 74 | 244 | 2.2 | 28.2 | 20.9 | 4 | 7.16 | 4 | 65 |
| 6291 | P 262 | Mali | 76 | 287 | 2.6 | 27.0 | 23.0 | 6 | 7.61 | 3 | 100 |
| 6292 | P 263 | Mali | 66 | 279 | 4.0 | 28.8 | 23.9 | 4 | 8.16 | 0 | 100 |
| 6293 | P 264 | Mali | 79 | 289 | 2.8 | 25.2 | 22.3 | 6 | 6.91 | 0 | 100 |
| 6294 | P 265 | Mali | 71 | 282 | 1.8 | 29.0 | 22.1 | 6 | 8.04 | 0 | 100 |
| 6295 | P 267 | Mali | 71 | 297 | 1.6 | 27.2 | 23.5 | 4 | 6.59 | 0 | 65 |
| 6296 | P 269 | Mali | 73 | 347 | 4.2 | 25.0 | 21.1 | 6 | 7.72 | 4 | 40 |
| 6297 | P 270 | Mali | 70 | 254 | 2.4 | 25.2 | 26.8 | 6 | 8.20 | 0 | 100 |
| 6298 | P 272 | Mali | 60 | 228 | 3.8 | 22.0 | 24.7 | 6 | 6.08 | 0 | 100 |
| 6299 | P 273 | Mali | 71 | 298 | 4.4 | 29.0 | 24.1 | 4 | 6.93 | 0 | 100 |
| 6300 | P 275 | Mali | 68 | 245 | 1.6 | 22.8 | 24.0 | 6 | 7.74 | 0 | 40 |
| 6301 | P 276 | Mali | 68 | 279 | 3.0 | 25.4 | 25.7 | 6 | 7.65 | 0 | * |

*Continued....*

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Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6302 | P 277 | Mali | 80 | 296 | 1.0 | 27.4 | 24.9 | 6 | 8.59 | 0 | 40 |
| 6303 | P 278 | Mali | 80 | 252 | 1.4 | 35.6 | 25.9 | 4 | 8.49 | 0 | 40 |
| 6304 | P 280 | Mali | 80 | 276 | 2.0 | 30.2 | 27.2 | 6 | 8.00 | 0 | 40 |
| 6305 | P 281 | Mali | 75 | 294 | 3.2 | 35.4 | 25.3 | 6 | 6.41 | 0 | 65 |
| 6306 | P 282 | Mali | 79 | 296 | 2.4 | 33.0 | 27.5 | 4 | 8.03 | 0 | 40 |
| 6307 | P 283 | Mali | 80 | 296 | 1.0 | 34.0 | 24.0 | 4 | 7.79 | 0 | 40 |
| 6308 | P 284 | Mali | 80 | 304 | 1.6 | 34.6 | 24.9 | 6 | 7.38 | 0 | 40 |
| 6309 | P 285 | Mali | 79 | 316 | 2.4 | 35.6 | 25.4 | 4 | 9.01 | 0 | 40 |
| 6310 | P 286 | Mali | 80 | 322 | 2.2 | 32.6 | 22.7 | 4 | 6.25 | 3 | 25 |
| 6311 | P 288 | Mali | 78 | 316 | 2.4 | 31.8 | 25.0 | 6 | 6.29 | 0 | 25 |
| 6312 | P 289 | Mali | 80 | 264 | 1.8 | 30.6 | 22.9 | 4 | 7.02 | 0 | 25 |
| 6313 | P 290 | Mali | 82 | 309 | 2.0 | 34.6 | 26.8 | 6 | 5.02 | 5 | * |
| 6314 | P 291 | Mali | 82 | 280 | 2.4 | 30.2 | 28.6 | 6 | 7.30 | 0 | 40 |
| 6315 | P 293 | Mali | 80 | 306 | 2.4 | 31.2 | 30.9 | 4 | 7.46 | 4 | 40 |
| 6316 | P 294 | Mali | 82 | 255 | 2.4 | 32.4 | 27.2 | 4 | 5.71 | 0 | 40 |
| 6317 | P 296 | Mali | 82 | 256 | 1.8 | 29.4 | 24.7 | 6 | 6.85 | 5 | 25 |
| 6318 | P 297 | Mali | 82 | 247 | 1.2 | 26.6 | 26.5 | 4 | 7.27 | 4 | 40 |
| 6319 | P 299 | Mali | 82 | 219 | 1.0 | 26.4 | 20.5 | 6 | 7.56 | 0 | 40 |
| 6320 | P 300 | Mali | 76 | 199 | 1.0 | 25.8 | 21.8 | 4 | 6.12 | 0 | 40 |
| 6322 | P 302 | Mali | 75 | 256 | 2.0 | 28.4 | 22.4 | 7 | 6.66 | 5 | * |
| 6323 | P 303 | Mali | 77 | 230 | 2.6 | 29.0 | 25.4 | 4 | 6.68 | 0 | 25 |
| 6324 | P 304 | Mali | 75 | 243 | 1.4 | 32.0 | 22.7 | 4 | 6.64 | 0 | 40 |
| 6325 | P 306 | Mali | 80 | 263 | 4.0 | 26.4 | 21.6 | 6 | 7.48 | 0 | 40 |
| 6326 | P 307 | Mali | 74 | 211 | 1.6 | 26.2 | 22.2 | 5 | 7.78 | 0 | 25 |
| 6327 | P 308 | Mali | 72 | 262 | 3.4 | 23.2 | 23.2 | 4 | 7.87 | 5 | * |
| 6328 | P 309 | Mali | 82 | 347 | 2.0 | 36.8 | 21.8 | 4 | 8.80 | 0 | 25 |
| 6329 | P 310 | Mali | 82 | 302 | 1.4 | 49.0 | 20.0 | 4 | 9.04 | 0 | 100 |
| 6331 | P 312 | Mali | 75 | 276 | 1.8 | 30.6 | 26.4 | 6 | 6.53 | 0 | 100 |
| 6333 | P 321 | Mali | 71 | 257 | 2.0 | 24.4 | 23.8 | 4 | 6.76 | 0 | 65 |
| 6334 | P 322 | Mali | 72 | 301 | 2.2 | 27.6 | 25.1 | 6 | 7.64 | 5 | * |
| 6336 | P 326 | Mali | 71 | 226 | 3.0 | 20.0 | 21.5 | 4 | 5.87 | 4 | 100 |
| 6338 | P 329 | Mali | 71 | 261 | 3.6 | 24.0 | 21.3 | 4 | 6.77 | 4 | 25 |
| 6339 | P 331 | Mali | 74 | 232 | 4.4 | 20.4 | 20.9 | 5 | 6.85 | 0 | 25 |
| 6340 | P 333 | Mali | 72 | 246 | 4.0 | 25.8 | 27.3 | 4 | 6.43 | 0 | 65 |
| 6341 | P 336 | Mali | 78 | 237 | 3.0 | 23.8 | 26.6 | 4 | 7.19 | 5 | 40 |
| 6342 | P 337 | Mali | 78 | 283 | 2.6 | 33.2 | 27.1 | 6 | 6.79 | 0 | 40 |
| 6343 | P 338 | Mali | 75 | 282 | 2.8 | 28.0 | 23.8 | 6 | 8.12 | 0 | 40 |
| 6345 | P 340 | Mali | 77 | 241 | 2.0 | 30.2 | 22.6 | 6 | 8.38 | 0 | * |
| 6346 | P 341 | Mali | 81 | 258 | 2.2 | 30.0 | 22.9 | 6 | 7.30 | 0 | * |
| 6347 | P 342 | Mali | 80 | 281 | 4.6 | 31.2 | 24.2 | 4 | 9.55 | 5 | 40 |
| 6348 | P 343 | Mali | 80 | 243 | 3.2 | 34.4 | 24.2 | 4 | 8.09 | 0 | 25 |
| 6349 | P 345 | Mali | 82 | 245 | 1.8 | 27.2 | 21.6 | 6 | 6.22 | 0 | 40 |
| 6350 | P 346 | Mali | 82 | 269 | 2.0 | 32.4 | 19.0 | 4 | 6.10 | 0 | 65 |
| 6351 | P 347 | Mali | 82 | 268 | 1.4 | 41.4 | 18.3 | 6 | 5.28 | 0 | 40 |
| 6352 | P 348 | Mali | 81 | 280 | 1.8 | 37.2 | 24.2 | 4 | 8.43 | 4 | 40 |
| 6353 | P 349 | Mali | 81 | 298 | 1.2 | 33.0 | 22.4 | 6 | 6.60 | 0 | 25 |
| 6354 | P 351 | Mali | 82 | 273 | 2.0 | 33.2 | 23.9 | 6 | 7.16 | 3 | 40 |
| 6355 | P 352 | Mali | 81 | 286 | 2.6 | 33.6 | 21.8 | 7 | 5.89 | 2 | 65 |
| 6356 | P 353 | Mali | 82 | 268 | 2.0 | 32.3 | 24.0 | 6 | 8.35 | 4 | 65 |
| 6357 | P 354 | Mali | 82 | 290 | 2.2 | 32.8 | 23.1 | 6 | 6.91 | 0 | 25 |
| 6358 | P 355 | Mali | 91 | 286 | 2.2 | 30.8 | 18.9 | 4 | 9.19 | 0 | 10 |
| 6359 | P 356 | Mali | 87 | 310 | 2.2 | 33.8 | 23.6 | 4 | 7.69 | 0 | 40 |

*Continued....*

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Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6360 | P 357 | Mali | 90 | 239 | 1.8 | 31.6 | 21.0 | 4 | 10.45 | 0 | 40 |
| 6361 | P 358 | Mali | 90 | 314 | 1.4 | 36.8 | 20.2 | 8 | 6.85 | 0 | 40 |
| 6362 | P 359 | Mali | 91 | 316 | 1.2 | 36.8 | 21.2 | 4 | 7.72 | 0 | 10 |
| 6363 | P 361 | Mali | 87 | 272 | 1.4 | 35.4 | 21.4 | 6 | 8.04 | 0 | 40 |
| 6364 | P 362 | Mali | 91 | 297 | 1.0 | 30.8 | 21.0 | 4 | 7.41 | 0 | 40 |
| 6365 | P 364 | Mali | 85 | 299 | 1.2 | 31.0 | 21.7 | 4 | 7.43 | 0 | 40 |
| 6366 | P 365 | Mali | 88 | 265 | 1.0 | 26.0 | 17.8 | 4 | 8.51 | 0 | 40 |
| 6367 | P 366 | Mali | 90 | 230 | 1.0 | 25.0 | 23.0 | 4 | 6.98 | 0 | 65 |
| 6368 | P 367 | Mali | 87 | 285 | 1.0 | 28.4 | 22.8 | 4 | 6.54 | 0 | 65 |
| 6369 | P 368 | Mali | 85 | 266 | 1.0 | 27.4 | 21.3 | 4 | 5.24 | 0 | 100 |
| 6370 | P 370 | Mali | 85 | 268 | 1.2 | 27.8 | 19.6 | 4 | 7.07 | 0 | 65 |
| 6371 | P 372 | Mali | 84 | 320 | 1.4 | 33.2 | 19.4 | 4 | 6.96 | 0 | 40 |
| 6372 | P 373 | Mali | 84 | 276 | 1.0 | 35.6 | 24.1 | 4 | 6.64 | 0 | 65 |
| 6373 | P 374 | Mali | 85 | 290 | 1.8 | 33.2 | 21.5 | 4 | 6.56 | 0 | 100 |
| 6374 | P 375 | Mali | 92 | 270 | 1.0 | 35.0 | 24.0 | 9 | 10.86 | 5 | 65 |
| 6375 | P 376 | Mali | 92 | 276 | 1.6 | 38.4 | 25.8 | 4 | 7.31 | 4 | 40 |
| 6376 | P 377 | Mali | 87 | 282 | 1.4 | 36.8 | 27.0 | 6 | 8.70 | 5 | * |
| 6377 | P 378 | Mali | 83 | 299 | 2.0 | 28.2 | 22.9 | 6 | 7.04 | 0 | * |
| 6378 | P 380 | Mali | 98 | 319 | 1.0 | 42.0 | 28.4 | 4 | 9.36 | 0 | 25 |
| 6379 | P 381 | Mali | 88 | 316 | 2.4 | 35.0 | 23.0 | 7 | 9.40 | 0 | 65 |
| 6381 | P 383 | Mali | 92 | 318 | 1.4 | 42.6 | 25.9 | 4 | 7.72 | 0 | 40 |
| 6383 | P 385 | Mali | 96 | 304 | 1.0 | 45.4 | 28.4 | 6 | 9.74 | 0 | 10 |
| 6384 | P 386 | Mali | 98 | 340 | 1.0 | 52.0 | 28.8 | 4 | 9.36 | 0 | 40 |
| 6385 | P 387 | Mali | 98 | 340 | 1.0 | 47.6 | 23.8 | 6 | 7.85 | 0 | 10 |
| 6386 | P 388 | Mali | 101 | 358 | 1.8 | 29.2 | 23.4 | 7 | 7.93 | 0 | 10 |
| 6387 | P 390 | Mali | 97 | 360 | 1.8 | 47.0 | 23.2 | 4 | 9.10 | 0 | 10 |
| 6388 | P 392 | Mali | 103 | 332 | 1.6 | 44.0 | 24.5 | 3 | 8.19 | 0 | 10 |
| 6389 | P 394 | Mali | 102 | 343 | 2.4 | 38.8 | 29.8 | 4 | 7.81 | 0 | 10 |
| 6391 | P 396 | Mali | 95 | 350 | 1.0 | 45.4 | 26.6 | 6 | 9.61 | 0 | 25 |
| 6392 | P 397 | Mali | 96 | 312 | 1.2 | 36.6 | 24.1 | 6 | 7.79 | 0 | 65 |
| 6393 | P 398 | Mali | 92 | 319 | 1.2 | 41.6 | 32.4 | 6 | 7.51 | 0 | 5 |
| 6394 | P 399 | Mali | 96 | 341 | 1.2 | 41.4 | 31.9 | 4 | 8.14 | 0 | 25 |
| 6395 | P 400 | Mali | 94 | 309 | 1.4 | 34.6 | 23.8 | 4 | 7.18 | 0 | 100 |
| 6396 | P 401 | Mali | 88 | 338 | 1.8 | 34.6 | 20.3 | 6 | 7.02 | 0 | 65 |
| 6397 | P 402 | Mali | 91 | 331 | 1.0 | 40.6 | 23.3 | 4 | 6.58 | 0 | 65 |
| 6398 | P 403 | Mali | 92 | 320 | 1.8 | 35.4 | 20.7 | 4 | 7.37 | 0 | 100 |
| 6399 | P 404 | Mali | 88 | 282 | 3.2 | 33.0 | 21.2 | 4 | 7.53 | 3 | 100 |
| 6400 | P 406 | Mali | 96 | 299 | 1.2 | 40.8 | 19.2 | 4 | 8.10 | 4 | 40 |
| 6401 | P 407 | Mali | 96 | 325 | 1.0 | 38.4 | 22.0 | 6 | 7.16 | 3 | 100 |
| 6402 | P 408 | Mali | 95 | 297 | 1.4 | 32.2 | 22.2 | 4 | 9.10 | 3 | 65 |
| 6403 | P 409 | Mali | 98 | 277 | 1.6 | 28.0 | 20.7 | 4 | 8.33 | 0 | 40 |
| 6404 | P 410 | Mali | 97 | 290 | 1.0 | 35.4 | 17.7 | 4 | 8.60 | 0 | 100 |
| 6405 | P 411 | Mali | 97 | 307 | 1.2 | 39.0 | 19.6 | 4 | 6.34 | 3 | 65 |
| 6406 | P 412 | Mali | 100 | 325 | 1.0 | 44.6 | 19.4 | 6 | 9.14 | 0 | 10 |
| 6408 | P 414 | Mali | 97 | 320 | 3.4 | 34.6 | 20.2 | 4 | 7.79 | 0 | 25 |
| 6410 | P 417 | Mali | 103 | 340 | 1.8 | 40.4 | 19.6 | 4 | 8.13 | 0 | 10 |
| 6411 | P 418 | Mali | 95 | 299 | 1.6 | 25.4 | 21.9 | 4 | 8.33 | 5 | 10 |
| 6415 | P 422 | Mali | 67 | 262 | 3.0 | 27.6 | 23.3 | 6 | 7.62 | 0 | * |
| 6419 | P 427 | Mali | 68 | 244 | 2.8 | 31.6 | 21.0 | 6 | 9.64 | 0 | 5 |
| 6422 | P 432 | Mali | 97 | 293 | 2.4 | 30.6 | 18.6 | 6 | 8.95 | 0 | * |
| 6423 | P 433 | Mali | 99 | 316 | 2.6 | 39.0 | 24.2 | 6 | 8.65 | 0 | 10 |
| 6424 | P 434 | Mali | 100 | 317 | 3.2 | 27.6 | 21.3 | 4 | 8.79 | 0 | 10 |

*Continued....*

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Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6425 | P 435 | Mali | 99 | 337 | 1.8 | 27.8 | 22.4 | 6 | 9.23 | 1 | 5 |
| 6426 | P 436 | Mali | 101 | 324 | 2.0 | 25.4 | 22.7 | 4 | 9.07 | 0 | 10 |
| 6427 | P 437 | Mali | 103 | 340 | 2.6 | 29.8 | 24.4 | 4 | 8.25 | 0 | 25 |
| 6428 | P 439 | Mali | 102 | 316 | 2.6 | 25.0 | 23.9 | 4 | 10.43 | 2 | 5 |
| 6429 | P 441 | Mali | 101 | 213 | 2.4 | 27.4 | 22.0 | 4 | 7.80 | 0 | 10 |
| 6430 | P 442 | Mali | 98 | 301 | 3.0 | 28.4 | 19.1 | 6 | 8.86 | 1 | 5 |
| 6431 | P 443 | Mali | 95 | 312 | 3.2 | 28.6 | 19.7 | 4 | 8.64 | 1 | 40 |
| 6432 | P 444 | Mali | 98 | 308 | 2.2 | 27.2 | 23.6 | 6 | 6.64 | 2 | 10 |
| 6433 | P 446 | Mali | 70 | 262 | 1.8 | 26.1 | 24.1 | 6 | 9.20 | 0 | 5 |
| 6434 | P 447 | Mali | 98 | 304 | 1.2 | 27.6 | 22.0 | 6 | 7.80 | 0 | * |
| 6435 | P 448 | Mali | 98 | 295 | 2.6 | 30.6 | 23.7 | 6 | 7.93 | 2 | 10 |
| 6436 | P 449 | Mali | 66 | 222 | 2.0 | 18.4 | 30.8 | 6 | 9.54 | 5 | * |
| 6437 | P 450 | Mali | 99 | 306 | 2.2 | 29.8 | 25.0 | 4 | 10.58 | 0 | 25 |
| 6438 | P 451 | Mali | 99 | 319 | 2.0 | 30.6 | 23.2 | 4 | 10.52 | 0 | * |
| 6439 | P 452 | Mali | 61 | 211 | 1.8 | 22.8 | 34.3 | 4 | 9.33 | 1 | 5 |
| 6440 | P 453 | Mali | 101 | 336 | 1.4 | 33.2 | 22.1 | 4 | 9.49 | 0 | 10 |
| 6441 | P 454 | Mali | 103 | 304 | 1.4 | 22.8 | 23.1 | 4 | 9.44 | 0 | 5 |
| 6442 | P 455 | Mali | 68 | 210 | 1.2 | 24.4 | 29.0 | 7 | 8.10 | 0 | 10 |
| 6443 | P 456 | Mali | 101 | 298 | 2.2 | 26.8 | 24.0 | 4 | 8.54 | 0 | 5 |
| 6444 | P 458 | Mali | 68 | 192 | 1.6 | 18.8 | 26.6 | 7 | 7.99 | 0 | 10 |
| 6445 | P 459 | Mali | 105 | 343 | 1.4 | 27.0 | 22.3 | 4 | 11.21 | 0 | 5 |
| 6446 | P 460 | Mali | 103 | 323 | 1.6 | 27.0 | 25.7 | 4 | 7.81 | 0 | 10 |
| 6447 | P 461 | Mali | 105 | 346 | 2.2 | 27.2 | 30.9 | 4 | 8.36 | 0 | 5 |
| 6448 | P 462 | Mali | 103 | 314 | 2.0 | 33.0 | 29.2 | 4 | 8.43 | 1 | 5 |
| 6449 | P 463 | Mali | 104 | 322 | 2.2 | 29.8 | 28.4 | 4 | 11.27 | 0 | 5 |
| 6450 | P 466 | Mali | 102 | 314 | 2.0 | 32.0 | 29.6 | 4 | 11.29 | 0 | 10 |
| 6451 | P 468 | Mali | 102 | 323 | 2.8 | 30.0 | 22.7 | 4 | 11.74 | 2 | 10 |
| 6452 | P 469 | Mali | 105 | 329 | 2.4 | 28.4 | 26.6 | 4 | 12.36 | 0 | 10 |
| 6453 | P 471 | Mali | 101 | 291 | 3.0 | 27.8 | 26.5 | 4 | 11.10 | 1 | 5 |
| 6454 | P 472 | Mali | 65 | 268 | 1.8 | 27.4 | 33.2 | 6 | 11.99 | 0 | 25 |
| 6455 | P 473 | Mali | 100 | 343 | 1.6 | 36.0 | 24.1 | 4 | 10.14 | 0 | 10 |
| 6456 | P 474 | Mali | 104 | 270 | 2.8 | 30.0 | 30.0 | 6 | 11.26 | 0 | 25 |
| 6457 | P 478 | Mali | 67 | 293 | 3.6 | 27.2 | 29.5 | 6 | 10.35 | 0 | 10 |
| 6459 | P 481 | Mali | 64 | 210 | 1.4 | 26.6 | 29.6 | 6 | 10.00 | 0 | 5 |
| 6460 | P 482 | Mali | 65 | 257 | 2.0 | 24.4 | 32.2 | 6 | 9.73 | 0 | 5 |
| 6462 | P 485 | Mali | 67 | 216 | 1.0 | 22.2 | 30.2 | 4 | 7.21 | 0 | 10 |
| 6463 | P 486 | Mali | 103 | 282 | 3.8 | 26.0 | 26.9 | 6 | 10.92 | 4 | 5 |
| 6464 | P 489 | Mali | 64 | 235 | 1.6 | 24.2 | 32.8 | 6 | 7.78 | 0 | 40 |
| 6465 | P 490 | Mali | 66 | 196 | 1.6 | 23.0 | 28.5 | 6 | 10.68 | 0 | 25 |
| 6466 | P 491 | Mali | 104 | 316 | 1.8 | 27.0 | 25.9 | 4 | 11.00 | 0 | 25 |
| 6467 | P 492 | Mali | 64 | 236 | 2.2 | 24.0 | 34.3 | 4 | 8.89 | 0 | 10 |
| 6468 | P 494 | Mali | 59 | 200 | 2.6 | 26.0 | 28.8 | 6 | 11.84 | 3 | 0 |
| 6469 | P 496 | Mali | 100 | 304 | 2.8 | 30.0 | 24.8 | 4 | 8.81 | 1 | 0 |
| 6470 | P 497 | Mali | 65 | 187 | 1.8 | 18.4 | 29.5 | 6 | 10.94 | 0 | 5 |
| 6473 | P 502 | Mali | 61 | 199 | 2.6 | 18.6 | 27.7 | 4 | 9.68 | 0 | 10 |
| 6474 | P 505 | Mali | 68 | 213 | 2.6 | 21.2 | 25.9 | 6 | 8.22 | 0 | 10 |
| 6476 | P 508 | Mali | 68 | 268 | 1.4 | 24.6 | 27.9 | 4 | 9.05 | 4 | 0 |
| 6477 | P 509 | Mali | 68 | 278 | 1.8 | 23.4 | 33.7 | 6 | 8.37 | 0 | 10 |
| 6478 | P 510 | Mali | 94 | 307 | 2.4 | 28.4 | 31.9 | 4 | 9.98 | 0 | 25 |
| 6479 | P 511 | Mali | 91 | 171 | 1.8 | 26.8 | 24.5 | 6 | 9.96 | 4 | * |
| 6480 | P 512 | Mali | 75 | 266 | 3.6 | 28.4 | 25.5 | 7 | 8.82 | 0 | 10 |
| 6481 | P 513 | Mali | 68 | 312 | 2.2 | 30.6 | 33.4 | 6 | 8.98 | 1 | 10 |

*Continued....* 60

**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6482 | P 514 | Mali | 92 | 300 | 1.4 | 29.0 | 22.2 | 4 | 8.42 | 2 | 40 |
| 6483 | P 515 | Mali | 98 | 230 | 3.0 | 22.0 | 22.0 | 4 | 9.98 | 0 | 40 |
| 6484 | P 516 | Mali | 103 | 262 | 2.2 | 24.4 | 30.3 | 6 | 9.34 | 0 | 10 |
| 6485 | P 517 | Mali | 103 | 286 | 1.4 | 33.6 | 21.2 | 5 | 8.69 | 0 | * |
| 6486 | P 519 | Mali | 98 | 282 | 2.4 | 25.2 | 20.2 | 5 | 10.53 | 0 | 10 |
| 6487 | P 520 | Mali | 110 | 346 | 2.8 | 25.6 | 24.6 | 4 | 10.84 | 0 | 25 |
| 6488 | P 521 | Mali | 106 | 312 | 2.2 | 23.4 | 21.8 | 5 | 10.77 | 0 | 25 |
| 6489 | P 522 | Mali | 108 | 376 | 4.8 | 25.4 | 22.2 | 5 | 10.89 | 0 | 10 |
| 6490 | P 523 | Mali | 103 | 325 | 2.2 | 25.6 | 21.9 | 5 | 10.16 | 1 | 65 |
| 6491 | P 524 | Mali | 111 | 332 | 2.2 | 30.6 | 24.5 | 5 | 8.74 | 0 | 18 |
| 6492 | P 525 | Mali | 105 | 353 | 1.6 | 46.4 | 27.3 | 4 | 9.57 | 1 | 40 |
| 6493 | P 526 | Mali | 107 | 335 | 3.2 | 32.0 | 23.4 | 5 | 9.64 | 5 | * |
| 6494 | P 527 | Mali | 108 | 342 | 2.2 | 27.8 | 21.5 | 5 | 10.06 | 0 | 25 |
| 6495 | P 528 | Mali | 112 | 283 | 1.0 | 28.0 | 20.0 | 5 | 10.00 | 0 | * |
| 6496 | P 529 | Mali | 107 | 361 | 1.2 | 29.2 | 22.0 | 5 | 8.82 | 1 | 40 |
| 6497 | P 530 | Mali | 105 | 358 | 1.6 | 36.2 | 25.1 | 4 | 10.62 | 0 | 5 |
| 6498 | P 531 | Mali | 103 | 354 | 1.6 | 30.2 | 31.2 | 6 | 10.04 | 1 | 40 |
| 6499 | P 532 | Mali | 102 | 317 | 1.0 | 30.6 | 27.7 | 5 | 8.33 | 2 | 25 |
| 6500 | P 533 | Mali | 107 | 314 | 1.6 | 30.6 | 27.0 | 6 | 10.55 | 0 | 10 |
| 6501 | P 534 | Mali | 104 | 355 | 2.0 | 31.4 | 28.4 | 4 | 9.88 | 0 | 5 |
| 6502 | P 535 | Mali | 115 | 270 | 1.0 | 28.0 | 18.0 | 6 | 8.88 | 0 | 5 |
| 6503 | P 536 | Mali | 105 | 354 | 1.8 | 35.4 | 19.1 | 5 | 8.44 | 0 | 25 |
| 6504 | P 537 | Mali | 107 | 360 | 1.2 | 32.4 | 23.1 | 6 | 9.33 | 5 | * |
| 6505 | P 538 | Mali | 115 | 300 | 1.0 | 34.2 | 21.1 | 5 | 11.99 | 0 | 40 |
| 6506 | P 540 | Mali | 123 | 331 | 2.4 | 30.0 | 20.0 | 5 | 9.53 | 0 | 25 |
| 6507 | P 542 | Mali | 127 | 335 | 2.4 | 33.2 | 18.5 | 4 | 8.81 | 0 | 25 |
| 6508 | P 543 | Mali | 130 | 294 | 2.4 | 22.8 | 18.8 | 5 | 10.71 | 0 | 65 |
| 6509 | P 544 | Mali | 112 | 316 | 1.0 | 23.6 | 19.6 | 6 | 12.23 | 0 | 65 |
| 6510 | P 545 | Mali | 131 | 300 | 1.8 | 20.8 | 24.8 | 6 | 10.31 | 0 | 10 |
| 6511 | P 546 | Mali | 128 | 328 | 2.4 | 30.0 | 25.5 | 5 | 10.13 | 0 | 10 |
| 6513 | P 548 | Mali | 132 | 273 | 1.2 | 25.6 | 18.7 | 5 | 8.89 | 2 | 25 |
| 6514 | P 549 | Mali | 133 | 313 | 1.8 | 36.4 | 26.2 | 4 | 11.52 | 0 | 25 |
| 6516 | P 551 | Mali | 128 | 300 | 3.4 | 22.2 | 18.9 | 5 | 9.77 | 0 | 40 |
| 6517 | P 552 | Mali | 133 | 295 | 2.1 | 28.0 | 23.0 | 6 | 11.85 | 0 | 40 |
| 6518 | P 553 | Mali | 125 | 336 | 1.6 | 31.2 | 20.8 | 6 | 9.93 | 0 | 5 |
| 6519 | P 554 | Mali | 125 | 307 | 1.0 | 31.6 | 21.9 | 5 | 10.31 | 1 | 40 |
| 6520 | P 555 | Mali | 123 | 316 | 1.2 | 26.2 | 23.9 | 5 | 10.37 | 0 | 25 |
| 6521 | P 556 | Mali | 126 | 305 | 2.8 | 23.2 | 19.4 | 6 | 10.13 | 1 | 25 |
| 6522 | P 557 | Mali | 126 | 331 | 1.4 | 24.0 | 19.2 | 6 | 9.28 | 2 | 25 |
| 6523 | P 558 | Mali | 124 | 285 | 2.0 | 19.8 | 21.0 | 5 | 8.14 | 3 | 10 |
| 6524 | P 559 | Mali | 126 | 286 | 1.6 | 23.6 | 23.0 | 6 | 10.39 | 0 | 25 |
| 6525 | P 560 | Mali | 127 | 302 | 1.8 | 23.0 | 19.5 | 5 | 8.62 | 1 | 40 |
| 6526 | P 561 | Mali | 125 | 307 | 1.2 | 27.0 | 24.4 | 5 | 9.92 | 0 | 25 |
| 6527 | P 562 | Mali | 128 | 296 | 1.2 | 31.4 | 21.2 | 4 | 10.15 | 0 | 25 |
| 6528 | P 563 | Mali | 133 | 263 | 1.6 | 31.4 | 21.5 | 6 | 9.36 | 1 | 5 |
| 6529 | P 564 | Mali | 126 | 286 | 1.4 | 23.8 | 22.6 | 6 | 8.35 | 0 | 25 |
| 6530 | P 565 | Mali | 130 | 307 | 1.6 | 28.0 | 22.3 | 4 | 8.86 | 0 | * |
| 6531 | P 566 | Mali | 112 | 334 | 1.4 | 33.4 | 21.1 | 4 | 10.96 | 0 | 25 |
| 6533 | P 568 | Mali | 132 | 330 | 1.6 | 22.8 | 23.0 | 5 | 9.52 | 0 | 10 |
| 6534. | P 569 | Mali | 133 | 321 | 3.0 | 24.0 | 17.4 | 4 | 8.83 | 2 | 40 |
| 6535 | P 570 | Mali | 129 | 333 | 2.8 | 18.2 | 21.6 | 6 | 9.21 | 0 | 10 |
| 6536 | P 571 | Mali | 128 | 346 | 3.8 | 27.8 | 23.1 | 4 | 9.83 | 0 | 25 |

*Continued....*

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Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6537 | P 572 | Mali | 125 | 315 | 1.2 | 24.8 | 20.3 | 4 | 9.06 | 0 | 10 |
| 6538 | P 573 | Mali | 110 | 342 | 3.0 | 26.8 | 22.0 | 4 | 11.25 | 2 | 25 |
| 6539 | P 574 | Mali | 109 | 369 | 1.0 | 28.4 | 21.4 | 5 | 8.82 | 0 | 40 |
| 6540 | P 575 | Mali | 112 | 329 | 2.2 | 31.6 | 25.4 | 6 | 7.68 | 0 | 40 |
| 6541 | P 576 | Mali | 107 | 358 | 2.4 | 27.8 | 28.5 | 6 | 12.17 | 1 | 65 |
| 6542 | P 578 | Mali | 109 | 319 | 2.2 | 31.6 | 28.3 | 4 | 7.33 | 0 | 25 |
| 6543 | P 579 | Mali | 110 | 297 | 2.2 | 29.2 | 21.7 | 6 | 10.00 | 0 | 10 |
| 6544 | P 581 | Mali | 112 | 344 | 1.6 | 32.6 | 22.1 | 5 | 8.71 | 1 | 10 |
| 6545 | P 582 | Mali | 95 | 270 | 1.0 | 30.0 | 20.0 | 6 | 12.13 | 0 | 40 |
| 6546 | P 585 | Mali | 128 | 293 | 1.4 | 31.6 | 24.1 | 4 | 9.54 | 0 | 25 |
| 6548 | P 587 | Mali | 127 | 310 | 1.8 | 27.2 | 17.9 | 7 | 9.71 | 0 | 65 |
| 6549 | P 588 | Mali | 135 | 285 | 2.0 | 27.0 | 26.0 | 6 | 9.63 | 1 | 65 |
| 6550 | P 589 | Mali | 126 | 300 | 2.0 | 35.0 | 26.0 | 4 | 10.53 | 0 | 25 |
| 6551 | P 590 | Mali | 112 | 303 | 2.4 | 24.2 | 22.5 | 6 | 10.74 | 0 | 40 |
| 6552 | P 591 | Mali | 123 | 322 | 2.6 | 31.2 | 20.3 | 6 | 9.03 | 0 | 25 |
| 6553 | P 594 | Mali | 129 | 313 | 2.4 | 29.2 | 20.3 | 5 | 9.66 | 0 | 40 |
| 6554 | P 596 | Mali | 108 | 299 | 2.2 | 21.4 | 23.3 | 5 | 10.11 | 0 | 25 |
| 6555 | P 597 | Mali | 112 | 296 | 3.0 | 25.2 | 27.7 | 4 | 8.96 | 0 | 5 |
| 6556 | P 598 | Mali | 108 | 330 | 1.2 | 32.0 | 35.4 | 2 | 9.09 | 0 | 25 |
| 6557 | P 599 | Mali | 120 | 321 | 1.2 | 37.4 | 22.1 | 4 | 10.02 | 1 | 40 |
| 6558 | P 601 | Mali | 109 | 306 | 3.0 | 21.8 | 19.0 | 4 | 9.19 | 0 | 10 |
| 6559 | P 603 | Mali | 110 | 299 | 2.6 | 27.4 | 30.2 | 4 | 10.83 | 0 | 10 |
| 6560 | P 604 | Mali | 125 | 271 | 1.6 | 18.8 | 18.4 | 4 | 9.33 | 0 | 25 |
| 6561 | P 605 | Mali | 126 | 342 | 2.4 | 30.6 | 22.6 | 4 | 9.67 | 0 | 10 |
| 6562 | P 606 | Mali | 128 | 291 | 2.4 | 24.0 | 22.6 | 4 | 10.74 | 1 | 5 |
| 6564 | P 608 | Mali | 138 | 260 | 2.8 | 32.0 | 23.0 | 4 | 11.27 | 0 | 25 |
| 6565 | P 611 | Mali | 127 | 313 | 1.0 | 36.2 | 21.9 | 4 | 9.27 | 1 | 40 |
| 6566 | P 612 | Mali | 127 | 337 | 2.8 | 28.0 | 23.3 | 4 | 10.68 | 2 | 10 |
| 6567 | P 613 | Mali | 130 | 316 | 2.6 | 32.8 | 23.5 | 4 | 13.99 | 0 | 10 |
| 6568 | P 614 | Mali | 138 | 260 | 1.8 | 28.5 | 21.0 | 4 | 9.64 | 0 | 25 |
| 6569 | P 615 | Mali | 139 | 288 | 1.6 | 35.2 | 22.8 | 4 | 11.01 | 0 | 40 |
| 6570 | P 616 | Mali | 108 | 260 | 2.0 | 30.0 | 21.0 | 4 | 9.50 | 0 | 40 |
| 6571 | P 617 | Mali | 130 | 346 | 3.6 | 30.8 | 23.2 | 4 | 8.86 | 1 | 25 |
| 6572 | P 618 | Mali | 132 | 340 | 3.0 | 36.0 | 21.9 | 4 | 11.34 | 0 | 25 |
| 6573 | P 619 | Mali | 128 | 319 | 1.8 | 48.4 | 20.2 | 6 | 9.30 | 0 | 0 |
| 6574 | SAOUGA LOCAL 1 | Burkina Faso | 71 | 280 | 2.0 | 45.0 | 19.0 | 8 | 10.08 | 5 | 0 |
| 6575 | SAOUGA LOCAL 2 | Burkina Faso | 94 | 240 | 4.0 | 57.0 | 27.0 | 7 | 9.16 | 0 | 10 |
| 6576 | SAOUGA LOCAL 5 | Burkina Faso | 93 | 240 | 4.0 | 45.0 | 25.0 | 7 | 7.93 | 4 | 10 |
| 6577 | SAOUGA LOCAL 4 | Burkina Faso | 92 | 260 | 3.2 | 75.0 | 35.0 | 7 | 9.64 | 0 | 10 |
| 6579 | SAD 1 | Malawi | 60 | 271 | 3.0 | 19.4 | 27.6 | 5 | 5.60 | 0 | 5 |
| 6583 | SAD 19 | Malawi | 62 | 252 | 3.0 | 24.6 | 21.8 | 6 | 5.36 | 1 | 5 |
| 6584 | SAD 20 | Malawi | 57 | 240 | 2.0 | 26.4 | 21.2 | 6 | 6.52 | 2 | 5 |
| 6588 | SAD 27 | Malawi | 61 | 248 | 4.0 | 28.8 | 22.8 | 6 | 5.40 | 1 | 8 |
| 6590 | SAD 28 | Malawi | 64 | 245 | 2.0 | 26.4 | 26.0 | 6 | 5.96 | 0 | 5 |
| 6591 | SAD 34 | Malawi | 65 | 246 | 2.0 | 25.6 | 22.4 | 6 | 6.80 | 1 | 5 |
| 6592 | SAD 39 | Malawi | 60 | 243 | 2.0 | 24.0 | 24.8 | 6 | 6.36 | 1 | 5 |
| 6593 | SAD 40 | Malawi | 62 | 245 | 3.0 | 24.8 | 22.8 | 5 | 7.05 | 0 | 10 |
| 6594 | SAD 41 | Malawi | 60 | 240 | 3.0 | 26.8 | 25.2 | 6 | 6.91 | 3 | 10 |
| 6595 | SAD 42 | Malawi | 60 | 242 | 3.0 | 26.6 | 22.0 | 5 | 7.02 | 0 | 10 |
| 6596 | SAD 43 | Malawi | 58 | 238 | 2.0 | 25.6 | 25.6 | 6 | 6.55 | 0 | 25 |
| 6597 | SAD 55 | Malawi | 57 | 249 | 3.0 | 27.4 | 24.0 | 5 | 6.50 | 0 | 10 |
| 6598 | SAD 45 | Malawi | 60 | 243 | 3.0 | 23.2 | 26.0 | 5 | 8.19 | 0 | 25 |

*Continued....*

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**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6599 | SAD 47 | Malawi | 57 | 235 | 3.0 | 23.6 | 23.2 | 5 | 6.08 | 1 | 5 |
| 6600 | SAD 50 | Malawi | 58 | 261 | 3.0 | 24.4 | 25.8 | 6 | 7.06 | 0 | 5 |
| 6602 | SAD 54 | Malawi | 57 | 268 | 3.0 | 21.8 | 25.2 | 6 | 6.81 | 0 | 10 |
| 6603 | SAD 57 | Malawi | 56 | 251 | 2.0 | 24.6 | 20.4 | 5 | 6.22 | 0 | * |
| 6604 | SAD 58 | Malawi | 58 | 260 | 3.0 | 26.8 | 23.8 | 6 | 5.79 | 0 | 25 |
| 6605 | SAD 61 | Malawi | 57 | 232 | 3.0 | 23.2 | 23.8 | 6 | 5.76 | 1 | 25 |
| 6606 | SAD 62 | Malawi | 56 | 244 | 2.0 | 22.4 | 20.2 | 6 | 6.00 | 1 | 10 |
| 6608 | SAD 65 | Malawi | 65 | 269 | 3.0 | 23.4 | 26.0 | 5 | 7.57 | 0 | 0 |
| 6609 | SAD 66 | Malawi | 64 | 249 | 4.0 | 25.2 | 22.6 | 6 | 6.22 | 2 | 0 |
| 6610 | SAD 70 | Malawi | 61 | 251 | 3.0 | 20.8 | 19.6 | 6 | 7.21 | 0 | 10 |
| 6611 | SAD 71 | Malawi | 57 | 244 | 3.0 | 22.0 | 17.2 | 4 | 6.70 | 2 | 5 |
| 6612 | SAD 72 | Malawi | 64 | 275 | 2.0 | 26.0 | 23.2 | 5 | 6.54 | 1 | 0 |
| 6614 | SAD 76 | Malawi | 61 | 269 | 2.0 | 24.0 | 22.0 | 6 | 6.62 | 2 | 10 |
| 6616 | SAD 80 | Malawi | 59 | 257 | 3.0 | 25.8 | 22.2 | 6 | 6.46 | 1 | 5 |
| 6618 | SAD 81 | Malawi | 63 | 269 | 3.0 | 26.6 | 23.0 | 5 | 7.56 | 1 | 10 |
| 6619 | SAD 86 | Malawi | 64 | 247 | 2.0 | 23.2 | 19.0 | 6 | 5.95 | 0 | 0 |
| 6620 | SAD 92 | Malawi | 71 | 248 | 3.0 | 23.2 | 16.6 | 5 | 7.00 | 0 | 0 |
| 6621 | SAD 95 | Malawi | 57 | 262 | 2.0 | 24.2 | 22.8 | 6 | 5.88 | 1 | 0 |
| 6622 | SAD 97 | Malawi | 60 | 238 | 1.0 | 24.4 | 19.0 | 6 | 8.35 | 1 | 40 |
| 6624 | SAD 99 | Malawi | 64 | 260 | 2.0 | 21.4 | 21.0 | 6 | 8.60 | 0 | 0 |
| 6625 | SAD 100 | Malawi | 61 | 245 | 2.0 | 21.8 | 21.6 | 4 | 6.42 | 3 | 0 |
| 6626 | SAD 101 | Malawi | 61 | 237 | 2.0 | 20.6 | 19.8 | 6 | 6.00 | 3 | 0 |
| 6627 | SAD 102 | Malawi | 61 | 245 | 3.0 | 27.6 | 21.6 | 5 | 7.08 | 3 | 5 |
| 6628 | SAD 103A | Malawi | 61 | 299 | 3.0 | 21.2 | 19.2 | 6 | 6.80 | 3 | 5 |
| 6631 | SAD 107 | Malawi | 64 | 240 | 3.0 | 22.2 | 20.4 | 5 | 6.26 | 0 | 5 |
| 6632 | SAD 108 | Malawi | 63 | 243 | 2.0 | 24.8 | 23.2 | 5 | 5.85 | 3 | 5 |
| 6633 | SAD 109 | Malawi | 61 | 244 | 3.0 | 24.4 | 25.0 | 6 | 5.48 | 3 | 5 |
| 6635 | SAD 118 | Malawi | 61 | 246 | 3.0 | 23.2 | 22.2 | 5 | 5.31 | 1 | 5 |
| 6636 | SAD 119 | Malawi | 63 | 257 | 3.0 | 24.6 | 22.6 | 6 | 6.32 | 1 | 10 |
| 6637 | SAD 120 | Malawi | 64 | 256 | 2.0 | 29.7 | 22.4 | 5 | 5.74 | 3 | 5 |
| 6639 | SAD 126 | Malawi | 61 | 248 | 3.0 | 26.2 | 20.6 | 6 | 5.59 | 0 | 5 |
| 6640 | SAD 127 | Malawi | 64 | 255 | 2.0 | 27.4 | 21.2 | 6 | 5.96 | 5 | 10 |
| 6641 | SAD 128 | Malawi | 60 | 240 | 2.0 | 27.0 | 20.8 | 5 | 5.79 | 3 | 10 |
| 6642 | SAD 130 | Malawi | 64 | 250 | 2.0 | 25.4 | 20.0 | 6 | 6.46 | 4 | 5 |
| 6643 | SAD 131 | Malawi | 57 | 247 | 2.0 | 24.0 | 19.0 | 5 | 6.45 | 2 | 8 |
| 6645 | SAD 139 | Malawi | 62 | 281 | 3.0 | 29.2 | 20.2 | 5 | 7.92 | 0 | 5 |
| 6646 | SAD 156 | Malawi | 59 | 243 | 2.0 | 25.6 | 19.0 | 6 | 5.90 | 0 | 5 |
| 6647 | SAD 159 | Malawi | 58 | 271 | 2.0 | 26.8 | 20.0 | 5 | 6.31 | 0 | 10 |
| 6649 | SAD 166 | Malawi | 64 | 185 | 2.0 | 24.2 | 21.0 | 6 | 6.48 | 0 | 10 |
| 6650 | SAD 176 | Malawi | 61 | 255 | 2.0 | 23.8 | 21.4 | 5 | 6.14 | 4 | 25 |
| 6651 | SAD 179 | Malawi | 61 | 250 | 3.0 | 21.4 | 21.4 | 6 | 5.84 | 0 | 10 |
| 6652 | SAD 187 | Malawi | 58 | 250 | 3.0 | 21.6 | 21.6 | 6 | 5.69 | 1 | 10 |
| 6653 | SAD 188 | Malawi | 56 | 251 | 2.0 | 22.4 | 21.0 | 6 | 5.14 | 0 | 5 |
| 6654 | SAD 192 | Malawi | 58 | 251 | 2.0 | 24.2 | 23.2 | 7 | 6.66 | 1 | 10 |
| 6655 | SAD 197 | Malawi | 58 | 256 | 3.0 | 21.6 | 22.8 | 6 | 6.05 | 0 | 10 |
| 6656 | SAD 198 | Malawi | 58 | 251 | 3.0 | 23.4 | 23.2 | 5 | 7.32 | 0 | 10 |
| 6661 | SAD 208 | Malawi | 57 | 245 | 3.0 | 23.4 | 22.2 | 6 | 6.72 | 1 | 25 |
| 6663 | SAD 210 | Malawi | 58 | 257 | 4.0 | 28.8 | 21.8 | 5 | 6.23 | 1 | 5 |
| 6665 | SAD 213 | Malawi | 64 | 265 | 2.0 | 27.4 | 23.6 | 5 | 7.27 | 1 | 25 |
| 6666 | SAD 214 | Malawi | 63 | 268 | 2.0 | 28.2 | 20.2 | 5 | 7.68 | 5 | 10 |
| 6667 | SAD 215 | Malawi | 59 | 257 | 3.0 | 27.2 | 21.4 | 6 | 6.76 | 3 | 5 |
| 6669 | SAD 217 | Malawi | 63 | 261 | 3.0 | 26.2 | 22.8 | 5 | 7.86 | 2 | 5 |

*Continued....*

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**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6670 | SAD 218 | Malawi | 63 | 247 | 3.0 | 33.4 | 21.6 | 5 | 6.86 | 0 | 5 |
| 6671 | SAD 220 | Malawi | 61 | 262 | 3.0 | 30.6 | 21.2 | 6 | 6.49 | 0 | 5 |
| 6672 | SAD 221 | Malawi | 58 | 250 | 5.0 | 26.6 | 19.0 | 5 | 7.64 | 5 | 10 |
| 6673 | SAD 222 | Malawi | 62 | 259 | 5.0 | 30.0 | 23.0 | 7 | 7.22 | 5 | 5 |
| 6674 | SAD 223 | Malawi | 65 | 268 | 4.0 | 28.8 | 23.0 | 5 | 7.27 | 3 | 5 |
| 6675 | SAD 224 | Malawi | 63 | 256 | 3.0 | 25.6 | 21.0 | 6 | 6.99 | 1 | 5 |
| 6676 | SAD 227 | Malawi | 64 | 270 | 2.0 | 30.4 | 21.2 | 6 | 6.56 | 1 | 5 |
| 6679 | SAD 230 | Malawi | 61 | 219 | 2.0 | 24.2 | 21.4 | 6 | 6.48 | 1 | 25 |
| 6680 | SAD 231 | Malawi | 58 | 262 | 2.0 | 27.0 | 20.8 | 6 | 7.26 | 0 | 25 |
| 6681 | SAD 232 | Malawi | 63 | 238 | 3.0 | 26.0 | 21.8 | 5 | 6.77 | 0 | 25 |
| 6683 | SAD 237 | Malawi | 62 | 253 | 2.0 | 33.8 | 23.6 | 6 | 7.30 | 1 | 5 |
| 6684 | SAD 238 | Malawi | 64 | 248 | 3.0 | 30.0 | 21.8 | 5 | 8.18 | 1 | 10 |
| 6686 | SAD 243 | Malawi | 63 | 268 | 3.0 | 28.8 | 20.8 | 6 | 7.72 | 0 | 10 |
| 6688 | SAD 245 | Malawi | 64 | 252 | 2.0 | 26.4 | 18.4 | 5 | 7.97 | 2 | 10 |
| 6689 | SAD 248 | Malawi | 58 | 256 | 2.0 | 27.4 | 19.4 | 5 | 7.59 | 0 | 25 |
| 6690 | SAD 249 | Malawi | 58 | 253 | 2.0 | 24.8 | 23.4 | 6 | 6.95 | 4 | 5 |
| 6691 | SAD 250 | Malawi | 64 | 260 | 4.0 | 26.0 | 19.8 | 5 | 6.36 | 5 | 10 |
| 6692 | SAD 251A | Malawi | 64 | 230 | 2.0 | 26.8 | 22.0 | 5 | 6.85 | 5 | 10 |
| 6695 | SAD 253 | Malawi | 60 | 247 | 3.0 | 27.8 | 23.2 | 6 | 7.12 | 0 | 10 |
| 6697 | SAD 257 | Malawi | 61 | 245 | 2.0 | 21.2 | 23.4 | 6 | 6.26 | 2 | 10 |
| 6698 | SAD 258 | Malawi | 63 | 251 | 2.0 | 23.2 | 20.8 | 6 | 5.62 | 1 | 25 |
| 6700 | SAD 264 | Malawi | 64 | 245 | 2.0 | 23.6 | 22.0 | 5 | 7.33 | 0 | 25 |
| 6701 | SAD 266 | Malawi | 60 | 259 | 2.0 | 25.4 | 21.2 | 5 | 6.49 | 1 | 25 |
| 6702 | SAD 269 | Malawi | 57 | 247 | 3.0 | 25.0 | 20.0 | 5 | 6.79 | 5 | 25 |
| 6703 | SAD 270 | Malawi | 56 | 263 | 4.0 | 24.0 | 22.4 | 6 | 6.81 | 5 | 25 |
| 6704 | SAD 275 | Malawi | 58 | 253 | 4.0 | 23.0 | 18.0 | 6 | 7.21 | 0 | 10 |
| 6705 | SAD 276 | Malawi | 61 | 264 | 3.0 | 29.6 | 25.6 | 5 | 7.30 | 1 | 0 |
| 6707 | SAD 278 | Malawi | 58 | 260 | 3.0 | 29.4 | 23.2 | 5 | 6.75 | 1 | 5 |
| 6708 | SAD 282 | Malawi | 57 | 255 | 3.0 | 27.2 | 18.2 | 6 | 6.96 | 2 | 5 |
| 6709 | SAD 284 | Malawi | 58 | 252 | 4.0 | 27.0 | 22.8 | 6 | 6.57 | 4 | 0 |
| 6710 | SAD 285 | Malawi | 62 | 270 | 3.0 | 24.4 | 23.6 | 6 | 6.80 | 0 | 5 |
| 6712 | SAD 288 | Malawi | 61 | 262 | 2.0 | 26.4 | 24.3 | 5 | 7.44 | 5 | * |
| 6713 | SAD 299 | Malawi | 63 | 252 | 3.0 | 23.6 | 22.0 | 6 | 7.09 | 4 | 5 |
| 6714 | SAD 300 | Malawi | 61 | 250 | 2.0 | 24.8 | 20.4 | 7 | 7.55 | 3 | 10 |
| 6718 | SAD 305 | Malawi | 56 | 245 | 2.0 | 20.6 | 19.0 | 6 | 8.46 | 2 | 10 |
| 6720 | SAD 307 | Malawi | 58 | 242 | 2.0 | 25.6 | 22.0 | 5 | 7.56 | 1 | 10 |
| 6725 | SAD 321 | Malawi | 63 | 268 | 2.0 | 29.2 | 22.2 | 6 | 7.02 | 1 | 40 |
| 6726 | SAD 323 | Malawi | 58 | 264 | 2.0 | 26.8 | 20.8 | 5 | 7.35 | 0 | 5 |
| 6727 | SAD 324 | Malawi | 64 | 245 | 2.0 | 25.2 | 20.4 | 6 | 7.70 | 3 | 25 |
| 6729 | SAD 327 | Malawi | 61 | 222 | 2.0 | 23.6 | 17.6 | 5 | 7.10 | 5 | 5 |
| 6731 | SAD 329 | Malawi | 62 | 239 | 2.0 | 23.8 | 19.4 | 6 | 7.05 | 0 | 10 |
| 6737 | SAD 349 | Malawi | 61 | 240 | 3.0 | 23.0 | 24.6 | 6 | 6.50 | 2 | 18 |
| 6738 | SAD 365 | Malawi | 61 | 237 | 2.0 | 26.4 | 35.8 | 5 | 7.06 | 1 | 25 |
| 6739 | SAD 386 | Malawi | 63 | 249 | 2.0 | 25.0 | 23.2 | 7 | 5.96 | 0 | 25 |
| 6740 | SAD 389 | Malawi | 62 | 274 | 2.0 | 24.8 | 23.2 | 5 | 8.52 | 0 | 25 |
| 6741 | SAD 394 | Malawi | 62 | 226 | 2.0 | 19.4 | 21.4 | 5 | 5.28 | 0 | 25 |
| 6742 | SAD 398 | Malawi | 64 | 240 | 2.0 | 20.6 | 25.6 | 6 | 6.65 | 1 | 10 |
| 6743 | SAD 400 | Malawi | 63 | 259 | 3.0 | 28.2 | 20.0 | 5 | 5.90 | 2 | 10 |
| 6744 | SAD 401 | Malawi | 63 | 228 | 3.0 | 23.6 | 19.4 | 6 | 6.77 | 1 | 10 |
| 6746 | SAD 406 | Malawi | 60 | 238 | 3.0 | 22.0 | 23.6 | 6 | 7.33 | 1 | 10 |
| 6747 | SAD 407 | Malawi | 58 | 254 | 2.0 | 27.4 | 22.0 | 5 | 8.23 | 1 | 25 |
| 6748 | SAD 408 | Malawi | 63 | 250 | 2.0 | 23.0 | 25.8 | 5 | 6.40 | 0 | 25 |

*Continued...*

**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6749 | SAD 409A | Malawi | 61 | 262 | 3.0 | 27.2 | 19.2 | 5 | 7.36 | 1 | 40 |
| 6751 | SAD 410 | Malawi | 62 | 258 | 3.0 | 26.8 | 22.0 | 7 | 7.08 | 0 | 25 |
| 6752 | SAD 411 | Malawi | 67 | 219 | 2.0 | 21.8 | 19.2 | 5 | 7.10 | 2 | 25 |
| 6753 | SAD 413 | Malawi | 60 | 282 | 3.0 | 26.8 | 24.8 | 5 | 6.92 | 4 | 25 |
| 6755 | SAD 416 | Malawi | 63 | 260 | 2.0 | 26.6 | 21.8 | 5 | 7.55 | 1 | 25 |
| 6757 | SAD 418 | Malawi | 64 | 246 | 4.0 | 23.6 | 20.8 | 5 | 7.38 | 0 | 10 |
| 6758 | SAD 421 | Malawi | 61 | 226 | 2.0 | 23.6 | 18.4 | 5 | 6.91 | 0 | 25 |
| 6763 | SAD 444 | Malawi | 57 | 232 | 2.0 | 21.2 | 26.0 | 5 | 7.59 | 1 | 5 |
| 6764 | SAD 448 | Malawi | 111 | 320 | 4.0 | 25.0 | 22.0 | 5 | 7.35 | 0 | 40 |
| 6765 | SAD 452 | Malawi | 61 | 232 | 2.0 | 22.6 | 25.8 | 5 | 5.42 | 0 | 25 |
| 6767 | SAD 459 | Malawi | 58 | 224 | 2.0 | 23.2 | 24.8 | 5 | 5.65 | 2 | 40 |
| 6769 | SAD 470 | Malawi | 57 | 199 | 2.0 | 21.8 | 21.0 | 6 | 5.89 | 1 | 40 |
| 6774 | SAD 508 | Malawi | 107 | 250 | 2.0 | 25.0 | 22.0 | 5 | 3.54 | 0 | 25 |
| 6778 | SAD 551 | Malawi | 66 | 259 | 2.0 | 26.4 | 22.6 | 6 | 5.94 | 1 | 25 |
| 6779 | SAD 552 | Malawi | 64 | 232 | 2.0 | 22.6 | 22.6 | 5 | 5.38 | 0 | 25 |
| 6780 | SAD 576 | Malawi | 63 | 262 | 2.0 | 24.4 | 20.1 | 4 | 5.52 | 1 | 10 |
| 6784 | SAD 640 | Malawi | 68 | 244 | 2.0 | 24.8 | 21.2 | 5 | 5.45 | 1 | 25 |
| 6785 | SAD 643 | Malawi | 58 | 236 | 1.0 | 28.0 | 22.2 | 5 | 6.34 | 2 | 25 |
| 6786 | SAD 665 | Malawi | 59 | 236 | 3.0 | 21.4 | 21.8 | 5 | 6.70 | 1 | 40 |
| 6789 | SAD 680 | Malawi | 64 | 235 | 3.0 | 26.8 | 19.8 | 5 | 7.43 | 1 | 10 |
| 6790 | SAD 685 | Malawi | 108 | 250 | 2.0 | 32.0 | 28.0 | 4 | 5.60 | 5 | 5 |
| 6791 | SAD 690 | Malawi | 93 | 310 | 3.0 | 29.0 | 24.0 | 5 | 4.50 | 0 | 10 |
| 6801 | SAD 825 | Malawi | 102 | 320 | 5.0 | 29.0 | 22.0 | 5 | 4.41 | 3 | 25 |
| 6807 | SAD 874 | Malawi | 58 | 244 | 3.0 | 22.2 | 22.8 | 5 | 6.78 | 1 | 25 |
| 6808 | SAD 875 | Malawi | 58 | 232 | 2.0 | 21.2 | 20.6 | 5 | 8.88 | 1 | 25 |
| 6809 | SAD 900 | Malawi | 59 | 246 | 2.0 | 23.6 | 19.6 | 5 | 6.70 | 0 | 25 |
| 6810 | SAD 911 | Malawi | 64 | 278 | 1.0 | 24.0 | 24.8 | 6 | 7.78 | 0 | 10 |
| 6811 | SAD 912 | Malawi | 59 | 250 | 3.0 | 26.8 | 21.8 | 5 | 9.71 | 0 | 25 |
| 6812 | SAD 922 | Malawi | 59 | 292 | 2.0 | 34.4 | 26.4 | 5 | 7.83 | 0 | 25 |
| 6813 | SAD 938 | Malawi | 63 | 280 | 2.0 | 27.8 | 31.8 | 6 | 7.25 | 0 | 40 |
| 6814 | SAD 939 | Malawi | 64 | 256 | 2.0 | 29.6 | 29.0 | 5 | 6.71 | 1 | 10 |
| 6815 | SAD 942 | Malawi | 66 | 224 | 2.0 | 24.6 | 25.4 | 6 | 5.30 | 5 | 25 |
| 6816 | SAD 960 | Malawi | 63 | 242 | 2.0 | 25.2 | 22.0 | 5 | 7.02 | 0 | 65 |
| 6817 | SAD 973 | Malawi | 61 | 264 | 2.0 | 27.2 | 22.6 | 6 | 7.69 | 4 | 10 |
| 6818 | SAD 980 | Malawi | 64 | 260 | 2.0 | 24.0 | 21.0 | 5 | 7.45 | 0 | 40 |
| 6819 | SAD 986 | Malawi | 62 | 238 | 2.0 | 25.0 | 20.8 | 6 | 7.90 | 4 | 25 |
| 6821 | SAD 991 | Malawi | 61 | 242 | 2.0 | 26.6 | 19.8 | 4 | 7.84 | 1 | 10 |
| 6824 | SAD 1000 | Malawi | 65 | 264 | 3.0 | 30.4 | 20.0 | 5 | 6.35 | 1 | 25 |
| 6825 | SAD 1009 | Malawi | 61 | 226 | 3.0 | 22.6 | 24.6 | 5 | 7.22 | 1 | 10 |
| 6827 | SAD 1017B | Malawi | 63 | 250 | 2.5 | 42.0 | 27.0 | 4 | 6.68 | 1 | 10 |
| 6828 | SAD 1035 | Malawi | 63 | 247 | 3.0 | 26.4 | 26.6 | 6 | 7.19 | 1 | 5 |
| 6829 | SAD 1036 | Malawi | 62 | 256 | 2.0 | 24.0 | 22.0 | 6 | 7.29 | 2 | 5 |
| 6830 | SAD 1037 | Malawi | 64 | 276 | 3.0 | 31.4 | 22.6 | 5 | 5.94 | 1 | 5 |
| 6831 | SAD 1038 | Malawi | 68 | 268 | 3.0 | 32.0 | 21.6 | 5 | 6.55 | 2 | 10 |
| 6832 | SAD 1039A | Malawi | 65 | 228 | 4.0 | 25.6 | 18.6 | 6 | 6.06 | 1 | 5 |
| 6834 | SAD 1040 | Malawi | 65 | 268 | 2.0 | 30.4 | 20.6 | 5 | 7.72 | 3 | 25 |
| 6835 | SAD 1041 | Malawi | 74 | 195 | 2.0 | 32.2 | 20.0 | 4 | 6.68 | 3 | 25 |
| 6836 | SAD 1042 | Malawi | 68 | 202 | 2.0 | 27.8 | 27.0 | 5 | 5.75 | 0 | 10 |
| 6837 | SAD 1043 | Malawi | 58 | 204 | 2.0 | 25.0 | 20.6 | 5 | 7.50 | 0 | 5 |
| 6838 | SAD 1049 | Malawi | 65 | 230 | 2.0 | 26.2 | 19.6 | 6 | 7.33 | 0 | 10 |
| 6839 | SAD 1050 | Malawi | 66 | 225 | 3.0 | 27.6 | 19.6 | 5 | 6.93 | 2 | 10 |
| 6840 | SAD 1051 | Malawi | 68 | 217 | 1.0 | 31.6 | 22.4 | 5 | 6.39 | 3 | 10 |

*Continued....*

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**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6841 | SAD 1052 | Malawi | 68 | 218 | 2.0 | 28.8 | 17.4 | 5 | 5.94 | 3 | 25 |
| 6842 | SAD 1053 | Malawi | 61 | 208 | 2.0 | 25.2 | 21.6 | 5 | 7.61 | 4 | 25 |
| 6843 | SAD 1058 | Malawi | 67 | 202 | 3.0 | 26.0 | 17.6 | 5 | 5.31 | 1 | 25 |
| 6844 | SAD 1077 | Malawi | 61 | 177 | 3.0 | 20.0 | 20.2 | 5 | 6.24 | 3 | 40 |
| 6845 | SAD 1080 | Malawi | 62 | 196 | 1.0 | 23.2 | 18.8 | 5 | 5.20 | 1 | 25 |
| 6846 | SAD 1086 | Malawi | 65 | 159 | 2.0 | 20.8 | 18.4 | 5 | 5.54 | 2 | 10 |
| 6855 | ACC 080 | Kenya | 85 | 220 | 4.8 | 16.4 | 22.8 | 4 | 4.33 | 5 | 10 |
| 6862 | ACC 087 | Kenya | 76 | 236 | 12.5 | 20.7 | 26.2 | 4 | 7.15 | 0 | * |
| 6867 | ACC 102 | Kenya | 82 | 260 | 11.0 | 22.6 | 18.5 | 4 | 5.25 | 4 | 25 |
| 6868 | ACC 104 | Kenya | 84 | 250 | 5.2 | 24.1 | 23.2 | 4 | 6.45 | 4 | 25 |
| 6870 | ACC 108 | Kenya | 90 | 292 | 6.4 | 15.9 | 20.6 | 4 | 4.53 | 0 | 65 |
| 6871 | ACC 110 | Kenya | 89 | 238 | 4.8 | 17.0 | 24.6 | 4 | 5.16 | 0 | * |
| 6872 | ACC 111 | Kenya | 82 | 226 | 5.4 | 17.0 | 22.8 | 6 | 5.34 | 4 | 65 |
| 6873 | ACC 112 | Kenya | 90 | 274 | 2.2 | 18.0 | 26.3 | 4 | 4.76 | 0 | 100 |
| 6874 | ACC 113 | Kenya | 91 | 216 | 4.8 | 19.7 | 22.2 | 4 | 5.31 | 0 | 40 |
| 6876 | ACC 117 | Kenya | 90 | 250 | 5.0 | 20.9 | 25.7 | 4 | 5.39 | 3 | 10 |
| 6877 | ACC 118 | Kenya | 91 | 250 | 3.8 | 22.4 | 22.4 | 4 | 5.95 | 3 | 25 |
| 6880 | ACC 121 | Kenya | 91 | 245 | 5.2 | 21.1 | 25.2 | 4 | 5.08 | 2 | 40 |
| 6882 | ACC 124 | Kenya | 91 | 280 | 6.2 | 19.8 | 21.9 | 4 | 5.69 | 4 | 40 |
| 6883 | ACC 127 | Kenya | 86 | 226 | 10.8 | 21.0 | 20.3 | 4 | 4.57 | 3 | 40 |
| 6886 | ACC 132 | Kenya | 85 | 240 | 5.2 | 16.5 | 19.7 | 4 | 4.37 | 0 | 25 |
| 6887 | ACC 135 | Kenya | 86 | 238 | 5.8 | 15.3 | 21.3 | 4 | 5.49 | 1 | 40 |
| 6888 | ACC 138 | Kenya | 80 | 270 | 7.4 | 19.7 | 21.3 | 4 | 5.75 | 1 | 40 |
| 6894 | ACC 157 | Kenya | 125 | 200 | 3.0 | 19.0 | 20.0 | 5 | 3.05 | 5 | 40 |
| 6896 | ACC 165 | Kenya | 94 | 204 | 8.6 | 23.9 | 16.9 | 6 | 7.52 | 0 | 0 |
| 7330 | SAR 2559 | India | 74 | 256 | 1.4 | 22.8 | 26.8 | 5 | 7.31 | 4 | 25 |
| 7374 | MPR 18-1 | Tanzania | 98 | 274 | 1.1 | 35.8 | 22.6 | 4 | 8.13 | 5 | 0 |
| 7412 | CER 46 | Tanzania | 122 | 236 | 1.2 | 17.0 | 23.8 | 4 | 5.78 | 4 | 5 |
| 7462 | MPR 95-1 | Tanzania | 113 | 307 | 1.0 | 16.4 | 23.4 | 6 | 5.19 | 0 | * |
| 7859 | J 845-1 | India | 54 | 85 | 2.0 | 17.0 | 15.0 | 5 | 7.79 | 0 | 0 |
| 8027 | DSA 1-1-1 | Ghana | 53 | 210 | 2.3 | 24.0 | 36.0 | 1 | 17.29 | 0 | * |
| 8032 | DSA 41-3-1 | Ghana | 52 | 190 | 3.0 | 18.0 | 29.0 | 9 | 11.66 | 0 | * |
| 8212 | SDN 347-1 | Nigeria | 54 | 200 | 3.0 | 28.0 | 26.0 | 6 | 11.42 | 2 | * |
| 8292 | 700430-1 | India | 61 | 197 | 4.2 | 30.7 | 20.6 | 7 | 6.06 | 0 | * |
| 8441 | D 75C-1 | Niger | 58 | 265 | 1.5 | 50.0 | 20.0 | 7 | 8.54 | 0 | 10 |
| 8517 | ABM 3 | India | 79 | 261 | 5.2 | 24.2 | 23.3 | 4 | 4.84 | 0 | 0 |
| 8536 | ABM 32 | India | 71 | 255 | 3.2 | 15.0 | 22.0 | 4 | 7.52 | 4 | 0 |
| 8551 | ABM 54 | India | 75 | 370 | 4.6 | 25.0 | 21.0 | 4 | 5.93 | 0 | 0 |
| 8557 | ABM 63 | India | 84 | 340 | 3.0 | 17.0 | 24.0 | 6 | 8.18 | 0 | 0 |
| 8578 | AMB 90 | India | 78 | 350 | 4.4 | 20.0 | 21.0 | 6 | 6.14 | 0 | 0 |
| 8590 | ABM 107 | India | 55 | 210 | 2.2 | 18.0 | 20.0 | 6 | 8.58 | 0 | 0 |
| 8610 | ABM 130 | India | 46 | 240 | 3.4 | 25.0 | 22.0 | 5 | 9.31 | 0 | 0 |
| 8612 | ABM 132 | India | 84 | 305 | 4.6 | 18.0 | 26.0 | 4 | 7.80 | 5 | 5 |
| 8622 | PGI 41-2 | Sudan | 92 | 260 | 6.0 | 22.0 | 18.0 | 4 | 8.33 | 0 | 10 |
| 8627 | PGI 59-3 | Sudan | 106 | 190 | 3.5 | 27.0 | 20.0 | 2 | 8.10 | 4 | 10 |
| 8634 | PGI 77-2 | Sudan | 88 | 250 | 10.0 | 18.0 | 22.0 | 3 | 10.14 | 1 | 10 |
| 8635 | PIA 89-A-1 | Sudan | 86 | 260 | 12.0 | 16.0 | 13.0 | 3 | 7.76 | 0 | 5 |
| 8638 | PIA 89-B-2 | Sudan | 92 | 310 | 8.0 | 21.0 | 22.0 | 3 | 9.64 | 5 | 10 |
| 8657 | PIA 151-1 | Sudan | 99 | 380 | 3.0 | 23.0 | 18.0 | 6 | 7.93 | 4 | 10 |
| 8658 | PIA 151-2 | Sudan | 98 | 390 | 6.0 | 22.0 | 21.0 | 1 | 9.70 | 1 | 5 |
| 8659 | PIA 177-1 | Sudan | 79 | 290 | 4.0 | 19.0 | 28.0 | 3 | 9.41 | 0 | 10 |
| 8661 | 3K | Sudan | 85 | 260 | 4.6 | 32.0 | 18.0 | 3 | 8.28 | 3 | 0 |

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Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8662 | 4K | Sudan | 93 | 300 | 2.2 | 17.0 | 22.0 | 3 | 8.34 | 2 | 0 |
| 8663 | 5K | Sudan | 94 | 300 | 1.4 | 24.0 | 23.0 | 3 | 9.11 | 0 | 0 |
| 8664 | 8K | Sudan | 105 | 290 | 2.2 | 29.0 | 20.0 | 3 | 8.24 | 1 | 0 |
| 8665 | 9K | Sudan | 105 | 310 | 5.0 | 29.0 | 19.0 | 3 | 9.99 | 4 | 0 |
| 8666 | 10K | Sudan | 94 | 300 | 2.6 | 24.0 | 17.0 | 8 | 8.47 | 1 | 0 |
| 8668 | 13K | Sudan | 105 | 240 | 4.8 | 25.0 | 18.0 | 3 | 9.76 | 0 | 0 |
| 8669 | 14K | Sudan | 107 | 280 | 4.0 | 26.0 | 17.0 | 3 | 9.01 | 0 | 0 |
| 8670 | 15K | Sudan | 112 | 260 | 3.2 | 18.0 | 17.0 | 7 | 9.47 | 2 | 0 |
| 8671 | 16K | Sudan | 111 | 270 | 3.0 | 19.0 | 15.0 | 6 | 9.00 | 5 | * |
| 8673 | 31K | Sudan | 93 | 300 | 1.4 | 18.0 | 25.0 | 3 | 8.12 | 0 | 0 |
| 8674 | 32K | Sudan | 93 | 280 | 2.8 | 19.0 | 20.0 | 6 | 8.97 | 0 | 0 |
| 8675 | 33K | Sudan | 99 | 250 | 5.4 | 18.0 | 17.0 | 3 | 8.96 | 3 | 0 |
| 8681 | 38K 1 | Sudan | 85 | 260 | 2.6 | 19.0 | 20.0 | 3 | 9.97 | 5 | 0 |
| 8682 | 38K 2 | Sudan | 86 | 260 | 2.0 | 13.0 | 18.0 | 3 | 8.95 | 0 | 0 |
| 8684 | 2KA DARFUR 21 | Sudan | 95 | 240 | 8.0 | 24.0 | 20.0 | 6 | 10.24 | 4 | 0 |
| 8685 | 4KA DARFUR 2 | Sudan | 93 | 250 | 2.2 | 22.0 | 18.0 | 3 | 9.05 | 0 | 0 |
| 8686 | 7KA DARFUR 2 | Sudan | 98 | 240 | 3.0 | 21.0 | 21.0 | 3 | 9.24 | 0 | 0 |
| 8687 | 8KA DARFUR | Sudan | 93 | 310 | 2.0 | 17.0 | 22.0 | 3 | 9.04 | 4 | 0 |
| 8688 | 9KA DARFUR | Sudan | 85 | 280 | 7.8 | 21.0 | 22.0 | 4 | 9.17 | 0 | 0 |
| 8689 | 10KA DARFUR | Sudan | 103 | 280 | 3.2 | 23.0 | 21.0 | 2 | 8.98 | 5 | * |
| 8690 | 11KA DARFUR | Sudan | 83 | 260 | 3.2 | 22.0 | 18.0 | 3 | 9.19 | 2 | 0 |
| 8691 | 11KA DARFUR 2 | Sudan | 83 | 280 | 3.2 | 26.0 | 22.0 | 3 | 7.96 | 5 | 0 |
| 8692 | 13KA DARFUR | Sudan | 84 | 300 | 4.0 | 26.0 | 19.0 | 3 | 9.79 | 2 | 0 |
| 8693 | 14KA DARFUR | Sudan | 78 | 300 | 3.2 | 15.0 | 20.0 | 3 | 10.13 | 0 | 0 |
| 8694 | 16KA DARFUR | Sudan | 83 | 310 | 2.8 | 23.0 | 19.0 | 3 | 10.15 | 0 | 0 |
| 8695 | 20KA DARFUR 2 | Sudan | 88 | 290 | 7.8 | 13.0 | 18.0 | 3 | 9.15 | 5 | 0 |
| 8697 | 23KA DARFUR 2 | Sudan | 91 | 290 | 3.4 | 17.0 | 18.0 | 3 | 9.55 | 0 | 0 |
| 8698 | 24KA DARFUR 2 | Sudan | 90 | 300 | 6.0 | 16.0 | 15.0 | 3 | 9.52 | 2 | 0 |
| 8700 | 26KA | Sudan | 105 | 370 | 2.0 | 22.0 | 17.0 | 4 | 6.59 | 2 | 0 |
| 8703 | 35KA DARFUR | Sudan | 90 | 300 | 2.2 | 18.0 | 23.0 | 6 | 8.31 | 0 | 0 |
| 8704 | 35KA DARFUR 2 | Sudan | 92 | 310 | 2.6 | 22.0 | 18.0 | 3 | 10.22 | 0 | 0 |
| 8705 | 36KA DARFUR | Sudan | 92 | 310 | 2.2 | 15.0 | 16.0 | 4 | 8.79 | 2 | 0 |
| 8706 | 49KA DARFUR 1 | Sudan | 99 | 310 | 2.2 | 21.0 | 14.0 | 4 | 9.92 | 0 | 0 |
| 8707 | 49KA DARFUR 2 | Sudan | 91 | 360 | 3.6 | 19.0 | 19.0 | 6 | 9.20 | 0 | 0 |
| 8708 | 51KA DARFUR | Sudan | 91 | 350 | 2.2 | 22.0 | 21.0 | 4 | 9.84 | 2 | 0 |
| 8709 | 53KA DARFUR 1 | Sudan | 92 | 390 | 1.8 | 24.0 | 19.0 | 6 | 8.06 | 0 | * |
| 8710 | 53KA DARFUR 2 | Sudan | 90 | 360 | 1.8 | 15.0 | 16.0 | 6 | 7.49 | 0 | 0 |
| 8711 | 60KA DARFUR 2 | Sudan | 84 | 330 | 5.4 | 20.0 | 24.0 | 4 | 7.25 | 0 | 0 |
| 8712 | 61KA DARFUR | Sudan | 84 | 320 | 2.6 | 14.0 | 18.0 | 6 | 11.65 | 0 | 0 |
| 8713 | 62KA DARFUR | Sudan | 92 | 350 | 2.8 | 23.0 | 17.0 | 4 | 9.60 | 0 | 0 |
| 8714 | 63KA DARFUR | Sudan | 92 | 350 | 2.6 | 22.0 | 16.0 | 4 | 9.95 | 0 | 0 |
| 8715 | 64KA DARFUR | Sudan | 87 | 320 | 4.4 | 21.0 | 30.0 | 6 | 10.58 | 0 | 0 |
| 8716 | 69KA DARFUR | Sudan | 83 | 320 | 2.2 | 16.0 | 19.0 | 6 | 9.18 | 0 | 0 |
| 8717 | 79KA DARFUR | Sudan | 108 | 300 | 2.8 | 23.0 | 18.0 | 2 | 9.27 | 0 | 5 |
| 8718 | 80KA DARFUR | Sudan | 108 | 270 | 3.6 | 25.0 | 27.0 | 4 | 10.18 | 0 | 10 |
| 8719 | 84KA DARFUR 2 | Sudan | 117 | 320 | 2.4 | 27.0 | 19.0 | 4 | 9.74 | 2 | 10 |
| 8720 | 85KA DARFUR 2A | Sudan | 114 | 310 | 2.4 | 26.0 | 19.0 | 2 | 8.96 | 0 | 10 |
| 8721 | 85KA DARFUR 2B | Sudan | 107 | 300 | 2.2 | 27.0 | 21.3 | 2 | 9.35 | 0 | 25 |
| 8722 | 87KA DARFUR | Sudan | 113 | 290 | 1.6 | 24.5 | 20.8 | 2 | 9.45 | 0 | 10 |
| 8723 | 92KA DARFUR 21 | Sudan | 122 | 300 | 2.0 | 27.2 | 22.4 | 2 | 9.19 | 4 | 25 |
| 8725 | 94KA DARFUR 2 | Sudan | 119 | 300 | 1.8 | 29.0 | 24.2 | 3 | 9.22 | 0 | 10 |
| 8726 | 95KA DARFUR | Sudan | 116 | 320 | 2.0 | 29.2 | 22.6 | 4 | 9.10 | 2 | 10 |

*Continued....*

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Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8727 | 96KA DARFUR 2 | Sudan | 112 | 310 | 2.0 | 25.0 | 23.8 | 6 | 9.43 | 3 | 10 |
| 8728 | 97KA DARFUR | Sudan | 113 | 300 | 1.0 | 20.0 | 17.0 | 4 | 8.52 | 0 | 10 |
| 8729 | 99KA DARFUR 2 | Sudan | 111 | 320 | 3.6 | 21.0 | 21.0 | 4 | 8.60 | 0 | 10 |
| 8730 | 106KA DARFUR | Sudan | 112 | 310 | 1.0 | 27.3 | 20.4 | 3 | 9.67 | 0 | 10 |
| 8732 | 1 KS | Sudan | 88 | 250 | 2.3 | 22.0 | 30.0 | 3 | 9.86 | 4 | 5 |
| 8733 | 6 KS | Sudan | 92 | 220 | 2.2 | 21.0 | 25.0 | 3 | 8.13 | 0 | 10 |
| 8735 | 12 KS | Sudan | 99 | 270 | 2.6 | 26.0 | 17.0 | 3 | 8.88 | 0 | 10 |
| 8736 | 17 KS | Sudan | 107 | 260 | 2.8 | 38.0 | 26.0 | 3 | 9.05 | 0 | 10 |
| 8737 | 18 KS | Sudan | 100 | 270 | 3.0 | 23.0 | 18.0 | 3 | 8.85 | 0 | 10 |
| 8738 | 19 KS | Sudan | 95 | 250 | 3.6 | 20.0 | 23.0 | 3 | 8.67 | 2 | 25 |
| 8740 | 23 KS | Sudan | 98 | 260 | 6.0 | 23.0 | 16.0 | 6 | 8.83 | 0 | 10 |
| 8742 | 25 KS 1 | Sudan | 95 | 280 | 3.0 | 26.0 | 18.0 | 4 | 8.54 | 0 | 25 |
| 8744 | 27 KS 1 | Sudan | 85 | 290 | 3.6 | 27.0 | 14.0 | 4 | 7.73 | 0 | * |
| 8745 | 27 KS 2 | Sudan | 85 | 290 | 2.0 | 29.0 | 18.0 | 4 | 8.85 | 2 | 5 |
| 8746 | 28 KS | Sudan | 88 | 270 | 2.4 | 19.0 | 16.0 | 6 | 7.90 | 0 | 5 |
| 8747 | 29 KS 1 | Sudan | 92 | 320 | 1.4 | 23.0 | 16.0 | 4 | 8.78 | 0 | 5 |
| 8748 | 29 KS 2 | Sudan | 85 | 330 | 2.0 | 25.0 | 15.0 | 4 | 8.03 | 5 | 5 |
| 8749 | PMC 2 | Botswana | 54 | 200 | 3.2 | 20.0 | 21.0 | 4 | 12.60 | 0 | 5 |
| 8750 | PMC 3 | Botswana | 53 | 200 | 3.4 | 18.0 | 20.0 | 4 | 10.04 | 0 | 5 |
| 8751 | PMC 4 | Botswana | 50 | 170 | 4.4 | 17.0 | 27.0 | 5 | 12.21 | 0 | 10 |
| 8753 | PMC 22 | Botswana | 46 | 180 | 4.2 | 23.0 | 26.0 | 4 | 11.69 | 5 | * |
| 8754 | PMC 23 | Botswana | 46 | 175 | 4.6 | 19.0 | 23.0 | 4 | 10.42 | 3 | 10 |
| 8755 | PMC 25 | Botswana | 64 | 220 | 2.0 | 21.0 | 30.0 | 4 | 6.77 | 0 | 10 |
| 8757 | PMC 27 | Botswana | 68 | 240 | 1.8 | 23.0 | 21.0 | 4 | 7.04 | 0 | 5 |
| 8758 | PMC 28 | Botswana | 59 | 250 | 2.0 | 25.0 | 22.0 | 4 | 7.54 | 0 | 5 |
| 8759 | PMC 29 | Botswana | 61 | 230 | 4.0 | 35.0 | 32.0 | 4 | 7.20 | 2 | 5 |
| 8760 | PMC 30 | Botswana | 57 | 240 | 4.0 | 22.0 | 26.0 | 4 | 9.01 | 0 | 10 |
| 8761 | PM 52 | Botswana | 68 | 210 | 2.0 | 26.0 | 25.0 | 4 | 7.25 | 0 | 5 |
| 8762 | PM 53 | Botswana | 60 | 230 | 3.0 | 18.0 | 22.0 | 4 | 7.00 | 0 | 5 |
| 8763 | PM 54 | Botswana | 61 | 220 | 3.0 | 21.0 | 24.0 | 4 | 9.32 | 0 | 5 |
| 8767 | PM 59 | Botswana | 64 | 260 | 3.0 | 18.0 | 16.0 | 4 | 8.62 | 0 | 10 |
| 8768 | PM 60 | Botswana | 58 | 240 | 3.4 | 22.0 | 28.0 | 6 | 9.20 | 3 | 0 |
| 8771 | PM 63 | Botswana | 66 | 220 | 3.0 | 28.0 | 26.0 | 6 | 8.47 | 0 | 0 |
| 8772 | PM 67 | Botswana | 68 | 230 | 1.0 | 27.0 | 25.0 | 4 | 8.49 | 2 | 0 |
| 8773 | PM 68 | Botswana | 56 | 190 | 3.4 | 23.0 | 24.0 | 4 | 11.00 | 3 | 10 |
| 8774 | PM 70 | Botswana | 51 | 210 | 5.2 | 30.0 | 31.0 | 5 | 10.43 | 0 | 0 |
| 8775 | PM 73 | Botswana | 63 | 200 | 3.2 | 20.0 | 25.0 | 6 | 8.24 | 2 | 0 |
| 8776 | PM 180 A | Botswana | 63 | 220 | 2.2 | 30.0 | 30.0 | 4 | 7.20 | 0 | 0 |
| 8777 | PM 180 B | Botswana | 59 | 260 | 2.8 | 25.0 | 17.0 | 4 | 7.33 | 0 | 0 |
| 8778 | PMK 84 | Botswana | 73 | 220 | 6.2 | 20.0 | 30.0 | 4 | 5.54 | 3 | 0 |
| 8781 | PMK 102 | Botswana | 68 | 220 | 3.4 | 20.0 | 21.0 | 4 | 8.71 | 4 | 0 |
| 8782 | PMK 107 | Botswana | 73 | 240 | 1.5 | 28.0 | 24.0 | 4 | 7.09 | 0 | 0 |
| 8783 | PMK 111 | Botswana | 70 | 210 | 1.8 | 18.0 | 24.0 | 4 | 6.58 | 0 | 0 |
| 8784 | PMK 112 | Botswana | 62 | 230 | 2.2 | 28.0 | 18.0 | 4 | 5.99 | 0 | 0 |
| 8785 | PMK 130 | Botswana | 72 | 240 | 1.6 | 30.0 | 25.0 | 6 | 7.15 | 2 | 0 |
| 8786 | PMK 137 | Botswana | 68 | 200 | 3.4 | 18.0 | 32.0 | 4 | 6.23 | 2 | 0 |
| 8788 | PMK 139 | Botswana | 74 | 240 | 2.8 | 16.0 | 29.0 | 4 | 6.15 | 4 | 0 |
| 8790 | POK 141 | Botswana | 55 | 200 | 2.6 | 21.0 | 26.0 | 4 | 8.85 | 2 | 0 |
| 8791 | POK 142 | Botswana | 57 | 200 | 2.6 | 18.0 | 30.0 | 4 | 8.85 | 0 | 0 |
| 8792 | PMK 148 | Botswana | 64 | 200 | 2.6 | 30.0 | 22.0 | 4 | 6.92 | 0 | 0 |
| 8793 | PMK 155 | Botswana | 49 | 170 | 2.5 | 22.0 | 28.0 | 4 | 10.05 | 2 | 0 |
| 8794 | PMK 157 | Botswana | 69 | 280 | 2.4 | 30.0 | 23.0 | 6 | 9.38 | 2 | 0 |

*Continued....*

Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8796 | 6 BHR | Zimbabwe | 61 | 250 | 5.0 | 30.0 | 26.0 | 6 | 6.17 | 5 | 0 |
| 8798 | 11 BHR | Zimbabwe | 63 | 270 | 3.2 | 26.0 | 28.0 | 6 | 6.79 | 0 | 0 |
| 8799 | 13 BHR | Zimbabwe | 61 | 230 | 3.6 | 30.0 | 23.0 | 6 | 6.65 | 3 | 0 |
| 8802 | 26 BHR | Zimbabwe | 64 | 260 | 3.4 | 30.0 | 22.0 | 6 | 7.85 | 0 | 0 |
| 8803 | RUSHAMBO (BKT) | Zimbabwe | 56 | 230 | 2.2 | 26.0 | 23.0 | 6 | 6.12 | 0 | 5 |
| 8805 | 63 BKT | Zimbabwe | 61 | 240 | 2.6 | 30.0 | 24.0 | 4 | 6.92 | 0 | 0 |
| 8806 | 87 BKT | Zimbabwe | 58 | 240 | 2.6 | 20.0 | 22.0 | 4 | 6.57 | 0 | 0 |
| 8807 | 4 FLB | Zimbabwe | 64 | 240 | 3.4 | 29.0 | 28.0 | 6 | 8.56 | 0 | 0 |
| 8811 | 50 GT | Zimbabwe | 56 | 200 | 2.8 | 25.0 | 17.0 | 4 | 7.25 | 3 | 5 |
| 8812 | 51 GT | Zimbabwe | 57 | 230 | 2.6 | 36.0 | 19.0 | 6 | 6.92 | 0 | 5 |
| 8813 | 55 GT | Zimbabwe | 60 | 230 | 2.8 | 27.0 | 22.0 | 6 | 6.01 | 5 | 5 |
| 8814 | 65 GT | Zimbabwe | 56 | 210 | 9.4 | 30.0 | 24.0 | 6 | 6.27 | 5 | 5 |
| 8817 | 6 CHL | Zimbabwe | 67 | 240 | 2.3 | 23.0 | 23.0 | 6 | 6.21 | 4 | 5 |
| 8818 | 5 LUP | Zimbabwe | 68 | 220 | 2.4 | 36.0 | 31.0 | 4 | 7.57 | 0 | 5 |
| 8820 | 4 MDZ | Zimbabwe | 68 | 290 | 3.3 | 43.0 | 36.0 | 4 | 7.32 | 0 | 0 |
| 8821 | 5 MDZ | Zimbabwe | 62 | 290 | 1.7 | 30.0 | 31.0 | 4 | 9.84 | 4 | 0 |
| 8823 | 7 MDZ | Zimbabwe | 63 | 250 | 3.4 | 27.0 | 27.0 | 4 | 7.46 | 4 | 0 |
| 8824 | 13 MDZ | Zimbabwe | 63 | 250 | 2.6 | 33.0 | 30.0 | 4 | 9.95 | 0 | 0 |
| 8826 | 1 MT | Zimbabwe | 60 | 270 | 1.6 | 22.0 | 31.0 | 4 | 7.65 | 4 | 0 |
| 8828 | 5 MT | Zimbabwe | 74 | 260 | 3.0 | 35.0 | 26.0 | 4 | 10.35 | 3 | 0 |
| 8829 | 6 MT | Zimbabwe | 69 | 270 | 2.4 | 33.0 | 28.0 | 4 | 7.56 | 1 | 0 |
| 8830 | 9 MT | Zimbabwe | 61 | 170 | 3.0 | 26.0 | 34.0 | 4 | 8.87 | 0 | 0 |
| 8833 | 3 MTD | Zimbabwe | 68 | 240 | 4.2 | 23.0 | 24.0 | 4 | 9.67 | 4 | 10 |
| 8834 | 2QQ | Zimbabwe | 67 | 230 | 3.8 | 35.0 | 22.0 | 4 | 7.32 | 2 | 10 |
| 8836 | 2WDZ | Zimbabwe | 68 | 240 | 5.0 | 29.0 | 19.0 | 4 | 7.12 | 3 | 10 |
| 8838 | 1 ZAK | Zimbabwe | 70 | 240 | 1.8 | 30.0 | 28.0 | 4 | 6.49 | 5 | 25 |
| 8839 | 2 ZAK | Zimbabwe | 70 | 240 | 2.4 | 24.0 | 22.0 | 4 | 8.66 | 3 | 25 |
| 8840 | 4 ZAK | Zimbabwe | 76 | 220 | 4.0 | 21.0 | 18.0 | 4 | 7.50 | 1 | 25 |
| 8841 | 5 ZAK | Zimbabwe | 70 | 225 | 4.6 | 23.0 | 23.0 | 4 | 8.17 | 3 | 25 |
| 8842 | 22 FTV | Zimbabwe | 60 | 200 | 2.8 | 25.0 | 18.0 | 6 | 9.52 | 5 | 25 |
| 8853 | ZM 143 C | Zambia | 105 | 94 | 3.0 | 17.0 | 27.0 | 4 | 4.30 | 0 | * |
| 8856 | ZM 233 | Zambia | 114 | 170 | 1.8 | 20.0 | 25.0 | 4 | 2.70 | 1 | * |
| 8869 | 65/236 | South Africa | 62 | 170 | 8.3 | 32.0 | 23.0 | 6 | 8.29 | 0 | 5 |
| 8870 | 65/238 | South Africa | 78 | 172 | 6.3 | 30.0 | 27.0 | 4 | 7.36 | 0 | * |
| 8871 | 65/307 | South Africa | 71 | 160 | 7.4 | 21.0 | 18.0 | 6 | 8.07 | 0 | 5 |
| 8872 | 72/117 | South Africa | 77 | 126 | 3.4 | 27.0 | 23.0 | 6 | 7.41 | 5 | 5 |
| 8874 | PEN 5/78 | Germany | 54 | 120 | 2.4 | 28.0 | 19.0 | 4 | 8.00 | 0 | 0 |
| 8875 | FIB.TIEM.MAHAMA | Burkina Faso | 98 | 250 | 4.2 | 30.0 | 23.0 | 6 | 10.00 | 0 | 0 |
| 8876 | NAB.TIEM.MAHAMA | Burkina Faso | 101 | 245 | 5.0 | 28.0 | 22.0 | 2 | 10.60 | 0 | 0 |
| 8877 | KASS.PIM.MAHAMA | Burkina Faso | 102 | 260 | 4.8 | 25.0 | 23.0 | 2 | 9.11 | 0 | 0 |
| 8902 | STAP 0043 | Burkina Faso | 76 | 260 | 3.5 | 32.0 | 14.0 | 6 | 7.98 | 0 | 0 |
| 8904 | STAP 0045 | Burkina Faso | 64 | 250 | 2.5 | 25.0 | 34.0 | 4 | 11.13 | 0 | 0 |
| 8906 | RC 009 | Gambia | 65 | 270 | 2.5 | 45.0 | 21.0 | 6 | 5.12 | 2 | 0 |
| 8907 | RC 011 | Gambia | 68 | 250 | 1.5 | 46.0 | 19.0 | 5 | 6.31 | 0 | 0 |
| 8910 | RC 040 | Gambia | 69 | 230 | 1.2 | 40.0 | 19.0 | 7 | 7.05 | 0 | 0 |
| 8913 | RC 064 | Gambia | 69 | 300 | 2.0 | 39.0 | 22.0 | 7 | 7.09 | 0 | 0 |
| 8914 | RC 069 | Gambia | 106 | 280 | 2.2 | 27.0 | 25.0 | 6 | 8.24 | 0 | 0 |
| 8915 | RC 088 | Gambia | 56 | 290 | 2.0 | 29.0 | 22.0 | 4 | 8.82 | 3 | 0 |
| 8916 | TIOTIONI(KONDO) | Senegal | 84 | 280 | 2.5 | 29.0 | 29.0 | 4 | 10.36 | 0 | 5 |
| 8925 | 73171 | South Africa | 74 | 260 | 1.0 | 28.0 | 19.0 | 6 | 7.49 | 0 | * |
| 8949 | P 3254 PL-73 | Togo | 46 | 220 | 1.5 | 18.0 | 28.0 | 6 | 13.55 | 0 | 10 |
| 8957 | P 3277 PL-82 | Togo | 52 | 200 | 2.3 | 18.0 | 30.0 | 4 | 11.71 | 0 | 0 |

*Continued....*

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Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8958 | P 3281 PL-83 | Togo | 51 | 230 | 2.2 | 18.0 | 28.0 | 5 | 10.15 | 0 | 0 |
| 8961 | P 3290 PL-86 | Togo | 52 | 210 | 3.0 | 28.0 | 36.0 | 4 | 14.88 | 0 | 0 |
| 8962 | P 3292 PL-87 | Togo | 50 | 220 | 2.6 | 26.0 | 26.0 | 4 | 11.70 | 0 | 0 |
| 8964 | P 3299 PL-89 | Togo | 53 | 230 | 2.2 | 21.0 | 34.0 | 5 | 10.77 | 0 | 5 |
| 8965 | P 3313 PL-90 | Togo | 45 | 210 | 2.4 | 20.0 | 28.0 | 5 | 11.55 | 0 | 0 |
| 8970 | P 3346 PL-95 | Togo | 49 | 190 | 2.2 | 22.0 | 32.0 | 4 | 10.47 | 0 | 0 |
| 8971 | P 3348 PL-96 | Togo | 54 | 260 | 2.4 | 23.0 | 38.0 | 4 | 11.76 | 0 | 0 |
| 8974 | D 332/1/1 | Niger | 65 | 210 | 2.4 | 26.0 | 24.0 | 6 | 8.58 | 0 | 0 |
| 8979 | D 348/1/2 | Niger | 55 | 180 | 2.2 | 26.0 | 21.0 | 7 | 7.70 | 0 | 0 |
| 8983 | D 364/1/3 | Niger | 64 | 230 | 2.5 | 40.0 | 21.0 | 7 | 9.04 | 0 | 0 |
| 8985 | D 427/2/2 | Niger | 57 | 230 | 1.0 | 24.0 | 26.0 | 7 | 10.10 | 4 | 0 |
| 8989 | D 1162/1/2 | Niger | 66 | 210 | 1.5 | 22.0 | 18.0 | 7 | 10.21 | 0 | 0 |
| 8991 | D 1163/1/2 | Niger | 74 | 250 | 2.0 | 25.0 | 18.0 | 7 | 7.54 | 3 | 0 |
| 8997 | P 10/2/2 | Nigeria | 65 | 190 | 1.0 | 22.0 | 16.0 | 6 | 8.48 | 5 | 0 |
| 8998 | P 94/1/1 | Nigeria | 69 | 180 | 1.0 | 28.0 | 17.0 | 6 | 7.51 | 2 | 0 |
| 9012 | 3/4 HK P 15 1/1 | Nigeria | 70 | 240 | 1.0 | 35.0 | 23.0 | 6 | 10.19 | 5 | 0 |
| 9273 | P 3265 | Togo | 46 | 200 | 1.5 | 20.0 | 28.0 | 5 | 12.93 | 0 | * |
| 9277 | P 3310 | Togo | 104 | 350 | 4.0 | 20.0 | 35.0 | 5 | 12.81 | 5 | * |
| 9280 | P 3277 | Togo | 46 | 170 | 1.9 | 20.0 | 27.0 | 5 | 13.21 | 0 | * |
| 9294 | P 3301 | Togo | 80 | 280 | 2.3 | 20.0 | 25.0 | 4 | 14.46 | 0 | * |
| 9296 | P 3309 | Togo | 130 | 280 | 3.2 | 22.0 | 25.0 | 4 | 14.65 | 2 | 5 |
| 9300 | P 3333 | Togo | 119 | 245 | 3.2 | 27.0 | 20.0 | 4 | 12.05 | 0 | * |
| 9308 | P 3369 | Togo | 50 | 250 | 1.0 | 22.0 | 31.0 | 5 | 12.41 | 5 | * |
| 9311 | P 3820 | Benin | 52 | 240 | 1.0 | 27.0 | 32.0 | 5 | 13.13 | 0 | * |
| 9358 | DSA 8-1 | Ghana | 94 | 280 | 2.3 | 22.0 | 27.0 | 4 | 10.12 | 3 | 10 |
| 9361 | DSA 27 | Ghana | 40 | 195 | 3.0 | 16.0 | 30.0 | 4 | 14.13 | 0 | 10 |
| 9362 | DSA 27-1 | Ghana | 41 | 205 | 2.0 | 20.0 | 32.0 | 4 | 15.52 | 4 | 10 |
| 9364 | DSA 29-2 | Ghana | 45 | 205 | 3.0 | 20.0 | 35.0 | 8 | 13.43 | 5 | 5 |
| 9367 | DSA 29-3-1 | Ghana | 46 | 220 | 3.0 | 18.0 | 32.0 | 4 | 12.00 | 0 | 5 |
| 9368 | DSA 29-4 | Ghana | 48 | 240 | 2.0 | 20.0 | 36.0 | 5 | 14.44 | 3 | 5 |
| 9371 | DSA 30-1-1 | Ghana | 47 | 235 | 2.0 | 17.0 | 30.0 | 5 | 13.97 | 0 | * |
| 9374 | DSA 38 | Ghana | 46 | 220 | 3.0 | 18.0 | 33.0 | 4 | 10.01 | 5 | 10 |
| 9379 | DSA 40-1-1 | Ghana | 47 | 230 | 2.0 | 18.0 | 33.0 | 4 | 12.33 | 0 | 5 |
| 9380 | DSA 40-2 | Ghana | 47 | 240 | 2.0 | 25.0 | 34.0 | 6 | 12.60 | 0 | 5 |
| 9381 | DSA 40-2-1 | Ghana | 49 | 220 | 2.0 | 18.0 | 29.0 | 4 | 13.17 | 2 | 5 |
| 9382 | DSA 40-3 | Ghana | 46 | 210 | 1.0 | 20.0 | 35.0 | 6 | 13.66 | 0 | 5 |
| 9387 | DSA 41-3 | Ghana | 47 | 230 | 2.0 | 25.0 | 36.0 | 6 | 14.17 | 0 | 5 |
| 9389 | DSA 41-4 | Ghana | 47 | 230 | 2.0 | 18.0 | 29.0 | 4 | 12.47 | 0 | 5 |
| 9390 | DSA 41-4-1 | Ghana | 48 | 230 | 2.0 | 25.0 | 30.0 | 4 | 13.09 | 2 | 5 |
| 9394 | DSA 47 | Ghana | 47 | 230 | 2.0 | 18.0 | 34.0 | 5 | 11.85 | 0 | 5 |
| 9395 | DSA 47-1 | Ghana | 46 | 210 | 2.0 | 15.0 | 28.0 | 5 | 10.95 | 0 | 5 |
| 9397 | DSA 48-1 | Ghana | 46 | 220 | 2.2 | 20.0 | 35.0 | 5 | 12.14 | 0 | 25 |
| 9399 | DSA 49-1 | Ghana | 64 | 270 | 1.5 | 32.0 | 38.0 | 5 | 16.83 | 2 | 40 |
| 9401 | DSA 50-1 | Ghana | 44 | 220 | 2.2 | 17.0 | 35.0 | 5 | 15.62 | 0 | 40 |
| 9404 | DSA 52 | Ghana | 46 | 230 | 2.0 | 17.0 | 35.0 | 5 | 15.35 | 0 | 25 |
| 9407 | DSA 56 | Ghana | 49 | 120 | 4.0 | 16.0 | 37.0 | 5 | 14.93 | 0 | * |
| 9410 | DSA 58-1 | Ghana | 47 | 230 | 4.0 | 23.0 | 33.0 | 5 | 12.28 | 0 | 40 |
| 9416 | DSA 59-3 | Ghana | 40 | 170 | 3.0 | 17.0 | 29.0 | 6 | 13.10 | 0 | 10 |
| 9418 | DSA 60-1 | Ghana | 47 | 240 | 2.0 | 24.0 | 28.0 | 5 | 13.87 | 3 | 10 |
| 9421 | DSA 61 | Ghana | 47 | 230 | 2.0 | 27.0 | 32.0 | 2 | 14.77 | 0 | 10 |
| 9422 | DSA 61-1 | Ghana | 47 | 260 | 2.0 | 20.0 | 28.0 | 2 | 15.02 | 0 | 25 |
| 9423 | DSA 62 | Ghana | 46 | 215 | 3.0 | 17.0 | 35.0 | 6 | 15.00 | 0 | * |

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**Table 5.** *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9425 | DSA 63 | Ghana | 46 | 240 | 2.0 | 17.0 | 32.0 | 5 | 15.93 | 3 | 26 |
| 9426 | DSA 63-1 | Ghana | 45 | 230 | 2.0 | 20.0 | 32.0 | 5 | 14.00 | 0 | 10 |
| 9427 | DSA 64 | Ghana | 45 | 190 | 4.0 | 18.0 | 25.0 | 5 | 10.84 | 0 | * |
| 9430 | DSA 67-2-1 | Ghana | 49 | 250 | 2.2 | 19.0 | 32.0 | 8 | 13.27 | 5 | 10 |
| 9431 | DSA 69 | Ghana | 43 | 210 | 2.2 | 20.0 | 33.0 | 5 | 12.61 | 0 | * |
| 9432 | DSA 69-1 | Ghana | 48 | 250 | 2.2 | 23.0 | 30.0 | 5 | 13.40 | 0 | 10 |
| 9433 | DSA 69-1 A | Ghana | 47 | 220 | 2.2 | 15.0 | 30.0 | 8 | 13.20 | 2 | 5 |
| 9434 | DSA 69-1 B | Ghana | 45 | 240 | 1.0 | 18.0 | 32.0 | 5 | 14.65 | 0 | * |
| 9440 | DSA 70-2 | Ghana | 44 | 235 | 2.0 | 25.0 | 22.0 | 5 | 14.30 | 4 | 10 |
| 9448 | DSA 72-2-1 | Ghana | 45 | 220 | 4.0 | 20.0 | 30.0 | 6 | 11.92 | 0 | 10 |
| 9451 | DSA 73-2 | Ghana | 44 | 230 | 2.0 | 20.0 | 37.0 | 5 | 15.20 | 0 | 10 |
| 9462 | DSA 76-3A | Ghana | 49 | 240 | 2.0 | 24.0 | 29.0 | 4 | 15.49 | 5 | 25 |
| 9471 | DSA 78-1-1 | Ghana | 49 | 230 | 2.0 | 23.0 | 33.0 | 5 | 12.67 | 3 | 10 |
| 9472 | DSA 78-2 | Ghana | 49 | 235 | 3.0 | 20.0 | 29.0 | 4 | 11.57 | 3 | 25 |
| 9475 | DSA 78-3-1 | Ghana | 45 | 210 | 2.0 | 15.0 | 32.0 | 4 | 13.50 | 0 | 25 |
| 9476 | DSA 79 | Ghana | 50 | 230 | 2.0 | 20.0 | 32.0 | 5 | 14.48 | 3 | 40 |
| 9483 | DSA 85 | Ghana | 43 | 170 | 3.0 | 20.0 | 30.0 | 4 | 11.80 | 0 | 40 |
| 9500 | DSA 98 | Ghana | 122 | 240 | 4.0 | 17.5 | 31.5 | 2 | 12.76 | 0 | 40 |
| 9502 | DSA 102 | Ghana | 44 | 195 | 2.0 | 14.0 | 32.0 | 5 | 10.24 | 0 | 40 |
| 9503 | DSA 102-1 | Ghana | 45 | 215 | 2.0 | 17.0 | 34.0 | 5 | 15.19 | 4 | 25 |
| 9504 | DSA 103 | Ghana | 45 | 210 | 2.0 | 17.0 | 30.0 | 5 | 12.99 | 0 | 10 |
| 9505 | DSA 103-1 | Ghana | 46 | 210 | 2.0 | 16.0 | 28.0 | 5 | 14.13 | 0 | * |
| 9506 | DSA 105 | Ghana | 40 | 200 | 2.0 | 17.0 | 32.0 | 5 | 15.10 | 0 | 10 |
| 9507 | DSA 105-1 | Ghana | 42 | 220 | 2.0 | 18.0 | 30.0 | 5 | 13.08 | 0 | 10 |
| 9510 | DSA 111-2 | Ghana | 47 | 240 | 3.0 | 20.0 | 30.0 | 4 | 13.57 | 0 | 10 |
| 9513 | DSA 114-1 | Ghana | 44 | 210 | 1.0 | 16.0 | 30.0 | 4 | 13.31 | 5 | 25 |
| 9517 | DSA 123 | Ghana | 42 | 200 | 2.0 | 17.0 | 32.0 | 5 | 14.24 | 5 | 10 |
| 9524 | DSA 134-1 | Ghana | 80 | 200 | 2.0 | 14.0 | 33.0 | 5 | 13.00 | 3 | 10 |
| 9525 | DSA 139 | Ghana | 41 | 200 | 2.0 | 15.0 | 32.0 | 5 | 13.86 | 3 | 10 |
| 9527 | DSA 140 | Ghana | 44 | 220 | 2.0 | 14.0 | 29.0 | 4 | 12.33 | 4 | 10 |
| 9531 | DSA 144-1 | Ghana | 40 | 180 | 3.0 | 14.0 | 29.0 | 5 | 12.39 | 0 | * |
| 9532 | DSA 150 | Ghana | 36 | 170 | 3.0 | 14.0 | 27.0 | 5 | 13.12 | 0 | 65 |
| 9537 | DSA 152-1 | Ghana | 41 | 200 | 2.0 | 18.0 | 29.0 | 5 | 12.86 | 0 | 25 |
| 9542 | DSA 155 | Ghana | 43 | 195 | 3.0 | 18.0 | 30.0 | 4 | 12.72 | 5 | 10 |
| 9550 | DSA 162-1 | Ghana | 41 | 190 | 3.0 | 20.0 | 28.0 | 5 | 11.80 | 3 | 25 |
| 9551 | DSA 164 | Ghana | 40 | 215 | 3.0 | 20.0 | 30.0 | 5 | 14.24 | 0 | * |
| 9553 | DSA 165 | Ghana | 40 | 180 | 3.0 | 16.0 | 32.0 | 5 | 13.09 | 0 | * |
| 9556 | DSA 169-1 | Ghana | 44 | 180 | 2.0 | 16.0 | 28.0 | 4 | 13.32 | 0 | 25 |
| 9557 | DSA 170 | Ghana | 45 | 220 | 2.0 | 17.0 | 28.0 | 4 | 14.27 | 0 | * |
| 9558 | DSA 170-1 | Ghana | 44 | 190 | 2.0 | 20.0 | 30.0 | 5 | 13.65 | 0 | * |
| 9559 | DSA 174 | Ghana | 45 | 200 | 2.0 | 15.0 | 27.0 | 5 | 13.06 | 0 | 25 |
| 9561 | DSA 175-1 | Ghana | 47 | 200 | 2.0 | 16.0 | 28.0 | 5 | 13.80 | 0 | 25 |
| 9942 | 1109 | Zambia | 70 | 260 | 2.2 | 30.0 | 24.0 | 6 | 5.89 | 3 | * |
| 9951 | 1531 | Zambia | 62 | 210 | 3.4 | 20.0 | 34.0 | 4 | 5.66 | 3 | * |
| 9952 | 1583 | Zambia | 70 | 230 | 3.0 | 28.0 | 24.0 | 4 | 5.71 | 3 | * |
| 9952 | 1583 | Zambia | 70 | 230 | 3.0 | 28.0 | 24.0 | 4 | 5.71 | 4 | * |
| 9955 | 1616 | Zambia | 68 | 220 | 2.7 | 25.0 | 26.0 | 6 | 5.12 | 2 | * |
| 9957 | 1644 | Zambia | 72 | 260 | 2.5 | 24.0 | 25.0 | 2 | 5.56 | 3 | * |
| 9959 | 1682 | Zambia | 73 | 250 | 2.4 | 31.0 | 30.0 | 6 | 5.53 | 0 | * |
| 9961 | 1696 | Zambia | 71 | 210 | 3.0 | 21.0 | 23.0 | 6 | 5.34 | 4 | * |
| 9962 | 1699 | Zambia | 74 | 160 | 1.0 | 20.0 | 28.0 | 6 | 8.50 | 2 | * |
| 9964 | 1707 | Zambia | 72 | 260 | 2.6 | 26.0 | 26.0 | 4 | 5.49 | 5 | * |

*Continued....*

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Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9974 | 1852 | Zambia | 76 | 240 | 4.0 | 27.0 | 25.0 | 6 | 5.28 | 3 | * |
| 9977 | 1915 | Zambia | 67 | 230 | 2.7 | 16.0 | 29.0 | 6 | 8.37 | 5 | * |
| 9980 | 1956 | Zambia | 75 | 220 | 3.0 | 30.0 | 25.0 | 2 | 4.73 | 3 | * |
| 9982 | 1991 | Zambia | 65 | 200 | 2.7 | 26.0 | 25.0 | 2 | 5.52 | 3 | * |
| 9985 | 2037 | Zambia | 64 | 250 | 2.3 | 20.0 | 23.0 | 2 | 6.13 | 0 | * |
| 9985 | 2037 | Zambia | 64 | 250 | 2.3 | 20.0 | 23.0 | 2 | 6.13 | 2 | * |
| 9987 | 2059 | Zambia | 67 | 190 | 2.0 | 25.0 | 20.0 | 6 | 4.52 | 5 | * |
| 10413 | P 3359 | Togo | 138 | 180 | 5.2 | 15.0 | 21.0 | 5 | 12.00 | 0 | * |
| 10419 | P 3368 | Togo | 118 | 290 | 2.6 | 28.0 | 27.0 | 4 | 10.16 | 5 | * |
| 10433 | P 3874 | Benin | 103 | 260 | 3.8 | 39.0 | 27.0 | 5 | 11.50 | 5 | * |
| 10439 | P 3932 | Benin | 138 | 240 | 5.3 | 19.0 | 25.0 | 5 | 14.83 | 0 | * |
| 10445 | 1559 | Zambia | 73 | 220 | 2.5 | 35.0 | 17.0 | 2 | 6.50 | 3 | * |
| 10446 | 1703 | Zambia | 74 | 230 | 2.0 | 28.0 | 20.0 | 2 | 5.00 | 3 | * |
| 11221 | TGR 107 | Zimbabwe | 68 | 210 | 2.5 | 26.0 | 25.0 | 6 | 14.63 | 0 | * |
| 11241 | TGR 869 | Zimbabwe | 70 | 210 | 6.2 | 26.0 | 23.0 | 6 | 8.78 | 5 | * |
| 11248 | TGR 1117 | Zimbabwe | 60 | 190 | 6.5 | 24.0 | 37.0 | 6 | 8.25 | 0 | * |
| 11273 | TGR 2049 | Zimbabwe | 58 | 210 | 3.9 | 23.0 | 15.0 | 6 | 5.51 | 0 | * |
| 11527 | P 5988 | Burkina Faso | 55 | 220 | 2.5 | 17.0 | 30.0 | 5 | 15.00 | 5 | * |
| 11632 | PM 28 | Cameroon | 69 | 220 | 3.2 | 17.0 | 20.0 | 6 | 6.72 | 0 | * |
| 11635 | PM 31 | Cameroon | 68 | 230 | 4.2 | 17.0 | 20.0 | 4 | 6.15 | 5 | * |
| 11907 | PCI 22 | Sierra Leone | 146 | 190 | 3.7 | 33.0 | 20.0 | 2 | 3.94 | 5 | * |
| 11988 | NAN 25 | Nigeria | 113 | 300 | 2.8 | 50.0 | 28.0 | 4 | 9.85 | 4 | * |
| 12020 | NAN 52 | Nigeria | 128 | 300 | 2.6 | 40.0 | 18.0 | 4 | 10.38 | 0 | * |
| 12024 | NAN 56 | Nigeria | 119 | 365 | 3.5 | 30.0 | 16.0 | 4 | 9.76 | 5 | * |
| 12052 | NAN 84 | Nigeria | 67 | 240 | 1.0 | 30.0 | 26.0 | 4 | 8.36 | 0 | * |
| 12069 | NAN 101 | Nigeria | 113 | 260 | 2.2 | 35.0 | 25.0 | 4 | 10.67 | 0 | * |
| 12070 | NAN 102 | Nigeria | 116 | 220 | 1.8 | 40.0 | 25.0 | 4 | 10.88 | 0 | * |
| 12120 | NAN 160 | Nigeria | 67 | 260 | 1.0 | 39.0 | 22.0 | 5 | 9.01 | 5 | * |
| 12183 | NAN 258-1 | Nigeria | 115 | 320 | 3.2 | 26.0 | 25.0 | 2 | 11.45 | 5 | * |
| 12257 | NAN 347 | Nigeria | 56 | 230 | 2.7 | 42.0 | 24.0 | 6 | 8.14 | 0 | * |
| 12264 | NAN 354 | Nigeria | 65 | 250 | 1.0 | 74.0 | 25.0 | 7 | 8.81 | 0 | * |
| 12277 | NAN 367 | Nigeria | 60 | 270 | 1.0 | 57.0 | 34.0 | 6 | 9.79 | 0 | * |
| 12286 | NAN 377 | Nigeria | 65 | 250 | 1.6 | 72.0 | 30.0 | 7 | 10.16 | 0 | * |
| 12372 | NAN 462 | Nigeria | 66 | 230 | 1.0 | 28.0 | 22.0 | 7 | 9.47 | 5 | * |
| 12421 | GP 16 | USA | 50 | 140 | 1.8 | 21.0 | 19.0 | 7 | 6.73 | 5 | * |
| 12817 | EC 158217 | USA | 46 | 110 | 2.3 | 17.0 | 17.0 | 6 | 6.66 | 0 | * |
| 12947 | DSA 103-1-1 | Ghana | 44 | 185 | 4.5 | 21.0 | 26.0 | 5 | 14.19 | 0 | * |
| 13833 | 16 | Burkina Faso | 105 | 300 | 2.0 | 23.0 | 20.0 | 3 | 12.90 | 0 | * |
| 13849 | 32 | Burkina Faso | 98 | 325 | 1.8 | 25.0 | 25.0 | 4 | 11.45 | 0 | * |
| 13873 | 57 | Burkina Faso | 93 | 330 | 2.2 | 30.0 | 25.0 | 6 | 13.18 | 0 | * |
| 13886 | 75 | Burkina Faso | 93 | 330 | 1.8 | 27.0 | 18.0 | 4 | 10.44 | 5 | * |
| 13904 | 100 | Burkina Faso | 52 | 170 | 3.5 | 20.0 | 28.0 | 5 | 14.42 | 0 | * |
| 14540 | AD 848 | Cameroon | 127 | 350 | 3.5 | 25.0 | 19.0 | 1 | 8.91 | 0 | * |
| 15519 | 125 | Burkina Faso | 97 | 360 | 1.5 | 33.0 | 22.0 | 4 | 12.11 | 0 | * |
| 15568 | 174 | Burkina Faso | 56 | 355 | 2.5 | 25.0 | 25.0 | 4 | 14.46 | 5 | * |
| 15569 | 175 | Burkina Faso | 108 | 360 | 1.8 | 24.0 | 27.0 | 3 | 12.28 | 5 | * |
| 15592 | 200 | Burkina Faso | 98 | 380 | 1.5 | 45.0 | 25.0 | 4 | 11.57 | 0 | * |
| 15614 | 222 | Burkina Faso | 112 | 350 | 1.0 | 24.0 | 26.0 | 4 | 12.62 | 5 | * |
| 15617 | 225 | Burkina Faso | 118 | 360 | 2.2 | 23.0 | 25.0 | 3 | 13.11 | 0 | * |
| 15946 | J 561 | India | 72 | 250 | * | 36.0 | 20.0 | 9 | 6.00 | 0 | * |
| 16345 | AMM 958 | Zimbabwe | 81 | 190 | 1.0 | 29.0 | 28.0 | 5 | 7.00 | 5 | * |
| 16394 | AGH 11 | Zimbabwe | 62 | 190 | 1.5 | 30.0 | 30.0 | 4 | 5.50 | 5 | * |

*Continued....*

Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16422 | AGH 52 | Zimbabwe | 68 | 170 | 1.2 | 28.0 | 30.0 | 4 | 7.00 | 3 | * |
| 16438 | AGH 79 | Zimbabwe | 68 | 190 | 1.2 | 17.0 | 30.0 | 4 | 6.50 | 4 | * |
| 16439 | AGH 80 | Zimbabwe | 55 | 170 | 1.3 | 25.0 | 25.0 | 5 | 7.00 | 5 | * |
| 16441 | AGH 82 | Zimbabwe | 71 | 180 | 1.0 | 30.0 | 22.0 | 4 | 6.50 | 5 | * |
| 16458 | AGH 100 | Zimbabwe | 59 | 200 | 3.5 | 27.0 | 23.0 | 4 | 6.50 | 5 | * |
| 16465 | AGH 115 | Zimbabwe | 68 | 200 | 1.0 | 29.0 | 20.0 | 4 | 7.00 | 4 | * |
| 16468 | AGH 120 | Zimbabwe | 81 | 205 | 1.0 | 23.0 | 23.0 | 3 | 8.00 | 4 | * |
| 16469 | AGH 121 | Zimbabwe | 78 | 210 | 1.0 | 35.0 | 25.0 | 3 | 8.00 | 4 | * |
| 16509 | AGH 169 | Zimbabwe | 76 | 250 | 1.0 | 35.0 | 24.0 | 4 | 7.00 | 5 | * |
| 16523 | AGH 196 | Zimbabwe | 76 | 220 | 1.0 | 26.0 | 25.0 | 6 | 5.50 | 3 | * |
| 16527 | AGH 200 | Zimbabwe | 60 | 190 | 1.0 | 28.0 | 28.0 | 4 | 5.00 | 2 | * |
| 16537 | AGH 227 | Zimbabwe | 69 | 230 | 1.0 | 30.0 | 25.0 | 4 | 6.00 | 2 | * |
| 16549 | AGH 245 | Zimbabwe | 70 | 280 | 1.5 | 40.0 | 28.0 | 4 | 4.50 | 1 | * |
| 16586 | AGH 313 | Zimbabwe | 59 | 200 | 1.8 | 35.0 | 25.0 | 6 | 7.50 | 3 | * |
| 16593 | AGH 321 | Zimbabwe | 76 | 200 | 1.0 | 18.0 | 30.0 | 4 | 7.00 | 2 | * |
| 16608 | AGH 347 | Zimbabwe | 63 | 200 | 2.5 | 28.0 | 28.0 | 4 | 6.50 | 4 | * |
| 16609 | AGH 348 | Zimbabwe | 64 | 170 | 2.5 | 28.0 | 25.0 | 4 | 7.00 | 4 | * |
| 16665 | AGH 433 | Zimbabwe | 71 | 210 | 1.9 | 28.0 | 23.0 | 4 | 6.80 | 3 | * |
| 16675 | AGH 443 | Zimbabwe | 69 | 170 | 1.0 | 25.0 | 22.0 | 4 | 7.20 | 5 | * |
| 16686 | AGH 459 | Zimbabwe | 77 | 180 | 1.5 | 30.0 | 25.0 | 4 | 7.80 | 2 | * |
| 16697 | AGH 482 | Zimbabwe | 74 | 220 | 1.8 | 30.0 | 28.0 | 4 | 8.00 | 5 | * |
| 16702 | AGH 487 | Zimbabwe | 76 | 240 | 1.2 | 30.0 | 30.0 | 4 | 7.20 | 1 | * |
| 16716 | AGH 516 | Zimbabwe | 77 | 240 | 2.5 | 40.0 | 25.0 | 4 | 8.00 | 2 | * |
| 16718 | AGH 518 | Zimbabwe | 62 | 180 | 1.0 | 35.0 | 25.0 | 4 | 6.00 | 3 | * |
| 16721 | AGH 524 | Zimbabwe | 68 | 210 | 1.5 | 35.0 | 20.0 | 4 | 8.40 | 5 | * |
| 16732 | AGH 539 | Zimbabwe | 82 | 200 | 1.5 | 30.0 | 35.0 | 4 | 7.20 | 2 | * |
| 16736 | AGH 543 | Zimbabwe | 70 | 220 | 1.2 | 35.0 | 28.0 | 4 | 8.20 | 0 | * |
| 16737 | AGH 544 | Zimbabwe | 70 | 240 | 1.0 | 25.0 | 25.0 | 4 | 8.00 | 3 | * |
| 16753 | AGH 562 | Zimbabwe | 77 | 180 | 2.2 | 30.0 | 30.0 | 4 | 5.60 | 5 | * |
| 16762 | AGH 575 | Zimbabwe | 77 | 240 | 1.8 | 30.0 | 25.0 | 4 | 7.40 | 2 | * |
| 16767 | AGH 580B | Zimbabwe | 81 | 190 | 1.0 | 30.0 | 25.0 | 4 | 6.60 | 4 | * |
| 16781 | AGH 598 | Zimbabwe | 83 | 220 | 1.0 | 40.0 | 28.0 | 6 | 8.40 | 1 | * |
| 16789 | AGH 607 | Zimbabwe | 80 | 270 | 1.3 | 35.0 | 32.0 | 6 | 8.80 | 5 | * |
| 16804 | AGH 625 | Zimbabwe | 89 | 270 | 1.0 | 37.0 | 25.0 | 4 | 8.00 | 2 | * |
| 16809 | AGH 630 | Zimbabwe | 69 | 250 | 1.0 | 30.0 | 26.0 | 4 | 7.40 | 3 | * |
| 16862 | AGH 714 | Zimbabwe | 75 | 270 | 2.2 | 36.0 | 23.0 | 4 | 7.00 | 3 | * |
| 16875 | AGH 727 | Zimbabwe | 68 | 200 | 1.2 | 30.0 | 27.0 | 4 | 6.80 | 5 | * |
| 16887 | AGH 741 | Zimbabwe | 76 | 210 | 1.0 | 28.0 | 25.0 | 4 | 5.80 | 3 | * |
| 16894 | AGH 751 | Zimbabwe | 83 | 230 | 1.2 | 35.0 | 30.0 | 4 | 7.00 | 2 | * |
| 16900 | AGH 757 | Zimbabwe | 73 | 240 | 1.5 | 30.0 | 25.0 | 4 | 6.80 | 3 | * |
| 16901 | AGH 758 | Zimbabwe | 71 | 220 | 1.5 | 35.0 | 30.0 | 4 | 6.60 | 5 | * |
| 16903 | AGH 760 | Zimbabwe | 81 | 250 | 1.5 | 30.0 | 25.0 | 4 | 6.00 | 4 | * |
| 16904 | AGH 761 | Zimbabwe | 75 | 230 | 1.5 | 35.0 | 28.0 | 4 | 6.20 | 2 | * |
| 16905 | AGH 762 | Zimbabwe | 74 | 230 | 2.5 | 35.0 | 25.0 | 4 | 6.33 | 5 | * |
| 16906 | AGH 763 | Zimbabwe | 67 | 220 | 1.8 | 30.0 | 25.0 | 4 | 6.20 | 4 | * |
| 16915 | AGH 772 | Zimbabwe | 71 | 220 | 1.8 | 28.0 | 28.0 | 4 | 5.80 | 3 | * |
| 16927 | AGH 794 | Zimbabwe | 74 | 210 | 1.5 | 35.0 | 25.0 | 4 | 7.00 | 4 | * |
| 16930 | AGH 800 | Zimbabwe | 78 | 220 | 2.2 | 28.0 | 25.0 | 4 | 6.50 | 4 | * |
| 16933 | AGH 804 | Zimbabwe | 75 | 220 | 2.2 | 27.0 | 22.0 | 4 | 6.50 | 5 | * |
| 16939 | AGH 816 | Zimbabwe | 74 | 240 | 1.3 | 30.0 | 28.0 | 4 | 7.50 | 2 | * |
| 16941 | AGH 827 | Zimbabwe | 75 | 230 | 1.8 | 30.0 | 22.0 | 4 | 8.00 | 3 | * |
| 16944 | AGH 831 | Zimbabwe | 78 | 250 | 1.2 | 30.0 | 25.0 | 4 | 8.50 | 4 | * |

*Continued....*

Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16946 | AGH 833 | Zimbabwe | 77 | 240 | 2.2 | 30.0 | 20.0 | 4 | 5.50 | 5 | * |
| 16950 | AGH 839 | Zimbabwe | 70 | 240 | 1.2 | 28.0 | 25.0 | 4 | 5.50 | 2 | * |
| 16951 | AGH 845 | Zimbabwe | 70 | 230 | 2.2 | 30.0 | 22.0 | 4 | 5.50 | 5 | * |
| 16952 | AGH 846 | Zimbabwe | 77 | 250 | 1.8 | 30.0 | 20.0 | 4 | 5.00 | 4 | * |
| 16954 | AGH 848 | Zimbabwe | 74 | 225 | 1.5 | 30.0 | 25.0 | 4 | 6.50 | 2 | * |
| 16969 | AGH 890 | Zimbabwe | 73 | 220 | 2.2 | 25.0 | 30.0 | 4 | 6.50 | 5 | * |
| 16970 | AGH 903 | Zimbabwe | 69 | 200 | 1.0 | 30.0 | 25.0 | 4 | 6.50 | 3 | * |
| 16989 | AGH 943 | Zimbabwe | 70 | 180 | 1.8 | 28.0 | 22.0 | 4 | 7.50 | 5 | * |
| 16992 | AGH 947 | Zimbabwe | 69 | 190 | 1.8 | 29.0 | 26.0 | 4 | 8.50 | 5 | * |
| 16995 | AGH 950 | Zimbabwe | 65 | 220 | 1.2 | 28.0 | 28.0 | 4 | 8.00 | 1 | * |
| 17001 | AGH 957 | Zimbabwe | 76 | 200 | 1.5 | 25.0 | 26.0 | 4 | 6.00 | 2 | * |
| 17034 | AGH 1085 | Zimbabwe | 71 | 190 | 1.5 | 22.0 | 25.0 | 4 | 6.40 | 5 | * |
| 17079 | AGH 1295 | Zimbabwe | 70 | 210 | 1.8 | 25.0 | 30.0 | 4 | 5.20 | 2 | * |
| 17086 | AGH 1302 | Zimbabwe | 74 | 200 | 1.8 | 28.0 | 28.0 | 4 | 5.80 | 3 | * |
| 17087 | AGH 1303 | Zimbabwe | 70 | 190 | 1.5 | 25.0 | 28.0 | 4 | 7.00 | 2 | * |
| 17107 | AGH 1381 | Zimbabwe | 49 | 110 | 1.5 | 20.0 | 20.0 | 4 | 7.80 | 2 | * |
| 17123 | AGH 1447A | Zimbabwe | 77 | 220 | 1.0 | 35.0 | 30.0 | 4 | 7.40 | 3 | * |
| 17194 | 234 | Burkina Faso | 120 | 310 | 1.0 | 23.0 | 25.0 | 4 | 10.60 | 0 | * |
| 17243 | 259 | Burkina Faso | 123 | 310 | 1.0 | 20.0 | 26.0 | 4 | 9.80 | 0 | * |
| 17321 | 302 | Burkina Faso | 110 | 300 | 1.0 | 23.0 | 20.0 | 3 | 11.40 | 0 | * |
| 17335 | 309 | Burkina Faso | 144 | 290 | * | * | * | 4 | 10.40 | 0 | * |
| 17341 | 312 | Burkina Faso | 138 | 260 | * | 20.0 | 28.0 | 4 | 10.40 | 0 | * |
| 17347 | 317 | Burkina Faso | 128 | 300 | 1.0 | 27.0 | 26.0 | 4 | 11.00 | 0 | * |
| 17360 | 328 | Burkina Faso | 113 | 300 | 1.0 | 30.0 | 28.0 | 4 | 13.20 | 5 | * |
| 17370 | 334 | Burkina Faso | 113 | 290 | 1.0 | 32.0 | 20.0 | 4 | 12.14 | 0 | * |
| 17463 | C 88-04 | Algeria | 80 | 320 | 5.0 | 32.0 | 25.0 | 6 | 8.00 | 0 | * |
| 17468 | C 88-18 | Chad | 78 | 300 | 5.6 | 21.0 | 22.0 | 6 | 10.35 | 5 | * |
| 17470 | C 88-20 | Chad | 95 | 330 | 4.0 | 22.0 | 19.0 | 7 | 10.50 | 0 | * |
| 17473 | C 88-23 | Chad | 88 | 320 | 5.2 | 22.0 | 16.0 | 3 | 9.25 | 0 | * |
| 17474 | C 88-24 | Chad | 75 | 240 | 3.6 | 21.0 | 22.0 | 2 | 7.50 | 0 | * |
| 17475 | C 88-25 | Chad | 100 | 280 | 4.2 | 21.0 | 19.0 | 3 | 10.20 | 4 | * |
| 17479 | C 88-30 | Chad | 85 | 300 | 5.2 | 18.0 | 24.0 | 3 | 10.00 | 0 | * |
| 17480 | C 88-31 | Chad | 113 | 380 | 4.0 | 30.0 | 20.0 | 3 | 9.60 | 4 | * |
| 17483 | C 88-34 | Chad | 95 | 320 | 4.2 | 25.0 | 20.0 | 3 | 11.50 | 0 | * |
| 17484 | C 88-35 | Chad | 75 | 290 | 3.5 | 24.0 | 24.0 | 4 | 10.00 | 0 | * |
| 17507 | ARD 23 | Togo | 40 | 170 | 5.0 | 18.0 | 32.0 | 5 | 15.50 | 0 | * |
| 17517 | ARD 41 | Togo | 40 | 240 | 3.0 | 20.0 | 33.0 | 5 | 13.50 | 0 | * |
| 17560 | ARD 82 | Togo | 37 | 175 | 6.0 | 19.0 | 30.0 | 4 | 11.70 | 0 | * |
| 17954 | ACC 473 | India | 56 | 210 | 2.8 | 27.0 | 18.0 | 7 | 4.50 | 0 | * |
| 17962 | 5141 B | India | 52 | 130 | 3.4 | 17.0 | 20.0 | 4 | 5.50 | .0 | * |
| 17975 | DSA 105 A | India | 46 | 130 | 3.9 | 19.0 | 29.0 | 4 | 11.00 | 5 | * |
| 17979 | DSA 134 A | India | 46 | 150 | 2.7 | 18.0 | 27.0 | 4 | 7.50 | 0 | * |
| 17980 | DSA 134 B | India | 46 | 150 | 3.1 | 18.0 | 22.0 | 4 | 8.00 | 0 | * |
| 17988 | ARD 132 B | India | * | * | * | * | * | 4 | 15.00 | 0 | * |
| 18160 | C 89-43 | Mali | 65 | 240 | 1.0 | 25.0 | 38.0 | 4 | 8.85 | 0 | * |
| 18162 | C 89-45 | Mali | 54 | 170 | 1.0 | 28.0 | 32.0 | 4 | 8.90 | 5 | * |
| 18163 | C 89-46 | Mali | 52 | 180 | 1.5 | 22.0 | 25.0 | 4 | 11.85 | 0 | * |
| 18164 | C 89-47 | Mali | 57 | 170 | 1.0 | 25.0 | 30.0 | 3 | 11.45 | 0 | * |
| 18171 | C 89-55 | Mali | 60 | 195 | 1.4 | 23.0 | 28.0 | 4 | 11.20 | 0 | * |
| 18172 | C 89-56 | Mali | 60 | 200 | 1.3 | 25.0 | 35.0 | 4 | 10.40 | 0 | * |
| 18175 | C 89-60 | Mali | 56 | 200 | 1.0 | 28.0 | 33.0 | 4 | 11.95 | 0 | * |
| 18178 | C 89-63 | Mali | 93 | 220 | 2.1 | 25.0 | 25.0 | 4 | 12.20 | 0 | * |

*Continued....*

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Table 5. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] | Rust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18191 | C 89-76 | Mali | 74 | 240 | 1.4 | 30.0 | 25.0 | 4 | 8.60 | 0 | * |
| 19125 | AHM 887M | Namibia | 78 | 300 | 1.2 | 17.0 | 54.0 | 2 | 9.50 | 0 | * |
| 19406 | Chad 11 | Chad | 85 | 360 | 3.4 | 28.0 | 24.0 | 2 | 8.50 | 0 | * |
| 19598 | C 90-104 | Niger | 78 | 370 | 1.0 | 75.0 | 28.0 | * | * | 0 | * |
| 19601 | C 90-107 | Niger | 69 | 300 | 1.2 | 70.0 | 23.0 | * | * | 5 | * |
| 19603 | C 90-109 | Niger | 76 | 280 | 1.0 | 65.0 | 23.0 | * | * | 5 | * |
| 19610 | C 90-116 | Niger | 63 | 290 | 1.0 | 45.0 | 30.0 | * | * | 4 | * |
| 19611 | C 90-118 | Niger | 71 | 330 | 1.4 | 23.0 | 33.0 | * | * | 0 | * |
| 19622 | C 90-129 | Niger | 70 | 400 | 1.0 | 85.0 | 27.0 | * | * | 0 | * |
| 19628 | C 90-135 | Niger | 69 | 290 | 1.4 | 30.0 | 35.0 | * | * | 0 | * |
| 19629 | C 90-136 | Niger | 57 | 270 | 1.4 | 30.0 | 25.0 | * | * | 0 | * |
| 19633 | C 90-140 | Niger | 64 | 270 | 1.2 | 30.0 | 22.0 | * | * | 0 | * |
| 19635 | C 90-142 | Niger | 61 | 270 | 1.2 | 30.0 | 30.0 | * | * | 0 | * |
| 19643 | C 90-150 | Niger | 70 | 260 | 1.0 | 28.0 | 32.0 | * | * | 0 | * |
| 19650 | C 90-157 | Niger | 63 | 270 | 1.4 | 60.0 | 30.0 | * | * | 5 | * |
| 19651 | C 90-158 | Niger | 59 | 270 | 1.6 | 10.0 | 27.0 | * | * | 0 | * |
| 19654 | C 90-161 | Niger | 64 | 270 | 1.0 | 58.0 | 35.0 | * | * | 0 | * |
| 19659 | C 90-166 | Niger | 87 | 330 | 1.6 | 60.0 | 27.0 | * | * | 0 | * |
| 19671 | C 90-179 | Niger | 110 | 360 | 1.3 | 60.0 | 27.0 | * | * | 5 | * |
| 19673 | C 90-181 | Niger | 72 | 370 | 1.0 | 70.0 | 25.0 | * | * | 0 | * |
| 19678 | C 90-186 | Niger | 71 | 370 | 1.2 | 90.0 | 25.0 | * | * | 0 | * |
| 19684 | C 90-192 | Niger | * | * | * | * | * | * | * | 5 | * |
| 20357 | ADR 632 | Yemen | * | * | * | * | * | * | * | 0 | * |
| HB 3 | | | * | * | * | * | * | * | * | 89 | |
| 12649 | 7042(S) | | * | * | * | * | * | * | * | 100 | |
| 12649 | 700651 | | * | * | * | * | * | * | * | 8 | |

1. Dtf = Days to 50% flowering, 2. Plht = Plant height (cm), 3. Til = Number of tillers, 4. Splg = Spike length (cm), 5. Sptk = Spike thickness (cm), 6. Gc = Grain color (1=Ivory, 2=Cream, 3= Yellow, 4= Gray, 5= Deep grey, 6= Grey-brown, 7= Brown, 8= Purple, 9=Purplish black, 10=Mixture of white and gray grains). 7. Grwt = 1000-grain mass (g). 8. DM = Downy mildew incidence (%). 9*. =Data not available.

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**Table 6. Downy mildew (DM) incidence (%), rust severity (%), and yield parameters[1] of 48 selections from pearl millet accessions evaluated three times, ICRISAT Asia Center, 1978–84.**

| IP No. | Selections | Origin | DM(%)[2] 1976-82 | DM(%)[2] 1983 | DM(%)[2] 1984 | Rust(%)[2] 1976-82 | Rust(%)[2] 1983 | Rust(%)[2] 1984 | Height[3] (cm) | Productive tillers per plant[3] | Panicle length (cm)[3] | 1000-grain mass (g) | Grain yield[4] (t ha⁻¹) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21196 | IP 8749-1 | Botswana | 5 | 0 | 0 | 5 | 65 | 5 | 164 | 3.0 | 22 | 9.0 | 3.63 |
| - | IP 6147-2 | Cameroon | 0 | 0 | 0 | 0 | 10 | 5 | 162 | 3.0 | 23 | 8.0 | 2.38 |
| 21184 | IP 6147-4 | Cameroon | 0 | 0 | 0 | 0 | 10 | 0 | 160 | 3.0 | 29 | 7.4 | 2.39 |
| 21186 | IP 6249-4 | Cameroon | 0 | 2 | 0 | 5 | 10 | 5 | 145 | 3.0 | 27 | 8.0 | 2.12 |
| 21185 | IP 6240-2 | Cameroon | 5 | 0 | 0 | 5 | 0 | 0 | 142 | 3.0 | 16 | 5.3 | 2.32 |
| 21163 | P 120-1 | Cameroon | 0 | 9 | 0 | 5 | 25 | 10 | 113 | 2.3 | 14 | 8.3 | 1.44 |
| 21182 | IP 6138-3 | Cameroon | 0 | 0 | 0 | 5 | 10 | 0 | 166 | 2.0 | 25 | 6.4 | 2.05 |
| - | IP 6140-1 | Cameroon | 0 | 0 | 0 | 0 | 40 | 0 | 193 | 3.0 | 31 | 6.2 | 3.00 |
| 21164 | P 181-2 | Cent Afr Rep | 0 | 0 | 0 | 3 | 25 | 10 | 181 | 3.3 | 20 | 6.5 | 2.97 |
| 21165 | P 181-6 | Cent Afr Rep | 0 | 0 | 0 | 3 | 25 | 10 | 149 | 5.0 | 18 | 6.3 | 2.25 |
| 21199 | IP 8877-3 | Burkina Faso | 0 | 1 | 0 | 0 | 5 | 0 | 120 | 4.0 | 16 | 7.0 | 2.43 |
| 21198 | IP 8876-2 | Burkina Faso | 0 | 0 | 0 | 0 | 65 | 25 | 139 | 1.4 | 17 | 8.0 | 2.12 |
| 21166 | P 462-4 | Mali | 0 | 0 | 0 | 5 | 10 | 5 | 137 | 2.4 | 24 | 7.3 | 1.32 |
| 21167 | P 536-2 | Mali | 0 | 0 | 0 | 5 | *[5] | 0 | 160 | 2.2 | 27 | 7.1 | 1.79 |
| - | 700481-5-3 | Nigeria | 0 | 0 | 0 | 5 | 5 | 0 | 165 | 2.5 | 27 | 7.4 | 1.68 |
| 21172 | P 2895-3 | Niger | 0 | 0 | 0 | 5 | 5 | 0 | 160 | 2.5 | 20 | 5.0 | 1.30 |
| 21173 | P 2910-2 | Niger | 4 | 15 | 0 | 0 | * | 10 | 145 | 2.4 | 17 | 6.0 | 1.70 |
| 21174 | P 2914-3 | Niger | 0 | 0 | 0 | 0 | * | 10 | 149 | 3.0 | 22 | 7.4 | 2.00 |
| 21175 | P 2925-1 | Niger | 3 | 4 | 0 | 0 | * | 10 | 154 | 3.0 | 19 | 8.0 | 2.70 |
| 21176 | P 2933-1 | Niger | 0 | 0 | 0 | 0 | 10 | 0 | 174 | 2.0 | 37 | 6.4 | 2.50 |
| 21177 | P 2933-2 | Niger | 0 | 0 | 0 | 0 | 10 | 0 | 198 | 2.0 | 38 | 7.0 | 1.70 |
| 21178 | P 2947-2 | Niger | 0 | 5 | 0 | 0 | 10 | 0 | 186 | 1.4 | 64 | 8.0 | 1.40 |
| 21162 | P94/1/2-1 | Niger | 2 | 6 | 0 | 0 | 25 | 0 | 165 | 2.0 | 23 | 6.4 | 1.70 |
| 21200 | IP 8998-1 | Niger | 5 | 6 | 0 | 0 | 10 | 0 | 161 | 3.0 | 20 | 7.0 | 2.50 |
| 21201 | IP 8998-2 | Niger | 5 | 6 | 0 | 0 | 10 | 0 | 143 | 2.1 | 22 | 7.4 | 2.10 |
| 21206 | D 332/1/2-2 | Niger | 0 | 7 | 0 | 5 | 10 | 0 | 152 | 3.0 | 20 | 6.4 | 2.40 |
| 21207 | D 332/1/2-3 | Niger | 0 | 7 | 0 | 5 | 10 | 0 | 164 | 3.0 | 19 | 7.4 | 3.10 |
| 21208 | D 332/1/2-4 | Niger | 0 | 7 | 0 | 5 | 10 | 0 | 114 | 3.0 | 24 | 5.5 | 2.00 |
| 21171 | P 2819-1 | Niger | 0 | 13 | 0 | 0 | * | 10 | 158 | 3.0 | 21 | 8.4 | 3.00 |
| 21168 | P 1449-2 | Senegal | 0 | 0 | 0 | 0 | 25 | 5 | 133 | 2.5 | 25 | 6.0 | 1.82 |
| 21169 | P 1449-3 | Senegal | 0 | 0 | 0 | 0 | 25 | 5 | 130 | 2.5 | 27 | 7.0 | 1.93 |
| 21170 | P 1449-4 | Senegal | 0 | 0 | 0 | 0 | 25 | 0 | 143 | 2.5 | 31 | 6.0 | 2.43 |
| 21187 | IP 8695-1 | Sudan | 0 | 0 | 0 | 0 | 10 | 5 | 134 | 5.1 | 16 | 10.0 | 2.62 |
| 21188 | IP 8695-4 | Sudan | 0 | 0 | 0 | 0 | 10 | 0 | 158 | 5.3 | 16 | 6.5 | 2.80 |
| 21189 | IP 8699-3 | Sudan | 2 | 1 | 0 | 0 | * | 10 | 148 | 2.0 | 21 | 8.5 | 2.79 |
| 21193 | IP 8714-1 | Sudan | 0 | 4 | 0 | 0 | 10 | 0 | 160 | 2.3 | 23 | 8.0 | 2.28 |
| 21190 | IP 8703-1 | Sudan | 2 | 0 | 0 | 0 | 10 | 5 | 132 | 6.0 | 12 | 7.5 | 2.27 |
| 21191 | IP 8703-4 | Sudan | 2 | 0 | 0 | 0 | 10 | 0 | 128 | 3.4 | 17 | 8.0 | 2.41 |
| 21192 | IP 8710-1 | Sudan | 2 | 0 | 0 | 0 | 10 | 10 | 146 | 7.0 | 19 | 8.0 | 2.52 |
| 21194 | IP 8715-4 | Sudan | 0 | 0 | 0 | 0 | 25 | 25 | 175 | 4.0 | 21 | 9.0 | 2.69 |
| 21195 | IP 8748-1 | Sudan | 4 | 2 | 0 | 5 | 0 | 10 | 165 | 3.4 | 25 | 6.2 | 2.84 |
| 21179 | P 3281-1 | Togo | 0 | 0 | 0 | 0 | 25 | 5 | 157 | 3.1 | 20 | 8.5 | 2.41 |
| 21180 | P 3346-1 | Togo | 0 | 0 | 0 | 0 | 10 | 5 | 120 | 4.2 | 17 | 7.2 | 2.62 |
| 21202 | RC011-2 | Zambia | 2 | 0 | 0 | 0 | 25 | 5 | 171 | 2.3 | 28 | 6.2 | 2.13 |
| 21203 | RC011-3 | Zambia | 2 | 0 | 0 | 0 | 25 | 10 | 143 | 1.3 | 31 | 8.0 | 2.45 |
| 21197 | IP 8830-1 | Zimbabwe | 1 | 0 | 0 | 0 | 40 | 10 | 154 | 6.7 | 24 | 7.2 | 2.14 |
| - | 75-3 | India | 0 | 0 | 0 | 0 | 40 | 5 | 172 | 4.0 | 22 | 7.0 | 2.83 |
| 21181 | IP 1481-L-2 | India | 0 | 0 | 0 | 5 | 0 | 5 | 139 | 2.1 | 22 | 6.4 | 1.92 |
| - | BJ 104 | | * | * | 10 | * | * | 40 | 127 | 4.0 | 16 | 6.4 | 2.11 |
| - | NHB3[6] | India | 65-80 | 75 | 88 | 40-75 | 60 | 65 | * | * | * | * | * |

1. Evaluated during 1983 and 1984 at ICRISAT Center; 2. DM incidence and rust severity; 3. Plant height, productive tiller number, and panicle length are based on 10 randomly selected plants in each of the two replications; 4. Grain yield estimated based on the mean of two replications; 5. Data not collected; 6. DM and rust susceptible control.

Source: Singh, S.D. 1990. Sources of resistance to downy mildew and rust in pearl millet. Plant Disease 74:871–874.

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**Table 7. Recorded sources of resistance to pearl millet downy mildew.**

| Sources | Origin | Location of identification | Reference |
|---|---|---|---|
| IP 5119, IP 5207, IP 7502 (15)[1] | Various countries | | |
| R 240, R 2430, R 2594 | India | AICPMIP locations | Thakur, 1980 |
| J 1593, J 1925, J 2002 | India | | |
| MPP 7101 - 7101 (14)[1] | India | | |
| P1B1, P1B15, P1B19 (50)[1] | India | Ludhiana | Chahal et al. 1975 |
| P1B3, P1B14, P1B24, P1B62, P1B124 | India | Ludhiana | Chahal et al. 1978 |

1. Numbers in parentheses show the total number of accessions/lines screened in that series.

Table 8. Normal flowering accessions of pearl millet that developed >6% downy mildew (DM) in field disease nursery ICRISAT Asia Center, 1976–94.

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3078 | SAR 063 | India | 11 | 4841 | NEP 13-5613-2 | Lebanon | 21 | 4957 | SERERE 46 | Uganda | 18 |
| 3108 | SAR 095 | India | 22 | 4842 | NEP 13-5613-3 | Lebanon | 36 | 4959 | SERERE 48 | Uganda | 13 |
| 3122 | SAR 116 | India | 29 | 4843 | NEP 13 5615 | Lebanon | 36 | 4960 | SERERE 49 DWARF | Uganda | 7 |
| 3157 | SAR 157 | India | 40 | 4844 | NEP 18-5008 | Lebanon | 10 | 4961 | SERERE 49 TALL | Uganda | 7 |
| 3221 | SAR 229 | India | 16 | 4845 | NEP 18-5011-1 | Lebanon | 14 | 4965 | SERERE 53 | Uganda | 8 |
| 3257 | SAR 268 | India | 54 | 4846 | NEP 18-5011-2 | Lebanon | 10 | 4966 | SERERE 54 | Uganda | 10 |
| 3284 | SAR 304 | India | 23 | 4847 | NEP 18-5011-3 | Lebanon | 8 | 4967 | SC 1 (S4) | Uganda | 28 |
| 3471 | SAR 696 | India | 13 | 4848 | NEP 18-5015 | Lebanon | 12 | 4968 | SC 2(M) | Uganda | 9 |
| 3593 | SAR 856 | India | 14 | 4850 | NEP 18-5020 | Lebanon | 45 | 4971 | SC 13(M) | Uganda | 16 |
| 3595 | SAR 858 | India | 28 | 4851 | NEP 18-5023-1 | Lebanon | 20 | 4972 | SC 14 (M) | Uganda | 6 |
| 3676 | SAR 1055 | India | 24 | 4852 | NEP 18-5023-2 | Lebanon | 24 | 4973 | 700043 | Nigeria | 8 |
| 3679 | SAR 1058 | India | 21 | 4853 | NEP 18-5025-2 | Lebanon | 17 | 4975 | 700130 | Nigeria | 17 |
| 3680 | SAR 1062 | India | 33 | 4854 | NEP 18-5033 | Lebanon | 43 | 4976 | 700142 | Nigeria | 21 |
| 3681 | SAR 1063 | India | 50 | 4855 | NEP 18-5035-1 | Lebanon | 36 | 4978 | 700158 | Nigeria | 9 |
| 3682 | SAR 1064 | India | 25 | 4856 | NEP 18-5037 | Lebanon | 24 | 4979 | 700164 | Nigeria | 18 |
| 3789 | SAR 1184 | India | 11 | 4857 | NEP 18-5040 | Lebanon | 47 | 4981 | 700179 | Nigeria | 6 |
| 3827 | SAR 1222 | India | 7 | 4858 | NEP 18 5618 | Lebanon | 24 | 4982 | 700190 | Nigeria | 38 |
| 3829 | SAR 1224 | India | 7 | 4859 | NEP 18-5620-1 | Lebanon | 28 | 4983 | 700218 | Nigeria | 7 |
| 3854 | SAR 1249 | India | 10 | 4860 | NEP 18-5620-2 | Lebanon | 30 | 4988 | 700270 | Nigeria | 43 |
| 3857 | SAR 1252 | India | 50 | 4862 | NEP 18-5625 | Lebanon | 7 | 4990 | 700278 | Nigeria | 7 |
| 3859 | SAR 1254 | India | 26 | 4863 | NEP 18-5626-1 | Lebanon | 8 | 4991 | 700283 | Nigeria | 10 |
| 3860 | SAR 1255 | India | 25 | 4866 | NEP 18-5630 | Lebanon | 19 | 4992 | 700287 | Nigeria | 15 |
| 3910 | SAR 1308 | India | 28 | 4867 | NEP 18-5632-1 | Lebanon | 13 | 4993 | 700318 | Nigeria | 20 |
| 3971 | SAR 1371 | India | 65 | 4870 | NEP 18-5633-2 | Lebanon | 6 | 5024 | 700467 | Nigeria | 55 |
| 3990 | SAR 1390 | India | 89 | 4871 | NEP 18-5638-1 | Lebanon | 13 | 5025 | 700470 | Nigeria | 11 |
| 3999 | SAR 1413 | India | 21 | 4872 | NEP 18-5638-2 | Lebanon | 22 | 5026 | 700471 | Nigeria | 17 |
| 4017 | SAR 1432 | India | 88 | 4873 | NEP 18-5640 | Lebanon | 6 | 5027 | 700472 | Nigeria | 22 |
| 4019 | SAR 1434 | India | 27 | 4874 | NEP 18-5641-2 | Lebanon | 15 | 5031 | 700482 | Nigeria | 10 |
| 4020 | SAR 1435 | India | 71 | 4875 | NEP 18-5642 | Lebanon | 60 | 5037 | 700491 | Nigeria | 10 |
| 4021 | SAR 1436 | India | 69 | 4876 | NEP 18-5644 | Lebanon | 10 | 5039 | 700512 | Nigeria | 27 |
| 4025 | SAR 1440 | India | 19 | 4877 | NEP 18-5645 | Lebanon | 28 | 5040 | 700522 | Nigeria | 7 |

*Continued...*

Table 8. *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4038 | SAR 1455 | India | 46 | 4879 | NEP 18-5651 | Lebanon | 17 | 5041 | 700526 | Nigeria | 18 |
| 4039 | SAR 1456 | India | 48 | 4881 | NEP 18-5656 | Lebanon | 13 | 5043 | 700537 | Nigeria | 11 |
| 4065 | SAR 1483 | India | 53 | 4882 | NEP 18-5657 | Lebanon | 10 | 5046 | 700546 | Nigeria | 8 |
| 4088 | SAR 1509 | India | 16 | 4883 | NEP 18-5658 | Lebanon | 23 | 5049 | 700553 | Nigeria | 28 |
| 4099 | SAR 1522 | India | 53 | 4884 | NEP 18-5659 | Lebanon | 35 | 5052 | 700561 | Nigeria | 7 |
| 4102 | SAR 1528 | India | 77 | 4885 | NEP 18-5663-1 | Lebanon | 13 | 5053 | 700563 | Nigeria | 35 |
| 4109 | SAR 1535 | India | 67 | 4886 | NEP 18-5663-2 | Lebanon | 11 | 5054 | 700564 | Nigeria | 35 |
| 4125 | SAR 973 | India | 54 | 4887 | NEP 67-5043 | Lebanon | 29 | 5058 | 700576 | Nigeria | 7 |
| 4166 | SAR 1016 | India | 14 | 4888 | NEP 67-5668 | Lebanon | 41 | 5060 | 700578 | Nigeria | 39 |
| 4168 | SAR 1018 | India | 13 | 4889 | NEP 69-5045 | Lebanon | 19 | 5062 | 700583 | Nigeria | 8 |
| 4169 | SAR 1019 | India | 14 | 4890 | NEP 69-5046 | Lebanon | 15 | 5067 | 700599 | Nigeria | 18 |
| 4170 | SAR 1020 | India | 7 | 4892 | NEP 104-5051-2 | Lebanon | 30 | 5068 | 700601 | Nigeria | 75 |
| 4171 | SAR 1021 | India | 21 | 4893 | NEP 104-5055 | Lebanon | 21 | 5071 | 700619 | Nigeria | 14 |
| 4179 | SAR 1029 | India | 6 | 4895 | NEP 175-5056 | Lebanon | 51 | 5072 | 700620 | Nigeria | 9 |
| 4181 | SAR 1031 | India | 19 | 4897 | NEP 218-5059 | Lebanon | 24 | 5078 | 700633 | Nigeria | 6 |
| 4185 | SAR 1035 | India | 22 | 4899 | NEP 218-5061-2 | Lebanon | 75 | 5085 | 700706 | Nigeria | 24 |
| 4186 | SAR 1036 | India | 25 | 4900 | NEP 218-5061-3 | Lebanon | 25 | 5087 | 700711 | Nigeria | 26 |
| 4195 | SAR 1046 | India | 20 | 4901 | NEP 218-5066 | Lebanon | 23 | 5090 | 700726 | Nigeria | 16 |
| 4264 | SAR 1650 | India | 31 | 4902 | NEP 218-5067 | Lebanon | 23 | 5096 | 700770 | Nigeria | 9 |
| 4291 | SAR 1680 | India | 35 | 4904 | NEP 310-5682 | Lebanon | 76 | 5097 | 700771 | Nigeria | 9 |
| 4292 | SAR 1681 | India | 14 | 4907 | NEP 384-5689-1 | Lebanon | 19 | 5103 | 700797 | Nigeria | 28 |
| 4382 | SAR 1805 | India | 7 | 4910 | NEP 814-5691 | Lebanon | 27 | 5305 | SAMARU 772 | Niger | 6 |
| 4417 | SAR 1845 | India | 70 | 4911 | NEP 1017-5072 | Lebanon | 11 | 5315 | P 2585 | Niger | 11 |
| 4558 | SAR 1557 | India | 48 | 4914 | DR.CASSADY DWARF | Uganda | 51 | 5316 | P 2586 | Niger | 7 |
| 4559 | SAR 1558 | India | 33 | 4915 | EX BORNU | Nigeria | 7 | 5341 | P 2618 | Niger | 6 |
| 4617 | ACC 36 | India | 60 | 4938 | SERERE 3A | Uganda | 14 | 5465 | P 2758 | Niger | 6 |
| 4661 | ACC 80 | India | 35 | 4939 | SERERE 4A | Uganda | 17 | 5473 | P 2766 | Niger | 6 |
| 4737 | MEERUT 16 | India | 40 | 4940 | SERERE 6A | Uganda | 10 | 5475 | P 2768 | Niger | 6 |
| 4750 | MEERUT 34 | India | 81 | 4941 | SERERE 17B | Uganda | 69 | 5489 | P 2784 | Niger | 9 |
| 4767 | SHARANPUR 6 | India | 15 | 4943 | SERERE 31 | Uganda | 30 | 5568 | P 2864 | Niger | 6 |
| 4771 | GAZAPUR 2 | India | 18 | 4944 | SERERE 33 | Uganda | 9 | 5647 | P 2944 | Niger | 8 |
| 4782 | MURADABAD 8 | India | 14 | 4945 | SERERE 34 | Uganda | 59 | 5658 | P 2955 | Niger | 10 |
| 4830 | BAREILLY 12 | India | 24 | 4947 | SERERE 36 | Uganda | 21 | 5666 | P 2964 | Niger | 6 |
| 4835 | NEP 7-5603 | Lebanon | 34 | 4948 | SERERE 37 | Uganda | 8 | 5672 | P 2970 | Niger | 6 |
| 4836 | NEP 10-5608-1 | Lebanon | 18 | 4950 | SERERE 39 | Uganda | 61 | 5682 | P 2980 | Niger | 6 |
| 4838 | NEP 11-5005-1 | Lebanon | 47 | 4951 | SERERE 40 | Uganda | 10 | 5686 | P 2985 | Niger | 6 |
| 4839 | NEP 13-5007-2 | Lebanon | 49 | 4953 | SERERE 42 | Uganda | 43 | 5722 | 45 365 | Nigeria | 6 |

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Table 8. *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4840 | NEP 13-5613-1 | Lebanon | 9 | 4956 | SERERE 45 | Uganda | 53 | 5755 | 45 416 | Nigeria | 6 |
| 5790 | 23DB Tr Tr | USA | 33 | 6754 | SAD 415 | Malawi | 24 | 8523 | ABM 13 | India | 13 |
| 5791 | 23B Tr Tr | USA | 9 | 6756 | SAD 417 | Malawi | 6 | 8524 | ABM 14 | India | 19 |
| 5793 | WJR 8/28530 | USSR | 14 | 6759 | SAD 422 | Malawi | 9 | 8525 | ABM 16 | India | 26 |
| 5794 | WJR 10/30683 | USSR | 42 | 6766 | SAD 454 | Malawi | 14 | 8526 | ABM 17 | India | 44 |
| 5796 | WJR 15/108897 | USSR | 30 | 6768 | SAD 469 | Malawi | 9 | 8527 | ABM 18 | India | 14 |
| 5797 | WJR 16/119989 | USSR | 27 | 6770 | SAD 477 | Malawi | 6 | 8537 | ABM 34 | India | 25 |
| 5798 | WRJ 20/135208 | USSR | 10 | 6773 | SAD 483 | Malawi | 23 | 8538 | ABM 35 | India | 8 |
| 5801 | SENEGAL 2 | Senegal | 13 | 6781 | SAD 606 | Malawi | 7 | 8542 | ABM 39 | India | 33 |
| 5802 | SENEGAL 3 | Senegal | 35 | 6787 | SAD 666 | Malawi | 6 | 8544 | ABM 43 | India | 19 |
| 5932 | P 1539/Sl.309 | Senegal | 8 | 6788 | SAD 670 | Malawi | 13 | 8545 | ABM 44 | India | 67 |
| 5974 | P 1585/Sl.450 | Senegal | 11 | 6792 | SAD 707 | Malawi | 9 | 8546 | ABM 45 | India | 17 |
| 5999 | P 1614/Sl.563 | Senegal | 11 | 6795 | SAD 728 | Malawi | 40 | 8548 | ABM 48 | India | 29 |
| 6032 | P 1652/Sl.655 | Senegal | 6 | 6800 | SAD 744 | Malawi | 67 | 8549 | ABM 51 | India | 16 |
| 6053 | P 168 | Cent Afr Rep | 7 | 6823 | SAD 995 | Malawi | 7 | 8550 | ABM 52 | India | 27 |
| 6064 | P 179 | Cent Afr Rep | 11 | 6847 | SAD 1092 | Malawi | 9 | 8552 | AMB 56 | India | 52 |
| 6094 | P 923 | Niger | 48 | 6848 | SAD 1097 | Malawi | 17 | 8555 | ABM 60 | India | 29 |
| 6096 | P 924 (BIS) | Niger | 30 | 6852 | ACC 077 | Kenya | 7 | 8558 | AMB 64 | India | 37 |
| 6098 | P 927 | Niger | 19 | 6853 | ACC 078 | Kenya | 12 | 8561 | ABM 68 | India | 18 |
| 6099 | P 932 | Niger | 22 | 6854 | ACC 079 | Kenya | 9 | 8562 | ABM 69 | India | 25 |
| 6100 | P 933 | Niger | 15 | 6856 | ACC 081 | Kenya | 20 | 8563 | AMB 71 | India | 12 |
| 6101 | P 936 | Niger | 21 | 6857 | ACC 082 | Kenya | 15 | 8566 | AMB 74 | India | 47 |
| 6102 | P 938 | Niger | 73 | 6858 | ACC 083 | Kenya | 16 | 8567 | ABM 75 | India | 15 |
| 6103 | P 939 | Niger | 12 | 6859 | ACC 084 | Kenya | 27 | 8568 | AMB 76 | India | 45 |
| 6104 | P 940 | Niger | 7 | 6860 | ACC 085 | Kenya | 18 | 8572 | ABM 82 | India | 14 |
| 6105 | P 942 | Niger | 7 | 6861 | ACC 086 | Kenya | 28 | 8576 | ABM 88 | India | 24 |
| 6106 | P 943 | Niger | 29 | 6863 | ACC 090 | Kenya | 27 | 8577 | ABM 89 | India | 6 |
| 6108 | P 944 (BIS) | Niger | 7 | 6864 | ACC 092 | Kenya | 6 | 8582 | ABM 97 | India | 11 |
| 6109 | P 945 | Niger | 9 | 6865 | ACC 093 | Kenya | 9 | 8583 | ABM 98 | India | 6 |
| 6110 | P 946 | Niger | 22 | 6869 | ACC 106 | Kenya | 7 | 8584 | AMB 99 | India | 9 |
| 6111 | P 947 | Niger | 14 | 6875 | ACC 116 | Kenya | 6 | 8585 | ABM 100 | India | 25 |
| 6117 | P 6 | Cameroon | 14 | 6878 | ACC 119 | Kenya | 8 | 8587 | ABM 102 | India | 19 |
| 6127 | P 17 | Cameroon | 11 | 6879 | ACC 120 | Kenya | 6 | 8592 | ABM 109 | India | 21 |
| 6134 | P 26 | Cameroon | 11 | 6884 | ACC 128 | Kenya | 17 | 8593 | ABM 110 | India | 17 |
| 6153 | P 49 | Cameroon | 11 | 6885 | ACC 131 | Kenya | 9 | 8594 | ABM 111 | India | 6 |
| 6156 | P 52 | Cameroon | 6 | 6889 | ACC 139 | Kenya | 6 | 8596 | ABM 115 | India | 70 |

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Table 8. *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6167 | P 63 | Cameroon | 16 | 6890 | ACC 143 | Kenya | 14 | 8599 | ABM 118 | India | 21 |
| 6213 | P 112 | Cameroon | 7 | 6891 | ACC 144 | Kenya | 13 | 8601 | ABM 120 | India | 14 |
| 6215 | P 115 | Cameroon | 26 | 6892 | ACC 147 | Kenya | 13 | 8603 | ABM 122 | India | 23 |
| 6217 | P 117 | Cameroon | 11 | 6895 | ACC 164 | Kenya | 10 | 8605 | ABM 125 | India | 20 |
| 6226 | P 126 | Cameroon | 12 | 6915 | SAR 2056 | India | 11 | 8607 | ABM 127 | India | 21 |
| 6230 | P 130 | Cameroon | 6 | 6940 | SAR 2094 | India | 8 | 8608 | ABM 128 | India | 16 |
| 6236 | P 136 | Cameroon | 11 | 6948 | SAR 2108 | India | 23 | 8609 | ABM 129 | India | 23 |
| 6244 | P 144 | Cameroon | 7 | 7024 | SAR 2222 | India | 17 | 8621 | PGI 41-1 | Sudan | 6 |
| 6250 | P 150 | Cameroon | 12 | 7094 | SAR 2292 | India | 70 | 8631 | PGI 76-1 | Sudan | 8 |
| 6279 | P 250 | Mali | 10 | 7101 | SAR 2302 | India | 55 | 8633 | PGI 77-1 | Sudan | 8 |
| 6281 | P 252 | Mali | 8 | 7169 | SAR 2376 | India | 32 | 8636 | PIA 89-A-2 | Sudan | 8 |
| 6321 | P 301 | Mali | 8 | 7324 | SAR 2552 | India | 7 | 8639 | PIA 89-C-1 | Sudan | 25 |
| 6330 | P 311 | Mali | 13 | 7359 | CER 3 | Tanzania | 17 | 8648 | PIA 97-2 | Sudan | 17 |
| 6332 | P 320 | Mali | 7 | 7375 | MPR 18-2 | Tanzania | 44 | 8650 | PIA 146-1 | Sudan | 19 |
| 6335 | P 324 | Mali | 12 | 7404 | CER 37 | Tanzania | 6 | 8656 | PIA 150-2 | Sudan | 10 |
| 6337 | P 328 | Mali | 29 | 7447 | MPR 70-1 | Tanzania | 14 | 8660 | PIA 177-2 | Sudan | 10 |
| 6344 | P 339 | Mali | 26 | 7452 | MPR 76-3 | Tanzania | 7 | 8672 | 30K | Sudan | 8 |
| 6380 | P 382 | Mali | 6 | 7461 | MPR 94 | Tanzania | 7 | 8677 | 35K | Sudan | 6 |
| 6382 | P 384 | Mali | 11 | 7485 | MPR 136 | Tanzania | 6 | 8678 | 36K | Sudan | 6 |
| 6458 | P 479 | Mali | 7 | 7495 | DRM 001 | Somalia | 55 | 8679 | 37K-1 | Sudan | 6 |
| 6461 | P 483 | Mali | 11 | 7496 | DRM 016 | Somalia | 88 | 8680 | 37 K-2 | Sudan | 11 |
| 6472 | P 500 | Mali | 6 | 7497 | DRM 019 | Somalia | 91 | 8683 | 1KA DARFUR 2 | Sudan | 6 |
| 6475 | P 506 | Mali | 14 | 7754 | PB 616 | India | 19 | 8699 | 26 KA DAR-FUR | Sudan | 6 |
| 6512 | P 547 | Mali | 10 | 7794 | LN 38-39 | India | 14 | 8731 | 107KA | Sudan | 8 |
| 6578 | SAOUGA LOCAL 7 | Burkina Faso | 11 | 7846 | SAR 1436-1 | India | 24 | 8769 | PM 61 | Botswana | 6 |
| 6587 | SAD 25 | Malawi | 9 | 7953 | P 87-1 | Cameroon | 6 | 8770 | PM 62 | Botswana | 33 |
| 6607 | SAD 63 | Malawi | 8 | 8026 | ZM 753-1 | Zambia | 17 | 8779 | PMK 85 | Botswana | 23 |
| 6615 | SAD 77 | Malawi | 6 | 8036 | DSA 69-1-1 | Ghana | 13 | 8780 | PMK 86 | Botswana | 7 |
| 6638 | SAD 123 | Malawi | 7 | 8055 | WJR 16/119989-1 | USSR | 10 | 8787 | PMK 138 | Botswana | 35 |
| 6668 | SAD 216 | Malawi | 14 | 8169 | GS 151 | India | 11 | 8789 | PMK 140 | Botswana | 9 |
| 6677 | SAD 228 | Malawi | 6 | 8210 | IP 1739L-1 | India | 8 | 8795 | 4 BHR | Zimbabwe | 13 |
| 6678 | SAD 229 | Malawi | 9 | 8214 | IP 2789-1 | Mauritius | 30 | 8797 | 10 BHR | Zimbabwe | 14 |
| 6694 | SAD 252 | Malawi | 6 | 8288 | P 2612-1 | India | 7 | 8800 | 15 BHR | Zimbabwe | 9 |
| 6706 | SAD 277 | Malawi | 7 | 8358 | PR 4552 | India | 12 | 8801 | 17 BHR | Zimbabwe | 13 |

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Table 8. *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6722 | SAD 314 | Malawi | 7 | 8503 | D 248C-1 | Niger | 15 | 8804 | 27 BKT | Zimbabwe | 17 |
| 6723 | SAD 315 | Malawi | 11 | 8515 | P 592 | Mali | 6 | 8808 | 6 FLB | Zimbabwe | 10 |
| 6730 | SAD 328 | Malawi | 12 | 8518 | ABM 5 | India | 20 | 8809 | 34 GT | Zimbabwe | 9 |
| 6734 | SAD 340 | Malawi | 13 | 8519 | ABM 6 | India | 22 | 8810 | 38 GT | Zimbabwe | 9 |
| 6745 | SAD 403 | Malawi | 6 | 8521 | ABM 9 | India | 7 | 8815 | 3 GWL | Zimbabwe | 10 |
| 8816 | 1 CHL | Zimbabwe | 10 | 9512 | DSA 114 | Ghana | 30 | 11634 | PM 30 | Cameroon | 8 |
| 8819 | 2 MDZ | Zimbabwe | 8 | 9514 | DSA 118 | Ghana | 17 | 11650 | MILLET 106 | UK | 11 |
| 8822 | 6 MDZ | Zimbabwe | 11 | 9515 | DSA 118-1-1 | Ghana | 11 | 11913 | PCI 42 | Sierra Leone | 6 |
| 8825 | 15 MDZ | Zimbabwe | 17 | 9518 | DSA 123-1 | Ghana | 6 | 11922 | PCI 72 | Sierra Leone | 13 |
| 8827 | 3 MT | Zimbabwe | 17 | 9526 | DSA 139-1 | Ghana | 6 | 11926 | PCI 90 | Sierra Leone | 100 |
| 8831 | 10 MT | Zimbabwe | 10 | 9529 | DSA 143 | Ghana | 6 | 11933 | PCI 106 | Sierra Leone | 17 |
| 8832 | 12 MT (YEMVERE) | Zimbabwe | 7 | 9530 | DSA 144 | Ghana | 6 | 12128 | NAN 172 | Nigeria | 13 |
| 8835 | 6 QQ | Zimbabwe | 7 | 9533 | DSA 150-1 | Ghana | 13 | 12134 | NAN 185 | Nigeria | 6 |
| 8837 | 4 WDZ | Zimbabwe | 11 | 9534 | DSA 151 | Ghana | 13 | 12352 | NAN 440 | Nigeria | 21 |
| 8843 | 26 FTV | Zimbabwe | 6 | 9540 | DSA 154 | Ghana | 11 | 12385 | NAN 477 | Nigeria | 6 |
| 8844 | 28 FTV | Zimbabwe | 39 | 9541 | DSA 154-1 | Ghana | 20 | 12418 | FES MO-ROCCO | Morocco | 94 |
| 8845 | ZM 002 | Zambia | 39 | 9546 | DSA 157 | Ghana | 14 | 12422 | GP 17 | USA | 60 |
| 8846 | ZM 011 | Zambia | 91 | 9549 | DSA 162 | Ghana | 14 | 12423 | GP 18 | USA | 38 |
| 8847 | ZM 013 | Zambia | 17 | 9552 | DSA 164-1 | Ghana | 6 | 12424 | GP 19 | USA | 40 |
| 8848 | ZM 028 | Zambia | 62 | 9554 | DSA 165-1 | Ghana | 24 | 12426 | GP 21 | USA | 14 |
| 8849 | ZM 068 | Zambia | 41 | 9560 | DSA 175 | Ghana | 10 | 12427 | GP 22 | USA | 22 |
| 8850 | ZM 099 | Zambia | 51 | 9620 | PI 214330 | India | 15 | 12505 | CO 1 | India | 35 |
| 8851 | ZM 143 A | Zambia | 42 | 9809 | RPM 96-1 | Mozambique | 10 | 12539 | 28-I-9-3 | India | 50 |
| 8852 | ZM 143 B | Zambia | 53 | 9819 | RPM 131-1 | Mozambique | 17 | 12570 | JAM 557 | India | 14 |
| 8853 | ZM 143 C | Zambia | 45 | 9823 | RPM 154-1 | Mozambique | 13 | 12659 | SM 179 (7042) | India | 78 |
| 8854 | ZM 158 B | Zambia | 33 | 9828 | RPM 170-2 | Mozambique | 44 | 12825 | 1903-2 | Zambia | 13 |
| 8855 | ZM 161 | Zambia | 31 | 9830 | RPM 171-2 | Mozambique | 25 | 12852 | ARK 8-1-1 | Burkina Faso | 23 |
| 8857 | ZM 234 | Zambia | 12 | 9943 | 1111 | Zambia | 6 | 12891 | P 18-1 | Cameroon | 19 |
| 8858 | ZM 235 | Zambia | 8 | 9944 | 1121 | Zambia | 41 | 12924 | DSA 27-1-1 | Ghana | 17 |
| 8859 | ZM 236 | Zambia | 20 | 9945 | 1124 | Zambia | 12 | 12949 | DSA 164-1-1 | Ghana | 7 |
| 8860 | ZM 250 | Zambia | 13 | 9946 | 1183 | Zambia | 11 | 13068 | FES MOR-ROCCO-1 | Morocco | 53 |
| 8861 | ZM 251 | Zambia | 8 | 9947 | 1352 | Zambia | 75 | 13520 | SAR 1436-1-1 | India | 10 |
| 8862 | ZM 257 | Zambia | 54 | 9948 | 1365 | Zambia | 9 | 13561 | SAR 1020-1 | India | 13 |
| 8863 | ZM 258 | Zambia | 34 | 9949 | 1475 | Zambia | 11 | 13564 | SAR 1048-1 | India | 10 |
| 8864 | ZM 366 | Zambia | 56 | 9950 | 1483 | Zambia | 12 | 13590 | SAR 304-1 | India | 15 |

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Table 8. *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8865 | ZM 417 | Zambia | 95 | 9953 | 1588 | Zambia | 38 | 13819 | 1 | Burkina Faso | 6 |
| 8866 | ZM 670 | Zambia | 95 | 9954 | 1602 | Zambia | 12 | 13822 | 4 | Burkina Faso | 6 |
| 8867 | ZM 753 | Zambia | 28 | 9956 | 1628 | Zambia | 9 | 13825 | 7 | Burkina Faso | 6 |
| 8868 | ZM 850 | Zambia | 34 | 9958 | 1667 | Zambia | 12 | 13838 | 21 | Burkina Faso | 11 |
| 8873 | 73/174 | South Africa | 53 | 9959 | 1682 | Zambia | 15 | 13881 | 66 | Burkina Faso | 6 |
| 8878 | P 93 PET GRAIN | Burkina Faso | 10 | 9960 | 1685 | Zambia | 10 | 13889 | 80 | Burkina Faso | 13 |
| 8959 | P 3283 PL-84 | Togo | 40 | 9963 | 1702 | Zambia | 11 | 13896 | 89 | Burkina Faso | 6 |
| 8969 | P 3344 PL-94 | Togo | 26 | 9965 | 1721 | Zambia | 15 | 14925 | UB 0023 | Uganda | 25 |
| 8975 | D 332/1/2 | Niger | 7 | 9966 | 1729 | Zambia | 25 | 14926 | UB 0024 | Uganda | 11 |
| 8999 | P 94/1/2 | Nigeria | 18 | 9967 | 1738 | Zambia | 52 | 14927 | UB 0025 | Uganda | 8 |
| 9000 | P 3KOLO P-1/1/1 | Niger | 6 | 9968 | 1759 | Zambia | 8 | 14968 | CHA 40-2 | India | 18 |
| 9013 | 3/4 HK P 15 1/2 | Nigeria | 7 | 9969 | 1769 | Zambia | 10 | 14969 | CHA 41-2 | India | 44 |
| 9023 | 73176 | South Africa | 7 | 9970 | 1776 | Zambia | 12 | 14989 | CHA 61-1 | India | 20 |
| 9325 | P 3947 | Benin | 19 | 9971 | 1806 | Zambia | 11 | 15010 | CH 96-1 | India | 7 |
| 9363 | DSA 29-1-1 | Ghana | 7 | 9972 | 1815 | Zambia | 18 | 15011 | CH 97-2 | India | 19 |
| 9366 | DSA 29-3 | Ghana | 7 | 9973 | 1824 | Zambia | 19 | 15015 | CH 103-1 | India | 50 |
| 9377 | DSA 39-1 | Ghana | 8 | 9975 | 1863 | Zambia | 11 | 15016 | CH 104-1 | India | 56 |
| 9393 | DSA 46-1 | Ghana | 12 | 9976 | 1873 | Zambia | 7 | 15052 | CH 150-1 | India | 33 |
| 9396 | DSA | Ghana | 6 | 9978 | 1919 | Zambia | 6 | 15530 | 136 | Burkina Faso | 20 |
| 9400 | DSA 50 | Ghana | 19 | 9979 | 1941 | Zambia | 7 | 15559 | 165 | Burkina Faso | 6 |
| 9402 | DSA 51 | Ghana | 7 | 9981 | 1968 | Zambia | 35 | 15565 | 171 | Burkina Faso | 10 |
| 9403 | DSA 51-1 | Ghana | 16 | 9983 | 2014 | Zambia | 12 | 15606 | 214 | Burkina Faso | 6 |
| 9405 | DSA 55 | Ghana | 20 | 9984 | 2023 | Zambia | 35 | 15964 | AS 21 | India | 29 |
| 9406 | DSA 55-1 | Ghana | 13 | 9986 | 2050 | Zambia | 21 | 16294 | AMM 68 | Zimbabwe | 29 |
| 9409 | DSA 57 | Ghana | 7 | 9988 | 2498 | Zambia | 8 | 16327 | AMM 345 | Zimbabwe | 16 |
| 9411 | DSA 59-1 | Ghana | 6 | 9989 | 2804 | Zambia | 7 | 16343 | AMM 956 | Zimbabwe | 6 |
| 9412 | DSA 59-1-1 | Ghana | 19 | 9990 | 2816 | Zambia | 17 | 16349 | AMM 1036 | Zimbabwe | 13 |
| 9413 | DSA 59-1-2 | Ghana | 24 | 10079 | P 5429 | Mali | 12 | 16370 | AMM 1216 | Zimbabwe | 11 |
| 9414 | DSA 59-2 | Ghana | 33 | 10394 | IC 46963 | India | 70 | 16373 | AMM 1223 | Zimbabwe | 18 |
| 9415 | DSA 59-2-1 | Ghana | 7 | 10395 | IC 46964 | India | 25 | 16376 | AMM 1227 | Zimbabwe | 10 |
| 9417 | DSA 59-3-1 | Ghana | 13 | 10401 | E 457 | India | 9 | 16384 | AMM 1348 | Zimbabwe | 23 |
| 9429 | DSA 67-2 | Ghana | 15 | 10420 | P 3821 | Benin | 6 | 16389 | AGH 3 | Zimbabwe | 8 |
| 9438 | DSA 70-1 | Ghana | 14 | 10434 | P 3889 | Benin | 10 | 16390 | AGH 4 | Zimbabwe | 10 |
| 9441 | DSA 70-2-1 | Ghana | 17 | 10436 | P 3900 | Benin | 9 | 16391 | AGH 5 | Zimbabwe | 17 |
| 9444 | DSA 71 | Ghana | 13 | 10443 | 1029 | Zambia | 7 | 16393 | AGH 4 | Zimbabwe | 10 |
| 9449 | DSA 73-1 | Ghana | 15 | 10444 | 1355 | Zambia | 33 | 16395 | AGH 14 | Zimbabwe | 15 |

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Table 8. *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9450 | DSA 73-1-1 | Ghana | 6 | 10463 | TGR 388 | Zimbabwe | 16 | 16396 | AGH 15 | Zimbabwe | 8 |
| 9457 | DSA 76-1 | Ghana | 6 | 11223 | TGR 120B | Zimbabwe | 14 | 16397 | AGH 16 | Zimbabwe | 17 |
| 9461 | DSA 76-3 | Ghana | 7 | 11229 | TGR 217 | Zimbabwe | 7 | 16399 | AGH 18 | Zimbabwe | 16 |
| 9477 | DSA 79-1 | Ghana | 6 | 11232 | TGR 232E | Zimbabwe | 6 | 16400 | AGH 19 | Zimbabwe | 23 |
| 9508 | DSA 106 | Ghana | 19 | 11628 | PM 24 | Cameroon | 6 | 16401 | AGH 21 | Zimbabwe | 13 |
| 9509 | DSA 106-1 | Ghana | 10 | 11629 | PM 25 | Cameroon | 6 | 16402 | AGH 32 | Zimbabwe | 12 |
| 16406 | AGH 30 | Zimbabwe | 9 | 16580 | AGH 296 | Zimbabwe | 8 | 16876 | AGH 728 | Zimbabwe | 18 |
| 16408 | AGH 33 | Zimbabwe | 35 | 16583 | AGH 309 | Zimbabwe | 23 | 16879 | AGH 732 | Zimbabwe | 54 |
| 16409 | AGH 34 | Zimbabwe | 8 | 16587 | AGH 314 | Zimbabwe | 18 | 16881 | AGH 734 | Zimbabwe | 16 |
| 16411 | AGH 38 | Zimbabwe | 14 | 16592 | AGH 320 | Zimbabwe | 11 | 16885 | AGH 739 | Zimbabwe | 10 |
| 16412 | AGH 40 | Zimbabwe | 28 | 16598 | AGH 331 | Zimbabwe | 11 | 16888 | AGH 743 | Zimbabwe | 9 |
| 16413 | AGH 41 | Zimbabwe | 10 | 16599 | AGH 332 | Zimbabwe | 7 | 16895 | AGH 752 | Zimbabwe | 8 |
| 16414 | AGH 42 | Zimbabwe | 14 | 16601 | AGH 334 | Zimbabwe | 8 | 16896 | AGH 753 | Zimbabwe | 27 |
| 16415 | AGH 44 | Zimbabwe | 10 | 16605 | AGH 344 | Zimbabwe | 9 | 16897 | AGH 754 | Zimbabwe | 8 |
| 16416 | AGH 45 | Zimbabwe | 16 | 16612 | AGH 351 | Zimbabwe | 6 | 16898 | AGH 755 | Zimbabwe | 10 |
| 16417 | AGH 46 | Zimbabwe | 24 | 16613 | AGH 353 | Zimbabwe | 13 | 16899 | AGH 756 | Zimbabwe | 12 |
| 16418 | AGH 47 | Zimbabwe | 10 | 16615 | AGH 355 | Zimbabwe | 13 | 16907 | AGH 764 | Zimbabwe | 6 |
| 16420 | AGH 50 | Zimbabwe | 16 | 16619 | AGH 362 | Zimbabwe | 7 | 16910 | AGH 767 | Zimbabwe | 15 |
| 16424 | AGH 54 | Zimbabwe | 7 | 16622 | AGH 365 | Zimbabwe | 16 | 16911 | AGH 768 | Zimbabwe | 6 |
| 16425 | AGH 60 | Zimbabwe | 7 | 16625 | AGH 369 | Zimbabwe | 17 | 16916 | AGH 773 | Zimbabwe | 10 |
| 16426 | AGH 61 | Zimbabwe | 7 | 16636 | AGH 386 | Zimbabwe | 8 | 16917 | AGH 774 | Zimbabwe | 16 |
| 16427 | AGH 62 | Zimbabwe | 16 | 16637 | AGH 388 | Zimbabwe | 14 | 16918 | AGH 775 | Zimbabwe | 13 |
| 16430 | AGH 65 | Zimbabwe | 13 | 16638 | AGH 389 | Zimbabwe | 12 | 16921 | AGH 781 | Zimbabwe | 6 |
| 16431 | AGH 66 | Zimbabwe | 10 | 16641 | AGH 392 | Zimbabwe | 6 | 16922 | AGH 787 | Zimbabwe | 17 |
| 16435 | AGH 76 | Zimbabwe | 15 | 16643 | AGH 394 | Zimbabwe | 14 | 16924 | AGH 789 | Zimbabwe | 9 |
| 16436 | AGH 77 | Zimbabwe | 13 | 16644 | AGH 397 | Zimbabwe | 16 | 16926 | AGH 793 | Zimbabwe | 11 |
| 16440 | AGH 81 | Zimbabwe | 18 | 16645 | AGH 398 | Zimbabwe | 7 | 16928 | AGH 795 | Zimbabwe | 17 |
| 16443 | AGH 84 | Zimbabwe | 6 | 16648 | AGH 403 | Zimbabwe | 33 | 16932 | AGH 803 | Zimbabwe | 10 |
| 16452 | AGH 94 | Zimbabwe | 21 | 16659 | AGH 423 | Zimbabwe | 16 | 16937 | AGH 808 | Zimbabwe | 6 |
| 16453 | AGH 95 | Zimbabwe | 16 | 16660 | AGH 425 | Zimbabwe | 12 | 16942 | AGH 828 | Zimbabwe | 38 |
| 16455 | AGH 96B | Zimbabwe | 17 | 16661 | AGH 426 | Zimbabwe | 10 | 16945 | AGH 832 | Zimbabwe | 15 |
| 16457 | AGH 99 | Zimbabwe | 13 | 16662 | AGH 430 | Zimbabwe | 16 | 16949 | AGH 838 | Zimbabwe | 26 |
| 16460 | AGH 103 | Zimbabwe | 11 | 16663 | AGH 431 | Zimbabwe | 9 | 16953 | AGH 847 | Zimbabwe | 14 |
| 16462 | AGH 105 | Zimbabwe | 18 | 16664 | AGH 432 | Zimbabwe | 13 | 16955 | AGH 849 | Zimbabwe | 13 |
| 16464 | AGH 108 | Zimbabwe | 7 | 16672 | AGH 440 | Zimbabwe | 31 | 16956 | AGH 852 | Zimbabwe | 16 |
| 16467 | AGH 119 | Zimbabwe | 13 | 16692 | AGH 477 | Zimbabwe | 21 | 16957 | AGH 853 | Zimbabwe | 10 |
| 16470 | AGH 123 | Zimbabwe | 78 | 16695 | AGH 480 | Zimbabwe | 9 | 16959 | AGH 860 | Zimbabwe | 24 |
| 16472 | AGH 126 | Zimbabwe | 18 | 16700 | AGH 485 | Zimbabwe | 27 | 16961 | AGH 871 | Zimbabwe | 6 |

*Continued...*

Table 8. *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16477 | AGH 131 | Zimbabwe | 11 | 16703 | AGH 490 | Zimbabwe | 20 | 16962 | AGH 872 | Zimbabwe | 17 |
| 16479 | AGH 133 | Zimbabwe | 13 | 16705 | AGH 492 | Zimbabwe | 8 | 16963 | AGH 873 | Zimbabwe | 15 |
| 16481 | AGH 135 | Zimbabwe | 28 | 16708 | AGH 496 | Zimbabwe | 37 | 16965 | AGH 876 | Zimbabwe | 20 |
| 16485 | AGH 139 | Zimbabwe | 17 | 16709 | AGH 500 | Zimbabwe | 15 | 16966 | AGH 887 | Zimbabwe | 21 |
| 16487 | AGH 141 | Zimbabwe | 17 | 16710 | AGH 504 | Zimbabwe | 21 | 16967 | AGH 888 | Zimbabwe | 29 |
| 16488 | AGH 142 | Zimbabwe | 35 | 16712 | AGH 506 | Zimbabwe | 15 | 16968 | AGH 889 | Zimbabwe | 17 |
| 16489 | AGH 145 | Zimbabwe | 16 | 16713 | AGH 512 | Zimbabwe | 33 | 16971 | AGH 905 | Zimbabwe | 30 |
| 16491 | AGH 147 | Zimbabwe | 11 | 16714 | AGH 513 | Zimbabwe | 7 | 16972 | AGH 910 | Zimbabwe | 35 |
| 16492 | AGH 148 | Zimbabwe | 23 | 16715 | AGH 515 | Zimbabwe | 7 | 16973 | AGH 911 | Zimbabwe | 11 |
| 16494 | AGH 150 | Zimbabwe | 15 | 16717 | AGH 517 | Zimbabwe | 6 | 16974 | AGH 912 | Zimbabwe | 14 |
| 16511 | AGH 172 | Zimbabwe | 9 | 16720 | AGH 520 | Zimbabwe | 19 | 16975 | AGH 915 | Zimbabwe | 17 |
| 16512 | AGH 173 | Zimbabwe | 21 | 16722 | AGH 525 | Zimbabwe | 10 | 16979 | AGH 929 | Zimbabwe | 8 |
| 16514 | AGH 175 | Zimbabwe | 23 | 16724 | AGH 529 | Zimbabwe | 36 | 16980 | AGH 930 | Zimbabwe | 12 |
| 16516 | AGH 177 | Zimbabwe | 29 | 16725 | AGH 530 | Zimbabwe | 7 | 16981 | AGH 931 | Zimbabwe | 10 |
| 16517 | AGH 178 | Zimbabwe | 8 | 16728 | AGH 535 | Zimbabwe | 15 | 16983 | AGH 934 | Zimbabwe | 83 |
| 16519 | AGH 191 | Zimbabwe | 11 | 16739 | AGH 546 | Zimbabwe | 13 | 16984 | AGH 936 | Zimbabwe | 12 |
| 16522 | AGH 194 | Zimbabwe | 21 | 16741 | AGH 548 | Zimbabwe | 8 | 16988 | AGH 942 | Zimbabwe | 24 |
| 16524 | AGH 197 | Zimbabwe | 8 | 16746 | AGH 554 | Zimbabwe | 11 | 16990 | AGH 945 | Zimbabwe | 11 |
| 16525 | AGH 198 | Zimbabwe | 25 | 16754 | AGH 563 | Zimbabwe | 18 | 16991 | AGH 946 | Zimbabwe | 9 |
| 16526 | AGH 199 | Zimbabwe | 12 | 16760 | AGH 571 | Zimbabwe | 8 | 16993 | AGH 948 | Zimbabwe | 22 |
| 16528 | AGH 201 | Zimbabwe | 7 | 16764 | AGH 577 | Zimbabwe | 7 | 16994 | AGH 949 | Zimbabwe | 19 |
| 16529 | AGH 202 | Zimbabwe | 12 | 16768 | AGH 585 | Zimbabwe | 23 | 16996 | AGH 951 | Zimbabwe | 13 |
| 16530 | AGH 203 | Zimbabwe | 6 | 16769 | AGH 586 | Zimbabwe | 9 | 16997 | AGH 952 | Zimbabwe | 12 |
| 16531 | AGH 209 | Zimbabwe | 22 | 16771 | AGH 588 | Zimbabwe | 14 | 16999 | AGH 954 | Zimbabwe | 16 |
| 16532 | AGH 210 | Zimbabwe | 8 | 16775 | AGH 592 | Zimbabwe | 24 | 17000 | AGH 955 | Zimbabwe | 21 |
| 16535 | AGH 223 | Zimbabwe | 13 | 16776 | AGH 593 | Zimbabwe | 20 | 17003 | AGH 960 | Zimbabwe | 23 |
| 16541 | AGH 232 | Zimbabwe | 15 | 16778 | AGH 595 | Zimbabwe | 12 | 17005 | AGH 962 | Zimbabwe | 26 |
| 16542 | AGH 233 | Zimbabwe | 11 | 16785 | AGH 603 | Zimbabwe | 10 | 17008 | AGH 965 | Zimbabwe | 8 |
| 16544 | AGH 239B | Zimbabwe | 14 | 16791 | AGH 610 | Zimbabwe | 19 | 17019 | AGH 991 | Zimbabwe | 7 |
| 16545 | AGH 240 | Zimbabwe | 9 | 16796 | AGH 617 | Zimbabwe | 26 | 17021 | AGH 995 | Zimbabwe | 14 |
| 16563 | AGH 268 | Zimbabwe | 17 | 16798 | AGH 619 | Zimbabwe | 15 | 17033 | AGH 1053 | Zimbabwe | 27 |
| 16564 | AGH 271 | Zimbabwe | 40 | 16801 | AGH 622 | Zimbabwe | 17 | 17047 | AGH 1167 | Zimbabwe | 7 |
| 16565 | AGH 272 | Zimbabwe | 21 | 16802 | AGH 623 | Zimbabwe | 18 | 17077 | AGH 1292 | Zimbabwe | 8 |
| 16567 | AGH 274 | Zimbabwe | 16 | 16803 | AGH 624 | Zimbabwe | 14 | 17081 | AGH 1297 | Zimbabwe | 22 |
| 16568 | AGH 275 | Zimbabwe | 6 | 16805 | AGH 626 | Zimbabwe | 18 | 17083 | AGH 1299 | Zimbabwe | 28 |
| 16569 | AGH 276 | Zimbabwe | 32 | 16835 | AGH 668-1 | Zimbabwe | 21 | 17085 | AGH 1301 | Zimbabwe | 11 |
| 16570 | AGH 277 | Zimbabwe | 31 | 16853 | AGH 698 | Zimbabwe | 17 | 17089 | AGH 1306 | Zimbabwe | 15 |
| 16571 | AGH 280 | Zimbabwe | 19 | 16857 | AGH 706 | Zimbabwe | 16 | 17092 | AGH 1310 | Zimbabwe | 32 |

*Continued...*

Table 8. *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16572 | AGH 281 | Zimbabwe | 8 | 16860 | AGH 712 | Zimbabwe | 23 | 17094 | AGH 1312 | Zimbabwe | 6 |
| 16573 | AGH 282 | Zimbabwe | 44 | 16870 | AGH 722 | Zimbabwe | 18 | 17095 | AGH 1313 | Zimbabwe | 24 |
| 16574 | AGH 283 | Zimbabwe | 34 | 16871 | AGH 723 | Zimbabwe | 11 | 17096 | AGH 1318 | Zimbabwe | 10 |
| 17090 | AGH 1307 | Zimbabwe | 9 | 17491 | C 88-13 | Tunisia | 15 | 19581 | C 90-87 | Niger | 40 |
| 17097 | AGH 1324 | Zimbabwe | 23 | 17873 | RV 16 | India | 79 | 19582 | C 90-88 | Niger | 44 |
| 17100 | AGH 1354 | Zimbabwe | 17 | 17957 | TIFT 13AxE | USA | 13 | 19584 | C 90-90 | Niger | 47 |
| 17106 | AGH 1380 | Zimbabwe | 30 | 17973 | DSA 59-1-1A | India | 65 | 19588 | C 90-94 | Niger | 33 |
| 17108 | AGH 1382 | Zimbabwe | 9 | 17974 | DSA 59-1-1B | India | 41 | 19591 | C 90-97 | Niger | 29 |
| 17110 | AGH 1431 | Zimbabwe | 12 | 17976 | DSA 105-B | India | 8 | 19593 | C 90-99 | Niger | 23 |
| 17112 | AGH 1434 | Zimbabwe | 14 | 17977 | DSA 118-A | India | 7 | 19596 | C 90-102 | Niger | 19 |
| 17114 | AGH 1436 | Zimbabwe | 13 | 17978 | DSA 118-B | India | 100 | 19602 | C 90-108 | Niger | 17 |
| 17116 | AGH 1440 | Zimbabwe | 6 | 17981 | DSA 144-1A | India | 46 | 19604 | C 90-110 | Niger | 29 |
| 17117 | AGH 1441 | Zimbabwe | 7 | 17982 | DSA 144-1B | India | 30 | 19605 | C 90-111 | Niger | 19 |
| 17119 | AGH 1443 | Zimbabwe | 17 | 17987 | ARD 132-A | India | 15 | 19608 | C 90-114 | Niger | 10 |
| 17120 | AGH 1444 | Zimbabwe | 9 | 17997 | TIFT23-BE(e1) | USA | 60 | 19609 | C 90-115 | Niger | 30 |
| 17124 | AGH 1447B | Zimbabwe | 8 | 17998 | 80 9016(e2) | USA | 30 | 19614 | C 90-121 | Niger | 35 |
| 17127 | AGH 1450 | Zimbabwe | 51 | 18001 | TIFT 23DAxE | USA | 100 | 19615 | C 90-122 | Niger | 24 |
| 17131 | AGH 1454 | Zimbabwe | 32 | 18002 | TIFT 23B(E) | USA | 100 | 19617 | C 90-124 | Niger | 33 |
| 17135 | AGH 1458 | Zimbabwe | 18 | 18022 | WB 2162-4 | Pakistan | 10 | 19619 | C 90-126 | Niger | 18 |
| 17143 | AGH 1467 | Zimbabwe | 17 | 18041 | WB 2174-2 | Pakistan | 27 | 19620 | C 90-127 | Niger | 14 |
| 17148 | AGH 1472 | Zimbabwe | 8 | 18052 | WB 2177-2 | Pakistan | 35 | 19634 | C 90-141 | Niger | 19 |
| 17152 | AGH 1477 | Zimbabwe | 6 | 18068 | WB 2191-2 | Pakistan | 64 | 19637 | C 90-144 | Niger | 13 |
| 17204 | 239 | Burkina Faso | 16 | 18159 | C 89-42 | Mali | 7 | 19638 | C 90-145 | Niger | 6 |
| 17266 | 273 | Burkina Faso | 6 | 18165 | C 89-49 | Mali | 11 | 19640 | C 90-147 | Niger | 6 |
| 17282 | 281 | Burkina Faso | 6 | 18169 | C 89-53 | Mali | 15 | 19642 | C 90-149 | Niger | 25 |
| 17465 | C 88-15 | Algeria | 42 | 18174 | C 89-59 | Mali | 6 | 19644 | C 90-151 | Niger | 6 |
| 17466 | C 88-16 | Algeria | 87 | 18183 | C 89-68 | Mali | 10 | 19645 | C 90-152 | Niger | 21 |
| 17467 | C 88-17 | Algeria | 100 | 18187 | C 89-72 | Mali | 7 | 19649 | C 90-156 | Niger | 7 |
| 17469 | C 88-19 | Chad | 6 | 18188 | C 89-73 | Mali | 22 | 19652 | C 90-159 | Niger | 15 |
| 17476 | C 88-26 | Chad | 15 | 18193 | C 89-78 | Mali | 7 | 19656 | C 90-163 | Niger | 13 |
| 17477 | C 88-27 | Chad | 16 | 18197 | C 89-82 | Mali | 16 | 19657 | C 90-164 | Niger | 15 |
| 17482 | C 88-33 | Chad | 6 | 18433 | AHM 105 | Namibia | 50 | 19662 | C 90-170 | Niger | 6 |
| 17486 | C 88-08 | Tunisia | 26 | 18883 | AHM 565 | Namibia | 7 | 19666 | C 90-174 | Niger | 6 |
| 17487 | C 88-09 | Tunisia | 64 | 19405 | TCD 9 | Chad | 11 | 19679 | C 90-187 | Niger | 6 |
| 17488 | C 88-10 | Tunisia | 41 | 19408 | TCD 52 | Chad | 6 | 13845 | 28 | Burkina Faso | 6 |
| 13857 | 40 | Burkina Faso | 13 | 16463 | AGH 107 | Zimbabwe | 22 | 16872 | AGH 724 | Zimbabwe | 24 |
| 16986 | AGH 940 | Zimbabwe | 34 | | | | | | | | |

Table 9. Genetic stocks of pearl millet, their countries of origin, and reactions to downy mildew (DM) obtained in greenhouse screening, ICRISAT Asia Center, 1990–93.

| Origin | Genetic stocks tested | Number of accessions in different DM incidence categories | | | | | |
|---|---|---|---|---|---|---|---|
| | | 0 | 1–5 | 6–10 | 10 | Min | Max |
| Benin | 2 | 0 | 0 | 0 | 2 | 30 | 43 |
| Burkina Faso | 18 | 6 | 8 | 0 | 4 | 0 | 85 |
| Cameroon | 11 | 3 | 4 | 1 | 3 | 0 | 68 |
| Congo | 1 | 0 | 0 | 0 | 1 | 77 | –[a] |
| Ghana | 7 | 0 | 1 | 1 | 5 | 2 | 70 |
| ICRISAT | 60 | 20 | 9 | 8 | 23 | 0 | 98 |
| India | 29 | 6 | 1 | 3 | 19 | 0 | 98 |
| Mali | 19 | 4 | 8 | 3 | 4 | 0 | 39 |
| Morocco | 1 | 0 | 0 | 1 | 0 | 6 | – |
| Namibia | 1 | 0 | 1 | 0 | 0 | 1 | – |
| Niger | 12 | 1 | 7 | 2 | 2 | 0 | 79 |
| Nigeria | 15 | 3 | 4 | 1 | 7 | 0 | 82 |
| Senegal | 3 | 1 | 0 | 0 | 2 | 0 | 17 |
| Sudan | 10 | 1 | 3 | 2 | 4 | 0 | 88 |
| Tanzania | 11 | 1 | 1 | 1 | 8 | 0 | 92 |
| Togo | 6 | 1 | 1 | 1 | 3 | 0 | 100 |
| Yemen Arab Republic | 2 | 0 | 0 | 0 | 2 | 70 | 71 |
| Zambia | 1 | 0 | 0 | 0 | 1 | 12 | – |
| Zimbabwe | 28 | 1 | 8 | 5 | 14 | 0 | 100 |
| | 237 | 48 | 56 | 29 | 104 | | |

1. = only one accession was tested.

Table 10. Genetic stocks of pearl millet that developed ≤5% downy mildew (DM) in greenhouse tests, ICRISAT Asia Center, 1990–93.

| Identity | Origin | DM (%) | Identity | Origin | DM (%) |
|---|---|---|---|---|---|
| IP 11321 Y | Burkina Faso | 0 | IP 15604 BL | Burkina Faso | 1 |
| YM 4 | Nigeria | 0 | IP 6404 | Mali | 1 |
| IP 10515 Y | Senegal | 0 | IP 15872 | Tanzania | 2 |
| YL 26 Y. Patchy | Mali | 0 | TG 6 | ICRISAT | 2 |
| Gl,WLS,mls | ICRISAT | 0 | BLG 3-2 | Sudan | 2 |
| YG 2 | Mali | 0 | IP 6405 | Mali | 2 |
| LB 1 | ICRISAT | 0 | IP 16672 Tig | Zimbabwe | 2 |
| IP 10730 | Sudan | 0 | IP 9996 | Mali | 2 |
| TL 5 | ICRISAT | 0 | IP 9995 | Mali | 2 |
| IP 9707 | Nigeria | 0 | YG 8 | Burkina Faso | 2 |
| IP 8292 | India | 0 | IP 7923 | Niger | 2 |
| IP 8043 YBL | Togo | 0 | IP 8289 | Niger | 2 |
| YL 15 | ICRISAT | 0 | IP 16504 YSr. | Zimbabwe | 2 |
| YSrL 1 | ICRISAT | 0 | IP 17137 Y | Zimbabwe | 2 |
| Dwarf,mls | ICRISAT | 0 | IP 8293 | India | 2 |
| Gl,WLS,Yellow | ICRISAT | 0 | YM 17 | Nigeria | 2 |
| J561,mls,gr.spks | India | 0 | IP 15598 Y | Burkina Faso | 2 |
| Gl,WLS | ICRISAT | 0 | YL 25 Y.Tig | Cameroon | 2 |
| STWL 2 | ICRISAT | 0 | BLG 6 Variegata | Niger | 2 |
| IP 3122 BL | India | 0 | IP 9409 YSr. | Ghana | 2 |
| YM 16 | Burkina Faso | 0 | TG 8 | Burkina Faso | 2 |
| D,mls,hairy | ICRISAT | 0 | TG 4 | ICRISAT | 3 |
| AD 1 Y | Cameroon | 0 | IP 9710 | Nigeria | 3 |
| IP 9708 | Nigeria | 0 | d3,WLS | ICRISAT | 3 |
| BLL 2 | ICRISAT | 0 | IP 16611 Y | Zimbabwe | 3 |
| STYG 7 | ICRISAT | 0 | IP 6335 Patchy | Mali | 3 |
| BL, Yellow | ICRISAT | 0 | IP 11426 | Burkina Faso | 3 |
| YL 31 | Niger | 0 | IP 10729 | Sudan | 3 |
| IP 17117 SW | ICRISAT | 0 | ARD 51 GL | ICRISAT | 3 |
| IP 16414 Y | Zimbabwe | 0 | LN 1-1 | Niger | 3 |
| IP 15833 Y | Tanzania | 0 | YZ 3 Y.Patchy | Zimbabwe | 3 |
| IP 11628 | Cameroon | 0 | Tigrina, Purple | ICRISAT | 3 |
| YM 19 | Burkina Faso | 0 | IP 14831 | Cameroon | 3 |
| IP 17935 | India | 0 | IP 6406 | Mali | 3 |
| IP 6407 | Mali | 0 | IP 8285 | Nigeria | 4 |
| IP 15557 GL | ICRISAT | 0 | IP 9997 | Mali | 4 |
| GL 37 | ICRISAT | 0 | ZG 3 | ICRISAT | 4 |
| IP 11427 | Burkina Faso | 0 | IP 10728 | Sudan | 4 |
| IP 15574 Y | Burkina Faso | 0 | IP 15599 Y | Burkina Faso | 4 |
| IP 17365 Tig | Burkina Faso | 0 | IP 13588 SY | ICRISAT | 4 |
| IP 10399 | India | 0 | BLG 5 YBL | Niger | 4 |
| YL 7 | India | 0 | YL 36 | Niger | 4 |
| STYG 8 | ICRISAT | 0 | BLL 3 BL | ICRISAT | 4 |
| IP 11631 | Cameroon | 0 | STYG 5 Variegata | Niger | 5 |
| IP 6408 | Mali | 0 | IP 11630 | Cameroon | 5 |
| YL 34 | ICRISAT | 0 | LN 2 | Cameroon | 5 |
| STWG 3 | ICRISAT | 0 | IP 17731 y,gl | Togo | 5 |
| YM 15 | ICRISAT | 0 | YGL 1 | ICRISAT | 5 |
| IP 11428 | Burkina Faso | 1 | YL 18 | Mali | 5 |
| IP 15605 Y | Burkina Faso | 1 | IP 16439 Y | Zimbabwe | 5 |
| TG 5 | Zimbabwe | 1 | IP 8290 | Nigeria | 5 |
| IP 19011 | NAM | 1 | IP 16895 Tig | Zimbabwe | 5 |

Table 11. Downy mildew (DM) incidence (%) in seven pearl millet accesions in six successive field tests, ICRISAT Asia Center, 1991–93.

| Accessions | Identity | 1991S[1] | | 1991R[2] | | 1992S | | 1992R | | 1993S | | 1993R | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TP[3] | DM(%) | TP[3] | DM(%) | TP[3] | DM(%) | TP[3] | DM(%) | TP[3] | DM(%) | TP[3] | DM(%) |
| IP 18292 | D2 WS GL yellow | 54 | 0 | 55 | 0 | 34 | 0 | 30 | 0 | 33 | 0 | 32 | 0 |
| IP 18293 | BLP 1 | 52 | 0 | 71 | 0 | 36 | 0 | 28 | 0 | 50 | 0 | 29 | 0 |
| IP 18294 | ZG 1 | 48 | 0 | 58 | 0 | 30 | 0 | 40 | 2.5 | 54 | 0 | 28 | 0 |
| IP 18295 | YM 1 | 4 | 0 | 18 | 0 | 32 | 0 | 32 | 3.1 | 22 | 0 | 29 | 0 |
| IP 18296 | GL 17 | 8 | 0 | 76 | 0 | 28 | 0 | 32 | 0 | 51 | 0 | 29 | 0 |
| IP 18297 | GL 29 | 8 | 0 | 14 | 0 | 29 | 0 | 33 | 6.1 | 45 | 0 | 30 | 0 |
| IP 18298 | GL 38 | 12 | 0 | 56 | 0 | 26 | 0 | 21 | 0 | 50 | 0 | 34 | 0 |
| Controls | | | | | | | | | | | | | |
| 700651 (resistant) | | 144 | 4.1 | 100 | 3 | 112 | 7.2 | 168 | 6.5 | 185 | 4.3 | 161 | 4.9 |
| HB 3 (susceptible) | | 153 | 97.4 | 68 | 97.1 | 66 | 95.5 | 92 | 97.8 | 102 | 94.1 | 146 | 89.1 |

1. Summer 2. Rainy season 3. Total plants

Table 12. Genetic stocks of pearl millet that developed >5% downy mildew in greenhouse tests, ICRISAT Asia Center, 1990–93.

| Identity | Origin | DM (%) | Identity | Origin | DM (%) |
|---|---|---|---|---|---|
| WSG 1 | ICRISAT | 6 | YL 8 | India | 28 |
| BLG 4 | Zimbabwe | 6 | IP 3822 Y | India | 28 |
| IP 8166 | India | 6 | IP 17753 GL | ICRISAT | 29 |
| IP 10727 | Sudan | 6 | IP 9309 Y | Benin | 30 |
| IP 12420 Tig | Morocco | 6 | IP 16426 Y | Zimbabwe | 30 |
| IP 17724 Tig | Togo | 6 | YL 22 | India | 30 |
| YM 21 | Mali | 6 | IP 15645 | Tanzania | 30 |
| d3, Yellows | ICRISAT | 6 | YZ 1 | ICRISAT | 31 |
| IP 16694 Y | Zimbabwe | 7 | YM 6 | India | 32 |
| IP 16433 Tig | Zimbabwe | 7 | IP 9994 | Mali | 33 |
| yellow, mls | ICRISAT | 7 | IP 16838 YZ | Zimbabwe | 35 |
| BLG 8 | Niger | 7 | YM 10 | India | 35 |
| IP 5551 Tig | Niger | 7 | YZ 5 GTLY | Mali | 39 |
| YG 9 | Zimbabwe | 8 | YL 16 | India | 39 |
| BLG 1 | India | 8 | IP 8169 | Niger | 41 |
| IP 8982 | Sudan | 8 | IP 15615 GL | ICRISAT | 41 |
| IP 11629 | Cameroon | 8 | IP 17600 | Togo | 41 |
| IP 16866 YSr. | Zimbabwe | 8 | IP 8284 NH | Tanzania | 41 |
| IP 8027 | Ghana | 8 | IP 15720 | Tanzania | 41 |
| d3,WLS,Purple | ICRISAT | 9 | IP 12826 BL | Benin | 43 |
| STYG 2 | ICRISAT | 9 | YM 5 | Zimbabwe | 43 |
| YL 10 | ICRISAT | 9 | IP 15202 Y | India | 43 |
| TL 7 YZ | ICRISAT | 9 | WSG 3 | ICRISAT | 45 |
| IP 15086 Y.Patchy | India | 9 | Gl,Purple(BL) | ICRISAT | 46 |
| YM 3 | ICRISAT | 10 | IP 8287 | India | 46 |
| ZG 4 | Nigeria | 10 | IP 15538 Y | Burkina Faso | 46 |
| IP 8284 Hairy | Tanzania | 10 | YSrG 1 | ICRISAT | 47 |
| YG 7 | Mali | 10 | YM 9 | Tanzania | 51 |
| R2762 long,peduncle | Mali | 10 | IP 12553 GTLY | India | 51 |
| IP 12129 YBL | Nigeria | 11 | IP 17504 Tig | Togo | 53 |
| IP 17924 Shoot yellow | India | 12 | IP 9580 GL | ICRISAT | 54 |
| IP 9709 | Nigeria | 12 | TL 6 | Ghana | 55 |
| IP 15300 BL | India | 12 | IP 16578 BL | Zimbabwe | 55 |
| Ysrl 5 | Zambia | 12 | IP 16872 BL | Zimbabwe | 55 |
| YL 20 YBL | Zimbabwe | 12 | YL 1 Patchy | Zimbabwe | 56 |
| YL 4 | Zimbabwe | 13 | IP 15875 Y.Tig | Tanzania | 58 |
| Gl,WLS,Purple | ICRISAT | 13 | Ytr 3 | ICRISAT | 60 |
| TL 1 | Nigeria | 13 | IP 15913 YBL | Tanzania | 62 |
| YZ 2 | Sudan | 14 | Gl,mls | ICRISAT | 63 |
| YL 12 | Sudan | 14 | ZG 5 | Zimbabwe | 64 |
| IP 8290 | Nigeria | 15 | YM 23 | Cameroon | 68 |
| TL 2 | Mali | 15 | IP 9431 YBL | Ghana | 70 |
| R2740 1 | Senegal | 16 | YG 5 | Yemen Arab Republic | 70 |
| TL 3 | Nigeria | 16 | IP 16217 Y | India | 71 |
| STWL 14 | ICRISAT | 16 | YZ 4 Y.Patchy | Yemen Arab Republic | 71 |
| STWL 8 Y.lesions | Zimbabwe | 16 | YL 11 | Nigeria | 73 |
| YL 5 | Mali | 17 | YM 12 | India | 74 |
| IP 10731 | ICRISAT | 17 | TL 4 | Sudan | 74 |
| YG 3 | Senegal | 17 | IP 15707 Y | Tanzania | 74 |

*Continued....*

Table 12. *Continued....*

| Identity | Origin | DM (%) | Identity | Origin | DM (%) |
|---|---|---|---|---|---|
| IP 8294 | Cameroon | 17 | YG 4 | Congo | 77 |
| IP 7910 × LN triless | ICRISAT | 17 | IP 16702 Y | Zimbabwe | 79 |
| IP 15532 Y | Burkina Faso | 28 | YM 2 | Zimbabwe | 100 |
| IP 9409 YSr. | Ghana | 2 | IP 5349 Y | Niger | 79 |
| BLG 7 | ICRISAT | 18 | YL 32 | Nigeria | 82 |
| IP 14414 | Cameroon | 19 | IP 16031 Y | India | 84 |
| IP 3840 BL | India | 20 | Ytr 2 | ICRISAT | 84 |
| IP 8283 | Ghana | 20 | YL 13 | Burkina Faso | 85 |
| WSG 2 BL | Ghana | 21 | TG 1 | Sudan | 88 |
| IP 9711 | ICRISAT | 21 | IP 10476 Y | Zimbabwe | 92 |
| IP 16387 Tig | Zimbabwe | 21 | IP 15819 Y | Tanzania | 92 |
| IP 3327 Y | India | 22 | IP 8116 SY | ICRISAT | 96 |
| STWG 1 SW | ICRISAT | 23 | ZFK Brittle peduncle | ICRISAT | 96 |
| IP 15586 GL | ICRISAT | 23 | YM 7 | India | 97 |
| YL 3 | India | 24 | YSG 2 | ICRISAT | 98 |
| Yellow,Tigrina | ICRISAT | 24 | YM 8 | India | 98 |
| IP 9441 Y.lesions | Ghana | 26 | YL 14 | ICRISAT | 98 |
| YM 18 | Burkina Faso | 28 | IP 8964 | Togo | 100 |

**Table 13. Photoperiod-sensitive accessions of pearl millet, their countries of origin, and reactions to downy mildew (DM) obtained in greenhouse screening, ICRISAT Asia Center, 1990–94.**

| Origin | Total accessions tested | Number of accessions in DM incidence (%) categories | | | | | |
|---|---|---|---|---|---|---|---|
| | | 0 | 1-5 | 6-10 | >10 | Min | Max |
| Benin | 18 | 1 | 4 | 4 | 9 | 0 | 33 |
| Botswana | 2 | 0 | 0 | 1 | 1 | 8 | 42 |
| Burkina Faso | 347 | 30 | 144 | 102 | 71 | 0 | 30 |
| Central African Republic | 60 | 5 | 17 | 26 | 12 | 0 | 32 |
| Cameroon | 235 | 4 | 54 | 74 | 103 | 0 | 50 |
| Gambia | 1 | 0 | 0 | 1 | 0 | - | 10 |
| Ghana | 2 | 0 | 0 | 1 | 1 | 8 | 17 |
| India | 91 | 1 | 16 | 18 | 56 | 0 | 63 |
| Kenya | 5 | 0 | 0 | 2 | 3 | - | - |
| Malawi | 2 | 1 | 0 | 0 | 1 | 0 | 18 |
| Mali | 23 | 2 | 2 | 6 | 13 | 0 | 50 |
| Mozambique | 20 | 0 | 4 | 1 | 15 | 3 | 49 |
| Namibia | 13 | 0 | 8 | 4 | 1 | 3 | 38 |
| Niger | 19 | 0 | 5 | 11 | 3 | 2 | 25 |
| Nigeria | 8 | 0 | 0 | 2 | 6 | 8 | 23 |
| Senegal | 92 | 4 | 32 | 26 | 30 | 0 | 73 |
| South Africa | 1 | 0 | 0 | 0 | 1 | - | 29 |
| Sudan | 20 | 1 | 2 | 8 | 9 | 0 | 41 |
| Tanzania | 13 | 0 | 0 | 2 | 11 | 8 | 90 |
| Togo | 18 | 1 | 8 | 6 | 3 | 0 | 23 |
| USA | 2 | 0 | 0 | 1 | 1 | 6 | 15 |
| Uganda | 6 | 0 | 0 | 1 | 5 | 7 | 17 |
| Yemen | 2 | 0 | 0 | 0 | 2 | 19 | 28 |
| Zambia | 9 | 0 | 2 | 6 | 1 | 5 | 11 |
| Zimbabwe | 21 | 0 | 3 | 4 | 14 | 3 | 35 |
| | 1,030 | 50 | 301 | 307 | 372 | | |

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Table 14. Some agronomic traits of the photoperiod-sensitive accessions of pearl millet that developed ≤5% downy mildew in greenhouse tests, ICRISAT Asia Center, 1990–94.

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] |
|---|---|---|---|---|---|---|---|---|---|---|
| 3054 | SAR 038 | India | 100 | 324 | 7.4 | 27.0 | 19.4 | 5 | 4.20 | 5 |
| 3088 | SAR 073 | India | 120 | 317 | 10.4 | 19.0 | 18.2 | 4 | 3.08 | 4 |
| 3479 | SAR 709 | India | 99 | 312 | 6.4 | 19.3 | 16.6 | 4 | 3.10 | 4 |
| 3484 | SAR 716 | India | 119 | 346 | 3.0 | 18.4 | 15.4 | 4 | 5.65 | 4 |
| 3486 | SAR 718 | India | 115 | 323 | 4.4 | 18.2 | 14.4 | 4 | 4.18 | 2 |
| 3492 | SAR 731 | India | 116 | 360 | 3.0 | 28.6 | 18.4 | 5 | 4.55 | 5 |
| 3509 | SAR 763 | India | 106 | 348 | 1.6 | 23.1 | 18.8 | 6 | 5.65 | 4 |
| 3526 | SAR 780 | India | 106 | 350 | 3.8 | 24.4 | 18.2 | 6 | 4.90 | 5 |
| 3582 | | India | 108 | 356 | 5.2 | 23.8 | 17.8 | 4 | 6.00 | 4 |
| 3615 | SAR 883 | India | 115 | 330 | 3.2 | 25.0 | 14.6 | 4 | 5.25 | 4 |
| 3629 | SAR 899 | India | 100 | 303 | 12.2 | 25.7 | 17.0 | 6 | 4.60 | 2 |
| 5189 | D 63-1 | Niger | 110 | 300 | 4.7 | 48.0 | 19.0 | 6 | 10.82 | 4 |
| 5845 | P 1437 (BIS) | Senegal | 104 | 235 | 2.0 | 34.2 | 21.4 | 6 | 7.70 | 2 |
| 5874 | P 1477/Sl.174 | Senegal | 124 | 215 | 1.4 | 43.8 | 19.7 | 6 | 8.05 | 4 |
| 5875 | P 1478/SL.175 | Senegal | 123 | 223 | 1.2 | 38.6 | 22.0 | 6 | 7.55 | 0 |
| 5876 | P 1479/Sl.176 | Senegal | 122 | 198 | 1.8 | 47.6 | 24.0 | 6 | 7.95 | 4 |
| 5877 | P 1480/Sl.181 | Senegal | 124 | 251 | 1.8 | 39.0 | 24.3 | 6 | 6.35 | 1 |
| 5880 | P 1483/Sl.188 | Senegal | 125 | 214 | 1.6 | 35.2 | 20.9 | 6 | 7.55 | 3 |
| 5898 | P 1503/Sl.224 | Senegal | 123 | 229 | 1.2 | 34.4 | 17.9 | 6 | 5.60 | 2 |
| 5901 | P 1506/Sl.229 | Senegal | 127 | 177 | 1.6 | 39.0 | 16.4 | 6 | 7.22 | 2 |
| 5915 | P 1523/Sl.266 | Senegal | 105 | 222 | 1.0 | 30.6 | 19.1 | 7 | 5.27 | 5 |
| 5917 | P 1525/Sl.272 | Senegal | 104 | 244 | 2.8 | 32.7 | 19.6 | 4 | 6.45 | 4 |
| 5920 | P 1528/Sl.279 | Senegal | 103 | 252 | 2.0 | 28.7 | 18.2 | 4 | 6.53 | 2 |
| 5937 | P 1544/Sl.345 | Senegal | 103 | 258 | 1.4 | 29.4 | 16.6 | 7 | 8.05 | 5 |
| 5946 | P 1554/Sl.369 | Senegal | 122 | 236 | 1.2 | 38.1 | 16.9 | 4 | 7.01 | 0 |
| 5952 | P 1560/Sl.379 | Senegal | 104 | 218 | 1.2 | 30.0 | 15.7 | 4 | 6.45 | 5 |
| 5956 | P 1564/Sl.391 | Senegal | 121 | 218 | 1.4 | 31.0 | 22.8 | 5 | 7.41 | 4 |
| 5975 | P 1587/Sl.479 | Senegal | 104 | 234 | 1.6 | 29.8 | 18.2 | 6 | 8.76 | 4 |
| 5979 | P 1591/Sl.488 | Senegal | 105 | 242 | 1.0 | 31.2 | 16.4 | 3 | 6.26 | 5 |
| 5980 | P 1592/Sl.490 | Senegal | 118 | 242 | 1.2 | 38.4 | 16.7 | 4 | 6.52 | 3 |
| 5981 | P 1593/Sl.496 | Senegal | 121 | 238 | 1.0 | 39.4 | 19.4 | 4 | 5.01 | 5 |
| 5984 | P 1596/Sl.506 | Senegal | 105 | 245 | 1.2 | 30.4 | 16.5 | 5 | 6.32 | 3 |
| 5986 | P 1599/Sl.520 BIS | Senegal | 119 | 226 | 1.0 | 35.4 | 16.5 | 5 | 5.56 | 5 |
| 5987 | P 1600/Sl.523 | Senegal | 118 | 200 | 1.2 | 30.0 | 17.1 | 5 | 8.27 | 3 |
| 5988 | P 1601/Sl.529 | Senegal | 117 | 220 | 1.0 | 28.0 | 17.5 | 5 | 8.44 | 5 |
| 5989 | P 1602/Sl.530 | Senegal | 117 | 240 | 1.4 | 35.2 | 19.8 | 5 | 7.80 | 2 |
| 5993 | P 1606 | Senegal | 118 | 200 | 1.0 | 20.1 | 23.2 | 5 | 8.94 | 2 |
| 5998 | P 1611/Sl.550 | Senegal | 112 | 262 | 1.8 | 34.2 | 19.4 | 5 | 7.26 | 2 |
| 6001 | P 1617/Sl.564 | Senegal | 105 | 274 | 1.4 | 34.8 | 18.6 | 4 | 5.77 | 5 |
| 6003 | P 1620/Sl.575 | Senegal | 106 | 202 | 1.0 | 27.8 | 15.3 | 4 | 8.84 | 3 |
| 6005 | P 1622/Sl.583 | Senegal | 120 | 228 | 1.0 | 31.2 | 17.6 | 4 | 6.37 | 4 |
| 6006 | P 1623/Sl.585 | Senegal | 119 | 227 | 1.0 | 21.2 | 21.1 | 5 | 5.10 | 4 |
| 6008 | P 1625 | Senegal | 103 | 248 | 1.0 | 36.5 | 28.4 | 5 | 6.93 | 4 |
| 6014 | P 1631/Sl.610 | Senegal | 106 | 246 | 1.0 | 23.8 | 20.2 | 4 | 7.02 | 4 |
| 6022 | P 1641/Sl.626 | Senegal | 112 | 230 | 1.8 | 24.6 | 17.8 | 4 | 5.89 | 5 |
| 6025 | P 1644/Sl.632 | Senegal | 103 | 254 | 1.4 | 26.2 | 19.1 | 4 | 6.93 | 0 |
| 6030 | P 1650/Sl.650 | Senegal | 118 | 250 | 1.8 | 32.0 | 21.6 | 5 | 7.65 | 5 |
| 6732 | SAD 331 | Malawi | 116 | 320 | 4.0 | 24.0 | 26.0 | 5 | 6.68 | 0 |
| 8739 | 21 KS | Sudan | 104 | 270 | 3.8 | 18.0 | 20.0 | 4 | 8.92 | 3 |
| 8743 | 25 KS-2 | Sudan | 101 | 270 | 2.0 | 19.0 | 15.0 | 4 | 7.67 | 0 |

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Table 14. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] |
|---|---|---|---|---|---|---|---|---|---|---|
| 8891 | P 1494-1/Sl.214 | Senegal | 70 | 300 | 5.0 | 15.0 | 21.0 | 7 | 6.50 | 0 |
| 8897 | STAP-0030 | Burkina Faso | 96 | 310 | 3.2 | 22.0 | 22.0 | 2 | 9.83 | 0 |
| 8900 | STAP-0038 | Burkina Faso | 127 | 210 | 5.4 | 17.0 | 23.0 | 4 | 10.86 | 5 |
| 8905 | STAP-0046 | Burkina Faso | 110 | 240 | 3.0 | 25.0 | 25.0 | 4 | 13.42 | 2 |
| 9247 | SANIO 46 | Mali | 101 | 380 | 3.2 | 26.0 | 26.0 | 5 | 12.21 | 1 |
| 9257 | P 3252 | Togo | 107 | 200 | 2.4 | 26.0 | 26.0 | 5 | 11.53 | 3 |
| 9274 | P 3304 | Togo | 128 | 310 | 3.2 | 24.0 | 24.0 | 5 | 12.12 | 3 |
| 9578 | ARK-4 | Burkina Faso | 126 | 240 | 5.0 | 19.0 | 32.0 | 4 | 11.60 | 5 |
| 9808 | RPM-37-2 | Mozambique | 120 | 315 | 3.2 | 27.0 | 24.0 | 4 | 6.10 | 4 |
| 9821 | RPM-137-1 | Mozambique | 122 | 260 | 3.6 | 32.0 | 25.0 | 4 | 5.48 | 4 |
| 9822 | RPM-137-2 | Mozambique | 118 | 280 | 2.7 | 22.0 | 18.0 | 4 | 5.83 | 4 |
| 10105 | P 5464 | Mali | 108 | 350 | 3.0 | 25.0 | 29.0 | 4 | 11.90 | 5 |
| 10428 | P 3856 | Benin | 140 | 210 | 4.8 | 33.0 | 20.0 | 4 | 10.04 | 2 |
| 10429 | P 3861 | Benin | 127 | 250 | 5.3 | 30.0 | 22.0 | 4 | 12.31 | 0 |
| 10430 | P 3863 | Benin | 129 | 260 | 5.2 | 38.0 | 24.0 | 4 | 13.39 | 3 |
| 10435 | P 3897 | Benin | 115 | 220 | 4.2 | 52.0 | 29.0 | 6 | 9.33 | 5 |
| 10437 | P 3908 | Benin | 152 | 210 | 3.2 | 15.0 | 25.0 | 5 | 19.32 | 4 |
| 11280 | CVP 30 | Burkina Faso | 94 | 315 | 3.8 | 27.0 | 21.0 | 6 | 12.26 | 2 |
| 11331 | CVP 220 | Burkina Faso | 117 | 240 | 3.0 | 23.0 | 18.0 | 3 | 10.99 | 5 |
| 11335 | CVP 241 | Burkina Faso | 110 | 280 | 4.7 | 24.0 | 20.0 | 5 | 12.79 | 3 |
| 11342 | CVP 260 | Burkina Faso | 118 | 275 | 3.0 | 32.0 | 25.0 | 4 | 18.04 | 1 |
| 11347 | CVP 279 | Burkina Faso | 120 | 260 | 3.0 | 27.0 | 25.0 | 2 | 15.69 | 0 |
| 11350 | CVP 291 | Burkina Faso | 122 | 260 | 2.8 | 24.0 | 26.0 | 2 | 11.55 | 0 |
| 11356 | CVP 309 | Burkina Faso | 122 | 265 | 2.3 | 28.0 | 18.0 | 5 | 12.71 | 1 |
| 11378 | CVP 409 | Burkina Faso | 116 | 315 | 2.0 | 35.0 | 21.0 | 5 | 18.27 | 4 |
| 11387 | CVP 440 | Burkina Faso | 102 | 190 | 3.0 | 40.0 | 20.0 | 4 | 14.37 | 2 |
| 11391 | CVP 453 | Burkina Faso | 105 | 300 | 3.0 | 35.0 | 21.0 | 4 | 12.93 | 5 |
| 11399 | CVP 488 | Burkina Faso | 110 | 280 | 2.0 | 30.0 | 20.0 | 4 | 13.50 | 1 |
| 11427 | CVP 603 | Burkina Faso | 123 | 310 | 3.2 | 27.0 | 18.0 | 2 | 13.48 | 0 |
| 11469 | P 5928 | Burkina Faso | 87 | 240 | 2.5 | 30.0 | 21.0 | 6 | 10.50 | 0 |
| 11526 | P 5987 | Burkina Faso | 115 | 280 | 2.7 | 21.0 | 25.0 | 4 | 15.00 | 1 |
| 11528 | P 5990 | Burkina Faso | 117 | 280 | 2.9 | 22.0 | 33.0 | 4 | 15.00 | 0 |
| 11530 | P 5992 | Burkina Faso | 118 | 250 | 2.0 | 19.0 | 29.0 | 4 | 11.17 | 3 |
| 11531 | P 5993 | Burkina Faso | 115 | 270 | 2.5 | 25.0 | 25.0 | 3 | 15.00 | 2 |
| 11536 | P 5997 | Burkina Faso | 114 | 255 | 2.5 | 20.0 | 23.0 | 4 | 12.50 | 3 |
| 11539 | P 6001 | Burkina Faso | 110 | 270 | 3.2 | 20.0 | 25.0 | 2 | 11.00 | 3 |
| 11540 | P 6002 | Burkina Faso | 113 | 270 | 1.4 | 22.0 | 27.0 | 2 | 13.00 | 4 |
| 11541 | P 6003 | Burkina Faso | 113 | 260 | 2.3 | 25.0 | 27.0 | 2 | 12.50 | 1 |
| 11542 | P 6004 | Burkina Faso | 112 | 305 | 2.5 | 15.0 | 20.0 | 2 | 12.50 | 4 |
| 11545 | P 6007 | Burkina Faso | 113 | 285 | 2.5 | 24.0 | 21.0 | 4 | 12.00 | 1 |
| 11547 | P 6009 | Burkina Faso | 110 | 280 | 1.8 | 24.0 | 23.0 | 5 | 13.50 | 0 |
| 11548 | P 6010 | Burkina Faso | 111 | 310 | 2.8 | 28.0 | 22.0 | 4 | 12.50 | 0 |
| 11582 | P 6047 | Burkina Faso | 104 | 360 | 3.0 | 32.0 | 22.0 | 4 | 14.00 | 1 |
| 11593 | P 6062 | Burkina Faso | 112 | 350 | 1.5 | 40.0 | 25.0 | 4 | 13.50 | 0 |
| 11595 | P 6064 | Burkina Faso | 113 | 330 | 1.5 | 45.0 | 30.0 | 4 | 12.50 | 1 |
| 11596 | P 6065 | Burkina Faso | 110 | 350 | 2.6 | 35.0 | 24.0 | 4 | 14.50 | 4 |
| 11603 | P 6072 | Burkina Faso | 126 | 260 | 1.0 | 28.0 | 22.0 | 4 | 16.00 | 5 |
| 11604 | P 6073 | Burkina Faso | 125 | 255 | 1.5 | 35.0 | 20.0 | 2 | 16.50 | 3 |
| 11605 | P 6074 | Burkina Faso | 127 | 260 | 1.5 | 29.0 | 20.0 | 4 | 17.50 | 3 |
| 11606 | P 6075 | Burkina Faso | 128 | 270 | 2.1 | 20.0 | 22.0 | 4 | 16.00 | 2 |
| 11607 | P 6076 | Burkina Faso | 114 | 250 | 1.5 | 21.0 | 16.0 | 2 | 12.50 | 4 |
| 11626 | P 6096 | Burkina Faso | 110 | 320 | 1.8 | 20.0 | 20.0 | 4 | 12.50 | 3 |

*Continued....*

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Table 14. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] |
|---|---|---|---|---|---|---|---|---|---|---|
| 11627 | P 6097 | Burkina Faso | 115 | 320 | 1.9 | 17.0 | 20.0 | 4 | 10.00 | 5 |
| 12448 | SINGLE PLANT 18 | India | 84 | 320 | 3.5 | 28.0 | 17.0 | 6 | 5.71 | 0 |
| 12863 | CVP 409-1 | Burkina Faso | 133 | * | * | * | * | 4 | 13.11 | 0 |
| 12865 | P 5882-1 | Burkina Faso | 106 | 340 | 3.2 | 30.0 | 25.0 | 4 | 11.07 | 3 |
| 12879 | P 6097-1 | Burkina Faso | 120 | * | * | * | * | 4 | 12.97 | 3 |
| 12881 | 13-1 | Burkina Faso | 110 | 320 | 3.2 | 27.0 | 20.0 | 3 | 12.88 | 0 |
| 12900 | P 60-1 | Cameroon | 118 | 280 | 2.2 | 26.0 | 20.0 | 1 | 11.00 | 0 |
| 12913 | PM 50-1 | Cameroon | 110 | 265 | 2.3 | 22.0 | 23.0 | 4 | 8.64 | 3 |
| 12996 | P 374-1 | Mali | 100 | 300 | 3.5 | 30.0 | 25.0 | 8 | 8.95 | 0 |
| 13042 | P 5615-1-1 | Mali | 118 | 270 | 2.5 | 30.0 | 23.0 | 4 | 16.05 | 0 |
| 13065 | RPM 37-2-1 | Mozambique | 120 | 250 | 3.3 | 25.0 | 23.0 | 4 | 5.40 | 3 |
| 13355 | 2KA DARFUR 21-1 | Sudan | 85 | 300 | 3.5 | 26.0 | 28.0 | 3 | 9.45 | 4 |
| 13603 | SAR 797-1 | India | 80 | 310 | 3.8 | 30.0 | 20.0 | 4 | 5.00 | 3 |
| 13620 | SAR 2056-1 | India | 63 | 300 | 3.2 | 28.0 | 24.0 | 4 | 6.50 | 4 |
| 13898 | 94 | Burkina Faso | 111 | 300 | 2.2 | 39.0 | 20.0 | 6 | 11.34 | 1 |
| 13901 | 97 | Burkina Faso | 112 | 280 | 3.2 | 24.0 | 28.0 | 4 | 14.91 | 4 |
| 13902 | 98 | Burkina Faso | 120 | 250 | 2.8 | 36.0 | 26.0 | 2 | 15.11 | 4 |
| 13903 | 99 | Burkina Faso | 122 | 230 | 2.2 | 20.0 | 23.0 | 3 | 15.16 | 4 |
| 13983 | AMM 312 | Zimbabwe | 75 | 300 | 3.1 | 42.0 | 30.0 | 6 | 9.06 | 4 |
| 14184 | AD 2 | Cameroon | 82 | 320 | 5.0 | 30.0 | 30.0 | 4 | 8.75 | 2 |
| 14185 | AD 3 | Cameroon | 84 | 330 | 6.0 | 22.0 | 23.0 | 4 | 7.96 | 5 |
| 14186 | AD 4 | Cameroon | 107 | 330 | 3.5 | 23.0 | 22.0 | 4 | 9.20 | 5 |
| 14187 | AD 5 | Cameroon | 118 | 400 | 4.2 | 23.0 | 24.0 | 2 | 9.23 | 4 |
| 14189 | AD 16 | Cameroon | 83 | 330 | 4.0 | 22.0 | 26.0 | 4 | 8.75 | 3 |
| 14191 | AD 26 | Cameroon | 81 | 350 | 4.0 | 21.0 | 28.0 | 4 | 8.65 | 3 |
| 14192 | AD 33 | Cameroon | 84 | 360 | 5.0 | 30.0 | 26.0 | 4 | 8.38 | 1 |
| 14198 | AD 40 | Cameroon | 107 | 400 | 4.5 | 27.0 | 20.0 | 4 | 9.11 | 5 |
| 14199 | AD 41 | Cameroon | 97 | 350 | 4.0 | 20.0 | 26.0 | 4 | 9.84 | 1 |
| 14232 | AD 170 | Cameroon | 85 | 330 | 3.5 | 25.0 | 30.0 | 4 | 11.16 | 4 |
| 14234 | AD 173 | Cameroon | 85 | 310 | 3.5 | 18.0 | 26.0 | 4 | 10.27 | 2 |
| 14235 | AD 184 | Cameroon | 118 | 340 | 3.5 | 28.0 | 22.0 | 3 | 10.98 | 3 |
| 14248 | AD 225 | Cameroon | 86 | 350 | 3.8 | 19.0 | 32.0 | 5 | 10.31 | 0 |
| 14249 | AD 237 | Cameroon | 82 | 310 | 3.8 | 21.0 | 23.0 | 4 | 10.03 | 3 |
| 14253 | AD 262-1 | Cameroon | 83 | 310 | 3.5 | 18.0 | 23.0 | 4 | 8.64 | 2 |
| 14254 | AD 266 | Cameroon | 114 | 315 | 3.5 | 23.0 | 26.0 | 4 | 9.90 | 4 |
| 14263 | AD 287 | Cameroon | 135 | 340 | 4.5 | 19.0 | 29.0 | 1 | 10.10 | 5 |
| 14271 | AD 306 | Cameroon | 101 | 305 | 3.5 | 28.0 | 20.0 | 3 | 6.50 | 2 |
| 14272 | AD 307 | Cameroon | 121 | 340 | 3.5 | 25.0 | 21.0 | 2 | 9.60 | 4 |
| 14279 | AD 325 | Cameroon | 120 | 305 | 6.5 | 25.0 | 22.0 | 4 | 10.50 | 5 |
| 14280 | AD 326 | Cameroon | 100 | 330 | 4.5 | 25.0 | 25.0 | 4 | 10.65 | 4 |
| 14281 | AD 328 | Cameroon | 116 | 380 | 4.5 | 21.0 | 20.0 | 4 | 11.35 | 3 |
| 14283 | AD 330 | Cameroon | 113 | 300 | 3.5 | 22.0 | 22.0 | 4 | 10.05 | 3 |
| 14295 | AD 341 | Cameroon | 110 | 295 | 4.2 | 28.0 | 20.0 | 4 | 11.55 | 0 |
| 14320 | AD 396 | Cameroon | 107 | 300 | 4.5 | 22.0 | 23.0 | 4 | 9.65 | 4 |
| 14363 | AD 490-1 | Cameroon | 99 | 310 | 3.5 | 30.0 | 23.0 | 5 | 9.92 | 4 |
| 14365 | AD 493 | Cameroon | 118 | 290 | 6.5 | 22.0 | 21.0 | 4 | 10.47 | 5 |
| 14418 | AD 610 | Cameroon | 82 | 320 | 3.8 | 20.0 | 22.0 | 4 | 8.70 | 3 |
| 14421 | AD 613 | Cameroon | 91 | 310 | 4.5 | 21.0 | 21.0 | 5 | 9.36 | 5 |
| 14440 | AD 633 | Cameroon | 88 | 320 | 3.5 | 19.0 | 27.0 | 5 | 8.88 | 5 |
| 14445 | AD 644 | Cameroon | 89 | 320 | 4.5 | 19.0 | 22.0 | 4 | 8.50 | 2 |
| 14448 | AD 649 | Cameroon | 83 | 320 | 3.5 | 21.0 | 24.0 | 4 | 5.85 | 3 |
| 14449 | AD 650 | Cameroon | 85 | 360 | 3.5 | 25.0 | 24.0 | 4 | 8.00 | 5 |

*Continued....*

Table 14. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] |
|---|---|---|---|---|---|---|---|---|---|---|
| 14450 | AD 651 | Cameroon | 80 | 350 | 4.0 | 23.0 | 24.0 | 4 | 7.90 | 4 |
| 14489 | AD 698 | Cameroon | 124 | 320 | 4.5 | 27.0 | 20.0 | 2 | 11.45 | 3 |
| 14538 | AD 846 | Cameroon | 125 | 380 | 3.5 | 30.0 | 18.0 | 2 | 11.21 | 4 |
| 14543 | AD 853 | Cameroon | 120 | 400 | 3.8 | 25.0 | 18.0 | 2 | 9.99 | 3 |
| 14624 | AD 945 | Cameroon | 127 | 365 | 3.5 | 27.0 | 25.0 | 2 | 11.20 | 5 |
| 14632 | AD 953 | Cameroon | 125 | 380 | 3.2 | 23.0 | 22.0 | 2 | 11.35 | 5 |
| 14663 | AD 993 | Cameroon | 120 | 340 | 3.5 | 27.0 | 17.0 | 2 | 11.00 | 2 |
| 14711 | AD 1042 | Cameroon | 120 | 350 | 3.8 | 27.0 | 24.0 | 2 | 9.60 | 4 |
| 14717 | AD 1050 | Cameroon | 114 | 360 | 3.8 | 23.0 | 20.0 | 4 | 10.70 | 3 |
| 14731 | AD 1069 | Cameroon | 120 | 370 | 3.2 | 21.0 | 24.0 | 4 | 9.65 | 5 |
| 14743 | AD 1086 | Cameroon | 128 | 290 | 3.5 | 27.0 | 21.0 | 4 | 7.75 | 4 |
| 14788 | AD 1165 | Cameroon | 135 | 300 | 4.5 | 22.0 | 24.0 | 4 | 11.75 | 4 |
| 14798 | AD 1183 | Cameroon | 136 | 310 | 4.5 | 27.0 | 22.0 | 2 | 10.05 | 1 |
| 14803 | AD 1190 | Cameroon | 136 | 330 | 5.2 | 22.0 | 23.0 | 4 | 9.95 | 4 |
| 14805 | AD 1192 | Cameroon | 136 | 290 | 4.4 | 21.0 | 25.0 | 2 | 10.85 | 3 |
| 14812 | AD 1200 | Cameroon | 137 | 320 | 4.3 | 20.0 | 22.0 | 2 | 9.70 | 5 |
| 14836 | AD 1239 | Cameroon | 136 | 270 | 3.5 | 24.0 | 22.0 | 2 | 9.00 | 5 |
| 14865 | AD 1293 | Cameroon | 135 | 290 | 4.0 | 18.0 | 21.0 | 4 | 8.55 | 3 |
| 14874 | AD 1316 | Cameroon | 136 | 320 | 5.5 | 19.0 | 24.0 | 2 | 11.25 | 5 |
| 14875 | AD 1317 | Cameroon | 137 | 290 | 6.7 | 22.0 | 22.0 | 4 | 9.80 | 0 |
| 14880 | AD 1324 | Cameroon | 141 | 290 | 5.3 | 22.0 | 23.0 | 2 | 9.70 | 4 |
| 14882 | AD 1329 | Cameroon | 140 | 290 | 6.0 | 20.0 | 21.0 | 2 | 11.35 | 2 |
| 14889 | AD 1347 | Cameroon | 140 | 350 | 4.5 | 24.0 | 27.0 | 2 | 9.80 | 4 |
| 15074 | RAP 33 | India | 86 | 340 | 2.6 | 25.0 | 25.0 | 4 | 8.00 | 5 |
| 15390 | AAP 186 | India | 82 | 360 | 2.0 | 24.0 | 16.0 | 4 | 3.50 | 5 |
| 15518 | 124 | Burkina Faso | 116 | 400 | 1.5 | 37.0 | 23.0 | 4 | 14.42 | 5 |
| 15523 | 129 | Burkina Faso | 114 | 400 | 2.5 | 26.0 | 24.0 | 3 | 12.30 | 0 |
| 15524 | 130 | Burkina Faso | 110 | 400 | 2.5 | 25.0 | 20.0 | 3 | 12.76 | 2 |
| 15525 | 131 | Burkina Faso | 110 | 400 | 2.5 | 23.0 | 25.0 | 3 | 11.88 | 0 |
| 15532 | 138 | Burkina Faso | 115 | 400 | 2.5 | 29.0 | 23.0 | 3 | 11.60 | 2 |
| 15533 | 139 | Burkina Faso | 112 | 400 | 2.5 | 18.0 | 20.0 | 3 | 12.45 | 4 |
| 15535 | 141 | Burkina Faso | 110 | 390 | 2.2 | 27.0 | 20.0 | 3 | 12.55 | 1 |
| 15536 | 142 | Burkina Faso | 113 | 400 | 1.8 | 20.0 | 22.0 | 3 | 13.05 | 3 |
| 15540 | 146 | Burkina Faso | 116 | 380 | 2.2 | 26.0 | 22.0 | 2 | 13.38 | 2 |
| 15542 | 148 | Burkina Faso | 113 | 380 | 1.5 | 23.0 | 22.0 | 3 | 12.88 | 3 |
| 15545 | 151 | Burkina Faso | 119 | 380 | 2.8 | 21.0 | 20.0 | 4 | 12.15 | 2 |
| 15549 | 155 | Burkina Faso | 118 | 380 | 1.5 | 22.0 | 23.0 | 4 | 13.04 | 1 |
| 15552 | 158 | Burkina Faso | 112 | 380 | 1.8 | 27.0 | 25.0 | 4 | 13.46 | 1 |
| 15553 | 159 | Burkina Faso | 112 | 380 | 1.5 | 32.0 | 20.0 | 4 | 14.19 | 1 |
| 15555 | 161 | Burkina Faso | 114 | 380 | 2.2 | 24.0 | 20.0 | 3 | 11.81 | 3 |
| 15556 | 162 | Burkina Faso | 113 | 380 | 1.5 | 24.0 | 22.0 | 3 | 12.29 | 3 |
| 15557 | 163 | Burkina Faso | 110 | 380 | 1.8 | 22.0 | 20.0 | 3 | 13.41 | 5 |
| 15558 | 164 | Burkina Faso | 112 | 380 | 1.8 | 19.0 | 22.0 | 3 | 11.74 | 4 |
| 15560 | 166 | Burkina Faso | 115 | 380 | 1.5 | 25.0 | 22.0 | 4 | 14.43 | 0 |
| 15564 | 170 | Burkina Faso | 114 | 400 | 2.2 | 27.0 | 28.0 | 2 | 14.00 | 3 |
| 15566 | 172 | Burkina Faso | 114 | 400 | 1.8 | 25.0 | 22.0 | 3 | 14.44 | 3 |
| 15567 | 173 | Burkina Faso | 115 | 400 | 1.5 | 25.0 | 20.0 | 2 | 14.44 | 0 |
| 15571 | 177 | Burkina Faso | 111 | 380 | 2.5 | 22.0 | 23.0 | 5 | 11.50 | 1 |
| 15572 | 178 | Burkina Faso | 112 | 400 | 2.3 | 28.0 | 25.0 | 1 | 11.80 | 3 |
| 15574 | 180 | Burkina Faso | 110 | 380 | 2.5 | 23.0 | 20.0 | 3 | 12.56 | 0 |
| 15578 | 184 | Burkina Faso | 117 | 400 | 1.5 | 28.0 | 23.0 | 4 | 15.14 | 1 |
| 15581 | 187 | Burkina Faso | 113 | 400 | 1.5 | 44.0 | 23.0 | 4 | 14.50 | 4 |

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Table 14. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] |
|---|---|---|---|---|---|---|---|---|---|---|
| 15583 | 189 | Burkina Faso | 111 | 455 | 1.5 | 30.0 | 22.0 | 4 | 13.94 | 4 |
| 15584 | 190 | Burkina Faso | 115 | 450 | 1.2 | 34.0 | 22.0 | 4 | 13.61 | 4 |
| 15589 | 195 | Burkina Faso | 114 | 400 | 1.0 | 36.0 | 22.0 | 4 | 13.87 | 3 |
| 15590 | 197 | Burkina Faso | 122 | 390 | 1.0 | 33.0 | 23.0 | 4 | 15.27 | 5 |
| 15598 | 206 | Burkina Faso | 110 | 380 | 2.2 | 23.0 | 21.0 | 3 | 12.50 | 4 |
| 15602 | 210 | Burkina Faso | 119 | 390 | 1.5 | 25.0 | 23.0 | 4 | 13.37 | 1 |
| 15603 | 211 | Burkina Faso | 113 | 430 | 1.5 | 18.0 | 27.0 | 1 | 13.14 | 1 |
| 15605 | 213 | Burkina Faso | 112 | 390 | 1.8 | 21.0 | 26.0 | 3 | 14.29 | 2 |
| 15607 | 215 | Burkina Faso | 110 | 380 | 2.2 | 20.0 | 24.0 | 2 | 11.42 | 2 |
| 15608 | 216 | Burkina Faso | 112 | 420 | 1.8 | 25.0 | 25.0 | 3 | 8.08 | 1 |
| 15609 | 217 | Burkina Faso | 114 | 380 | 2.2 | 22.0 | 23.0 | 3 | 11.75 | 2 |
| 15610 | 218 | Burkina Faso | 115 | 390 | 1.5 | 19.0 | 23.0 | 3 | 12.35 | 5 |
| 15611 | 219 | Burkina Faso | 115 | 350 | 1.5 | 27.0 | 29.0 | 3 | 12.22 | 0 |
| 16266 | ARP-53 | India | 99 | 320 | 5.4 | 27.0 | 16.0 | 4 | 5.00 | 3 |
| 17184 | 228 | Burkina Faso | 114 | 280 | 1.0 | 26.0 | 24.0 | 4 | 11.60 | 4 |
| 17185 | 228-1 | Burkina Faso | 113 | 300 | 1.0 | 24.0 | 23.0 | 4 | 10.40 | 3 |
| 17192 | 233 | Burkina Faso | 115 | 310 | 1.0 | 17.0 | 21.0 | 4 | 11.60 | 4 |
| 17193 | 233-1 | Burkina Faso | 117 | 330 | 1.0 | 22.0 | 21.0 | 4 | 10.60 | 3 |
| 17199 | 236-1 | Burkina Faso | 119 | 320 | 1.0 | 22.0 | 25.0 | 4 | 11.00 | 5 |
| 17200 | 237 | Burkina Faso | 120 | 300 | 1.0 | 16.0 | 20.0 | 4 | 10.60 | 5 |
| 17201 | 237-1 | Burkina Faso | 122 | 330 | 1.0 | 19.0 | 22.0 | 4 | 10.20 | 5 |
| 17203 | 238-1 | Burkina Faso | 117 | 380 | 1.0 | 25.0 | 26.0 | 4 | 11.00 | 3 |
| 17205 | 239-1 | Burkina Faso | 110 | 330 | 1.0 | 25.0 | 25.0 | 4 | 10.80 | 5 |
| 17212 | 243 | Burkina Faso | 125 | 400 | 3.2 | 22.0 | 18.0 | 4 | 11.15 | 0 |
| 17213 | 243-1 | Burkina Faso | 126 | 450 | 2.5 | 25.0 | 22.0 | 4 | 11.00 | 1 |
| 17215 | 244-1 | Burkina Faso | 110 | 450 | 3.5 | 22.0 | 23.0 | 4 | 12.60 | 4 |
| 17218 | 246 | Burkina Faso | 140 | 300 | * | * | * | 4 | 10.40 | 3 |
| 17224 | 249 | Burkina Faso | 128 | 350 | 1.0 | 18.0 | 23.0 | 4 | 11.60 | 4 |
| 17226 | 250 | Burkina Faso | 123 | 400 | 2.5 | 22.0 | 27.0 | 4 | 11.20 | 4 |
| 17228 | 251 | Burkina Faso | 122 | 330 | 2.2 | 17.0 | 23.0 | 4 | 11.60 | 5 |
| 17230 | 252 | Burkina Faso | 122 | 350 | 2.2 | 20.0 | 23.0 | 4 | 10.60 | 2 |
| 17233 | 254 | Burkina Faso | 123 | 400 | 1.5 | 17.0 | 22.0 | 4 | 9.40 | 3 |
| 17235 | 255 | Burkina Faso | 125 | 400 | 1.0 | 20.0 | 27.0 | 4 | 11.11 | 4 |
| 17237 | 256 | Burkina Faso | 138 | 280 | 1.0 | 26.0 | 27.0 | 4 | 11.40 | 5 |
| 17238 | 256-1 | Burkina Faso | 133 | 300 | 1.0 | 21.0 | 24.0 | 4 | 11.20 | 3 |
| 17240 | 257-1 | Burkina Faso | 129 | 260 | * | 16.0 | 17.0 | 4 | 10.40 | 0 |
| 17242 | 258-1 | Burkina Faso | 124 | 270 | 1.0 | 20.0 | 24.0 | 4 | 10.25 | 1 |
| 17244 | 259-1 | Burkina Faso | 122 | 350 | 1.9 | 22.0 | 20.0 | 4 | 11.00 | 4 |
| 17245 | 260 | Burkina Faso | 128 | 400 | 2.7 | 22.0 | 23.0 | 4 | 10.20 | 1 |
| 17246 | 260-1 | Burkina Faso | 129 | 400 | 2.2 | 28.0 | 27.0 | 4 | 10.80 | 4 |
| 17247 | 262 | Burkina Faso | 133 | 400 | 1.8 | 18.0 | 25.0 | 4 | 10.00 | 3 |
| 17248 | 262-1 | Burkina Faso | 134 | 400 | 1.0 | 24.0 | 28.0 | 4 | 10.21 | 3 |
| 17249 | 263 | Burkina Faso | 135 | 400 | 1.0 | 26.0 | 24.0 | 4 | 9.61 | 4 |
| 17251 | 264 | Burkina Faso | 123 | 400 | 1.2 | 21.0 | 25.0 | 4 | 12.00 | 3 |
| 17253 | 265 | Burkina Faso | 138 | 300 | 1.6 | 15.0 | 22.0 | 4 | 10.02 | 4 |
| 17254 | 266 | Burkina Faso | 133 | 400 | 1.0 | 30.0 | 25.0 | 4 | 10.00 | 4 |
| 17256 | 267-1 | Burkina Faso | 130 | 260 | 1.4 | 20.0 | 22.0 | 4 | 9.80 | 4 |
| 17258 | 268-1 | Burkina Faso | 140 | * | * | * | * | 4 | 10.20 | 2 |
| 17260 | 269-1 | Burkina Faso | 146 | * | * | * | * | 4 | 8.22 | 2 |
| 17264 | 271-1 | Burkina Faso | 129 | 400 | 1.0 | 23.0 | 22.0 | 4 | 9.18 | 2 |
| 17265 | 272 | Burkina Faso | 146 | * | * | * | * | 4 | 10.20 | 1 |
| 17267 | 273-1 | Burkina Faso | 140 | * | * | * | * | 4 | 9.80 | 5 |

*Continued....*

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Table 14. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] |
|---|---|---|---|---|---|---|---|---|---|---|
| 17269 | 274-1 | Burkina Faso | 140 | * | * | * | * | 4 | 11.00 | 2 |
| 17271 | 275-1 | Burkina Faso | 138 | * | * | * | * | 4 | 11.20 | 5 |
| 17272 | 276 | Burkina Faso | 140 | * | * | * | * | 4 | 11.00 | 4 |
| 17273 | 276-1 | Burkina Faso | 140 | * | * | * | * | 4 | 10.60 | 4 |
| 17276 | 278 | Burkina Faso | 135 | * | * | * | * | 4 | 9.20 | 2 |
| 17278 | 279 | Burkina Faso | 146 | * | * | * | * | 3 | 11.00 | 4 |
| 17279 | 279-1 | Burkina Faso | 144 | * | * | * | * | 4 | 10.60 | 3 |
| 17281 | 280-1 | Burkina Faso | 140 | * | * | * | * | 3 | 11.60 | 5 |
| 17284 | 282 | Burkina Faso | 141 | 270 | * | * | * | 4 | 10.60 | 4 |
| 17285 | 282-1 | Burkina Faso | 146 | 280 | * | * | * | 4 | 11.00 | 2 |
| 17287 | 283-1 | Burkina Faso | 139 | 310 | * | 23.0 | 25.0 | 4 | 10.72 | 3 |
| 17288 | 284 | Burkina Faso | 140 | 300 | * | * | * | 4 | 10.25 | 5 |
| 17289 | 284-1 | Burkina Faso | 139 | 300 | * | * | * | 4 | 10.40 | 3 |
| 17291 | 285-1 | Burkina Faso | 141 | 300 | * | 16.0 | 22.0 | 4 | 15.55 | 3 |
| 17293 | 286-1 | Burkina Faso | 143 | 270 | * | * | * | 4 | 12.99 | 1 |
| 17294 | 287 | Burkina Faso | 140 | 80 | * | 37.0 | 20.0 | 2 | 12.00 | 4 |
| 17297 | 288-1 | Burkina Faso | 143 | * | * | * | * | 2 | 12.20 | 3 |
| 17298 | 289 | Burkina Faso | 140 | 280 | * | * | * | 4 | 11.20 | 3 |
| 17300 | 290 | Burkina Faso | 143 | 300 | * | * | * | 4 | 10.00 | 0 |
| 17301 | 290-1 | Burkina Faso | 142 | 300 | * | * | * | 4 | 10.00 | 4 |
| 17302 | 291 | Burkina Faso | 139 | 260 | * | * | * | 4 | 10.00 | 0 |
| 17303 | 291-1 | Burkina Faso | 134 | 300 | 1.0 | 23.0 | 27.0 | 4 | 11.40 | 3 |
| 17304 | 292 | Burkina Faso | 135 | 280 | 2.2 | 19.0 | 22.0 | 2 | 10.40 | 0 |
| 17305 | 292-1 | Burkina Faso | 146 | * | * | * | * | 4 | 11.00 | 4 |
| 17306 | 293 | Burkina Faso | 127 | 350 | 1.5 | 20.0 | 27.0 | 4 | 11.00 | 3 |
| 17308 | 294 | Burkina Faso | 126 | 350 | 1.5 | 27.0 | 24.0 | 4 | 10.60 | 0 |
| 17309 | 294-1 | Burkina Faso | 124 | 320 | 3.2 | 20.0 | 27.0 | 4 | 10.00 | 1 |
| 17310 | 295 | Burkina Faso | 146 | * | * | * | * | 4 | 10.00 | 4 |
| 17311 | 296 | Burkina Faso | 114 | 450 | 2.2 | 27.0 | 18.0 | 4 | 11.46 | 0 |
| 17314 | 298-1 | Burkina Faso | 116 | 450 | 1.0 | 23.0 | 22.0 | 4 | 10.22 | 3 |
| 17319 | 301 | Burkina Faso | 113 | 280 | 1.0 | 42.0 | 22.0 | 4 | 13.00 | 0 |
| 17322 | 302-1 | Burkina Faso | 109 | 290 | 1.0 | 21.0 | 19.0 | 3 | 11.83 | 3 |
| 17323 | 303 | Burkina Faso | 111 | 250 | 1.3 | 24.0 | 20.0 | 4 | 12.56 | 0 |
| 17324 | 303-1 | Burkina Faso | 114 | 300 | 2.1 | 26.0 | 20.0 | 4 | 12.00 | 0 |
| 17326 | 304-1 | Burkina Faso | 113 | 290 | 1.8 | 27.0 | 20.0 | 4 | 9.69 | 0 |
| 17327 | 305 | Burkina Faso | 115 | 270 | 1.0 | 30.0 | 17.0 | 4 | 12.60 | 2 |
| 17328 | 305-1 | Burkina Faso | 115 | 290 | 1.0 | 26.0 | 20.0 | 4 | 13.20 | 0 |
| 17330 | 306-1 | Burkina Faso | 117 | 300 | 1.0 | 31.0 | 23.0 | 4 | 13.00 | 4 |
| 17332 | 307-1 | Burkina Faso | 146 | 205 | * | * | * | 4 | 11.00 | 2 |
| 17333 | 308 | Burkina Faso | 145 | 310 | * | * | * | 4 | 11.80 | 0 |
| 17336 | 309-1 | Burkina Faso | 146 | * | * | * | * | 4 | 9.60 | 5 |
| 17337 | 310 | Burkina Faso | 144 | * | * | * | * | 4 | 9.60 | 3 |
| 17338 | 310-1 | Burkina Faso | 144 | 300 | * | * | * | 4 | 11.00 | 4 |
| 17339 | 311 | Burkina Faso | 129 | 275 | 1.0 | 35.0 | 25.0 | 4 | 11.20 | 2 |
| 17340 | 311-1 | Burkina Faso | 139 | 240 | * | 25.0 | 20.0 | 4 | 11.40 | 3 |
| 17343 | 315 | Burkina Faso | 124 | 250 | 1.0 | 30.0 | 25.0 | 4 | 11.80 | 5 |
| 17344 | 315-1 | Burkina Faso | 122 | 250 | 1.0 | 32.0 | 20.0 | 4 | 12.40 | 3 |
| 17358 | 327 | Burkina Faso | 120 | 400 | 1.0 | 35.0 | 19.0 | 4 | 14.43 | 5 |
| 17389 | AK 111 | Cent Afr Rep | 133 | 380 | 3.5 | 26.0 | 19.0 | 3 | 11.50 | 5 |
| 17390 | AK 113 | Cent Afr Rep | 135 | 350 | 3.5 | 24.0 | 18.0 | 2 | 11.15 | 3 |
| 17415 | AK 329 | Cent Afr Rep | 135 | 350 | 4.0 | 20.0 | 20.0 | 4 | 11.80 | 5 |
| 17418 | AK 333 | Cent Afr Rep | 135 | 355 | 4.0 | 22.0 | 20.0 | 4 | 10.25 | 3 |

*Continued...*

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Table 14. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | DM[8] |
|---|---|---|---|---|---|---|---|---|---|---|
| 17433 | AK 363 | Cent Afr Rep | 138 | 370 | 4.0 | 24.0 | 19.0 | * | 10.40 | 3 |
| 17434 | AK 378 | Cent Afr Rep | 136 | 375 | 5.0 | 15.0 | 20.0 | 4 | 11.00 | 3 |
| 17435 | AK 379 | Cent Afr Rep | 135 | 380 | 4.0 | 19.0 | 20.0 | 4 | 11.00 | 0 |
| 17436 | AK 381 | Cent Afr Rep | 137 | 390 | 5.0 | 22.0 | 20.0 | 3 | 12.00 | 2 |
| 17437 | AK 391 | Cent Afr Rep | 133 | 380 | 5.0 | 18.0 | 19.0 | 3 | 9.25 | 4 |
| 17440 | AK 400 | Cent Afr Rep | 128 | 380 | 5.0 | 21.0 | 18.0 | 4 | 9.20 | 5 |
| 17442 | AK 408 | Cent Afr Rep | 130 | 360 | 5.0 | 18.0 | 20.0 | 3 | 8.85 | 4 |
| 17443 | AK 410 | Cent Afr Rep | 130 | 340 | 4.0 | 20.0 | 15.0 | 4 | 8.95 | 0 |
| 17447 | AK 417 | Cent Afr Rep | 140 | 390 | 4.0 | 18.0 | 19.0 | 4 | 9.70 | 4 |
| 17448 | AK 418 | Cent Afr Rep | 140 | 380 | 5.0 | 22.0 | 21.0 | 4 | 10.00 | 0 |
| 17450 | AK 421 | Cent Afr Rep | 130 | 380 | 5.0 | 20.0 | 20.0 | 3 | 9.50 | 5 |
| 17451 | AK 423 | Cent Afr Rep | 130 | 400 | 6.0 | 19.0 | 19.0 | 4 | 8.80 | 4 |
| 17454 | AK 427 | Cent Afr Rep | 135 | 390 | 6.0 | 22.0 | 20.0 | 3 | 9.40 | 4 |
| 17455 | AK 431 | Cent Afr Rep | 125 | 370 | 5.0 | 16.0 | 20.0 | 4 | 9.20 | 5 |
| 17456 | AK 433 | Cent Afr Rep | 140 | 370 | 4.0 | 20.0 | 20.0 | 3 | 9.35 | 0 |
| 17459 | AK 436 | Cent Afr Rep | 125 | 390 | 6.0 | 19.0 | 18.0 | 4 | 9.80 | 0 |
| 17460 | AK 437 | Cent Afr Rep | 130 | 390 | 5.0 | 19.0 | 19.0 | 4 | 9.20 | 4 |
| 17461 | AK 438 | Cent Afr Rep | 122 | 380 | 5.0 | 21.0 | 17.0 | 4 | 9.40 | 3 |
| 17492 | ARD 1 | Togo | 89 | 410 | 3.5 | 50.0 | 25.0 | 6 | 12.00 | 0 |
| 17493 | ARD 2 | Togo | 121 | 390 | 4.5 | 23.0 | 23.0 | 2 | 15.50 | 2 |
| 17494 | ARD 3 | Togo | 119 | 420 | 3.5 | 23.0 | 26.0 | 2 | 15.00 | 1 |
| 17495 | ARD 4 | Togo | 120 | 390 | 3.8 | 28.0 | 30.0 | 2 | 14.20 | 1 |
| 17497 | ARD 9 | Togo | 120 | 400 | 4.2 | 28.0 | 20.0 | 2 | 13.50 | 4 |
| 17542 | ARD 63 | Togo | 44 | 200 | 4.0 | 19.0 | 30.0 | 5 | 13.50 | 4 |
| 17543 | ARD 64 | Togo | 43 | 230 | 4.0 | 18.0 | 30.0 | 5 | 14.50 | 3 |
| 19435 | AHM 233 | Namibia | 82 | 280 | 1.3 | 35.0 | 32.0 | * | * | 3 |
| 19440 | AHM 377 | Namibia | 78 | 270 | 1.4 | 38.0 | 30.0 | * | * | 5 |
| 19441 | AHM 430 | Namibia | 82 | 285 | 1.6 | 40.0 | 33.0 | * | * | 3 |
| 19445 | AHM 448 | Namibia | 84 | 280 | 1.6 | 45.0 | 34.0 | * | * | 3 |
| 19450 | AHM 559 | Namibia | 73 | 250 | 1.3 | 40.0 | 35.0 | * | * | 3 |
| 19478 | AHM 1115 | Namibia | 76 | 310 | 1.2 | 38.0 | 29.0 | * | * | 5 |
| 19481 | AHM 1169 | Namibia | 74 | 290 | 1.2 | 45.0 | 35.0 | * | * | 4 |
| 19486 | AW 348 | Namibia | 69 | 360 | 1.3 | 40.0 | 28.0 | * | * | 3 |
| 19500 | AWN 72 | Zimbabwe | 65 | 370 | 1.2 | 30.0 | 30.0 | * | * | 3 |
| 19506 | AWN 82 | Zimbabwe | 70 | 270 | 1.4 | 30.0 | 30.0 | * | * | 4 |
| 19537 | AWN 145-1 | Zambia | 65 | 260 | 1.2 | 27.0 | 25.0 | * | * | 5 |
| 19558 | AWN 287 | Zambia | 69 | 275 | 1.2 | 35.0 | 30.0 | * | * | 5 |
| 19599 | C 90-105 | Niger | 76 | 320 | 1.0 | 65.0 | 28.0 | * | * | 2 |
| 19625 | C 90-132 | Niger | 71 | 315 | 1.0 | 115.0 | 25.0 | * | * | 5 |
| 19658 | C 90-165 | Niger | 64 | 260 | 1.2 | 46.0 | 23.0 | * | * | 3 |
| 19660 | C 90-167 | Niger | 82 | 250 | 1.0 | 45.0 | 28.0 | * | * | 2 |

1. Dtf = Days to 50% flowering, 2. Plht = Plant height (cm), 3. Til = Number of tillers, 4. Splg = Spike length (cm), 5. Sptk = Spike thickness (cm), 6. Gc = Grain color (1 = Ivory, 2 = Cream, 3 = Yellow, 4 = Gray, 5 = Deep gray, 6 = Gray brown, 7 = Brown, 8 = Purple, 9 = Purplish black, 10 = Mixture of white and gray grains). 7. Grwt = 1000 grain mass (gm). 8. DM = Downy mildew incidence [figures were rounded-off to nearest decimal point].

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Table 15. Downy mildew incidence (%) of 17 pearl millet photoperiod-sensitive accessions evaluated in four field tests at three Indian locations and in one greenhouse test, ICRISAT Asia Center, 1993/94.

| | | | | Downy mildew (%)[1] | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Field tests[2] | | | | |
| IP no. | Identity | Origin | Greenhouse test | IAC[3] | IAC[4] | ABD[5] | MYS[5] | IAC[5] |
| 5875 | P 1478/SL.175 | SEN | 0 | 0 | 0 | 6 | 0 | 0 |
| 5938 | P 1545/SI.347 | SEN | 0 | 0 | 0 | 0 | 0 | 6 |
| 5952 | P 1560/SI.379 | SEN | 0 | 0 | 0 | 0 | * | 0 |
| 6026 | P 1646/SI.639 | SEN | 0 | 0 | 0 | 0 | 0 | 5 |
| 8510 | P 1598/SI.520 | SEN | 0 | 0 | 0 | 3 | 0 | 1 |
| 8743 | 25 KS-2 | SDN | 0 | 0 | 0 | 3 | 0 | 4 |
| 9300 | P 3333 | TGO | 0 | * | 0 | 0 | 0 | 2 |
| 10420 | P 3821 | BEN | 0 | * | 0 | 0 | *[6] | 0 |
| 10429 | P 3861 | BEN | 0 | 0 | 0 | 0 | 0 | 0 |
| 10434 | P 3889 | BEN | 0 | 0 | 0 | 0 | 0 | 3 |
| 10439 | P 3932 | BEN | 0 | * | 0 | 0 | 0 | 2 |
| 11585 | P 6054 | HVO | 0 | * | 0 | 0 | 0 | 2 |
| 12900 | P 60-1 | CMR | 0 | 0 | 0 | 0 | * | 14 |
| 12996 | P 374-1 | MLI | 0 | * | 0 | 0 | 0 | 2 |
| 13019 | P 615-1 | MLI | 0 | 0 | 0 | 0 | 0 | 23 |
| 13042 | P 5615-1-1 | MLI | 0 | 0 | 0 | 0 | 0 | 2 |
| 14248 | AD 225 | | 0 | * | 0 | 0 | 0 | 0 |
| Susceptible control | | | | | | | | |
| HB-3 | | | 98 | 93 | 100 | 61 | 77 | 100 |
| 7042(S) | | | 100 | 96 | 99 | 86 | 100 | 96 |
| Resistant control | | | | | | | | |
| 700651 | | | 12 | 7 | 10 | 9 | 0 | 8 |

1. Means of 2 repetitions each with 2 replications.
2. IAC = ICRISAT Asia Center, ABD = Aurangabad, MYS = Mysore
3. Rainy season 1993.
4. Postrainy season 1993.
5. Rainy season 1994.
6. Data not available.

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Table 16. Photoperiod-sensitive accessions of pearl millet that developed >6% downy mildew in greenhouse tests ICRISAT Asia Center, 1990–94.

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3046 | SAR 030 | India | 61 | 6024 | P 1643.Sl.628 | Senegal | 11 | 9818 | RPM 125-2 | Mozambique | 49 |
| 3062 | SAR 046 | India | 7 | 6026 | P 1646.Sl.639 | Senegal | 10 | 9820 | RPM 131-2 | Mozambique | 21 |
| 3070 | SAR 055 | India | 16 | 6027 | P 1647.Sl.640 | Senegal | 33 | 9824 | RPM 154-2 | Mozambique | 35 |
| 3086 | SAR 071 | India | 16 | 6028 | P 1648/Sl.647 | Senegal | 10 | 9825 | RPM 161-1 | Mozambique | 19 |
| 3481 | SAR 713 | India | 8 | 6029 | P 1649/Sl.649 | Senegal | 13 | 9826 | RPM 161-2 | Mozambique | 22 |
| 3489 | SAR 721 | India | 9 | 6038 | P 153 | Cent Afr Rep | 14 | 9827 | RPM 170-1 | Mozambique | 34 |
| 3490 | SAR 726 | India | 8 | 6057 | P 172 | Cent Afr Rep | 11 | 9829 | RPM 171-1 | Mozambique | 11 |
| 3515 | SAR 769 | India | 7 | 6060 | P 175 | Cent Afr Rep | 7 | 9832 | RPM 173-2 | Mozambique | 15 |
| 3517 | SAR 771 | India | 14 | 6067 | P 182 | Cent Afr Rep | 9 | 10063 | P 5398 | Mali | 50 |
| 3583 | SAR 845 | India | 22 | 6088 | P 204 | Cent Afr Rep | 6 | 10219 | P 5632 | Mali | 9 |
| 3596 | SAR 859 | India | 12 | 6090 | P 206 | Cent Afr Rep | 8 | 10318 | EC 134777 | Nigeria | 10 |
| 3610 | SAR 878 | India | 11 | 6091 | P 207 | Cent Afr Rep | 8 | 10421 | P 3825 | Benin | 21 |
| 3613 | SAR 881 | India | 14 | 6139 | P 32 | Cameroon | 13 | 10422 | P 3827 | Benin | 10 |
| 3616 | SAR 884 | India | 12 | 6238 | P 138 | Cameroon | 20 | 10423 | P 3829 | Benin | 11 |
| 4318 | SAR 1727 | India | 30 | 6241 | P 141 | Cameroon | 19 | 10424 | P 3838 | Benin | 15 |
| 5116 | D 52 | Niger | 9 | 6516 | P 551 | Mali | 18 | 10425 | P 3843 | Benin | 6 |
| 5294 | D 297 | Niger | 25 | 6532 | P 567 | Mali | 7 | 10426 | P 3850 | Benin | 33 |
| 5295 | D 300 | Niger | 16 | 6547 | P 586 | Mali | 24. | 10427 | P 3851 | Benin | 17 |
| 5735 | 45 385 | Nigeria | 18 | 6563 | P 607 | Mali | 21 | 10431 | P 3868 | Benin | 14 |
| 5741 | 45 393 | Nigeria | 11 | 6866 | ACC 094 | Kenya | 9 | 10432 | P 3872 | Benin | 10 |
| 5883 | P 1488/Sl.203 | Senegal | 15 | 6893 | ACC 154 | Kenya | 14 | 10495 | CSM 7 | Senegal | 26 |
| 5886 | P 1491/Sl.210 | Senegal | 7 | 7370 | CER 15 | Tanzania | 57 | 10546 | CMM 377 | Mali | 9 |
| 5908 | P 1516/Sl.253 | Senegal | 9 | 8043 | P 3249-1 | Togo | 19 | 10573 | CMM 404 | Mali | 6 |
| 5918 | P 1526/Sl.275 | Senegal | 11 | 8472 | D 172C-2 | Niger | 8 | 10627 | CMM 460 | Mali | 15 |
| 5921 | P 1529/Sl.282 | Senegal | 9 | 8554 | ABM 59 | India | 12 | 10685 | CMM 519 | Mali | 8 |
| 5922 | P 1530/Sl.290 | Senegal | 6 | 8556 | ABM 62 | India | 33 | 10954 | BM 9 | Kenya | 12 |
| 5925 | P 1532/Sl.295 | Senegal | 10 | 8564 | ABM 72 | India | 28 | 11007 | P 144 | India | 23 |
| 5938 | P 1545/SL.347 | Senegal | 40 | 8569 | ABM 77 | India | 42 | 11277 | CVP 22 | Burkina Faso | 7 |
| 5940 | P 1548/Sl.355 | Senegal | 10 | 8570 | ABM 79 | India | 19 | 11328 | CVP 208 | Burkina Faso | 17 |
| 5941 | P 1549/Sl.359 | Senegal | 15 | 8571 | ABM 81 | India | 22 | 11333 | CVP 224 | Burkina Faso | 18 |
| 5943 | P 1551/Sl.361 | Senegal | 23 | 8574 | ABM 84 | India | 24 | 11334 | CVP 240 | Burkina Faso | 29 |
| 5944 | P 1552 | Senegal | 12 | 8575 | ABM 86 | India | 32 | 11346 | CVP 278 | Burkina Faso | 9 |
| 5953 | P 1561/Sl.381 | Senegal | 14 | 8581 | ABM 94 | India | 23 | 11349 | CVP 288 | Burkina Faso | 10 |
| 5954 | P 1562/Sl.389 | Senegal | 6 | 8600 | ABM 119 | India | 34 | 11351 | CVP 295 | Burkina Faso | 7 |

*Continued...*

Table 16. *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5955 | P 1563/Sl.387 | Senegal | 21 | 8611 | ABM 131 | India | 23 | 11353 | CVP 298 | Burkina Faso | 9 |
| 5957 | P 1565/Sl.395 | Senegal | 9 | 8624 | PGI 56-2 | Sudan | 18 | 11355 | CVP 307 | Burkina Faso | 10 |
| 5959 | P 1567/Sl.401 | Senegal | 22 | 8628 | PGI 75 | Sudan | 16 | 11359 | CVP 319 | Burkina Faso | 10 |
| 5960 | P 1568/Sl.404 | Senegal | 13 | 8629 | PGI 75-1 | Sudan | 20 | 11364 | CVP 342 | Burkina Faso | 6 |
| 5961 | P 1569/Sl.409 | Senegal | 34 | 8647 | PIA 97-1 | Sudan | 31 | 11400 | CVP 489 | Burkina Faso | 9 |
| 5962 | P 1570/Sl.414 | Senegal | 22 | 8649 | PIA 97-3 | Sudan | 20 | 11408 | CVP 528 | Burkina Faso | 9 |
| 5963 | P 1571/Sl.416 | Senegal | 28 | 8655 | PIA 150-1 | Sudan | 10 | 11428 | CVP 610 | Burkina Faso | 7 |
| 5964 | P 1572/Sl.419 | Senegal | 16 | 8667 | 11K | Sudan | 8 | 11510 | P 5971 | Burkina Faso | 16 |
| 5965 | P 1573/Sl.421 | Senegal | 42 | 8676 | 34K | Sudan | 13 | 11516 | P 5978 | Burkina Faso | 8 |
| 5966 | P 1574/Sl.425 | Senegal | 48 | 8734 | 7 KS | Sudan | 9 | 11517 | P 5979 | Burkina Faso | 17 |
| 5967 | P 1576/Sl.427 | Senegal | 54 | 8741 | 24 KS | Sudan | 10 | 11521 | P 5983 | Burkina Faso | 18 |
| 5968 | P 1577/Sl.428 | Senegal | 36 | 8898 | STAP 0031 | Burkina Faso | 23 | 11525 | P 5986-1 | Burkina Faso | 6 |
| 5969 | P 1578/Sl.430 | Senegal | 59 | 8899 | STAP 0036 | Burkina Faso | 11 | 11534 | P 5995 | Burkina Faso | 6 |
| 5970 | P 1581/Sl.441 | Senegal | 33 | 8901 | STAP 0041 | Burkina Faso | 7 | 11537 | P 5998 | Burkina Faso | 10 |
| 5971 | P 1582/Sl.440 | Senegal | 73 | 8909 | RC 026 | Gambia | 10 | 11585 | P 6054 | Burkina Faso | 6 |
| 5972 | P 1583/Sl.453 | Senegal | 64 | 9141 | VRR 721 | India | 16 | 11594 | P 6063 | Burkina Faso | 6 |
| 5973 | P 1584 | Senegal | 10 | 9143 | VRR 723 | India | 13 | 11608 | P 6077 | Burkina Faso | 10 |
| 5976 | P 1588/Sl.477 | Senegal | 10 | 9283 | P 3280 | Togo | 23 | 11609 | P 6078 | Burkina Faso | 8 |
| 5982 | P 1594/Sl.497 | Senegal | 6 | 9299 | P 3331 | Togo | 6 | 11643 | PM 49 | Cameroon | 7 |
| 5985 | P 1596-1/Sl.506 | Senegal | 10 | 9316 | P 3880 | Benin | 9 | 11705 | H 014 | Sudan | 6 |
| 5990 | P 1603/Sl.540 | Senegal | 10 | 9321 | P 3894 | Benin | 17 | 11717 | 018 | Sudan | 41 |
| 5991 | P 1604/Sl.542 | Senegal | 42 | 9323 | P 3910 | Benin | 13 | 11890 | ABM 91 | India | 22 |
| 5992 | P 1605/Sl.535 | Senegal | 7 | 9324 | P 3945 | Benin | 12 | 11987 | NAN 24 | Nigeria | 19 |
| 6002 | P 1619/Sl.571 | Senegal | 6 | 9575 | ARK 2 | Burkina Faso | 18 | 12047 | NAN 80A | Nigeria | 13 |
| 6004 | P 1621/Sl.580 | Senegal | 14 | 9576 | ARK 2-1-1 | Burkina Faso | 26 | 12090 | NAN 122 | Nigeria | 8 |
| 6007 | P 1624/Sl.587 | Senegal | 7 | 9577 | ARK 3-2 | Burkina Faso | 9 | 12447 | SINGLE PLANT 17 | India | 7 |
| 6009 | P 1626/Sl.590 | Senegal | 9 | 9579 | ARK 4-1 | Burkina Faso | 7 | 12833 | PM 55-1 | Botswana | 42 |
| 6010 | P 1627 | Senegal | 10 | 9580 | ARK 4-1 A | Burkina Faso | 21 | 12841 | PMK 111-1 | Botswana | 8 |
| 6011 | P 1628/Sl.600 | Senegal | 22 | 9581 | ARK 5 | Burkina Faso | 7 | 12849 | STAP 31-1 | Burkina Faso | 8 |
| 6012 | P 1629/Sl.601 | Senegal | 9 | 9777 | UI 649 | USA | 6 | 12864 | CVP 481-1 | Burkina Faso | 8 |
| 6013 | P 1630/Sl.605 | Senegal | 9 | 9805 | RPM 37 | Mozambique | 18 | 12875 | P 6007-1 | Burkina Faso | 11 |
| 6016 | P 1633/Sl.616 | Senegal | 11 | 9806 | RPM 37A | Mozambique | 18 | 12876 | P 6017-1 | Burkina Faso | 12 |
| 6017 | P 1635/Sl.618 | Senegal | 9 | 9807 | RPM 37-1 | Mozambique | 25 | 12895 | P 26-1 | Cameroon | 34 |
| 6018 | P 1636/Sl.619 | Senegal | 7 | 9810 | RPM 96-2 | Mozambique | 15 | 12896 | P 29-1 | Cameroon | 10 |
| 6019 | P 1637/Sl.621 | Senegal | 10 | 9815 | RPM 111-1 | Mozambique | 10 | 12898 | P 55-1 | Cameroon | 6 |

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Table 16. *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6023 | P 1642/Sl.630 | Senegal | 10 | 9817 | RPM 125-1 | Mozambique | 29 | 12899 | P 58-1 | Cameroon | 12 |
| 12903 | P 79-1 | Cameroon | 15 | 14311 | AD 364 | Cameroon | 19 | 14716 | AD 1049 | Cameroon | 8 |
| 12904 | P 94-1 | Cameroon | 8 | 14312 | AD 365 | Cameroon | 18 | 14718 | AD 1051 | Cameroon | 13 |
| 12909 | P 12501 | Cameroon | 10 | 14314 | AD 368-1 | Cameroon | 7 | 14719 | AD 1053 | Cameroon | 9 |
| 12922 | DSA 1-1-1 | Ghana | 8 | 14315 | AD 369 | Cameroon | 8 | 14720 | AD 1054 | Cameroon | 11 |
| 12932 | DSA 51-1-1 | Ghana | 17 | 14316 | AD 373 | Cameroon | 9 | 14727 | AD 1064 | Cameroon | 13 |
| 12950 | ACC 093-1 | Kenya | 9 | 14319 | AD 392 | Cameroon | 10 | 14733 | AD 1075 | Cameroon | 17 |
| 12951 | ACC 119-1 | Kenya | 12 | 14324 | AD 403 | Cameroon | 8 | 14746 | AD 1089 | Cameroon | 13 |
| 12957 | SAD 001-1 | Malawi | 18 | 14340 | AD 449 | Cameroon | 26 | 14751 | AD 1107 | Cameroon | 31 |
| 13015 | P 538-1 | Mali | 11 | 14343 | AD 452 | Cameroon | 15 | 14752 | AD 1108 | Cameroon | 10 |
| 13019 | P 615-1 | Mali | 18 | 14352 | AD 473 | Cameroon | 13 | 14762 | AD 1121 | Cameroon | 43 |
| 13022 | SANIO 40-1 | Mali | 8 | 14353 | AD 474 | Cameroon | 23 | 14763 | AD 1123 | Cameroon | 17 |
| 13030 | P 5388-1 | Mali | 16 | 14358 | AD 486 | Cameroon | 16 | 14765 | AD 1125 | Cameroon | 14 |
| 13031 | P 5389-1 | Mali | 13 | 14359 | AD 487 | Cameroon | 10 | 14770 | AD 1134 | Cameroon | 35 |
| 13033 | P 5416-1 | Mali | 12 | 14364 | AD 491 | Cameroon | 21 | 14779 | AD 1146 | Cameroon | 18 |
| 13034 | P 5421-1 | Mali | 20 | 14366 | AD 495 | Cameroon | 8 | 14780 | AD 1147 | Cameroon | 21 |
| 13046 | P 5666-1 | Mali | 16 | 14367 | AD 496 | Cameroon | 10 | 14782 | AD 1149 | Cameroon | 15 |
| 13066 | RPM 111-2-1 | Mozambique | 21 | 14368 | AD 497 | Cameroon | 6 | 14785 | AD 1152 | Cameroon | 19 |
| 13067 | RPM 171-2-1 | Mozambique | 23 | 14390 | AD 555 | Cameroon | 12 | 14786 | AD 1160 | Cameroon | 18 |
| 13236 | NAN 215-1 | Nigeria | 11 | 14402 | AD 583 | Cameroon | 38 | 14787 | AD 1163 | Cameroon | 15 |
| 13238 | NAN 302-1 | Nigeria | 23 | 14406 | AD 587 | Cameroon | 10 | 14789 | AD 1166 | Cameroon | 17 |
| 13307 | JM 4662-1 | South Africa | 29 | 14407 | AD 588 | Cameroon | 8 | 14790 | AD 1167 | Cameroon | 12 |
| 13323 | 199-1 | Sudan | 7 | 14408 | AD 589 | Cameroon | 13 | 14791 | AD 1168 | Cameroon | 26 |
| 13350 | PIA 146-2-B-1 | Sudan | 24 | 14412 | AD 594 | Cameroon | 6 | 14792 | AD 1169 | Cameroon | 14 |
| 13357 | 62KA DAR-FUR 1 | Sudan | 9 | 14413 | AD 600 | Cameroon | 9 | 14793 | AD 1170 | Cameroon | 33 |
| 13359 | 94KA DAR-FUR 2-1 | Sudan | 7 | 14416 | AD 608 | Cameroon | 13 | 14795 | AD 1180 | Cameroon | 18 |
| 13360 | 95KA DAR-FUR 1 | Sudan | 12 | 14431 | AD 623 | Cameroon | 6 | 14796 | AD 1181 | Cameroon | 12 |
| 13395 | SERERE 41-1 | Uganda | 7 | 14433 | AD 625 | Cameroon | 8 | 14797 | AD 1182 | Cameroon | 10 |
| 13408 | 1685-1 | Zambia | 8 | 14435 | AD 627 | Cameroon | 6 | 14799 | AD 1184 | Cameroon | 10 |
| 13483 | ABM 131-1 | India | 23 | 14439 | AD 631 | Cameroon | 7 | 14800 | AD 1185 | Cameroon | 50 |
| 13553 | VRR 717-1 | India | 19 | 14446 | AD 645 | Cameroon | 15 | 14801 | AD 1188 | Cameroon | 13 |
| 13595 | SAR 696-1 | India | 6 | 14447 | AD 646 | Cameroon | 7 | 14802 | AD 1189 | Cameroon | 20 |
| 13598 | SAR 713-1 | India | 9 | 14451 | AD 652 | Cameroon | 15 | 14804 | AD 1191 | Cameroon | 13 |

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Table 16. *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13649 | SAR 2559-1 | India | 9 | 14452 | AD 653 | Cameroon | 18 | 14806 | AD 1193 | Cameroon | 22 |
| 13743 | 90-1 | Yemen | 28 | 14453 | AD 654 | Cameroon | 20 | 14808 | AD 1195 | Cameroon | 15 |
| 13765 | UI 1626-1 | USA | 15 | 14514 | AD 820 | Cameroon | 6 | 14811 | AD 1199 | Cameroon | 7 |
| 13790 | YAR M-170-3 | Yemen | 19 | 14521 | AD 828 | Cameroon | 7 | 14813 | AD 1201 | Cameroon | 8 |
| 13830 | 13 | Burkina Faso | 7 | 14522 | AD 829 | Cameroon | 10 | 14814 | AD 1202 | Cameroon | 16 |
| 13891 | 82 | Burkina Faso | 7 | 14525 | AD 832 | Cameroon | 11 | 14816 | AD 1206 | Cameroon | 18 |
| 13892 | 83 | Burkina Faso | 7 | 14532 | AD 839 | Cameroon | 9 | 14817 | AD 1208 | Cameroon | 12 |
| 13893 | 84 | Burkina Faso | 13 | 14533 | AD 841 | Cameroon | 13 | 14824 | AD 1215 | Cameroon | 14 |
| 13905 | 101 | Burkina Faso | 6 | 14534 | AD 842 | Cameroon | 12 | 14825 | AD 1219 | Cameroon | 25 |
| 13927 | AMM 72 | Zimbabwe | 13 | 14535 | AD 843 | Cameroon | 7 | 14827 | AD 1224 | Cameroon | 6 |
| 13955 | AMM 173 | Zimbabwe | 17 | 14536 | AD 844 | Cameroon | 13 | 14834 | AD 1236 | Cameroon | 31 |
| 14009 | AMM 430 | Zimbabwe | 25 | 14537 | AD 845 | Cameroon | 14 | 14844 | AD 1252 | Cameroon | 12 |
| 14012 | AMM 436 | Zimbabwe | 24 | 14539 | AD 847 | Cameroon | 11 | 14845 | AD 1253 | Cameroon | 12 |
| 14017 | AMM 450 | Zimbabwe | 31 | 14576 | AD 893 | Cameroon | 13 | 14846 | AD 1254 | Cameroon | 32 |
| 14023 | AMM 490 | Zimbabwe | 16 | 14577 | AD 894 | Cameroon | 13 | 14847 | AD 1255 | Cameroon | 8 |
| 14050 | AMM 759 | Zimbabwe | 14 | 14581 | AD 898 | Cameroon | 13 | 14849 | AD 1266 | Cameroon | 8 |
| 14183 | AD 1 | Cameroon | 7 | 14582 | AD 899 | Cameroon | 7 | 14851 | AD 1268 | Cameroon | 8 |
| 14188 | AD 15 | Cameroon | 15 | 14618 | AD 939 | Cameroon | 9 | 14852 | AD 1269 | Cameroon | 12 |
| 14190 | AD 25 | Cameroon | 11 | 14620 | AD 941 | Cameroon | 11 | 14853 | AD 1270 | Cameroon | 7 |
| 14193 | AD 34 | Cameroon | 10 | 14623 | AD 944 | Cameroon | 6 | 14858 | AD 1279 | Cameroon | 21 |
| 14195 | AD 37 | Cameroon | 6 | 14625 | AD 946 | Cameroon | 10 | 14859 | AD 1280 | Cameroon | 34 |
| 14196 | AD 38 | Cameroon | 11 | 14627 | AD 948 | Cameroon | 9 | 14871 | AD 1313 | Cameroon | 29 |
| 14197 | AD 39 | Cameroon | 8 | 14629 | AD 950 | Cameroon | 6 | 14872 | AD 1314 | Cameroon | 17 |
| 14201 | AD 43 | Cameroon | 7 | 14630 | AD 951 | Cameroon | 6 | 14876 | AD 1318 | Cameroon | 13 |
| 14205 | AD 58 | Cameroon | 7 | 14631 | AD 952 | Cameroon | 9 | 14878 | AD 1320 | Cameroon | 6 |
| 14213 | AD 73-1 | Cameroon | 6 | 14661 | AD 991 | Cameroon | 12 | 14879 | AD 1323 | Cameroon | 17 |
| 14233 | AD 172 | Cameroon | 7 | 14686 | AD 1017 | Cameroon | 12 | 14885 | AD 1335 | Cameroon | 14 |
| 14236 | AD 190 | Cameroon | 7 | 14689 | AD 1020 | Cameroon | 12 | 14887 | AD 1345 | Cameroon | 22 |
| 14240 | AD 197 | Cameroon | 9 | 14691 | AD 1022 | Cameroon | 18 | 14888 | AD 1346 | Cameroon | 13 |
| 14252 | AD 262 | Cameroon | 10 | 14697 | AD 1028 | Cameroon | 7 | 14891 | AD 1350 | Cameroon | 9 |
| 14255 | AD 268 | Cameroon | 26 | 14699 | AD 1030 | Cameroon | 7 | 14892 | AD 1350-1 | Cameroon | 10 |
| 14258 | AD 279 | Cameroon | 12 | 14701 | AD 1032 | Cameroon | 9 | 14894 | AD 1354 | Cameroon | 16 |
| 14259 | AD 281 | Cameroon | 9 | 14704 | AD 1035 | Cameroon | 14 | 14895 | AD 1357 | Cameroon | 21 |
| 14260 | AD 282 | Cameroon | 13 | 14705 | AD 1036 | Cameroon | 11 | 14905 | AD 1417 | Cameroon | 13 |
| 14264 | AD 288 | Cameroon | 25 | 14706 | AD 1037 | Cameroon | 17 | 14915 | UB 0007 | Uganda | 17 |
| 14278 | AD 324 | Cameroon | 29 | 14707 | AD 1038 | Cameroon | 13 | 14917 | UB 0009 | Uganda | 16 |

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Table 16. *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14282 | AD 329 | Cameroon | 13 | 14708 | AD 1039 | Cameroon | 8 | 14918 | UB 0010 | Uganda | 16 |
| 14285 | AD 332 | Cameroon | 9 | 14709 | AD 1040 | Cameroon | 8 | 14920 | UB 0012 | Uganda | 14 |
| 14294 | AD 340 | Cameroon | 9 | 14712 | AD 1043 | Cameroon | 8 | 14922 | UB 0016 | Uganda | 13 |
| 14299 | AD 346 | Cameroon | 21 | 14713 | AD 1044 | Cameroon | 8 | 14929 | RS 30 | Mali | 16 |
| 14300 | AD 348 | Cameroon | 14 | 14714 | AD 1045 | Cameroon | 10 | 14932 | AKG 66 | India | 28 |
| 14305 | AD 356 | Cameroon | 7 | 14715 | AD 1047 | Cameroon | 22 | 15056 | RAP 8 | India | 21 |
| 15061 | RAP 17 | India | 29 | 16269 | ARP 58 | India | 10 | 17331 | 307 | Burkina Faso | 8 |
| 15063 | RAP 19 | India | 20 | 16283 | GS 93 | India | 17 | 17342 | 312-1 | Burkina Faso | 10 |
| 15065 | RAP 21 | India | 11 | 16333 | AMM 566 | Zimbabwe | 24 | 17345 | 316 | Burkina Faso | 9 |
| 15070 | RAP 28 | India | 8 | 16380 | AMM 1322 | Zimbabwe | 9 | 17346 | 316-1 | Burkina Faso | 13 |
| 15110 | RAP 81 | India | 22 | 16770 | AGH 587 | Zimbabwe | 18 | 17348 | 317-1 | Burkina Faso | 13 |
| 15124 | RAP 103 | India | 23 | 16856 | AGH 704 | Zimbabwe | 34 | 17349 | 320 | Burkina Faso | 6 |
| 15146 | RAP 140 | India | 23 | 17115 | AGH 1437 | Zimbabwe | 34 | 17350 | 320-1 | Burkina Faso | 14 |
| 15159 | RAP 160 | India | 37 | 17175 | SO 75 C 109 | Niger | 10 | 17351 | 323 | Burkina Faso | 19 |
| 15160 | RAP 161 | India | 30 | 17180 | 226 | Burkina Faso | 8 | 17352 | 323-1 | Burkina Faso | 17 |
| 15161 | RAP 162 | India | 15 | 17181 | 226-1 | Burkina Faso | 8 | 17353 | 324 | Burkina Faso | 19 |
| 15163 | RAP 164 | India | 11 | 17182 | 227 | Burkina Faso | 28 | 17354 | 324-1 | Burkina Faso | 27 |
| 15174 | RAP 181 | India | 63 | 17183 | 227-1 | Burkina Faso | 14 | 17355 | 325 | Burkina Faso | 15 |
| 15182 | RAP 193 | India | 24 | 17186 | 230 | Burkina Faso | 6 | 17356 | 326 | Burkina Faso | 26 |
| 15196 | RAP 209 | India | 28 | 17187 | 230-1 | Burkina Faso | 13 | 17357 | 326-1 | Burkina Faso | 17 |
| 15197 | RAP 210 | India | 13 | 17188 | 231 | Burkina Faso | 7 | 17359 | 327-1 | Burkina Faso | 20 |
| 15199 | RAP 212 | India | 40 | 17189 | 231-1 | Burkina Faso | 12 | 17361 | 328-1 | Burkina Faso | 13 |
| 15200 | RAP 213 | India | 16 | 17190 | 232 | Burkina Faso | 7 | 17362 | 329 | Burkina Faso | 13 |
| 15211 | RAP 226 | India | 21 | 17191 | 232-1 | Burkina Faso | 10 | 17363 | 329-1 | Burkina Faso | 21 |
| 15213 | RAP 229 | India | 20 | 17195 | 234-1 | Burkina Faso | 12 | 17364 | 330 | Burkina Faso | 25 |
| 15293 | AAP 73 | India | 8 | 17196 | 235 | Burkina Faso | 7 | 17365 | 330-1 | Burkina Faso | 21 |
| 15307 | AAP 87 | India | 16 | 17197 | 235-1 | Burkina Faso | 7 | 17366 | 332 | Burkina Faso | 14 |
| 15320 | AAP 100 | India | 15 | 17198 | 236 | Burkina Faso | 12 | 17367 | 332-1 | Burkina Faso | 8 |
| 15438 | AAP 242 | India | 10 | 17202 | 238 | Burkina Faso | 9 | 17368 | 333 | Burkina Faso | 18 |
| 15503 | AAP 339 | India | 7 | 17206 | 240 | Burkina Faso | 10 | 17369 | 333-1 | Burkina Faso | 17 |
| 15507 | 113 | Burkina Faso | 7 | 17207 | 240-1 | Burkina Faso | 6 | 17371 | 334-1 | Burkina Faso | 28 |
| 15509 | 115 | Burkina Faso | 6 | 17208 | 241 | Burkina Faso | 16 | 17372 | 335 | Burkina Faso | 12 |
| 15513 | 119 | Burkina Faso | 25 | 17209 | 241-1 | Burkina Faso | 7 | 17373 | 335-1 | Burkina Faso | 26 |
| 15522 | 128 | Burkina Faso | 6 | 17210 | 242 | Burkina Faso | 6 | 17374 | 337 | Burkina Faso | 9 |
| 15526 | 132 | Burkina Faso | 7 | 17211 | 242-1 | Burkina Faso | 16 | 17375 | 338 | Burkina Faso | 30 |
| 15550 | 156 | Burkina Faso | 11 | 17214 | 244 | Burkina Faso | 9 | 17376 | 338-1 | Burkina Faso | 21 |

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Table 16. *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15554 | 160 | Burkina Faso | 11 | 17216 | 245 | Burkina Faso | 14 | 17377 | 339 | Burkina Faso | 30 |
| 15561 | 167 | Burkina Faso | 8 | 17217 | 245-1 | Burkina Faso | 12 | 17378 | 339-1 | Burkina Faso | 18 |
| 15562 | 168 | Burkina Faso | 7 | 17219 | 246-1 | Burkina Faso | 7 | 17379 | 340 | Burkina Faso | 10 |
| 15563 | 169 | Burkina Faso | 9 | 17220 | 247 | Burkina Faso | 11 | 17380 | 340-1 | Burkina Faso | 11 |
| 15570 | 176 | Burkina Faso | 14 | 17221 | 247-1 | Burkina Faso | 10 | 17381 | 341-1 | Burkina Faso | 20 |
| 15575 | 181 | Burkina Faso | 6 | 17222 | 248 | Burkina Faso | 7 | 17382 | P.TYPHO-IDES | Burkina Faso | 11 |
| 15576 | 182 | Burkina Faso | 9 | 17223 | 248-1 | Burkina Faso | 17 | 17384 | AK 100 | Cent Afr Rep | 32 |
| 15577 | 183 | Burkina Faso | 9 | 17225 | 249-1 | Burkina Faso | 7 | 17391 | AK 127 | Cent Afr Rep | 12 |
| 15579 | 185 | Burkina Faso | 11 | 17227 | 250-1 | Burkina Faso | 7 | 17393 | AK 140 | Cent Afr Rep | 13 |
| 15580 | 186 | Burkina Faso | 24 | 17229 | 251-1 | Burkina Faso | 9 | 17394 | AK 146 | Cent Afr Rep | 7 |
| 15582 | 188 | Burkina Faso | 8 | 17231 | 252-1 | Burkina Faso | 14 | 17396 | AK 148 | Cent Afr Rep | 9 |
| 15585 | 191 | Burkina Faso | 16 | 17232 | 253-1 | Burkina Faso | 6 | 17397 | AK 150 | Cent Afr Rep | 8 |
| 15591 | 199 | Burkina Faso | 11 | 17234 | 254-1 | Burkina Faso | 6 | 17398 | AK 151 | Cent Afr Rep | 12 |
| 15593 | 201 | Burkina Faso | 21 | 17236 | 255-1 | Burkina Faso | 6 | 17405 | AK 251 | Cent Afr Rep | 20 |
| 15594 | 202 | Burkina Faso | 27 | 17239 | 257 | Burkina Faso | 6 | 17416 | AK 330 | Cent Afr Rep | 8 |
| 15596 | 204 | Burkina Faso | 23 | 17250 | 263-1 | Burkina Faso | 6 | 17417 | AK 331 | Cent Afr Rep | 9 |
| 15599 | 207 | Burkina Faso | 19 | 17252 | 264-1 | Burkina Faso | 7 | 17419 | AK 334 | Cent Afr Rep | 13 |
| 15600 | 208 | Burkina Faso | 10 | 17255 | 267 | Burkina Faso | 11 | 17420 | AK 335 | Cent Afr Rep | 12 |
| 15601 | 209 | Burkina Faso | 18 | 17259 | 269 | Burkina Faso | 6 | 17421 | AK 336 | Cent Afr Rep | 7 |
| 15604 | 212 | Burkina Faso | 8 | 17261 | 270 | Burkina Faso | 6 | 17423 | AK 339 | Cent Afr Rep | 11 |
| 15612 | 220 | Burkina Faso | 7 | 17263 | 271 | Burkina Faso | 6 | 17425 | AK 341 | Cent Afr Rep | 10 |
| 15615 | 223 | Burkina Faso | 6 | 17268 | 274 | Burkina Faso | 7 | 17426 | AK 342 | Cent Afr Rep | 6 |
| 15620 | AMF 4 | Tanzania | 90 | 17270 | 275 | Burkina Faso | 7 | 17427 | AK 343 | Cent Afr Rep | 10 |
| 15673 | AMF 126 | Tanzania | 11 | 17274 | 277 | Burkina Faso | 7 | 17428 | AK 344 | Cent Afr Rep | 6 |
| 15687 | AMF 182 | Tanzania | 24 | 17275 | 277-1 | Burkina Faso | 27 | 17429 | AK 347 | Cent Afr Rep | 10 |
| 15711 | AMF 219-3 | Tanzania | 15 | 17277 | 278-1 | Burkina Faso | 8 | 17430 | AK 348 | Cent Afr Rep | 11 |
| 15729 | AMF 250 | Tanzania | 12 | 17280 | 280 | Burkina Faso | 8 | 17431 | AK 349 | Cent Afr Rep | 19 |
| 15782 | AMF 367 | Tanzania | 32 | 17283 | 281-1 | Burkina Faso | 8 | 17432 | AK 350 | Cent Afr Rep | 7 |
| 15805 | AMF 407 | Tanzania | 11 | 17286 | 283 | Burkina Faso | 6 | 17438 | AK 394 | Cent Afr Rep | 7 |
| 15834 | AMF 504 | Tanzania | 10 | 17290 | 285 | Burkina Faso | 6 | 17439 | AK 399 | Cent Afr Rep | 7 |
| 15843 | AMF 520 | Tanzania | 15 | 17292 | 286 | Burkina Faso | 8 | 17441 | AK 407 | Cent Afr Rep | 7 |
| 15849 | AMF 530 | Tanzania | 8 | 17295 | 287-1 | Burkina Faso | 7 | 17445 | AK 413 | Cent Afr Rep | 8 |
| 15888 | S 421 | Tanzania | 50 | 17296 | 288 | Burkina Faso | 7 | 17446 | AK 416 | Cent Afr Rep | 6 |
| 15890 | S 461 | Tanzania | 15 | 17299 | 289-1 | Burkina Faso | 7 | 17449 | AK 419 | Cent Afr Rep | 7 |
| 16234 | ARP 6 | India | 24 | 17307 | 293-1 | Burkina Faso | 10 | 17457 | AK 434 | Cent Afr Rep | 7 |

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**Table 16.** *Continued....*

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16238 | ARP 18 | India | 18 | 17312 | 297-1 | Burkina Faso | 10 | 17458 | AK 435 | Cent Afr Rep | 6 |
| 16239 | ARP 19 | India | 11 | 17313 | 298 | Burkina Faso | 9 | 17462 | AK 464 | Cent Afr Rep | 8 |
| 16248 | ARP 31 | India | 10 | 17315 | 299 | Burkina Faso | 6 | 17496 | ARD 8 | Togo | 6 |
| 16249 | ARP 33 | India | 18 | 17316 | 299-1 | Burkina Faso | 6 | 17504 | ARD 17 | Togo | 9 |
| 16250 | ARP 34 | India | 38 | 17317 | 300 | Burkina Faso | 6 | 17790 | ARD 265 | Togo | 9 |
| 16251 | ARP 35 | India | 7 | 17318 | 300-1 | Burkina Faso | 6 | 17793 | ARD 269 | Togo | 13 |
| 16262 | ARP 46 | India | 9 | 17320 | 301-1 | Burkina Faso | 9 | 17807 | ARD 291 | Togo | 9 |
| 16267 | ARP 56 | India | 11 | 17325 | 304 | Burkina Faso | 7 | 17835 | ARD 319 | Togo | 8 |
| 16268 | ARP 57 | India | 10 | 17329 | 306 | Burkina Faso | 6 | 19438 | AHM 349 | Namibia | 10 |
| 19442 | AHM 441 | Namibia | 9 | 19510 | AMZ 29 | Zimbabwe | 10 | 19600 | C 90-106 | Niger | 13 |
| 19443 | AHM 444 | Namibia | 38 | 19540 | AWN 164 | Zambia | 9 | 19623 | C 90-130 | Niger | 10 |
| 19476 | AHM 1076 | Namibia | 9 | 19545 | AWN 185 | Zambia | 9 | 19626 | C 90-133 | Niger | 7 |
| 19485 | AW 346 | Namibia | 9 | 19547 | AWN 202 | Zambia | 9 | 19646 | C 90-153 | Niger | 9 |
| 19499 | AWN 70 | Zimbabwe | 7 | 19559 | AWN 291 | Zambia | 11 | 19664 | C 90-172 | Niger | 9 |
| 19501 | AWN 72-1 | Zimbabwe | 24 | 19572 | AWN 326 | Zambia | 6 | 19674 | C 90-182 | Niger | 9 |
| 19503 | AWN 75 | Zimbabwe | 35 | 19577 | AWN 342 | Zambia | 9 | 19676 | C 90-184 | Niger | 6 |
| 19504 | AWN 77 | Zimbabwe | 10 | 19595 | C 90-101 | Niger | 8 | 19680 | C 90-188 | Niger | 6 |
| 19507 | AWN 17 | Zimbabwe | 11 | | | | | | | | |

**Table 17. Co-operators in the International Pearl Millet Downy Mildew Nursery (IPMDMN), 1976–95.**

| Name | Location | Country |
|---|---|---|
| Aaron, D.S., Mathur, A.S, Rajamanna, A., Ravikumar, V, and, Yemperumal, S.J. | Kovilpatti | India |
| Akbar, A.M. and Balasubramanian, K.A. | Hyderabad | India |
| Manzo, S.K., Alawode, D.A., Sundaram, N.V. and Tyagi, P.D. | Samaru and Kano | Nigeria |
| Bartaria, A.M. and Gupta, J.C. | Gwalior | India |
| Basavraju, R., Safeeulla, K.M. Shetty, H.S. and, Prakash, H.S | Mysore | India |
| Bindu, K.J., Pawar, N.B., Ghuge, S.S., and Godbole, G.N. | Aurangabad | India |
| Chahal, S.S. | Ludhiana | India |
| Clarke, S.A. and Frowd, J.A. | Sotuba and Koporokeniepe | Mali |
| Dave, H.R., Nafade, S.D., Patel, V.A., and Thakur, N.A. | Jamnagar | India |
| Eshwaramurthy, S., Govinda Raju, K., and Muthuswamy, M. | Coimbatore | India |
| Frowd, J.A., Serenopalo | Kamboinsé | Burkina Faso |
| Bayg, D.F.M. and Sereme, P. | Bambey, Nioro-de-rip | Senegal |
| Girard, J.C. Sy, A.A. and Gupta, S.C. | Bambey | Senegal |
| Gupta, S.C. and Mbaye, D.F. | Bambey | Senegal |
| Guthrie, E.J., Werder, J. Harouna, A., and Hess, D.E. | Niamey, Bengor | Niger |
| Hamid, S.Z. | Islamabad | Pakistan |
| Kanwar, Z.S. and Thakur, D.P. | Hisar | India |
| Mathur, S.B. | New Delhi | India |
| Mayee, C.D. | Parbani | India |
| Muthuswamy, S. | Pudukottai | India |
| Oumar, Niagado | Sadore, and Cinzana | Mali |
| Padmanabham, D. | Cuddalore | India |
| Padmanabham, D. and, Muthuswamy, S. | Kudumiamalai | India |
| Patil, B.P. | Pune | India |
| Quazi, S.M. | Jalna | India |
| Rane, M.S. | Dhule | India |
| Sidibe, O.R. | Tarna, and Maradi | Niger |
| Govind Singh | Durgapura | India |
| Singh, S.D., Navi, S.S., Reddy, P.M., King, S.B., and, Williams, R.J. | ICRISAT Center | India |
| Singh, S.D., Navi, S,S., Reddy, P.M., King, S.B. and Williams, R.J. | Bhavanisagar | India |
| Vaishnav, M.V. | Junagadh | India |

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Table 18. Performance of 40 entries and standard susceptible controls included in the IPMDMN trial for 2–10 years and at all test locations in India and Africa, 1976–85.

| | | | Mean severity (%) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IP No. | Entry | Origin | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
| 8215 | SDN 503 | Nigeria | 1(0-2)[1] | 1(0-8) | 3(0-10) | 3(0-14) | 8(0-29) | 9(<1-53) | 8(0-21) | 1(0-5) | 2(0-5) | 3(0-10) |
| 6118 | P 7 | Mali | 6(0-38) | 2(0-11) | 3(0-12) | 3(0-9) | 9(0-38) | 6(0-48) | 6(0-22) | 3(0-19) | 3(0-9) | 2(<1-3) |
| 4984 | 700251 | Nigeria | 3(0-23) | 2(0-9) | 2(0-11) | 1(0-5) | 9(<1-30) | 6(0-33) | 6(0-35) | 4(0-19) | -[2] | - |
| – | 700516 | Nigeria | 2(0-26) | 3(0-35) | 2(0-12) | 1(0-6) | 7(0-30) | 5(0-32) | 3(0-10) | 3(0-15) | - | - |
| 5082 | 700651 | Nigeria | 1(0-12) | 3(0-28) | 4(0-29) | 1(0-3) | 10(0-35) | 6(0-47) | 4(<1-18) | 3(0-18) | - | - |
| 8212 | SDN 347-1 | Nigeria | 5(0-26) | 3(0-16) | 4(0-24) | 3(0-14) | - | - | - | - | - | - |
| – | BJ 104 | New Delhi | - | 14(0-42) | - | 13(1-48) | 21(6-43) | 10(0-37) | 17(0-58) | - | - | - |
| 8219 | EB 18-3-1 | ICRISAT | - | - | 2(0-14) | 1(0-8) | 7(<1-26) | 2(0-11) | - | - | - | - |
| 1930 | B 5 | Nigeria | - | - | - | 2(0-9) | 8(0-25) | 2(0-15) | 1(0-10) | 2(0-9) | 2(0-7) | - |
| 8218 | EB 83-2 | ICRISAT | - | - | - | 2(0-6) | 6(0-25) | 5(0-23) | 3(0-18) | 4(0-18) | 1(0-2) | - |
| 8231 | MPP 7147-2-1 | New Delhi | - | - | - | 1(0-4) | 7(<1-34) | 5(0-22) | 6(0-18) | 4(0-16) | 4(0-14) | - |
| – | E 298-2-1-8 | ICRISAT | - | - | - | - | 5(0-27) | 3(0-27) | 4(0-16) | 3(0-10) | 1(0-4) | - |
| 5046 | 700546 | Nigeria | - | - | - | - | 7(0-25) | 6(0-38) | 7(0-26) | 5(0-31) | 1(0-2) | - |
| 5039 | 700512 | Nigeria | - | - | - | - | 6(0-24) | 3(0-16) | 3(0-12) | 5(0-24) | 4(0-11) | - |
| 8429 | SDN 714 | Nigeria | - | - | - | - | 6(0-35) | 6(0-39) | 4(0-19) | 5(0-20) | - | - |
| 2058 | Z 42 | Nigeria | - | - | - | 1(0-5) | 9(0-30) | 8(0-43) | 5(0-19) | - | - | - |
| – | P 310-17 | Mali | - | - | - | - | - | - | - | 1(0-4) | 1(0-8) | 1(<1-2) |
| 13006 | P 472-1 | Mali | - | - | - | - | - | - | - | 1(0-5) | 2(0-5) | 2(0-5) |
| – | P 473-4 | Mali | - | - | - | - | - | - | - | 3(0-10) | 1(0-6) | 2(1-4) |
| – | P 2672-6 | Niger | - | - | - | - | - | - | - | 4(0-20) | 3(0-16) | - |
| – | IVC P 78-2 | ICRISAT | - | - | - | - | - | - | - | 6(0-34) | 1(0-7) | 10(0-39) |
| – | IVC P 8004-2 | ICRISAT | - | - | - | - | - | - | 8(0-43) | 2(0-6) | 3(0-10) | |
| – | NELC H 79-4 (Original) | ICRISAT | - | - | - | - | - | - | - | 6(0-31) | 3(0-12) | 4(0-6) |
| – | SSC BB 78-4 (Reconstituted) | ICRISAT | - | - | - | - | - | - | - | 2(0-15) | 2(0-9) | - |

*Continued....*

Table 18. *Continued....*

| IP No. | Entry | Origin | Mean severity (%) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
| – | (B 282 × 3/4 ExB-100) -11-9-2-2 | ICRISAT | - | - | - | - | - | - | - | 6(0-48) | 1(0-5) | 7(0-33) |
| – | (F4FC 1436-4 -3-2 × J 104 | ICRISAT | - | - | - | - | - | - | - | 8(0-46) | 1(0-6) | 7(0-40) |
| | ST)-1-1-5 | ICRISAT | - | - | - | - | - | - | - | - | 1(0-2) | 13(0-70) |
| 6132 | P 24 | Cameroon | - | - | - | - | - | - | - | - | <1(0-1) | 1(0-2) |
| 21169 | P 1449-3 | Senegal | - | - | - | - | - | - | - | - | 1(0-5) | 3(1-7) |
| 5979 | P 1591 | Senegal | - | - | - | - | - | - | - | - | 1(0-3) | 7(0-35) |
| 5984 | P 1596 | Senegal | - | - | - | - | - | - | - | - | | |
| 5584 | P 2880 | Niger | - | - | - | - | - | - | - | - | <1(0-2) | <1(0-1) |
| 21176 | P 2933-1 | Niger | - | - | - | - | - | - | - | - | 1(0-2) | 12(1-33) |
| 21179 | P 3281-1 | Togo | - | - | - | - | - | - | - | - | 1(0-4) | 3(0-12) |
| – | IP 2084-1 | New Delhi | - | - | - | - | - | - | - | - | <(0-1) | 2(0-12) |
| 21184 | IP 6147-4 | Cameroon | - | - | - | - | - | - | - | - | 2(0-4) | 3(0-11) |
| 21187 | IP 8695-1 | Sudan | - | - | - | - | - | - | - | - | 1(0-4) | 3(0-10) |
| 21189 | IP 8699-3 | Sudan | - | - | - | - | - | - | - | - | 1(0-4) | 2(<1-3) |
| – | 700481-23-2 | Nigeria | - | - | - | - | - | - | - | - | 2(0-6) | 3(0-12) |
| – | ICMV 82116 | ICRISAT | - | - | - | - | - | - | - | - | 8(0-52) | 3(<1-13) |
| – | D 332/1/2-2 | Niger | - | - | - | - | - | - | - | - | <1(0-3) | 2(0-7) |
| – | Location mean for test entries | | 9 | 7 | 5 | 4 | 11 | 6 | 7 | 6 | 4 | 5 |
| | Controls | | | | | | | | | | | |
| | 7042[3] | Chad | - | - | - | 58(30-91) | 63(15-98) | 68(8-100) | 44(9-87) | 64(14-100) | 44(16-76) | 48(4-89) |
| | J 1593[3] | Jamnagar | - | 28(4-78) | 14(0-38) | 8(0-27) | 17(0-54) | 15(0-56) | - | - | - | - |

1. Figures in parentheses are severity ranges across locations.
2. Not tested.
3. Standard susceptible checks.

Table 19. Downy mildew incidence (%) on the most resistant inbred pearl millet pollinators evaluated in greenhouse against Patancheru, Mysore, and Rajasthan isolates, ICRISAT Asia Center, summer 1993.

| Entry | Abbreviated pedigree | Downy mildew (%) | | |
|---|---|---|---|---|
| | | IAC (Patancheru) | Mysore | Rajasthan |
| IPC 404 | Togo 17-4 | 0.0 | 0.0 | 0.0 |
| IPC 510 | B-Senegal × E 298 | 0.0 | 0.1 | 0.0 |
| IPC 590 | B-Senegal × 700651 | 0.0 | 0.2 | 0.0 |
| IPC 639 | 700626-3 | 0.0 | 0.0 | 0.0 |
| IPC 652 | (B 282 × J 804)-7 | 0.0 | 0.0 | 0.0 |
| IPC 849 | (NEP 7 × SS 48) | 0.0 | 0.0 | 0.0 |
| IPC 1115 | (B 282 × J 804)-59 | 0.0 | 0.0 | 0.0 |
| IPC 1218 | 8082-1-3-2-1 | 0.0 | 0.7 | 0.0 |
| IPC 1264 | 700651 × P7 | 0.0 | 0.0 | 0.0 |
| IPC 1451 | MBP 110 × B 282 | 0.0 | 0.0 | 0.0 |
| IPC 1531 | 843B × (GNS × SS 48)-40 | 0.0 | 0.0 | 0.0 |
| IPC 1577 | J 25-1 × J 1798 | 0.0 | 0.0 | 0.0 |
| IPC 1587 | SC 14(M) × B 282-16 | 0.0 | 0.0 | 0.9 |
| IPC 1593 | $SD_2$ × EB (D 1029)-1 | 0.0 | 0.0 | 0.0 |
| IPC 1598 | 842B × (B 282 × 3/4 EB) | 0.0 | 0.0 | 0.0 |
| IPC 1603 | 843B × (GNS × SS 48)-40 | 0.0 | 0.0 | 0.0 |
| IPC 1627 | 843B × (B 282 × 3/4 EB 100)-56 | 0.0 | 0.0 | 0.0 |
| IPC 1634 | 843B × (B 282 × 3/4 EB 100)51 | 0.0 | 0.0 | 0.0 |
| IPC 1636 | 843B × (GNS × SS 48)-40 | 0.0 | 0.0 | 0.0 |
| IPC 1642 | (23DBE-19-2 × S10B 106)-2-1 | 0.0 | 0.0 | 0.0 |
| IPC 1646 | K 560-2 × 13133-9 | 0.0 | 0.5 | 0.0 |
| ICMP 423 | Resistant control | 12.5 | 0.9 | 1.6 |
| 700651 | Resistant control | 6.4 | 10.6 | 3.3 |
| NHB 3 | Susceptible control | 93.9 | 77.9 | 93.0 |
| 7042 (S) | Susceptible control | 91.2 | 83.2 | 90.1 |
| Trial mean (247 entries) | | 21.1 | 13.5 | 12.0 |
| SE | | ±3.5 | ±3.3 | ±2.8 |

Table 20. Sweet stalked accessions of pearl millet that developed >6% downy mildew (DM) in greenhouse tests, ICRISAT Asia Center, 1990–94.

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3100 | SAR 086-1 | India | 79 | 10408 | P 3351 | Togo | 21 | 14187 | AD 5 | Cameroon | 43 |
| 3471 | SAR 696 | India | 26 | 10456 | TGR 344a | Zimbabwe | 65 | 14439 | AD 631 | Cameroon | 14 |
| 3481 | SAR 713 | India | 17 | 10531 | CSM 43 | Senegal | 16 | 14443 | AD 641 | Cameroon | 12 |
| 3509 | SAR 763 | India | 17 | 11984 | NAN 22 | Nigeria | 30 | 14792 | AD 1169 | Cameroon | 19 |
| 3593 | SAR 856 | India | 17 | 12128 | NAN 172 | Nigeria | 20 | 14954 | CHA 13-1 | India | 77 |
| 3854 | SAR 1249 | India | 55 | 12841 | PMK 111-1 | Botswana | 30 | 15070 | RAP 28 | India | 52 |
| 4264 | SAR 1650 | India | 24 | 12922 | DSA 1-1-1 | Ghana | 36 | 15584 | 190 | Burkina Faso | 16 |
| 5116 | D 52 | Niger | 47 | 12957 | SAD 001-1 | Malawi | 35 | 15620 | AMF 4 | Tanzania | 11 |
| 5293 | D 296 | Niger | 14 | 13065 | RPM 37-2-1 | Mozambique | 15 | 15687 | AMF 182 | Tanzania | 38 |
| 6547 | P 586 | Mali | 38 | 13225 | NAN 56-1 | Nigeria | 23 | 15765 | AMF 314-3 | Tanzania | 39 |
| 6894 | ACC 157 | Kenya | 20 | 13395 | SERERE 41-1 | Uganda | 29 | 16234 | ARP 6 | Tanzania | 34 |
| 7952 | KOLALA-LOCAL 7-1 | Burkina Faso | 44 | 13462 | SAR 47-1 | India | 42 | 17384 | AK 100 | Cent Afr Rep | 23 |
| 8509 | P 1656/Sl.661 | Senegal | 15 | 13710 | NEP 7-5603-1 | Lebanon | 7 | 17404 | AK 250 | Cent Afr Rep | 14 |
| 8515 | P 592 | Mali | 14 | 13768 | YAR M-52-1 | Yemen | 71 | 17431 | AK 349 | Cent Afr Rep | 25 |
| 8627 | PGI 59-3 | Sudan | 44 | 13927 | AMM 72 | Zimbabwe | 60 | 17496 | ARD 8 | Togo | 11 |
| 8845 | ZM 002 | Zambia | 47 | 14172 | AMM 1373 | Zimbabwe | 39 | 17516 | ARD 39 | Togo | 26 |



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Table 21. Dwarf accessions of pearl millet that developed >6% downy mildew (DM) in greenhouse tests, ICRISAT Asia Center, 1990–94.

| IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) | IP no. | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7840 | SAR 262-1 | India | 98 | 8056 | D 258-1 | Niger | 7 | 8171 | GS 153 | ICRISAT | 68 |
| 7842 | SAR 856-1 | India | 22 | 8058 | 700576 | Niger | 25 | 8176 | GS 158 | ICRISAT | 22 |
| 7849 | J 379-1 | India | 37 | 8065 | DS 147-2 | ICRISAT | 98 | 8178 | GS 160 | ICRISAT | 38 |
| 7851 | J 586-1-1 | India | 65 | 8073 | GS 1 | ICRISAT | 18 | 8186 | IP 2622-1 | Malawi | 92 |
| 7852 | J 747-1-1 | India | 46 | 8077 | GS 11 | ICRISAT | 59 | 8208 | IP 227B-1 | Uganda | 81 |
| 7853 | J 766-1-1 | India | 75 | 8084 | GS 22 | ICRISAT | 62 | 8210 | IP 1739L-1 | India | 34 |
| 7854 | J 806-1 | India | 37 | 8091 | GS 35-1 | ICRISAT | 81 | 8227 | DS 62 | ICRISAT | 92 |
| 7859 | J 845-1 | India | 31 | 8112 | SENEGAL 242-1 | Senegal | 88 | 8228 | DS 64 | ICRISAT | 35 |
| 7861 | J 860-1 | India | 49 | 8121 | GS 104 | ICRISAT | 96 | 8241 | IP 66-1 | India | 80 |
| 7862 | J 919-1 | India | 44 | 8123 | GS 106 | ICRISAT | 10 | 8250 | IP 452-1 | India | 25 |
| 7863 | J 934-1 | India | 98 | 8129 | GS 112 | ICRISAT | 13 | 8252 | IP 487-1 | India | 20 |
| 7865 | J 1010-1 | India | 92 | 8133 | GS 116 | ICRISAT | 88 | 8253 | IP 837-1 | USA | 65 |
| 7867 | J 1040-1 | India | 82 | 8135 | GS 118 | ICRISAT | 45 | 8258 | IP 1015-1 | India | 6 |
| 7869 | J 1045-1 | India | 70 | 8137 | GS 120 | ICRISAT | 19 | 8260 | IP 1311-1 | India | 28 |
| 7870 | J 1067-1 | India | 23 | 8141 | GS 124 | ICRISAT | 32 | 8266 | IP 1834-1 | India | 42 |
| 7874 | J 1126-1 | India | 75 | 8146 | GS 129 | ICRISAT | 39 | 8269 | DR.CASSADY | Uganda | 6 |
| 7880 | J 1270-5-1 | India | 88 | 8150 | GS 133 | ICRISAT | 85 | 10401 | E-457 | India | 19 |
| 7882 | J 1283-1 | India | 57 | 8159 | GS 141 | ICRISAT | 97 | 10402 | LIGULELESS | ICRISAT | 85 |
| 7883 | J 1286-1-1 | India | 53 | 8160 | GS 142 | ICRISAT | 36 | STWL | | ICRISAT | 56 |
| 7884 | J 1287-1 | India | 66 | 8161 | GS 143 | ICRISAT | 29 | HB-3 | | | 65 |
| 7885 | J 1333-1 | India | 10 | 8163 | GS 145 | ICRISAT | 8 | 7042 (S) | | | 86 |
| 7887 | J 1399-1-1 | India | 66 | 8170 | GS 152 | ICRISAT | 55 | 5082 | 700651 | | 18 |

Table 22. Downy mildew incidence (%) in fifty intermediate weedy accessions of pearl millet in greenhouse tests, ICRISAT Asia Center, 1990–94.

| Identity | Origin | DM (%) | Identity | Origin | DM (%) | Identity | Origin | DM (%) |
|---|---|---|---|---|---|---|---|---|
| D 5 I | Niger | 35 | P 928 I | Niger | 13 | P 1422 I | Senegal | 27 |
| D 29 I | Niger | 51 | P 933 I | Niger | 14 | P 1437 I | Senegal | 8 |
| D 48 I | Niger | 17 | P 936-1 I | Niger | 75 | P 2713 I | Niger | 35 |
| D 105-1 I | Niger | 66 | P 942 I | Niger | 72 | P 2739 I | Niger | 24 |
| D 161-I | Niger | 56 | P 943 I | Niger | 49 | P 2753 I | Niger | 31 |
| D 180 I | Niger | 34 | P 945 I | Niger | 79 | P 2766 I | Niger | 26 |
| D 220 I | Niger | 32 | P 946 I | Niger | 91 | P 2784 I | Niger | 38 |
| D 223 I | Niger | 63 | P 1401 I | Senegal | 18 | P 2798 I | Niger | 29 |
| D 247 I | Niger | 70 | P 1406 I | Senegal | 6 | P 2805 I | Niger | 47 |
| D 271 I | Niger | 54 | P 1409 I | Senegal | 7 | P 2831 I | Niger | 56 |
| P 331 I | Mali | 40 | P 1414 I | Senegal | 16 | P 2849 I | Niger | 60 |
| P 342 I | Mali | 41 | P 1415 I | Senegal | 36 | P 2868 I | Niger | 42 |
| P 402 I | Mali | 39 | P 1416 I | Senegal | 8 | P 2895 I | Niger | 59 |
| P 510 I | Mali | 36 | P 1417 I | Senegal | 7 | P 2912 I | Niger | 39 |
| P 534 I | Mali | 32 | P 1420 I | Senegal | 7 | P 2926 I | Niger | 41 |
| P 923-1 I | Niger | 36 | P 1421 I | Senegal | 29 | P 2977 I | Niger | 41 |
| P 924 I | Niger | 39 | M 16 I | Tanzania | 20 | | | |

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Table 23. Accessions of wild relatives of pearl millet (*Pennisetum* spp), and their reactions to downy mildew (DM) in greenhouse screening, ICRISAT Asia Center, 1989–93.

| *Pennisetum* species | Total accessions tested | Accessions in DM incidence (%) categories | | | | | |
|---|---|---|---|---|---|---|---|
| | | 0 | 1-5 | 6-10 | >10 | Min[1] | Max[2] |
| *P. violaceum* | 274 | 29 | 8 | 30 | 207 | 0 | 95 |
| *P. mollissimum* | 41 | 2 | 4 | 5 | 30 | 0 | 46 |
| *P. purpureum* | 11 | 2 | 1 | 2 | 6 | 0 | 18 |
| *P. pedicellatum* | 129 | 129 | 0 | 0 | 0 | 0 | 0 |
| *P. polystachyon* | 68 | 66 | 1 | 0 | 1 | 0 | 18 |
| *P. ramosum* | 3 | 3 | 0 | 0 | 0 | 0 | 0 |
| *P. orientale* | 1 | 1 | 0 | 0 | 0 | 0 | -[3] |
| *P. macrostachyum* | 1 | 1 | 0 | 0 | 0 | 0 | - |
| *P. divisum* | 1 | 1 | 0 | 0 | 0 | 0 | - |
| *P. schweinfurthii* | 1 | 1 | 0 | 0 | 0 | 0 | - |
| *P. hohenackeri* | 1 | 1 | 0 | 0 | 0 | 0 | - |
| *P. mezianum* (4N) | 1 | 1 | 0 | 0 | 0 | 0 | - |
| *P. cenchroides* | 1 | 0 | 0 | 0 | 1 | - | 37 |
| *Pennisetum* sp. | 1 | 0 | 0 | 0 | 1 | - | 24 |
| | 534 | 237 | 14 | 37 | 246 | | |

1. Minimum downy mildew incidence.
2. Maximum downy mildew incidence.
3. Only 1 accession was tested.

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Table 24. Wild relatives of pearl millet (*Pennisetum* spp) that developed 0–95% downy mildew (DM) in greenhouse tests, ICRISAT Asia Center, 1990–94.

| IP Nos. | IPW No. | Species | Identity | Origin | DM(%) |
|---|---|---|---|---|---|
| 21528 | 11 | *P. violaceum* | P 5709 | Mali | 7 |
| 21531 | 14 | *P. violaceum* | 199 | Sudan | 37 |
| 21538 | 21 | *P. violaceum* | C 020/S 016 | Niger | 52 |
| 21539 | 22 | *P. violaceum* | C 021/S 016 | Niger | 69 |
| 21540 | 23 | *P. violaceum* | C 042/S 025 | Niger | 45 |
| 21542 | 25 | *P. violaceum* | C 045/S 027B-1 | Niger | 14 |
| 21543 | 26 | *P. violaceum* | C 045/S 027B-2 | Niger | 12 |
| 21544 | 27 | *P. violaceum* | C 046/S 027C | Niger | 12 |
| 21546 | 28 | *P. violaceum* | C 048/S 027 ABC-1 | Niger | 47 |
| 21547 | 30 | *P. violaceum* | C 058/S 039 | Niger | 47 |
| 21549 | 32 | *P. violaceum* | C 083-1/S 054-1-2 | Niger | 14 |
| 21550 | 33 | *P. violaceum* | C 083-2/S 054-2 | Niger | 23 |
| 21551 | 34 | *P. violaceum* | S 85-1 | Niger | 32 |
| 21552 | 35 | *P. violaceum* | S 85-2 | Niger | 21 |
| 21553 | 36 | *P. violaceum* | S 85-3 | Burkina Faso | 8 |
| 21554 | 37 | *P. violaceum* | S 85-7 | Burkina Faso | 5 |
| 21555 | 38 | *P. violaceum* | S 85-8 | Burkina Faso | 14 |
| 21556 | 39 | *P. violaceum* | S 85-10 | Niger | 24 |
| 21558 | 41 | *P. violaceum* | S 85-12 | Niger | 31 |
| 21559 | 42 | *P. violaceum* | S 85-13 | Niger | 18 |
| 21560 | 43 | *P. violaceum* | S 85-14 | Niger | 37 |
| 21561 | 44 | *P. violaceum* | S 85-15 | Niger | 37 |
| 21563 | 46 | *P. violaceum* | S 85-22 | Niger | 35 |
| 21564 | 47 | *P. violaceum* | S 85-23 | Niger | 23 |
| 21565 | 48 | *P. violaceum* | S 85-24 | Niger | 22 |
| 21566 | 49 | *P. violaceum* | S 85-25 | Niger | 9 |
| 21567 | 50 | *P. violaceum* | S 85-26 | Niger | 36 |
| 21569 | 52 | *P. violaceum* | S 85-29 | Niger | 13 |
| 21570 | 53 | *P. violaceum* | S 85-31 | Niger | 22 |
| 21571 | 54 | *P. violaceum* | S 85-32 | Niger | 14 |
| 21572 | 55 | *P. violaceum* | S 85-34 | Niger | 10 |
| 21573 | 56 | *P. violaceum* | S 85-35 | Niger | 16 |
| 21574 | 57 | *P. violaceum* | S 85-35-1 | Niger | 14 |
| 21575 | 58 | *P. violaceum* | S 85-36 | Niger | 35 |
| 21576 | 59 | *P. violaceum* | S 85-36-1 | Niger | 38 |
| 21578 | 61 | *P. violaceum* | S 85-37 | Niger | 24 |
| 21579 | 62 | *P. violaceum* | S 85-37-1 | Niger | 32 |
| 21580 | 63 | *P. violaceum* | S 85-38 | Niger | 58 |
| 21581 | 64 | *P. violaceum* | S 85-39 | Niger | 6 |
| 21582 | 65 | *P. violaceum* | S 85-40 | Niger | 14 |
| 21583 | 66 | *P. violaceum* | S 85-41 | Niger | 23 |
| 21584 | 67 | *P. violaceum* | S 85 44 | Niger | 10 |
| 21585 | 68 | *P. violaceum* | S 85-45 | Niger | 26 |
| 21587 | 70 | *P. violaceum* | S 85-47 | Niger | 11 |
| 21588 | 71 | *P. violaceum* | S 85-48 | Niger | 17 |
| 21589 | 72 | *P. violaceum* | S 85-49 | Niger | 12 |
| 21590 | 73 | *P. violaceum* | S 85-50 | Niger | 11 |
| 21592 | 75 | *P. violaceum* | S 85-52 | Niger | 34 |
| 21593 | 76 | *P. violaceum* | S 85-54 | Niger | 52 |
| 21594 | 77 | *P. violaceum* | S 85-55 | Niger | 45 |

*Continued....*

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Table 24. *Continued....*

| IP Nos. | IPW No. | Species | Identity | Origin | DM(%) |
|---|---|---|---|---|---|
| 21595 | 78 | *P. violaceum* | S 85-58 | Niger | 21 |
| 21597 | 80 | *P. violaceum* | S 85-60-1 | Niger | 29 |
| 21598 | 81 | *P. violaceum* | S 85-63 | Niger | 69 |
| 21599 | 82 | *P. violaceum* | S 85-65 | Niger | 66 |
| 21600 | 83 | *P. violaceum* | S 85-67 | Niger | 83 |
| 21602 | 85 | *P. violaceum* | S 85-69 | Niger | 82 |
| 21603 | 86 | *P. violaceum* | S 85-70 | Niger | 75 |
| 21604 | 87 | *P. violaceum* | S 85-75 | Niger | 14 |
| 21606 | 89 | *P. violaceum* | S 85-77-1 | Niger | 23 |
| 21607 | 90 | *P. violaceum* | S 85-78 | Niger | 48 |
| 21608 | 91 | *P. violaceum* | S 85-78-1 | Niger | 70 |
| 21609 | 92 | *P. violaceum* | S 85-80 | Niger | 26 |
| 21610 | 93 | *P. violaceum* | S 85-87 | Niger | 28 |
| 21611 | 94 | *P. violaceum* | S 86-82 | Mali | 10 |
| 21612 | 95 | *P. violaceum* | S 86-83 | Mali | 35 |
| 21613 | 96 | *P. violaceum* | S 86-84 | Mali | 84 |
| 21614 | 97 | *P. violaceum* | S 86-85 | Mali | 88 |
| 21615 | 98 | *P. violaceum* | S 86-86 | Mali | 71 |
| 21617 | 100 | *P. violaceum* | S 86-88 | Mali | 90 |
| 21619 | 102 | *P. violaceum* | S 86-90 | Mali | 76 |
| 21620 | 103 | *P. violaceum* | S 86-91 | Mali | 77 |
| 21621 | 104 | *P. violaceum* | S 86-92 | Mali | 83 |
| 21622 | 105 | *P. violaceum* | S 86-93 | Mali | 72 |
| 21624 | 107 | *P. violaceum* | S 86-95 | Mali | 58 |
| 21625 | 108 | *P. violaceum* | S 86-95-1 | Mali | 76 |
| 21626 | 109 | *P. violaceum* | S 86-96 | Mali | 31 |
| 21627 | 110 | *P. violaceum* | S 86-97 | Mali | 26 |
| 21628 | 111 | *P. violaceum* | S 86-99 | Mali | 9 |
| 21629 | 112 | *P. violaceum* | S 86-100 | Mali | 24 |
| 21630 | 113 | *P. violaceum* | S 86-105 | Mali | 55 |
| 21631 | 114 | *P. violaceum* | S 86-117 | Niger | 90 |
| 21632 | 115 | *P. violaceum* | S 87-120 | Niger | 91 |
| 21633 | 116 | *P. violaceum* | S 87-121 | Niger | 81 |
| 21634 | 117 | *P. violaceum* | S 87-122 | Niger | 78 |
| 21635 | 118 | *P. violaceum* | S 87-123 | Niger | 69 |
| 21636 | 119 | *P. violaceum* | S 87-124 | Niger | 60 |
| 21637 | 120 | *P. violaceum* | S 87-125 | Niger | 78 |
| 21638 | 121 | *P. violaceum* | S 87-126 | Niger | 85 |
| 21639 | 122 | *P. violaceum* | S 87-127 | Niger | 28 |
| 21640 | 123 | *P. violaceum* | S 87-128 | Niger | 8 |
| 21641 | 124 | *P. violaceum* | S 87-129 | Niger | 79 |
| 21642 | 125 | *P. violaceum* | S 87-130 | Niger | 27 |
| 21644 | 127 | *P. violaceum* | S 87-132 | Mauritania | 45 |
| 21645 | 128 | *P. violaceum* | S 87-133 | Mauritania | 78 |
| 21646 | 129 | *P. violaceum* | S 87-134 | Mauritania | 67 |
| 21647 | 130 | *P. violaceum* | S 87-135 | Mauritania | 67 |
| 21648 | 131 | *P. violaceum* | S 87-136 | Mauritania | 76 |
| 21649 | 132 | *P. violaceum* | S 87-137 | Mauritania | 83 |
| 21650 | 133 | *P. violaceum* | S 87-138 | Mauritania | 55 |
| 21651 | 134 | *P. violaceum* | S 87-139 | Mauritania | 15 |
| 21652 | 135 | *P. violaceum* | S 87-140 | Mauritania | 25 |
| 21653 | 136 | *P. violaceum* | S 87-141 | Mauritania | 23 |

*Continued....*

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Table 24. *Continued....*

| IP Nos. | IPW No. | Species | Identity | Origin | DM(%) |
|---|---|---|---|---|---|
| 21654 | 137 | *P. violaceum* | S 87-142 | Mauritania | 30 |
| 21655 | 138 | *P. violaceum* | S 87-143 | Mauritania | 37 |
| 21656 | 139 | *P. violaceum* | S 87-144 | Mauritania | 20 |
| 21657 | 140 | *P. violaceum* | S 87-145 | Mauritania | 50 |
| 21658 | 141 | *P. violaceum* | S 87-146 | Senegal | 9 |
| 21659 | 142 | *P. violaceum* | S 87-147 | Senegal | 20 |
| 21660 | 143 | *P. violaceum* | S 87-148 | Senegal | 18 |
| 21661 | 144 | *P. violaceum* | S 87-149 | Senegal | 6 |
| 21662 | 145 | *P. violaceum* | S 87-150 | Senegal | 5 |
| 21663 | 146 | *P. violaceum* | S 87-151 | Senegal | 6 |
| 21664 | 147 | *P. violaceum* | S 87-153 | Senegal | 20 |
| 21665 | 148 | *P. violaceum* | S 87-154 | Senegal | 44 |
| 21666 | 149 | *P. violaceum* | S 87-167 | Mali | 39 |
| 21667 | 150 | *P. violaceum* | S 87-168 | Mali | 71 |
| 21668 | 151 | *P. violaceum* | S 87-170 | Mali | 17 |
| 21669 | 152 | *P. violaceum* | S 87-171 | Mali | 28 |
| 21670 | 153 | *P. violaceum* | S 87-172 | Mali | 54 |
| 21671 | 154 | *P. violaceum* | S 87-173 | Mali | 24 |
| 21672 | 155 | *P. violaceum* | S 87-174 | Mali | 23 |
| 21673 | 156 | *P. violaceum* | S 87-175 | Mali | 65 |
| 21675 | 158 | *P. violaceum* | S 55/C 85 | Niger | 29 |
| 21677 | 160 | *P. violaceum* | S 57/C 87-1 | Niger | 10 |
| 21678 | 161 | *P. violaceum* | S 62/C 92 | Niger | 16 |
| 21679 | 162 | *P. violaceum* | S 77/C 112 | Niger | 71 |
| 21680 | 163 | *P. violaceum* | S 79/C 115 | Niger | 19 |
| 21682 | 165 | *P. violaceum* | S 80/C 118 | Niger | 14 |
| 21683 | 166 | *P. violaceum* | S 80/C 119 | Niger | 83 |
| 21684 | 167 | *P. violaceum* | S 82/C 120 | Niger | 94 |
| 21685 | 168 | *P. violaceum* | S 83/C 122 | Niger | 82 |
| 21686 | 169 | *P. violaceum* | S 83/C 123 | Niger | 88 |
| 21687 | 170 | *P. violaceum* | S 85/C 124 | Niger | 95 |
| 21689 | 172 | *P. violaceum* | S 85/C 130 | Niger | 88 |
| 21690 | 173 | *P. violaceum* | S 102/C 151 | Niger | 34 |
| 21691 | 174 | *P. violaceum* | S 103/C 152 | Niger | 22 |
| 21693 | 176 | *P. violaceum* | AGH 297-1 | Zimbabwe | 57 |
| 21694 | 177 | *P. violaceum* | AGH 1107-1 | Zimbabwe | 10 |
| 21698 | 181 | *P. violaceum* | S 88-177 | Nigeria | 31 |
| 21699 | 182 | *P. violaceum* | S 88-177-1 | Nigeria | 31 |
| 21700 | 183 | *P. violaceum* | S 88-178 | Nigeria | 16 |
| 21701 | 184 | *P. violaceum* | S 88-178-1 | Nigeria | 31 |
| 21702 | 185 | *P. violaceum* | S 88-179 | Nigeria | 23 |
| 21703 | 186 | *P. violaceum* | S 88-179-1 | Nigeria | 4 |
| 21704 | 187 | *P. violaceum* | S 88-180 | Nigeria | 14 |
| 21706 | 189 | *P. violaceum* | S 88-182 | Chad | 8 |
| 21707 | 190 | *P. violaceum* | S 88-182-1 | Chad | 13 |
| 21709 | 192 | *P. violaceum* | S 88-184 | Chad | 25 |
| 21711 | 194 | *P. violaceum* | S 88-185 | Chad | 14 |
| 21713 | 196 | *P. violaceum* | S 88-186 | Chad | 14 |
| 21714 | 197 | *P. violaceum* | S 88-186-1 | Chad | 15 |
| 21715 | 198 | *P. violaceum* | S 88-187 | Chad | 34 |
| 21717 | 200 | *P. violaceum* | S 88-189 | Chad | 26 |
| 21718 | 201 | *P. violaceum* | S 88-189-1 | Chad | 41 |

*Continued....*

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Table 24. *Continued....*

| IP Nos. | IPW No. | Species | Identity | Origin | DM(%) |
|---|---|---|---|---|---|
| 21719 | 202 | *P. violaceum* | S 88-191 | Chad | 26 |
| 21720 | 203 | *P. violaceum* | S 88-191-1 | Chad | 35 |
| 21721 | 204 | *P. violaceum* | S 88-191-2 | Chad | 31 |
| 21722 | 205 | *P. violaceum* | S 88-192 | Chad | 17 |
| 21723 | 206 | *P. violaceum* | S 88-193 | Chad | 23 |
| 21724 | 207 | *P. violaceum* | S 88-193-1 | Chad | 27 |
| 21725 | 208 | *P. violaceum* | S 88-194 | Chad | 22 |
| 21726 | 209 | *P. violaceum* | S 88-194-1 | Chad | 17 |
| 21727 | 210 | *P. violaceum* | S 88-195 | Chad | 61 |
| 21728 | 211 | *P. violaceum* | S 88-196 | Chad | 33 |
| 21729 | 212 | *P. violaceum* | S 88-197 | Chad | 42 |
| 21730 | 213 | *P. violaceum* | S 88-198 | Chad | 24 |
| 21731 | 214 | *P. violaceum* | S 88-199 | Sudan | 17 |
| 21732 | 215 | *P. violaceum* | S 88-200 | Sudan | 11 |
| 21733 | 216 | *P. violaceum* | S 88-201 | Sudan | 3 |
| 21734 | 217 | *P. violaceum* | S 88-201-1 | Sudan | 7 |
| 21735 | 218 | *P. violaceum* | S 88-202 | Sudan | 19 |
| 21736 | 219 | *P. violaceum* | S 88-202-1 | Sudan | 11 |
| 21737 | 220 | *P. violaceum* | S 88-203 | Sudan | 21 |
| 21738 | 221 | *P. violaceum* | S 88-205 | Sudan | 16 |
| 21739 | 222 | *P. violaceum* | S 88-206 | Sudan | 14 |
| 21740 | 223 | *P. violaceum* | S 88-206-1 | Sudan | 24 |
| 21741 | 224 | *P. violaceum* | S 88-207 | Sudan | 11 |
| 21742 | 225 | *P. violaceum* | S 88-208 | Sudan | 13 |
| 21743 | 226 | *P. violaceum* | S 88-209 | Niger | 7 |
| 21744 | 227 | *P. violaceum* | S 88-210 | Niger | 42 |
| 21745 | 228 | *P. violaceum* | S 88-211 | Niger | 34 |
| 21746 | 229 | *P. mollissimum* | P 316-1 | Mali | 1 |
| 21747 | 230 | *P. mollissimum* | P 184 | Central African Republic | 10 |
| 21748 | 231 | *P. mollissimum* | S 054/C 083 | Niger | 21 |
| 21749 | 232 | *P. mollissimum* | S 80/C 117-1 | Niger | 15 |
| 21750 | 233 | *P. mollissimum* | S 85-6 | Burkina Faso | 11 |
| 21751 | 234 | *P. mollissimum* | S 85-27 | Niger | 7 |
| 21752 | 235 | *P. mollissimum* | S 85-30 | Niger | 4 |
| 21753 | 236 | *P. mollissimum* | S 85-41-1 | Niger | 12 |
| 21754 | 237 | *P. mollissimum* | S 85-42 | Niger | 18 |
| 21755 | 238 | *P. mollissimum* | S 86-98 | Mali | 12 |
| 21756 | 239 | *P. mollissimum* | S 86-100-1 | Mali | 8 |
| 21757 | 240 | *P. mollissimum* | S 86-101 | Mali | 18 |
| 21758 | 241 | *P. mollissimum* | S 86-102 | Mali | 14 |
| 21759 | 242 | *P. mollissimum* | S 86-103 | Mali | 27 |
| 21760 | 243 | *P. mollissimum* | S 86-104 | Mali | 22 |
| 21761 | 244 | *P. mollissimum* | S 86-106 | Mali | 21 |
| 21762 | 245 | *P. mollissimum* | S 86-107 | Mali | 9 |
| 21763 | 246 | *P. mollissimum* | S 86-108 | Mali | 11 |
| 21764 | 247 | *P. mollissimum* | S 86-109 | Mali | 19 |
| 21765 | 248 | *P. mollissimum* | S 86-111 | Mali | 14 |
| 21766 | 249 | *P. mollissimum* | S 86-112 | Mali | 40 |
| 21767 | 250 | *P. mollissimum* | S 86-113 | Mali | 20 |
| 21768 | 251 | *P. mollissimum* | S 86-114 | Mali | 17 |
| 21769 | 252 | *P. mollissimum* | S 86-118 | Niger | 15 |
| 21770 | 253 | *P. mollissimum* | S 86-119 | Niger | 37 |

*Continued....*

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Table 24. *Continued....*

| IP Nos. | IPW No. | Species | Identity | Origin | DM(%) |
|---|---|---|---|---|---|
| 21771 | 254 | *P. mollissimum* | S 86-119-1 | Niger | 18 |
| 21772 | 255 | *P. mollissimum* | S 88-180-1 | Nigeria | 46 |
| 21773 | 256 | *P. mollissimum* | S 88-198-1 | Nigeria | 18 |
| 21774 | 257 | *P. mollissimum* | S 88-202-2 | Sudan | 17 |
| 21775 | 258 | *P. mollissimum* | S 88-204 | Sudan | 37 |
| 21776 | 259 | *P. mollissimum* | S 88-205-1 | Sudan | 24 |
| 21777 | 260 | *P. mollissimum* | S 88-206-2 | Sudan | 12 |
| 21778 | 261 | *P. mollissimum* | S 88-207-1 | Sudan | 32 |
| 21779 | 262 | *P. mollissimum* | S 88-208-1 | Sudan | 3 |
| 21780 | 263 | *P. mollissimum* | S 88-209-1 | Niger | 25 |
| 21781 | 264 | *P. mollissimum* | S 88-210-1 | Niger | 41 |
| 21782 | 265 | *P. mollissimum* | S 88-181-1 | Chad | 5 |
| 21783 | 266 | *P. purpureum* | 004-003 A | Sudan | 17 |
| 21784 | 267 | *P. purpureum* | 003 | Sudan | 8 |
| 21785 | 268 | *P. purpureum* | TGR 495 | Zimbabwe | 18 |
| 21786 | 269 | *P. purpureum* | TGR 495-1 | Zimbabwe | 17 |
| 21787 | 270 | *P. purpureum* | AD 524 | Cameroon | 3 |
| 21788 | 271 | *P. purpureum* | AD 1289 | Cameroon | 0 |
| 21789 | 272 | *P. pedicellatum* | SAR 69 | India | 0 |
| 21790 | 273 | *P. pedicellatum* | SAR 83 | India | 0 |
| 21791 | 274 | *P. pedicellatum* | SAR 87 | India | 0 |
| 21792 | 275 | *P. pedicellatum* | SAR 92 | India | 0 |
| 21793 | 276 | *P. pedicellatum* | SAR 93 | India | 0 |
| 21794 | 277 | *P. pedicellatum* | SAR 537 | India | 0 |
| 21795 | 278 | *P. pedicellatum* | SAR 2025 | India | 0 |
| 21796 | 279 | *P. pedicellatum* | SAR 2586 W | India | 0 |
| 21797 | 280 | *P. pedicellatum* | SAR 2589 | India | 0 |
| 21798 | 281 | *P. pedicellatum* | KEPR 510 | India | 0 |
| 21799 | 282 | *P. pedicellatum* | KEPR 511 | India | 0 |
| 21800 | 283 | *P. pedicellatum* | KEPR 515 | India | 0 |
| 21801 | 284 | *P. pedicellatum* | KEPR 516 | India | 0 |
| 21802 | 285 | *P. pedicellatum* | KEPR 518 | India | 0 |
| 21803 | 286 | *P. pedicellatum* | P 185 | Central African Republic | 0 |
| 21804 | 287 | *P. pedicellatum* | ZN 36-54 A | India | 0 |
| 21805 | 288 | *P. pedicellatum* | ZN 36-54 C | India | 0 |
| 21806 | 289 | *P. pedicellatum* | ZN 36-54 D | India | 0 |
| 21807 | 290 | *P. pedicellatum* | J 3331 | India | 0 |
| 21808 | 291 | *P. pedicellatum* | PR 6041 | India | 0 |
| 21809 | 292 | *P. pedicellatum* | AD 130 | Cameroon | 0 |
| 21810 | 293 | *P. pedicellatum* | AD 152 | Cameroon | 0 |
| 21811 | 294 | *P. pedicellatum* | AD 320 | Cameroon | 0 |
| 21812 | 295 | *P. pedicellatum* | AD 357 | Cameroon | 0 |
| 21813 | 296 | *P. pedicellatum* | AD 442 | Cameroon | 0 |
| 21814 | 297 | *P. pedicellatum* | AD 520 | Cameroon | 0 |
| 21815 | 298 | *P. pedicellatum* | AD 554 | Cameroon | 0 |
| 21816 | 299 | *P. pedicellatum* | AD 596 | Cameroon | 0 |
| 21817 | 300 | *P. pedicellatum* | AD 598 | Cameroon | 0 |
| 21818 | 301 | *P. pedicellatum* | AD 604 | Cameroon | 0 |
| 21819 | 302 | *P. pedicellatum* | AD 634 | Cameroon | 0 |
| 21820 | 303 | *P. pedicellatum* | AD 649 | Cameroon | 0 |
| 21821 | 304 | *P. pedicellatum* | AD 680 | Cameroon | 0 |
| 21822 | 305 | *P. pedicellatum* | AD 804 | Cameroon | 0 |

*Continued....*

Table 24. *Continued....*

| IP Nos. | IPW No. | Species | Identity | Origin | DM(%) |
|---|---|---|---|---|---|
| 21823 | 306 | *P. pedicellatum* | AD 1098 | Cameroon | 0 |
| 21824 | 307 | *P. pedicellatum* | AD 1100 | Cameroon | 0 |
| 21825 | 308 | *P. pedicellatum* | AD 1144 | Cameroon | 0 |
| 21826 | 309 | *P. pedicellatum* | AD 1154 | Cameroon | 0 |
| 21827 | 310 | *P. pedicellatum* | AD 1155 | Cameroon | 0 |
| 21828 | 311 | *P. pedicellatum* | AD 1156 | Cameroon | 0 |
| 21829 | 312 | *P. pedicellatum* | AD 1158 | Cameroon | 0 |
| 21830 | 313 | *P. pedicellatum* | AD 1161 | Cameroon | 0 |
| 21831 | 314 | *P. pedicellatum* | AD 1162 | Cameroon | 0 |
| 21832 | 315 | *P. pedicellatum* | AD 1175 | Cameroon | 0 |
| 21833 | 316 | *P. pedicellatum* | AD 1187 | Cameroon | 0 |
| 21834 | 317 | *P. pedicellatum* | AD 1197 | Cameroon | 0 |
| 21835 | 318 | *P. pedicellatum* | AD 1217 | Cameroon | 0 |
| 21836 | 319 | *P. pedicellatum* | AD 1273-1 | Cameroon | 0 |
| 21837 | 320 | *P. pedicellatum* | AD 1273-2 | Cameroon | 0 |
| 21838 | 321 | *P. pedicellatum* | AD 1288 | Cameroon | 0 |
| 21839 | 322 | *P. pedicellatum* | AD 1299 | Cameroon | 0 |
| 21840 | 323 | *P. pedicellatum* | AD 1301 | Cameroon | 0 |
| 21841 | 324 | *P. pedicellatum* | AD 1310 | Cameroon | 0 |
| 21842 | 325 | *P. pedicellatum* | AD 1321 | Cameroon | 0 |
| 21843 | 326 | *P. pedicellatum* | AD 1322 | Cameroon | 0 |
| 21844 | 327 | *P. pedicellatum* | AD 1322-1 | Cameroon | 0 |
| 21845 | 328 | *P. pedicellatum* | AD 1322-2 | Cameroon | 0 |
| 21846 | 329 | *P. pedicellatum* | AD 1322-3 | Cameroon | 0 |
| 21847 | 330 | *P. pedicellatum* | AD 1325 | Cameroon | 0 |
| 21848 | 331 | *P. pedicellatum* | AD 1325-1 | Cameroon | 0 |
| 21849 | 332 | *P. pedicellatum* | AD 1327 | Cameroon | 0 |
| 21850 | 333 | *P. pedicellatum* | AD 1340 | Cameroon | 0 |
| 21851 | 334 | *P. pedicellatum* | AD 1348 | Cameroon | 0 |
| 21852 | 335 | *P. pedicellatum* | AD 1368 | Cameroon | 0 |
| 21853 | 336 | *P. pedicellatum* | AD 1374 | Cameroon | 0 |
| 21854 | 337 | *P. pedicellatum* | AD 1376 | Cameroon | 0 |
| 21855 | 338 | *P. pedicellatum* | AD 1389 | Cameroon | 0 |
| 21856 | 339 | *P. pedicellatum* | AD 1389-1 | Cameroon | 0 |
| 21857 | 340 | *P. pedicellatum* | AD 1404 | Cameroon | 0 |
| 21858 | 341 | *P. pedicellatum* | AD 1404-1 | Cameroon | 0 |
| 21859 | 342 | *P. pedicellatum* | AD 1411 | Cameroon | 0 |
| 21860 | 343 | *P. pedicellatum* | AD 1414 | Cameroon | 0 |
| 21861 | 344 | *P. pedicellatum* | AD 1415 | Cameroon | 0 |
| 21862 | 345 | *P. pedicellatum* | AD 1415-1 | Cameroon | 0 |
| 21863 | 346 | *P. pedicellatum* | VRR 1 | India | 0 |
| 21864 | 347 | *P. pedicellatum* | AMF 374 | Tanzania | 0 |
| 21865 | 348 | *P. pedicellatum* | RS 2 | Mali | 0 |
| 21866 | 349 | *P. pedicellatum* | RS 47 | Mali | 0 |
| 21867 | 350 | *P. pedicellatum* | C 001/S 001 | Niger | 0 |
| 21868 | 351 | *P. pedicellatum* | C 007/S 007 | Niger | 0 |
| 21869 | 352 | *P. pedicellatum* | C 047/S 027 C | Niger | 0 |
| 21870 | 353 | *P. pedicellatum* | C 050/S 028 | Niger | 0 |
| 21871 | 354 | *P. pedicellatum* | C 052/S 030 | Niger | 0 |
| 21872 | 355 | *P. pedicellatum* | C 054/S 032 | Niger | 0 |
| 21873 | 356 | *P. pedicellatum* | C 064/S 039 | Niger | 0 |
| 21874 | 357 | *P. pedicellatum* | C 066/S 040 | Niger | 0 |

*Continued....*

Table 24. *Continued....*

| IP Nos. | IPW No. | Species | Identity | Origin | DM(%) |
|---|---|---|---|---|---|
| 21875 | 358 | *P. pedicellatum* | C 075/S 048 | Niger | 0 |
| 21876 | 359 | *P. pedicellatum* | C 085/S 085 | Niger | 0 |
| 21877 | 360 | *P. pedicellatum* | AKG 106 | India | 0 |
| 21878 | 361 | *P. pedicellatum* | AKG 110 | India | 0 |
| 21879 | 362 | *P. pedicellatum* | AKG 112 | India | 0 |
| 21880 | 363 | *P. pedicellatum* | AKG 121 | India | 0 |
| 21881 | 364 | *P. pedicellatum* | AKG 124 | India | 0 |
| 21882 | 365 | *P. pedicellatum* | AKG 170 | India | 0 |
| 21883 | 366 | *P. pedicellatum* | AKG 171 | India | 0 |
| 21884 | 367 | *P. pedicellatum* | AKG 175 | India | 0 |
| 21885 | 368 | *P. pedicellatum* | AKG 179 | India | 0 |
| 21886 | 369 | *P. pedicellatum* | AKG 187 | India | 0 |
| 21887 | 370 | *P. pedicellatum* | AKG 269 | India | 0 |
| 21888 | 371 | *P. pedicellatum* | AKG 293 | India | 0 |
| 21889 | 372 | *P. pedicellatum* | AKG 297 | India | 0 |
| 21890 | 373 | *P. pedicellatum* | AKG 301 | India | 0 |
| 21891 | 374 | *P. pedicellatum* | AKG 330 | India | 0 |
| 21892 | 375 | *P. pedicellatum* | AKG 339 | India | 0 |
| 21893 | 376 | *P. pedicellatum* | AKG 340 | India | 0 |
| 21894 | 377 | *P. polystachyon* | SAR 1061 | India | 0 |
| 21895 | 378 | *P. polystachyon* | SAR 1623 | India | 0 |
| 21896 | 379 | *P. polystachyon* | KEP 514 | India | 0 |
| 21897 | 380 | *P. polystachyon* | ZM 459 | Zambia | 0 |
| 21898 | 381 | *P. polystachyon* | S 23 | Malawi | 0 |
| 21899 | 382 | *P. polystachyon* | S 103 | Malawi | 0 |
| 21900 | 383 | *P. polystachyon* | S 520 | Malawi | 0 |
| 21901 | 384 | *P. polystachyon* | CER M1 | Tanzania | 0 |
| 21902 | 385 | *P. polystachyon* | PCI 6 | Sierra Leone | 0 |
| 21903 | 386 | *P. polystachyon* | J 3084 | India | 0 |
| 21904 | 387 | *P. polystachyon* | JM 3331 | India | 0 |
| 21905 | 388 | *P. polystachyon* | IGFRI | India | 0 |
| 21906 | 389 | *P. polystachyon* | AD 476 | Cameroon | 0 |
| 21907 | 390 | *P. polystachyon* | AD 595 | Cameroon | 0 |
| 21908 | 391 | *P. polystachyon* | AD 1368-1 | Cameroon | 0 |
| 21909 | 392 | *P. polystachyon* | AD 1373 | Cameroon | 0 |
| 21910 | 393 | *P. polystachyon* | AD 1384 | Cameroon | 0 |
| 21911 | 394 | *P. polystachyon* | AD 1387 | Cameroon | 0 |
| 21912 | 395 | *P. polystachyon* | AD 1391 | Cameroon | 0 |
| 21913 | 396 | *P. polystachyon* | AD 1411-1 | Cameroon | 0 |
| 21914 | 397 | *P. polystachyon* | AD 138-1-2 | Cameroon | 0 |
| 21915 | 398 | *P. polystachyon* | I 722 | Uganda | 0 |
| 21916 | 399 | *P. polystachyon* | RS 47-1 | Mali | 0 |
| 21917 | 400 | *P. polystachyon* | RS 47-2 | Mali | 0 |
| 21918 | 401 | *P. polystachyon* | AMF 374-1 | Tanzania | 0 |
| 21919 | 402 | *P. polystachyon* | AMF 374-1-1 | Tanzania | 0 |
| 21920 | 403 | *P. polystachyon* | AMF 346 | Tanzania | 1 |
| 21921 | 404 | *P. polystachyon* | AKG 154 | India | 0 |
| 21922 | 405 | *P. polystachyon* | C 008/S 008 | Niger | 0 |
| 21923 | 406 | *P. polystachyon* | C 009/S 009 | Niger | 18 |
| 21924 | 407 | *P. polystachyon* | C 048/S 027 ABC | Niger | 0 |
| 21925 | 408 | *P. polystachyon* | C 055/S 033 | Niger | 0 |
| 21926 | 409 | *P. polystachyon* | C 059/S 036 | Niger | 0 |

*Continued....*

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Table 24. *Continued....*

| IP Nos. | IPW No. | Species | Identity | Origin | DM(%) |
|---|---|---|---|---|---|
| 21927 | 410 | *P. polystachyon* | C 068/S 042 | Niger | 0 |
| 21933 | 416 | *P. schweinfurthii* | UI 1645 | USA | 0 |
| 21934 | 417 | *P. ramosum* | AD 601 | Cameroon | 0 |
| 21935 | 418 | *P. ramosum* | AD 640 | Cameroon | 0 |
| 21937 | 420 | *P. macrostachyum* | *macrostachyum* | India | 0 |
| 21939 | 422 | *P. cenchroides* | AMF 415 | Tanzania | 37 |
| 21940 | 423 | *Pennisetum sp.* | 199-1 | UK | 24 |
| 21941 | 424 | *P. pedicellatum* | TIFT PS 34 | USA | 0 |
| 21942 | 425 | *P. polystachyon* | ssp. *setosum* | India | 0 |
| 21944 | 427 | *P. mezianum* (4n) | *mezianum* 4n | India | 0 |
| 21950 | 434 | *P. orientale* | *orientale* | India | 0 |
| 21962 | 445 | *P. divisum* | *divisum* | India | 0 |
| 21967 | 450 | *P. purpureum* | AK 446 | Central African Republic | 0 |
| 21968 | 451 | *P. purpureum* | AK 456 | Central African Republic | 8 |
| 21969 | 452 | *P. purpureum* | AK 462 | Central African Republic | 12 |
| 21971 | 454 | *P. purpureum* | AD 1273 | Cameroon | 0 |
| 21972 | 455 | *P. purpureum* | AD 1405 | Cameroon | 34 |
| 21973 | 456 | *P. violaceum* | VRR 680-1 | India | 0 |
| 21974 | 457 | *P. violaceum* | TIFT PS 35 | USA | 3 |
| 21975 | 458 | *P. violaceum* | TIFT PS 36 | USA | 43 |
| 21976 | 459 | *P. violaceum* | C 020/S 016-1 | Niger | 30 |
| 21977 | 460 | *P. violaceum* | C 044/S 027 | Niger | 17 |
| 21978 | 461 | *P. violaceum* | C 058/S 039-1 | Niger | 0 |
| 21979 | 462 | *P. violaceum* | C 071/S 045 | Niger | 46 |
| 21980 | 463 | *P. violaceum* | S 079/C 115 | Niger | 53 |
| 21981 | 464 | *P. violaceum* | S 85-1-1 | Burkina Faso | 37 |
| 21982 | 465 | *P. violaceum* | S 85-7-1 | Niger | 15 |
| 21983 | 466 | *P. violaceum* | S 85-9 | Niger | 13 |
| 21984 | 467 | *P. violaceum* | S 85-11-1 | Niger | 64 |
| 21985 | 468 | *P. violaceum* | S 85-43 | Niger | 23 |
| 21986 | 469 | *P. violaceum* | S 85-49-1 | Niger | 28 |
| 21987 | 470 | *P. violaceum* | S 85-53 | Niger | 14 |
| 21988 | 471 | *P. violaceum* | S 85-55-1 | Niger | 38 |
| 21989 | 472 | *P. violaceum* | S 85-56 | Niger | 23 |
| 21990 | 473 | *P. violaceum* | S 85-57 | Niger | 49 |
| 21991 | 474 | *P. violaceum* | S 85-59 | Niger | 35 |
| 21992 | 475 | *P. violaceum* | S 85-59-1 | Niger | 54 |
| 21993 | 476 | *P. violaceum* | S 85-61 | Niger | 26 |
| 21994 | 477 | *P. violaceum* | S 85-63-1 | Niger | 52 |
| 21995 | 478 | *P. violaceum* | S 85-64 | Niger | 88 |
| 21996 | 479 | *P. violaceum* | S 85-64-1 | Niger | 8 |
| 21997 | 480 | *P. violaceum* | S 85-66 | Niger | 25 |
| 21998 | 481 | *P. violaceum* | S 85-68-1 | Niger | 45 |
| 21999 | 482 | *P. violaceum* | S 85-69-1 | Niger | 58 |
| 22000 | 483 | *P. violaceum* | S 85-74 | Niger | 25 |
| 22001 | 484 | *P. violaceum* | S 85-76 | Niger | 32 |
| 22002 | 485 | *P. violaceum* | S 85-77-2 | Niger | 55 |
| 22003 | 486 | *P. violaceum* | S 85-77-3 | Niger | 32 |
| 22004 | 487 | *P. violaceum* | S 85-79 | Niger | 25 |
| 22005 | 488 | *P. violaceum* | S 85-81 | Niger | 17 |
| 22006 | 489 | *P. violaceum* | S 86-88-1 | Mali | 17 |
| 22007 | 490 | *P. violaceum* | S 86-90-1 | Mali | 61 |

*Continued....*

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Table 24. *Continued....*

| IP Nos. | IPW No. | Species | Identity | Origin | DM(%) |
|---|---|---|---|---|---|
| 22008 | 491 | *P. violaceum* | S 86-93-1 | Mali | 17 |
| 22009 | 492 | *P. violaceum* | S 86-110 | Mali | 28 |
| 22010 | 493 | *P. violaceum* | S 86-115 | Niger | 31 |
| 22011 | 494 | *P. violaceum* | S 86-116 | Niger | 12 |
| 22012 | 495 | *P. violaceum* | S 87-152 | Senegal | 50 |
| 22013 | 496 | *P. violaceum* | S 88-185 | Chad | 7 |
| 22014 | 497 | *P. violaceum* | S 88-187-1 | Chad | 21 |
| 22015 | 498 | *P. violaceum* | S 88-190 | Chad | 8 |
| 22016 | 499 | *P. violaceum* | S 88-195-1 | Chad | 18 |
| 22017 | 500 | *P. violaceum* | S 88-199-1 | Sudan | 13 |
| 22018 | 501 | *P. violaceum* | S 88-200-1 | Sudan | 19 |
| 22019 | 502 | *P. violaceum* | S 88-204-1 | Sudan | 21 |
| 22020 | 503 | *P. violaceum* | S 89-212 | Mali | 5 |
| 22021 | 504 | *P. violaceum* | S 89-212-1 | Mali | 20 |
| 22022 | 505 | *P. violaceum* | S 89-213 | Mali | 21 |
| 22024 | 507 | *P. violaceum* | S 89-215 | Mali | 0 |
| 22025 | 508 | *P. violaceum* | S 89-215-1 | Mali | 8 |
| 22026 | 509 | *P. violaceum* | S 89-216 | Mali | 0 |
| 22027 | 510 | *P. violaceum* | S 89-217 | Mali | 6 |
| 22028 | 511 | *P. violaceum* | S 89-218 | Mali | 7 |
| 22029 | 512 | *P. violaceum* | S 89-218-1 | Mali | 15 |
| 22030 | 513 | *P. violaceum* | S 89-219 | Mali | 9 |
| 22031 | 514 | *P. violaceum* | S 89-220 | Mali | 0 |
| 22032 | 515 | *P. violaceum* | S 89-221 | Mali | 9 |
| 22033 | 516 | *P. violaceum* | S 89-222 | Mali | 0 |
| 22034 | 517 | *P. violaceum* | S 89-222-1 | Mali | 32 |
| 22035 | 518 | *P. violaceum* | S 89-223 | Mali | 16 |
| 22036 | 519 | *P. violaceum* | S 89-224 | Mali | 24 |
| 22037 | 520 | *P. violaceum* | S 89-224-1 | Mali | 0 |
| 22038 | 521 | *P. violaceum* | S 89-225 | Mali | 13 |
| 22039 | 522 | *P. violaceum* | S 89-226 | Mali | 17 |
| 22040 | 523 | *P. violaceum* | S 89-226-1 | Mali | 48 |
| 22041 | 524 | *P. violaceum* | S 89-227 | Mali | 0 |
| 22042 | 525 | *P. violaceum* | S 89-228 | Mali | 13 |
| 22043 | 526 | *P. violaceum* | S 89-228-1 | Mali | 0 |
| 22044 | 527 | *P. violaceum* | S 89-229 | Mali | 42 |
| 22045 | 528 | *P. violaceum* | S 89-229-1 | Mali | 18 |
| 22046 | 529 | *P. violaceum* | S 89-230 | Mali | 20 |
| 22047 | 530 | *P. violaceum* | S 89-231 | Mali | 39 |
| 22048 | 531 | *P. violaceum* | S 89-231-1 | Mali | 29 |
| 22049 | 532 | *P. violaceum* | S 89-232 | Mali | 42 |
| 22050 | 533 | *P. violaceum* | S 89-232-1 | Mali | 21 |
| 22051 | 534 | *P. violaceum* | S 89-233 | Mali | 25 |
| 22052 | 535 | *P. violaceum* | S 89-234 | Mali | 32 |
| 22053 | 536 | *P. violaceum* | S 89-234-1 | Mali | 8 |
| 22054 | 537 | *P. violaceum* | S 89-235 | Mali | 14 |
| 22055 | 538 | *P. violaceum* | S 89-236 | Mali | 0 |
| 22056 | 539 | *P. violaceum* | S 89-237 | Mali | 0 |
| 22057 | 540 | *P. violaceum* | S 89-238 | Mali | 8 |
| 22058 | 541 | *P. violaceum* | S 89-238-1 | Mali | 25 |
| 22059 | 542 | *P. violaceum* | S 89-239 | Mali | 26 |
| 22060 | 543 | *P. violaceum* | S 89-240 | Mali | 6 |

*Continued....*

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Table 24. *Continued....*

| IP Nos. | IPW No. | Species | Identity | Origin | DM(%) |
|---|---|---|---|---|---|
| 22061 | 544 | *P. violaceum* | S 89-241 | Mali | 7 |
| 22062 | 545 | *P. violaceum* | S 89-242 | Mali | 4 |
| 22063 | 546 | *P. violaceum* | S 89-243 | Mali | 30 |
| 22064 | 547 | *P. violaceum* | S 89-244 | Mali | 28 |
| 22065 | 548 | *P. violaceum* | S 89-245 | Mali | 5 |
| 22066 | 549 | *P. violaceum* | S 89-246 | Mali | 6 |
| 22067 | 550 | *P. mollissimum* | S 86-100-2 | Mali | 7 |
| 22068 | 551 | *P. mollissimum* | S 88-180-2 | Nigeria | 0 |
| 22069 | 552 | *P. mollissimum* | S 88-210-2 | Niger | 17 |
| 22070 | 553 | *P. mollissimum* | S 88-210-3 | Niger | 0 |
| 22071 | 554 | *P. pedicellatum* | SAR 2588 | India | 0 |
| 22072 | 555 | *P. pedicellatum* | KEP 510 | India | 0 |
| 22073 | 556 | *P. pedicellatum* | KEP 515-2 | India | 0 |
| 22074 | 557 | *P. pedicellatum* | 3 | India | 0 |
| 22075 | 558 | *P. pedicellatum* | 4 | India | 0 |
| 22076 | 559 | *P. pedicellatum* | 5 | India | 0 |
| 22077 | 560 | *P. pedicellatum* | MJV 1 | India | 0 |
| 22078 | 561 | *P. pedicellatum* | NKR 167 | India | 0 |
| 22079 | 562 | *P. pedicellatum* | NKR 173 | India | 0 |
| 22080 | 563 | *P. pedicellatum* | AKG 107 | India | 0 |
| 22081 | 564 | *P. pedicellatum* | AKG 128 | India | 0 |
| 22082 | 565 | *P. pedicellatum* | AKG 153 | India | 0 |
| 22083 | 566 | *P. pedicellatum* | AKG 160 | India | 0 |
| 22084 | 567 | *P. pedicellatum* | AKG 178 | India | 0 |
| 22086 | 569 | *P. pedicellatum* | DS 4 | India | 0 |
| 22087 | 570 | *P. pedicellatum* | *pedicellatum* 2 | India | 0 |
| 22088 | 571 | *P. pedicellatum* | RS 2-1 | Mali | 0 |
| 22089 | 572 | *P. pedicellatum* | VS 99 | USA | 0 |
| 22091 | 574 | *P. pedicellatum* | AMR 103 | India | 0 |
| 22092 | 575 | *P. pedicellatum* | C 009/S 009-1 | Niger | 0 |
| 22093 | 576 | *P. pedicellatum* | C 056/S 034 | Niger | 0 |
| 22094 | 577 | *P. pedicellatum* | C 070/S 044 | Niger | 0 |
| 22095 | 578 | *P. pedicellatum* | C 077/S 050 | Niger | 0 |
| 22096 | 579 | *P. polystachyon* | SAR 48 | India | 0 |
| 22097 | 580 | *P. polystachyon* | SAR 2588-1 | India | 0 |
| 22098 | 581 | *P. polystachyon* | VRR 1-1 | India | 0 |
| 22101 | 584 | *P. polystachyon* | AKG 155 | India | 0 |
| 22102 | 585 | *P. polystachyon* | RPM 36 | Mozambique | 0 |
| 22103 | 586 | *P. polystachyon* | RPM 36-1 | Mozambique | 0 |
| 22104 | 587 | *P. polystachyon* | ZM 13 W | Zambia | 0 |
| 22105 | 588 | *P. polystachyon* | ZM 158 W | Zambia | 0 |
| 22106 | 589 | *P. polystachyon* | S 480 | Malawi | 0 |
| 22108 | 591 | *P. polystachyon* | S 482 | Malawi | 0 |
| 22109 | 592 | *P. polystachyon* | S 522 | Malawi | 0 |
| 22111 | 594 | *P. polystachyon* | S 737 | Malawi | 0 |
| 22112 | 595 | *P. polystachyon* | S 826 | Malawi | 0 |
| 22114 | 597 | *P. polystachyon* | S 836 | Malawi | 0 |
| 22115 | 598 | *P. polystachyon* | RS 47-3 | Mali | 0 |
| 22117 | 600 | *P. polystachyon* | AD 1300 | Cameroon | 0 |
| 22118 | 601 | *P. polystachyon* | AD 1301-1 | Cameroon | 0 |
| 22119 | 602 | *P. polystachyon* | AD 1372-2 | Cameroon | 0 |
| 22120 | 603 | *P. polystachyon* | AD 1376-1 | Cameroon | 0 |

*Continued....*

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Table 24. *Continued....*

| IP Nos. | IPW No. | Species | Identity | Origin | DM(%) |
|---|---|---|---|---|---|
| 22121 | 604 | *P. polystachyon* | AD 1387-1 | Cameroon | 0 |
| 22122 | 605 | *P. polystachyon* | C 001/S 001-1 | Niger | 0 |
| 22123 | 606 | *P. polystachyon* | C 008/S 008-1 | Niger | 0 |
| 22124 | 607 | *P. polystachyon* | C 053/S 031 | Niger | 0 |
| 22125 | 608 | *P. polystachyon* | C 065/S 039 | Niger | 0 |
| 22126 | 609 | *P. polystachyon* | C 067/S 041 | Niger | 0 |
| 22127 | 610 | *P. polystachyon* | AMF 3 | Tanzania | 0 |
| 22129 | 612 | *P. polystachyon* | AMF 89 | Tanzania | 0 |
| 22130 | 613 | *P. polystachyon* | AMF 380 | Tanzania | 0 |
| 22131 | 614 | *P. polystachyon* | AMF 403-1 | Tanzania | 0 |
| 22132 | 615 | *P. polystachyon* | AMF 414 | Tanzania | 0 |
| 22133 | 616 | *P. polystachyon* | AMF 467 | Tanzania | 0 |
| 22134 | 617 | *P. polystachyon* | AMF 467-262-2 | Tanzania | 0 |
| 22136 | 619 | *P. polystachyon* | AK 206 | Central African Republic | 0 |
| 22138 | 621 | *P. ramosum* | AMF 157 | Tanzania | 0 |
| 22139 | 622 | *P. hohenackeri* | RS 163 | India | 0 |

Table 25. Downy mildew incidence (%) of 142 accessions of *Pennisetum violaceum* screened in greenhouse, ICRISAT Sahelian Center, 1989.

| Number of accessions | Origin | Downy mildew incidence (%) | | |
|---|---|---|---|---|
| | | Minimum | Maximum | Mean |
| 11 | Algeria | 83.3 | 100.0 | 89.4 |
| 2 | Burkina Faso | 75.0 | 75.0 | 75.0 |
| 28 | Mali | 50.0 | 100.0 | 79.7 |
| 10 | Mauritania | 16.7 | 87.5 | 53.1 |
| 30 | Niger | 16.7 | 100.0 | 78.6 |
| 5 | Nigeria | 0.0 | 50.0 | 10.0 |
| 4 | Senegal | 0.0 | 28.6 | 10.7 |
| 10 | Sudan | 0.0 | 66.7 | 16.2 |
| 36 | Chad | 0.0 | 66.7 | 16.2 |
| 6 | Tunisia | 50.0 | 100.0 | 83.3 |

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**Table 26. Pearl millet commercial varieties, hybrids, and male-sterile lines (all released) in which downy mildew resistant sources were used or their resistance was tested/developed using field and/or greenhouse screening techniques at IAC and/or different NARS locations in India and Africa.**

| Name | Type of material | Pedigree | Year of release | Country of release |
|---|---|---|---|---|
| WC-C75 | Variety | 7 full sib progenies of WC | 1982 | India |
| ICMV 2 | Variety | IBV 8001 | 1985 | Senegal |
| ICMV 3 | Variety | IBV 8004 | 1985 | Senegal |
| ICMV 7703 | Variety | 7 inbred lines | 1985 | India |
| ICMV 5 | Variety | ITMV 8001 | 1985 | Niger |
| ICMV 6 | Variety | ITMV 8002 | 1985 | Niger |
| ICMH 451 | $F_1$ hybrid | 81A × ICMP 451 | 1986 | India |
| ICMH 501 | $F_1$ hybrid | 834A × ICMP 501 | 1986 | India |
| ICMH 423 | $F_1$ hybrid | 841A × ICMP 423 | 1986 | India |
| Pusa 23 | $F_1$ hybrid | 841A × D23 | 1986 | India |
| ICMA 81 | Male-sterile | 23D2A | 1986 | India |
| ICMA 4 | Male-sterile | 834A | 1986 | India |
| ICMA 841 | Male-sterile | 5141 A | 1988 | India |
| ICTP 8203 | Variety | $5S_2$ progenies of selected from a landrace from Togo | 1988 | India |
| Okashana 1 | Variety | ICMV 88908 | 1989 | Namibia |
| PCB 138 | Variety | ICTP 8203 selection | 1989 | India |
| Kaufela | Variety | ICMV 82132 | 1989 | Zambia |
| IKMV 8261 | Variety | ICMV 84400 | 1989 | Burkina Faso |
| ICMV 155 | Variety | 59 plants of NELC-C-4 | 1991 | India |
| Pusa 322 | $F_1$ hybrid | 841A×PPM1301 | 1993 | India |
| ICMH 356 | $F_1$ hybrid | ICMA 88004A×ICMR 356 | 1993 | India |

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Table 27. Normal flowering pearl millet accessions that developed 0-10% rust severity under natural rust pressure at Bhavanisagar and/or ICRISAT Asia Center, 1976–94.

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | Rust (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 3078 | SAR 063 | India | 101 | 202 | 6.0 | 21.3 | 17.8 | 5 | 3.80 | 0 |
| 3157 | SAR 157 | India | 50 | 200 | 6.0 | 20.0 | 16.0 | 6 | 6.40 | 10 |
| 3284 | SAR 304 | India | 63 | 224 | 3.4 | 34.0 | 23.4 | 6 | 7.85 | 10 |
| 4019 | SAR 1434 | India | 47 | 125 | 3.6 | 19.5 | 20.6 | 6 | 9.51 | 10 |
| 4264 | SAR 1650 | India | 58 | 148 | 3.0 | 14.2 | 24.7 | 6 | 7.24 | 10 |
| 4835 | NEP 7-5603 | Lebanon | 61 | 137 | 1.0 | 20.6 | 20.2 | 5 | 5.38 | 10 |
| 4842 | NEP 13-5613-3 | Lebanon | 58 | 183 | 2.4 | 30.0 | 24.6 | 1 | 7.48 | 10 |
| 4846 | NEP 18-5011-2 | Lebanon | 58 | 141 | 2.4 | 22.3 | 24.0 | 1 | 8.96 | 10 |
| 4848 | NEP 18-5015 | Lebanon | 48 | 171 | 3.4 | 19.3 | 22.0 | 1 | 6.51 | 5 |
| 4852 | NEP 18-5023-2 | Lebanon | 69 | 202 | 1.8 | 20.7 | 20.6 | 6 | 8.41 | 10 |
| 4853 | NEP 18-5025-2 | Lebanon | 58 | 156 | 1.6 | 20.6 | 20.1 | 6 | 7.96 | 10 |
| 4862 | NEP 18-5625 | Lebanon | 55 | 120 | 2.0 | 18.2 | 20.7 | 2 | 7.07 | 10 |
| 4866 | NEP 18-5630 | Lebanon | 56 | 122 | 3.8 | 18.8 | 22.8 | 1 | 7.35 | 10 |
| 4870 | NEP 18-5633-2 | Lebanon | 62 | 179 | 2.8 | 22.6 | 25.4 | 1 | 8.46 | 10 |
| 4873 | NEP 18-5640 | Lebanon | 58 | 171 | 4.6 | 25.1 | 24.8 | 1 | 7.20 | 10 |
| 4879 | NEP 18-5651 | Lebanon | 54 | 136 | 3.0 | 22.4 | 21.2 | 1 | 8.08 | 10 |
| 4883 | NEP 18-5658 | Lebanon | 61 | 168 | 2.6 | 22.4 | 24.2 | 1 | 7.40 | 10 |
| 4884 | NEP 18-5659 | Lebanon | 52 | 137 | 3.4 | 21.8 | 24.8 | 6 | 9.51 | 10 |
| 4886 | NEP 18-5663-2 | Lebanon | 56 | 148 | 2.2 | 21.8 | 18.2 | 5 | 8.52 | 10 |
| 4890 | NEP 69-5046 | Lebanon | 63 | 166 | 2.8 | 23.0 | 26.2 | 1 | 7.59 | 10 |
| 4895 | NEP 175-5056 | Lebanon | 74 | 186 | 1.8 | 23.2 | 21.2 | 6 | 7.80 | 10 |
| 4900 | NEP 218-5061-3 | Lebanon | 65 | 151 | 2.0 | 24.0 | 28.6 | 6 | 7.00 | 10 |
| 4901 | NEP 218-5066 | Lebanon | 58 | 168 | 1.6 | 27.2 | 26.8 | 1 | 8.77 | 5 |
| 4902 | NEP 218-5067 | Lebanon | 57 | 152 | 2.0 | 24.7 | 26.2 | 1 | 6.72 | 10 |
| 4915 | EX-BORNU | Nigeria | 62 | 192 | 2.4 | 54.0 | 24.0 | 6 | 8.42 | 5 |
| 4920 | GERO NEW STRAIN | Nigeria | 69 | 245 | 2.0 | 29.2 | 24.1 | 6 | 8.55 | 5 |
| 4921 | GHANA VIA NGA | Nigeria | 60 | 201 | 2.8 | 27.6 | 28.2 | 6 | 10.60 | 5 |
| 4923 | NIGERIAN COM.-1 | Nigeria | 67 | 228 | 1.6 | 27.0 | 22.2 | 6 | 8.95 | 10 |
| 4925 | WORLD COMPOSITE | Nigeria | 73 | 240 | 1.8 | 36.2 | 22.8 | 6 | 8.66 | 10 |
| 4931 | KG 9 | Nigeria | 66 | 143 | 3.0 | 16.8 | 15.5 | 6 | 7.21 | 10 |
| 4935 | KG 67 | Nigeria | 67 | 212 | 3.2 | 25.6 | 24.0 | 6 | 8.50 | 10 |
| 4938 | SERERE 3A | Uganda | 58 | 213 | 2.8 | 24.6 | 25.8 | 4 | 11.15 | 0 |
| 4939 | SERERE 4A | Uganda | 58 | 215 | 2.0 | 32.0 | 19.0 | 6 | 8.07 | 0 |
| 4940 | SERERE 6A | Uganda | 54 | 148 | 4.2 | 20.0 | 18.4 | 6 | 8.13 | 5 |
| 4941 | SERERE 17B | Uganda | 58 | 165 | 3.0 | 20.0 | 27.2 | 6 | 9.17 | 5 |
| 4945 | SERERE 34 | Uganda | 55 | 152 | 3.8 | 22.6 | 19.7 | 6 | 9.14 | 5 |
| 4947 | SERERE 36 | Uganda | 63 | 182 | 3.0 | 30.0 | 20.0 | 6 | 7.35 | 10 |
| 4951 | SERERE 40 | Uganda | 58 | 187 | 3.4 | 26.4 | 21.4 | 6 | 6.86 | 10 |
| 4966 | SERERE 54 | Uganda | 68 | 203 | 2.0 | 22.5 | 27.8 | 6 | 6.99 | 5 |
| 4967 | SC 1 (S 4) | Uganda | 70 | 235 | 1.8 | 27.8 | 21.2 | 6 | 9.46 | 5 |
| 4971 | SC 13(M) | Uganda | 76 | 232 | 2.2 | 27.4 | 23.4 | 6 | 8.20 | 10 |
| 4982 | 700190 | Nigeria | 69 | 260 | 1.8 | 33.0 | 27.0 | 5 | 7.83 | 5 |
| 5107 | D 254 | Niger | 75 | 309 | 1.0 | 71.0 | 26.0 | 5 | 9.34 | 10 |
| 5161 | D 26 | Niger | 84 | 315 | 1.0 | 50.0 | 25.0 | 3 | 10.03 | 10 |
| 5163 | D 4 | Niger | 94 | 333 | 1.8 | 47.0 | 22.0 | 4 | 10.03 | 10 |
| 5172 | D 18 | Niger | 86 | 317 | 1.0 | 67.0 | 24.0 | 7 | 9.02 | 10 |
| 5180 | D 37 | Niger | 89 | 273 | 3.8 | 34.0 | 18.0 | 5 | 8.04 | 10 |
| 5188 | D 51 | Niger | 100 | 311 | 2.0 | 56.0 | 23.0 | 6 | 10.65 | 10 |
| 5215 | D 127 | Niger | 79 | 268 | 4.6 | 53.4 | 33.8 | 5 | 10.50 | 10 |
| 5217 | D 130 | Niger | 80 | 231 | 10.2 | 49.2 | 25.0 | 6 | 10.85 | 10 |

*Continued....*

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Table 27. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | Rust (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 5218 | D 132 | Niger | 79 | 282 | 1.6 | 63.4 | 25.0 | 4 | 11.25 | 5 |
| 5219 | D 136 | Niger | 79 | 270 | 1.2 | 60.0 | 30.0 | 6 | 10.26 | 10 |
| 5225 | D 147 | Niger | 82 | 272 | 2.6 | 64.0 | 25.4 | 4 | 9.68 | 5 |
| 5226 | D 151 | Niger | 79 | 253 | 2.0 | 29.0 | 36.0 | 4 | 11.16 | 10 |
| 5227 | D 152 | Niger | 81 | 261 | 2.4 | 61.6 | 26.4 | 4 | 10.25 | 10 |
| 5228 | D 153 | Niger | 78 | 268 | 1.0 | 73.4 | 29.4 | 6 | 10.93 | 10 |
| 5235 | D 167 | Niger | 83 | 285 | 2.0 | 55.0 | 21.0 | 4 | 7.06 | 10 |
| 5236 | D 168 | Niger | 76 | 309 | 2.0 | 59.0 | 21.0 | 6 | 10.45 | 0 |
| 5237 | D 170 | Niger | 78 | 296 | 2.0 | 63.0 | 23.0 | 6 | 10.05 | 10 |
| 5238 | D 175 | Niger | 84 | 297 | 2.0 | 88.0 | 24.0 | 6 | 9.73 | 5 |
| 5239 | D 176 | Niger | 94 | 346 | 1.4 | 84.2 | 28.2 | 6 | 9.52 | 10 |
| 5240 | D 180 | Niger | 86 | 250 | 4.0 | 26.0 | 35.0 | 6 | 11.17 | 10 |
| 5241 | D 181 | Niger | 82 | 219 | 4.8 | 28.6 | 18.2 | 5 | 6.95 | 5 |
| 5242 | D 182 | Niger | 84 | 305 | 2.6 | 57.2 | 28.0 | 6 | 10.87 | 10 |
| 5243 | D 184 | Niger | 86 | 284 | 2.0 | 85.0 | 30.0 | 6 | 11.15 | 5 |
| 5244 | D 185 | Niger | 80 | 287 | 2.6 | 68.0 | 27.2 | 4 | 11.99 | 0 |
| 5245 | D 186 | Niger | 86 | 293 | 3.0 | 83.0 | 25.0 | 4 | 9.78 | 10 |
| 5246 | D 188 | Niger | 83 | 295 | 2.4 | 71.6 | 22.6 | 5 | 9.45 | 5 |
| 5247 | D 189 | Niger | 82 | 315 | 1.0 | 70.0 | 23.0 | 6 | 6.45 | 5 |
| 5248 | D 191 | Niger | 87 | 266 | 3.0 | 34.0 | 26.0 | 6 | 8.65 | 5 |
| 5249 | D 193 | Niger | 84 | 280 | 3.6 | 24.8 | 25.6 | 5 | 6.99 | 10 |
| 5250 | D 195 | Niger | 85 | 271 | 1.0 | 34.0 | 28.0 | 6 | 10.17 | 10 |
| 5251 | D 199 | Niger | 83 | 268 | 3.4 | 37.0 | 18.4 | 6 | 11.15 | 10 |
| 5252 | D 200 | Niger | 83 | 305 | 3.0 | 42.0 | 27.0 | 6 | 12.42 | 10 |
| 5253 | D 202 | Niger | 90 | 288 | 5.0 | 42.0 | 31.2 | 6 | 10.92 | 5 |
| 5255 | D 209 | Niger | 73 | 275 | 3.0 | 55.2 | 28.0 | 1 | 9.09 | 10 |
| 5256 | D 210 | Niger | 90 | 254 | 6.4 | 34.0 | 24.4 | 5 | 8.56 | 5 |
| 5257 | D 212 | Niger | 83 | 264 | 5.0 | 32.0 | 32.0 | 6 | 11.50 | 5 |
| 5258 | D 215 | Niger | 84 | 240 | 3.0 | 29.0 | 24.0 | 6 | 6.50 | 5 |
| 5264 | D 226 | Niger | 83 | 288 | 2.0 | 32.2 | 28.8 | 4 | 13.64 | 10 |
| 5268 | D 242 | Niger | 83 | 295 | 1.8 | 54.2 | 32.8 | 6 | 9.08 | 10 |
| 5269 | D 244 | Niger | 83 | 285 | 4.6 | 36.0 | 26.0 | 6 | 11.05 | 10 |
| 5271 | D 256 | Niger | 84 | 291 | 3.0 | 92.0 | 24.0 | 6 | 10.80 | 10 |
| 5280 | D 274 | Niger | 86 | 280 | 1.0 | 58.0 | 22.0 | 4 | 8.38 | 10 |
| 5281 | D 275 | Niger | 83 | 267 | 1.2 | 87.0 | 24.0 | 6 | 9.50 | 5 |
| 5283 | D 277 | Niger | 83 | 296 | 3.0 | 69.0 | 23.0 | 6 | 8.90 | 5 |
| 5284 | D 278 | Niger | 78 | 258 | 14.3 | 30.0 | 16.6 | 5 | 4.45 | 10 |
| 5285 | D 279 | Niger | 76 | 140 | 1.0 | 35.0 | 14.0 | 6 | 10.50 | 5 |
| 5289 | D 287 | Niger | 84 | 278 | 1.0 | 74.0 | 26.0 | 5 | 9.65 | 10 |
| 5303 | SAMARU 757 | Niger | 81 | 281 | 1.4 | 41.0 | 23.4 | 6 | 8.00 | 10 |
| 5305 | SAMARU 772 | Niger | 79 | 269 | 1.4 | 52.8 | 24.0 | 7 | 8.30 | 10 |
| 5306 | INTER VAR.COMP. | Niger | 64 | 260 | 1.0 | 48.0 | 28.0 | 6 | 11.95 | 10 |
| 5465 | P 2758 | Niger | 72 | 230 | 1.4 | 51.6 | 19.5 | 5 | 8.95 | 5 |
| 5489 | P 2784 | Niger | 68 | 271 | 1.2 | 71.8 | 29.7 | 5 | 9.45 | 5 |
| 5647 | P 2944 | Niger | 79 | 268 | 1.0 | 44.6 | 19.6 | 7 | 10.32 | 10 |
| 5672 | P 2970 | Niger | 76 | 298 | 1.0 | 70.0 | 18.9 | 7 | 9.38 | 0 |
| 5682 | P 2980 | Niger | 96 | 300 | 1.0 | 55.0 | 22.0 | 7 | 9.81 | 5 |
| 5686 | P 2985 | Niger | 76 | 267 | 1.0 | 48.6 | 19.6 | 7 | 8.63 | 10 |
| 5722 | 45-365 | Nigeria | 74 | 288 | 1.0 | 72.0 | 25.0 | 6 | 7.00 | 5 |
| 5755 | 45-416 | Nigeria | 74 | 269 | 1.0 | 33.0 | 26.0 | 4 | 7.87 | 5 |
| 5801 | SENEGAL 2 | Senegal | 83 | 100 | 4.2 | 34.5 | 22.2 | 6 | 6.89 | 5 |
| 5802 | SENEGAL 3 | Senegal | 83 | 245 | 3.6 | 24.2 | 27.2 | 6 | 7.50 | 5 |

*Continued....*

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Table 27. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | Rust (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 5932 | P 1539/Sl.309 | Senegal | 75 | 233 | 1.0 | 37.5 | 22.6 | 6 | 6.46 | 10 |
| 6053 | P 168 | Cent Afr Rep | 125 | 272 | 4.2 | 19.3 | 16.7 | 2 | 6.87 | 0 |
| 6108 | P 944 BIS | Niger | 50 | 182 | 4.0 | 15.0 | 22.9 | 4 | 9.89 | 10 |
| 6156 | P 52 | Cameroon | 116 | 226 | 1.6 | 24.0 | 16.3 | 2 | 8.76 | 0 |
| 6167 | P 63 | Cameroon | 90 | 288 | 1.2 | 22.0 | 19.2 | 5 | 7.69 | 10 |
| 6213 | P 112 | Cameroon | 116 | 133 | 2.2 | 16.6 | 18.1 | 2 | 10.33 | 10 |
| 6215 | P 115 | Cameroon | 112 | 152 | 2.4 | 13.7 | 17.9 | 6 | 8.88 | 10 |
| 6226 | P 126 | Cameroon | 116 | 205 | 1.4 | 12.8 | 19.1 | 2 | 7.70 | 5 |
| 6230 | P 130 | Cameroon | 120 | 191 | 1.5 | 15.0 | 19.4 | 6 | 6.41 | 5 |
| 6236 | P 136 | Cameroon | 118 | 273 | 3.2 | 23.2 | 19.7 | 4 | 6.20 | 5 |
| 6244 | P 144 | Cameroon | 62 | 132 | 1.0 | 21.2 | 18.4 | 6 | 6.70 | 5 |
| 6458 | P 479 | Mali | 67 | 232 | 1.8 | 21.8 | 34.8 | 4 | 8.88 | 5 |
| 6472 | P 500 | Mali | 59 | 216 | 1.8 | 21.2 | 30.2 | 6 | 9.88 | 5 |
| 6578 | SAOUGA LOCAL 7 | Burkina Faso | 71 | 230 | 1.0 | 40.0 | 23.0 | 7 | 8.45 | 0 |
| 6587 | SAD 25 | Malawi | 63 | 259 | 2.0 | 26.4 | 26.0 | 6 | 5.68 | 5 |
| 6607 | SAD 63 | Malawi | 65 | 281 | 3.0 | 26.8 | 22.0 | 5 | 7.02 | 10 |
| 6638 | SAD 123 | Malawi | 65 | 256 | 2.0 | 25.6 | 18.6 | 5 | 6.56 | 5 |
| 6668 | SAD 216 | Malawi | 64 | 255 | 3.0 | 24.0 | 21.6 | 5 | 6.64 | 5 |
| 6677 | SAD 228 | Malawi | 63 | 253 | 2.0 | 26.4 | 22.6 | 6 | 7.20 | 5 |
| 6682 | SAD 236 | Malawi | 61 | 257 | 3.0 | 31.2 | 22.6 | 6 | 6.99 | 5 |
| 6694 | SAD 252 | Malawi | 63 | 243 | 2.0 | 26.2 | 19.4 | 6 | 6.29 | 5 |
| 6706 | SAD 277 | Malawi | 65 | 282 | 3.0 | 27.0 | 20.0 | 5 | 6.46 | 5 |
| 6723 | SAD 315 | Malawi | 64 | 240 | 3.5 | 33.0 | 27.0 | 6 | 6.55 | 10 |
| 6730 | SAD 328 | Malawi | 59 | 264 | 2.0 | 27.4 | 25.2 | 6 | 7.22 | 5 |
| 6770 | SAD 477 | Malawi | 56 | 231 | 3.0 | 22.4 | 23.8 | 7 | 7.00 | 5 |
| 6788 | SAD 670 | Malawi | 58 | 262 | 2.0 | 27.0 | 23.0 | 6 | 5.66 | 10 |
| 6792 | SAD 707 | Malawi | 63 | 252 | 3.0 | 28.0 | 23.4 | 5 | 5.26 | 0 |
| 6800 | SAD 744 | Malawi | 108 | 235 | 3.0 | 16.0 | 17.5 | 5 | 3.66 | 5 |
| 6823 | SAD 995 | Malawi | 63 | 261 | 4.0 | 26.4 | 20.6 | 5 | 7.54 | 8 |
| 6847 | SAD 1092 | Malawi | 63 | 146 | 2.0 | 20.6 | 16.2 | 6 | 6.34 | 10 |
| 6879 | ACC 120 | Kenya | 80 | 292 | 5.8 | 26.3 | 27.2 | 4 | 6.39 | 5 |
| 7324 | SAR 2552 | India | 69 | 244 | 2.0 | 23.4 | 25.4 | 4 | 7.15 | 0 |
| 7359 | CER 3 | Tanzania | 123 | 264 | 1.0 | 33.4 | 22.0 | 4 | 5.26 | 0 |
| 8026 | ZM 753-1 | Zambia | 68 | 250 | 2.0 | 35.0 | 22.0 | 6 | 6.00 | 5 |
| 8503 | D 248C-1 | Niger | 72 | 250 | 2.0 | 25.0 | 22.0 | 4 | 12.50 | 0 |
| 8518 | ABM 5 | India | 74 | 262 | 2.0 | 15.6 | 20.2 | 4 | 5.46 | 0 |
| 8519 | ABM 6 | India | 75 | 267 | 3.8 | 22.4 | 22.0 | 4 | 5.55 | 5 |
| 8521 | ABM 9 | India | 77 | 243 | 5.0 | 18.2 | 22.0 | 6 | 6.29 | 0 |
| 8523 | ABM 13 | India | 70 | 263 | 6.0 | 16.0 | 18.8 | 6 | 6.91 | 5 |
| 8524 | ABM 14 | India | 76 | 268 | 2.8 | 20.4 | 20.4 | 6 | 7.28 | 0 |
| 8525 | ABM 16 | India | 76 | 291 | 3.2 | 20.6 | 22.8 | 6 | 6.65 | 0 |
| 8526 | ABM 17 | India | 69 | 280 | 2.8 | 15.0 | 25.0 | 4 | 5.66 | 0 |
| 8527 | ABM 18 | India | 68 | 310 | 3.8 | 16.0 | 18.0 | 6 | 7.47 | 5 |
| 8537 | ABM 34 | India | 75 | 280 | 5.6 | 16.0 | 24.0 | 4 | 7.07 | 5 |
| 8538 | ABM 35 | India | 75 | 290 | 5.0 | 15.0 | 19.0 | 4 | 5.36 | 0 |
| 8542 | ABM 39 | India | 78 | 315 | 4.6 | 23.0 | 20.0 | 4 | 6.75 | 0 |
| 8544 | ABM 43 | India | 79 | 285 | 4.0 | 20.0 | 27.0 | 4 | 8.36 | 0 |
| 8545 | ABM 44 | India | 79 | 300 | 4.4 | 20.0 | 22.0 | 4 | 7.09 | 0 |
| 8546 | ABM 45 | India | 77 | 295 | 4.8 | 25.0 | 29.0 | 6 | 7.11 | 0 |
| 8548 | ABM 48 | India | 85 | 345 | 4.2 | 22.0 | 21.0 | 4 | 6.14 | 0 |
| 8549 | ABM 51 | India | 84 | 395 | 4.0 | 20.0 | 21.0 | 4 | 7.22 | 0 |
| 8550 | ABM 52 | India | 77 | 360 | 3.2 | 25.0 | 27.0 | 4 | 6.93 | 0 |

*Continued....*

Table 27. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | Rust (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8552 | ABM 56 | India | 76 | 360 | 2.6 | 23.0 | 23.0 | 6 | 7.41 | 0 |
| 8555 | AMB 60 | India | 85 | 310 | 4.8 | 23.0 | 25.0 | 4 | 6.21 | 10 |
| 8558 | AMB 64 | India | 85 | 360 | 4.0 | 20.0 | 25.5 | 6 | 9.59 | 0 |
| 8561 | ABM 68 | India | 69 | 395 | 4.6 | 20.0 | 26.0 | 4 | 7.89 | 0 |
| 8562 | ABM 69 | India | 83 | 380 | 4.2 | 28.0 | 27.0 | 6 | 7.10 | 0 |
| 8563 | ABM 71 | India | 68 | 320 | 4.8 | 20.0 | 25.0 | 6 | 7.49 | 10 |
| 8566 | AMB 74 | India | 70 | 300 | 5.2 | 18.0 | 25.0 | 6 | 7.02 | 5 |
| 8567 | AMB 75 | India | 70 | 325 | 4.2 | 23.0 | 26.0 | 6 | 6.96 | 5 |
| 8568 | AMB 76 | India | 71 | 310 | 3.8 | 20.0 | 19.0 | 6 | 7.13 | 10 |
| 8572 | ABM 82 | India | 78 | 310 | 3.2 | 18.0 | 21.0 | 6 | 6.28 | 0 |
| 8576 | ABM 88 | India | 76 | 300 | 4.8 | 23.0 | 22.0 | 6 | 5.07 | 10 |
| 8577 | ABM 89 | India | 76 | 320 | 3.2 | 20.0 | 22.0 | 6 | 6.78 | 0 |
| 8582 | ABM 97 | India | 72 | 315 | 4.2 | 14.0 | 25.0 | 6 | 7.36 | 0 |
| 8583 | ABM 98 | India | 69 | 315 | 2.6 | 18.0 | 24.0 | 6 | 6.78 | 0 |
| 8584 | AMB 99 | India | 68 | 300 | 5.0 | 16.0 | 22.0 | 6 | 6.38 | 0 |
| 8585 | ABM 100 | India | 50 | 300 | 3.0 | 15.0 | 20.0 | 6 | 6.80 | 5 |
| 8587 | ABM 102 | India | 64 | 290 | 8.6 | 18.0 | 24.0 | 6 | 5.65 | 0 |
| 8592 | ABM 109 | India | 57 | 170 | 5.0 | 27.0 | 21.0 | 6 | 8.89 | 0 |
| 8593 | ABM 110 | India | 63 | 250 | 7.4 | 15.0 | 23.0 | 6 | 9.63 | 5 |
| 8594 | ABM 111 | India | 56 | 180 | 3.0 | 30.0 | 25.0 | 6 | 7.36 | 0 |
| 8601 | ABM 120 | India | 62 | 210 | 6.8 | 26.0 | 24.0 | 6 | 6.92 | 5 |
| 8603 | ABM 122 | India | 56 | 200 | 3.6 | 22.0 | 21.0 | 6 | 9.65 | 0 |
| 8607 | ABM 127 | India | 56 | 220 | 7.0 | 17.0 | 24.0 | 5 | 8.51 | 0 |
| 8608 | ABM 128 | India | 55 | 180 | 5.2 | 25.0 | 23.0 | 6 | 9.28 | 0 |
| 8609 | ABM 129 | India | 61 | 210 | 3.2 | 22.0 | 21.0 | 6 | 8.37 | 0 |
| 8621 | PGI 41-1 | Sudan | 85 | 250 | 6.0 | 21.0 | 14.0 | 6 | 10.60 | 5 |
| 8631 | PGI 76-1 | Sudan | 93 | 250 | 13.0 | 23.0 | 22.0 | 6 | 10.92 | 5 |
| 8633 | PGI 77-1 | Sudan | 84 | 260 | 11.0 | 23.0 | 20.0 | 3 | 11.77 | 10 |
| 8636 | PIA 89-A-2 | Sudan | 93 | 250 | 10.0 | 19.0 | 16.0 | 3 | 8.90 | 5 |
| 8660 | PIA 177-2 | Sudan | 79 | 310 | 8.0 | 19.0 | 32.0 | 3 | 11.45 | 10 |
| 8672 | 30K | Sudan | 94 | 230 | 2.6 | 18.0 | 18.0 | 3 | 8.38 | 10 |
| 8677 | 35K | Sudan | 84 | 270 | 2.2 | 20.0 | 24.0 | 3 | 8.62 | 0 |
| 8678 | 36K | Sudan | 85 | 270 | 1.8 | 23.0 | 20.0 | 3 | 7.62 | 0 |
| 8679 | 37K-1 | Sudan | 91 | 250 | 1.4 | 17.0 | 22.0 | 3 | 9.09 | 0 |
| 8699 | 26KA DARFUR | Sudan | 92 | 300 | 3.2 | 15.0 | 14.0 | 4 | 9.01 | 5 |
| 8731 | 107 KA DARFUR | Sudan | 118 | 320 | 1.6 | 23.4 | 21.2 | 2 | 9.88 | 10 |
| 8769 | PM 61 | Botswana | 61 | 220 | 3.4 | 15.0 | 29.0 | 6 | 8.22 | 0 |
| 8780 | PMK 86 | Botswana | 74 | 230 | 3.6 | 17.0 | 28.0 | 4 | 5.67 | 0 |
| 8789 | PMK 140 | Botswana | 73 | 250 | 2.0 | 27.0 | 28.0 | 4 | 6.64 | 0 |
| 8795 | 4 BHR | Zimbabwe | 62 | 260 | 2.2 | 24.0 | 27.0 | 6 | 6.55 | 0 |
| 8797 | 10 BHR | Zimbabwe | 62 | 250 | 3.2 | 21.0 | 25.0 | 6 | 7.36 | 0 |
| 8800 | 15 BHR | Zimbabwe | 60 | 260 | 6.2 | 30.0 | 25.0 | 6 | 7.58 | 0 |
| 8801 | 17 BHR | Zimbabwe | 61 | 230 | 5.2 | 25.0 | 27.0 | 4 | 7.65 | 0 |
| 8804 | 27 BKT | Zimbabwe | 62 | 250 | 4.2 | 36.0 | 26.0 | 4 | 8.67 | 0 |
| 8808 | 6 FLB | Zimbabwe | 69 | 190 | 3.2 | 27.0 | 22.0 | 6 | 9.82 | 0 |
| 8809 | 34 GT | Zimbabwe | 58 | 210 | 5.0 | 26.0 | 18.0 | 4 | 5.93 | 5 |
| 8810 | 38 GT | Zimbabwe | 57 | 210 | 3.0 | 22.0 | 26.0 | 4 | 7.55 | 5 |
| 8815 | 3 GWL | Zimbabwe | 63 | 240 | 2.4 | 30.0 | 23.0 | 4 | 5.66 | 5 |
| 8816 | 1 CHL | Zimbabwe | 64 | 250 | 2.0 | 26.0 | 22.0 | 4 | 7.78 | 5 |
| 8819 | 2 MDZ | Zimbabwe | 66 | 260 | 4.0 | 34.0 | 34.0 | 4 | 7.91 | 0 |
| 8822 | 6 MDZ | Zimbabwe | 73 | 190 | 2.8 | 24.0 | 24.0 | 6 | 8.65 | 0 |
| 8825 | 15 MDZ | Zimbabwe | 75 | 250 | 2.0 | 32.0 | 36.0 | 6 | 9.02 | 0 |

*Continued....*

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Table 27. *Continued....*

| IP no. | Identity | Origin | Dtf[1] | Plht[2] | Til[3] | Splg[4] | Sptk[5] | Gc[6] | Grwt[7] | Rust (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| 8827 | 3 MT | Zimbabwe | 73 | 360 | 2.2 | 29.0 | 25.0 | 6 | 7.98 | 0 |
| 8831 | 10 MT | Zimbabwe | 68 | 250 | 3.6 | 24.0 | 24.0 | 4 | 8.17 | 0 |
| 8832 | 12 MT (YEMVERE) | Zimbabwe | 69 | 270 | 3.0 | 22.0 | 21.0 | 6 | 8.63 | 10 |
| 8835 | 6QQ | Zimbabwe | 60 | 250 | 2.4 | 24.0 | 31.0 | 4 | 8.00 | 10 |
| 8837 | 4WDZ | Zimbabwe | 76 | 240 | 3.8 | 29.0 | 20.0 | 4 | 6.65 | 10 |
| 8844 | 28 FTV | Zimbabwe | 67 | 230 | 6.2 | 27.0 | 25.0 | 4 | 7.86 | 0 |
| 8873 | 73/174 | South Africa | 48 | 170 | 8.0 | 26.0 | 29.0 | 4 | 7.90 | 10 |
| 8959 | P 3283 PL-84 | Togo | 53 | 230 | 2.5 | 22.0 | 34.0 | 5 | 12.88 | 0 |
| 8975 | D 332/1/2 | Niger | 69 | 230 | 3.5 | 22.0 | 23.0 | 6 | 8.50 | 0 |
| 8999 | P 94/1/2 | Nigeria | 72 | 220 | 1.0 | 20.0 | 17.0 | 6 | 8.67 | 0 |
| 9000 | P3KOLO P 1/1/1 | Niger | 72 | 290 | 4.0 | 25.0 | 17.0 | 6 | 8.38 | 0 |
| 9013 | 3/4 HK P-15 1/2 | Nigeria | 58 | 155 | 1.0 | 35.0 | 23.0 | 5 | 9.44 | 10 |
| 9363 | DSA 29-1-1 | Ghana | 44 | 210 | 2.0 | 17.0 | 31.0 | 4 | 12.64 | 10 |
| 9377 | DSA 39-1 | Ghana | 47 | 190 | 3.0 | 18.0 | 30.0 | 5 | 14.88 | 5 |
| 9393 | DSA 46-1 | Ghana | 47 | 220 | 2.0 | 20.0 | 32.0 | 5 | 13.11 | 5 |
| 9402 | DSA 51 | Ghana | 44 | 200 | 2.0 | 18.0 | 32.0 | 5 | 15.50 | 10 |
| 9411 | DSA 59-1 | Ghana | 45 | 230 | 1.1 | 15.0 | 30.0 | 5 | 12.15 | 10 |
| 9457 | DSA 76-1 | Ghana | 48 | 225 | 2.0 | 28.0 | 35.0 | 4 | 9.33 | 10 |
| 9526 | DSA 139-1 | Ghana | 42 | 210 | 2.0 | 12.0 | 30.0 | 5 | 11.40 | 10 |
| 9529 | DSA 143 | Ghana | 41 | 190 | 3.0 | 15.0 | 28.0 | 5 | 11.50 | 10 |
| 9560 | DSA 175 | Ghana | 47 | 210 | 3.0 | 18.0 | 32.0 | 4 | 14.06 | 10 |

1. Dtf: Days to 50% flowering, 2. Plht: Plant height (cm), 3. Til: Number of tillers, 4. Splg: Spike length (cm), 5. Sptk: Spike thickness (cm), 6. Gc: Grain color (1 = Ivory, 2 = Cream, 3 = Yellow, 4 = Gray, 5 = Deep gray, 6 = Gray brown, 7 = Brown, 8 = Purple, 9 = Purplish black, 10 = Mixture of white and gray grains). 7. Grwt: 1000-grain mass (g).

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Table 28. Normal flowering accessions of pearl millet that developed >10% rust in field nurseries, ICRISAT Asia Center, 1976–88.

| IP no. | Identity | Origin | Rust (%) | IP no. | Identity | Origin | Rust (%) | IP no. | Identity | Origin | Rust (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3108 | SAR 095 | India | 20 | 4932 | KG 10 | Nigeria | 40 | 5794 | WJR 10/30683 | Former USSR | 40 |
| 3123 | SAR 117 | India | 25 | 4933 | KG 22 | Nigeria | 25 | 5796 | WJR 15/108897 | Former USSR | 25 |
| 3166 | SAR 170 | India | 40 | 4934 | KG 40 | Nigeria | 25 | 5797 | WJR 16/119989 | Former USSR | 25 |
| 3277 | SAR 294 | India | 65 | 4943 | SERERE 31 | Uganda | 25 | 5798 | WRJ 20/135208 | Former USSR | 40 |
| 3314 | SAR 338 | India | 65 | 4948 | SERERE 37 | Uganda | 25 | 6094 | P 923 | Niger | 65 |
| 3316 | SAR 340 | India | 65 | 4950 | SERERE 39 | Uganda | 40 | 6096 | P 924 (BIS) | Niger | 40 |
| 3370 | SAR 402 | India | 65 | 4957 | SERERE 46 | Uganda | 40 | 6098 | P 927 | Niger | 65 |
| 3593 | SAR 856 | India | 25 | 4959 | SERERE 48 | Uganda | 25 | 6099 | P 932 | Niger | 40 |
| 3854 | SAR 1249 | India | 25 | 4960 | SERERE 49 (DWARF) | Uganda | 40 | 6100 | P 933 | Niger | 65 |
| 3859 | SAR 1254 | India | 40 | 4961 | SERERE 49 (TALL) | Uganda | 65 | 6101 | P 936 | Niger | 40 |
| 4088 | SAR 1509 | India | 25 | 4965 | SERERE 53 | Uganda | 25 | 6103 | P 939 | Niger | 25 |
| 4382 | SAR 1805 | India | 25 | 4968 | SC 2(M) | Uganda | 25 | 6104 | P 940 | Niger | 25 |
| 4706 | ACC 125 | India | 40 | 4973 | 700043 | Nigeria | 40 | 6105 | P 942 | Niger | 25 |
| 4777 | MURADABAD 2 | India | 40 | 4976 | 700142 | Nigeria | 65 | 6106 | P 943 | Niger | 40 |
| 4790 | MURADABAD 19 | India | 65 | 5040 | 700522 | Nigeria | 40 | 6110 | P 946 | Niger | 40 |
| 4815 | BADAUN 14 | India | 65 | 5072 | 700620 | Nigeria | 40 | 6111 | P 947 | Niger | 65 |
| 4836 | NEP 10-5608-1 | Lebanon | 25 | 5158 | D 284 | Niger | 25 | 6250 | P 150 | Cameroon | 25 |
| 4838 | NEP 11-5004-1 | Lebanon | 25 | 5197 | D 83 | Niger | 25 | 6279 | P 250 | Mali | 100 |
| 4839 | NEP 13-5007-2 | Lebanon | 40 | 5220 | D 137 | Niger | 25 | 6281 | P 252 | Mali | 40 |
| 4840 | NEP 13-5613-1 | Lebanon | 25 | 5221 | D 139 | Niger | 25 | 6321 | P 301 | Mali | 40 |
| 4841 | NEP 13-5613-2 | Lebanon | 25 | 5222 | D 140 | Niger | 25 | 6332 | P 320 | Mali | 100 |
| 4843 | NEP 13-5615 | Lebanon | 40 | 5223 | D 143 | Niger | 25 | 6335 | P 324 | Mali | 65 |
| 4844 | NEP 18-5008 | Lebanon | 25 | 5224 | D 144 | Niger | 25 | 6678 | SAD 229 | Malawi | 25 |
| 4845 | NEP 18-5011-1 | Lebanon | 25 | 5229 | D 155 | Niger | 25 | 6722 | SAD 314 | Malawi | 25 |
| 4847 | NEP 18-5011-3 | Lebanon | 25 | 5230 | D 156 | Niger | 25 | 6745 | SAD 403 | Malawi | 25 |

*Continued...*

Table 28. *Continued....*

| IP no. | Identity | Origin | Rust (%) | IP no. | Identity | Origin | Rust (%) | IP no. | Identity | Origin | Rust (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4850 | NEP 18-5020 | Lebanon | 25 | 5231 | D 157 | Niger | 25 | 6756 | SAD 417 | Malawi | 25 |
| 4851 | NEP 18-5023-1 | Lebanon | 25 | 5232 | D 160 | Niger | 25 | 6759 | SAD 422 | Malawi | 40 |
| 4854 | NEP 18-5033 | Lebanon | 25 | 5233 | D 165 | Niger | 25 | 6766 | SAD 454 | Malawi | 25 |
| 4855 | NEP 18-5035-1 | Lebanon | 25 | 5234 | D 166 | Niger | 40 | 6768 | SAD 469 | Malawi | 40 |
| 4856 | NEP 18-5037 | Lebanon | 25 | 5254 | D 205 | Niger | 25 | 6773 | SAD 483 | Malawi | 25 |
| 4857 | NEP 18-5040 | Lebanon | 25 | 5259 | D 217 | Niger | 25 | 6781 | SAD 606 | Malawi | 25 |
| 4858 | NEP 18-5618 | Lebanon | 25 | 5261 | D 222 | Niger | 25 | 6787 | SAD 666 | Malawi | 25 |
| 4859 | NEP 18-5620-1 | Lebanon | 25 | 5262 | D 224 | Niger | 25 | 6848 | SAD 1097 | Malawi | 25 |
| 4860 | NEP 18-5620-2 | Lebanon | 25 | 5263 | D 225 | Niger | 25 | 6852 | ACC 077 | Kenya | 25 |
| 4863 | NEP 18-5626-1 | Lebanon | 40 | 5265 | D 228 | Niger | 45 | 6853 | ACC 078 | Kenya | 40 |
| 4867 | NEP 18-5632-1 | Lebanon | 25 | 5266 | D 237 | Niger | 40 | 6854 | ACC 079 | Kenya | 40 |
| 4871 | NEP 18-5638-1 | Lebanon | 25 | 5267 | D 241 | Niger | 25 | 6856 | ACC 081 | Kenya | 65 |
| 4872 | NEP 18-5638-2 | Lebanon | 25 | 5270 | D 246 | Niger | 25 | 6857 | ACC 082 | Kenya | 40 |
| 4874 | NEP 18-5641-2 | Lebanon | 25 | 5272 | D 258 | Niger | 25 | 6858 | ACC 083 | Kenya | 40 |
| 4875 | NEP 18-5642 | Lebanon | 25 | 5273 | D 261 | Niger | 33 | 6859 | ACC 084 | Kenya | 40 |
| 4876 | NEP 18-5644 | Lebanon | 40 | 5274 | D 262 | Niger | 23 | 6860 | ACC 085 | Kenya | 25 |
| 4877 | NEP 18-5645 | Lebanon | 25 | 5275 | D 265 | Niger | 25 | 6861 | ACC 086 | Kenya | 100 |
| 4881 | NEP 18-5656 | Lebanon | 25 | 5276 | D 266 | Niger | 33 | 6863 | ACC 090 | Kenya | 100 |
| 4882 | NEP 18-5657 | Lebanon | 25 | 5277 | D 267 | Niger | 40 | 6864 | ACC 092 | Kenya | 65 |
| 4885 | NEP 18-5663-1 | Lebanon | 25 | 5278 | D 272 | Niger | 40 | 6865 | ACC 093 | Kenya | 65 |
| 4887 | NEP 67-5043 | Lebanon | 25 | 5279 | D 273 | Niger | 25 | 6869 | ACC 106 | Kenya | 40 |
| 4888 | NEP 67-5668 | Lebanon | 40 | 5282 | D 276 | Niger | 25 | 6875 | ACC 116 | Kenya | 25 |
| 4889 | NEP 69-5045 | Lebanon | 25 | 5286 | D 280 | Niger | 40 | 6878 | ACC 119 | Kenya | 25 |
| 4892 | NEP 104-5051-2 | Lebanon | 25 | 5287 | D 281 | Niger | 25 | 6885 | ACC 131 | Kenya | 25 |
| 4893 | NEP 104-5055 | Lebanon | 25 | 5288 | D 285 | Niger | 25 | 6889 | ACC 139 | Kenya | 25 |
| 4897 | NEP 218-5059 | Lebanon | 25 | 5290 | D 288 | Niger | 25 | 6890 | ACC 143 | Kenya | 65 |
| 4899 | NEP 218-5061-2 | Lebanon | 25 | 5291 | D 290 | Niger | 25 | 6892 | ACC 147 | Kenya | 40 |
| 4904 | NEP 310-5682 | Lebanon | 40 | 5292 | D 293 | Niger | 25 | 6895 | ACC 164 | Kenya | 40 |
| 4905 | NEP 310-5685-1 | Lebanon | 25 | 5304 | SAMARU 789 | Niger | 25 | 6915 | SAR 2056 | India | 25 |
| 4907 | NEP 384-5689-1 | Lebanon | 40 | 5316 | P 2586 | Niger | 25 | 6940 | SAR 2094 | India | 25 |
| 4910 | NEP 814-5691 | Lebanon | 25 | 5473 | P 2766 | Niger | 40 | 6948 | SAR 2108 | India | 25 |

*Continued...*

Table 28. *Continued....*

| IP no. | Identity | Origin | Rust (%) | IP no. | Identity | Origin | Rust (%) | IP no. | Identity | Origin | Rust (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4911 | NEP 1017-5072 | Lebanon | 25 | 5568 | P 2864 | Niger | 65 | 7461 | MPR 94 | Tanzania | 25 |
| 4914 | DR.CASSADY DWARF | Uganda | 13 | 5658 | P 2955 | Niger | 25 | 8036 | DSA 69-1-1 | Ghana | 25 |
| 4924 | NGA WORLD COMP. | Nigeria | 25 | 5666 | P 2964 | Niger | 25 | 8599 | ABM 118 | India | 25 |
| 4926 | MAIWA COMPOSITE | Nigeria | 25 | 5746 | 45 403 | Nigeria | 25 | 8843 | 26 FTV | Zimbabwe | 25 |
| 4927 | SOUNA D2 | Senegal | 25 | 5790 | 23DB Tr Tr | USA | 22 | 9406 | DSA 55-1 | Ghana | 40 |
| 4928 | N 6 | Nigeria | 25 | 5791 | 23B Tr Tr | USA | 25 | 9477 | DSA 79-1 | Ghana | 40 |
| 4929 | B 5 | Nigeria | 25 | 5793 | WJR 8/28530 | Former USSR | 40 | 9552 | DSA 164-1 | Ghana | 25 |
| 4930 | KG 3 | Nigeria | 40 | | | | | | | | |

**Table 29. Reported sources of resistance to pearl millet rust.**

| Sources | Origin | Identified at (location) | Specific comments | Reference |
|---|---|---|---|---|
| BF 154, T 5,T 50 Arbhavi, L.K. Sholapur | India | India | Isolate- specific resistance | Basu Chaudhary and Sinha 1955 |
| PT 826/4, PT 829/5 | India | Tamil Nadu | Field test | Suresh 1969 |
| PT 814/3 | India | Tamil Nadu | Field test | Ramakrishnan and Sundaram 1956 |
| Babapuri, Ballia, CO 53/1, Hursena, L 11 etc. (12) | India | - | Isolate-specific resistance | Kapooria 1978 |
| PT 3832 | India | Tamil Nadu | - | Govindarajan et al. 1984 |
| IP 5956 IP 5030 | Senegal/ Nigeria | IAC | Dominant/complementary genes | Sokhi et al. 1987a |
| 105 A | India | India | Isolate-specific/ non-specific resistance | Sokhi et al. 1987b |
| 101 A | India | India | | |
| 842 A | USA | IAC | | |
| 843 A | USA | IAC | | |
| 700481-23-14 | Nigeria/IAC | IAC | Field tests | Singh and Sokhi 1988 |
| 780481-21-8 | Nigeria/IAC | IAC | Slow rusting mechanisms | Wilson 1994 |
| ICMP 501 | IAC | IAC | | |
| Tift 383 | USA | USA | | |
| ICML 17 | Nigeria | IAC | Field tests | Singh et al. 1990 |
| ICML 18 | USA | IAC | | |
| ICML 19 | Mali | IAC | | |
| ICML 20 | India | IAC | | |
| ICML 21 | Cameroon | IAC | | |
| ICML 11 | Chad/IAC | IAC | Hypersensitive reaction | Singh et al. 1987 |
| Tift $85D_2A_1$ | USA | USA | | |
| Tift $85D_2B_1$ | USA | USA | $Rr_1$ gene from *P. glaucum* subsp. *monodii* race specific, hypersensitive | Hanna et al. 1987 |
| Tift $89D_2$ | Senegal | USA | Resistance from 'Se Fa' derived from SeFa (Senegal) | Hanna and Wells 1993 |
| Tift 3 and Tift 4 | Burkina Faso | USA | Greenhouse test | Wilson and Burton 1991 |
| Tift 90 DBE | USA | USA | $Rr_1$, became susceptible in USA in 1992 | Hanna 1993 |
| Tift 65 | USA | USA | – | Burton and Wilson 1995 |

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**Table 30. Co-operators in the International Pearl Millet Rust Nursey (IPMRN) in India.**

| Name | Location |
|---|---|
| Chahal, S.S. and, Sokhi, S.S. | Ludhiana |
| Thakur, D.P. | Hisar |
| Govind Singh | Durgapura |
| Singh, S.D., Navi,S.S., Rai, K.N., Talukdar, B.S. King, S.B. and, Williams, R.J. | Bhavanisagar |
| Patil, B.P., Patil, S.D., Patil, B.D., Patil, B.S., Rane, M.S. Patil, G.K., and Jadhav, Y.S. | Pune |
| Pawar, N.B. and, Ghughe, S.S. | Aurangabad |
| Singh, S.D., Navi, S.S., King, S.B., and Reddy, P.M., King, S.B. and, Williams, R.J. | IAC |
| Safeeulla, K.M., Shetty, H.S., and Prakash, S.H. | Mysore |
| Channamma, Lucy. | Bangalore |
| Muthuswamy, S. | Kudukottai |
| Padmanbham, D., and, Muthuswamy, S. | Kukdumiamalai |
| Aaron, D.S., Jagannatham, R., Iyemperumal, S., Sethuraman, V., Mathur, A.S., and, Rajamannar, M. | Kovilpatti |

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**Table 31. Rust reaction of 17 rust resistant entries and susceptible check in 3-12 years (1977–88) of multilocational[1] tests in India.**

| | | Mean rust severity (%) by year | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Entry | Origin | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 |
| 700481-21-8 | Nigeria | 7(0-25)[2] | 11(0-30) | 4(0-8) | 4(1-9) | 4(0-11) | 2(0-5) | 5(0-11) | 5(1-10) | 1(0-4) | 3(0-9) | 3(0-7) | 0(0) |
| 700481-22-8 | Nigeria | 8(0-25) | 6(0-26) | 2(0-26) | 13(2-46) | 5(0-15) | 4(0-12) | 5(1-14) | 10(1-29) | - | 14(4-22) | | |
| 700481-23-2 | Nigeria | 7(0-25) | 5(0-20) | 6(0-8) | 12(1-26) | 6(0-20) | 5(2-7) | 9(0-31) | 5(0-14) | 7(1-20) | 28(13-40) | 17(4-9) | 4(0-10) |
| IP 537-8[3] | USA | 0 | 7(0-36) | 3(0-8) | 9(1-25) | 6(0-17) | 11(0-25) | -[4] | - | - | 16(3-45) | - | - |
| IP 2084-1 | India | - | - | - | 7(5-10) | 6(0-16) | 6(1-11) | 3(1-7) | 6(0-15) | 9(4-24) | 6(1-12) | 4(0-7) | 5(0-6) |
| P24 | Cameroon | - | - | - | 16(5-36) | 6(0-15) | 10(1-36) | 8(5-18) | 9(0-27) | 1(0-5) | - | - | - |
| D 212 P1 | Niger | - | - | - | 10(1-21) | 6(0-25) | 11(0-30) | - | 2(1-13) | - | 35(13-53) | - | - |
| P 140 | Cameroon | - | - | - | - | - | - | 6(0-12) | 3(2-9) | 45(26-71) | 8(2-17) | - | - |
| P 615 | Mali | - | - | - | - | - | - | 8(1-16) | 7(1-13) | 39(11-75) | 25(7-49) | - | - |
| P 1564 | Senegal | - | - | - | - | - | - | 3(<1-8) | <1(0-1) | 41(6-76) | 8(0-22) | 13(3-26) | 5(0-8) |
| P 1577 | Senegal | - | - | - | - | - | - | 3(<1-7) | 5(1-20) | 26(1-84) | 17(4-30) | - | - |
| P 1581 | Senegal | - | - | - | - | - | - | 1(0-5) | 1(0-5) | 38(22-54) | 32(17-69) | - | - |
| P 1591 | Senegal | - | - | - | - | - | - | 2(0-5) | 2(0-7) | 34(9-74) | 23(10-39) | 32(17-49) | 8(0-17) |
| P 2890 | Niger | - | - | - | - | - | - | 4(1-9) | 8(0-33) | 18(5-36) | 12(2-26) | - | - |
| 7042-1-4-4 | Chad | - | - | - | - | - | - | - | 1(0-2) | 1(0-4) | 1(0-5) | 8(0-27) | 0(0) |
| IP 8695-4 | Sudan | - | - | - | - | - | - | - | 11(1-24) | 1(0-2) | 11(4-27) | 10(1-22) | 3(0-6) |
| IP 548 | Mali | - | - | - | - | - | - | - | 3(0-13) | 10(1-19) | 12(1-33) | 2(0-5) | 2(0-5) |
| HB 3 (Susceptible control) | 51(10-100) | 42(12-79) | (34(2-59) | 31(12-57) | 26(13-53) | 34(19-56) | 40(20-95) | 41(13-72) | 81(56-100) | 48(31-62) | 52(34-68) | 24(6-44) | |

1. Location: Aurangabad, Bangalore, Bhavanisagar, Coimbatore, Durgapur, Hisar, ICRISAT Asia Center, Kovilpatti, Kudumiamalai, Ludhiana, Mysore, and Pune; 4-7 locatins each year.
2. Figures in parentheses are severity ranges.
3. This entry was tested only at Hyderabad and Bhavanisagar during the year 1977.
4. Not tested.

# Appendix II

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# Appendix III

# Agreement on ICRISAT Germplasm Exchange

ICRISAT signed an agreement with the United Nations Food and Agriculture Organization (FAO) on 26 Oct 1994, placing germplasm collections maintained by ICRISAT under the auspices of the FAO, as part of the International Network of *ex situ* collections provided for in Article 7 of the International Undertaking on Plant Genetic Resources, to be held in trust by ICRISAT. The materials covered by the Agreement are listed as 'designated germplasm'.

ICRISAT has traditionally adhered to a policy of unrestricted availability of germplasm held in its genebanks. In the interest of keeping this material available for future research and utilization, ICRISAT has undertaken, under Article 3(b) of the Agreement with FAO, not to claim legal ownership over 'designated germplasm', or to seek any intellectual property rights over that germplasm or related information. To ensure continued free availability of that germplasm, ICRISAT has also agreed to pass on these obligations to all future recipients of 'designated germplasm'.

Accordingly, no 'designated germplasm' will be released in future unless the recipient signs a Standard Germplasm Order Form reproduced overleaf.

Rules for future exchange of germplasm for food and agriculture are currently being debated in the FAO Commission on Plant Genetic Resources in coordination with the Conference of the Parties to the Convention on Biological Diversity. ICRISAT and the Consultative Group on International Agricultural Research (CGIAR) are actively participating in this debate to ensure that any future regime will facilitate exchange and utilization of this precious global resource, and the fair and equitable sharing of the benefits derived from the commercial or other utilization of the germplasm.

ICRISAT

# Standard Germplasm Order Form

I/we order the following material:

Insofar as this material is "designated germplasm" under the 26 Oct 1994 Agreement between ICRISAT and the Food and Agriculture Organization of the United Nations (FAO) placing collections of plant germplasm under the auspices of FAO[1],

I/we agree

- not to claim ownership over the material received, nor to seek intellectual property rights over that germplasm or related information.
- to ensure that any subsequent person or institution to whom I/we make samples of the germplasm available, is bound by the same provision.

Place and date _____

Name of person or institution requesting the germplasm _____

Address _____

_____

Shipping address (if different from the above) _____

_____

Authorized signature _____

1. "Designated germplasm" will be indicated by an asterisk (*) on the Shipment Notice.

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