PN-AAQ 217

ISN 34902

931-0614

RELATIONSHIP of CLIMATE and SOIL CHARACTERISTICS to GEOGRAPHICAL DISTRIBUTION of *MELOIDOGYNE* SPECIES in AGRICULTURAL SOILS

A.L. Taylor, *Consultant Nematologist*
J.N. Sasser, *Principal Investigator*
L.A. Nelson. *Statistician*

INTERNATIONAL MELOIDOGYNE PROJECT
IMP
Contract No. AID/ta-c-1234

A Cooperative Publication Of The Department Of Plant Pathology, North Carolina State University and the United States Agency For International Development

Raleigh, North Carolina, U.S.A.
1982

Designed and Printed by
North Carolina State University Graphics
Raleigh, North Carolina 27650
United States of America

For information on the availability of
this publication, write to
Dr. J.N. Sasser, Department of Plant Pathology
North Carolina State University
Raleigh, N.C. 27650, U.S.A.

PREFACE

The International *Meloidogyne* Project (IMP) is financed by the United States Agency for International Development contract ta-c-1234, and managed by the Department of Plant Pathology, North Carolina State University. Although the IMP is still collecting data, the information that has been accumulated thus far is being published at this time as an interim report primarily for the benefit of cooperators within the project. Since the work of the project is ongoing, few statistical analyses have been undertaken and few conclusions drawn at this point. However, the raw data presented here are intended to give cooperators insight into possible relationships between various ecological factors and the geographic distribution of *Meloidogyne* species. The tables of Ecological Data by Country in the Appendix permit the reader to obtain an accurate idea of the species of *Meloidogyne* occurring in agricultural soils of a large number of the tropical and subtropical countries of the world.

Additional cooperators for the project are desired. Interested persons are requested to write to Dr. J.N. Sasser, Principal Investigator, at the address given on the preceding page. They will receive instructions for collecting samples as well as containers and quarantine permits for mailing.

Several persons deserve recognition for their contributions to this publication. Over the past several years, Evelyn Wilson has been indispensible to this project for her advice and assistance concerning the use of the Statistical Analysis System (SAS). The chromosome counts which appear in the appendix have been provided through the courtesy of Dr. A.C. Triantaphyllou. The editing and proofreading of the text by Cathy Carter is also gratefully acknowledged.

TABLE OF CONTENTS

	Page
Preface	iii
Abstract	1
Introduction	1
Materials & Methods	2
Discussion & Results	3
Conclusions	14
References	15
Appendix: Ecological Data by Country	17
Argentina	18
Australia	20
Bangladesh	20
Belize	20
Bermuda	20
Bolivia	20
Brazil	20
Canada	24
Canary Islands (Spain)	24
Chile	24
China	24
Colombia	26
Costa Rica	26
Cyprus	26
Ecuador	28
Egypt	28
El Salvador	30
Fiji Islands	30
Ghana	32
Greece	34
Guadaloupe (France)	34
India	34
Indonesia	36
Iran	38
Iraq	38
Italy	38
Ivory Coast	38
Jamaica	40
Japan	40
Jordan	42
Kenya	42
Liberia	42
Libya	42
Malawi	42
Malaysia	44
Mexico	44
Morocco	44
Nepal	44
Netherlands	44
Nigeria	46

Previous Page Blank

Pakistan 48
Panama 48
Peru 50
Philippines 50
Portugal 52
Puerto Rico 52
Saudi Arabia 52
Senegal 54
South Korea 54
Sri Lanka 54
Sudan 56
Surinam 56
Syria 56
Taiwan 56
Tanzania 58
Thailand 58
Trinidad and Tobago 58
Turkey 60
United States 60
Uruguay 62
Venezuela 64
Yemen 64
Zaire 64
Zimbabwe 64

Relationship of Climate and Soil Characteristics to Geographical Distribution of *Meloidogyne* Species in Agricultural Soils

ABSTRACT

Approximately 50 species of root-knot nematodes have been described. However, about 99% of the populations collected and identified by the IMP from cultivated crops around the world are represented by only 4 species: *Meloidogyne incognita, M. javanica, M. arenaria,* and *M. hapla.* The first two species are widely distributed in tropical, subtropical, and warm temperate climates. Though less common, *M. arenaria* possesses similar temperature requirements. All three of these species occur in areas with an average temperature of 36°C or lower in the warmest month. *M. hapla,* however, occurs in areas with an average temperature of as low as -15°C during the coldest month, but is limited to areas with an average temperature of less than 27°C during the warmest month. About 42% of the *M. javanica* populations and 17% of the *M. incognita* populations were collected from areas with an annual precipitation of 500 mm or less. Also, a positive correlation between high soil pH and the occurrence of *M. incognita* and *M. javanica* reflects the prevalence of these two species in dry climates since areas with low rainfall tend to have a higher soil pH. Very few *Meloidogyne* populations were collected from soils with more than 40% clay or more than 50% silt because these small particles reduce soil pore space and, therefore, limit nematode dispersal through the soil.

INTRODUCTION

Data from countries located in all continents of the world and in numerous oceanic islands have been included in this survey (Table 1). The climates represented are mostly tropical, subtropical, or warm temperate; a few samples represent cool temperate climates. It should be kept in mind, therefore, that conclusions based on these data may not have true world-wide significance. For example, *Meloidogyne* species, such as *M. hapla,* which are adapted to cool climates are not adequately represented. Also a widespread survey such as this lessens the importance of more host

Table 1. Alphabetical list of countries participating in the International *Meloidogyne* Project

Argentina	Guatamala*	Philippines
Australia	India	Portugal
Bangladesh	Indonesia	Puerto Rico
Belize	Iran	Saudi Arabia
Benin*	Iraq	Senegal
Bermuda	Italy	Seychelles*
Bolivia	Ivory Coast	South Korea
Botswana*	Jamaica	Sri Lanka
Brazil	Japan	Sudan
Bulgaria*	Jordan	Surinam
Burma*	Kenya	Syria
Canada	Liberia	Taiwan
Canary Islands (Spain)	Libya	Tanzania
Chile	Malawi	Thailand
China	Malaysia	Trinidad and Tobago
Colombia	Mexico	Tunisia*
Costa Rica	Morocco	Turkey
Cyprus	Nepal	Uganda*
Ecuador	Netherlands	United States
Egypt	Nicaragua*	Uruguay
El Salvador	Niger*	Venezuela
Federal Republic of Germany*	Nigeria	Yemen
Fiji Islands	Pakistan	Western Samoa*
Ghana	Panama	Zaire
Greece	Peru	Zimbabwe
Guadaloupe (France)		

* Samples from these countries either were nonviable or were not processed in time for this publication; therefore data from these countries do not appear in the Appendix.

specific nematodes, such as *M. exigua* which infects coffee trees in Central and South America. In spite of these deficiencies, this survey constitutes the most comprehensive sampling to date of *Meloidogyne* populations from agricultural soil.

MATERIALS & METHODS

Cooperators in 76 countries of the world were enlisted to collect populations of *Meloidogyne* species. Most of the samples were taken in cultivated crops showing symptoms of infection by root-knot nematodes. A number was assigned to each nematode sample upon its arrival at the International *Meloidogyne* Project Center at North Carolina State University in Raleigh. Most samples were accompanied by ecological information and by a soil sample taken from around the roots of the infected plant. The ecological information included the geographical location from which the sample was collected, the elevation above sea level, climatic data, the host plant, a subjective estimate of crop yield loss, and a galling index.

N.C. Differential Host Test. The root-knot nematode samples, consisting of eggs in 1% saline solution, were mailed to the project center. Each population was inoculated directly to tomato (*Lycopersicon esculentum* Mill. cv. 'Rutgers') and increased in the greenhouse. Eggs were extracted from the roots of these tomatoes and used to inoculate each of the six differential host test plants: cotton (*Gossypium hirsutum*) cv. 'Deltapine 16,' tobacco (*Nicotiana tabacum*) cv. 'NC 95,' pepper (*Capsicum frutescens*) cv. 'California Wonder,' watermelon (*Citrullus vulgaris*) cv. 'Charleston Grey,' peanut (*Arachis hypogaea*) cv. 'Florunner,' and tomato (*Lycopersicon esculentum*) cv. 'Rutgers,' at the rate of 5000 eggs/pot. The host test was replicated 3 times and conducted for 50 to 60 days at temperatures of 18 to 27°C. (Taylor and Sasser, 1978).

After harvest, roots of the test plants were washed and rated for galls and egg masses. Root systems with very light infection were stained with a solution of phloxine B (0.15 g/liter water) to accentuate the egg masses (Dickson and Struble, 1965). Each root was given two ratings, one for galls and another for egg masses, according to the following scale: 0 = 0, 1 = 1-2, 2 = 3-10, 3 = 11-30, 4 = 31-100, and 5 = > 100 galls or egg masses. The gall and egg mass ratings for the three replications of each test plant were averaged. Plants with average ratings of 2 or less were classified as resistant (R); those with ratings greater than 2 were classified as susceptible (S). For simplicity, the averaged numerical ratings were rounded off to the nearest whole number (see Appendix).

Nematode Identification. As described above, each root-knot nematode population was subjected to the N.C. differential host test. Identification was based not only upon the results of this test, but also upon the study of morphological characters of male and female nematodes extracted from the host test plants (Eisenback, *et al.*, 1981). In addition, chromosome numbers of many single species populations were counted so this information would be available for future reference.

Climatic Data. The purpose of collecting climatic data was to ascertain the limiting effects of climate on root-knot nematode distribution. The following statistics were recorded for each sample location: average temperature of the coldest month of the year, average temperature of the warmest month of the year, average annual temperature, average number of dry months per year, and average annual precipitation. Each of these statistics was usually based on at least five years of data. Reports of average monthly temperature and precipitation were provided by project cooperators or obtained from *Monthly Climatic Data.**

Average temperatures for the coldest and warmest months of the year were based on the temperatures for January and July, or July and January, depending on the hemisphere. Monthly temperature averages were based on mean daily temperatures, i.e. averages of the lowest and highest temperature for each day as determined by the nearest weather station (Kincer, 1941). In turn, the monthly averages were used in the calculation of average annual temperatures.

A dry month was defined in this study as one with average precipitation of 10 mm or less. Monthly averages of precipitation were used to calculate the average annual precipitation. Each millimeter of snowfall was assumed to be equal to 0.1 mm of precipitation. The use of irrigation water in crop production was not taken into account in the calculation of precipitation averages.

Soil Analysis. Soil samples were analyzed with the cooperation of the Soil Science Department of North Carolina State University and the Agronomic Division of the North Carolina Department of Agriculture. Percentages of sand, silt, and clay; weight per volume; pH; buffer acidity; phosphorus; potassium; calcium; magnesium; manganese; copper; zinc; sodium; organic matter; and ammonium nitrogen were all measured. These data were ana-

* Sponsored by the World Meteorological Organization, and published by the National Oceanic and Atmospheric Administration, Environmental Data Service, National Climatic Center, Asheville, North Carolina, U.S.A.

lyzed using procedures of the Statistical Analysis System (SAS). Each variable was evaluated for its relationship to root-knot nematode occurrence and/or damage.

Crop Loss Estimates. Cooperators were asked to make subjective estimates of crop loss for each infested field that was sampled. These estimates were based on the following scale:

1 = very light (≤ 5% loss),
2 = light (>5 but ≤ 10% loss),
3 = moderate (>10 but ≤ 20% loss),
4 = heavy (>20 but ≤ 50% loss), and
5 = very heavy (>50% loss).

The resulting indices were analyzed for their relationship to root-knot nematode gall indices (Taylor and Sasser, 1978).

Land Management Variables. Many cooperators provided information concerning land management practices used in the root-knot nematode-infested fields from which samples were taken. This information included the number of years the land had been farmed, the number of months that susceptible crops were grown in the two years prior to the planting of the infected crop, and the number of months the infected crop had been grown prior to sampling. The relationship between each of these variables and the gall index was evaluated.

DISCUSSION & RESULTS

The results and tentative conclusions about the ecological relationships for these species are believed to be reliable. Data and conclusions about *M. arenaria* and *M. hapla* are based on less than 50 samples of each, and can be considered as indicative only.

Species and Races. A very large proportion of root-knot nematodes recovered from agricultural soils belong to only 4 principal species: *Meloidogyne incognita, M. javanica, M. arenaria* and *M. hapla*. Of the 662 sample populations included in this portion of the survey, the percentages of species were as follows: *M. incognita*, 46.68%; *M. javanica*, 39.73%; *M. arenaria*, 6.65%; and *M. hapla*, 6.19%. The remaining 0.75% were distributed as follows: *M. exigua*, 0.45%; *M. chitwoodi*, 0.15%; and *M. oryzae*, 0.15% (Table 2, Figure 1). These latter species are important pests of widely grown economic crops, but tend to be more host specific and to have a more limited geographic distribution that the more common species.

Table 2. Species and races of *Meloidogyne* identified in surveys

Species and race	Number of samples	Total number	Percent of samples	Total percent
*M. incognita**	28		4.23	
M. incognita Race 1	213		32.18	
M. incognita Race 2	30		4.53	
M. incognita Race 3	32		4.83	
M. incognita Race 4	6	309	0.91	46.68
M. javanica	263	263	39.73	39.73
M. arenaria Race 1	2		0.30	
M. arenaria Race 2	42	44	6.34	6.65
M. hapla	41	41	6.19	6.19
M. exigua	3	3	0.45	0.45
M. chitwoodi	1	1	0.15	0.15
M. oryzae	1	1	0.15	0.15
Totals		662		100.00

*Race not identified.

Table 3. Reactions of six crop plant cultivars to four most common species (and races) of *Meloidogyne*

Meloidogyne species and races	Crop Plants*					
	Cotton	Tobacco	Pepper	Watermelon	Peanut	Tomato
M. incognita						
Race 1	R**	R	S	S	R	S
Race 2	R	S	S	S	R	S
Race 3	S	R	S	S	R	S
Race 4	S	S	S	S	R	S
M. javanica	R	S	R/S	S	R	S
M. arenaria						
Race 1	R	S	S	S	S	S
Race 2	R	S	R/S	S	R	S
M. hapla	R	S	S	R	S	S

*Cultivars as follows: Cotton (*Gossypium hirsutum*) cv. 'Deltapine 16;' Tobacco (*Nicotiana tabacum*) cv. 'NC 95;' Pepper (*Capsicum frutescens*) cv. 'California Wonder;' Watermelon (*Citrullus vulgaris*) cv. 'Charleston Grey;' Peanut (*Arachis hypogaea*) cv. 'Florunner;' Tomato (*Lycopersicon esculentum*) cv. 'Rutgers.'

**Plants with a gall or egg mas index of 0, 1, or 2 are classified as resistant (R); plants with an index of 3, 4, or 5 are classified as susceptible (S). R/S indicates that either reaction is possible.

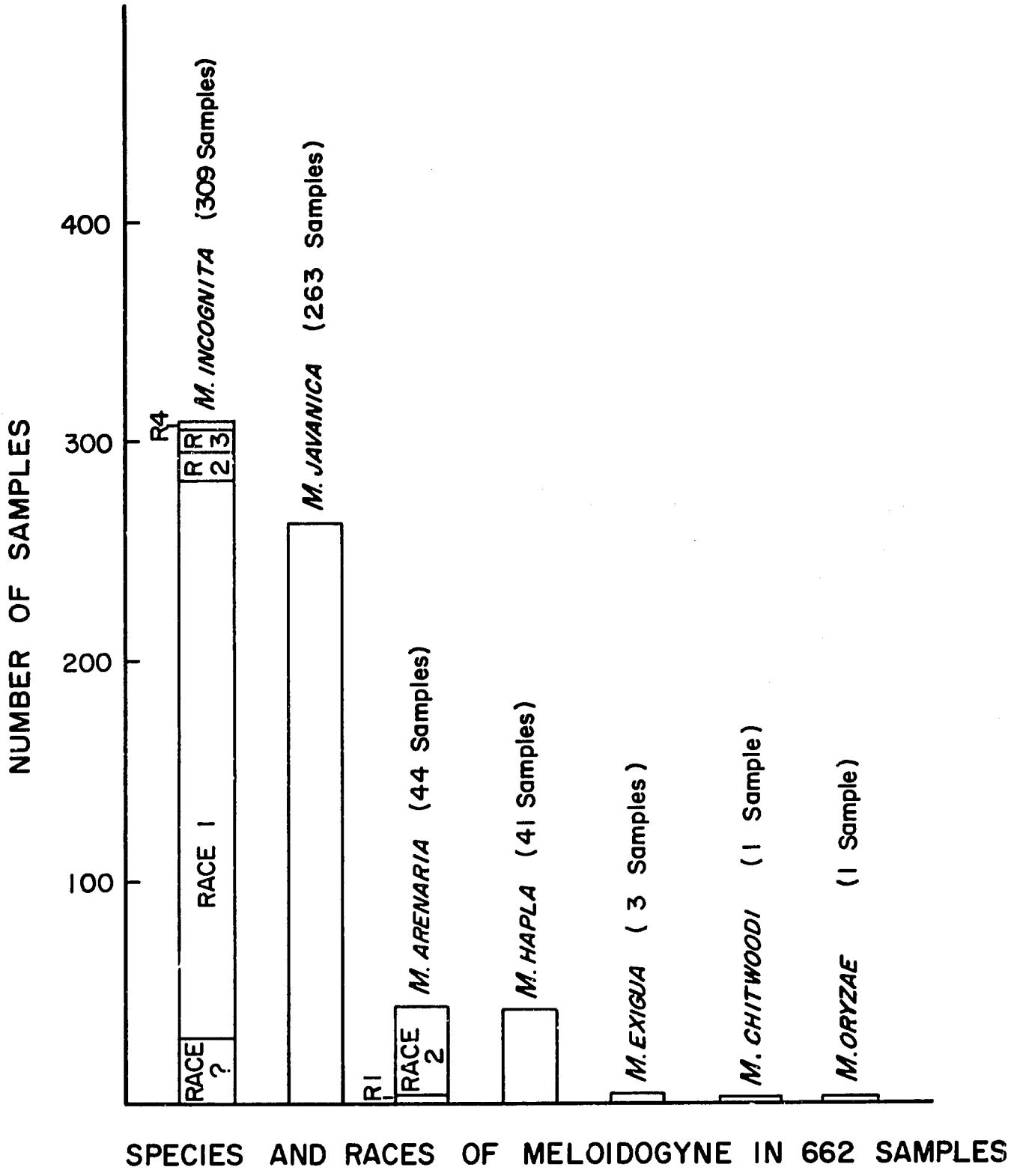

Figure 1. Percentages of *Meloidogyne* species and races found in the survey.

The N.C. Differential Host Test separates *M. incognita* into four host races and *M. arenaria* into two host races (Table 3). Only one host race of *M. javanica* and *M. hapla* has yet been recognized. Each *Meloidogyne* species and race induces a remarkably uniform and distinctive series of reactions among the differential host test plants, as shown by the "N.C. Differential Host Test" column in the Appendix. If only one species were present, the host reactions (R = resistant, S = susceptible) to each major species were almost invariably as follows:

M. incognita	Race 1	RRSSRS
	Race 2	RSSSRS
	Race 3	SRSSRS
	Race 4	SSSSRS
M. javanica		RSRSRS or sometimes RSSSRS
M. arenaria	Race 1	RSSSSS
	Race 2	RSSSRS or often RSRSRS
M. hapla		RSSRSS,

with host plants represented in the order—cotton, tobacco, pepper, watermelon, peanut, and tomato. If host reactions to root-knot populations from diverse geographical regions continue to be uniform, then results of tests for host resistance to *Meloidogyne* species and/or races may apply to similar populations throughout the world.

As shown in Table 2 and Figure 1, the races of *M. incognita* occurred in the following proportions: race 1 = 32.18% of the total number of samples received; race 2 = 4.53%; race 3 = 4.83%; and race 4 = 0.91%. Race 1 of *M. arenaria* comprised only 0.30% of the samples received, and race 2 only 6.35%. Some *M. incognita* and *M. arenaria* populations have not been identified to race because time has not permitted the separation of mixed populations of species and their subsequent re-testing. Much additional research will be needed to clarify the taxonomic and practical significance of *Meloidogyne* host races.

A few atypical host reactions to *Meloidogyne* spp. have been observed in the course of this study. Although peanut has been considered a nonhost for *M. javanica*, six populations of *M. javanica* collected from the Nile delta in Egypt have infected peanut in differential host tests, and one of these populations was originally collected from peanut. Also, at least 12 populations have infected pepper, another crop which is usually a nonhost for *M. javanica*. These few observations suggest that additional research on the host relationships of *Meloidogyne* species and races is necessary. However, the data presented in this publication strongly support the idea that identification of races eventually will be a vital prerequisite to root-knot nematode resistance and cropping system studies.

Average Annual Temperature. The relation of average annual temperature to percentage of the total number of samples of each of the four common species appears in Figure 2. This relationship for *M. incognita* and *M. javanica* (Figure 2A) is based on 309 and 263 samples, respectively. About 96% of the samples of both of these species were from regions with average annual temperatures in the range of 15° to 30°C. More specifically, approximately 76% of the *M. javanica* samples were collected from climates in the 21° to 27°C range, and approximately 70% of the *M. incognita* samples from climates in the 24° to 27°C range. Only 8% of the *M. incognita* samples came from climates in the 18° to 21°C range, compared with about 28% of the *M. javanica* samples.

Conclusions based on the limited data for *M. arenaria* and *M. hapla* probably do not truly represent these species; there were only 44 and 41 samples, respectively (Figure 2B). So far, however, *M. arenaria*, like *M. incognita* and *M. javanica*, has not been found to occur in climates with average annual temperatures of less than 12°C. *M. arenaria* populations were collected from climates with average yearly temperatures of 15 to 33°C, but about 89% of the samples were from climates with averages of 18° to 27°C. Extremely small sample size is probably responsible for the double peaks in the *M. arenaria* curve (Figure 2B); the dash line might approximate the true shape of the curve.

M. hapla populations occurred in climates with average annual temperatures of as low as 6°C, 9 degrees lower than for the other three species (Figure 2B). About 61% of the samples were collected from climates with average temperatures of 12 to 15°C.

Average Temperature for the Coldest Month of the Year. The relationship between average temperatures of the coldest month of the year and percentage occurrence of samples of *M. incognita* and *M. javanica* is illustrated in Figure 3A. Although both species occurred over the same range of average cold month temperatures (3 to 24°C), differences in distribution are apparent. The highest percentage of *M. javanica* populations (30%) was collected from areas with an average cold month temperature of 12°C, while the highest percentage of *M. incognita* populations (42%) was collected from areas with an average cold month temperature of 24°C.

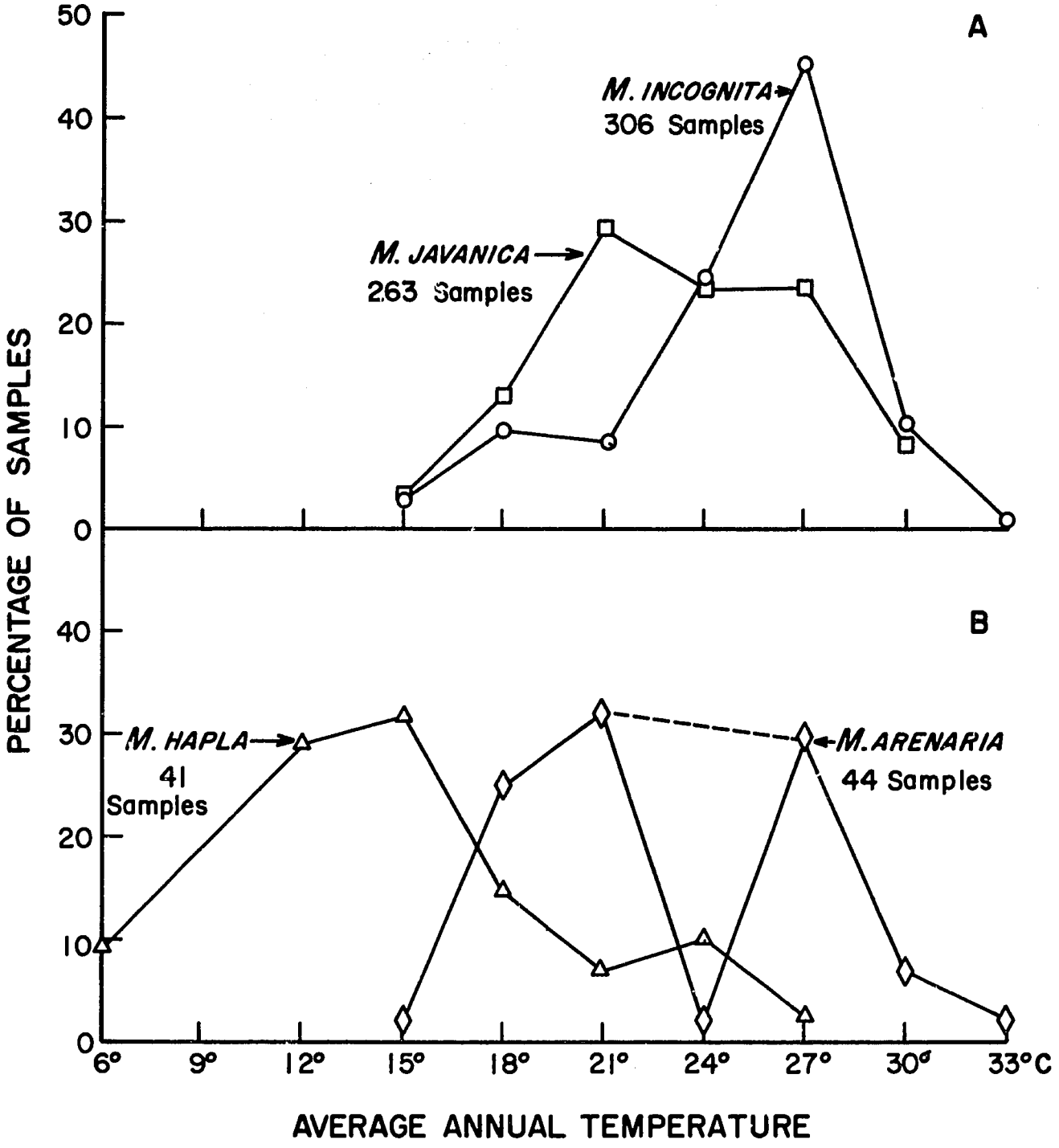

Figure 2. Relationship of percentages of samples to average annual temperature. A) *M. incognita* and *M. javanica*. B) *M. arenaria* and *M. hapla*.

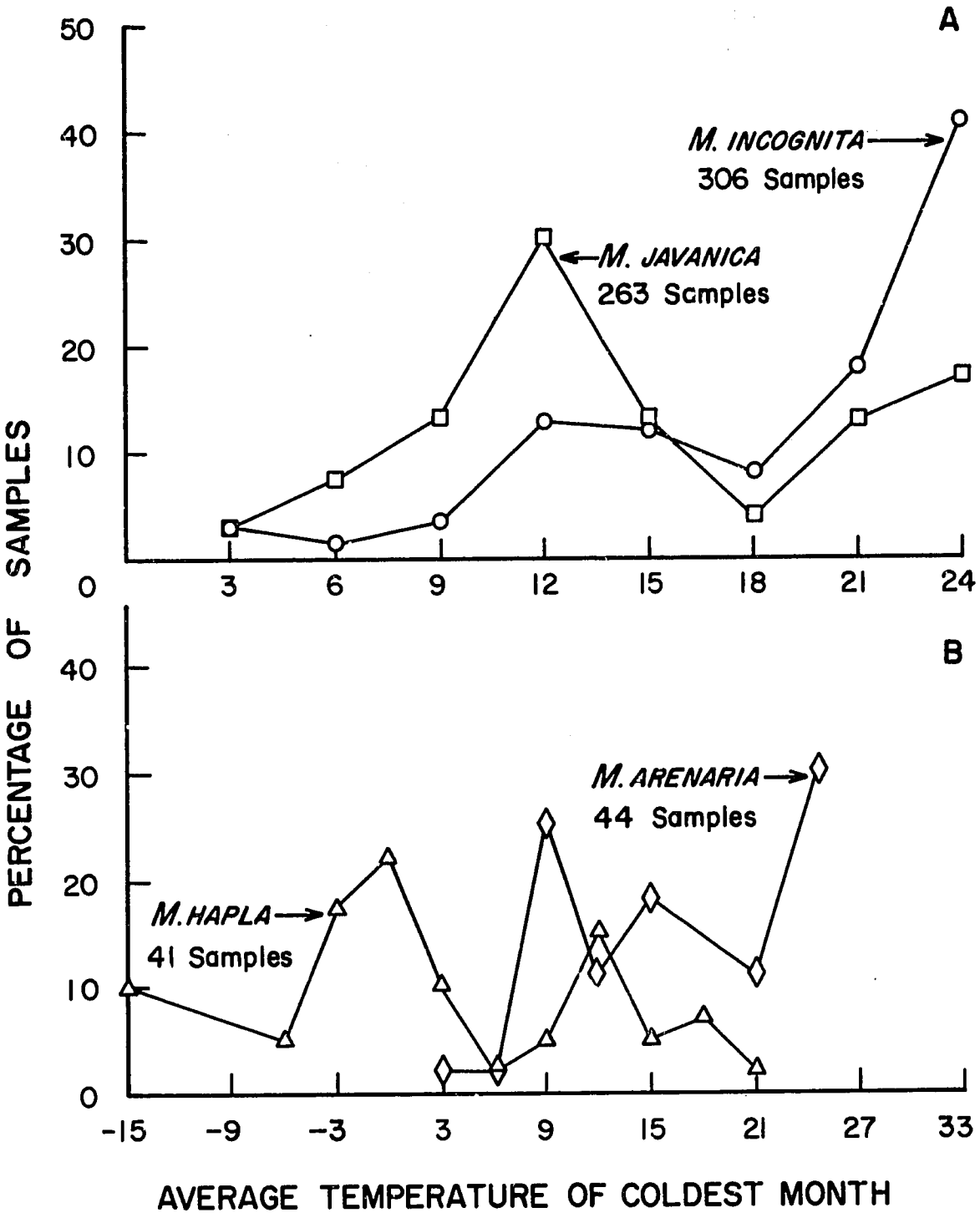

Figure 3. Relationship of percentages of samples to average temperature of the coldest month of the year. A) *M. incognita* and *M. javanica*. B) *M. arenaria* and *M. hapla*.

Data for *M. arenaria* and *M. hapla* are illustrated in Figure 3B. The range of occurrence for *M. arenaria* appears to be similar to that for *M. incognita* and *M. javanica*. *M. hapla*, on the other hand, can survive average coldest month temperatures as low as -15°C. None of the other three most common *Meloidogyne* species is known to survive in frozen soil.

Average Temperature for the Warmest Month of the Year. Species occurrences for *M. incognita*, *M. javanica*, *M. arenaria*, and *M. hapla* vs. average temperatures for the warmest month of the year are illustrated in Figure 4. The largest percentages of the first three species were found at average warmest month temperatures of 27°C. Only about 6% of samples of *M. incognita* and about 9% of samples of *M. javanica* were from localities with warmest month temperatures above 30°C (Figure 4A). Very few localities in the world have average warmest month temperatures above 33°C (Time Books, 1977, Plate 5). For *M. hapla*, the largest percentage of samples occurred at 24°C, and no samples were received from localities having average warm month temperatures in excess of 27°C (Figure 4B).

Average Annual Precipitation. The percentages of samples of *M. incognita* and *M. javanica* as related to average annual precipitation are illustrated in Figure 5A. Probably the most significant difference between the two species is shown by the origins of the curves which include all observations from areas having 500 mm or less annual precipitation. About 42% of the samples of *M. javanica* and only about 17% of the samples of *M. incognita* were received from such dry climates. Although *M. javanica* occurs most abundantly in areas receiving 500 mm or less annual precipitation, *M. incognita* populations were more numerous in areas receiving 1500 mm or more annual precipitation.

The relationship of *M. arenaria* and *M. hapla* to average annual precipitation appears in Figure 5B. Less than 10% of the samples of either species were from regions with 500 mm of annual precipitation or less. Both species exhibit a peak population density in areas with about 1500 mm annual precipitation. Approximately 45% of the *M. arenaria* samples and 54% of the *M. hapla* samples were taken in such areas.

Average Number of Dry Months per Year. The relationship between percentages of *Meloidogyne* species samples and the number of dry months per year is illustrated in Figure 6. About 64% of *M. javanica* samples, but only 42% of *M. incognita* samples were from regions with 2 or more dry months (Figure 6A). About 24% of *M. javanica* samples, but only 8.4% of *M. incognita* samples, were from regions with 4 or 5 dry months. About 70% of the *M. arenaria* and 80% of the *M. hapla* samples were from areas that have some precipitation every month of the year (Figure 6B).

About 6% of *M. incognita*, 10% of *M. javanica* and 5% of *M. arenaria* samples were collected from areas with 11 to 12 dry months/year (Figure 6). This apparent sudden increase in drought survival is probably due to the fact that populations received from such areas were collected from irrigated soils. The small percentages of species occurring in areas with 6 to 11 dry months may be due to natural control by desiccation, moderated by irrigation for part of the year.

Distribution of Meloidogyne Species in Relation to Soil Texture. The relationship between soil percentages of sand, silt, and clay and the occurrence of 622 *Meloidogyne* populations is illustrated in Figure 7. Sand percentages ranged from approximately 1% to 95%. A low positive correlation was shown to exist between numbers of samples and percent of sand. *Meloidogyne* occurrence displayed negative correlation with percentages of silt and clay: less than 3.7% of samples were from soil with more than 50% of silt, and less than 4.0% of samples from soils with more than 40% clay.

Soil pH. An apparent correlation between soil pH and the frequency of occurrence of *M. incognita* and *M. javanica* is illustrated in Figure 8. Nearly 45% of *M. javanica* samples came from soils with pH values above 7.0, but the prevalence of this species in dry climates, as discussed previously, indicates that the correlation is not direct. Because of reduced leaching, soils in dry climates often have high pH values. Therefore, the correlation with pH is an indirect effect of the correlation with low precipitation.

Soil Fertility. All soil samples were analyzed for the following elements and/or nutrients: P, K, Ca, Mg, Mn, Cu, Zn, Na, NH_4. No correlation was found between any of these soil variables and occurrence of *Meloidogyne* spp.

Subjective Crop Loss Estimates. Average yield loss indices of selected crops are reported in Table 4. The average loss index for all host plants was 2.9, corresponding to a loss of about 9.9%.

Selected Land Management and Soil Variables. Of the land management and various soil statistics available, only crop loss estimate, soil pH, extractable sodium, and buffer acidity were found to be correlated significantly with gall index (Table 5). The other variables had no apparent relation to severity of root-knot nematode infection. Means and standard deviations for each of

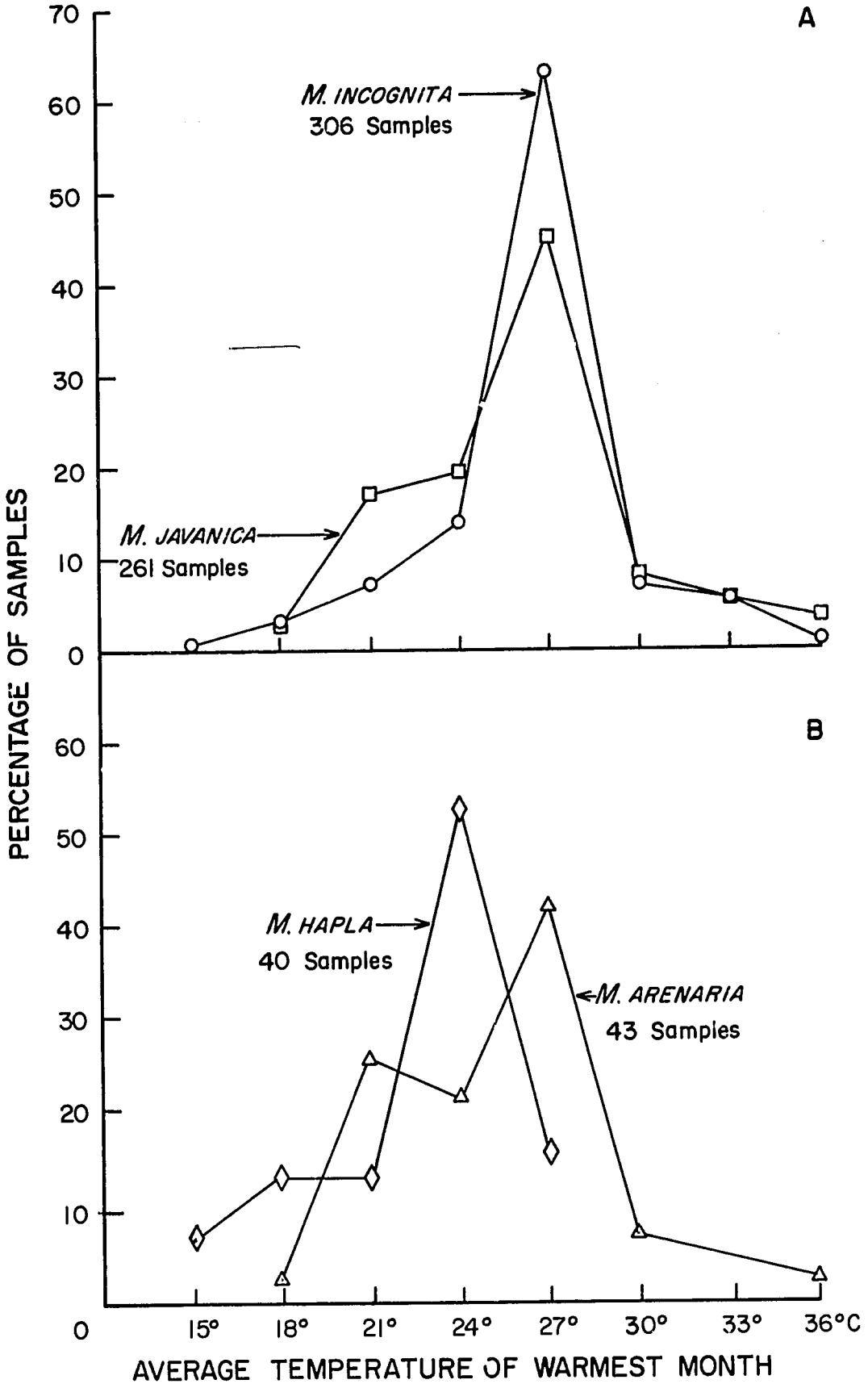

Figure 4. Relationship of percentages of samples to average temperature of the warmest month of the year. A) *M. incognita* and *M. javanica*. B) *M. arenaria*.

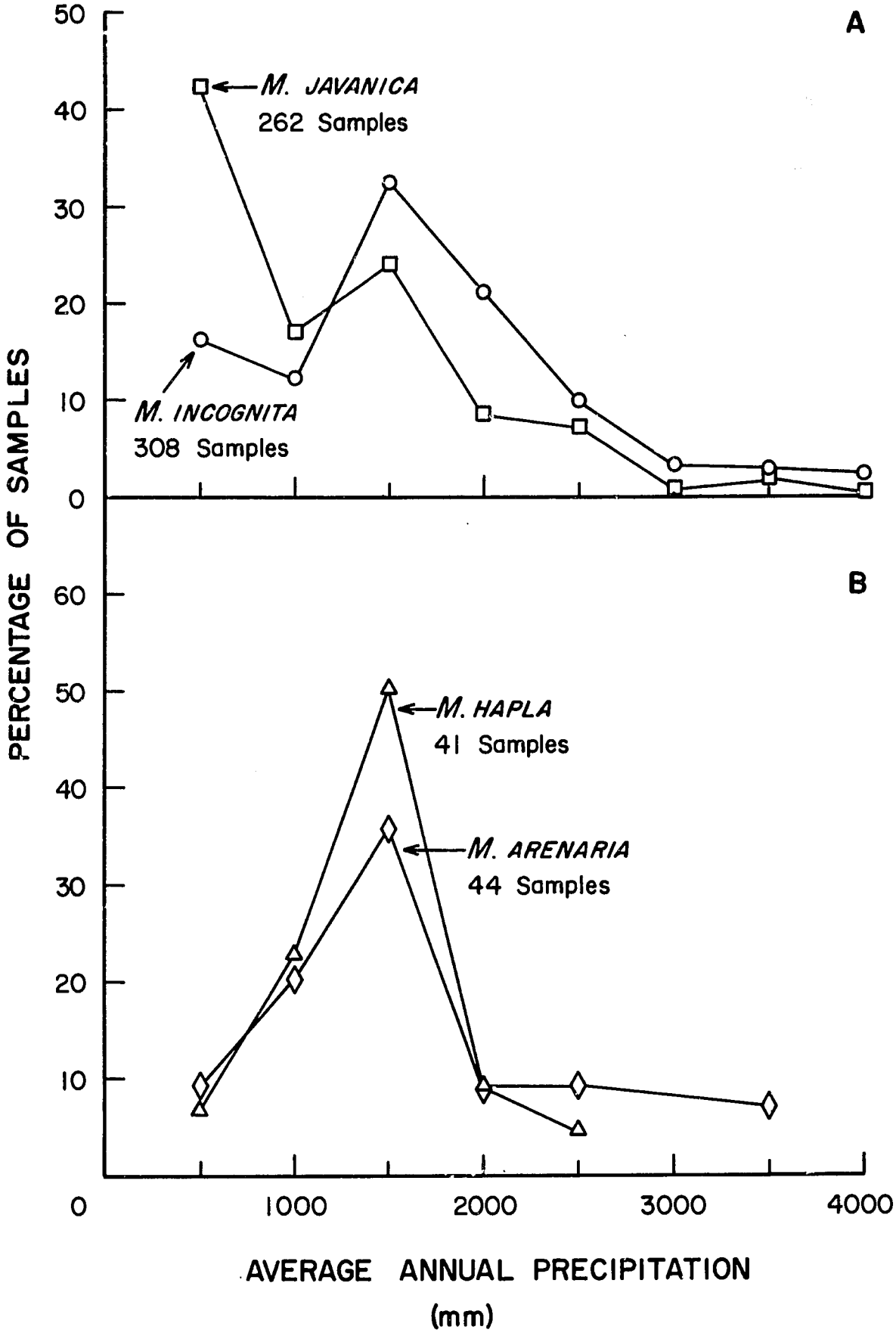

Figure 5. Relationship of percentages of samples to average annual precipitation. A) *M. incognita* and *M. javanica*. B) *M. arenaria* and *M. hapla*.

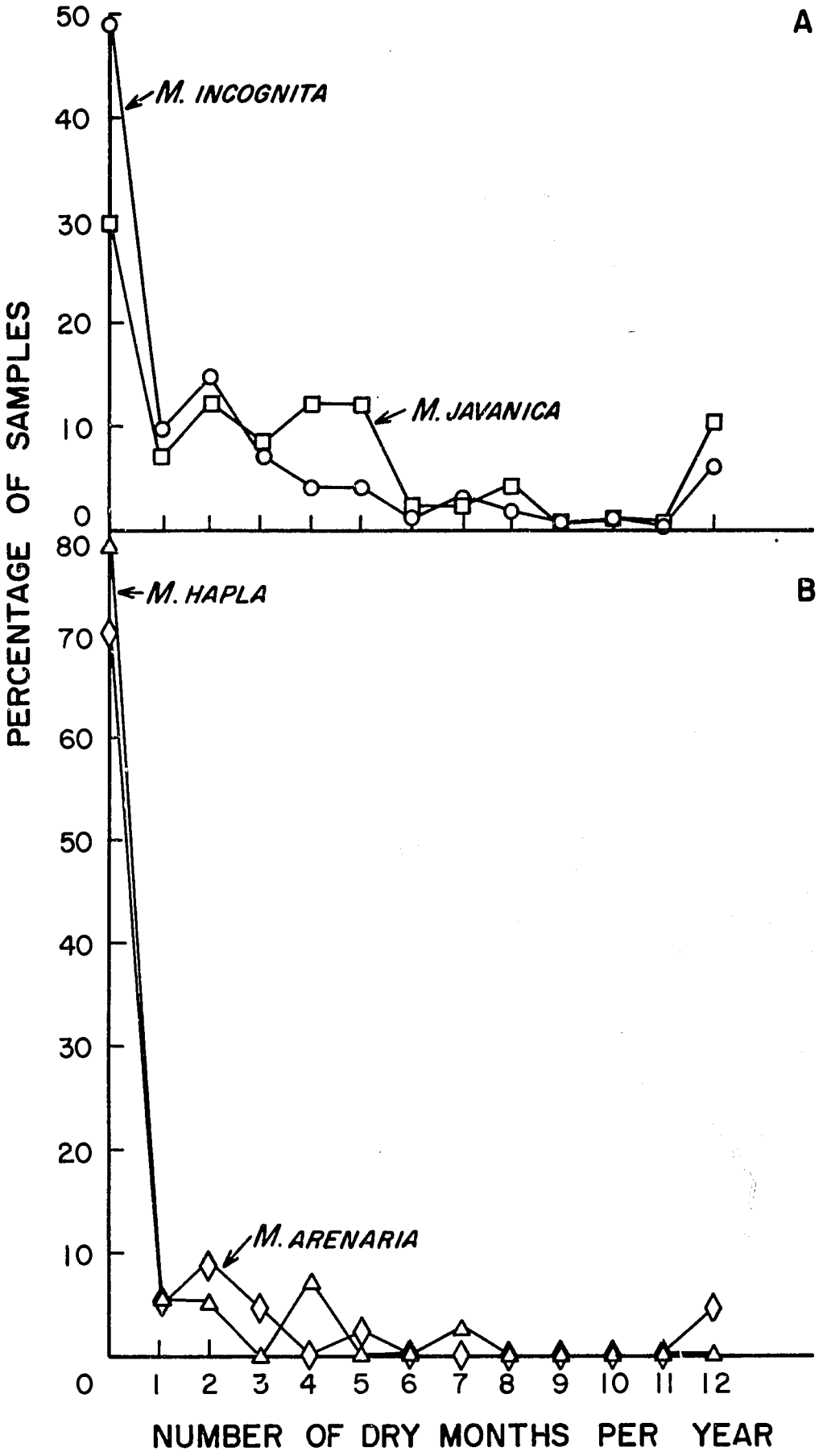

Figure 6. Relationship of percentage occurrence of samples to average number of dry months per year. A) *M. incognita* and *M. javanica*. B) *M. arenaria* and *M. hapla*.

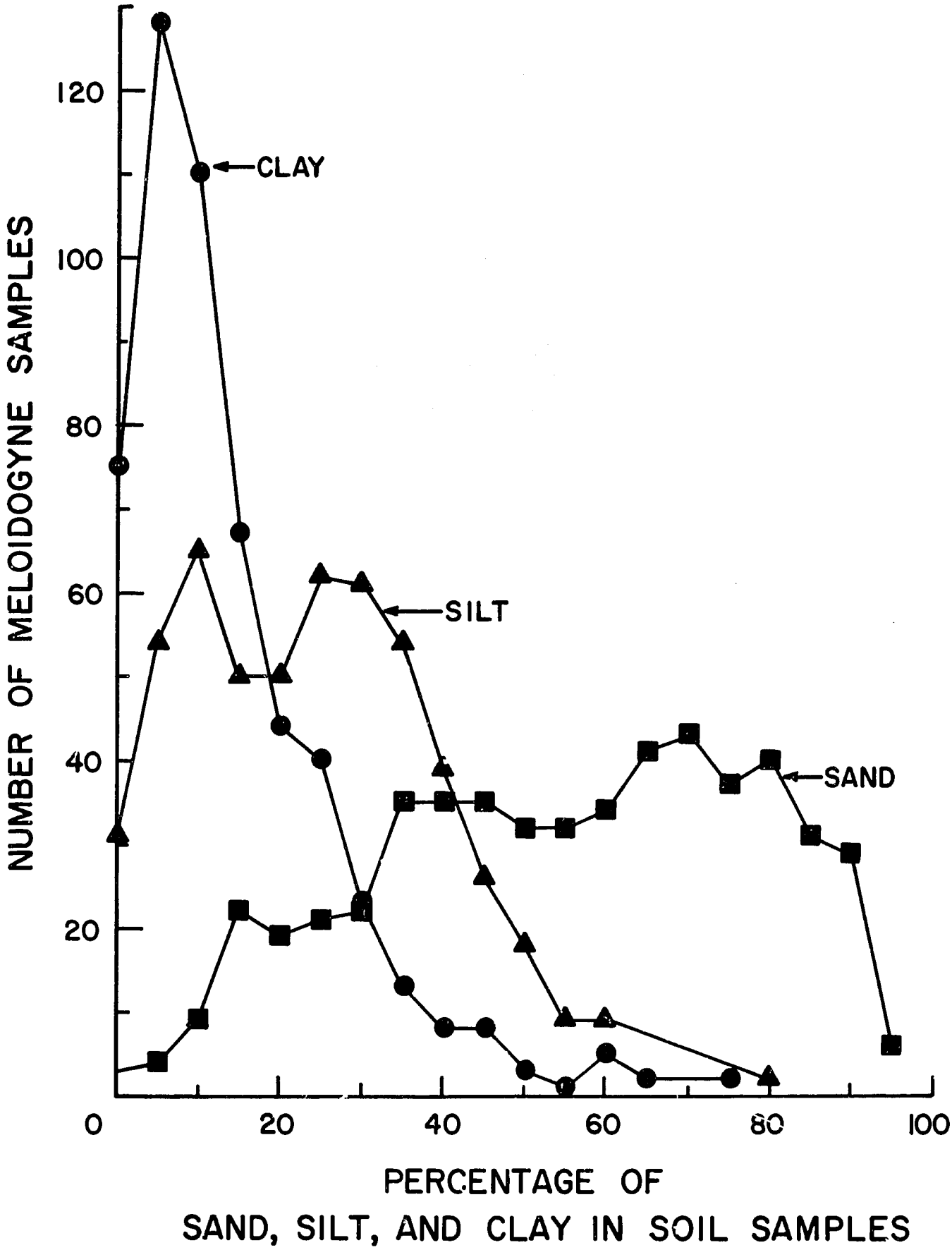

Figure 7. Relationship of percentage occurrence of all samples to percentages of sand, silt and clay in soil.

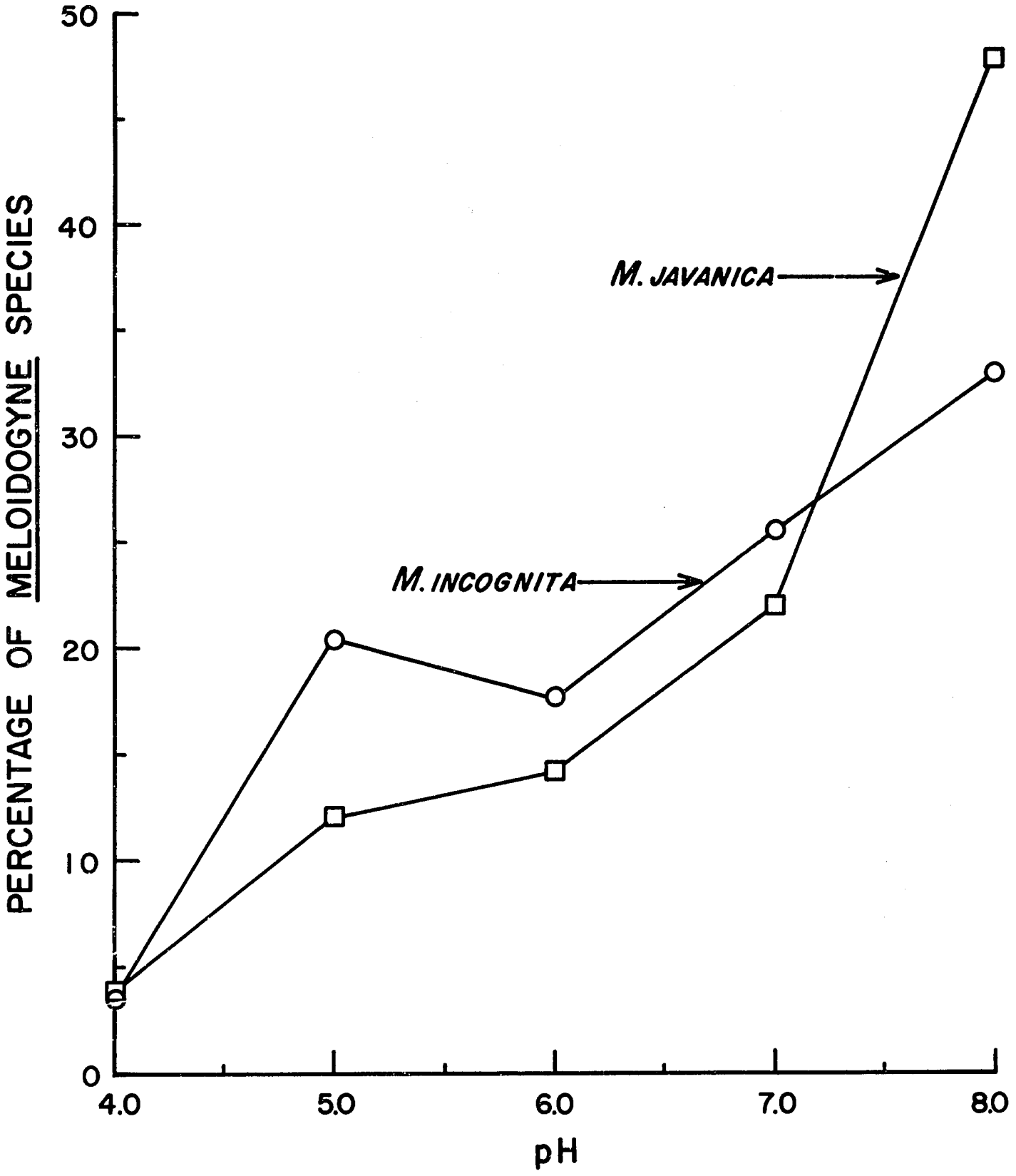

Figure 8. Relationship of percentage occurrence of samples of *M. incognita* and *M. javanica* to soil pH.

the land management and soil variables are provided for general information and reference (Table 6).

CONCLUSIONS

The average temperature of the coldest month of the year is apparently the principal limiting factor in occurrence of *Meloidogyne incognita, M. javanica,* and probably *M. arenaria.* These species have not been received from areas with coldest month average temperatures below 3°C. *M. hapla* is a cold climate species, and has been received from one location with a coldest month temperature as low as −15°C. There is no indication that this is the coldest temperature for survival of *M. hapla.* Temperatures of about 24° to 27°C may limit the occurrence of *M. hapla* in warmer parts of the world.

Meloidogyne population samples continue to be processed at IMP headquarters. Additional samples from a diversity of climates are welcome. Such material will provide the information necessary for the confirmation of the preliminary findings and for the formulation of sound conclusions.

Table 4. Crop loss index estimates*

Apium graveolens (celery)	3.4
Arachis hypogaea (peanut)	4.2
Beta vulgaris (beet)	3.2
Brassica oleracea (cabbage)	3.1
Capsicum spp. (pepper)	2.8
Carica papaya (papaya)	3.0
Coffea spp. (coffee)	2.7
Cucumis spp. (cucumber and melon)	3.9
Cucurbita spp. (squash and relatives)	3.1
Daucus carota (carrot)	2.0
Dianthus caryophilus (carnation)	3.0
Glycines max (soybean)	3.4
Gossypium hirsutum (cotton)	3.1
Hibiscus esculentus (okra)	3.5
Latuca sativa (lettuce)	2.2
Lycopersicon esculentum (tomato)	3.5
Musa spp. (banana and plantain)	2.1
Nicotiana tabacum (tobacco)	2.9
Oryza sativa (rice)	1.8
Petroselinum sativum (parsley)	2.6
Phaseolus vulgaris (bean)	3.6
Solanum spp. (eggplant, potato)	3.2
Vegetables (miscellaneous)	3.6
Zea mays (maize)	1.7

*Crop loss indices from at least 5 root-knot-damaged fields were averaged to obtain each of the above estimates. The following scale is used in the evaluation of each field: 1 = ≤5%; 2 = >5 but ≤10; 3 = >10 but ≤20; 4 = >20 but ≤ 50; and 5 = >50% crop loss.

Table 5. Correlation coefficients for the relationship between gall index and selected land management and soil variables.

Variable	Correlation coefficient(r)	Number of observation pairs
Crop loss estimate	0.699**	446
Soil pH in water	0.181**	402
Extractable sodium	0.107*	402
Buffer acidity	−0.130**	402
Number of years the land had been farmed	0.068	314
Months of susceptible crops 2 years before planting	−0.061	283
Months of growth before sampling	−0.082	352
Weight of soil per volume	0.035	402
Soil test for phosphorus	−0.081	402
Extractable potassium	0.039	402
Extractable calcium	0.035	402
Extractable magnesium	0.085	402
Soil test for manganese	−0.033	402
Soil test for copper	−0.023	401
Soil test for zinc	−0.002	402
Ammonium nitrogen	−0.040	396
Cation exchange capacity	0.054	404
Percent base saturation	0.002	402
Percent organic matter	−0.085	399

Level of significance: Null hypothesis of no correlation
**Significant at .01 level
*Significant at .05 level

Table 6. Means and standard deviations for land management and soil variables

	Statistic	
	Mean	Standard deviation
Number of years the land had been farmed	31.2	41.2
Months of susceptible crops in 2 years before sampling	11.6	9.6
Months of growth before sampling	8.5	23.2
Weight of soil per volume	1.1	0.2
pH in water	6.7	1.3
Buffer acidity	0.6	1.5
Soil test for phosphorus	122.3	157.1
Extractable potassium	0.8	0.8
Extractable calcium	23.1	37.6
Extractable magnesium	3.3	2.8
Soil test for manganese	37.9	38.2
Soil test for copper	7.3	14.4
Soil test for zinc	8.6	27.9
Extractable sodium	0.5	0.7
Organic matter	2.3	2.4
Ammonium nitrogen	44.2	44.1
Cation exchange capacity	5.1	3.3
Percent base saturation	584.1	867.3

REFERENCES

Dickson, D.W. and F.B. Struble. 1965. A sieving-staining technique for extraction of egg masses of *Meloidogyne incognita* from soil. Phytopathology 55:497 (Abstract).

Eisenback, J.D., H. Hirschmann, J.N. Sasser, and A.C. Triantaphyllou. 1981. A Guide to the Four Most Common Species of Root-knot Nematodes (Meloidogyne spp.), With a Pictorial Key. Dept. Plant Pathology, N.C. State University, and USAID. 48 pp.

Kincer, J.B. 1941. Climate and weather data for the United States, pp. 685-699 *In* Climate and Man. U.S. Dept. of Agr. Yearbook, 1941. 1248 pp.

Mehlich, A. 1976. New buffer pH method for rapid estimation of exchangeable acidity and lime requirement of soils. Communications in Soil Sci. and Plant Analysis 7:637-652.

Taylor, A.L. and J.N. Sasser. 1978. Biology, Identification and Control of Root knot Nematodes (*Meloidogyne* spp.). Dept. Plant Pathology, N.C. State University, and USAID. 111 pp.

Time Books. 1977. The Times Atlas of the World, Comprehensive Edition. John Bartholomew & Sons Limited and Times Newspapers Ltd., London.

APPENDIX

SUMMARY OF ECOLOGICAL DATA BY COUNTRY

This section contains tables of ecological data by country. Countries and cooperators from the same country are listed in alphabetical order. Each column heading (from left to right) is described below.

Project Sample Number: number assigned at project headquarters to the population. The "E" preceding each number identifies the sample as part of the ecological survey.

Cooperator's Sample Number: number given to the sample by the cooperator. Some samples collected by cooperators are not listed because the species could not be identified. Some egg mass samples were lost in the international mail. Others were not viable when received, perhaps because of exposure to excessive heat in transit.

City, Province or State: place where the sample was collected, as given by the cooperator.

Latitude and Longitude (2 columns): to the nearest degree.

Elevation: approximate number of meters above sea level of the collection site.

Date Collected: month and year.

Host Plant: scientific name of plant from which the sample was collected, as given by the cooperator.

***Meloidogyne* Species and Race:** as identified at project headquarters by means of the N.C. differential host test, morphological characters of the nematodes, etc. If only one species was found, the species name is spelled out in full, and the race is indicated as R-1, R-2, etc. If more than one species were found, the species are abbreviated "INCOG" for *M. incognita;* "JAVAN" for *M. javanica;* "AREN" for *M. arenaria;* and "HAP" for *M. hapla.*

N.C. Differential Host Test (2 columns): reaction of the differential host test plants presented in terms of resistance (R) or susceptibility (S), and in terms of averaged gall and egg mass indices. Reactions of the host test plants appear in the following order: cotton cv. 'Deltapine 16,' tobacco cv. 'NC 95,' pepper cv. 'California Wonder," watermelon cv. 'Charleston Grey,' peanut cv. 'Florunner,' and tomato cv. 'Rutgers.'

Soil Texture (3 columns): percentages of sand, silt, and clay, rounded off to the nearest percent.

Chromosome Number: number or approximate number of chromosomes for those samples which have been cytologically examined. Results are given as one number (for example, 16, 44, 53, etc.) or as two numbers separated by a hyphen (for example, 42-44, 16-17). In the latter case, the exact chromosome number could not be determined, but lies within the range indicated. Small numbers (13-18) represent the haploid (n) chromosomal complement, whereas large numbers (30-54) indicate the diploid (2n) chromosome number. If the sample contains more than one species, the chromosome number is preceded by the first letter of the appropriate species.

Temperature (3 columns): average annual temperature, average for the coldest month (January or July), and average for the warmest month (July or January); usually based on at least 5 years of data.

Total Annual Precipitation: the average annual precipitation in millimeters, usually based on at least five years of data. 10 mm snow = 1 mm water.

Number of Dry Months per Year: annual number months during which precipitation is 10 mm or less.

Soil Analysis: many of the soil samples taken in this survey are the only sample from that field. All were taken from a single location in the field, and were not composite samples such as are usually used for soil analysis.

Weight per Volume: weight in grams of 100 cm^3 of dry soil divided by 100 and rounded to one decimal.

pH in Water: pH of the soil sample rounded to one decimal place.

Buffer Acidity: milliequivalents (ME) of $CaCO_3$ per 100 cm^3 of soil (ME/100 cm^3); used for estimation of exchangeable acidity and lime requirements of soils (Mehlich, 1976).

Phosphorus: milligrams of P per cubic decimeter of soil (mg/dm^3).

Potassium: milliequivalent of K per 100 cm^3 of soil (ME/100 cm^3).

Calcium: milliequivalents of Ca per 100 cm^3 of soil (MC/100 cm^3).

Magnesium: milliequivalents of magnesium per 100 cm^3 of soil (ME/100 cm^3).

Manganese: milligrams of Mn per cubic decimeter of soil (mg/dm^3).

Copper: milligrams of Cu per cubic decimeter of soil (mg/dm^3).

Zinc: milligrams of Zn per cubic decimeter of soil (mg/dm^3).

Sodium: milliequivalents of Na per 100 cm^3 of soil (ME/100 cm^3).

Organic Matter: percent by weight.

Ammonium Nitrogen: Milligrams of ammonium-N per cubic decimeter of soil (mg/dm^3).

Previous Page Blank

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test		Soil Texture		
									Rating*	Numerical*	Sand — %	Silt — %	Clay — %
COUNTRY: ARGENTINA							**COOPERATOR: M.A. Costilla**						
E 50	1	Lules 26	27S	66W	550	1/77	Lycopersicon esculentum	JAVANICA	RSRSRS	050305	72	24	4
E 51	2	La Cocha	28S	66W	450	1/77	Nicotiana tabacum	JAVANICA	RSRSRS	040305	38	49	13
E 52	3	Alto Verde	27S	67W	530	1/77	Zea mays	INCOGNITA R-1	RRSSRS	005505	58	34	8
E 53	4	Tucuman	27S	65W	350	2/77	Nicotiana tabacum	JAVAN/INCOG R-1	RSSSRS	024305	47	29	24
E 127	5	Santa Clara	24S	65W	500	5/77	Cucurbita moschata	INCOGNITA R-1	RRSSRS	005405	51	32	17
E 128	6	Santa Clara	24S	65W	500	5/77	Lycopersicon esculentum	JAVAN/INCOG/AREN	RSSSRS	053505	54	28	18
E 129	7	Tucuman	27S	65W	350	5/77	Lycopersicon esculentum	JAVANICA	RSRSRS	050305	52	36	12
E 594	1	La Invernada	27S	65W	400	10/79	Nicotiana tabacum	JAVANICA	RSRSRS	050405	47	39	14
E 596	4	El Milagro	26S	65W	500	1/79	Nicotiana tabacum	JAVANICA	RSRSRS	050305	30	49	21
E 597	5	Santa Rosa	23S	65W	800	1/79	Nicotiana tabacum	JAVANICA	RSRSRS	040404	44	38	19
E 598	6	Santa Clara	24S	64W	600	1/79	Nicotiana tabacum	JAVANICA	RSRSRS	051404	50	31	19
E 599	7	El Palmar	24S	63W	600	1/79	Nicotiana tabacum	INCOGNITA R-1	RRSSRS	004404	48	38	14
E 600	8	La Invernada	27S	65W	400	3/79	Lycopersicon esculentum	JAVANICA	RSRSRS	042404	40	35	25
E 887	13	Burruyaca	27S	65W	350	5/79	Phaseolus vulgaris	JAVANICA	RSRSRS	030305	36	51	13
E 897	14	Piquirenda	22S	67W	552	1/81	Musa sp.	JAVAN/INCOG	RSSSRS	054305	—	—	—
E 898	15	Yuto	27S	65W	350	8/80	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	004405	—	—	—
E 899	16	Rio Pescado	23S	64W	450	1/81	Musa sp.	JAVAN/INCOG	RSSSRS	154505	—	—	—
E 941	17	Tucuman	27S	65W	1700	2/81	Solanum tuberosum	JAVANICA	RSRSRS	040405	68	26	6
E 1038	20	Alto Verde	27S	66W	375	5/81	Lycopersicon esculentum	JAVAN/INCOG	RSS-RS	043-05	69	22	9
							COOPERATOR: G.M. de Sisler						
E 334	1	Costelor	35S	59W	22	12/77	Lycopersicon esculentum	ARENARIA R-2	RRRSRS	022305	33	47	19
E 335	2	Berrisso	35S	58W	50	1/78	Capsicum frutescens	ARENARIA R-2	RSSSRS	023205	49	23	28
E 336	3	Los Talos	35S	58W	50	1/78	Beta vulgaris	ARENARIA R-2	RSRRRS	032304	31	41	20
E 337	4	Copital	35S	59W	15	1/78	Phaseolus vulgaris	INCOGNITA R-3	SRSSRS	305305	39	44	18
E 498	7	Buenos Aires	34S	59W	20	12/78	Cucurbita maxima	JAVANICA	RSRSRS	050405	24	51	25
E 586	6	Victoria	33S	60W	12	12/78	Capsicum frutescens	INCOGNITA R-2	SRSSRS	315305	—	—	—
E 588	9	Santa Fe	31S	61W	40	4/79	Solanum melongena	JAVANICA	RSRSRS	051405	—	—	—
E 612	10	Abasto	35S	58W	22	5/79	Petroselinum sativum	ARENARIA R-2	RSSSRS	054405	28	50	22
E 613	11	Abasto	35S	58W	22	3/79	Apium graveolens	ARENARIA R-2	RSSSRS	032305	30	52	18
E 857	12	Saladas	28S	59W	66	3/80	Oryza sativa	AREN-2/INCOG	RSSSRS	035405	44	36	20
E 858	13	Buenos Aires	35S	59W	21	12/80	Ficus carica	ARENARIA R-2	RSRSRS	040405	24	55	22

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month	mm		Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
—	19	12	25	1067	0	1.18	5.1	1.76	71	0.64	5.8	0.60	58.0	12.8	17.8	0.06	2.0	14
48	19	12	26	745	2	1.08	7.3	0.36	60	2.64	11.2	2.12	48.0	11.9	1.0	0.13	2.4	10
43	20	13	26	982	1	1.25	5.7	1.68	106	1.30	5.9	1.24	70.0	2.4	6.8	0.09	1.5	8
—	19	12	26	745	2	1.14	7.4	-0.12	89	0.85	16.4	2.80	54.0	2.0	2.0	0.89	3.1	14
—	21	14	27	627	4	1.23	8.3	-1.04	54	1.22	12.8	3.04	48.0	2.7	2.2	2.88	1.5	9
—	21	14	27	627	4	1.14	8.3	1.44	71	2.00	12.0	2.64	300.0	3.3	1.9	0.76	1.3	6
44	19	12	26	745	2	0.76	7.2	1.44	38	0.55	11.2	1.68	10.0	1.5	13.3	3.72	6.8	46
—	20	12	27	1088	2	1.07	7.0	-1.20	60	1.45	14.3	2.22	34.4	2.5	1.2	0.13	1.2	4
46	21	15	26	558	4	1.03	7.7	0.00	39	0.54	11.6	2.00	20.0	4.6	3.2	0.22	1.3	10
—	21	15	26	1030	4	1.15	7.5	0.00	200	1.58	13.2	2.18	24.4	3.7	2.8	0.19	1.2	15
—	21	15	26	1030	4	1.08	7.9	0.00	96	1.08	13.6	3.70	18.8	3.6	1.3	0.34	1.0	12
44-46	21	15	26	1030	4	1.09	6.3	1.04	92	0.72	9.1	2.76	21.2	3.2	2.6	0.14	2.2	27
—	20	12	27	1088	2	0.95	7.6	0.00	167	2.16	20.5	6.96	19.2	7.9	2.2	0.55	3.1	25
—	20	13	25	689	4	—	—	—	—	—	—	—	—	—	—	—	—	—
J45	21	15	27	958	3	1.32	7.7	-0.12	92	0.98	15.1	2.26	38.6	2.0	13.3	0.18	1.9	13
—	20	13	25	689	4	1.12	7.7	-0.12	92	0.98	15.1	2.26	38.6	2.0	13.3	0.20	2.4	27
J44-46	22	16	27	899	4	1.21	8.0	-0.32	136	1.63	19.0	3.16	33.0	3.4	6.6	0.54	2.1	21
44-46	16	9	22	176	6	1.25	8.1	-0.36	38	0.66	9.1	1.82	36.4	4.2	2.2	0.10	0.7	10
J48	20	13	26	1023	1	—	—	—	—	—	—	—	—	—	—	—	—	—
53	16	10	24	1002	0	0.96	6.4	1.24	25	0.96	18.6	2.14	26.0	2.8	2.6	2.06	1.4	21
54	16	10	22	985	0	0.95	8.3	-0.88	682	1.32	50.5	4.76	24.8	1.8	4.1	3.26	4.4	8
50	16	10	22	985	0	0.95	7.8	-0.44	228	1.12	24.8	4.50	38.8	3.9	3.8	2.26	5.0	16
36	16	10	23	993	0	1.11	6.9	0.92	30	0.92	15.3	2.08	39.2	3.1	3.9	1.21	2.7	19
46	17	10	23	864	0	0.93	7.0	0.32	398	1.14	19.8	3.50	26.4	11.2	14.9	1.38	2.7	20
—	17	10	23	944	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	18	12	25	982	0	—	—	—	—	—	—	—	—	—	—	—	—	—
54	16	10	23	1060	0	1.07	7.2	0.04	167	1.28	24.6	4.10	35.6	60.6	6.9	0.48	2.4	36
53-54	16	10	23	1059	0	1.05	7.6	0.00	191	1.99	19.9	3.72	46.0	101.7	8.4	0.58	2.5	37
A50	21	14	27	1042	0	1.08	6.6	1.16	33	0.41	12.7	2.62	34.8	5.9	1.9	0.70	2.6	42
—	16	9	23	881	0	1.05	5.6	2.40	25	1.59	9.5	1.56	22.4	3.5	1.5	0.25	2.4	19

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test: Rating*	Differential Host Test: Numerical*	Soil Texture: Sand — %	Soil Texture: Silt — %	Soil Texture: Clay — %
COUNTRY: AUSTRALIA							**COOPERATOR: R.C. Colbran**						
E 221	2	Queensland	27S	153E	2	6/77	Musa sp.	INCOG-1/JAVAN	RRSSRS	044304	—	—	—
E 222	3	Queensland	20S	148E	2	6/77	Lycopersicom esculentum	JAVANICA	RSRSRS	050405	—	—	—
E 482	5	Queensland	28S	153E	10	10/78	Ficus sp.	ARENARIA R-2	RSRSRS	050305	—	—	—
E 483	6	Queensland	28S	152E	375	10/78	Unknown	ARENARIA R-2	RSRSRS	050305	—	—	—
E 484	7	Queensland	28S	153E	10	10/78	Petroselinum sativum	INCOGNITA R-1	RRSSRS	003405	—	—	—
COUNTRY: BANGLADESH							**COOPERATOR: B.C. Choudhury**						
E 969	1	Dacca	24N	90E	5	81	Nicotiana tabacum	INCOGNITA R-1	RRSSRS	005405	45	45	10
E 972	4	Dacca	24N	90E	5	81	Basella alba	JAVANICA	RSRSRS	051305	56	19	25
COUNTRY: BELIZE							**COOPERATOR: J.P. Hollis**						
E 620	1	Belize	18N	88W	10	5/79	Oryza sativa	ARENARIA R-2	RSRSRS	052405	—	—	—
COUNTRY: BERMUDA							**COOPERATOR: L.L. Burpee**						
E 461	1	Bermuda	32N	65W	24	9/78	Phaseolus vulgaris	INCOGNITA R-1	RRSSRS	005205	54	36	10
E 462	2	Bermuda	32N	65W	3	9/78	Cucurbita pepo	INCOGNITA R-1	RRSSRS	003505	71	18	11
E 463	3	Bermuda	32N	65W	18	9/78	Amaranthus sp.	INCOGNITA R-1	RRSSRS	005405	71	19	10
E 464	4	Bermuda	32N	65W	33	9/78	Capsicum sp.	INCOGNITA R-1	RRSRRS	003203	74	22	4
E 487	5	Bermuda	32N	65W	24	11/78	Daucus carota	INCOGNITA R-1	RRSSRS	001304	77	17	7
E 488	6	Bermuda	32N	65W	18	11/78	Solanum tuberosum	INCOGNITA R-1	RRSSRS	104405	77	13	10
E 489	7	Bermuda	32N	65W	30	11/78	Brassica oleracea	INCOGNITA R-1	RRRSRS	101205	71	17	12
E 490	8	Bermuda	32N	65W	9	11/78	Lycopersicon esculentum	ARENARIA R-2	RSRSRS	040304	56	24	20
COUNTRY: BOLIVIA							**COOPERATOR: G. Caero**						
E 352	11	Entre Rios	22S	65W	1700	4/78	Compositae	ARENARIA R-2	RSRSRS	050305	65	20	15
E 353	12	Tarija	22S	65W	1905	4/78	Solanum tuberosum	JAVANICA	RSRSRS	052305	69	15	16
COUNTRY: BRAZIL							**COOPERATOR: S.M. Curi**						
E 253	1	Campinas	23S	47W	750	77	Glycine max	INCOGNITA R-3	SRSSRS	404305	—	—	—
							COOPERATOR: R.M. de Moura						
E 162	1	Vitoria	8S	35W	146	4/77	Apium graveolens	INCOGNITA R-1	RRSSRS	005405	43	44	13
E 163	2	Sao Bento	9S	37W	600	4/77	Cucurbita maxima	JAVANICA	RSRSRS	040305	87	7	6
E 165	4	Arco Jerde	8S	37W	664	4/77	Phaseolus vulgaris	INCOGNITA R-1	RRSSRS	005305	77	18	6
E 166	5	Belem	8S	39W	305	4/77	Lycopersicon esculentum	INCOGNITA R-2	RSSSRS	045505	82	13	5
E 186	7	Parana	13S	48W	350	6/77	Coffea arabica	INCOGNITA R-3	SRSSRS	305305	—	—	—
E 187	8	Parana	13S	48W	350	6/77	Unknown	INCOGNITA R-4	SSSSRS	454405	—	—	—
E 966	13	Fortaleza	4S	39W	10	4/81	Latuca sativa	INCOG/JAVAN	RSSSRS	044404	93	2	5

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
144	20	15	25	1214	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	19	28	991	—	—	—	—	—	—	—	—	—	—	—	—	—	—
54	20	15	25	1214	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50	20	15	25	1214	—	—	—	—	—	—	—	—	—	—	—	—	—	—
42	20	15	25	1214	—	—	—	—	—	—	—	—	—	—	—	—	—	—
44-46	26	17	29	2209	3	1.00	7.6	-0.32	281	0.61	9.5	3.08	40.6	4.7	6.4	0.70	1.8	41
46	—	—	—	2209	3	0.96	6.2	0.40	33	0.56	10.0	2.18	18.6	5.2	2.0	0.26	0.9	21
50	27	24	29	1666	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	21	17	27	1464	0	0.95	7.8	-2.24	82	1.52	101.00	3.44	13.6	1.5	1.6	1.61	6.0	6
—	21	17	27	1464	0	1.08	8.1	-1.76	151	0.46	35.50	4.44	9.6	1.0	4.2	0.36	2.0	5
40	21	17	27	1464	0	1.05	7.9	-1.56	427	0.77	118.50	4.68	14.8	1.0	5.7	0.38	3.0	4
—	21	17	27	1464	0	0.88	7.9	-1.60	159	1.44	84.50	5.50	15.6	3.3	4.6	0.26	5.0	6
—	21	17	27	1464	0	1.21	7.6	-1.08	513	0.35	101.41	6.00	25.6	1.0	5.1	0.34	3.0	21
42	21	17	27	1464	0	1.29	7.8	-1.24	375	0.26	94.90	4.78	23.6	1.0	6.5	0.28	2.3	16
—	21	17	27	1464	0	1.25	7.9	-1.80	200	0.36	102.70	4.54	28.4	0.9	4.0	0.27	2.3	21
50	21	17	27	1464	0	1.05	7.9	-2.08	217	0.89	96.20	3.90	31.2	1.0	4.1	0.30	2.8	29
—	19	15	22	685	5	1.18	7.5	-0.36	22	0.45	6.7	3.80	23.2	2.3	3.5	0.03	0.7	30
45	19	15	22	685	5	1.18	8.5	-1.16	64	1.94	24.8	4.12	19.2	2.1	0.6	0.61	1.2	72
43	21	17	23	1364	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	25	1115	0	1.08	7.0	0.28	638	0.67	12.5	4.75	73.6	6.7	13.7	2.32	0.9	81
—	24	21	25	778	0	1.50	6.7	0.20	43	0.41	2.6	0.95	12.8	0.5	1.5	0.11	1.6	25
44	24	22	26	552	1	1.47	7.3	-0.16	100	1.06	6.7	2.30	15.2	0.4	2.8	0.14	7.4	26
43	27	24	28	549	3	1.33	5.5	1.00	92	0.30	4.1	0.67	30.0	0.8	4.5	0.09	4.4	23
42-43	26	24	27	1115	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	24	27	1115	0	—	—	—	—	—	—	—	—	—	—	—	—	-
—	26	25	28	1652	0	1.32	7.0	0.00	281	0.12	6.8	1.44	10.8	1.7	12.6	0.32	1.2	20

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test		Soil Texture		
									Rating*	Numerical*	Sand — %	Silt — %	Clay — %
COUNTRY: BRAZIL (cont'd)								**COOPERATOR: J.M. Dos Santos**					
E 795	1	Petrolina	3S	67W	50	/79	Unknown	ARENARIA R-2	RSRRRS	030105	87	8	5
E 796	2	Petrolina	3S	67W	50	/79	Unknown	JAVANICA	RSRSRS	050405	87	8	5
E 797	3	Petrolina	3S	67W	50	/79	Unknown	INCOGNITA R-1	RRSSRS	003405	81	11	8
								COOPERATOR: S. Ferraz					
E 130	1	Ponte Nova	20S	43W	700	5/77	Coffea arabica	EXIGUA	RRRRRS	021204	41	11	48
E 131	2	Teixeiras	21S	43W	650	5/77	Coffea arabica	EXIGUA	RRRRRS	001103	47	10	43
E 132	3	Vicosa	21S	43W	650	5/77	Hibiscus esculentus	JAVANICA	RSRSRS	050305	40	16	44
E 133	4	Vicosa	21S	43W	650	5/77	Phaseolus vulgaris	INCOGNITA R-2	RSSSRS	055305	37	29	35
E 431	5	Vicosa	21S	43W	650	8/78	Solanum gilo	INCOGNITA R-2	RSRSRS	051305	31	43	26
E 432	6	Vicosa	21S	43W	650	8/78	Solanum gilo	ARENARIA R-2	RSRSRS	052305	34	38	28
E 433	7	Vicosa	21S	43W	650	8/78	Carica papaya	ARENARIA R-2	RSRSRS	052405	37	41	22
E 434	8	Vicosa	21S	43W	650	8/78	Hibiscus esculentus	JAVANICA	RSRSRS	152505	17	46	37
E 438	9	Vista Nova	21S	43W	350	8/78	Nicotiana tabacum	ARENARIA R-2	RSSSRS	055405	63	19	19
E 439	10	Porto Firme	21S	43W	300	8/78	Coffea arabica	JAVANICA	RRSSRS	013304	36	38	26
E 477	11	Igarape	20S	45W	600	10/78	Solanum gilo	JAVANICA	RSRSRS	040304	64	27	9
E 478	12	Prudente	20S	44W	600	10/78	Canavalia gladiata	JAVANICA	RSSSRS	022405	52	35	13
								COOPERATORS: P.S. Lehman and H. Antonio					
E 91	1	Cruziero	25S	53W	580	2/77	Coffea arabica	INCOGNITA R-3	SRSSRS	405505	41	29	30
E 92	2	Ponta Pora	23S	56W	350	2/77	Glycine max	JAVANICA	RSRSRS	040305	41	30	29
E 93	3	Dourados	22S	55W	250	1/77	Glycine max	JAVANICA	RSRSRS	050504	36	28	36
E 94	4	Santa Amelia	23S	55W	300	1/77	Gossypium hirsutum	INCOGNITA R-3	SRSSRS	504405	38	33	28
E 118	5	Gravatai	30S	51W	300	2/77	Glycine max	JAVANICA	RSRSRS	051405	37	29	34
E 119	6	Cruz Alta	29S	54W	400	3/77	Glycine max	JAVANICA	RSRSRS	030204	45	27	28
E 120	7	Ponta Grossa	25S	50W	850	3/77	Glycine max	JAVANICA	RSRSRS	040204	44	28	29
E 121	8	Santa Mariana	23S	52W	450	4/77	Glycine max	JAVANICA	RSRSRS	040205	40	30	30
								COOPERATORS: R.R.A. Lordello and W.R.T. Novaretti					
E 197	1	Campinas	23S	47W	300	5/77	Coffea arabica	EXIGUA	RRRRRR	000000	54	32	14
E 198	2	Campinas	23S	47W	300	6/77	Lycopersicon esculentum	JAVANICA	RSRSRS	042205	42	32	26
E 199	3	Campinas	23S	47W	300	6/77	Hibiscus esculentus	INCOGNITA R-1	RRSSRS	105405	—	—	—
E 200	4	Macatuba	23S	53W	10	5/77	Saccharum officinale	INCOG R-2/JAVAN	RSSSRS	034305	74	10	16

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
52	25	24	26	3035	0	1.43	5.4	0.52	44	0.27	2.1	0.66	5.6	1.0	2.2	0.03	0.9	14
—	25	24	26	3035	0	1.47	6.3	0.04	24	0.27	1.6	0.46	19.6	1.2	1.2	0.02	0.2	13
42	25	24	26	3035	0	1.32	6.5	0.28	375	0.41	8.7	1.34	14.4	3.3	4.7	0.03	1.7	23
—	17	15	22	1341	0	0.99	4.1	3.60	19	0.24	1.5	0.40	21.6	2.7	1.0	0.09	3.1	56
18	19	15	22	1341	0	1.03	4.7	1.84	0	0.18	1.4	0.49	62.4	3.3	0.7	0.08	1.8	38
45	19	15	22	1342	0	0.97	6.0	1.08	44	0.26	4.7	0.99	75.2	4.1	3.3	0.10	2.7	50
—	19	15	22	1341	0	0.99	5.2	1.40	0	0.27	1.6	0.80	104.0	4.1	1.5	0.08	1.3	37
44	19	15	22	1342	0	0.77	5.0	2.08	27	0.32	4.4	1.92	70.0	5.7	3.4	0.07	3.8	61
—	19	15	22	1342	0	0.86	5.4	1.28	—	—	—	—	—	—	—	—	—	—
54	19	15	22	1342	0	0.76	6.0	0.64	14	1.03	7.5	6.80	62.0	4.2	2.5	0.05	5.8	46
—	19	15	22	1342	0	0.83	4.7	2.32	59	0.26	3.4	0.80	34.4	7.3	1.2	0.05	2.6	49
—	19	16	24	1356	0	1.11	5.6	0.52	12	0.27	3.0	0.80	66.0	2.6	2.5	0.05	1.4	32
44	19	16	24	1356	0	0.81	5.2	1.84	10	0.40	4.2	2.04	33.6	3.7	2.0	0.05	1.5	32
46	21	17	23	1276	0	1.00	4.9	2.88	271	0.16	8.3	0.48	19.2	12.6	1.3	0.10	3.2	70
—	21	17	23	1276	0	0.91	6.0	0.72	24	0.50	10.3	1.06	26.8	2.1	1.0	0.08	2.7	43
—	20	17	24	1400	0	1.11	6.7	0.68	4	0.24	4.1	2.05	20.4	14.2	3.1	0.25	1.7	11
—	21	17	24	1354	0	1.08	6.4	0.80	4	0.33	4.2	1.95	19.2	12.5	3.5	0.26	1.6	7
42	21	17	24	1354	0	1.07	6.5	0.64	3	0.21	4.2	1.95	20.4	12.8	3.7	0.18	1.8	8
—	21	17	24	1354	0	1.15	6.5	0.84	3	0.32	4.9	2.20	25.6	15.7	3.6	0.22	1.9	10
—	21	17	24	1354	0	1.10	6.0	1.32	4	0.27	4.1	2.25	21.2	13.6	4.5	0.26	1.7	10
—	21	15	25	1370	0	1.12	6.7	0.40	4	0.30	4.2	1.90	20.0	12.5	3.8	0.19	1.7	9
43	18	14	21	1400	0	1.13	6.6	0.76	10	0.23	4.4	2.00	23.2	12.0	2.9	0.20	2.0	13
42	21	17	24	1354	0	1.09	6.6	0.64	5	0.37	5.2	1.90	23.2	15.0	4.7	0.20	1.8	10
—	21	17	23	1364	0	1.14	4.2	3.48	46	0.17	1.2	0.20	16.4	9.1	0.5	0.18	2.3	23
—	21	17	23	1364	0	1.24	4.9	2.52	59	0.27	2.9	0.46	64.0	16.9	0.1	0.18	2.0	31
42	21	17	23	1364	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	21	15	23	1364	0	1.20	4.5	1.40	44	0.14	0.8	0.20	6.4	1.2	0.2	0.05	1.1	15

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test: Rating*	Differential Host Test: Numerical*	Soil Texture: Sand — %	Soil Texture: Silt — %	Soil Texture: Clay — %
COUNTRY: CANADA							**COOPERATOR: T. Vrain**						
E 293	1	Saint Agapit	44N	71W	—	8/77	Medicago sativa	HAPLA	RSSRSS	044055	79	21	0
E 294	2	St. Dominique	45N	73W	50	8/77	Apium graveolens	HAPLA	RSSRSS	034045	84	16	1
E 295	3	Saint Lin	46N	73W	50	8/77	Daucus carota	HAPLA	RSSRSS	054044	65	33	1
E 296	4	Lanson	45N	74W	30	8/77	Daucus carota	HAPLA	RSSRSS	042043	85	15	0
COUNTRY: CANARY ISLANDS							**COOPERATOR: R. Rodriguez**						
E 523	1	Los Moriscos	28N	16W	98	2/79	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005405	45	35	19
E 524	2	Botija	28N	16W	60	2/79	Cucumis sativus	JAVANICA	RSRSRS	040405	39	39	22
E 525	3	Los Moriscos	28N	16W	98	2/79	Musa sp. (cv. Cavendish)	JAVAN/INCOG	SSSSRS	355505	46	38	16
E 527	4	La Mareta	28N	16W	30	3/79	Lycopersicon esculentum	JAVANICA	RSRSRS	051405	59	27	14
E 528	5	Arucas	28N	16W	100	3/79	Musa sp. (cv. Cavendish)	JAVAN/INCOG R-2/ AREN R-2	RSSSRS	054305	23	40	36
E 529	6	Botija	28N	16W	60	3/79	Cucumis sativus	JAVANICA	RSRSRS	052405	44	34	22
E 931	7	Arucas	29N	15W	50	10/80	Cucumis sativus	JAVAN/INCOG	RSSSRS	255405	53	34	14
E 932	8	Arucas	29N	15W	50	10/80	Cucumis sativus	JAVAN/INCOG	SSSSRS	355405	53	34	14
E 933	9	Arucas	29N	15W	50	10/80	Cucumis sativus	JAVAN/INCOG	SSSSRS	354405	53	34	14
COUNTRY: CHILE							**COOPERATOR: H.M. Gonzalez-Rodriguez**						
E 330	1	Cabildo	32S	71W	200	12/77	Nicotiana tabacum	INCOGNITA R-2	RSRSRS	050405	72	15	13
E 688	6	Santiago	34S	71W	350	9/79	Prunus persica	JAVANICA	RSSSRS	155305	49	40	11
E 787	7	Huentelaquen	32S	71W	5	10/79	Carya illinoensis	JAVANICA	RSRSRS	052405	62	28	9
E 882	9	Santiago	34S	71W	488	2/80	Phaseolus vulgaris	JAVAN/INCOG	RSRSRS	041405	41	39	19
							COOPERATOR: M.O. Jiminez						
E 535	2	Arica	19S	70W	250	3/79	Lycopersicon esculentum	JAVANICA	RSRSRS	050305	53	30	17
E 572	3	Arica	19S	70W	500	4/79	Olea europea	ARENARIA R-2	RSRSRS	050305	61	30	9
E 573	4	Arica	19S	70W	500	4/79	Phaseolus vulgaris	INCOG R-3/JAVAN	SSSSRS	454405	57	31	12
E 575	6	Arica	19S	70W	500	4/79	Beta vulgaris var. cicla	JAVANICA	RSRSRS	050405	50	35	15
E 601	7	Arica	19S	70W	280	5/79	Capsicum sp.	JAVANICA	RSRSRS	030305	81	12	7
E 885	12	Arica	19S	70W	300	6/80	Musa sp.	JAVANICA	RSRSRS	050405	47	39	14
COUNTRY: CHINA							**COOPERATOR: Baojun Yang**						
E 934	1	Nan-Ning	23N	108E	72	12/81	Gardenia jasminoides	INCOGNITA R-1	RRSSRS	205405	24	57	19
E 935	2	Nan-Ning	23N	108E	72	12/81	Maytenus hookeri	INCOG/JAVAN	RSSSRS	055505	56	30	14
E 936	3	Guilin	25N	110E	167	12/81	Olea europa	JAVANICA	RSRSRS	050505	35	38	27
E 937	4	Guilin	25N	110E	167	12/81	Salix matsudane	JAVANICA	RSRSRS	050405	13	54	33

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month	mm		Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
16	5	-13	20	1054	0	1.00	5.6	1.36	23	0.14	7.4	0.32	13.6	1.8	0.6	0.12	3.6	72
15-16	5	-13	20	1054	0	0.53	6.4	1.40	128	0.35	42.0	1.80	2.8	5.8	0.8	0.11	16.9	141
16	5	-13	20	1054	0	1.07	6.5	0.28	96	0.14	16.0	0.83	12.4	2.7	1.9	0.08	4.6	50
17	5	-13	20	1054	0	0.40	5.6	2.52	106	0.15	18.0	3.15	2.8	3.2	1.2	0.10	12.9	37
42	20	17	25	84	8	0.99	8.0	-0.72	175	3.92	39.5	13.00	38.0	3.8	6.4	1.59	0.9	19
—	20	16	24	137	5	0.88	7.9	-1.68	311	3.56	69.5	17.00	14.4	3.2	2.8	2.08	2.1	12
—	20	17	25	84	8	1.08	8.1	-1.40	499	5.52	35.5	18.20	20.0	6.3	4.2	1.47	2.4	33
—	20	17	25	84	8	1.01	7.7	-0.72	342	5.40	48.0	12.20	18.8	11.0	27.4	1.47	2.4	33
—	18	14	22	273	3	0.92	6.5	0.80	573	2.96	18.6	6.70	39.2	3.6	9.8	0.74	1.8	83
—	20	16	24	137	5	0.79	7.6	-1.00	271	2.36	37.0	10.20	13.6	4.6	2.6	1.70	2.1	67
—	18	14	22	273	3	1.03	8.0	-0.44	25	0.79	32.5	6.48	36.0	0.7	2.3	1.09	1.3	72
J44-46	18	14	22	273	3	1.03	8.0	-0.44	25	0.79	32.5	6.48	36.0	0.7	2.3	1.09	1.3	72
—	18	14	22	273	3	1.03	8.0	-0.44	25	0.79	32.5	6.48	36.0	0.7	2.3	1.09	1.3	73
44-46	15	10	19	202	6	1.23	8.0	-0.72	77	0.46	14.5	3.20	196.0	13.3	1.1	0.37	1.2	177
44-45	15	8	23	411	5	1.12	8.0	-0.88	7	0.46	25.5	1.72	81.2	24.1	2.5	0.66	1.3	33
—	15	10	19	256	5	1.22	6.9	0.00	200	1.31	18.9	5.16	35.2	5.9	3.4	1.15	2.3	41
J43-46	15	8	23	470	5	1.05	8.0	1.00	5	0.33	42.0	1.80	19.6	9.4	4.6	0.38	1.2	26
43-45	18	15	22	6	12	1.18	7.9	-0.28	100	0.64	22.7	3.04	1.72	5.5	1.6	0.80	0.8	45
50	18	14	23	6	12	—	—	—	—	—	—	—	—	—	—	—	—	—
44-45	18	14	23	6	12	1.07	6.0	0.00	85	1.02	20.6	4.08	29.2	4.2	2.9	0.87	0.6	20
—	18	14	23	6	12	0.58	6.1	2.20	136	0.98	20.8	3.80	26.0	7.6	16.7	1.90	0.7	14
45-46	18	15	22	6	12	1.25	7.7	0.00	226	0.54	21.2	2.70	24.8	4.9	4.5	3.16	0.0	21
—	18	14	23	7	12	—	—	—	—	—	—	—	—	—	—	—	—	—
—	22	13	28	1307	0	1.06	5.1	1.12	14	0.21	3.5	0.82	21.6	2.9	1.9	0.13	1.3	14
42-44	22	13	28	1307	0	1.09	5.4	1.52	55	0.31	3.8	0.98	12.6	2.6	2.5	0.05	1.4	21
45	19	8	28	1821	0	1.03	6.4	0.72	92	0.27	6.9	2.02	8.4	17.3	1.3	0.06	1.6	19
46	19	8	28	1821	0	0.94	6.9	0.36	24	0.31	13.4	1.50	48.2	5.6	8.8	0.07	1.4	14

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test		Soil Texture		
									Rating*	Numerical*	Sand — %	Silt — %	Clay — %
COUNTRY: COLOMBIA							**COOPERATOR: R. Barriga-Olivares**						
E 136	1	Cienaga	11N	74W	15	5/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	004304	65	25	9
E 137	2	Cienaga	11N	74W	25	5/77	Lycopersicon esculentum	ARENARIA R-2	RSRSRS	050405	76	18	6
E 138	3	Cienaga	11N	74W	20	5/77	Carica papaya	INCOGNITA R-1	RRSSRS	004305	52	42	7
E 175	6	Pradera	3N	76W	1100	5/77	Cucumis sativus	INCOGNITA R-1	RRSSRS	005405	52	41	6
E 218	11	Rio Negro	6N	76W	2200	5/77	Beta vulgaris	INCOGNITA R-2	RSSSRS	055505	48	46	7
E 219	12	Rio Negro	6N	76W	1000	7/77	Solanum tuberosum	INCOGNITA R-2	RSSSRS	053405	44	49	6
E 238	13	Ciro	7N	73W	800	8/77	Nicotiana tabacum	JAVANICA	RSRSRS	040305	74	17	9
E 239	14	Enciso	7N	73W	1200	8/77	Nicotiana tabacum	JAVAN/INCOG	RSSSRS	044405	28	36	36
E 240	15	Tipacoque	6N	73W	1200	8/77	Nicotiana tabacum	INCOGNITA R-1	RRSSRS	003404	52	25	23
E 241	16	San Gil	7N	73W	1100	9/77	Nicotiana tabacum	JAVANICA	RSSSRS	144304	39	29	31
E 281	18	Villamaria	5N	75W	2150	11/77	Solanum quitoense	INCOGNITA R-2	RSSSRS	034204	72	29	2
E 320	19	Cerrito	3N	76W	1100	2/78	Musa sp. AAB	JAVANICA	RSRSRS	040405	42	37	21
E 321	20	Palmira	4N	76W	1200	2/78	Musa sp. AAB	ARENARIA R-2	RSRSRS	052405	47	35	19
E 856	24	San Pedro	7N	76W	2500	2/80	Capsicum baccatum	JAVANICA	RSR-RS	041-05	61	36	4
E 880	26	Monte Negro	5N	76W	1250	12/79	Musa sp. AAB	INCOG/JAVAN	RRSSRS	022204	63	32	5
COUNTRY: COSTA RICA							**COOPERATOR: R. Lopez**						
E 256	1	Turrialba	10N	83W	750	9/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	004404	—	—	—
E 257	2	Alajuela	10N	84W	750	9/77	Apium graveolens	INCOGNITA R-1	RRSSRS	005305	—	—	—
E 258	3	Heredia	10N	84W	750	9/77	Latuca sativa	HAPLA	RSSRSS	033044	—	—	—
E 259	4	Cartago	10N	84W	750	9/77	Daucus carota	HAPLA	RSSRSS	044045	—	—	—
E 260	5	Zarcero	10N	84W	750	9/77	Brassica oleracea	JAVANICA	RSRSRS	050405	—	—	—
COUNTRY: CYPRUS							**COOPERATOR: J. Philis**						
E 338	1	Cyprus	35N	33E	100	9/77	Dianthus caryophilus	JAVANICA	RSRSRS	051405	73	8	19
E 391	4	Cyprus	35N	33E	100	7/78	Cucumis sativus	JAVANICA	RSRRRS	051205	64	13	23
E 392	5	Cyprus	35N	33E	25	6/78	Lycopersicon esculentum	JAVANICA	RSSSRS	052505	44	30	26
E 393	6	Cyprus	35N	33E	50	6/78	Solanum melongena	JAVANICA	RSSSRS	053405	60	16	23
E 394	7	Cyprus	35N	33E	50	6/78	Phaseolus vulgaris	JAVANICA	RSRSRS	152405	60	15	25
E 395	8	Cyprus	35N	33E	80	6/78	Solanum melongena	JAVANICA	RSRSRS	040205	48	26	25
E 397	9	Cyprus	35N	33E	50	6/78	Solanum melongena	JAVANICA	RSRSRS	050305	79	6	16
E 412	11	Cyprus	35N	33E	100	8/78	Cucumis sp.	JAVANICA	RSRSRS	052405	41	37	21
E 414	13	Cyprus	35N	33E	120	7/78	Apium graveolens	JAVANICA	RSRSRS	052505	15	40	45

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
42-44	25	24	26	1117	3	1.22	7.5	-0.44	77	0.82	17.0	4.05	28.0	4.5	1.8	0.26	3.2	55
54	25	24	26	1117	3	1.10	5.9	1.20	24	0.14	6.2	1.62	18.4	107.7	2.2	0.15	1.6	28
—	25	24	26	1117	3	0.98	5.9	1.32	70	0.13	8.3	2.30	10.0	158.7	1.7	0.16	1.2	35
—	24	21	26	1044	0	0.96	6.6	1.04	106	0.84	16.5	3.55	24.4	5.5	7.3	0.15	1.5	83
—	16	16	18	1808	0	0.69	5.5	3.92	55	0.30	7.7	1.40	11.2	2.4	8.1	0.10	15.3	58
45	16	16	18	1809	0	0.59	5.3	4.56	18	0.47	2.8	0.93	6.0	1.6	0.7	0.06	15.3	97
45	24	24	25	979	0	1.24	7.1	-0.04	82	0.54	5.7	1.80	35.2	1.9	5.1	0.13	1.3	20
44	25	23	26	1342	0	1.04	7.2	0.04	70	0.47	26.5	1.80	38.8	3.4	3.0	0.11	5.0	27
—	24	20	26	843	0	1.12	7.9	-0.64	226	0.91	25.5	3.51	29.2	5.7	3.4	0.16	1.8	20
45	24	21	26	1176	0	1.17	7.8	-0.80	70	0.34	27.5	0.56	15.6	1.7	2.1	0.11	2.2	15
45	16	16	17	1935	0	0.93	6.5	0.60	92	0.69	12.5	2.15	4.8	6.5	6.5	0.14	6.5	36
—	24	21	26	1044	0	1.19	7.0	0.12	23	0.96	21.6	8.10	11.2	14.5	14.5	0.38	1.6	67
37	24	21	26	1044	0	0.94	4.7	3.84	70	0.31	3.4	0.54	26.0	2.3	1.1	0.06	4.1	60
48	22	21	22	1841	0	0.71	6.6	0.84	92	0.70	24.6	3.84	7.2	13.8	10.8	0.06	12.0	94
144-46	22	21	22	2108	0	—	—	—	—	—	—	—	—	—	—	—	—	—
42	22	19	26	1926	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	22	19	26	1926	2	—	—	—	—	—	—	—	—	—	—	—	—	—
17	22	19	26	1926	2	—	—	—	—	—	—	—	—	—	—	—	—	—
17	22	19	26	1926	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	22	19	26	1926	2	—	—	—	—	—	—	—	—	—	—	—	—	—
46	18	11	27	342	4	1.03	7.9	-0.80	226	1.74	27.1	4.64	21.2	1.0	29.4	1.38	0.8	150
44-45	18	11	27	342	4	1.17	7.4	-0.32	208	0.86	22.0	3.82	36.0	5.2	15.2	1.24	1.6	88
—	18	11	27	342	4	1.05	7.7	-0.84	208	1.10	31.8	7.82	34.4	4.8	5.2	1.74	1.6	189
—	18	11	27	342	4	1.09	8.1	-1.28	159	1.14	69.8	9.60	22.8	0.6	4.2	0.89	1.0	22
45	18	11	27	342	4	1.05	8.2	-1.36	92	1.10	76.0	12.50	24.8	0.6	3.0	0.97	0.8	22
—	18	11	27	342	4	1.02	8.0	-1.24	159	1.03	37.0	9.82	34.0	0.6	3.9	1.76	1.5	14
48	18	11	27	342	4	1.33	7.9	-0.56	151	0.86	22.0	3.20	36.0	5.5	5.2	0.74	0.7	250
—	17	11	25	250	5	0.96	7.7	-0.64	173	1.28	98.5	6.40	84.0	0.7	3.9	1.89	2.4	8
46	18	10	28	362	4	0.99	8.3	-1.04	122	0.84	55.5	10.00	19.2	1.5	0.9	1.04	1.4	8

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test Rating*	Differential Host Test Numerical*	Soil Texture Sand — %	Soil Texture Silt — %	Soil Texture Clay — %
COUNTRY: CYPRUS (cont'd)													
E 415	14	Cyprus	35N	33E	100	8/78	Lycopersicon esculentum	JAVANICA	RSRSRS	041304	25	44	31
E 416	15	Cyprus	35N	33E	100	7/78	Hibiscus esculentus	JAVANICA	RSSSRS	053405	28	25	47
E 417	16	Cyprus	35N	33E	100	7/78	Solanum melongena	JAVANICA	RSRSRS	051505	29	31	40
E 447	17	Cyprus	35N	33E	10	8/78	Solanum melongena	JAVANICA	RSSSRS	053505	21	16	63
E 448	18	Cyprus	35N	33E	30	9/78	Lycopersicon esculentum	JAVANICA	RSSSRS	054505	23	50	27
E 540	19	Cyprus	35N	33E	50	9/78	Phaseolus vulgaris	JAVANICA	RSRSRS	050405	—	—	—
E 541	20	Cyprus	35N	33E	50	3/79	Beta vulgaris var. cicla	JAVANICA	RSRSRS	040305	—	—	—
E 798	22	Nicosia	35N	33E	500	12/79	Lycopersicon esculentum	JAVANICA	RSRSRS	050405	—	—	—
E 799	23	Nicosia	35N	33E	500	12/79	Lycopersicon esculentum	JAVANICA	RSRSRS	050405	—	—	—
COUNTRY: ECUADOR							**COOPERATOR: R. Eguiguren-Rodriguez**						
E 237	1	La Toma	4S	79W	1200	2/77	Lycopersicon esculentum	INCOGNITA R-4	SSSSRS	434305	47	29	24
E 302	3	Zapotillo	4S	80W	180	2/78	Ipomoea sp.	HAPLA	RSSRSS	034045	73	22	5
E 308	4	Boliche	2S	80W	30	11/77	Nicotiana tabacum	INCOGNITA R-1	RRSSRS	005405	36	54	10
E 805	12	Quito	0S	79W	2600	2/80	Rosa sp.	HAPLA	RSSRSS	034024	79	19	3
COUNTRY: EGYPT							**COOPERATOR: I.K.A. Ibrahim**						
E 227	1	El Gadia	31N	30E	5	7/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	004305	93	0	6
E 228	2	El Gadia	31N	30E	5	7/77	Citrullus vulgaris	INCOGNITA R-1	RRSSRS	005505	93	2	5
E 229	3	Alexandria	31N	30E	25	8/77	Chenopodium amaranhacolor	JAVANICA	RRRSRS	020204	70	14	16
E 230	4	El Azima	31N	31E	50	7/77	Lycopersicon esculentum	JAVANICA	RSRSRS	050405	69	16	15
E 231	5	El Azima	31N	31E	50	7/77	Cucumis sativus	JAVANICA	RSRSRS	040304	61	17	21
E 232	6	Alexandria	31N	30E	55	7/77	Lycopersicon esculentum	JAVANICA	RSRSRS	050305	38	33	29
E 233	7	Alexandria	31N	30E	3	3/77	Gossypium barbadense	INCOGNITA R-3	SRSSRS	204305	49	27	24
E 234	8	Kafr Achma	31N	31E	20	4/77	Prunus amygdalus	JAVANICA	RSRSRS	051305	68	13	19
E 235	9	Alexandria	31N	30E	3	8/77	Myporum pectum	INCOGNITA R-1	RRSSRS	004405	87	5	8
E 236	10	Alexandria	31N	30E	3	5/77	Beta vulgaris	INCOGNITA R-1	RRSSRS	005305	88	4	8
E 418	11	El Sharkia	31N	32E	55	7/78	Hibiscus esculentus	JAVAN/AREN	RSSSRS	054305	—	—	—
E 419	12	El Sharkia	31N	32E	55	7/78	Arachis hypogaea	JAVANICA	RSRSSS	052435	90	1	9
E 420	13	El Sharkia	31N	32E	55	7/78	Arachis hypogaea	JAVANICA	RSRSRS	051435	91	2	8
E 421	14	El Sharkia	31N	32E	55	7/78	Hibiscus esculentus	JAVANICA	RSRSRS	052405	65	14	21
E 422	15	Alexandria	31N	30E	3	7/78	Corchoris olitorius	INCOGNITA R-1	RRSSRS	015505	41	29	30
E 423	16	Alexandria	31N	30E	3	7/78	Hibiscus esculentus	JAVANICA	RSRSRS	053405	27	38	35

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month	mm		Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
—	17	11	25	250	5	0.98	7.5	-0.52	398	2.52	46.0	9.40	30.8	4.3	2.7	0.76	3.1	10
—	18	11	25	312	5	1.09	8.2	-1.24	29	0.92	48.5	11.00	14.0	7.5	0.8	0.51	1.1	4
43	18	11	25	312	5	1.02	7.9	-1.08	100	1.72	55.0	7.50	24.0	6.2	2.2	1.06	1.1	6
—	19	11	29	342	4	1.09	6.4	-1.00	301	0.29	614.4	10.20	110.0	4.3	1.3	5.40	1.0	6
—	19	11	29	390	5	1.05	7.7	-0.64	55	0.13	63.0	4.48	46.0	0.6	1.5	0.91	1.1	11
—	22	11	27	330	5	—	—	—	—	—	—	—	—	—	—	—	—	—
—	18	11	27	330	5	—	—	—	—	—	—	—	—	—	—	—	—	—
—	18	11	27	390	5	—	—	—	—	—	—	—	—	—	—	—	—	—
—	18	11	27	390	5	—	—	—	—	—	—	—	—	—	—	—	—	—
45	24	23	25	360	3	1.14	7.9	-0.48	27	0.84	38.5	4.68	35.6	5.5	1.9	0.74	0.7	79
16	25	23	26	426	7	1.14	7.3	0.20	14	0.19	22.5	3.95	31.2	5.7	2.0	0.26	1.4	70
—	25	24	27	914	1	1.04	6.3	0.48	16	0.32	15.3	7.11	9.6	8.3	0.9	0.20	3.0	38
17	13	13	13	803	1	1.34	5.5	1.52	208	0.70	2.3	1.56	13.2	4.5	3.1	0.07	1.1	29
—	22	14	28	18	12	1.43	8.3	-0.44	92	0.28	10.4	2.16	12.0	2.4	4.5	0.21	0.2	14
45	22	14	28	18	12	1.49	8.1	-0.36	97	0.23	10.0	2.20	11.6	4.8	5.2	0.33	0.0	12
—	22	14	28	18	12	1.30	8.2	-1.12	10	1.30	29.4	5.22	108.8	2.0	65.8	2.83	1.3	36
—	22	14	28	18	12	1.18	8.0	-0.84	47	0.70	73.0	3.72	14.4	0.5	0.4	1.11	0.7	11
—	22	14	28	18	12	1.13	8.3	-1.16	22	0.73	56.0	3.96	11.6	0.6	1.5	1.40	0.4	14
—	22	14	28	18	12	1.03	8.1	-1.32	35	0.76	119.6	6.37	12.4	0.5	0.2	1.84	0.8	10
44	22	14	28	18	12	1.18	8.5	1.24	60	0.94	39.2	5.62	32.0	1.2	30.2	1.61	1.3	39
—	22	14	28	18	12	1.13	8.5	-0.88	12	0.71	32.4	5.82	32.4	5.7	5.0	1.10	0.7	67
—	22	14	28	18	12	1.45	8.4	-0.02	43	0.72	25.9	6.44	27.6	0.7	11.8	1.21	1.1	14
42-43	22	14	28	18	12	1.44	8.2	-0.60	52	0.42	42.0	3.00	12.8	1.2	3.8	0.56	0.5	109
J48	22	14	28	18	12	1.20	8.0	-0.56	175	0.85	19.7	5.46	29.6	19.7	8.4	0.44	1.6	55
47	22	14	28	18	12	1.45	8.3	-0.52	54	0.44	17.2	3.64	18.8	3.5	4.2	0.16	0.0	26
43-45	22	14	28	18	12	1.39	8.2	-0.36	49	0.34	7.1	2.54	10.8	1.5	2.0	0.62	0.0	14
44	22	14	28	18	12	1.20	7.8	-0.32	57	0.98	17.6	4.62	26.8	8.6	3.2	0.23	1.7	45
—	22	14	28	18	12	1.14	7.5	-0.68	167	0.98	49.1	7.70	88.0	1.4	12.1	1.42	1.6	83
—	22	14	28	18	12	1.02	8.0	-0.88	262	2.24	34.3	8.56	33.6	2.5	4.0	1.35	2.1	217

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test Rating*	Differential Host Test Numerical*	Soil Texture Sand — %	Soil Texture Silt — %	Soil Texture Clay — %
COUNTRY: EGYPT (cont'd)													
E 424	17	Giza	30N	31E	75	7/78	Hibiscus esculentus	JAVANICA	RSRSSS	050445	84	4	12
E 425	18	Giza	30N	31E	75	7/78	Hibiscus esculentus	JAVANICA	RSRSSS	052545	88	6	6
E 426	19	Sharqiya	31N	31E	55	7/78	Cucurbita pepo	JAVANICA	RSSSRS	153405	37	48	15
E 427	20	Kafr El Sheikh	31N	31E	25	7/78	Solanum melongena	JAVANICA	RSSSRS	053305	37	48	15
E 614	21	Faqus	31N	32E	10	7/79	Arachis hypogaea	JAVANICA	RSRSRS	040305	91	0	9
E 615	22	Faqus	31N	32E	10	7/79	Arachis hypogaea	INCOG/JAVAN	RSSSSS	044324	96	0	4
E 616	23	Faqus	31N	32E	10	7/79	Arachis hypogaea	JAVANICA	RSRSRS	050505	91	0	9
E 617	24	Faqus	31N	32E	10	7/79	Arachis hypogaea	JAVANICA	RSRSRS	050305	92	0	8
E 618	25	Damanhur	31N	30E	10	7/79	Gossypium barbadense	JAVANICA	RSRSRS	040305	28	27	45
E 619	26	Giza	30N	31E	10	7/79	Hibiscus esculentus	JAVANICA	RSRSRS	051405	79	9	12
E 892	27	Giza	30N	31E	100	12/79	Solanum melongena	JAVANICA	RSRSRS	040405	20	34	46
E 893	28	Giza	30N	31E	100	8/80	Solanum melongena	JAVANICA	RSRSRS	041405	14	51	36
E 895	30	Giza	30N	31E	100	8/80	Cucumis melo	INCOG/AREN R-2	RRSSRS	004405	93	4	3
COOPERATOR: F. Moussa													
E 826	1	Giza	30N	31E	50	12/79	Hibiscus esculentus	JAVANICA	RSRSSS	040245	—	—	—
E 827	2	Giza	30N	31E	75	12/79	Lycopersicon esculentum	JAVANICA	RSRSSS	040345	79	11	10
E 828	3	Giza	30N	31E	75	12/79	Cucurbita sp. (squash)	JAVANICA	RSRSSS	050545	79	10	11
COUNTRY: EL SALVADOR							**COOPERATOR: L. Abrego**						
E 25	1	San Andres	14N	89W	350	10/76	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	104405	—	—	—
E 26	2	San Andres	14N	89W	350	10/76	Lycopersicon esculentum	INCOGNITA R-3	SRSSRS	305505	—	—	—
E 27	3	Metapan	14N	89W	2000	10/76	Solanum tuberosum	INCOGNITA R-2	RSRSRS	040305	—	—	—
COOPERATOR: M.A. Escobar													
E 446	4	Monchique	13N	88W	245	9/78	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	004405	38	43	20
COOPERATOR: C. Montoya													
E 324	3	La Libertad	14N	89W	460	3/78	Carica papaya	INCOGNITA R-1	RRSSRS	004405	52	42	7
COUNTRY: FIJI							**COOPERATOR: M.F. Kirby**						
E 71	1	Sigatoka	18S	178E	12	3/77	Hibiscus manihot	JAVANICA	RSRSRS	030304	33	49	19
E 72	2	Natadola	18S	177E	15	3/77	Lycopersicon esculentum	JAVANICA	RSRSRS	050405	17	32	51
E 74	4	Korovisilou	18S	179E	20	2/77	Trifolium semipilosum	INCOGNITA R-1	RRSSRS	004405	78	16	6
E 75	6	Devo	17S	179E	100	2/77	Saccharum officinarum	JAVANICA	RSRSRS	040404	17	28	55
E 76	7	Lalakoro	17S	179E	100	7/77	Saccharum officinarum	JAVANICA	RSRSRS	050505	59	33	7

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month	mm		Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
45	22	14	28	18	12	1.27	8.4	-0.84	37	0.58	19.8	4.78	25.2	7.1	2.9	0.22	0.5	59
—	22	14	28	18	12	1.33	8.4	-0.56	32	0.45	17.3	3.62	16.0	4.0	2.2	0.22	0.1	36
45	22	14	28	18	12	1.08	8.3	-0.48	12	0.31	22.9	5.30	20.8	6.7	1.3	1.09	0.6	63
—	22	14	28	18	12	1.07	8.2	-1.20	32	1.14	31.4	10.60	25.6	9.6	0.7	1.38	0.9	74
—	22	14	28	18	12	1.37	8.4	0.00	43	0.51	13.1	3.50	23.2	3.7	1.1	0.17	0.0	22
—	22	14	28	18	12	1.67	8.5	0.00	29	0.41	12.1	2.48	19.6	1.2	2.0	0.16	0.0	21
—	22	14	28	18	12	1.45	8.6	0.00	39	0.18	20.3	4.36	34.0	4.9	3.3	0.23	0.3	33
—	22	14	28	18	12	1.38	8.2	0.00	34	0.35	20.7	3.54	31.6	5.5	3.9	0.44	0.5	29
—	22	14	28	18	12	1.14	7.8	0.00	331	2.88	52.0	18.40	88.0	1.5	2.2	2.48	2.7	134
—	22	14	28	18	12	1.32	8.2	0.00	191	1.11	22.9	6.60	48.0	12.2	6.5	0.58	1.8	36
47	22	14	28	18	12	—	—	—	—	—	—	—	—	—	—	—	—	—
—	22	14	28	18	12	—	—	—	—	—	—	—	—	—	—	—	—	—
—	22	14	28	18	12	—	—	—	—	—	—	—	—	—	—	—	—	—
44-48	22	14	28	18	12	—	—	—	—	—	—	—	—	—	—	—	—	—
—	22	14	28	18	12	—	—	—	—	—	—	—	—	—	—	—	—	—
—	22	14	28	18	12	—	—	—	—	—	—	—	—	—	—	—	—	—
41-45	23	22	24	2191	3	—	—	—	—	—	—	—	—	—	—	—	—	—
—	23	22	24	2191	3	—	—	—	—	—	—	—	—	—	—	—	—	—
44	21	20	22	2459	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	30	29	32	1340	2	0.79	4.4	4.52	234	1.69	8.2	2.72	112.0	16.4	2.8	0.09	2.2	63
42	23	22	26	1606	4	1.04	6.6	0.04	24	0.42	6.2	3.65	3.6	2.5	1.1	0.38	1.7	47
—	23	22	27	1871	0	1.31	6.0	1.80	15	0.96	16.0	5.94	39.6	9.3	1.1	0.39	1.3	36
—	25	22	27	1785	0	1.20	6.3	0.92	31	1.11	17.0	2.00	132.0	6.0	1.0	0.34	3.8	81
45	24	22	26	3211	0	1.44	4.7	1.76	14	0.22	3.3	0.75	10.8	2.7	10.5	0.14	1.7	38
—	25	22	27	2436	0	1.12	4.2	4.92	22	0.26	3.6	0.59	19.2	5.9	0.6	0.33	3.8	50
—	25	22	27	2436	0	1.08	4.2	5.16	19	0.19	2.0	0.41	64.0	3.7	0.0	0.30	10.7	77

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test: Rating*	Differential Host Test: Numerical*	Soil Texture: Sand — %	Soil Texture: Silt — %	Soil Texture: Clay — %
COUNTRY: FIJI (cont'd)													
E 117	5	Waidradra	18S	178E	300	6/77	Saccharum officinarum	INCOG/JAVAN	RRSSRS	023405	34	44	22
E 134	8	Novosa	18S	178E	250	5/77	Unknown	JAVANICA	RSRSRS	050405	70	19	11
E 135	9	Waibasada	18S	178E	152	8/77	Solanum turvum	JAVANICA	RSRSRS	040305	83	13	4
COOPERATOR: F. Vilsoni													
E 389	1	College of Agr.	18S	179E	10	6/78	Hibiscus moschatus	ARENARIA R-2	RSSSRS	054405	17	54	29
E 398	2	Pacific Harbor	18S	178E	10	6/78	Cucurbita sp. (zucchini)	INCOGNITA R-1	RRSSRS	014505	6	84	10
E 399	3	Pacific Harbor	18S	178E	10	6/78	Phaseolus vulgaris	JAVANICA	RSRSRS	040304	80	14	5
E 400	4	Natadola	18S	178E	80	6/78	Lycopersicon esculentum	JAVAN/INCOG	RSSSRS	254405	19	35	46
E 401	5	Nandi	18S	177E	30	6/78	Cucumis melo	JAVANICA	RSRSRS	051305	62	22	16
E 402	6	Nandi	18S	177E	30	6/78	Phaseolus aureus	JAVANICA	RSRSRS	050205	64	23	14
E 403	7	Nandi	18S	177E	30	6/78	Nicotiana tabacum	JAVANICA	RSSSRS	052305	36	44	20
E 479	8	Suva	18S	178E	150	10/78	Zinziher officinale	ARENARIA R-2	RSSSRS	045405	60	25	15
COUNTRY: GHANA							**COOPERATOR: B.M.S. Hemeng**						
E 168	1	Kwadaso	7N	2W	300	5/77	Brassica oleracea var. capitata	INCOG/JAVAN	RSSSRS	055405	70	21	9
E 169	2	Kumaso	7N	2W	293	6/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005505	73	13	14
E 170	3	Kwadaso-Suny	7N	2W	300	5/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005405	60	27	13
E 171	4	Kwadaso	7N	2W	300	5/77	Brassica oleracea (cauliflower)	INCOGNITA R-1	RRSSRS	025405	73	21	6
E 172	5	Ayigya	7N	2W	300	5/77	Solanum melongena	JAVAN/INCOG R-1	RSRSRS	042305	78	14	9
E 181	6	Accra	6N	0W	65	6/77	Brassica chinensis	JAVAN/INCOG	RSSSRS	024405	70	16	14
E 182	7	Kumasi	7N	2W	293	6/77	Hibiscus esculentus	INCOGNITA R-1	RRSSRS	004405	71	15	14
E 183	8	Kumasi	7N	2W	293	6/77	Vegetables (not specified)	INCOGNITA R-1	RRSSRS	005405	72	13	15
E 184	9	Nyankpala	9N	1W	200	6/77	Lycopersicon esculentum	INCOGNITA R-3	SRSSRS	505405	48	44	8
E 185	10	Tamale	9N	1W	188	6/77	Solanum melongena	INCOGNITA R-3	SRSSRS	305305	79	15	7
COOPERATOR: O.B. Hemeng													
E 87	1	Kumasi	7N	2W	293	2/77	Carica papaya	INCOGNITA R-1	RRSSRS	004305	61	25	14
E 88	2	Kumasi	7N	2W	293	2/77	Carica papaya	INCOGNITA R-4	SSSSRS	435405	78	15	7
E 89	3	Tema	6N	0W	50	3/77	Lycopersicon esculentum	INCOGNITA R-4	SSSSRS	345405	77	15	8
E 90	4	Sunyani	7N	2W	300	3/77	Solanum melongena	INCOGNITA R-1	RRSSRS	015505	69	25	6
E 201	5	Ejura	7N	1W	200	6/77	Lycopersicon esculentum	INCOGNITA R-3	SRSSSR	304305	68	21	19
E 202	6	Kumasi	7N	2W	293	6/77	Brassica oleracea (cauliflower)	INCOGNITA R-1	RRSSRS	014404	58	31	11

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average ga and egg mass rating of < 2 indicates resistance (R); an average rating of > 2 indicates susceptibility (S); plants with a rounded-off, numerical rating of were assigned an R or an S rating depending on whether the original value was ≤ 2 or > 2. For example, ratings of 1.5-2.0 are considered indicative resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
—	24	22	27	3530	0	0.98	5.2	3.04	0	1.72	11.5	6.75	148.8	6.5	5.6	0.15	8.6	198
43	24	23	27	3484	0	1.10	5.9	1.20	24	0.14	6.2	1.62	18.4	107.7	2.2	0.15	1.6	28
45	24	22	27	1117	0	1.27	6.4	0.92	13	0.36	19.0	2.75	28.8	5.4	0.4	0.25	1.2	33
—	28	26	31	3275	0	1.05	5.2	3.40	10	0.30	12.1	6.40	82.0	16.3	2.7	0.14	2.0	61
—	28	26	31	3074	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	28	26	31	3074	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	30	27	31	1838	0	0.86	6.9	-0.68	14	0.30	14.2	2.38	70.0	7.0	0.6	0.14	2.5	70
—	30	28	31	1851	0	1.08	6.3	0.88	11	0.52	15.8	6.00	4.6	5.7	1.3	0.13	1.1	45
44-45	30	28	31	1851	0	1.05	6.6	0.40	15	0.47	18.0	6.30	39.6	5.2	1.0	0.09	1.8	58
—	30	28	31	1851	0	1.01	5.7	1.88	40	0.72	17.1	6.20	9.0	20.6	1.5	0.09	1.8	58
50	28	26	31	3276	0	0.91	4.1	7.24	11	0.70	3.6	0.50	78.0	12.8	1.0	0.11	2.9	83
—	26	24	28	1479	0	1.18	6.7	0.40	253	0.58	9.8	1.35	26.4	4.2	33.3	0.14	2.6	36
45	26	25	28	1479	0	1.10	4.1	2.80	19	0.53	1.5	0.45	28.8	0.8	2.1	0.10	2.2	50
43	26	24	28	1479	0	1.01	7.0	0.04	71	0.65	10.5	0.90	22.0	5.0	47.8	0.27	3.0	43
43	26	24	28	1479	0	0.17	5.7	1.04	31	0.56	3.8	0.52	16.0	1.5	4.5	0.32	1.6	47
—	26	24	28	1479	0	1.00	7.7	-0.68	51	1.54	22.0	2.85	20.4	1.2	1.8	0.35	1.6	100
—	27	25	29	733	0	1.26	7.5	-0.40	191	0.55	18.5	2.35	15.4	7.1	58.0	0.79	1.3	47
44	26	24	28	1479	0	1.24	4.8	1.88	16	0.17	1.7	0.32	16.0	1.3	1.2	0.14	1.3	16
45	26	24	28	1479	0	1.20	5.0	1.84	15	0.27	1.6	0.41	13.2	1.2	1.2	0.15	1.4	16
42	28	26	31	1084	3	1.27	5.9	0.64	32	0.40	2.7	0.85	17.2	1.2	9.1	0.13	0.8	10
41	28	26	31	1084	3	1.32	7.4	-0.32	12	0.70	11.0	2.15	30.0	2.1	12.4	0.19	1.8	24
—	26	24	27	1435	0	1.19	5.7	1.48	253	0.33	11.0	1.70	31.2	2.4	6.7	0.20	3.5	35
42	26	24	27	1455	0	1.33	5.0	1.48	48	0.45	2.5	0.73	18.4	1.0	2.3	0.10	1.7	21
—	26	24	28	716	0	1.31	7.5	-0.56	342	1.50	14.5	3.20	22.0	3.4	31.8	0.63	2.3	24
—	27	25	29	1317	0	0.96	7.0	-0.28	342	2.44	34.0	6.21	22.8	5.0	29.6	0.27	11.2	101
45-46	26	24	28	1416	0	0.83	7.5	-0.52	434	2.36	57.4	6.79	62.0	14.4	172.0	0.30	7.9	110
42-44	26	24	28	1435	0	1.03	4.9	1.56	14	0.22	2.9	0.72	50.0	1.5	4.1	0.11	2.2	29

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test		Soil Texture		
									Rating*	Numerical*	Sand — %	Silt — %	Clay — %
COUNTRY: GHANA (cont'd)													
E 203	7	Wiawso	6N	3W	50	6/77	Hibiscus esculentus	INCOGNITA R-1	RRSSRS	004404	54	34	12
E 205	8	Goaso	7N	3W	250	6/77	Hibiscus esculentus	INCOGNITA R-1	RRSSRS	003404	72	18	11
E 206	9	Patase	7N	2W	300	6/77	Solanum melongena	JAVANICA	RSRSRS	040204	37	42	21
COUNTRY: GREECE							**COOPERATOR: E. Pyrowolakis**						
E 405	1	Iraklion	35N	25E	20	7/78	Lycopersicon esculentum	JAVANICA	RSSSRS	054405	30	43	28
E 406	2	Iraklion	35N	25E	50	7/78	Musa sp. (cavendish)	INCOGNITA R-1	RRSSRS	004405	53	15	32
COUNTRY: GUADALOUPE							**COOPERATOR: A. Anais**						
E 812	2	Abymes	16N	62W	100	12/79	Latuca sativa	INCOGNITA R-1	RRSSRS	004305	17	28	55
E 813	3	Petit Bourg	16N	62W	100	12/79	Amaranthus sp.	INCOGNITA R-1	RRSSRS	004305	35	43	22
							COOPERATOR: A. Kermarrec						
E 1	2	Sainte Rose	16N	62W	20	12/76	Latuca sativa	INCOGNITA R-1	RRSSRS	005505	27	41	32
E 2	5	Capesterre	16N	62W	50	12/76	Petroselinum crispum	INCOGNITA R-1	RRSSRS	005405	18	58	24
E 3	7	Vieux Habitants	16N	61W	300	12/76	Latuca sativa	JAVANICA	RSRSRS	042305	64	22	14
E 4	8	Soui	16N	62W	150	12/76	Latuca sativa	INCOGNITA R-1	RRSRRS	005203	17	43	40
E 5	9	Abymes	16N	62W	30	12/76	Latuca sativa	ARENARIA R-2	RSRSRS	052405	35	31	35
E 6	12	Sainte Anne	16N	61W	20	12/76	Petroselinum crispum	INCOGNITA R-1	RRSSRS	005505	4	36	60
E 46	1	Des Haies	16N	62W	25	1/77	Latuca sativa	INCOG/JAVAN/ AREN R-2	RSRSRS	052205	53	22	26
E 47	3	Baie Mahault	16N	61W	15	1/77	Latuca sativa	INCOGNITA R-1	RRSSRS	005505	10	24	66
E 48	6	Baillie	16N	62W	300	1/77	Latuca sativa	INCOGNITA R-1	RRSSRS	005505	42	42	17
E 49	11	St. Francois	16N	61W	10	1/77	Latuca sativa	INCOGNITA R-1	RRSSRS	003304	3	19	78
COUNTRY: INDIA							**COOPERATOR: Kamma Krishnappa**						
E 635	1	Kasaragod	13N	75E	50	/79	Curcuma longa	INCOGNITA R-1	RRRSRS	002305	—	—	—
E 636	2	Rajamumdry	17N	82E	50	/79	Nicotiana tabacum	INCOGNITA R-1	RRSSRS	003405	—	—	—
E 637	3	Coimbatore	11N	77E	250	/79	Saccharum officinarum	INCOGNITA R-1	RRSSRS	003405	—	—	—
E 638	4	Mahindergarh	28N	76E	375	/79	Trichosanthes anguina	INCOGNITA R-1	RRSSRS	003405	—	—	—
E 639	5	Sibsagar	27N	95E	50	/79	Corchorus sp.	INCOGNITA R-1	RRSSRS	004305	—	—	—
E 640	6	Barrackpore	25N	88E	50	/79	Hibiscus cannabinus	INCOGNITA R-1	RRSSRS	005405	—	—	—
E 641	7	Hebbal	13N	78E	921	/79	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	002305	—	—	—
E 642	8	Barrackpore	25N	88E	50	/79	Hibiscus esculentus	INCOGNITA R-1	RRSSRS	002405	—	—	—
E 643	9	Tirupathi	14N	79E	150	/79	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	004305	—	—	—
E 645	11	Madhya Pradesh	23N	80E	500	/79	Arachis hypogaea	INCOGNITA R-1	RRSSRS	004304	—	—	—
E 646	12	Madhugiri	13N	77E	750	/79	Ridgegourd	INCOGNITA R-1	RRSSRS	003405	—	—	—

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month	mm		Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
—	26	24	28	1473	0	0.96	7.8	-0.60	49	0.38	19.2	2.80	56.0	1.5	3.3	0.09	5.4	61
—	26	24	28	1383	0	1.04	7.7	-0.52	32	0.35	11.6	2.40	56.0	2.2	3.3	0.07	3.4	47
—	26	24	28	1457	0	0.95	5.8	1.40	21	0.10	5.1	0.88	29.2	4.7	25.4	0.12	2.4	40
—	20	13	26	611	4	1.12	7.4	-1.00	100	2.40	135.0	4.06	32.0	0.6	2.9	1.00	1.6	21
43	20	13	26	611	4	1.13	5.2	1.92	301	1.15	13.5	1.38	39.6	4.1	0.9	0.28	1.6	43
—	26	24	28	1883	1	0.91	6.8	0.44	159	1.09	26.0	4.06	89.2	12.4	8.0	0.10	5.8	83
—	25	22	26	3617	0	0.65	7.7	-0.96	92	0.50	137.7	1.38	56.8	0.8	0.8	0.08	3.9	56
—	26	25	28	1749	0	1.33	5.5	1.84	23	0.56	7.6	3.20	268.0	7.1	4.8	0.42	3.6	61
40-41	26	25	28	3832	0	1.25	6.9	0.0	43	5.08	17.0	3.60	126.0	28.4	93.5	0.29	4.2	81
—	26	25	28	1313	0	1.45	5.6	2.00	136	5.32	9.8	3.40	60.0	13.7	6.4	0.41	2.4	33
—	26	25	28	1313	0	1.25	4.0	5.60	30	1.49	11.0	4.05	392.0	15.0	1.3	0.34	2.8	91
53	25	23	27	1960	0	1.29	7.6	-1.32	52	1.18	60.0	2.80	60.0	0.9	21.7	0.32	5.4	145
—	25	24	27	1717	0	1.23	7.6	-1.16	10	0.53	57.0	2.15	72.0	2.0	0.6	0.39	11.1	179
—	26	25	28	1896	0	1.27	7.4	-0.12	60	0.95	32.5	4.25	38.0	2.8	1.7	0.37	1.8	153
—	26	25	28	1897	0	1.24	7.8	0.36	92	0.31	17.5	1.65	82.0	19.7	26.4	0.22	4.1	60
45	26	25	28	1313	0	1.21	5.4	1.84	113	2.40	11.0	2.05	58.0	18.2	3.2	0.29	2.6	45
—	25	23	27	1449	0	1.29	7.5	1.08	10	1.14	64.0	4.00	46.0	11.0	0.1	1.10	2.6	153
—	27	20	30	3281	3	—	—	—	—	—	—	—	—	—	—	—	—	—
—	28	23	31	1094	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	26	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	14	35	712	5	—	—	—	—	—	—	—	—	—	—	—	—	—
42	23	15	28	2763	0	—	—	—	—	—	—	—	—	—	—	—	—	—
40-46	26	18	32	1515	1	—	—	—	—	—	—	—	—	—	—	—	—	—
—	22	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	18	29	1515	1	—	—	—	—	—	—	—	—	—	—	—	—	—
—	29	25	32	1233	1	—	—	—	—	—	—	—	—	—	—	—	—	—
—	27	18	36	1259	1	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test		Soil Texture		
									Rating*	Numerical*	Sand — %	Silt — %	Clay — %
COUNTRY: INDIA (cont'd)													
E 648	14	Tirupathi	14N	79E	150	/79	Ribes sativum	INCOGNITA R-1	RRSSRS	002305	—	—	—
E 650	16	Mandya Karna	13N	77E	750	/79	Carica papaya	INCOGNITA R-1	RRSSRS	005404	—	—	—
E 651	17	Hebbal	13N	78E	350	/79	Capsicum annuum	INCOGNITA R-1	RRSSRS	003305	—	—	—
E 652	18	Mahindergarh	28N	76E	375	/79	Solanum melongena	INCOGNITA R-1	RRSSRS	003405	—	—	—
E 653	19	Hebbal	13N	78E	350	/79	Arachis hypogaea	INCOGNITA R-1	RRSSRS	204405	—	—	—
E 654	20	Coimbatore	11N	77E	250	/79	Coleus sp.	INCOGNITA R-1	RRSSRS	203405	—	—	—
E 655	21	Mahindergarh	28N	76E	375	/79	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	013405	—	—	—
E 656	22	Mandya Karna	13N	77E	250	/79	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	205405	—	—	—
E 657	23	Bangalore	13N	78E	921	/79	Saintpaulia sp.	INCOGNITA R-1	RRSSRS	003405	—	—	—
E 658	24	Mandya Karna	13N	77E	750	/79	Solanum melongena	INCOGNITA R-1	RRSSRS	003405	—	—	—
E 659	25	Mandya Karna	13N	77E	750	/79	Phaseolus vulgaris	INCOGNITA R-1	RRSSRS	205405	—	—	—
E 660	26	Mandya Karna	13N	77E	750	/79	Musa sp. (banana)	INCOGNITA R-1	RRSSRS	005405	—	—	—
E 661	27	Gulbarga	17N	77E	250	/79	Hibiscus esculentus	INCOGNITA R-1	RRSSRS	003405	—	—	—
E 663	29	Mandya Karna	13N	77E	750	/79	Sabbakashi (India)	INCOGNITA R-1	RRSSRS	014305	—	—	—
E 664	30	Mandya Karna	13N	77E	750	/79	Brassica oleracea (cabbage)	INCOGNITA R-1	RRSSRS	003305	—	—	—
E 665	31	Mahindergarh	28N	76E	375	/79	Hibiscus esculentus	INCOGNITA R-1	RRRSRS	002304	—	—	—
E 666	32	Mahindergarh	28N	76E	375	/79	Solanum melongena	INCOGNITA R-1	RRSSRS	005405	—	—	—
E 667	33	Devanahalli	13N	78E	750	/79	Solanum tuberosum	INCOGNITA R-1	RRSRRS	004204	—	—	—
E 669	35	Hebbal	13N	78E	750	/79	Dolichus lablab	INCOGNITA R-1	RRSSRS	014205	—	—	—
E 671	37	Hebbal	13N	78E	750	/79	Hibiscus esculentus	INCOGNITA R-2	RSSSRS	033304	—	—	—
E 672	38	Mysore	13N	77E	350	/79	Sabbakshi (India)	INCOGNITA R-3	SRSSRS	205405	—	—	—
E 673	39	Mahindergarh	28N	76E	375	/79	Hibiscus esculentus	INCOGNITA R-1	RRSSRS	005505	—	—	—
E 674	40	Mysore	12N	77E	750	/79	Carica papaya	INCOGNITA R-1	RRSSRS	004405	—	—	—
E 675	41	Mahindergarh	28N	76E	375	/79	Lycopersicon esculentum	INCOGNITA R-1	RRSRRS	004405	—	—	—
COUNTRY: INDONESIA							**COOPERATOR: Purbadi**						
E 511	1	Java, West	7S	107E	1100	1/79	Lycopersicon esculentum	JAVANICA	RSRSRS	050405	75	23	3
E 512	2	Lembang	7S	108E	1250	1/79	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	015505	63	35	2
E 513	3	Pangalengen	7S	108E	1450	1/79	Solanum tuberosum	JAVANICA	RSRSRS	040405	55	38	8
E 853	5	Lembang	7S	108E	1200	2/80	Brassica chinensis	INCOG/JAVAN	RRSSRS	123405	65	32	3

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
—	29	25	33	1233	1	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
45	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	14	35	712	5	—	—	—	—	—	—	—	—	—	—	—	—	—
42	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	14	35	712	5	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	21	32	771	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	14	35	712	5	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	14	35	712	5	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
41	24	21	27	1778	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	27	21	30	3281	3	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	14	35	712	5	—	—	—	—	—	—	—	—	—	—	—	—	—
—	27	21	30	3281	3	—	—	—	—	—	—	—	—	—	—	—	—	—
42-45	26	14	35	712	5	—	—	—	—	—	—	—	—	—	—	—	—	—
—	21	20	22	3098	0	0.72	5.6	1.72	9	0.38	4.4	1.30	13.2	4.7	1.4	0.08	3.2	83
40-44	20	20	20	2358	0	0.84	5.0	3.92	9	0.48	4.0	0.72	15.2	46.0	3.8	0.08	7.6	72
—	20	20	20	2920	0	0.76	5.2	2.28	19	0.35	5.9	1.44	17.6	40.4	6.3	0.07	5.2	88
41-46	20	19	20	2358	0	0.85	4.5	5.88	70	0.19	3.8	0.42	22.4	137.5	3.5	0.03	7.6	79

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test Rating*	Differential Host Test Numerical*	Soil Texture Sand — %	Soil Texture Silt — %	Soil Texture Clay — %
COUNTRY: IRAN							**COOPERATOR: C. Abivardi**						
E 624	A1	Shiraz	30N	53E	1491	/79	Unknown	JAVANICA	RSRSRS	050405	41	34	25
E 625	A7	Shiraz	30N	53E	1491	/79	Unknown	JAVANICA	RSRSRS	150405	39	46	15
E 626	A4	Shiraz	30N	53E	1491	/79	Unknown	JAVANICA	RSRSRS	151405	24	47	30
E 627	A5	Shiraz	30N	53E	1491	/79	Unknown	JAVANICA	RSRSRS	050305	33	42	25
E 628	A8	Shiraz	30N	53E	1491	/79	Unknown	JAVANICA	RSRSRS	050305	41	45	14
E 629	A2	Shiraz	30N	53E	1491	/79	Unknown	JAVANICA	RSRSRS	050405	20	52	28
E 630	A3	Shiraz	30N	53E	1491	/79	Unknown	ARENARIA R-2	RSRSRS	242305	24	51	25
E 631	A6	Shiraz	30N	53E	1491	/79	Unknown	JAVANICA	RSRSRS	050505	—	—	—
E 632	A9	Shiraz	30N	53E	1491	/79	Unknown	JAVANICA	RSRRRS	050205	38	49	14
							COOPERATOR: H. Mojtahedi						
E 790	1	Bandar Pahlavi	37N	49E	2	10/79	Cucucumis sativus	INCOG/AREN R-2	RSSSRS	055405	70	24	6
E 791	2	Varamin	35N	52E	1000	10/79	Lycopersicon esculentum	JAVANICA	RSRSRS	050405	28	50	22
E 792	3	Rasht	37N	50E	5	10/79	Nicotiana tabacum	INCOG R-1/AREN R-2	RSSSRS	035405	48	35	17
E 793	4	Natanz	33N	52E	1800	10/79	Nicotiana tabacum	INCOG/JAVAN	RSRRRS	052205	76	12	12
E 794	5	Esfahan	33N	52E	1590	10/79	Lycopersicon esculentum	JAVANICA	RSRSRS	050405	69	21	10
E 820	6	Yazd	32N	54E	1230	12/79	Beta vulgaris	JAVANICA	RSRSRS	050205	83	9	8
E 821	7	Zahedan	30N	54E	1370	12/79	Fraxinus excelsior	JAVANICA	RSSSRS	053404	77	12	11
COUNTRY: IRAQ							**COOPERATOR: Z.A. Stephan**						
E 996	14	Karbala	33N	44E	75	81	Solanum melongena	JAVANICA	RSRSRS	050305	90	5	5
E 1035	15	Karbala	33N	44E	75	81	Calamantha graveoiens	JAVANICA	RSRSRS	031405	79	9	11
COUNTRY: ITALY							**COOPERATOR: M. Di Vito**						
E 816	9	Mola di Bari	41N	17E	24	8/79	Actinidia chinensis	HAPLA	RSSRRS	032005	84	7	9
E 817	18	Lesina	42N	15E	6	8/79	Beta vulgaris	HAPLA	RSSRSS	044044	79	8	13
COUNTRY: IVORY COAST							**COOPERATOR: R. Fortuner**						
E 254	6	Abidjan	5N	4W	20	10/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005405	82	8	11
E 542	1	Adiopodoume	5N	4W	20	4/79	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	004304	—	—	—
E 543	2	Ferkessedougou	9N	5W	400	4/79	Saccharum officinarum	INCOGNITA R-1	RRSSRS	004305	—	—	—
E 544	5	Kpouebo	6N	5W	100	4/79	Psophocarpus tetragonolobus	INCOGNITA R-1	RRSRRS	004204	—	—	—
E 545	6	Bouake	8N	5W	400	4/79	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005505	—	—	—
E 546	7	Bonaouin	6N	4W	100	7/79	Oryza sativa (upland)	JAVANICA	RSRRRS	030203	—	—	—
E 547	8	Aniansue	7N	4W	100	7/79	Oryza sativa (upland)	JAVAN/INCOG	RSSSRS	054405	—	—	—
E 548	9	Bongouanou	7N	4W	300	7/79	Oryza sativa (upland)	JAVANICA	RSRSRS	050505	—	—	—

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month	mm		Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
—	19	7	36	372	5	1.16	8.0	0.00	66	1.21	8.50	5.80	48.0	0.5	11.4	0.22	1.7	22
—	19	7	36	372	5	1.19	8.0	0.00	15	0.54	122.00	6.20	56.0	0.4	1.2	0.86	1.5	24
—	19	7	36	372	5	1.08	8.4	0.00	41	1.90	48.50	7.70	68.0	0.5	4.5	0.36	2.3	14
—	19	7	36	372	5	1.17	8.4	0.00	55	1.71	46.00	7.60	94.0	0.5	6.7	0.29	2.9	5
—	19	7	36	372	5	1.09	8.1	0.00	21	0.46	0.91	6.10	54.0	0.5	1.4	0.60	1.6	5
—	19	7	36	372	5	1.05	8.4	-1.48	72	1.73	60.00	10.44	37.2	0.8	54.2	0.21	2.7	19
51	19	[illegible]	36	372	5	1.08	8.3	-1.44	66	2.20	58.50	8.82	53.6	0.8	0.8	0.38	3.0	22
45	19	7	36	372	5	1.14	8.1	-1.44	47	1.68	61.00	8.84	31.2	0.9	0.4	0.22	1.8	18
—	19	7	36	372	5	1.01	7.8	0.88	18	0.65	106.00	5.92	29.6	0.8	1.0	0.42	1.6	22
A52	16	7	26	1623	0	1.09	7.7	-0.52	26	1.85	27.00	1.06	39.2	4.1	1.8	0.18	1.5	56
—	17	5	29	130	7	1.07	8.1	0.96	25	0.70	37.00	4.96	36.0	0.8	1.2	0.65	0.9	63
I45	16	7	25	1197	0	1.08	5.3	2.00	31	0.57	6.50	1.28	48.0	3.6	1.7	0.06	1.7	28
J46	16	5	27	116	6	1.32	8.5	0.92	47	0.50	3.30	3.04	21.6	0.7	1.4	1.12	0.5	49
—	16	4	29	106	7	1.43	5.8	0.40	27	0.33	2.00	0.54	91.6	1.4	0.5	0.04	1.0	—
45	19	6	32	43	11	1.36	8.1	-0.96	68	0.29	58.50	5.50	24.0	0.9	0.7	2.40	1.2	97
—	19	8	26	99	8	1.36	8.1	-0.96	68	0.29	58.50	5.50	24.0	0.9	0.9	3.44	0.3	107
45	23	9	35	181	5	1.05	7.6	-0.60	8	0.22	25.5	3.12	25.8	1.0	4.7	0.17	2.0	94
45-48	23	9	35	181	6	1.23	7.6	-0.32	38	0.50	133.2	3.06	5.0	2.5	2.2	0.89	0.3	117
—	17	9	25	578	0	1.24	8.1	0.88	136	0.40	22.6	1.20	35.2	3.6	9.2	0.15	0.5	29
—	15	7	24	723	0	1.22	8.0	0.72	217	0.26	25.5	1.24	46.4	1.4	7.5	0.21	1.6	186
—	27	24	28	1976	0	1.42	5.8	0.64	68	0.05	2.3	0.73	1.8	2.3	2.6	0.09	0.7	7
—	26	24	28	2175	0	—	—	—	—	—	—	—	—	—	—	—	—	—
45	27	25	29	1300	2	—	—	—	—	—	—	—	—	—	—	—	—	—
40+	27	24	29	1225	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	24	28	1210	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	24	28	1091	2	—	—	—	—	—	—	—	—	—	—	—	—	—
J44, I42	26	24	28	1091	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	24	28	1091	2	—	—	—	—	—	—	—	—	—	—	—	—	—

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test		Soil Texture		
									Rating*	Numerical*	Sand — %	Silt — %	Clay — %
COUNTRY: IVORY COAST (cont'd)													
E 549	10	Guire	6N	7W	50	8/79	Oryza sativa (upland)	JAVANICA	RSRRRS	030103	—	—	—
E 550	11	Touadji	6N	7W	50	8/79	Oryza sativa (upland)	JAVAN/INCOG	RSSSRS	053405	—	—	—
E 552	13	Tipadipa	6N	6W	300	8/79	Oryza sativa (upland)	INCOGNITA R-1	RRSSRS	004405	—	—	—
E 554	14	Dagozoboua	6N	6W	100	8/79	Oryza sativa (upland)	INCOGNITA R-1	RRSSRS	005305	—	—	—
E 555	15	Eremankono	6N	5W	100	8/79	Oryza sativa (upland)	JAVANICA	RSRSRS	051205	—	—	—
E 557	16	Yoboue	8N	6W	200	9/79	Carica papaya	JAVAN/INCOG	RSSSRS	043304	—	—	—
E 559	20	Samokoro	9N	6W	300	9/79	Oryza sativa (upland)	JAVAN/INCOG/ AREN R-2	RSSSRS	143305	—	—	—
E 560	21	Seguebe	10N	7W	300	9/79	Oryza sativa (upland)	JAVAN/INCOG	RSSSRS	044205	—	—	—
E 561	22	Samatiguila	10N	8W	300	9/79	Oryza sativa (upland)	JAVAN/INCOG	RSSSRS	034305	—	—	—
E 562	23	Goazra	7N	6W	100	9/79	Oryza sativa (upland)	INCOGNITA R-2	RSSSRS	035305	—	—	—
E 563	24	Bouafle	7N	6W	100	9/79	Oryza sativa (upland)	JAVAN/INCOG	RRSSRS	013203	—	—	—
COOPERATOR: G. Merny													
E 145	5	Abidjan	5N	4W	20	6/77	Unknown	JAVANICA	RSRSRS	040405	58	30	12
COUNTRY: JAMAICA							**COOPERATOR: D.G. Hutton**						
E 39	1	May Pen	18N	77W	150	1/77	Cucurbita melo	INCOGNITA R-1	RRSSRS	005405	18	48	34
E 40	2	May Pen	18N	77W	150	1/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	003405	28	47	26
E 41	3	Old Harbor	18N	77W	20	1/77	Cucurbita pepo	INCOGNITA R-1	RRSSRS	005505	37	26	37
E 42	4	Kingston	18N	77W	180	1/77	Vigna unguiculata	INCOGNITA R-2	RSSSRS	025505	35	49	16
E 43	5	Spanish Town	18N	77W	15	1/77	Musa sp. AAB (Plantain)	INCOGNITA R-2	RSSSRS	034305	39	33	28
E 519	6	Kingston	18N	77W	20	2/79	Unknown	INCOGNITA R-1	RRSSRS	004505	48	33	19
E 520	7	Kingston	18N	77W	20	2/79	Unknown	INCOGNITA R-1	RRSSRS	004405	33	45	22
E 521	8	Kingston	18N	77W	20	2/79	Unknown	INCOGNITA R-1	RRSSRS	004404	24	50	25
E 863	9	Spanish Town	18N	77W	100	3/80	Cucurbita pepo	INCOGNITA R-1	RRSSRS	005405	27	51	22
E 864	10	Newcastle	18N	77W	950	3/80	Impatiens balsamina	JAVAN/INCOG	RRSSRS	024305	85	9	6
E 865	11	Newcastle	18N	77W	950	3/80	Impatiens balsamina	INCOGNITA R-1	RRSSRS	005504	89	7	4
E 866	12	Chapelton	18N	77W	650	2/80	Nicotiana tabacum	JAVANICA	RSRSRS	040204	77	15	8
E 868	14	Christiana	18N	78W	750	3/80	Sechium edule	INCOGNITA R-1	RRSSRS	005405	35	29	36
E 901	16	Robins Hall	18N	78W	600	7/80	Phaseolus vulgaris	INCOGNITA R-3	SRSSRS	405405	49	37	13
E 902	17	Cedar Valley	18N	76W	750	7/80	Latuca sativa	INCOGNITA R-1	RRSSRS	004405	62	28	10
COUNTRY: JAPAN							**COOPERATOR: H. Inagaki**						
E 917	3	Konosu	36N	140E	14	5/81	Ipomoea batatas	INCOGNITA R-1	RRSSRS	005405	59	36	5

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
—	26	24	28	1091	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	24	28	1091	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	24	28	1091	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	24	28	1091	2	—	—	—	—	—	—	—	—	—	—	—	—	—
44-45	26	24	28	1091	2	—	—	—	—	—	—	—	—	—	—	—	—	—
41-45	25	23	27	1331	3	—	—	—	—	—	—	—	—	—	—	—	—	—
J46	25	23	27	1331	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	23	29	1391	3	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	23	29	1391	3	—	—	—	—	—	—	—	—	—	—	—	—	—
45	25	23	27	1331	2	—	—	—	—	—	—	—	—	—	—	—	—	—
I45	25	23	27	1331	2	—	—	—	—	—	—	—	—	—	—	—	—	—
43	27	24	28	1856	0	1.10	80	-0.88	80	0.62	1.95	3.50	33.0	1.6	1.1	0.24	3.9	81
—	26	24	27	1345	0	1.39	7.0	0.48	23	0.83	27.5	4.50	66.0	15.3	0.0	0.61	2.0	43
42	26	24	27	1345	0	1.40	6.4	1.32	17	0.52	23.0	4.60	58.0	15.6	0.4	0.68	1.8	43
—	26	24	27	1363	0	1.30	6.7	0.56	26	0.70	14.5	4.90	68.0	11.0	6.1	0.46	1.2	37
40+	26	24	27	958	0	1.36	5.4	1.52	20	0.26	10.0	1.90	36.0	6.9	2.7	0.26	1.5	20
—	26	24	28	113	0	1.40	7.5	0.12	92	0.79	18.0	3.15	34.0	16.4	6.3	0.32	1.4	32
—	26	24	28	1875	0	1.16	8.0	-0.24	57	0.94	31.5	4.66	34.4	9.7	4.7	0.43	1.1	94
40-42	26	24	28	1875	0	1.03	7.9	-0.24	35	0.71	28.5	3.94	31.6	9.5	5.9	0.40	1.1	79
—	26	24	28	1875	0	0.86	7.4	-0.28	49	0.90	14.8	3.04	6.0	10.0	0.5	0.12	3.8	97
42-46	26	24	28	1128	0	0.81	7.0	-0.56	30	0.96	16.7	3.92	13.6	12.6	2.5	0.17	5.2	47
—	20	18	23	2533	0	0.76	7.1	0.48	43	0.46	22.6	1.14	10.8	60.0	547.3	0.12	3.8	47
—	20	18	23	2533	0	0.76	5.4	2.20	14	1.06	7.7	1.18	12.4	6.8	12.3	0.06	6.3	61
46	22	20	23	1585	0	1.21	7.0	-0.20	34	0.52	24.3	2.08	11.6	4.7	3.8	0.07	0.9	27
—	22	18	24	2533	0	0.98	5.2	2.24	28	1.36	10.8	1.36	8.0	13.7	3.3	0.03	2.4	35
—	22	18	24	2179	0	0.79	5.5	1.48	10	0.19	4.3	0.98	92.8	14.6	6.8	0.05	2.4	53
—	23	20	25	2716	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	15	4	27	1316	0	—	—	—	—	—	—	—	—	—	—	—	—	—

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test: Rating*	Differential Host Test: Numerical*	Soil Texture: Sand — %	Soil Texture: Silt — %	Soil Texture: Clay — %
COUNTRY: JAPAN (cont'd)							**COOPERATOR: T. Nishizawa**						
E 919	1	Tokyo	36N	139E	20	5/81	Glycine max	HAP/AREN	RSSSSS	044355	—	—	—
E 920	2	Tokyo	36N	139E	20	5/81	Hibiscus esculentus	INCOGNITA R-1	RRSSRS	105505	—	—	—
COUNTRY: JORDAN							**COOPERATOR: W. Abu-Gharbieh**						
E 369	1	South Shuna	32N	36E	1	5/78	Lycopersicon esculentum	JAVANICA	RSRSRS	141405	44	37	18
E 370	2	Amman	32N	36E	350	7/78	Unknown	JAVANICA	RSRSRS	051405	64	19	17
E 371	3	Amman	32N	36E	350	7/78	Unknown	JAVANICA	RSRSRS	052305	32	36	31
E 372	4	North Shuna	32N	36E	1	6/78	Lycopersicon esculentum	JAVANICA	RSSSRS	054304	18	33	49
E 942	8	Shuna	31N	36E	-300	3/81	Solanum melongena	JAVANICA	RSRSRS	040405	43	37	21
E 943	9	Argaman	32N	30E	-175	3/81	Solanum melongena	JAVANICA	RSRSRS	040405	45	32	23
COUNTRY: KENYA							**COOPERATOR: B.W. Ngundo**						
E 568	3	Kakamega	0N	35E	1525	2/79	Carica papaya	JAVAN/INCOG	RSSSRS	055305	18	21	61
E 569	4	Busia	0N	34E	1400	3/79	Lycopersicon esculentum	JAVANICA	RSRSRS	051405	36	36	28
E 570	5	Port Victoria	0N	34E	1240	3/79	Musa sp. (Dw. Cavendish)	JAVAN/INCOG	RSSSRS	054405	30	26	44
E 571	6	Kisii	1S	35E	1736	3/79	Chrysanthemum cinerariaefolium	HAPLA	RRSRSS	012033	26	39	35
COUNTRY: LIBERIA							**COOPERATOR: A.A. Van Nieuwenhuyzen**						
E 288	3	Monrovia	6N	11W	10	12/77	Unknown	INCOGNITA R-2	RSSSRS	044305	84	12	4
COUNTRY: LIBYA							**COOPERATOR: M.W. Khan**						
E 785	1	Tripoli	33N	13E	15	10/79	Solanum tuberosum	JAVANICA	RSRSRS	050405	79	17	4
E 786	2	Tripoli	33N	13E	15	10/79	Brassica oleracea var. botrytis	JAVANICA	RSRSRS	151405	86	10	4
E 847	3	Tripoli	33N	13E	15	2/80	Cucumis sativus	JAVAN/INCOG	RSSSRS	044405	—	—	—
E 851	5	Tripoli	33N	13E	15	2/80	Capsicum frutescens	INCOGNITA R-1	RRSSRS	005505	—	—	—
E 875	6	Benghasi	32N	20E	300	3/80	Solanum melongena	JAVANICA	RSRSRS	040405	93	3	4
E 876	7	Benghasi	32N	20E	300	3/80	Solanum melongena	JAVANICA	—	—	—	—	—
E 976	9	Tripoli	33N	13E	15	4/81	Unknown	JAVANICA	RSRSRS	041405	90	5	4
COUNTRY: MALAWI							**COOPERATOR: V.W. Saka**						
E 407	1	Thyolo	16S	35E	1143	5/78	Phaseolus vulgaris	JAVANICA	RSSSRS	053405	55	18	27
E 408	2	Thyolo	16S	35E	1143	5/78	Lycopersicon esculentum	JAVANICA	RSSSRS	054405	73	14	14
E 409	3	Thyolo	16S	35E	1143	5/78	Apium graveolens	JAVANICA	RSRSRS	054505	71	15	14
E 410	4	Bvumbwe	16S	35E	1143	5/78	Musa sp. (banana)	JAVANICA	RSRRRS	051205	52	20	29

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
—	15	4	27	1581	1	—	—	—	—	—	—	—	—	—	—	—	—	—
—	15	4	27	1581	1	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	14	30	205	8	1.06	8.0	-0.96	59	0.38	34.3	9.76	21.2	5.9	0.4	2.28	1.0	12
—	18	6	29	268	6	—	—	—	—	—	—	—	—	—	—	—	—	—
—	18	6	29	268	6	—	—	—	—	—	—	—	—	—	—	—	—	—
48	22	14	30	345	5	—	—	—	—	—	—	—	—	—	—	—	—	—
—	24	14	32	150	7	1.15	8.3	-0.88	19	1.23	124.5	8.24	24.0	0.8	0.7	1.30	1.1	2
—	24	14	32	200	7	1.15	8.3	-1.12	121	1.68	65.0	5.80	16.2	0.8	2.8	0.74	0.8	2
—	21	20	22	2338	0	0.89	5.4	3.12	27	0.40	10.0	2.22	11.8	4.3	10.3	0.08	2.2	43
42	26	25	28	1169	0	0.86	5.4	2.44	11	0.30	11.4	4.22	6.0	9.6	4.0	0.09	3.1	—
—	24	22	25	1559	0	0.89	4.8	2.80	17	0.58	5.8	1.96	6.6	4.5	1.3	0.33	2.0	—
17	20	19	21	1848	0	0.06	5.5	2.80	28	2.72	10.9	2.02	9.0	7.7	7.2	0.11	2.5	36
—	26	24	29	3561	1	1.13	5.4	1.76	34	0.33	3.8	0.99	11.6	0.9	2.7	0.00	2.7	42
45-46	19	12	26	275	4	1.22	7.7	-0.56	217	0.66	24.9	2.32	12.0	39.5	2.6	0.22	0.5	22
46	19	12	26	275	4	1.30	7.9	-0.52	143	0.36	24.2	2.54	9.6	1.3	4.4	0.22	0.1	19
—	19	12	26	270	4	1.23	6.8	0.12	386	0.46	13.1	2.00	11.6	1.1	7.0	0.09	0.5	24
—	17	12	26	284	4	—	—	—	—	—	—	—	—	—	—	—	—	—
—	19	12	26	275	6	—	—	—	159	1.79	29.5	9.86	13.6	—	3.0	1.88	2.3	—
—	19	12	26	263	6	—	—	—	—	—	—	—	—	—	—	—	—	—
—	19	12	26	270	4	1.26	7.8	0.56	217	0.29	30.0	4.02	10.6	1.1	7.6	0.33	0.5	81
44	24	19	29	1481	2	1.15	5.2	1.60	100	0.46	5.5	1.72	11.4	11.5	3.7	0.07	1.8	52
43	26	19	29	1581	2	1.19	4.7	1.56	291	0.25	3.5	0.84	70.0	6.6	5.9	0.06	1.1	46
—	26	19	29	1581	2	1.15	4.2	1.60	159	0.29	4.5	0.98	86.0	7.6	3.1	0.07	1.2	88
45-46	26	19	29	1481	2	1.09	4.7	2.68	80	0.76	3.6	1.20	16.4	9.5	2.3	0.06	2.4	72

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test		Soil Texture		
									Rating*	Numerical*	Sand — %	Silt — %	Clay — %
COUNTRY: MALAYSIA							**COOPERATOR: A.R. Razak**						
E 333	1	Kelang	3N	101E	10	3/78	Nicotiana tabacum	INCOGNITA R-1	RRSSRS	004405	75	13	13
E 807	2	Serdang	5N	101E	5	1/80	Unknown	JAVANICA	RSRSRS	050305	26	53	11
E 808	3	Serdang	5N	101E	5	1/80	Unknown	INCOGNITA R-1	RRSSRS	004405	—	—	—
E 809	4	Serdang	5N	101E	5	1/80	Unknown	INCOG/AREN R-2	RRSSRS	003305	24	64	12
COUNTRY: MEXICO							**COOPERATOR: C.S. Moss**						
E 262	1	Coatapec	19N	100W	2000	2/77	Dianthus caryophilus	JAVAN/INCOG	RRRSRS	020405	54	35	11
E 263	2	Tenextepango	19N	99W	900	4/77	Phaseolus vulgaris	INCOGNITA R-1	RRSSRS	212305	43	34	23
E 264	3	Colonia Heredia	19N	99W	900	4/77	Lycopersicon esculentum	INCOGNITA R-3	SRSSRS	304305	36	40	24
E 683	7	Mexico	19N	99W	2300	10/79	Unknown	INCOGNITA R-3	SRSSRS	403405	—	—	—
E 684	9	Mexico	19N	99W	2300	10/79	Unknown	HAPLA	RSSRSS	034045	—	—	—
							COOPERATOR: A. Sanchez-Olvera						
E 440	1	Neuvo Leon	26N	100W	350	8/78	Unknown	INCOGNITA R-1	RRSSRS	005305	17	45	38
E 441	2	Neuvo Leon	26N	100W	350	8/78	Unknown	INCOGNITA R-1	RRSSRS	005305	25	41	34
E 442	3	Neuvo Leon	26N	100W	350	8/78	Unknown	JAVAN/INCOG	RSSSRS	044405	18	38	44
COUNTRY: MOROCCO							**COOPERATOR: M. Ammati**						
E 373	1	Rabat	34N	7W	20	7/78	Latuca sativa	JAVANICA	RSRSRS	052505	88	9	3
E 374	2	Rabat	34N	7W	20	7/78	Solanum melongena	JAVANICA	RSRSRS	050505	57	27	15
E 375	3	Rabat	34N	7W	20	7/78	Lycopersicon esculentum	INCOG/JAVAN/ AREN R-2	RSSSRS	045405	68	17	15
E 376	4	Rabat	34N	7W	20	7/78	Lycopersicon esculentum	JAVANICA	RSRSRS	051505	62	24	14
E 377	5	Rabat	34N	7W	20	7/78	Lycopersicon esculentum	JAVANICA	RSRSRS	052505	95	5	0
E 378	6	Rabat	34N	7W	20	7/78	Lycopersicon esculentum	JAVANICA	RSRSRS	050505	84	13	3
E 494	4	Rabat	34N	7W	50	7/78	Unknown	JAVANICA	RSSSRS	042305	—	—	—
E 978	2	Rabat	34N	7W	50	4/81	Unknown	JAVANICA	RSRSRS	051404	72	17	11
E 980	4	Rabat	34N	7W	50	4/81	Unknown	HAPLA	RRRRSS	012033	74	16	11
COUNTRY: NEPAL							**COOPERATOR: K.P. Sharma**						
E 986	2	Parthargaon	28N	84E	228	5/81	Solanum melongena	JAVANICA	RSRSRS	050405	57	35	8
E 987	3	Parthargaon	28N	84E	228	5/81	Carica papaya	JAVAN/INCOG/AREN	RSSSRS	035405	57	35	8
COUNTRY: NETHERLANDS							**COOPERATOR: P.W.T. Maas**						
E 284	3	Wageningen	52N	6W	10	/77	Lycopersicon esculentum	HAPLA	RSSRSS	145255	89	10	0
E 285	4	Wageningen	52N	6W	10	/77	Forsythia intermedia	HAPLA	RSSRSS	055055	91	8	1

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month	mm		Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
—	27	26	27	2304	0	0.4	5.3	4.68	30	0.41	14.4	5.40	3.6	0.2	0.4	0.14	13.3	38
—	27	26	27	2304	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	27	26	27	2304	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	27	26	27	2304	0	—	—	—	—	—	—	—	—	—	—	—	—	—
J46	16	12	19	560	4	0.93	4.7	5.92	23	1.70	11.2	1.68	15.0	8.8	5.9	0.11	1.4	88
43	16	12	19	560	4	1.02	7.7	-1.08	42	0.66	20.0	8.86	19.2	9.1	1.1	0.45	1.1	23
42	16	12	19	560	4	0.97	7.9	-1.40	27	0.60	28.3	9.04	16.8	9.2	1.0	0.38	1.7	23
41-42	16	12	19	560	4	—	—	—	—	—	—	—	—	—	—	—	—	—
15	16	12	19	560	4	—	—	—	—	—	—	—	—	—	—	—	—	—
—	22	14	28	936	1	0.91	7.9	-1.84	175	1.09	72.0	6.90	21.6	0.6	1.3	0.89	2.0	15
—	22	14	28	936	1	0.85	8.0	-1.68	68	0.74	127.8	1.98	21.2	0.8	3.0	0.53	1.4	17
—	22	14	28	936	1	0.95	7.8	-1.44	62	1.08	62.0	6.50	20.8	0.8	3.4	0.47	2.0	18
—	17	13	22	354	3	1.40	8.1	-0.60	331	0.21	12.8	1.50	26.8	2.5	17.0	0.22	1.3	43
—	17	13	22	354	4	1.22	7.5	-0.44	68	0.82	17.9	7.90	30.8	3.4	2.2	2.32	1.8	46
—	17	13	22	354	3	1.09	7.5	-0.44	321	[illegible]6	16.2	4.30	44.0	20.3	10.7	1.32	1.7	58
—	17	13	22	354	4	1.21	7.6	-0.48	208	1.46	15.5	2.40	39.6	13.2	9.1	2.36	1.7	61
—	17	13	22	354	4	1.45	8.0	-0.40	159	0.54	6.6	1.78	17.2	3.8	7.4	0.70	0.5	22
—	17	13	22	354	4	1.33	7.7	-0.40	271	1.61	15.1	3.76	21.2	4.6	8.6	1.73	1.7	34
—	17	13	22	354	4	—	—	—	—	—	—	—	—	—	—	—	—	—
—	17	13	22	354	4	1.11	7.7	-1.20	291	1.22	140.4	7.78	13.8	0.8	3.6	2.40	3.6	1
—	17	13	22	354	4	0.97	7.6	-1.16	446	1.12	131.4	8.20	20.6	0.8	3.3	2.48	4.2	4
46	24	12	29	1531	2	1.11	5.6	2.04	121	0.22	5.6	1.08	2.0	2.4	1.5	0.09	2.1	28
—	24	12	29	1531	2	1.11	5.6	2.04	121	0.22	5.6	1.08	2.0	2.4	1.5	0.09	2.1	28
14	9	2	17	764	0	1.14	5.7	2.68	1464	1.90	6.0	4.40	12.0	21.9	37.0	0.72	7.6	47
17	10	2	17	764	0	1.37	4.2	4.52	712	0.51	2.1	0.47	16.8	11.3	11.7	0.17	2.3	21

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test		Soil Texture		
									Rating*	Numerical*	Sand — %	Silt — %	Clay — %
COUNTRY: NIGERIA							**COOPERATOR: J.O. Amosu**						
E 507	1	Ife	8N	5E	250	7/79	Vigna unguiculata	INCOGNITA R-1	RRSSRS	003305	—	—	—
E 508	2	Ife	8N	5E	250	7/79	Ageratum conyzoides	INCOG/JAVAN	RSSSRS	055505	—	—	—
E 509	3	Ife	8N	5E	250	7/79	Nicotiana tabacum	INCOGNITA R-1	RRSSRS	003304	—	—	—
E 510	4	Ife	8N	5E	250	7/79	Lycopersicon esculentum	INCOG/AREN R-2	RSSSRS	154405	—	—	—
							COOPERATOR: F.E. Caveness						
E 147	1	Nsukka	7N	7E	50	5/77	Musa sp. (plantain)	INCOGNITA R-1	RRSSRS	005405	70	11	19
E 148	2	Opeji	7N	3E	200	5/77	Unknown	INCOGNITA R-1	RRSSRS	215405	69	22	9
E 150	4	Akaan	7N	3E	150	5/77	Zea mays	INCOGNITA R-1	RRSSRS	003505	81	10	9
E 151	5	Gambari	7N	4E	200	5/77	Tectonia grandis (teak)	INCOGNITA R-1	RRSSRS	005404	84	8	8
E 152	6	Ilujoda	7N	3E	150	5/77	Zea mays	INCOGNITA R-2	RSSSRS	044305	88	5	6
E 153	7	Iruwa	8N	3E	250	5/77	Zea mays	JAVANICA	RSRSRS	152405	71	8	21
E 154	8	IITA	8N	4E	225	5/77	Vigna unguiculata	INCOGNITA R-1	RRSSRS	004305	74	10	16
E 155	9	Iperu	7N	4E	200	5/77	Zea mays	INCOGNITA R-1	RRSSRS	005505	83	11	6
E 156	10	Abakaliki	5N	7E	50	6/77	Musa sp. (plantain)	INCOGNITA R-1	RRSSRS	005405	23	64	13
E 576	12	Zaria	11N	8E	686	7/79	Solanum melongena	INCOGNITA R-1	RRSSRS	004305	—	—	—
E 577	13	Zaria	11N	8E	686	3/79	Eucalyptus sp.	INCOGNITA R-1	RRSSRS	005405	—	—	—
E 634	14	Zaria	11N	8E	650	7/79	Lycopersicon esculentum	JAVANICA	RSRSRS	040305	72	15	13
							COOPERATOR: R.O. Ogbuji						
E 77	1	Nsukka	7N	7E	400	1/77	Corchorus ulitorus	ARENARIA R-2	RSRSRS	050405	79	15	6
E 78	2	Enugu	7N	8E	400	1/77	Lycopersicon esculentum	JAVANICA	RSRSRS	030405	91	8	1
E 79	3	Port Harcourt	5N	7E	200	1/77	Hibiscus esculentus	INCOGNITA R-1	RRSSRS	005405	77	17	6
E 80	4	Ebubu	5N	7E	200	1/77	Basella alba	ARENARIA R-2	RSRSRS	041405	72	14	14
E 81	5	Ogoni	5N	8E	210	1/77	Solanum melongena	JAVANICA	RSRSRS	051405	72	22	6
E 82	6	Asa	5N	7E	200	1/77	Hibiscus esculentus	ARENARIA R-2	RSSSRS	044205	83	14	3
E 83	7	Umuahia	6N	7E	350	2/77	Dioscorea rotunda	INCOGNITA R-1	RRSSRS	004405	89	9	3
E 85	9	Okigwe	6N	7E	340	4/77	Dioscorea rotunda	INCOGNITA R-1	RRSSRS	005405	74	5	21
E 86	10	Abakalaki	6N	8E	380	4/77	Dioscorea rotunda	JAVANICA	RSRSRS	040405	49	38	14
E 870	12	Olokoro	6N	7E	300	1/80	Sphenostylus stenocarpus	INCOGNITA R-1	RRSRRS	004205	—	—	—
E 871	11	Igarra	7N	6E	400	1/80	Dioscorea rotundata	INCOGNITA R-1	RRSSRS	005305	—	—	—
E 872	13	Uqwuoba	6N	7E	400	1/80	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	004405	74	12	14

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
40-42	26	24	28	1822	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	24	28	1822	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	24	28	1822	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	24	28	1822	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	27	25	29	2996	0	1.17	4.9	1.72	38	0.23	4.2	0.80	7.6	1.5	25.9	0.09	2.5	34
—	26	24	28	1282	2	1.17	6.4	0.84	605	0.46	14.0	1.75	35.2	11.9	82.0	0.14	3.5	56
40+	26	24	28	1282	2	1.27	5.0	1.80	217	0.28	2.9	0.62	12.4	1.5	45.2	0.12	1.6	43
—	26	24	28	1282	2	1.20	6.4	0.68	1289	0.24	15.0	0.52	32.4	5.1	25.4	0.13	1.6	63
45	26	24	28	1281	2	1.30	6.1	0.96	106	0.14	6.0	0.50	20.8	2.0	37.4	0.10	2.4	41
—	26	24	28	1281	2	1.15	4.1	2.92	30	0.18	0.4	0.43	3.2	0.5	24.9	0.08	1.8	42
—	26	24	28	1282	2	1.09	6.9	0.12	66	0.35	12.0	0.52	11.2	1.6	40.0	0.12	2.9	40
40-41	26	24	28	1282	2	1.35	5.5	1.08	17	0.26	3.8	0.50	59.2	2.2	18.1	1.10	1.8	26
42	27	25	29	2996	0	1.16	5.0	1.52	0	0.11	1.9	0.43	165.2	1.3	11.7	0.30	1.1	72
—	24	23	28	2300	3	1.38	6.1	0.28	6	0.13	2.7	0.62	23.2	1.1	1.0	0.02	0.5	14
—	24	23	28	2300	3	1.19	6.5	0.36	5	0.44	4.2	1.42	39.2	1.1	0.9	0.09	1.3	24
—	24	22	28	2300	3	1.32	6.4	0.44	10	0.15	5.4	1.30	41.2	1.8	1.5	0.02	1.0	18
—	31	25	32	4200	1	1.40	7.0	0.24	113	0.22	9.7	1.80	98.0	3.2	13.9	0.86	1.9	61
43	28	25	32	1715	1	1.58	6.9	0.04	113	0.16	4.8	0.79	58.0	1.3	10.0	0.51	1.0	24
—	26	25	28	2198	0	1.45	7.2	-0.04	175	0.34	14.0	2.00	54.0	1.9	4.7	1.06	3.8	43
—	26	25	28	2203	0	1.42	7.1	0.00	82	0.30	7.9	1.40	124.0	2.6	6.0	0.51	2.3	74
—	26	25	28	2203	0	1.32	7.6	-0.52	128	0.35	11.5	1.40	132.0	3.7	7.2	0.79	3.4	100
37	26	25	28	2203	0	1.45	7.4	-0.44	167	0.38	9.7	1.55	212.0	1.4	5.5	0.80	2.5	97
—	28	25	29	1715	1	1.47	6.6	-0.28	92	0.25	5.9	0.93	57.6	1.1	9.2	0.55	1.2	20
—	28	25	29	1715	1	1.18	7.4	-0.52	151	0.52	11.0	2.05	57.6	4.1	11.0	0.44	2.5	53
43-44	26	25	28	2203	0	1.11	7.3	-0.24	183	0.29	8.3	3.15	153.6	2.5	25.5	0.46	1.8	50
—	26	25	28	2203	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	31	25	32	4200	1	—	—	—	—	—	—	—	—	—	—	—	—	—
—	31	25	32	4200	1	—	—	—	—	—	—	—	—	—	—	—	—	—

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test Rating*	Differential Host Test Numerical*	Soil Texture Sand — %	Soil Texture Silt — %	Soil Texture Clay — %
COUNTRY: NIGERIA (cont'd)							**COOPERATOR: T. Olowe**						
E 243	2	Ikerre	8N	6E	750	7/77	Unknown	INCOGNITA R-1	RRSSRS	005405	—	—	—
E 244	3	Ibadan	7N	4E	150	7/77	Unknown	INCOG/JAVAN	SRSSRS	424305	—	—	—
E 245	4	Ibadan	7N	4E	150	7/77	Unknown	INCOGNITA R-1	RRSSRS	002404	—	—	—
E 246	5	Oshogbo	8N	5E	350	7/77	Unknown	INCOGNITA R-2	RSSSRS	034405	—	—	—
E 249	8	Mockwa	9N	5E	200	7/77	Unknown	INCOG/JAVAN	RSRSRS	042305	—	—	—
E 745	57	Sokoto	12N	5E	200	10/79	Vigna unguiculata	ARENARIA R-2	RSRSRS	051205	60	29	11
COUNTRY: PAKISTAN							**COOPERATOR: Z. Husain**						
E 270	1	N.W.F. Province	32N	71E	150	12/77	Capsicum annuum	INCOGNITA R-1	RRSSRS	005405	13	64	22
E 271	2	Gujargarhi	33N	74E	350	12/77	Hibiscus esculentus	INCOGNITA R-1	RRSSRS	004405	19	63	18
E 272	3	N.W.F. Province	32N	71E	150	12/77	Hibiscus esculentus	JAVANICA	RSRSRS	042405	19	59	22
E 273	4	N.W.F. Province	32N	71E	150	12/77	Hibiscus esculentus	JAVAN/INCOG	RSSSRS	053405	17	58	25
E 274	5	Dargai	35N	71E	1250	12/77	Solanum melongena	JAVANICA	RSSSRS	052405	56	34	11
E 275	6	Karachi-Sind	25N	67E	50	12/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005305	57	27	16
E 276	7	Mardan	34N	72E	750	12/77	Hibiscus esculentus	INCOGNITA R-1	RRSSRS	005405	15	64	21
E 277	8	Mardan	34N	72E	350	12/77	Solanum melongena	JAVANICA	RSRSRS	050505	55	35	10
E 278	9	Karachi-Sind	25N	67E	50	12/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005505	48	37	15
E 279	10	N.W.F. Province	32N	71E	150	12/77	Solanum melongena	JAVANICA	RSRSRS	040405	16	61	23
							COOPERATOR: Manzoor Saeed						
E 963	2	Karachi	25N	67E	22	4/81	Solanum nigrum	JAVANICA	RSRSRS	040305	70	19	11
E 1000	4	Karachi	25N	67E	22	4/81	Luffa aegyptica	JAVANICA	RSRSRS	040305	69	21	10
COUNTRY: PANAMA							**COOPERATOR: R. Tarte**						
E 31	1	Balboa	9N	80W	20	1/77	Capsicum frutescens	INCOGNITA R-2	RSSRRS	055205	32	37	31
E 32	2	Los Santos	8N	80W	20	1/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	004405	75	17	9
E 33	3	Tocumen	9N	79W	20	1/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005405	21	50	30
E 34	4	Santa Maria	8N	81W	25	3/76	Lycopersicon esculentum	INCOGNITA R-2	RSSSRS	035405	1	44	54
E 35	5	La Espigadilla	8N	80W	20	1/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	004305	39	31	31
E 36	6	Rio Hato	8N	80W	30	6/76	Hibiscus esculentus	INCOGNITA R-1	RRS-RS	105-05	22	60	18
E 37	7	Boquete	9N	82W	1060	7/76	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005305	56	37	7
E 38	8	Alanje	8N	83W	—	7/76	Saccharum officinarum	INCOGNITA R-1	RRSSRS	004403	54	42	4

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
—	27	25	29	1218	1	—	—	—	—	—	—	—	—	—	—	—	—	—
—	27	25	28	2013	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	27	25	28	2013	0	—	—	—	—	—	—	—	—	—	—	—	—	—
40-41	28	26	32	1062	5	—	—	—	—	—	—	—	—	—	—	—	—	—
—	27	25	30	1282	3	—	—	—	—	—	—	—	—	—	—	—	—	—
53	26	21	28	871	6	1.26	5.8	0.44	2	0.25	3.4	1.72	16.4	1.6	1.0	0.04	0.1	16
45	23	12	33	363	1	1.12	7.9	-0.34	54	0.26	2.7	1.04	6.5	1.2	2.9	0.17	1.7	63
41-43	23	12	33	363	1	1.08	8.1	-0.56	43	0.66	25.5	3.10	24.0	6.6	5.8	0.18	1.6	97
—	23	12	33	363	1	1.16	8.3	-0.32	35	0.54	26.0	2.65	13.2	7.4	2.7	0.15	11.6	88
—	23	12	33	363	1	1.07	8.3	-0.40	47	0.22	25.5	3.05	10.0	6.5	2.3	0.18	1.7	41
—	23	12	33	363	1	1.02	8.1	-0.32	41	0.29	21.5	1.45	13.6	8.6	10.6	0.15	1.4	133
—	23	12	33	363	1	1.17	7.9	-0.52	281	1.46	82.8	5.85	39.2	—	14.0	0.15	1.4	—
—	23	12	33	363	1	1.10	8.1	-0.36	54	0.57	26.5	2.75	9.2	7.6	4.4	0.27	1.0	61
—	23	12	33	363	1	1.18	8.1	-0.28	40	0.20	21.5	1.40	12.8	8.9	9.2	0.13	1.4	149
—	23	12	33	363	1	1.27	7.9	-0.60	243	2.68	82.8	5.67	46.0	1.0	12.9	0.88	1.4	83
—	23	12	33	363	1	1.16	8.0	-0.32	41	0.74	29.5	3.05	11.2	—	1.8	0.20	1.8	—
—	26	14	31	221	8	1.19	7.9	-0.68	85	0.72	98.5	4.94	64.0	0.8	3.6	0.35	1.1	65
—	26	14	31	221	8	1.16	8.0	-1.08	31	1.40	142.2	6.36	68.0	0.7	1.7	0.90	1.0	61
—	27	27	28	1188	0	1.31	4.3	4.88	774	5.24	14.5	4.40	194.0	12.5	8.8	0.22	1.7	40
—	27	26	28	1162	1	1.55	6.2	1.40	6	0.22	12.0	4.10	42.0	10.2	38.7	0.27	1.0	25
—	27	26	27	1969	1	1.29	6.0	1.84	4	0.26	17.0	4.65	94.0	14.5	2.1	0.30	1.8	37
42-44	27	27	28	1653	2	1.15	5.1	3.32	3	0.46	16.5	4.45	82.0	14.0	1.8	0.28	1.9	36
—	27	26	28	1359	2	1.30	5.7	1.16	1	0.22	7.4	2.05	52.0	8.3	0.3	0.27	1.7	21
40+	27	27	29	765	2	1.32	6.9	0.28	43	0.86	13.0	2.25	31.2	3.6	0.1	0.26	2.6	21
—	26	25	28	3240	0	1.15	4.7	5.84	33	0.16	2.3	0.23	34.8	16.0	4.4	0.13	11.6	294
41-45	26	25	28	2795	1	0.96	5.1	3.76	0	0.14	1.4	0.25	11.2	9.9	0.9	0.12	10.0	86

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test: Rating*	Differential Host Test: Numerical*	Soil Texture: Sand — %	Soil Texture: Silt — %	Soil Texture: Clay — %
COUNTRY: PERU							**COOPERATOR: E. Cabanillas**						
E 502	1	Lambayeque	6S	80W	53	10/79	Phaseolus vulgaris	INCOGNITA R-1	RRSSRS	005405	51	35	14
E 504	2	Motupe	6S	80W	129	10/79	Musa sp.	INCOGNITA R-1	RRSSRS	003405	95	5	0
E 505	3	Lagunas	7S	82W	4	11/79	Lycopersicon esculentum	INCOG/AREN R-2	RSSSRS	044405	88	8	4
							COOPERATOR: P. Jatala						
E 101	1	Viru	8S	79W	150	3/77	Lycopersicon esculentum	INCOGNITA R-1	RRRSRS	000405	97	1	3
E 102	2	La Molina	12S	77W	20	3/77	Apium graveolens	INCOGNITA R-1	RRSSRS	004404	51	32	17
E 103	3	Canete	13S	77W	20	3/77	Lycopersicon esculentum	INCOGNITA R-4	SSSSRS	334404	82	13	5
E 104	4	Chancay	7S	79W	1500	3/77	Phaseolus vulgaris	INCOGNITA R-1	RRSSRS	004404	86	8	6
E 530	1	Valle De Vitor	17S	73W	1582	3/79	Lycopersicon esculentum	AREN R-2/INCOG	RSSSRS	133405	41	43	16
E 565	4	Cacatachi	6S	77W	772	4/79	Coffea arabica	INCOGNITA R-3	SRSSRS	305405	24	29	47
E 566	5	La Molina	12S	77W	238	4/79	Cucurbita sp. (squash)	INCOGNITA R-3	SRSSRS	305405	68	17	15
E 567	6	La Yarapa	18S	70W	58	4/79	Olea europea	INCOGNITA R-1	RRSSRS	004405	82	11	8
E 578	7	Canete	13S	76W	111	4/79	Manihot utilissima	INCOGNITA R-3	SRSSRS	304405	95	0	5
E 579	8	Yurimaguas	5S	76W	188	5/79	Passiflora sp.	INCOGNITA R-1	RRSSRS	004405	38	28	34
E 584	9	Huanaco	10S	76W	1920	5/79	Cucumis sativa	INCOGNITA R-1	RRSSRS	024405	38	28	34
E 585	10	Tingo Maria	9S	76W	672	5/79	Coffea arabica	INCOGNITA R-1	RRSSRS	105405	64	20	16
E 606	11	Pucallpa	8S	75W	156	5/79	Piper nigrum	INCOGNITA R-1	RRSSRS	004505	66	23	11
E 607	12	Iquitos	4S	73W	106	5/79	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005405	12	47	41
E 829	13	Trujillo	8S	79W	158	2/80	Beta vulgaris	INCOGNITA R-3	SRSSRS	405305	38	46	16
E 830	14	Sullana	5S	81W	80	1/80	Vigna unguiculata	INCOGNITA R-3	SRSSRS	403305	83	12	5
COUNTRY: PHILIPPINES							**COOPERATOR: T.T. Reyes**						
E 590	51	Negros	10N	121E	50	5/79	Basella rubra	INCOGNITA R-1	RRSSRS	014305	54	35	11
E 591	52	Basilan	7N	122E	50	5/79	Piper nigrum	INCOGNITA R-1	RRSSRS	003305	—	—	—
E 592	53	La Carlota	10N	126E	50	5/79	Gerbera jamessonii	JAVAN/AREN R-2	RSSSRS	044305	69	26	5
E 593	54	Davao	7N	126E	50	5/79	Carica papaya	INCOGNITA R-1	RRSSRS	004305	36	48	16
E 909	55	Canlubang	7N	126E	50	9/80	Hibiscus esculentus	INCOGNITA R-1	RRSSRS	005405	—	—	—
							COOPERATOR: R.B. Valdez						
E 207	1	Guinobatan	14N	120E	100	7/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	004405	73	22	5
E 208	2	Iloilo	11N	123E	10	7/77	Lycopersicon esculentum	JAVANICA	RSRSRS	052405	6	31	62
E 209	3	Iloilo	11N	123E	10	7/77	Lycopersicon esculentum	INCOGNITA R-2	RSSSRS	032305	58	23	19
E 211	5	Negros	10N	123E	10	7/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005405	65	28	7
E 212	6	Baguio	17N	121E	1300	7/77	Calendula sp.	JAVAN/INCOG	RSSSRS	044405	49	25	26

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
44	24	21	27	791	10	1.30	8.0	-0.56	100	0.98	20.1	2.88	26.4	7.2	1.3	0.22	0.9	45
41-43	24	22	27	139	8	1.45	8.7	-0.40	34	0.26	5.1	1.72	10.0	2.2	1.7	0.28	0.0	23
A52	23	20	26	249	5	1.45	8.3	-0.92	92	0.51	10.3	2.52	14.8	3.0	1.2	0.54	0.2	174
—	22	—	—	252	5	1.50	8.1	-0.76	99	0.61	10.5	2.35	13.2	0.8	2.1	2.64	0.9	23
—	22	17	27	2	12	1.18	7.1	-0.24	175	0.94	22.0	2.55	59.2	15.2	21.9	0.68	2.0	49
41	22	17	27	2	12	1.37	8.0	-0.76	128	0.34	27.0	3.20	27.2	3.9	7.0	0.38	0.9	40
45	22	20	26	249	5	1.31	8.0	-0.88	106	0.46	24.5	3.35	19.2	2.2	2.3	1.34	4.6	59
A39	17	15	18	10	12	0.95	8.0	-0.44	26	0.54	19.5	3.76	16.8	8.7	1.5	3.64	0.9	35
—	23	22	24	1578	0	1.04	5.4	2.68	55	0.40	7.3	1.30	55.0	4.6	1.7	0.06	1.6	23
—	18	15	22	5	12	1.28	7.4	0.00	342	1.47	24.8	2.36	60.0	22.8	36.6	0.51	1.4	36
—	19	16	22	1	12	1.34	7.3	0.04	60	0.92	8.3	2.24	23.6	2.9	5.1	0.74	0.1	10
45	21	19	27	3	12	1.53	8.3	0.00	151	0.40	11.4	1.82	13.6	1.9	2.1	0.18	0.0	7
—	27	26	27	167	0	0.58	6.1	2.20	136	0.98	20.8	3.80	26.8	7.6	16.7	0.01	16.3	34
—	20	18	21	378	4	1.22	7.9	0.00	54	0.44	20.7	2.68	27.2	4.7	3.8	0.22	1.4	47
—	23	20	27	2885	0	0.71	4.0	7.08	42	0.22	2.9	1.22	14.4	15.3	3.9	0.17	9.2	60
—	26	24	26	1751	3	1.26	5.5	1.48	25	0.46	3.6	1.22	36.8	1.3	1.6	0.03	2.0	23
—	26	25	26	281	1	0.86	6.0	1.88	—	—	—	—	—	9.1	—	—	—	50
42-44	20	17	24	20	12	1.15	8.0	1.08	66	0.47	25.5	4.08	34.0	9.8	4.7	0.48	1.5	74
—	24	22	27	81	9	1.38	8.2	-0.52	262	0.46	14.0	2.28	11.6	1.8	1.0	0.25	0.3	23
42	27	27	28	1429	0	0.81	7.0	0.12	281	2.56	26.0	5.98	36.0	11.0	23.1	0.30	5.2	88
—	27	27	28	1429	0	0.76	7.0	0.16	421	2.44	26.0	7.12	34.4	10.2	23.6	0.29	5.6	68
—	27	26	28	2097	0	0.90	7.4	0.36	18	1.32	12.4	4.82	8.0	8.5	2.3	0.34	0.5	11
43	27	27	28	1429	0	0.81	6.7	0.72	47	0.98	21.0	6.80	53.6	16.3	28.0	0.34	2.2	53
40-46	27	27	28	1429	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	27	25	30	2890	1	1.17	5.8	1.00	100	1.61	5.6	1.25	1.2	5.6	4.0	0.14	2.5	23
—	27	26	28	2097	0	1.23	6.8	0.64	74	0.72	24.0	6.12	33.6	15.4	3.7	0.99	2.0	28
42	28	22	33	2097	0	1.11	8.0	-0.36	13	0.73	32.0	4.05	31.6	9.5	1.2	1.26	0.5	21
—	27	26	28	2097	0	1.13	7.4	-0.64	21	0.71	15.0	2.40	12.8	18.4	7.8	0.53	2.2	16
—	27	26	28	3945	1	0.94	7.1	0.08	80	0.91	34.0	2.15	54.0	13.8	7.0	0.73	3.1	34

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test		Soil Texture		
									Rating*	Numerical*	Sand — %	Silt — %	Clay — %
COUNTRY: PHILIPPINES (cont'd)													
E 213	7	Buguias	13N	123E	50	7/77	Solanum tuberosum	JAVANICA	RSRSRS	040305	69	23	8
E 214	8	Carcar	10N	127E	10	7/77	Lycopersicon esculentum	INCOG/JAVAN	RSSSRS	024405	27	41	32
E 215	9	Davao	7N	126E	10	7/77	Musa textilus	INCOGNITA R-1	RRSSRS	003405	30	38	32
E 216	10	Negros	10N	123E	10	7/77	Solanum melongena	INCOGNITA R-1	RRSSRS	005405	55	32	12
E 822	11	Lagundii	15N	121E	700	1/80	Lycopersicon esculentum	JAVANICA	RSRSRS	040305	51	34	15
E 823	12	Baguio	17N	121E	1300	1/80	Solanum tuberosum	INCOGNITA R-1	RRSSRS	004405	47	34	18
E 824	13	Hinobaan	10N	123E	22	1/80	Corchorus olitorius	INCOG R-1/JAVAN	RSSSRS	033304	41	40	19
COUNTRY: PORTUGAL							**COOPERATOR: N.S.N. De Santos**						
E 367	2	Bencanta	40N	9W	30	7/78	Daucus carota	HAPLA	RSSRSS	034034	32	36	10
E 428	1	Coimbra	40N	8W	150	8/78	Lycopersicon esculentum	ARENARIA R-2	RSRSRS	032505	79	18	3
E 685	4	Vila Real De. S.A.	37N	7W	2	9/79	Lycopersicon esculentum	ARENARIA R-2	RSRSRS	042305	93	4	3
E 686	8	Munchique	38N	9W	100	9/79	Olea europa	INCOG R-3/AREN R-2	SRSSRS	404405	92	5	4
E 905	18	Celoricodo Beiba	41N	7W	750	8/80	Solanum tuberosum	JAVANICA	RSRSRS	040305	—	—	—
COUNTRY: PUERTO RICO							**COOPERATOR: A. Ayala**						
E 176	1	Mayaguez	18N	67W	20	6/77	Coleus humii	INCOGNITA R-1	RRSSRS	005405	45	39	16
E 177	2	Mayaguez	18N	67W	20	6/77	Cucurbita sp.	INCOGNITA R-1	RRSSRS	004405	79	10	11
E 297	6	Mayaguez	18N	67W	20	12/77	Glycine max	INCOGNITA R-1	RRSSRS	004405	—	—	—
E 298	7	Mayaguez	18N	67W	20	12/77	Coffea arabica	AREN R-2/INCOG	SSSSRS	445505	—	—	—
E 299	8	Mayaguez	18N	67W	20	12/77	Cucumis sativus	INCOGNITA R-1	RRSSRS	004405	—	—	—
E 300	9	Mayaguez	18N	67W	20	12/77	Cratageus sp.	INCOGNITA R-1	RRSSRS	005505	—	—	—
E 301	10	Mayaguez	18N	67W	20	12/77	Ananus comosus	INCOGNITA R-2	RSSSRS	045405	—	—	—
COUNTRY: SAUDI ARABIA							**COOPERATORS: M.F.M. Eissa and Beinhardt**						
E 466	1	Riyadh	25N	47E	750	10/78	Solanum melongena	JAVANICA	RSRSRS	050505	78	12	10
E 485	2	Buraydah	26N	44E	600	2/78	Vegetables (not specified)	JAVANICA	RSRRRS	030103	82	11	7
E 506	4	Qatif	27N	50E	50	2/79	Beta vulgaris var. cicla	INCOGNITA R-2	RSSSRS	055405	65	27	9
E 801	5	Al Kharj	24N	47E	750	12/80	Solanum melongena	JAVAN/INCOG	RSSSRS	043505	64	23	13
E 874	6	Al Hair	24N	47E	300	4/80	Capsicum frutescens	INCOGNITA R-1	RRSSRS	004505	76	20	4

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
47	27	26	28	2097	0	0.81	6.4	0.68	159	0.68	16.0	4.86	23.2	7.3	4.9	1.18	7.9	36
—	27	26	28	3815	0	1.08	8.1	-0.84	217	1.11	55.8	5.22	52.0	0.6	5.1	1.48	1.8	12
40-43	27	27	28	1429	0	0.87	6.9	0.40	208	2.04	29.0	2.20	94.0	20.9	10.2	0.63	3.4	36
41	27	26	28	2097	0	1.01	5.3	3.20	27	0.86	8.2	1.90	44.0	18.1	2.4	1.10	2.4	21
—	27	25	30	3355	0	0.70	7.0	0.44	588	2.68	17.0	5.74	55.6	10.7	21.7	0.50	3.8	58
—	27	26	28	3945	1	0.74	6.9	0.48	262	1.56	16.1	4.82	55.2	13.0	15.5	0.38	2.1	67
J46-48	27	26	28	3935	0	—	—	—	243	4.80	15.1	6.18	56.8	—	1.7	0.52	3.2	—
17	15	9	21	965	0	1.04	6.1	1.12	82	0.26	5.7	0.70	16.8	3.0	1.9	0.00	1.8	22
36	15	9	21	965	0	1.07	5.5	1.44	42	0.34	2.5	0.94	39.6	4.5	12.0	0.14	1.4	53
53	17	11	24	550	3	1.36	7.4	-0.28	321	0.11	25.5	1.06	20.4	6.9	15.4	0.16	1.4	42
I37-39	17	11	24	526	3	1.36	7.4	-0.28	321	0.11	25.5	1.06	20.4	6.9	15.4	0.14	1.3	34
45	15	9	21	965	0	—	—	—	—	—	—	—	—	—	—	—	—	—
43-44	26	24	29	1424	0	0.92	7.6	-0.48	472	0.47	12.0	8.28	94.4	13.8	9.2	0.30	1.1	52
—	26	24	29	1424	0	1.22	5.8	1.16	353	0.41	4.9	0.36	32.0	25.5	7.9	0.15	1.7	26
—	26	24	29	1424	0	—	—	—	—	—	—	—	—	—	—	—	—	—
A50	26	24	29	1424	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	24	29	1424	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	24	29	1424	0	—	—	—	—	—	—	—	—	—	—	—	—	—
33-34	26	24	29	1424	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	15	34	68	8	1.22	8.1	-0.88	60	0.80	86.4	6.10	29.2	0.7	0.9	1.72	2.3	10
45	24	11	34	117	9	1.33	8.0	-0.96	243	0.92	20.9	4.96	20.8	1.9	1.3	0.84	0.3	46
42	25	13	35	14	12	1.19	7.6	-0.24	542	0.46	122.2	5.70	25.6	1.9	5.4	0.98	1.2	97
—	26	12	36	70	10	1.22	7.6	-0.76	17	1.12	145.8	4.76	26.8	0.7	0.7	0.04	1.9	27
—	26	12	36	69	10	1.38	7.8	0.72	4	0.26	121.5	4.44	20.4	0.6	1.7	0.41	0.4	15

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test		Soil Texture		
									Rating*	Numerical*	Sand — %	Silt — %	Clay — %
COUNTRY: SENEGAL							**COOPERATORS: M.C. Netscher and D.P. Taylor**						
E 139	25	Malika	15N	17W	3	4/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005305	94	3	[illegible]
E 140	26	Keur-Moussa	15N	17W	12	4/77	Capsicum sp. (hot pepper)	INCOGNITA R-1	RRSSRS	005405	93	3	4
E 141	27	Keur-Moussa	15N	17W	10	4/77	Lycopersicon esculentum	JAVAN/INCOG R-1	RSSSRS	023304	92	4	4
E 142	28	Thiaroye	15N	17W	5	4/77	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005305	90	5	5
E 143	29	Camberene	15N	17W	20	5/77	Brassica oleracea var. capitatus	INCOGNITA R-1	RRSSRS	005405	94	3	3
E 144	30	Camberene	15N	17W	20	5/77	Vigna sinensis	INCOGNITA R-1	RRSSRS	005505	95	1	4
COUNTRY: SOUTH KOREA							**COOPERATOR: Y.E. Choi**						
E 15	1	Dong Hag Sa	36N	128E	60	10/76	Perilla frutescens	HAPLA	RSRRSS	052055	68	23	9
E 17	3	Nam Sung Dong	36N	128E	20	9/76	Paeonia sp.	HAPLA	RSSRSS	044145	66	27	7
E 22	8	Chang Rak Dong	37N	129E	25	9/76	Panax schinseng	HAPLA	RSSRSS	034044	34	26	41
E 23	9	Seo Sang Dong	33N	126E	50	8/76	Citrullus vulgaris	INCOGNITA R-1	RRSSRS	005405	50	38	12
E 24	10	Taegu	36N	129E	20	11/76	Arctium lappa	HAPLA	RSSRSS	034034	64	28	8
E 468	12	Geumhwa	38N	127E	150	9/78	Capsicum annuum	HAPLA	RSSRSS	044044	77	22	1
E 470	14	Sung San Ri	35N	128E	25	9/78	Derrilla frutescens	HAPLA	RSSRSS	033245	51	36	14
E 471	15	Naju	35N	127E	20	9/78	Solanum melongena	HAPLA	RSSRSS	054054	67	29	4
E 472	16	Seon San	36N	128E	20	9/78	Arachis hypogaea	HAPLA	—	—	80	17	3
E 473	17	Kim Jae	36N	127E	20	9/78	Solanum melongena	HAPLA	RSSRSS	043044	70	27	3
E 474	18	Jeon Ju	36N	127E	30	9/78	Perilla frutescens	HAPLA	RSSRSS	045044	64	29	6
E 475	19	Jeong Eup	36N	127E	30	9/78	Solanum melongena	HAPLA	RSSRSS	255144	67	28	5
E 476	20	Yeo Su	35N	128E	30	9/78	Perilla frutescens	HAPLA	RSSRSS	053144	27	84	29
E 908	23	Chungju	37N	127E	60	7/80	Lycopersicon esculentum	HAPLA	RSRRSS	042025	67	23	10
COUNTRY: SRI LANKA							**COOPERATOR: P. Sivapalan**						
E 95	1	Jaffna	10N	80E	5	2/77	Phaseolus mungo	JAVANICA	RSRSRS	042305	83	8	9
E 96	2	Puttalam	8N	80E	0	2/77	Vigna cylindrica	INCOGNITA R-1	RRSSRS	005405	85	7	8
E 97	3	Talawakelle	7N	81E	1300	3/77	Erythrina lithosperma	JAVANICA	RSRSRS	052305	63	23	15
E 98	4	Vavuniva	9N	81E	0	2/77	Lycopersicon esculentum	JAVANICA	RSRSRS	050405	63	21	16
E 99	5	Kalpitiya	8N	80E	5	2/77	Nicotiana tabacum	JAVANICA	RSRSRS	050204	98	1	1
E 100	6	Talawakelle	7N	81E	1300	3/77	Chrysanthemum cinerariaefolium	INCOGNITA R-2	RSRSRS	042305	61	23	15

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
43	26	23	28	615	7	1.52	4.4	2.08	51	0.28	1.9	0.75	2.8	0.7	3.9	0.50	1.5	63
42-44	26	23	28	642	7	1.56	6.6	0.36	243	0.38	5.5	0.82	12.8	0.5	11.4	0.19	1.0	26
—	26	23	28	643	7	1.52	6.9	0.04	99	0.30	4.8	0.92	8.0	3.0	17.5	0.14	1.0	27
—	26	23	28	616	7	1.37	6.2	0.76	281	0.59	10.5	3.20	18.8	1.9	11.6	5.04	3.0	61
—	24	20	29	389	8	1.41	6.6	0.20	85	0.26	4.4	1.35	8.0	0.7	4.9	1.11	1.1	25
—	24	20	29	389	8	1.54	6.8	0.12	99	0.26	1.8	0.68	5.6	0.5	2.2	0.31	0.0	12
48	12	-2	26	1244	0	1.42	4.7	2.64	66	0.35	4.4	0.64	30.8	1.1	0.7	0.14	2.7	30
—	12	0	25	1195	0	1.50	6.7	0.36	375	1.21	13.0	1.95	34.4	6.3	11.6	0.18	1.6	35
—	12	-3	25	1249	0	1.39	4.5	3.52	71	1.10	5.7	1.80	70.0	16.3	4.1	0.26	1.6	35
42-46	15	5	26	1440	0	1.30	5.3	3.12	49	0.58	9.0	2.10	54.0	6.7	7.3	0.47	4.6	55
17	13	-2	26	986	0	1.37	4.1	2.76	226	0.18	4.3	1.35	46.0	7.4	2.8	0.32	1.1	28
30	11	-4	24	1107	0	1.09	6.1	1.00	386	0.56	8.2	1.20	6.0	5.9	1.1	0.08	1.6	47
31	12	0	26	1496	0	0.83	5.1	2.20	151	0.88	8.6	3.72	12.0	1.7	4.6	0.12	1.3	56
31	13	0	26	1368	0	0.92	4.9	2.76	557	0.44	5.3	1.28	114.0	7.4	13.3	0.16	1.6	60
—	12	-2	25	985	0	1.19	6.1	0.80	136	0.71	4.9	0.94	66.0	2.1	3.3	0.09	0.7	29
30	12	-1	26	1266	0	1.08	6.5	0.32	262	0.66	6.4	1.40	82.0	6.9	16.0	0.18	1.0	49
16	13	-1	27	1191	0	1.07	4.1	3.32	136	0.22	2.5	0.80	106.0	2.8	3.4	0.09	0.9	52
17	12	0	26	1367	0	1.01	6.7	0.44	605	0.96	13.4	2.94	82.0	35.2	24.6	0.18	1.0	49
30	14	2	26	1262	0	0.90	5.2	2.24	66	0.40	5.0	1.40	52.0	3.1	4.2	0.20	1.1	49
—	11	-4	24	1107	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	28	25	30	1329	0	1.24	7.2	-0.36	409	0.59	14.5	0.80	32.4	2.9	8.7	0.35	1.0	18
40+	27	26	29	1110	0	1.27	7.7	-0.68	16	0.43	3.4	0.79	23.2	0.7	1.8	0.28	0.5	7
44-45	18	17	19	2260	0	1.07	4.4	5.20	7	0.29	2.5	0.81	4.4	7.9	0.1	0.12	6.0	77
—	28	24	30	1488	0	1.01	6.4	0.84	291	1.01	22.0	6.09	80.0	4.6	8.2	0.23	8.9	60
—	27	26	29	1110	0	1.50	6.7	0.00	175	0.16	3.6	0.46	3.6	0.9	2.2	0.22	0.7	13
40+	18	17	19	2261	0	1.04	4.6	4.40	0	0.22	1.9	0.83	2.4	6.8	0.1	0.14	5.0	70

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test		Soil Texture		
									Rating*	Numerical*	Sand — %	Silt — %	Clay — %
COUNTRY: SRI LANKA (cont'd)													
E 435	7	Talawakelle	7N	81E	1750	6/78	Unknown	JAVANICA	RSRSRS	052505	—	—	—
E 436	8	Talawakelle	7N	81E	1300	6/78	Unknown	JAVANICA	RSRSRS	052505	—	—	—
E 998	17	Talawakelle	7N	81E	975		Nicotiana tabacum	JAVANICA	RSRSRS	051405	56	27	18
COUNTRY: SUDAN						**COOPERATOR: A.M. Yassin**							
E 356	1	Wad Medani	14N	34E	250	6/78	Solanum melongena	INCOGNITA R-2	RRSSRS	105405	38	24	38
E 533	2	Wad Medani	14N	34E	375	3/79	Lycopersicon esculemtum	JAVAN/INCOG	RSSSRS	034405	9	57	35
E 818	5	Wad Medani	14N	34E	407	12/80	Lycopersicon esculentum	JAVANICA	RSRSRS	052405	57	18	25
E 834	6	Wad Medani	14N	34E	570	1/81	Solanum melongena	INCOG R-1/JAVAN	RSSSRS	145405	41	25	34
E 835	7	Wad Medani	14N	34E	570	1/81	Lycopersicon esculentum	JAVAN/INCOG	RSSSRS	043205	66	14	20
E 948	8	Wad Medani	14N	34E	350	3/81	Solanum melongena	JAVANICA	RSRSRS	051205	33	42	26
E 949	9	Wad Medani	14N	34E	350	3/81	Lycopersicon esculentum	JAVANICA	RSRSRS	050405	44	32	24
E 955	10	Wad Medani	14N	34E	350	3/81	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005305	49	37	14
COUNTRY: SURINAM						**COOPERATOR: R.S. van den Oever**							
E 193	2	Paramaribo	6N	55W	15	6/77	Apium graveolens	INCOGNITA R-1	RRSSRS	004405	17	13	9
E 303	3	Wageningen	6N	57W	20	1/78	Oryza sativa	ORYZAE	RRRRRS	000005	7	29	64
E 837	8	Coebitie	5N	55W	12	2/80	Cucurbita pepo	INCOGNITA R-1	RRS-RS	105-05	17	37	45
E 838	6	Coebitie	5N	55W	20	1/80	Pueraria phaseoloides	ARENARIA R-2	RSSRRS	033205	93	3	4
E 841	9	Mottonshoop	6N	55W	10	2/80	Capsicum annuum	INCOGNITA R-1	RRSSRS	004305	89	9	2
COUNTRY: SYRIA						**COOPERATOR: A. Tayar**							
E 903	1	Hama	35N	36E	307	1/80	Vigna sinesis	JAVANICA	RSRSRS	051405	12	22	66
E 914	2	Hama	35N	36E	307	10/80	Lycopersicon esculentum	JAVANICA	RSRSRS	040405	49	37	14
COUNTRY: TAIWAN						**COOPERATOR: Kuo-Chiang Wang**							
E 7	1	Ban Chyau	25N	122E	50	10/76	Luffa cylindrica	INCOGNITA R-2	RSSSRS	044405	89	10	2
E 8	2	Jian Tzyy Tsuey	25N	122E	50	7/76	Benincasa hispida	INCOGNITA R-1	RRSSRS	005405	69	26	5
E 9	3	Tai Chung	24N	121E	100	10/76	Ipomoea reptan	INCOGNITA R-1	RRSSRS	005505	61	31	9
E 10	4	Chu San	24N	121E	130	11/76	Manihot utilissima	INCOGNITA R-1	RRSSRS	005405	60	35	5
E 11	5	Chu San	24N	121E	130	11/76	Ageratum conyzoides	INCOGNITA R-1	RRSSRS	005405	72	24	4

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
—	18	17	19	2261	0	—	—	—	—	—	—	—	—	—	—	—	—	—
48	18	17	19	2261	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	18	17	19	2261	0	1.06	6.1	0.64	55	0.60	15.5	1.78	15.0	—	3.8	0.13	—	—
—	28	22	33	176	7	0.96	8.3	-1.36	26	0.86	40.5	9.70	7.2	4.2	0.4	0.92	0.3	41
—	29	24	33	230	8	0.93	8.1	0.00	19	0.74	39.0	6.64	24.0	8.1	0.8	0.98	0.9	42
46	29	24	33	230	8	1.08	8.2	-0.80	28	0.55	36.5	5.54	18.4	3.2	0.9	0.15	0.5	33
—	29	24	33	284	7	1.05	7.7	-0.60	17	0.96	22.2	5.36	19.6	3.7	1.1	0.27	0.6	22
—	29	23	32	284	7	1.13	7.5	0.49	19	0.57	17.3	3.90	21.2	3.3	1.1	0.20	0.4	22
45	29	24	33	230	8	1.05	8.2	-0.64	82	1.55	36.0	7.04	19.6	4.9	1.0	0.22	1.2	23
—	29	24	33	230	8	1.16	8.2	-0.52	47	0.90	44.0	9.06	16.4	3.1	0.9	0.37	0.7	103
—	29	24	33	230	8	1.03	8.0	-0.60	42	0.90	37.5	6.62	20.8	5.1	1.1	0.34	0.8	53
46	27	26	29	2210	0	1.00	5.5	1.04	386	0.66	9.2	3.65	8.4	6.7	13.1	0.15	2.3	33
51-55	27	26	28	1740	0	0.84	5.8	3.08	2	0.50	6.0	9.96	106.0	4.9	3.8	0.88	2.0	132
—	27	26	28	2301	0	—	—	—	—	—	—	—	—	—	—	—	—	—
50	27	26	28	2220	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	27	26	28	2220	0	—	—	—	—	—	—	—	—	—	—	—	—	—
46	21	13	27	268	6	—	—	—	—	—	—	—	—	—	—	—	—	—
	21	13	27	268	6	0.92	7.7	—	64	1.10	49.5	7.70	21.2	0.9	1.2	1.07	1.1	37
42-44	22	15	28	2093	0	1.72	5.7	0.76	5	0.22	4.4	1.25	28.4	2.7	2.2	0.14	0.7	13
—	22	15	28	2093	0	1.57	5.6	1.64	106	0.32	6.4	0.75	23.6	4.2	5.8	0.20	1.4	23
—	23	16	28	1653	0	1.35	3.8	2.80	136	0.16	7.1	1.45	19.2	7.7	17.7	0.34	2.0	27
41-45	24	17	28	2204	0	1.53	4.7	1.76	37	0.22	2.7	0.56	25.6	3.9	3.3	0.11	1.0	16
41-43	24	17	28	2204	0	1.64	4.6	1.84	100	0.1[illegible]	2.5	0.16	26.4	5.2	9.4	0.12	1.1	28

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test: Rating*	Differential Host Test: Numerical*	Soil Texture: Sand — %	Soil Texture: Silt — %	Soil Texture: Clay — %
COUNTRY: TAIWAN (cont'd)													
E 12	6	Tai Nan	23N	120E	15	6/76	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005405	71	24	6
E 14	8	Pyng Dong	23N	121E	24	7/76	Allium fistulosum	INCOGNITA R-1	RRSSRS	005405	49	42	9
E 289	12	Tai Pei	25N	122E	10	11/77	Unknown	HAPLA	RSSRSS	033035	—	—	—
E 290	13	Tai Pei	25N	122E	10	11/77	Unknown	INCOGNITA R-2	RSSSRS	024405	—	—	—
E 291	14	Tai Pei	25N	122E	10	11/77	Unknown	INCOGNITA R-1	RRSSRS	005405	—	—	—
E 292	15	Tai Pei	25N	122E	10	11/77	Unknown	JAVANICA	RSRSRS	040305	—	—	—
E 404	11	Miao Li	25N	121E	275	12/78	Fragaria ananassa	HAPLA	RSRRSS	032055	58	34	8
COUNTRY: TANZANIA							**COOPERATOR: A.S.S. MBWANA**						
E 514	2	Lyamungu Moshi	3S	37E	1268	12/79	Lycopersicon esculentum	JAVANICA	RSRSRS	040405	58	31	11
E 515	3	Bagamoyo	6S	39E	58	1/79	Lycopersicon esculentum	JAVANICA	RSRSRS	040305	67	14	19
E 687	5	Mtwara	10S	40E	50	10/80	Lycopersicon esculentum	INCOGNITA R-?	RRSSRS	205405	88	7	6
COUNTRY: THAILAND							**COOPERATOR: U. Ketudat**						
E 111	1	Nong Harn	19N	98E	105	3/77	Cucumis sativus	JAVAN/INCOG R-1	RSRSRS	052405	76	19	5
E 112	2	Nong Harn	19N	98E	105	3/77	Vigna sinensis	JAVAN/INCOG	RSSSRS	135505	74	21	5
E 113	3	Mae Jo	19N	98E	99	3/77	Lycopersicon esculentum	JAVANICA	RSRSRS	050405	76	19	5
E 114	4	Mae Jo	19N	98E	99	3/77	Nicotiana tabacum	JAVANICA	RSRSRS	050405	74	21	5
E 115	5	Chiang Mai	19N	98E	99	3/77	Solanum melongena	JAVANICA	RSSSRS	052505	65	26	9
E 116	6	Sala Mae Tha	18N	99E	183	3/77	Nicotiana tabacum	ARENARIA R-2	RSRSRS	050404	80	17	3
E 157	7	Khonkaen	17N	103E	170	5/77	Chrysanthemum morifolium	JAVAN/INCOG	RSSSRS	044305	78	16	6
E 158	8	Khonkaen	17N	103E	170	5/77	Nicotiana tabacum	JAVAN/INCOG R-2	RSSSRS	045304	82	13	5
E 159	9	Khonkaen	17N	103E	170	5/77	Asparagus officinalis	INCOGNITA R-1	RRSSRS	005305	81	13	6
E 160	10	Khonkaen	17N	103E	170	5/77	Capsicum sp.	INCOGNITA R-1	RRSSRS	005505	72	22	6
E 802	11	Mae Jo	19N	99E	344	2/80	Nicotiana tabacum	JAVAN/INCOG	RSSSRS	042505	87	10	3
E 803	12	Fang	18N	99E	546	2/80	Lycopersicon esculentum	JAVANICA	RSRSRS	050405	59	31	11
E 804	13	Sanpatong	19N	99E	284	2/80	Capsicum annuum	INCOGNITA R-1	RRRSRS	002505	59	25	12
COUNTRY: TRINIDAD AND TOBAGO							**COOPERATOR: N.D. Singh**						
E 266	1	Chaguanas	11N	61W	15	9/77	Basella alba	INCOGNITA R-1	RRSSRS	005505	32	50	18
E 267	2	St. Augustine	11N	61W	15	9/77	Petroselinum sativum	INCOGNITA R-1	RRSSRS	005405	47	43	11
E 268	3	Caroni	11N	61W	50	9/77	Apium graveolens	INCOG/JAVAN	RSSSRS	044405	50	40	10
E 269	4	Chaguanas	11N	61W	15	9/77	Cucumis sativus	INCOGNITA R-1	RRSSRS	004305	83	10	7
E 309	5	Penal	10N	61W	15	12/77	Solanum melongena	JAVANICA	RSRSRS	042304	90	9	1

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
44-46	24	16	29	1847	1	1.51	7.0	0.12	159	0.50	8.6	1.35	26.4	7.2	20.2	0.14	1.8	23
40-45	25	19	29	2562	0	1.42	6.6	0.16	106	0.26	6.5	0.75	18.8	5.4	5.7	0.23	1.2	19
13	22	15	28	2093	0	—	—	—	—	—	—	—	—	—	—	—	—	—
42	22	15	28	2093	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	22	15	28	2093	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	22	15	28	2093	0	—	—	—	—	—	—	—	—	—	—	—	—	—
15	23	15	29	2140	0	1.10	6.9	0.16	12	0.26	6.8	1.72	28.0	4.5	4.2	0.07	1.0	40
—	19	16	21	1270	0	0.82	4.4	3.76	43	1.34	5.6	1.10	114.0	33.0	6.8	0.08	2.5	56
—	26	24	28	1036	0	1.07	6.4	0.88	100	1.81	6.0	3.28	186.0	2.0	3.7	0.25	2.1	79
44	25	24	27	1115	1	1.38	6.5	0.08	36	0.44	3.5	1.42	27.6	1.1	5.4	0.14	11.3	34
—	26	22	29	1158	2	1.31	6.1	0.56	121	0.46	3.0	1.35	38.0	0.9	1.8	0.20	2.8	27
—	26	22	29	1158	2	1.43	5.5	0.76	52	0.25	3.8	0.89	32.8	0.8	0.9	0.09	1.4	18
44-46	26	22	29	1157	2	1.36	7.6	-0.64	16	0.22	7.9	1.80	31.2	1.5	0.9	0.16	1.6	35
45	26	22	29	1157	2	1.44	4.7	1.24	136	0.74	3.1	0.90	57.6	1.2	1.3	0.15	1.1	19
—	26	22	29	1146	2	1.33	5.0	1.12	24	0.15	3.3	0.67	65.6	1.0	1.2	0.10	1.3	22
36	26	21	29	1261	1	1.44	5.0	1.00	74	0.23	2.0	0.45	24.4	1.0	1.0	0.08	1.4	25
—	26	21	30	1029	4	1.24	7.4	-0.04	513	0.39	9.3	1.96	60.0	1.1	21.9	0.21	1.7	21
140-43	26	21	30	1027	4	1.31	7.0	0.32	573	1.64	5.9	4.20	94.0	1.1	20.2	0.09	3.5	40
40+	26	21	30	1027	4	1.46	7.5	0.04	51	0.30	3.3	0.66	38.0	0.9	9.6	—	—	—
45	26	21	30	1027	4	1.20	7.5	-0.16	92	0.72	6.8	1.64	116.0	0.9	8.8	—	—	—
J47	26	21	28	1176	1	1.34	6.4	0.72	43	0.31	4.4	1.32	52.0	1.4	1.1	0.02	1.3	21
—	23	15	27	1073	1	1.16	5.8	1.72	200	0.90	6.7	1.84	19.6	3.0	3.3	0.05	2.2	29
—	26	15	29	1043	3	1.09	7.7	-0.52	46	1.01	11.5	1.92	39.6	3.2	2.3	0.06	1.2	25
—	26	25	27	1688	0	1.03	6.0	0.96	291	0.22	12.5	1.80	34.4	14.3	32.5	0.24	3.2	30
—	26	25	27	1688	0	1.07	5.6	1.16	208	0.16	9.6	1.35	40.0	9.6	25.9	0.18	2.8	34
—				1688	0	0.76	6.0	1.24	459	1.18	17.5	3.75	36.8	8.4	43.0	0.40	5.6	46
44	26	25	27	1688	0	1.39	6.8	-0.04	41	0.43	4.7	0.28	3.2	0.9	4.4	0.01	1.0	14
46	26	25	27	1741	0	1.29	4.8	1.40	19	0.13	3.2	0.48	102.0	0.9	5.9	0.05	1.3	56

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test		Soil Texture		
									Rating*	Numerical*	Sand — %	Silt — %	Clay — %
COUNTRY: TRINIDAD AND TOBAGO (cont'd)													
E 311	7	Valencia	11N	61W	15	12/77	Hibiscus sabdariffa	INCOGNITA R-1	RRSSRS	005505	64	34	2
E 312	8	St. Augustine	11N	61W	15	11/77	Lycopersicon esculentum	INCOGNITA R-2	RSSSRS	025505	42	49	9
E 313	9	Univ. Field Sta.	11N	61W	15	11/77	Hibiscus esculentus	INCOGNITA R-2	RSSSRS	0444-5	42	49	10
E 959	4	Port of Spain	11N	61W	15	4/81	Latuca sativa	INCOGNITA R-1	RRSSRS	005405	—	—	—
E 960	5	Port of Spain	11N	61W	15	4/81	Latuca sativa	INCOGNITA R-1	RRSSRS	005405	47	39	14
E 961	6	Port of Spain	11N	61W	15	4/81	Apium graveolens	JAVAN/INCOG	RSRSRS	041405	47	39	14
COUNTRY: TURKEY							**COOPERATOR: S. Yuksel**						
E 450	2	Balikesir Edremit	40N	27E	120	8/78	Solanum melongena	JAVANICA	RSSSRS	054405	66	20	13
E 451	3	Balikesir Edremit	40N	27E	120	8/78	Lycopersicon esculentum	JAVANICA	RSSSRS	043505	85	11	4
E 452	4	Izmir Bornova	39N	26E	7	8/78	Lycopersicon esculentum	JAVANICA	RSSSRS	055505	46	31	23
E 453	5	Amasya Karakopru	42N	36E	410	9/78	Beta vulgaris	ARENARIA R-2	RSSSRS	255405	56	31	13
E 454	6	Amasya Karakopru	42N	36E	410	9/78	Hibiscus esculentus	JAVAN/AREN-2/INCOG	SSSSRS	245405	66	26	8
E 455	7	Antalya	37N	31E	50	9/78	Lycopersicon esculentum	ARENARIA R-2	RSSSRS	255505	64	22	14
E 922	8	Eskisehir	40N	31E	750	12/80	Unknown	JAVAN/INCOG/AREN	RSSSRS	032505	42	40	18
E 924	10	Iskendemen	40N	30E	450	12/80	Unknown	JAVANICA	RSRSRS	040405	41	30	29
E 925	11	Aydinli	41N	29E	150	12/80	Unknown	JAVAN/INCOG	RSRSRS	031205	—	—	—
COUNTRY: UNITED STATES							**COOPERATOR: M.A. McClure**						
E 781	1	Arizona	32N	111W	710	10/79	Vitis vinfera	JAVANICA	RSRSRS	051405	68	20	11
							COOPERATOR: R.D. Riggs						
E 788	1	Arkansas	34N	91W	92	10/79	Robinia pseudoacacia	HAPLA	RSRRSS	052135	70	24	6
							COOPERATOR: J.C. Baldwin						
E 633	1	California	34N	118W	10	7/79	Cucumis sativus	JAVAN/INCOG	RSSSRS	034305	78	12	11
E 789	2	California	36N	120W	105	10/79	Ficus carica	INCOGNITA R-1	RRSSRS	004405	58	35	6
							COOPERATOR: D.W. Dickson						
E 682	1	Florida	29N	82W	10	10/79	Arachis hypogaea	ARENARIA R-1	RSRSSS	040455	92	5	3
							COOPERATOR: R.A. Dunn						
E 869	1	Florida	29N	82W	55	10/80	Fragaria vesca	HAPLA	RRSRSS	024245	95	2	2
							COOPERATOR: A.E. Kretschmer						
E 538	1	Florida	27N	80W	10	11/78	Arachis hypogaea	JAVANICA	RSRSRS	050405	93	3	5

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
—	26	25	27	1688	0	1.27	5.8	0.60	253	0.31	5.9	0.44	11.6	1.4	7.2	0.06	2.2	60
—	26	25	27	1688	0	1.05	6.0	0.40	167	0.41	5.9	1.40	116.0	87.0	10.7	0.24	1.9	68
41	26	25	27	1688	0	1.08	5.7	0.44	36	0.08	4.7	0.68	112.0	3.1	1.6	0.18	1.1	60
—	26	25	27	1688	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	26	25	27	1688	0	1.01	5.9	1.04	281	1.06	10.5	1.56	5.1	13.9	36.4	0.12	2.4	42
—	26	25	27	1688	0	1.01	5.9	1.04	281	1.06	10.5	1.56	5.1	13.9	36.4	0.12	2.4	42
46	15	5	23	609	1	0.99	7.0	0.08	59	0.79	13.8	2.70	24.0	3.0	2.3	0.16	1.1	13
45-46	15	5	23	609	1	1.18	7.1	-0.12	85	0.84	8.1	1.40	22.0	2.3	2.4	0.19	0.7	9
48	18	9	28	700	3	1.02	8.0	-0.84	194	1.40	3.6	2.80	25.6	10.3	4.6	0.39	1.7	4
—	14	3	24	412	2	1.31	8.0	-0.52	14	0.50	33.0	6.50	33.6	3.9	1.3	0.22	1.2	8
—	14	3	24	412	2	1.28	8.2	-0.56	32	0.58	29.5	4.82	27.6	7.2	1.3	0.20	0.9	5
50	19	10	28	1068	2	1.15	7.8	-0.76	38	1.20	85.5	3.14	38.8	1.0	1.2	2.06	1.4	21
—	15	5	25	604	1	1.03	8.0	-0.44	25	0.79	32.5	6.48	36.0	0.7	2.3	0.55	0.7	52
—	15	5	25	604	1	1.01	7.8	-0.68	47	0.84	34.0	11.20	18.4	—	3.8	0.55	1.3	—
—	15	5	25	604	1	—	—	—	—	—	—	—	—	—	—	—	—	—
—	19	10	30	285	3	1.23	7.7	-0.48	183	0.82	31.0	1.76	25.2	6.3	4.1	0.14	1.2	33
16-17	17	5	28	1138	0	1.13	6.5	0.68	11	0.40	9.9	1.56	126.0	1.9	4.4	0.06	0.3	14
—	18	11	24	292	3	1.24	8.1	-0.48	89	0.30	29.5	3.56	14.4	2.4	1.2	0.19	0.1	20
—	18	11	27	108	7	1.37	7.4	-0.12	42	0.25	4.4	1.10	14.4	5.4	2.0	0.06	0.3	14
50-52	21	11	27	1251	0	1.38	6.6	-0.12	57	0.27	7.9	0.74	25.6	8.5	3.3	0.47	0.7	20
—	21	11	28	1363	0	1.47	6.0	0.64	217	0.20	4.0	0.40	7.2	4.9	4.5	0.02	1.2	30
43-44	23	17	28	1434	0	1.42	5.7	1.56	15	0.11	4.4	0.94	4.0	15.4	3.6	0.24	2.0	23

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test: Rating*	Differential Host Test: Numerical*	Soil Texture: Sand — %	Soil Texture: Silt — %	Soil Texture: Clay — %
COUNTRY: UNITED STATES (cont'd)							**COOPERATOR: A.M. Finley**						
E 459	1	Idaho	43N	115W	1000	9/78	Solanum tuberosum	CHITWOODI	RRRSRS	000205	—	—	—
							COOPERATOR: R.A. Chapman						
E 904		Kentucky	38N	85W	140	8/80	Nicotiana tabacum	INCOGNITA R-1	RRS-RS	005-04	75	15	10
							COOPERATOR: R.F. Myers						
E 678	1	New Jersey	40N	75W	23	8/79	Cichorum endiva	HAPLA	RSSRSS	045155	87	9	4
E 679	2	New Jersey	40N	75W	6	8/79	Glycine max	HAPLA	RSSRSS	034035	83	6	11
							COOPERATOR: W.F. Mai						
E 676		New York	41N	74W	150	8/79	Daucus carota	HAPLA	RRSRSS	014145	67	28	4
							COOPERATOR: M.F. Kirby						
E 589	4	North Carolina	36N	82W	300	6/79	Nicotiana tabacum	INCOGNITA R-1	RRSSRS	003405	84	9	8
							COOPERATOR: J.D. Eisenback						
E 911	2	North Carolina	37N	79W	100	10/	Lycopersicon esculentum	HAPLA	RSSRSS	040405	81	14	6
							COOPERATORS: B. Fortnum and H. Munsen						
E 831	1	South Carolina	32N	81W	45	7/	Gossypium hirsutum	INCOGNITA R-3	SRSSRS	305405	86	9	6
							COOPERATORS: F.H. Smith and S.A. Lewis						
E 832	2	South Carolina	34N	81W	91	2/	Glycine max	AREN R-2/INCOG	RSSSRS	053405	52	34	13
							COOPERATORS: J.L. Brewer and D. Sharp						
E 833	3	South Carolina	33N	81W	45	10/	Glycine max	JAVANICA	RSSSRS	043305	—	—	—
							COOPERATOR: G.C. Orr						
E 456	1	Texas	33N	102W	1050	9/78	Lycopersicon esculentum	INCOGNITA R-3	SRSSRS	404404	80	8	12
E 457	2	Texas	34N	102W	1050	9/78	Gossypium hirsutum	INCOGNITA R-3	SRSSRS	405405	85	6	9
E 458	3	Texas	34N	102W	1050	9/78	Gossypium hirsutum	INCOGNITA R-3	SRSSRS	304305	66	18	16
COUNTRY: URUGUAY							**COOPERATOR: L.M. Perdomo**						
E 67	1	Melilla	35S	56W	30	2/77	Prunus persica	ARENARIA R-2	RSSSRS	044305	19	59	22
E 68	2	Italia	35S	56W	0	2/77	Petroselinum sativum	INCOGNITA R-3	SRSSRS	405505	86	11	3
E 69	3	Avenida Italia	35S	56W	50	2/77	Lycopersicon esculentum	JAVAN/INCOG	SSSSRS	445305	79	16	5
E 70	4	Santa Lucia	34S	56W	30	2/77	Nicotiana tabacum	INCOG/JAVAN/AREN	SSSSRS	345305	44	40	16
E 105	5	Rincon de Tranq.	32S	56W	300	3/77	Solanum tuberosum	INCOGNITA R-3	SRSSRS	505405	79	13	9
E 106	6	Greco Uruguay	32S	56W	130	3/77	Nicotiana tabacum	JAVAN/AREN/INCOG	RSSSRS	043305	81	10	9
E 107	7	Guayuvira	31S	56W	85	3/77	Ipomoea batatas	INCOGNITA R-3	SRSSRS	204305	96	2	3
E 108	8	Guayuvira	31S	56W	86	3/77	Phaseolus vulgaris	JAVANICA	RSRSRS	051405	90	5	6

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation mm	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month			Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
17	26	-3	23	220	2	—	—	—	—	—	—	—	—	—	—	—	—	—
—	14	4	25	1336	0	—	—	—	—	—	—	—	—	—	—	—	—	—
17	14	0	24	1053	0	1.05	8.4	-1.48	72	1.73	60.0	10.44	37.2	0.8	54.2	0.06	1.3	23
—	12	0	24	1095	0	1.26	6.4	0.56	96	0.47	5.6	3.08	3.2	1.8	5.4	0.02	1.1	23
17	12	-2	22	1157	0	0.58	5.2	5.40	353	0.72	32.5	4.30	6.8	11.4	2.3	0.21	19.4	48
—	17	8	27	1227	0	1.47	5.3	1.08	175	0.18	1.2	0.32	5.2	0.8	1.4	0.28	0.4	9
16-17	15	5	26	1156	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	18	9	27	1136	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	18	9	27	1136	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	18	9	27	1136	0	—	—	—	—	—	—	—	—	—	—	—	—	—
42	15	4	27	468	0	1.14	8.4	-0.80	37	0.08	15.2	3.42	11.6	2.1	0.9	0.41	0.2	5
43-44	15	4	27	470	0	1.26	7.8	-0.44	22	0.70	5.2	2.64	17.6	1.8	0.9	0.14	0.0	5
40+	15	4	27	468	0	1.13	8.1	0.76	19	0.92	11.4	5.40	20.8	3.0	1.0	0.16	0.7	7
50	17	11	23	965	0	1.27	5.3	2.56	24	0.58	9.4	2.10	56.0	73.8	3.2	0.23	2.1	37
40+	17	11	23	965	0	1.68	6.0	0.84	409	0.32	7.0	0.99	42.0	12.5	28.2	0.35	1.7	29
J48	17	11	23	965	0	1.65	6.6	0.36	375	0.84	8.9	1.50	42.0	5.5	2.1	0.25	1.8	27
—	17	11	23	965	0	1.42	5.4	2.36	72	0.82	9.2	2.15	48.0	4.5	4.0	0.15	2.4	38
43	17	12	23	1263	0	1.45	6.1	0.80	17	0.18	3.9	0.57	35.6	1.6	2.4	0.14	1.2	14
—	17	12	23	1263	0	1.30	4.9	1.76	21	0.51	1.6	0.59	36.0	2.0	1.3	0.11	1.5	77
—	17	12	23	1263	0	1.30	4.4	2.28	28	0.29	1.2	0.43	36.8	1.5	1.2	0.18	1.0	25
—	19	13	24	1357	0	1.49	4.9	0.84	0	0.18	1.0	0.35	75.2	1.5	2.0	0.13	0.5	21

Project Sample Number	Cooperator's Sample Number	City Province State	Latitude	Longitude	Elevation (meters above sea level)	Date Collected	Host Plant	*Meloidogyne* Species and Race	Differential Host Test: Rating*	Differential Host Test: Numerical*	Soil Texture: Sand — %	Soil Texture: Silt — %	Soil Texture: Clay — %
COUNTRY: URUGUAY (cont'd)													
E 109	9	Pintado	31S	56W	86	3/77	Nicotiana tabacum	JAVANICA	RSRSRS	050204	93	3	4
E 110	10	Montevideo	35S	56W	10	3/77	Lycopersicon esculentum	JAVAN/INCOG	RSSSRS	055505	20	62	18
E 537	11	Montevideo	35S	56W	10	3/79	Trifolium repens	JAVANICA	RSRSRS	040404	—	—	—
E 782	12	Fray Bentos	33S	58W	7	10/80	Beta vulgaris v. Perennis	ARENARIA R-2	RSSSRS	053305	55	28	18
E 819	16	Melillia	35S	56W	30	1/80	Prunus persica	AREN-2/INCOG-1	RSSSRS	053405	21	58	21
E 825	15	Kiyu	35S	57W	20	1/80	Allium cepa	JAVANICA	RRRRRS	010003	27	56	17
COUNTRY: VENEZUELA							**COOPERATOR: Z. Suarez**						
E 842	1	Merida	8N	71W	2100	12/79	Latuca sativa	HAPLA	RSRRSS	032045	61	26	13
E 843	2	Santa Cruz	8N	72W	444	1/80	Lycopersicon esculentum	INCOGNITA R-1	RRSSRS	005505	18	62	20
E 844	3	Aragua	10N	64W	445	1/80	Solanum tuberosum	INCOGNITA R-1	RRSSRS	005405	36	42	22
E 849	4	San Carlos	10N	69W	150	2/80	Nicotiana tabacum	INCOGNITA	RRSSRS	204405	57	30	13
COUNTRY: YEMEN							**COOPERATOR: R.A. Sikora**						
E 124	3	Taizz	14N	44E	1300	/77	Lycopersicon esculentum	INCOGNITA R-3	SRSSRS	305505	43	37	20
E 125	4	Taizz	14N	44E	1300	/77	Lycopersicon esculentum	JAVANICA	RSRSRS	042304	78	14	8
E 357	10	Ibb	14N	44E	2100	5/78	Phaseolus vulgaris	JAVANICA	RSRSRS	050405	35	42	23
E 358	11	Taizz	14N	44E	1300	5/78	Punica granatum	INCOGNITA R-1	RRSSRS	015505	45	38	17
E 359	12	Taizz	14N	44E	1300	5/78	Capsicum frutescens	INCOGNITA R-1	RRSSRS	005405	67	24	9
E 360	13	Ibb	14N	44E	2100	5/78	Lycopersicon esculentum	JAVANICA	RSRSRS	050305	13	50	36
E 361	14	Ibb	14N	44E	2100	5/78	Solanum tuberosum	JAVANICA	RSRSRS	050305	43	41	16
COUNTRY: ZAIRE							**COOPERATOR: F.E. Caveness**						
E 889	16	Mbanza Ngungu	5S	15W	500	5/80	Mucuna deeringianum	INCOGNITA R-1	RRSSRS	005405	24	58	18
COUNTRY: ZIMBABWE							**COOPERATOR: J. Richardson**						
E 305	1	Chiredze	21S	32E	429	12/77	Musa sp. (banana)	JAVAN/INCOG	RRSSRS	025405	63	12	25
E 306	2	Sham. Panm. Exp. Sta.	17S	32E	881	1/78	Vigna unguiculata	INCOGNITA R-3	SRSSRS	405505	81	11	8
E 307	3	Salisbury	18S	31E	1576	1/78	Lycopersicon esculentum	JAVANICA	RSRSRS	050405	47	28	24
E 314	4	Bulawayo	20S	29E	1220	2/78	Solanum melongena	JAVANICA	RSRSRS	050305	84	11	5
E 315	5	Bulawayo	20S	29E	1220	2/78	Lycopersicon esculentum	JAVANICA	RSRSRS	042405	83	11	5
E 316	6	Bulawayo	20S	29E	1220	2/78	Hibiscus esculentus	INCOGNITA R-1	RRSSRS	005405	77	11	13
E 317	7	Victoria	20S	31E	1190	3/78	Voandzeia subterranea	JAVANICA	RSRSRS	050505	93	7	0
E 318	8	Victoria	20S	31E	1190	3/78	Lycopersicon esculentum	JAVANICA	RSRSRS	052405	94	6	0
E 319	9	Victoria	20S	31E	1190	3/78	Unknown	JAVANICA	RSRSRS	050405	94	4	2

*Reactions of differential host test plants are listed in the following order: cotton, tobacco, pepper, watermelon, peanut, and tomato. An average gall and egg mass rating of <2 indicates resistance (R); an average rating of >2 indicates susceptibility (S); plants with a rounded-off, numerical rating of 2 were assigned an R or an S rating depending on whether the original value was ≤ 2 or >2. For example, ratings of 1.5-2.0 are considered indicative of resistance (R), ratings of 2.1-2.4, indicative of susceptibility (S).

Chromosome Number	TEMPERATURE			Total Annual Precipitation	Number of Dry Months per Year	SOIL ANALYSIS												
	Average Annual	Coldest Month	Warmest Month	mm		Weight per Volume	pH in Water	Buffer Acidity ME/100 cm³	Phosphorus mg/dm³	Potassium ME/100 cm³	Calcium ME/100 cm³	Magnesium ME/100 cm³	Manganese mg/dm³	Copper mg/dm³	Zinc mg/dm³	Sodium ME/100 cm³	Organic Matter Percent	Ammonium Nitrogen mg/dm³
46	19	13	24	1357	0	1.54	5.3	0.88	21	0.15	0.8	0.22	57.6	1.1	4.6	0.11	0.7	18
46	17	11	23	965	0	1.42	5.0	0.72	15	0.32	0.8	0.25	62.4	2.4	2.0	0.42	0.5	27
—	16	11	21	1002	0	—	—	—	—	—	—	—	—	—	—	—	—	—
—	18	12	25	985	0	1.23	7.8	0.64	271	1.26	32.0	2.34	28.8	2.7	9.2	0.30	2.3	30
A52	17	11	23	965	0	1.10	6.3	1.08	43	0.91	10.8	3.06	73.2	9.2	2.2	0.30	2.3	41
46	17	11	24	990	0	1.16	5.2	2.40	59	0.77	6.5	1.56	93.2	3.5	1.3	0.36	1.8	43
—	14	13	15	1128	0	1.05	6.5	0.76	472	1.85	19.9	3.02	16.4	5.6	5.3	0.08	4.6	43
—	26	25	27	1002	2	0.97	7.9	-1.28	80	0.40	31.0	2.00	34.0	6.5	1.2	0.17	1.6	41
—	26	25	27	859	2	0.65	7.7	-0.96	92	0.58	137.7	5.70	56.8	0.8	0.8	0.17	1.6	41
—	25	23	26	1597	2	1.21	5.3	1.40	17	0.29	2.6	0.54	28.4	3.7	1.4	0.02	1.0	20
40+	24	21	27	610	2	1.05	8.0	-1.32	100	1.30	46.5	11.96	48.0	2.7	0.6	2.32	1.8	46
—	24	21	27	610	2	1.21	8.0	-0.96	68	0.65	28.0	4.65	44.8	2.0	5.3	2.92	0.7	72
43	25	21	27	606	2	1.07	8.0	-0.56	10	0.38	34.3	9.76	21.2	5.9	0.4	0.39	1.5	22
—	24	21	27	607	2	1.03	8.0	-0.72	41	1.01	37.2	6.18	16.0	1.1	1.1	0.17	2.5	127
40+	24	21	27	606	2	1.13	8.0	-0.64	74	0.58	25.6	5.28	25.2	2.6	6.8	1.42	0.8	8
45	25	21	27	606	2	—	—	—	—	—	—	—	—	—	—	—	—	—
42-43	25	21	27	1029	2	1.04	7.8	-0.48	41	0.58	28.8	11.52	52.0	7.3	0.5	0.54	1.4	26
—	24	20	27	271	7	—	—	—	—	—	—	—	—	—	—	—	—	—
—	22	16	26	646	3	1.16	5.4	1.88	40	0.26	9.3	2.35	25.6	11.6	1.0	0.16	0.9	40
—	20	14	24	812	5	1.25	5.8	0.64	32	0.46	3.8	0.72	16.8	3.5	1.3	0.05	0.1	34
46-47	18	13	21	812	4	0.97	6.6	0.52	253	1.58	15.0	2.45	14.0	24.7	15.8	0.15	2.7	79
—	19	13	21	589	5	1.55	7.7	-0.72	434	1.04	12.6	5.13	12.0	1.2	6.2	0.19	1.4	55
44-45	19	13	22	589	5	1.27	7.8	-0.84	499	0.92	14.0	4.90	16.8	2.7	9.0	0.11	1.7	56
45	19	13	22	589	5	1.21	7.0	-0.32	66	0.63	7.0	3.00	12.8	1.8	1.6	0.22	0.9	46
—	19	13	22	651	5	1.26	7.3	-0.28	80	0.21	6.1	0.76	17.6	1.1	11.8	0.06	1.1	53
48	19	13	22	651	5	1.19	6.1	0.24	62	0.18	4.3	0.39	14.0	0.0	8.1	0.06	1.1	42
44	19	13	22	651	5	1.21	5.3	0.28	113	0.14	1.5	0.16	1.2	0.7	0.2	0.04	0.0	47