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A Study of the Cereal Trade from Somaliland and Ethiopia to Djibouti

FEWS NET FAMINE EARLY WARNING SYSTEM NETWORK

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Final Report:

**A study of the cereal trade from Somaliland and Ethiopia to
Djibouti – with particular reference to the sorghum consumption
and trade habits of the nomadic pastoral community of the
Southeast Pastoral Zone**

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Introduction and Background:

This study was commissioned under the USAID-funded FEWS NET (AOT-I-00-00-00142-00) Task Order 804 under which project staff have been working since February 2004 to establish a Famine Early Warning System in Djibouti. As part of the initial assessment of livelihoods and the zoning of Djibouti, it was observed that sorghum and maize is available in Ethiopia and Somaliland at approximately $\frac{1}{3}$ of the price of the main staple food grains in Djibouti, yet it appeared that few family groups in the border areas were switching to these cheaper sources of calories and taking the opportunity to enhance their food security.

This study has been asked to examine why this is the case and to explore the sorghum trade within the border areas to establish the sorghum consumption patterns amongst the nomadic communities that inhabit the south east pastoral zone of Djibouti.

This report will first briefly set out the methodology used to gather the information contained in the document, and will then present its findings, defining first the scope and characteristics of the area investigated and then a description of the sorghum market and its operation within Djibouti.

It is pertinent to note that Djiboutiville remains the major market place from which district retailers, and nomadic pastoralists source their food supplies, hence the report describes the market functions in detail in order to explore and expose possible opportunities to enhance market efficiencies to gain positive livelihood impacts.

This will be followed by the reported current food consumption habits of the nomadic inhabitants of the southern region based on the findings from the semi-structured interviews and field work.

Finally the report will draw together some of the issues that have been raised and suggest some areas of interest that may help to contribute to the debates surrounding food security, livelihoods and sustainability issues.

It is important to clearly note a major limiting factor in the compilation of this report has been that for security reasons "clearance" to travel to Somaliland and Ethiopia was not granted by the US authorities. Therefore field visits to the "main" sorghum growing and exporting regions in Somaliland and Ethiopia were impossible, limiting the amount of verifiable data that could be collected with respect to the two markets.

In effect this has made it difficult to assess "*the availability and reliability of alternative sources of cereals in markets of neighboring areas of Somaliland and Ethiopia.*" (SOW, 2004)

This restriction has also limited the ability of the team to fully identify "*the constraints that inhibit the cross border flow of staple cereals into Djibouti,*" (SOW,2004) as a perspective could only be gained from sources within Djibouti and from scant on-line sources and printed documentation.

However the report has gained some insights into the sorghum consumption habits of the region, and of the market dynamics which operate to supply markets within the South-East pastoral zone. These findings will help to deepen the understanding of the cereal consumption choices made by the nomadic communities and contribute to the knowledge base for decision makers.

Methodology:

The data for this assignment was collected from a number of sources.

- Published and official documents from Government, International Organisations and the Private sector were compiled through series of visits and discussions with the relevant institutions drawing together as much of the available current and pertinent information.
- Key Informant Interviews were carried out with relevant Government, UN and Private Sector Institutions, Market Wholesalers and Retailers.
- Semi-structured interviews were held with Nomadic Pastoralists throughout the South East Pastoral Zone over a number of weeks and field trips.
- Group meetings were held on two occasions with pastoralists at a school and at water point.
- An internet search was carried out to search for relevant statistics and documents.

Characteristics of the South East Pastoral Zone:

The Southeast pastoral zone includes the whole of Ali Sabieh district, the eastern half of Arta and southern Dikhil. The total population of the region is approximately 98,000 (Ali Sabieh, 53,790, and Dikhil 44,395, GoD, 2002). Arta is a new district without its own indicators but the area within the Southeast pastoral zone is mostly within Ali Sabieh's former district boundaries.

The zone is predominantly inhabited by communities from the Issa Somali clan, with a smaller proportion of Afar nomads towards the West and North-West of the zone. Cross frontier links between the Issa into Somaliland and Ethiopia are strong as families live across the sub-region, regardless of national boundaries.

The Southeast Pastoral Zone has relatively good road and rail access to Djibouti's main urban markets. Communities close to the main road and rail corridors (the Roadside Sub Zone) sell fresh camel and goat milk to these urban markets, while more remote communities sell firewood and charcoal (the Border Sub Zone).

Incomes in the Roadside Sub Zone are high by the standards of rural Djibouti, as fresh milk is in demand and fetches a good price. Incomes in the Border Sub Zone are in contrast amongst the lowest in the country. (FEWS NET, 2004)

Topographically, the zone consists of hills and valleys interspersed with mainly dry river beds. The main water sources are shallow wells up to 10 meters deep and surface streams. The vegetation reflects the hot dry climate and is mainly bushy scrub dominated by acacia trees and a semi-palatable grass locally known as "*aws damer*". This is a popular pasture for goats, camels and donkeys and a good safety net grazing plant in severe drought conditions. Livestock browsing alternates between "sweet" bushes on the hills and "salty" bushes in the valleys. Most wood collection is concentrated in more remote hilly areas and sometimes along the main road corridor between Djibouti and Ethiopia. (FEWS Net, 2004)

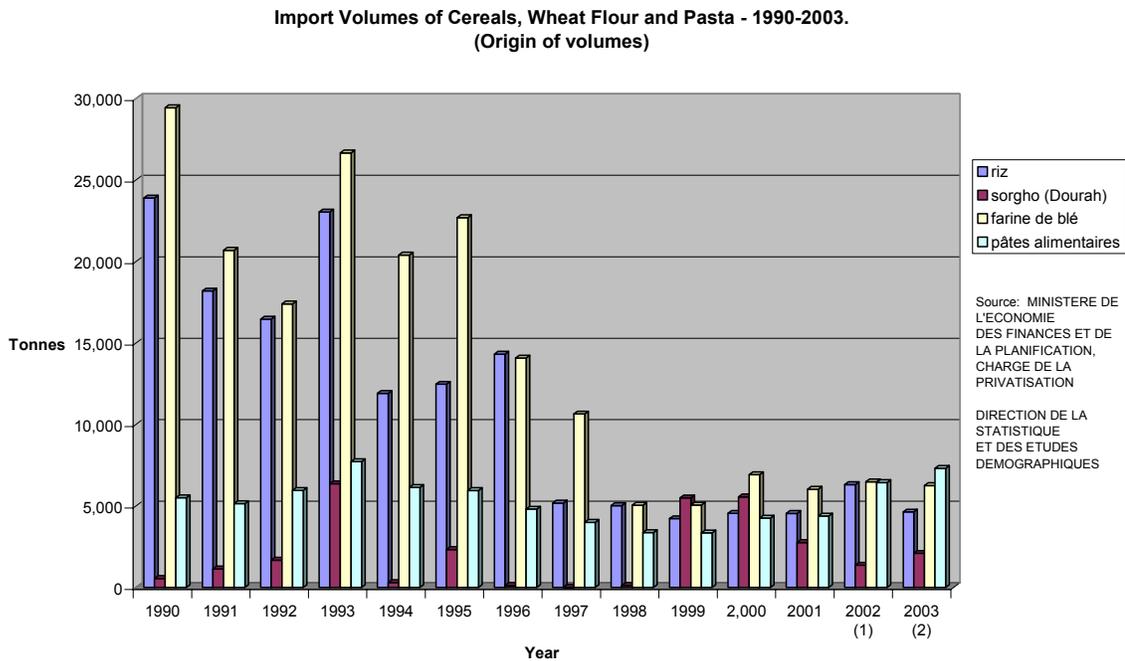
Persistent drought and livestock disease have led to progressive reduction in livestock herd sizes throughout the zone. This has increased the dependence of the population on urban sources of income, resulting in an increasingly sedentary mode of existence. (FEWS NET, 2004)

Livestock movements tend to be localized within the zone, but in severe drought households with large numbers of animals will migrate to neighbouring countries, especially Ethiopia.

An overview of the National Cereal Trade and Statistics:

Djibouti imports all its cereals, wheat flour and pasta which together provide the staples of the national diet. The following chart indicates the relative importance of rice, sorghum, wheat flour, and pasta, and depicts a dramatic decline in the total volumes of wheat flour and rice that were being imported in the early 1990's, to much lower and more stable volumes over the last eight or nine years, suggesting that there has been a sea change in the import and re-export of rice and wheat flour more recently.

Chart 1: Imported Volumes of Cereal, Wheat Flour and Pasta 1990 to 2003.

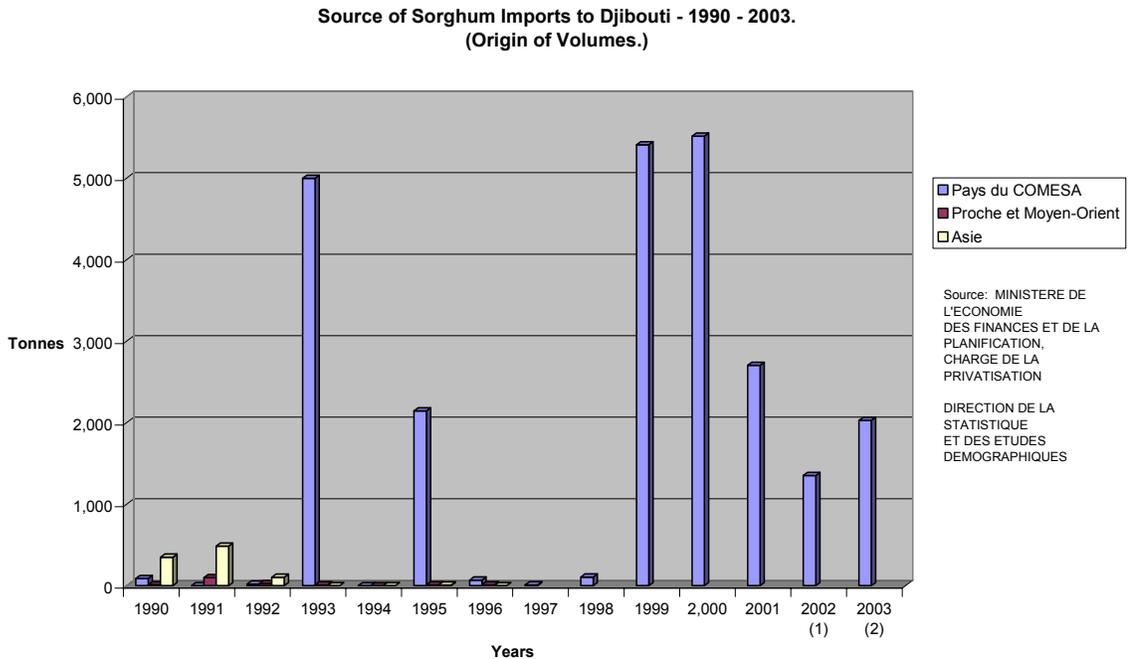


Sorghum:

In terms of national importance sorghum has since 1990 (with the exception of 1999 and 2000) been the least significant of the main staples in import volume terms, and has also shown quite large variations in the volumes imported.

The majority of sorghum imported into Djibouti comes from COMESA countries as the following chart shows.

Chart 2: Source of Sorghum Imports to Djibouti, 1990 to 2003.



Although national statistics do not disaggregate the data sufficiently to identify the precise COMESA trading partners, given that Somalia and Somaliland are not members of COMESA, this data mainly represents the volumes imported from Ethiopia. Also, these national data under report the volumes of Sorghum imported as visits to the three main customs posts in southern Djibouti, (Loyada, Guelile, and Galafi) generated reports that Sorghum was most commonly transported in small volumes across the border, often as part of a “contraband” informal trade network that is in place along the whole of the southern and eastern borders with Ethiopia and Somaliland.

A factor that further undermines these statistics is that where trade is conducted through border posts, such as on the train from Dire Dawa, Ethiopia via Guelile, the practicalities of weighing and charging tax equivalent to DJF 5/kg on 5 or 10 kilos of sorghum means that in practices small volumes (anything less than a 50kg sack) are assumed to be for personal consumption and thus enter Djibouti unrecorded.

It is not possible to estimate with any certainty the level of under reporting in any one year, or to make an estimate over time given that the above data indicate the great variation between years in the volumes recorded officially. When one adds in the drought prone nature of the main growing

grounds which also account for the wide year to year variations, the only conclusion that can be made is that a significant proportion of the sorghum that enters Djibouti's national market place does so through the grey market and goes unreported in National Statistics.

Other Staples:

Djibouti's other staples, rice, wheat flour and pasta are all almost exclusively sourced from, Asia, and the European Union, with some small volumes of wheat flour being imported from the United States of America at irregular intervals.

These data are more easily collectable given that all the imports pass through the Port of Djibouti which has the largest customs and excise organization within the nation. The nature of this market also means that a smaller number of larger traders control the trade reducing the opportunity for "informal" and unreported imports.

Nevertheless the data does indicate some anomalies, such as the dramatic decline in rice and wheat flour imports from the peaks of the early 1990s' of 20,000 tonnes of rice, and 25,000 tonnes of wheat flour, down to 4,000 tonnes and 5,000 tonnes respectively by 2002 and 2003.

Assuming that the early millennium figures hovering around 4,000 to 5,000 tonnes of rice, wheat flour and pasta more accurately reflect current National staple demand, then this data suggests that in good Sorghum import years at the national level, combined urban and rural consumption of sorghum is on a par in volume terms with rice, wheat flour and pasta.

Current patterns of cereal/staples trade into the southern pastoral zone:

The cereal markets for the southern pastoral zone can be disaggregated into two distinct categories: a formal and commercial import wholesale system, linking into a formal wholesale/retail infrastructure supplying urban retailers and other urban retailers and a predominantly informal "grey" market system that supplies cereals and pulses from neighbouring countries.

The "formal" cereal/staple market system:

The "formal" cereal marketing systems center is Djiboutiville through which rice, wheat flour, and pasta are imported. This system is characterized by the large-scale, sophisticated merchants who draw from good communications systems and timely market information who import the staples from the world market.

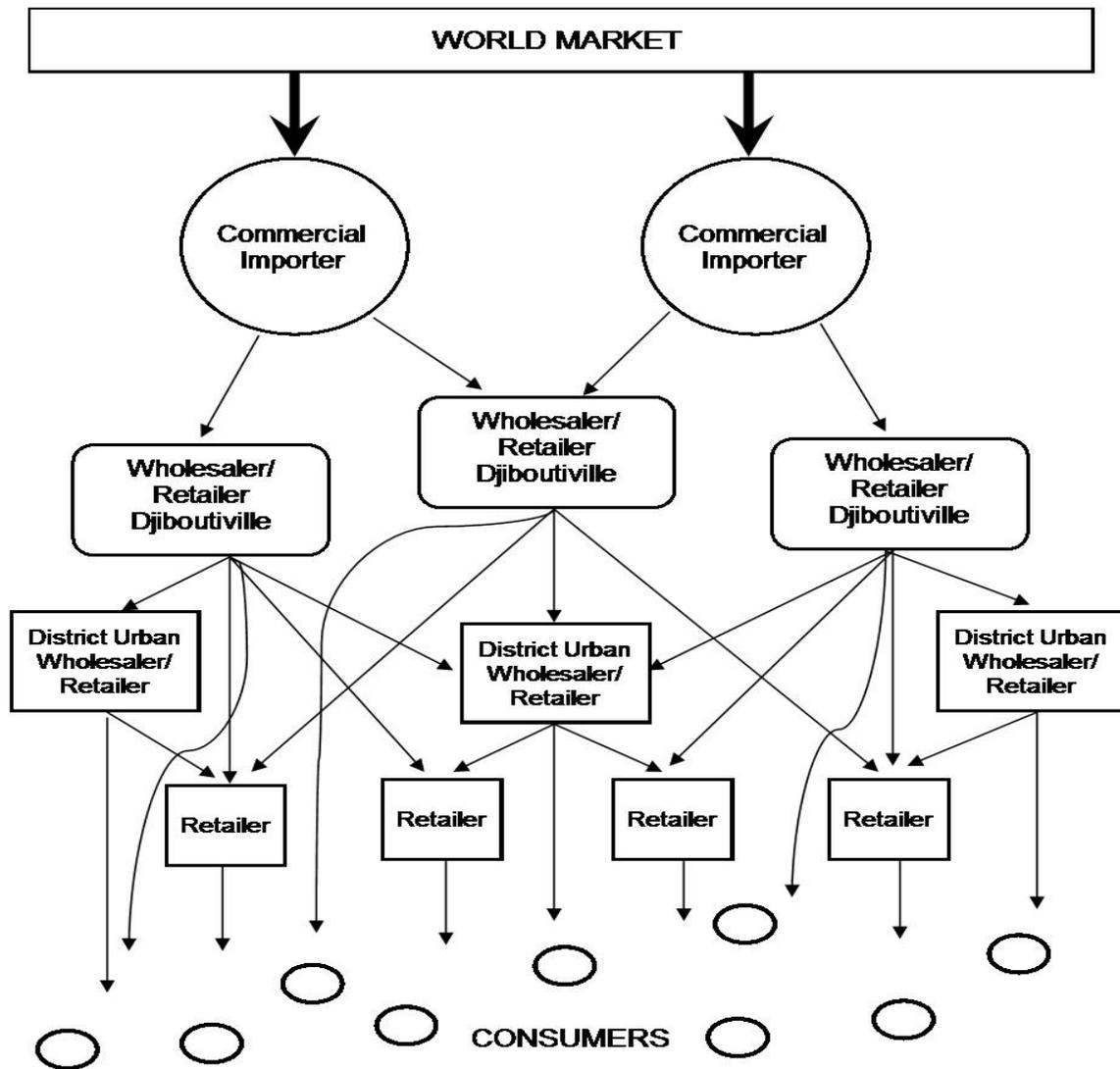
Their price information is timely and accurate and as a result the origin of rice in the market place will reflect the ability of the merchants to secure good deals on the Asian rice market. During the survey period, Thai, Pakistani, and Indian rice of different qualities and price were available in the urban market place. Equally, while the dominant source of pasta is from the European Union, the variety and type of pasta reflects the ability of the merchants to secure volumes from a variety of sources rather than from a fixed supplier.

To further detail the market chain, these commercial importers are linked to a chain of smaller wholesaler/retail merchants within Djiboutiville who act as the interface with wholesaler/retailer

merchants from the main urban areas outside of Djiboutiville and who operate direct retail sales to urban consumers, usually in bulk volumes (50kg sacks). These wholesale/retail merchants also supply small volumes to the informal cereal vendors who sell the rice at the informal urban markets.

Vertical integration from the import function through to the wholesale/retail function is common and given that the total market place is relatively small, the transparency of the information at each of the market levels (horizontally) amongst its main actors is likely to be high, with the result that the market place has little incentive in terms of price competition between merchants. As a result, urban consumer prices are generally uniform regardless of the retail point of purchase.

Chart 3: Formal Market Structure for Rice and Pasta – Djibouti.



The wheat flour market has the same structural and commercial characteristics with respect to the import of flour through large, commercially organized firms from the world market place, but the

market is controlled through a small number of Government Licensed Merchants who procure wheat flour which is then supplied at subsidised prices to the licensed bakeries within Djiboutville.

Bakeries purchasing the subsidised wheat flour in turn have to produce and sell bread at a fixed cost of DJF 20 per baguette. Through this mechanism, the Government of Djibouti is able to maintain a supply of cheap bread throughout the nation. Recent rises in utility costs, especially electricity costs have affected the costs of producing bread and margins for the bakeries have been squeezed as a result of the price cap and the controlled cost of their wheat flour.

Sorghum is not marketed through this formalized international system but through a more “informal” system.

The “informal” cereal/staple market system:

Sorghum, maize, lentils (red and brown) and other pulses (a variety of beans and split peas) are all marketed in a very different system with the sources of supply located in Ethiopia and Somaliland. The cereal market is characterised by its reliance on informal communication networks, working along family, gender and ethnic lines and stretching across National borders into the neighbouring states of Ethiopia and Somaliland where similar ethnic producers are located.

Two distinct informal market systems are evident within Djiboutville for these staples. Both of these systems may operate in Somaliland and Ethiopia, although it has not been possible to ascertain which is the more dominant in terms of volumes of imported materials.

The “women’s” network:

This market system is based on a group of 30 or so women working collaboratively but with a group leader managing the operation. The network vertically integrates all the marketing functions from sourcing supplies, stocking up, transporting, and operating wholesale and retail outlets in Djiboutville.

These groups of women are generally from the Issa clans and their members live in both Djibouti and in the source country, Ethiopia or Somaliland. They require a license to trade in Djibouti and there are 4 main traders with the appropriate documentation. The groups work under the license of one of these four registered traders although their operations are actually independent of them.

The groups typically source their supplies of sorghum and other staples directly at the farm gate. Members of the network, either from Djiboutville or from the source area, hire a truck and then tour the source area buying directly from the farmers with cash.

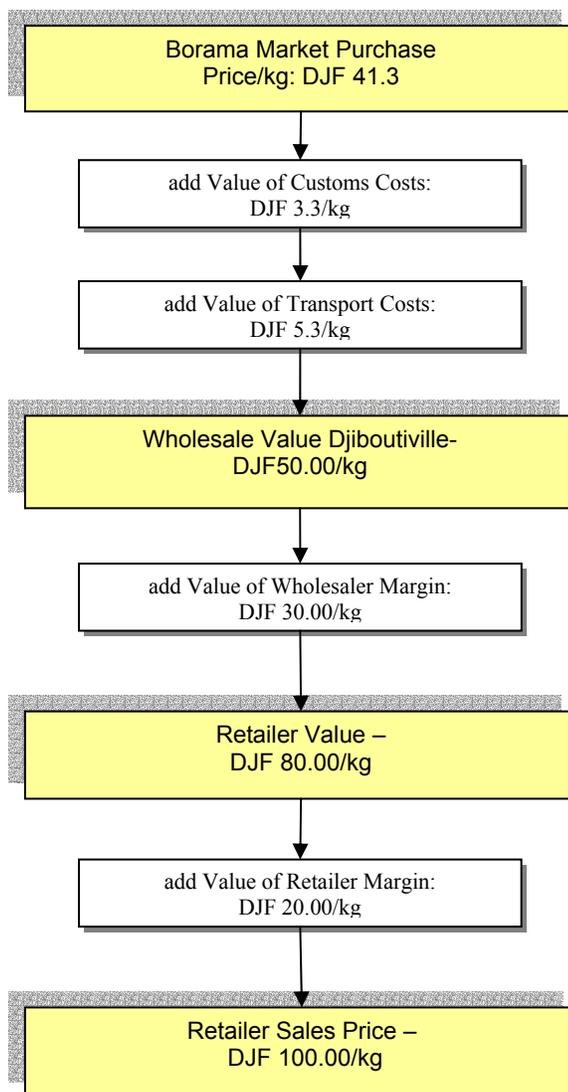
Once a lorry load has been collected, (+/- 12.5 tonnes) the goods are driven back to Djiboutville where the networks have storage and wholesale premises along the Avenue 26. At these facilities, wholesale sales are made by the sack (50kgs), and from these premises, the network links to its retail sellers (all women) who sell the product on commission in small volumes in the informal markets in town.

Supplies to the network are also transported in smaller volumes by individual network members in smaller trucks, or on the train from Ethiopia, or through the informal “contraband” paths on camel or donkey back, often as little as a sack at a time.

The significance of this women's network in terms of supplying the national market place is difficult to judge. What is clear is that a significant amount of the stock does not get recorded on entering Djibouti ensuring that the national statistics referred to earlier in the report under report the volume of sorghum actually being imported.

The following value chain analysis illustrates how a woman's network operates from Borame in Somaliland through to Djiboutiville and depicts the value that is added from farm gate to urban consumer.

Chart 4: The Value Chain for the Woman's Network trading Sorghum from Borame to Djiboutiville.



This particular network indicated that the women's group makes one and half to two trips per months to obtain supplies at the farm gate in Borame. This suggests that this network is importing from Somaliland, between 225 and 300 tonnes of sorghum and or maize, lentil, peas etc.

The above analysis also clearly shows that the trade in Sorghum is profitable and that the main gains in value are all made once the sorghum is warehoused in Djiboutiville. The value of the Sorghum on arrival in Djiboutiville is DJF50/kg, with the Networks vertical integration of functions there are almost no additional transactions costs between the wholesale point and retail point of sale. Indeed even in the most central of informal markets, Place Mohamed Harbi, there are no market charges or taxes incurred from selling from that point, therefore apart from the labour incurred in the retail function and the movement of sacks from the warehouse, no additional marketing costs are incurred, yet a 100% markup is made throughout the importation/sale process, bringing the Djiboutiville urban consumer price to DJF 100/kg.

As with the formalized market for rice and pasta, the nature and size of the market place ensures that there is total price uniformity across all retail sellers, although some price variation was recorded at the wholesale point of the market chain between different networks but these were marginal.

The “informal” trader market system:

This marketing system is an inter-regional marketing system that merchants operate between Djiboutiville and the main market towns of Hargesia and Borame in Somaliland, and to DireDawa and Nazareth in Ethiopia.

The system is informal in the sense that it relies on informal information and communication systems developed along kinship and ethnic lines and that it is commercially reactionary in that it capitalizes on the fluctuations in the types, volumes and prices of commodities available in the main markets in Ethiopia and Somaliland.

As with the women’s network market system, estimates of volumes of pulses and cereals that are imported into Djibouti through this system are difficult to determine. One downside of this system is that it is not as vertically integrated through the marketing functions as the women’s network and it does not have its own network of women retail vendors. It is essentially a wholesale marketing operation buying bulk in the region’s markets and transshipping the goods to wholesale sales points within Djiboutiville.

The main goods purchased within this system are maize, sorghum, lentils, beans and split peas. Wholesale price levels between this type of trader and the women’s network are uniform according to informant interviews and price market data verification, confirming the effect of price transparency across the market place and possibly indicating sufficient demand to negate the need for price competition.

The “informal” district town market systems:

Both of the above systems were noted in the district towns of Ali Sabieh and Dikhil. In smaller permanent settlements, the informal trader model dominates sourcing supplies of sorghum and other staples from Djiboutiville predominantly. In Ali Sabieh and Dikhil, small volumes of sorghum were sourced from Ethiopia, but demand was described as low and supplies are reportedly difficult to get across the border from Ethiopia.

Market vendors, and customs officials reported that all exports of sorghum from Ethiopia were banned by the authorities and were being confiscated if discovered at customs points. In the Ali

Sabieh area this meant that petty traders were smuggling the sorghum through the Ethiopian Customs post but declaring it on arrival at Gilile on the Djiboutian frontier.

In general the markets outside of Djiboutiville had very small volumes of sorghum available for sale.

The predominance of the Djiboutiville market place within the south eastern pastoral zone can not be exaggerated. It is the primary supplier to the regions urban traders, rather than the markets across the frontiers. More importantly, it is still the market to which nomadic pastoralists rely on (despite having to travel great distances) to purchase their supplies as explained in the following section.

Pastoral Cereal Consumption Habits and Trends in the southern pastoral zone:

The findings of this section have been made through a series of discussions with members of the nomadic communities of the southern pastoral zone in which they described their food consumption habits in their own way and using their own terminology. A total of 24 separate semi-structured interviews were undertaken in the field across the southern pastoral zone.

From these interviews it emerged that only one respondent had eaten sorghum in the last 12 months, with a group of three other respondents around the Hol Hol vicinity having last eaten Sorghum in April 2004.

For the other respondents most had not eaten sorghum for more than three years, with some unable to even remember the last time that they had eaten sorghum *“it was too far away.”* The village elder at Bondara claimed that even as a boy he had eaten pasta and rice and the village teacher thought that 1977 was the last time that sorghum had been widely available and eaten regularly.

The food consumption habits of the respondents were uniform and were described in detail by the women of Bondara.

- Morning: eat a galette made from wheat flour with “chai” (tea and sugar)
- Mid-day: spaghetti or rice with sauce and “chai” – this meal was sometimes skipped in there was not enough food
- Evening: rice and sauce and “chai”

Sorghum no longer can be described as a “commonly” eaten staple by the nomadic communities of the southern pastoral zone. On the basis of this research, consumption habits have changed and a move away from sorghum occurred many years ago. With this change in diet, a much stronger link to the urban food markets of Djiboutiville, Ali Sabieh and Dikhil and a predominantly rice/pasta diet supplemented with sugar and “chai” developed.

Reasons why sorghum is no longer eaten

There are two of key reasons offered for the change in cereal consumption patterns that were reported.

- Cross border trade in sorghum is discouraged by the Ethiopian authorities, and so since the change in regime “from the communists,” the supply of sorghum into the southern pastoral zone has reduced dramatically. Sorghum is seen as “contraband” and so now only small volumes are smuggled across from Ethiopia and if discovered the grain is confiscated.
- The change in the rainfall in the area and the prolonged effects of drought on the pasture lands has meant that pastoralists milk yields have declined to such an extent that even if sorghum was available it could not be eaten as it is cooked in milk, of which there is insufficient supply.

Verification of the barriers to trade by the Ethiopian authorities has not been possible, and the Customs officials at the Djiboutian border posts diplomatically declined to comment on the issue, but reported that most sorghum did indeed cross the border on pack animals and therefore went unreported or recorded.

Given the very bureaucratic nature of the Ethiopian state apparatus (see: text box 2003 for the documentation required to export agricultural products) and its slow movement towards adopting free market principles, it is entirely plausible that formal and informal barriers to cross border trade exist. This is enhanced with a “contraband” mentality or mind set of this region, and a lack of information about the rules and regulations pertaining to cross border trade and custom and excise charges keeps the trade of sorghum in the informal sector.

Documentation required to export grain from Ethiopia:

“For export under Letter of Credit mode of payment, the submission of the following documents is mandatory.

- Valid Trade License.
- Copy of authorized Letter of Credit.
- 5 copies of Customs Declaration.
- 6 copies of Bank declarations.
- 2 copies of valid invoices.
- Copy of sales contract.

For export under consignment basis, these copies plus first class foreign bank guarantee is demanded by the commercial banks. Export application is valid for 30 days from the issue and export transit, freight and other charges for the month of issue.”

Source: *Maize Market Assessment and Baseline Study for Ethiopia*. RATES, 2003.

It is worth noting that this barrier to trade argument was only reported in connection with sorghum originating from Ethiopia – no such reports were made in conjunction with supplies originating from Somaliland.

Interviews with traders from Somaliland noted that their main concern was the very poor roads that made transport slow and expensive.

Partial Nutrition Analysis of the bought food items that contribute to pastoralists diets

A partial nutrition analysis has been carried out to determine the nutritional status of the typically families in the zone based on the food supplies that they report buying on their monthly trips to urban markets.

The full set of results is attached as Appendix 4. Note that the analysis deals only with the “food items” that the family reported as buying in from urban areas. Other sources of food contribute to their overall nutritional status, but these tend to be ad hoc contributions from food aid or distant relatives and can not be assumed by the family.

The findings from 8 families in the zone indicate that 6 had a per capita Kcal intake of less than the internationally recommended Kcal 2,100 per person per day from their purchased food. Of these 2 received WFP rations in April 2005. The per capita deficient ranged from – 381 Kcal to -991 Kcal per day per family member. All of the eight family groups relied on rice and pasta as their staples.

Assuming that additional nutrition is gained from milk consumption, from gifts and emergency interventions, this analysis suggest that the nutritional intake of the pastoral communities in the south eastern zone only just covers the basic minimum requirements according to international standards. There is therefore a structural need to support the inhabitants to ensure that they have access to the means to secure the income required to buy their food.

Cost and Income Analysis of bought food items that contribute to diet

The cost of food purchases per capita ranged from DJF 750/month to DJF 2,087/month with an average expenditure per person per month of DJF 1,556.

For a family of 7 people this means that they need to budget approximately DJF 10,895 per month for food purchases, plus a margin for transport if they are not using their own animals to transport their provisions.

In terms of income, this would mean that families would need to sell 3 or 4 goats at current market prices (DJF3,000/goat), or the sale of between 20 and 30 bags of charcoal in Djiboutiville (DJF400 - 500/sack) to cover the purchase costs of food as reported.

Over a 12 month period, an average family unit would therefore need to have a small stock herd that could supply approximately 48 animals for sale, or have access to sufficient wood resources to make 360 bags of charcoal. These calculations assume no other sources of income, and the extent of the income from milk sales varies significantly from family to family and has therefore not been incorporated into this analysis.

Nevertheless the environmental impact of generating income from livestock sales, wood harvesting and charcoal making would be significant and calls into question the long term sustainability of these livelihood systems with such a narrow range of income sources linked inextricably to the status of the range land and rainfall.

The dependence of the communities on urban markets for food and the integration of the pastoral communities into the cash economy suggest that for pastoralism to continue, additional sources of income are required to supplement the traditional incomes from the range.

Would sorghum be incorporated back into the diet if it was available?

The view of the sample was that sorghum would be taken if they had sufficient milk to be able to prepare the sorghum and it was universally viewed that sorghum provided better nutritional value than rice or pasta. It was also noted that to eat rice and pasta one had to have some sauce or vegetables, where with sorghum one did not need anything except milk from ones own animals.

However some of the disadvantages of sorghum as a staple were also mentioned. First, it is not a food that children under 5 can digest easily, therefore rice and pasta have an advantage in that the whole family can consume it. Secondly, two women mentioned that sorghum takes longer to cook than pasta and rice, and one man reported that rice was always cleaner than sorghum. Also, with sorghum small stones are difficult to detect/remove, causing fights between the men and woman.

Given the very clear indication that the communities appreciate the nutritional qualities of their diets, the following assessment models the impact of substituting sorghum for rice and demonstrates the nutritional and financial benefits that may flow from the reintroduction of sorghum into the diets of those in the pastoral zone.

Impact of substituting rice with sorghum:

With the current market prices the relative price of buying a unit of Kcal is as follows:

Table: The relative cost of a Kcal:

Item:	Kcal/kg	Price/kg (FDJ)	Price/Kcal (FDJ)
Rice	355	90	0.025
Pasta	350	110	0.031
Sugar	400	90	0.023
Wheat Flour	347	70	0.020
Vegetable Oil	900	200	0.022
Sorghum	329	70	0.021

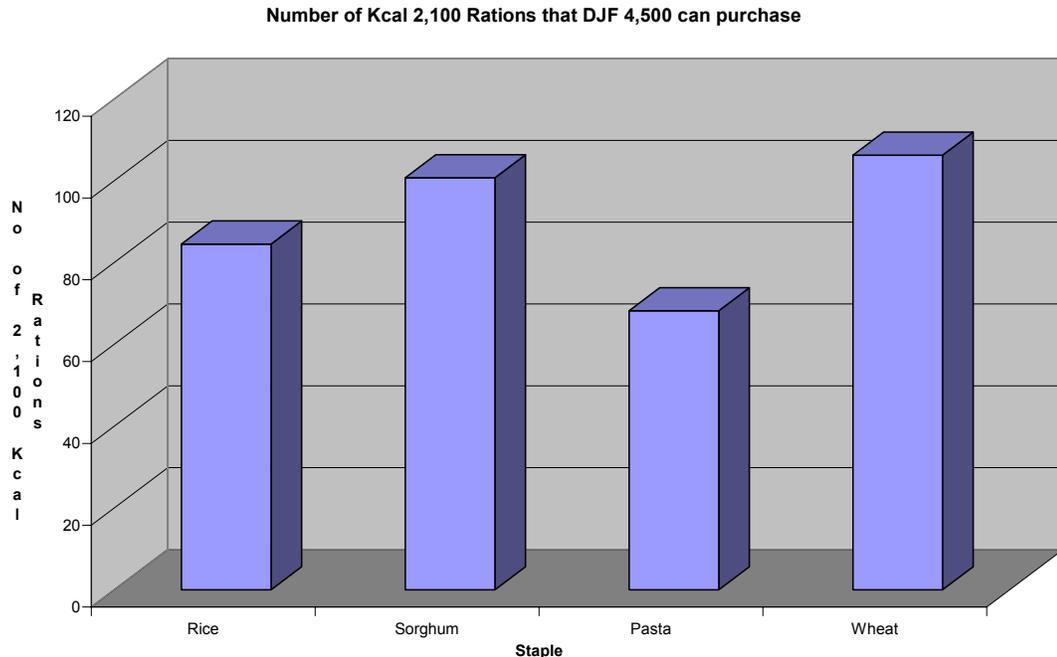
Note: Prices are derived from wholesale prices/50kg sacks.

After wheat flour (whose prices are managed by the state), sorghum is the cheapest staple in terms of providing a Kcal of energy at current market prices.

What this translates to in practical terms is that for a family buying a 50kg sack of rice per month, they receive a total of 177,500 Kcals of energy for DJF 4,500, where as DJF 4,500 would buy you Kcal 211,500 if you bought Sorghum with the same money.

In terms of the additional energy in minimum recommended daily Kcals, DJF4,500 would buy a family 84.5 daily minimum energy units if rice is bought, or 100.7 daily minimum energy units if sorghum is bought, and only 68.2 days worth of the minimum 2,100 Kcals per person per day if pasta is bought. Or for DJF 4,500, rice can provide 84.5 rations of 2,100 Kcal, Sorghum can provide 100.7 rations and pasta can provide 68.2 rations of 2,100Kcals.

Chart 5: Relative Number of 2,100Kcal Rations that can be purchased with DFJ 4,500 – the cost of a 50kg sack of rice.



This chart and analysis indicates that an additional 15.5 ration 2,100Kcals per person/day can be obtained if a DJF 4,500 worth of sorghum is bought instead of a 50kg sack of rice.

Therefore, in economic and nutritional terms, there are very clear advantages to increasing availability of sorghum at the current market price and a sound economic argument based on the nutritional benefits that would accrue from incorporating sorghum back into the diet of the communities, flows from this data and suggests that there is great potential benefit to exploring the opportunities to increase the cross-border trade in sorghum in particular, especially given the demonstrated profitability of the trade as demonstrated in the value chain analysis.

Opportunities to promote increased cross border trade and improved food access by the poor and food insecure in the Southern Pastoral Zone

Increasing Cross-border trade:

- 1. Inter-governmental harmonization of cross-border legislation and customs and excise protocols**

Djibouti signed the COMESA Free Trade Agreement in 2000, along with Kenya and Sudan. Ethiopia as a member of COMESA has not yet signed the Free Trade Agreement. Somalia, and Somaliland, are not members of COMESA. Free-trade in the region would greatly benefit from Ethiopia joining the COMESA FTA and adopting the protocols and procedures as required.

Activities to encourage the Government of Ethiopia to accede and adopt the Free Trade Agreement and to prepare its Trade and Customs institutions would have a positive medium term impact on the availability of cereals from Ethiopia on the Djiboutian and sub-regional markets.

The USAID funded Regional Agricultural Trade Expansion Support Program (RATES) (www.ratescentre.org) through the East and Central Africa Trade Hub (www.ecatradehub.com) provides training initiatives supporting COMESA's harmonization and free trade area agenda and so is helping to prepare interested COMESA member states for accession.

Somaliland and Somalia non-member status in COMESA provides a much greater challenge given the political uncertainty of these two areas. The reality is that sub-regional trade does occur and Somaliland is an exporter and transit country for cereals that are consumed in Djibouti. Efforts to encourage and assist the authorities in preparing their trade and customs institutions in a manner that prepares them to operate to the same standards with harmonized procedures with their neighbours is of significant benefit in that it will facilitate the development of more efficient regional cereal trade.

2. Encouraging sub-regional trade through information and learning approaches

The “contraband” mindset that exists within the Southern Pastoral Zone and the neighboring areas in Somaliland and Ethiopia, exists because of a deeply held mistrust of government officials and of a profound lack of knowledge and understanding of the rules regulations, and duties that pertain to cross border trade.

From this brief field work, it appears that much of the allegedly “contraband” trade evades very low levels of taxation and continues to exist out of custom and tradition and ignorance and fear rather than because the goods being traded are of an “illegal” nature.

Therefore a second key area that would help to stimulate cross border trade within the region would be to develop mechanisms that provide accurate and timely information to the trading community and to the officials who facilitate the cross border trade.

A starting point would be to address the region's customs and excise and duty rules and regulations through a series of tripartite consultations, thus developing a “sub-regional” understanding of the customs and trade regulations that are enforced by each neighbor.

From these consultations, it would be appropriate to develop a comprehensive communication and publicity strategy with the aim of engendering confidence at all levels of the potential trading communities, through the provision of accurate clear information in appropriate media (radio) to the communities of the sub-region. The outcome of this effort would be the encouragement of trade in a more transparent and open manner and it would remove some of the “contraband myths” that exist.

3. Sub-regional Market Information System

At present, reliable timely cereal price information is not being collected and disseminated in a manner that makes it available to the trading communities of the sub-region.

The price data that is being collected is often used for policy level guidance, such as the FEWS NET basket of goods price data collection which is a valuable tool in assessing the effects on livelihoods of market price levels. Similar price information collected in a harmonized and integrated fashion across the sub-region and disseminated to a wider audience, through local and

international radio programs, can help to inform the business community and in so doing develop a wider knowledge base of the business opportunities within the sub-region.

These three areas of opportunity would combine to help create a more transparent and efficient business environment within the sub region. The willingness of the Government of Ethiopia to move more rapidly to a COMESA Free Trade Agreement and to liberalise in a meaningful way its internal cereal markets to empower its cereal producers and merchants to trade without the millstone of a post-Marxist bureaucracy stifling entrepreneurship is critical to stimulating private sector cross border trade.

The international community's failure to recognize the state of Somaliland, also severely limits the opportunity for effective sub-regional dialogue with the goal of neighbors looking for mechanisms to mutually support the development of harmonized protocols and institutional partnering.

Livelihood Support Opportunities

One of the key accomplishments of the field work for this assignment has been to document and confirm that the dietary consumption habits of the pastoralists of the southern pastoral zone changed many years ago, substituting sorghum as the main cereal with rice and pasta. As a result, the link to a cash economy and to urban markets is perhaps much stronger and more important than has previously thought, and it is increasing apparent that the need to generate "cash" income has been central to these families being able to purchase their food requirements.

Therefore in determining what opportunities may exist to facilitate the strengthening of the community's livelihoods it is important to bear in mind the importance of "cash" within their livelihood strategy. Four main sources of income generation predominate within the zone:

- Roadside sale of camel and goat milk
- Sale of live animals – goats, sheep and camels
- Sale of wood and charcoal
- Income from involvement in "contraband" trade

Two approaches for sustaining or increasing "cash" incomes are apparent. The first would be to support the current, traditional (first 3) income generating activities. This could be accomplished through the Government of Djibouti institutions, for example, by providing animal health care services, or supplementary feeding, or by providing additional water points, investing in pasture recovery programmes, developing a sustainable wood and charcoal collection system, or similar activities but implemented through "common interest groups" or the communities themselves with facilitation from an NGO or civil society organization. Funding these activities would most likely be dependent on external funding.

A second approach would be to look at opportunities to develop other sources of income to complement the above four strategies and to look for more novel small-scale interventions that perhaps have not been fully explored.

The first approach is entirely valid, but given the long history of collaboration with other funding partners, such as the French, to re-explore these opportunities risks repeating previous unsuccessful initiatives.

Therefore this report recommends two broad areas where additional sources of income may be generated.

Rangeland Products

Nomadic pastoralists and desert dwelling communities within the Kalahari ecosystem of Southern Africa have been able to supplement their traditional sources of income through the commercialization of and the transformation of some of their traditional “veld products”. Research with communities, often from an anthropological approach, has identified a range of rangeland plants that were being used within communities for medicinal and cultural purposes.

The model which appears most successful in Botswana is that of the NGO “Veld Products Research and Development” (VPRD) (www.veldproducts.org) which interacts with communities to investigate what rangeland products exist and to determine if they have market potential, and then through this interaction develops sustainable harvesting and processing methods to bring the products to a wider national and international market place.

VPRD integrates community based natural resource management strategies into their programs with their communities, and through this participatory approach, helps to secure the rangeland for more sustainable grazing, thus enhancing livestock production systems. The introduction of the “marula” fruit into a large commercial market has stemmed from this type of approach.

The parallels between the agro-ecologies and the nomadic and pastoral nature of the communities in Botswana and the Southern Pastoral Zone, suggest that this model of development, and its participatory search for innovative rangeland products is worth exploring if there are range products that can be sustainably harvested to provide an additional source of cash income to the Southern Pastoral zone communities. An initial inventory of potential crops and products may be a worthwhile first step to identify if potential exists.

Traditional Arts and Crafts

Kuru Development Trust, (www.kuru.co.bw) based again in the Kalahari area of Botswana also provides an example that may have resonance within the southern pastoral zone. This trust is registered as a Community Based Organisation and through this approach, they have been able to develop their traditional art and craft making skills into a valuable source of income by marketing their products to a tourist market that sells their hand woven baskets, leather goods and paintings to the regional and international tourist market.

Skills exist within the Southern Pastoral Zone communities that are similar to those that existed amongst the san communities where Kuru first began working. Research into the options for a similar approach to be trialed within the Southern Zone could be undertaken to develop the concept of a community based organization, to determine potential partnerships within the pastoral communities, and to explore the opportunities that may exist for developing a traditional arts and crafts business with shared ownership amongst the community.



These two approaches are quite similar with their participatory and community focused approach, which is perhaps quite a novel concept within the context of developmental initiatives within Djibouti.

The advantages of these approaches are however very important to spell out. They build on the livelihood strategies that the communities are using, so the change and the pace of change and development of these approaches would be set by the communities.

They also enable current income generating activities to remain in place and in many cases will empower the communities to take proactive measures to ensure more sustainable utilization of their natural resource base than perhaps is currently the case.

An additional advantage is that these approaches do not rely on current institutional approaches or institutions – particularly state institutions, and so tend to move the activity interface directly to the beneficiary community based organization.

In the light of the development of rural health and education centers there is a desire for pastoral communities to ensure that their children get an education. This was an issues raised on a number of occasions during this assignment.

As segments of the communities become more sedentary, for example the women around the renovated school in Bondara, there will be a growing need for these communities to have income generating opportunities. Both of the above approaches may offer opportunities for families to maintain a large proportion of their pastoral existence if their women can also generate income through rangeland products, or basket weaving, mat making, or leather working so enhancing their family income and through this means enabling families to purchase the food they need.

These approaches therefore complement the current investments in development in rural infrastructure and the move towards a more regionalized mode of government by the Government of Djibouti.

More research is required to critically evaluate the potential that these approaches may have to increase family incomes and their ability to purchase food and make their livelihood strategies more resilient.

Appendices:

Appendix 1: SOW.

Chemonics International – FEWS NET/Djibouti

Draft SoW for ST TA to assist with a study of the cereal trade from Somaliland to Djibouti

Background

The FEWS NET IQC (AOT-I-00-00-00142-00) provides USAID with services in “Drought Preparedness and Famine Prevention”. Under this IQC, REDSO/ESA issued a Task Order (TO #804) to Chemonics International in 2001 to provide technical assistance to support capacity building, regional coordination, and institution strengthening in several key areas supporting food security. While the provisions of the original SoW for TO #804 remain in force, an amendment issued in November 2003 requested additional services in Djibouti. REDSO/ESA requested the services of Chemonics International (the primary FEWS NET contractor) to establish a Famine Early Warning System in Djibouti.

The FEWS NET/Djibouti office was established in February 2004. Considerable early investment has been made in categorizing and understanding the livelihoods within Djibouti, as a basis for monitoring and analyzing the food security conditions and identifying appropriate interventions. Four rural livelihood zones have been identified. All have livestock keeping as a component of local livelihoods but nowhere can the majority of the population nowadays survive on livestock income alone. Most of the income to supplement livestock keeping is urban in origin, and the main difference between the four rural zones is in their economic relationship to Djibouti city and the secondary towns.

The Southeast Pastoral Zone includes the whole of Ali Sabieh district, the eastern half of Arta and southern Dikhil. The main road and railway links between Djibouti and Ethiopia run through the zone and provide the population with access to the urban markets of Djibouti city and the main district towns. In the areas with good road access camel and goat milk are sold to the towns. These areas are consequently relatively prosperous. However, in the interior areas Persistent drought and livestock disease have led to a progressive reduction in livestock herd sizes. These areas are poor and increasingly reliant on the collection and sale of firewood and charcoal for cash incomes.

As livestock holdings are low, only a small percentage of household food needs are met from own livestock production (milk, butter and meat). Most households purchase over 90% of their daily food needs in the form of wheat flour, rice, pasta, sugar and edible oil. Due to the very low cash incomes in this sub zone, the ‘poor’ are unable to cover their minimum food needs in most years – and the area must be classed as food insecure.

One observation is that sorghum and maize is available in Ethiopia and Somaliland at approximately 1/3 of the price of the main staple food grains in Djibouti. It is not clear why the poor households in these border areas are not switching to these much cheaper sources of calories. If staple foods were readily available at substantially lower prices this would provide a major boost to Djiboutian food security.

Tasks

The ST TA will be responsible for:

- Investigating and documenting current patterns of cereal trade into the southern pastoral areas of Djibouti.
- Assessing the availability and reliability of alternative sources of cereals in markets of neighboring areas of Somaliland and Ethiopia.
- Identifying the constraints that inhibit the cross border flow of staple cereals into Djibouti, including:
 - formal and informal border controls,
 - SPS and documentation requirements,
 - transport linkages,
 - dietary and food preparation preferences,
 - trade intelligence,
 - availability of credit, and,
 - Government behaviour.
- Based on this analysis suggest possible interventions which could promote increased cross border trade and improved food access by poorer and food insecure Djiboutians.

This assignment will require investigations both in Djiboutiville and travel to the border areas of the South of the Country and possibly into Somaliland and Ethiopia. Assistance in Somali translation for the field work will be provided, if required, by FEWS NET.

The consultant will produce a concise report on their findings in English. A brief presentation on the findings should be made to FEWS NET and GoD staff.

Timeframe

The assignment will commence on 1st January and be completed by the end of the month. A total of 25 days is estimated for this assignment.

One week is expected to be spent in Djiboutiville in meetings with the CFNR, GoD and commercial cereal traders. The second week will be spent conducting field work in the Somali border zone. The remainder of the time period will be used for report writing and feedback.

Supervision

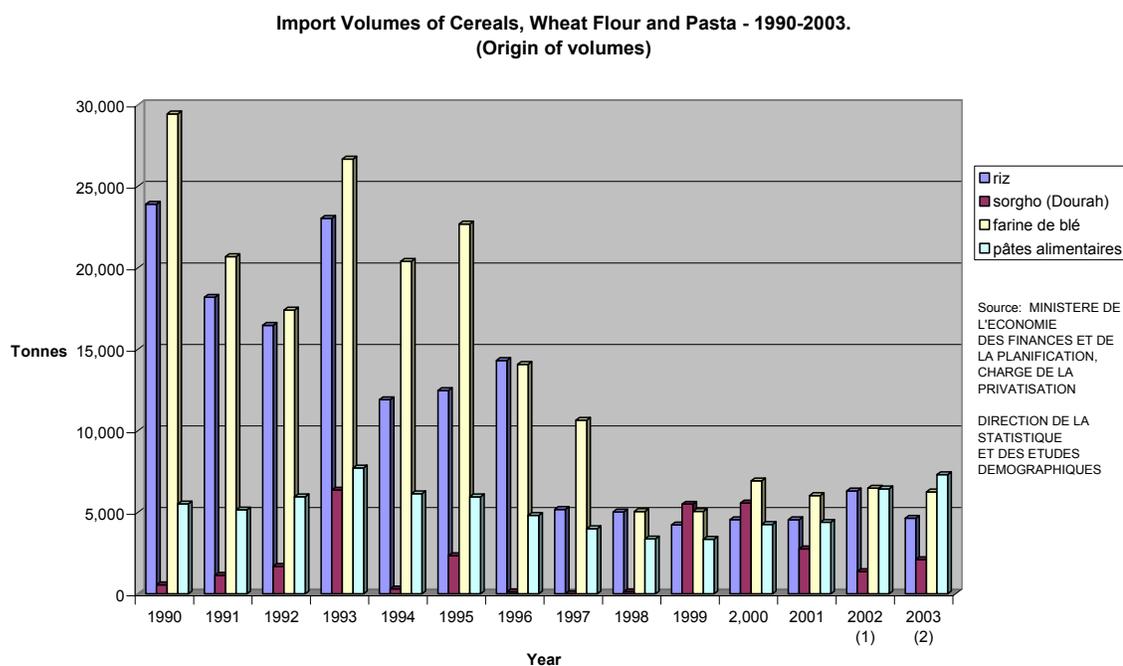
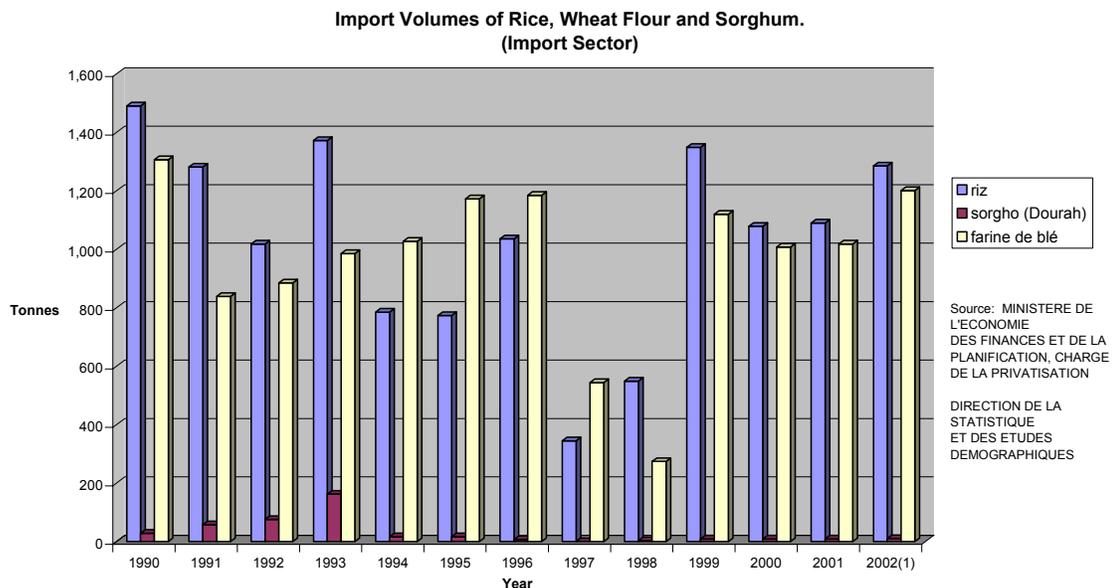
The activities will be supervised by Rachid Hersi, FEWS NET Djibouti Country Representative, with assistance from Nick Maunder, the Task Order Manager.

Appendix 2: Field Work and Key Meetings:

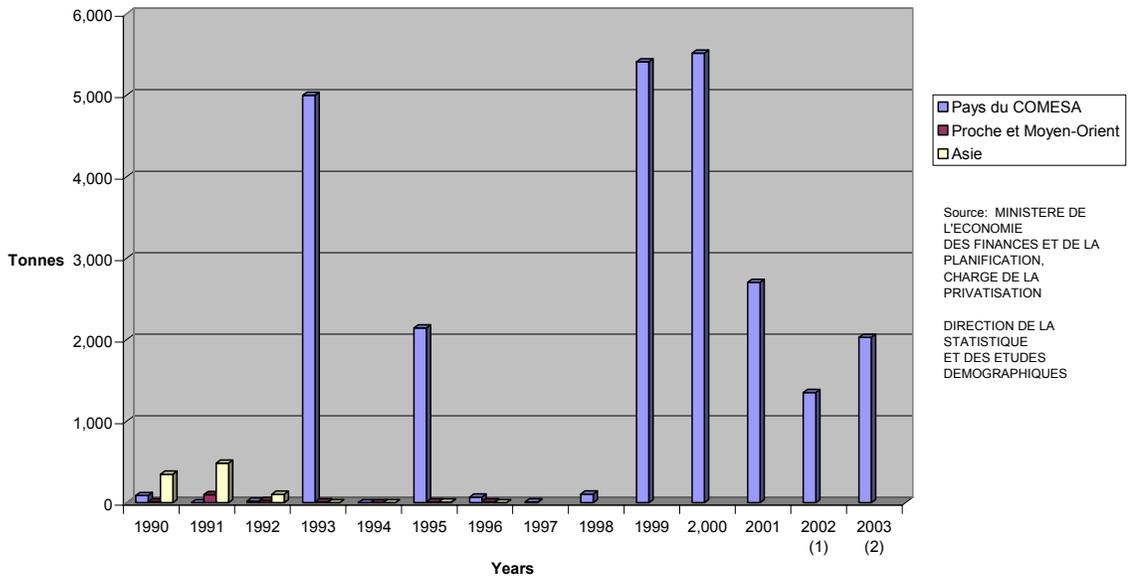
8 th February:	Meeting: Meeting:	FEWS NET – Country Representative – Mr. Rachid Elmi Hersi. USAID – Country Representative – Mrs. Janet Schulman.
9 th February:	Meeting: Meeting: Meeting: Meeting:	Minister of Commerce and Industry – Statistician Director of the Cabinet, Prime Ministers Office. Chef de Service des Normes et Qualité, Ministry of Commerce and Industry – Ms. Ron Osman.
14 th February:	Market Interviews:	Retail Vendours, Place Mohamed Harbri, Djiboutiville.
16 th February:	Meeting:	World Food Programme, Madam Fatma Samoura.
2 nd March:	Meeting:	Chamber of Commerce
20 th April:	Field Trip:	Ali Sabieh, via PK20, Hol Hol and Ali Ade, Assamo.
21 st April:	Field Trip:	Ali Sabieh Market, Guelilie Customs Post, Dikhil, meet with WFP, Gelafi Customs Post, Bondara School.
22 nd April:	Field Trip:	Balamballe, Mouloud, Iskoutir, and Arta.
5 th May:	Field Trip:	Balamballe, Iskotir
9 th May:	Market Interviews:	Whole Sale Vendours, Djiboutiville (Somaliland)
10 th May:	Market Interviews:	Whole Sale Vendours, Djiboutiville. (Ethiopia)
11 th May: Ali Olou.	Field Trip:	Southern Border Zone, Damerdjog, Loyada Customs Post,
12 th May: Kabah.	Field Trip:	Southern Border Zone, Hol Hol, Rohale, Djilbibibi, Kabah
15 th May	Report Preparation:	Djiboutiville
16 th May	Report Preparation:	Djiboutiville
17 th May	Report Preparation:	Djiboutiville
18 th May	Report Preparation:	Djiboutiville
19 th May	Report Preparation:	Djiboutiville
20 th May	Report Preparation:	Djiboutiville

Appendix 3: National Cereal Trade Charts – 1990 to 2003.

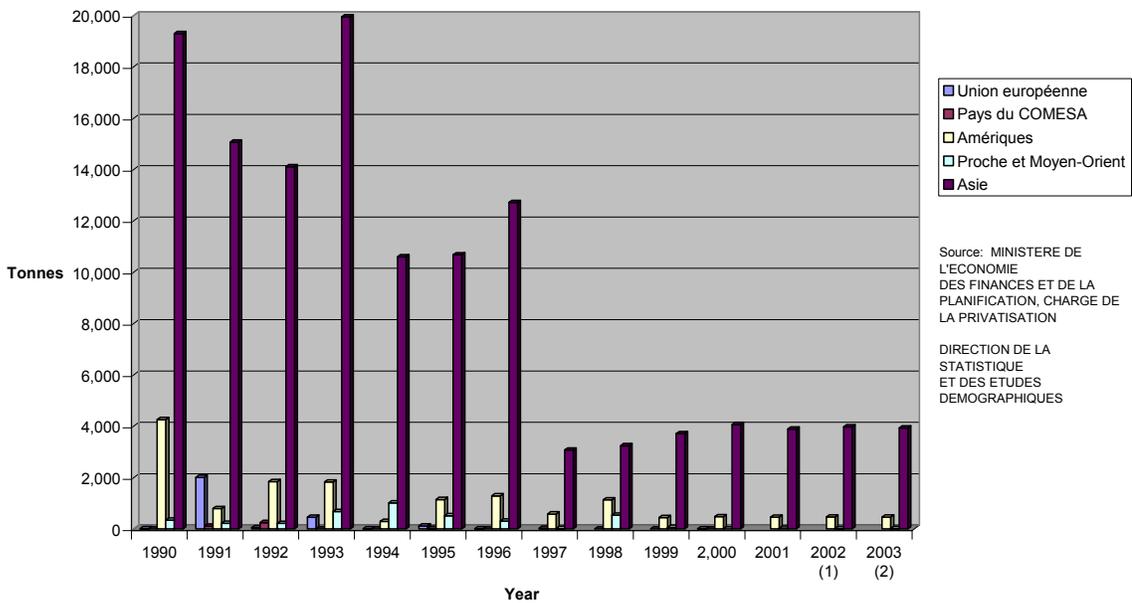
Source: Ministère de l'Economie, des Finances et de la Planification, charge de la privatisation.
 Direction de la Statistique et des Etudes Demographiques.



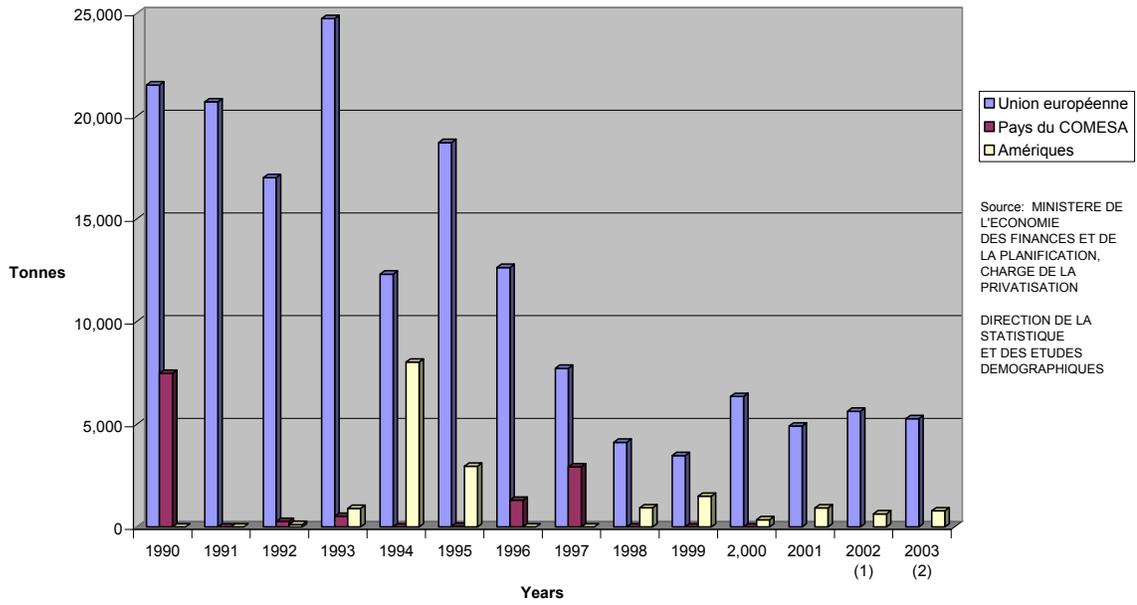
**Source of Sorghum Imports to Djibouti - 1990 - 2003.
(Origin of Volumes.)**



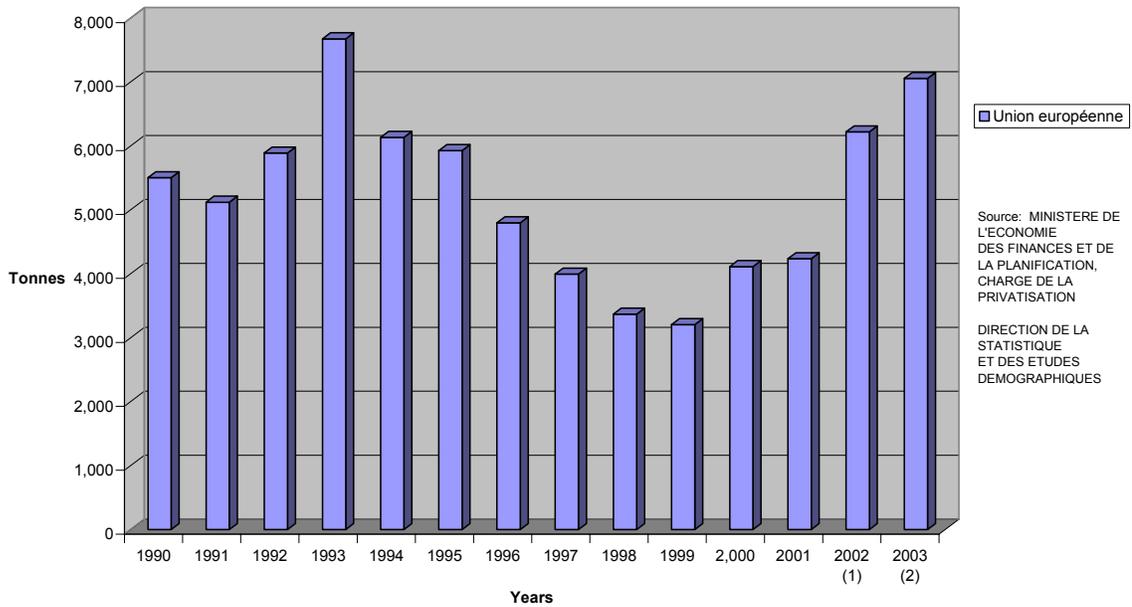
Source and Volume of Rice Imports - Djibouti, 1990 - 2003



Source and Volume of Wheat Flour Imports - Djibouti, 1990 - 2003



Source and Volume of Imports of Pasta to Djibouti, 1990 - 2003



Appendix 4: Family Nutrition Estimates and Food Purchase Costs:

Family Size:			Monthly Food Purchases:				Nutrition Estimate			Food Costs:		
Adults	Children	Total:	Food Type	(50kg) Sack	Price/sack (FDJ)	Quantity/month (kgs)	Quantity/day (kgs)	Quantity/person/day (kgs)	Kcal/person/day	Est. Monthly Total Cost (FDJ)	Est. Monthly Cost/person (FDJ)	
2	6	8	Rice:	1	4500	50	1.67	0.21	740	4500	562.5	
			Pasta						0	0	0	
			Sugar	1	4500	50	1.67	0.21	833	4500	562.5	
			Wheat Flour						0	0	0	
			Veg Oil (3lt)						0	0	0	
								Total Quantity/person/day	0.42	1573		
								Recommended Kcal/person		2100		
								Kcal/person/day surplus/deficit		-527		
										Total Costs (FDJ)	9,000	1,125

Family Size:			Monthly Food Purchases:				Nutrition Estimate			Food Costs:		
Adults	Children	Total:	Food Type	(50kg) Sack	Price/sack (FDJ)	Quantity/month (kgs)	Quantity/day (kgs)	Quantity/person/day (kgs)	Kcal/person/day	Est. Monthly Total Cost (FDJ)	Est. Monthly Cost/person (FDJ)	
5	10	15	Rice:	2	4500	100	3.33	0.42	1479	9000	1125	
			Pasta	1	2000				0	2000	250	
			Sugar	1	4500	50	1.67	0.21	833	4500	562.5	
			Wheat Flour						0	0	0	
			Veg Oil (3lt)	2	600	6	0.2	0.01	120	1200	150	
								Total Quantity/person/day	0.63	2313		
								Recommended Kcal/person		2100		
								Kcal/person/day surplus/deficit		213		
										Total Costs (FDJ)	16,700	2,088

Family Size:			Monthly Food Purchases:				Nutrition Estimate			Food Costs:	
Adults	Children	Total:	Food Type	(50kg) Sack	Price/sack (FDJ)	Quantity/ month (kgs)	Quantity /day (kgs)	Quantity /person/day (kgs)	Kcal/person/day	Est. Monthly Total Cost (FDJ)	Est. Monthly Cost/person (FDJ)
2	6	8	Rice:	1	4000	50	1.67	0.21	740	4000	500
			Pasta	0	0				0	0	0
			Sugar	0.5	4000	25	0.83	0.10	417	2000	250
			Wheat Flour						0	0	0
			Veg Oil (3lt)	0	0	6	0.2	0.03	225	0	0
Received WFP/PAM ration, 5kgs sugar, oil, beans and CSP - half ration.						Total Quantity/person/day		0.31	1156		
						Recommended Kcal/person		2100			
						Kcal/person/day surplus/deficit		-944			
						Total Costs (FDJ)			6,000	750	

Family Size:			Monthly Food Purchases:				Nutrition Estimate			Food Costs:	
Adults	Children	Total:	Food Type	(50kg) Sack	Price/sack (FDJ)	Quantity/ month (kgs)	Quantity /day (kgs)	Quantity /person/day (kgs)	Kcal/person/day	Est. Monthly Total Cost (FDJ)	Est. Monthly Cost/person (FDJ)
2	6	8	Rice:	1.5	3800	75	2.50	0.31	1109	5700	712.5
			Pasta	0	0				0	0	0
			Sugar	0	0	0	0.00	0.00	0	0	0
			Wheat Flour						0	0	0
			Veg Oil (3lt)	8	600	6	0.2	0.03	225	4800	600
Int in Ali Adde, family almost certainly benefited from other food inputs.						Total Quantity/person/day		0.31	1109		
						Recommended Kcal/person		2100			
						Kcal/person/day surplus/deficit		-991			
						Total Costs (FDJ)			10,500	1,313	

Family Size:			Monthly Food Purchases:				Nutrition Estimate			Food Costs:	
Adults	Children	Total:	Food Type	(50kg) Sack	Price/sack (FDJ)	Quantity/month (kgs)	Quantity/day (kgs)	Quantity/person/day (kgs)	Kcal/person/day	Est. Monthly Total Cost (FDJ)	Est. Monthly Cost/person (FDJ)
4	11	15	Rice:	1.5	4000	75	2.50	0.31	1109	6000	750
			Pasta	2	2000				0	4000	500
			Sugar	1.5	4000	75	2.50	0.31	1250	6000	750
			Wheat Flour	1	3500	50	1.67	0.21	723	3500	437.5
			Veg Oil (3lt)	2	600	6	0.2	0.01	120	1200	150
								Total Quantity/person/day	0.63	2359	
								Recommended Kcal/person		2100	
								Kcal/person/day surplus/deficit		259	
									Total Costs (FDJ)	20,700	2,588

Family Size:			Monthly Food Purchases:				Nutrition Estimate			Food Costs:	
Adults	Children	Total:	Food Type	(50kg) Sack	Price/sack (FDJ)	Quantity/month (kgs)	Quantity/day (kgs)	Quantity/person/day (kgs)	Kcal/person/day	Est. Monthly Total Cost (FDJ)	Est. Monthly Cost/person (FDJ)
2	5	7	Rice:	1	4000	50	1.67	0.21	740	4000	500
			Pasta	1	1600				0	1600	200
			Sugar	1	4000	50	1.67	0.21	833	4000	500
			Wheat Flour						0	0	0
			Veg Oil (3lt)	3.3	1200	9.9	0.33	0.05	424	3960	495
								Total Quantity/person/day	0.42	1573	
								Recommended Kcal/person		2100	
								Kcal/person/day surplus/deficit		-527	
									Total Costs (FDJ)	13,560	1,695

Family Size:			Monthly Food Purchases:				Nutrition Estimate			Food Costs:		
Adults	Children	Total:	Food Type	(50kg) Sack	Price/sack (FDJ)	Quantity/month (kgs)	Quantity/day (kgs)	Quantity/person/day (kgs)	Kcal/person/day	Est. Monthly Total Cost (FDJ)	Est. Monthly Cost/person (FDJ)	
5	10	15	Rice:	1	3500	50	1.67	0.21	740	3500	437.5	
			Pasta (10kg)	1	1600	10	0.33	0.04	146	1600	200	
			Sugar	1	4000	50	1.67	0.21	833	4000	500	
			Wheat Flour						0	0	0	
			Veg Oil (3lt)	3.3	1200	9.9	0.33	0.02	198	3960	495	
								Total Quantity/person/day	0.46	1719		
								Recommended Kcal/person		2100		
								Kcal/person/day surplus/deficit		-381		
										Total Costs (FDJ)	13,060	1,633

Family Size:			Monthly Food Purchases:				Nutrition Estimate			Food Costs:		
Adults	Children	Total:	Food Type	(50kg) Sack	Price/sack (FDJ)	Quantity/month (kgs)	Quantity/day (kgs)	Quantity/person/day (kgs)	Kcal/person/day	Est. Monthly Total Cost (FDJ)	Est. Monthly Cost/person (FDJ)	
2	7	9	Rice:	1	4000	50	1.67	0.21	740	4000	500	
			Pasta (10kgs)	1	1100	10	0.33	0.04	146	1100	137.5	
			Sugar	1	4500	50	1.67	0.21	833	4500	562.5	
			Wheat Flour						0	0	0	
			Veg Oil (3lt)	1	500	3	0.1	0.01	100	500	62.5	
Family received 1 bottle CSB, 15kgs Rice, 5lt Oil and 25kgs Lentils in April								Total Quantity/person/day	0.46	1719		
								Recommended Kcal/person		2100		
								Kcal/person/day surplus/deficit		-381		
										Total Costs (FDJ)	10,100	1,263

Appendix 5: Nutrition composition of sorghum, millets and other cereals.

Nutrient composition of sorghum, millets and other cereals (per 100 g edible portion; 12 percent moisture)

Food	Protein^a (g)	Fat (g)	Ash (g)	Crude fibre (g)	Carbohydrate (g)	Energy (kcal)	Ca (mg)	Fe (mg)	Thiamin (mg)	Riboflavin (mg)	Niacin (mg)
Rice (brown)	7.9	2.7	1.3	1.0	76.0	362	33	1.8	0.41	0.04	4.3
Wheat	11.6	2.0	1.6	2.0	71.0	348	30	3.5	0.41	0.10	5.1
Maize	9.2	4.6	1.2	2.8	73.0	358	26	2.7	0.38	0.20	3.6
Sorghum	10.4	3.1	1.6	2.0	70.7	329	25	5.4	0.38	0.15	4.3
Pearl millet	11.8	4.8	2.2	2.3	67.0	363	42	11.0	0.38	0.21	2.8
Finger millet	7.7	1.5	2.6	3.6	72.6	336	350	3.9	0.42	0.19	1.1
Foxtail millet	11.2	4.0	3.3	6.7	63.2	351	31	2.8	0.59	0.11	3.2
Common millet	12.5	3.5	3.1	5.2	63.8	364	8	2.9	0.41	0.28	4.5
Little millet	9.7	5.2	5.4	7.6	60.9	329	17	9.3	0.30	0.09	3.2
Barnyard millet	11.0	3.9	4.5	13.6	55.0	300	22	18.6	0.33	0.10	4.2
Kodo millet	9.8	3.6	3.3	5.2	66.6	353	35	1.7	0.15	0.09	2.0

a N x 6.25.

Sources: Hulse, Laing and Pearson. 1980: United States National Research Council/National Academy of Sciences. 1982. USDA/HNIS. 1984.

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Web Sites and Links:

www.fews.net FEWS NET website with food security and livelihoods reports from FEWS NET presence countries in Africa, Central America, Haiti, and Afghanistan.

www.comesa.int COMESA home page.

www.fao.org Entry point to FAO web site and general ag production and research data.

www.Sorghumgrowers.com United States sorghum growers association web site.

www.icrisat.org Sorghum Research data and documents.

www.uea.ac.uk/cap/sorghum Guide to Sorghum and Sorghum Products in Africa

<http://www.ids.ac.uk/ids/global/valchn.html> Globalisation and Value Chain Studies.