

Agricultural Input Marketing in Uganda

Ephraim Nkonya and Edward Kato

International Food Policy Research Institute (IFPRI)
4 Pilkington Road Colline House 3rd Floor
P.O. Box 28565 Kampala Uganda

Abstract

A survey of 148 agricultural input traders was conducted in Uganda to identify their marketing constraints and opportunities. This study discusses the policy and research implications of the identified constraints and opportunities. The major input marketing constraints that were identified in the study are limited participation of large input traders in input seed marketing, lack of breeder and foundation seeds, information asymmetry between traders and producers, lack of formal contracting among informal, and formal seed producers and seed traders, lack of standardization and product quality, lack/high costs of financial services, and high transportation costs.

The major opportunities for increasing the efficiency of input marketing are the potential for informal seed sector to participate in improved seed multiplication and distribution, the active participation of national and international and NGO's and civil societies and research institutions in training and facilitating seed production and marketing. The other potential in the input marketing in Uganda is the release of well-adapted cropvarieties . This research noted that, input traders have been offering informal extension services to their clients, the farmers. This indicates that there is an opportunity for using input traders as sources of information on new technologies, provided they (the traders) are well trained and remain unbiased on their extension delivery. Input traders can also act as sources of input credit and cash for farmers. This research observed that over 80% of input traders sampled sold inputs on credit to farmers and 24% advanced cash credit to their customers.

The implications of the findings of this study are that, there is a need to establish a mechanism of involving informal seed sectors in the seed multiplication, certification and release process. Participation of NGO's and civil societies in training input traders, offering small credits and credit mediation to small traders have increased improved seed availability in the remote areas like northern Uganda. Hence there is a need for the government to facilitate NGO's and civil societies in offering small loans, and training to input traders.

**A paper Presented at the IFPRI Policy Workshop, June 25-26, 2001,
Kampala Uganda**

June 26, 2001

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INTRODUCTION

Background

The declining soil fertility in Uganda is the major issue that motivated this study. Declining crop yields have manifested the declining soil fertility, and larger negative nutrient balances for major elements (MAAIF, NARO and FAO, 1999; Wortman and Kaizzi, 1998; APSEC, 1999). A major factor contributing to the declining soil fertility in Uganda is the low external input use in Uganda.¹ It is estimated that less than 10% of smallholder farmers use improved maize and bean seeds, while 2% use inorganic fertilizer. The overall average intensity of inorganic fertilizer use is about 1 kg of fertilizer per hectare. Farmers. Use of chemical pest control is practiced by only 10% (MAAIF and MFEPD, 200).

The major underlying causes of low external input use in Uganda are high transaction costs of input marketing, limited availability of breeder and foundation seeds, low participation of private traders in the input distribution system, and the high cost of financial services. The high transaction cost of input trade is due to the low volume of purchases, high transport costs and high interest rates (IFDC, 1999). The high transport cost in turn results from the high tax rates charged for fuel (175% for petrol and 130% for

¹ Other factors contributing to land degradation are: shorter fallow periods resulting from population increase; soil erosion resulting from population increase; soil erosion resulting from loss of soil cover cultivation on steep slopes and general poor fertility management; and soil compaction (MAAIF, NARO and FAO, 1999).

diesel CIF prices) and the fact that Uganda is landlocked; hence fertilizers and other agrochemicals are transported by road (ESMAP, 1996; IFDC, 1999). Other contributing factors to the high transportation costs are the poor road, communications, and storage infrastructures (MAAIF and MFEPD, 2000). There are 12,911 km of all-weather roads in Uganda of which approximately 18% are paved (UBS, 1999). Moreover, more than 70% of Uganda's roads are earth and gravel and of those 25% of rural feeder roads are impassable during the rainy season. Consequently it is estimated that about 70% of the total marketed surplus in Uganda is transported as head loads, 20% by bicycle, 8% by motorized vehicles and 2% on animals – donkeys and ox-carts (MAAIF and MFEPD 2000).

Due to limited resources, research scientists fail to maintain the breeder and foundation seed purity and to produce enough seed to meet the demand for the public and private sectors. Additionally, there has been a poor linkage between research, extension and the private sector (MAAIF and MFEPD, 2000). Breeding programs in many cases are not responsive to the farmer needs as they overplay the yield potential (Louwaars and Marrewijk, 1996; MAAIF and MFEPD, 2000).

Traditionally, the private seed companies avoid marketing self-pollinated crop seeds like beans due to competition from farm-saved seeds. Private seed companies also avoid marketing seeds in remote areas because farmers in such areas cannot afford improved certified seeds (David and Kasozi, 1999). This situation has called for development of an informal seed sector that has not yet been integrated in the breeding and extension

programs in Uganda. The lack of support and integration of the informal sector in the seed production establishment has led to limited availability of improved seeds to farmers operating in marginal areas and those planting seeds that are not marketed by private and public firms.

The Government of Uganda privatized the input trade, although it periodically distributes subsidized/free inputs, which has frustrated private traders (MAAIF, NARO and FAO, 1999 IFDC, 1999). This has led to low participation of private traders in the seed input marketing sector (Agricultural Secretariat, 1992). Input marketing in Uganda is also thin due to the low demand for agricultural inputs. This has forced input traders to deal with small stocks of inputs that do not utilize the economies of scale, as well as diversifying business by trading other non-input products.

The broad objective of this study is to identify and analyze the input marketing and opportunities in Uganda.

Methodology of the Study

Four regions of the country were sampled, namely central, east, north and west. The survey involved 148 input traders located in 17 districts. Input traders were put into three major categories: Importers, wholesalers and retailers. All importers were located in Kampala (Table 1). Twelve of the 17 wholesalers (71%) and 53% of the 121 retailers were also located in Kampala.²

² Five importers and two wholesalers in Kampala declined to be interviewed probably for fear of revealing

The units of analysis used in this report are regions (central, east, north and west) and type of trader (importers, wholesalers and retailers). Regional analysis is intended to capture the geographical and socio-economic differences of input traders in Uganda. Analysis by type of trader is intended to capture the financial resource and business strategy differences among the type of traders. Importers are assumed to have the largest working capital, are specialized, and have more advanced business strategies than wholesalers and retailers. Retailers are assumed to operate on a small capital, with some form of enterprise and product diversification.

SURVEY FINDINGS

General Characteristics of Businesses and Principle traders

Type of inputs traded: Seed, pesticides/herbicides and fertilizer are the most common inputs traded by the respondents. (Table 3) As expected, importers appear to be the most specialized and retailers the most diversified. Only a small proportion of importers are engaged in seed and non-agricultural products marketing. More than half of retailers and wholesalers are engaged in trading seed, fertilizer, agrochemicals and agricultural equipment and machinery.

On a regional basis, more than half of the sampled input traders in all regions trade fertilizer. There has been a pronounced promotion of fertilizer use by several non-governmental organizations (NGOs) in the northern region. Sasakawa–Global 2000 (SG 2000), the Uganda’s Investment in Developing Export Agriculture (IDEA) project and

their business strategies.

Appropriate Technology (AT) all have been promoting input use in the northern region. Consequently, the majority of input traders in the northern region carry fertilizer.

Overall, agricultural input marketing accounts for 85% of incomes for respondents, implying that as designed, the research involved traders who deal mainly with agricultural inputs. As expected, retailers spread risk by diversification to other commodities namely agricultural commodity, and product trade and non-trade related sources. Lack of specialization is also a manifestation of the thin input markets in Uganda. The thin markets force input traders to be involved in more than one trading activity. The main types of occupations other than the input trade that respondents were engaged in are: agricultural production for retailers and wholesalers and non-agricultural related businesses for importers. Input traders who are engaged in farming would be effective sales people of agricultural inputs because they can identify themselves with their customers, the farmers. Also, since they have the practical experience, they could be effective in advising farmers on the use of inputs (De Andrade and Scherer, 1993)

Gender of the principle input trader: Women in sub-Saharan Africa are the major producers and processors of food for home consumption. African women are also actively involved in retailing foodstuffs in seasonal markets, street-side and permanent market stalls. In Ghana, for example, women sell about 80% of all foodstuffs and other agricultural products (FAO, 1993). A study conducted by the International Food Policy Research Institute (IFPRI) in urban Ghana showed that about 47% of women in Accra are

engaged in petty trading and 20% in street food preparation/vending (Maxwell, et al., 2000).

It is interesting to note there is a high level of participation of women in the input trade in Uganda (Table 5). A little over 42% of input retailers sampled were women. Women input wholesalers were about 24% of the 17 wholesalers sampled but there was no female importer sampled. Participation of women in the agricultural input trade is important since, even though women are the major food producers and processors in SSA, they have limited access to basic inputs and information (Due and Gladwin, 1991).

Availability of Improved Seeds

Seed Suppliers: Supply of seeds for beans, maize, , soybean, sunflower, sesame, groundnuts, sorghum and millet is dominated by USP. The dominance of USP is believed to have deterred the entry of private seed companies in Uganda (Agricultural Secretariat, 1992). However, new seed companies have started to enter the seed industry in the country. Currently, there are three foreign seed companies from Zimbabwe, South Africa, and Kenya, however the new companies have not made a substantial impact as yet (*New Vision*, January 2001, Timanywa, 2001, personal communication).

Respondents were asked to report the sources of their seed supplies, reported USP and its distributors as the major supplier of maize, beans and other seeds, all of which are produced by USP. Thus implying that the production and distribution of seeds of major crops in Uganda is still dominated by USP. However, USP does not supply vegetable seeds and any non-seed planting materials.

The distribution of seed by USP is not efficient since its network of distributors and retailers is still confined to the large towns. In the past three years, USP begun to setup a network of private stockists. In October 1999, USP had a network of about 300 village seed stockists (Muhukhu, 1999, personal communication). The village stockists get their seed supplies from 14 regional distributors located in Kampala, Masindi, Kitgum, Soroti, Katakwi, Pallisa, Kumi, Tororo, Luweero, Masaka, Mbarara, Mubende, Mbale, Bugiri, Iganga, Jinja, Arua and Kabarole (The *New Vision*, March 6, 2001). USP produces about 1500 tons of maize seed and 1000 tons of bean seeds (USP, 1999). USP stockists replaced the old seed distribution through extension agents and farmer cooperatives.

Distances between input traders and their suppliers and customers

Respondents were asked to state the geographical distribution of their input customers. They were also asked to estimate the percentage of inputs sold to each type of customer located at various distances from 0 km to more than 100 km. The distances that smallholder farmers travel to input traders' shops in each region are shown in Table 8. For all regions, most seed and pesticide suppliers are within 20 km of the input trader. About 70% of seeds, and pesticides are sold to small farmers who are within a distance of 20 km. Terrain permitting, this distance can be covered on a bicycle or in an ox-cart in one day.

Regional comparisons reveal that small farmers in the northern region obtain the largest proportion of seeds from suppliers located within 5 km (Table 8). It was expected that

small holders in the central region had the minimum distance to cover to their seed suppliers and those in the northern region would have the maximum distance. The active involvement of AT(U), SG2000, IDEA and other projects in promoting and selling seeds in the most remote region (north) may have increased availability of seeds. AT (U) alone has more than 110 seed retailers located in the northern region.

Seed Quality and Standardization

In some cases input buyers fail to infer or verify quality of inputs. This problem is common for products whose attributes are not easily inferred. Sellers would take an advantage of buyers' failure to infer quality by selling poor quality goods at price equivalent to or higher than the price for better quality goods (Darby and Karni, 1973, Rogerson, 1983 and Frank, 1987). In Uganda and elsewhere in Africa, it is common to sell expired agrochemicals and seeds. For instance, farmers interviewed by Bashaasha (2000) reported that they bought agrochemicals and seeds, which they suspected were either expired or adulterated. Some unscrupulous input traders go to an extent of selling unimproved seeds by simply dressing them with pinkish chemicals like potassium permanganate that resemble lindane dust, the genuine chemical used for dressing improved maize seeds by USP. About 10% of importers reported that they had received complaints about bad quality. Over 35% of wholesalers and 29% of retailers had received complaints over the quality of their products. The proportion of importers receiving complaints about quality, having measurement disagreements, and the frequency of complaints is the smallest, assumably because importers own large reputable businesses. Importers have the added incentive of preserving and promoting their image by supplying high quality. Being the most educated importers are better able

to investigate and infer quality attributes of their products easier than retailers and wholesalers.

Profitability of Input Trading and Market Conduct

Prices, Margins, and Profitability of Input Trading in Uganda

Introduction: Economic theory predicts that when firms make profit in a competitive industry, there would be new entrants in the industry (if there are no barriers to entry). The new entrants would increase competition and eventually wipe out profits (Varian, 1999). This section investigates the prices, margins, transaction costs and profitability of input trading in order to assess the conduct and competitiveness of input marketing in Uganda.

Prices of inputs: Table 9 shows that wholesale and retail prices for maize and bean seed varieties are higher than what USP, the main producer and supplier of certified improved maize and bean seeds, sells at wholesale level. However, some importers purchased maize hybrid seeds from Kenya and hence their maize seed prices are lower than what USP sold at wholesale level. The interesting feature of Table 9 is the increase in price from wholesale to retail level. In the case of USP, the average percent increase in price from wholesale to retail level is 49% as compared to only 24% for the private seed traders. This is a reflection of the efficiency of the private input traders as compared to the quasi-government USP.

Difference between sale and purchase price: Table 10 and 11 present the percentage increase from purchase price to sale price. The increase reflects the competitiveness of

the input market in Uganda and the transaction costs. In a competitive and efficient market system, the price difference between purchase and sale prices would be small because transaction costs and markup price³ are lower. In a less competitive and/or inefficient market, transaction costs and markup price are likely to be higher. Table 10 and 11 are computed using the following formula:

$$d = \frac{P_s - P_p}{P_p}$$

where P_s is sale price, P_p is purchase price and d = is the proportion of difference between sale and purchase price.

It is interesting to note that d is highest in the central region for beans, maize, and agrochemicals. It was expected that d in the central region would be lowest because respondents in the region operate in a much developed communication and transport infrastructure and hence lower transaction costs. Additionally, the number of input traders in the region is much higher than the case for other regions, implying a more competitive environment, hence lower markup. The higher d for the central region may be a result of the presence of the oligopolistic importers and wholesalers. Most wholesalers and importers sampled were in the central region. With the exception of vegetables, wholesalers reported higher d than retailers for all inputs reported in Table 10. Since importers and wholesalers are few, they are likely to set higher markup prices than retailers. The eastern region reports the lowest d for most of the inputs reported,

³ A markup is defined as: $\text{markup} = MC/(1-1/e)$ where MC is marginal cost and e is demand elasticity.

implying a more competitive input pricing. This is probably because of the proximity of the region to the more competitive Kenyan input market.

Profitability of input businesses: Table 12 shows that importers get the highest gross and net profit and the marginal rate of return. Importers' gross and net profit is about twice that of wholesalers and ten times that of retailers.⁴ The marginal rate of return (MRR) measures the returns that an investor gets back per unit invested. For example, MRR of 20% implies that for each Ush invested, the investor gets back Ush 0.20 on top of the unit Ush invested. As expected, the MRR for importer and wholesalers is higher than that of retailers. The probable reason is that importers and wholesalers are few in Uganda and hence have some degree of price control in the input trade. For the importers and wholesalers, the MRR is 0.23 and 0.17 respectively, implying that for each Ush they invest in input trade, importers get back Ush 0.23 and wholesalers get back 0.17 as compared to Ush 0.04 for retailers. There is a considerable degree of competition at the retail level as there are many input retailers in the country, hence the low MRR.

The big profit that input traders get explains the fast growth of the input trading business in the country as reported in Table 12 (only 6% of respondents incurred losses). However, it is expected that, as new entrants come in the input market, the MRR is would decline.

Transportation, information and Communication

⁴ Gross margin (GM) = Revenue – purchase value (purchase price*purchased quantity).
Net Profit (NP) = GM – operating costs (excluding purchase value)

Introduction: This section examines the methods that respondents used to transport their inputs and how they get their market information. The section also analyzes the communication methods that respondents used in conducting their business in the input market.

Transport: Table 13 shows that the most common type of transportation for wholesalers is a variety of trucks ranging from ½ ton to more than 10 tons and by own car. Only about 10% of wholesalers and 22% of both importers and retailers use public buses. The majority of retailers use public transportation namely buses and minibuses. Given the high frequency of their purchases, and their small consignments of inputs, use of public transport is convenient and the cheapest method of transport for retailers.

Source of Market Information and Communication: Table 14 shows that regular customers and suppliers are the major sources of market information for all types of traders. Other traders are also a main source of market information for retailers. Mass media and published data seem to be insignificant sources of information, as is common in low-income countries. This reflects the limited accessibility to reliable market information

Access to telephone and other information facilities is important for collecting market information. The teledensity in Uganda has been increasing, thanks to the participation of private mobile phone providers in the communication industry. All importers and about 88% of wholesalers own a telephone, but only about, 21% of input retailers owned a phone (Table 15). Most phones owned by retailers are cellular phones. However, about 85% of the retailers who did not have phones but had access to phones. Use of fax,

computer and e-mail is limited for both wholesalers and retailers. The majority of importers are reported to use fax, computer and e-mail. About 70% of importers used computer and e-mail and 90% used fax, mainly for international communication. For retailers, only 3% had a fax machine. On regional basis, Table 15 shows that no retailer reported to have a phone in the north while about 20% of retailers in the central, 19% in the east and 35% in the west regions reported to have a phone. For the retailers who did not have phones, 88% had access to a phone in the central region, as compared to 67% in the east 64% in the west region, and 50% in the north region.

Financial Resources

Working capital: Over 93% of working capital for importers and 99% for retailers were from own funds. Wholesalers provided approximately one third of their working capital from own funds. It is suspected that wholesalers underreported the amount of funds from their own savings since only 18% reported to have borrowed to get working capital. Forty percent of importers, and 18% of retailers borrowed money for their businesses.

Credit Services: About 17% of input traders in the central, 23% in the east, 22% in the north and 25% in the west borrowed to finance their business. Availability of loans may be determined by presence of NGOs. Many NGOs target their credit services to the most destitute communities; for example, the northern region reported a comparable proportion of respondents receiving credit.

NGOs have been very active in offering small amounts of credit to smallholder farmers and entrepreneurs. A World Bank survey showed that 73% of micro finance institutions issuing small credits in rural areas on a sustainable basis were NGOs. Only 7.8% of

banking institutions issued small credits in rural areas on a sustainable basis. Interestingly, however, the banks accounted for 78% of the total number of outstanding micro-loans (Paxton, 1996). The major sources of loans for importers are banks. Banks and other sources are important sources for credit for wholesalers, while friends/relatives are important credit sources for retailers (Table 16).

The interest rate charged ranged from the lowest of 20% for importers to as high as 25% of both wholesalers and retailers. Importers probably get their loans from offshore banks where interest rates are lower than that offered by local banks in Uganda. Even the importers who borrow from local banks are likely to get credit at lower interest rate because they have collateral.

The most common forms of collateral used for securing credit are houses, land and buildings. Collateral was not required for most of retailers and wholesalers who borrowed. Probably in cases where collateral was not required social capital played a role. However, respondents and enumerators might not have understood the concept of social capital since they did not report it for wholesalers and retailers. The duration of loans ranged from seven to eleven months for all types of traders. The main purpose of borrowing for working capital was to buy seeds, fertilizer and agrochemicals. About one quarter of input traders who borrowed did not obtain sufficient credit to operate their businesses.

The retail traders who failed to secure a loan, cited lack of collateral, high interest rate and complicated credit procedures as the major reasons. For the wholesalers and importers, their major reason for failing to secure loan is high interest rate . Lack of collateral, high interest rate and complicated loan procedures are common obstacles to credit for most small entrepreneurs (Pischke, 1999).

Table 18 shows all importers and 59% of wholesalers received credit from suppliers. Approximately 46% of the retailers also received credit from suppliers. The small proportion of retailers receiving credit from suppliers could imply that they have a weak business relationship with wholesalers and other suppliers, an observation that has also been made by Wood, 2000 (personal communication). Table 17 summarizes information on credit given to customers by input traders. Over 82% of respondents reported customers buying on credit. It is interesting to note that the proportion of retailers offering credit to customers is higher than that for wholesalers. This is a reflection of higher social capital between retailers and their customers. In small towns, where most retailers operate, it is common to know well the customers and to be able to build a trusting relationship with them to the extent of being able to extend credit to the customer. The proportion of sampled importers who give credit is higher probably because they sell on credit to regular customers like large-scale farmers, wholesalers and some retailers. The high proportion of input traders giving customers credit is a good indication since NGO's, banks and government programs may use them to extend credit to farmers. This is what the IDEA project and other organizations are attempting to do in Uganda.

Lending money for unspecified purposes appears to be rare as compared to input credits reported in Table 18 and 19. Only a few input traders offered monetary loans to people (Table 20). No importer offered any monetary loan while only 29% of wholesalers and 25% of retailers offered monetary loans.

On a regional basis, the northern and western regions traders appear to offer more monetary loans than traders in the central and eastern regions. The north and west are the most remote regions, where it appears the social capital between traders and their customers is strongest. The percent of input traders who lent money were about 17% in the central region, 13% in the eastern region, 44% in the north region and 54% in the western region. Informal money lending needs a high degree of trust and this may be attainable mainly among resource-poor farmers and entrepreneurs. Results of this research support this observation.

The rate of default on monetary loans was 10% in the central region, 0% in the eastern region, 16% in the northern region and 2.5% in the western region. The defaulting rate is highest in the west and lowest in the east. There was no apparent reason for the high default rate in the west. On type of trader basis, a quarter of people borrowing from wholesalers defaulted as compared to 19% of those borrowing from retailers.

Banking Services: All sampled importers and wholesalers had bank accounts and about 61% of retailers had bank accounts. Overdraft facilities are available to only 70% of

importers, 35% of wholesalers, and only 8% of the retailers that have bank accounts. The good financial position of importers is reflected by their access to overdraft facilities.

On a regional basis, about 70% of input traders in the central region have bank accounts as compared to 56% in the east and north regions and 79% in the west (Table 20). However, in all regions, only a few traders reported to have a bank overdraft facility. The proportion of input traders belonging to credit and savings associations was also smaller.

Training and Extension Services Offered by Input Traders

Introduction: This section examines the effectiveness of input traders as extension agents. It also evaluates the effectiveness of the training programs offered to input traders by NGOs, programs and government institutions. In reaction to poor extension services, some NGOs and programs have been training input traders so that they can advise farmers on the proper use of improved seeds, fertilizers and agrochemicals. IDEA, SG2000, and AT(U) are among the NGOs and programs that have been training input retailers. Input traders may be effective extension agents since they have the economic incentive for advising farmers on advantages of using agricultural inputs that they (the input traders) sell. Additionally, the government would not pay for such extension services offered by input traders. However the effectiveness of extension services offered by input traders need to be researched since their advantages are apparent but their impartiality in promoting the products they sell may be questionable.

The input market liberalization has spurred government, NGOs and some projects to encourage the private sector to participate in input trading. Consequently, there has been an increase in the number of village input traders that has led to an increase in the availability of inputs to small farmers. These efforts have created a great need for training the agricultural input retailers on a variety of topics related to proper input handling, promotion of input use, book-keeping, etc. Abbott, (1993) notes that where fertilizer and other inputs are distributed through village stockists, the need for investing in large warehouses may be small, but the need for training the retailers is crucial. For the input traders to be effective, they need to be trained well. This is especially true for the input retailers who, according to this research, are less educated, young and new in the agricultural input-trading sector.⁵

Academic qualifications of sales staff: Respondents were asked to state as to whether or not their sales staffs were trained in input use and handling. About 66% of sales staffs were trained in input use and handling. All sales staffs of importers were trained in input use and handling. About 76% of wholesalers and 61% of retailer staffs were trained in input use and handling. Staffs who are not trained in handling inputs may be exposed to health risks. They may also not be good sales people because their knowledge of the products they sell may be limited. For input sales personnel to be effective, they need specialized training that is not offered in secondary school curriculum, the level which is currently, the minimum qualification required by the government for input sales personnel. Hence there is a need to supplement input sales personnel who have only

⁵ Additionally village input retailers are likely to build trust and social capital with their customers (the small farmers). Such social capital may be large enough to allow input retailers to extend loans to farmers.

minimum academic qualification with specialized on-the-job training. For the trained staff, 30% have college/university degree, 20% were trained by input suppliers, and 18% by the Ministry of Agriculture. The staff of importers received higher education than staff for wholesalers and retailers.

Input traders were asked to state whether or not they have received formal extension training. About 63% reported to have received extensions training for an average of 3.5 days. All except two importers received extension training for 2.3 days. About 82% of wholesalers received training for 3.8 days, while 59% of retailers received formal training lasting 3-4 days.

MAAIF is the most common organization offering formal extension services for all types of traders.(Table 19) Other important organizations offering formal training are AT (U), importers, UNFA, IDEA project, and SG2000. The proportion of traders trained by organizations other than MAAIF is quite substantial, implying that the efforts of projects and NGOs like SG2000, IDEA and AT (U) are being felt in the input trade sector.

For all types of traders, the main effect of extension training on input marketing operation was reported to be improved product promotion skills. Consequently 45% of respondents who received training reported that training increased their product promotion skills and 23% reported that their sales increased. A quarter of the trained respondents said that extension training improved product promotion skills, bookkeeping and increased sales.

Extension services offered to farmers by input traders: Table 23 reports the extension services offered by input traders. About 90% of importers offered informal training to an average of 463 people. About 94% of wholesalers offered informal training to an average of 827 people as compared to 84% of retailers who offered informal training to an average of 88 people. The results imply that the majority of input traders offer extension services instead of being passive sellers. This has a favorable implication on efforts of using input traders as extension agents.

Some input traders also offered organized training courses on agricultural input use. The percentage of importers who offered organized training was higher than that of wholesalers and retailers (Table 23). About 56% of importers offered an average of nine formal training courses while only about 9% of retailers sampled offered only one organized training course per year. A little over 41% of wholesalers offered ten organized training courses. Formal training is expensive and time consuming for both the trainer and the trainee. This may be the reason that only a few respondents offered formal training. The trainees are mainly retailers and farmers who may not be interested in formal lectures. The potential trainees have limited time to attend a training course, therefore they need to attend a course that will provide them with skills and information they can put to immediate use in their business. Traders and farmers may not be interested in lengthy, theoretical lectures given by trainers who have no practical experience (de Andrade and Scherer, 1993). Informal training is not likely to be theoretical or long, further justifying the popularity of informal training in each region.

The products for which most input traders offer training are (with percent of traders offering training in brackets); pesticides (57%), maize seeds (53%), fertilizer (50%), horticultural seeds (47%), and bean seeds (37%). Two thirds of importers offered training mainly for pesticides, herbicides and fungicides. Importers seem not to be interested in training for seeds and fertilizers. These results were expected since only a few importers deal with seed marketing. Most of the importers who deal with fertilizers sell directly to large-scale farmers who are likely to be well informed about fertilizers. About 44% of wholesalers and importers provided training for fertilizer. Half of the wholesalers provided training for maize seeds and 38% for bean seeds. Over 55% of retailers provided training for maize and bean seeds, 53% for fertilizer and 38% for horticultural seeds. About 60% of retailers offered training for pesticides. Overall use of pesticides appears to be an interesting topic to the majority of input traders. The probable reason for this observation is traders market a number of different pesticides than is the case for fertilizers and seeds. Also, because new pesticides are constantly being introduced to the market, frequent retraining is necessary to keep farmers and other customers informed about the new pesticides.

Training and extension services encourage customers (farmers) to use agricultural inputs. The more potential customers learn about the advantage of using inputs, the more they buy the inputs. This is what input traders would like to see, and is the economic incentive that leads them to offer farmer training (Table 25). However, there is a potential danger of adverse incentive that may lead traders to over-promote their products during training and discredit rival products.

SUMMARY OF RESULTS AND REFLECTIONS ON FINDINGS

The declining soil fertility in Uganda is the major issue that raised awareness for the need for this study. A major reason for declining soil fertility is the low use of fertilizers and other off-farm inputs. It is estimated that smallholder farmers use less than 1 kg/ha of inorganic fertilizers while only 10% apply pesticides and less than 10% use improved crop seeds. The poor input marketing system is one of the major reasons leading to low use of external inputs in the country. This study was conducted to analyze the input market constraints that lead to low external input use in Uganda.

In the late 1980's, the government of Uganda instituted a series of policy reforms that encouraged participation of the private sector in the production and marketing of commodities. NGO's and CBO's have also been actively recruiting, training and facilitation input retailers. All this has resulted in a fast increase of agricultural input traders in the past five years. Also, the growing demand for improved agricultural production technologies has fueled the fast growth of the agricultural input sector. The high increase in the number of agricultural input businesses has increased the availability of inputs. Consequently inputs are more readily available and closer to farmers than was the case before input market liberalization. This research observed that more than 70% of smallholder farmers buying inputs from respondents were within 20 km distance. However, USP remains the largest wholesaler supplier of seeds for Uganda's major crops.

The commonly traded inputs are seeds (maize, beans and vegetable seeds), agrochemicals (pesticides and herbicides), and fertilizers. Importers are mainly involved in agrochemicals, possibly due to the active involvement of the government in seed production industry through USP. In neighboring countries like Kenya and Tanzania, seed marketing is fully liberalized and well-known importers like Cargill Hybrid Seed, Pioneer, etc are actively involved in seed production and marketing. If the government expedited the privatization of the USP it might allow for competitive services being available to farmers.

USP has a crucial role in producing and distributing the most preferred maize seed type open pollinated varieties (OPVs) and self-pollinated seeds. A study in Tanzania and Uganda showed that private seed companies may not be interested in producing and marketing maize OPVs and self-pollinated seeds because they do not make profit from such seeds (David and Kasozi, 1999; Mduruma, 1999; Nkonya, et al. 1998). OPVs may be recycled for more than three years without substantial yield loss. Self-pollinated seeds keep their genetic composition for much longer time than maize OPV's, implying that they may be recycled for much longer time and hence much less desirable to profit motivated private seed companies. This makes their demand low and hence possible loss for maize OPV and self-pollinated seed sellers. Further research is needed to determine the feasibility and profitability of producing and marketing maize OPVs and self-pollinated seeds by the informal sector. It would be interesting to study the role of

NGO's and CBO's in promoting production of maize OPV's and self-pollinated seeds at community level.

This research shows that input trading is a profitable business, especially to importers and wholesalers. For each shilling invested the importer receives a Marginal Rate of Return (MRR) of Ush 0.20 as compared to Ush 0.17 for wholesalers and 0.04 for retailers. A high MRR for importers and wholesalers implies that competition at their level is still low due to limited participation of large traders in input marketing. However, for retailers, a low MRR implies a high level of competition and hence lower profit and equally lower consumer price.

Majority of input traders started their businesses using own funds. The unavailability of loans places limits on young entrepreneurs wishing to enter the input market. A number of NGOs and CBO's have been offering credit to small entrepreneurs in Uganda. This has improved the credit availability in less developed regions of the country, i.e. northern region. It would be prudent for the government and civil societies in Uganda to encourage and facilitate disadvantaged groups, for example women, to participate in the expanding input trading. The government however needs to monitor and regulate the NGOs such that they do not attach conditions to the credit offered that contradict with Uganda's objectives of modernizing agriculture. For instance Bashaasha (2000) observed that some NGOs have been discouraging farmers to use chemical fertilizers, a move that contradicts the country's plan for modernization of agriculture (MAAIF and MFEPD, 2000).

The proportion of retailers offering loans to their customers is higher than the case for wholesalers and importers. This may be a result of higher social capital between farmers and retailers in small towns and villages. The government, in collaboration with NGOs and CBO's may facilitate and encourage input retailers to give credit to smallholder farmers on credit. Such efforts need to be spearheaded by NGOs, which have been successful in administering small loans to resource poor farmers and entrepreneurs. There has been a problem of selling expired agrochemicals and seeds or mixing improved seeds with unimproved seeds (Bashaasha, 2000). This problem has the potential of undermining adoption of new production technologies since expired or substandard inputs are likely to perform below farmers' expectations. This research observed that there is laxity in enforcing input marketing regulations. There is a need to study the extent of violation of regulations governing marketing of agrochemical and seeds. It would also be interesting to investigate how the government can effectively enforce the regulations through its agrochemical certification agency and plant protection inspectors to ensure that input traders do not cheat farmers and the input users do not use agrochemicals in a manner that may pollute the environment.

There has been a tremendous increase in the ownership of telephones due to the participation of the private sector in the telecommunication industry. Advent of mobile phones, e-mail and the Internet have greatly improved the efficiency of input marketing in Uganda. However, limited data collection and availability of published data remain to be major problems in the input marketing system. This study observed that, most respondents got their price and other market information from regular customers and

suppliers and other traders. Such information was normally passed by word of mouth. Market information made available through published data and the mass media were available to very few respondents. Increase the availability of published data is an area in which the government needs to improve. Easy access to published data will help input traders to make informed decisions.

Training retailers to be extension agents is an interesting program that may reduce the current problem of poor extension services in Uganda. Research showed that over 70% of respondents offered informal training to a minimum of 53 customers. Informal training is common because it is easy and cheap to conduct. Additionally, both the trainer and the trainee do not have the time and money to get involved in formal training, which may be dominated by theoretical lectures or conducted by trainers who do not have field experience. Consequently, only a few respondents offered formal training to their customers. Research needs to be conducted to assess the impartiality of input traders in offering training to farmers on input use and handling. The input traders may tend to emphasize or exaggerate the efficacy of the products they sell and play down the efficacy of those they do not carry. A research also needs to establish the competence of the input traders in offering training to farmers.

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SUMMARY TABLES

Table 1: Sample size and Distribution of Respondents by Type and Region

| Region | # Per type of trader of respondents | | | Total |
|---------|-------------------------------------|------------|----------|-------|
| | Importer | Wholesaler | Retailer | |
| Central | 10 | 12 | 63 | 85 |
| East | 0 | 3 | 27 | 30 |
| North | 0 | 1 | 8 | 9 |
| West | 0 | 1 | 23 | 24 |
| Total | 10 | 17 | 121 | 148 |

General Characteristics of Trading Business and Principal Trader

Table 2: Year Input business started

| Type of trader | % of respondents starting operations in: | | | |
|--------------------|--|-----------|-----------|-----------|
| | 1962-1972 | 1973-1986 | 1987-1996 | 1997-1999 |
| Importers (n=10) | 30 | 0 | 50 | 20 |
| Wholesalers (n=17) | 5.8 | 11.7 | 58.8 | 23.5 |
| Retailers (n=121) | 0 | 7.4 | 51.2 | 41.3 |
| Overall | 3 | 7 | 52 | 38 |

Table 3: Types of commodities traded by type of trader

| Commodity | Importer (N=10) | Wholesaler (N=17) | Retailer (N=121) |
|-----------------------------|-----------------------|-------------------|------------------|
| | % respondents trading | | |
| Seed | 30 | 88.2 | 99.2 |
| Fertilizer | 80 | 70.6 | 80.2 |
| Pesticides Herbicides | 10 | 80.0 | 92.6 |
| Ag. Equipment and Machinery | 60 | 58.8 | 54.5 |
| Other Ag. Inputs | 50 | 17.6 | 39.7 |
| Ag. Commodities | 0 | 0.0 | 4.1 |
| Other Ag. Products | 0 | 0.0 | 0.8 |
| Non-Ag. Products | 10 | 0.0 | 4.9 |

N.B Total % > 100% since most traders sell more than one input

Table 4: Financial Sources of Starting Business

| Particulars | Wholesalers and importers (n=23) | Retailers (n=111) |
|---|----------------------------------|-------------------|
| | % Reporting | |
| Owners' savings | 69.6 | 85.6 |
| Family members | 4.3 | 11.7 |
| Local bank or institutional investor | 13.0 | 0 |
| Alternative financial institution (NGO) | 4.3 | 1.8 |
| Other | 8.8 | 0.9 |

Pearson $\chi^2 = 49.6^{***}$

Table 5: Gender, Age and education of principal trader

| Particulars | Importer N=10 | Wholesaler N=17 | Retailer N=121 | Overall N=148 |
|-----------------------|------------------|--------------------|-------------------|---------------|
| % Female | 0 | 23.5 | 42.1 | 37.1 |
| Age | 42.1 | 35.4 | 33.5 | 34.3 |
| Education Level: | % of respondents | | | |
| - No education | 0 | 0 | 0.8 | 0.7 |
| - Primary level | 0 | 5.9 | 9.9 | 8.8 |
| - Secondary level | 0 | 35.4 | 53.5 | 47.8 |
| - Diploma/certificate | 0 | 35.3 | 26.4 | 26.6 |
| - University level | 100 | 23.5 | 9.1 | 10.1 |

Procurement and Sales of Inputs

Table 6: Input procurement by type of trader

| | Importers (n=10) | Wholesalers (n=17) | Retailers (n=121) |
|--------------|-------------------------|--------------------|-------------------|
| | % respondents reporting | | |
| Beans | 20 | 52.9 | 47.1 |
| Maize | 20 | 88.2 | 74.4 |
| Other seeds | 20 | 17.6 | 12.4 |
| Vegetables | 20 | 58.9 | 89.3 |
| Fruits | 0 | 0 | 20.7 |
| Fertilizer | 70 | 70.6 | 81.8 |
| Agrochemical | 100 | 70.6 | 95 |

Table 7: Bean seed procurement by region

| Bean variety | Central (n=50) | East (n=6) | North (n=5) | West (n=7) |
|--------------------|-------------------------|------------|-------------|------------|
| | % respondents reporting | | | |
| K20 (Nambaale) | 26.0 | 50.0 | 20.0 | 42.9 |
| K132 | 74.0 | 100 | 60.0 | 42.9 |
| K131 | 12.0 | 0 | 40.0 | 28.6 |
| MCM 1015 | 4.0 | 0 | 80.0 | 0 |
| MCM 2001 | 4.0 | 0 | 40.0 | 14.3 |
| OBA 1 White Kidney | 2.0 | 16.7 | 0 | 0 |

Table 8: Distance Traveled by smallholder farmers to seed shops

| Region | % of quantity bought | | | | | |
|-----------------|----------------------------------|---------|----------|----------|-----------|---------|
| | Distance to seed shops (km) | | | | | |
| | 0-5 km | 6-10 km | 11-20 km | 21-50 km | 50-100 km | >100 km |
| Central (N=72) | 29.3 | 29.2 | 19.5 | 11.3 | 4.4 | 3.3 |
| East (N=30) | 24.4 | 31.6 | 31.2 | 10.2 | 2.2 | 0.5 |
| North (N=9) | 31.1 | 44.4 | 18.9 | 5.6 | 0 | 0 |
| West (N=24) | 29.9 | 29.1 | 28.2 | 10.2 | 2.4 | 0.2 |
| Overall (N=135) | 28.5 | 30.9 | 23.6 | 10.5 | 3.3 | 1.9 |
| Region | % of quantity bought | | | | | |
| | Distance to pesticide shops (km) | | | | | |
| | 0-5 km | 6-10 km | 11-20 km | 21-50 km | 50-100 km | >100 km |
| Central (N=73) | 26.6 | 26.6 | 22.8 | 8.5 | 6.1 | 7.4 |
| East (N= 25) | 23.8 | 33.6 | 31.1 | 8.9 | 2.4 | 0.2 |
| North (N=2) | 22.5 | 10.0 | 52.5 | 15 | 0 | 0 |
| West (N=11) | 44.4 | 17.9 | 22.7 | 2.3 | 0 | 0 |
| Overall (N=111) | 27.7 | 27.0 | 25.2 | 8.1 | 4.5 | 4.8 |

Prices, Margins, Transaction Costs and Profitability

Table 9: Average Prices of Maize and Beans

| Seed | Wholesalers & Importers | Retailers | % increase wholesaler-retailer | USP Prices | | |
|----------------------|-------------------------|-----------|--------------------------------|------------|--------|-----------------------------|
| | | | | Wholesale | Retail | % increase wholesale-Retail |
| Beans: Small -seeded | 900 | 1300 | 44 | 750 | 1100 | 47 |
| Large-seeded | 1251 | 1383 | 11 | 1000 | 1400 | 40 |
| Maize: Composites | 1013 | 1647 | 63 | 750 | 1200 | 60 |
| Hybrids | 2163 | 1672 | -23 | 1500 | 2200 | 47 |
| Average % increase | | | 24 | | | 49 |

Table 10: Difference between sale and purchase price by type of trader *

| Type of Input | Importers | Wholesalers | Retailers |
|-----------------|-----------|-------------|-----------|
| Beans | 0.20 | 0.34 | 0.24 |
| Maize | 0.1 | 0.27 | 0.26 |
| Vegetable seeds | 0.15 | 0.14 | 0.23 |
| Agrochemicals | 0.27 | 0.25 | 0.24 |
| Fertilizers | 0.23 | 0.20 | 0.19 |

* Difference between sale and purchase price

d is given by

$$d = \frac{P_s - P_p}{P_p} \text{ where } P_s = \text{sale price, and } P_p = \text{purchase price}$$

Table 11: Difference between sale and purchase price by region *

| Type of Input | Central | East | North | West |
|-----------------|---------|-------|-------|-------|
| Beans | 0.27 | 0.185 | 0.19 | 0.264 |
| Maize | 0.36 | 0.208 | 0.23 | 0.300 |
| Vegetable seeds | 0.26 | 0.21 | 0.27 | 0.29 |
| Agrochemicals | 0.36 | 0.23 | 0.25 | 0.31 |
| Fertilizers | 0.21 | 0.15 | 0.07 | 0.22 |

* Difference between sale and purchase price

d is given by

$$d = \frac{P_s - P_p}{P_p} \text{ where } P_s = \text{sale price, and } P_p = \text{purchase price}$$

Table 12: Marginal Rate of Return (MRR)

| Type of Input trader | Gross Profit | Net Profit | MRR |
|----------------------|---------------|------------|--------|
| | Ush (Million) | | |
| Importer (n=10) | 3041(3885.6) | 2930(3880) | 0.248 |
| Wholesaler (n=16) | 1433(2422.6) | 1342(2210) | 0.176 |
| Retailer (n=121) | 38(56.2) | 34(56) | 0.04 |
| F-Test | 62.5*** | 61.4**** | 7.0*** |

Note: (i) $MRR = NP / VC$

Where NP is net profit (Revenue – purchase value – operating costs)

VC is variable costs (operating costs + purchase value)

(ii) Gross Profit = Sale value – Purchase value

(iii) Net Profit = Gross Profit – Operating expenses

Table 13: Type of transportation used

| Type of transportation | Importers (N=9) | Wholesalers (N=10) | Retailers (N=117) |
|-------------------------------|-----------------|--------------------|-------------------|
| | % reporting | | |
| Foot, Wheelbarrow and ox-cart | 0 | 20 | 4.3 |
| Motor Bike | 0 | 0 | 6.8 |
| < 3 ton truck | 44.4 | 60 | 7.7 |
| > 3 ton truck | 11.1 | 50 | 4.3 |
| Bus | 22.2 | 10 | 23.0 |
| Taxi (minibus) | 0 | 0 | 41.0 |
| Own car | 0 | 20 | 0 |
| Other (e.g train) | 1.1 | 0 | 3.4 |

Table 14: Main sources of price information by type of trader

| Source of information | Main market | | | Other markets | | |
|-----------------------|---|--------------------|------------------|-----------------|-------------------|------------------|
| | Importer (N=10) | Wholesalers (N=17) | Retailer (N=120) | Importer (N=10) | Wholesaler (N=17) | Retailer (N=121) |
| | % respondents using source of information | | | | | |
| Personal observation | 0 | 11.8 | 14.0 | 0 | 12.5 | 8.4 |
| Regular customers | 50 | 23.5 | 17.4 | 30 | 31.3 | 32.8 |
| Regular suppliers | 40 | 29.4 | 21.5 | 30 | 25 | 23.5 |
| Intermediaries | 0 | 0 | 0 | 10 | 6.3 | 0.8 |
| Other traders | 10 | 11.8 | 26.4 | 20 | 6.3 | 18.5 |
| Newspapers | 0 | 0 | 0 | - | 0 | 0.8 |
| Radio | 0 | 0 | 0 | - | 0 | 0 |
| Set own price | 0 | 17.6 | 19.0 | - | 18.6 | 11.8 |
| Other | 0 | 5.9 | 8.3 | 10 | 0 | 3.4 |

Table 15: Accessibility to Telecommunication

| Type of trader by region | % respondents with: | | | | |
|---------------------------|---------------------|----------------------|------|----------------|--------|
| | Telephone | Access to telephone* | Fax | Using computer | E-mail |
| Importers: (n=10) | 100 | - | 90 | 70 | 70 |
| Wholesalers: (n=17) | 88.2 | 100 | 41.7 | 23.5 | 17.6 |
| Retailers: Central (N=63) | 20.3 | 88.2 | 3.2 | 3.1 | 0 |
| East (N=27) | 19.2 | 66.7 | 0 | 0 | 0 |
| North (N=8) | 0 | 50.0 | 0 | 0 | 0 |
| West (N=23) | 34.7 | 64.3 | 4.3 | 4.5 | 0 |
| Retailers overall (n=121) | 21.5 | 84.7 | 2.5 | 2.5 | 0 |

* For respondents without a phone

Table 16: Sources of Loan by type of trader

| Trader | Type of trader | | |
|---------------------------|----------------|------------------|-----------------|
| | Importer (N=4) | Wholesaler (n=4) | Retailer (N=22) |
| | % Using source | | |
| Trader | 0 | 0 | 4.5 |
| Friends and relatives | 0 | 0 | 40.9 |
| Money lenders | 0 | 0 | 4.5 |
| Commercial Bank | 100 | 50.0 | 22.7 |
| Agricultural Bank | 0 | 0 | 4.5 |
| Other credit Institutions | 0 | 0 | 18.1 |
| Other | 0 | 50.0 | 4.5 |

Table 17: Reasons for failing to secure credit:

| Reason | Wholesalers (n=4) | Importers (n=4) | Retailers (n=22) |
|---------------------|-------------------|-----------------|------------------|
| | % reporting | | |
| No collateral | 0 | 0 | 26.67 |
| No right connection | 0 | 25 | 13.33 |

| Type of collateral | Type of Input Trader | | |
|-----------------------|----------------------|------------------|-----------------|
| | Importer (N=4) | Wholesaler (N=4) | Retailer (N=22) |
| | % Using collateral | | |
| House | 25 | 0 | 13.6 |
| Land | 0 | 25 | 9.1 |
| Building | 25 | 25 | 4.5 |
| Social capital | 25 | 0 | 0 |
| Not required | 0 | 50 | 63.6 |
| Other | 25 | 0 | 4.5 |
| Interest too high | 50 | 75 | 13.33 |
| Complicated procedure | 0 | 50 | 33.3 |
| Other | 0 | | 13.3 |

Table 18: Credit from suppliers by type of trader

| Credit Conditions | Importers (N=10) | Wholesalers (N=17) | Retailers (N=121) |
|--|------------------|--------------------|-------------------|
| Do any of suppliers let you buy on credit? % Yes | 100 | 58.8 | 46.3 |
| Time given to pay back loan (Days) | 86.6 | 32.8 | 23.7 |
| % required as down payment (%) | 17.5 | 24.1 | 35.3 |
| Pay different price when buy on credit ? % Yes | 22.2 | 17.6 | 1.6 |
| Cash credit price ratio | 0.91 | 0.98 | 0.93 |
| Suppliers sell on credit to other customers? % Yes | 50.0 | 47.1 | 39.7 |
| Ever been unable to pay back loan ? % Yes | 10.0 | 28.6 | 2.5 |

Table 19: Credit to customers by type of trader

| Credit Conditions | Importers (N=10) | Wholesalers (N=17) | Retailers (N=121) |
|---|------------------|--------------------|-------------------|
| Sell on Credit? % Yes | 90.0 | 82.4 | 88.5 |
| Time given to customers to pay back (Days) | 26.6 | 27.2 | 16.2 |
| % required as down payment | 53.8 | 37 | 39.6 |
| Ask different price for credit sales? % Yes | 20.0 | 11.8 | 6.6 |
| Cash/Credit price ratio | - | 0.95 | 0.92 |

Table 20: Banking services by Region

| Banking Service | Region | | | |
|---------------------------------------|----------------|-------------|-------------|-------------|
| | Central (N=85) | East (N=30) | North (N=9) | West (N=24) |
| Have bank account ? % Yes | 70.6 | 56.7 | 55.6 | 79.2 |
| Have overdraft facility? % Yes | 23.3 | 29.4 | 40 | 10.5 |
| Belong to savings association? % Yes | 7.1 | 3.3 | 11.1 | 12.5 |
| Lent money over past 12 months? % Yes | 16.7 | 13.3 | 44.4 | 54.2 |
| # of people borrowing from Trader | 4.8 | 3.5 | 4.3 | 4.8 |
| % people defaulting on loan provided | 10.5 | 0 | 2.5 | 38.5 |

Table 21: Organization providing credit guarantee by region

| | Central (n=5) | East (n=1) | North (n=2) | West (n=2) | Overall (N=10) |
|-------------|---------------|------------|-------------|------------|----------------|
| | % reporting | | | | |
| MAAIF | 20 | 0 | 0 | 0 | 10 |
| SG 2000 | 20 | 0 | 0 | 0 | 10 |
| IDEA | 60 | 100 | 0 | 50 | 50 |
| AT – Uganda | 0 | 0 | 100 | 50 | 30 |

Table 22: Organizations offering Formal training to Input traders

| Organization | Type of Trader | | |
|---------------|--------------------------------------|-------------------|-----------------|
| | Importer (N=8) | Wholesaler (N=14) | Retailer (N=69) |
| | % respondents reporting organization | | |
| MAAIF | 37.5 | 42.9 | 52.2 |
| SG2000 | 0 | 21.4 | 7.2 |
| IDEA | 12.5 | 50 | 10.1 |
| USP | 0 | 14.3 | 5.8 |
| UNFA | 0 | 21.4 | 15.9 |
| AT Uganda | 0 | 21.4 | 15.9 |
| Other Traders | 0 | 7.1 | 7.2 |
| Wholesalers | 0 | 0 | 8.7 |
| Importers | 12.5 | 7.1 | 18.8 |
| Other * | 25 | 21.4 | 8.7 |

* Other is UCDA, CDO, UOSPA

Table 23: Extension services offered to farmers by type of traders

| Type of training and output | Importers (N=10) | Wholesalers (N=17) | Retailer (N=119) |
|---|------------------|--------------------|------------------|
| Given training on agric. Inputs ? % Yes | 90 | 94.1 | 84.0 |
| Average # of trainees over last year | 463 (n=8) | 827 (n=15) | 88.1 (n=96) |
| Offer organized e.g training courses ? % Yes | 55.5 | 41.2 | 9.0 |
| # of formal agric. Training courses last year | 9 (n=6) | 9.7 (n=10) | 0.9 (n=61) |

Table 24: Products for which extension services were offered by type of trader

| Product | Type of trader | | | |
|--------------------------------|-------------------|----------------------|---------------------|------------------|
| | Importer (N=9) | Wholesaler (N=16) | Retailer (N=100) | Total (N=125) |
| % respondents offering service | | | | |
| Maize | 22.2 | 50 | 55.4 | 52.8 |
| Beans | 11.1 | 37.5 | 56 | 36.8 |
| All seeds | 11.1 | 25 | 20.0 | 20 |
| Horticultural seeds | 44.4 | 37.5 | 50 | 48 |
| All agrochemicals | 11.1 | 31.3 | 26 | 25.6 |
| Fertilizers | 44.4 | 43.8 | 53 | 49.6 |
| Fungicides | 66.7 | 18.8 | 19 | 28 |
| Herbicides | 66.7 | 12.5 | 38 | 36.8 |
| Pesticides | 66.7 | 31.3 | 60 | 56.8 |

Table 25: Why offer extension services ?

| Type of trader & region | Reasons for offering extension services | | |
|-----------------------------|---|------|---------------------------|
| | Encourage use of Ag. Inputs | Job | NGO sponsored activity |
| % respondents giving reason | | | |
| Importer: (N=5) | 100 | 0 | 0 |
| Wholesalers (N=9) | 88.9 | 0 | 11.1 |
| Retailer: (N=28) | 82.1 | 3.4 | 1.7 |
| Total (N=42) | 85.7 | 7.14 | 7.14 |