SNAP BEAN SEED PRODUCTION AND DISSEMINATION CHANNELS IN KENYA

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PREFACE

This volume is the twenty-second in a working document series that serves research on common bean (*Phaseolus vulgaris*) in Africa. This publication reports the findings of a study supported by the Eastern Africa Bean Research Network (EABRN) within its portfolio of research sub-projects deemed to be of importance to the region as a whole, and is one of a series of studies designed to improve understanding of bean seed systems and their performance. This Research was proposed and carried out by the Kenya Agricultural Research Institute (KARI) at its National Horticulture Research Station, Thika. Besides Kenya, other member countries of EABRN were Ethiopia, Madagascar, Mauritius, Sudan, Tanzania and Uganda; this network has since merged with that for the Great Lakes region of Central Africa.

The Network on Bean Research in Africa serves to stimulate, focus and coordinate research efforts on common bean. The network is organized by CIAT in collaboration with two interdependent sub-regional networks of national programs: the Eastern and Central Africa Bean Research Network (ECABREN) and the SADC Bean Research Network (SABRN) for southern Africa.

Working documents include bibliographies, research reports and bean network discussion papers. These publications are intended to complement two associated series of Workshop Proceedings and Reprints.

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Further information on bean research in Africa is available from:

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Regional Coordinator, Eastern and Central Africa Bean Research Network, P.O. Box 2704, Arusha, Tanzania.

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ABSTRACT

The aim of this study was to identify constraints to farmers' use of certified snap bean seed in Kenya. Surveys were conducted to investigate the production, distribution and use of snap bean seed in major growing areas of the country. Only four snap bean varieties were being grown by the farmers interviewed, although 33 varieties are produced in the country. Farmers rely on various sources for seed, the most frequently mentioned sources being exporting company agents and retailers selling seed from two major companies. Snap bean farmers also produce their own seed, either for sale to other growers or for their own use. Availability of seed and seed quality were the most important reasons given by farmers for seed source preference. Farmers face three major constraints in relation to seed: unavailability of seed, poor seed quality and high prices. Suggestions for improving seed production and distribution are made.

Index words: Kenya, snap beans, seed production, seed distribution

INTRODUCTION

Farmers who sow poor quality, non-certified seed stand to loose not only the cost of seed, but also the value of the expected crop due to seed-borne diseases, low plant vigor and poor plant stand. Seed quality, measured by seed germination percentage, emergence and vigor, can therefore be a decisive factor in the profit or loss of an enterprise (Mathenge, 1974). The low quality and unavailability of seed have been identified as the principal constraints to rapid diffusion of new varieties and improvement of crop production in developing countries (Mathenge, 1974).

Although snap (or French) beans have become one of Kenya's major foreign exchange earners, farmers still achieve relatively low yields in comparison to other snap bean producing countries (Emery et al., 1992). Studies on the snap bean industry in Kenya show the use of poor quality seed and the unavailability of clean, certified seed as major constraints to the improvement of snap bean production (Salasya, 1989; Wanjiru, 1992). The aim of this study is therefore to identify factors which limit the use of certified seed by snap bean farmers and to suggest possible solutions.

METHODS

Various surveys were carried out by two socio-economists between November, 1993 and April, 1994 to investigate the production, distribution and use of snap bean seed. All snap bean pod producing districts in Kenya were covered, namely: Vihiga, Bungoma, Meru,

Kirinyaga, Maranga, Machakos and Kiambu Districts. Three separate questionnaires dealing with production, distribution and seed use were developed and information on production and distribution of seed was sought from registered seed companies, contracted seed growers, seed retailers and snap bean exporting agents. Seventy snap bean farmers in 7 districts[1] were interviewed on seed sources, varieties planted, prices, household consumption and constraints to seed acquisition.

FINDINGS

Seed Production. At the time of the study, there were six registered snap bean seed companies: Kenya Seed Company, E.A. Seed Company, Kenya Highland Seed Company, Kipol Seed Company, Hortitech and Royal Sluis Seed Company. All companies, with the exception of Royal Sluis, produce snap bean seed by contracting out-growers. Royal Sluis imports seed from its mother company based in the Netherlands. The total area that was contracted by the seed companies for the purpose of seed multiplication in the 1990-91 season was 1855 hectares (see Appendix 1).

The principal snap bean seed growing areas in Kenya are Kajiado, Meru, Uasin Gishu, Laikipia, Nakuru and Machakos Districts. Seed is grown under rainfed conditions in all the areas visited. Companies provide seed for bulking to out-growers on credit and, in some cases, the package also includes fertilizers and pesticides. In 1993-94, 33 varieties of snap beans were registered with the National Seed Quality Control Service (NSQCS). After the seed is delivered at the company's depot, it is treated and packaged for distribution. The farmers are paid Ksh 14-24 (1993 exchange rate: Ksh67 to US$1) per kilogramme of seed.

Table 1: Utilization of snap beans by producing farmers (percentage)

District	Harvest for pods	Harvest for seed	Home consumption of dry snap bean
Vihiga	100	0	0
Bungoma	100	0	0
Meru	100	0	0
Kirinyaga	75	25	33
Muranga	89	11	32
Machakos	75	25	50
Kiambu	100	0	0

[1] The sample distribution is as follows: Murang'a: 12, Kirinyaga: 12, Kiambu: 10, Meru: 9, Vihiga: 4; Machakos: 4; Bungoma: 3.

Snap bean farmers also produce seed either for their own use or for sale to other farmers. However, as Table 1 shows, relatively few farmers produce seed. Farmers normally produce snap bean pods, but when the market price for pods falls it makes their harvest uneconomical. In this case, farmers opt to uproot the crop or leave it to mature and produce seed. This implies that seed production is secondary to bean pod production. Table 1 also suggests that the seed produced is not for consumption but mainly for planting purposes.

Seed distribution. Seed is channelled from producers to farmers through formal and informal channels, as shown in Figure 1.

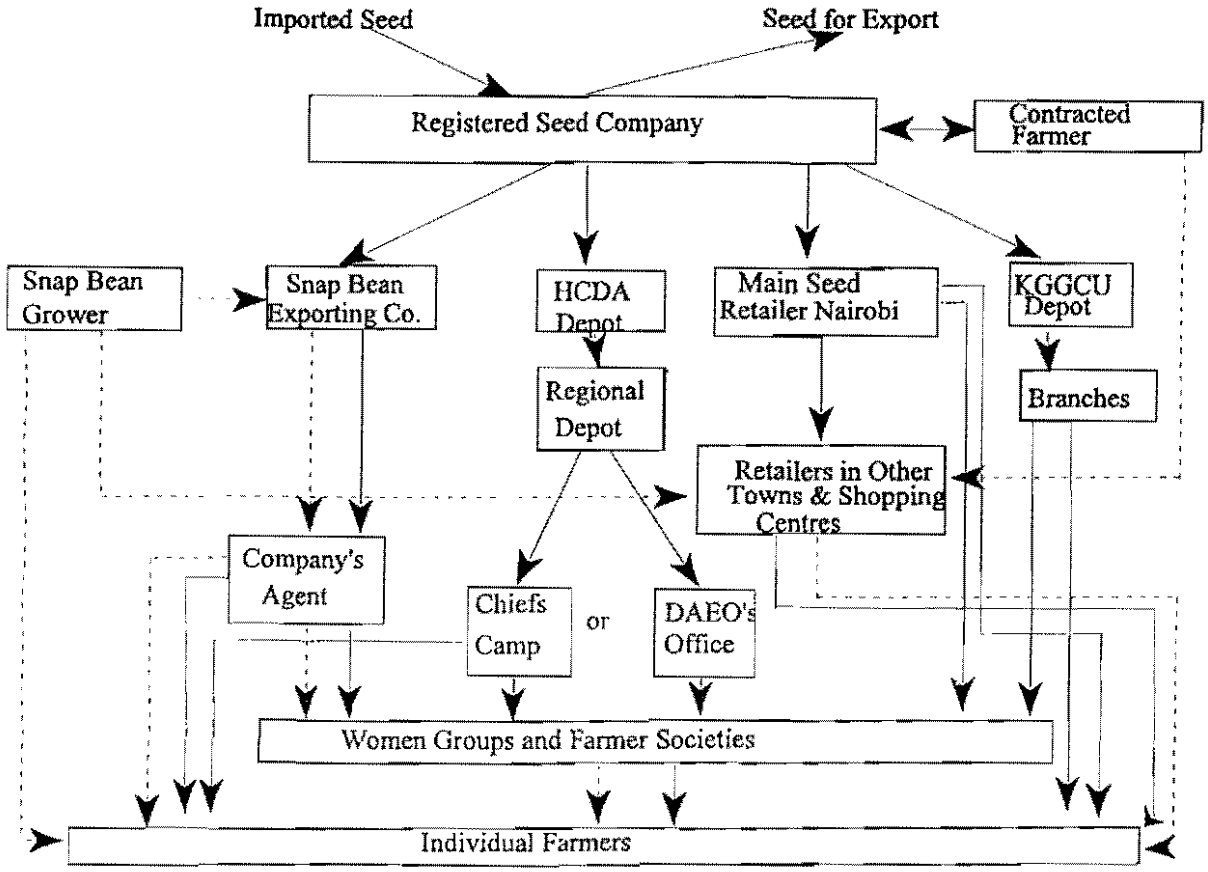
Distribution through seed companies. Kenya Seed Company and E.A Seed Company are the major snap bean seed merchants. These two companies supply 65% of the farmers with seed packed in 1, 2 and 50 kg packets. They channel their seed mainly through Kenya Grain Growers Cooperative Union (KGGCU), which has branches in all agricultural areas of the country. Wholesalers based in Nairobi are also key players in distributing seed. The major problem with the distribution of seed through KGGCU is that some of the Union's shops in major snap bean areas are not easily accessible to farmers because they are located only in large town centres.

The other seed companies market their seed through the Horticultural Crops Development Authority (HCDA) and snap bean exporting companies. HCDA buys snap bean seed from seed companies for distribution to farmer groups through their selling centres, which are located at agricultural extension offices and chiefs' camps. Snap bean exporting companies avail the seed to farmers through their buying agents who distribute seed on credit to women's groups or farmer co-operatives. Since this seed is supplied at the farm level, it is obtained at no additional cost for transportation.

Distribution through farmers. Farmers sell seed to other farmers or to local shopkeepers. The advantage of this system is that no additional transportation costs are incurred by farmers.

Farmers' seed sources. Farmers rely on various seed sources, as Table 2 indicates. The most frequently mentioned sources were snap bean exporting company agents followed by retailers selling seed from Kenya Seed and E.A. Seed Companies. Exporting company agents, HCDA and Hortiquip, are the only seed sources which supply seed to farmers on credit.

Fig1: Snap Bean Seed Dissemination Channels



Key,

- Certified Seed
- Non-certified Seed

HCDA Horticultural CropsDevelopment Agency

DAEO's Divisional Agricultural Extension Officer

Table 2: Snap bean seed sources used by farmers over two seasons, 1993

Seed sources	Frequency
Formal sources	
Exporting company agents*	17
E.A. Seed	15
Kenya Seed	15
Local shop	10
HCDA*	9
Hortiquip*	4
Hortitech	3
Informal sources	
Own stock	9
Neighbor	9

*Have contract arrangements with farmers for snap pod production

Farmers' seed sources vary by district. Survey data suggest that exporting company agents supply seed to more districts than other companies. It is notable that exporting company agents, local shopkeepers and neighbors provided the widest coverage across snap bean growing districts. In 1993 farmers in Vihiga (n=4) and Bungoma (n=3) Districts obtained their seed from only one source (Hortiquip and HCDA, respectively), in contrast to farmers in other districts who relied on several sources. Farmers in Meru obtained seed from HCDA (n=5), company agents (n=2) and E.A. Seed (n=1). Farmers in Kirinyaga depended on agents (n=5), Kenya Seed (n=3), E.A. Seed (n=2) and local shops (n=1). The breakdown among farmers in Muranga was as follows: 9 farmers, respectively, bought seed from E.A. Seed and Kenya Seed, 5 from agents, and 3 respectively from Hortitech and shops. Table 3 shows farmers' reliance on informal sources by district.

Table 3: Farmers' use of informal snap bean seed sources in five Districts over two seasons, 1993 (frequency)

	Meru	Kirinyaga	Muranga	Machakos	Kiambu
Own stock	3	5	0	0	1
Neighbours	1	3	4	1	0

Reasons for farmers' seed source preferences. Table 4 shows the reasons given by farmers for their preference of seed from particular seed sources. Availability of seed and seed quality are the most important criteria considered by snap bean farmers in their choice of seed source. Notably, farmers cited these two factors as the major seed related constraint.

Table 4: Reasons given by farmers for seed source preferences

Reason for preference	Frequency mentioned
Seed is readily available	30
Seed is of a good quality	24
Price of seed is cheaper	15
Seed is free	3
Advised by extension agent	1

Note: Ns are larger than the sample size due to multiple answers

Snap bean seed constraints. Farmers face three major constraints in relation to seed: unavailability of seed, poor seed quality and high prices (Table 5).

Table 5: Snap bean seed constraints as perceived by farmers

Constraint	Frequency
Unavailability of seed	36
Poor quality of seed	34
High price of seed	23

Note: farmers gave multiple answers

Availability. The problem of seed unavailability occurs when a farmer intends to plant either certified seed or new snap bean varieties. New varieties are only obtainable from some snap bean exporting company agents, while certified seed of Monel, for example, is only available in large towns. Consequently, seed is not readily available to the majority of farmers. Seed is also unavailable during the off-season period, when demand is high due to the fact that farmers try to take advantage of high market prices for snap beans at this time. The varieties observed in farmers' fields were Monel and to a lesser extent an improved Monel commonly called "Super Monel". Only a few farmers grew new varieties referred to as "HLC" and "Claudia".

Quality. The quality problems faced by farmers include: low germination percentages, off types, low yields and pods which do not conform to market standards (i.e thick pods, curly tips). Farmer management of non-certified seed was also investigated (Table 6). While seed selection is more commonly practiced by more farmers than seed dressing, considerable variation exists between districts.

Table 6: Treatment of non-certified snap bean seed in selected districts (percentage)

District	Seed selection	Seed dressing
Kirinyaga	58	50
Muranga	50	18
Machakos	75	50
Kiambu	40	20

Pricing. The price of snap bean seed varies mainly according to its source rather than to its point of sale. Price also varies by variety. For example, Monel, the commonly grown variety, costs considerably less than two new varieties, Claudia and Gloria, regardless of its source and grade (Table 7). Seed from certified sources is generally priced higher than farmers' seed: Ksh 30-60/kg more for Monel and by Ksh 100-150/kg for new varieties. Farmers try to buy seed on credit to ease the cash constraint caused by high seed prices. Nearly a quarter of farmers interviewed (37%) received credit for snap bean growing, mainly in form of seed (Table 8).

Table 7: Price range of snap bean seed (Ksh/kg)

Source	**Monel**	**New variety**
Certified source	60-80	300-350
Neighbor	20-30	200
Local shop	35-45	--

Table 8: Forms of credit received by snap bean farmers

Credit Form	Frequency
Seed	21
Protective chemicals	12
Fertilizer	9

Note: some farmers received multiple forms of credit

CONCLUSIONS AND RECOMMENDATIONS

The factors which affect farmers' decisions on the type and source of snap bean seed to plant include: uncertainty about the availability of good quality seed when required; uncertainty about seed quality; pricing of seed, especially from certified seed sources; and lack of credit facilities to facilitate the purchasing of high quality seed.

Some strategies that could be used to encourage farmers to plant seed from certified seed sources are:

1. efforts to increase farmers' awareness of the benefits of certified seed through, for example, demonstrations and field days;

2. making certified seed easily accessible to farmers (eg through local kiosks) and making new varieties easily available by using more effective seed dissemination techniques;

3. developing seed production and distribution methods which would eventually reduce the cost of seed, hence making it affordable to farmers;

4. increasing the availability of credit to more farmers.

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Appendix 1: Area under snap bean seed by variety and producing company, 1990-92

Variety	Acreage
Kenya Highland: 1990-91	
Super	162
Micco	64
Kaki	283
Cropper	125
Content	220
Bingo	10
Agora	273
Bano	114
Blue royal	130
TDF	357
Hortitech: 1990-91	
MT86	8
Naitec	685
N90	79
Red beauty	64
Simpson	6
Solare	8
Tilla	30
Vernadon	107
Contender	79+
1990-92	
Green Tec	18
Purple Tec	2
Strings bean white	14
Tech 86	1
E.A. Seed: 1990-92	
Monel	259
Kenya Seed: 1990-91	
Super Mishiri	4.5
Skill	7.5
Kipol Seed: 1990-91	
Extra Fine K	147
Katumani B II	16
Kipol Red	10
Dark Red Kidney	10
Light Red Kidney	10
1992	
Extra fine KA	11.5
Extra fine KB	1.5

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