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OBSERVATIONS ON PRICE SUPPORT AND  
RESEARCH PROGRAMS FOR BEANS IN RWANDA

by

SESA/MSU Research Team

SERVICE DES ENQUETES ET  
DES STATISTIQUES AGRICOLES

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Serge Rwamasirabo  
Director of SESA

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**OBSERVATIONS ON PRICE SUPPORT AND RESEARCH PROGRAMS  
FOR BEANS IN RWANDA**

1. Most agricultural households produce beans. (98.7% according to SESA's 1986 survey.)
2. A bean and sorghum transactions survey was added to the SESA 1986 sample frame for estimating production. Survey results in Figure 1 show monthly quantities of beans bought and sold. Figure 2 shows monthly prices received by farmers selling beans.
3. On a yearly basis, agricultural household are net purchasers of beans.

**Table 1: Basic Data on Dry Beans**

Category of Transaction	1986 Total (mt)
Production	224,007
Sales*	23,340
Gifts Given*	9,158
Purchases*	60,599
Gifts Received*	8,016

\* Estimated for 1986 period, based on actual survey data for period Dec. 85 - Nov. 86.

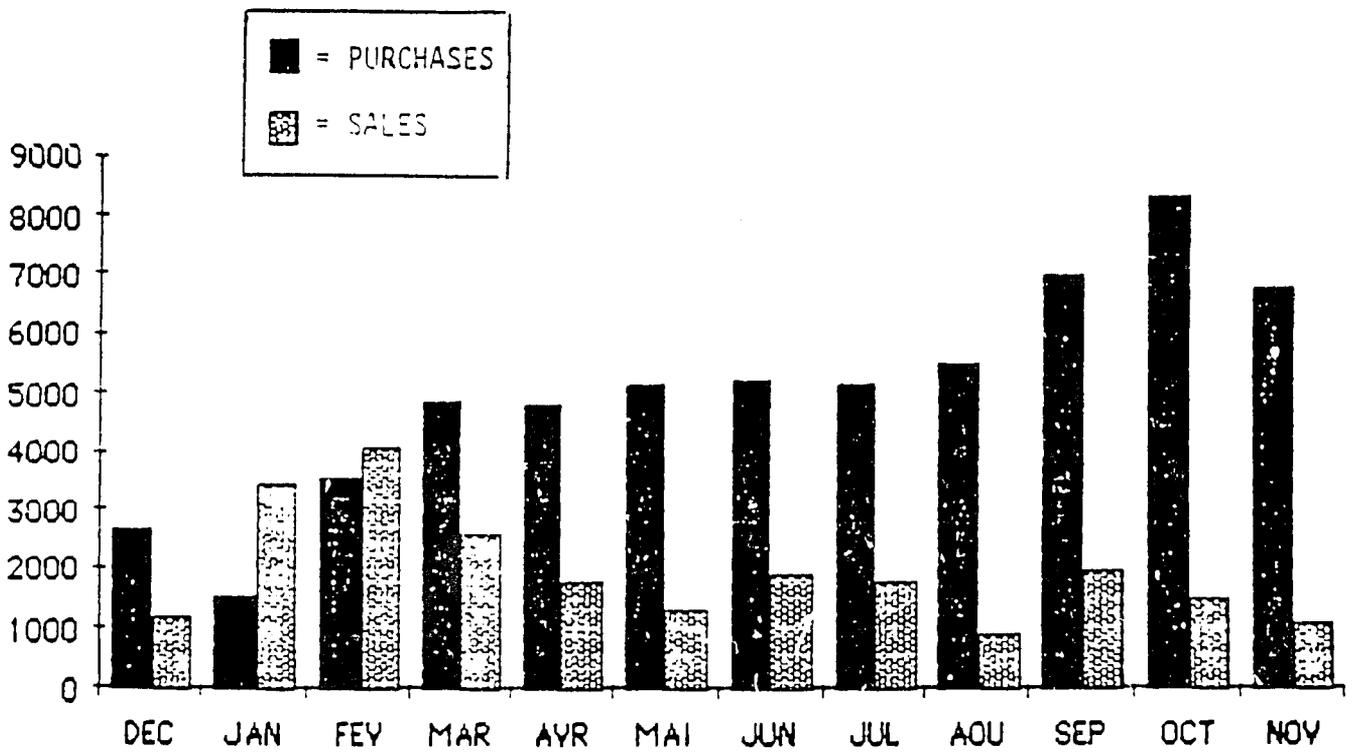
**A. Selected measures of the bean situation derived from data base:\*\***

- % marketed = rural sales/production =  $23.340/224.007 = 10.4\%$
- Rural Utilization = production - gifts given - sales + purchases + gifts received = 260.124 tonnes
- Rural Potential Consumption = rural utilization/rural population =  $260.124.000 \text{ kg}/5.800.00 = 45 \text{ kg/cap/an}$
- Rural Deficit = rural sales + gifts given - rural sales - gifts received =  $23.340 + 9158 - 60.599 - 8016 = -36.117 \text{ tons}$
- % of Imported Rural Utilization = rural deficit/rural utilization =  $36.117/260.124 = 14\%$
- % Imported Rural Sales = rural deficit/rural sales = 60%

\*\* Based only on the rural situation. The net urban sales must be estimated and included to make an national comprehensive bean estimation. It is suspected that the net urban purchases per capita are higher than the rural purchases.

# DRY BEAN SALES AND PURCHASES

DEC. '85 - NOV. '86  
(Tons)



4. A few agricultural households sell most of the beans. Many households are net buyers of beans. (See Table 2.)

5. Net seller households have larger farms (total surface area) than net buyer households. (See Table 2.)

Table 2  
NET SALES OF BEANS ACCORDING TO FARM TYPE  
DEC. '85 - NOV. '86  
(Negative Numbers Indicate Net Purchases)

Net of Transactions Made by the Household	Number of Farms	% of Farms	Net Tons Sold by Farms	% of Total Sales	Ave. Surface Area per Farms (Ha)
>60 kg Sold	75764	7%	13708	81%	2.0
30-59 kg Sold	45470	4%	1906	11%	1.6
<30 kg Sold	117635	11%	1370	8%	1.5
No Transactions	63825	6%			1.5
<30 kg Bought	234528	21%	-3858	-7%	0.9
30-59 kg Bought	219878	20%	-9537	-17%	0.9
>60 kg Bought	340931	31%	-43297	-76%	1.1
TOTAL	1097949	100%			

Note: About 1/5 of the sample households had both purchases and sales in the course of a year. The totals of the sales and purchases in this Table do not correspond to those in Table 1 because Table 1 gives the raw totals while Table 2 gives the net totals for the households during the year. Thus, Table 2 reflects final net commercial transactions, which is not the case for Table 1.

6. Net seller households produce many more beans per person than net buyer households (See Table 3).

7. Net seller households have available for consumption many more beans per person than net buyer households (See Table 3). Note that estimates in Table 3 include gifts recieved and given, which affects the analysis very little.

8. Net seller households produce more total food crop output than net buyer households as measured by kilocalories produced (See Table 3).

Table 3  
PER CAPITA AVAILABILITY OF DRY BEANS BY FARM TYPE  
DEC. '85 - NOV. '86

Net of Transactions Made by Farm Households	% of Farms	Kg of Beans Produced Per Capita	Kg of Beans Transferred Per Capita *	Kg of Beans Available Per Capita **	Kcal/cap Produced (Major crops) ***
>60 Kg Sold	7%	136	46	90	1394
30-59 Kg Sold	4%	84	12	72	948
<30 Kg Sold	11%	70	5	66	892
No Transactions	6%	44	0	44	769
<30 Kg Bought	21%	35	-6	41	630
30-59 Kg Bought	20%	28	-11	38	536
>60 Kg Bought	31%	24	-25	49	566
TOTAL	100%				

\* Transfers include sales, gifts given, purchases and gifts received.

\*\* Seed is considered as a part of bean availability.

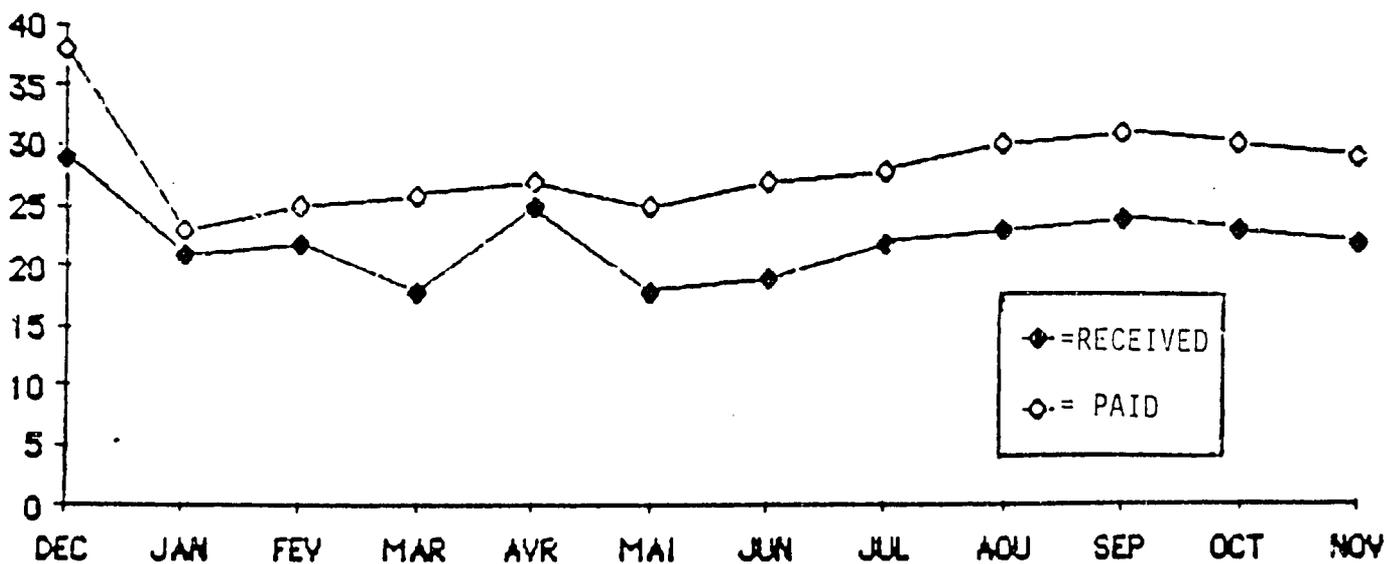
\*\*\* Kilocalorie production per capita was calculated on an annual basis for the eight prefectures which comprise the SESA sample frame.

9. Farm level prices were measured in the SESA/MSU transactions survey and show that beans sold by agricultural households during 1986 were constantly priced below 35 FRW/kg. With the exception of April, prices received were lowest during the harvest periods, and increased towards the end of the year. (See Figure 2.) Prices at which farmers sold increased from 18 FRW/kg in March to 25 FRW/kg in April, and decreased again to 18 FRW/kg in May. This general price increase is associated with the OPROVIA buying campaign of April-May 1986.

10. It is not known who received the benefits of the OPROVIA purchases at 35 FRW/kg during April and May of 1986. Who stood in line to sell? Approximately 2500 tons were purchased in the various OPROVIA buying stations.

Graph 2  
 Dry Bean Prices Paid and Received By Rwanda Farm Households (FRW/kg)

Dec. '85 - Nov. '86



11. According to the SESA/MSU Producer IV survey, which was also applied to SESA's 1986 sample frame, making and selling beer is a more important source of cash revenue for agricultural households than selling either crops or animals (Table 4).

-More of the sellers of beans said that beer sales were the most important source of cash revenue than was true for net buyers of beans (Table 4).

-A larger part of the net buyers of beans listed coffee sales as the most important source of revenue than was true for most sellers.

-What are the consequences of taxing coffee production and having the government use part of that revenue to support the price of beans? From whom is the coffee tax obtained, and who receives the benefits of the bean support price?

-Rwandan producers might ask how much does the trip to Kigali cost for the Rwandan Francs which are collected as coffee tax and returned (to some) as a bean support price.

Table 4  
HOUSEHOLDS MOST IMPORTANT SOURCE OF REVENUE  
BY BEAN TRANSACTION CATEGORY

SOURCE	Net Transaction Category							TOTAL
	>60 Sold	30-59 Kg	>30 Kg	No Trans.	<30 Kg	30-59 Kg	>60	
Banana/Sorg								
Beer Sales	42.9%	42.9%	51.6%	41.0%	34.9%	37.6%	32.4%	37.8%
Sale of Foodcrops	35.1%	33.3%	18.5%	14.8%	17.9%	13.6%	11.7%	16.9%
Industrial Crops Sales	6.5%	16.7%	13.7%	18.0%	17.4%	16.4%	18.2%	16.3%
Labor on Another Farm	1.5%	4.8%	5.6%	6.6%	11.9%	14.1%	17.0%	11.8%
Artisanry	3.9%		1.6%	4.9%	3.4%	3.3%	4.6%	3.5%
Commerce	2.6%		2.4%		4.3%	3.3%	3.4%	3.2%
Salary	6.5%		1.6%	1.6%	1.6%	1.3%	2.8%	2.7%
Work a Project					3.4%	2.3%	2.8%	2.0%
Animals	1.3%	2.4%	2.4%	3.3%	.4%	1.9%	2.2%	1.8%
Aid from Relatives			.8%	3.3%	1.7%	.5%		.7%
Rent					.4%	.9%	.6%	.5%
Other				3.3%	2.6%	1.9%	3.1%	2.0%
No Response			1.6%	3.3%	.4%	.9%	.3%	.7%

12. More than half of agricultural households listed food as the most important household expenditure item (Table 5).

-Food purchases were very important for those households buying beans and much less important for those selling beans. This indicates that sellers of beans were not generally selling beans to buy other foods.

Table 5

HOUSEHOLDS' MOST IMPORTANT EXPENSE ITEM  
ACCORDING TO BEAN TRANSACTION CATEGORY

ITEM	Net Transaction Category							TOTAL
	>60 kg Sold	30-59 kg Sold	<30 kg Sold	No Transactions	<30 kg Bought	30-59 kg Bought	>60 kg Bought	
Food	15.6%	35.7%	29.0%	31.1%	56.6%	63.4%	74.1%	54.8%
Clothes	16.9%	16.7%	21.8%	16.4%	11.5%	13.1%	7.1%	12.5%
Labor	35.1%	19.0%	11.3%	4.9%	3.4%	1.9%	3.1%	6.9%
Medicine	7.8%	7.1%	4.8%	11.5%	7.7%	3.8%	4.0%	5.7%
Cooking Implements	5.2%	2.4%	5.6%	9.8%	1.7%	.9%	2.2%	2.9%
Taxes			1.6%	1.6%	1.7%	5.6%	3.1%	2.7%
Kerosene	6.5%	7.1%	1.6%	8.2%	3.0%	1.4%	.9%	2.6%
School Fees	2.6%	2.4%	4.8%	3.3%	1.7%	2.3%	.9%	2.1%
Beer		7.1%	2.4%	1.6%	3.4%	.9%	1.2%	2.0%
Rent on Fields	1.3%	2.4%	4.0%		.9%	1.4%	.9%	1.8%
Tools	3.9%		4.0%	1.6%	1.7%	1.4%		1.5%
Soap	1.3%	2.4%	4.0%		.9%	1.4%	.9%	1.4%
Seed			.8%	3.3%	2.6%	1.4%	.3%	1.2%
Other	3.9%		3.2%	3.3%	1.3%	.9%	1.2%	1.7%
No Response			.8%	1.6%	.4%			.3%

13. The problem facing Rwandan agricultural households is to continue to increase the available food per capita.

-Cultivated land per person on farms is very small. From the 1984 SESA survey the average person on a farm is on a farm that has an average of 1200 square meters of cultivated land per person.

-21% of the farm population live on farms with a cultivated surface area of less than 1000 m<sup>2</sup> per person, per season (See Table 6.)

Table 6  
SURFACE AREA PER PERSON  
Number and % of People

Surface Area Per Person (m <sup>2</sup> )	Number of People	% of Population
<1000	1157694	20.9
1000 - 1570	1185621	21.4
1570 - 2400	1195415	21.5
2400 -3750	1075783	19.4
≥3750	937796	16.9
RWANDA	5552309	100.0

14. In the SESA/MSU Producer IV survey, agricultural households listed lack of surface area and soil fertility as the major constraints to increased production (See Table 8).

TABLE 7  
HOUSEHOLDS' MOST IMPORTANT PRODUCTION CONSTRAINT  
ACCORDING TO NET TRANSACTION CATEGORY

Constraint	Net Transaction Category							TOTAL
	>60 kg Sold	30-59 kg Sold	<30 kg Sold	No. of Transactions	<30 kg Bought	30-59 kg Bought	>60 kg Bought	
Surface Area	16.9%	16.7%	22.6%	13.0%	37.4%	34.7%	28.4%	29.1%
Labor	23.6%	9.5%	24.2%	29.5%	14.5%	13.1%	9.9%	15.6%
Seed				1.6%		.5%	1.5%	.7%
Fertilizer/ Soil Fert.	15.6%	26.2%	27.4%	16.4%	26.4%	36.2%	36.7%	30.2%
Lack of Pesticides					.4%			.1%
Too Much Rain	6.5%	7.1%	8.1%	3.3%	3.0%	2.8%	6.5%	5.0%
Too Little Rain	27.3%	38.1%	14.5%	23.0%	15.7%	10.3%	15.1%	16.4%
Low Crop Prices	3.9%	2.4%				.5%	.3%	.6%
Other	1.3%		3.2%	6.6%	2.6%	1.9%	1.5%	2.2%
No Response				1.6%				.1%

## **Preliminary Discussion Points Related to Selected Study Findings**

1. Implication: Food security has both a production and an income dimension. There is a need to evaluate policies and strategies to increase productivity in rural areas both on and off the farm.
2. Food security policy analysis in Rwanda must begin by considering whether rural households are net buyers or sellers of a commodity.
3. Both official and unofficial international trade are important to food security in Rwanda. Likely production in neighboring countries needs to be included in all food security planning and food policies, especially for beans and sorghum.
4. Food security policy has to be very pragmatic. Government cannot afford to spend economic and political resources on programs not likely to work.
5. OPROVIA can be most effective if not asked to do much. Income transfer via price supports is not practical. OPROVIA can perhaps facilitate operation of the private market by obtaining good information on likely market supply and demand, and making strategic purchases as agent for the government. OPROVIA might consider the role of bean importer to meet serious transitory shortfalls. To consider the viability and need for this function, much more needs to be known about how producers adjust consumption habits when bean prices increase significantly.
6. Strategies to promote more rural off - farm income opportunities are urgently needed. A major challenge is to develop rural off - farm enterprises that help increase farm output and tradeable goods. In general, effective strategies are needed to promote orderly transformation from a subsistence perspective to a more commercial orientation in the rural sector.
7. Land saving technological research is urgent. Both the biological and economic viability of crop improvement and soil fertility enhancements need to be examined.

The interactions between agriculture and livestock, as well as their effects on rural revenue must be examined. The interactions between livestock and soil fertility are also important.

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