PROFITABILITY AND RESOURCE USE EFFICIENCY IN DRY SEASON ONION PRODUCTION IN SOKOTO AND KEBBI STATES, NIGERIA

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ABSTRACT

The study evaluated profitability and resource use efficiency in dry season onion production in Sokoto and Kebbi States. Eight local government areas (L. G. As), four from each State, were purposively selected for the study. From each L.G.A., four villages were selected and from each village, five dry season onion farmers were randomly selected to arrive at a sample size of 160 respondents. Data were collected fortnightly throughout the production period, using a structured questionnaire. Data generated were analyzed using farm budget and production function models. Results of the farm budget analysis revealed average net farm incomes of ₦126,774.10 and ₦237,862.76 per hectare for farmers in Sokoto and Kebbi States, respectively. The results further revealed average rates of returns on investment of 91.89% and 197.92% for the respective States. The production function analysis showed that farm size and seed were under-utilized in Sokoto State, while labour, fixed capital, water and nitrogen fertilizer were over-utilized. In Kebbi State, farm size, labour and irrigation water were under-utilized as against fixed capital, seed and nitrogen fertilizer, which were over-utilized. It was therefore, concluded that inefficient factor allocation prevailed in onion production in the area, notwithstanding the high rates of returns to investment. To ensure efficient utilization of resources and increase farmers' income, greater extension efforts are needed to advise the farmers on the appropriate rates of inputs use.

INTRODUCTION

Onion (Allium cepa L.) is an important vegetable crop grown by farmers in northern Nigeria. This was attested to by Ayodele (1996) who reported that in Nigeria, commercial onion production is mainly in the north. Sokoto and Kebbi States are important onion producing States where many farmers grow onion in the fadama under irrigation during the dry season. Onion production is a major source of income to farmers in the area.

The results of a number of studies in northern Nigeria (Tarfa, 1994; Bamidele, 1997; Baba et al, 1997; Baba and Adedibu, 1998; Abdullahi, 2002) suggest that onion production is generally profitable. The unresolved issue is whether the farmers are obtaining the maximum possible profit from onion production. To answer this question, it is necessary to examine how efficiently farmers allocate resources used in dry season onion production. This study therefore, evaluated not only the profitability of dry season onion production, but also the efficiency with which the various resources are employed, using farmers in Sokoto and Kebbi States in northern Nigeria, as a case study.

MATERIALS AND METHOD

The study covered Sokoto and Kebbi States in north-western Nigeria. The States are located within latitudes 10°40' - 13°55'N and longitudes 3°30' - 7°06'E (Singh, 2000). Sokoto and Kebbi States are divided into 23 and 21 Local Government Areas (L.G.As), respectively, with a combined population of 4,421, 579 (FGN, 1991). The area falls within the semi-arid region where rainfall (400 - 700mm per annum) is erratic and poorly distributed (Singh, 1995). Vegetation is largely the Sudan savanna type with the northern part of the two States approaching the Sahel savanna and the southern part of Kebbi State approaching Guinea savanna (Shaib et al, 1997). Farming is the major occupation of the inhabitants and the crops cultivated include both food and cash crops such as millet, sorghum, rice, groundnut, cotton, cowpea, cassava and sweet potatoes. In addition, vegetable crops such as onion, tomato, as well as sweet and hot peppers are grown during the dry season under irrigation.

Eight local government areas, four each from Sokoto and Kebbi States, were purposively selected based on the intensity of dry season onion production. From each of the selected local government areas, four villages were purposively selected also based on the intensity of dry season onion production. A sampling frame of dry season onion farmers was established in each village with the assistance of the village head. From the sampling frame, five farmers were randomly selected in each village. The study therefore, covered 160 farmers in 32 villages across the two States.

Primary input-output and marketing data were collected from the sampled farmers in

Table 1: Cost and revenue structure in onion production in Sokoto and Kebbi States

Cost item	Sokoto State (n=80) Average cost (N /ha)	% of total	Kebbi State (n=80) Average cost (N /ha)	% of total
Variable costs				
Labour	49023.36	36.12	59214.11	49.27
Seed/seedlings	5956.01	4.32	7638.13	6.36
Fertilizer	1178.85	8.54	10800.78	8.99
Manure	3778.25	2.74	5272.46	4.39
Chemical	6937.66	5.03	1448.71	1.21
Fuel	7110.64	5.15	8070.16	6.71
Lubricants	2176.8	1.58	2722.8	2.26
Pump repair	1086.98	0.79	831.45	0.69
Tractor hire	8860.82	6.42	0	0.00
Storage facility	3419.22	2.48	0	0.00
Empty sacks	8071.03	5.85	0	0.00
Marketing and other costs	10234.17	7.42	10328.53	8.59
Total variable cost	119242.78	86.44	106327.13	88.47
Fixed costs				
Depreciation on well/tubewells	1844.13	1.34	1203.80	1.00
Depreciation on pump	7742.49	5.61	5967.63	4.94
Depr.on tools/equipment	841.94	0.61	805.46	0.67
Rent on land	3921.06	2.84	5904.76	4.91
Depr.on storage facilities	4360.61	3.16	0	0.00
Total fixed cost	18710.23	13.56	13851.65	11.52
Total cost	137953.01	100	120178.78	100
Total revenue	264727.11		358041.54	
Gross margin	145484.33		251714.41	
Net farm income	126774.1		237862.76	
Revenue-cost ratio	1.92:1		2.98:1	

Source: Field survey, 2002/2003

Table 2: Distribution of respondents according to net farm income (N /ha)

Income	Sokoto State (n=80) Frequency	%	Kebbi State (n=80) Frequency	%
≤ 0	1	1.25	0	0
1-50,000	3	3.75	2	2.50
50,000-100,000	9	11.25	2	2.50
100,000-150,000	28	36.00	8	10.00
150,000-200,000	24	30.00	20	25.00
200,000-250,000	12	15.00	16	20.00
250,000-300,000	2	2.50	11	13.75
300,000-350,000	0	0.00	9	11.25
> 350,000	1	1.25	12	15.00
Total	80	100	80	100

Source: Field survey, 2002/2003.

For other inputs with positive MVP values, such as labour, nitrogen and irrigation water in both states, and seed in Sokoto State, one unit increase in each of the inputs, holding others constant, would increase total value product by the corresponding MVP value. Table 4 shows that fixed capital, labour, irrigation water and nitrogen fertilizer were over-utilized in Sokoto State while seed was used below its economic optimum level. In Kebbi, fixed capital, seed and nitrogen were over-utilized while labour and water were under-utilized.

CONCLUSION AND RECOMMENDATIONS

It could be concluded from the findings of the study, that onion production is profitable in the area of study. However, analysis of resource use efficiency shows that production inputs were either over or under-utilized. Profitability in onion production could thus be increased through appropriate adjustments in the use of inputs. Farmers in Sokoto State could increase profits by reducing the application of fixed capital, labour, irrigation water and nitrogen fertilizer as well as by increasing farm sizes and seed rates. For farmers in Kebbi State, profits could be raised by reducing the use of fixed capital, seed and nitrogen, and increasing farm sizes, labour and irrigation water.

To overcome the problem of inefficient utilization of inputs and increase farmers' income, extension efforts are needed to advise the farmers on the appropriate rates of inputs use. Furthermore, accessibility of farmers to the inputs could be enhanced through the reactivation of the farmers' agricultural supply companies in the two states.

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