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COMPARATIVE ANALYSIS ON THE PROFITABILITY OF SOLE MAIZE CROPPING AND MAIZE/MELON INTERCROP IN OSUN STATE, NIGERIA

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Abstract: Profitability is a motivational factor in any enterprise. The study compared the profitability of sole maize and maize/melon intercrop in Osun State. A purposive sampling technique was used and primary data collected with the aid of a structured questionnaire. Descriptive statistics, budgetary technique, inferential statistics and regression techniques were used to analyse the data collected. The majority of the respondents were active, male, had formal education and had less than 21 years of experience in cropping systems. The estimated net return to management was ₦59,323.83 per sole maize farmer or ₦37, 548.75 per hectare per year and ₦175,178.68 per farmer or ₦102, 832.17 per hectare for maize/melon. Budgetary analysis results showed that both sole maize and maize/melon intercrop were profitable. The multiple regressions for maize/melon intercrop revealed that 94.2% of variation in profit was obtained by independent variables in the model. The multiple regressions for the sole maize profit function revealed that 62.3% of variation in profit was obtained by independent variables in the model. The costs of input used, labour employed and quantity sold were the major determinants of profitability. The appropriate policies to enable the farmers to have access to inputs at a subsidised rate should be put in place.

Key words: profitability, sole cropping, maize/melon intercrop, multiple regressions.

Introduction

Maize (*Zea mays L.*), based on the area cropped and quantity produced, is the third most important cereal grown in Nigeria after sorghum and millet (Olaniyan, 2015). It comes after wheat and rice in terms of world production. Maize is an annual cereal plant of the *Poaceae* family and native of Mexico (Hugar and Palled, 2008). It is grown for its grain which contains 65% of carbohydrate, 10−12% of protein and 4−8% of fat (Iken and Amusa, 2004). The crop also contains the

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vitamins A, B, C and E, including mineral salts and essential trace elements such as carotene, thiamine, ascorbic acid and tocopherol (Groote, 2002). Low capitalisation, price fluctuation, disease and pest, poor storage facilities and inefficiency or resource utilisation are the identified problems in maize production in Nigeria (Ojo, 2000). "Egusi" melon (*Citrullus lunatus* Thunb.) is among the most popular African indigenous vegetable crops produced in Nigeria on a large scale. Egusi melon is a member of the family *Cucurbitaceae* (Ojieh et al., 2008). The edible seed/kernel of melon contains approximately 46% of oil and 36% of protein (Ogbona and Obi, 2010). Olufemi and Salami (2006) have stated that melon is easily identifiable with the complex traditional mixed cropping systems of the humid and sub-humid tropical zone of Nigeria, as the trailing nature of its vines, alternately arranged and pinnately dissected leaves allow interplanting at distances dictated by number, sequence, type and combination of crops in the mixture.

Mixed cropping is practised to ensure food security against total crop failure or with intent to maximise yield and profit by making use of the same labour (Yusuf et al., 2008). According to Javanmard et al. (2009), intercropping is popular because of its advantages over sole cropping which include security of returns and higher profitability due to higher combined returns per unit area of land. Poggio (2005) reported that farmers intercropped for varied reasons, including insurance against crop pests, yield increment, weed control and high monetary returns. Intercropping encourages a higher nutrient uptake than in sole cropping and water use efficiency is high because of the inter-cooperative interaction between the intercrops. Intercropping is done with crop rotation to break weed, diseases and pests' cycles and it also provides complementary fertilisation to crops in sequence with each other (Ibeawuchi, 2007).

Researchers have worked on cereal based intercropping, such as maize/bean, maize/potato, maize/cassava, maize/yam, maize/soybean, and maize/groundnut, amongst many others (Jiao et al., 2008; Ijoyah et al., 2012). However, there is little work on maize/melon intercropped. About 70% of cassava, 73% of maize and 55% of egusi melon grown in Nigeria are produced under intercropping system (Iken and Amusa, 2004; Ogbona and Obi, 2010; Ijoyah et al., 2012). The incorporation of melon into maize/cassava intercrop at the right time has been reported to be more profitable and more environmentally friendly (Ogunremi, 2005).

Maize/melon intercrop is a farming practice gaining momentum in Osun State, Nigeria, with the choice being motivated by the economic objective of producing maximum output to earn a positive economic return (profit). The yield advantage may be in terms of higher yield or higher net income. There is, therefore, the need to examine the differences in profitability of sole maize cropping and maize/melon intercrop in Osun State. Specifically, the study compares the socio-economic characteristics of the sole maize farmers and the maize/melon intercrop farmers. It

also compares the profitability of sole maize with maize/melon intercrop with a view to determining their relative profitability. Knowledge of this research will help farmers to obtain empirical information about the profitability and its determinants of sole maize and maize/melon intercrop farming practices in order to make a pre-informed farming decision on maize production.

Materials and Methods

The study was conducted in Osun State, Nigeria. It is located in the south-west of Nigeria. The state has thirty Local Government Areas (LGAs). The major occupation of the people in the area is farming (NgeX, 2013). Osun State is bounded in the North by Kwara State, in the East by Ekiti State, in the West by Oyo State and in the South by Ogun and Ondo States. Osun State (7.5º N, 4.5º E) is an inland State in south-western Nigeria with Osogbo as its capital. It occupies a land mass of approximately 8,602 square kilometres with a population of 3,416,959 people (NBS, 2012). A total of 94 farmers were purposively sampled with the assistance of extension agents from Osun State Agricultural Development Programme (OSSADEP) from the two LGAs, namely: Atakunmosa West and Iwo based on the predominance of maize and maize/melon intercrop in these LGAs relative to the rest. Forty-seven questionnaires were administered to each of sole maize farmers and maize/melon intercrop farmers.

The primary data were collected using a pre-tested and validated questionnaire. The variables observed were: the socio-economic characteristics of the respondents; quantities and prices of inputs and outputs in the area during the 2015/2016 farming season. Descriptive statistics, budgetary technique, inferential statistics, and multiple regressions were used to analyse data collected.

The specific type of budgetary technique used was the gross margin analysis as well as the net farm income. The model is stated as follows:

GM = GI – TVC (1)

where: GM = Gross margin; GI = Gross income; TVC = Total variable cost,

NFI = GM – TFC (2)

where: NFI = Net farm income; GM = Gross margin; TFC = Total fixed cost.

The model used for estimating net farm income can be expressed by the equation:

$$NFI = \Sigma_{i=1\rightarrow 2}^{n} P_{yi} Y_i - \Sigma_{i=1\rightarrow 2}^{n} P_{xj} X_{ij} - \Sigma_{k=1}^{k} F_k \quad (3)$$

where:

Y_i = Enterprise's product(s) (where i = 1, 2 products); P_{yi} = Unit price of the product,

X_j = Quantity of the variable inputs (where j = 1, 2, 3…… m variable inputs),

P_{xj} = Price per unit of variable inputs; F_k = Cost of fixed inputs; Σ = Summation (addition) sign.

The total variable cost (TVC) includes items such as total cost of labour, transportation, fertiliser and seed. The total fixed cost (TFC) includes the depreciation on farm tools such as hoes and cutlasses and the cost of renting land.

Multiple regression models were used to find out the factors determining the profitability of the two distinct groups of cropping systems.

The regression model is specified as follows:

Profit margin = f (X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}, X_{11}) + e (4)

X_1 = Implement cost, X_2 = Years of experience, X_3 = Years of education, X_4 = Cost of inputs, X_5 = Level of education, X_6 = Age of respondents, X_7 = Labour cost, X_8 = Transportation cost, X_9 = Land value/rent, X_{10} = Quantity consumed, X_{11} = Quantity sold, e = Error term.

The functions that were tried include linear and Cobb-Douglas functions. The best fit was selected on the basis of the coefficient of multiple determination (R^2), the 't' and the F ratio and the responsiveness of the magnitude of the coefficient.

Linear function: $P = b_o + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} + e$ (5)

Cobb Douglas: $LogP = Logb_o + b_1LogX_1 + b_2LogX_2 + b_3LogX_3 + b_4LogX_4 + b_5LogX_5 + b_6LogX_6 + b_7LogX_7 + b_8LogX_8 + b_9LogX_9 + b_{10}LogX_{10} + b_{11}LogX_{11} + e$ (6)

where "P" = profit margin, b_o, b_1, b_2... b_{11} = coefficients of the parameters to be estimated.

Hypothesis of the study

Null hypothesis (Ho)

Ho: there will be no differences in the profitability of sole maize compared to the profitability of maize/melon intercrop.

Results and Discussion

Socio-economic characteristics of farmers

Regarding the sole maize farmers, the modal age brackets were between 46 and 55 years, which constituted 57.5% of the sole maize farmers interviewed (Table 1a). The mean age was 47. The majority (93.6%) of the respondents were male since it is common knowledge that the work of farming is a vocation that requires strength as practised in the study areas and such requirement can only be met by the male. All the respondents were married, with an average family size of 6.4. A large proportion (85.1%) of respondents had either primary or secondary education. Only 42.5% of the respondents had both primary and secondary education. More than half (53.2%) of the sole maize respondents had between 0 and 6 years of formal primary education.

Table 1a. Percentage distribution of respondents according to their socio-economic characteristics.

Characteristics	Sole maize		Maize/melon	
	Frequency	Percentage	Frequency	Percentage
Age of farmers (years)				
20–35	5	10.6	5	10.6
36–45	10	21.3	10	21.3
46–55	27	57.5	31	66.0
56–65	5	10.6	1	2.1
Gender of farmers				
Male	44	93.6	39	83
Female	3	6.4	8	17
Total	47	100	47	100
Marital status				
Single	0	0	1	2.1
Married	47	100	46	97.9
Family size				
1–4	10	21.3	10	21.2
5–8	32	68.1	31	66.0
9 and above	5	10.6	6	12.8
Educational level				
Primary	20	42.6	13	27.7
Secondary	20	42.5	25	53.2
Tertiary	2	4.3	3	6.3
No formal education	5	10.6	6	12.8
Years of formal education				
0–6	25	53.2	15	31.9
7–12	20	42.6	26	55.4
13–18	1	2.1	5	10.6
19–22	1	2.1	1	2.1
Membership of farmers' cooperatives				
Yes	15	31.9	13	26.7
No	32	68.1	34	72.3
Years of experience in type of cropping systems				
1–15	32	68.1	35	74.5
16–20	11	23.4	9	19.1
21–25	3	6.4	1	2.1
26–30	1	2.1	2	4.3
Hectares used for cropping				
1–2	42	89.4	46	97.9
3–4	5	10.6	1	2.1
Source of land used for cropping				
Gift	6	12.8	4	8.5
Rent	32	68.1	18	38.3
Inheritance	9	19.1	22	46.8
Purchase	0	0.0	3	6.4

Source: Field survey, 2016.

The majority (68.1%) of them were not members of the cooperative society. The average years of experience were 14.7 years meaning that the respondents were not new in the farming activity. The average farm size was 1.68 ha and about 68.1% of farmers acquired their land through rent. The majority (59.6%) of the respondents used personal savings as a source of funds (Table 1b). More than three quarters (76.6%) of sole maize respondents procured their inputs at Osun State Agricultural Development Programme (OSSADEP) input office. These findings support the results of Oladejo and Adetunji (2012), where it was reported that the mean age for sole maize farmers was 45.8 years with more than half of them being literate while the major source of finance for the farmers was personal savings and the mean land area cultivated was 2.2 ha.

Table 1b. Percentage distribution of respondents according to their socio-economic characteristics.

Characteristics	Sole maize		Maize/melon	
	Frequency	Percentage	Frequency	Percentage
Source of fund				
Personal saving only	28	59.6	26	55.3
Friends & relatives	0	0.0	2	4.3
Formal financial institutions	3	6.4	2	4.3
Personal savings and friends & relatives	7	14.9	8	17.0
Personal savings and formal financial institutions	8	17.0	6	12.8
Personal savings, friends& relatives and formal financial institutions	1	2.1	3	6.3
Land use security				
Very high	26	55.3	22	46.9
High	11	23.4	9	19.1
Low	6	12.8	16	34.0
Very low	4	8.5	0	0.0
Sources of input distribution				
Coop. society	2	4.3	6	12.8
Open market	5	10.6	3	6.4
Friends and family	1	2.1	1	2.1
OSSADEP	36	76.6	36	76.6
Coop. society and OSSADEP	3	6.4	1	2.1

Source: Field survey, 2016.

The modal age bracket for the maize/melon intercrop farmers was between the ages of 46 and 55 years (Table 1a). The mean age was 45, which indicated that

farmers were mostly middle-aged the same as the sole maize cropping farmers. Both groups of farmers were still active and energetic to meet the rigour of farming. Similarly, there was a positive effect on their managerial skills and ability which in turn affected their profitability. The majority (83%) of the respondents were male, with a mean family size of 6.5. A substantial proportion (80.9%) of respondents had basic primary and secondary education. Less than half (31.9%) of the respondents had between 0 and 6 years of formal education, 55.4% had 7–12 years of education. The majority (72.3%) opted not to join the cooperative society while only 26.7% of farmers belonged to the farmers' cooperative society. The average years of experience in maize/melon farming were 13.1 years, with the average farm size of 1.54 ha. About 46.8% of farmers acquired their land through inheritance while 38.3% of the farmers acquired their land through rent. More than half (55.3%) of the farmers depended solely on their personal savings (Table 1b). The majority (66%) of the farmers were sure of their continued use of the land, while 34% had very low land use security. The majority (76.6%) of respondents procured their inputs at OSSADEP.

There was no significant difference between the mean ages, family sizes; years of experience and farm size of sole maize and maize/melon intercrop farmers.

Budgetary analysis

The mean farm size was 1.54 ha and the average revenue per hectare for sole maize was ₦76, 070.71 per hectare. The total cost of production was ₦61, 744.47 per farmer or ₦38, 521.97 per hectare. Cost of labour (51.0%) had the largest share of the total cost, followed by cost of consumable farm inputs (28.5%). This corroborates the finding of Chukwuji (2008), who reported that labour constituted the single most important cost item on the average. The net return to management was ₦59, 323.83 per farmer or ₦37, 548.75 per hectare. The results showed that sole maize farming was profitable. Findings by Oladejo and Adetunji (2012) also showed that maize farming was profitable as respondents made ₦70, 325.74 of profits per hectare of maize produced during the year of survey.

For the maize/melon intercrop, the mean farm size was 1.68 ha and the average revenue per hectare was ₦158, 094.35. The total cost per hectare was ₦55, 262.18. Like sole maize farmers, cost of labour (44.1%) had the largest share of total cost. This is in tandem with the position of Abdulsalam et al. (2012), whose results showed that mixed cropping was profitable. Likewise, Yusuf et al. (2008) revealed that the average net farm income per hectare for melon in an intercrop was ₦915.77. Cost of consumable farm inputs, which comprise seeds, fertilizer/manure, herbicides and pesticides, which serve as indicators of the level of technology, had the second largest share of about 43.9 percent. The estimated net return to management was ₦175, 178.68 per farmer or ₦102, 832.17 per hectare per year.

Table 2. Average costs and returns (₦) of sole maize and maize/melon intercrop farmers in Osun State.

Items	Sole maize cropping (n=47)			Maize/melon intercrop (n=47)		
Farm size	1.54 ha	1.0 ha	Cost as % of TC	1.68 ha	1.0 ha	Cost as % of TC
Yield (kg)	4,321.28			6223.11		
Total revenue	117,148.90	76,070.71		265,598.50	158,094.35	
Rent on land	2,329.79	1,512.85	3.9	2,046.81	1,218.34	2.2
Cost of labour	30,236.17	19,633.88	51.0	40,940.43	24,369.30	44.1
Consumable farm inputs	16,919.36	10,986.60	28.5	40,717.66	24,236.70	43.9
Transport	3,808.51	2,473.06	6.4	3,414.89	2,032.67	3.7
Depreciation on tools	6,030.00	3,915.58	10.2	5,720.67	3,405.16	6.2
Total cost	61,744.47	38,521.20		90,419.82	55,262.18	
Return to management	59,323.83	37,548.74		175,178.68	102,832.17	

Source: Computed from survey data; ha – hectare.

From the foregoing, it is clear that there was a significant difference in the profits realised by sole maize cropping and maize/melon intercropping farmers per hectare which were ₦37, 548.75 and ₦102, 832.17 at the 5% significance level. This is due to intercropping of maize and melon on the same plot of land. This significance complies with the position of Abdulsalam et al. (2012), whose study showed that mixed enterprises were generally more profitable compared to the sole enterprises. This disagrees with the findings of Law-Ogbomo and Ekunwe (2011), who reported similar increases in the economic yield of sole maize compared to maize/melon under intercropping system. Costs of planting, weeding and fertiliser application for sole maize were lower and statistically different at the 5 per cent significance level from those for maize/melon intercrop. This is partly explained by the high cost of manual weeding associated with reduced spacing in the intercrop. Cost of pesticide application was significantly higher for maize/melon intercrop than sole maize enterprise at the 10% significance level. Cost of drying and sorting for maize/melon was significantly different and greater than that of sole maize (at the 1% significance level) due to the melon fruit being processed by depulping, drying and sorting.

All the consumable farm input costs for maize/melon, i.e. cost of maize and melon seeds, fertilisers, herbicides and pesticides, were significantly different and greater than those for sole maize at the 1% significance level. At the 1% significance level, the total input cost for maize/melon intercrop was higher and significant than the total input cost for sole maize.

Table 3. T-ratios for the tests of the hypothesis about the costs and returns vis-à-vis profitability per farmer regarding sole maize and maize/melon intercrop farmers in Osun State.

Items	Sole maize	Maize/melon	T-ratio	Significance
Farm size (ha)	1.54	1.68	4.251	0.001*
Revenue from maize	117,148.90	195,462.33		
Revenue from melon	0.00	70,136.17		
Total revenue	117,148.90	265,598.50	-3.747	0.000*
Variable cost				
Labour cost on:				
Land preparation	8,074.47	8,178.72	0.105	0.917
Heaping	1,382.98	1,961.70	0.552	0.583
Planting	3,485.11	6,885.11	2.571	0.013**
Weeding	2,927.66	8,119.15	2.518	0.015**
Fertiliser application	2,508.51	5,561.70	2.554	0.014**
Pesticide application	142.55	434.04	1.705	0.095***
Harvesting	9,512.77	9,800.00	0.127	0.900
Drying and sorting	0.00	2,202.13	-3.417	0.001*
Security	0.00	0.00		
Total labour cost	30,236.17	40,940.43	1.654	0.105
Consumable farm inputs:				
Maize seeds	4,004.89	6,551.49	3.183	0.003*
Melon seeds	0.00	2,420.64	-3.616	0.001*
Fertiliser/manure	10,729.79	22,255.32	4.068	0.001*
Herbicides	2,072.34	9,017.02	3.580	0.001*
Pesticides	112.34	473.19	3.056	0.004*
Total input cost	16,919.36	40,717.66	4.013	0.001*
Transportation	3,808.51	3,414.89	-0.428	0.671
Fixed cost				
Annual depreciation on:				
Cutlass	524.82	989.36	2.981	0.005*
Hoes	653.90	515.25	-2.547	0.014**
Sprayer/knapsack	3,819.15	3,009.86	-0.548	0.587
Baskets/bags	1032.13	1160.11	0.462	0.647
Farm coat	0.00	14.19	1.000	0.323
Boots	0.00	31.92	1.000	0.323
Wheel barrow	0.00	0.00		
Farm building	0.00	0.00		
Rent on land	2,329.79	2,046.81	-0.436	0.665
Total costs	61,744.47	90,419.82	2.609	0.012**
Return to management	59,323.83	175,178.68	-2.615	0.012**

Source: Field survey, 2016. ₦ (Nigerian currency).
*Significant at $P<0.01$, **Significant at $P<0.05$, ***Significant at $P<0.1$.

Depreciation cost of using a cutlass in maize/melon intercropping was statistically different and greater than that of sole maize (the 1% significance level) because clearing and weeding were better done with a cutlass in the maize/melon

intercrop as against sole maize because of the high population density of maize in the intercrop. As for the cost of hoes, there was a significant difference between the two cropping systems (at the 5% significance level). However, the total cost for maize/melon intercrop was significant (the 5% significance level) and higher than the total cost for sole maize thereby complying with *a priori* expectation.

Results of regression analysis/Sole maize enterprise

The linear function was chosen as the lead equation because of the relative larger adjusted R^2. The regression model had an adjusted R^2 of 0.942, which indicates that 94.2% of the variation in the profitability of sole maize cropping was jointly explained by the independent (explanatory) variables included in the model and this is a good indicator that the included explanatory variables had a very good influence on the profitability (Table 4). The model had an F-value of 69.102 which was significant at the 1% level meaning that the model has a good fit. Out of the eleven explanatory variables included in the model, three were significant. They are: cost of inputs, labour cost and total quantity sold. The Durbin-Watson value showed that there was no serial correlation among the explanatory variables.

Table 4. Regression results of the determinants of profitability of sole maize.

Independent variables	Coefficients	T-value
Constant	152914.366	0.316
Implement cost (X_1)	10.471	0.135
Years of experience (X_2)	-1966.935	0.497
Years of education (X_3)	-642.369	0.852
Cost of inputs (X_4)	-2.383	0.012**
Level of education (X_5)	-7486.708	0.639
Age of respondents (X_6)	-1557.055	0.588
Labour cost (X_7)	-2.193	0.001***
Transportation cost (X_8)	2.685	0.666
Land value/rent (X_9)	15.395	0.137
Quantity consumed (X_{10})	-110.243	0.110
Quantity sold (X_{11})	71.144	0.001***
Adjusted R^2	0.942	
F-value	69.102	
Durbin-Watson	1.991	

Source: Data analysis, 2016.
*** = Significant at $P<0.01$; ** = Significant at $P<0.05$ and * = Significant at $P<0.1$.

Cost of inputs

The coefficient of this variable carried a negative sign and was also statistically significant at the 5% level of significance. This shows that an increase in input costs would lead to a reduction in the profitability of sole maize farming (Table 4).

Labour cost

This variable had an expected coefficient that was negative and significant at the 1% level of significance implying that the higher the labour cost, the lower the profitability.

Total quantity sold

The coefficient of the variable was both positive and significant at the 1% level of significance implying that the higher the quantity sold, the higher the profitability. This agrees with the findings of Oladejo and Adetunji (2012), whose regression analysis has shown that significant relationships exist between maize production costs and returns to maize farmers in the study area.

Maize/melon enterprise

The regression model had an adjusted R^2 of 0.623, which indicates that 62.3% of the variation in the profitability of maize/melon intercrop was jointly explained by the independent (explanatory) variables included in the model and this is a good indicator that the included explanatory variables had a very good influence on the profitability (Table 5). The model had an F-value of 5.254 which was significant at the 1% level meaning that the model has a good fit. Out of the eleven explanatory variables included in the model, two were significant. They are: the input cost and the total quantity sold. The Durbin-Watson value showed that there was no serial correlation among the explanatory variables.

Table 5. Regression results of the determinants of profitability of maize/melon.

Independent variables	Coefficients	T-value
Constant	95105.052	0.236
Implement cost (X_1)	-1.429	0.223
Years of experience (X_2)	-1931.752	0.262
Years of education (X_3)	-912.611	0.679
Cost of inputs (X_4)	-2.222	0.035**
Level of education (X_5)	-3745.769	0.730
Age of respondents (X_6)	-1223.237	0.464
Labour cost (X_7)	-0.427	0.675
Transportation cost (X_8)	-0.019	0.995
Land value/rent (X_9)	3.704	0.450
Quantity consumed (X_{10})	-30.324	0.636
Quantity sold (X_{11})	82.980	0.001***
Adjusted R^2	0.623	
F-value	5.254	
Durbin-Watson	2.214	

Source: Data analysis, 2016.
*** = Significant at $P<0.01$; ** = Significant at $P<0.05$ and * = Significant at $P<0.1$.

Input cost

As expected, this variable had a coefficient that was negative and significant at the 5% level of significance. This implies that the higher the input cost, the lower the profitability.

Total quantity of produce sold

The coefficient of this variable carried a positive sign and was also statistically significant at the 1% level of significance. This shows that an increase in total quantity of output sold increased the profitability directly.

Conclusion

The study performed a comparative analysis of the profitability of sole maize cropping and maize/melon intercrop in Osun State. Both enterprises were profitable in the study area, but there was a significant difference in the profitability of the two cropping systems practised as the maize/melon intercrop was more profitable. The intercrop is, therefore, recommended for the farmers since it is more profitable and provides a variety of income generation for the farmers and with planned planting, farmers can make more money throughout the year, thereby ensuring food security and income security.

Cost of input and total quantity sold were the major variables that affected the profitability of maize/melon intercrop in the study area while input cost, labour cost and the total quantity of produce sold were the major determinants of the profitability of sole maize cropping in the study area.

The appropriate policies to enable the farmers to have access to inputs at a subsidised rate should be put in place.

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KOMPARATIVNA ANALIZA PROFITABILNOSTI KUKURUZA U MONOKULTURI I ZDRUŽENOG USEVA KUKURUZA I DINJE U DRŽAVI OSUN U NIGERIJI

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R e z i m e

Profitabilnost je motivacioni faktor u bilo kom preduzeću/gazdinstvu. Istraživanjem se poredila profitabilnost gajenja kukuruza u monokulturi i združenih useva kukuruza i dinje u državi Osun. Korišćena je tehnika ciljanog uzorkovanja i prikupljeni su primarni podaci uz pomoć strukturiranog upitnika. Za analizu prikupljenih podataka korišćene su deskriptivna statistika, tehnika budžetiranja, statistička inferencija i tehnike regresije. Većina ispitanika su aktivni muškarci, sa formalnim obrazovanjem i manje od 21 godine iskustva u bavljenju ratarstvom. Procenjeni neto povraćaj kapitala za upravljanje bio je ₦59.323,83 po poljoprivredniku koji je uzgajao kukuruz u monokulturi ili ₦37.548,75 po hektaru po godini i ₦175.178,68 po poljoprivredniku ili ₦102.832,17 po hektaru za združene useve kukuruza i dinje. Rezultati budžetske analize pokazali su da su i kukuruz u monokulturi i združeni usevi kukuruza i dinje profitabilni. Višestruka regresija za združene useve kukuruza i dinje pokazala je da je 94,2% varijacije profita dobijeno nezavisnim varijablama u ovom modelu. Višestruka regresija za funkciju profita kukuruza u monokulturi pokazala je da je 62,3% varijacije profita postignuto nezavisnim varijablama u ovom modelu. Troškovi inputa, radne snage i količine prodatog proizvoda su glavne determinante profitabilnosti. Trebalo bi uspostaviti odgovarajuće politike koje bi omogućile poljoprivrednicima da imaju pristup subvencionisanim inputima.

Ključne reči: profitabilnost, kukuruz u monokulturi, združeni usevi kukuruza i dinje, višestruka regresija.

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