Appraisal of the Effect of Innovative Capacity Building of Small-holder FADAMA Farmers on the Performance of the Crop Production Sub-Sector in Nigeria

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Abstract

This study examines the effect of innovative capacity building of small-holder Fadama farmers on the performance of crop production sub-sector in Nigeria. Small-holder farming in Nigeria has underperformed despite the scope of activities and the number of farmers engaged in this type of venture. The aim of the study was to determine the extent to which the innovative capacity building predictors exposed to small-holder Fadama farmers affected the performance of crop production in Nigeria from 2014 to 2018. Innovative capacity building, proxied by education, smart technology and collaboration were adopted as the independent variables, while crop production performance was the dependent variable. The study employed the ex post facto design. A sample of 559 farmers was determined using Cochran sample size determination formula for finite population. The twelve states (Abia, Ebonyi, Imo, Kaduna, Katsina, Kogi, Lagos Nasarawa, Ondo, Oyo, Plateau and Sokoto.) were selected through cluster sampling technique from a population of 18,352 farmers. Linear regression technique was employed in the data analysis using SPSS v.21. The study found that education received by farmers has a negative and non-significant relationship (-.125), to performance (p = .842> 0.05 (2tailed)). Smart technology adopted by farmers had a positive and significant relationship with performance (R- coefficient = 1.00; SPAT, OFAR and MTP technology strategies positively influence output with values of .021; .016 and .011 respectively. Collaboration among farmers and relevant stakeholders had positive and significant effect (0.521) on performance (p = .842> 0.05 (2tailed)). The study therefore, concludes that innovative capacity building of farmers in crop production is a veritable strategy to guarantee bumper harvest. It recommends a public-private sector synergy to boost capacity building and encourage independent farmers who are sufficiently motivated by profit to produce more efficiently, but lack the capital. It further recommends that government implements relevant education, technology and collaborative policies, faithfully, in order to enhance crop production in the sub-sector.

Keywords: Innovative Capacity Building, Crop Production, Performance, Education, Technology

Background to the Study

Innovative Capacity Building (ICB) has emerged as a popular and powerful construct in organizational development studies, and has continued to receive attention from researchers and development practitioners while discussing development efforts, especially in Agricultural sector (Salisu, 2012). ICB is a process-driven organizational development construct by which individual and organizational actors (staff, employees or independent workers) engage in obtaining, improving and retaining knowledge, skills, tools, equipment and other resources that may be required to competently accomplish a development activity on a larger scale, with more recipients; and in a more sustainable manner (SOCABA, 2019). It has been conceptualized as ‘‘a process in which an organizational context is created, in which the use and development of the employees’ knowledge, skills and decision-making capabilities in such a way that the employees are empowered to decide when to switch between activities pertaining to exploration and exploitation’’ (Brix, 2018:12).

This process-driven activity 'ICB' comprises direct participation of individuals, organization and system levels moderated by enabling environment which involves iterative processes of Design, Apply, Learn and Adjust (DALA) mechanisms (Colville, 2008). Individual ICB builds and improves existing knowledge and skills of individuals engaged in learning and adaptation to change (UNCEPA, (2006) in Yamoah and Mayio, (2013) At the Institutional or organizational level, ICB gives support and modernizes institutions that are already running, through the formation of sound policies, methods of management, organizational structure and revenue management. On the other hand, the system or societal level ICB, involves the enthronement of a strong and interactive public administration architecture that receives feedback from the population and makes public managers and administrators more responsive and accountable (UNCEPA, 2006).

One major justification of ICB is that agriculture and food sector is further confronted with more challenges of population growth (Trendov, Varas, and Zeng, 2019). Much effort has been put in place globally to accomplish this task. For example, since 1960, International Development Association (IDA) under the auspices of the World Bank, has provided more than $391 billion for investments in ICB in more than 113 countries, underscoring its importance (Reuters, 2019).

Performance of Nigerian Economy

FADAMA project is one of the development projects in Nigeria that is improving the lives and productivity of farmers and poor communities. These communities constitute 75% of the poor in rural areas who rely on agriculture for survival (Bell, 2016). The Nigerian economy is witnessing a decreasing Gross Domestic Product (GDP) performance of about $540 billion to US$400 billion, and rising unemployment level of about 23.1%. Therefore, building a Nigerian economy of the future demands transformational changes to generate and prosper a broad based

Statement of the Problem

One of the basic needs of human beings is food to provide energy for daily activities. To achieve this necessity, agriculture becomes an essential part of our life. Therefore, it becomes imperative to build the capacity of farmers that produce the food and other goods and services. This ICB of farmers in the agricultural sector is meant to improve their knowledge, skills, understanding, technical know-how and collaboration in an enabling environment to support the production of enough food for the country's teeming population. These activities are intended to provide export revenue, income to farmers, and decent livelihood for other agricultural stakeholders. It is in recognition of these benefits, that the Nigerian government has over the years introduced policies that established capacity building intervention programmes such as Operation Feed the Nation, OFN, in (1976), Agricultural Development Programmes (ADPs), Fadama Development Projects (1992), etc. These efforts were made over time to meet specific mandates, such as food security, poverty reduction, import substitution, economic diversification and inclusive growth objectives; and to develop a robust capacity for agricultural performance in the country.

However, despite the above efforts, Nigeria is still faced with inability to produce enough food for its teeming population estimated to be 440 million by 2050 based on annual growth rate of 2.6% (UNDESA, 2015). This has been attributed to inadequate functional knowledge of appropriate farm inputs (education), technical and proper mentoring relationships by extension agents (EA). There is also inadequate technology usage competences (adaptation and transfer rates of technology and research), poor collaboration among farmers, researchers and other stakeholders in risk sharing such as off-takers and aggregators. These shortcomings are partly due to long years of neglect of Agriculture resulting from the discovery of fossil fuel in commercial quantities in Nigeria that subsequently led to huge oil revenue. This was orchestrated principally by the Yom Kippur War in 1973 in which Nigeria oil was a highly

prized brand. The oil proceeds were not properly managed and the economy faced liquidity problems and other classic signs of Dutch disease- a sudden inflow of foreign exchange, high inflow of goods and services and income that cause inflation and lead to neglect of investment in other productive parts of the economy, aside oil. This neglect discouraged Nigerian farmers from investing in crop production, and subsequent skill underdevelopment.

Consequently, the neglect of capacity building led to continued farming at subsistence level with its attendant low income, diminished standard of living and poor health conditions. Great number of farmers in Nigeria cannot be reached due to shortage of extension-agents (EA) whose ratio to farming families is about 1:10,000, short of the global rate of 1:800). Nigeria loses about US$10 billion in annual export due to technology inadequacy leading to productivity decline of cash crops such as groundnut, cocoa, palm oil, cotton, etc.). If global food prices increase and drive up the prices of imports, as they did in 2007-2008 financial crisis, Nigeria would further steep into poverty and will struggle to feed her projected population of 440 million people by 2050 (UNDESA, 2015). That would have confirmed the United Nations fears expressed in the year 2000 that poverty is the greatest challenge to the international community (Huffman, 2000).

Objectives

In the light of the above, therefore, this study seeks to investigate effect of ICB on performance of Nigerian crop production sub-sector using FADAMA (the cultivation and farming of crops in irrigation conditions) as a study, with a view to:

i. Ascertain the relationship between education and performance of crop production in the Nigerian crop production sub-sector.
ii. Determine the effect of smart technology on performance of crop production sub-sector in the Nigerian crop production sub-sector.
iii. Assess the nature of relationship between collaboration and performance of Nigerian crop production sub-sector.

A Brief History of FADAMA Programme in Nigeria

FADAMA project is one of the development projects in Nigeria that is improving the lives and productivity of farmers and poor communities. These communities constitute 75% of the poor in rural areas who rely on agriculture for survival (Bell, 2016). The Nigerian economy is witnessing a decreasing Gross Domestic Product (GDP) performance of about $540 billion to US$400 billion, and rising unemployment level of about 23.1%. Therefore, building a Nigerian economy of the future demands transformational changes to generate and prosper a broad based GDP growth from 2% to 7% needed for reducing poverty and generating employment (Soludo, 2019). It is on this basis that Nigeria's vision for economic recovery, anchored on Economic Recovery and Growth Plan, ERGP (2017-2020), is a step in the right direction.

A brief history of FADAMA is given in table 1.1 below, and it explains the development trajectory of the FADAMA projects in Nigeria.

Table 1: Summary of FADAMA Series of Projects in Nigeria.

Progromme	Duration	IDA Loan	Project approach	Geographical Coverage
FADAMA-1	1992-1999	$67.5 Million	Top-down, building on Agriculture Development Program and emphasis on infrastructure investment.	Seven core states (Bauchi, Gombe, Jigawa, Kano, Kebbi, Sokoto, and Zamfara).
FADAMA-11	2003-2009	$69.9 million	Bottom-up, CDD, building on FADAMA-II with the incorporation of FADAMA User Equity Fund for a more sustainable model.	11 states (Adamawa, Bauchi, Gombe, Imo, Kaduna, Kebbi, Lagos, Niger, Ogun, Oyo, and Taraba) and the (FCT), with the ADB covering six additional states (Borno, Katsina, Kogi, Kwara, Pleateau, and Jigawa), bringing the total to 18.
FADAMA-111	2008-2013	$250 million	Bottom-up, CDD, building on FADAMA-II with the incorporation of FADAMA User Equity Fund for a more sustainable model	36 states and the Federal Capital Territory (FCT).
FADAMA - AF1	2013-2019	$200 million	Bottom-up, CDD, and Value chain approach with focus on cassava, rice, sorghum, and horticulture with export potential.	Six chosen states (Anambra, Enugu, Kano, Kogi, Lagos, and Niger).
FADAMA - AF 11	2016-2019	$50 million	Bottom-up, CDD building on FADAMA-I with the incorporation of local development plans for a more inclusive model.	11 states (Adamawa, Bauchi, Gombe, Imo, Kaduna, Kebbi, Lagos, Niger, Ogun, Oyo, and Taraba) and the Federal Capital Territory (FCT), with the African Development Bank covering six additional states

Source: World Bank, 2016

Scope of the Study

The study chose few predictors of innovative capacity building (functional education, smart technology and collaboration), while ignoring a whole lot of other predictors such as training, mentoring. The study did not disaggregate the performance variable but took it as a single annual unit value (output). Out of Nigeria's thirty – six (36) states, and Abuja, only farmers in twelve states namely; Abia, Ebonyi, Imo, Kaduna, Katsina, Kogi, Lagos Nasarawa, Ondo, Oyo, Plateau and Sokoto, were covered in this study.

Review of Related Literature

Conceptual Review

Studies on Innovative Capacity Building **(**ICB} started with conceptual ambiguity and vagueness (Powell, 2008). In the 1950, it evolved as institution building and organization development whose objective was to develop an indigenous, long-run, technical assistance facility that can provide, or create, the techniques for solving problems relevant to an environment (Khan, 2014). In the 1960s, it evolved as organizational improvement which means improving existing organizations through the provision of more training to employees and improving the financial systems of such organizations instead of building new ones. In the 1970s, it was understood as development management, which means the management and implementation of programmes meant for social development of basic human necessities, especially

for the socially excluded rural poor (Matachi, 2006); and in the 1980s, it embraced another nomenclature known as Institutional Development (ID) which was described as a set of formal rules and informal conventions that provide the basis for human interaction and shapes the incentives of members of society (North, 1991). In the 1990s, public sector reforms took an urgent different dimension and it was called 'Capacity Building' for the first time and involves critical education of individual and organizational members with the intention of building social capital and trust, develop knowledge, skills and attitudes and when successful, it creates an organizational culture that enables such corporations to set objectives, achieve results, solve problems and create adaptive procedures which enable it to survive in the long term (DFID, 2008).

In the 2000s, ICB adopted cross-sectoral approaches to change, institutional economics and governance, provided insight into dynamic relationships between actors, policies and governing contexts for sustainable change (UNDP, 1997 as cited in Mitachi, 2006). In the 2010s, ICB becomes the reigning nomenclature for progress in uncertain, highly flexible environment (Brix, 2018). Other constitutive components of ICB namely: education, technology and collaboration are conceptually reviewed.
Functional education, as a predictor of ICB, is a life-long process of development that involves continuous reconstruction of our experiences (Khan, 2014). Good education changes lives, and the postulation that higher education attainment boosts economic growth and development obligates governments of developing countries to pay attention to policies that increase educational attainment (Hoogeven and Rossi, 2019). In this study, the facilitators of knowledge transfer in the crop production sub-sector are the Block Extension Supervisors (BES), made up of Block extension Agents (BEA) and Village Extension Agents (VEA). The BES arranges field days for meeting with the subject matter specialists where farmers are taught by the subject specialists from their headquarters. There is a link between quality education, better labor market outcomes, higher income levels, and improved health and nutrition (Hanushek, Schwerdt, Woessmann, and Zhang, 2017).

Technology epitomizes a know-how and creativity that utilizes tools, resources, and systems to solve human problems. It is not every nation that needs to be on the cutting edge of global technological advance, but understanding and domesticating global technologies for local relevance is a requirement of all countries. In this study, technology is captured by On-Farm Adaptive Research (OFAR), Management Training Plots (MTP) and Small Plot Adoption Techniques (SPAT) as major technology dissemination strategies to farmers. Collaboration as a predictor of capacity building, is defined as an on-going interpersonal or intergroup interaction characterized by a significant power balance with the express purpose of achieving common goals (Lai - 2011). Collaborative interactions are identified by shared goals, symmetry of structure, and a high degree of negotiation, interactivity, and interdependence (Lai, 2011).

Theoretical Review

This study adopted an eclectic approach. One of the theories that prompted research on how building innovative capacity affects farmers' crop production performance, was the Human Capital Theory, propounded by Becker (1964). Several researchers in the 1960s believed that the cumulative stock of knowledge, competencies, social characteristics and personal idiosyncrasies are encapsulated in the ability to create both intrinsic and measurable economic value (Becker, 1964). The basic idea was that any investment in human beings can be quantitatively measured based on the economic value such investments are capable of contributing to society.

Another theory that better explains the idea of ICB of small-holder farmers is the Organizational Ambidexterity Theory (OAT) (March, 1991). Organizational ambidexterity has been described as "the ability of an organization to both explore and exploit—to compete in mature technologies and markets

where efficiency, control, and incremental improvement are valued and to also compete in new technologies and markets where flexibility, autonomy, and experimentations are needed'' (O'Reilly and Tushman, 2013:2).

Empirical Review

Many studies establish that a formidable performance level can be achieved by individuals, private and public organizations when there is a balance between doing better things (exploration) and doing things better (exploitation) in the course of capacity building process (Benner and Tushman, 2003; Choi and Chandler, 2015; Brix, 2017). Such a person or group is said to be ambidextrous (Brix, 2018). The earliest investigation of the general effects of ICB found that any investment in human capital can be quantitatively measured in line with benefit such investment can bring to society (Becker, 1964). Since then, research has focused on how capacity building affect performance (Getachew, 2017). However, as Brix (2018) pointed out, the effect of ICB has received comparatively less attention in recent years. The relatively sparse research on ICB has left room for further research. First, much of the research has focused on some capacity building predictors (either from core capacity building such as training, skill sets, awareness on one hand, or from institutional Capacity Building such as rules on the other hand (North, 1991). Different studies focused on sectors and other aspect of capacity building (for example, De Graaff and Deboer 2015; Khanal, 2017; Groot and Molen ,2000; Coelli, Rahman, Thirtle, 2002; Narayanamoorthy, 2000; Yamoah and Maiyo , 2013; Adebayo, Bolarin,, Oyewale, and Kehinde 2018 ; Ikuemonisan, and Ajibefun ,2021). Some studies found that capacity building (education) has a significant role in augmenting agricultural productivity and income, while others are not significantly affected by it (Coelli, Rahman, Thirtle, 2002 and Narayanamoorthy, 2000).

However, the above conclusions seem premature due to relative dearth of research on innovative capacity building. To date, little effort has been made to test innovative capacity building on performance of crop production with the prioritized predictors and indicators, despite its importance on poverty amelioration. Following the seminal work of Schultz (1964), the significance of ICB (education) in crop production and agricultural advancement in general had been affirmed (Paltasingh and Goyari, 2018). Farmer education comprises one of the most critical and fundamental inputs into a country's food security strategy as it improves farmers' skills and productive capabilities. However, the empirical analysis of the role of ICB on performance of crop production has remained inconclusive.

Methodology

The research design adopted for this study is Ex-post-facto design. This is because the study historically and correlationally investigated capacity building activities on farmers' output within a specified period of 2014-2018.

Sample and Sampling Techniques

Twelve (12) states were purposively selected from thirty six (36) states, plus Abuja. They included: Abia, Ebonyi, Imo, Kaduna, Katsina, Kogi, Lagos Nasarawa Ondo, Oyo, Plateau and Sokoto. The participating crop farmers were selected through cluster sampling technique because the participants were mainly domiciled in river basin locations where FADAMA agriculture was predominantly practiced. The sample size of the study is 559 from a population of 18352, and was determined by using Cochran (1963) sample size determination for finite population. The formula as shown below. In order to obtain a sufficient level of precision in the study, an adequate sample must be drawn from the target population while taking desired level of confidence, margin of error, and baseline levels of the prevalence factors into consideration.

$$N_0 = \frac{Z^2\ N\ PQ}{N_E^2 + Z^2\ PQ}$$

Where N_0 = Sample size

N = Study population = 18,352

Z = 1.96: (the 1.96 is the probability value associated with a 95% confidence interval).

P = Estimated baseline levels of the indicators or prevalence of factors of CB and performance being measured (0.4 is a conservative level).

Q = Estimated proportion of failure of prevalence of factors measured (0.6 is a conservative level).

E = Proportion of sampling error (conservatively chosen error margin of 0.04),

Data Analysis

Multiple regression technique was employed in the data analysis. .Data were sourced from the National Agricultural Extension and Research Liaison Services (NAERLS). Education was measured by predictors of extension services namely: number of Block Extension Supervisors (BES), number of Block Extension Agents (BEA) and number of Village Extension Agents (VEA), who collectively influence farmers' education. For measurement of smart technology, secondary data from agricultural production survey carried out by (NAERLS), to determine the adoption rate of agricultural technology. In this study, on-farm adaptive research (OFAR), management training plots (MTP) and Small Plot Adoption Techniques (SPAT) are major technology dissemination strategies to farmers. The frequency of these strategies is taken as a predictor of technology adoption. For collaboration predictor, measurement is in line with Azevedo, Silva, Matias and. Dias (2018) who looked at collaboration from the organizational perspective of number of regular inter-organizational meetings of farmers, among other predictors. This is because farmers groups serve as a medium of enlightenment and afford farmers the opportunity to relate to one another for higher productivity. Finally, the crop performance indicator is the annual output value of the crop production sub-sector taken from Central Bank of Nigeria (CBN) Statistical Bulletin (2014-2018).

Findings

Objective One: To ascertain the relationship between education and performance of crop production in the Nigerian crop production sub-sector.

Table 2: Descriptive Statistics

	Mean	Std. Deviation	N
Education	137.9000	27.80471	5
Output	14851.0578	805.57826	5

Table 3: **Correlations**

		Education	Output
Education	Pearson Correlation	1	-.125
	Sig. (2-tailed)		.842
	N	5	5
Output	Pearson Correlation	-.125	1
	Sig. (2-tailed)	.842	
	N	5	5

Source: Output from SPSS v.21

Result: The above result showed that education has a mean and standard deviation of 137.90 ± 27.804, while output of crop production has a mean and standard deviation of 14851.05 + 805.57 respectively. The Standard Deviation (SD) values as depicted in tables 2 and 3 above show the differences in SD scores and imply that there is variability of data points between education and crop production output as well as in Pearson Correlation. A Pearson correlation coefficient of (- .125) in table 3 above shows that there is a negative non-significant relationship between education and crop production output (p = .842> 0.05 (2tailed)). It is therefore concluded that there is a non-significant negative relationship between education and crop production output.

Objective Two: To determine the effect of smart technology on performance of crop production sub-sector in Nigeria.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000[a]	1.000	.999	27.63729

a. Predictors: (Constant), MTP, SPAT, OFAR

Table 5: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	2595061.493	3	865020.498	1132.493	.022[b]
	Residual	763.820	1	763.820		
	Total	2595825.312	4			

Table 6: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12083.492	50.740		238.144	.003
	SPAT	-4.486	.146	-2.561	-30.648	.021
	OFAR	18.984	.475	3.730	39.976	.016
	MTP	10.603	.189	1.513	56.221	.011

a. Dependent Variable: Output

b. Predictors: (Constant), MTP, SPAT, OFAR

Source: Output from SPSS v.21

Interpretation of the Result

A regression analysis conducted to determine the extent smart technologies affect output of crop production in table 4, shows that there is a strong positive relationship between smart technology and output of crop production (R- coefficient = 1.00). The R square, the coefficient of determination, shows that 99.9% of output of crop production can be explained by smart technologies. With the linear regression model, the error of estimate is low, with a value of about 27.63729. The regression sum of the square 2595061.49 is greater than the residual sum of the square 763.820 indicating that the variation is not due to chance. The F-statistics = 1132.493 and value of .022 show that the model is significant. The coefficient table shows that SPAT, OFAR and MTP positively influence output with values of .021; .016 and .011. It is therefore concluded that, smart technologies significantly and positively affect output of crop production.

Objective Three

To Assess the nature of relationship between collaboration and performance of Nigerian crop production sub-sector. The descriptive statistics and correlations between the parameters are shown in table 7 and 8 respectively.

Table 7: Descriptive Statistics

	Mean	Std. Deviation	N
Output	14851.0578	805.57826	5
collaboration	920.8080	906.37462	5

Table 8: Correlations

		Output	collaboration
Output	Pearson Correlation	1	.521
	Sig. (2-tailed)		.368
	N	5	5
collaboration	Pearson Correlation	.521	1
	Sig. (2-tailed)	.368	
	N	5	5

Source: Output from SPSS v.21

Interpretation of the Result

Table 7 shows the descriptive statistics between collaboration and output of crop production. The result shows that Collaboration has a mean and standard deviation of 920.80 $\pm$ 906.37462, while output of crop production has a mean and standard deviation of 14851.05 $\pm$ 805.57. The standard deviation values show that there is less difference in terms of the standard deviation scores. This implies that there is a difference in variability of data points between the variables. The Pearson correlation coefficient in table 8 above shows the nature of relationship between collaboration and output of crop production. The correlation coefficient 0.521 in table 8 above shows that there is strong positive relationship between collaboration and output of crop production. This is significant as $p = .842 > 0.05$ (2tailed). It is therefore concluded that there is a significant positive relationship between collaboration and output of crop production.

Discussion

The influence of Education on farmers' crop production output showed a non-significant negative relationship. This is particularly insightful in the sense that farmers may be provided with non functional education that is not relevant to their ventures, or incomplete knowledge that is not in tandem with their farming objectives. Many at times, development assistance advanced to farmers have failed to yield appropriate results because of these inconsistencies. In such cases, farmers' performance in crop production may be impeded. The result of the study is in consonance with (Coelli, Rahman, Thirtle, 2002; and Narayanamoorthy, 2000) who found that education has no significant relationship in augmenting agricultural productivity.

Smart technology was found to be positively related to crop yield, crop income and household food security. This result is in tandem with the studies of Adebayo, Bolarin, Oyewale, and Kehinde (2018), who found that the use of irrigation technology has positive effect of farmers' agricultural productivity.
Finally, collaboration between and among farmers was found to have positive effect on their agricultural output. This result is instructive because the synergy in joint efforts will more often than not be more productive. The result of this study is supported by Ikuemonisan, and Ajibefun (2021), who found that the membership of farmers 'collaborative groupings significantly and positively influenced the per capita household farm income.

Conclusion

In conclusion, the result of this study provides some fascinating insights into the capacity of factors of human capital development, especially in the agricultural crop sub-sector. The study sought to determine whether education, smart technology as well as collaboration between and among farmers can result in effective crop performance in Nigeria. Contrary to what was predicted, education proved not to be significantly improving farmers' agricultural performance. On the other hand, smart technology as well as collaboration significantly affect farmers' agricultural performance. The result showed that smart technology and farmers' collaboration are essential ingredients for a formidable crop production performance strategy in Nigeria.

Recommendations

The study recommends a Public-Private sector partnership to boost capacity building and encourage independent farmers who may lack capital, but are sufficiently motivated by profit, to produce more efficiently. It further recommends that government implements functional education, technology and collaborative policies faithfully, in order to enhance crop production in the sub-sector.

Contribution to Knowledge

This study has added value in the area of Agricultural development by discussing factors responsible for enhancing farmers' productivity

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