



## Enhancing Agribusiness Enterprise Performance in Uganda: Does Extension Support Matter?

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### ABSTRACT

For quite long, interventional support to enhance farm productivity has focused on provision of agricultural extension services to agribusiness enterprises with focus on Farmer Institutional Development, Technology Support and Agribusiness Advisory. The biggest concern remains on the effectiveness of this strategic direction. This article provides empirical evidence on the effect of agribusiness advisory services, agribusiness technologies and farmer institutional development on yield, income and profitability of small holder rice farmer. Evidence is based survey data from 178 small holder rice farmers including 113 NAADS supported and 65 non-supported. The data was collected using a questionnaire and through key informant interviews. The analysis utilized descriptive and inferential statistics particularly analysis of variance for comparison of performance between beneficiaries and non-beneficiaries. Results indicated a significant difference in access to advisory services and insignificant differences in access to agribusiness technologies between members and non-members of NAADS. Membership to NAAS was associated with higher access to advisory while both the NAADS and non-NAADS members equally used improved technologies. The ANOVA results revealed significant differences in productivity, profitability and incomes between members of NNAD non-members and between beneficiaries of NAADS advisory services and non-beneficiaries ( $p < 0.05$ ). More specifically, members of NAADS realized 34% more yield, profit and income from an acre of rice than the non-members. Regarding access to advisory services, beneficiaries realized 30% more yield, profit and income from an acre of rice than the non-beneficiaries. Findings point to the need for Agribusiness development strategies to scale up agribusiness extension support based on its proven potential to foster Agribusiness performance.

**Keywords:** Business.

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## **1. Introduction**

Agribusiness remains the major source of livelihood for 92% of the poor live in rural areas World (Bank report, 2010). Uganda is not exceptional. Rice remains one of the major agribusiness crop enterprise strategically because of its associated high multiplier effect a long value chain and ability to develop other sectors like feeds or livestock's industry, (MAAIF, 2010). It also has high returns on investments, high production potential in the future and is perceived with high potential to reduce poverty. This is also the case in Amolatar district where rice remains a major strategic enterprise for small holder farmers. Owing to the small nature of their farm operations farmers are constrained by limited access to modern farming practices, and technologies, like fertilizer and improved seed (MAAIF, 2012). In addition, there are weak farmer institutions and infrastructures (Semana, 1998; Rivera et al, 2000). These limit production and productivity rendering the country a net importer of rice and will continue to do so unless domestic production improves significantly (World Bank, 2010).

In lieu of its strategic importance and the challenges facing the rice production subsector, the National Rice Development Strategy is being implemented in a bid to promote rice production in the country. Contributing to this, the National Agricultural Advisory Services is providing extension support services with focus on provision of agricultural advisory services, Technology development and Farmer Institutional Development. Borrowing insight from Rogers, (1962) theory of technology diffusion, the agribusiness knowledge, information and technologies diffuse into small holder farmers and make use of them to their benefit. This theoretical perspective has been supported by empirical evidences though have generally been observed to be scanty hence creating a critical information gap (Anderson & Feder, 2007; Negaet al., 2009; World Bank, 2010). Focus has mainly been on adoption of improved agricultural technologies (Gebregziabher & Holden, 2011; Beshir et al., 2012) among others. Drawing from these studies, the need for scaling up of agribusiness support has been observed (Asfawet al. 2012). The few studies which have explored the link between agricultural extension support and performance of farmers suggest that agribusiness extension or advisory support would improve farm management and farm productivity (Owen et al, 2001; Ragasaet al., 2012; Hasanet al., 2013; Omamoet al., 2006). Similarly, Farmer Institutional Development would enhance participation in extension program (Benin et al., 2011; Abebaw & Haile, 2013) and enhance access to profitable markets and farm profitability.

However, in the context of NAADS agribusiness support, there remains contention on the extent to which the support enhance performance of small holder farmers particularly in light of the challenges confronting implementation of the entire NAADS program including corruption, insufficient capacity (Marteyet al., 2013), low technology adoption (IFPRI, 2012) and political interference (DENIVA, 2005). The contention is also supported by empirical evidence elsewhere which show mixed results with regard to the effect of extension services support on rural livelihoods (Semana, 2004). Against this background, the article establishes empirical evidence regarding the effect of agribusiness extension supports on performance of smallholder rice

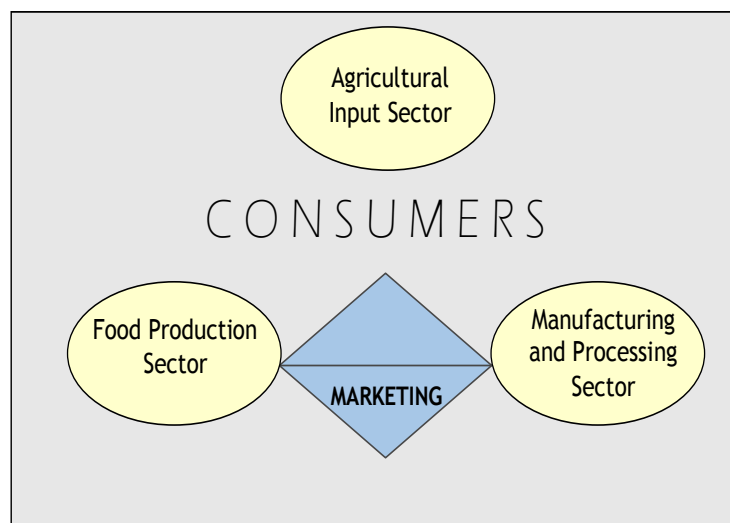
farmers in Amolatar District. More specifically, the study explored the contribution of the three contextual aspects of agribusiness support namely; agribusiness advisory services, agribusiness technologies and Farmer Institutional Development to farm productivity, profitability incomes

## 2. Literature Review

### Understanding the concept of agribusiness

The term “agribusiness” first appeared in Davis & Goldberg, (1957) seminal book titled “A concept of Agribusiness”, this described three distinct yet interdependent sectors in a global food system. The sectors include suppliers of agricultural inputs, producers of agricultural commodities, and institutions that perform the functional aspects associated with marketing food and fibre products. (Baruah, 2013)

The functional aspects of marketing included product exchange, processing, storage, and transportation, as well as suppliers of market information, risk management, and financial services related to product distribution. Fundamental to the concept of agribusiness is that many problems related to agriculture are interrelated and dependent upon political, sociological, economic and behavioural factors (King et al., 2010; Ng & Siebert 2009; Sonka& Hudson 1989). According to Jamandre, (2007), in essence, agribusiness consists of all industries surrounding food production; ultimate end-user is the consumer, with marketing as the driving force behind all profitable activities. With this in mind, there are basically three “sectors” that comprise agribusiness, as expressed in the following diagram:



Source: Adapted from Jamandre, 2007.

According to Jamandre, (2007) in his brief of the Agribusiness Perspective , expounds that agribusiness encompasses all operations involved in the production of farm inputs, the use of these farm inputs in the cultivation of crops or raising of livestock, the various handling and processing of agricultural commodities, and the transfer of these commodities to the end-users. Interspersed among these operations are the various support services that provide “logistics, coordination, financing, manpower, technology, information, policies and programs, incentives and other services” that lead to the achievement of a successful agricultural business enterprise.

Globally, agribusiness extension is relatively young (Ruby et al., 2011). Agribusiness extensions have evolved from rich programme of agricultural economics to meet the current needs of a changing farmers and environment. Earlier focus was production level supply chain involving more suppliers and buyers in support of entire value chain not delivery method used. In the late 1980s and early 1990s, sub Saharan African countries including Uganda, witnessed wide-ranging reforms in the agricultural sector as consequences of economic structural adjustment programme implementation (World Bank, 2002). This rendered traditional extension systems inappropriate, (Semana, 2004). The change brought on board many policies which include among others, liberalization of trade in agricultural inputs, services and output; privatization of state-owned enterprises that supported production and marketing; and downsizing of civil servants who provided extension services (World Bank, 2002).

In Uganda, the emergence of high value commodities, such as rice, sunflower, sesame, groundnuts, and maize (along with the technologies) has contributed to the promotion of small scale agribusiness development and income. Until now, these commodities still remain as cash resource potentials for the smallholders in Uganda (IDEA Uganda, 2004). The Uganda government developed a new strategy-Plan for Modernisation of Agriculture (PMA) based upon two strategic pillars-raising overall agricultural yield and productivity and diversifying small holder production pattern into a mix of high value, export oriented commodities, along with low value food staples (MAAIF, 2000: MAAIF, 2013). High priority was placed on agricultural research and extension especially on improving the process of technology generation and transfer through decentralisation of activities, greater participation of potential users and improved utilisation of knowledge found in local communities (Semana, 1998). Additionally, there has been a marked changes in the concept of agricultural extension itself, which is increasing seen in terms of commercial of farming for market with emphasis on modernisation of agriculture as opposed to family farming, which produces most the food consumed in Uganda (Agriculture Network, 2013).

#### **Access to agribusiness technologies and performance of small holder farmers**

Many small farmers have traditionally produced their basic food needs, and sold surpluses to provide for additional needs of the household. However, this livelihoods strategy is increasingly seen as insufficient to raise rural incomes, provide the stimulus for rural development, and alleviate poverty (Benin et al., 2011). According to Nguthi, (2007) agribusiness technology promotion is the strategy used globally to increase production. Indonesia, Integrated Pest Management (IPM) were adopted by rice farmers to increase yield while reducing production costs, (Soejitno, 1999). Improved farming technologies such as high yielding crop varieties, chemical fertilizers, and irrigation technique have been central in raising yields in other parts of the world; however, African farmers have been much slower in adopting these new methods. Reasons farmers cite is lack of information on how to apply the improved inputs, (Morris, Kelly, Kopicki, &Byerlee, 2007).

In Malaysia, adoption of agronomic practices and recommended fertilizer application led to increased yields and income of oil palm farmers (Basiron, 1995). Similar results also report in

South East Asia with adoption of integrated production technologies (Mayeet et al, 2008). Recent analysis show that for a majority of staple crops agricultural productivity is declining and any output gain is attributed to expansion of cultivated land (Kraybill, Bashsaasha, & Betz, 2009). These practices have contributed to Uganda having one of the highest rates of soil depletion in all of sub-Saharan Africa as argued by Pender et al, (2004) & Wortmann & Kaizzi cited in Betz, (2009).

According to Kayongo, (2012) in Uganda, the use of improved agricultural technologies has been stressed by NARO, NAADS and MAAIF as key drive to increase that will lead to reduction in hunger and poverty. Past researches on relationship between farm sizes, factor of production and output found out those larger farms are more likely to use advance farming inputs such as fertilizers, irrigation and improved seed varieties when compared to small farms (Betz, 2009). Conversely, vast literature exist showing an inverse relationships between land productivity and farm size (Sen., 1962; Berry & Cline, 1979) suggesting that small farms are more productive and would be better target for available resources.

Similar studies conducted by Obi & Chisango (2011) in Zimbabwe using stochastic frontier model revealed significant impact of the programme on small holder farmers due to effective use of productive factors and land. While general production has remain low, it triggers hyper inflationary situation due to supply constraints, practical implication for agribusiness was foreseen.

A study in Uganda conducted by Friis et al., (2004) on small holder farmers in Soroti revealed that greater involvement of farmers in development of agricultural technologies is key component in current reforms of agricultural advisory services. This requires capabilities to analyse causes and effects of their problems and to be active in adapting technologies to their local specific conditions of production which is not widely available among small holder farmers in Uganda. Friis et al., (2004) further argues that farming is a predominant occupation but farm income is still low, therefore studies need to be conducted to determine whether access to new technologies and markets are still key elements in reducing rural poverty. Poverty reduction initiatives hinge on yield, productivity and profitability of small holder farm enterprise.

Soil fertility is one major determinant factor in rice productivity. The land with high agricultural potential in Africa accounts for 6% of the total (World Development Report, 2008). Hence, one way to improve soil fertility and thereby intensify production is the application of fertilizers. Fertilizer use is normally expected to boost production.

A study on effects on NAADS interventions on household's income in Kiruhura district in Uganda using both descriptive and inferential statistics revealed weak positive correlation between access to NAADS technologies and household incomes and recommended that presence of appropriate institutions, access to appropriate technologies and wellfunctioning markets lead to agricultural productivity increase (Nateekateeka, 2013).

### **Access to FID supports and performance of Small holder farmers**

Over the past 20 years, the quest to explain differing performance of economy across space and time have increasingly incorporated institutions as a key ingredients and has gained wider

application in explaining effectiveness of policy reforms implementation or lack of in both developed and developing countries, (Kugonza, 2009). They examined its roles in economic transaction, good governance, social policy reforms (raising or lowering transaction costs). How people interact count significantly in functioning and development of society. (Grant Ovetter, 1985; Standiford & Marshal, 2000; World Bank, 2003; Tai, 2006; Styhie, 2008) as cited in Kugonza (2009).

Public sector extension, in both developed and developing countries, is undergoing major reforms. In Uganda, these reforms include privatization of funding, delivery of extension and decentralization of authority to lower level of governments, including delegation to NGOs, farmer organization and other grassroots control (Bashaasha et al., 2011).

This transferred powers, functions, and responsibilities for planning and implementation of agribusiness extension services from MAAIF to local governments which faces challenges of capacity, corruptions, staffing gaps, coordination and linkages with central government (Friis-Hansen & Kisauzi, 2004; MAAIF, 2010).

Any government's commitment to developing a viable and efficient agribusiness extension system starts with development of human capital to extension advice and services to farmers as noted by Nygaard et al., (1997).

In Uganda this is limited done yet the sector is the heart of the economy (NDP, 2010). On the contrary, speedy implementation of key aspects of NAADS programme in Soroti District was largely a result of favourable local government and farmer institutions environments created prior to NAADS. (Friis-Hansen et al., 2004).

According to World Bank (2012), a guide to inclusive agribusiness, companies and small holders find it difficult to enter productive business relationship due to many structural challenges such as lack of information, skills, insecurity, insufficient resources and gaps in local infrastructure. Farmers institutions help in movement of produce and market linkages and movement of produce and products from farm to consumers. Such services are lacking in Uganda as marketing boards died (MAAIF, 2009; Walusimbi & Nkonya, 2004).

MoFPED (2002) observed that there is need to revive cooperative movement in Uganda if agribusiness market linkages are to be a success. This reflects the case for NAADS approaches and traditional extension in Uganda. Institutional analysis of agricultural market have recently re-emphasized that market reforms are by themselves inefficient in generating a supply response, and other accompanying interventions are needed to make sure farmers do reach markets (Kirsten et al., eds., 2012). The need for agricultural and rural information and advisory services is likely to intensify in the foreseeable future. The mission of the NAADS, which replaces the previous extension services, is to increase farmer access to information and technology through effective, sustainable and decentralized advisory services with increased private sector involvement (GoU, 2000).

### **3. Methodology**

A survey was conducted on a sample of 181 NAADS supported and non-supported small holder farmers in Amolatar district-Uganda. The district was selected on based on the fact that poverty

level has remained high at 67% among small holder rice farmers compared to 35% the national average of 35% (UBOS, 2010, Amolatar District DDP, 2013). Besides, the district has since 2000 received agribusiness support with focus on rice as a strategic enterprise. The study employed mainly a quantitative approach to estimate the contribution of the NAADS agribusiness support and to a less extent triangulated the evidences with qualitative methods which according to (Mugenda&Mugenda, (1999) and Creswell (2007) was vital to provide a comprehensive understanding of the contribution.

The study mainly targeted a population of 178 small holder rice farmers including 113 NAADS supported and 65 non-supported in the sub county. The two categories were targeted to provide data that would enable comparison of performance and ascertain the effect of the agribusiness export support that formed the purpose of the study. The study extended to implementers and managers of agribusiness extension support under the NAADS program as well as political and technical leaders who provide overall implementation over sight. The implementers and managers included the production officers, planners and auditors while the technical and political leaders included the chairpersons of the local administrative divisions and councilors. By virtue of their engagement in implementation of agribusiness extension support at different levels, these stakeholders were in position to provide useful information to provide a more comprehensive understanding of the contribution of the support to performance of small holder rice farmers. Information on all targeted respondents was derived from the District Production Office and the development Plan (Amolatar District DDP, 2013).

The sample size was determined with an objective of generating more precise, reliable and generalizable results while minimizing the cost of time and financial resources. The study opted to allow a 0.05% risk of the true margin of error exceeding the acceptable margin of error (0.05 significant level) while ensuring that adequate observations are obtained to allow comparison of performance between the NAADS supported and non-supported farmers. In lieu of this, the study utilized a sample of 131 NAADS supported and non-supported small holder rice farmers from Sub County. The sample size was estimated using the sample size determination formular. Notably, one sub county was randomly selected premised on the fact that rice farmers were distributed across all sub counties and faced similar production constraints (DPO, 2013). Such homogeneity according to Mugenda & Mugenda (1999) warranties the use of random sampling.

The sample for each of the two categories namely; NAADS supported and non-NAADS supported farmers were determined based on the respective population size, an approach scientifically regarded as disproportionate sampling. In lieu of this the sample sizes for were 81 and 50 for the NAADS supported and non-NAADS supported farmers respectively. A representative sample was drawn based on the magnitude of the population using the proportionate sampling technique. Selection of the individual farmers employed cluster and random sampling techniques respectively. Each of the two farmers groups (NAADS supported and non-NAADS supported) formed a cluster from which individual farmers were randomly selected without any bias.

The key informants including implementers, managers, technical and political leaders of the NAADS program were included without consideration of the sample size as these were targeted for qualitative views which would be analyzed qualitatively without bearing any statistical significance. However, measures were taken to ensure that the interviews reached key persons across all categories. This ensured that the study obtained views from diverse perspectives which according to Creswell (2007) to enhance validity of qualitative results.

Data used was mainly quantitative which was collected using a questionnaire structured with closed and very few open ended questions targeting information on variables investigated. In accordance with the objectives they include access to agribusiness advisory service, access to agribusiness technologies, and membership to NAADS rice farmer groups, rice acreage, production variable costs, yield and market prices. To ensure data quality, the questionnaire was subjected to the content validity test which came out positive with the Content Validity Ratio of 81% indicating that the questionnaire constituted variables that actually measured agribusiness extension support and performance of rice farmers. The CVR ratio was estimated using the formula  $CVR = (ne - N/2) / (N/2)$  where  $CVR =$  where  $ne =$  number of subject matter panelists indicating "essential", and  $N =$  total number of subject matter panelists. The rating was done by subject matter specialists who also checked for ambiguity, difficulty and relevancy of questions to ensure construct, content and face validity. Further quality checks involved a pretest of the questionnaire on 10 small holder rice farmers, training of data enumerators prior to data, supervision of the data collection activities and thorough data cleaning after prior to analysis.

Data analysis utilized both descriptive and inferential statistics. First, the percentage distributions of farmers by access to access to agribusiness advisory service, access to agribusiness technologies, and membership to NAADS were estimated. Understanding the distribution was vital to ascertain the possibility of having enough observations to allow comparisons which was of interest in the study objectives. Analysis of performance of rice farmers first estimated average rice yield per acre, and using the market price, estimated the average revenues and average profits after taking away all variable costs. This was a step towards analysis of comparison of productivity, profitability and incomes across access to access to access to agribusiness advisory service, access to agribusiness technologies, and membership to NAADS which was achieved by use of t-test statistics at 5% significance level. The general hypotheses was that farmers who accessed NAADS advisory services, agribusiness technologies or belonged to farmer groups performed significantly better than their counterparts in terms of productivity, profitability and incomes. A description and measures of the dependent and independent variables are provided in table 1.



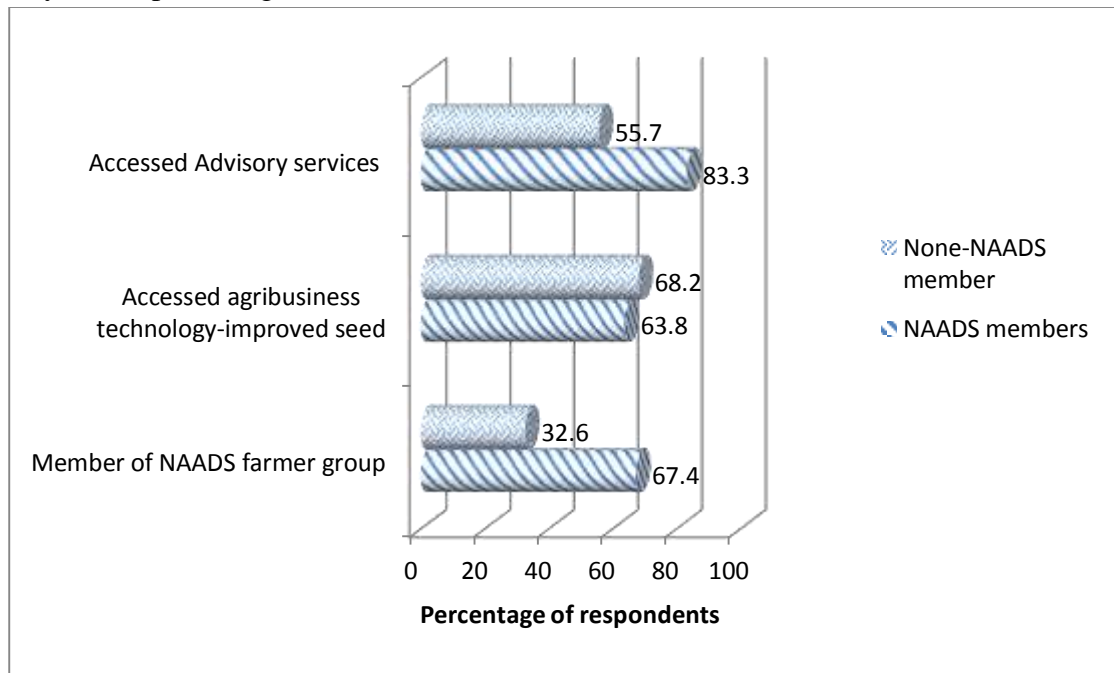
**Table 1:** Variable definition and measurement

Variable	Definition	Measurement
<b>Dependent variable: Performance of rice farmers</b>		
Rice productivity	Yield per acre of rice	Kgs per acre
Rice profitability	Total rice output per acre less variable cost	Ugshs per acre
Rice incomes	Total rice output per acre multiplied by the price	Ugshs per acre
<b>Dependent variable: Agribusiness extension support</b>		
Agribusiness extension support	Access to training in agribusiness	1= access 0=no access
Technology development	Access to improved farming technologies like improved seed, fertilizers etc	Dummy variable 1= access 0=no access
Farmer institutional Development	Membership to NAADS farmer groups	Dummy variable 1=NAADS membership 0=No membership to farmer group

#### 4. Finding

The majority (59%) of farmers s were male than female. This can be attributed to the fact that the study was conducted in households targeting heads who are more likely to be male than females. Regarding age, majority (78%) of farmers were in middle aged group (31-50 years) indicating a significant farming experience among the studied respondents.Regarding education, the majority (65%) of farmers had attained primary or secondary education.Considering land holding, farmers owned on average three hectares and allocated 1.5 hectares for rice production.

On access to agribusiness support, the analysis estimated percentage of farmers who accessed NAADS advisory services and agribusiness technologies comparing between farmers who belonged to NAADS groups and those who never belonged to the groups. Figure 1 presents a summary of the percentage estimates.



**Figure 1:** Percentage of farmers by farmer group membership, access to improved seed and advisory services

The majority (67.4%) of farmers belonged to NAADS farmer groups. Notably, membership to NAADS farmer groups was associated with higher access to advisory extension services than non-membership. More specifically, 83.3% of the NAADS members had access to advisory services significantly higher than 55.7% of the non-NAADS members who accessed advisory extension services. The interviews with implementers, managers and leaders in agribusiness advisory support revealed that NAADS was the majorly available alternative for farmers' access to agribusiness extension support. In fact it was the only government program offering such services to farmers. Other private providers included NGOs whose coverage was however quite limited in terms of geographical spread and intensity.

However, regarding access to agribusiness technologies, no significant differences were observed. Both the NAADS and non-NAADS members equally used improved seed (68.2% and 63.6%) of farmers respectively. This implied that irrespective of membership to NAADS or any other farmer group, farmers still access agribusiness technologies through buying from private vendors to boost agricultural productivity. Consistently, interviews with key informants revealed that farmers access agribusiness technologies irrespective of membership to NAADS. The difference lies in the means of accessing the technologies. Whereas NAADS members access free technologies from NAADS, the non-NAADS members who even never belong to farmer groups access technologies through buying from vendors. Notably, while one would expect all NAADS members to have access to the technologies, this was not the case due to resource capacity constraints. Managers of the NAADS program generally observed that due to the budget constraint, the resources often received are inadequate to finance all required productivity enhancement technologies. In the event, priority is often taken on more critical inputs like improved seed in a particular financial year. Similarly, farmers in particular group are considered for access to inputs on a rotational basis.

The observed difference in terms of membership to farmers groups, access to advisory services and means of accessing agribusiness technologies, between NAADS members and non-NAADS members potentially bears an implication on profitability of rice production between the two groups which was tested in the subsequent analysis.

Regarding the effect of extension support on agribusiness performance, the analysis estimated and compared the average income, productivity, and profitability of rice between farmers who accessed NAADS advisory services, agribusiness technologies or belonged to farmer groups than their counterparts. Table 2 presents a summary of the estimates with the respective t-static and p-value indicating significance of the differences between estimates.

**Table 2:** Comparing yield, profits and incomes between NAADS supports and non-supported rice farmers

Variable	Productivity (Kgs of rice per acre)	Profitability (Ugshs per acre)	Incomes (Ugshs per acre)
<i>Access to NAADS advisory services</i>			
Accessed services	706.7	518,840	954,024
Never accessed services	495.5	344,586.7	710,740
t-statistic	12.98*	4.86*	12.15*
p-value	0.001	0.030	0.001
<i>Access to NAADS agribusiness technologies</i>			
Accessed services	620	476,784	911,150
Never accessed services	440	343,644	718,438
t-statistic	12.98*	2.19*	6.130*
p-value	0.001	0.143	0.016
<i>Membership to NAADS farmer groups</i>			
NAADS member	712	507,961	953,290
Non-member of farmer group	472	343,480	693,480
t-statistic	12.07*	4.18*	3.36*
p-value	0.001	0.043	0.007

results indicated significant differences in productivity, profitability and incomes between beneficiaries of NAADS advisory services and non-beneficiaries from any advisory services ( $p < 0.05$ ). In percentage terms, the yield per acre amongst the beneficiaries of advisory services was 30% higher than for the non-beneficiaries. Regarding income, non beneficiary farmers earned significantly less income (UGX 710,740) than the beneficiaryfarmers (UGX 954,024). In terms of profitability, beneficiaries of advisory services registered higher profits (UGX 518,840 per acre) compared to non-beneficiaries (UGX 344,586 per acre). In account, NAADS supported farmers have higher access to advisory services since it is free of charge. In contrast, the non-supported have limited access to advisory services due to the cost attached. Consequently the NAADS supported farmers operate more productively and incur less variable costs which render them more profitable. Consistently, Feder *et al.* (2004) observes that extension or farmer advisory support can contribute to increasing the speed of technology transfer, increasing farmers' knowledge and assisting them in improving farm management practices. The finding is also consistent with many other findings in Africa that have observed a positive impact of extension or farmer advisory support to farm productivity (Owen *et al*, 2001; Ragasa *et al.*, 2012; Hasan *et al.*, 2013; Anderson & Feder (2003).

A similar finding was observed regarding the effect of agribusiness technology support on performance of farmers. A significant difference ( $p < 0.005$ ) was observed for estimates between beneficiaries and non-beneficiaries of NAADS Agribusiness technologies across all the three performance parameters (productivity, profitability and incomes). In percentage terms, the yield per acre amongst beneficiaries of NAADS technologies was 31% higher than that for the non-beneficiaries of NAADS technologies. Regarding income, non supported farmers earned significantly less income (UGX 718, 438) than the supported farmers (UGX 911,150). In terms of profitability, beneficiaries from NAADS technologies registered UGX 476,784 which was significantly higher than UGX 343,644 per acre realized by the non-beneficiaries from NAADS technologies. This finding supports the identified need for improved agricultural technologies to enhance agricultural productivity among smallholder farmers (Asfaw *et al.*, 2012).

The effect of membership to NAADS groups was also significant across the productivity, profitability and incomes parameters. In percentage terms, the yield per acre amongst farmers who belonged to NAADS groups was 34% than that of farmers who never belonged to farmer groups. Regarding income, farmers who belonged to NAADS groups earned significantly higher income (UGX 953, 290) than that of farmers who never belonged to NAADS groups (UGX 693, 480). In terms of profitability, farmers who belonged to NAADS groups registered UGX 507,961 significantly higher than UGX 343,480 per acre realized by the non-members of NAADS farmer groups. This finding is consistent with previous studies (Benin *et al.*, 2011; Abebaw & Haile, 2013) which observe that membership to farmers' organization bear a significant likeliness of participation in extension program and also enhances farm performance through access to profitable markets (Semana, 2004).

### **5. Discussion & Conclusion**

Findings in the article evidences that NAADS support to small holder rice farmers in Amolatar district -Uganda is associated with Farmer Institutional Development, accessto agribusiness advisory services and to a minimal extent, access to agribusiness technologies free of charge. With no support,small holder farmers have limited access to agribusiness advisory services and access agribusiness technologies at a cost that render their rice production enterprises less productive and profitable. Consequently, it is concluded that agribusiness support significantly contributes to farm performance in terms of productivity, profitability and incomes.

Agribusiness development strategies under the National Agricultural Advisory Services and such as the National Rice Development Strategy should scale up agribusiness extension support as it has in this study been proved effective in improving productivity, profitability and incomes of small holder farmers.

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