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Effectiveness of Growth Enhancement Support Scheme (GESS) in Input Delivery in Southwest Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. Author IIO designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors FAJ and AFO managed the analyses of the study. Author IIO managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

The study identified the problems of access to inputs by the small-scale farmers; and analyzed the structure and operations of the Growth Enhancement Support Scheme (GESS) on input supply to small-scale farmers in Southwestern Nigeria with the view to investigate the effectiveness of GEES in South western Nigeria. A multistage sampling technique was employed in selecting 420 GEES farmers. The interview schedule was used to collect data which were subjected to descriptive and inferential analysis to test the hypothesis. Results showed that the mean age of the small-scale farmers was 49.57 ± 10.49 years and a high level, 75.70 per cent were males. A higher percentage (55.80%) showed a high level of identified problems of access to inputs. Analysis of the structure and operations of GEES on input supply showed that GEES was structured and operated by the government among the various stakeholders using the top-down approach. Out of the nineteen GEES effectiveness indicators, none was effective at solving the problems of inputs delivery to the

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respondents. Chi-square analysis showed a significant association between the effectiveness of GESS and respondents' sex ($\chi^2=46.159$; $p \leq 0.01$). Correlation analysis showed a negative and significant relationship between the effectiveness of GESS and identified problems of access to inputs ($r=-0.214$, $p \leq 0.001$). It was concluded that GESS recorded a low level of effectiveness of GESS in the study area as a result of the high level of identified problems of access to agricultural inputs through GESS. The study therefore recommends that there should be better orientation for future likely programmes and a reorientation of the farmers about the GESS in which there will be more extensive sensitization and enlightenment, especially at the grassroots level, also that quantity of input supply be increased and that more inclusive participatory approach instead of top-down approach should be adopted for planning, execution and evaluation of the GESS programme.

Keywords: Identified problems; effectiveness; growth enhancement support scheme (GESS).

1. INTRODUCTION

Over 80 per cent of the farming population in Nigeria is smallholders residing mostly in rural areas [1] disclosed that small farms are mainly responsible for the self-sufficiency of food in Africa and the cultivation of export crops. They are also very significant in the world's development with 50 per cent of the world's population depending on them. According to [2] farm sizes classification of less than 5ha should be classified as small, between 5ha and 10ha as a medium, and more than 10ha as large scale. However, the average Nigerian small-scale farmer is poor, having a low level of education, and lacks access to most basic social amenities, as well as improved varieties of inputs and modern farming implements. The consequence of these has been low production and productivity [3].

In recognition of the importance of agriculture, the Federal Government in 2012 launched the Agricultural Transformation Agenda (ATA) to commercialize agriculture. One of the many critical components of the Federal Government's ATA was the Growth Enhancement Support Scheme (GESS). GESS was introduced in May 2012, as a pilot project in 36 States and the Federal Capital Territory. Being powered by the e-wallet approach, the scheme aimed at achieving the set goals of overcoming the many difficulties confronting the agricultural sector in Nigeria and ensuring availability of fertilizer, seeds and other inputs to farmers as timely as possible. This was with the understanding that the corruption which has been the bane of agricultural development in Nigeria would be better tackled if and when farmers can directly access the government through their mobile phones. An e-wallet has thus been defined as an efficient and transparent electronic device system that makes use of vouchers for the

purchase and distribution of agricultural inputs [4, 5]. The e-wallet approach was designed for smallholder farmers, who appear the most hit and vulnerable by the impropriety in the fertilizer and other input sectors of the Agriculture Ministry.

The criteria for farmer's participation include: farmers being above 18 years old; have participated in a survey authorized by the government to capture farmers personal detailed information; must own a cell phone with a registered SIM card and have at least sixty naira credit in the cell phone. The fulfilment of these conditions guaranteed the issuance of an e-wallet voucher to the farmer. The voucher was used to redeem fertilizers, seeds and other agricultural inputs from agro-dealers, some at full cost and some at half the cost [6]. [7] further highlighted that for an-agro input dealer to participate in the programme, he/she must own a cell phone with a registered SIM card, understand the process of using e-wallets and attend training programmes designed for the project.

The agro-dealers are required to conduct honest business and guide against fraud; choose and prepare a location for the business transaction; provide storage facilities and be available at the appropriate time to attend to farmers' needs. Also, prominent participants in the scheme were the helpline personnel and redemption supervisors. Each State Agricultural Development Project (ADP) supplied the helpline staff and about 3-5 helpline staff was assigned to each of the Local Government Areas. The helpline staff and supervisors connect to the farmers on a daily basis to attend to their needs. The redemption supervisor helps in verifying farmer's identity as well as a farmer's code in the text message received by the farmer and then compares it with the name and code listed in the

GESS farmers' register which the supervisor received from Cellulant.

The subsidized farm inputs were delivered directly to farmers through their mobile phones. The project was expected to provide a direct linkage between the farmers and the government. This would enable the government to disseminate valuable information to the farmers, thus ensuring farmers' progress [4]. The system ensured the involvement of the private sector in agricultural input supply [8]. Achieving the set goals of the GESS, however, requires having inputs in the form of feedback from the primary beneficiaries (small-scale farmers). This study was therefore embarked upon to assess the effectiveness of the GESS's e-wallet approach in grassroots agricultural inputs delivery in Southwestern Nigeria.

The specific objectives of this study were to;

- a) Describe the personal and socio-economic characteristics of the respondents;
- b) Identify the problems of access to inputs by small-scale farmers; and
- c) Analyzed the structure and operations of the Growth Enhancement Support Scheme (GESS) on input supply.

The following research hypotheses stated were also tested.

Ho1: There is no significant relationship between the effectiveness of GESS and the respondents' personal and socio-economic characteristics.

Ho2: There is no significant relationship between the effectiveness of GESS and the identified problems of access to inputs.

2. MATERIALS AND METHODS

The study area was the southwest geopolitical zone of Nigeria. A multistage sampling technique was employed in selecting the respondents for the study. At the first stage, three States were randomly selected from the zone. At the second stage, the proportionate sampling technique was used to select 20 per cent of all the Local Government Areas (LGAs) in the 3 States. In other words, 6 LGAs were selected in Osun, 4 in Ondo and 4 in the Ogun States, making a total of 14 LGAs.

At the third stage, using purposive sampling technique, 3 rural communities each was

selected in the LGAs making a total of 42 rural communities. At the fourth stage, a simple random sampling technique was used to select ten small-scale farmers making a total of 420 GESS farmers. Validated and pre-tested interview schedule was developed and used to collect quantitative data on farmers' personal and socio-economic characteristics, identification of problems of access to inputs by small scale farmers, and evaluation of the effectiveness of GESS in solving the problem of inputs delivery to the respondents.

Information on the structure and operations of GESS on input supply was collected from the States' GESS coordinators and desk officers and three different agro-dealers selected from the three states. Frequency counts, percentages, mean, weighted mean, standard deviation and equal intervals were used to summarize and describe the data collected. Inferential statistics such as Chi-square and correlation analysis were used to test the hypotheses formulated.

3. RESULTS AND DISCUSSIONS

3.1 Personal and Socio-economic Characteristics of the Respondents

Results in Table 1 show that the mean age of the respondents was 49.57, this result agrees with the findings of [9] which revealed that the mean age of GESS farmers was 49.8 years. Similarly, this indicates that most of the respondents were still young and are expected to be active in keying into the GESS e-wallet approach and thus make effective utilization of the scheme to enhance their productivity. The majority, 75.70 per cent of the respondents were males.

This finding agrees with that of [10] which revealed that the respondents in the study area were largely male (78.9 per cent). This result could be because it was the season of GESS, a special programme that bordered on inputs procurement and this task of inputs acquisition could be said to be largely male's task and that the men procure the inputs and may give some to their wives (who are also farmers). The years of farming experience of the respondents ranged from 1 to 54 years with a mean of 20.5 years. These findings agree with that of [9] which revealed the mean of farming experience among GESS farmers sampled to be 16.5 years.

This shows that most of the respondents had relatively extensive farming experience and that

the higher the number of years of farming experience, the more they were expected to be active in keying into the GESS approach and thus make effective utilization of it in accessing inputs for their farming activities. The majority, 68.80 per cent of the respondents owned a functional mobile phone. This result could be because it was the season of GESS and ownership of a functional mobile phone with registered SIM card is one of the prerequisites for being registered as a GESS farmer and this is expected to boost the farmers' access to firsthand information about the availability and accessibility of farm inputs through GESS.

This finding is in line with that of [7] who reported that the majority of GESS farmers sampled possessed mobile phones. The majority, 58.8 per cent of the respondents became aware of GESS through Extension agent/ADP. This implied that Extension agent/ADP is still one of the best media of reaching farmers at the grassroots. The result agrees with that of [7] which revealed that the majority of the GESS farmers sampled indicated that they got their information from ADP and extension agents. Results in Fig. 1 show that a little close to average, 48.10 per cent of the respondents got the land used for farming activities through inheritance while few, 37.14 per cent purchased the land, 11.67 per cent got the land through lease, 2.38 per cent got the land as gift and 0.71 per cent got the land through pledge. The findings indicated that most of the farmers acquired their farmland by inheritance.

This implied that most of them must have been indigenes of the various communities within the study area. This result agrees with the findings of [7] who found out that the source of land used for planting by most of the GESS farmers sampled was through inheritance.

3.2 Identification of Problems of Access to Inputs by the Respondents

Results in Table 2 show the statements on identified problems of access to inputs using the means of the identified problems. The results show that the inability to access the required quantity of agricultural inputs for farm operations had a mean score of 0.93, non-existence of up to date GESS farmers' register at the redemption center had a mean score of 0.89, non-existence of nearby redemption center(s) where farmers could access agricultural inputs had a mean score of 0.84, inability to access the agricultural inputs at affordable prices had a mean score of 0.82, exploitation by middlemen and political elites had a mean score of 0.80.

Insufficient information to farmers on arrival of farm inputs before or during farming season had a mean score of 0.79, inability to access the agricultural inputs before or during farming season had a mean score of 0.78, poor network for reception of calls and electronic messages for accessing agricultural inputs had a mean score of 0.77, interference of middlemen and political elites had a mean score of 0.76, inability to

Table 1. Distribution of respondents by personal and socio-economic characteristics (n=420)

Variables	Frequency	Percentage	Mean	Standard deviation
Age in years				
(Below 30)	22	5.3		
(Btw 31-60)	337	80.2		
(Above 61)	61	14.5	49.57	10.49
Sex				
Male	318	75.70		
Female	102	24.30		
Years of farming experience				
(Btw1-15)	164	39.0		
(Btw 16-30)	196	46.7		
(31 years +)	60	14.3	20.5	10.86.
Functional mobile phone ownership				
Yes	289	68.8		
No	131	31.2		
Source of awareness of GESS				
Extension agent/ADP	247	58.8		
Television	5	1.2		
Radio	58	13.8,		
Fellow farmers	100	26.2		

Source: Field survey, 2015

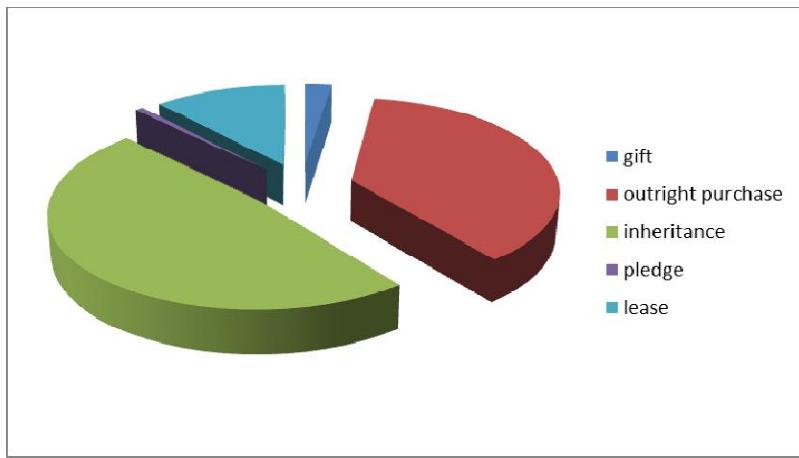


Fig. 1. Pie chart showing the distribution of respondents by farmland acquisition pattern

Source: Field survey, 2015

access the required quality agricultural inputs for farm operations had a mean score of 0.75, poor standard of living had a mean score of 0.71, low productivity had a mean score of 0.70, waste of time and energy had a mean score of 0.65, high cost of production had a mean score of 0.53.

Low income had a mean score of 0.51, inability to access some of the agricultural inputs free of charge had a mean score of 0.49, loss of plants/livestock as a result of use of poor/bad quality agricultural inputs had a mean score of 0.47, and loss of plants/livestock as a result of lack of or use of insufficient quantity of agricultural inputs had a mean score of 0.46.

From the measurement scales of 0 and 1 for "no" and "yes" respectively, identified problems whose means measure up to at least half, that is, approximately 0.5 were used as a benchmark for the identified problems of access to inputs. This means that all the eighteen indicators of identifying the problems of access to inputs were all identified as problems of access to inputs in the study area.

This result agrees with that of [10] which revealed that some of the challenges of the GESS scheme were majorly on the aspect of timeliness of distribution, inadequate quantity of fertilizer accessed and inflation of price at the redemption centres. The result also agrees with the findings of [9] which revealed that location of the redemption centres, bureaucratic bottlenecks, a poor telephony network, late arrival of farm inputs, and inadequate farm inputs were major challenges facing the GESS scheme in the study area.

The result also agrees with that of [11] which revealed some of the challenges of GESS in the study area to include stress farmers go through in order to get inputs, long queues at the redemption centers, high transaction cost incurred by farmers, sharp practices by input distributors/dealers, late supply of inputs, long distance covered from home to redemption, interference in operation by government agent/officials, late arrival of mobile alert message, insufficient quantity of agro-inputs allocation, unsuitability of agro-inputs supplied, and interference in the operation by influential people.

3.3 Analysis of the Structure and Operations of GESS on Input Supply

The rundown of the analysis of the Structure and Operations of GESS on Input Supply through the Agro-dealers, the States' GESS Coordinators and Desk Officers show that GESS is structured and operated by the government among the various stakeholders using the top-down approach. These findings agree with that of [7] who recommended that the government should embrace participatory approach in the GESS project planning, implementation and evaluation after 5 years to tackle all the teething problems.

3.4 Evaluation of the Effectiveness of GESS in Solving the Problem of Inputs Delivery to the Respondents

Results in Table 3 show the statements on the effectiveness of GESS in solving the problem of inputs delivery to the respondents. The results

show that the respondents (MS=0.98) chose registration of farmers as an effectiveness indicator of GESS in solving the problems of access to inputs, also, respondents (MS=0.93) chose existence of nearby GESS redemption center, respondents (MS=0.86) chose availability of up to date GESS farmers' register, respondents (MS=0.69) chose good network for reception of electronic messages/alert from Cellulant before or during farming season, while respondents (MS= 0.48) chose timely dissemination/reception of information/electronic messages/alert. Also, respondents (MS=0.39) chose access to agricultural inputs through GESS with the assistance of supply chain representatives/help line staff and respondents (MS=0.38) chose reduction of chances of loss of plants/livestock as a result of use of good quality agricultural inputs as effectiveness indicator of GESS in solving the problems of access to inputs. Others were access to agricultural inputs through GESS before or during farming season (MS= 0.33), access to agricultural inputs through GESS without interference of middle men and political elites (MS=0.33), access to required quantity of agricultural inputs through GESS (MS= 0.32) and increased income (MS= 0.33), access to agricultural inputs through GESS at

affordable prices (MS= 0.30), reduced cost of production (MS= 0.29), reduction of chances of loss of plants/livestock as a result of use of sufficient quantity of agricultural inputs (MS= 0.28), increased productivity (MS= 0.27), access to some of the agricultural inputs free of charge (MS= 0.25), improved standard of living (MS= 0.24) and conservation of time and energy (MS= 0.23).

From the scales of measurement of 1, 2 and 3 of less effective, effective and very effective respectively, indicators of effectiveness whose means measure up to effective or very effective, that is, approximately 2 to 3 were used as benchmark for the GESS effectiveness. This means that out of the nineteen GESS effectiveness indicators, none was effective at solving the problems of inputs delivery to the respondents. This shows that the GESS has not effectively addressed the problems of input delivery to the respondents in the study area. This result further infers that any intervention that would be applied to improve the effectiveness of GESS in solving the problem of inputs delivery to the respondents in the study area should be applied to bring about improved standard of all the indicators of effectiveness identified above.

Table 2. Identification of problems of access to inputs using the means of identified problems (n=420)

Identified problems	Mean
1 Inability to access the required quantity of agricultural inputs for farm operations.	0.93
2 The non-existence of up to date GESS farmers' register at the redemption centre.	0.89
3 Non-existence of nearby redemption center(s) where farmers could access agricultural inputs.	0.84
4 Inability to access the agricultural inputs at affordable prices.	0.82
5 Exploitation by middle men and political elites.	0.80
6 Insufficient information to farmers on arrival of farm inputs before or during farming season.	0.79
7 Inability to access the agricultural inputs before or during farming season.	0.78
8 Poor network for reception of calls and electronic messages for accessing agricultural inputs.	0.77
9 Interference of middle men and political elites.	0.76
10 Inability to access the required quality agricultural inputs for farm operations.	0.75
11 Poor standard of living	0.71
12 Low productivity	0.70
13 Waste of time and energy	0.65
14 High cost of production.	0.53
15 Low income	0.51
16 Inability to access some of the agricultural inputs free of charge.	0.49
17 Loss of plants/livestock as a result of use of poor/bad quality agricultural inputs	0.47
18 Loss of plants/livestock as a result of lack of or use of insufficient quantity of agricultural inputs.	0.46

Source: Field survey, 2015

3.5 Results of Hypotheses Testing

3.5.1 Hypothesis one

There is no significant relationship between effectiveness of GESS and selected personal and socio-economic characteristics of the respondents. Results in Table 4 show significant association between the effectiveness of GESS and sex ($\chi^2=46.159$, $p \leq 0.01$) and farmland acquisition pattern ($\chi^2=145.98$, $p \leq 0.01$). Sex had a significant association with the effectiveness of GESS. This implied that the effectiveness of GESS varies between male and female farmers.

This may be due to the fact that male farmers have the tendency to have more farmland, hence get engaged in farming more than their female counterparts considering the point that most developing countries culturally give priority to male in land ownership than female as opined by [12] and [13] that women are culturally hindered from owing farmland in most African countries. This result might also be due to the fact that the majority, 75.70 percent of the respondents as observed from the study were males who might be assumed to be physically active engaging in different economic livelihood activities. This implied that the higher the number of male GESS farmers, the higher the effectiveness of GESS in solving the problems of access to inputs. Farmland acquisition pattern also had a significant association with the effectiveness of GESS. This implied that the effectiveness of GESS varied among farmers based on their farmland acquisition pattern. This might also be due to the fact that close to average, 48.10 percent of the respondents as observed from the study got the land used for farming activities through inheritance.

This result shows that acquisition of land used for farming activities through inheritance will favor an effectiveness of GESS, meaning that the more the GESS farmers acquire land used for farming activities through inheritance, the higher the likelihood of accessing and utilizing information on GESS effectively. The implication of these findings is that sex and farmland acquisition pattern should be considered by GESS value chain actors/stakeholders for the achievement and enhancement of the effectiveness of GESS in solving the problems of inputs delivery in the study area.

Results in Table 5 show the correlation analysis of the relationship between the effectiveness of

GES and some selected personal and socio-economic characteristics of the respondents. The result shows that age had a significant but negative relationship with the effectiveness of GESS ($r= -0.253$; $p \leq 0.01$). This might be due to the fact that the majority, 80.20 percent of the respondents as observed from the study were 31-60 years, that is, were still young and were expected to be active in keying into the GESS. This result agrees with the findings [14] which revealed that age was negatively correlated to the farmers' attitude on the GESS.

This might be because GESS employed modern innovative approach as in the use of ICT (in form of e-wallet) which were more youth-friendly. Such could make the elderly skeptical, less comfortable and, therefore, not make effective use of it. The negative relationship also indicates that the younger the GESS farmers are, the higher the likelihood of making effective utilization of the GESS to enhance their productivity. Frequency of contact with extension agents had a significant and positive relationship with effectiveness of GESS ($r=111$; $p \leq 0.05$).

This might also be due to the fact that the majority, 67.5 percent of the respondents that had contact with extension agents had the contact with extension agents twice a month. This finding is in contrast with the findings of [10] Umar et al. 2015 which revealed a negatively significant relationship between extension visit and GESS satisfaction. This result implied that an increase in frequency of the contact will lead to an increase in favor of effectiveness of GESS. This result is expected because the more the respondents have contact with extension agents the more their likelihood of accessing and utilizing information on GESS that could enhance their productivity. Years of farming experience also had a significant and positive relationship with effectiveness of GESS ($r=0.255$; $p \leq 0.01$).

This might also be due to the fact that most of the respondents as observed from the study had relatively extensive farming experience. This result agrees with the findings of [11] which revealed a positive relationship between attitude of farmers towards GESS and years of farming experience. The result also agrees with the findings of [10] Umar et al., (2015) which revealed that the level of satisfaction with GESS increased among families with higher farming experience. This implied that an increase in years of farming experience will lead to an

increase in favor of the effectiveness of GESS. Functional mobile phone ownership also had a significant and positive relationship with effectiveness of GESS ($r = 0.344$; $p \leq 0.01$).

This implied that an increase in functional mobile phone ownership will lead to the increase in effectiveness of GESS. This might be due to the fact that as observed from the study, the majority, 68.80 percent of the respondents owned functional mobile phone and this was expected to boost their access to the farm inputs through the GESS as ownership of a functional mobile phone with registered SIM card is one of the prerequisites for being registered as a GESS farmer and receive an alert about the accessibility of farm inputs.

The implication of these findings is that age, frequency of contact with extension agents, years of farming experience and functional mobile phone ownership should be considered by GESS value chain actors/stakeholders for the achievement and enhancement of the

effectiveness of GESS in solving the problems of inputs delivery in the study area.

3.5.2 Hypothesis two

There is no significant relationship between the effectiveness of GESS and the identified problems of access to inputs. In order to test this hypothesis, bivariate correlation analysis was used. Results in Table 6 show a negative and significant relationship ($r = -0.214$, $p \leq 0.001$) between the effectiveness of GESS and all the identified problems of access to inputs in the study area put together.

This implied an inverse relationship between the effectiveness and the identified problems. Increase in the identified problems, of course, would lead to less/low effectiveness of GESS. This result is expected because the reverse of the identified problems, that is, more of nearby redemption center(s), better the network for reception of calls and electronic messages, absence of interference and exploitation of middlemen and political elites.

Table 3. Effectiveness of GESS in solving the problems of access to inputs by small-scale farmers (n=420)

S/N	Effectiveness statements	Mean scores
1	Prompt registration of farmers	0.98
2	Existence of nearby GESS redemption center	0.93
3	Availability of up to date GESS farmers' register	0.86
4	Good network for reception of electronic messages/alert from Cellulant	0.69
5	Timely reception of information/electronic messages/alert	0.48
6	Access to required quality agricultural inputs	0.42
7	Access to agricultural inputs through GESS with the assistance of supply chain representatives/help line staff that facilitate redemption of agricultural inputs at the redemption center.	0.39
8	Reduction of chances of loss of plants/livestock as a result of use of good quality of agricultural inputs.	0.38
9	Access to agricultural inputs through GESS before or during farming season.	0.34
10	Access to agricultural inputs through GESS without interference of middle men and political elites.	0.33
11	Access to required quantity agricultural inputs through GESS increased productivity.	0.32
12	Increased income	0.30
13	Reduced cost of production	0.30
14	Access to agricultural inputs through GESS at affordable prices	0.29
15	Reduction of chances of loss of plants/livestock as a result of use of sufficient quantity of agricultural inputs	0.28
16	Increased productivity.	0.27
17	Access to some of the agricultural inputs free of charge	0.25
18	Improved standard of living	0.24
19	Conservation of time and energy	0.23

Source: Field survey, 2015

Table 4. Chi-square analysis showing the association between the effectiveness of GESS and some selected personal and socio-economic characteristics of the respondents

Variables	X ² -value	df	p-value
Sex	46.159**	19	0.000
Marital status	88.591	76	0.153
Religious affiliation	27.068	38	0.907
Farmland acquisition pattern	145.98**	76	0.000

** Significant at 0.01 level, * Significant at 0.05, χ^2 = Chi- square value, df: Degree of freedom
Source: Field survey, 2015

Table 5. Summary of correlation analysis between effectiveness of GESS and some selected personal and socio-economic characteristics of the respondents (n=420)

Variable	Correlation coefficient	Coefficient of determination (r ²)
Age	-0.253**	0.064
Total household size	0.052	0.003
Contact with extension agents	0.000	0.001
Frequency of contact with extension agents	0.111*	0.012
Cosmopoliteness	0.050	0.025
Annual income from farming	0.006	0.000
Years of farming experience	0.255**	0.065
Functional mobile phone ownership	0.344**	0.118

** Significant at 0.01 level, df: Degree of freedom
* Significant at 0.05 level, Source: Field survey, 2015

Table 6. Correlation analysis between effectiveness of GESS and identified problems of access to inputs (n=420)

Variable	Correlation coefficient (r)	Coefficient of determination (r ²)	Percentage Contribution
Identified problems of access to inputs	-0.214**	0.046	4.6

Source: Field survey, 2015, **Significant at 0.01 level

More access to the required quantity of agricultural inputs at affordable prices, more access to the agricultural inputs free of charge, more access to the agricultural inputs before or during farming season, less waste of time and energy in attempts to access the agricultural inputs, reduction in loss of plants/livestock as a result of lack of or use of insufficient quantity of agricultural inputs, lower cost of production, higher productivity, more income, better standard of living would all lead to an increase in the favor the effectiveness of GESS. Moreover, reduction in loss of plants/livestock as a result of use of poor/bad quality agricultural inputs would result in an increase in the favor the effectiveness of GESS.

This result is in consonance with the findings of [9] which reported that any increase in inputs availability and quality will lead to a corresponding increase in probability of the effectiveness of GESS in the study area. The

percentage contribution of identified problems to the effectiveness of GESS was 4.6 percent ($r^2=0.046$). This low value of percentage contribution could be because most of the identified problems of inputs in the study area were many, problems reduce the effectiveness of projects/programmes; hence, the low value of percentage contribution of identified problems to GESS effectiveness.

4. CONCLUSION

The study concluded that there was high level of identified problems of access to inputs by the respondents, GESS was structured and operated by the government among the various stakeholders using the top-down approach, also there was low level of accessibility of inputs through GESS by the respondents, and low level of effectiveness of GESS in solving the problem of inputs delivery.

5. RECOMMENDATIONS

Based on the findings and conclusions from the study, the following recommendations were made.

- More inputs should be made accessible by inputs suppliers to agro-dealers then to farmers.
- Since the farmers used mostly interpersonal communication, more agricultural extension agents should be involved in the GESS.
- Radio and television broadcasts of the programs in various Nigerian local languages should be increased most especially before the onset of each program.
- The Nigerian Communications Commission should be required to improve network coverage so as to enhance the reception of calls and electronic messages for accessing agricultural inputs by farmers.
- There should be a better orientation for future likely programmes and a reorientation of the farmers about the GESS in which there will be more extensive sensitization and enlightenment, especially at the grassroots levels.
- A more inclusive participatory approach instead of top-down approach should be adopted for planning, execution and evaluation of GESS programme.
- More redemption centres should be created, to move the centres closer to the farmers in terms of distance to be trekked or covered and the number of farmers queuing up for redemption of inputs.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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