1	Original Research Article
2	Identified Problems and Effectiveness of Growth Enhancement
3	Support Scheme (GESS) in Inputs Delivery in Southwestern
4	Nigeria
5	
6	Abstract
7	The study identified the problems of access to inputs by the small scale farmers;
8	analyzed the structure and operations of the Growth Enhancement Support Scheme (GESS)
9	on input supply; and evaluated the effectiveness of GESS in solving the problem of input
10	delivery to small scale farmers in Southwestern Nigeria.
11	A multistage sampling technique was employed in selecting 420 GESS farmers from
12	three states in the southwestern zone namely: Osun, Ondo, and Ogun. Validated and pre-
13	tested ($r = 0.78$) interview schedule was used to collect quantitative data from the small scale
14	farmers. Focus Group Discussion (FGD) was also conducted for the farmers in three of the
15	rural communities to collect qualitative data. Data collected were described with frequency
16	counts, percentages, equal intervals, mean and standard deviation. Chi-square and
17	Correlation analyses and Analysis of variance (ANOVA) were used to draw inferences from
18	the hypotheses.
19	Results showed that the mean age of the small scale farmers was 49.57 ± 10.49 years
20	and majority, 75.70 per cent were males. A higher percentage (55.80%) showed high level of
21	identified problems of access to inputs. Analysis of the structure and operations of GESS on
22	input supply showed that GESS was structured and operated by the government among the

various stakeholders using the top-down approach. All the respondents (100.00%) showed

low level of effectiveness of GESS. Chi square analysis showed a significant association 24 between effectiveness of GESS and respondents' sex (χ^2 =46.159; $p \le 0.01$) and other 25 occupations than farming ($\chi^2 = 143.47$, $p \le 0.01$). Correlation analysis showed a negative and 26 significant relationship between effectiveness of GESS and identified problems of access to 27 inputs (r=-0.214, p≤0.001). Analysis of variance showed a significant difference in identified 28 problems of access to inputs (F=55.121; $p \le 0.05$) and GESS effectiveness (F=95.382; $p \le$ 29 0.05) across the three States. In-depth analysis of Focus group discussion revealed that 30 participants were generally aware of GESS, and that inputs accessed through GESS were at 31 affordable prices but were neither timely nor sufficient for their farm operations. 32

The study concluded that GESS recorded a low level of effectiveness in the study area as
a result of high level of identified problems of access to agricultural inputs through GESS.

35 Key words: Identified Problems, Effectiveness, Growth Enhancement Support Scheme
36 (GESS), Inputs Delivery.

37 Introduction

Over 80 per cent of the farming population in Nigeria is small holders residing mostly in 38 rural areas. Anaman (1988) disclosed that small farms are mainly responsible for self-39 sufficiency of food in Africa and cultivation of export crops. They are also very significant in 40 world development with 50 per cent of world's population depending on them. According to 41 Obayelu, Afolami, and Agbonlhor (2013), farm sizes classification of less than 5ha should be 42 classified as small, between 5ha and 10ha as medium, and more than 10ha as large scale. 43 However, the average Nigerian small scale farmer is poor, having low level of education, and 44 lacks access to most basic social amenities, as well as improved varieties of inputs and 45 modern farming implements. The consequence of these has been low production and 46 productivity (Opara, 2010). 47

In recognition of the importance of agriculture, the Federal Government in 2012 48 launched the Agricultural Transformation Agenda (ATA) to commercialize agriculture. One 49 of the many critical components of the Federal Government's ATA was the Growth 50 Enhancement Support Scheme (GESS). GESS was introduced in May 2012, as a pilot project 51 in 36 States and the Federal Capital Territory. Being powered by the e-wallet approach, the 52 scheme aimed at achieving the set goals of overcoming the many difficulties confronting the 53 agricultural sector in Nigeria and ensuring availability of fertilizer, seeds and other inputs to 54 farmers as timely as possible. This was with the understanding that the corruption which has 55 been the bane of agricultural development in Nigeria would be better tackled if and when 56 farmers can directly access the government through their mobile phones. An e-wallet has thus 57 been defined as an efficient and transparent electronic device system that makes use of 58 59 vouchers for the purchase and distribution of agricultural inputs (Ezeh, 2013, Adesina, 2013). The e-wallet approach was designed for smallholder farmers, who appear the most hit and 60 vulnerable by the impropriety in the fertilizer and other input sector of the Agriculture 61 Ministry. The criteria for farmer's participation include: farmers being above 18 years old; 62 have participated in a survey authorized by the government to capture farmers personal 63 detailed information; must own a cell phone with a registered SIM card and have at least 64 sixty naira credit in the cell phone. The fulfillment of these conditions guaranteed the 65 issuance of an e-wallet voucher to the farmer. The voucher was used to redeem fertilizers, 66 67 seeds and other agricultural inputs from agro-dealers, some at full cost and some at half the cost (Signal Alliance, 2014). Adebo (2014) further highlighted that for an agro input dealer to 68 participate in the programme, he/she must own a cell phone with a registered SIM card, 69 understand the process of using e-wallets, and attend training programmes designed for the 70 project. The agro dealers are required to conduct honest business and guide against fraud; 71

choose and prepare a location for the business transaction; provide storage facilities and beavailable 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 81 phones. The project was expected to provide direct linkage between the farmers and the 82 government. This would enable the government to disseminate valuable information to the 83 84 farmers, thus ensuring farmers' progress (Ezeh, 2013). The system ensured the involvement of the private sector in agricultural input supply (News Agency of Nigeria, 2012). Achieving 85 86 the set goals of the GESS, however, requires having inputs in the form of a feedback from the primary beneficiaries (small scale farmers). This study was therefore embarked upon to 87 assess the effectiveness of the GESS's e-wallet approach in grassroots agricultural inputs 88 delivery in Southwestern Nigeria. 89

90 The specific objectives of this study were to;

a.) describe the personal and socio-economic characteristics of the respondents;

92 b.) identify the problems of access to inputs by small scale farmers;

93 c.) analyzed the structure and operations of the Growth Enhancement Support Scheme (GESS) on94 input supply; and

95 d.) evaluate the effectiveness of GESS in solving the problem of inputs delivery to the96 respondents.

97 The following research hypotheses stated were also tested.

98 Ho1: There is no significant relationship between the effectiveness of GESS and the99 respondents' personal and socio-economic characteristics.

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

102 Methodology

The study was conducted in the Southwest geopolitical zone of Nigeria. A multistage 103 sampling technique was employed in selecting the respondents for the study. At the first 104 stage, three States were randomly selected from the zone. At the second stage, proportionate 105 sampling technique was used to select 20 per cent of all the Local Government Areas (LGAs) 106 in the 3 States. In other words, 6 LGAs were selected in Osun, 4 in Ondo, and 4 in Ogun 107 States, making a total of 14 LGAs. At the third stage, using purposive sampling technique, 3 108 rural communities each were selected in the LGAs based on their participation in GESS 109 making a total of 42 rural communities. At the fourth stage, simple random sampling 110 technique was used to select ten small scale farmers making a total of 420 GESS farmers. 111

A set of duly validated and pre-tested (r = 0.78) structured interview schedule were 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. Focus Group Discussion (FGD) sessions were 119 conducted to elicit qualitative information from the farmers on certain issues central to the 120 focus of the study. Frequency counts, percentages, mean, standard deviation and equal 121 intervals were used to summarize and describe the data collected. Inferential statistics such as 122 Chi-square and correlation analyses and Analysis of Variance were used to test the 123 hypotheses formulated.

124 Results and Discussion

Results in Table 1 show that the age of the respondents ranged from 19 to 72 years with a mean of 49.57 years and standard deviation of 10.49. These results agree with the findings of Nwaobiala and Ubor (2016) 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.

Majority, 75.70 per cent of the respondents were males and few, 24.30 per cent were females. This finding agrees with the findings of Umar *et al.*, (2015) which revealed that the beneficiaries in the study area were largely male (78.9 per cent). These results which indicate that proportion of males among the respondents in the study area was high 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).

138 Close to average, 47.4 per cent of the respondents who engaged in farming as 139 secondary occupation engaged in trading, while, few, 32.9 per cent engaged in artisanship 140 and 19.7 per cent engaged in civil service. This result is expected as the respondents also 141 diversified into farming as secondary occupation and this is expected to increase their income 142 and improve their standard of living. The results, which also concurred with the findings of 143 Yusuf (2011), indicated that rural dwellers engaged in a variety of activities as occupation

with agriculture usually the prime. They engage in these varieties of activities including non-farm in order to make ends meet and spread their risks better.

The years of farming experience of the respondents ranged from 1 to 54 years with a mean of 20.5 years and a standard deviation of 10.86. These findings agree with that of Nwaobiala and Ubor (2016) 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.

Majority, 68.80 per cent of the respondents owned functional mobile phone and few 153 154 31.20 per cent did not own functional mobile phone. These results which indicate that proportion of functional mobile phone ownership among the respondents in the study area 155 was high could be because it was the season of GESS, and ownership of a functional mobile 156 phone with registered SIM card is one of the prerequisites for being registered as a GESS 157 farmer and this is expected to boost the farmers' access to firsthand information about the 158 availability and accessibility of farm inputs through GESS. This finding is in line with that of 159 Adebo (2014) who reported that majority of GESS farmers sampled possessed mobile 160 phones. 161

Majority, 58.8 per cent of the respondents became aware of GESS through Extension agent/ADP while few, 1.2 per cent became aware through television, 13.8 per cent became aware through radio, and 26.2 per cent became aware through fellow farmers. This implied that Extension agent/ADP is still one of the best media of reaching farmers at the grassroots. This finding agrees with that of Arokoyo *et al.*, (2002) which revealed that the village level extension agent is the most effective source of information for farmers but certainly not the most efficient in terms of cost and coverage. The result also agrees with that of Adebo (2014)

which revealed that about majority of the GESS farmers sampled indicated that they got theirinformation from ADP and extension agents.

Few, 20.5 per cent of the respondents had no formal education, 1.4 per cent had adult 171 education, 23.1 per cent had Primary six certificates, 35.5 per cent had Secondary school 172 certificates, and 19.5 per cent had Tertiary school certificates. This result agrees with the 173 findings of Fadairo *et al.*, (2015) which revealed that few of the GESS farmers 34.7 per cent 174 attended secondary school, 32.2 per cent had primary school education, and 24.6 per cent, 175 were graduates of tertiary institutions. The basic objective of any form of education is to 176 impact knowledge which would influence a change in attitude, skills, or knowledge. This 177 finding shows that most of the respondents had positive disposition to formal education and 178 this may have a positive impact on their ability to manipulate and use the GESS's e-wallet 179 approach effectively. 180

Majority, 83.57 per cent of the respondents had contact with extension agent(s) in the 181 182 past three years. The mean of contact with extension agent is 0.84±0.37. Results in the Table further show that majority, 67.5 per cent of the respondents that had contact with extension 183 agents had the contact twice a month and few 32.5 per cent had the contact once a month. 184 185 The results, which also concurred with the findings of Yusuf (2011), indicated that majority (93.2 per cent male heads of household and 81.7 per cent female heads of household) in the 186 187 study area had extension contact with ADP extension workers. These results which indicate that frequency of meeting extension agents was high could be because it was GESS season, a 188 special programme and the extension had to make frequent contacts with the small scale 189 190 farmers to give the farmers regular updates on GESS.

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Variables	Frequency	Percentage	Mean	Standard Deviatior
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		
Other occupations than fa	rming			
Trading	101	47.4		
Artisanship	70	32.9		
Civil service	42	197		
Years of farming experien	ce.			
(Btw1-15)	164	39.0		
(Btw 16-30)	196	46.7		
(31 years +)	60	1/ 3	20.5	10.86
Functional mobile phone (wnorshin	14.5	20.5	10.00.
Vos	280	68.8		
I CS	121	21.2	0.60	0.46
		51.2	0.09	0.40
Source of awareness of Gr	200	50.0		
Extension agent/ADP	247	58.8		
l elevision	5	1.2		
Kadio	58	13.8,		
Fellow farmers	100	26.2		
Highest educational qualification	ation	20.5		
No formal education	86	20.5		
Adult education	6	1.4		
Primary six certificates	9/	23.1		
Tertiary school certificates	149	55.5 10.5		
Fraguency of contact with	82	19.3		
extension agents				
Once a month	114	32.5		
Twice a month	237	67 5		

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

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Source: Field survey, 2015

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Identification of problems of access to inputs by the respondents

Results in Table 2 show the rank-order of statements on identified problems of access 240 to inputs by the respondents. In the table, inability to access the required quantity of 241 agricultural inputs for farm operations ranked 1st as identified by 92.6 per cent of the 242 respondents, non-existence of up to date GESS farmers' register at the redemption center 243 ranked 2nd at 88.8 per cent, non-existence of nearby redemption center(s) where farmers 244 could access agricultural inputs ranked 3rd at 84.3 per cent, inability to access the agricultural 245 inputs at affordable prices ranked 4th at 81.9 per cent, exploitation by middle men and 246 political elites ranked 5th at 80.2 per cent. 247

Insufficient information to farmers on arrival of farm inputs before or during farming 248 season ranked 6th at 79.3 per cent, inability to access the agricultural inputs before or during 249 farming season ranked 7th at 77.6 per cent, poor network for reception of calls and electronic 250 messages for accessing agricultural inputs ranked 8th at 77.1 per cent, interference of middle 251 men and political elites ranked 9th at 76.2 per cent, inability to access the required quality 252 agricultural inputs for farm operations ranked 10th at 75.2 per cent, poor standard of living 253 ranked 11th at 71.7 per cent, low productivity ranked 12th at 70.2 per cent, waste of time and 254 energy ranked 13th at 65.5 per cent, high cost of production ranked 14th at 53.6 per cent. 255

Low income ranked 15th at 51.2 per cent, inability to access some of the agricultural inputs free of charge ranked 16th at 49.3 per cent, loss of plants/livestock as a result of use of poor/bad quality agricultural inputs ranked 17th at 47.4 per cent, and loss of plants/livestock as a result of lack of or use of insufficient quantity of agricultural inputs ranked 18th at 46.4 per cent.

From a scale of 1 to 100 per cent, problems that were identified by at least 50 per cent of the respondents were used as benchmark for the identified problems. This means that 14

263 out of the problems could be regarded as identified. This result shows that inability to access the required quantity of agricultural inputs for farm operations, non-existence of up to date 264 GESS farmers' register at the redemption center, non-existence of nearby redemption 265 center(s) where farmers could access agricultural inputs, inability to access the agricultural 266 inputs at affordable prices, exploitation by middle men and political elites, insufficient 267 information to farmers on arrival of farm inputs before or during farming season, inability to 268 access the agricultural inputs before or during farming season, poor network for reception of 269 calls and electronic messages for accessing agricultural inputs, interference of middle men 270 and political elites, inability to access the required quality agricultural inputs for farm 271 operations, poor standard of living, low productivity, waste of time and energy, high cost of 272 production, and low income were the identified problems. 273

This result was confirmed by the responses of small scale farmers during Focus Group Discussions. When FDG participants were asked to mention the constraints they encountered in their attempt to access inputs, the responses below were received from all the FDG participants in the three states. Excerpts of some responses are listed below

- We real farmers could not access the required quantity of agricultural inputs for our farm
 operations; the inputs were mostly accessed by political farmers.
- 280 *We were not well attended to, may be because there were many people*
- 281 The redemption center is too far from us
- 282 We did not receive the calls and alert for accessing agricultural inputs on time
- 283 *We experienced waste of time and energy and this was discouraging (they; that is, the supply*
- chain managers/help line staff always told us "come today, come tomorrow")

The responses above were also corroborated by the response of one of the agro dealers from whom key information on operations of GESS was collected. Below is the excerpt

When asked if the GESS had improved her distribution of agricultural inputs to farmers, the response "no, GESS has not in any way improved my distribution of agricultural inputs to farmers", "GESS has gotten into the hands of the politicians, the real farmers did not benefit, farmers from Ilesha were asked to come here (God's Power Agrochemical Dealer in Ile-Ife) and redeem inputs" she added.

This result agrees with that of Umar *et al.*, (2015) 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 centers.

This result is further supported by the response of one of the agro dealers from whom key information on operations of GESS was collected.

When asked to mention problems encountered in the course of accessing and distributing inputs through GESS, the agro dealer said "maize was not accessed because it was already weevil infested (and I still incur expenses on warehouse and insecticides in case the GESS/government wants to come and inspect it".

302 This implied that the identified problems of access to inputs in the study area was 303 severe and needed urgent attention.

The result agrees with that of Oyediran *et al.*, (2014) which revealed that challenges confronting the GESS programme in the study area include late commencement of GESS programme poor location of redemption centers, telecommunication problems, low coverage,

307 and late arrival of the inputs. The result also agrees with the findings of Nwaobiala and Ubor (2016) which revealed that location of the redemption centers, bureaucratic bottlenecks, poor 308 telephony network, late arrival of farm inputs, and inadequate farm inputs were major 309 310 challenges facing the GESS scheme in the study area. The result also agrees with that of Adebo (2014) that some of the challenges of the GESS include insufficient fertilizer supply, 311 cumbersome procedure of getting approval from Cellulant, low density coverage of agro-312 dealers, low level of awareness by the farmers, poor telephony network and insufficient seed 313 supply. 314

The result also agrees with that of Fadairo et al., (2015) which revealed some of the 315 challenges of GESS in the study area to include stress farmers go through in order to get 316 inputs, long queues at the redemption centers, high transaction cost incurred by farmers, 317 sharp practices by input distributors/dealers, late supply of inputs, long distance covered from 318 319 home to redemption, interference in operation by government agent/officials, late arrival of mobile alert message, non-commitment of ADP staff of GESS, insufficient quantity of agro-320 inputs allocation, unsuitability of agro-inputs supplied, and interference in the operation by 321 influential people. 322

Table 2: Rank –order of the statements showing identification of problems of access to inputs using respondents' percentage (n=420)

	Identified problems	Per cent	Rank
1	Inability to access the required quantity of agricultural inputs for farm operations.	92.6	1st
2	Non-existence of up to date GESS farmers' register at the redemption center.	88.8	2^{nd}
3	Non-existence of nearby redemption center(s) where farmers could access agricultural inputs.	84.3	3 rd
4	Inability to access the agricultural inputs at affordable prices.	81.9	4 th
5	Exploitation by middle men and political elites.	80.2	5 th

6 Insufficient information to farmers on arrival of farm inputs

	before or during farming season.	79.3	6 th
7	Inability to access the agricultural inputs before or during farming season.	77.6	7^{th}
8	Poor network for reception of calls and electronic messages for		
÷	accessing agricultural inputs.	77.1	8^{th}
9	Interference of middle men and political elites.	76.2	9^{th}
10	Inability to access the required quality agricultural inputs for		
	farm operations.	75.2	10^{th}
11	Poor standard of living	70.7	11 th
12	Low productivity	70.2	12^{th}
13	Waste of time and energy	65.5	13^{th}
14	High cost of production.	52.6	14^{th}
15	Low income	51.2	15^{th}
16	Inability to access some of the agricultural inputs free of charge.	49.3	16 th
1/	Loss of plants/livestock as a result of use of poor/bad quality agricultural inputs	47.4	17^{th}
18	Loss of plants/livestock as a result of lack of or use of		
	insufficient quantity of agricultural inputs.	46.4	18^{th}

325

Source: Field survey, 2015

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328 Level of identified problems of access to inputs

Results in Table 3 show that a higher percentage, 55.48 per cent of the respondents 329 were at high level of identified problems of access to inputs, while few, 32.86 per cent were 330 at moderate level of identified problems of access to inputs and 11.67 per cent were at low 331 level of identified problems of access to inputs. This shows that the identified problems of 332 access to inputs by the respondents were many and need urgent attention. It further implied 333 that GESS has addressed the problems of access to inputs in the study area to an extent but 334 335 not effectively. If the identified problems of access to inputs are adequately attended to, GESS effectiveness would be enhanced. It is important to note that solution to the problems 336 of access to inputs is important in relation to GESS effectiveness as intended by the 337 programme planners of GESS. 338

Level of identification of problems	Values	Frequency	Percentage
High	≥13	233	55.48
Moderate	Btw 7 and 12	138	32.86
Low	≤ 6	49	11.67
Total		420	100

Table 3: Distribution of respondents by level of identified problems of access to inputs by small scale farmers (n=420)

344

Source: Field survey, 2015

346 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 topdown approach. These findings agree with that of Adebo (2014) 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.

Evaluation of the effectiveness of GESS in solving the problem of inputs delivery to the respondents

Results in Table 4 show the rank –order of the effectiveness of GESS in solving the problem of inputs delivery to the respondents in descending order. Prompt registration of farmers with mean score of 0.98 came first followed by existence of nearby GESS redemption center with mean score of 0.93. Availability of up to date GESS farmers' register with mean score of 0.86 was third and good network for reception of electronic messages/alert from Cellulant before or during farming season with mean score of 0.69 came

fourth while timely dissemination/reception of information/electronic messages/alert with mean score of 0.48 was the fifth in the order. 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 with mean score of 0.39 and reduction of chances of loss of plants/livestock as a result of use of good quality agricultural inputs with mean score of 0.38 followed in the order.

Others were access to agricultural inputs through GESS before or during farming 367 season with mean score of 0.33, access to agricultural inputs through GESS without 368 interference of middle men and political elites with mean score of 0.33, access to required 369 quantity of agricultural inputs through GESS with mean score of 0.32, and increased income 370 with mean score of 0.33, access to agricultural inputs through GESS at affordable prices with 371 mean score of 0.30, reduced cost of production with mean score of 0.29, reduction of chances 372 373 of loss of plants/livestock as a result of use of sufficient quantity of agricultural inputs with mean score of 0.28 followed till the least/last one in the order as increased productivity with 374 375 mean score of 0.27, access to some of the agricultural inputs free of charge with mean score 376 of 0.25, improved standard of living with mean score of 0.24 and conservation of time and energy with mean score of 0.23. 377

From the scales of measurement of 1, 2, and 3 of less effective, effective, and very 378 379 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 380 effectiveness. This means that out of the nineteen GESS effectiveness indicators, none was 381 very effective at solving the problems of inputs delivery to the respondents, and none was 382 effective at solving the problems of inputs delivery to the respondents. In addition, only 383 prompt registration of farmers and existence of nearby GESS redemption centers with means 384 of approximately 1 measured up to the benchmark as being less effective at solving the 385

problems of input 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 4: Rank –order of the effectiveness of GESS in solving the problem of inputs delivery to the respondents (n=420)

S/N	Effectiveness statements	Mean Scores	Descending Order
394			
395	-		
1	Prompt registration of farmer s	0.98	1^{st}
2	Existence of nearby GESS redemption center	0.93	2^{nd}
3	Availability of up to date GESS farmers' register	0.86	3 rd
4	Good network for reception of electronic messages/alert from Cellulant	0.69	4 th
5	Timely reception of information/electronic messages/alert	0.48	5 th
6	Access to required quality agricultural inputs	0.42	6 th
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	7 th
8	Reduction of chances of loss of plants/livestock as a result of use of good quality of agricultural inputs	0.38	8 th
9	Access to agricultural inputs through GESS before or during farming season	0.34	9 th
10	Access to agricultural inputs through GESS without interference of middle men and political elites	0.33	10 th
11	Access to required quantity agricultural inputs through GESS Increased productivity	0.32	11 th
12	Increased income	0.30	12 th
13	Reduced cost of production	0.30	13 th
14	Access to agricultural inputs through GESS at affordable prices	0.29	14 th
15	Reduction of chances of loss of plants/livestock as a result of use of sufficient quantity of agricultural inputs	0.28	15 th
16	Increased productivity.	0.27	16 th
17	Access to some of the agricultural inputs free of charge	0.25	17^{th}
18	Improved standard of living	0.24	18 th

19	Conservation of time and energy	0.23	19 th
396	Grand mean $= 8.31$		
397	Standard deviation $= 10.06$		
398	Source: Field survey, 2015		
399			
400	Level of the effectiveness of GESS in solving the problem	n of inp	ats delivery to the
401	respondents		

Results in Table 5 show that all, 100.0 per cent were at low level of effectiveness of GESS in solving the problem of access to inputs. This result shows that there was low level of effectiveness of GESS in solving the problem of inputs delivery to the respondents as all were at low level of effectiveness of GESS in solving the problem of inputs delivery. It is hoped that the findings of this study would be used by relevant stakeholders in Nigeria particularly Southwestern Nigeria to improve the effectiveness of GESS in the future.

Although the quantitative data showed that there was low level of GESS effectiveness
in the study area, the following excerpts from FGD participants revealed varied effectiveness
of GESS qualitatively.

411 Ability of a programme/project planners and executors to make its beneficiaries 412 knowledgeable about its precise goal(s) is a measure of its effectiveness, when asked to 413 explain what they know about GESS, excerpts of some of the responses indicated that the 414 FGD participants were well knowledgeable about GESS.

GESS is a programme set up by the government in which registered farmers can receive
alerts to access farm inputs through their mobile phones...... FGD participants at Obaalayan
village, Ife East L G, Osun State

419 Under the GESS programme, we can access farm inputs from designated redemption centres;
420 we don't have to go to the open market...... FGD participants at Ajegunle, Odeda L. G, Ogun
421 State.

422

Inclusion of the beneficiaries of a programme/project in its formulation stage is a measure of its effectiveness, when asked if they were included at the policy formulation stage of GESS, excerpts of some of the responses indicated that the FGD participants were not included at the policy formulation stage of GESS.

435

We were not included in the policy formulation stage of GESS, we heard about the GESS in
our meeting and were later registered as GESS farmers, we were asked the farm enterprise(s)
we engage in, total number of hectares and so on...... FGD participants at Ajegunle,
Odeda L. G, Ogun State.

We were not included in the policy formulation stage of GESS, the ADP representative came
to our village to inform us about the implementation of the programme...... FGD
participants at Obaalayan village, Ife East L G, Osun State

FGD participants' ability to access the inputs through GESS is also a measure of the effectiveness of GESS. So, when asked if they were able to access inputs through GESS, excerpts of some of the responses indicated that GESS was effective in terms of making inputs accessible to FGD participants

449 *Yes, I got 2 bags of UREA fertilizer* FGD participants at Obaalayan
450 village, Ife East L G, Osun State

451 Yes, I got 2 bags of NPK fertilizer and improved maize seeds (10kg)

452 FGD participants at Ajegunle, Odeda L. G, Ogun State

FGD participants' ability to access the inputs through GESS at affordable prices is a measure of the effectiveness of GESS. So, when asked if the input they accessed were at affordable prices, excerpts of some of the responses indicated that GESS was effective in terms of making the inputs' prices affordable by the FGD participants

Yes, the input I got, two bags of UREA fertilizer were gotten for about №5,500 and to me it is
at an affordable price...... FGD participants at Ajegunle, Odeda L. G, Ogun
State.

463 Compared to the ones we buy in open market, the inputs two bags of NPK fertilizer are
464 affordable for their price, that is, (№5,500)...... FGD participants at
465 Obaalayan village, Ife East L G, Osun State

In addition, good or bad quality of inputs accessed through GESS is a measure of its effectiveness, when the FGD participants were asked if the inputs accessed through GESS were of expected quality, excerpts of some of the responses indicated that GESS was effective in terms of making good quality inputs accessible to FGD participants.

470 Yes, the inputs gotten were of good quality because the fertilizer was not caked and was not

471 wet......FGD participants at Obaalayan village, Ife East L G, Osun State

474 Yes, the inputs gotten were of good quality because the fertilizer was not caked and

475 *wet.....* FGD participants at Ile Oluji/Oke Igbo Farm Settlement, Ondo State

Sufficiency of inputs for farm operations is also a measure of GESS effectiveness, when asked if the input accessed through GESS were sufficient for their farming operations, excerpts of some of the responses indicated that the inputs accessed through GESS were not sufficient for the participants' farming operations.

The inputs were not sufficient, we will be happy if the inputs are increased in quantity
because of our farm size......
FGD participants at Ajegunle, Odeda L. G,
Ogun State.

- Timeliness of delivery of inputs to the beneficiaries is also a measure of effectiveness of GESS. When asked if the input accessed through GESS were timely for their farming
- 490 operations, the following responses were gotten
- 491 *Not really, the inputs accessed were accessed late so had to be used in the following planting*
- 492 season...... FGD participants at Obaalayan village, Ife East L G, Osun State
- 495 *No, the inputs accessed were not timely*...... FGD participants at Ile Oluji/Oke
 496 Igbo Farm Settlement, Ondo State.

Positive or negative view of the GESS by its beneficiaries is also a measure of its effectiveness. When FGD participants were asked what their view of GESS was compared to the older agricultural input distribution schemes, excerpts of some of the responses indicated that the participants had positive view of the GESS.

The GESS scheme is better compared to the old agricultural inputs distribution programmes because for a farmer to access farm inputs, he/she is reached directly through the mobile phone or has the identity ascertained from the GESS farmers' register at the redemption center and this gives us some confidence and feeling that the government has us in mind, the middle men that defraud farmers can be considerably reduced.

506 *We can easily access to agricultural inputs through GESS without the interference and* 507 *exploitation of middle men and political elites.*

508 We can access to agricultural inputs through GESS at affordable prices and even some inputs
509 free of charge

510 We can access required quality agricultural inputs through GESS and reduce the chances of
511 loss of plants/livestock.

512 We can access agricultural inputs through GESS with the assistance of supply chain 513 representatives/help line staff that facilitates redemption of agricultural inputs at the 514 redemption center

Ability of an agricultural programme/project benefactor to make use of suggestions of the beneficiaries is also a measure of the programme/project's effectiveness, when FGD participants were asked to suggest ways of improving on GESS, the following responses were received.

519 They (the government/GESS) should group us into villages instead of making it general so
520 that political farmers will not be able to gain access to the programme.

521 They (the government/GESS) should come and meet us in our villages/farms and give us our
522 own redemption center.

523 They (the government/GESS) should give us right and enough quantity of agricultural inputs
524 for our farm operations.

525 *They (the government/GESS) should give us sufficient information on arrival of farm inputs.*

526 *They (the government/GESS) should increase the quantity of free of agricultural inputs.....*

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530	Table 5: Distribution of respondents by level of effectiveness of GESS in solving the
531	problems of access to inputs by small scale farmers (n=420)

538

539 **Results of hypotheses testing**

540 Hypothesis one: There is no significant relationship between effectiveness of GESS and
541 selected personal and socio-economic characteristics of the respondents.

Results in Table 6 show significant association between effectiveness of GESS and 542 sex (χ^2 =46.159, p≤ 0.01), highest educational qualification (χ^2 =139.33, p≤ 0.01), other 543 occupations than farming (χ^2 =143.47, p≤ 0.01) and farmland acquisition pattern (χ^2 =145.98, 544 $p \le 0.01$). Sex had a significant association with effectiveness of GESS. This implied that 545 effectiveness of GESS vary between male and female farmers. This may be due to the fact 546 that male farmers have the tendency to have more farmland, hence get engaged in farming 547 more than their female counterparts considering the point that most developing countries 548 culturally give priority to male in land ownership than female as opined by Alice (2008) and 549 Lawanson (2010) that women are culturally hindered from owing farmland in most African 550 countries. This result might also be due to the fact that majority, 75.70 per cent of the 551 respondents as observed from the study were males who might be assumed to be physically 552 active engaging in different economic livelihood activities. It could also be because it was the 553 season of GESS, a special programme that bordered on inputs procurement, and this task of 554

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). 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.

Highest educational qualification also had a significant association with effectiveness 559 of GESS. This implied that effectiveness of GESS vary among respondents with various 560 highest educational qualifications sampled for the study; 1.4 per cent of the respondents had 561 adult education, 23.1 per cent had Primary six certificates, 35.5 per cent had Secondary 562 school certificates, and 19.5 per cent had Tertiary school certificates. The basic objective of 563 any form of education is to impact knowledge which would influence a change in attitude, 564 skills, or knowledge. This result agrees with that of Umar et al., (2015) which revealed that 565 the level of satisfaction with the GESS increased among families with higher education. It 566 567 also agrees with the findings of Fadairo et al., which revealed significant relationship between respondents' education and their attitude towards the GESS. The implication of this 568 569 result is that the higher the educational qualification of GESS farmers, the higher their 570 likelihood of effectively manipulating and utilizing GESS for accessing inputs for their farm operations. 571

Engagement in other occupations than farming also had significant association with 572 effectiveness of GESS. This implied that effectiveness of GESS varied among farmers that 573 engaged in other occupations than farming. This result might be due to the fact as observed 574 from the study, close to average 47.4 per cent of the respondents who engaged in farming as 575 secondary occupation engaged in trading, while, few, 32.9 per cent engaged in artisanship 576 and 19.7 per cent engaged in civil service. This implied that the more the GESS farmers 577 diversify into other occupations than farming, especially trading, the higher the likelihood of 578 their effectively accessing and utilizing information on GESS for accessing farm inputs. 579

580 Farmland acquisition pattern also had a significant association with effectiveness of GESS. This implied that effectiveness of GESS varied among farmers based on their 581 farmland acquisition pattern. This might also be due to the fact that close to average, 48.10 582 per cent of the respondents as observed from the study got the land used for farming activities 583 through inheritance. This result shows that acquisition of land used for farming activities 584 through inheritance will favour the effectiveness of GESS, meaning that the more the GESS 585 farmers acquire land used for farming activities through inheritance, the higher the likelihood 586 of accessing and utilizing information on GESS effectively. 587

The implication of these findings is that sex, highest educational qualification, other 588 occupations than farming, and farmland acquisition pattern should be considered by GESS 589 value chain actors/stakeholders for the achievement and enhancement of effectiveness of 590 GESS in solving the problems of inputs delivery in the study area. 591

Table 6: Chi-square analysis showing the association between the effectiveness of GESS 592 and some selected personal and socio-economic characteristics of the respondents 593

594

Variables	χ^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
Highest educational qualification	139.331**	76	0.000
Ethnicity	72.306*	57	0.083
Farming as a primary or			
secondary occupation	53.546**	19	0.000
Other occupations than farming	143.47**	57	0.000
Farmland acquisition pattern	145.98**	76	0.000
_			

** Significant at 0.01 level, * Significant at 0.05 608

df: Degree of freedom 609

- γ^2 = Chi- square value 610
- Source: Field survey, 2015 611

612

Results in Table 7 show the correlation analysis of relationship between the 613 effectiveness of GESS and some selected personal and socio-economic characteristics of the 614 respondents. The result show that age had a significant but negative relationship with 615 effectiveness of GESS (r= -0.253; p \leq 0.01). This might be due to the fact that majority, 80.20 616 per cent of the respondents as observed from the study were 31-60 years, that is, were still 617 young and were expected to be active in keying into the GESS. This result agrees with the 618 findings Oyediran et al., (2013) which revealed that age was negatively correlated to the 619 farmers' attitude on the GESS. This might be because GESS employed modern innovative 620 approach as in the use of ICT (in form of e-wallet) which were more youth-friendly. Such 621 could make the elderly skeptical, less comfortable and, therefore, not make effective use of it. 622 623 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. 624

Frequency of contact with extension agents had significant and positive relationship 625 626 with effectiveness of GESS (r=111; $p \le 0.05$). This might also be due to the fact that majority, 627 67.5 per cent 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 Umar et al., 628 (2015) which revealed a negatively significant relationship between extension visit and GESS 629 satisfaction. This result implied that increase in frequency of the contact will lead to increase 630 in favour of effectiveness of GESS. This result is expected because the more the respondents 631 have contact with extension agents the more their likelihood of accessing and utilizing 632 information on GESS that could enhance their productivity. 633

634 Years of farming experience also had significant and positive relationship with 635 effectiveness of GESS (r=0.255; p \leq 0.01). This might also be due to the fact that most the 636 respondents as observed from the study had relatively extensive farming experience. This

result agrees with the findings of Fadairo *et al.*, (2015) which revealed a positive relationship between attitude of farmers towards GESS and years of farming experience. The result also agrees with the findings of Umar *et al.*, (2015) which revealed that the level of satisfaction with GESS increased among families with higher farming experience. This implied that increase in years of farming experience will lead to increase in effectiveness of GESS.

Functional mobile phone ownership also had significant and positive relationship with 642 effectiveness of GESS (r= 0.344; $p \le 0.01$). This implied that increase in Functional mobile 643 phone ownership will lead to increase in effectiveness of GESS. This might be due to the fact 644 that as observed from the study, majority, 68.80 per cent of the respondents owned functional 645 mobile phone and this was expected to boost their access to the farm inputs through the 646 GESS as ownership of a functional mobile phone with registered SIM card is one of the 647 prerequisites for being registered as a GESS farmer and receive alert about the accessibility 648 649 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 effectiveness of GESS in solving the problems of inputs delivery in the study area.

Table 7: Summary of correlation analysis between effectiveness of GESS and some selected personal and socio-economic characteristics of the respondents (n=420)

Variables	Correlation Coefficient (r)	Coefficient of Determination (r2)
Age	-0.253**	0.064
Total household size	0.052	0.003
Years spent in formal education	0.011	0.000

Contact with extension agents	0.024	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
Farm size	0.287**	0.082
Association membership	0.137**	0.019
Functional mobile phone ownership	0.344**	0.118
Year of registration as GESS farmer	0.269**	0.072

659 ****** Significant at 0.01 level

660 * Significant at 0.05 level

661 df: Degree of freedom

662 **Source:** Field survey, 2015

663

664 **Hypothesis two:** There is no significant relationship between the effectiveness of GESS and the 665 identified problems of access to inputs. In order to test this hypothesis, bivariate correlation analysis 666 was used. Results in Table 8 show a negative and significant relationship (r= -0.214, p \leq 0.001) 667 between effectiveness of GESS and all the identified problems of access to inputs in the study 668 area put together.

This implied an inverse relationship between 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 middle men and political elites, more

access to required quantity of agricultural inputs at affordable prices, more access to the 674 agricultural inputs free of charge, more access to the agricultural inputs before or during 675 farming season, less waste of time and energy in attempt(s) to access the agricultural inputs, 676 reduction in loss of plants/livestock as a result of lack of or use of insufficient quantity of 677 agricultural inputs, lower cost of production, higher productivity, more income, better 678 standard of living would all lead to increase in the favour effectiveness of GESS. Moreover, 679 reduction in loss of plants/livestock as a result of use of poor/bad quality agricultural inputs 680 would result in increase in the favour effectiveness of GESS. This result is in consonance 681 with the findings of Nwaobiala and Ubor (2016) which reported that any increase in inputs 682 availability and quality will lead to a corresponding increase in probability of effectiveness of 683 GESS in the study area. The percentage contribution of identified problems to effectiveness 684 of GESS was 4.6 per cent ($r^2=0.046$). This low value of percentage contribution could be 685 because most of the identified problems of inputs in the study area were many, problems 686 reduce the effectiveness of projects/programmes; hence, the low value of percentage 687 contribution of identified problems to GESS effectiveness. 688

689	Table 8: Correlation analysis between effectiveness of GESS and identified problems of
690	access to inputs (n=420)

691

Identified probaccess to inputs	elems of -0.214**	0.046	4.6

Hypothesis three: 697

There is no significant difference in identified problems of access to inputs and 698 effectiveness of GESS across the three selected States. 699

700	Identified problems of access to inputs and the effectiveness of GESS were examined
701	at 0.005 level of significance. Results in Table 9 show a significant difference in identified
702	problems of access to inputs among the farmers across the three States between and within
703	groups. The F-value of 55.121 at the significance value of 0.000 was less than 0.05 level of
704	significance (F= 55.121, p \leq 0.05). The results further show a significant difference in the
705	effectiveness of GESS among the farmers across the three States between and within groups.
706	The F-value of 95.382 at the significance value of 0.000 was less than 0.05 level of
707	significance (F= 95.382, p \leq 0.05) between and within groups. This implied that relative to
708	identified problems of access to inputs and effectiveness of GESS among the farmers across
709	the three States, there are differences.

710	Table 9: Analysis of variance showing the difference between identified problems of
711	access to inputs and the effectiveness of GESS across the three States

		Sum of Squares	Df	Mean Square	F	Sig.
	Between Groups	1798.047	2	899.024	55.121	.000
Identified	Within Groups	6801.286	417	16.310		
Problems	Total	8599.333	419			
	Between Groups	5316.371	2	2658.186	95.382	.000
Effectiveness	Within Groups	11621.286	417	27.869		
	Total	16937.657	419			

- 712
- 713 714
- Significant at p≤ 0.05 DF = Degree of Freedom
- 715 F= Analysis of variance
- 716 Source: Field survey, 2015

717

719 Post hoc analysis of multiple comparison of identified problems of access to inputs and effectiveness of GESS among the farmers across the three States was conducted 720 including the Tukey HSD test to ascertain the specific group(s) of significant difference. 721 Results in Table 10 show that identified problems of access to inputs in Ogun State were 722 higher compared to Ondo State and higher in Ondo State compared to Osun State. This might 723 be due to the fact that events or things that disfavor access to inputs such as non-existence of 724 nearby redemption center(s), non-existence of up to date GESS farmers' register at the 725 redemption centers, poor network for reception of calls and electronic messages for accessing 726 agricultural input, insufficient information to farmers on arrival of farm inputs before or 727 during farming season, interference of and exploitation by middle men and political elites, 728 729 inability to access the required quality agricultural inputs for farm operations, inability to access the required quantity of agricultural inputs for farm operations, inability to access the 730 agricultural inputs at affordable prices, inability to access some of the agricultural inputs free 731 of charge, inability to access the agricultural inputs before or during farming season, and 732 waste of time and energy were more pronounced in Ogun State than in Ondo and more 733 pronounced in Ondo State than in Osun State. 734

The results further show that effectiveness of GESS in Osun State was higher 735 compared to Ondo State and higher in Ondo State compared to Ogun State. This might be 736 737 due to the fact that events or things that favour effectiveness of GESS on input supply such as access to required quality agricultural inputs through GESS, access to required quantity 738 agricultural inputs through GESS, access to agricultural inputs through GESS at affordable 739 prices, procurement of some of the agricultural inputs free of charge through GESS, access to 740 agricultural inputs through GESS before or during farming season and access to agricultural 741 742 inputs through GESS with the assistance of supply chain representatives/help line staff that

- facilitate redemption of agricultural inputs at the redemption center were more pronounced in
- Osun State than in Ondo and more pronounced in Ondo State than in Ogun State.

Table 10 Post hoc analysis of multiple comparison of problems of inputs accessibilityand effectiveness of GESS among the farmers across the three States

			Multiple Com	parisons			
Tukey HSD							
Dependent Variable	(I) state	(J) state	Mean Difference Std. Error		Sig.	95% Confidence Interval	
			(I-J)			Lower Bound	Upper Bound
	Ondo	Ogun	2.975^{*}	.521	.000	1.75	4.20
	Ondo	Osun	-2.022*	.476	.000	-3.14	90
Drobloma	Ogun	Ondo	-2.975*	.521	.000	-4.20	-1.75
Problems	Ogun	Osun	-4.997*	.476	.000	-6.12	-3.88
	Osun	Ondo	2.022^{*}	.476	.000	.90	3.14
		Ogun	4.997^{*}	.476	.000	3.88	6.12
	Ondo	Ogun	2.883^{*}	.162	.000	2.50	3.26
	Undo	Osun	.450*	.148	.007	.10	.80
CESS Effectioner and	0	Ondo	1.158	.682	.207	44	2.76
GESS Effectiveness	Ogun	Osun	7.714*	.622	.000	6.25	9.18
	Osun	Ondo	-6.556*	.622	.000	-8.02	-5.09
		Ogun	-7.714*	.622	.000	-9.18	-6.25

*. The mean difference is significant at the 0.05 level.

747 Source: Field survey, 2015

748 Conclusion

The study revealed 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. There was low level of effectiveness of GESS in solving the problem of inputs delivery.

753 **Recommendations**

Based on the findings and conclusions from the study, it is therefore recommended that;

755 The problem of inability to access required quantity of inputs for farm operations ranked 756 highest in identification and very severe in ascertainment. For example, the current two 50kg 757 bags of NPK and UREA fertilizer available to farmers under the GESS were found to be 758 inadequate to meet the needs of farmers, considerations should be made to increase the 759 number of bags available under the GESS. In order to address the complaints from some 760 farmers that the types of farm inputs they were supplied were not right for their major farm 761 enterprise, consideration of the major farm enterprise should be made in determining the type 762 of farm inputs supplied to each location. Inputs should therefore be made more accessible to 763 farmers.

A major challenge reported by the farmers and agro dealers, and corroborated by the State GESS coordinators, is the timing of input delivery. It is imperative that inputs are delivered to agro dealers and farmers before the planting season commences.

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. Also, customized phones and lines/numbers as once proposed by the Federal Ministry of Agriculture and Rural Development in 2013 with the individual 771 farmer's Identity Number to dial Abuja for inputs redemption and access to other agricultural 772 information should also be provided and sold to every registered farmer.

The small scale farmers claimed that they were not included in the policy formulation of 773 774 the GESS, it is recommended that there be better orientation for future likely programmes 775 and a reorientation of the farmers about the GESS in which there will be more extensive 776 sensitization and enlightenment, especially at the grassroots levels. In this case, a more 777 inclusive participatory approach instead of top-down approach should be adopted for 778 planning, execution and evaluation of GESS programme.

779 Since the farmers used mostly interpersonal communication, more extension agents 780 should be involved in the scheme.

781 The government/GESS should group the farmers into villages instead of making it 782 general so that political farmers will not be able to gain access to the programme. This is more practicable under farmers/target/clientele participatory methodology/approach. 783

784 More redemption centers should be created, to move the centers closer to the farmers in 785 terms of distance to be trekked or covered and number of farmers queuing up for redemption 786 of inputs.

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