Harnessing Agricultural Services Centers for Agricultural Extension Services: A case Study Gezira state-Wad Medani Great Locality, Sudan

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Abstract

Agricultural Services Centers expect to plays an important role in facilitate marketing of most agricultural commodities such as seeds, feed, fertilizers and pesticides. This paper attempts to realize the Importance of agricultural services centers in supporting agricultural extension services in the study area. The study based on two sources of data, primary and secondary, the primary quantitative and qualitative data were collected from field survey using structured questionnaire (in-depth and repeated interview) which designed and pre-tested. Fifty seven respondents (members ASCs) were randomly selected to represent the study population. Statistical Package for Social Sciences (SPSS) software was used for data analysis (Descriptive Statistic) in addition to correlation and regression analysis to test significant level of variables. The findings indicated that 98% of the respondents were explained that the link with farmers was direct link, 53% stated that the farmers they visits them to get information. 90% of the respondents reported that they provided farmers with input and information, 98% of them explained that their

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source of inputs was imported companies, and 91% explained that their method to present the information to the farmers was personal explanation. The results of correlation and regression analysis showed Education level had high significant correlation with link with extension (.001) the value (.430), High significant correlation also with the link with extension and Components that you consider more useful in giving information sig (.000) value (.772) and the available components in case of problem sig (.000) value (.774). Imported companies had significant regression value (.457 beta) (.042) in information exchange other partners had no significant. Conclusion: Agricultural Services Centers enhance the role of agricultural extension through marketing of most agricultural commodities. The paper recommends that the service centers workers should look after the recommended information and follow up their inputs after sailing process to the farmers, the extension view should be more than the trading view.

Keywords: Agriculture, Extension, Services, Wad Medani, Sudan

1. Background

The growing importance of Agricultural Services Centers (ASCs): defined as private bodies to undertake the marketing of most agricultural commodities, have been playing an increasing role in input procurement and distribution systems e.g. (seeds, feed, fertilizers and pesticides)[1]. When Agricultural extension and advisory services are defined defines the terms agricultural extension and advisory services as "the entire set of organizations that support and facilitate people engaged in agricultural production to solve problems and to obtain information, skills and technologies to improve their livelihoods [2] and facilitate the access of farmers, their organizations and other market actors to fruitful knowledge and technologies [3]. To achieving development goal of the research, extension, and private sector dealers to hold regular information-sharing meetings at the district level to discuss production problems, research findings, and recommended practices before and during each growing season [4] together to ensure that farmers receive consistent, up-to date, and accurate technical information about how they can increase their agricultural productivity [5].

Public extension systems were established in most developing countries during the twentieth century, most were organized under ministries of agriculture. As a result, the majority of these agencies became top-down, multifunctional, resource-constrained systems that lacked adequate operational resources as well as competent technical specialists [6]. Despite the importance of effective extension literature on the adoption of improved practices in extension systems, and quantitative evaluation of extension methods is scarce and largely un-synthesized[7]

In Sudan before the decentralization governance, Agricultural system was centrally directed and controlled, but under the federal role, Agricultural system was locally controlled. This system has a rural development strategy. It is characterized by following certain kinds of approaches in their extension work. At national level the technology transfer and extension administration are responsible for agricultural extension matters [8] and the most commonly used approaches are Farmer Field School (FFS), the Training and Visit approach (T&V system), the integrated approach and the commodity approach. These approaches are selected for their impact on extension staff, farmers, stakeholders and productivity [9]

Wad Medani office was the first extension office established in Gezira State in 1974. In 1983 the adoption of regional governance reflected in agricultural sector by restructuring the agriculture administration which is headed by director general and includes many administrations one of them agricultural extension administration in region as the first level at region, and the second level is agricultural extension specialist in province level, and the third level is Agricultural extension unit in Rural Area Council, and the lowest level is extension workers in different sites of Rural Council. Main responsibilities are pursuing the general agricultural extension policy which set by the Technology Transfer and Extension Administration (TTEA), During mid of 1990s, the agricultural extension department was staffed with 40 male and 32 female extensionists, all of them are BSc. degree holders, Now Agricultural Extension administration is staffed with 48

extensionists, 60% of them are female and 40% of them are male; all of them are B.Sc. degree holders [10]

In the last two decades Agricultural Services Centers (ASCs) were considered as the main the input-suppler to the farmers. Moreover, the farmers are in need of advice to use the new agricultural technology to solve and identify their problems or production constraint in order to increase their productivity this because agriculture is the backbone of the Sudanese economy [11], a thing which represents the basic goal of agricultural extension services. Investment in extension services is among the largest in the agricultural sector [12] Many obstacles facing public extension systems today are not capable to increase farm income and to improve farmer's technical knowledge; this may be- due to their top-down organizational structure and their lack of adequate financial resources. Agricultural services centers (ASCs) are well financed and they have facilities to contact farmers, but their capability to make extension advice to the farmers is low due to their commercial view, lack of technical recommended information and lack of qualified agents than that of the extension system. So, it is of importance to make a link between ASCs and the public extension system in order to achieve goals of the agricultural extension work.

2. Materials and Methods

2.1 Area of the Study:

This study is carried out in Gezira State- Wed Medani Greater Locality, which lies in the center of the Sudan and represents one of the largest states with higher population density, and contributes much to agriculture of Sudan. Gezira state is located in the center of Sudan, between latitude $13^0.32$` South $15^0.30$` North, and longitude $32^0.22$ West $34^0.20$` East. It is limited by Khartoum state from the North, Sinnar State from the South, Gadarif State from the East and the White Nile Stat from the western side. The area of Gezira State is estimated as 275.492 square kilometers, which is equivalent to less than 2% of the total area of the Sudan. This area is about 6.57 million feddans, 5.91 million feddans (91.9%) of

it is arable land. The total number of the population in the Gezira State is about 4.244.000 (in year 2009). The State comes second to Khartoum state of the population number. Wad Medani is the capital of the state, population of Wad Medani is 386.000 (in year 2009). Wad Medani Greater Locality is one of eight Localites constituted Gezira State namely: (Wad Medani Greater Locality, South of Gezira Locality, East of Gezira Locality, Um Elgura Locality, Elkamileen Locality, Alhasahisa Locality, Almanaqil Locality and Al Qurashi Locality). It is a well-populated area suitable for agriculture and considered as very important agricultural area in the State and most of the population are working directly or indirectly in agricultural sector. In Wad Medani Greater locality there are four extension offices in the sub administrative units (Wad Medani East complexes, Hantoob complexes, Alshabarga complexes and Fadasi complexes) [13]
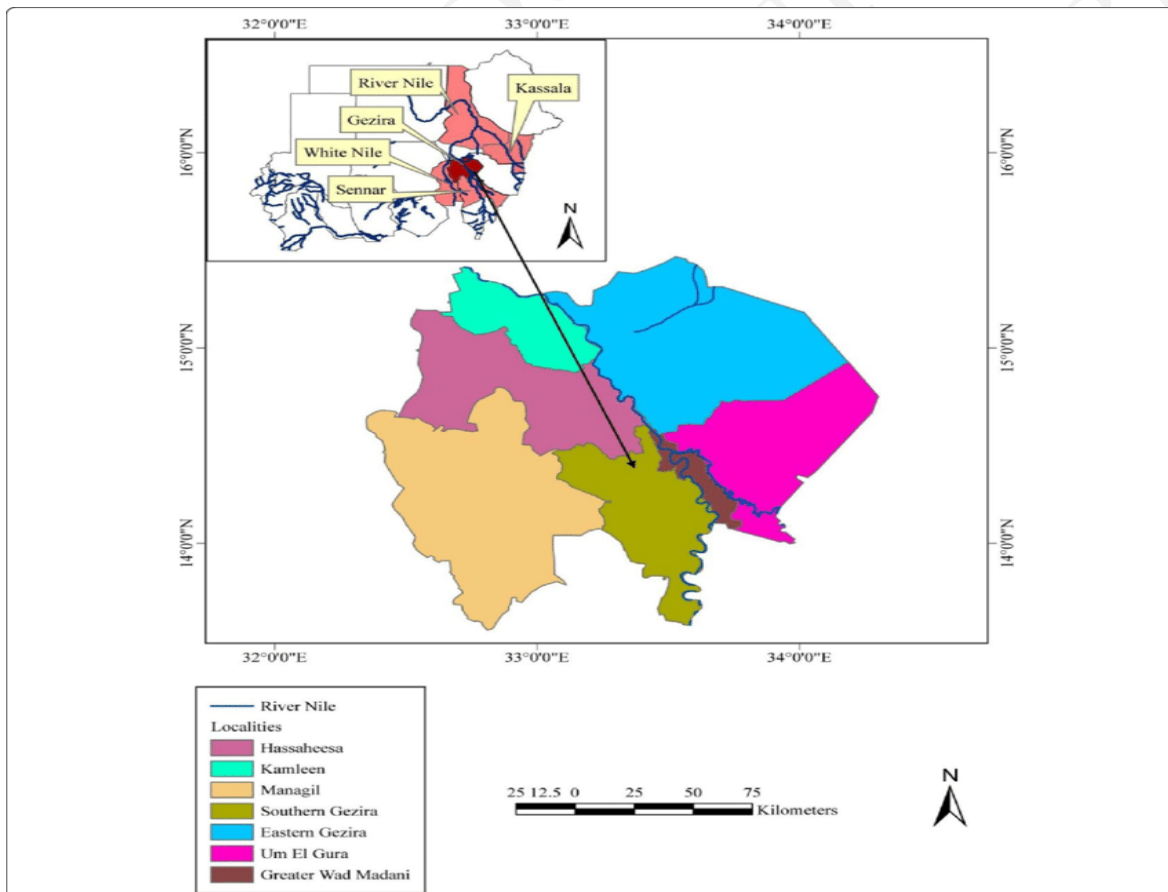

Figure (1) Study Area

2.2 Population and Sample of the study

Farmers, Agricultural Services Centers (ASCs) and the public extension can be considered as important elements in agricultural production in the area. In this paper the ASCs in Wad Medani Greater Locality, were 67 centers according to the records of the Ministry of Agricultures (plant Protection Departments) in Wad Medani Greater Locality, and all of them had licensed to work in the Locality in season 2018-2019.

Based on Steven Samson equation a general formula for sample size selection was used as follows;

$$n = \frac{N \times p(1-p)}{\left[\left[N - 1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

Source [14]

Where:

N = total population   n= sample size   d= proportion of error (.05)

p = proportion of availability of particularity and neutralization (.50)

z = degree of normative meeting to level of mark 0.95 (1.96)

Simple random sampling technique was used for 57 Agnes as sample size according to the Steven Samson equation.

2.3 Data collection and analysis

Field survey was used to collect data by using a questionnaire constructed and distributed through personal interview to 57 respondent's techniques. While secondary information were collected from different sources as references, previous studies, reports, internet and relevant sources.

The collected data was fed in to the computer and statistically analyzed by using Statistical Package for Social Sciences (SPSS). Descriptive analysis used such as percentage and frequencies distribution, More over Correlation and Regression analysis

were used to get out the relationship and the effect between different components in the proposed model.

3. Results and Discussion

3.1 Descriptive results

The results in table (1) shows that the majority of the service centres workers by percentages (54%) were female and 46% of the service centres workers were male, 75% in the age group between 25-45 years, 18% in the in group age 46 – 65 years and only 7% in group age 25years. majority of the service centres workers (60%) were bachelor degree, while 17% had master (M.Sc.) degree, only 9% had diploma, and 14% of the service centres workers in the secondary level. The results extend to revealed that 2% of the services centres workers their specialization was horticulture, 9% crop production, 7% extension, 5% environmental, 5% agricultural economies, the high parentage 42% in the service centres workers they worked in the field of crop protection, only 7% of the service centres workers had diploma degree without specialization while 23% of the service senders were not agriculturalist. 17% of the service centres their experiences was between 11 to 15 years, 30% between 5 to 10 years, high percentages 37% less than 5 years, and 7% of them their experiences years range between 16 years and more.

This indicates the respondents in the active age group and the specialization were multiple high parentages of the service centres workers were crop protection and the reason was the licensing of the centres because the government adopting to give licensing to crop protection specialization afters three years experiences while other specialization give licensing after seven years.

Table (1) Distribution of the respondents by social characteristics

Social characteristics		Frequency	%
Sex	Male	26	46
	Female	31	54
Age group	less than 25 years old	4	7
	25 – 45 years old	43	75
	46 – 65 years old	10	18
Educational level	Secondary	8	14
	Diploma	5	9
	Bachelors	34	60
	Master	10	17
Academic specialization	Not agriculturalist	13	23
	Extension	4	7
	Crop production	5	9
	Crop protection	24	42
	Horticulture	1	2
	Agricultural economies	3	5
	Environmental study	3	5
	Diploma	4	7
Work Experience	less than 5 years	21	37
	5 -10 years	17	30
	11 - 15 years	10	17
	16 - 20 years	4	7
	21 years and more	5	9
	Total	57	100

The results in table (2) below shows that their links with farmers which indicated that the majority of the service centres workers (98%) of were explained that the nature of the link with farmers was direct link and only 2% was indirect natural. In term of type of the link: 70% had functional link with farmers, 20% had personal link with the farmers, 5% had formal link with farmers, and 5% of the service centers workers their link with farmers was social link. Visits with farmers: 37% of services centers worker explained the visits between them and the farmers was reciprocal visits, 10% of them from components to the farmer the extension officers, while the majority 53% of the service centres workers explained that the visits from the farmers to them. Communication through repeated visits: 40% of the service centres workers explained the communication was strong, 55% of the service centres workers explained that the communication was very strong, only

5% of the service centres workers explained that the communication was weak. The following up: the majority of the service centres workers (65%) explained that they following up farmers continuing and medium following, 12% of them their following up was weak and 20% of them explained they did not follow up the farmers.

Receiving the opinion and feedback from the farmers: 26% of the service centres workers explained that they continuing collected the opinion and the feedback of the farmers, 34% of them explained that they poorly collecting the opinion and the feedback from the farmers, and 40% of them explained that they did not collecting the opinion and the feedback of the farmers. This indicate the all the infrastructure of the active extension available in the services centers

Table (2) Distribution of the services centers by their links with farmers:

relationship with farmers		Frequency	%
Nature of the link with farmers	Direct	56	98
	Indirect	1	2
Type of the relation with farmers	Personal	11	20
	Formal	3	5
	Social	3	5
	Functional	40	70
Vistas between service delivers and farmers	reciprocal visits	21	37
	from components to the farmer	6	10
	From farmer to the components	30	53
Communication through repeated visits	very strong (repeated)	31	55
	strong (spaced)	23	40
	weak (rare)	3	5
Following up farmers in their work	continuing follow up	19	33
	medium follow up	20	35
	weak follow up	7	12
	no following up	11	20
Receiving opinion of farmers and feedback	continuously collected	15	26
	poorly collected	19	34
	not collected	23	40
	Total	57	100

Table (3) shows the input and innovations that provided to the farmers: provided input and information: high percentages 90% of the service centres workers explained that they provided farmers with input and information and 10% of the service centres workers explained that the provided farmers by input only. Type of the input that provided to the farmers: all the service centres workers explained that they provided inputs to the farmers, 9% of the service centres workers explained that they provided the fertilizers, 2% seeds, 19% of them provided pesticides, 70% of the service centres workers explained that they provided all inputs to the farmers. Innovations and information that provided to the farmers: only 9% of the service centres workers explained that they provided information while the majority (90%) of them they provided the both innovations and information to the farmers. Type of innovations that provided to the farmers: 5% of the service centres workers explained that they provided improving seeds, the majority of the service centres workers (61%) explained that they provided all innovations to the farmers, 30% of the service centres workers explained that they provided new pesticides, and 4% of them stated that they provided fertilizers and machines to the farmers. This results in line with [15] which reported that Information is considered a vital resource, alongside land, labor, capital and skills.

Table (3) Distribution of the respondents by the inputs and innovations offered to farmer:

Inputs and innovations offered to farmer		Frequency	%
Inputs and information provided to the farmers	information and inputs	51	90
	information only	0	0
	Inputs only	6	10
Type of inputs provided to the farmers	no thing	0	0
	Seeds	1	2
	Fertilizers	5	9
	Pesticides	11	19
	All	40	70
Innovations and information provided to the farmers	information and innovations	52	91
	information only	5	9
	invention only	0	0
	no thing	0	0
Type of innovations that provided to the farmers	no thing	0	0
	improve seeds	3	5
	new fertilizers	1	2
	new pesticides	17	30
	new machines	1	2
	All	35	61
Total		57	100

Table (4) shows the source of inputs, information and innovations: source of inputs that provided to the farmers: high percentages (98%) of the service centres workers explained that their source of inputs was imported companies, 2% of them explained that their source of inputs was university. Sources of inputs information: The vast of the service centres workers explained that 95% of extension officers explained that their source of inputs information was imported companies, only 5% of the service centres workers explained that their source of inputs information that provided to the farmer is research center. Source of innovations and information of the innovations: only 4% of the service centres workers explained that, the majority of the service centres workers (96%)

explained that their source of input was imported companies. this result indicated there was other partners in agricultural works like imported companies works actively beyond the agricultural partners. As noted by [16] Improved agricultural outcomes depend mainly on the effectiveness of the extension messages used to stakeholders.

Table (4) Distribution of the respondents by their Sources of inputs and innovations:

Sources of inputs and innovations		Frequency	%
Sources of input	University	1	2
	imported companies	56	98
Sources of inputs information	research center	3	5
	imported companies	54	95
Sources of innovations information	research center	2	4
	imported companies	55	96
	Total	57	100

Several extension methodologies have been used to diffuse innovations and technologies to the clients since inception of the programme in July 2000 [17] The results in table (5) below show the source of technical package information: Application package information to the farmers: the majority (97%) of the service centres workers explained that they provided application information to the farmers. Source of information about sowing date: 63% of the service centres workers explained that their source of information about sowing date was research centre. Source of information about preparing: land: 63% of the service centres workers explained that their source of information about preparing land was research canter. Source of information about seeding rate: 30% of the service centres workers explained that their source of information about seeding rate was research institution, 3% of the service centres workers explained that they did not provided any information about seeding rate, the majority of service centres workers 60% explained that their source of information about seeding rate was imported companies, 5% of them explained that their source of information about seeding rate was university,

2% of them explained that extension was their source of seeding rate information. Source of information about irrigation: the majority 63% of service centres workers explained that their source of information about irrigation was research institution. Source of information about fertilization: 12% of the service centres workers explained that their source about information of fertilization was research institution, 9% of them explained that they did not provided any information about fertilization to the farmers, 77% of the service centres workers explained that their source of information about fertilization was imported companies, only 5% of the service centres workers explained that their source of information about fertilization was university. Source of information about pesticides used: 84% of the service centres workers explained that their source of information about pesticides used were imported companies. Source of information about harvesting practices and time: 63% of the service centres workers explained that their source of information about harvest practices and time was research institution; these results indicated there was information exchange between the partners but without clear linked between agricultural partners.

Table (5) Distribution of the respondents by their source of technical packages

Source of agricultural packages information that supported to the farmers		Frequency	%
Providing farmer by technical package information	Yes	55	97
	No	2	3
Source of information about sowing dates	no information	2	3
	research center	36	63
	University	4	7
	imported companies	14	25
	Extension	1	2
Source of information about preparing land	no information	2	3
	research center	36	63
	University	4	7
	imported companies	14	25
	Extension	1	2
Source of information about seed rates	no information	2	3
	research center	17	30
	University	3	5
	imported companies	34	60
	Extension	1	2
Source of information about irrigation	no information	2	3
	research center	36	63
	University	4	7
	imported companies	14	25
	Extension	1	2
Source of information about fertilization	no information	2	3
	research center	7	12
	University	3	5
	imported companies	44	77
	Extension	1	2
	center services	0	0
Source of information about pesticides used	no information	2	3
	research center	4	7
	University	2	3
	imported companies	48	84
	Extension	1	2
Source of information about harvesting practices and time	no information	5	9
	Researches	36	63
	University	2	3
	imported companies	13	22
	Extension	1	2
	Total	57	100

Extension methods are effective means of communication meant to transmit knowledge and skills and, that target farmers may easily see, hear, and learn the things conveyed by extension worker [18] the results in table (6) show the method of conducting information to the farmers: (91%) explained that their method to present the information to the farmers was personal explanation, 7% stated demonstration plots, and only 2% of the service centres workers explained that they used media bulletins as presented methods while no one of the extension officers explained the same.

Table (6) Distribution of the respondents by their method of conducting information to the farmers:

method of conducting information to the farmer		Frequency	%
Method of conducting	personal explanation	52	91
information to the farmer	Demonstration fields	4	7
	media bulletins	1	2
	Total	57	100

Improvement in the management of agricultural extension organizations has been identified as a key challenge in the delivery of extension services [19] The results in table (7) show the communication with the other agricultural partners: communication with research institution: 20% of the service centres workers explained the communication with research institution was strong, 32% of the service centres workers explained the they was non communication with research institution, only 3% of the service centres workers explained the communication with research institution very strong. Communication with university: 45% of the service centres workers of the extension officers explained that the communication with university was weak and also the high percentage, 21% explained that the communication with university was strong, 32% explained that they was no communication with university and only 2% of the extension officers explained that the communication with university was very strong.

Communication with imported companies: the majority (70%) of the service centres workers explained that the communication with imported companies was strong. Communication with extension: the majority (54%) of the service centres workers explained that the communication with the extension was weak, 38% stated there was no communication with the extension and only 8% of them explained that the communication with extension was strong. That indicted the clear relation with clear linked between the entire partners will active the extension process.

Table (7) Distribution of the respondents by their communication with agricultural partners:

Communication with the agricultural partners		Frequency	%
communication with research	very strong (more than 5 visits in the season)	2	3
	strong (3-5 visits in the season)	11	20
	weak (less than 3 visits in the season)	26	45
	none (no visits)	18	32
communication with university	very strong (more than 5 visits in the season)	1	2
	strong (3-5 visits in the season)	12	21
	weak (less than 3 visits in the season)	26	45
	none (no visits)	18	32
communication with imported companies	strong (3-5 visits in the season)	40	70
	weak (less than 3 visits in the season)	17	30
	none (no visits)	0	0
communication with extension	strong (spaced 3-5 visits in the season)	4	8
	weak (rare less than 3 visits in the season)	31	54
	none (no visits)	22	38
	Total	57	100.0

The results in table (8) below show the type of communication with the other agricultural partners: type of communication with research institution: 58% of the service centres workers explained the type of communication with research institution was information

exchange, 10% explained that the type of communication was coordination and 32% of them explained that there was no relationship with the research institution. Type of communication with university: 38% of the service centres workers explained that the information exchange was the type of communication with university, 30% explained that coordination was the type of communication with university and 32% 6 of the extension officers explained that they was no communication with university. Type of communication with imported companies: the majority of the service centres workers (82%) explained that the type of communication with imported companies was information exchange. Communication with extension: 38% of the service centres workers explained that there was no communication with the extension, 32% stated the type of communication with extension information exchange and 30% of the service centres workers explained that the type of communication with extension was coordination. That indicted the type of communication will be the clear relation with clear linked between all the partners and that will active the extension process.

Table (8) Distribution of the respondents by their type of communication with agricultural partners:

Type of communication with agricultural partners		Frequency	%
type of communication with research	Coordination	6	10
	information exchange	33	58
	no relationship	18	32
type of communication with university	Coordination	7	12
	information exchange	32	38
	no relationship	18	50
type of communication with imported companies	Coordination	47	82
	information exchange	10	18
	no relationship	0	0
type of communication with extension	Coordination	17	30
	information exchange	18	32
	no relationship	22	38
	Total	57	100

3.2 Results of variables:

Table (9) Distribution of correlation test to measure the relationship between ASCs links with partners and personal characters of ASCs:

Personal characters of the respondents		center services workers			
		Link with research	Link with university	Link with imported companies	Link with extension
Gender	Correlation	.146	.c	.075	.146
	Sig	.279	.	.580	.279
	N	57	57	57	57
Age	Correlation	-.247	.c	-.023	.029
	Sig.	.064	.	.862	.830
	N	57	57	57	57
Education level	Correlation	-.029	.c	.010	.272*
	Sig.	.830	.	.941	.041
	N	57	57	57	57
type of education	Correlation	.073	.c	-.087	-.246
	Sig.	.591	.	.518	.065
	N	57	57	57	57
Specialization	Correlation	.048	.c	-.132	.143
	Sig.	.722	.	.326	.290
	N	57	57	57	57
Experience	Correlation	-.191	.c	-.076	-.191
	Sig.	.155	.	.576	.155
	N	57	57	57	57
Occupation	Correlation	.174	.c	.014	.174
	Sig.	.196	.	.916	.196
	N	57	57	57	57
satisfaction of business career	Correlation	.075	.c	-.106	.075
	Sig.	.577	.	.431	.577
	N	57	57	57	57
The constant evaluation	Correlation	.095	.c	-.147	.095
	Sig.	.481	.	.276	.481
	N	57	57	57	57
the follow up and evaluation	Correlation	.075	.c	-.243	-.430**
	Sig.	.577	.	.069	.001
	N	57	57	57	57

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

c. Cannot be computed because at least one of the variables is constant.

The above results in table (9) shows that there was some significantly correlated between the links with the others partners and the personal character of the center services workers. The service centers personal characters, Education level had low significant correlation with extension link (.041) the value (.272) and the follow up and evaluation had high significant correlation with link with extension (.001) the value (.430), and other personal characters had no significant correlation

Table (10) Distribution of correlation test to measure the relationship between ASCs links with the partners and the link with farmers:

The relationship with farmers		center services workers			
		Link with research	Link with university	Link with imported companies	Link with extension
nature of the relationship with farmers	Correlation	.018	. a	-.106	.018
	Sig.	.895	.	.433	.895
	N	57	57	57	57
type of the relationship with farmers	Correlation	.251	. a	.036	-.082
	Sig.	.060	.	.790	.546
	N	57	57	57	57
vistas between extension and farmers	Correlation	.166	. a	-.173	.023
	Sig.	.217	.	.198	.867
	N	57	57	57	57
communication through repeated visits	Correlation	.114	. a	-.314*	.114
	Sig.	.398	.	.017	.398
	N	57	57	57	57
method of presenting information to farmers	Correlation	.036	. a	.023	.036
	Sig.	.793	.	.863	.793
	N	57	57	57	57
the cost of transforming information to farmers	Correlation	.060	. a	.050	.335*
	Sig.	.656	.	.712	.011
	N	57	57	57	57
following up farmers in his works	Correlation	.144	. a	-.028	.144
	Sig.	.287	.	.834	.287
	N	57	57	57	57
collected opinions of farmers and feedback	Correlation	.189	. a	-.004	-.143
	Sig.	.158	.	.977	.289
	N	57	57	57	57

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

c. Cannot be computed because at least one of the variables is constant.

The above results in table (10) shows the service centers worker only had low significant correlation between the cost of transforming information to farmers and the link with centers service sig (011) value of correlation (.335)

Table (11) Distribution of correlation test to measure the relationship ASCs links with the partners and the source of technical packages information:

source of agricultural application information		center services workers			
		Link on with research	Link with university	Link with imported companies	Link with extension
source of information about sowing dates	Correlation	.081	. [a]	.292[*]	-.199
	Sig	.549	.	.027	.138
	N	57	57	57	57
source of information about preparing land	Correlation	.081	. [a]	.292[*]	-.199
	Sig.	.549	.	.027	.138
	N	57	57	57	57
source of information about seeds rate	Correlation	-.097	. [a]	.255	-.097
	Sig.	.474	.	.055	.474
	N	57	57	57	57
source of information about irrigation	Correlation	.081	. [a]	.292[*]	-.199
	Sig.	.549	.	.027	.138
	N	57	57	57	57
source of information about fertilization	Correlation	-.060	. [a]	.232	-.060
	Sig.	.655	.	.083	.655
	N	57	57	57	57
source of information about pesticides used	Correlation	-.046	. [a]	.132	-.046
	Sig.	.733	.	.328	.733
	N	57	57	57	57
source of information about grossing operation	Correlation	.082	. [a]	.305[*]	-.184
	Sig.	.546	.	.021	.170
	N	57	57	57	57
source of information about harvest dates	Correlation	.061	. [a]	.255	-.208
	Sig.	.650	.	.055	.121
	N	57	57	57	57
source of information about harvest methods	Correlation	.061	. [a]	.255	-.208
	Sig	.650	.	.055	.121
	N	57	57	57	57
source of information about post-harvest	Correlation	.061	. [a]	.255	-.208
	Sig.	.650	.	.055	.121
	N	57	57	57	57
source of information about marketing	Correlation	. [a]	. [a]	. [a]	. [a]
	Sig.	.	.	.	.
	N	57	57	57	57

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

c. Cannot be computed because at least one of the variables is constant.

The above results in table (11) shows that the service centers worker had low significant correlation between the link with imported companies and some technical package (source of information about sowing dates, source of information about preparing land, source of information about irrigation and source of information about clearing operation).

Table (12) Distribution of correlation test to measure the relationship ASCs links with the partners and the opinion of the on the other partners:

the opinion of the extension officers and center services workers		center services workers			
		Link with research	Link with university	Link with imported companies	Link with extension
Costs of transferring information	Correlation	-.054	.ᵃ	.217	.331*
	Sig.	.690	.	.106	.012
	N	57	57	57	57
Components that you consider more useful in giving information	Correlation	-.003	.ᵃ	-.025	.772**
	Sig.	.984	.	.851	.000
	N	57	57	57	57
The available components in case of problem	Correlation	-.008	.ᵃ	-.073	.745**
	Sig.	.954	.	.588	.000
	N	57	57	57	57
The components had the required information	Correlation	-.023	.ᵃ	-.005	-.023
	Sig.	.864	.	.971	.864
	N	57	57	57	57
The faster response components	Correlation	-.031	.ᵃ	.124	-.031
	Sig.	.819	.	.357	.819
	N	57	57	57	57
The more relevant components	Correlation	.003	.ᵃ	.027	.003
	Sig.	.983	.	.843	.983
	N	57	57	57	57
The interested components in get and register the comment and feedback	Correlation	.009	.ᵃ	-.007	.009
	Sig.	.947	.	.957	.947
	N	57	57	57	57
Need to establish relationship between center series and other components	Correlation	.054	.ᵃ	-.009	.054
	Sig.	.690	.	.946	.690
	N	57	57	57	57

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

c. Cannot be computed because at least one of the variables is constant.

The results in above table (12) show that the service centers worker had low significant correlation between the link with extension and the assets of costs of transferring information sig (.012) value (.331) and high significant correlation also with the link with extension and Components that you consider more useful in giving information sig (.000) value (.772) and the available components in case of problem sig (.000) value (.774).

Table (13) Distribution of regression test to measure the effective of the link between the service centers and other partners on information exchanging:

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.286	1.521		2.160	.035
	the link with research	-.095	.536	.025	-.178	.860
	the link with imported companies	-.007	.145	.457	-.048	.042
	the link with extension	-.088	.532	.023	-.166	.869

a. Dependent Variable: The components had the required information

b. Predictors: (Constant), the relationship with extension, the relationship with research, the relationship with imported companies.

Table (13) shows that the regression test measure the effective of the link between the partners and the service centers on the information exchanging, only the link of the imported companies had significant regression (.042) value (.457 beta) but the link with other partners had low impact with no significant regression (relationship with research (.860) low value (.025 beta) and the relationship with the extension (.869) low value (.023 beta).

4. Conclusion and Recommendations

Agricultural Services Centers enhance the role of agricultural extension through marketing of most agricultural commodities. Adequate, update recommended information, in the right time, by the best methods, with less costs to increase the best profit. The paper recommends that the service centers workers should look after the recommended information and follow up their inputs after sailing process to the farmers, the extension view should be more than the trading view, and the service centers workers should be in clear and direct link with all agricultural partners to facility the information exchange

References

[1]   K. Freeman, "ICT Use by Smallholder Farmers in Rural Mozambique: a Case Study of two Villages in Central Mozambique," *J. Rural Soc. Sci.*, vol. 32, no. 2, pp. 1–19, 2017.

[2]   H. Waddingthon, B. Snilsveit, H. White, J. Anderson, and H. E. A. Waddington, "The Impact of Agricultural Extension Services," *Int. Initiat. Impact Eval.*, no. January, pp. 1–23, 2010.

[3]   Christoplos, Chipeta, S., I., and E. Katz. (2008). Common Framework on Market-Oriented Agricultural Advisory Services. Lindau, Switzerland: Neuchâtel Group. (www. neuchatelinitiative.net / english/ documents/ CFonMarket - Oriented Agricultural Advisory Servicessmall.pdf)

[4]   Swanson. Burton E., (2008), Global Review of Good Agricultural Extension and Advisory Service Practices - FAO. Rome.

[5]   Riaz. Muhammad, (2010) - The role of the private sector in agricultural extension in Pakistan - Rural development News.

[6]   Swanson. Burton E., (2010). Strengthening Agricultural Extension and Advisory Systems: Procedures for Assessing, Transforming, and Evaluating Extension Systems - Agriculture & Rural Development Department World Bank – Washingto.

[7]   M. Muthiah *et al.*, "Assessing Extension Methods for Improving Livestock Health

Care in the Indian Himalayas," *Mt. Res. Dev.*, vol. 33, no. 2, pp. 132–141, 2013.

[8]   Omer. Tyseer El hadi (2013) -Knowledge networking among actors of the Rahad Agriculture scheme, Sudan - A Thesis submitted for the requirement of doctoral degree in agriculture from Faculty of Agriculture and Nutritional Sciences, Home Economics and Environmental Management Justus Liebig University Giessen, Germany

[9]   Khalil. Awatif Hussein, (2004). Agricultural Extension in Sudan – Proceedings Regional Workshop on Options of Reform for Agricultural Extension in the Near East Amman, Jordan.

[10]   Ebdalla. El Khidir El Yass. (2009). The Reality of Execution of some Agricultural Extension Policies: Case Study Gezira State, Sudan - A thesis Submitted in Partial Fulfillment of the Requirement for the degree of Master of Science in Agricultural Extension - Faculty of Agricultural Sciences - University of Gezir

[11]   H. I. S. Ahmed, A. Y. M. Kair, J. B. Sulieman, and M. A. A. Hamad, "The Role of Adaptation Mechanisms in Improving Livelihood of Small Holders in Bara Locality-North Kordofan State , Sudan," vol. 2, no. 4, pp. 37–42, 2017.

[12]   E. Nkonya, "Current extension service models , what works and what does not work," *UN Expert Meet. SLM Agric. Pract. Africa;Bridging gap between Res. farmers*, pp. 1–27, 2009.

[13]   A. E. M. Ali, M. A. Ali, and M. A. A. Hamad, "Assessment of the components that deliver agricultural extension services , at Gezira state-wad medani great locality , Sudan," vol. 5, no. 2, pp. 49–60, 2020.

[14]   Altae, Iman Hassan, 2012, How Dertermine Sample Size, Faculty of Education, University of Bagdad- Iraq

[15]   I. M. Mutunga and S. Lecturer, "Context of mobile phone use and its effects on smallholder farmer ' s livelihood outcomes in Kenya," vol. 3, no. 4, pp. 121–136, 2016.

[16]   H. S. Kassem, "Effectiveness of different agricultural extension methods in providing knowledge and skills in disease prevention: a case of smallholder poultry production systems in Dakhalia Governorate of Egypt," *Asian J. Agric. Extension, Econ. Sociol.*, vol. 3, no. 2, pp. 91–107, 2014.

[17]   N. Agriculture and L. Extension, "a Guide To Effective Extension," no. June, 2011.

[18]   A. State, "EFFECT OF AGRICULTURAL EXTENSION DELIVERY METHODS

ON ARABLE CROP FARMERS ' CROPPING SY STEMS IN KADUNA STATE ,"
vol. 17, no. 3, pp. 225–230, 2017.

[19]   M. Lopokoiyit, C. Onyango, and J. K. Kibett, "Extension management competency
needs of agricultural extension agents in Kenya," *Mediterr. J. Soc. Sci.*, 2013.