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Assessment of the components that deliver agricultural extension services, at Gezira state-wad medani great locality, Sudan

Abstract

This study was conducted at Wad Medani Great Locality, Sudan- season 2016. The study attempts to assess the components that transferring agricultural extension services to the farmers involving services centers, also to assess the old components through the links between each other's, type of the link, and information transferring cost. The primary data were collected from a field surveys using a well-structured questionnaire. Secondary data was collected from books and scientific journals. The quota sample technique was used and 322 farmers were selected as the study population. Statistical Package for Social Sciences was used for data analysis focusing on descriptive statistics and correlation analysis. Results indicated that 64% of the respondents have landowner, 70% of their agricultural experience less than 15 years, and 79% Invested in cotton, corn, wheat, and peanuts, and 76%, 68%, 75%, and 71% of the respondents their source of fertilizer, fertilizer information, pesticides, and pesticides information were service centers respectively. 71% of the farmers assess that their links with extension were strong- direct- official, 62% and 92% of the respondents stated the personal method was used for delivering information by extension is its and the service centers respectively. Services centers were quick response partners and extension was the less cost. Results of correlation analysis showed that the link with extension had high significant with the source of seeds (.011) (R=-.142), and highly significant with the source of fertilizer (.000) the value (R=.317), fertilizer information, pesticides, and pesticides information (.000) the value (R=.271). The result of the regression test of the farmers showed a high significant link with the extension (.487 beta). The research recommended information should be transferred to all agricultural partners; Training sessions have to be held to all extension officers and ASCs workers, using more than one approach for conducting the extension process.

Keywords: extension, model, farmers, transferring, Sudan

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Abbreviations: TOT, transfer of technology; FFS, farmer field school; IPM, integrated pest management; GDP, gross domestic products; USAID, American agency for international development; ASCs, agricultural services centers; SPSS, statistical package for social sciences

Introduction

Improvement in the management of agricultural extension organizations has been identified as a key challenge in the delivery of extension services[1] Over the years, several components have been shared to enhance the effectiveness of extension services and service delivery. A component defined as anybody that works out in the agricultural sector to deliver some sort of services to the farmers that aid in the agricultural process and enhance productivity positively. In this section, we attempt to describe the various models of extension and its components,[2] eight basic extension models in Africa, all of them imported from other continents as listed below.

Technology transfer model: the Transfer of Technology (TOT) model it based on the assumption that transfer of technology and knowledge from scientists to farmers help in developing agriculture[3] and assumes that farmers' problems can be solved by people and institutions that have this 'modern' knowledge. This model operates by the components of agricultural extension administration and some NGOs.

The public extension model: Public interest implies serving farmers and the urban population, securing subsistence production and promoting cash crops for export, reaching the masses of rural households and serving the needs of specific groups, extending assistance to high-potential and disadvantaged producers. This model operates by the component of governmental agricultural extension.

Commodity extension model: This model was pioneered among smallholders producing cotton in Mali and other Francophone countries 50 years ago. Commodity-based extension run by governments, parastatals, or private firms is the most frequent extension method. This model operates by private components that work in agricultural extension.

T&V model: Launched in Turkey in the early 1970s and then spread to India and throughout Africa under World Bank sponsorship in the late 1970s and early 1980s, this model has proven to be financially unsustainable. The system concentrates on contact farmers expected to pass the information on to fellow farmers with similar problems. To ensure regular field contacts, facilitate supervision and

communication, and set clear and attainable objectives, fixed visits at regular intervals are prescribed. T & V has increased the quantity but not the quality of extension contact and this, in turn, has increased farmers' knowledge and adoption of technology.[4] This model held by so many components according to its objectives.

NGO (international and local) model: this model spread rapidly in the 1990s as many NGOs shifted gears and moved from being providers of food and humanitarian assistance to become agents of development. The NGOs established food and community development projects in many African countries in the 1990s that were primarily financed by bi-lateral donors.[5] This type of extension held by NGOs and GOs components only

The Private sector model: this model has been spreading in industrial countries such as the Netherlands and New Zealand and more recently in middle-income countries such as Chile and low-income countries such as Uganda. Under this model, the farmer is expected to pay some of the cost of extension with the hope that public outlays on the extension could be reduced.[5] This model works by special components that established with private sectors to serve extension purposes.

Farmer Field School (FFS) model: this started in the rice mono-cropping farms in the Philippines and Indonesia in the late 1980s, as a way of diffusing knowledge-intensive Integrated Pest Management (IPM) practices for rice. FFS has since been adapted to work with other crops and diseases, and has spread rapidly across Asia, Africa, and Latin America.[6] The FFS uses participatory methods to help farmers develop their analytical skills, critical thinking, and creativity, and help them learn to make better decisions. Farmer Field School is a method to train adult farmers in an informal setting within their environment, and operates by the components of public extension. It is often described as a 'school without walls. FFS is a practical approach to training, which empowers farmers to be their technical experts on major aspects of localized farming systems. FFS assumes that farmers already have a wealth of knowledge. Therefore, field schools are oriented to providing the knowledge and management skills in a participatory manner, so that the farmers' experience is integrated into the program.[7]

Innovative linkage model: historically, the extension has mainly involved technology transfer, with the village extension worker transferring knowledge from research stations to farmers by using individual, group, and mass media methods, this work operates by the component of public extension. Various approaches are being promoted but information on their impact and sustainability is sparse,[8] most recently, the extension has been asked to play a 'technology development role' by linking research with community group needs and helping to facilitate appropriate technology development. virtue, rights, and utilitarian models have successive levels of priority as the theoretical base of sustainable agricultural development.[9]

Farming System in Sudan: divided into three main categories these are; irrigated agriculture this covers 2 million hectares extend from the river Nile & its tributaries either by surface pump or flood irrigation system. The main crops are cotton, sugar cane, wheat, sorghum, pulses, vegetable, and fruits, green fodders. These crops contribute by 64% of the GDP (Gross Domestic Products). Rain Fed Mechanized Farming mainly in the central clay plain of Sudan; the average rainfall ranges 400-800 mm. The main crops are Sorghum, which covers 85% while the Sesame covers 10% of the cultivated area. The system is fully mechanized apart from weeding& sesame cutting. The last one is traditional rain-fed farming cover 9 million hectares mainly practiced in southern &western Sudan. The main crops are millet, Gum Arabic, sorghum, Hibiscus, watermelon& Pigeon Pea.

The extension services started in Sudan in 1958 supported by the American Agency for international development (USAID), which assisted the Ministry of Agriculture to establish an extension department, open extension units in some regions and train extension workers in America. From 1958 up to 1981, about 17 extension units were established in different parts of the country. Currently, Agricultural extension services are provided by a variety of government department and corporations. Due to lack of evidence on some of the newer models, extension reforms, and pluralistic models that involve many different extension providers[10] and higher population, most of the populations are working directly or indirectly in agricultural sector, and available of all the agricultural components (Farmers, Agricultural Services Centers (ASCs), The public extension farmers, Imports companies, Research Institution (research centers and University of Gezira) this study was suggested and amid to construct a model for transferring agricultural extension services to the farmers involving services centers, also to assessment the old model through the links between the components, type of the link, assessment of information transferring cost.

Materials and methods

Area of the study

This study is carried out in Gezira State- Wed Medani Greater Locality, lies in the center of Sudan and represents one of the largest states with higher population density, and contributes much to the agriculture of Sudan. Gezira state is located between latitude $13^0.32`$ South $15^0.30`$ North, and longitude $32^0.22`$ West $34^0.20`$ East (Annual report, 2016) Figure 1 it is neighbored by Khartoum state from the North, Sinnar State from the South, Gadarif State from the East and the White Nile State from the western side. The area of Gezira State is estimated 275.492 square kilometers, which is equivalent to less than 20% of the total area of the Sudan. The total number of the population in the Gezira State is about 4.244.000 (in the year 2009). The State comes second to Khartoum state of the population number. Wad Medani is the capital of the state, the population of Wad Medani is 386.000 (in the year 2009).

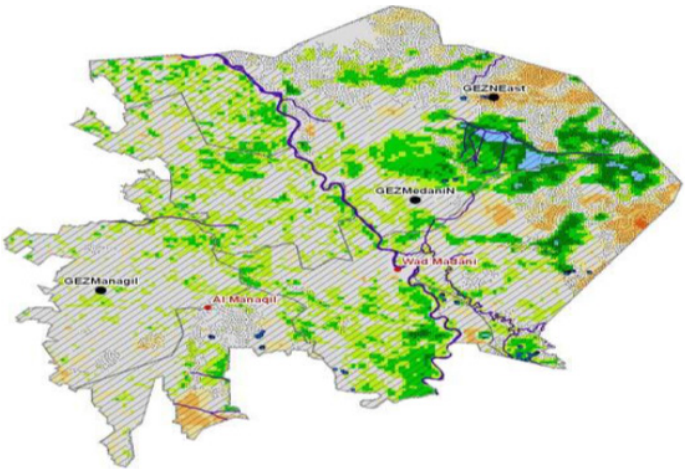

Figure 1 Map of Gezira State-Sudan.

Wad Medani Greater Locality is one of eight Localities 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 a very important agricultural area in the State and most of the population are working directly or indirectly in the 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).[11]

Population and sampling procedures

Population of the Study is farmers in Wad Medani Greater Locality; those were 2000 farmers according to Agricultural managements in the Locality in season 2015-2016.

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

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

Source; Altae,[12]

Where: N=total population n=sample size d=proportion of error (.05) p=proportion of availability of particularity and neutralization (.50) z=degree of the normative meeting to a level of mark 0.95 (1.96). So according to the previously mentioned equation samples size is 322 farmers selected through quota sample technique.

Data collection and analysis

The field survey was used to collect data by using a questionnaire constructed for this purpose through personal interview techniques. While secondary data collected from different sources as references, previous studies, reports, internet, and relevant sources.

The collected data was fed into the computer and statistically analyzed by using Statistical Package for Social Sciences (SPSS). The descriptive analysis used such as percentage and frequencies distribution, Moreover Correlation and Regression analysis were used to get out the relationship and the effect between different components in the proposed model.

Results and discussions

Results of descriptive analysis

The results in a Table 1 indicated that most of the respondents 85% were males while 15 % of them were females. This may be due to that the ownership of the agricultural enterprise always concerns by a man more than women, also may be due to the social traditions which high light men as the head of the household. For the more women always in traditional societies concern responsible for domestic work in their houses. 52% of the respondents fall in the age group (21–40) year, while 37% of them were a (41-60) year, which represents active age for production. Also, the result revealed that 35% of the respondents have a secondary level of education, compared to 25%, 20%, 14% and 6% there have basic, university, Khalwa and illiterate respectively. This in line with[13] which cited farmers in rural area belonged to the relatively younger age and better-educated group with agriculture as the main source of income and livelihood. Concerning the land ownership the results showed that 64% owner, 24% were renters while only 12% were participants with others. The results extend to depicted that the majority of the respondents (51%) there land size between less than 5 and less than 10 Feddan, while 33% of their land size more than 10 Feddan and only 17% of the respondents their land size less than 5 Feddan. In regards to level of income the same table shows that the high percentage of the respondents (37%) their income level between 10.000 to 20.000 SD pounds per year, while 33% their level of income was less than 10.000 SD pounds per year and 30% of the respondents their income level more than 20.000 SD pounds, that means the responder includes all farmer sector (smallholder, medial holder, and the big size holder) with high, medial and low-income level. The business of agricultural research, development, and extension (RD&E) has undergone considerable change in developing countries moving from a domain largely dominated by government departments to a situation of multiple actors.[14]

Table 1 Distribution of the respondent's according to socioeconomic characteristics

Socioeconomic characteristics		Frequency	Percentages (%)
Sex	Male	274	85
	Female	48	15
Age gradation	≥ 20 years	9	3
	21- 40 years	166	52
	41- 60	119	37
	≤61years	28	8
Education	Illiterate	18	6
	Khalwa	85	14
	Basic	42	25
	Secondary	118	35
	university and above	63	20
type of land owner ship	Owner	206	64
	Renter	76	24
	Participate with other	40	12

Table Continued...

Socioeconomic characteristics		Frequency	Percentages (%)
Size of land	less than 5 Feddan	53	17
	5 and less than 10 Feddan	164	51
	More than 10 Fadden	105	33
Level of income	less than 10.000 SD pounds per year (weak)	108	33
	10.000 to 20.000 SD pounds per year (medium)	119	37
	more than 20.000 SD pounds per year (high)	95	30
Total		322	100

Indicating by SPSS; descriptive statistic, Source; field research 2016

To induce farmers to adopt a productive new agricultural technology, we apply simple and complex contagion diffusion models.[15] The results indicated that of the respondents 70% there agricultural experience less than 15 years, while 30% there experience more than 15 years that means the responder includes high and low agricultural experience. the receipt of extension Agricultural experience increases farm income had more effect in the agricultural investment.[16] Results showed that79%the respondents planted cash crops (cotton, corn, wheat, and peanuts), while 11% their cultivation vegetable and crops and 10% cultivation vegetables only, Table 2 that means the farmers interested in cultivation crops which were expensive and had high income for that they in need to more information about this crop to by succeed. Substantial investment in the training of agriculturalists and the further science development of systems simulation is required to tackle the enormous challenges facing agricultural development in the region.[17]

Table 2 Distribution of the respondents according to their agricultural experience and type of crops cultivated

Experiences and type if crops		Frequency	Percentages (%)
Agricultural experience	less than 5 years	88	27
	5 - 10 years	71	22
	11 - 15 years	68	21
	16 – 20 years	40	13
	More than 20 years	55	17
Types of crops	Crops (cotton, Corn, wheat, peanuts)	256	79
	Vegetables	32	10
	vegetables and crops	34	11
Total		322	100

Indicating by SPSS; descriptive statistic, Source; field research 2016

Regarding source of seed, the results revealed that 50% of the respondents their main sources of seeds were the service centers, 36% of them access seeds from other farmers and14% from the extension. While the source of fertilizers, 76% of the respondents their source was service centers, 13% accessed from farmers and only 11% from the extension. Regarding the source of pesticides, 75% of the respondents their sources of pesticides was service centers, 13% accessed from and 12% from extension, Table 3, this agrees with[18] Which reported that from 1992 the privet sectors was the main input suppliers, also few of farmers still used traditional input suppliers like farmers to farmer exchanged and very few farmers dependence on extension as their input suppliers and that mean extension was very weak as input source.

Table 3 Distribution of the respondents by their sources of inputs

Sources of inputs		Frequency	Percentages (%)
Source of Seed	Extension	44	14
	service centers	161	50
	Farmers	117	36
Source of Fertilizers	Extension	35	11
	service centers	246	76
	Farmers	41	13
Source of Pesticides	Extension	37	12
	service centers	243	75
	Farmers	42	13
Total		322	100

Indicating by SPSS; descriptive statistic, Source; field research 2016

The knowledge score of participants increased as the number of information sources contacted increased.[19] The results in a Table 4 indicated the source of information regarding to production inputs, for improving seeds information: the high percentage of 45% of the respondents accessed from service centres, 32% of them from other farmers and only 23% of the respondents received from the extension. For fertilizers information 68% of the respondents received from service centres, 19% of them got from others farmers, and only 13% from the extension. Also for pesticides information, 71% of the respondents their source of pesticides information were service centres, 17% of the other farmers represent the source of information and 12% of the respondent's extension was the pesticides information source. When the source of modern equipment information results revealed that 57% of the respondents their source of modern equipment information were service canters, 27% of them their sources were other farmers and 16% their source was an extension, Table 4. Competing models of innovation informing agricultural extension, such as transfer of technology, participatory extension, and technology development, and innovation systems have been proposed over the last decades.[20]

Table 4 Distribution of the respondents according to the sources of information

Sources of information about the inputs		Frequency	Percentages (%)
	Extension	74	23
Improving seeds information	service centers	144	45
	Farmers	104	32
	Extension	41	13
Fertilizer information	service centers	218	68
	Farmers	63	19
	Extension	38	12
Pesticides information	service centers	228	71
	Farmers	56	17
	Extension	51	16
Modern equipment information	service centers	184	57
	Farmers	87	27
Total		322	100

Indicating by SPSS; descriptive statistic, Source; field research 2016

Current practices in agricultural management involve the application of rules and techniques to ensure high quality and environmentally friendly production.[21] The results in Table 5 showed that 40% of the respondents their source of ploughing information were services centres, 35% of them got from others farmers and only 25% from extension. For source of preparing land information 51% of the respondents their source were other farmers, 26% of them accessed from extension and only 23% got information from service centres. Also results extend to revealed that 55% of the respondents their source of time of planting information were other farmers, 26% of them from the extension and 19% of them were service centres. In regards to the source of seeding rate information: the high percentages of the respondents 44% their sources were other farmers, 30% service centres were and 26% extension. While the source of irrigation information 44% their source were other farmers, 34% extension and 22% service centres. Also results indicated the source of fertilizer information by 55% of the respondents their source were service centres, 27% and 18% of them their sources other farmers and extension respectively.The above result agreed with[22] who mentioned farmers that reported receipt of "very useful" agricultural advice had greater productivity and greater food security compared to those that reported receipt of advice that they considered not useful and those that did not receive any advice at all.

The results in Table 6 shows the links with the agricultural partners: All of the respondent's replied that they had no links with research centres, university and imported companies as partners in agricultural work. But they explained that they had link with extension and ASCs as partners in agricultural work as 46% of the respondents their link with extension and assessed as strong, 18% assess as weak 30% assess as none and 6% assess as very strong. When 71% of the respondent their link with ASCs and assessed as strong, 16% assess as weak 8% assess as none and 5% assess as very strong link.

Different tools in delivering extension messages enable more information exchange among agriculture stakeholders and this increase agricultural production and agribusiness.[23] The results of the study indicate the methods used by agricultural extension and depicted that 62% of the respondents reported that the personal explanation was common methods used by the extension agent, 30% of them indicate that no visits, 5% indicated both personal explanation and demonstration field, and 3% addressed both the methods was media bulletins. On the other hand methods used by service centres 92% of the respondents cited the personal explanation and 8% no visits conducted, Table 7. This result in line with[24] he reported that extension often depend in complex ways in delivering new technology or information for improving the farming system.

Table 5 Distribution of the respondents by their sources of technical packages

Sources of technical packages		Frequency	Percentages (%)
Method of plowing	Extension	80	25
	service centers	128	40
	Farmers	114	35
Preparing land	Extension	84	26
	service centers	75	23
	Farmers	163	51
Time of planting	Extension	84	26
	service centers	62	19
	Farmers	176	55
Seeding rate	Extension	82	26
	service centers	98	30
	Farmers	142	44
Irrigation	Extension	108	34
	service centers	73	23
	Farmers	141	43
Fertilization	Extension	57	18
	service centers	177	55
	Farmers	88	27
Total		322	100

Indicating by SPSS; descriptive statistic, Source; field research 2016

Table 6 Distribution of the respondents by their links with the agricultural partners

The links with the agricultural partners		Frequency	Percentages (%)
links with research centers	none (no visits in the season)	322	100
links with university	none (no visits in the season)	322	100
links with imported companies	none (no visits in the season)	322	100
links with extension	very strong (more than 5 visits in the season)	20	6
	strong (3-5 visits in the season)	147	46
	weak (less than 3 visits in the season)	58	18
	none (no visits in the season)	97	30
links with service centers	very strong (more than 5 visits in the season)	17	5
	strong (3-5 visits in the season)	228	71
	weak (less than 3 visits in the season)	50	16
	none (no visits in the season)	27	8
Total		322	100

Indicating by SPSS; descriptive statistic, Source; field research 2016

Table 7 Distribution of the respondents by methods of delivering messages

Methods of delivering messages		Frequency	Percentages (%)
Presentation in case of visits used by agricultural extension	no visits	93	30
	personal explanation	200	62
	Media bulletins	10	3
	personal explanation and demonstration field	19	5
Presentation in case of visits used by service centers	no visits	27	8
	personal explanation	295	92
Total		322	100

Indicating by SPSS; descriptive statistic, Source; field research 2016

The results of the study indicated that 43%, 34%, and 23%of the respondents reported that the most quick response to farmers needs services centres, extension and other farmers respectively. Also results extend to revealed that 46%, 43%, and only 11% of the respondents addressed the extension, service centres and other farmers were the less cost in term of services accessibility.

Regarding to the most useful information and availability 45% of the respondents convinced that extension and service centres present useful information, 52%of them reported service centres were more available partners. Also results showed that 47% and (52%) of the respondents explained that extension was the more relevant and interested partners on feedback respectively, Table 8.

Table 8 effectiveness partners from beneficiaries point of views

The effective partners		Frequency	Percentages (%)
The quick response partners	Extension	110	34
	service centers	139	43
	Farmers	73	23
The less cost	Extension	148	46
	service centers	138	43
	Farmers	36	11
The most useful information	Extension	145	45
	service centers	145	45
	Farmers	32	10
The more available partners	Extension	126	39
	service centers	168	52
	Farmers	28	9
The more relevant partners	Extension	152	47
	service centers	141	44
	Farmers	15	5
	no one	14	4
The interested partners on feedback	Extension	168	52
	service centers	140	43
	no one	14	5
Total		322	100

Indicating by SPSS; descriptive statistic, Source; field research 2016

Results of correlation and regression analysis

The results of correlation test showed that there was some Personal characteristic had significantly correlated with links with other agricultural partners, there are; The owner type and the link with extension (.006) the value of R=-.153, the agricultural experience and the link with the extension (.002) the value of R=.169 and the plant type had significant correlation with the relationship with extension (.000) value of R=346, Table 9. The results extend to indicated that there was some significantly correlated between the farmers connectivity with agricultural partners and the source of inputs these are the source of seeds and the link with extension (.011) the value (R=-.142), the source of fertilizers and the link with extension (.000) the value (R=.317) while the link with service centers had low significant (.025) the value (R=.125), the source of pesticides and the link with extension (.000) the value (R=.309) while the link with service centers had low significant (.038) the value (R=.116), Table 10.

Table 9 Distribution of correlation test to measure the relationship between some personal characteristics of the respondents and links with the agricultural partners

Personal characteristics of the respondents		Link with research centers	Link with university	Link with imported companies	Link with extension	Link with service centers
Owner Type	Correlation	.c	.c	.c	-.153**	-0.052
	Sig. (2-tailed)	.	.	.	0.006	0.35
	N	322	322	322	322	322
Agricultural experience	Correlation	.c	.c	.c	.169**	0.013
	Sig. (2-tailed)	.	.	.	0.002	0.811
	N	322	322	322	322	322
Plant types	Correlation	.c	.c	.c	.346**	0.104
	Sig. (2-tailed)	.	.	.	0	0.062
	N	322	322	322	322	322

**. 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

Table 10 Correlation test to measure the relationship between farmer's connectivity with the partners and their source of inputs

Source of inputs		Link with research centers	Link with university	Link with imported companies	Link with extension	Link with service centers
Source of Seed	Correlation	. a	. a	. a	.142*	-0.039
	Sig. (2-tailed)	.	.	.	0.011	0.489
	N	322	322	322	322	322
Source of Fertilizers	Correlation	. a	. a	. a	.317**	.125*
	Sig. (2-tailed)	.	.	.	0	0.025
	N	322	322	322	322	322
Source of Pesticides	Correlation	. a	. a	. a	.309**	.116*
	Sig. (2-tailed)	.	.	.	0	0.038
	N	322	322	322	322	322

**. 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 Table 11 revealed that link with extension had high significant correlation with all technical package; improving seeds information (.000) the value (R=.312), new fertilizer information (.000) the value (R=.349), pesticides information (.000) the value (R=.384), method of plowing information (.000) the value (R=.396), modern equipment information (.000) the value (R=.365), Time of planting information (.000) the value (R=.294), preparing land information (.000) the value (R=.399), seeding information (.000) the value (R=.396), irrigation information (.000) the value (R=.388), used of fertilization information (.000) the value (R=.348) and used

of pesticides information (.000) the value (R=.271).While the link with service centers had a significant correlation with new fertilizer information(.014) the value (R=.137) and pesticides information (.015) the value (R=.136) while the other application information had no significant correlation with the link with service centers.

Table 11 Correlation test to measure the relationship between farmers links with the partners and the technical package

Technical package		Link with research centers	Link with university	Link imported companies	Link with extension	Link service centers
Improving seeds information	Correlation	. a	. a	. a	.312**	0.018
	Sig. (2-tailed)	.	.	.	0	0.751
	N	322	322	322	322	322
New fertilizer information	Correlation	. a	. a	. a	.349**	.137*
	Sig. (2-tailed)	.	.	.	0	0.014
	N	322	322	322	322	322
Pesticides information	Correlation	. a	. a	. a	.384**	.136*
	Sig. (2-tailed)	.	.	.	0	0.015
	N	322	322	322	322	322
Method of plowing information	Correlation	. a	. a	. a	.396**	0.052
	Sig. (2-tailed)	.	.	.	0	0.353
	N	322	322	322	322	322
Modern equipment information	Correlation	. a	. a	. a	.365**	-0.005
	Sig. (2-tailed)	.	.	.	0	0.927
	N	322	322	322	322	322
Time of planting information	Correlation	. a	.a	.a	.294**	-0.005
	Sig. (2-tailed)	.	.	.	0	0.935
	N	322	322	322	322	322
Preparing land information	Correlation	.. a	.a	.399**	0.036	
	Sig. (2-tailed)	.	.	.	0	0.522
	N	322	322	322	322	322
Seeding information	Correlation	.a	.a	.a	.396**	0.077
	Sig. (2-tailed)	.	.	.	0	0.169
	N	322	322	322	322	322
Irrigation information	Correlation	.a	.a	.a	.388**	0.052
	Sig. (2-tailed)	.	.	.	0	0.35
	N	322	322	322	322	322
Used of Fertilization information	Correlation	.a	.a	.a	.348**	0.059
	Sig. (2-tailed)	.	.	.	0	0.293
	N	322	322	322	322	322
Used of pesticides information	Correlation	.a	.a	.a	.271**	-0.007
	Sig. (2-tailed)	.	.	.	0	0.903
	N	322	322	322	322	322

**. 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

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Also, the results depicted that link with extension had high significant correlation with all farmers opinions (First component you go to in case of problem (.000) the value (R=.487), The first responsive of the components (.000) the value (R=.509), Components had less cost and efforts to get information (.000) the value (R=.561), The components had the required information (.000) the value (R=.494), The more relevant components (.000) the value (R=.466), The interested components in get and register the comment-feedback (.000) the value (R=.389), Opinion on add the service centers in the extension models (.000) the value (R=.506).

When the link with service centers had high significant correlation only with the first responsive of the components (.003) the value (R=.164) and components had less cost and efforts to get information (.010) the value (R=.143). Low significant with the First component you go to in case of problem (.026) the value (R=.124), the components had the required information (.000) the value (R=.028), opinion on adding the service centers in the extension models (.000) the value (R=.043), the opinion of the other had no significant correlation with the relationship with service centers, Table 12.

The results of the regression test measure the effectiveness of the link between the partners and the farmers on the information exchanging, two partners had impact in transferring information to the farmers, one the link with the extension the effective value was (.487 beta) with high significant regression and the second partners had to impact in transferring information is the link with the service centers the effective value was (.450 beta) with low significant regression, Table 13.

Table 12 Correlation test to measure the relationship between farmer's opinions and links with the partners

Opinion of the farmers		Link with research centers	Link with university	Link with imported companies	Link with extension	Link with service centers
First component you go to in case of problem	Correlation	. a	. a	. a	.487**	.124*
	Sig. (2-tailed)	.	.	.	0	0.026
	N	322	322	322	322	322
The first responsive of the components	Correlation	. a	. a	. a	.509**	.164**
	Sig. (2-tailed)	.	.	.	0	0.003
	N	322	322	322	322	322
Components had less cost and efforts to get information	Correlation	. a	. a	. a	.561**	.143**
	Sig. (2-tailed)	.	.	.	0	0.01
	N	322	322	322	322	322
The components had the required information	Correlation	. a	. a	. a	.494**	.122*
	Sig. (2-tailed)	.	.	.	0	0.028
	N	322	322	322	322	322
The more relevant components	Correlation	. a	. a	. a	.466**	0.088
	Sig. (2-tailed)	.	.	.	0	0.116
	N	322	322	322	322	322
The interested components in get and register the comment-feedback	Correlation	. a	. a	. a	.389**	-0.054
	Sig. (2-tailed)	.	.	.	0	0.331
	N	322	322	322	322	322
Opinion on add the service centers in the extension models	Correlation	. a	. a	. a	.506**	.113*
	Sig. (2-tailed)	.	.	.	0	0.043
	N	322	322	322	322	322

**. 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

Table 13 Distribution of regression test to measure the effective of the link between the farmers and other partners on information exchanging

Model		Unstandardized coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.616	0.136		26.649	0
	Link with extension	0.339	0.034	0.487	9.865	0
	Link with service centers	0.041	0.048	0.45	0.845	0.039

a. Dependent Variable: The components had the required information

b. Predictors: (Constant), Relationship with service centers, Relationship with extension

This proposed relation between the component had been designing from the reality of the agricultural work whereas a lot of partners had talked their place like the imports companies and the services centers which had found since 1992, the component involving all the agricultural partners, all these partners will be more effective because they in clear and official links with each other represents as teamwork, series to give effective delivery of information to farmers i.e. (adequate, updated recommended information, in the right time, by the best methods, with less costs to increase the best profit for all), as follows in Figure 2 below:

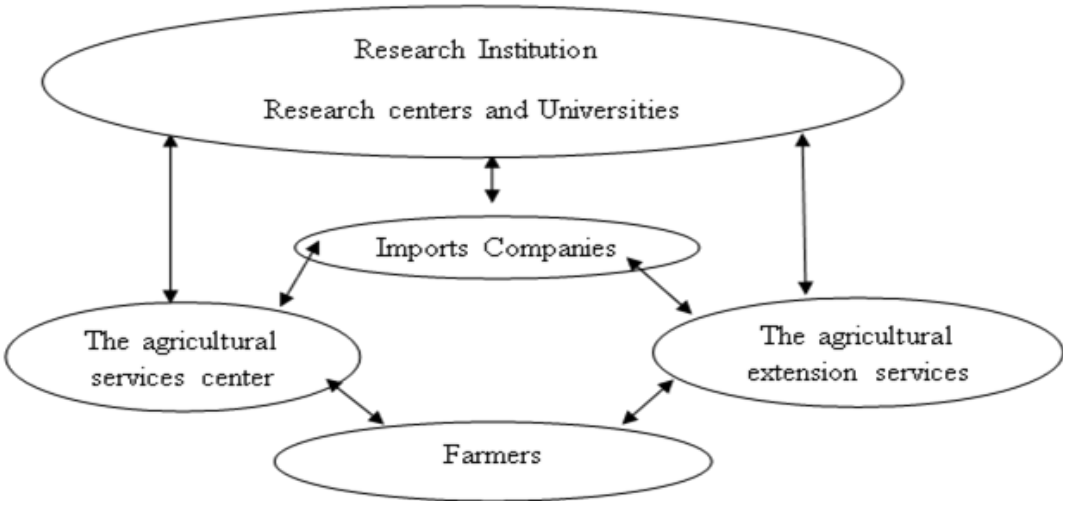

Figure 2 the components for the delivery of agric. services.

Conclusion and recommendations

The goal of agricultural extension professionals is to influence development change in the societies where they work. Any change will happen when good relationships are formed. A farmer interested in cultivation crops which were expensive and had high income for that they in need the best information from the best source to succeed in his farm management and investment to rich high income. Service centres and extension were the main source of inputs and technical packages to the farmers and had a strong links as agricultural partners. Personal explanations and visits were the frequent methods to deliver information from the services centre and extension. The extension was the less cost, more relevant partners and the interested partners on feedback, while service centres were the quick response and the more available and the explained about the most useful information had been communiqué between extension and service centres, if they put to gathers in one system for sure will be more active. The variables tested showed significantly correlated.

Based on the finding some recommendations were set such as focusing on policy and strategy that encourages the development of the extension system, training sessions have to be held to promote extension workers, extension officers, and service centers workers, using more than one approach for conducting extension process, and Imported companies should make clear links with all agricultural partners.

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Conflicts of interest

The author declares no conflict of interest.

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