Effect of the Entrance year in the Performance of Village Extension Worker in North Kordofan Rural Development Project (NKRDP)

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ABSTRACT: The current study was conducted in Um Ruwaba and Bara localities in North Kordofan State during 2006. The main objective of the study was to investigate the effect of entrance year in the role of the Village Extension Worker (VEW) on increasing the awareness of the community towards IPM techniques. The primary data were collected via questionnaires. Stratified random sampling technique was used to select 142 participants and 30 VEWs as a sample size. The data were analyzed using descriptive statistical analysis methods such as, frequency table; cross-tabulation and Chi-square. The results showed that the number of fields visits conducted during entrance year was only 35 and increased in unstable manner from 71% to 91.4% in year 2003 and 2004, respectively ($p<0.05$).The results recorded that in year 2004 the VEW was able to conduct more than twice village meetings per month (65.7%) compared with only 13% in entrance year($p<0.05$).During 2004 the regular conducted campaigns represented 88.6% where as in entrance year and second years were only 52.2% & 57% respectively. The high level of significance ($p< 0.05$).The results explained that 12.5%, 16.7%, 33.3% and 37.5% were the percentage number of farmers trained by the VEW during the years entrance year, 2002, 2003 and 2004, respectively ($p>0.05$). As stated by the respondents, this could be attributed to the scarcity of the training materials, high illiteracy rate, and lack of desire among some farmers. The study recommends that more attention should be given to vegetables IPM in North Kordofan State where chemicals are used in inappropriate manner.

Keywords: ***Integrated Pest Management (IPM), Ministry of Agriculture (MOA), Plant Protection Department (PPD)***

INTRODUCTION

North Kordofan State is one of the three states forming greater Kordofan. The area is estimated to be about 239,000 km2 and divided into five localities, Sheikan, Um Ruwaba, Bara, Sodri and Jebrat El Sheikh. It lays between latitudes 12º 10/ 16º 39/ N, and longitudes 27º and 32º 25/ E.

North Kordofan Rural Development project (NKRDP) area covers both Um Ruwaba and Bara localities. Um Ruwaba is in the eastern part of the state and has atotal area of about 21.000 km2. Bara locality has a total area of about 20.000 km,2 bringing the total area of the project to about 41,000 km2 (NKRDP, 1999).Savile (1965) explained the agricultural extension system as a system of out school education aiming to help rural people to help themselves. Mosher (1978) defined agricultural extension as a process of working with rural people through out of school education, along those lines of their current interests and needs which are closely related to gaining a livelihood, improving the physical level of living of rural families and enhancing rural community welfare. Adams (1982) stated that, agricultural extension is an advice and assistance for farmers to help them to improve their methods of production and marketing. Kelsey and Hearne (1963) defined agricultural extension as a system of education out of school in which adults and youth learn by doing (EL Aadli, 1983).Chang (1963) defined agricultural extension as an informal educational system out of school to train and influence farmers and their families to adopt the improved technologies in agricultural production, marketing, farm management and soil conservation. Salih (1997) defined agricultural extension as an educational process to farmers, out of school aiming to disseminate useful knowledge for them and their families to make use of these knowledge's for their welfare and the local community in general.

Agricultural extension and development

Uma lele (1979) defined the rural development as improving living standard of the mass of the low income population residing in rural areas and making the process of their development self sustaining.Shareif (1990) explained the vital importance of agricultural extension in agricultural development and in general its importance in integrated rural development in traditional sector, as follows: if most agricultural development schemes and crash programmes have not yielded the expected results, it is due to inefficiency of the base level machinery and the extension services.

Concepts of Development

Rogers and Burdge (1972) defined development as a type of social change-in which new ideas are introduced into a social system in order to produce higher per-capita incomes and

levels of living through modern production methods and improved social organization. More-developed and less-developed countries nations of the world are divided into basis of socioeconomic criteria. Al Arifi (1978) discussed the consequences of Sudan government saying that government concerned with levels of aggregate investment and rate of growth of aggregate output led to poor distribution of economic welfare and growth. He explained that rural development in Sudan is handicapped by a general lack of co-ordination among the various government bodies and institutions. All social services and production ministries have rural development concern, but unfortunately co-ordination among them is lacking.Uma lele (1979) defined the concept of rural development as improving living standard of the mass of the low income population residing in rural areas and making the process of their development self sustaining.

Agricultural Extension System

Chris (1980) explained that, the orientation of the rural development polices has inevitably affected extension philosophy and strategies. He continued, for reaching the rural poor, a review of extension strategies and methods should be revised. While in the late 1980s Chris still argues cogently for concentration of agricultural extension efforts on the more receptive members of the community and in the more productive regions of a country. The loudest voices are now raised in favor of a broader based distribution of extension effort and benefits. At the same time, considerable evidence has come to light that extensions methods in common use have been peculiarly not suitable to the needs of the rural poor. The obvious import-ance of agriculture, both to the rural poor themselves and to developing countries as a whole, has meant that much of the effort has been developed to agricultural extension, where the focus has been on the "small farmers" and (less frequently) on land less rural households. Chris continued, the redefinition of the rural development priorities in favor of the rural poor has thus coincided with a re-appraisal of the concepts, philosophy and effectiveness of conventional extension strategies and methods.

Integrated Pest Management (IPM) and Farmer's Field Schools (FFS)

The FAO (1979) defined integrated pest control as:

A pest management system that in the context of the associated environment and the population dynamic of the pest species, utilizes all suitable techniques and methods in as compatible manner as possible and maintains the pest population at levels below those causing economic injury.

Referred to Yasir (2002), integrated pest management is defined as follows:

Integrated plant protection is a system in which all economically, ecologically and toxicology suitable procedures are utilized in maximum harmony, for maintaining noxious organisms below the economic threshold; whereby the conscious exploitation of natural regulatory factors is of a paramount importance.

History of the IPM in the Sudan

The IPM programme in Sudan was initiated in 1974 under the FAO/UNEP (Food and Agricultural Organization / United Nations Economic Planning) cooperative programme on development and application of IPM. Top priority was given to cotton and rice (El amin, 1994).

In 1975, the FAO global coordinator for the IPC (Integrated Pest Committee) programmes informed the Ministries of Agriculture in Sudan, Egypt, Ethiopia, Somalia, Uganda, Kenya and Tanzania, that FAO intended to select a cotton growing countries in Africa as a base for the African Regional IPC programme. In 1976, Sudan was nominated by FAO/UNEP IPC Consultation Mission as a suitable country to the programme.

Farmer's Field Schools (FFS) Definitions

The term Farmer Field School came from an Indonesian expression "Sekolah Lapangan" meaning field school (Khisa, 2003).The expression reflected the educational goals; that the course takes place in the field, and the field conditions define most of the curriculum. He defined the FFS as:

"A platform and school without walls for improving decision making capacity of farming communities and stimulating local innovation for suitable agriculture".The IPM project in Sudan adopted the FFS approach in 1993. The goal is to help farmers become expert in managing their fields. The FFS programme is aided by close collaboration with researchers from ARC (Agricultural Research Corporation), universities with extension services and field plant protection staff (Bashir and El amin, 2003).

FFS principles

Khisa (2003) considered the five key principles of the FFS to be:

1. What is relevant and meaningful is decided by the learner and discovered by him.
2. Learning is a consequence of experience. People became responsible when they have assumed responsibility and experience success.
3. Cooperative approaches are enabling. As people invest in cooperative group approaches, they develop a better sense of their own worth.
4. Learning is an evolutionary process and is characterized by free and open communication, conformation, acceptance, respect and the right to make mistakes.

5. Each person's experience of reality is unique. As they became more aware of how they learn and solve problems, they can refine and modify their own styles of learning and action.

A typical FFS is one or two crop season livestock production cycle. It consists of a group, usually 20-30 farmers, who set up a group study field on the crop(s) or livestock of their choice. The group is responsible for the care and maintenance of the study enterprise from soil preparation to harvesting and post harvest or egg to egg … etc. The approach is a season-long training following a crop phenology or livestock cycle. The field is the teacher and its conditions define the curriculum while the plants and animals form the most learning materials (Khisa, 2003).

METHODOLOGY

Data source

To fulfill the study objectives, the participants (farmers) and the VEWs will be the model. The study is based on both primary and secondary data sources.

Primary data

Primary data was collected from the field using constructed questionnaires introduced to the rural community (participants) and VEWs.

Due to prevalence of illiteracy among the rural community, direct interviewing, both open ended and close ended questions were used to collect the data. These were expected to focus deeply in the impact of the VEW in rural communities towards IPM.

Sampling procedure, techniques and size

The study used stratified multistage sampling technique to arrive at appropriate representative sample. Accordingly the sample of the villages was selected based on the year of entering into the project (stratified sampling); with each stratum the sample villagers were selected using simple random sampling. As a result 142 participants and 30 VEWs were interviewed. Also unconventional methods such as, direct field observations, key informants interviews and focused group discussions were used.

Data analysis

The descriptive statistical analysis methods such as, frequency table, cross-tabulation and Chi-square were used to analyze the data .The probability of 0.05 determined according to the study was used to accept or reject the null hypothesis i.e. level of significance.

RESULTS AND DISCUSSION

Effect of the entrance year in the performance of VEWs related to field visits conducted

The result of this study explained that during year 2001-2004 the number of fields visits conducted monthly was only 35% in the first year and increased in unstable manner from 71% to 91.4% in year 2003 and 2004, respectively($p<0.05$). This was due to the unavailability of transport means and inadequate trained staff during the first year of the project. This was confirmed by Salih (2002) in T&V extension system (Training and visit system was established by the World Bank with the objective of activating the present traditional system) (Table 1).

Effect of the entrance year in the performance of VEWs related to the extension meetings conducted

To evaluate the extension meetings conducted by entrance year, the results recorded that in year 2004 the VEW was able to conduct more than twice village meetings per month (65.7%) compared with only 13% in year 2001($p<0.05$). This was due to the regular scheduled visits and meetings conducted by the project staff. The T&V extension system is the most effective system in the illiterate traditional communities. This was confirmed by Chris (1980), (Group meeting offers more effective learning environment, greater coverage and potentially more cost effective) (Table 2).

Table (1): Cross tabulation of field visits by entrance year

No. of village extension meetings		Entrance year 2001	2002	2003	2004	Total
Monthly	Observed count	8	32	35	32	107
	Expected count	17.3	26.4	36.9	26.4	107.0
	% within entrance year	34.8%	91.4%	71.4%	91.4%	75.4%
	% of total	5.6%	22.5%	24.6%	22.5%	75.4%
Rarely	Observed count	7	3	6	3	19
	Expected count	3.1	4.7	6.6	4.7	19.0
	% within entrance year	30.4%	8.6%	12.2%	8.6%	13.4%
	% of total	4.9%	2.1%	4.2%	2.1%	13.4%

None	Observed count	8	0	8	0	16
	Expected count	2.6	3.9	5.5	3.9	16.0
	% within entrance year	39.8%	0.0%	16.3%	0.0%	11.3%
	% of total	5.6%	0.0%	5.6%	0.0%	11.3%
Total	Observed count	23	35	49	35	142
	Expected count	23.0	35.0	49.0	35.0	142.0
	% within entrance year	100%	100%	100%	100%	100%
	% of total	16.2%	24.6%	34.5%	24.6%	100.0%

Source: Survey data, 2005.

X^2 = 34.069 (Calculated) and = 12.59 (Tabulated)

d.f = 6

($p<0.05$)

Table (2): Cross tabulation of village extension meetings by entrance year

		Entrance year				
No. of village extension meetings		2001	2002	2003	2004	Total
Once	Observed count	8	9	21	3	41
	Expected count	6.6	10.1	14.1	10.1	41.0
	% within entrance year	34.8%	25.7%	43%	8.6%	28.9%
	% of total	5.6%	6.3%	14.8%	2.1%	28.9%
Twice	Observed count	7	11	11	9	38
	Expected count	6.2	9.4	13.1	9.4	38.0
	% within entrance year	30.4%	31.4	22.4%	25.7%	26.8%
	% of total	4.9%	7.7%	7.7%	6.3%	26.8%
}> twice	Observed count	3	15	12	23	53
	Expected count	8.6	13.1	18.3	13.1	53.0
	% within entrance year	13%	43%	24.5%	65.7%	37.3%
	% of total	2.1%	10.6%	8.5%	16.2%	37.3%
None	Observed count	5	0	5	0	10
	Expected count	1.6	2.5	3.5	2.5	10.0
	% within entrance year	21.7%	0%	10.2%	0%	7%
	% of total	3.5%	0.0%	3.5%	0.0%	7.0%
Total	Observed count	23	35	49	35	142
	Expected count	23.0	35.0	49.0	35.0	142.0

	% within entrance year	100%	100%	100%	100%	100%
	% of total	16.2%	24.6%	%34.5	24.6%	100%

Source: Survey data, 2005.

X^2 = 35.79 (Calculated) and =16.92 (Tabulated)

d.f = 9

($p<0.05$)

Effect of the entrance year in the performance of VEWs related to the extension campaigns conducted

The results also revealed the regularity of the extension and orientation campaigns conducted during the season by the VEWs. This was due to the annual regular pest management programme conducted by PPD in North Kordofan State. 2002-2004 the regular conducted campaigns represented 88.6% where as in year 2001-2003 was only 52.2% & 57% respectively. The high level of significance ($p< 0.05$) was clearly attributed to the fact of regular pattern of pests occurrence in the project area, in particularly the grass hoppers (Gabora), water melon bugs… etc. (Table 3).

Table (3): Cross tabulation of FFS sessions conducted by entrance year

		Entrance year				
FFS sessions conducted		2001	2002	2003	2004	Total
Regular	Observed count	1	11	7	20	39
	Expected count	6.3	9.6	13.5	9.6	39.0
	% within entrance year	4.3%	31.4%	14.3%	57.1%	27.5%
	% of total	0.7%	7.7%	4.9%	14.1%	27.5%
Some	Observed count	3	7	10	8	28
times	Expected count	4.5	6.9	9.7	6.9	28.0
	% within entrance year	13.0%	20.0%	20.4%	22.9%	19.7%
	% of total	2.1%	4.9%	7.0%	5.6%	19.7%
None	Observed count	19	17	32	7	75
	Expected count	12.1	18.5	25.9	18.5	75.0
	% within entrance year	82.6%	48.6%	65.3%	20.0%	52.8%
	% of total	13.4%	12.0%	22.5%	4.9%	52.8%
Total	Observed count	23	35	49	35	142
	Expected count	23.0	35.0	49.5	35.0	142.0

	% within entrance year	100%	100%	100%	100%	100%
	% of total	16.2%	24.6%	34.5%	24.6%	

Source: Survey data, 2005

X^2 = 32.274 (Calculated) and = 12.59 (Tabulated)

d.f = 6 Significant at ($p< 0.05$)

Cross tabulation of IPM extension orientation campaigns by entrance Year

2002-2004 the regular conducted campaigns represented 88.6% where as in year 2001-2003 was only 52.2% & 57% respectively. The high level of significance ($p< 0.05$) was clearly attributed to the fact of regular pattern of pests occurrence in the project area, in particularly the grass hoppers (Gabora), water melon bugs… etc. (Table 4).

Effect of the entrance year in the performance of VEWs related to the number of farmers trained

The results explained that 12.5%, 16.7%, 33.3% and 37.5% were the percentage number of farmers trained by the VEW during the years 2001, 2002, 2003 and 2004, respectively ($p>0.05$). As stated by the respondents, this could be attributed to the scarcity of the training materials, high illiteracy rate, and lack of desire among some farmers. Rogers and Burdges (1972) explained that, the less-developed countries are characterized (by have a life of expectancy (Table 5). only about one-half that in the more developed countries and have high rate of illiteracy).

4.4.6 Effect of the entrance year in the performance of VEWs in raising community participation towards pest control campaigns

For further investigation of VEW performance to community awareness and mobilization by entrance year, the results explained the different levels of community participation and involvement in IPM campaigns. Through out the years 2001-2004, the percentage 71.4% of participation was recorded in the year 2004 compared to56.5% in year 2001 ($p>0.05$). This was attributed to the pest situation which differs from one year to another (Table 6).

Table (4): Cross tabulation of IPM extension campaigns by entrance year

IPM extension orientation campaigns		Entrance year 2001	2002	2003	2004	Total
Regular	Observed count	12	31	28	31	102
	Expected count	16.5	25.1	35.2	25.1	102.0
	% within entrance year	52.2%	88.6%	57.1%	88.6%	71.8%
	% of total	8.5%	21.8%	19.7%	21.8%	71.8%
Rarely	Observed count	5	3	16	2	26

	Expected count	4.2	6.4	9	6.4	26.0
	% within entrance year	21.7%	8.6%	32.7%	5.7%	18.3%
	% of total	3.5%	2.1%	11.3%	1.4%	18.3%
None	Observed count	6	1	5	2	14
	Expected count	2.3	3.5	4.8	3.5	14.0
	% within entrance year	26.1%	2.9%	10.2%	5.7%	9.9%
	% of total	4.2%	0.7%	3.5%	1.4%	9.9%
Total	Observed count	23	35	49	35	142
	Expected count	23.0	35.0	49.0	35.0	142.0
	% within entrance year	100%	100%	100%	100%	100%
	% of total	16.2%	24.6%	34.5%	24.6%	100%

Source: Survey data, 2005.

X^2 = 24.438 (Calculated) and = 12.59 (Tabulated)

d.f = 6

Significant at ($p < 0.05$)

Table (5): Cross tabulation of number of farmer trained by VEW by entrance year

		Entrance year				
Number of farmer trained		2001	2002	2003	2004	Total
3-5	Observed count	0	0	3	4	7
	Expected count	0.9	1.2	2.3	2.6	7.0
	% within entrance year	0.0%	0.0%	37.5%	44.4%	29.2%
	% of total	0.0%	0.0%	12.5%	16.7%	29.2%
6-10	Observed count	0	2	2	0	4
	Expected count	0.5	0.7	1.3	1.5	4.0
	% within entrance year	0.0%	50%	25%	0.0%	16.7%
	% of total	0.0%	8.3%	8.3%	0.0%	16.7%
>10	Observed count	3	2	3	5	13
farmers	Expected count	1.6	2.2	4.3	4.9	13.0
	% within entrance year	0.0%	50%	25%	0.0%	16.7%
	% of total	12.5%	8.3%	12.5%	20.8%	54.2%
Total	Observed count	3	4	8	9	24
	Expected count	3.0	4.0	8.0	9.0	24.0
	% within entrance year	100%	100%	100%	100%	100%

	% of total	12.5%	16.7%	33.3%	37.5%	100%

Source: Survey data, 2005

X^2 = 9.542 (Calculated) and = 12.59 (Tabulated)

d.f = 6

(p> 0.05)

Table (6): Cross tabulation of Community levels of participation in IPM by entrance year

Community participation in IPM		Entrance year 2001	2002	2003	2004	Total
High	Observed count	13	31	26	25	95
	Expected count	15.4	23.4	32.8	23.4	95.0
	% within entrance year	56.5%	88.6%	53.1%	71.4%	100.0%
	% of total	9.2%	21.8%	18.3%	17.6%	66.9%
Medium	Observed count	6	3	13	8	30
	Expected count	4.9	7.4	10.4	7.4	30.0
	% within entrance year	26.1%	8.6%	26.5%	22.9%	21.1%
	% of total	4.2%	2.1%	9.2%	5.6%	21.1%
Poor/	Observed count	4	1	9	2	16
weak	Expected count	2.6	3.9	5.5	3.9	16.0
	% within entrance year	17.4%	2.9%	18.4%	5.7%	11.3%
		2.8%	0.7%	6.3%	1.4%	11.3%
None	Observed count	0	0	1	0	1
	Expected count	0.2	0.2	0.3	0.2	1.0
	% within entrance year	0.0%	0.0%	2%	0.0%	0.7%
	% of total	0.0%	0.0%	0.7%	0.0%	0.7%
Total	Observed count	23	35	49	35	142
	Expected count	23.0	35.0	49.0	35.0	142.0
	% within entrance year	100%	100%	100%	100%	100%
	% of total	16.2%	24.6%	34.5%	24.6%	100%

Source: Survey data, 2005.

X^2 = 15.954 (Calculated) and= 16.92 (Tabulated)

d.f = 9

p> 0.05

CONCLOSION

The study concluded that the number of fields visits conducted during entrance was only 35%, and the extension meetings conducted were only 13%in the entrance year. The campaigns conducted were 52.2%. The results explained that only 12.5 of farmers were trained by the VEW during the entrance years. Although field visits, campaigns, extension meeting and farmers trainings offers more effective learning environment, greater coverage and potentially but still the percentages of coverage was low compared with other years.

RECOMMENDATION:

More attention should be given to vegetables IPM in North Kordofan State where chemicals are used in inappropriate manner.

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