CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.2530880

Available online at: http://www.iajps.com ***Research Article***

ANALYSIS OF EXTENSION SYSTEM OF PAKISTAN DAIRY DEVELOPMENT COMPANY PERCEIVED BY THE FIELD STAFF

[1]Jaffar Ali (PhD Scholar), [1]Dr. Aijaz Ali Khooharo, [1]Dr. Zaheeruddin Mirani, [2]Dr. Badar Naseem Siddiqui

[1]Department of Agricultural Education, Extension and Short Courses, Sindh Agriculture University, Tandojam, Pakistan, [2]Department of Agricultural Extension, PMAS Arid Agriculture University, Rawalpindi, Pakistan

Abstract:

Introduction: *Agriculture extension in Pakistan has faced multifarious challenges in the development of dairy industry. One of the major challenges is to increase milk yield of our dairy animals. One of the major reasons for low production is lack of appropriate extension services and hence non-adoption of improved livestock technologies among the livestock owners. The Government of Pakistan (GOP) has made efforts to increase the yield of milk and to raise the living standard of poor farmers residing in the rural areas. Since 1947, different extension programmes launched but these extension programmes could achieve limited success. In 2005, Pakistan Dairy Development Company (PDDC) – the project "White Revolution – Dhoodh Darya" was established as a special initiative to develop the dairy industry in Pakistan. PDDC has established various model farms in the country and also provided extension/advisory services to these model farmers though its extension programme. The extension system is the focal point for all agricultural activities. It is also a major source of learning of advanced agricultural technologies that must be transferred to farmers. Given the above-mentioned facts, the present study was conducted with the objective to analyze the extension system of PDDC.*

Materials and methods: *All PDDC field staff involved in establishment of farms and the introduction of new dairy farming practices in the project area were selected. The researcher was personally conducted in-depth interviews with field staff respondents and thus collected data were tabulated, analyzed and interpreted.*

Results: *The results showed that cent per cent of field staff respondents were married while 77.8% belonged to middle age group. The data regarding ranking of various extension methods/media on the basis of extent of information delivered depicts that farm and home visits were ranked 1st with mean value of 5.00. However, 44.4 and 38.9% of field staff perceived that they paid weekly and daily visits to the dairy farmers respectively. Moreover, majority of field staff perceived that they provided extension/advisory services to dairy farmers concerning farm management, breeding, feeding, health care, marketing etc. In addition, installation of model farms on 50% grant was the major strength and ranked 1st with highest mean value of 5.00 whereas, difficult loan process was major weakness with mean value of 3.39 and ranked 1st as perceived by the field staff respondents.*

Key Words: *Perception, PDDC field staff, extension system, Sindh province, Pakistan*

Corresponding author:

Jaffar Ali,
PhD Scholar,
Department of Agricultural Education, Extension and Short Courses,
Sindh Agriculture University, Tandojam, Pakistan
Email: jaffaraj2010@yahoo.com

QR code

Please cite this article in press Jaffar Ali et al., ***Analysis of Extension System Of Pakistan Dairy Development Company Perceived By The Field Staff.,*** *Indo Am. J. P. Sci, 2019; 06(01).*

INTRODUCTION:

Pakistan is an agrarian country and, hence, agriculture sector is the mainstay of the country's economy. It contributes 19.5% to Pakistan's Gross Domestic Product (GDP), employs 42.3% of the labour force and provides rich source of raw material for several value-added sectors [1]. Moreover, it provides livelihood to 60% rural population of the country. Agriculture has to play its role in ensuring food security, creating overall economic growth, reducing poverty and transforming it into industrialization [2].

Livestock is sub-sector of agriculture. It is rapidly growing in Pakistan and central to the livelihood of its rural people. It can play an important role in alleviating poverty and country's foreign exchange earnings. It contributes about 58.3% to the agriculture value added and 11.4% to the national GDP [1]. In developing countries, livestock not only holds potential to be income generating source but also viable solution to poverty, malnutrition and hunger. About 1.3 billion poor people living in developing countries depend directly or indirectly on the livestock sector for their means of living [3, 4]. Pakistan has larger base of dairy sector associated with agriculture. In Pakistan, dairy sector created employment and business opportunities, especially in the rural and peri-urban areas. It is the second largest sector of agricultural production [5]. According to an estimate, the monetary value of milk (325 billion rupees) is more than that of two major crops of Pakistan viz. cotton and wheat (150 and 140 billion rupees, respectively) [6].

Pakistan is one of the leading producers of milk and it is the fourth largest milk producer in the world after India, China and United States of America (USA) [7] with an estimated production of 56.080 million tonnes annually [1], but the total milk production of the country does not meet the domestic human needs [8]. Although milk production in Pakistan has increased in the last several years, but this increase in milk production is not related to the productivity per animal but due to increase in the total number of animals [9, 10]. The production per animal in Pakistan is low as compared to other countries such as USA, Germany and New Zealand. For example, in New Zealand, one dairy animal produces milk equal to three dairy animals produce milk in Pakistan while in Germany, one dairy animal produces milk equivalent to six dairy animals produce milk in Pakistan. Moreover, seven dairy animals in Pakistan produce milk equal to milk produced by one animal in USA [11, 12].

There are many issues constrained for low productivity of each animal which consist of low genetic potential of our animals, late age of maturity, poor nutrient availability, high incidence of diseases, unorganized marketing system, traditional lineage farming [13], lack of appropriate extension services and hence non-adoption of improved livestock technologies among the livestock owners [14]. Higher milk production can be obtained through proper implementation of the scientific dairy husbandry practices but many farmers are still using conventional husbandry practices, which may be the reason of low production and productivity of the dairy animals. The ability of the dairymen to generate more income from dairying depends to a large extent on the effective adoption of improved dairy husbandry practices that lead to increased productivity [15, 16].

Agricultural extension is one of the key institutional components of agriculture because it promotes the transfer and exchange of information that can be transformed into functional knowledge. It is better to say that extension is a tool that helps in the development of enterprises that enhance productivity and generate income in the current scenario of change [17, 18]. The new knowledge and skills related to enhancing the dairy farm production and improving the living standard of farm families can be provided through agricultural extension services. Dairy extension services are very imperative to achieve productivity outcomes, and dairy extension can play a key role in improving the production and effectiveness of the dairy but unfortunately the extension services in Pakistan, focus on practices that apply to various enterprises and historically no dairy-specific staff has been employed for dairy extension. On the contrary, general agricultural extension workers have been active in this field. As a result, farmer meetings or gathering are often not suitable for a specialized audience and it is difficult for untrained extension agents to provide the specific knowledge required for the dairy sector. The gap between traditional farmers and progressive farmers (the differences in productivity and profitability) can only be eliminated with the help of effective dairy extension [9].

The development of livestock has been given top priority by Government of Pakistan (GOP). Keeping in view the importance of livestock, the GOP has focused livestock on its national development agenda. It has prepared "Livestock Development Policy" and "Poultry Development Policy". The objective of both the policies is to enable the environment in the lead of private sector with the aim

of developing livestock with the government. The policies would provide a base line for accelerated livestock development. To lead the development efforts through private sector, "Livestock and Dairy Development Board (LDDB)" and "PDDC" have been established under the leadership of fully autonomous private sector. The companies serve as a platform for investment in livestock sector. Contrary to provincial government programs, the federal government has significantly increased public sector investment in the livestock sector and started mega projects to strengthen the livestock services to improved disease diagnosis and control; milk and meat production; improvement of the breed; animal husbandry and management practices in the country [8].

PDDC – the project "White Revolution- Dhoodh Darya" was established in 2005 as a special initiative to develop the dairy industry in Pakistan. This was Public-Private Partnership Company which is registered as a non-profit entity under section 42 of Companies Ordinance 1984 and was wholly-owned by the GOP [19]. The main objective of PDDC was to development the dairy sector through increased milk production and profitability [20, 21]. The PDDC can play its part in ensuring food security in Pakistan by improving the productivity of existing livestock, through incorporating new technologies, scientific farming methods and better management practices [19]. The new technologies developed by researchers and used routinely in overseas dairy farming are widespread among farmers by the PDDC. Moreover, the dairy extension programme of PDDC has provided farmers with management, decision-making and technical expertise through advisory services. As more dairy farmers in the country apply the modern farming practices espoused by PDDC, an increase in national milk flow is expected, with an associated improvement in the dairy farmer's socio-economic condition [21]. The extension system in Pakistan is the most important wing of the department of agriculture and is the focal point for all agricultural activities. It is also a major source of learning of advanced agricultural technologies that must be transferred to farmers [22, 23]. Given the above-mentioned facts, the present study was designed to analyze the extension system of PDDC in Sindh province of Pakistan.

Objectives

General objective

The main objective of the study was to analyze the extension system of PDDC.

Specific objectives

Following were the specific objectives of the study:

1. To determine the demographic characteristics of PDDC field staff respondents.
2. To assess the facilities provided to field staff.
3. To analyze the extension methods used to deliver the extension programme.
4. To determine the frequency of visits paid by field staff to dairy farmers.
5. To identify the extension/advisory services provided to dairy farmers.
6. To assess the development of farmer's skills.
7. To analyze the strengths and weaknesses of PDDC extension system.

MATERIALS AND METHODS:

The research methodology is a systematic plan for conducting a study in order to achieve the objectives. The present study was conducted in Sindh province of Pakistan to assess the perception of field staff respondents regarding extension system of PDDC. All PDDC field staff including Regional Extension Officer (REO), Regional Manager (RM), Team manager (TM), Farm Production Advisor (FPA) and Community Farm Advisor (CFA) involved in establishment of farms and the introduction of new dairy farming practices in the project area were selected as the respondents of the study. In order to collect the needed information from field staff of PDDC regarding extension system, a well structured questionnaire was developed. The questionnaire was included closed and open ended questions. The researcher was personally conducted in-depth interviews with field staff respondents and thus collected data were tabulated, analyzed and interpreted.

RESULTS:

Demographic characteristics of field staff respondents

Age

Table 1 indicates that majority (77.8%) of field staff respondents belonged to middle age group while 11.1 and the same 11.1% belonged to young and old age groups respectively.

Gender

It was found that majority (72.2%) of field staff respondents were male while 27.8% were females. This indicates that field staff of PDDC was predominantly males in the studied area.

Educational qualification

The data reflects that PDDC field staff had degree of Doctor of Veterinary Medicine (DVM) (22.2%), M.Sc. (Hons.) in Animal Sciences (22.2%), M.Sc. (Hons.) in Agriculture (22.2%), M.Sc. in Rural Development (11.0%), M.Sc. in Poultry Husbandry (5.6%), M.A. in Economics (5.6%) and B.Sc. (Hons.) in Agriculture (5.6%). Only (5.6%) had PhD degree in Agricultural Extension.

Marital status

The data concerning marital status shows that cent per cent of field staff respondents were married in the study area.

Table 1: Frequency distribution of field staff respondents according to their demographic characteristics

Demographic characteristics	Response		Demographic characteristics	Response	
	N	%		N	%
Age (Years)			**Family background**		
Young (25-35)	2	11.1	Rural	14	77.8
Middle (36-45)	14	77.8	Urban	4	22.2
Old (Above 45)	2	11.1	**Designation**		
Gender			REO	3	16.7
Male	13	72.2	RM	3	16.7
Female	5	27.8	TM	2	11.1
Level of education			FPA	8	44.4
DVM	4	22.2	CFA	2	11.1
B. Sc. (Hons.) Agriculture	1	5.6	**Experience in PDDC (Years)**		
M.A. Economics	1	5.6	≤ 3	3	16.7
M. Sc. Rural Development	2	11.0	4-6	12	66.6
M. Sc. Poultry Husbandry	1	5.6	>6	3	16.7
M. Sc. (Hons.) Agriculture	4	22.2	**Number of trainings received**		
M. Sc. Animal Sciences	4	22.2	≤5	2	11.1
PhD in Agricultural Extension	1	5.6	6-10	5	27.8
Marital status			11-15	3	16.7
Single	-	-	>15	8	44.4
Married	18	100.0			

Family back ground

The study revealed that majority (77.8%) of the field staff respondents belonged to rural areas and remaining 22.2% belonged to urban areas.

Designation

It can be visualized from data that majority (44.4%) of PDDC field staff was working in PDDC as FPA followed by REO (16.7%), RM (16.7%), TM (11.1%) and CFA (11.1%).

Service experience

It was found that slight majority (66.6%) of the field staff respondents were having 4-6 years job experience followed by 16.7% (up to 3 years) and the same 16.7% (above 6 years) job experience in PDDC.

Training received

It could be noticed from data that less than half (44.4%) of field staff respondents received more than fifteen trainings followed by 27.8, 16.7 and 11.1% received 6-10, 11-15 and up to 5 trainings respectively during the service period in PDDC.

Facilities provided to field staff respondents

The data regarding facilities provided to field staff of PDDC is presented in Table 2, which indicates that cent per cent of field staff had facility of Travelling Allowance (T/A), Vehicle, funds for fuel of vehicle, funds for maintenance of vehicle, accommodation (who required), mobile phone and computer while 88.9% argued that they were received attractive salary. Similarly, 94.4, while the same 94.4 and 88.9% of the field staff respondents stated that they had a Daily Allowance (D/A), office and medical (Medical card) facilities respectively.

Table 2: Frequency distribution of field staff respondents according to physical facilities provided by PDDC

Facilities	Response	
	N	%
Competitive salary	16	88.9
T/A	18	100.0
D/A	17	94.4
Vehicles	18	100.0
Funds for fuel of vehicles	18	100.0
Funds for maintenance of vehicle	18	100.0
Medical facility (Medical card)	16	88.9
Accommodation	18	100.0
Office facility	17	94.4
Mobile phone	18	100.0
Computer facility	18	100.0

Extension methods employed by field staff of PDDC

The field staff of PDDC was asked about the use of various extension methods/media and the ranking of various extension methods/media on the basis of extent of information delivered is presented in Table 3. The data depicts that farm and home visits were ranked 1st with weighted score of 90 and mean value of 5.00, whereas, field days, group discussion, farmer's training and demonstrations were ranked 2nd, 3rd, 4th and 5th with weighted score of 89, 88, 80 and 74 respectively. However, office calls, television and radio were ranked 6th, 7th and 8th with weighted score of 51, 12 and 3 respectively.

Table 3: Rank order, mean and standard deviation of the perception of PDDC field staff about use of extension methods/media on the basis of extent of information delivered to the farmers

Extension methods/media	Rank order	Score	Mean	SD
Farm & home visit	1	90	5.00	0.000
Field days	2	89	4.94	0.236
Group discussion	3	88	4.89	0.323
Farmer's training	4	80	4.44	1.617
Demonstrations	5	74	4.11	1.906
Farmer's day	6	72	4.00	1.910
Office calls	7	51	2.83	1.790
Television	8	12	0.67	1.572
Radio	9	3	0.17	0.707

Scale: 1=Very low, 2=Low, 3=Medium, 4=High, 5=Very high
SD = Standard Deviation

Frequency of visits paid by field staff to dairy farmers

The data presented in Table 4 reveals that less than fifty (44.4%) of PDDC field staff paid weekly visits to the dairy farmers, followed by 38.9 and 16.7% were of the view that they had daily and fortnightly contact with their dairy farmers respectively.

Table 4: Frequency distribution of field staff respondents according to visits paid to dairy farmers

Frequency	Response	
	N	%
Daily	7	38.9
Weekly	8	44.4
Fortnightly	3	16.7

Extension/advisory services provided to dairy farmers

The PDDC field staff was asked question about provision of extension/advisory services to the dairy farmers and data in this regards is depicted in Table 5. The data concerning management practices shows that cent per cent of the PDDC field staff in project area provided advice on technological

recommendations to the dairy farmers related to farm management such as loose housing system, detection of heat stress, free access to fresh water and separation of animals. However, overwhelming majority (94.4%) field staff of PDDC reported that they have provided extension/advisory services to the project dairy farmers regarding cooling system, cleaning/grooming of animals, cleanliness of animal shed, clean milk production/hygienic milking, milk handling and record keeping. Majority (72.2%) of the field staff respondents disclosed that they have provided extension/advisory services regarding dehorning in calves.

Similarly, the data regarding provision of extension/advisory services on breeding/reproduction reveals that majority (94.4 and 88.9%) of PDDC field staff argued that they have provided extension/advisory services to the dairy farmers relating to selection of improved breed and breeding/reproduction respectively.

In addition, the data regarding provision of extension/advisory services on feeding practices reveals that cent per cent of PDDC field staff argued that they have introduced and provided advice on some important feeding practices to the project dairy farmers such as preparation of balanced ration, calf rearing and practice of feeding minerals and salt. Extension/advisory services on growing fodder, fodder harvesting, care of pregnant animals and making concentrates balanced concentrate mixture at home were also provided to dairy farmers as disclosed by 94.4% of PDDC field staff. Moreover, 88.9 and 67.7% of PDDC field staff argued that they have provided extension/advisory services concerning silage and hay making in the project area respectively.

The data regarding provision of extension/advisory services on animal health care practices shows that cent per cent of PDDC field staff reported that they have provided extension/advisory services to the project dairy farmers regarding cutting & disinfection of navel cord and identification and control of mastitis whereas, 88.9% reported that they have provided extension/advisory services concerning identification of diseases and deworming of animals. Moreover, 83.3% of field staff argued that they have provided extension/advisory services on vaccination against contagious diseases and body condition scoring while 77.8% disclosed that they have also provided extension/advisory services about control of diseases.

Table 5: Frequency distribution of field staff respondents according to extension/advisory services provided to dairy farmers

Extension/advisory services	Response		Extension/advisory services	Response	
	N	%		N	%
Farm management			**Feeding**		
Loose housing system	18	100.0	Growing fodder	17	94.4
Detection of heat stress	18	100.0	Fodder harvesting	17	94.4
Cooling system	17	94.4	Preparation of balanced ration	18	100.0
Free access to fresh water	18	100.0	Care of pregnant animals	17	94.4
Separation of animals	18	100.0	Calf rearing	18	100.0
Cleaning/grooming of animals	17	94.4	Practice of feeding minerals/salt	18	100.0
Cleanliness of animal shed	17	94.4	Hay making	12	67.7
Clean milk production/hygienic milking	17	94.4	Silage making	16	88.9
Milk handling	17	94.4	Making balanced concentrate mixture at home	17	94.4
Dehorning in calves	13	72.2	**Marketing**		
Record keeping	17	94.4	Linkage to input suppliers	17	94.4
Breeding			Linkage to milk collectors	18	100.0
Selection of breed	16	88.9	Linkage to agent for purchase or sell animals	11	61.1
Breeding/reproduction	17	94.4	Linkage to agent for purchase of semen	13	72.2
Health care			**Other (miscellaneous)**		
Identification of diseases	16	88.9	Input supply	9	50.0
Control of diseases	14	77.8	Linkage to bank for credit	13	72.2
Vaccination against contagious diseases	15	83.3	Maintenance of machinery	11	61.1
Deworming of animals	16	88.9	Installation of bio-gas plant	18	100.0
Cutting and disinfection of navel cord	18	100.0	Linkage to livestock department	14	77.8
Identification and control of mastitis	18	100.0	Linkage to research organizations	14	77.8
Body condition scoring	15	83.3	Linkage to NGOs	17	94.4

Furthermore, the data concerning provision of extension/advisory services on marketing depicts that cent per cent of the field staff respondents were of the view that they have developed the linkage of farmers with milk collectors whereas, 94.4, 72.2 and 61.1% disclosed that they have developed linkage of farmers with input suppliers, agent for purchase of semen and agent for purchase or sell animals respectively.

Similarly, cent per cent of PDDC field staff reported that they were provided extension/advisory services for installation of biogas plant while 94.4% reported that they have developed linkage of farmers with NGOs. Similarly, 77.8% of PDDC field staff perceived that they have developed linkage of farmers with Livestock Department and Research Organization while 72.2% perceived that they have developed linkage of farmers with bank for credit.

Development of farmer's skills

Table 6 shows that cent per cent of field staff respondents indicated that they developed farmer's skills in handling of animals in loose housing system, detection of heat stress, cutting and disinfection of navel cord, identification and control of mastitis and fodder conservation while an overwhelming majority (94.4%) of the field staff respondents were found to have developed the skills of dairy farmers in detection of heat symptoms, preparation of balanced ration, making balanced concentrate mixture at home, record keeping and clean milk production. It was also found that 77.8, 66.7 and 61.1% of field staff respondents had developed the farmer's skills with regard to dehorning in calves, body condition scoring and maintenance of machinery respectively.

Table 6: Frequency distribution of field staff respondents according to development of farmer's skills

Types of skills	Response	
	N	%
Handling of animals in loose housing system	18	100.0
Detection of heat stress	18	100.0
Dehorning in calves	14	77.8
Selection of breed	16	88.9
Detection of heat symptoms	17	94.4
Deworming animals	16	88.9
Cutting and disinfection of navel cord	18	100.0
Identification and control of mastitis	18	100.0
Fodder conservation	18	100.0
Preparation of balanced ration	17	94.4
Making balanced concentrate mixture at home	17	94.4
Record keeping	17	94.4
Maintenance of machinery	11	61.1
Body condition scoring	12	66.7
Identification of diseases	16	88.9
Clean milk production/hygienic milking	17	94.4

Strengths and weaknesses of extension system of PDDC

The field staff respondents were asked about strengths and weaknesses of extension system of PDDC and data in this regard is presented in Table 7. There were twenty (20) statements in total, out of which 16 (sixteen) belonged to strengths and 4 (four) belonged to weaknesses. Five-point Likert scale was used for the data collection. The responses obtained from field staff were measured by assigning the score of 5, 4, 3, 2 and 1 for strongly agree, agree, undecided, disagree and strongly disagree respectively. The mean, standard deviation and rank order were calculated to assess the perception of field staff respondents regarding extension system of PDDC. The rank orders were calculated on the basis of weighted score. The analysis of data reflects that the statements such as "installation of model farms on 50% grant" was ranked 1st with highest mean value of 5.00 whereas, creates awareness rapidly, high qualified, competent and trained field staff, provide adequate trainings to farmers and field staff, develops linkages with milk collectors, field staff help to solve problems, field staff equally treated the farmers, regular visits to the farmers and field staff paid follow up visits to dairy farmers" were ranked 2nd with mean values of 4.94. Whereas, the statements like "free cost of advisory services, and information provided at right time to the farmers were ranked 3rd with mean values of 4.89. However, the statements like "develops linkages with Govt. Livestock Department and develops linkages with

market agents" were ranked least; 7th and 8th with mean values of 4.44, and 4.33 respectively. The data regarding weaknesses of extension system reflects that the statements such as "difficult loan process, extension has become expensive, poor research/extension linkage and lack of funds" were ranked 1st, 2nd, 3rd and 4th with mean values of 3.39, 3.17, 2.22 and 2.00 respectively.

Table 7: Rank order, mean and standard deviation of the perception of PDDC field staff about extension system of PDDC in terms of its strengths and weaknesses

Strengths/weaknesses	Rank order	Score	Mean	SD
Strengths				
Installation of model farms on 50% grant	1	90	5.00	0.000
Create awareness rapidly	2	89	4.94	0.236
Highly qualified, competent and trained staff	2	89	4.94	0.236
Provided adequate trainings to farmers and filed staff	2	89	4.94	0.236
Develops farmer's linkages with milk collectors	2	89	4.94	0.236
Field staff help to solve problems	2	89	4.94	0.236
Field staff equally treated the farmers	2	89	4.94	0.236
Regular visit to the farmers	2	89	4.94	0.236
Field staff paid follow up visits to dairy farmers	2	89	4.94	0.236
Free cost of advisory services	3	88	4.89	0.323
Information provided at right time to the farmers	3	88	4.89	0.323
Develops farmer's linkages with input suppliers	4	86	4.78	0.732
Develops farmer's linkages with NGOs	5	85	4.72	0.575
Less no. of farmers under jurisdiction of field staff	6	83	4.61	0.850
Develops farmer's linkages with Govt. Livestock Department	7	80	4.44	1.042
Develops farmer's linkages with market agents	8	78	4.33	0.907
Weaknesses				
Difficult loan process	1	61	3.39	1.420
Extension has become expensive	2	57	3.17	1.425
Poor research/extension linkage	3	40	2.22	1.592
Lack of funds	4	36	2.00	1.455

Scale: 1=Strongly disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly agree
SD = Standard Deviation

DISCUSSION:

The extension system in Pakistan is the focal point for all agricultural activities. It is also a major source of learning of advanced agricultural technologies that must be transferred to farmers [22, 23]. The aim of this study was to analyze the extension system of PDDC project which was established in 2005 for development of dairy industry in the country. In this study, majority (77.8%) of field staff respondents belonged to middle age group. The findings of this study were in accordance with the study conducted in Peshawar Valley in which overall agricultural extension agents belonged to middle age group [24]. According to this study, majority (72.2%) of field staff respondents were male while 27.8% were females. This indicates that field staff of PDDC was predominantly males in the studied area. Almost same results was found in another study conducted in Andhra Pradesh (India) which revealed that majority (77%) of the respondents were male while only 23% were female [25]. In this study, it was also found that cent per cent of field staff respondents were married. The same results were found in the study conducted in North-West Zone of Nigeria. The results of study indicated that all (100.0%) of the extension supervisors were married [26]. According to this study, majority (77.8%) of the field staff respondents belonged to rural areas and remaining 22.2% belonged to urban areas. The findings of the present study are almost similar with the findings of another study conducted in Pishin district of Pakistan which revealed that majority (70.0%) of the extension workers belonged to rural areas while 30% belonged to urban areas [27]. According to that research, cent per cent of field staff respondents had facility of T/A, Vehicle, funds for fuel of vehicle, funds for maintenance of vehicle, accommodation (who required), mobile phone and computer while 88.9% argued that they were received attractive salary. Similarly, 94.4, while the same 94.4 and 88.9% of the field staff respondents stated that they had a D/A, office and medical (Medical card) facilities

respectively. However, findings are dissimilar with the findings of another study conducted in Punjab province of Pakistan. The study revealed that cent per cent of EFS had no facility of vehicles, mobile phones, audio aids, computers and internet connections [28]. It means that PDDC provided better physical facilities to their field staff. According to this study, farm and home visits was the major extension method employed by PDDC field staff to deliver the information to the farmers and ranked 1st, whereas, television and radio were ranked least; 7th and 8th respectively. It means that field staff of PDDC gave more preference to use individual and group contact methods as compared to mass media. Similar results were found in other studies in which farm and home visits was the major extension method used by Extension Field Staff (EFS) to deliver the information to the farmers [29, 30]. According to that study, less than fifty (44.4%) of PDDC field staff paid weekly visits to the dairy farmers, followed by 38.9 and 16.7% were of the view that they had daily and fortnightly contact with their dairy farmers respectively. It means that PDDC field staff regularly contacted with their farmers. The results are somewhat similar with the study conducted in North-Western Ethiopia which revealed that majority (48.8%) of field staff perceived that they visited the farmers on weekly basis whereas 16.4% visit once in two weeks [31]. In this study, majority of field staff respondents perceived that they provided extension/advisory services to dairy farmers relating to farm management, breeding, health care, feeding etc. The above results are in agreement with the findings of another study conducted in Menoufia province of Egypt and revealed that extension workers in the study area provided advice on technological recommendations including animal feeding, animal health, animal husbandry and animal breeding [32]. In another study it was found that co-operative played a significant role in the transformation of dairy related information. The staff of co-operative provided proper dairy related advisory services to dairy farmers [33]. In this research, majority of field staff respondents were found to have developed the important skills of dairy farmers related to dairy farming. The results of the present study are in agreement with the study conducted in Punjab State of India. The study revealed that Krishi Vigyan Kendras (KVK), Kapurthala conducts the variety of need-based and skill oriented training programmes for the different target groups to improve the production and productivity in their mixed farming systems of crop and dairy husbandry [34]). In this study, the analysis of data reflects that the statements such as "installation of model farms on 50% grant" was major strength of PDDC extension system and ranked 1st whereas, creates awareness rapidly, high qualified, competent and trained field staff, provide adequate trainings to farmers and field staff, develops linkages with milk collectors, field staff help to solve problems, field staff equally treated the farmers, regular visits to the farmers and field staff paid follow up visits to dairy farmers" were other strengths ranked 2nd. The data regarding weaknesses of extension system reflects that the statements such as "difficult loan process, extension has become expensive, poor research/extension linkage and lack of funds" were ranked 1st, 2nd, 3rd and 4th respectively. Same study was conducted to assess the strengths and weaknesses of extension system in Faisalabad, Punjab. The study revealed that provision of information in time to the farmers, increased farmers' access to the information and it offers more feedback of farmer's problem to EFS were the most important strengths of decentralized extension system. On the other hand, increased work load of EFS, extension system lacks single line command and control of extension system from the center has become week were the weaknesses of decentralized extension system. In another study, it was found that improves knowledge of farmers, help farmers in learning by doing and discourages the use of pesticides were the important strengths of FFS approach. However, heavy expenses on the implementation of FFS, time consuming process and weekly routine to attend school is difficult were the weaknesses of FFS approach [35].

CONCLUSION:

It is concluded that field staff of PDDC paid regularly visits to their dairy farmers and have better physical facilities in the study area. It was also found that PDDC field staff provided various types of extension/advisory services to dairy farmers in the project area related to farm management, breeding, feeding, heath care marketing etc. Also they developed the important skills of project dairy farmers related to dairy farming. With regard to strengths and weaknesses of PDDC extension system, installation of model farms on 50% grant was the major strength while difficult loan process was the major weakness perceived by the field staff of PDDC.

REFERENCES:

1. Government of Pakistan. Economic Survey of Pakistan 2016-17. Economic Advisor's Wing, Finance Division, Government of Pakistan, Islamabad, 2017.
2. Aujla KM, Hussain A. Economics of milk production of major dairy buffalo breeds by

Agro-Ecological Zones in Pakistan. Pakistan J Agric Res, 2015; 2:179-191.
3. World Bank. Minding the stock: Bringing public policy to bear on livestock sector development. Report No. 44010-GLB. World Bank, Washington DC, USA, 2009.
4. Alwi J, Ashraf I, Mehmood KCh, Iftikhar M, Ashraf S. Impact of livestock in uplifting rural livelihood. Pakistan J Agric Res, 2015; 3:287-294.
5. PDDC. The White Revolution: "Dhoodh Darya" White Paper on Pakistan's Dairy Sector. Dairy Pakistan Township, Kot Lakhpat, Lahore, 2006.
6. Muhammad G, M. Bilal MQ, Saghir A, Sami-Ullah M. Adoption gap in livestock production practices. The International Asian Research Journal, 2014; 3:05-09.
7. Raza SA, Ali Y, Mehboob F. (2012). Role of agriculture in economic growth of Pakistan. International Research Journal of Finance and Economics, 2012; 83:180-186.
8. Government of Pakistan. Economic Survey of Pakistan 2008-09. Economic Advisor's Wing, Finance Division, Government of Pakistan, Islamabad, 2009.
9. Ahmad S, Hinch G, Prior J, Thomas P, Burrell D. The role of extension in changing the dairy industry in Pakistan: A review. J Anim Plant Sci, 2012; Sup 2:113-116.
10. Shahid H, Shafique O, Shokat A. Dairy industry of Pakistan. European Journal of Business and Management, 2012; 18:1-4.
11. Gracia O, Mahmood K, Hemme T. A review of milk production in Pakistan with particular emphasis on small-scale producers. PPLPI Working Paper No. 3. Food and Agriculture Organization of the United Nations, Rome, 2003.
12. Khan MJ, Abbas A, Naeem M, Ayaz MM, Akhter S. 2013. Current issues and future prospects of dairy sector in Pakistan. Science Technology and Development, 2013; 2:126-139.
13. Bilal MQ, Ahmad A. Dairy hygiene and disease prevention, Usman and Bilal Printing Linkers, Faisalabad, Pakistan, 2004.
14. Idrees M, Mahmood Z, Hussain D, Shafi M, Sidique U. General problems regarding extension services with livestock and dairy farmers of Peshawar district, Pakistan. Sarhad J Agric, 2007; 2:527-531.
15. Ahmed MAM, Simeon E, Yemesrach A. Dairy development in Ethiopia. International Food Policy Research Institute (IFPRI), 2033 K Street, NW Washington DC 20006, USA, 2004.
16. Fita L, Trivedi MM, Tassew B. Adoption of improved dairy husbandry practices and its relationship with socio-economic characteristics of dairy farmers in Ada'a district of Oromia State, Ethiopia. Journal of Agricultural Extension and Rural Development, 2012; 14:392-395.
17. Anderson JR, Feder G. Rural extension services: World Bank Policy Research Working Paper, 2976, World Bank, Washington, DC, 2003.
18. Luqman M, Ahmed K, Ashraf MY, Khan ZI. Effectiveness of decentralized agricultural extension system: A case of Pakistan. African Crop Science Conference Proceedings, 2007; 8:1465-1472.
19. Government of Pakistan. Year Book 2011-12. Economic Wing. Ministry of National Food Security and Research, Islamabad, Pakistan, 2012.
20. Afzal M. Investment opportunities in livestock sector in Pakistan. Published in "The News" Rawalpindi/Islamabad, Lahore and Karachi on September 18, 2006.
21. Ahmad S, Burrell D, Rashid R, Sultana S. (2008). Impact of PDDC model farm programme on the socio-economic conditions of dairy farmers in Pakistan. Pak J Agri Sci, 2008; 2:372-380.
22. Ashraf E, Jackson GB, Afzal A. In service educational needs of agricultural officers for adaptation of remote sensing technology for precision of agriculture in Balochistan. Sarhad J Agri, 2012; 2:353-360.
23. Ashraf E, Sharjeel HK, Babar R, Junaid M, Iqbal Q, Rasheed R, Fatima N. Sarhad J Agri, 2018; 2:291-300.
24. Farooq A, Ishaq M, Shah NA, Karim R. Agricultural extension agents and challenges for sustainable development (A case study of Peshawar Valley). Sarhad J Agric, 2010; 3:419-426.
25. Ratnayake TC. Organizational climate and differential role performances as perceived by Veterinary Officers of Andhra Pradesh in India. PhD Thesis. Division of Dairy Extension, National Dairy Extension Research (Deemed University), Haryana, India, 2012.
26. Yakubu DH, Abubakar BZ, Atala TK, Muhammad A, Abdullahi MK. Assessing the effects of socio-economic factors on ICTs adoption among extension workers in the North-West Zone of Nigeria. Int J Agric Policy Res, 2012; 9:255-269.
27. Manzoor A, Ali A, Ali J, Raza Q, Fahmid S. Ali N. A study of physical and administrative factors affecting working efficiency of agricultural EFS in Pishin district of Pakistan. Int J Adv Res Biol Sci, 2016; 10:12-17.
28. Asif M, Ali S, Ahmad M, Ali, T. Analysis of

physical constraints affecting the efficiency of public extension agents in cotton zone of Punjab. J Agric Res, 2014; 3:463-470.
29. Siddiqui BN. Analysis of communication intervention of extension field staff in apple growing areas of Balochistan (Pakistan). PhD Thesis. Department of Agricultural Extension, University of Agriculture, Faisalabad, Pakistan, 2006.
30. Ashraf I. Analysis of communication interventions of extension field staff with farmers under decentralized extension in the Punjab, Pakistan. PhD Thesis. Department of Agricultural Extension, University of Agriculture, Faisalabad, Pakistan, 2008.
31. Gebresilasie ZN. Constraints faced by development agents in North-Western Ethiopia. Trends in Agricultural Economics, 2014; 1:1-10.
32. Shahin ASA. Adoption of innovations in small holder buffalo dairy farms in the Menoufia province in Egypt. PhD Thesis, Humboldt University, Berlin, 2004.
33. Rathod P, Nikam TR, Landge S, Hatey A. Farmers perception towards livestock extension service: A case study. Indian Res J Ext Edu, 2012; Special Issue (II):1-5.
34. Sharma M, Singh G, Keshava. Impact evaluation of training programmes on dairy farming in Punjab State. Indian Res J Ext Edu, 2014; 1:105-108.
35. Khatam A, Muhammad S, Chaudhry KM, Maan AA, Ikram-ul-Haq, Khan Z, Idrees M, Amin H. Strengths and weaknesses of farmer's field school approach as perceived by farmers. Sarhad J Agric, 2010; 4:685-688.