

## A CRITICAL ANALYSIS OF INTERACTIONS AMONG DIFFERENT SUB SYSTEMS OF DAIRY DEVELOPMENT IN HARYANA

V.B. Dixit<sup>1</sup>, S.N. Laharia<sup>2</sup> & A. Bharadwaj<sup>3</sup>

### ABSTRACT

The study was conducted in four districts of Haryana namely; Sonapat, Kurukshetra, Sirsa and Mohindergrah. The respondents of the study were 240 farmers, 50 scientists, 50 field functionaries and 12 administrators and planners. The relevant back ground information of the farmers, scientists, field functionaries and administrators was collected. The study indicated that existing as well as desired interaction of farmers with different sub-systems was significantly more in developed villages. Farmers, scientists, field functionaries and administrators also desired significantly more interaction than the existing one through their present modes only. The modes of interaction used, as well as desired ones by the farmers and field functionaries are the same. However, in other cases, there were differences in the modes used and preferred by them. The information sources, are therefore, required to use the methods of interaction which are preferred by the recipients of the information.

**Key words :** Interaction, Sub System, Dairy

### INTRODUCTION :

Dairying is very intimately interwoven with the country's rural economy that its prevalence as a source of food and additional income transcends all socio-economic boundaries of rural life. Knowledge and skills in cattle rearing, milk production and processing have been handed over from generation to generation. This is a blessed heritage of people of India which needs to be resurrected through applied innovations and cooperative human resource utilization.

Dairy development requires an integrated and sustained efforts by all the concerned people/agencies viz. farmers, scientists, extension workers, administrators and planners, dairy personnel etc. All these can be conceptualized as the sub systems of dairy development system. The first pre-requisite in this direction is close interaction among all the sub-systems as well as within the sub-systems. Hence, the present study was undertaken to find out of the mode and nature of interactions within as well as among different sub-systems of dairy development. The specific objectives of the study were:

- (i) To determine the existing and desired level of interaction of different sub-system within and between different sub-systems.
- (ii) To find out modes of interaction used within and among different sub-system for dairy development.

### METHODOLOGY :

On the basis of average milk production of indigenous cows, cross bred cows and buffaloes all the districts of the state were ranked. Accordingly Sonapat and Kurukshetra from the eastern zone and Mohindergrah and Sirsa from the western zone as the best and the worst-

districts respectively were selected for the study. On the basis of ratings of the field functionaries serving in the selected districts the best block from the best district and the worst block from the worst district belonging to each zone were selected. Two villages were selected randomly from each block. Thus the study was conducted in eight villages of four blocks of four districts.

**(a) Selection of Farmers**—A list of farmers possessing milch animals in the selected villages was prepared. Farmers were categorized into three categories on the basis of number of animals owned by them viz. possessing 1-2 animals, 3-4 animals and more than 4 animals. Proportionate random sampling was done to have a sample of 30 farmers from each village. Thus, there were 240 farmers who constituted the study sample.

**(b) Selection of Scientists**—A list of Animal Scientists working in HAU and ICAR institutes located in Haryana and having five years of experience was prepared. Proportionate random sampling was done to have a sample 50 scientists from ICAR institutes located in Haryana and HAU.

**(c) Selection of Field Functionaries**—A list of field functionaries working in the four selected districts was prepared. Proportionate random sampling was done to have a sample of 50 veterinarians working in the four selected districts for the study purpose.

**(d) Administrators**—Twelve very senior administrators representing State Department of Animal Husbandry, ICAR institutes and HAU were also selected for this study. Their service experience ranged from 22 to 32 years.

**Independent Variables of Respondents**—The information on sixteen socio-psychological background variables of farmers was collected. Three background

variables of scientists, field functionaries and administrators were also selected for the study.

**Dependent Variable**—Separate schedules for different categories of respondents *viz.* farmers, scientists, field functionaries and administrators were developed to assess the mode nature and intensity of interaction between various sub-systems. The information about the desired nature of interaction was also collected. The response was obtained from different categories of respondents on six point continuum.

## RESULTS AND DISCUSSION :

It is a well known fact that the behaviour of every person is significantly influenced by his socio-psychological background. It is also presumed that their level of interaction could be determined to a considerable extent by such factors. Thus, the information on sixteen independent variables was collected and is presented in Table 1. The mean score on all the dimensions along with standard deviation and coefficient of variation of both categories of villages developed as well as less developed was worked out.

**Profile of Farmers**—The study revealed that most of the farmers belonged to middle age group. Their education and family education was of low to medium level. Farming was the main occupation of most of them. The average holding size was about 4.5 acres in both types of villages. Most of them belonged to lower middle categories of caste, material possession, medium socio-economic status and possessed upto 5 animals. Their extension contact was medium and mass media exposure was moderate. They had favourable attitude towards dairy, high change proneness, opinion leadership and economic orientation. With regard to risk orientation they belonged to medium category. A perusal of mean, standard deviation, coefficient of variation and  $x^2$  values suggested that the respondent of both the types of villages are almost similar on all the dimensions except three aspects *viz.* age, family education and caste where they differed significantly.

**Profile of Scientists, Field Functionaries and Administrators**—Data on some of the back ground variables of scientists, field functionaries and administrators was also collected which indicated that

76 per cent scientists possessed Ph.D. degree. Designation wise 40 per cent were Assistant Professors, 38 per cent were Associate Professors and 22 per cent were Professors. More than 60 per cent scientists were having more than 10 years of service experience.

The profile of field functionaries made it clear that 62 per cent of them were in the middle age group of 31 to 40 years. Most of them (50%) had 5-10 years of experience. As regard their parental occupation about half of them were from farming background.

Background information of administrators revealed that 2/3rd of them were Ph.D. About 75 per cent of them had more than 25 years of service experience.

### Interaction within and among different sub-systems of dairy development :

(a) **Farmers**—Existing and desired level of interaction of farmers with different sub-systems and among themselves was determined by eliciting the response on six point continuum. The findings about their level of interaction in both the categories of villages *i.e.* less developed and developed are presented in Table 1. It is obvious from the table that mean existing level of interaction is very low in developed (3.72) as well as in less developed villages (2.00). On an average they desired to increase it approximately by five times. It is also seen that both the existing as well as desired level of interaction is more in developed villages than the less developed villages. The table further shows that presently the farmers have the highest interaction score with the input agencies and (5.05) and surprisingly they also want maximum interaction with them rather than with the field functionaries in both types of villages. Similar observations were reported by Mohammad *et al.* (1987) also. Though the existing level of interaction with the field functionaries is next to input agencies (2.25) in less developed villages, but they desired comparatively more interaction among themselves than the field functionaries (8.75). It is disappointing to note that the interaction with the scientists is very low (0.41 in developed villages and only 0.20 in less developed villages). However, they want to increase it considerably. The study suggests that steps should be taken by all the agencies to strengthen their interaction with the farmers.

**Table 1. Existing and desired levels of interaction of farmers**

Interaction	Less Developed Villages (N=120)				Developed Villages (N=120)			
	Existing		Desired		Existing		Desired	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Input Agencies	5.19	6.06	21.61	15.42	5.05	5.40	23.66	16.51
Field Functionaries	2.25	1.73	8.66	3.94	3.15	3.06	13.36	5.46
Among themselves	2.00	1.61	8.75	4.67	3.72	3.61	15.20	7.42
Scientists	0.20	0.60	7.10	3.49	4.41	0.76	11.33	5.86
Dairy Personnel	1.03	2.40	6.47	3.67	2.84	3.69	10.10	4.96
Administrators & planners	0.09	0.54	5.44	2.57	0.41	1.76	7.86	4.63
<b>Total</b>	<b>10.77</b>	<b>7.54</b>	<b>56.06</b>	<b>23.53</b>	<b>15.20</b>	<b>10.82</b>	<b>80.24</b>	<b>35.85</b>

**Differences in the interaction levels**—To find out significant differences on various dimensions of farmers' interaction among themselves and with different sub-systems, t-test was applied. The t-values have been presented in Table 2. The table indicates that all the t-values are significant except existing, desired, their gaps in interaction with input agency and existing interaction of farmers with administrators in less developed and developed villages. The results thus, suggest that:

- (i) Existing level of interaction among themselves

and with different sub-systems is significantly less than the desired one in both types of villages.

- (ii) The existing as well as desired level of interaction in less developed villages is significantly less than that of developed villages.
- (iii) The gap between existing and desired interaction is significantly more in developed villages than the less developed villages.

**Table 2. t-value of existing and desired interaction of farmers with different sub-systems**

sInteractions	Among farmers	With scientists	Field functionaries	Input agencies	Dairy personnel	Administrators	Total
(LDV) Vs D (LDV)	15.34**	21.56**	17.32**	10.87**	14.28**	20.57**	20.12**
(DV) Vs D (DV)	15.51**	20.60**	18.56**	12.01**	13.20**	17.32**	19.04**
(LDV) Vs E (DV)	5.05**	2.62*	3.00*	0.99	4.76**	1.60	3.75*
(LDV) Vs D (DV)	8.06**	6.93**	7.70**	1.00	6.60**	5.62**	6.15**
Gap (D-E)	5.96**	6.20*	6.56**	1.24	3.95*	4.39**	17.23**

\*\*Significant at 0.01 level of probability, \* Significant at 0.05 level of probability

LDV = Less developed villages, DV = Developed villages, E = Existing interaction, D = Desired interaction

**(b) Scientists:** It is clear from table 3 that mean desired interaction score of scientists was more than their mean existing interaction score in all the cases. It means that scientists also desired more interaction than what they have at present with different sub-systems. Presently, their maximum interaction was with other scientists (13.86) and minimum with administrators (2.06). They desired also maximum interaction among themselves (24.62) and least with administrators and planners (5.44). Further analysis revealed that t-values were significant in all the cases implying that scientists also want significantly more interaction with other sub-systems.

**Table 3. Interaction of scientists among themselves and with other sub-systems**

Interaction	Existing		Desired		t-value
	Mean Score	SD	Mean Score	SD	
Scientists working at the same institute/university	13.86	6.69	24.62	10.45	6.25**
Scientists working at different places	9.67	3.61	17.51	7.21	6.93**
Field functionaries	5.40	6.05	9.52	5.68	3.52**
Dairy personnel	3.02	3.15	6.00	2.62	5.32**
Farmers	8.58	5.60	16.52	6.60	6.50**
Administrators and planners	2.06	1.93	5.44	2.56	7.68**
Input agencies	2.48	3.09	8.68	7.90	5.21**
<b>Total</b>	<b>38.86</b>	<b>18.41</b>	<b>80.96</b>	<b>26.44</b>	<b>9.25**</b>

**(c) Field Functionaries**—It is obvious from the table 4 that mean desired score of field functionaries was more than their mean existing score in all the cases. At present their maximum interaction is among themselves (15.16) and least with input agencies (0.16). Their desired interaction was also in the same order i.e. maximum

among themselves (24.80) and minimum with input agencies (3.14). The t-values were found to be significant in all the cases indicating that the field functionaries want significant more interaction with all other sub-systems. Thus, the field functionaries had also similar opinion on this issue as expressed by the farmers and scientists.

**Table 4. Interaction of field functionaries among themselves and with different sub-systems**

Interaction	Existing		Desired		t-value
	Mean Score	SD	Mean Score	SD	
Among themselves	15.16	8.70	24.80	7.56	5.95**
Scientists	1.32	2.84	17.90	7.03	15.64**
Dairy personnel	1.32	2.52	6.54	3.93	8.03**
Administrators and planners	1.98	2.22	7.16	3.47	9.08**
Input agencies	0.16	0.62	6.26	3.14	13.06**
Farmers	13.06	7.21	24.62	6.95	8.19**
<b>Total</b>	<b>32.80</b>	<b>17.15</b>	<b>86.86</b>	<b>19.54</b>	<b>14.67**</b>

**(d) Administrators**—It is seen from table 5 that mean desired score of administrators was more than their mean existing interaction score in all the cases. It means the administrators also wanted more interaction with different sub-systems. Presently, they have maximum interaction with the scientists (8.08) and minimum amongst themselves (3.42). They desired also to interact most with scientists (16.08) and least among themselves (7.83). It is pertinent to mention here that the scientists, on the other hand, want least interaction with the administrators. The t-values were found to be significant in all the cases which implied that administrators wanted significantly more interaction with different sub-systems.

**Table 5. Interaction of Administrators and Planners among themselves and with different sub-systems**

Interaction	Existing		Desired		t-value
	Mean Score	SD	Mean Score	SD	
Among administrators and planners	3.42	2.47	7.83	4.61	2.94**
Scientists	8.08	3.42	16.08	6.73	3.72**
Field functionaries	5.08	3.20	9.68	3.89	2.61**
Farmers	3.92	2.97	10.42	4.58	4.14**
Dairy personnel	4.67	2.90	9.83	4.02	3.60**
Input agencies	3.75	2.53	9.50	4.93	3.61**
<b>Total</b>	<b>28.58</b>	<b>7.76</b>	<b>62.50</b>	<b>13.26</b>	<b>7.83**</b>

**Table 6. Matrix showing existing and desired modes of interaction of different sub-systems**

Sub-System	Farmers	Field functionaries	Scientists	Administrators
Farmers	PM MCM CC	VH CC IC	VU CS CC	MCM Dairy Melas Camps
Field	VH IC CC	MM IC CC	MM CC IC	Meetings Workshops Committees
Scientists	FV OC Trainings	Trainings Seminars FV	DM DS DRP	Meetings Seminars Committees
Administrators	MMS SM VAP	Meetings Workshops Trainings	Workshops Meetings Teamwork	Meetings Workshops Committees

CC = Clinical Camps

CS = Cattle Shows

PM = Panchayat Meetings

DM = Departmental Meetings

DRP = Department Research Proposal

SM = Specialized Meetings

DS = Departmental Seminar

FV = Field Visits

VAP = Village Adoption Programm

IC = Infertility Camps

MCM = Monthly Cooperative Meeting

VH = Veterinary Hospital

MM = Monthly Meetings

OC = Office Calls

VU = Visit to University

(i) Each sub-system has existing as well as desired modes of interaction.

(ii) There is no difference in the opinion of the respondents of two sub-systems namely farmers and field functionaries about the existing and desired modes of interaction among them. For example, the farmers indicated that maximum interaction with the field veterinarians is at the veterinary hospitals and similar is the opinion of field veterinarians. The authorities can take measures to strengthen the use/availability of these modes, which would help both of them to intensify their interaction.

(iii) On the other hand, there is an obvious disagreement among other sub-systems about the existing as well as desired modes of interaction. For example farmers reported that the their maximum interaction with scientists is through office calls, cattle shows and clinical camps while the scientists felt that maximum contact with buf-

Existing and desired modes of interaction of different sub-systems—Finally, all the respondents of the sub-systems were asked to indicate their existing as well as desired modes of interaction, both within and between subsystems on a six point scale ranging from ‘never’ to ‘every month’. Accordingly, interaction intensity use index of each mode was worked out. On this basis three most frequently used modes by the respondents of each sub-system have been presented in a matrix form in table 6. The table indicates following very interesting facts :

falo owners is through field visits, office-calls and training. Similar is the case with other sub-systems also. This differential perception of the situation by the respondents is serious. The authorities at the first step are required to organize their face-to-face interaction to remove the anomaly in their perception. Secondly, the efforts may be made to strengthen the commonly agreed upon modes to improve their interaction level.

### CONCLUSION :

The difference between existing and desired level of interaction was significant in almost all the cases. However no significant difference existing and desired modes of interaction used by farmers, extension workers and scientists was observed. The study also revealed that there was an urgent need to increase their intensity of interaction both -within and between the various sub-systems of dairy development through existing modes.

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