

Perceived Training Needs of Farmers in Pearl Millet Cultivation

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Abstract: The present investigation was undertaken during the 2000-01 in two villages of Pali district of semi-arid Rajasthan, to find out the training needs of the farmers for improved practices of pearl millet cultivation and their opinion about the time, duration and place for organizing training programs. Simple random sampling method was used to draw a study sample of 120 respondent farmers, who were actively engaged in farming. Personal interview technique by using a pre-tested schedule was used for collection of the data. Results show that most of the farmers needed medium level of training for improved practices of pearl millet cultivation. The order of importance of training needs of the farmer was crop diseases and control, insect pests and control, seed treatment, use of bio-fertilizers, improved varieties, soil and water testing, storage using chemical pesticides, use of nitrogenous fertilizers, use of phosphatic fertilizers minimum support price of crop and use of government storage facility. Farmers opined that training program should be organized before sowing of crop (61%) should be, of two days duration (59%) and conducted both on and off campus (44%).

Key words: Training needs, pearl millet cultivation, plant protection, marketing, storage, opinion, time, duration, place

Pearl millet (*Pennisetum glaucum* L.), is the most important cereal crop of rainy season in arid and semi-arid regions of Rajasthan. The state has maximum area and production of pearl millet, but productivity is merely 330 kg ha⁻¹ (only around half of all India average of 639 kg ha⁻¹) and consequently with 44.4% of country's area it is contributing only 23.0% in total pearl millet production (Government of India, 2001). This is mainly due to the fact that 98.4% of the area under this crop is rainfed (Government of India, 2001).

Thus to disseminate and transfer the improved cultivation practices of pearl millet to the farming community, a large numbers of training programs are needed to be conducted by agricultural research and extension organizations on perceived needs

of the farmers. A training program has to be based on the training needs of the clientele. In the present investigation, an effort has been made to identify the training needs of farmers on improved practices of pearl millet cultivation so that programs can be tailored for effective improvement in farmers' knowledge, skill and attitude.

Materials and Methods

The study was carried out in villages Javadia and Gajangarh of Pali district. A total of 120 respondent farmers were selected using random sampling method. Personal interview technique was used for data collection using a pre-tested structured interview schedule during October 2000 to January 2001. The training needs of the farmers for improved practices of pearl

millet cultivation were measured on a three-point continuum, viz., most needed (score-2), needed (score-1) and not needed (score-0) and the opinion was recorded through a semi-structured schedule. The data were analyzed using statistical tools like frequency and percentage; mean % score (MPS) and rank. The training needs were ranked on the basis of MPS within category and across the categories.

Results and Discussion

Socio-economic profile of the sampled farmers

Out of 120 sampled farmers 21.7, 70.0 and 8.3% were young (up to 35 yrs), middle (36 to 58 yrs) and old (59 yrs and above) age groups, respectively. Among them 44% were literate, 39.1% were educated and 17.4% were illiterate. Most of the sampled farmers belonged to other backward class. As per the size of operational holdings the sample included 4.2% small (up to 2 ha), 75.8% medium (2 to 10 ha) and 20.0% large (more than 10 ha) farmers. Majority of the farmers had large family (7 and more members), irrigated land (up to 2 ha), attended one to five training programs and had low mass media exposure. Apart from this, around 44% had 16 to 30 years experience of farming and around 48% were having medium extension agent contact.

Sampled farmers had low level of knowledge (MPS 38.6 with SD 12.8) and adoption (MPS 28.5 with SD 9.5) of improved practices of pearl millet cultivation. They grow pearl millet under rainfed condition following traditional practices. Field preparation starts with manual removal of perennial weeds (bushes and shrubs) in pre-monsoon period. With the onset of monsoon rains, the field is once ploughed and seeds of improved varieties are sown in lines using pora method with tractor drawn cultivator. After 25 to 30 days of sowing one hoeing-cum-weeding is done, occasionally followed by second one at 40 to 45 days. Farmers apply minimal fertilizers and no chemical or mechanized weeding and plant protection measures are practised. Upon maturity of the crop ears are harvested using indigenous sickles. Grains are separated using threshers and stored in mud bins or gunny bags. Later on stover is harvested and used as fodder for livestock. Surplus production (if any) of grains is mainly sold at village level.

Level of training needs of farmers

More than two-third (78.2%) farmers perceived medium level training needs regarding improved practices of pearl millet cultivation, followed by 13.0% respondents having low training needs (Table 1). Only 8.7% farmers perceived high level training

Table 1. Distribution of respondents according to perceived training need regarding improved practices of pearl millet cultivation (N = 120)

Category	Frequency	Percentage
High training need (Mean + SD i.e. score above 29)	10	08.7
Medium training need (Mean ± SD i.e. score between 17 to 29)	94	78.2
Low training need (Mean - SD i.e. score below 17)	16	13.0
Total	120	100.0

Note: Maximum obtainable score = 50, Mean score = 23 and SD = 7.

Table 2. Training need about improved agronomic practices of pearl millet cultivation (N = 120)

Practices	Training			MPS	Rank	
	Most needed	Needed	Not needed		Within	Overall
	f (%)	f (%)	f (%)			
Soil and water testing	18 (15.0)	89 (74.2)	13 (10.8)	52.1	III	VI
Land preparation	0 (0.0)	31 (25.8)	89 (74.2)	12.9	XV	XXV
Optimum time of sowing	0 (0.0)	70 (58.3)	50 (41.7)	29.2	XIII	XXIII
Use of certified seeds	11 (9.2)	84 (70.0)	25 (20.8)	44.2	VI	XIV
Improved varieties	26 (21.7)	89 (74.2)	5 (4.2)	58.8	II	V
Seed rate	0 (0.0)	83 (69.2)	37 (30.8)	34.6	XI	XXI
Plant geometry	6 (5.0)	91 (75.8)	23 (19.2)	42.9	VII	XV
Hoeing and weeding	6 (5.0)	91 (75.8)	23 (19.2)	42.9	VII	XV
Irrigation	6 (5.0)	70 (58.3)	44 (36.7)	34.2	XII	XXII
Intercropping	6 (5.0)	91 (75.8)	23 (19.2)	42.9	VII	XV
Use of FYM	5 (4.2)	81 (67.5)	34 (28.3)	37.9	X	XX
Use of nitrogenous fertilizer	10 (8.3)	102 (85.0)	8 (6.7)	50.8	IV	VIII
Use of phosphatic fertilizer	10 (8.3)	100 (83.3)	10 (8.3)	50.0	V	IX
Use of biofertilisers	37 (30.8)	78 (65.0)	5 (4.2)	63.3	I	IV
Optimum time of crop harvest	5 (4.2)	60 (50.0)	55 (45.8)	29.2	XIII	XXIII

Note: MPS = Mean per cent score.

needs. The findings are fairly in line with Kumari and Bhaskaran (1995) who reported that the majority of farmers (68.3%) perceived a medium to high level training need. The reasons of perceived medium level training needs could be cultivation of crop since long adopting traditional practices, poor knowledge of improved cultivation practices, cultivation of crop under rainfed conditions thus high risk in using modern inputs, and large scale of cultivation constraining adoption of improved practices.

Training needs of farmers

Improved agronomic practices: The use of bio-fertilizers was ranked 1st with MPS 63.3, for which 30.8% respondents expressed that training was most needed and 65.0% felt that it was needed. It was

followed by need for training on practice of improved varieties. Other practices for which high training needs were perceived were soil and water testing (Rank 3rd), use of nitrogenous fertilizers (Rank 4th), use of phosphatic fertilizers (Rank 5th), use of certified seed (Rank 6th), intercropping, hoeing and weeding and plant geometry (all Ranked 7th). In overall ranking of training needs agronomic practices received quite high rankings (Table 2). The findings are similar to those of Saxena and Singh (1997) who reported that most agriculture extension officers expressed a keen desire and need for training in biofertilizers. Kanani *et al.* (1992) also reported that maize cultivators gave maximum priority to fertilizers for training. These results are also supported by the findings of Rambabu (2000), Singh *et al.* (2001) and Prasad and

Govind (2001). The practices for which training needs were low included land preparation followed by optimum time of crop sowing and harvest, irrigation, seed rate, and use of FYM. The above findings clearly indicate that farmers mostly needed training in practices that require modern inputs.

three ranks were received by plant protection practices (Table 3). Results are similar to those of Kanani *et al.* (1992) who reported that maize cultivators gave maximum priority to plant protection measures for training. Similarly Kumari and Bhaskaran (1995) reported that plant protection in rice was ranked high in the training need

Table 3. Training needs about improved plant protection practices of pearl millet cultivation (N=120)

Practices	Training			MPS	Rank	
	Most needed	Needed	Not needed		Within	Overall
	f (%)	f (%)	f (%)			
Seed treatment	57 (47.5)	55 (45.8)	8 (6.7)	70.4	III	III
Insect pests of crop and their control	65 (54.2)	42 (35.0)	13 (10.8)	71.7	II	II
Diseases of crop and their control	76 (63.3)	39 (32.5)	5 (4.2)	79.6	I	I
Rat control	5 (4.2)	89 (74.2)	26 (21.7)	41.3	V	XVIII
Care in use of chemical pesticides	10 (8.3)	91 (75.8)	19 (15.8)	46.3	IV	XIII

Note: MPS = Mean per cent score.

Improved plant protection measures: Among plant protection measures, diseases of crop and their control ranked 1st (MPS 79.6), followed by seed treatment and insect pests and their control (Table 3). Majority of respondents expressed need for training on diseases of crop and their control (63.3%) and insect pests of crop and their control (54.2%). About 47% respondents expressed that training was most needed on seed treatment. Findings are similar to those of Prakash and Kushwaha (1995) who reported highest priority be given for training on seed treatment followed by use of insecticides and other pesticides, occurrence of insect pests and diseases, etc.

Need for training about care in use of pesticides and rat control was expressed by 76 and 74% respondents, respectively. In overall training need ranking also first

hierarchy. Rambabu (2000), Singh *et al.* (2001) and Sumathi and Alagesa (2001) also reported similar results. Thus the results imply that farmers understand the importance of plant protection measures for high yield and quality produce from pearl millet cultivation *per se*. Results also reveal that the farmers are ready to learn the complex skills of plant protection practices.

Improved marketing practices: Training improved marketing practices of pearl millet was high on priorities of the farmers as most of the respondents expressed that training was 'needed' (Table 4). Minimum support price of crop and use of government storage facility, received equal MPS 48.3 hence ranked 1st, followed by market for produce with slightly low MPS (47.5). For use of government storage facility and

Table 4. Training needs about improved marketing practices (N = 120)

Practices	Training			MPS	Rank	
	Most needed	Needed	Not needed		Within	Overall
	f (%)	f (%)	f (%)			
Minimum support price of crop	12 (10.0)	92 (76.7)	16 (13.3)	48.3	I	X
Market for the produce	5 (4.2)	104 (86.7)	11 (9.2)	47.5	III	XII
Use of government storage facility	13 (10.8)	90 (75.0)	17 (14.2)	48.3	I	X

Note: MPS = Mean per cent score.

minimum support price of crop, about 11 and 10% respondents, respectively, said that training was 'most needed'. In overall ranking of training needs marketing practices got high ranking, as both minimum support price of crop and use of government storage facility got 10th rank and market for the produce received 12th ranking. These findings imply that farmers wish to get the benefit from government policies and thus maximum price for pearl millet as returns of their hard work. These finding got support from state government policy in recent years to purchase the pearl millet on minimum support price recommended by Commission for Agricultural Cost and Price. The results are also supported by Singh *et al.* (2001), Sumathi and Alagesa (2001) and Prasad and Govind (2001).

Improved storage practices: Table 5 reveals that one of the improved storage

practices of pearl millet have got quite high ranking in overall training need and that is storage using chemical pesticides (ranked 6th with MPS 52.1). The other practice of moisture content in grains during storage did not receive the overall high ranking, but most of the farmers (80.4%) expressed 'need' for training in this practice. So it seems that storage practices also receiving the attention. Results are in line with the findings of Singh *et al.* (2001) and Prasad and Govind (2001).

Time, duration and place of training

A good majority (60.9%) of the farmers opined that training program on improved practices of pearl millet cultivation should be organized in May-June before sowing of the crop while one-fourth (23.9%) wanted training to be organized both before sowing and during standing crop (Table 6).

Table 5. Training needs about improved storage practices (N = 120)

Practices	Training			MPS	Rank	
	Most needed	Needed	Not needed		Within	Overall
	f (%)	f (%)	f (%)			
Moisture content in grains during storage	0 (0.0)	97 (80.8)	23 (19.2)	40.4	II	XIX
Storage by using chemical pesticides	18 (15.0)	89 (74.2)	13 (10.8)	52.1	I	VI

Note: MPS = Mean per cent score.

Table 6. Opinion of respondents about time, duration and place of training programs on improved practices of pearl millet cultivation (N = 120)

Aspect of training program	Opinion		Rank
	f	%	
Time of organizing a training program			
Before sowing season	73	60.9	I
During standing crop	10	8.7	III
Both before sowing and during standing crop	29	23.9	II
Any time	5	4.4	IV
No opinion	3	2.2	V
Training program duration (in Days)			
One	30	25.0	II
Two	71	59.2	I
Three	11	9.2	III
More than three	3	2.2	V
No opinion	5	4.4	IV
Place of training			
On-campus	13	10.9	III
Off-campus or at field	50	41.3	II
Both on and off-campus	52	43.5	I
Any where	2	1.7	V
No opinion	3	2.2	IV

Shreeshailaja and Veerabhadraiah (1993) also reported that most of the farmers preferred training in April/May. The wisdom behind their preference for a training program before sowing and during standing crops may be that they remember the methods and apply them effectively during the season.

Majority of farmers (59.2%) wanted a two-day training program while 25.0% wanted one-day program and 9.2% wanted 3-day program. A meager fraction (4.4%) of respondents expressed no opinion about duration of training program. Shreeshailaja and Veerabhadraiah (1993) also reported that dairy farmers' preferred 3-day (32%), 5-day (29%) or 1-day (15%) training. The farmers preferred short duration (one or two day) training program as they cannot afford to spend more time outside home.

About 44% farmers wanted training to be organized both on and off-campus, followed by 41.3% who opined that training program should be conducted at farmers' fields (Table 6). However, 10.9% farmers preferred on-campus training program. Kanani *et al.* (1992) also reported that majority of the respondents suggested training program to be organized in their villages. Shreeshailaja and Veerabhadraiah (1993) found that farmers' preferred venue for training was their villages. Farmers' logic for preference of off-campus (field) training may be their convenience, better attendance and their feeling at home.

Thus it is concluded that farmers had medium level training needs for improved practices of the pearl millet cultivation. They perceived high training needs for diseases and pests and their control, seed

treatment, use of bio-fertilizers, improved varieties, storage (using chemicals, pesticides), use of fertilizers, minimum support price of crop and use of government storage facility. Two-days on and off campus training programs be organized before sowing of crop. These findings will be helpful in developing training modules and to plan, formulate and organize effective training program for pearl millet cultivators.

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