Table 3. Farm trial date on groundnut types/cultures conducted during kharif 1996

S .No.	Location	Pod yield (kg ha^{-1})					
		VGE 55-1	ISKO 8805	Culture 15	Culture 18	TMV2 (standard)	Local variety
1.	Kollayil	2675	2600	2425	2500	2000	1950
2.	Thirupuram	2500	2585	2600	2300	2050	1875
3.	Chenkal	2475	2750	2500	2800	2150	2000
4.	Athiyanoor	2300	2150	2400	2300	1900	1800
5.	Paudikonam	2460	2700	2500	2725	2200	1875
6.	Kazhakoottan	2200	2320	2000	2180	1700	1750
7.	Panangode	2285	2150	2350	2400	1880	1800
8.	Venganoor	2650	2550	2450	2420	2020	2060
9.	College of Agriculture, Vellayani	2415	2505	2375	2500	1875	1900
	Mean	2440	2479	2400	2458	1975	1882

"F" value for treatment was significant CD ar 5% = 103.6

Culture 18 with high yield and early maturity was recommended for release as "Snigdha " suitable for cultivation in the uplands of Thiruvananth apuram district by the state seed sub Committee on crop variety release during May 1998.

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KNOWLEDGE ORIENTED TRAINING NEEDS OF AGRICULTURAL OFFICERS UNDER TAMIL NADU AGRICULTURAL DEVELOPMENT PROJECT (TNADP)

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ABSTRACT

One of the very important steps in any training programme is identifying the needs of trainees. The knowledge oriented training needs expressed by AOs are management, administration and supervision, programme planning and project formation, pomology, olericulture, agroforestry, pisciculture, dairying, plant protection measures, seeds and sowing, IPM, biological control of pest and disease and production and use of biofertiliser.

KEY WORDS: Knowledge, Training needs, Agricultural Officers

Training has been recognised as an important input in improving the professional competence of extension personnel for effective transfer of technology to the farming community. Tamil Nadu

Agricultural Development Project (TNADP) was launched by Tamil Nadu Government in the year 1991. Introduction of integrated watershed development, improvement of seed production, livestock development, forestry, strengthening the co-ordination and monitoring capabilities and improving the quality and cost effectiveness of the extension service and above all formulation and transfer of a package of agriculture and related enterprises are some of the major components contemplated in the World Bank supported TNADP. Assessing the training needs of trainees is an important step in any training programme. The present study was carried out with the objective of assessing the knowledge oriented training needs of Agricultural Officers (AOs) in major subject matter areas under TNADP.

Methodology

The sample unit selected for this study consisted of Agricultural Officers from six agroclimatic zones of Tamil Nadu. They were working under Tamil Nadu Agricultural Development project. The samples were drawn by proportionate sampling method. To assess the training needs in knowledge level, judges' opinion was obtained from AOs and a list of subject matter areas were given in six major sub headings. A well structured and pretested questionnaire was prepared. These questionnaires were mailed to 120 respondents. The filled in questionnaires received from 74 respondents were subjected to statistical analysis. The respondents were asked to indicate the knowledge level aspects in which they required training against each subject matter areas in a three point continuum (ie. most needed with score of 3, needed with 2 and least needed with one score). All the scores of each major sub headings were added and the training needs score value for each specific area was obtained. From the total scores obtained, mean score value was calculated. Finally the subjects were ranked according to mean score value.

Findings and Discussion

1. Training need in knowledge level of Agricultural Officers in major subject matter areas.

The result has been presented in the Table 1.It was observed that the allied enterprises was ranked first followed by crop husbandry and agronomical aspects. The reason for such ranking might be that under TNADP, these areas were considered more important from the farmers' point of view. The AOs thus preferred to have training in these areas in terms of knowledge acquisition. The other major areas viz., extension education, farm and crop management aspects and miscellaneous were ranked in the order mentioned.

Table 1. Training need in knowledge level of AOs in major subject matter areas

S.No.	Major subject matter areas	Knowledge	
		Mean score	Rank
1	Extension education	2.26	4
2	Crop husbandry	2.43	2
3.	Allied enterprises	2.45	1
4	Agronomial aspects	2.30	3
5	Farm and crop management aspects	2.23	5
6	Miscellaneous	2.01	6
	Overall mean score	2.33	

1.1. Extension education

The major area includes 6 sub areas. The training needs were assessed in knowledge level. The majority of the extension workers needed training on management, administration and supervision, programme planning and project formation and monitoring and evaluation. The reason for such ranking might be that most of the AOs expected to operate more schemes under TNADP and the AOs were responsible for problem identification and formulation of projects. These projects needed to be evaluated. Thus, the AOs preferred training and ranked second and third. It is also evident that the AOs needed training on extension teaching methods, preparation and use of audio-visual aids, human relationship and farm journalism. This findinds is in line with findings of Ganesan (1978).

1.2. Crop husbandry

This area includes 11 sub areas of agricultural and horticultural crops. The training need in terms of knowledge was assessed.

Table 2. Knowledge oriented training needs of AOs under subject matter areas

S.No.	Major subject matter areas	Knowledge	
		Mean score	Rank
	Extension Education		
1	Management, administration and supervision	2.50	1
2	Programme planning and project formation	2.26	2
3	Monitoring and evaluation	2.24	3
4	Extension teaching methods	2.22	4
5	Preparation and use of audio-visual aids	2.20	5
6	Human relationship	2.10	6
7	Farm journalism	2.01	7
	Overall mean score	**2.22**	
	Crop husbandry		
1.	Pomology	2.91	1
2.	Olericulture	2.88	2
3.	Forage crops	2.48	3
4.	Pulses	2.43	4
5.	Plantation crops	2.26	5
6.	Floriculture	2.24	6
7.	Medicinal plants	2.20	7
8.	Oil and oilseeds	2.19	8
9.	Millets (major and minor)	2.12	9
10.	Spices and condiments	2.01	10
11.	Commercial crops	2.00	11
	Overall mean score	**2.34**	
	Allied Enterprises		
1.	Agro forestry	2.58	1
2.	Pisciculture	2.53	2
3.	Dairying	2.51	3
4.	Poultry	2.50	4
5.	Goatery	2.47	5
6.	Aquaculture	2.42	6
7.	Sericulture	2.40	7
8.	Apiculture	2.38	8
9	Piggery	2.35	9
	Overall mean score	**2.46**	
	Agronomical aspects		
1.	Plant protection measure	2.41	1
2.	Seeds and sowing	2.39	
3.	Manures and manuring	2.38	
4.	Post harvest technologies	2.36	
5.	Irrigation	2.26	
6.	After cultivation	2.24	

Contd...

Table 2. Contd.,

S.No.	Major subject matter areas	Knowledge	
		Mean score	Rank
7.	Land preparation	2.20	7
8.	Harvesting	2.14	8
	Overall mean score	**2.30**	
	Farm and crop management aspects		
1.	Integrated pest management	2.52	1
2.	Biological control of pests and diseases	2.38	2
3.	Pest and disease management	2.28	3
4.	Integrated farming system	2.24	4
5.	Farm management and crop planning	2.20	5
6.	Soil and water management	2.18	6
7.	Integrated nutrient management	2.09	7
8.	Marketing of farm produce	2.01	8
	Overall mean score	**2.23**	
	Miscellaneous		
1.	Biotechnology	2.32	1
2.	Production and use of bio-fertilizer	2.10	2
3.	Use of bio-pesticides	2.00	3
4.	Seeds production technologies	1.98	4
5.	Agricultural engineering	1.65	5
	Overall mean score	**2.01**	

Most of the horticultural subjects were cited as areas for training to acquire knowledge. Pomology, olericulture, forage crops and pulses were found to have more mean value than the overall mean score value of 2.34.

The agriculture courses did not elaborate the areas like pomology, olericulture, plantation crops, floriculture, medicinal plants and spices and condiments. This was the reason why the AOs ranked as differently. Besides these, they also wanted training on forage crops, millets, oil and oilseeds as well as commercial crops in the order mentioned.

1.3. Allied Enterprises

The major area of allied enterprises is divided into 9 sub areas. The training needs were assessed in the sphere of knowledge level.

It was observed that majority of the AOs wanted to gain knowledge in plant protection measures, seeds and sowing, manures and manuring and post-harvest technologies. Whenever they visited the farms and homes, the farmers raised doubts and sought clarification. Unless the extension workers are equipped with upto date information, they may find it difficult to clarify the doubts. Thus, the AOs attached more importance to these areas. This findings is in line with findings of Menon and Annamalai (1975).

1.5. Managemetn activities

This area includes 8 sub areas. The training needs were assessed in terms of knowledge.

It was seen that most of the change agents wanted training on four areas viz., biological control of pest and diseases, pest and disease management, integrated pest management and integrated farming system. For any extension worker to be successful, he/she must have thorough knowledge on these areas.

1.6. Miscellaneous

This major area had been divided into 5 sub areas. The training needs were assessed.

It could be observed that 3 out of 5 areas were found to have exceeded the overall mean score value. The AOs wanted to acquire knowledge on biotechnology, producton and use of bio-fertilizer and use of bio-pesticides. The other areas were seed production technology and agricultural engineering, for which they attached less importance.

Conclusion

The Agricultural Officers indicated first references for training in subject matter areas of allied enterprises, crop husbandry and agronomical aspects, particularly in the following areas, such as management, administration and supervision, programme planning and project formation, pomology, olericulture, agro forestry, pisciculture, dairying, plant protection measures, seeds and sowing, integrated pest management, biological control of pests and diseases, biotechnology and production and use of bio-fertiliser.

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PLANT SPACING AND PHOSPHORUS FERTILISATION ON SEED PRODUCTION OF *CROTALARIA JUNCEA*

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ABSTRACT

Field experiments were conducted to study the effect of different spacings and phosphorus levels in *Crotalaria juncea* seed production. The results revealed that the seed crop can be grown with a spacing of 60 x 15 cm along with application of phosphorus at 50 kg/ha to get good yield with assured quality.

KEY WORDS : *Crotalaria juncea*, Seed production, Spacing, Phosphorus

Nitrogen fixing *in-situ* leguminous green manures are gaining importance in the context of more emphasis on low external input sustainable agriculture. Among the different organic manures, green manures have been playing an important role in supplying the nutrients and enhancing the physical, chemical and biological properties of the soil.

Although the value and importance of green manure incorporation are well known to the peasants, it has not been regularly and widely adopted by them owing to several factors. One of the foremost factors is non-availability of quality seeds on time (Palaniappan and Budhar 1992). Therefore, the present study was undertaken to evolve suitable agrotechniques for quality seed production in *Crotalaria juncea* which is commonly grown both in wet and gardenland agroecosystems. Also, it is one of the common *in-situ* green manue crops grown extensively in India, Indonesia, Asia, Philippines and Senegal.

MATERIALS AND METHODS

Field experiments were conducted during summer 1993 and 1994 at Tamil Nadu Agricultural University, Coimbatore in clay loam soil. The experiment was laid out in factorial randomised block design with three replications. The treatments consisted of three spacings (30 x 15, 60 x 15 and 90 x 15 cm) and three phosphorus levels (0, 25, 50 kg P_2O_5 per ha.). The soil of the experimental site is deep clay loam, moderately well