

Farmers Training Effectiveness and Implications for Scaling-up : The Case of *Adarsha Rythus* in Andhra Pradesh, India

P. Bala Hussain Reddy¹, P.V.K. Sasidhar² and P.V. Satya Gopal³

1. SMS (Agril. Ext.), Acharya Ranga KVK, Tirupati, 2. Asso. Prof., School of Ext. and Development Studies, IGNOU, New Delhi, 3. Programme Coordinator, KVK, Kalikiri, Chittoor, A.P.

Corresponding author e-mail: pvksasidhar@yahoo.com

ABSTRACT

The *Adarsha Rythus* are trained as nodal functionaries between the farmers and the extension staff at village level on advanced crop planning, production, horticultural crops, micro irrigation practices, marketing issues, post harvest technology, credit related issues, irrigation and other allied agricultural activities. This paper presents the evaluation findings on effectiveness of residential training programmes organized for 260 *Adarsha Rythus* in Chittoor district of Andhra Pradesh. The key evaluation questions were on relevance of course contents, knowledge gain, skill improvement, utility of the topics and overall effectiveness of the programme. The evaluation findings indicated a high relevance of most of the contents, substantial knowledge gain and low skill improvement by the participants with overall effectiveness index of 69.38 per cent. It is recommended to: (a) select location specific and need based topics for improving the quality of the training programmes (b) give special emphasis on identifying skill based technologies and adopt appropriate adult learning training methodologies (c) extend training duration from 5 days to 7 – 10 days to enable intensive up-gradation of knowledge and skills (d) standardize the training curriculum and scale-up training programmes as open education resources all over the state to update *Adarsha Rythus*' competencies and serve as an efficient extension facilitator at village level.

Key words: *Farmers training; Effectiveness; Adarsha Rythus;*

Strong linkages between scientists – extension – farmers are essential to increase agriculture productivity in the country. Capacity building of the farmers to face the impending challenges of globalization and liberalization further necessitated the need for a strong and innovative extension system. However, inadequate extension delivery mechanism has become a major concern to all stakeholders, including policy makers. The concern have been fuelled lately by the way of pluralism, market liberalization and globalization sweeping across the world and giving rise to initiatives that will enhance efficiency and effectiveness of not only the extension delivery, but the entire system of technology generation, dissemination and use. With a rapidly expanding population and declining budget, rethinking the way agricultural technology is delivered to farmers has become necessary. Moreover, the multifarious demands of farming systems should be approached in an economical way as it is evident that public sector extension agencies are facing manpower and operating funds crunch.

Adarsha Rythu – An Extension Facilitator at Village Level : The extension services in the state of Andhra Pradesh in India have been strengthened by positioning *Adarsha Rythu* (A model farmer) as a facilitator at village level for generating more awareness among the farmers on advanced crop planning, production, horticultural crops, micro irrigation practices, marketing issues, post harvest technology, credit related issues, irrigation and other allied agricultural activities. Andhra Pradesh was the first state to appoint *Adarsha Rythus* in tune with the report of National Commission on Farmers, chaired by Prof. M.S. Swaminathan, The main objective behind the appointment of *Adarsha Rythus* is to introduce a nodal functionary between the farmers and the extension staff of agriculture and other line departments to bridge the gap between research - extension - farmers. The *Adarsha Rythu* should have minimum of 10th class qualification, 25-45 years of age, having good communication skills, resident of selected village and compulsory a practicing farmer.

Each *Adarsha Rythu* will be paid an honorarium of Rs. 1,000/- per month. To strengthen the extension services, 49161 *Adarsha Rythus* were deployed as against the target of 50,000 in the state. *Adarsha Rythus* are maintaining the list of 200-250 farmer holdings allotted to him/her and the registers with the information on the type of soils, extent of crops grown, number of livestock, fish ponds, particulars of the credit availability etc., on each farm holding (Kumar and Sailaja, 2011).

To fulfill multifarious functions, *Adarsha Rythus* requires training in different areas of their day to day extension activities. They need to be sensitized regularly through different capacity building programmes which in turn strengthen their technical as well as communication competency for effective transfer of technology. Acharya Ranga Krishi Vigyan Kendra managed by Rashtriya Seva Samithi (RASS) is one of the resource centers for giving on campus residential training programmes for *Adarsha Rythus* of Chittoor district in Andhra Pradesh.

Training Evaluation is a systematic process of collecting information about training activity which can be used for guiding, decision making and assessing the relevance and effectiveness of various training components. (Raab et al, 1987). Keeping in view of the important role of *Adarsha Rythus* in transfer of technology and the influence of training in improving their performance, the present study was taken up with the objective of evaluating the relevance, knowledge gain, acquisition of skills, utility and overall effectiveness of the training programme.

METHODOLOGY

A five day residential training programme for *Adarsha Rythus* was organized at Acharya Ranga Krishi Vigyan Kendra in three batches. During the training period the *Adarsha Rythus* had undergone training on various aspects of agriculture, horticulture, animal husbandry, sericulture, fisheries, value addition, marketing, insurance & banking, communication skills, group dynamics, natural resource management and social forestry. A total of 295 *Adarsha Rythus* from 10 mandals of Chittoor district attended the training programme. Among them, 260 farmers were selected as respondents by taking 26 farmers from each mandal by following uniform random sampling. Four training effectiveness indicators viz., relevance of course content, knowledge gain, skill improvement and

utility of the topics were identified to evaluate the training programme. The overall training effectiveness was obtained by adding the scores of all the four indicators (Table 1).

Table 1. Measurement of indicators

Indicators	Measurement
Relevance of course content	Responses were recorded on three point continuum viz., more relevant, relevant and less relevant with scores of 3, 2 and 1, respectively
Knowledge gain	Responses were recorded on three point continuum viz., high, moderate and less knowledge gain with scores of 3, 2 and 1, respectively
Skill improvement	Responses were recorded on three point continuum viz., high improvement, moderate improvement and less improvement with scores of 3, 2 and 1, respectively
Utility of the topics	Responses were recorded on three point continuum viz., more useful, useful and less useful with scores of 3, 2 and 1, respectively
Overall effectiveness	The Overall Effectiveness Index (OEI) was arrived by using the following formula.

$$OEI = \frac{\text{Obtained scores of all the four indicators}}{\text{Maximum score for all the four indicators}} \times 100$$

RESULTS AND DISCUSSION

Relevance of course content : The contents on agriculture was perceived to be highly relevant (97.69%), while the topics like animal husbandry, horticulture, insurance & banking, and marketing management were also perceived as more relevant by 79.62 per cent, 73.85 per cent, 70.77 per cent and 62.31 per cent of respondents, respectively. The topics like sericulture, natural resource management and group dynamics were perceived as relevant by 37.69 per cent, 35 per cent and 33.46 per cent of *Adarsha Rythus*, respectively. Fisheries and social forestry were perceived as less relevant by 63.46 per cent and 54.23 per cent of *Adarsha Rythus*, respectively (Table 2). It could therefore be inferred that majority of the contents covered were found to be more relevant and relevant. Only few contents were found to be less relevant. It indicates that the selection of the topics for the training programme was found to be more appropriate and designed as per the requirements of the respondents.

Identification and assessment of training need is the preliminary tool for any training programme. The appropriate training need areas will determine the effectiveness of the training programme in terms of its quality and gain in knowledge and skills.

Majority of the respondents (46.50%) perceived medium level of relevance of course contents followed by high (37%) and low (16.5%) relevance categories, respectively (Table 3). Thus it is inferred that the level of perceived relevance of course content was found to be high to medium level. This is consistent with the principle that, adults are relevancy-oriented and they see a reason for learning something (Knowles et al.,2005) . Learning has to be applicable to their work or other responsibilities to be of value to them. Still there is a need to concentrate on low relevant topics and appropriate topics should be chosen based on the micro level analysis of local needs.

Table 2. Distribution of respondents on perceived relevance of course contents (N = 260)

Course content	More relevant		Relevant		Less relevant	
	No.	%	No.	%	No.	%
Agriculture	254	97.69	6	2.31	0	0
Horticulture	192	73.85	54	20.77	14	5.38
Animal husb.	207	79.62	42	16.15	11	4.23
Sericulture	89	34.23	98	37.69	73	28.08
Fisheries	31	11.92	64	24.62	165	63.46
Value addition	106	40.77	73	28.08	81	31.15
Marketing management	162	62.31	69	26.54	29	11.15
Insurance & Banking	184	70.77	51	19.62	25	9.62
Commu. skills	134	51.54	72	27.69	54	20.77
Group dynamics	108	41.54	87	33.46	65	25.00
NRM	127	48.85	91	35.00	42	16.15
Social forestry	48	18.46	71	27.31	141	54.23

Table 3. Distribution of respondents on perceived level of relevance of course content (N = 260)

Category	No.	%
Low (Mean - ½ S.D)	43	16.50
Medium (Mean ± ½ S.D)	121	46.50
High (Mean + ½ S.D)	96	37.00
Mean = 27.61	S.D = 2.42	

The topics on agriculture, animal husbandry, horticulture, insurance & banking and marketing

management were ranked as first five among relevant contents. Social forestry and fisheries were found to be least preferred topics by the respondents (Table 4).

The first most essential component of the process in developing relevant farmer training programme is finding out about the people to be trained and the type of training they need. The issue of developing appropriate content is critical to extension process and the performance of extension systems depends on the appropriateness of its message (Campbell and Barker, 1997; as cited in Tsion, 2008). The Government of Andhra Pradesh aimed at providing minimum basic knowledge in all aspects to *Adarsha Rythus* and hence all these contents were included in the training programme in a common pattern throughout the State. Chittoor district is a drought prone district with agriculture, horticulture, animal husbandry and sericulture as the major sustainable and income generating enterprises in rural areas directly contributing to the livelihood status of the farming community. Moreover *Adarsha Rythus* face more questions from fellow farmers on the enterprises that are practiced by them in large scale On the other side, fisheries and social forestry are not important enterprises in the district. Hence *Adarsha Rythus* might have felt them as least relevant.

Table 4. Ranking for the relevancy of course contents (N= 260)

Course content	Relevancy of the course content	
	Mean score	Rank
Agriculture	2.97	I
Horticulture	2.68	III
Animal husbandry	2.75	II
Sericulture	2.06	X
Fisheries	1.48	XII
Value addition	2.10	IX
Marketing management	2.51	V
Insurance & Banking	2.61	IV
Communication skills	2.31	VII
Group dynamics	2.17	VIII
Natural resource management	2.33	VI
Social forestry	1.64	XI

Knowledge gain : High knowledge gain was observed among majority of respondents in agriculture, animal husbandry and horticulture areas. Moderate knowledge gain was found in sericulture, marketing management,

group dynamics and natural resource management areas. While the knowledge gain was low in case of fisheries and social forestry areas (Table 5).

Table 5. Distribution of respondents based on the knowledge gain (N = 260)

Course content	High		Moderate		Less	
	No.	%	No.	%	No.	%
Agriculture	197	75.77	55	21.15	8	3.08
Horticulture	143	55.00	61	23.46	56	21.54
Animal husb.	186	71.54	47	18.08	27	10.38
Sericulture	78	30.00	103	39.62	79	30.38
Fisheries	28	10.77	53	20.38	179	68.85
Value addition	82	31.54	79	30.38	99	38.08
Marketing management	89	34.23	103	39.62	68	26.15
Insurance & Banking	109	41.92	77	29.62	74	28.46
Commu. skills	93	35.77	88	33.85	79	30.38
Group dynamics	52	20.00	94	36.15	114	43.85
NRM	46	17.69	89	34.23	125	48.08
Social forestry	36	13.85	61	23.46	163	62.69

About 47.30% of the respondents were under medium knowledge gain category followed by high (29.62%) and low (23.08%) categories, respectively (Table 6). Therefore it could be inferred that there was substantial knowledge gain among the *Adarsha Rythus* through the training programme.

Table 6. Distribution of respondents according to their knowledge gain (N = 260)

Category	No.	%
Low (Mean - ½ S.D)	60	23.08
Medium (Mean ± ½ S.D)	123	47.30
High (Mean + ½ S.D)	77	29.62
Mean = 24.25		S.D = 2.50

The order of knowledge gain in different course contents revealed that agriculture, animal husbandry, horticulture, insurance & banking and marketing management were ranked as first five topics. There was a low knowledge gain on topics like social forestry and fisheries (Table 7). This trend might be due to the influence of need, extent of area under each enterprise and also the perceived utility by the respondents. Any technological intervention in the field of operation of the farming community is the contributing factor for the knowledge gain. The extent of knowledge gain been influenced through the successive adoption of the same

technology for better productivity. Hence, the *Adarsha Rythus* perceived the agriculture, animal husbandry and other dominant enterprises which have the direct impact on their farming practices.

Table 7. Mean score and ranking for the knowledge gain (N = 260)

Course content	Gain in the Knowledge	
	Mean score	Rank
Agriculture	2.73	I
Horticulture	2.33	III
Animal husbandry	2.61	II
Sericulture	2.00	VII
Fisheries	1.42	XII
Value addition	1.93	VIII
Marketing management	2.08	V
Insurance & Banking	2.13	IV
Communication skills	2.05	VI
Group dynamics	1.76	IX
Natural resource management	1.68	X
Social forestry	1.51	XI

Table 8. Distribution of respondents according to their skill improvement (N = 260)

Course content	High		Moderate		Less	
	No.	%	No.	%	No.	%
Agriculture	181	69.62	62	23.85	17	6.54
Horticulture	122	46.92	77	29.62	61	23.46
Animal husbandry	154	59.23	53	20.38	53	20.38
Sericulture	62	23.85	95	36.54	103	39.62
Fisheries	24	9.23	52	20.00	184	70.77
Value addition	47	18.08	96	36.92	117	45.00
Marketing management	52	20.00	83	31.92	125	48.08
Insurance & Banking	74	28.46	92	35.38	94	36.15
Commu. skills	43	16.54	64	24.62	153	58.85
Group dynamics	37	14.23	69	26.54	154	59.23
NRM	41	15.77	52	20.00	167	64.23
Social forestry	24	9.23	58	22.31	178	68.46

Skill improvement: There was high skill improvement only in agriculture (69.62%) followed by animal husbandry (59.23%) and horticulture (46.92%) areas (Table 8). Only 23.46% of the respondents expressed high skill improvement, followed by low (27.31%) and medium (49.23%) categories, respectively (Table 9).

Agriculture was ranked first followed by animal husbandry and horticulture as the skill improved areas due to training programme. The other areas were ranked

Table 9. Distribution of respondents according to their skill improvement (N = 260)

Category	No.	%
Low (Mean - ½ S.D)	71	27.31
Medium (Mean ± ½ S.D)	128	49.23
High (Mean + ½ S.D)	61	23.46
Mean = 22.10		S.D = 2.34

Table 10. Mean score and ranking for the skill improvement (N = 260)

Course content	Skill Improvement	
	Mean score	Rank
Agriculture	2.66	I
Horticulture	2.23	III
Animal husbandry	2.39	II
Sericulture	1.84	V
Fisheries	1.38	XII
Value addition	1.73	VII
Marketing management	1.72	VIII
Insurance & banking	1.92	IV
Communication skills	1.76	VI
Group dynamics	1.55	IX
Natural resource management	1.52	X
Social forestry	1.40	XI

Table 11. Distribution of respondents based on perceived utility of the topics (N = 260)

Course content	High		Moderate		Less	
	No.	%	No.	%	No.	%
Agriculture	229	88.08	27	10.38	4	1.54
Horticulture	146	56.15	77	29.62	37	14.23
Animal husb.	153	58.85	79	30.38	28	10.77
Sericulture	78	30.00	81	31.15	101	38.85
Fisheries	22	8.46	71	27.31	167	64.23
Value addition	82	31.54	85	32.69	93	35.77
Marketing management	141	54.23	86	33.08	33	12.69
Insurance & Banking	128	49.23	110	42.31	22	8.46
Commu. skills	107	41.15	106	40.77	47	18.08
Group dynamics	93	35.77	93	35.77	74	28.46
NRM	91	35.00	137	52.69	32	12.31
Social forestry	42	16.15	84	32.31	134	51.54

low with low mean values (Table 10). The ability of an individual in using a particular technology is the key successful factor for any intervention. The creativity and perfection in performing a particular practice will project the strength of the technology. Mere knowledge

is not going to fulfill the ultimate satisfaction of the practice without proper handling of the technology. Hence, the skill in using any of the technology will decide its strengths and its weaknesses. Therefore focus on the improvement in skill should be one of the major target areas for any training programme.

Utility of the topics: The contents on agriculture were perceived to be more useful by majority of respondents followed by animal husbandry, horticulture and marketing management topics. Whereas, the topics like fisheries and social forestry were perceived as less useful (Table 11). Majority of the respondents (45.77 %) perceived medium level of utility of the topics followed by high (28.46 %) and low (25.77 %) utility categories (Table 12).

Agriculture, animal husbandry, horticulture, insurance & banking and marketing management were ranked as first five topics in terms of their utility. The other areas were ranked low with low mean values (Table 13). The effectiveness of any technology is determined through its economic gain to the farmer. The above results clearly indicate that the technologies

Table 12. Distribution of respondents based on perceived utility of the topics (N = 260)

Category	No.	%
Low (Mean - ½ S.D)	67	25.77
Medium (Mean ± ½ S.D)	119	45.77
High (Mean + ½ S.D)	74	28.46
Mean = 25.97		S.D = 2.38

Table 13. Mean score and ranking for perceived utility of the topics (N = 260)

Course content	Utility of the course content	
	Mean score	Rank
Agriculture	2.83	I
Horticulture	2.42	III
Animal Husbandry	2.48	II
Sericulture	1.91	IX
Fisheries	1.44	XII
Value addition	1.91	IX
Marketing management	2.40	V
Insurance & Banking	2.41	IV
Communication skills	2.23	VI
Group dynamics	2.06	VIII
Natural resource management	2.22	VII
Social forestry	1.65	XI

developed in agriculture were found to be more economically viable and significantly contributing in enhancing the net returns. Further, there is ample scope for researching innovative technologies for better farm production.

Overall effectiveness: The overall effectiveness index of the training programme was found to be 69.38% (Table 14). This indicates that the training programme was moderately successful in all the dimensions of its relevance, knowledge gain, skill improvement and utility of the contents by the respondents. However, there is ample scope for improving the quality of the training programme by focusing on the identified gaps in the training programme.

Table 14. Overall effectiveness of the training programme

Course content	MOS	OS
Agriculture	12	11.19
Horticulture	12	9.66
Animal husbandry	12	10.23
Sericulture	12	7.81
Fisheries	12	5.72
Value addition	12	7.67
Marketing management	12	8.71
Insurance & Banking	12	9.07
Communication skills	12	8.35
Group dynamics	12	7.54
Natural resource management	12	7.75
Social forestry	12	6.2
Total	144	99.9
Average	12	8.325
Overall Effectiveness Index (OEI) :	69.38	

MOS=Maximum obtainable score for all the four indicators

OS=Obtained scores of all the four indicators

CONCLUSION AND IMPLICATIONS FOR SCALING-UP

The evaluation findings on relevance, knowledge gain, acquisition of skills, utility and overall effectiveness of the training programme given to *Adarsha Rythus* are presented in this study. The results indicated a high relevance of most of the contents, substantial knowledge gain and low skill improvement by the participants with overall effectiveness index of 69.38 per cent of the training programme. There is a need to concentrate more on selecting location specific and need based topics for improving the quality of the training programme. From the point of skill improvement, the training programme requires special emphasis on

identifying skill based technologies and adopt appropriate training methodologies for its implementation. Five days training programme may be too short for imparting knowledge and skills to the *Adarsha Rythus*. It may be extended to 7 – 10 days to enable intensive up-gradation of knowledge and skills. There is scope for further improvement in imparting knowledge by adopting suitable adult learning techniques. It is recommended to standardize the training curriculum using adult learning principles and scale-up training programmes to *Adarsha Rythus* all over the state to update their competencies and serve as an efficient extension facilitator at village level.

There is no unifying theory of education that explains adult learning during training programmes. Therefore, elements from a variety of theories can be combined to understand learning during training programmes. The constructivism theorist stressed that trainee should be an actor rather than spectator. Thus trainees should not be seen as simply vessels to be passively filled with received and unchallenged knowledge, attitude and skills (KAS), but should be actively engaged in constructing KAS for themselves (Dennick, 2008). The constructivist implications for scaling-up of *Adarsha Rythus* training-learning includes (Festinger, 1957; Bandura, 1977; Dennick, 2008):

- assertion and activation of prior KAS of *Adarsha Rythus*
- build on existing KAS
- challenge existing KAS and misconceptions
- use group work to facilitate social construction
- stress the context and situation (for example Chittor district in this case)
- use active learning techniques
- give responsibility to *Adarsha Rythus* for their learning.

Experiential Learning Theory (ELT), attempts to provide a mechanism for how learning takes place in training through the transformation of KAS experiences in trainees in environments where deliberate teaching and instruction are not taking place (Kolb, 1984). Experiential learning is very useful for training during case studies / exercises in training sessions of *Adarsha Rythus*. The experiential learning implications for training – learning of *Adarsha Rythus* includes :

- ‘concrete experience’ which is transformed into ‘abstract conceptualization’ by a process of ‘reflective observation’ and ‘active experimentation’.

The humanistic theories of *Maslow (1968)* and *Rogers (1983)* are the foundations for what we now call trainee-centered or self-directed learning approaches to training. The implications of humanistic theories for training-learning of *Adarsha Rythus* include:

- respect *Adarsha Rythus*' background
- use their KAS as starting point for training
- ensure physical and psychological conditions for learning in training
- training and learning as relationship between trainer and *Adarsha Rythus*
- encourage *Adarsha Rythus* to explore self-directed learning.

Looking at specific contexts for learning during training, one or other of the above three theories explains largely how learning takes place during *Adarsha Rythus* training programmes. Therefore, training organizations need to build the capacities of trainers also from time to time in using adult learning methodologies for effective training of *Adarsha Rythus*.

The training programme for *Adarsha Rythus* can be scaled –up as an Open Education Resource (OER) enabled by information and communication technologies for use and adoption all over the Andhra Pradesh state

in specific and in other regions in general. OER generally means that the resource is freely available to others to reuse in different contexts (*McMartin, 2008*). For scaling-up of training programme, following four 'R's may help (*Hilton et al, 2010*):

- *Reuse* – the most basic level of openness in unaltered form. The training sessions can be recorded to listen to at a later stage or upload all the sessions into website to view at free time.
- *Redistribute* – sharing of training content and material to other KVKs or agricultural agencies all over the state for conducting similar training programmes.
- *Revise* – adapt, modify, translate, or change the form (e.g. translating into other languages).
- *Remix* – take two or more training sessions from different districts and combine them to create a new training content.

As we progress from first 'R' to fourth 'R', the openness as well as scaling-up enhances and provides opportunities for new and innovative forms of training programmes to *Adarsha Rythus*.

Paper received on : July 23, 2012

Accepted on : August 12, 2012

REFERENCES

- Bandura, A. (1977). Social learning theory. Upper Saddle River, NJ: Prentice Hall
- Dennick (2008). Theories of learning. In Matheson, D (Ed), An Introduction to the study of education. (3rd edition). London: Routledge.
- Festinger, L. (1957). A theory of cognitive dissonance. Stanford, CN: Stanford University Press.
- Hilton, J.; Wiley, D.; Stein, J.; and Johnson, A. (2010). The four 'R's of openness and ALMS analysis: frameworks for open educational resources, *Open Learning*, **25** (1) : 37-44.
- Knowles, M. S.; Holton, E. F. and Swanson, R. A. (2005). The adult learner. The definitive classic in adult education and human resource development. 6th ed. California, USA. pp. 391.
- Kolb, D.A. (1984). Experiential learning. Englewood Cliffs, NJ: Prentice Hall
- Kumar, N.K. and Sailaja A. (2011). A study on managerial abilities of Adarsharythus in transfer of technology, *Current botica.com*, **4**(4) : 486 – 491.
- Maslow, A.H. (1968). Toward a psychology of being, New York: Van Nostrand Reinhold
- McMartin, F. (2008), Open educational content: transforming access to education, in T. Iiyoshi., and M.S.V. Kumar, eds, *Opening up Education*, Cambridge, MA: MIT Press, pp 135-148.
- Raab, Robert, T.; Barton, E.Swanson.; Tim L. Wentilling and Chaprles, D. Clark. (1987). A trainee guide to evaluation, Rome, FAO of United Nation. pp 5.
- Rogers, C. (1983). Freedom to learn for the 80s. New York: Macmillan.
- Tsion, T. (2008). Effectiveness of farmers training offered by Ethiopian Institute of Agricultural Research to farmers: the case of Holeta, Melkassa and Deber Ziet agricultural research centers. An M.Sc. thesis (unpub.), Haramaya University. pp 76.

