Training need Assessment and Knowledge of Village Agricultural Assistants of NTR District of Andhra Pradesh

I. Venkata Reddy [a++*], P. Venkata Subbaiah [a#], Raja Narasimha [a†], P. N. Siva Prasad [a‡] and N. Raja Sehkar [a‡]

[a] Dr. K. L. Rao Krishi Vigyan Kendra, Garikapadu-521175, India.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

The present study was designed to assess the training need and knowledge level of village agricultural assistants NTR district of Andhra Pradesh. A total sample of 60 village agricultural assistants working in Rythu Bharosa Kendra's were taken for the study. The major findings of the study was integrated farming systems and identification of micro nutrient deficiencies in crops in crop production, bio-control of pests and diseases in plant protection, production of low volume and

---

[++] *SMS (Agricultural Extension);*
[#] *Programme Coordinator;*
[†] *SMS (Agrometerology);*
[‡] *SMS (Crop Production);*
Corresponding author: E-mail: ivrextedu18@gmail.com;

high value crops in horticulture, gender mainstreaming through SHGs in home science as well as women empowerment, feeding management in dairy management practices were the major areas of training needed by them. Similarly, majority of the VAAs were medium followed by high level of knowledge in selected crop management practices. Major constraints expressed by VAAs are excessive work load followed by less number of RBK staff, lack of educational or work related tours and RBK should render service based on seasonal news of farmers along with its regular work, Joint diagnostic field visit of RBK staff with SAU scientists and the suggestions to overcome the constraints are development of mobile application for availing diagnostic, advisory services, development of mobile application for availing diagnostic, advisory services.

1. INTRODUCTION

Government of Andhra Pradesh has launched Rythu Bharosa Kendra (Farmer Assurance centers) on May 30th of this year. Government has launched this scheme to bring more transparency and ensure quality of services to the farming community. The centres will offer services like delivery of inputs to farmers within 24-48 hours of ordering through kiosks, custom hiring of machinery, technical advisories and is an attempt to bring the agriculture extension system more closely to the farmers [1-3]. Andhra Pradesh being an agrarian state, to meet each and every need of the farmers an innovative system in the form of Rythu Bharosa Kendras was introduced. The government started 10,641 RBKs across the state on 30th May 2020.

RBKs are headed by Village Agriculture Assistant/ Horticulture Assistant/ Veterinary Assistant/ Sericulture Assistant depending up on the acreage of crops and important allied sectors of that area [4,5]. Earlier this year the government has recruited 5,700 Agriculture Assistants, 4,500 Horticulture Assistants and about 1000 Veterinary and Sericulture Assistants having qualification of diploma and above in the respective areas. All the assistants working under RBKs must report to Agriculture Officer at Mandal level and Panchayat secretary at village level [6,7]. RBKs have partnered with Andhra Pradesh State Agro Industries Development Corporation Limited for supply and management of inputs and farm machinery to RBKs [8,9]. Acharya N.G Ranaga Agriculture University (ANGRAU), Dr. YSR Horticultural University and Sri Venkateswara Veterinary University in the state act as technical partners. Keeping in view, the present study was designed with following objectives.

1.1 Objectives of the Study

1. To study the training need assessment of VAAs in NTR district of Andhra Pradesh
2. To study the knowledge level of VAAs in NTR district of Andhra Pradesh
3. To study the constraints faced and suggestions offered by the VAAs in NTR district of Andhra Pradesh

2. MATERIALS AND METHODS

The study was conducted during 2022 in NTR district of Andhra Pradesh where 267 RBKs were there out of which 60 RBKs were selected for the study. The objectives of the study are training need assessment, knowledge level, constraints faced by VAAs and suggestions to overcome the constraints. From six mandals (Nandigama, Jaggaiahpeta, Penuganchiprolu, Vatsavai, Kanchikacherla, Ibharihmpatnam and Chandhralapadu) were selected for the investigation. From each selected mandal ten VAAs from ten RBKs were selected for the study. Mean, standard deviation, frequency and percentage statistical tools used for the analyzing the data. The areas of crop production, plant protection, Horticulture, home science, women empowerment and dairy were taken to assess the training need by using the three point continuum most important, Important and Not important the scores 2, 1 and 0.

To measure the knowledge the following areas general issues agricultural issues, paddy, cotton, chilli and horticultural crops cultivation take to calculate the overall knowledge. To measure the knowledge level measure take into know and unknow the score 1 and 0 take to measure the knowledge level of VAAs/VHAs.

Overall Knowledge = Actually obtained score/Maximum obtained score *100

3. RESULTS AND DISCUSSION

3.1 Training needs of VAAs and VHAs of RBKs

Table 1. Area of training needs to village agricultural assistants

S. No	Areas of training needed	Most Important (2)		Important (1)		Not important (0)		Total score	Rank
	Score	f	%	f	%	f	%		
		A. Crop Production							
1.	Integrated farming	60	100	0.00	0.00	0	0.00	120	I
2.	Cropping systems	46	76.66	8	13.33	6	10	100	III
3.	Weed management	55	91.66	4	6.6	1	1.66	114	II
4.	Soil and water conservation	36	60.00	15	25.00	9	15	75	VIII
5.	Resource conservation technologies	43	71.66	13	21.66	4	6.66	99	IV
6.	Nutrient use efficiency	32	53.33	17	28.33	11	18.33	81	VI
7.	Micro nutrient deficiency in crops	60	100	0	0.00	0	0	120	I
8.	Seed production	44	73.33	11	18.33	5	8.33	99	IV
9.	Management of problematic soils	43	71.66	12	20	5	8.33	98	V
10.	Method of Soil and water sample collection	33	55.00	14	23.33	13	21.66	80	VII
		B. Plant Protection							
1.	Seed treatment	31	51.66	15	25.00	14	23.33	77	V
2.	Pest and disease management in major crops	30	50.00	11	18.33	19	31.66	71	VI
3.	Integrated crop management	46	76.66	4	6.66	10	16.66	96	III
4.	Integrated pest management	48	80.00	8	13.34	4	6.66	104	II
5.	Integrated disease management	38	63.33	15	25.00	7	11.66	91	IV
6.	Bio-control of pests and diseases	52	86.66	6	10.00	1	1.66	110	I
		C. Horticulture							
1.	Improved HYVs in major vegetable crops(Tomato, Bhendi, Brinjal, Chilli etc)	28	46.66	19	31.66	13	21.66	75	V
2.	Pest and disease management	32	53.33	16	26.66	12	20.00	80	III
3.	Nursery raising	45	75.00	10	16.66	5	8.33	100	II
4.	Protective cultivation (green houses, shade net, poly houses)	36	60.00	6	10.00	15	25.00	78	IV
5.	Production of low volume and high value crops	49	81.66	11	18.33	0	0.00	109	I
		D. Home Science/Women Empowerment							
1.	Household food security by kitchen gardening and nutrition gardening	40	66.66	12	20.00	6	10.00	92	V
2.	Food security	48	80.00	7	11.66	5	8.33	103	II
3.	Value addition	41	68.33	12	20.00	7	11.66	94	IV
4.	Income generation activities through vocational trainings	43	71.66	6	10.00	12	20	92	V

S. No	Areas of training needed	Level of training needs						Total score	Rank
		Most Important		Important		Not important			
	Score	(2)		(1)		(0)			
		f	%	f	%	f	%		
	A. Crop Production								
5.	Location specific drudgery reduction technologies	46	76.66	4	6.66	10	16.66	96	III
6.	Rural crafts (Agarbatti making etc.)	39	65.00	16	26.66	5	8.33	94	IV
7.	Gender mainstreaming through SHGs	50	83.33	7	11.66	3	5.00	107	I
	E. Dairy management practices								
1.	Feeding management	41	68.33	12	20.00	7	11.66	94	V
2.	Health care practices	39	65.00	12	20.00	9	15.00	90	VI
3.	Marketing and insurance	42	70.00	10	16.70	8	13.33	94	V
4.	Housing management	48	80.00	11	18.30	1	1.666	107	I
5.	Breeding management	47	78.33	6	10.00	7	11.66	100	III
6.	General management practices	43	71.66	13	21.70	4	6.66	99	IV
7.	Milking management	46	76.66	12	20.00	2	3.33	104	II

3.2 Training needs of Village Agricultural Assistants/ Village Horticultural Assistants about on Different Crop Management Practices

A. Training needs on different Crop production practices

Table 1 presents a clear picture of the training requirements for various crop management practices, with their order of importance ranked in percentage. VAAs/VHAs emerged as the most important, with cent percent of the respondents indicating their desire for training in this area.

Cent percent of respondents wanted training on integrated farming systems and identification and controlling of micro nutrient deficiency in different crops followed by of them were weed management (91.66%), cropping systems (76.66%), Seed production (73.33%), Resource conservation technologies and Management of problematic soils (71.66% each), method of soil and water sample collection (68.33%), Soil and water conservation (60.00%) and Nutrient use efficiency (53.33%).

Table 1 clearly revealed the training needs on different crop management practices with which they important in percent rank order of their importance were VAAs is micro nutrient deficiency in crops (28.33%), soil and water conservation (25.00%), method of soil and water sample collection and resource conservation technologies, (21.66% each), management of problematic soils (20.00%), seed production (18.33%), cropping systems (13.33%) and none of them were integrated farming and micro nutrient deficiency in crops.

From the Table 1 it could be concluded that the training needs on different crop management practices with which they not important in percent rank order of their importance wereVAAs/VHAs is Method of Soil and water sample collection (21.66%), nutrient use efficiency (18.33%), soil and water conservation (15.00%), cropping systems (10.00%), management of problematic soils and Seed production (8.33% each) resources conservation technologies (6.66%), weed management (1.66%) and none of them were considered not important to integrated farming and micro nutrient deficiency in crops.

B. Training needs in plant protection aspects

The training needs for different crop production practices were revealed in Table 1, with their order of importance ranked in percentage. VAAs/VHAs were found to be the most critical area for training, with cent percent of the respondents expressing their interest in receiving training on this topic bio-control of pests and diseases (86.66%), integrated pest management (80.00%), integrated crop management (76.66%), integrate disease management (63.33%), seed treatment (51.66%) and pest and disease management in major crops (50.00%).

Table 1 clearly revealed the training needs on different plant protection practices with which

they important in percent rank order of their importance were VAAs/VHAs is seed treatment and integrated disease management (25.00% each), Pest and disease management in major crops (18.33%), integrated pest management (13.34), bio control of pests and diseases (10.00%) and integrated crop management (6.66).

From the Table 1 concluded that the training needs on different plant protection practices with which they not important in percent rank order of their not important were VAAs/VHAs is Pest and disease management in major crops (31.66%), Seed treatment (23.33%), Integrated crop management (16.66%), Integrated disease management (11.66%), Integrated pest management and (6.66%) and Bio-control of pests and diseases(1.66%).

C. Training needs in horticulture

Table 1 provides a comprehensive overview of the training needs for various crop management practices, with their importance ranked in percentage. VAAs/VHAs were identified as the most important area for training, with cent percent of the survey respondents indicating their desire for training in this domain production of low volume and high value crops (81.66%), Nursery raising (75.00%), protective cultivation (60.00%), grading and standardization (58.33%), pest and disease management (53.33%) and Improved HYVs in major vegetable crops (46.66%).

Above the Table 1 clearly revealed the training needs on different horticulture practices with which they important in percent rank order of their importance were VAAs/VHAs is improved HYVs in major vegetable crops (31.66%), pest and disease management (26.66%), Grading and standardization (25.00%), production of low volume and high value crops (18.33%), nursery raising (16.66%) and Protective cultivation (10.00%).

From the Table 1 clearly revealed the training needs on different horticulture practices with which they not important in percent rank order of their not important were VAAs/VHAs is protective cultivation (25.00%), improved HYVs in major vegetable crops (21.66%), Pest and disease management (20.00%), grading and standardization (16.66%), Nursery raising (8.33%) and none of them were respondents to Production of low volume and high value crops for not important ant.

D. Training needs in Home science

Table 1clearly revealed the training needs on different home science/women empowerment with which they most important in percent rank order of their importance were VAAs/VHAs is Gender mainstreaming through SHGs (83.33%), food security (80.00%), location specific drudgery reduction technologies (76.66%), income generation activities through vocational trainings (71.66%), value addition (68.33%), household food security by kitchen gardening and nutrition gardening (66.66%) and rural crafts (65.00%).

Like wise from Table 1 clearly revealed the training needs on different home science/women empowerment with which they most important in percent rank order of their importance were VAAs/VHAs is Rural crafts (26.66%), value addition and Household food security by kitchen gardening and nutrition gardening (20.00 each), gender mainstreaming through SHGs and food security (11.66%), income generation activities through vocational trainings (10.00%) and location specific drudgery reduction technologies (6.66%).

Similarly, from the Table 1 clearly revealed the training needs on different home science/women empowerment with which they not important in percent rank order of their not importance were VAAs/VHAsIncome generation activities through vocational trainings (20.00%), Location specific drudgery reduction technologies (16.66%), Value addition (11.66%), Household food security by kitchen gardeningand nutrition gardening (10.00%), food security and rural crafts (8.33%), Gender mainstreaming through SHGs (5.00%).

E. Training needs about different dairy management practices

Table clearly revealed the training needs on different dairy management practiceswith which they most important in percent rank order of their importance were VAAs/VHAs ishousing management (80.00%), breeding management (78.33%), milking management(76.66%), general management practices (71.66%), marketing and insurance (70.00%), feeding management (68.33%) and health care practices (65.00%).

Table clearly revealed the training needs on different dairy management practiceswith which they important in percent rank order of their importance were VAAs/VHAs is General management practices (21.70%), Feeding

management, health care practices and Feeding management (20.00% each), housing management(18.30%), breeding management (10.00%).

Table clearly revealed the training needs on different dairy management practices with which they not important in percent rank order of their importance were VAAs/VHAs Health care practices (15.00%), Marketing and insurance (13.33%), feeding and breeding management (11.66% each), general management practices (6.66%), Milking management (3.33%) and Housing management (1.66%).

Table 2. Knowledge level of VAAs and VHAs of RBKs

S. No		Known		Unknown	
		f	%	f	%
A. Knowledge items related to general issues					
1.	Farm Machinery	38	63.33	22	36.66
2.	Weather Basedagro advisory	30	50.00	30	50.00
3.	Organic farming	42	70.00	18	30.00
4.	Compatibility of Agricultural chemicals	38	63.33	22	36.66
5.	Use of ICT in TOT and Farm video production	45	75.00	15	25.00
6.	Drudgery reducing technologies in Agriculture	8	13.33	52	86.66
7.	Good Agricultural practices	46	76.66	14	23.33
8.	New Market Avenues and Market intelligence.	52	86.66	8	13.33
B. Knowledge items related to paddy cultivation					
1.	Seed Production of paddy	46	76.66	14	23.33
2.	High yielding, situation and location specific verities in paddy	42	70.00	18	30.00
3.	Diagnosis of pests, diseases disorders in paddy and their integrated management in Paddy	52	86.66	8	13.33
4.	Weed management in different sowing systems in Paddy	51	85.00	9	15.00
5.	Water management and Irrigation techniques in Paddy	48	80.00	12	20.00
6.	ICM in paddy	45	75.00	15	25.00
C. Knowledge items related to cotton cultivation					
1.	High yielding, situation and location specific varieties in cotton	42	70.00	18	30.00
2.	ICM in cotton	46	76.67	14	23.33
3.	Water management and Irrigation techniques in cotton	48	80.00	12	20.00
4.	Weed management in cotton	47	78.33	13	21.67
5.	Diagnosis of pests, diseases disorders in paddy and their integratedmanagement in cotton	48	80.00	12	20.00
D. Knowledge items related to chilli cultivation					
1.	Black thrips management	26	43.33		
2.	Nursery management and protected cultivation	41	68.33	19	31.67
3.	High yielding, situation and location specific varieties in chilli	48	80.00	12	20.00
4.	Diagnosis of pests, diseases disorders inchilli and their integrated management in chilli	47	78.33	13	21.67
5.	Weed management in different sowing systems in chilli	46	76.67	14	23.33
6.	ICM in chilli	42	70.00	14	23.33
E. Knowledge items related to horticultural crops cultivation					
1.	Seed Production of vegetable crops	48	80.00	12	20.00
2.	Nursery management and protected cultivation	42	70.00	18	30.00
3.	High yielding, situation and location specific varieties in vegetable crop	45	75.00	15	25.00
4.	Diagnosis of pests, diseases disorders in vegetable crops and their integrated management in vegetable crops	47	78.33	13	21.67
5.	Micro irrigation methods	49	81.67	11	18.33
6.	ICM in vegetable crops	47	78.33	13	21.67

A. Knowledge items related to Paddy cultivation

It is observed from the Table 2 that in case of Paddy cultivation, 86.66 per cent village agricultural assistants knew the practice like diagnosis of pests, diseases disorders in paddy and their integrated management in paddy followed by 85.00, 80.00, 76.66, 75.00 and 70.00 per cent of the village agricultural assistants knew the practices like weed management in different sowing systems in paddy; water management and irrigation techniques in paddy; seed production of paddy; ICM in paddy; High yielding, situation and location specific verities in paddy, respectively. However, on integrated crop management practices in paddy used for (25.00%) village agricultural assistants/ village horticulture assistants were not aware.

B. Knowledge items related to Cotton cultivation

With regard cotton cultivation Table 2 the 80.00 per cent Village agricultural assistants/ village horticultural assistants knew Diagnosis of pests, diseases disorders in paddy and their integrated management in cotton and water management and Irrigation techniques in cotton. This was followed by 78.33, 76.67 and 70.00 per cent village agricultural assistants and village horticultural assistants were weed management in cotton; Integrated Crop Management practices in cotton; high yielding, situation and location specific varieties in cotton.

C. Knowledge items related to chilli cultivation

With regard to chilli cultivation Table 3 80.00 per cent of them knew High yielding, situation and location specific varieties in chilli. This was followed by 78.33, 76.67, 70.00, 68.33 and 43.33 per cent village were having knowledge aboutdiagnosis of pests, diseases disorders in chilli and their integrated management in chilli, weed management in different sowing systems in chilli, ICM in chilli, Nursery management and protected cultivation and Black thrips management, respectively.

D. Knowledge items related to horticultural crops cultivation

It is clear from the Table 4 that it concluded that 81.67 per cent micro irrigation methods followed by 80.00 per cent Seed Production of vegetable crops, 78.33 per cent each diagnosis of pests, diseases disorders in vegetable crops and their integrated management in vegetable crops an ICM in vegetable crops, 75.00 per cent high yielding, situation and location specific varieties in vegetable crop and nursery management and protected cultivation.

From the Table 3 and Fig. 1 it could be concluded that Majority of Village agricultural assistants and village horticultural assistants were medium (73.33%) level of knowledge followed by those belongs to high (18.33%) and low (8.34%) level of knowledge different aspects. Similar type of findings was identified by Pandey and Kushwaha [10].

Table 3. Overall knowledge level of VAAs/VHAs about different aspects

S. No	Level of Knowledge		Frequency	Percentage
1.	Low (0-36.54)	Less than (Mean −SD)	5	8.34
2.	Medium (36.54-90.41)	Between (Mean ± SD)	44	73.33
3.	High (90.41-100.00)	More than (Mean + SD)	11	18.33
Total:			**60**	**100.00**
Mean= 63.48 S.D=26.93				

Table 4. Constraints faced by Village Agricultural Assistants (n=60)

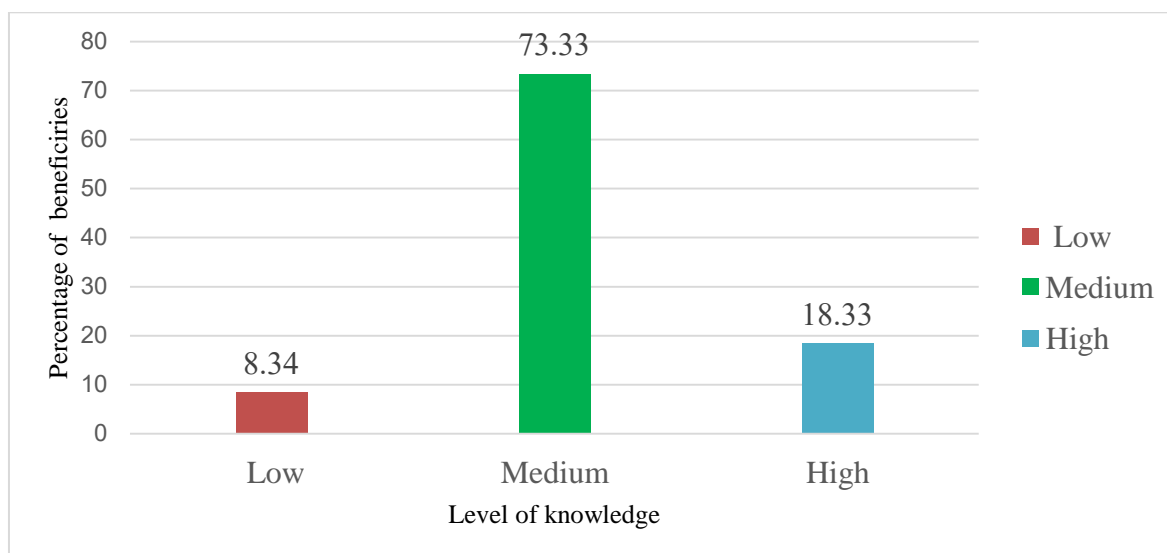| S. No	Constraints	Frequency	Percentage	Rank
1.	Excessive work load	52	93.33	I
2.	Political interference in day to day activity	46	76.66	VI
3.	To much official work in addition to field work	48	80.00	V
4.	Lack of need based training to VAAs	51	85.00	IV
5.	Less number of diagnostic field visits	42	70.00	VII
6.	Less number of RBK staff (other than VAAs	53	88.33	II
7.	Lack of Educational or Work related tours	56	86.66	III

Fig. 1. Distribution of respondents according to their level of Knowledge

Table 5. Suggestions to overcome constraints (n=60)

S. No	Suggestions	Frequency	Percentage	Rank
1.	Need based training for VAAs	46	76.66	V
2.	RBK should render service based on seasonal news of farmers along with its regular work	56	93.33	I
3.	Joint diagnostic field visit of RBK staff with SAU scientists	52	86.66	II
4.	Development of mobile application for availing diagnostic, advisory services	50	83.33	III
5.	Efforts have to made for more Subscription of RBK channel	48	80.00	IV
6.	Regular technical guidance of VAAs help quick transfer of technology	44	73.33	VI

As shown in Table 4. excessive work load (93.33%), less number of RBK staff (83.33%), Lack of Educational or Work related tours (86.66%), lack of need based training to VAAs/VHAs (85.00%), to much official work in addition to field work (80.00%), political interference in day to day activity (76.66%), less number of diagnostic field visits (70.00%) were the major constraints faced by village agricultural assistants/village horticulture assistants. Similar types of findings identified by Saikia et al. [11] and Similar type of findings were identified by Chowdary et al. [12].

From the Table 5 suggestions offered by the VAAs were RBK should render service based on seasonal news of farmers along with its regular work (93.33%), Joint diagnostic field visit of RBK staff with SAU scientists (86.66%), development of mobile application for availing diagnostic, advisory services(83.33%), Efforts have to made

for more Subscription of RBK channel(80.00%), Need based training to VAAs (76.66%) and regular technical guidance of VAAs help quick transfer of technology(73.33%). Similar type of findings was identified by Chowdary et al. [12].

4. CONCLUSION

It could be concluded from the study most of the Village agricultural assistants were medium knowledge level. The major areas in which village agricultural assistants needed more considerations were most importantant training needs were integrated farming systems and identification of micro nutrient deficiencies in crops in crop production, bio-control of pests and diseases in plant protection, production of low volume and high value crops in horticulture, gender mainstreaming through SHGs in home science/women empowerment, feeding management in dairy management practices. So,

a training programme should be designed in such a way that useful to the Village Agricultural Assistants for better serving the farming community.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Gummagolmath KC, Purushottam S, Shalendra. Training Need Assessment of Officers Working in Agricultural Marketing in India. International J. of Exten. Edu. 2012;8:1:63-70.
2. James DJ, Lakshminarayan MT. Knowledge of Agriculture Extension Functionaries Regarding Information and Communication Technology Tools. Asian Journal of Agricultural Extension, Economics and Sociology. 2018;24(3):1-7.
3. Said RH, Gokul K, Waman. Training needs of agricultural assistants working in state department of agriculture. International Journal of Science and Research. 2013; 4(5):1547-1549.
4. Azizah S. Training needs assessment of Agricultural Extension Officers in Animal Husbandry Department of Malang Regency, East Java-Indonesia. Journal of Agricultural Extension and Rural Development. 2011;3(8):147-152.
5. Boniface PJ, Jose AM, Husain A. S. Training Needs of Farmers and Agricultural Extensionists on Selected Information Technology Enabled Systems for Agriculture. Journal of Extension Education. 2019;31(1):6209-6215.
6. Factura H, Cimene FT, Nacaya IM. Assessment of agricultural assistance for smallholder farmers with their issues and concerns. International Journal of Biosciences. 2022 Sep 3;21(3):29-35.
7. Babu GP, Jayalakshmi M, Chaitanya BH, Mahadevaiah M, Srinivas T. Effectiveness of season long training programme on knowledge levels of Village Agriculture Assistants (VAAs) in Kurnool district of Andhra Pradesh. Indian Journal of Extension Education. 2021;57(3):87-91.
8. Sandipamu R, Sreedaya GS. Training need Analysis of Agricultural Officers of Department of Agriculture Development and Farmers' Welfare Kerala. J Krishi Vigyan. 2021;10 (1):287-292.
9. Sarada O, Kumar GVS, Sivanarayana G. Services offered by the RBKs and training needs of village agricultural assistants in Guntur district.The Journal of Research ANGRAU. 51(1):152-162.
10. Pandey NK, Kushwaha RK. Knowledge Level of Agricultural Officers regarding Sustainable Agricultural Practices in Uttar Pradesh. Indian Res. J. Ext. Edu. 2010;101:69-73.
11. Saikia P, Manju DD, Deka MB. Constraints Faced by Agricultural Extension Personnel in Reaching Farm Women. Int. J. Curr. Microbiol. App. Sci. 2021;10(01):595-600.
12. Chowdary KR, Jyotsna MK, Srisailam b, Jyothi, I. A Study on Perception and Utilization of Services of Rythu Bharosa Kendra's (RBKs) by the Farmers in Chittoor District of Andhra Pradesh, India. Current Journal of Applied Science and Technology. 2022;41(27):40-47.

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/101429