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Training Need Assessment of Rythu Bharosa Kendra (RBK) Staff of SPSR Nellore District of Andhra Pradesh, India

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Authors' contributions

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

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ABSTRACT

The present study was conducted during the year 2022-23 by following Ex-Post-Facto research design with objective of studying the Training Need Assessment of Rythu Bharosa Kendra (RBK) Staff of SPSR Nellore District of Andhra Pradesh, India. A total of 120 RBK staff of SPSR Nellore district from 08 agriculture divisions were interviewed with help of prestructured interview schedule.

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The findings of the current study indicate that concerning Crop Production, subjects such as Integrated Farming Systems, Cropping Systems, and the management of Micro-Nutrient Deficiencies have emerged as particularly crucial areas that require focused training for the RBK staff in the sampled region. Regarding the aspects of Crop Protection, the RBK staff highlighted a need for training in Integrated Pest Management, Integrated Disease Management, and the implementation of Biocontrol Methods. In the domain of Horticulture, the RBK staff expressed a need for training in various areas, including the Package of Practices for Plantation Crops, the techniques of Nursery Establishment and Management, as well as the processes of Grading and Quality Assessment. Regarding the management of dairy operations, the training priorities for RBK staff are centered around Milking Management and Housing Management, which have been identified as particularly important areas. Concerning the challenges encountered by RBK staff, the most significant constraint identified is the insufficiency of equipment, infrastructure, and essential resources. This is followed by the difficulty of effectively managing multiple schemes simultaneously and coping with a heavy workload, along with a high frequency of monthly meetings.

Keywords: *Training needs; Rythu Bharosa Kendras; biocontrol methods; constraints.*

1. INTRODUCTION

In the 2023 GDP rankings, the Indian economy is ranked fifth among the world's leading economies. A significant portion of the population relies on agriculture as their main source of income. Agriculture holds a pivotal role in the Indian economy, engaging 60 percent of the country's workforce and making up approximately 17 percent of its GDP [1]. Due to the involvement of over half of India's population in agriculture, the significance of this sector within the economy becomes evident through two key aspects. Firstly, it generates employment for both rural agricultural laborers and those engaged in non-agricultural work. Secondly, it holds a substantial position in global trade, encompassing import and export operations. India supports a remarkable 17.8 percent of the world's population and 15 percent of the global livestock population, despite possessing only 4 percent of the world's water resources and 2.4 percent of its land.

With respect to profile of Andhra Pradesh, with 26 districts and geographical area of 1, 62,970 Sq.Km, AP Ranks 8th largest state in the country. The land utilization classification reveals that 37.05% of the state geographical areas is under net area sown (60.38 lakh hectares) and 12.96lakh hectares under other fallow land, cultivable waste lands like permanent pastures and other grazing lands. The area under food grains is 39.59 lakh hectares in 2022-23 as against 41.34 lakh hectares in 2021-22, showing a decrease of 4.2%. The total production of food grains in 2022-23 is 169.30 lakh tonnes while it was 154.85 lakh tonnes in 2021-22 showing an increase of 9.3%. Despite reduction in area,

increase in production indicates productivity enhancement. Good rainfall, adoption of eco-friendly agricultural practices coupled with pro-farmer initiatives of the government, including the key services rendered by the RBKs has contributed to this augmentation in food grains production [2]. Andhra Pradesh often referred to as the "Rice bowl of India," allocates 37.35 percent of its land to agriculture. Furthermore, a significant portion of its workforce, accounting for 62.17 percent, remains reliant on agriculture and related activities for their livelihood. On May 30th of the 2020, the Government of Andhra Pradesh initiated the Rythu Bharosa Kendra (Farmer Assurance Centers) [3,4]. This scheme has been introduced to enhance transparency and ensure the quality of services provided to the agricultural community. These centers are designed to offer various services, including the prompt delivery of agricultural inputs within 24-48 hours of ordering through kiosks, the rental of agricultural machinery, technical guidance, and an effort to bring the agricultural extension system closer to the farmers. Given that Andhra Pradesh relies heavily on agriculture, these innovative Rythu Bharosa Kendras were established to cater to the diverse needs of farmers. The government launched a total of 10,641 RBKs across the state on May 30th, 2020.

The Rythu Bharosa Kendras (RBKs) are staffed with technically qualified personnel possessing educational backgrounds such as B.Sc. in Agriculture, Diploma in Agriculture, Diploma in Horticulture, and B.Sc. in Botany, Zoology, and Chemistry (BZC). These qualified individuals serve as Village Agriculture Assistants (VAA) or Village Horticulture Assistants (VHA). They hold either a graduate degree or a diploma in

Agriculture or Horticulture. Their primary responsibility is to oversee the operations of RBKs situated within the village secretariats. They also maintain these centers by updating relevant information and records to ensure smooth functioning. All the assistants employed within the RBKs are required to report to the Agriculture Officer at the Mandal level and the Panchayat secretary at the village level [5]. For the supply and management of inputs and farm machinery to the RBKs, partnerships have been established with the Andhra Pradesh State Agro Industries Development Corporation Limited. Additionally, technical support is provided by Acharya N.G Ranga Agricultural University (ANGRAU), Dr. YSR Horticultural University, and Sri Venkateswara Veterinary University in the state. In SPSR Nellore district, a total of 561 Rythu Bharosa Kendras are operational, serving both the rural and urban areas. These centers are dedicated to providing convenient and efficient services to the farming community within the SPSR Nellore district. Given the strategic nature of this government scheme, ongoing evaluation is necessary to facilitate effective implementation by making necessary adjustments during its execution in the field. Taking these factors into consideration, the present study was developed with the aim of evaluating the training requirements of RBK staff and identifying the challenges they encounter while ensuring smooth delivery of agricultural services to the farming community in SPSR Nellore district.

2. MATERIALS AND METHODS

The present study was conducted during the year 2022-23 by following Ex-post facto research design with objective of assessing training need assessment of RBK Staff of SPSR Nellore district of Andhra Pradesh. SPSR Nellore district comprised of total of 561 functioning Rythu Bharosa Kendras (RBK). District comprises of 38 mandals and 08 agriculture divisions. 15 RBK staff from each division of SPSR Nellore district were selected as sample by following Simple Random Sampling making 120 RBK staff as sample for the study. Statistical tools including mean, standard deviation, frequency, and percentage were employed to analyze the data. The assessment focused on various areas such as crop production, plant protection, horticulture and dairy management practices. To determine the training needs, a three-point continuum was used, with scores assigned as follows Most Important with Score of 2, important with Score

of 1, Not Important with Score of 0, These scores were used to evaluate the significance of each area in terms of training requirements. The limitations or constraints faced by RBK staff were identified through an interview schedule, and then they were ranked using Garrett's Ranking Technique.

Garrett's Ranking technique involves assigning numerical scores to the changes in the order of constraints and advantages. This technique offers a significant advantage compared to a simple frequency distribution. It allows the constraints to be organized and ranked based on their importance from the perspective of the respondents. Garrett's formula for converting ranks into percent was given by Henry Garret (1969)

$$\text{Per cent Position} = 100 (R_{ij} - 0.5) / N_j$$

R_{ij} = Rank given for i^{th} item by the j^{th} sample respondents

N_j = Number of factors ranked by j^{th} sample respondents

The per cent position of each rank was converted into scores referring to the table given by Garrett and Woodworth [6]. For each factors, the scores of individual respondents were added together and divided by the total number of the respondents for whom scores were added. These mean scores for all the factors were arranged in descending order, ranks were given and most important factors were identified.

3. RESULTS AND DISCUSSION

3.1 Training Needs of Rythu Bharosa Kendra (RBK) staff of SPSR Nellore district

Table 1 provides a clear representation of the priority for training among RBK staff. The highest training requirement, based on rank order, is for integrated farming and micro nutrient deficiency and management aspects, holding the first position. This is closely followed by the need for training in weed management aspects (ranked second), cropping systems (ranked third), resource management technology and seed production (ranked fourth), problematic soils management (ranked fifth), soil and water sampling and testing aspects (ranked sixth), soil and water conservation aspects (ranked seventh), nutrient management (ranked eighth), and understanding Soil Health cards (ranked ninth).

Table 1. Training Needs of RBK Staff with respect to Crop Production (n=120)

S.No	Crop Production Aspects	Very Important (02)		Important (01)		Not important (0)		Total score	Rank
		f	%	f	%	f	%		
1.	Integrated farming	120	100	0.00	0.00	0	0.00	240	I
2.	Cropping systems	92	76.66	16	13.33	12	10	200	III
3.	Weed management aspects	110	91.66	8	6.6	2	1.66	228	II
4.	Soil and water conservation aspects	72	60.00	30	25.00	18	15	174	VII
5.	Soil and water sampling and testing aspects	82	68.33	26	21.66	12	10	190	VI
6.	Resources management technology	86	71.66	26	21.66	8	6.66	198	IV
7.	Nutrient management	64	53.33	34	28.33	22	18.33	162	VIII
8.	Micro nutrient deficiency and management aspects	120	100	0	0.00	0	0	240	I
9.	Seed production	88	73.33	22	18.33	10	8.33	198	IV
10.	Problematic soils management	86	71.66	24	20	10	8.33	196	V
11.	Knowledge on Soil Health card	66	55.00	28	23.33	26	21.66	160	IX

Table 2. Training Needs of RBK Staff with respect to Plant protection (n=120)

S.No	Crop Protection aspects	Very Important (02)		Important (01)		Not important (0)		Total score	Rank
		f	%	f	%	f	%		
1.	Seed Treatment	62	51.66	30	25.00	28	23.33	154	IV
2.	Pest and disease management in major crops	60	50.00	22	18.33	38	31.66	142	V
3.	Integrated Pest Management	108	90.00	8	6.66	4	3.33	224	I
4.	Integrated Disease Management	76	63.33	30	25.00	14	11.66	182	III
6.	Biological control methods	104	86.66	12	10.00	02	1.66	220	II

Table 3. Training needs of RBK Staff with respect to Horticulture (n=120)

S. No	Horticulture	Very Important (02)		Important (01)		Not important (0)		Total score	Rank
		f	%	f	%	f	%		
1.	New varieties information of different major Horticultural crops	56	46.66	38	31.66	26	21.66	150	VI
2.	Pest and disease management	64	53.33	32	26.66	24	20.00	160	IV
3.	Nursery raising and management	90	75.00	20	16.66	10	8.33	200	II
4.	Protected cultivation methods	72	60.00	12	10.00	30	25.00	156	V
5.	Plantation crops package of practices	98	81.66	22	18.33	0	0.00	218	I
6.	Grading and quality assessment	70	58.33	30	25.00	20	16.66	170	III

Table 4. Training needs of RBK Staff with respect to dairy management (n=120)

S. No	Dairy Management aspects	Very Important (02)		Important (01)		Not important (0)		Total score	Rank
		f	%	f	%	f	%		
1.	Feeding management	80	66.67	26	21.67	14	11.67	186	VI
2.	Health care practices	73	60.83	29	24.17	18	15.00	175	VII
3.	Marketing and insurance	89	74.17	15	12.50	16	13.33	193	IV
4.	Housing management	92	76.67	24	20.00	4	3.33	208	II
5.	Breeding management	96	80.00	8	6.67	16	13.33	200	III
6.	General management practices	82	68.33	24	20.00	14	11.67	188	V
7.	Milking management	94	78.33	23	19.17	3	3.33	211	I

Table 5. Constraints faced by RBK Staff in hassle free delivery of RBK services (n=120)

S.No	Statements	Garret Score	Rank
1	Lack of equipments, infrastructure and other necessary resources	70	I
2	Handling multiple schemes at a time is difficult.	67	II
3	Heavy workload and more number of meetings in a month.	66	III
4	Lack of stress management training program for employees	62	IV
5	Political interference in day to day activity	55	V
6	Lack of skilled orientation training	39	X
7	Lack of timely availability of inputs	45	VI
8	Lack of refresher training programmes regards latest technologies	43	VII
9	Social constraints such as groupism, castism.	42	VIII
10	More non technical work.	41	IX
11	Lack of assured procurement facilities	18	XI

Focusing on the domain of crop production, 100% of RBK staff members express the need for training in integrated farming and micro nutrient deficiency and management aspects. Additionally, 91.66% of staff highlights the importance of training in weed management aspects, while 76.66% seek training in cropping systems. Furthermore, 73.33% express interest in seed production training, and 71.66% consider training in resource management technology valuable.

An analysis of data from Table 2 reveals that a significant portion of RBK Staff members have expressed the need for training in various aspects of Integrated Pest Management. The top priority, ranked first, is training on Integrated Pest Management itself. This is followed by a desire for training in Biological Control Methods (ranked second), Integrated Disease Management (ranked third), Seed Treatment (ranked fourth), and Pest and Disease Management in major crops (ranked fifth).

Looking specifically at the Plant Protection Aspects, it's noteworthy that 90.00% of RBK staff members consider training in integrated pest management practices to be of very high importance. Following closely, 86.66% believe training in Biological Control Methods to be crucial, while 63.33% express the same about Integrated Disease Management. Additionally, 51.66% feel that training in seed treatment is important, and an equal 50% emphasize the significance of training in Pest and Disease Management in major crops.

An overview of Table 3 reveals that the prioritized training needs of RBK Staff can be seen at a glance. Topping the list in terms of training requirements is the need for training on Plantation crops package of practices. This is succeeded by training in Nursery raising and management, Grading and quality assessment, Pest and disease management, Protected cultivation methods, and information about New varieties of various major Horticultural crops, in that order.

Regarding Horticulture Crops, a significant percentage of 81.66% expressed a strong and vital need for training on Plantation crops package of practices. Following closely, 75.00% considered training on Nursery raising and management to be highly important. Among other training aspects, 60.00% highlighted the significance of training in Protected cultivation methods, while 58.33% emphasized the

importance of Grading and quality assessment training. Additionally, 53.33% saw a need for training in Pest and disease management, and 46.66% recognized the value of receiving information about new varieties of different major Horticultural crops.

A thorough examination of Table 4 provides a comprehensive understanding of the training preferences among RBK Staff. The prioritized training needs are quite apparent, with Milking management taking the top position (ranked first), followed by Housing management (ranked second), Breeding management (ranked third), Marketing and insurance (ranked fourth), General management practices (ranked fifth), Feeding management (ranked sixth), and Health care practices (ranked seventh).

Regarding dairy management practices, it's evident that 80.00% of RBK Staff members expressed the need for training in breeding management, followed closely by 78.33% who recognized the importance of Milking management training. Additionally, 76.67% saw a need for training in Housing management, while 74.17% believed that training in Marketing and insurance was essential. Moreover, 68.33% expressed interest in General management practices training, and 66.67% felt the same about feeding management. Finally, 60.83% of staff members recognized the value of Health care practices training.

3.2 Constraints Faced by RBK Staff in Hassle Free Delivery of RBK Services to Farmers

Table-5 provides a clear representation of the challenges encountered by RBK Staff in ensuring smooth and efficient service delivery to farmers. The findings indicate that the primary obstacle faced by RBK staff with the highest significance is the inadequate availability of equipment, infrastructure, and essential resources (I). This is closely followed by the difficulty of managing multiple schemes simultaneously (II), the substantial workload and a high frequency of monthly meetings (III), the absence of training programs for stress management among employees (IV), interference from political entities in daily operations (V), insufficiently timely access to necessary inputs (VI), the lack of refresher training initiatives focused on the latest technologies (VII), social limitations like group divisions and caste influences (VIII), an excessive amount of non-technical

responsibilities (IX), insufficient provision of orientation training for skills development (X), and the absence of guaranteed procurement facilities (XI), respectively.

4. CONCLUSION

The current investigation draws to a close with several valid observations that highlight the specific areas where training should be extended to the RBK Staff. The findings of the current study indicate that concerning Crop Production, subjects such as Integrated Farming Systems, Cropping Systems, and the management of Micro-Nutrient Deficiencies have emerged as particularly crucial areas that require focused training for the RBK staff in the sampled region. Regarding the aspects of Crop Protection, the RBK staff highlighted a need for training in Integrated Pest Management, Integrated Disease Management, and the implementation of Biocontrol Methods. In the domain of Horticulture, the RBK staff expressed a need for training in various areas, including the Package of Practices for Plantation Crops, the techniques of Nursery Establishment and Management, as well as the processes of Grading and Quality Assessment. Regarding the management of dairy operations, the training priorities for RBK staff are centered around Milking Management and Housing Management, which have been identified as particularly important areas. Concerning the challenges encountered by RBK staff, the most significant constraint identified is the insufficiency of equipment, infrastructure, and essential resources. This is followed by the difficulty of effectively managing multiple schemes simultaneously and coping with a heavy workload, along with a high frequency of monthly meetings. The development of adequate infrastructure within RBK holds a crucial role in the evolution of traditional agriculture into a modernized version. Moreover, RBK's capacity to provide localized access to information within villages stands as a significant asset for the farming community. This potential can be

maximized by aligning services with the seasonal requirements of farmers in addition to their routine operations.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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