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Agri-entrepreneurial training needs of tribal youth in Odisha state, India

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ABSTRACT

Tribal youth form a considerable part of the country's tribal population. They face risks related to education, employment, training, drug and alcohol addiction, illiteracy, malnutrition, powerlessness, etc. Making tribal youth employable is quite challenging and the government is putting efforts towards conducting skill-based training but still, there is a lack of proper strategy. Agri-enterprises in tribal areas will be able to channelize tribal youth in an effective manner for regional and consequently national development. Descriptive and analytical research design was used to meet the objectives of the study. Twelve villages from 3 blocks of Koraput district of Odisha in the year 2019–20 were selected purposively. A sample of 246 tribal youth was selected through proportional allocation by using Cochran's formula. Cronbach's alpha was used to test the reliability of the sub areas under each major area of agricultural enterprise and was found to be high (α–0.91). Training needs of tribal youth in various agri-enterprises were calculated through the Borich model of Training Need Assessment. It was found that the village was the most favourable place for receiving training for about 7–15 days in a group of 21–30 members in the evening hours from October to December. Scientists and grass-root extension workers were preferred the most for conducting regularized agricultural trainings along with periodic follow-up visits by trainers for monitoring their progress. This research will assist the trainers in designing location-specific training module and help the policy makers to design suitable policies for tribal youth who aspire to take agricultural enterprises.

Keywords: Agri-enterprises, Training, Training need assessment, Tribal youth

Ensuring food security for the world's rising population, while ensuring long-term sustainable development remains one of the world's primary concerns today. Agriculture and allied enterprises can mobilize and attract youth groups to lucrative and consistent income-generating occupations. Surprisingly, the youth population in developing countries chooses non-agricultural vocations over agricultural ones. There is an urgent need to provide direction to youth who are planning for agricultural work and allied enterprises. Indian youth possess the power to withhold this status in the offing and history is full of examples where disciplined and trained youth have revolutionized the whole nation (Prabhath 2011).

Tribal youth development has recently been a buzzword among the country's smart minds. Tribal youth (15–35 years) are a numerically dominating and potentially resourceful segment of the youth community belonging to an egalitarian society who share a similar name, culture, dialect, region, and taboos (Narayan 1986). Due to lack of nation wide youth training programs and supervision, interdependence, suitable youth group networks, and effective tribal sector initiatives, they are less motivated to translate their strength into social contribution. As a result, tribal youth become more vulnerable to their urban and rural counterparts. According to NSSO 61st Census (2004-2005), around 89% of the youth lack exposure to vocational training and half of them continue their hereditary practice (Parasuraman *et al.* 2009). Many studies revealed that tribal youth have a positive view towards agriculture as livelihood (D'Silva *et al*. 2010 and Bhanu 2006), and agriculture is uniquely positioned to attract these individuals. Agriculture can only attract and retain tribal youth if it provides financial and intellectual satisfaction (Tiwari 2011). Currently, opportunities for tribal youth are very scarce, and as a result, many of them are unemployed or underemployed. The training need identification is therefore an essential requirement for a successful training process, and the lack of this procedure jeopardizes a sound and strong diagnosis of a training program (Anderson 1994, Bowman and Wilson 2008). Hence, training-need analysis in agricultural and allied sectors must be determined, and subsequently, relevant trainings must be offered (Dash *et al*. 2019).

MATERIALS AND METHODS

The descriptive and analytical research design was used to meet the objectives of the study. The study was

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purposively carried out in Koraput district of Odisha in the year 2019–20. Three blocks, viz. Laxmipur block, Narayanpatna block and Bandhugaon block were selected randomly. Villages, viz. Laxmipur, Barasanka, Buruja and Pipalpadar from Laxmipur block, villages, viz. Balipeta, Dakapura, Narayanpatna and Parapadar from Narayanpatna block and villages, viz. Sanasarapalli, Almonda, Jagugura and Sorabari from Bandhugaon block of Koraput district were selected for the study purposively. The 246 tribal youth engaged in some forms of agricultural activities were selected through proportional allocation from the selected villages after using Cochran's formula for sample size estimation:

$$n_0 = \frac{Z^2pq}{e^2}$$

where, n_0 = sample size; Z= selected critical value of desired confidence level; p= estimated proportion of an attribute that is present in the population and q=1-p; e= desired level of precision; assuming that 80% of the respondents have the attributes in question (i.e. p = 0.8) and taking 95% confidence level with ± 5% precision, the required sample size was calculated as follows:

As, p = 0.8
q = 1-0.8 = 0.2
e = 0.05
z =1.96

$$n_0 = \frac{(1.96)^2(0.8)(0.2)}{(0.05)^2} = 245.86 = 246 \text{ (approx.)}$$

After content validation by subject experts, accuracy of data was tested for internal reliability by calculating Cronbach's alpha (Cronbach 1951) for all the sub areas using SPSS programme under each major area and was found to be high (α=0.91). The score indicated that the sub areas chosen under major agri-enterprises were found to be consistent.

The need assessment model of Borich (1980) was utilized to assess the training needs of tribal youth in selected agricultural enterprises. In the study, training needs of tribal youth were measured in knowledge and performance dimensions. "Knowledge discrepancy" scores and "Performance discrepancy" scores were determined as given below and multiplying the result by the average perceived importance score of all respondents gives the Weighted Discrepancy Scores (WDS) and were utilized for calculating the Mean Weighted Discrepancy Score (MWDS)

Calculation of Knowledge and Performance discrepancy

Competency	Perceived Importance	Extent of Knowledge	Ability to Perform
1	1 2 3 **4** 5	1 2 3 **4** 5	1 2 **3** 4 5
2	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
3	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
	Knowledge Discrepancy=0		Performance Discrepancy=1

for each activity/competency. Based on the MWDS, ranking of the training need areas were made. Discrepancies with the greatest positive rank difference would have the highest priority for training of tribal youth.

The Borich formula which was used for calculation consisted of two equations:

Equation 1:

$$TN_{kn} = (IN\text{-}KN)\,(IG)$$

Equation 2:

$$TN_{pe} = (IN\text{-}PE)\,(IG)$$

where, TN_{kn}=Training needs in knowledge dimension; TN_{pe}= Training needs in performance dimension; IN= Perceived importance of the skills rated by the respondent; KN = Extent of knowledge of the skills rated by the respondent; PE = Ability to perform the skills rated by the respondent; IG =Average mean score of the relative importance of a competency as rated by all the respondents

$$MWDS = \frac{(\text{Importance rating - ability rating}) \times (\text{Average importance rating})}{\text{Number of observations}}$$

RESULTS AND DISCUSSION

Perceived training needs of tribal youth in selected agricultural enterprises: Organic farming in tribal areas has attracted considerable attention from tribal youth as a profitable enterprise who foresee it as panacea for livelihood problems (Dash and Amardeep 2018). In this sector, maximum training need for both knowledge and performance dimension was expressed in organic certification procedure (Table 1). The tribal youth engaged in agriculture might have perceived that dairy farming and agriculture were more effective simultaneously in their by-product utilization. The youth have their own role for adopting new ideas of dairy farming as a profitable venture (Singh and Fulzele 2005). Maximum training need in knowledge dimension of dairy farming was observed in breeding and general management followed by housing and environment management in performance dimension.

Cultivation of off-season and exotic vegetables under greenhouse processing/user specific needs/contract farming arrangements require specific skills in field management practices, several irrigation techniques and post-harvest management techniques to overcome the several challenges in infrastructure development, appropriate marketing interventions, and affordable capital availability. Tribal youth practicing the enterprise should possess optimum skills starting from seed selection to the final harvest of the vegetable crops. Maximum training need of tribal youth in knowledge dimension was observed in irrigation management of vegetable crops followed by field management in performance dimension (Table 1). Vocational trainings in fruit crop production and processing can enhance the knowledge and skill of interested tribal youth of the state along with employment generation and entrepreneurship development in farm sector. Maximum

training need for both knowledge and performance dimension was observed in value-addition and post harvesting (Table 1). Post-harvest handling of the fruits, viz. fruit juices, squashes, jams, jellies, pickles, preserves etc., requires suitable skills which are yet to be harnessed by tribal youth through regularized training. Medicinal and aromatic plants as enterprise possess the ability to grow under resource poor conditions, viz. poor soil fertility and low rainfall conditions. These crops improve specialized skills; encourage contacts with niche markets; adds to crop diversification; and provides employment opportunities (Rangarao 2009). Table 1 depicted that, maximum training need in knowledge dimension was observed in production of quality planting material and management of technology followed by integration of this enterprise with other farming system in performance dimension. Tribal people have strong wisdom in this sector as they are close to the nature, and they have hill specific rural technologies. Therefore, multi-stakeholder training programme can be designed to hone the skills of tribal youth in medicinal and aromatic plants cultivation.

In major area of mushroom production, maximum training need in knowledge and performance dimension was observed in substrate preparation technique. Advanced training demonstration on substrate preparation (several substrates other than rice straw), post-harvest technology, storage, preservation, and value-addition of mushroom are needed especially for family nutritional care and for the development of sustainable entrepreneurship among tribal youth. Bee-keeping enterprise requires less investment and easy-to-learn procedures (Rangarao 2009). Maximum training need in knowledge and performance dimension was observed in handling of bee hive frames and its products (Table 1). Sericulture is a labor-intensive activity offering direct and indirect employment for the unemployed tribal youth. Table 1 suggested that maximum training need in knowledge dimension was observed in harvesting and transportation of cocoons followed by silk cleaning, examination, lacing, skening and bailing in performance dimension.

On-farm production of inputs has become one of the prominent micro-enterprises for young masses in rural and tribal areas, as it requires low investment. Maximum training need in both knowledge and performance dimension was observed in organic manure production techniques. Development of precision machinery and strategies for carrying out timely and efficient agricultural operations in tribal agriculture, horticulture and livestock production require proficiency in technical skills. These further increases work efficiency for human, animal and mechanical systems and reduction of occupational hazards in agricultural operations. In major area of agricultural engineering, maximum training need in knowledge and performance dimension was observed in production of small agricultural tools and implements (Table 1). There is a strict need of development of location specific tools in a participatory development method to utilize the tools in a more simplified manner.

Training needs of tribal youth in major agricultural enterprises: From the data (Table 1) highest training need was perceived in mushroom cultivation both in terms of knowledge and performance dimension. Mushroom production as an enterprise has tremendous potential as an income generating activity and is one of the popular agri-business enterprises among youth groups. Mushroom is important not only from nutritional and medicinal point of view but also from export viewpoint. It requires little space or land and hence, it is of great importance for economically poor tribal youth.

Opinion of tribal youth regarding training: Table 2 depicts about various opinions of tribal youth regarding training in various agricultural enterprises. The study revealed that majority (52.44%) of the respondents was interested in receiving training at the evening hours. Informal discussions revealed that most of the young respondents were free in the evening hours after their regular work in field. Maximum respondents (42.28%) preferred the months from October to December followed by January to March (19.51%). Around 19.11% of the respondents had no preference for receiving training followed by April to June (10.16%) and July to September (8.94%). Majority of the respondents (57.32%) preferred duration of 1 week to 15 days followed by one-week duration (23.98%), 3-week duration (13.01%) and 4-week duration (5.69%) for receiving training in a training programme. Regarding preferences for appropriate venue for receiving training, majority of the respondents (54.88%) preferred village for receiving training followed by farm site (29.69%), KVKs (8.13%) and agricultural university (7.72%). Maximum respondents (43.50%) preferred 21-30 number of trainees in a training programme for a smooth conduct. Scientists (54.07%) and grass root extension workers (29.27%) were preferred the most for conducting regularized agricultural trainings. Tribal youth preferred a free of cost training (47.15%) with a combination of theory and practical (79.27%) along with periodic follow-up visits by trainers for monitoring their progress in undertaking mushroom production as an enterprise.

Tribal youth is entirely a different segment which needs an extensive study on their personal, social, socio-psychological, and economic characteristics. To appeal tribal youth and deliver good job opportunities, agriculture must break through a number of constraints that impede growth and competitiveness. The KVKs in the respective districts must re-orient their extensive and intensive hands on-training programmes for tribal youth based on these findings.

The present study was to identify training needs of tribal youth in the survey area which indicated a gap in tribal youths' knowhow and actual information which needs to be addressed at the earliest. Based on the outcomes of the study, an effective training module having scientific utility could be developed for tribal youth in regional languages for empowering tribal youth with adequate information

Table 1 Tribal youth perceptions about training needs in selected agricultural enterprises in rank order of MWDS (n = 246)

Agri-enterprise	TNkn MWDS	Rank	TNpe MWDS	Rank	Avg. MWDS (Knowledge)	Avg. MWDS (Performance)	Mean	Rank
Organic crop production								
Land preparation	1.12	4th	0.35	10th	0.82	1.02	0.92	7th
Planting methods	0.69	6th	1.45	3rd				
Application of organic manures	1.19	3rd	1.54	2nd				
Seed treatment	0.17	9th	1.14	5th				
Weed management	0.43	8th	0.46	9th				
Mulching	0.75	5th	1.27	4th				
Green manuring	0.09	10th	0.76	6th				
Application (oil cake, concentrated manures, bio-fertilizer, bio-pesticides/ agents, bio-insecticides)	0.52	7th	0.69	7th				
Systemic crop intensification	1.44	2nd	0.63	8th				
Organic certification	1.83	1st	1.91	1st				
Dairy farming								
Milk quality and hygienic practices	0.51	7th	1.26	5th	1.01	1.43	1.22	5th
Animal health management	0.56	6th	1.59	3rd				
Animal nutrition	1.15	3rd	0.75	6th				
Animal welfare management	1.14	4th	1.33	4th				
Breeding and general management	1.46	1st	2.28	2nd				
Housing and environment management	1.40	2nd	2.54	1st				
Marketing and financial management	0.84	5th	0.23	7th				
Vegetable crop production								
Field management	1.00	3rd	1.31	1st	0.88	0.67	0.77	9th
Selection of seeds	0.59	5th	0.30	7th				
Fertilizer management	0.39	7th	0.04	8th				
Irrigation management	1.98	1st	0.87	3rd				
Weed management	0.56	6th	0.70	4th				
Plant protection measures	0.93	4th	0.67	5th				
Harvesting and storage	0.36	8th	0.41	6th				
Storing, grading and marketing of vegetables	1.26	2nd	1.03	2nd				
Fruit crop production								
Rejuvenation of old orchards	1.09	4th	1.52	3rd	1.38	1.42	1.40	**3rd**
Layout and management of orchards	0.67	6th	0.81	6th				
Training and pruning	0.79	5th	1.05	5th				
Micro-irrigation techniques in orchards	1.15	3rd	1.39	4th				
Plant propagation techniques	1.50	2nd	1.80	2nd				
Value addition and post harvesting	3.09	1st	2.00	1st				
Medicinal and aromatic plants								
Nursery management	0.97	3rd	0.65	4th				
Production of quality plant material and management technology	1.75	1st	1.40	2nd				
Scientific ways of harvesting, storage and transporting	0.55	5th	0.50	5th				

Contd.

Table 1 (*Concluded*)

Agri-enterprise	TNkn MWDS	Rank	TNpe MWDS	Rank	Avg. MWDS (Knowledge)	Avg. MWDS (Performance)	Mean	Rank
Value-addition and post-harvest handling	0.65	4th	0.80	3rd				
Integration with other farming system	1.21	2nd	1.47	1st				
Mushroom cultivation								
Cultivation technology of mushrooms (Paddy straw, White button, Oyster)	2.49	5th	3.60	3rd	3.63	3.83	3.73	1st
Spawn production technique	3.10	4th	3.58	4th				
Substrate preparation technique for mushrooms	4.36	1st	4.89	1st				
Pest/Disease management in mushrooms	4.05	3rd	3.01	5th				
Post-harvest handling/Value ion of mushrooms	4.13	2nd	4.05	2nd				
Bee keeping								
Handling of bee-hive frames and its products	2.26	1st	3.60	1st	1.11	1.86	1.49	2nd
Colony management	1.68	2nd	1.48	4th				
Queen production methods	0.24	5th	0.59	5th				
Disease and pest management of honeybees	0.40	4th	1.80	3rd				
Honey production, harvesting, processing, storage, and use	0.98	3rd	1.81	2nd				
Sericulture								
Methods of mulberry propagation	0.59	3rd	0.82	2nd	0.52	0.69	0.61	10th
Seed cocoon selection, moth selection, pairing and egg production	0.22	5th	0.52	3rd				
Harvesting and transportation of cocoons	0.82	1st	0.41	4th				
Silk cleaning, examination, lacing, skening, and bailing	0.60	2nd	1.40	1st				
Mechanization in sericulture (Reeling on country charka, cottage reeling machine)	0.37	4th	0.31	5th				
On-farm production of inputs								
Seed and planting material production techniques	0.20	5th	0.12	5th	1.45	1.23	1.34	4th
Bio-agents production techniques	2.53	2nd	1.98	2nd				
Bio-pesticides and fertilizer production techniques	0.48	4th	0.90	3rd				
Vermi-compost production techniques	0.58	3rd	0.63	4th				
Organic manure production techniques	3.48	1st	2.50	1st				
Agricultural engineering								
Installation and implementation of micro-irrigation systems	1.22	2nd	0.90	3rd	0.74	0.82	0.78	8th
Production of small agricultural tools and implements	1.27	1st	1.64	1st				
Use of plastics in farming practices	0.30	5th	1.08	2nd				
Repair and maintenance of machineries and implements	0.36	4th	0.25	4th				
Post-harvest technology	0.57	3rd	0.22	5th				

Avg. MWDS: Average Mean Weighted Discrepancy Score of sub-areas under major training areas both in terms of knowledge and performance.

Table 2 Opinions of tribal youth regarding training in mushroom cultivation (n = 246)

Particulars	Frequency	Percentage
Time of receiving training		
No preference	39	15.85
Morning	34	13.82
Afternoon	43	17.48
Evening	129	52.44
Month of receiving training		
No preference	47	19.11
January-March	48	19.51
April-June	25	10.16
July-September	22	8.94
October-December	104	42.28
Duration for receiving training		
Up to 1 week	59	23.98
1 week-15 days	141	57.32
3 weeks	32	13.01
4 weeks	14	5.69
Venue for receiving training		
At the farm site	72	29.69
Village	135	54.88
Agricultural university	19	7.72
KVKs	20	8.13
Preferred number of trainees		
10-20	72	39.43
21-30	135	43.50
31-40	19	6.50
41-50	20	6.50
>50	10	4.07
Preference of resource personnel for receiving training		
Scientists	133	54.07
Grass-root extension workers	72	29.27
Block functionaries	16	6.50
Fellow farmers	25	10.16
Theory-practical ratio in a training programme		
Fully theory	20	8.13
50% theory-50% practical	195	79.27
Fully practical	31	12.60
Fees to be collected for a training programme		
Free of cost	116	47.15
<100	101	41.06
101-200	26	10.57
201-300	3	1.22
301-400	0	0

and skills. Hence, the concerned stakeholders should pay relatively higher emphasis on most important needs for conducting location specific training programmes followed by proper motivation supported by technical backstopping of research institutes. The proposed study would also help the extension agencies and policy makers to plan and design tribal youth educational activities and training programmes at a larger scale.

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