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Participation of rural youth in agriculture and allied activities

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Abstract

The present study examined the extent and pattern of participation of rural youth in agricultural and allied activities in southern Rajasthan using an ex-post-facto research design. The investigation was conducted in two purposively selected districts, Udaipur and Bhilwara, representing tribal and non-tribal populations. From each district, two tehsils and three villages per tehsil were selected, resulting in a total of 12 villages (six tribal and six non-tribal). A sample of 240 rural youth aged 16-30 years, as per the National Youth Policy (2012), was selected through simple random sampling. Data were collected through personal interviews using a structured and pre-tested interview schedule. Youth participation was assessed across crop production, vegetable cultivation, orchard management, animal husbandry and dairy activities, and farm management practices using Mean Per Cent Score (MPS), ranking, percentage and other statistical measures. The results revealed moderate to high participation of rural youth in skill-based and productivity-oriented activities such as input management, irrigation, weed control, plant protection, animal care and farm supervision. In contrast, lower participation was observed in labour-intensive and drudgery-prone activities including ploughing, thinning, transplanting and post-harvest operations. Non-tribal youth showed significantly higher involvement in decision-making, market-linked and management activities, whereas tribal youth were more engaged in routine and labour-based tasks. The study concludes that rural youth are a crucial resource for agricultural development; however, targeted interventions in skill development, mechanization, market linkage and youth-oriented extension services, particularly for tribal youth, are essential to enhance their participation and ensure sustainable agricultural growth.

Keywords: Rural youth, agricultural participation, tribal and non-tribal youth, crop production, allied agricultural activities, Mean Per Cent Score (MPS), Southern Rajasthan

Introduction

Materials and Methods

An Ex-post-facto research design was used in the present study. The study was conducted in southern Rajasthan, which consists of seven districts namely Udaipur, Rajsamand, Banswara, Dungarpur, Chittorgarh Pratapgarh. Out of these, two districts *viz*., Udaipur and Bhilwara were purposely selected on the basis of maximum tribal and non-tribal population. Two tehsils from each identified district were selected for study based on maximum tribal and non-tribal population. Therefore, a total of four tehsils were selected for the study. From each selected tehsil three villages were randomly selected from each of the tehsils, resulting in a total sample of 12 villages (6 tribal and 6 non-tribal). From each selected village 20 rural youth who are living in the village, engaged in agriculture and members of a joint family of age group 16-30 years were selected by simple random sampling method by using random number table generator and they were considered as respondents in the study. Rural youth in this research study are considered as a youth having an age group of 16-30 years as per National Youth Policy of India, 2012 (NYP, 2011). Total 60 rural youth will be selected from each selected tehsils. Total 120 rural youth will be selected from Udaipur and 120 rural youth from Bhilwara district. Thus, a total of 240 rural youth will be selected for the present investigation.

A comprehensive structured interview schedule was developed keeping the study objectives in mind. Data was collected using personal interview techniques with developed schedules and various statistical measures were used for analysis, including Percentage and Frequency distribution, Mean, SD, MPS and Rank.

Results and Discussion

Participation of rural youth in crop production activities

Participation of rural youth in crop production is a crucial

indicator of their engagement in the agricultural sector. Youth involvement in key field operations i.e. input management and post-harvest activities determines the future sustainability, productivity and technological growth of farming systems. Assessment the extent of youth participation in crop production activities was measured by calculating Mean Per cent Score (MPS) for different activities and the results are presented in Table 8.

Table 1: Participation of rural youth in crop production activities. (n= 240)

S. No.	Activity	Tribal		Non-Tribal		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Ploughing	36.67	6	43.75	18	40.21	15
2	Clod crushing	27.50	20	47.50	12	37.50	20
3	Plant debris	27.50	20	48.33	9	37.92	19
4	Land levelling	31.25	18	51.67	3	41.46	10
5	Application of FYM in field	32.50	17	45.00	17	38.75	18
6	Purchase of seeds	38.33	3	42.50	20	40.42	14
7	Seed treatment	35.83	7	47.50	12	41.67	8
8	Sowing of seed	35.42	9	47.50	12	41.46	10
9	Crop irrigation	41.25	1	47.50	12	44.38	3
10	Purchase of chemical fertilizer	37.92	4	55.83	1	46.88	1
11	Application of fertilizer	34.58	12	47.92	10	41.25	12
12	Weed control	39.17	2	52.50	2	45.83	2
13	Preparation of ridge and furrow	35.83	7	42.92	19	39.38	16
14	Thinning of extra plants	33.33	16	41.67	21	37.50	20
15	Spraying of chemicals	35.42	9	49.17	7	42.29	5
16	Harvesting of crop	37.08	5	47.08	16	42.08	7
17	Threshing operation	27.92	19	50.00	5	38.96	17
18	Drying of produce	35.42	9	49.58	6	42.50	4
19	Processing of produce	34.58	12	47.92	10	41.25	12
20	Selling of produce	34.58	12	48.75	8	41.67	8
21	Storage of produce	34.17	15	50.42	4	42.29	5

The overall results of Table 1 indicates that rural youth exhibited the highest participation in the purchase of chemical fertilizers (MPS 46.88), weed control operations (MPS 45.83) and crop irrigation (MPS 44.38). These activities are directly associated with crop productivity and require skill, precision and timely decision-making, which may explain the maximum youth involvement.

Activities such as drying of produce (MPS 42.50), spraying of chemicals and storage of produce (42.29 each) also received high participation score, suggesting that youth are actively engaged in plant protection and post-harvest handling. Moderate involvement was noted in harvesting of crops (MPS 42.08), seed treatment and selling of produce (MPS 41.67), land levelling and sowing operations (MPS 41.46). These results show that youth also contribute in these crop cultivation practices in good numbers.

Lower participation level was recorded in application of fertilizers and processing of produce (41.25 each), purchase of seeds (40.42), and preparation of ridge and furrows (39.38). Activities with the lowest involvement included threshing (38.96), application of FYM in field (38.75), clod crushing and Thinning of extra plants (37.50 each). These activities are more labour-intensive and repetitive, which exhibits lower youth engagement.

Among tribal rural youth, the highest participation was observed in crop irrigation (MPS 41.25), followed by weed control (39.17) and purchase of seeds (38.33). These activities were part of routine field operations and require continuous supervision, reflecting the active role of tribal youth in the agronomic aspects of farming.

Moderate participation was evident in harvesting (37.08), ploughing (36.67), seed treatment (35.83), spraying of chemicals (35.42) and drying of produce (35.42), indicating their involvement across major production stages. Lower engagement appeared in tasks such as threshing (27.92), clod crushing (27.50), plant debris (27.50) and Thinning of extra plants (33.33), which were drudgery exercises physically demanding and often performed collectively by family labour.

Non-tribal rural youth showed their maximum participation in the purchase of chemical fertilizers (MPS 55.83), weed control (52.50) and land levelling (51.67). These activities require decision-making capacity, exposure to input markets and access to farm resources high participation of non-tribal youth recorded in drying of produce (49.58), spraying of chemicals (49.17), selling of produce (48.75), and plant debris (48.33) indicating their good engagement in both production and post-harvest activities. Lower levels of involvement appeared in application of FYM in field (45.00), ploughing (43.75), and preparation of ridge and furrows (42.92), suggesting limited interest in labour-intensive tasks.

A comparative analysis between tribal and non-tribal youth revealed that non-tribal youth recorded consistently higher involvement in particularly in purchase of chemical fertilizers, weed control, land levelling, storage of produce and threshing. This suggests that non-tribal youth possess resource availability, decision-making autonomy. However, tribal youth showed relatively higher participation in crop irrigation (MPS 41.25), weed control (39.17) and purchase of seeds (38.33), indicating their focus on routine operational activities rather than commercial aspects of agriculture.

The study concludes that rural youth hold an active role in crop production activities, with moderate to high involvement in technical, managerial and post-harvest

operations, while participation remains low in labour-intensive preparatory activities. The greater involvement of youth in operations such as chemical fertilizer management, irrigation, weed control and spraying chemicals in field indicates their inclination toward commercial, skill-based and profit-oriented agriculture rather than traditional subsistence-based farming.

The present findings are consistent with earlier studies conducted by Patel *et al*. (2020) [1], Dhakad and Meena (2022) [2, 14] and Kavitha *et al*. (2023) [3], who reported that rural youth tend to participate more in activities linked to economic returns, technical knowledge and input management, while showing limited involvement in monotonous, labour-intensive field operations.

Participation of rural youth in vegetable production activities

Participation of rural youth in vegetable production activities was assessed using Mean Per Cent Score (MPS), and results are presented in Table 2. The activity-wise analysis shows considerable variation in youth involvement across different activities of vegetable cultivation.

Table 2: Participation of rural youth in vegetable production activities. (n= 240)

S. No.	Activity	Tribal		Non-Tribal		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Ploughing	28.75	24	49.17	5	38.96	21
2	Clod crushing	35.00	13	51.67	1	43.33	4
3	Cleaning of debris	31.25	23	50.00	3	40.63	13
4	Land levelling	33.75	15	47.92	10	40.83	12
5	Application of FYM in field	38.75	6	50.00	3	44.38	3
6	Purchase of seeds	38.75	6	47.92	10	43.33	4
7	Seed treatment	35.83	9	48.75	6	42.29	6
8	Sowing of seed	32.08	20	48.75	6	40.42	15
9	Purchase of chemical fertilizers	35.00	13	44.17	17	39.58	17
10	Application of chemical fertilizers	33.75	15	40.00	24	36.88	24
11	Weed control	32.08	20	47.08	13	39.58	17
12	Preparation of ridge and furrow	39.58	4	45.00	16	42.29	6
13	Thinning of extra plants	32.50	19	41.67	22	37.08	23
14	Formulation of chemicals for spray	41.25	2	48.75	6	45.00	2
15	Spraying of chemicals	39.58	4	41.67	22	40.63	13
16	Purchase of seeds	40.00	3	43.33	19	41.67	11
17	Preparation for nursery	35.42	10	44.17	17	39.79	16
18	Bed preparation	44.17	1	47.50	12	45.83	1
19	Seedling transplantation	33.33	17	43.33	19	38.33	22
20	Irrigation	31.67	22	47.08	13	39.38	19
21	Spraying of pesticides	38.75	6	45.42	15	42.08	9
22	Harvesting of vegetable	33.33	17	51.25	2	42.29	6
23	Grading & packaging	35.42	10	48.75	6	42.08	9
24	Marketing	35.42	10	43.33	19	39.38	19

At the overall level, the highest participation was recorded in bed preparation (MPS 45.83, Rank 1), followed by Formulation of chemicals for spray (MPS 45.00, Rank 2) and application of FYM in field (MPS 44.38, Rank 3). These activities require technical skills and contribute significantly to crop health, indicating considerable youth interest in skill-based and productivity-enhancing operations.

Activities such as clod crushing and purchase of seeds (MPS 43.33 each, Rank 4) also received high participation, reflecting youth engagement in initial land and seed management tasks. Moderate involvement was observed in seed treatment, preparation of ridge and furrows, harvesting of vegetable (MPS 42.29), spraying of pesticides and grading & packaging (MPS 42.08) suggesting active participation in plant protection and post-harvest processes.

Low participation was reported in purchase of chemical fertilizers and weed control (MPS 39.58 each), production of nursery (39.79), marketing, and irrigation & weed management (39.38 each). The least preferred activities included ploughing (38.96), seedling transplantation (38.33), Thinning of extra plants (37.08), and application of chemical fertilizers (36.88), indicating limited youth involvement in repetitive, labour-intensive and drudgery-prone operations.

Among tribal rural youth, the highest participation was reported in bed preparation (MPS 44.17, Rank 1), preparation of plant protection chemicals (MPS 41.25, Rank 2) and purchase of seeds (MPS 40.00, Rank 3). Activities such as preparation of ridge and furrows, spraying of pesticides, and application of compost/farmyard manure (MPS 38.75 each) also received notable involvement. These trends suggest that tribal youth are more engaged in low-investment, skill-oriented activities requiring hands-on labour.

Lower participation was noted in irrigation & weed management (MPS 31.67, Rank 22), cleaning (31.25), ploughing (28.75), and clod crushing (35.00), indicating constraints related to physical drudgery, resources and mechanization. Tribal youth involvement remained relatively low in fertilizer-based and marketing-oriented activities, reflecting limited access to inputs, financial resources and market exposure.

Non-tribal youth consistently displayed higher involvement across most vegetable production activities. Their highest participation was recorded in clod crushing (MPS 51.67,

Rank 1), harvesting of vegetables (51.25, Rank 2), followed by cleaning, application of compost and grading & packaging (50.00 each). These patterns indicate stronger access to resources, better exposure to commercial agriculture, and greater autonomy in farm decision-making.

Moderate participation was observed in seed treatment, sowing, preparation of ridge and furrows, and spraying of pesticides (MPS 45.42-48.75). Lower involvement was reported in chemical fertilizer application (40.00, Rank 24) and Thinning of extra plants (41.67, Rank 22), suggesting that non-tribal youth also showed limited interest in repetitive and labour-intensive activities.

A comparison between tribal and non-tribal youth reveals that non-tribal youth consistently exhibited higher participation across almost all vegetable cultivation operations. Their highest participation was observed in clod crushing (MPS 51.67), harvesting of vegetables (51.25), cleaning (50.00), application of cow dung & compost (50.00) and bed preparation (47.50). This pattern reflects better access to technology, resource availability, market orientation and higher decision-making autonomy among non-tribal youth.

In contrast, tribal youth scored higher in bed preparation (MPS 44.17), preparation of chemicals for plant protection (41.25), purchase of seeds (38.75), application of compost (38.75) and spraying of pesticides (38.75). This implies active participation in technically important yet low-investment practices. However, tribal youth involvement was relatively low in marketing-based or fertilizer-intensive activities, reflecting limited resource access and economic constraints.

The findings reveal that rural youth play an active role in vegetable production, particularly in operations requiring skill, precision and technical knowledge such as bed preparation, plant protection and post-harvest handling. However, participation was relatively low in labour-intensive and monotonous activities such as Thinning of extra plants, transplanting and fertilizer application. Non-tribal youth demonstrated markedly higher participation across most activities, indicating better access to agricultural infrastructure, market linkages and resources. Tribal youth were more engaged in low-input, hands-on tasks but showed limited participation in market-oriented and input-intensive operations.

The results are consistent with those reported by Sachan *et al*. (2020) [4], Jat *et al*. (2022) [5] and Wankhade & Thorat (2023) [6], who observed that rural youth show higher participation in skill-based, economically rewarding and technically important agricultural operations, while their involvement remains low in repetitive, labour-intensive tasks. These studies also highlight the influence of resource availability, market exposure and technological access on youth participation patterns in vegetable cultivation.

Participation of rural youth in orchard management activities

Participation of rural youth in orchard management activities was measured using Mean Per cent Score (MPS) and the results are presented in Table 3 Considerable variation was found in the involvement of youth across pre-planting, planting, plant protection and post-harvest operations.

Table 3: Participation of rural youth in orchard management activities (n= 240)

S. No.	Activity	Tribal		Non-Tribal		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Ploughing	33.33	14	45.00	16	39.17	18
2	Clod crushing	37.92	6	42.50	20	40.21	14
3	Cleaning	30.42	18	55.00	1	42.71	8
4	Land levelling	35.83	9	48.75	8	42.29	9
5	Application of cow dung and compost	41.25	2	46.67	12	43.96	5
6	Preparation of ridge and furrow	35.42	10	53.75	2	44.58	1
7	Thinning of extra plants	37.50	7	51.25	4	44.38	3
8	Preparation of chemicals for PP measures	35.42	10	45.42	15	40.42	13
9	Spraying of chemicals	38.75	3	49.58	7	44.17	4
10	Purchase of planting material	33.75	13	50.42	6	42.08	10
11	Planting plants in field	38.33	5	50.83	5	44.58	1
12	Intercultural operations in orchard	35.00	12	52.08	3	43.54	7
13	Irrigating fruit crops	32.92	15	45.83	13	39.38	17
14	Selection of fertilizers	32.50	16	47.92	9	40.21	14
15	Fertilizer application	43.33	1	44.58	17	43.96	5
16	Spraying of pesticide and fungicide and weedicide	29.58	19	47.08	11	38.33	19
17	Pruning of diseased plant	37.50	7	45.83	13	41.67	11
18	Harvesting of fruits	32.08	17	47.92	9	40.00	16
19	Grading and packing of fruits	28.33	20	44.17	18	36.25	20
20	Marketing of fruits	38.75	3	43.75	19	41.25	12

At the overall level, the highest participation was recorded in preparation of ridge and furrows and planting of plants in the field (MPS 44.58, Rank 1 each). These are critical technical operations that influence early establishment and structural stability of orchard crops, reflecting strong youth engagement in essential orchard tasks. Thinning of extra plants (MPS 44.38, Rank 3) and spraying of chemicals (MPS 44.17, Rank 4) also showed high participation, indicating youth preference toward precision-based and skill-oriented plant protection practices.

Application of compost and fertilizer application (MPS 43.96 each, Rank 5) demonstrated moderate to high involvement, highlighting youth contribution to nutrient management. Activities such as intercultural operations

(43.54), cleaning of orchard area (42.71), land levelling (42.29) and purchase of planting material (42.08) also indicated moderate participation.

Lower-level participation emerged in marketing of fruits (41.25), pruning of diseased plants (41.67), selection of fertilizers (40.21) and clod crushing (40.21). Routine activities such as irrigating fruit crops (39.38), ploughing (39.17) and harvesting of fruits (40.00) also recorded comparatively less involvement. The least participation was observed in spraying of pesticide and fungicide and weedicide (38.33) and grading and packing of fruits (36.25), suggesting lower youth interest in either monotonous or post-harvest quality-oriented tasks

Among tribal rural youth, the highest participation was reported in fertilizer application (MPS 43.33, Rank 1), followed by application of compost (41.25, Rank 2) and spraying of chemicals (38.75, Rank 3). These tasks indicate their active involvement in recurrent field operations and nutrient management practices. Moderate participation was observed in planting of plants (38.33), Thinning of extra plants (37.50) and pruning of diseased plants (37.50), reflecting their engagement in basic orchard management.

Lower participation was recorded in irrigation of fruit crops (32.92), ploughing (33.33), cleaning (30.42) and spraying of pesticide and fungicide and weedicide (29.58). The lowest participation was noted in grading and packing of fruits (28.33), indicating minimal involvement in post-harvest handling and quality management activities. These results highlight that tribal youth are more involved in routine, low-cost orchard activities and less in input-intensive or market-oriented operations.

Non-tribal youth exhibited consistently higher participation across most orchard operations. Their highest involvement was observed in cleaning of orchard (MPS 55.00, Rank 1), preparation of ridge and furrows (53.75, Rank 2), and intercultural operations (52.08, Rank 3). Activities such as Thinning of extra plants (51.25), planting of plants in the field (50.83), and purchase of planting material (50.42) also showed high engagement, indicating active participation in both technical and preparatory orchard tasks.

Moderate involvement was noted in spraying of chemicals (49.58), land levelling (48.75), and selection of fertilizers (47.92), harvesting of fruits (47.92) and application of compost (46.67). Lower participation was found in ploughing (45.00), spraying of pesticides and fungicides and weedicide (47.08), and marketing (43.75). The least participation was recorded in grading and packing of fruits (44.17), although still notably higher than tribal youth.

These findings indicate that non-tribal youth are more engaged in decision-making, input management, and commercial orchard activities, possibly due to better resource access, mechanization and market integration.

A comparison between tribal and non-tribal youth revealed noticeable differences. Non-tribal youth consistently recorded higher MPS across almost all orchard activities, particularly in cleaning (55.00), preparation of ridge and furrow (53.75), Thinning of extra plants (51.25), planting of plants (50.83), purchasing planting material (50.42) and spraying of chemicals (49.58). This suggests that non-tribal youth are more involved in activities requiring decision-making, technical knowledge and frequent market interaction likely due to better access to farm resources, advisory support and commercial orchard exposure.

The results show that rural youth actively participate in several orchard management activities, particularly those requiring skill, technical knowledge and early-stage crop management such as preparation of ridge and furrows, planting and chemical spray operations. However, their participation declines in repetitive, labour-intensive and post-harvest activities such as grading, packing and routine irrigation. Non-tribal youth demonstrated substantially higher involvement across most orchard operations, reflecting greater access to farm inputs, improved exposure to commercial horticulture and higher decision-making autonomy. Tribal youth were more inclined toward routine, low-investment practices, indicating their dependence on traditional systems and limited market integration.

These observations align with the of Sharma *et al*. (2021) [7], Poonia & Meena (2022) [8, 14] and Rathod *et al*. (2024) [9], who reported higher youth engagement in orchard tasks requiring skill, precision and income gain, and lower participation in core labour-intensive and post-harvest grading operations.

Participation of rural youth in animal husbandry and dairy activities

Participation of rural youth in animal husbandry and dairy-related activities was measured using Mean Per cent Score (MPS) and the results are presented in Table 4. The data indicate that youth play a substantial role in livestock management, though their level of involvement varies across different operations.

Table 4: Participation of rural youth in Animal husbandry and dairy activities. (n= 240)

S. No.	Activity	Tribal		Non-Tribal		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Purchase and sell of animals	35.42	5	42.92	9	39.17	8
2	Caring of animals	37.92	2	46.25	7	42.08	2
3	Arrangement of fodder	32.92	7	47.92	3	40.42	6
4	Preparation of feed	32.92	7	47.50	5	40.21	7
5	Milking	33.33	6	49.17	1	41.25	5
6	Selling milk and products	29.58	9	47.92	3	38.75	9
7	Repair of animal shed	37.08	3	47.08	6	42.08	2
8	Cleaning of animal shed	40.83	1	45.42	8	43.13	1
9	Animal grazing	35.83	4	48.33	2	42.08	2

At the overall level, the highest participation was recorded in *cleaning of animal shed* (MPS 43.13, Rank 1), followed by *caring of animals* (MPS 42.08, Rank 2*), repair of animal shed* (MPS 42.08, Rank 2) and *animal grazing* (MPS 42.08, Rank 2). These findings indicate that rural youth are highly engaged in routine, labour-intensive activities requiring daily attention and physical involvement. *Milking* secured the fifth rank (MPS 41.25), suggesting considerable youth

engagement in essential dairy operations. Moderate participation was observed in *arrangement of fodder* (MPS 40.42), *preparation of feed* (MPS 40.21) and *purchase and sale of animals* (MPS 39.17). The lowest participation was in *selling of milk and milk products* (MPS 38.75, Rank 9), highlighting limited youth involvement in marketing and commercial transactions.

Among tribal youth, the highest participation was found in *cleaning of animal shed* (MPS 40.83, Rank 1), followed by *caring of animals* (MPS 37.92, Rank 2) and *repair of animal shed* (MPS 37.08, Rank 3). These results indicate that tribal youth are primarily engaged in routine, hygiene-related and maintenance tasks. Activities involving decision-making or financial responsibility showed lower participation, such as *selling of milk/products* (MPS 29.58, Rank 9), *arrangement of fodder* (32.92, Rank 7), and *preparation of feed* (32.92, Rank 7). This suggests that tribal youth remain more focused on labour-based livestock management rather than commercial aspects of dairy farming.

In contrast, non-tribal youth exhibited considerably higher participation across most activities. The highest involvement was recorded in *milking* (MPS 49.17, Rank 1), followed by *animal grazing* (MPS 48.33, Rank 2), *arrangement of fodder* (MPS 47.92, Rank 3) and *selling of milk/products* (MPS 47.92, Rank 3). Non-tribal youth also showed substantial engagement in *preparation of feed* (47.50) and *repair of animal shed* (47.08). These trends reflect greater involvement in activities linked to income generation, market interaction and dairy enterprise management, likely due to better resource access, improved advisory linkages and greater integration with formal dairy systems.

A comparison between tribal and non-tribal youth revealed considerable variation. Non-tribal youth recorded consistently higher MPS in most activities, particularly in milking (49.17), animal grazing (48.33), fodder arrangement (47.92), selling of milk/products (47.92) and preparation of feed (47.50). This pattern suggests that non-tribal youth are more oriented toward dairy-based income generation and commercial livestock operations, likely due to greater exposure to organized dairy farming systems, better awareness of market channels and higher resource accessibility.

In contrast, tribal youth showed relatively higher initial participation in cleaning of animal shed (MPS 40.83), caring of animals (37.92) and repair of shed (37.08). This trend indicates that tribal youth are engaged more in routine and labour-based animal care activities rather than activities involving commercialization and financial decisions.

The analysis concludes that rural youth significantly participate in animal husbandry and dairy activities, with particularly high involvement in animal hygiene, feeding management and grazing-based operations. However, youth showed relatively lower interest in income-generating and marketing activities of dairy farming.

Non-tribal youth demonstrated substantially greater participation than tribal youth, reflecting the benefits of better resource access, institutional linkages, veterinary services and dairy commercialization in non-tribal regions. Tribal youth mainly support labour-oriented livestock tasks rather than enterprise-oriented activities.

These results are consistent with the observations of Verma *et al*. (2020) [10], Bhati & Meena (2022) [11, 14] and Koli *et al*. (2023) [12], who reported that youth involvement is highest in physical livestock management tasks, while marketing and commercial responsibilities are generally handled by senior family members.

Participation of rural youth in farm management

Participation of rural youth in farm management activities was assessed using Mean Per cent Score (MPS) and the results are presented in Table 5. The analysis demonstrated that youth contribute not only in routine agricultural operations but also in selected management-related decisions and supervision responsibilities.

Table 5: Participation of rural youth in farm management. (n= 240)

S. No.	Farm management	Tribal		Non-Tribal		Total	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Hiring of labour for field work	40.00	3	47.92	3	43.96	3
2	Supervision	30.83	6	49.17	2	40.00	6
3	Paying wages	37.50	4	46.25	5	41.88	4
4	Keeping record of field work	40.83	2	47.50	4	44.17	2
5	Buying of seeds	35.00	5	46.25	5	40.63	5
6	Cleaning of pathways & unwanted plants	41.25	1	55.42	1	48.33	1

At the overall level, the highest participation was recorded in *cleaning of pathways and unwanted plants* (MPS 48.33, Rank 1), followed by *keeping record of field work* (MPS 44.17, Rank 2) and *hiring of labour for field work* (MPS 43.96, Rank 3). These results indicate that youth play an important role in maintaining farm hygiene, documentation of agricultural tasks and labour coordination activities requiring responsibility and regular monitoring. Moderate participation was observed in *paying wages* (MPS 41.88, Rank 4), *purchase of seeds* (MPS 40.63, Rank 5) and *supervision of field activities* (MPS 40.00, Rank 6). While youth are engaged in various managerial functions, tasks involving financial decision-making, such as wage payment, appear to be partly influenced by senior family members, limiting their full autonomy.

Among tribal youth, the highest participation was seen in *cleaning of pathways and unwanted plants* (MPS 41.25, Rank 1), followed by *keeping record of field work* (40.83, Rank 2), *hiring of labour* (40.00, Rank 3) and *paying wages* (37.50, Rank 4). Tribal youth were moderately involved in *purchase of seeds* (35.00) and *supervision* (30.83), indicating that they contribute to supportive management functions but have relatively limited control over major decisions, especially those requiring financial accountability.

Non-tribal youth demonstrated significantly higher

participation across almost all farm management activities. Their highest involvement was noted in *cleaning of pathways and unwanted plants* (MPS 55.42, Rank 1), followed by *supervision* (49.17, Rank 2), *hiring of labour* (47.92, Rank 3) and *keeping records* (47.50, Rank 4). Moderate to high participation was also observed in *purchase of seeds* and *payment of wages* (MPS 46.25 each). These findings suggest that non-tribal youth possess greater managerial responsibility, enhanced decision-making power and more frequent involvement in administrative and financial aspects of farming.

A clear difference was observed between tribal and non-tribal groups. Non-tribal youth recorded higher participation across all farm management dimensions, particularly in cleaning of pathways and unwanted plants (55.42), supervision (49.17), record keeping (47.50), hiring of labour (47.92) and purchasing seeds (46.25). This highlights their enhanced control over resource allocation, financial decision-making and labour administration.

On the contrary, tribal youth showed comparatively lower participation, although their highest involvement was found in cleaning of pathways and unwanted plants (41.25), keeping record of field work (40.83), hiring of labour (40.00) and paying wages (37.50). This pattern indicates that tribal youth are involved primarily in supportive management practices, while major financial decisions continue to be handled by elders.

These outcomes align with the of Kumar & Singh (2021) [13], Meena *et al*. (2022) [14] and Vashistha *et al*. (2023) [15], who reported that youth involvement in farm management is increasing, but complete autonomy in financial and operational decisions is yet to be institutionalized, especially among tribal households.

The results conclude that rural youth show meaningful participation in farm management activities, particularly in record keeping, supervising labour, maintaining cleanliness of farm premises and coordinating hired labour. This reflects an emerging managerial role of youth in agriculture, moving beyond traditional labour-based responsibilities.

However, the level of participation varies significantly across groups non-tribal youth exhibit higher involvement and decision-making power compared to tribal youth, largely due to better exposure to modern farming systems, market networks, financial literacy and institutional linkages. Tribal youth continue to assist in management activities but remain less involved in major decisions requiring financial accountability.

Conclusion

The present study provides a comprehensive understanding of the extent and pattern of participation of rural youth in agriculture and allied activities, encompassing crop production, vegetable cultivation, orchard management, animal husbandry and farm management. The findings clearly establish that rural youth play a significant and active role in agriculture, though their participation varies considerably across activities and social groups.

Overall, rural youth exhibited moderate to high participation in skill-based, technical and decision-oriented activities, such as input management, irrigation, plant protection, nursery and bed preparation, intercultural operations, record keeping and supervision. These activities are closely linked with productivity enhancement and economic returns, indicating a gradual shift of rural youth towards commercial, knowledge-intensive and market-oriented agriculture. Conversely, participation was relatively lower in labour-intensive, repetitive and drudgery-prone operations such as ploughing, clod crushing, thinning, transplanting, threshing and certain post-harvest operations, reflecting changing aspirations and work preferences among rural youth.

A marked difference was observed between tribal and non-tribal youth. Non-tribal youth consistently demonstrated higher levels of participation across most agricultural and management activities, particularly in input purchase, fertilizer management, marketing, dairy enterprise operations and farm management decisions. This higher involvement can be attributed to better access to resources, market exposure, institutional support, mechanization and decision-making autonomy. In contrast, tribal youth were more involved in routine, low-investment and labour-based activities, with limited participation in market-oriented and financially driven operations, highlighting persistent socio-economic and infrastructural constraints.

Participation in animal husbandry and dairy activities revealed that youth were highly engaged in routine animal care, hygiene, grazing and feeding practices, while involvement in marketing and income-generating activities remained comparatively low, especially among tribal households. Similarly, farm management participation indicated an emerging managerial role of youth, though full autonomy in financial decision-making is yet to be achieved.

The findings of the study are in consonance with earlier research, which underscores that rural youth tend to participate more actively in activities that offer economic incentives, technical learning and skill development, while showing limited interest in monotonous and physically demanding tasks.

In conclusion, the study highlights the untapped potential of rural youth as agents of agricultural transformation. Strengthening their participation requires focused policy interventions aimed at skill enhancement, access to credit and inputs, promotion of agripreneurship, market integration, mechanization and inclusive extension services, with special emphasis on tribal youth. Creating an enabling environment for youth-led agriculture will not only improve their livelihood opportunities but also contribute significantly to the sustainability, productivity and modernization of the agricultural sector.

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