Print ISSN : 0972-8813
e-ISSN : 2582-2780

[Vol. 24(1) January-April 2026]

Pantnagar Journal of Research

(Formerly International Journal of Basic and Applied Agricultural Research ISSN : 2349-8765)

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PANTNAGAR JOURNAL OF RESEARCH

Vol. 24(1) January-April, 2026

CONTENTS

Indian mustard: Phytoremediation tool for soil health management (Review) **1**
M.L. DOTANIYA, C.K. DOTANIYA, KULDEEP KUMAR, JAKIR HUSSAIN, R.K. DOUTANIYA, H.M. MEENA and MANJU LATA

From profile to problems: A study on socio-economic status and constraints of rural women in dairy farming **14**
ADITI PATHAK and ARPITA SHARMA KANDPAL

Diversification and intensification in rice–wheat cropping system for enhancing productivity under *Tarai* zone of Uttarakhand **20**
PESALA SANTHA KUMAR, DINESH KUMAR SINGH, SUBHASH CHANDRA, ROHITASH SINGH and AJEET PRATAP SINGH

Sensor based nitrogen application impact on productivity, economics and nutrient uptake in maize **25**
AMIT BHATNAGAR and AJAY KUMAR

Association of germination and seedling vigour attributes with green forage yield in oat (*Avena sativa* L.) genotypes through correlation and path coefficient analysis **31**
DEVYANI RAMOLA, AKRITI BALLABH SANSKRITI JOSHI, MANISH MEHRA and BIRENDRA PRASAD

Genetic divergence and yield trait impact in French bean (*Phaseolus vulgaris* L.) **43**
BHAWANA MAMGAIN, B.P. NAUTIYAL , S.C. PANT, VAISHALI THAPA, HEIGRUJAM RIYASANA and MAYANK

Arabic-gum based edible coatings preserving the post-harvest quality of Guava fruits **48**
ESHA TEWARI and OMVEER SINGH

Efficacy of catechol and plant growth regulators on the vegetative growth and flowering of African Marigold (*Tagetes erecta* L. cv. Pusa Narangi Gainda) **59**
SURYANSH SRIVASTAVA, AFSAR AHMAD, MD. RAMJAN and KHAN BILAL MUKHTAR AHMED

Host response of diverse pulse genotypes to root-knot nematode (*Meloidogyne incognita*) **67**
SAROJ YADAV, EKTA RATHORE and ANIL KUMAR

Effect of egg size on egg quality traits, fertility, hatchability and day-old chick weight **75**
ISLAM UDDIN SHEIKH, AZMAT ALAM KHAN, ARNAB JYOTI KALITA, SHEIKH ADIL HAMID, IRFAN AKRAM BABA, HENNA HAMADANI, BUSHRA ZAFFER and INSHA AFZAL

Pathomorphological studies on verminous pneumonia in a Gaddi goat **81**
SWASTI SHARMA, SONALI MISHRA and R.D. PATIL

Pathological findings in congestive heart failure in dog: A case report **85**
MUNISH BATRA and STUTI SINGH

Histopathological and haematological evaluation of the ameliorative effect of piperine on quinalphos-induced subacute toxicity in Swiss Albino Mice 89
PREETI SINGH, VINOD KUMAR, PREETI BAGRI and DEEPIKA LATHER

Phytochemical screening and antioxidant activities of locally available medicinal plants 99
PREETI BAGRI, VIJEYTA TIWARI, ARCHANA LOHIYA and VINOD KUMAR

Natural Farming Inputs (NFIs) as sustainable alternatives for enhancing the growth and development of Chickpea (*Cicer arietinum* L.) 108
SHAIFALI and A.K. SHARMA

Integrating Bayesian Calibration, Hierarchical Spatial Regression, and Structural–Temporal Models to Explain and Predict Wheat Yield in the Tarai–Bhabar Belt of Uttarakhand, India 114
NEHA BHATT and VINOD KUMAR

Phytochemical characterization and immuno-antioxidant potential of *Moringa oleifera* leaf extract in chicken lymphocytes 128
ANAMITRA RUJ, SONU AMBWANI and LATA PALIWAL

Biochemical changes associated with triclosan exposure in the freshwater fish *Cyprinus carpio* 140
MADHU SHARMA, YASHPAL, RIJUL RANA, DEEKSHA, DEEPIKA THAKUR and TARANG KUMAR SHAH

Assessment of awareness among respondents towards Pradhan Mantri Jan Dhan Yojana: A study in Haryana 148
MEGHA GOYAL, SUMAN GHALAWAT, MINAKSHI, ATUL DHINGRA and MINI

Youth perception and constraints in agri-entrepreneurship: A factor analytic study 156
JYOTI, SUMAN GHALAWAT, MEGHA GOYAL, NEELAM KAUSHAL, SUNIL KUMAR and VIKRANT HOODA

Design of Object Detection Model Using Deep Learning for Autonomous Driving in Adverse Weather Conditions: A GAN-Based Restoration and Depth-Aware Fusion Framework 165
MUMUKSHU BHATT, SUBODH PRASAD, RAJESH SINGH, ASHOK KUMAR and POOJA TAMTA

A novel mechanical purification approach for *Grewia optiva* Fibre-Reinforced epoxy composites: Effect of fibre geometry on structural performance 172
DEEPA SINGH , NEERAJ BISHT, TARUN KUMAR SAXENA and KAMAL RAWAT

Evaluating Long-Term rainfall and temperature trends across the Shipra River basin 184
POONAM SINGH, MOHAN LAL, DHEERAJ KUMAR, P. K. SINGH and GOVIND VERMA

Rainfall-runoff modelling using soft computing techniques for various watersheds of Madhya Pradesh, India 196
SEEMA KUSHWAHA and PRAVENDRA KUMAR

Prevalence and associated risk factors of functional constipation among the selected adult population of Pantnagar, U.S. Nagar, Uttarakhand, India 204
JYOTI SINGH, NEETU DOBHAL, ARCHANA KUSHWAHA, N.C SHAHI and SABBU SANGEETA

Tracking nutritional transitions: A comparative study of child malnutrition (0–5 years) trends across districts of Madhya Pradesh 212
SHALINI CHAKRABORTY

Determinants influencing tourist selection of rural tourism destinations using Garrett Ranking Technique: Evidence from Supi village, Uttarakhand 221
NEHA PANDEY and KAMAL UPRETI

https://doi.org/10.67063/pjr.vol.24.issue.01.20

Youth perception and constraints in agri-entrepreneurship: A factor analytic study

JYOTI*, SUMAN GHALAWAT, MEGHA GOYAL, NEELAM KAUSHAL[1], SUNIL KUMAR[2] and VIKRANT HOODA

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ABSTRACT: Agricultural entrepreneurship (Agripreneurship) has emerged as a critical pathway for rural youth employment, poverty reduction and national food security. Despite its transformative potential, youth perception in agri-entrepreneurship remains constrained by multifaceted barriers ranging from socio-psychological inhibitions to structural and institutional deficiencies. This study analyse various variables that affect the youth perception towards agri-entrepreneurship and key constraints that restricts the youth engagement and enterprise sustainability. Data were collected from 200 agricultural students using a structured questionnaire comprising of 50 statements-25 each for perception and constraints and factor analysis was employed for dimensionality reduction. The Kaiser-Meyer-Olkin (KMO) adequacy value of 0.816 and 0.716, confirmed sampling appropriateness. Factor analysis of youth perception yielded seven dimensions- Prospects of agriculture, management of production, Agri-entrepreneurship as a career, optimum utilisation of resources, success mantras, family involvement and modern technologies which collectively explains 63.54% of total variance. Similarly, seven constraint factors were identified, including Financial and institutional constraint, operational and marketing constraints, structural constraints, socio-psychological constraints, awareness and information gaps, household and resource constraints and enterprise development constraints accounting for 60.62% of total variance. The findings provide empirical evidence for targeted policy interventions, capacity building programmes and institutional reforms to foster sustainable agri-entrepreneurship among rural youth.

Key words: Agri-entrepreneurship, Agricultural constraints, Factor analysis, Youth perception

Agriculture continues to serve as the economic backbone for an important percentage of the world's population, particularly in developing nations. Over 42% of India's workforce is employed in this industry, which makes a significant contribution to the country's GDP. However, the continued existence of low farm incomes, dispersed landholdings, and little value addition has led to an increasing understanding of agri-entrepreneurship as a transformative instrument for improving rural livelihoods. The application of entrepreneurial concepts—risk-taking, innovation, resource mobilization, and market orientation—within the agricultural value chain is referred to as agri-entrepreneurship. By bridging the gap between primary production and commercial industry, it promotes improved food systems, job creation, and income diversification. The importance of youth-driven agricultural businesses in accomplishing the Sustainable Development Goals (SDGs), especially SDG 1 (No Poverty), SDG 2 (Zero Hunger), and SDG 8 (Decent Work and Economic Growth), has been emphasized by the World Bank and the United Nations Food and Agriculture Organization (FAO). Despite this promise, there is still a lack of actual data in the literature about young people's perceptions of agri-entrepreneurship and the barriers to their entry and success. Developing successful treatments requires an understanding of the attitudinal, perceptual, and structural aspects of youth inclination toward agricultural industries. For the previous 20 years, there has been a growing amount of scholarly interest in the relationship between youth attitudes and entrepreneurial intention in agriculture. The methodology developed by Krueger and Carsrud (1993), which has since been widely used in agricultural contexts, shows that entrepreneurial ambition is a function of perceived desirability and feasibility. Subsequent research by Linan and Chen (2009) operationalized this using the Theory of Planned Behavior (TPB), finding entrepreneurial attitude, perceived behavioral

control, and subjective norms as factors that influence entrepreneurial intent. Research has repeatedly shown that young people in developing economies view agriculture as less prestigious than jobs in the formal sector (FAO, 2014; Sumberg *et al*., 2012). However, more recent research from sub-Saharan Africa and South Asia documents a shifting paradigm, wherein access to technology, government support, and entrepreneurial role models positively influences youth engagement in agri-business (Lans *et al*., 2013; Agwu and Okhimamhe, 2009).

According to empirical research, the most commonly mentioned obstacles to the growth of agri-entrepreneurship are institutional barriers and financial access (Szirmai *et al.,* 2011.; Onu and Madukwe, 2009). These difficulties are made worse by ineffective marketing, inadequate infrastructure, and a lack of technical expertise (Igbokwe *et al*., 2007). Singh and Bhatt (2018) and Kumar *et al*. (2020) have documented socio-psychological barriers, such as low self-efficacy, risk aversion, and lack of social acceptance, in the Indian context. They found these factors to be just as important as structural constraints in preventing youth participation. The literature has verified the use of factor analysis in the investigation of entrepreneurial limitations and attitudes. Using principal component analysis, Mukherjee and Sen (2019) discovered five latent characteristics that influence rural youth in West Bengal's intention to pursue agricultural entrepreneurship. Rao and Swaminathan (2021) in Tamil Nadu have used similar methodological approaches, highlighting the strength of factor analytic methods for this field. Building on this methodological legacy, the current work broadens the scope to encompass a comprehensive dual-dimensional analysis of both limitations and perceptions.

The study's aims were to study the perception towards Agri-entrepreneurship of agricultural students from CCS HAU, Hisar and to identify the perceived barriers and anticipated constraints to entering agri-entrepreneurship among agricultural students.

MATERIALS AND METHODS

The study was conducted among students of CCS Haryana Agricultural University, Hisar. A total of 200 agriculture students, both form undergraduate (146) and post-graduate (54) courses, were chosen as respondents for the research. Purposive and convenience sampling facilitated focused data collection. A descriptive and analytical research design was adopted as it enables systematic collection and quantitative analysis of data to understand relationship between variables and predict outcomes. The responses were obtained through structured questionnaire consisted of 50 statements using 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Questionnaire consists of two parts, Part I consisted of 25 statements pertaining to youth perception toward Agri-entrepreneurship, operationalising dimensions such as career viability, resource management, technological adoption, and socio-economic prospects. Part II comprised 25 statements capturing constraints faced by Agri-entrepreneurs across financial, operational, structural, socio-psychological, and informational domains. Data were analysed using IBM SPSS Statistics (Version 26). Factor analysis technique was employed to ascertain the various dimensions and also to establish construct validity which facilitated in retaining items with significant factor loadings. Prior to factor extraction, sampling adequacy was assessed using the Kaiser-Meyer-Olkin (KMO) statistic and Bartlett's Test of Sphericity. Factors with eigenvalues exceeding unity (Kaiser's criterion) were retained. Cronbach's alpha coefficients were computed for each factor to assess internal consistency. Factor loadings of less than 0.40 were used to eliminate variables from interpretation.

RESULTS AND DISCUSSION

Youth perception towards agri-entrepreneurship

The 25 perception statements underwent factor analysis in order to determine latent factors influencing young people's inclination toward agri-entrepreneurship. The initial diagnostic tests

Table 1: KMO and Bartlett's test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.816
Bartlett's Test of Sphericity	Approx. Chi-Square	1858.13
	df	300
	Sig.	.000

indicated that information was suitable for factor analysis.

The KMO measure of sampling adequacy was 0.816, which significantly exceeded Kaiser's (1974) suggested criterion of 0.50 and showed that the correlation patterns were sufficiently compact to produce distinct and trustworthy factors. The factorability of the data was validated by Bartlett's Test of Sphericity, which yielded a chi-square value of 1858.130 (df = 300, $p < 0.001$), indicating that the observed correlation matrix was significantly different from an identity matrix.

According to Kaiser (1974), the factor analysis identified seven components with eigenvalues higher than 1.0. According to Hair *et al*. (2010), their initial solution's cumulative variance of 63.53% is deemed satisfactory in social science research. Varimax rotation improved the factor structure's interpretability by more fairly redistributing the variation among the seven factors, with individual contributions ranging from 6.37% to 11.70%.

Factor 1: Prospects of Agriculture

With the greatest eigenvalue (2.92) and an explanation of 11.70% of the variation, this factor was found to be the most significant dimension. It included five declarations about the creation of jobs, the reduction of poverty, raising living standards, the appeal of agricultural returns, and the contribution to the country's food security. The Cronbach's alpha of 0.793 demonstrated strong internal reliability, while factor loadings varied from 0.498 to 0.775.

Factor 2: Management of Production

The second factor (eigenvalue = 2.50; variance = 10.03%; ± = 0.693) included opinions about the effective use of inputs, dependence on a variety of raw material sources, and the contribution of high-tech machinery to productivity. The range of factor loadings was 0.620 to 0.753.

Factor 3: Agri-entrepreneurship as a Career

This component (eigenvalue = 2.39; variance = 9.59%; ± = 0.767) covered young people's views of agriculture as a respectable and fulfilling career path, including the sense of government assistance, business opportunity recognition, and entrepreneurial self-efficacy. 0.588 to 0.792 was the range of loadings.

Factor 4: Optimum Utilisation of Resources

Opinions about the significance of training and mentorship, cost control through optimal input determination, and methodical planning were reflected by factor 4 (eigenvalue = 2.33; variance = 9.31%; ± = 0.714). The factor loadings ranged from 0.545 to 0.796.

Factor 5: Success Mantras for Agri-entrepreneurship

Statements about transportation, storage, maintenance practices, and the advantages of business location were included in this factor

Table 2: Total Variance explained

Comp.	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% Var.	Cum. %	Total	% Var.	Cum. %
1	6.906	27.625	27.625	2.925	11.700	11.700
2	1.919	7.677	35.301	2.508	10.031	21.730
3	1.791	7.162	42.464	2.399	9.595	31.326
4	1.521	6.086	48.550	2.330	9.319	40.645
5	1.363	5.454	54.003	2.123	8.491	49.136
6	1.292	5.169	59.172	2.007	8.027	57.163
7	1.091	4.364	63.536	1.593	6.373	63.536

(eigenvalue = 2.12; variance = 8.49%; ± = 0.768). The factor loadings ranged from 0.548 to 0.826.

Factor 6: Family Involvement

Factor 6 (eigenvalue = 2.01; variance = 8.02%; ± = 0.666) included labor availability, waste minimization, and family experience. The loadings fell between 0.580 to 0.773. This component shows how intergenerational knowledge transfer and household social capital are crucial for the development and long-term viability of agribusinesses.

Factor 7: Modern Technologies

The seventh factor (eigenvalue = 1.59; variance = 6.37%; ± = 0.489) indicated the intention to invest in technical advancement and a favourable view of agriculture as a career. This factor might benefit from more measurement items to increase scale reliability, according to the lower alpha value. However, a significant weakness of the study is the relatively low reliability coefficient (± = 0.489), indicating that the construct's internal consistency is weak and that the results pertaining to this aspect should be evaluated cautiously.

Constraints faced by Agri-entrepreneurs

The different issues and restrictions that agri-entrepreneurs encounter when launching and running their businesses are referred to as constraints. To determine the main underlying restrictions, factor analysis was used to analyze the responses. Factor analysis made it easier to comprehend the connections between the assertions and to reduce a huge quantity of variables into a condensed set of significant factors. Seven significant characteristics that reflect important obstacles faced by agri-entrepreneurs were identified by the investigation. Based on the nature of statements, these factors were appropriately named as financial, technical, marketing, infrastructural, institutional, personal, and information-related constraints

The Kaiser-Meyer-Olkin (KMO) value was 0.761, this exceeds the 0.50 minimum allowed threshold, demonstrating that the sample size was sufficient for factor analysis. Bartlett's Test of Sphericity was significant ($Ç^2 = 1658.144$, $p < 0.05$), indicating that the correlation matrix is not an identity matrix.

Eight components with eigenvalues exceeding 1.0 were initially extracted; however, Factor 8 comprised only a single statement (grading and packaging knowledge; loading = 0.794; variance = 5.03%) and was therefore excluded from further analysis in accordance with the parsimony principle of factor interpretation (Hair *et al*., 2010). The retained seven factors cumulatively explained 60.62% of total variance, an acceptable proportion for attitudinal and behavioural survey data in the social sciences.

Factor 1: Financial and Institutional Constraints

This component was responsible for the highest percentage of constraint variance (11.30%; eigenvalue = 2.82; ± = 0.762), encompassing limited awareness of government subsidies, prohibitive bank interest rates, procedural complexity in loan acquisition, poor entrepreneur economic status, and institutional malpractices. The loadings were between 0.475 to 0.807.

Factor 2: Operational and Marketing Constraints

According to Factor 2 (eigenvalue = 2.40; variance = 9.62%; ± = 0.734), the main operational challenges were expensive labor, unpredictable raw material supply, insufficient market expertise, and defects in distribution channels. The loadings were between 0.559 and 0.835.

Factor 3: Structural Constraints

This factor (eigenvalue = 2.38; variance = 9.52%; ± = 0.739) represented shortcomings in the market infrastructure, such as inadequate storage, inadequate seed systems, and malpractices. The range of factor loadings was 0.657 to 0.739.

Factor 4: Socio-psychological Constraints

Factor 4 (eigenvalue = 2.06; variance = 8.24%; ± = 0.723) represented low self-efficacy, restricted social acceptance, poor risk-taking ability, and weak persuasive communication abilities. The loadings

were between 0.732 and 0.776.

Factor 5: Awareness and Information Gaps
This factor (eigenvalue = 2.01; variance = 8.03%; ± = 0.637) included discrimination based on gender, poor self-confidence, and insufficient understanding of business opportunities. The loadings were between 0.681 and 0.722.

Factor 6: Household and Resource Constraints
Factor 6 (eigenvalue = 1.85; variance = 7.43%; ± = 0.683) represented the limiting impact of delayed receivables, land fragmentation, and familial non-support. The range of loadings was 0.582 to 0.797.

Factor 7: Enterprise Development Constraints
Deficient entrepreneurial ecosystems and fierce market competition were reflected by the last factor (eigenvalue = 1.61; variance = 6.45%; ± = 0.696). The loadings were between 0.526 to 0.803.

The results on how young people view agri-entrepreneurship show a complex and increasingly opportunity-focused perspective, with the "prospects of agriculture" emerging as the most significant

Table 3: Rotated factor matrix and factor interpretation

Factor Name	Statement	Loading	Eigen Value	α	Var. %
Prospects of Agriculture	Agripreneurship creates employment	.775	2.92	.793	11.70
	Agriculture helps in poverty eradication	.743			
	Agripreneurship helps to improve standard of living	.636			
	Returns in agriculture are attractive	.630			
	Can contribute to national food security	.498			
Management of P roduction	Profit is maximized when vital inputs or raw materials are used or managed properly.	.753	2.50	.693	10.03
	One should rely on numerous raw material sources to ensure timely output.	.732			
	Modern production equipment increases the likelihood of success.	.620			
Agri-entrepreneurship as Career	I believe agriculture offers many business opportunities for young entrepreneurs	.792	2.39	.767	9.59
	Agri-entrepreneurship is an attractive career option for agriculture students	.745			
	I feel confident that I can succeed in Agri-entrepreneurship	.716			
	Government programs and financial support encourage me to consider Agri-entrepreneurship	.588			
Optimum Utilisation of Resources	Timely planning, execution and control ensures success for the business	.796	2.33	.714	9.31
	Finding the raw material requirement reduces the production cost	.687			
	Critical inputs should be used to the extent necessary	.642			
	Access to training, mentorship and technology influences decision to start an Agri enterprise	.545			
Success Mantras for Agri-entrepreneurship	The success percentage is increased when transportation is available	.826	2.12	.768	8.49
	Storage facilities improve success rate	.732			
	Proactive maintenance policy is a must for success	.550			
	The success rate is increased when a business unit is located well	.548			
Family Involvement	Experience or family involvement in agriculture attracts me towards Agri-preneurship	.773	2.01	.666	8.02
	To guarantee success, there should be as little waste of raw materials as possible.	.751			
	Easy to meet labour requirement in Agripreneurship	.580			
Modern Technologies	Agriculture profession is admirable	.774	1.59	.489	6.37
	I am likely to invest in modern agricultural technologies	.565			

Table 4: KMO and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.761
Bartlett's Test of Sphericity	Approx. Chi-Square	1658.144
	df	300
	Sig.	.000

factor influencing entrepreneurial desire. According to current research, agribusiness is a potential route for rural transformation and livelihood diversification, and this suggests that youth engagement is primarily motivated by expectations of income production, employment creation, and contributions to food security (Food and Agriculture Organization, 2022; World Bank, 2019). The prominence of production management and resource optimization further reflects a shift toward a business-oriented mindset, where efficiency, planning, and technological adoption are increasingly recognized as critical success factors. This is consistent with contemporary agribusiness literature emphasizing the integration of managerial competencies and innovation for enhancing farm productivity and competitiveness (Shepherd *et al*., 2018). Furthermore, the strong loading of agri-entrepreneurship as a career option supports the ideas of the Theory of Planned Behavior by highlighting the influence of institutional support, policy incentives, and self-efficacy in forming entrepreneurial intents (Ajzen, 1991). As also noted in recent studies on youth engagement in agriculture, the impact of infrastructural facilities, family involvement, and strategic resource utilization highlights how entrepreneurial decisions are embedded within both external enabling environments and socio-cultural contexts (Yami *et al*., 2019; Sumberg *et al*., 2021). Although the technology-related dimension exhibited relatively lower reliability, its inclusion signals an emerging transition toward digital and precision agriculture, reflecting global trends in smart farming and ICT-enabled agribusiness systems (Klerkx *et al*., 2019). The study emphasizes that agri-entrepreneurs function within a complex ecosystem that is marked by institutional, operational, financial, and behavioural limitations from the standpoint of constraints. Recent research on credit market flaws in developing economies is supported by the predominance of institutional and financial barriers that limit entrepreneurial entry and growth, such as low awareness of government programs, high credit costs, and procedural inefficiencies (Beck & Demirgüç-Kunt, 2018; International Fund for Agricultural Development, 2021). Inefficiencies in agricultural value chains that raise transaction costs and lower firm viability are further reflected in operational and marketing constraints, such as high labor costs, erratic input supply, and inadequate market linkages (Barrett *et al*., 2022). Systemic constraints that impede productivity and competitiveness continue to exist due to structural issues such insufficient seed systems, inadequate storage facilities, and market malpractices. In line with self-efficacy theory and recent empirical data on youth entrepreneurship, socio-psychological obstacles—such as low self-confidence, risk aversion, and limited societal acceptance—highlight the significance of internal cognitive factors in entrepreneurial decision-making (Bandura, 1986; Naminse & Zhuang, 2018). Innovation and opportunity recognition are further hampered by information asymmetry and awareness gaps, which highlight the need for improved digital advisory platforms and extension systems (Aker, 2011).

Table 5: Total Variance Explained

Comp.	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% Var.	Cum. %	Total	% Var.	Cum. %
1	5.660	22.639	22.639	2.826	11.303	11.303
2	2.347	9.388	32.026	2.407	9.629	20.932
3	1.828	7.312	39.338	2.382	9.526	30.458
4	1.616	6.462	45.800	2.060	8.240	38.698
5	1.423	5.693	51.494	2.009	8.037	46.735
6	1.383	5.534	57.027	1.858	7.433	54.168
7	1.114	4.455	61.482	1.614	6.454	60.622
8	1.044	4.174	65.657	1.259	5.034	65.657

Table 6: Rotated Factor Matrix and Factor Interpretation

Factor Name	Statement	Loading	Eigen Value	α	Var. %
Financial and Institutional Constraints	Lack of awareness about Govt. support and subsidies	.807	2.82	.762	11.30
	High interest rates of banks	.761			
	Time-consuming process for applying loans from financial institutions/govt. agencies	.691			
	Poor economic status of entrepreneurs	.645			
	Prevalence of malpractices in offices and delay tactics by concerned officials	.475			
Operational and Marketing Constraints	Costly labour in the market	.835	2.40	.734	9.62
	Irregular supply of raw material	.677			
	Lack of knowledge about target market	.651			
	Inappropriate distribution channel for finished goods	.559			
Structural Constraints	Malpractices in markets	.739	2.38	.739	9.52
	Lack of knowledge about seed treatment	.720			
	Lack of HYV seeds	.712			
	Lack of storage facility	.657			
Socio-psychological Constraints	Low convincing power	.776	2.06	.723	8.24
	Low risk bearing ability	.764			
	Lack of acceptance by society	.732			
Awareness and Information Gaps	Lack of awareness about different business avenues	.722	2.01	.637	8.03
	Lack of self-confidence	.693			
	Gender discrimination affects business	.681			
Household and Resource Constraints	Lack of family support and small land holdings	.797	1.85	.683	7.43
	Agriculture is not a clean job	.780			
	Delayed payments of bills	.582			
Enterprise Development Constraints	Lack of entrepreneurial environment	.803	1.61	.696	6.45
	High competition in market	.526			

Furthermore, land fragmentation and a lack of family support are examples of household-level limitations that continue to influence the viability of entrepreneurship in rural areas (Chand, 2017). All things considered, these results highlight the necessity of coordinated policy interventions that concurrently address structural shortcomings, strengthen institutional support, expand access to knowledge and funding, and cultivate an environment that is favorable to entrepreneurship for the growth of sustainable agribusiness.

CONCLUSION

This study adds to the empirical literature on young agri-entrepreneurship by offering factor-analytically confirmed evidence on the multifaceted barriers to enterprise development as well as the perceptual drivers of participation. Robust diagnostic statistics (KMO > 0.76; Bartlett $p < 0.001$) supported the dual-phase factor analysis, which produced theoretically coherent factor structures that explained more than 60% of variance in both domains. According to the perception analysis, young people have a positive opinion of agri-entrepreneurship because of its ability to create jobs and reduce poverty. The viability of a career, the effectiveness of resources, and the state of technology are other important factors. These findings suggest that communication strategies that emphasize the social and economic advantages of agricultural production can alter the opinions of teenagers. The multi-layered nature of barriers to involvement in agri-entrepreneurship is highlighted by the constraint analysis. Operational-marketing inefficiencies and structural infrastructure deficiencies accompany financial and institutional constraints. Socio-psychological obstacles represent a unique and important cluster of constraints, suggesting that supply-side financial and market interventions must be accompanied with demand-side enterprise assistance. The following policy recommendations are put forth in light of these findings: financial inclusion programs should prioritize raising awareness in addition to providing

credit to fill information gaps; rural infrastructure investment should include cold chain logistics, regulated warehousing, and market connectivity; enterprise simulation, risk management, and market orientation modules should be included in entrepreneurship curricula in agricultural education institutions; gender-sensitive extension services should be reinforced to lower discriminatory barriers; and public-private The establishment of agribusiness incubation platforms is necessary to support the entrepreneurial ecosystem. Longitudinal designs, structural equation modeling (SEM) to determine causal pathways, and comparison studies across agro-ecological zones to evaluate contextual heterogeneity in limitations and perceptions should all be used in future research to expand this work.

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Received: April 13, 2026
Accepted: April 23, 2026