

CHALLENGES HINDERING AGRI-STARTUPS IN TELANGANA: TACKLING KEY CONSTRAINTS

Sreeja Reddy¹, Somasekaran Subash² and M. C. A. Devi³

¹ PhD Scholar, ICAR-IARI, New Delhi- 110012

² Senior Scientist, ICAR-NDRI, SRS, Bangalore- 560030

³ Principal Scientist, ICAR-NDRI, SRS, Bangalore- 560030

Email- subashagri@gmail.com

ABSTRACT

Agri-Startups focus on integrating technology into agriculture, horticulture, and aquaculture to boost profitability, efficiency, and productivity. These startups offer products, services, or applications that enhance various agricultural processes from input to output. The transformation of Indian agriculture is increasingly linked to adopting digital technologies and platforms. Government initiatives are centered on fostering startup growth and advancing the agricultural sector. Enhanced profitability in the sector has attracted aspiring entrepreneurs due to factors such as ease of doing business, increased budget allocations, regulatory changes, infrastructure improvements, and targeted strategies. As interest grows, more people are exploring solutions to the sector's diverse challenges. This study selected 53 Agri-Startups through a multistage stratified random sampling method. Primary data was collected on the constraints faced by these startups using a semi-structured interview schedule and analyzed with the garrett ranking method. Key challenges reported by entrepreneurs included insufficient government incentives, limited scalable technologies for commercialization, inadequate knowledge of marketing strategies, and difficulty in securing investors or funding.

Keywords: agri-tech, constraints, entrepreneurs, garrett ranking, startup

INTRODUCTION

Agri-Startups have emerged as a result of a recent wave of innovation and entrepreneurial activity in the agriculture sector (Ganga and Roshni., 2022; Patel et al., 2023). These innovative projects aim to improve productivity, transform conventional farming methods, and tackle urgent global issues like sustainability and food security (Sagar et al., 2023). Agri-Startups have the capacity to change the world and are a source of optimism, but they also face numerous challenges along the way (Ekhande and Suradkar., 2023). Throughout the agriculture value chain, there are numerous tiers of middlemen and intermediates, and Indian agribusiness is still primarily unstructured and disorganised. Small and marginal farmers are the main suppliers of food and nutrition to the nation, and this industry is extremely fragmented and disorganised (Deshmukh and Raj, 2021). One of the biggest Startup ecosystems in the world is in India, which supports about 226644 Startups in industries like IT, banking, and services (Startup India, 2021). Since 2015, India's Startup ecosystem has progressively developed as businesses have broadened their focus to encompass a variety of economic sectors and embraced technological innovation to address the country's particular difficulties. India ranks 63rd in terms of 'ease of doing business' (World Bank, 2022). The rise of Agri-Startups is driving a fundamental revolution in the

agriculture industry, which is known for its perseverance and embedded customs (Foster et al., 2013). These tech-agriculture hybrid businesses have the potential to completely change the face of agriculture in the twenty-first century by utilising cutting-edge techniques, sustainable methods, and a dedication to solving the most important issues confronting the world's food systems (Shaikh, F. F., 2019). Since 2015, the Indian startup ecosystem has steadily matured by shifting its attention to different economic sectors in order to address national concerns through technology advancements (Vijayan and Shivkumar, 2020). In this study, we explore the complex limitations that agri-startups must overcome in order to understand the particulars that influence their path towards success. These limitations, which range from institutional complexity to personal hazards, financial restrictions to technological obstacles, throw a heavy shadow over the goals of agri-entrepreneurs. Comprehending and managing through these obstacles is essential for the startups themselves as well as the more general objective of transforming the agriculture industry (Pal and Misra, 2016). Understanding and recognising the obstacles that agri-startups must overcome is not just a theoretical endeavour; rather, it is essential to determining how agriculture will develop in the future. These limitations act as checkpoints, pointing out places in need of assistance, creativity, and legislative changes. As we work

through the difficulties that agri-entrepreneurs encounter, we not only learn more about the complexities of their path but also add to the conversation about sustainable agriculture, food security, and how technology will affect our world's food systems in the future (Machapathri *et al.*, 2024).

OBJECTIVE

To know the challenges hindering agri startups and tackling key constraints

METHODOLOGY

The present study was conducted in Telangana State which has 526 agri-startups, the sectoral breakup of agriculture startups has 264 agri-tech startups, 21 dairy farming startups, 91 organic agriculture startups, 7 animal husbandry startups, 8 fisheries startups, 15 horticulture startups, 63 food processing startups and 57 other allied startups (Startup India, 2022). For the present study, a multistage stratified random sampling method was used, in which sampling was conducted at several stages from various strata. In this instance, 10 per cent of a random sample was chosen at each stage and each sector. A total of 53 agri startups were chosen at random by multistage stratified sampling from a total of 526 Agri-Startups by categorizing the agri-startups according to their current stage of operation (53) and sector (53) of the product or service they were providing. A well-planned semi structured interview schedule was used to gather the primary data for the current study from the agri-startup entrepreneurs. The information was gathered concerning the constraints faced by the agri-startups, in which the constraints were divided into four categories namely, financial, technical, institutional and personal constraints. The collected data were coded and tabulated for statistical analysis by using garrett ranking method.

Constraints related to financial aspects

Table 1: Financial constraints faced by agri-startup entrepreneurs

(n=53)

Sr. no.	Financial constraints	Percent position = $100(R_{ij}-0.50)/N_j$	Garrett Value	Rank
1	Inadequate incentives provided by the government	19	47.87	1
2	High GST taxes	39	46.92	2
3	Inadequate financial support by the investors	59	39.19	3
4	High rate of interest	79	38.85	4
5	Lack of collateral security	99	37.17	5

It is evident from Table 3.1 that the inadequate incentives provided by the government was perceived as the most important constraint and was ranked first with a score of 47.87. High GST taxes was perceived as second most serious constraint with a score of 46.92. Likewise, inadequate

Garrett Ranking

The respondent's individual preferences about various aspects were ranked using the garrett ranking approach (1969). In accordance with this, respondents were asked to rank all under various criteria. Next, using the formula below, the ranking result was translated into a score value:

$$\text{Percent position} = \frac{100 (R_{ij} - 0.50)}{N_j}$$

Where,

Rij = Rank given for ith item by jth individual

Nj = Number of items ranked by jth individual

For each agri startup entrepreneur, the percentage of rank for a single constraint was added to the overall percentage position. By dividing the total per cent position for the add-up assessment for an essential by the total number of responses, the calculation was made. At that time, the typical per cent position was converted to scores by referencing the transmutation table provided by garret. Using the mean score following the transmutation of the order of merit, the limitations were finally ranked according to their respective priority.

RESULTS AND DISCUSSION

A semi-structured interview schedule was used to question the respondents directly in order to find out about the constraints that they encountered. Four categories—financial, technological, institutional, and personal—comprise the primary constraints that Agri-Startup entrepreneurs face. These major constraints were identified and prioritized as follows:

financial support by the investors was perceived third most important constraint with 39.19, high rate of interest was perceived to be at fourth rank with 38.85, and lack of collateral security was perceived as least important constraint among financial constraints. This may be because startups frequently

have limited resources, and paying high taxes can have a big negative effect on their cash flow. Additionally, early-stage businesses that might not have turned a profit may find it more difficult to bear the tax burden of GST. Startups need a lot of money for growth, development, and research. They may find it more difficult to make investments in hiring, expanding their workforce, and innovation if a sizable amount of their income is diverted to taxes. The development of startups might be impeded by stringent regulations and administrative barriers. It could be challenging for entrepreneurs to navigate the regulatory environment if government policies are not designed to encourage the distinctive qualities of startups. It's possible that some entrepreneurs are unaware of all the government incentives that are available or how to apply for them. Enhanced outreach and awareness initiatives can assist new businesses in utilising current assistance programmes (Pendram *et al.*, 2021). During the early stages of their existence, startups frequently incur losses as they concentrate on developing their products and breaking into new markets. High taxes can have an adverse effect on startup's sustainability by extending the time it takes for them to turn a profit. Governments can deal with these problems by creating and enforcing laws that encourage an environment that is favourable to entrepreneurs. This could involve programmes to encourage innovation and entrepreneurship, streamlined regulatory procedures, and targeted tax incentives. Furthermore, constant communication between government organisations and the startup community might aid in recognising and resolving new issues. The findings are similar to the findings of the study reported by Sindhu *et al.*, (2022) and Aneesha *et al.*, (2023).

Constraints related to technical aspects

From the data presented in the Table 3.2 it can be noted that inadequate scalable technologies for commercialization was perceived as the most important

constraint ranked first with a score of 47.70, high cost of technologies was perceived as second most serious constraint with a score of 40.79, inadequate access to latest technologies was perceived third most important constraint with 40.64, lack of technical know-how was perceived to be at fourth rank with 40.38, and inadequate consultancy and mentoring services was perceived as least important constraint among technology constraints. This may be because startups frequently have tight operating budgets and might not have the money to invest in innovative, scalable technologies. Their ability to compete with more established businesses that have larger financial resources may be hampered by this disadvantage. Modern technology can be difficult to use and maintain. Startups may find it difficult to successfully integrate and grow these technologies, particularly if they lack the necessary technical experience. Delays in product development and time-to-market may arise from this intricacy. It's possible that startups lack access to a pool of knowledgeable individuals with experience in cutting-edge technologies. Acquiring or developing personnel with the ability to operate cutting-edge technologies can be costly and time-consuming. It can be expensive to develop and maintain scalable technologies. Startup's finances are strained by the whole cost, which includes licencing fees, continuing maintenance, and software updates. Startups may be reluctant to spend money on cutting-edge technology because of the uncertainty around their impact and success. Fear of the uncertain or of failing could make one cautious, which could hinder creativity. Government assistance financial availability, cooperation with academic institutions, and the development of an environment that promotes the creation and use of scalable technologies may all be necessary to address these issues. Startups can also look into joint ventures and collaborations with well-established businesses, or they can use open-source solutions to help offset some of the expenses and difficulties involved in adopting new technologies. The results are in line with the findings of Kumar and Borbora (2019) and Jagannath (2020).

Table 2: Technical constraints faced by agri-startup entrepreneurs

(n=53)

Sr. no.	Technology constraints	Percent position $=100(R_{ij}-0.50)/N_j$	Garrett Value	Rank
1	Inadequate scalable technologies for commercialization	19	47.70	1
2	High cost of technologies	59	40.79	2
3	Inadequate access to latest technologies	39	40.64	3
4	Lack of technical know-how	79	40.38	4
5	Inadequate consultancy and mentoring services	99	39.34	5

Constraints related to institutional aspects

It is evident from Table 3.3 that a low level of knowledge about marketing strategies was perceived as the most important constraint ranked first with a score of 54.04,

procedural requirements by the government agencies was perceived as second most serious constraint with a score of 44.09, inadequate infrastructural facilities was perceived third most important constraint with a score of 42.89, lack

of databases for market intelligence was perceived to be at fourth rank with 40.94, inadequate transportation facilities was perceived fifth most important constraint with a score of 40.60, and inadequate market information was perceived as least important constraint among institutional constraints. This may be because due to their limited financial resources, startups may not prioritise employing proficient marketers or investing in marketing knowledge. This lack of resources may result in less-than-ideal marketing campaigns and make it more difficult for the firm to successfully connect with its target market. It can take a lot of time and effort to comply with government laws, taking time and focus away from important business operations. Regulatory updates and modifications can be difficult for startups to follow, which might result in non-compliance problems. Infrastructure is essential to the efficient running of enterprises. Unreliable or inadequate infrastructure, such as that for energy, transportation, and communication, might present difficulties

for startups. This may have an effect on their production, efficiency, and capacity to grow. Startups may be vulnerable to legal problems if they are not aware of the requirements and consequences of compliance with the law. This could result in fines, penalties, or even legal action, all of which could be harmful to the viability of a firm. startups can take advantage of mentorship programmes, educational materials, and networking opportunities that offer advice on marketing tactics and navigating regulatory procedures in order to overcome these obstacles. Additionally, governments can help foster a favourable atmosphere for startup growth by streamlining rules, endorsing marketing campaigns, and funding necessary infrastructure. Furthermore, joint initiatives including the public and private sectors as well as trade associations might aid in tackling these issues as a group. The results are in line with findings of Noorinasab *et al.*, (2016) and Santisteban *et al.*, (2021).

Table 3 : Institutional constraints faced by agri-startup entrepreneurs (n=53)

Sr. No.	Institutional constraints	Percent position = $100(R_i - 0.50)/N_i$	Garrett Value	Rank
1	Low level of knowledge about marketing strategies	16	54.04	1
2	Procedural requirements by the government agencies	33	44.09	2
3	Inadequate infrastructural facilities	49	42.89	3
4	Lack of databases for market intelligence	66	40.94	4
5	Inadequate transportation facilities	83	40.60	5
6	Inadequate market information	99	36.43	6

Constraints related to personal aspects

From the data presented in the Table 3.4 it can be deciphered that difficulty in attracting investors was perceived as the most important constraint ranked first with a score of 47.70, unable to identify and satisfy customer needs was perceived as second most serious constraint with a score of 44.66, Inadequate entrepreneurial education and training was perceived third most important constraint with 41.83, non-availability of trained manpower was perceived to be at fourth rank with 39.49, and low level of innovation capability was perceived as least important constraint among personal constraints. According to the study, the majority of agri-startups were at the ‘pre-seed’ stage of funding and were currently in the ‘ideation stage’ with few opportunities to obtain sufficient funding from investors (Sreeja *et al.*, 2023). As a result, most of them were dependent on their own savings during the early stages of their businesses. Investors frequently look for enterprises which have demonstrated traction, a confirmed business plan, and an obvious route to success. If they haven’t shown that there is a market for their good or service, startups may find it difficult to raise money. Startups may find it challenging to obtain funding

due to factors such as shifting investor preferences, market downturns, or economic uncertainty that impact the broader investment climate. Ineffective marketing tactics might make it harder for startups to reach their target audience. Creating a strong brand identity and delivering an engaging message are crucial for gaining new clients. It’s possible that entrepreneurs lack the requisite abilities in areas like strategy planning, team leadership, and financial management. This may result in inefficient operations and impede the expansion of the company as a whole. A risk-averse mentality could be exacerbated by a lack of entrepreneurial knowledge. In order to succeed in their commercial ventures, entrepreneurs must possess the abilities to manage uncertainty and take measured risks. An all-encompassing strategy that includes networking opportunities, educational initiatives, mentoring, and continuing assistance is needed to address these issues. Governments, business associations, and academic institutions can all contribute to the development of an atmosphere that helps startups flourish by giving them access to resources, opportunities for training, and finance. The results are in line with the findings of Bhaskar *et al.*, (2022) and Pal and Mishra, (2021).

Table 4 : Personal constraints faced by agri-startup entrepreneurs

(n=53)

Sr. no.	Personal constraints	Percent position = $100(R_i - 0.50)/N_j$	Garrett Value	Rank
1	Difficulty in attracting investors/funds	19	47.70	1
2	Unable to identify and satisfy customers' needs	79	44.66	2
3	Inadequate entrepreneurial education & training	59	41.83	3
4	Non-availability of trained manpower	39	39.49	4
5	Low level of innovation capability	99	36.32	5

CONCLUSION

In conclusion, there is no denying the optimistic outlook of the agricultural Startup environment, which is being propelled by creativity and a dedication to solving urgent issues in the agriculture industry. But there are certain limitations along the way that provide serious obstacles to these kinds of endeavours. One of the biggest challenges facing agribusiness entrepreneurs is financing accessibility. Due to the capital-intensive nature of agriculture and the high costs associated with infrastructure, technology, and trained labour, entrepreneurs frequently struggle to raise the money they need. Their capacity to grow, integrate cutting-edge technologies, and weather market swings may be hampered by a lack of funding. The potential advantages of agricultural startups are enormous, regardless of these limitations. The corporate sector, financial institutions, and governments must work together to overcome these obstacles. Governments can be crucial in streamlining rules, offering financial incentives, and encouraging agricultural research and development. Financial institutions must create customized financial products that address the particular requirements of agricultural businesses, and the private sector can help by investing, forming strategic alliances, and offering mentorship programmes. In conclusion, limitations are inevitable but they also present chances for cooperation and creativity. Equipped with resilience and responsiveness, agri-Startups have the potential to make a substantial impact on the agricultural sector's sustainable transformation, guaranteeing food security, promoting economic growth, and tackling global issues. The future seems promising for a flourishing ecosystem of agricultural entrepreneurs that can genuinely transform how we farm and support the environment as stakeholders come together to solve these limitations.

ACKNOWLEDGEMENT

The authors of this research study are thankful and acknowledging the help, support and co-operation from scientists of ICAR-National Dairy Research Institute, Karnal, Haryana and Division of Dairy Extension, NDRI-SRS, Bengaluru, Karnataka.

CONFLICT OF INTEREST

This is to declare that there is "No conflict of interest" among researchers.

REFERENCES

- Aneesha, K., Subash, S., Devi, M. and Sivaram, M. (2023). Constraints faced by agri-startups entrepreneurs in Andhra Pradesh State. *Indian Research Journal of Extension Education*, 23(5):8-12.
- Bhaskar, P., Girivasuki, K. and Vanaja, V. (2022). A study on challenges faced by entrepreneurs. *Journal of Positive School Psychology*, 6(10):3871-3879.
- Deshmukh, S., and Raj, S. (2021). Dawn of the Agri-Startups in India. *J. Ext. Educ.* 22(1):54-62.
- Ekhande, Y.S. and Suradkar, D.D. (2023). Regression Analysis of Entrepreneurial Behaviour of Sweet Orange Growers. *Guj. J. Ext. Edu.* 35(1):1-3
- Foster, G., Shimizu, C., Ciesinski, S., Davila, A., Hassan, S., Jia, N. and Morris, R. (2013). Entrepreneurial ecosystems around the globe and company growth dynamics. *World Economic Forum*, 11(2):1-36.
- Ganga, D. and Roshni, B. (2022). Socio-Economic Profile of Farmers Cultivated Gar-13 Variety of Rice. *Guj. J. Ext. Edu.* 33(1):30-32
- Jagannath, H. P. (2020). Street-level collaboration: perception, power, and politics on the frontlines of collaboration. *International Journal of Public Sector Management*, 33(4):461-476.
- Kumar, G., and Borbora, S. (2019). Institutional environment differences and their application for entrepreneurship development in India. *Journal of Entrepreneurship in Emerging Economies*, 11(2):177-199.
- Machapathri, P., Arun, S. and Sharma, M. L. (2024). A Scale to Measure Perception of Farmers About Agritech Startupfarmer Producer Organization Integration for Improved Extension Advisory Services. *Guj. J. Ext. Edu.* 37(1):46-51.

- Noorinasab, A., Seifabad, H. S. and Zarei, A. (2016). Problems Faced by Entrepreneurs to Start-up the MSMEs-A Case Study of Visakhapatnam City. *International Journal of Research in Management, Economics and Commerce*, 6(6):41-49.
- Pal, B., and Mishra, S. (2021). Success of Women Entrepreneurs: An Empirical Study on Indian Women Entrepreneurs. *Int J Psychosoc Rehabil*, 25(2):632-640.
- Pal, N. and Misra, S. (2016). Women entrepreneurship in India: Important for economic growth. *Int. J. Pure Appl. Sci.* 4(1):55-64.
- Patel, M. R., Vinaya Kumar, H. M. and Patel, J. B. (2023) A scale to measure attitude of youth towards agri startup programs. *Gujarat Journal of Extension Education*, 36(2):1-4. <https://doi.org/10.56572/gjoe.2023.36.2.0001>.
- Pendam, R.B., Thorat, K.S. and Patil, R.A. (2021). Relational Analysis of Profile of Chilli Growers and Technological Gap. *Guj. J. Ext. Edu.* 32(1).
- Sagar, G., Anand, B., Perumalla Varalaxmi, A. S. and Raj, S. (2023). The role of entrepreneurship in economic growth and development. *J. Surv. Fish. Sci.* 10(11):5940-5955.
- Santisteban, J., Mauricio, D. and Cachay, O. (2021). Critical success factors for technology - based startups. *International Journal of Entrepreneurship and Small Business*, 42(4):397-421.
- Shaikh, F. F. (2019). Start-up in India: Prospects, Problems and Plans. *Int. J. Pure Appl. Sci.* 11(1):48-56.
- Sindhu, S., Panghal, A. and Aggarwal, G. (2022). Factors driving ecopreneurs in India-an exploration. *International Journal of Entrepreneurship and Small Business*, 46(3):310-332.
- Sreeja, G., Subash, S., Pavithra, V., Jeevapriya, A., Gurusri, B. and manoj, S. (2023). Agri-Startups in Telangana State: Profile characteristics of Agri-startup entrepreneurs. *Int. J. Stat. Appl. Math.* 8(6):1214-1221.
- Startup India. (2021). Government Body. Retrieved from <https://www.Startupindia.gov.in/> (Accessed on 17 September 2022).
- Startup India. (2022). Government Body. Retrieved from <https://www.Startupindia.gov.in/> (Accessed on 28 September 2022).
- Vijayan, B. and Shivkumar, P. S. (2020). Pro-Agripreneurial Factors for the Formation of Agri-Startups in India. *Asian Journal of Agricultural Extension, Economics and Sociology*, 38(8):1-8.
- World Bank. (2022). *Agricultural innovation systems: An investment sourcebook*. Washington, DC: World Bank Group.

Received : October 2024 : Accepted : December 2024