



Factors Influencing Success of Incubatees of ANGRAU POSHAN Agribusiness Incubator in Tirupati

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Authors' contributions

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

Article Information

DOI: 10.9734/AJAEES/2024/v42i52407

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/114161>

Original Research Article

Received: 12/01/2024
Accepted: 16/03/2024
Published: 19/03/2024

ABSTRACT

The ANGRAU POSHAN Agribusiness Incubator was purposively selected for the research study (conducted in the year 2023) because it has a specific goal of nurturing agri-startups that are working towards improving the farming communities in the state of Andhra Pradesh and neighboring states. Ten successful incubatees trained at ANGRAU POSHAN agribusiness incubator was purposively selected for the study in the year 2023, based on category, product, service, R&D and achievements and case studies were recorded. The findings demonstrated that personal factors such as entrepreneurial intention, entrepreneurial capacity, social skills, alignment with personal values and achievement motivation play significant role in the success of agribusiness ventures and received mean scores of 3.0,2.9,2.9,2.9,2.9, respectively. Additionally,

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resilience, education level, passion for work, experience in the agriculture sector and access to formal and ICT sources of information contribute to entrepreneurial effectiveness and received mean scores of 2.8,2.7,2.7,2.6,2.6,2.6, respectively. The perception of agri-incubatees regarding the personal factors influencing their success is positive. While half of the incubatees (50.00%) rated these factors as moderate, nearly one third (30.00%) also considered them good.

The participants in this study highly valued psychological factors such as innovativeness, self-efficacy, risk-taking ability and the need for affiliation in their agribusiness endeavors. These factors received higher mean scores of 3.0,2.9,2.9,2.9, respectively when compared to resource mobilization, need for power and pro-activeness. These findings highlighted the significance of personal traits and motivations in driving success in the agri-business sector. The perception of incubatees regarding the psychological factors influencing their success is positive. While half of the incubatees rated these factors as 'moderate' (50.00%), a significant proportion also considered them high (40.00%).

Keywords: ANGRAU POSHAN agribusiness incubator; agri-startups; entrepreneurial factors; personal and psychological factors; success in agri-business.

1. INTRODUCTION

In recent years, a surge in educated youth's interest in India's agricultural sector has been fueled by innovative ideas and a desire to modernize traditional practices with cutting-edge technologies and business models. Start-ups have emerged as crucial catalysts, bridging gaps in the agricultural value chain and delivering efficient products, technologies and services to both farmers and consumers. Agri-business incubators play a vital role in supporting these agri-tech start-ups by providing funding channels, enterprise development support and enhanced business opportunities. By fostering market connections, reducing wastage, establishing sustainable logistics systems and assisting agri-tech start-ups, incubators shape innovative ideas into viable business models, contributing significantly to rural economic development and ensuring food security [1-5]. In India, the government, through initiatives such as the National Science and Technology Entrepreneurship Development Board (NSTEDB), actively promotes start-up growth, with a focus on recognizing the potential of innovations to bring about societal changes [6-10]. The Agri-Innovations and Entrepreneurship Development (AIED) Cell, operating since 2019 at the Regional Agricultural Research Station (RARS), ANGRAU, Tirupati, is a project supported by the Rashtriya Krishi Vikas Yojana (RKVY) of the GOI. ANGRAU POSHAN agribusiness incubator aimed to encourage innovations, entrepreneurship and businesses creation in agriculture sector through schemes such as SANKALP and SAMRIDDHI, creating a robust agri-startup ecosystem in Andhra Pradesh and neighbouring states such as Telangana,

Tamilnadu, etc [11,12]. These programs provide opportunities for individuals in agri and allied sectors to work on innovative ideas, from development to commercialization, with support from industry experts, mentors, and funding institutions under one roof at the ANGRAU POSHAN Agribusiness Incubator. Mohan and Chinchwadkar [13] in their research on Technology Business Incubation stated the vital role incubators play in the entrepreneur and innovation eco system by providing resources and services for the development of start-ups. Furthermore, this study had the objectives of documenting case studies of five successful start-ups; in-depth study of 10 successful agri-incubatees and assess their best management practices; and to study the factors influencing success of the agri-incubatees incubated by ANGRAU POSHAN incubator.

2. MATERIALS AND METHODS

This study conducted in the year 2023 employed a descriptive research design to achieve its objectives. Purposive sampling technique was employed for the selection of sample agri-startups (10 number) in the in the study. The ANGRAU POSHAN Agribusiness incubator was purposively selected for the research study because it has a specific goal of nurturing agri-startups that are working towards improving the nutritional outcomes of farming communities in the state of Andhra Pradesh since 2019. Out of 40, ten successful incubatees trained at ANGRAU - agribusiness incubator were purposively selected based on the criteria of the start-up's innovation, turnover and achievements.

For assessing the personal factors, an interview schedule was developed with 14 factors. The

personal factors was analysed using through a three-point rating scale. 'Agree' statement was rated with a three score (3), 'Can't say' statement was rated with two score (2) and 'Disagree' statement was rated with one score (1), respectively. The personal factors encompassed aspects such as entrepreneurial capacity, entrepreneurial intention, resilience, social skills, education level, experience in the agriculture sector, personal ethics, leadership skills, locus of control, motivation, passion for work, formal, informal sources and ICT sources of information. Scores, ranging between 0 and 42, were summated and mean values arranged in a descending order.

Similarly, psychological factors were evaluated through an eight-factor interview schedule, including self-efficacy, Innovativeness, risk-taking ability, pro-activeness, resource mobilization, need for achievement, need for power and need for affiliation. Scores, ranging from 0 to 24, were summated and means were arranged in descending order.

The overall perception of agri-incubatees is assessed based on a scoring system categorized them into three levels: low, moderate, and high. Those falling below the mean minus standard deviation are classified as Low, indicating a performance level below the average. The Moderate category includes individuals whose scores range from the mean minus standard deviation to the mean plus standard deviation, representing a moderate level of performance. Those with scores above the mean plus standard deviation are placed in the high category, indicating an above-average level of performance. This categorization helps to evaluate the overall perception of personal and psychological factors influencing success of agri-incubatees.

Primary data was gathered through a structured interview schedule from the incubatees, ensuring cooperation and response accuracy. Descriptive statistics were then computed for the primary data and the results were analysed.

3. RESULTS AND DISCUSSION

3.1 Personal Factors Influencing Success of Agri-Incubatees of ANGRAU Agribusiness Incubator

From the Table 1, it is evident that the agri-incubatees generally possessed a strong

entrepreneurial intention (mean score = 3) and believed it to be a driving force behind their determination to kickstart and successfully manage their start-ups. This factor received the highest mean score and ranked I indicating its significance. Raju [14] reported that nearly two-third of the respondents (67%) had high decision making ability about their enterprise. Garima et al. [15] reported that effective leadership is the most important factor identified by the first generation agri-preneurs for managing agri-business.

The next four factors, namely entrepreneurial capacity (mean score = 2.9), social skills (mean score = 2.9), alignment with personal values (mean score = 2.9) and achievement motivation (mean score = 2.9) shared the same mean score of 2.9 and ranked II. This suggested that the respondents consider these factors equally important in their agribusiness endeavor after entrepreneurial intention. Entrepreneurial capacity encompasses the ability to identify opportunities, take calculated risks and make sound decisions, while social skills involve building and maintaining relationships with stakeholders and consumers. 'Alignment with personal values' indicated that the agribusiness is in accordance with the respondents ethical and moral principles. 'Social skills' are a contributing factor for designing marketing strategies that are fast and outreach many consumers simultaneously and it is noted that majority of the agri-incubatees (90.00%) agreed that the social skills were necessary. The factor of achievement motivation (mean score = 2.9) also ranked II, reflecting its significance in driving the respondents to set high standards for excellence in their agribusinesses. In case of a successful agri-business one needs consistent achievement motivation in the form of product success in the market and ninety percent of the agri-incubatees 'agreed' for the need of motivation.

Resilience (mean score = 2.8) emerged as the III ranked factor, highlighting its importance in enabling individuals to bounce back from setbacks and challenges. This factor contributed significantly to navigating the ups and downs of running an agribusiness. Only 20 percent of the respondents felt that they are not sure of their resilience trait.

Education level (mean score = 2.7) and passion for work (mean score = 2.7) shared the same mean score and ranked IV. The respondents

Table 1. Personal factors influencing success of agri-incubatees of ANGRAU Agribusiness incubator (n=10)

S.No.	Factor	Agree (3)		Can't say (2)		Disagree (1)		Total score	Mean	Rank
		f	S	f	S	f	S			
1	I have a strong entrepreneurial intention, which drove my determination to start and successfully manage my agribusiness	10	30	0	0	0	0	30	3	I
2	My entrepreneurial capacity, including my ability to identify opportunities, take calculated risks, and make sound decisions	9	27	1	2	0	0	29	2.9	II
3	I have social skills to help me build and maintain relationships with stakeholders and customers.	9	27	1	2	0	0	29	2.9	II
4	My agri-business aligns with my personal values, ethical and moral principles.	9	27	1	2	0	0	29	2.9	II
5	My achievement motivation drives me to set high standards for excellence in my agribusiness.	9	27	1	2	0	0	29	2.9	II
6	My resilience enables me to bounce back from setbacks and challenges, and it plays a crucial role in my ability to navigate the ups and downs of my agribusiness	8	24	2	4	0	0	28	2.8	III
7	My education level, both formal and informal, provides me knowledge and skills necessary to understand and excel in the agribusiness.	8	24	1	2	1	1	27	2.7	IV
8	I have passion for my work and commitment to overcome obstacles and achieve success in my agribusiness.	8	24	1	2	1	1	27	2.7	IV
9	Experience in the agriculture sector is a valuable asset that contributes to my understanding of industry dynamics and best practices.	7	21	2	4	1	1	26	2.6	V
10	Formal sources of information, such as ANGRAU Agri incubator and publications, provide valuable insights and data that help in decision-making.	8	24	0	0	2	2	26	2.6	V
11	ICT sources of information, including online websites, apps and social media help me stay updated with the latest trends and developments in the agriculture sector.	8	24	0	0	2	2	26	2.6	V
12	I have leadership skills that enable me to inspire and influence others and run a successful agribusiness	6	18	3	6	1	1	25	2.5	VI
13	Informal sources of information, such as local networks, peers,	5	15	2	4	3	3	22	2.2	VII

S.No.	Factor	Agree (3)		Can't say (2)		Disagree (1)		Total score	Mean	Rank
		f	S	f	S	f	S			
	newspapers, T.V., Radio play a significant role in expanding my knowledge and insights about the agriculture sector.									
14	My locus of control, whether internal or external, influences my perception of control over my agribusiness outcomes and can impact my level of initiative and persistence.	4	12	3	6	3	3	21	2.1	VIII

n=No. of respondents : f= frequency: S = Score

perceived their educational background, both formal and informal, has provided them with the necessary knowledge and skills to excel in the field of agribusiness. Passion for work indicated their commitment to overcoming obstacles and achieving success.

Experience in the agriculture sector (mean score = 2.6), formal sources of information (mean score = 2.6) and ICT sources of information (mean score = 2.6) have the same mean score and shared ranked V. The respondents recognized the value of experience in understanding industry dynamics and best practices. Additionally, they considered formal sources, such as ANGRAU-Agri incubator (ABI) and publications, and ICT sources, including online websites, apps, and social media, as important for staying updated with the latest trends and developments in the agriculture sector.

However, 20% of the respondents felt that ICT sources are not useful and didn't follow updates posted on ICT sources. ICT sources help to create awareness on a topic and it is necessary to have at least a cursory look on social media updates in this data driven ICT era. Leadership skills (mean score = 2.5) ranked VI suggesting that the respondents acknowledge the role of leadership in inspiring and influencing others to ensure the success of their agribusiness. Informal sources of information (mean score = 2.2) hold the VII rank. The respondents value peers, local networks, newspapers and TV for expanding their knowledge and gaining insights into the agriculture sector.

Lastly, the locus of control (mean score = 2.1) ranked VII indicating that the respondents' perception of control over their agribusiness outcomes can influence their level of initiative and persistence. This factor received the lowest mean score among all the factors analysed. It is essential to have an internal locus of control for constant self-motivation.

In summary, the findings demonstrated that personal factors such as entrepreneurial intention, capacity, social skills, alignment with personal values, and achievement motivation played a significant role in the success of agribusiness ventures. Additionally, resilience, education level, passion for work, experience in the agriculture sector, and access to formal and ICT sources of information contribute to entrepreneurial effectiveness. Leadership skills

and informal sources of information also hold importance, albeit to a slightly lesser extent. The findings provided valuable insights for individuals and organizations involved in agribusiness emphasizing the multifaceted nature of personal factors that can impact success in this sector.

3.2 Overall Perception of the Agri-Incubatees on Personal Factors Influencing their Success

The data presented in Table 2 shows the perception of agri-incubatees on personal factors influencing their success. The table provides information on the frequency and percentage of responses for each parameter: low, moderate and high. It can be observed that 20.00% of the agri-incubatees rated the personal factors as "low" while 50.00 percent considered them "moderate" Additionally, 30.00 percent of the respondents regarded the factors as "high". To provide further insights, the mean value calculated is 37.4, and the standard deviation is 4.17. The mean plus one standard deviation is 41.57, while the mean minus one standard deviation is 33.23. These values indicated the range within which most of the data points fall, with the majority of responses likely clustered around the average.

In summary, the data suggested that the perception of agri-incubatees regarding the personal factors influencing their success is positive (80.00 percent). While half of the incubatees (50.00%) rated these factors as moderate, a significant proportion also considered them good. The ratings indicated that the agri-incubatees generally recognized the importance and impact of personal factors on their success in the incubation process.

3.3 Psychological factors influencing success of agri-incubatees of ANGRAU agribusiness incubator

From the Table 3, one can notice interesting observations into the participants perception of these factors. Among the factors, "My innovativeness trait drives me to think creatively and come up with innovative solutions in my agribusiness" received the highest score, mean score of 3. This indicated that the majority of participants agreed with the importance of innovativeness in driving their creative thinking and finding innovative solutions for their agribusiness. It also indicated that

Table 2. Overall perception of the agri-incubatees on personal factors influencing for their success (n=10)

S. No.	Parameter	Frequency(f)	Percentage (%)
1	Low (< 33.23)	2	20.00
2	Moderate (33.23 to 41.57)	5	50.00
3	High (> 41.57)	3	30.00
Total		10	100.00
Mean = 37.40		Standard Deviation = 4.17	

the agri-incubatees fell under innovators (100.00%) category and is a step ahead than early adopters category. The incubatees converted an 'idea' into a 'product' and stood as person a behind 'success story' in agri-business which is Praise worthy.

Similarly, the three factors "My self-efficacy plays a crucial role in my ability to believe in my own skills and capabilities as an agripreneurs," "My risk-taking ability allows me to embrace calculated risks and seize opportunities that can lead to the growth and success of my agribusiness," and "The need for affiliation drives me to build relationships, collaborate with others, and seek social support within the agribusiness community" statements received a total score of 29 and a mean score of 2.9. This suggested that these factors were also highly valued by the participants, with a significant proportion (90.00%) agreeing with their importance.

The factors "The need for achievement motivates me to set challenging goals and strive for excellence in my agribusiness" received a total score of 28 and a mean score of 2.8. Although slightly lower than the previous factors, it still indicated a considerable level of agreement among the participants.

On the other hand, factors such as "Resource mobilization is crucial for me as it involves my ability to effectively gather and allocate resources to support my agribusiness," "The need for power influences me to lead and influence others, aiming to make a positive impact in the agricultural sector," and "My pro-activeness drives me to take initiative, be proactive, and seize opportunities in the agribusiness" received lower scores compared to the preceding factors. They obtained a total score of 26, with mean scores of 2.6 and a total score of 25 with a mean score of 2.5, respectively. This suggests a relatively lower level of agreement or importance placed on these factors by the participants.

Narayanan *et al.* [16] in their study on success factors among 97 rural women agripreneurs in Vellore district of Tamilnadu recorded that successful women agri-preneurs perceived 'self', 'family', 'skilled labour', 'credit transaction in time' and 'demand', whereas, unsuccessful agri-preneurs perceived 'spouse', 'NGOs', 'friends', 'Government incentives' and 'family' as the five most important factors for success.

In conclusion, the participants highly valued factors such as innovativeness, self-efficacy, risk-taking ability, and the need for affiliation in their agribusiness endeavors. These factors received higher mean scores and ranks compared to resource mobilization, need for power, and pro-activeness. These findings highlighted the significance of psychological traits and motivations in driving success in the agribusiness sector.

3.4 Overall Perception of the Agri-Incubatees on Psychological Factors Influencing their success

The data presented in Table 4 shows the perception of incubatees on personal factors influencing their success. From the data, it can be observed that 10.00% of the incubatees rated the psychological factors as "low" while 50.00 percent considered them "moderate" Additionally, 40.00 percent of the respondents regarded the factors as "high". To provide additional insights, the mean value calculated from the dataset was 22.3, and the standard deviation was 2.21. The mean plus one standard deviation is 24.51, while the mean minus one standard deviation is 20.09.

In summary, from the Table 4 it is suggested that the perception of incubatees regarding the psychological factors influencing their success is positive (90.00%). While half of the incubatees (50.00%) rated these factors as moderate, a significant proportion also considered them high (40.00%).This indicated that the incubatees

Table 3. Psychological Factors influencing success of agri-incubatees of ANGRAU Agribusiness incubator. (n=10)

S.No	Factor	Agree (3)		Can't say (2)		Disagree (1)		Total score	Mean	Rank
		f	S	f	S	f	S			
1	My innovativeness trait drives me to think creatively and come up with innovative solutions in my agribusiness.	10	30	0	0	0	0	30	3	I
2	My self-efficacy plays a crucial role in my ability to believe in my own skills and capabilities as an agripreneurs.	9	27	1	2	0	0	29	2.9	II
3	My risk-taking ability allows me to embrace calculated risks and seize opportunities that can lead to the growth and success of my agribusiness.	9	27	1	2	0	0	29	2.9	II
4	The need for affiliation drives me to build relationships, collaborate with others, and seek social support within the agribusiness community.	9	27	1	2	0	0	29	2.9	II
5	The need for achievement motivates me to set challenging goals and strive for excellence in my agribusiness.	8	24	2	4	0	0	28	2.8	III
6	Resource mobilization is crucial for me as it involves my ability to effectively gather and allocate resources to support my agribusiness.	7	21	2	4	1	1	26	2.6	IV
7	The need for power influences me to lead and influence others, aiming to make a positive impact in the agricultural sector.	7	21	2	4	1	1	26	2.6	IV
8	My pro-activeness drives me to take initiative, be proactive, and seize opportunities in the agribusiness.	6	18	3	6	1	1	25	2.5	V

Table 4. Overall Perception of the incubatees on psychological factors influencing for their success (n=10)

S. No.	Parameter	Frequency(f)	Percentage (%)
1	Low (< 20.09)	1	10.00
2	Moderate (20.09 to 24.51)	5	50.00
3	High (> 24.51)	4	40.00
Total		10	100.00
Mean = 22.3		Standard Deviation = 2.21	

Recognized the importance and impact of psychological factors on their success in the establishment of their start-ups.

4. CONCLUSIONS

The study underscored the pivotal role of personal factors in the success of 10 selected agri incubatees. Entrepreneurial intention, capacity, social skills, alignment with personal values and achievement motivation emerged as crucial contributors. Resilience, education level, passion for work, experience in agriculture, and access to formal and ICT information sources were also identified as key factors. Leadership skills and informal information sources held slightly lesser importance. The data revealed that agri-incubatees predominantly perceived these personal factors positively, with 80.00% expressing a positive outlook. Innovativeness, self-efficacy, risk-taking ability and the need for affiliation were particularly emphasized, receiving higher mean scores than resource mobilization, need for power, and pro-activeness. Notably, 90.00% of incubatees held a positive perception regarding psychological factors influencing their success.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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The peer review history for this paper can be accessed here:
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