



Best Management Practices Followed by Agri-Incubatees of ANGRAU Agribusiness Incubator in Tirupati, India

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Authors' contributions

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

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ABSTRACT

The ANGRAU Agribusiness Incubator was purposively selected for the study conducted in the year 2023 because it has a specific focus on nurturing agri-startups that are working towards improving the farming communities in the state of Andhra Pradesh. Ten successful incubatees trained at the ANGRAU agribusiness incubator were purposively selected for the study, based on category, product, service, R&D and achievements. The findings demonstrated that best management practices such as offering innovative products/services, leveraging technology and automation, staying adaptable to changing market trends, prioritizing customer satisfaction, maintaining transparency and ethical practices and implementing effective waste management and recycling received the highest mean score of 3, ranking I. Following closely with a mean score of 2.9 and ranking II were strategies including vision and mission prepared, actively managing risks and developing contingency plans, consistently evaluate and improve product quality and ensuring compliance with government laws and regulations. Practices like monitoring and evaluating financial performance, integrating sustainable practices in the supply chain, conducting feasibility surveys/market research, setting clear and measurable goals, giving employment to at least three persons, actively building a network of stakeholders and forming strategic partnerships, implementing effective marketing strategies, focusing on brand identity and positive image and regularly optimizing operational costs scored between 2.8 to 2.4, placing them in ranks between III & VII. However, practices concerning leveraging digital marketing strategies, having a detailed project report and income flow statement, developing a comprehensive business plan, seeking partnerships and collaborations for innovation, establishing relationships with financial institutions for funding and creating assets for the agribusiness with profits ranked lower, indicating disagreement among agri-incubatees, with scores 2.3 to 1.9 placing them in ranks between VIII and IX. Perception of the incubatees towards best management practices inferred that nearly one-third (30.00%) of the agri-incubatees rated their best management practices as low, while half of the incubatees (50.00%) considered them moderate, and only one-fifth (20.00 %) of the agri-incubatees rated their practices as high.

Keywords: ANGRAU agribusiness incubator; agri-startups; management practices; success in agribusiness.

1. INTRODUCTION

In the 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 [1,2 and 3]. Start-ups have emerged as crucial catalysts, bridging gaps in the agricultural value chain and delivering efficient products [4 and 5], technologies and services to both farmers and consumers [6]. The agri-tech start-ups rely heavily on the financial channels, enterprise development assistance, and expanded commercial options that agri-business incubators offer [7]. Through the creation of sustainable logistics systems [8], the promotion of market connections, the reduction of waste [9], support for agri-tech start-ups [10], and other means, incubators help transform innovative ideas into workable business models [11], make a substantial contribution to the development of rural economies [12 and 13], and guarantee food

security [14]. In India, the government, through initiatives such as the National Science and Technology Entrepreneurship Development Board (NSTEDB) [15], actively promotes start-up growth, with a focus on recognizing the potential of innovations to bring about societal changes [16]. The Rashtriya Krishi Vikas Yojana (RKVY) is funding the Agri-Innovations and Entrepreneurship Development (AIED) Cell, which has been in operation at the Regional Agricultural Research Station (RARS), ANGRAU, Tirupati, since 2019. Through programs like SANKALP and SAMRIDDHI, the ANGRAU Agribusiness Incubator sought to promote innovation, entrepreneurship, and business formation in agriculture, building a strong agri-startup ecosystem in Andhra Pradesh. [17] and neighbouring states such as Telangana, Tamilnadu, etc [9 and 18]. 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 Agribusiness Incubator [19 and 18].

2. MATERIALS AND METHODS

The study was conducted in the year 2023. The study employed a descriptive research design to achieve its objectives. The ANGRAU Agribusiness incubator was purposively selected for the research study because it has a specific focus on nurturing agri-startups that are working towards improving the nutritional outcomes of farming communities in the state of Andhra Pradesh since 2019. Ten successful incubatees trained at ANGRAU - agribusiness incubator were purposively selected for the study, based on category, product, service, R&D and achievements.

Best Management Practices followed by agri-incubatees of ANGRAU-Agribusiness incubator (ABI) was analyzed 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. An interview schedule was developed consisting of twenty- seven statements. Each statement was rated on three-point continuum *i.e.* agree, can't say and disagree with scores of 3, 2 and 1, respectively. The maximum and minimum score of each agri-incubatees were 81 and 0, respectively. The scores obtained for each identified parameter were summated and the respective means were estimated and are arranged in descending order as per the mean values obtained and ranked.

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 Best Management Practices followed by agri-incubatees of ANGRAU Agribusiness incubator

From the Table 1, The practices with the highest mean score and ranking of I included offering innovative products/services, leveraging technology and automation, staying adaptable to changing market trends, prioritizing customer satisfaction, maintaining transparency and

ethical practices and implementing effective waste management and recycling. These practices received agreement from the participants, indicating their recognition of the importance of these strategies in best management practices [9 and 18].

The practices with a mean score and ranking of II were 'vision and mission prepared, actively managing risks and developing contingency plans, consistently evaluate and improve product quality and ensuring compliance with government laws and regulations. While these practices were also generally agreed upon, they received slightly lower scores when compared to the top-ranked practices [20 and 21].

Following closely with ranking between III & VII observed best practices were monitoring and evaluating financial performance, integrating sustainable practices in the supply chain, conducting feasibility surveys/market research, setting clear and measurable goals, giving employment to at least three persons, actively building a network of stakeholders and forming strategic partnerships, implementing effective marketing strategies, focusing on brand identity and positive image and regularly optimizing operational costs [22]. These practices were still positively regarded by the participants but had a neutral perception.

The remaining practices, rankings of VIII and IX, received relatively disagreement from the agri-incubatees. These practices included leveraging digital marketing strategies, having a detailed project report and income flow statement, developing a comprehensive business plan, seeking partnerships and collaborations for innovation, establishing relationships with financial institutions for funding [23] and creating assets for the agribusiness with profits.

Overall, these results suggested that agri-incubatees have generally embraced and implemented a range of best management practices, particularly in areas related to innovation, technology adoption, customer satisfaction, and sustainability. However, there are still opportunities for improvement in areas such as linkages, digital marketing, detailed project planning, and partnerships with financial institutions. By focusing on enhancing these practices, agribusinesses can further optimize their operations and position themselves for continued growth and success in the industry [24].

Table 1. Best Management Practices followed by Agri-Incubatees of ANGRAU Agribusiness Incubator in Tirupati (n=10)

S. No.	Best management Practices	Agree		Can't Say		Disagree		Total score	Mean	Rank
		f	S	f	S	f	S			
1	I offer innovative product/ service to the customers and constantly have a look on the USPs of my product/ service	10	30	0	0	0	0	30	3	I
2	I leverage technology and automation to enhance efficiency in my agribusiness	10	30	0	0	0	0	30	3	I
3	I stay adaptable to changing market trends and evolving consumer preferences.	10	30	0	0	0	0	30	3	I
4	I prioritize consumer satisfaction by consistently delivering high-quality products or services	10	30	0	0	0	0	30	3	I
5	I maintain transparency and ethical practices in all aspects of my agribusiness	10	30	0	0	0	0	30	3	I
6	I implement effective waste management and recycling practices in my agribusiness	10	30	0	0	0	0	30	3	I
7	I have a vision and mission prepared for my start-up	9	27	1	2	0	0	29	2.9	II
8	I actively manage risks and develop contingency plans to mitigate potential challenges	9	27	1	2	0	0	29	2.9	II
9	I consistently evaluate and improve the quality of my products or services	9	27	1	2	0	0	29	2.9	II
10	I ensure compliance with Govt. laws and regulations in my agribusiness operations	9	27	1	2	0	0	29	2.9	II
11	I monitor and evaluate my financial performance to ensure profitability and sustainability	8	24	2	4	0	0	28	2.8	III
12	I integrate sustainable practices throughout my agribusiness supply chain	8	24	2	4	0	0	28	2.8	III
13	I have done feasibility survey/market research before planning my agribusiness	8	24	1	2	1	1	27	2.7	IV
14	I set clear and measurable goals to drive growth and success of my agribusiness.	7	21	3	6	0	0	27	2.7	IV
15	I gave employment for at least three persons	8	24	1	2	1	1	27	2.7	IV
16	I actively build a network of relevant stakeholders and form strategic partnerships.	7	21	3	6	0	0	27	2.7	IV
17	I implement effective marketing strategies to promote my agribusiness.	7	21	3	6	0	0	27	2.7	IV
18	I focus on building a strong brand identity and positive brand image.	7	21	3	6	0	0	27	2.7	IV
19	I regularly assess and optimize operational costs to maximize profitability.	8	24	1	2	1	1	27	2.7	IV
20	I have well established forward linkages such as collection centres at farm gate/ processing centres/ refrigerated transport/ retail stores, etc to buy my product.	6	18	4	8	0	0	26	2.6	V
21	I have well established backward linkages such as direct raw material procurement, availability of chemicals, technology backstopping, etc	5	15	5	10	0	0	25	2.5	VI
22	I will try to leverage digital marketing strategies to build a strong online presence.	7	21	1	2	2	2	25	2.5	VI
23	I have Detailed Project Report (DPR) of my agri business along with the income flow statement for next 3 years	5	15	4	8	1	1	24	2.4	VII
24	I have developed a comprehensive business plan / model outlines my strategies for first 3 years	5	15	4	8	1	1	24	2.4	VII
25	I actively seek partnerships and collaborations to foster innovation in my agribusiness.	4	12	4	8	2	2	22	2.2	VIII
26	I am trying to establish network with financial institutions to access funding options.	5	15	2	4	3	3	22	2.2	VIII
27	I created assets for my agri-business with the profit	3	9	3	6	4	4	19	1.9	IX

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

Table 2. Perception of the agri-incubatees on best management practices (n=10)

S.No.	Parameter	Frequency	Percentage
1	Low (< 68.32)	3	30.00
2	Moderate (68.33 to 78.47)	5	50.00
3	High (> 78.48)	2	20.00
Total		10	100.00
Mean = 73.40		Standard Deviation = 5.08	

ANGRAU agri-incubator initially mentored these start-ups to have a business plan for three years and break even (if not profits) in the first year. The start-ups already have launched themselves in the agri markets and it is high time to prepare a comprehensive business plan for their start-ups for the next 3 years. Also, digital marketing is cost effective and a free of cost social media page on Facebook or Instagram can help them to reach wider consumers across India and give visibility to their business. All the start-ups can link a cell phone number to WhatsApp business account and can increase their consumer base. A WhatsApp business account can be made free of cost and an automated greeting message can be inserted to acquire new consumers [25]. Furthermore, partnerships with financial institutions can help them to upscale their business and obtain loans with low interest. The start-ups were suggested these strategies during personal interview by the researcher and they agreed that they will focus on the drawbacks and plan to expand their business, including above strategies.

3.2 Overall Perception of the Agri-incubatees on Best Management Practices

The data presented in Table 2 shows Perception of the incubatees towards best management practices concluded that nearly one-third (30.00%) of the agri-incubatees rated their best management practices as low while 50.00 per cent considered them moderate and only 20.00 per cent of the respondents regarded their practices as high.

To provide additional information about the dataset, the mean is calculated ($\bar{x} = 73.40$) and the standard deviation is ($\sigma = 5.08$). The mean plus one standard deviation is 78.48, while the mean minus one standard deviation is 68.32. These values indicated the range within which most of the data points fall and the majority of the respondents (70.00%) fell under moderate and high perception.

As for the best management practices, the majority of the agri-incubatees rated them as moderate, with smaller proportions considering them low or high. It is interesting to note that 100 per cent of the agri-incubatees employed at least three persons to initiate and stabilize their startup [26]. Even though, only nearly one-third of the respondents created assets, broke even or obtained minimum profit could also be viewed as a best management practice. A total of 70.00 per cent of the respondents had marketing strategies and were trying to include free digital marketing strategies, such as Youtube, Facebook page and Instagram page in the near future. Every new business should have a vision and mission and 90.00 per cent of the respondents had a written vision and mission. None of the agri-incubatees said that they are not adaptable to changing marketing trends which is a positive attitude for their business growth [27].

4. CONCLUSION

This study underscored the pivotal role of best management practices in the success of agri incubatees. Overall, these results suggested that agri-incubatees have generally embraced and implemented a range of best management practices, particularly in areas related to innovation, technology adoption, customer satisfaction and sustainability. However, there are still opportunities for improvement in areas such as linkages, digital marketing, detailed project planning and partnerships with financial institutions. By focusing on enhancing these practices, agribusinesses can further optimize their operations and position themselves for continued growth and success in the industry. Overall, perception of the agri-incubatees on best management practices nearly one-third (30.00%) of the agri-incubatees rated their best management practices as low, while 50.00 per cent considered them moderate and only 20.00 per cent of the respondents regarded their practices as high. As for the best management practices, the majority of the agri-incubatees

rated them as moderate, with smaller proportions considering them low or high.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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