



Original Article

Associating Agribusiness with Crop Performance: Analyzing the ACABC Scheme in Maharashtra

Komal K. Desai¹, H.N. Kathare²

¹Research Student, Department of Economics, Shivaji University, Kolhapur

²Professor, Department of Economics, Rajaram College, Kolhapur

Manuscript ID:

IBMIRJ-2025-021016

Submitted: 08 Sept. 2025

Revised: 12 Sept. 2025

Accepted: 10 Oct. 2025

Published: 31 Oct. 2025

ISSN: 3065-7857

Volume-2

Issue-10

Pp. 74-79

October 2025

Correspondence Address:

Komal K. Desai

Research Student, Department of
Economics, Shivaji University,
Kolhapur

Email: hkathare@gmail.com



Quick Response Code:



Web: <https://ibrj.us>



DOI: [10.5281/zenodo.17620941](https://doi.org/10.5281/zenodo.17620941)

DOI Link:

<https://doi.org/10.5281/zenodo.17620941>



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Abstract

The paper examines the effects of the Agri-Clinics and Agri-Business Centers (ACABC) scheme on agribusiness and crop production growth in Maharashtra, India, from 2002 to 2021. It focuses on key crops such as cotton, soybeans, and sugarcane, utilizing secondary data from government documents and the ACABC website. It tests the relationship of agribusinesses with crop productivity. Data indicates that while cotton and sugarcane output grew significantly, the number of established agribusinesses continued to increase over the period, suggesting agribusiness programs. The study shows that soybean output trends do not directly correlate with the establishment of ventures, indicating that extensive agribusiness-focused support systems are sufficient to encourage agricultural entrepreneurial activities. It highlights the necessity for targeted measures to ensure stable production and promote long-term improvements, particularly concerning climate change. The ACABC initiative has successfully promoted agribusiness in Maharashtra by advocating for ongoing investments in infrastructure, training, and technologies to enhance productivity and resilience.

Keywords: Agribusiness, Crop production, ACABC scheme.

Introduction

Agriculture is a key driver of the Indian economy and supports millions of farmers while feeding a growing population. A significant majority of working individuals rely on agriculture for their livelihood. In the 2023-24 period, the agriculture sector's growth rate was 1.4%, a significant decrease from the 4.7% recorded in 2022-2023. This decline can primarily be attributed to a late monsoon caused by El Niño, which negatively impacted food grain production. Additionally, the contributions of livestock and fisheries to agriculture's Gross Value Added (GVA) to 30.23% and 7.25%, respectively, during 2022-23, compared to 24.38% and 4.44% in 2014-15. This shift contrasts with the traditional crops, such as cereals, whose share in agricultural GVA fell from 61.75% in 2014-2015 (Survey, 2023-2024). The growth in agricultural production requires improving crop productivity. This can be achieved through effective agricultural extension activities (Durga, 2016). Agribusinesses have a significant impact on agricultural development and sustainability by supplying quality seeds, fertilizers, equipment, and technology to farmers. They also provide extension services and training programs, enabling farmers to adapt to modern, science-based farming practices. They enhance market access, as well as storage and transportation, which reduces post-harvest losses. Additionally, they help improve the prices that farmers receive for their products. This leads to the overall growth of the agricultural sector and stabilizes farmers' incomes by fostering the establishment of an efficient and productive agricultural ecosystem.

To deal with those problems, the Indian government started the Agri-Clinics and Agri-Business Centers (ACABC) thing back in 2002. It's like, a program with money help and loans, run by the Ministry of Agriculture and Farmers Welfare. It's got two main parts: a 45-day training course at MANAGE, and then you get certified by some special places. If you finish the training, you can get loans and help to start businesses like soil testing labs or agri-clinics. Plus, they help you with advice and finding markets. Regular people get a 36% discount, and people from SC/ST backgrounds and women get even more help. The goal is to give people the skills to work for themselves and help the farming industry. Basically, agri-clinics give advice, and agribusiness centers handle the business side, like connecting with markets after the harvest.

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How to cite this article:

Desai, K. K., & Kathare, H. N. (2025). Associating Agribusiness with Crop Performance: Analyzing the ACABC Scheme in Maharashtra. *InSight Bulletin: A Multidisciplinary Interlink International Research Journal*, 2(10), 74–79. <https://doi.org/10.5281/zenodo.17620941>

This paper's looking into how those agribusiness things that the Indian government set up, you know, the Agri-Clinics and Agri-Business Centers, are doing. They were supposed to help people start businesses in farming, giving them money and training. The paper's checking out how important crops affected in Maharashtra, like cotton, soybeans, and sugarcane. It's seeing if it's helped to make farming better and if the businesses are doing well. Basically, it's trying to figure out if these centers are helping farmers use new, modern ways of doing things. It'll also talk about how to make them even better.

Review of Literature

(Mr.Yash Piyushbhai Trivedi, 2024)Developing agricultural entrepreneurship can support long-term growth, enhance food security, and tackle social issues. Prioritizing globalization and encouraging rural youth to start businesses can improve lives and decrease poverty. (Punitha, 2021)The study emphasizes the significance of fair wages and a positive work environment for agripreneurs. It notes that younger entrepreneurs need additional support in decision-making, while effective communication and feedback are essential for success. (Shoji Lal Bairwa K. L., 2014)Agribusiness involves entrepreneurship in agriculture, aimed at enhancing profitability and attractiveness. It encompasses managing resources such as soil, seeds, and water, boosting national income, and creating job opportunities, particularly for vulnerable members of society. (Dr.Shantanu S. Bose, 2023)The study explores the relationship between India's GDP and expenditures on agricultural research and education, emphasizing the need to prioritize these areas for economic growth, job creation, and enhanced food security. (Kulkarni, 2019)Agribusiness education is essential for developing skilled workers in India's agricultural sector, allowing graduates to find opportunities in areas such as government agencies, commercial businesses, and education. (Mcelwee, 2006)The study examines farm entrepreneurship, emphasizing the challenges farmers face and the impact of policy formulation. It recommends further research into women's roles and business strategies, along with enhanced support and education. (Tamma Koti Reddy, 2018)The study indicates that agricultural GDP does not significantly affect irrigated land and fertilizers; however, seeds, rainfall, power, and pesticides do have an impact. Government assistance can enhance agriculture and food security by providing resources at lower prices. (Shoji Lal Bairwa A. K., 2014)Agribusiness is an emerging field that integrates business with agriculture, providing diverse job opportunities and skill development to enhance farming practices, boost the Indian economy, and support professionals across various sectors. (Gagan Tripathi, 2023)India's government agriculture programs, such as the Green Revolution and the Pradhan Mantri Fasal Bima Yojana, aim to enhance farmers' living standards and ensure food security. However, they face challenges in targeting poor farmers and implementing successful strategies. (Vijaya Bharathi.G, Sudhakar.P, 2022)The Indian government's Agri-Clinics and Agri-Business Centers program supports rural farmers and young entrepreneurs in starting their businesses and achieving success in Tamil Nadu, Uttar Pradesh, and Maharashtra. However, Andhra Pradesh has a lower ranking in terms of training and business establishment. (rani, 2023)Agribusinesses, including agricultural clinics and centers, provide specialized training, loans, and support to farmers. To enhance their effectiveness, the government should review financial services and training programs, particularly in northern states. (SHAFI AFROZ1, 2021)The SWOT analysis of the ACABC scheme highlights its strengths in agribusiness support and job creation, weaknesses in trainees' real-world experience, and opportunities for self-employment and innovative agribusiness ventures. (G. B. Chaitra C. P., 2020)The ACABC program supports farmers by providing employment opportunities for agricultural graduates. While success is evident in Tamil Nadu and Maharashtra, efforts need to be expanded in the northeastern states of India.

Methodology

The study relies on secondary data collected from various sources, including government reports, the official website of ACABC, and EPWRF. It specifically focuses on the state of Maharashtra, reviewing data from 2002 to 2021 regarding the number of candidates trained and the number of ventures established through the ACABC initiative. Furthermore, as shown in Table 2, the second most significant activity in Maharashtra is related to productivity. The state's top productions include cotton, soybean, and sugarcane. (World Gold Council, 2024) Have selected to analyze the trend of three crops along with the venture established through ACABC. To know the relationship between them researchers have carried out the correlation between the ventures established and the no. of selected crops.

Table No.1.Progress of Agri clinic and Agribusiness Centre Scheme

Sr.no.	States	No. of Candidates Trained	No. of Agri-Ventures Established
1	Andhra Pradesh	1763	516
2	Arunachal Pradesh	48	3
3	Assam	844	281
4	Bihar	4528	1626
5	Chandigarh	4	2
6	Chhattisgarh	1001	425
7	Delhi	43	6
8	Goa	18	10
9	Gujarat	2309	916
10	Haryana	751	251
11	Himachal Pradesh	431	112
12	Jammu And Kashmir	1556	191
13	Jharkhand	813	222
14	Karnataka	4801	1941
15	Kerala	279	67
16	Madhya Pradesh	5460	2528
17	Maharashtra	24743	12652
18	Manipur	522	135

19	Meghalaya	37	4
20	Mizoram	52	0
21	Nagaland	187	22
22	Orissa	643	116
23	Pondicherry	155	88
24	Punjab	670	225
25	Rajasthan	4915	1944
26	Sikkim	9	1
27	Telangana	2354	658
28	Tamil Nadu	9655	4887
29	Tripura	6	2
30	Uttar Pradesh	20088	9868
31	Uttaranchal	600	212
32	West Bengal	1255	343
	Total	90540	40254

Source: *Agri Clinics and Agribusiness Centres database (ACABC, 2024)*

Table no. 1 highlights the state-wise progress of the Agri-Clinics and Agri-Business Centres (ACABC) Scheme, **overseen by MANAGE, from April 1, 2002, to November 22, 2024**. The scheme has successfully trained a total of 90,540 candidates and established 40,254 agri-business ventures across the country. Maharashtra leads with 24,743 trained candidates and 12,652 ventures established, making a significant contribution to the scheme's overall success. Uttar Pradesh follows with 20,088 trained candidates and 9,868 ventures, while Tamil Nadu demonstrates strong performance with 9,655 trained candidates and 4,887 ventures established. Moderate progress in training and venture establishment is noted in Madhya Pradesh, Karnataka, and Rajasthan. In contrast, Mizoram, Meghalaya, and Sikkim show lower rates of trained candidates and established ventures, highlighting the varying levels of adoption of the scheme across different states (G. B. Chaitra C. P., 2020).

Table No. 2-Activity-Wise Categorization of Agri-Ventures (From: 01-04-2002 to 22-11-2024)

Sr.No.	Name of the Agri-venture	Maharashtra
1	Agri-Clinics	3214
2	Agri-Clinics and agribusiness centre	2310
3	Agro-Eco Tourism	15
4	Animal Feed Unit	20
5	Bio-fertilizer production and Marketing	60
6	Contract Farming	6
7	Cultivation of Medicinal Plants	7
8	Direct Mkt.	67
9	Farm Machinery Unit	272
10	Fisheries Development	56
11	Floriculture	34
12	Horticulture Clinic	68
13	Landscaping + Nursery	48
14	Nursery	272
15	Organic Production/ Food Chain	41
16	Pesticides Production and Marketing	47
17	Value Addition	247
18	fishery clinic	4
19	Seed Processing and Marketing	75
20	soil Testing Laboratory	22
21	Tissue Culture Unit	8
22	Vegetable Production and Marketing	62
23	Vermicomposting / Organic manure	109
24	Veterinary Clinics	380
25	Crop Production	91
26	dairy/Poultry/Piggery/Goatary	5041
27	Rural Godown	9
28	Production & Marketing of Bio-Control Agents	13
29	agriculture Journalism	9
30	Sericulture	22
31	Mushroom Cultivation	22
32	Apiary	1
	Total	12652

Source: *Agri Clinics and Agribusiness Centres (NABARD, 2024)*

Table 2 shows that the agri-venture stuff in Maharashtra is mostly about raising animals, like cows, chickens, pigs, and goats. This creates jobs in the countryside and helps the local economy. Also, the table points out the next most important things in Maharashtra, which are about growing crops. These ventures can help farmers by giving them advice, helping them with their crops, and fixing problems. Plus, they offer expert help to manage the whole farm better, so they get more crops and lose less (G. B. Chaitra C. P., 2020).

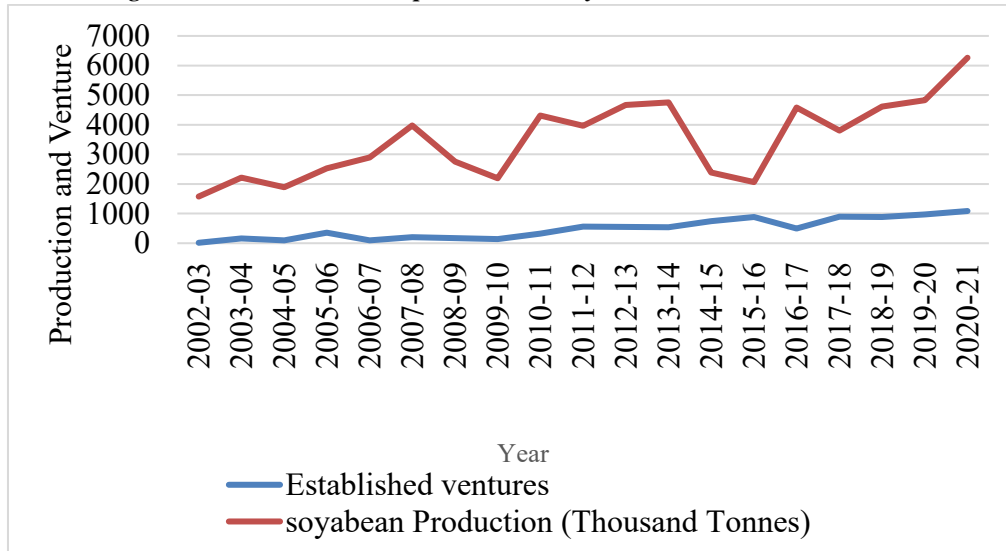
Result and Discussion:

Trend Analysis:

The trend between Established ventures and the production of soybean, sugarcane, cotton

1. soybean:

Figure 1: Trend between the production of soybeans and established ventures

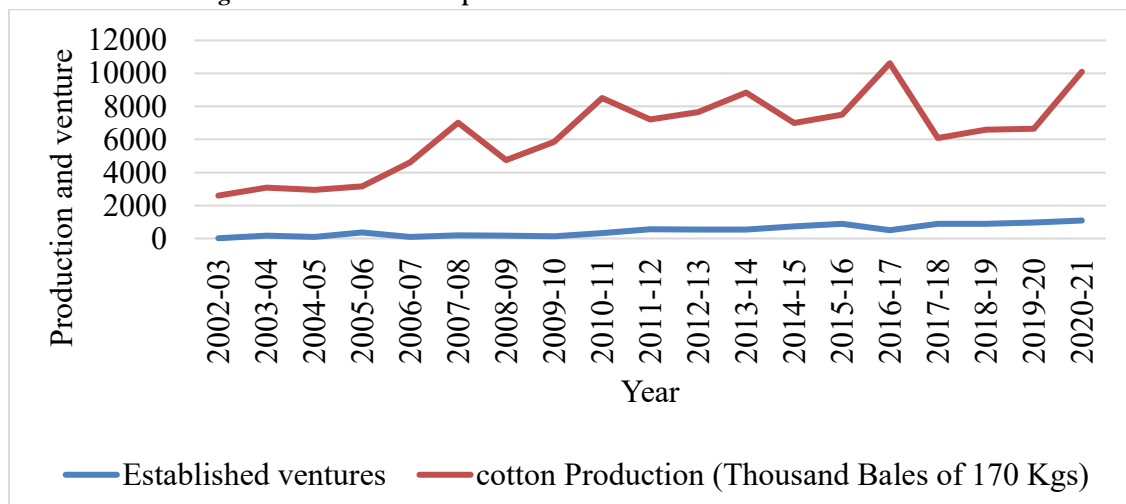


Source- EPWRF, ACABC Database

Figure 1 illustrates the fluctuations in soybean production in Maharashtra from 2002-03 to 2020-21, highlighting significant peaks in 2010-11, 2013-14, and 2020-21. In contrast, established ventures have steadily increased, likely influenced by climatic conditions, policy support, and market dynamics. The study found no direct correlation between soybean output trends and the number of ventures established, indicating that venture formation is driven more by broader agribusiness support mechanisms than by crop production levels. The constant rise in initiatives suggests the effectiveness of the ACABC program in promoting entrepreneurial activities in agriculture, which may lead to improved production efficiency or better input management over time. The analysis emphasizes the potential of the ACABC scheme to enhance agribusinesses but also highlights the need for targeted interventions to address specific production challenges, such as yield stability for soybean farmers.

2. Cotton-

Figure 2: Trend between production of Cotton and established ventures

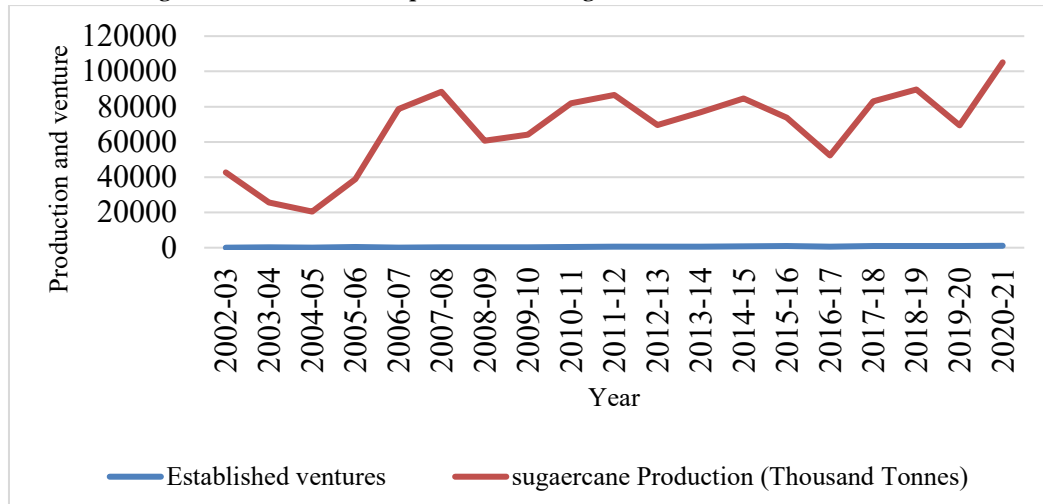


Source- EPWRF, ACABC Database

Figure 2 shows how cotton production and new businesses in Maharashtra, thanks to the ACABC project, went hand-in-hand from 2002-03 to 2020-21. Cotton really took off between 2005-06 and 2007-08, hitting highs in 2010-11 and 2016-17. It went up and down a bit, too. But even with those ups and downs, more and more businesses popped up, showing they were still working hard on those farming projects. These cotton projects in Maharashtra are super important for helping farmers in the long run. They help with better farming, managing resources, and getting modern stuff. Basically, they help grow cotton and build a solid base for the cotton industry in the state, which is good for the whole farming economy.

3. Sugarcane-

Figure 3 : Trend between production of sugarcane and established ventures



Source- EPWRF, ACABC Database

Figure 3 presents an analysis of the correlation between sugarcane production and the number of businesses initiated in Maharashtra under the ACABC project, spanning from 2002-03 to 2020-21. Sugarcane production demonstrated a fluctuating pattern, reaching peak levels in 2007-08 and 2013-14, with subsequent production decreases observed in 2008-09 and 2018-19. By 2020-21, sugarcane production attained its highest recorded level. The observed increase in agricultural sector ventures indicates a strategic emphasis on long-term capacity building for sugarcane cultivation, encompassing enhancements in seed quality, irrigation technologies, and extension services, thereby reflecting sustained efforts to advance agricultural development. The variability in sugarcane production within Maharashtra is subject to external factors, including weather patterns, water resource availability, and market conditions. Despite these external influences, ongoing initiatives are anticipated to strengthen resilience, enhance production yields, and stabilize the sugarcane farming ecosystem, ultimately contributing positively to the state's agricultural economy.

Correlation:

	Established ventures	soybean Production	cotton Production	sugarcane Production
Established ventures	1.0000	0.6066	0.5936	0.6018
soybean Production	0.6066	1.0000	0.7777	0.6395
cotton Production	0.5936	0.7777	1.0000	0.6786
sugarcane Production	0.6018	0.6395	0.6786	1.0000

Source: Authors Calculation.

This table shows that the more farms there are in the ACABC program, the better the crops do in Maharashtra, like soybeans, cotton, and sugarcane. Soybean production is pretty connected to the number of farms ($r = 0.606$), which means these programs really help get more crops. Cotton and sugarcane are linked to the number of farms too ($r = 0.5936$ and $r = 0.6018$), basically, farms help grow more food. The ACABC program probably helped with stuff like money, new ideas, and services, which made farming better. Also, some crops are connected: soybeans and cotton are really linked ($r = 0.7777$), and soybeans and sugarcane ($r = 0.6395$), and cotton and sugarcane ($r = 0.6786$) are kinda connected. That probably means things like the weather, how they farm, or how they use resources together are important for these crops. Overall, farms are super important for growing agriculture and helping farms in Maharashtra. We should do more specific stuff to really help the crops and people out there.

Conclusion:

The study says farming is super important for Maharashtra's economy, It gives jobs to tons of farmers. Looked at how cotton, soybean, and sugarcane are doing, and checked out the ACABC project. Found that when agribusiness does well, farming gets better too. The ACABC program actually helped people start businesses, which meant better resource use, new ideas, and access to modern farming stuff. Even with climate change and market ups and downs, new businesses have been a big help to farmers, making them more flexible. The study also shows that we need to help stabilize sugarcane and cotton production. The article says we need to keep investing in infrastructure, training, and tech to help farmers grow more and deal with problems. Also, it turns out that having good support systems for businesses and how much they're already growing affects how well crops do. So, if we focus on boosting agribusiness, we can directly help crops and farming overall. But, the study also says we need to look at the big picture since there are things that affect all the crops. Basically, ACABC has been a good thing for farming in Maharashtra. To make the most of it, we need to focus on specific crops and make sure things are sustainable. They should also study how these projects affect the economy in the long run and see if they can be used elsewhere. If everyone: the government, farming groups, and farmers works together, it can make Maharashtra's farming stronger and help India with food and money.

Acknowledgment

The author expresses heartfelt gratitude to Shivaji University, Kolhapur, and the Department of Economics, Rajaram College, Kolhapur, for their invaluable academic support, research guidance, and encouragement throughout the completion of this study. Sincere thanks are extended to Prof. H. N. Kathare for his mentorship, insightful suggestions, and constant motivation that greatly enriched the quality of this research work.

The author also acknowledges the Agri-Clinics and Agri-Business Centres (ACABC) Program, MANAGE, and NABARD for providing access to authentic data and reports that formed the empirical foundation of this analysis.

Special appreciation is due to all research scholars, faculty members, and agricultural officers who contributed constructive feedback and shared valuable experiences related to agribusiness and crop performance in Maharashtra.

Finally, the author conveys sincere gratitude to family and well-wishers for their unwavering moral support and encouragement during the research process.

Financial Support and Sponsorship

Nil

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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