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An Empirical Analysis of KVKs of Agriculture Development in India

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Abstract
Krishi Vigyan Kendras (KVKs) serve as pivotal institutions for disseminating agricultural knowledge, technology, and skills aimed at enhancing farm productivity and sustainability. This study reviews the role of KVKs as catalysts in promoting agricultural production through skill and knowledge development programs. By empowering farmers to transition from subsistence farming to market-oriented production, KVKs contribute directly to economic development and rural transformation. Special emphasis is placed on the need to address gender-specific challenges, thereby strengthening the participation of women in agriculture. The review further highlights the importance of aligning KVK initiatives with emerging techno-social structures to maximize their efficiency in fostering farmer empowerment. As knowledge hubs, KVKs are envisioned as repositories of agricultural innovation, supporting sustainable rural development. Recent interventions such as the integration of drone technology, collaboration with Atal Tinkering Labs for student engagement, and initiatives like the Landscape Diagnostic Survey (LDS) in pulses demonstrate their adaptability to modern challenges. With 731 KVKs functioning under the Indian Council of Agricultural Research (ICAR) and over 8,875 Farmers Producing Organization (FPO) societies registered nationwide, KVKs also play a crucial role in nurturing 117 FPOs as Cluster-Based Business Organizations (CBBOs). These multifaceted efforts underscore the holistic contribution of KVKs to strengthening India's agricultural ecosystem.

Keywords: *Krishi Vigyan Kendras, Agricultural Development, Farmers Producing Organizations, Rural Empowerment*

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I. Introduction

Over the seventy-seven years since India's independence, the agricultural sector has remained the backbone of the national economy. Agriculture continues to provide livelihood support to nearly 46.1 percent of the population and contributes about 16 percent to the country's Gross Domestic Product (GDP) at current prices. Despite numerous challenges, the sector has demonstrated resilience, maintaining an average annual growth rate of 3.5 percent at constant prices during the past five years.

To strengthen this progress, the Government of India has introduced several initiatives aimed at improving farm productivity, farmers' income, and overall socioeconomic development. Among these, **Krishi Vigyan Kendras (KVKs)** have played a pivotal role in supporting farmers to move beyond subsistence agriculture. Through skill development, knowledge dissemination, adoption of advanced practices such as drone-based farming, and outreach programs like Atal Tinkering Labs for students, KVKs have emerged as key institutions for modernizing Indian agriculture. Complementing these efforts are the **Farmer Producer Organizations (FPOs)**, which enhance farmers' collective bargaining power, improve market access, and promote crop diversification.

At present, the Indian Council of Agricultural Research (ICAR) supervises 731 KVKs across 28 states and 8 union territories. The highest number of KVKs are in Uttar Pradesh (89), followed by Madhya Pradesh (54), Maharashtra (50), Rajasthan (47), Bihar (44), Odisha (33), Karnataka (33), Tamil Nadu (32), Gujarat (30), and Chhattisgarh (28). Similarly, out of 8,875 registered FPOs in the country, nearly 66.41 percent are concentrated in these top ten states, with the remaining 35.59 percent distributed across other states and union territories. Uttar Pradesh leads with 1,246 FPOs, followed by Madhya Pradesh (622), Bihar (580), Maharashtra (579), Rajasthan (533), Andhra Pradesh (449), Odisha (448), Assam (427), Gujarat (419), and Tamil Nadu (414).

These institutions KVKs and FPOs together serve as critical drivers of agricultural modernization, farmer empowerment, and rural economic development in India.

II. Review of the Literature

1. Technology Transfer and Extension Services

The role of KVKs as frontline extension systems has been emphasized by several scholars. Singh et al. (2012) critically examined the progress of KVKs in agricultural extension, identifying the need for strengthening institutional frameworks. Similarly, NILERD (2015) stressed the challenge of transferring technology to farmers, particularly smallholders, and ensuring its practical adoption at the grassroots level. Gautam et al. (2024) offered a historical perspective, tracing the five-decade journey of KVKs and underlining persistent issues such as workforce shortages and administrative bottlenecks. Burman et al. (2024) highlighted how the ICAR KVK Portal has enhanced knowledge dissemination through collaborative approaches with public, private, and voluntary organizations.

2. Economic Impact and Farmers' Welfare

Kumar et al. (2019) provided empirical evidence that KVK interventions significantly improve farm households' economic welfare, with benefit–cost ratios ranging between 8 and 12, thus demonstrating strong returns on investment. Sidana et al. (2023) further emphasized the role of KVKs in enhancing rural livelihoods through targeted activities for farmers, farm women, and rural youth. The **Indian Economic Survey (2025)** also reinforced the strategic importance of KVKs in India's agricultural development, calling for sustained investment to ensure equitable growth.

3. Climate Resilience and Adaptation

The vulnerability of rainfed and drought-prone regions has been a recurring theme. Ravi Shankar et al. (2019) showed that KVKs contribute to mitigating the impacts of climate change by disseminating adaptive technologies in dryland agriculture. Sreenivasulu et al. (2024) studied the NICRA project in Andhra Pradesh and concluded that KVK-led interventions from 2015 to 2021 strengthened agricultural resilience through improved production and risk management technologies.

4. Agripreneurship and Skill Development

KVKs are increasingly seen as centers of entrepreneurship and skill-building. Paul et al. (2021) highlighted their role in promoting agripreneurship through entrepreneurial development programs. These initiatives provide farmers with knowledge, training, and opportunities to transition from subsistence farming to agribusiness models. Sidana et al. (2023) also pointed out the importance of skill development for rural youth and women in strengthening local economies.

5. Sustainable and Natural Farming Practices

Recent literature also highlights the shift towards sustainability. Singh et al. (2024) documented ICAR's nationwide initiative (2022) on natural farming, coordinated through KVKs, which aims to harmonize agricultural practices with ecological balance. Kumar et al. (2024) showed how fodder-based interventions by KVKs in Bihar reduced reliance on common property resources and improved livestock productivity.

6. Technological Innovations in Agriculture

Beyond traditional extension roles, KVKs are engaging with cutting-edge innovations. Athare et al. (2024) explored the adoption of drone technology in western India, demonstrating its potential in spraying, crop monitoring, and surveillance, as well as advances in drone pilot training under ICAR-ATARI Pune Zone. Such innovations reflect the evolving nature of KVKs as hubs of technological modernization in agriculture.

Synthesis

Across these themes, the literature establishes that KVKs have evolved from mere extension centers into multifunctional institutions supporting technology transfer, economic development, climate resilience, entrepreneurship, and sustainable farming. While their impact has been significant, challenges remain in the areas of institutional capacity, grassroots adoption, and equitable reach.

Objectives of the Study

- To examine the progress and development of Krishi Vigyan Kendras (KVKs) in India.
- To conduct an empirical analysis of the role of KVKs in promoting agricultural development.
- To analyze the regional disparities in the distribution of KVKs and Farmer Producer Organizations (FPOs) across India.

Research Gap

Krishi Vigyan Kendras (KVKs) have played a vital role in transforming the Indian agricultural sector by disseminating knowledge, skills, and technology at the grassroots level. Existing studies have primarily focused on evaluating the impact of KVKs on agricultural development, the promotion of harmony in cultivation, and the expansion of natural farming practices. Some research has highlighted the significance of agricultural technology in enhancing production, while others have assessed the role of KVKs in providing technological support at the district level. However, the existing literature does not adequately address the issue of unequal distribution of KVKs and Farmers' Producer Organizations (FPOs) across the country. This gap is critical, as disparities in institutional distribution may affect equitable agricultural growth and access to resources.

III. Research Methodology:

This study is primarily based on secondary data collected from various authentic government and institutional sources. The key data sources include the Indian Council of Agricultural Research (ICAR), the Ministry of Agriculture and Farmers' Welfare, Government of India, and the PM Kisan Samman Nidhi Portal. Additional data have been drawn from reports of the Commission for Agricultural Costs and Prices (CACP), the Indian Economic Survey, and Agricultural Statistics at a Glance. Relevant information published by state governments, as well as various public and private institutions, has also been utilized.

The analysis focuses on conducting an empirical examination of the role and performance of Krishi Vigyan Kendras (KVKs) in India, with special reference to their contribution to agricultural development, technology dissemination, and support to farmers.

Scope of the Study:

This study focuses on examining the states with the highest distribution of Krishi Vigyan Kendras (KVKs) and Farmer Producer Organizations (FPOs) in India. The scope is confined to the top ten states in terms of KVK distribution and their corresponding performance in total food grain production during the period 2009–10 to 2023–24.

Progress of Krishi Vigyan Kendras (KVK) in India

Krishi Vigyan Kendras (KVKs) have emerged as transformative institutions in reshaping India's agricultural landscape. The journey began with the establishment of the first KVK in Puducherry (then Pondicherry) on 21st March 1974, based on the recommendations of the Dr. Mohan Singh Mehta Committee Report. Since then, KVKs have played a central role in ensuring sustainable food production, household nutritional security, and the effective dissemination of agricultural innovations.

Over the past five decades, the network of KVKs has expanded significantly from a single center in 1974 to 731 centers by 2025. With India currently having 788 districts, KVKs represent the only institutional framework functioning at the district level to provide technological backstopping in agriculture and allied sectors.

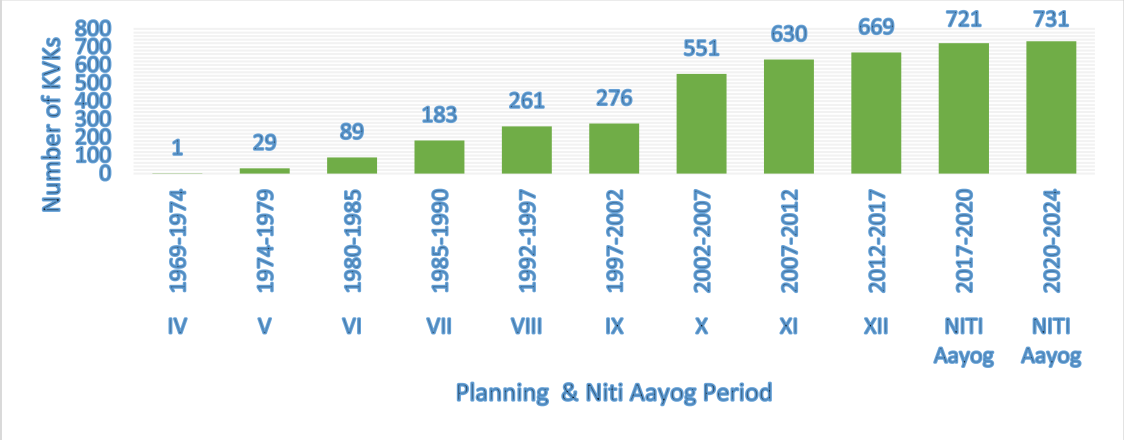
In today's context of rising environmental concerns, globalization, food security challenges, and regional disparities, KVKs face the crucial task of adopting new directions in planning and technology application. Strengthening linkages among stakeholders' farmers, researchers, policymakers, and extension workers remains vital. Such collaborative efforts will help meet the growing demand for food production while balancing sustainability concerns. Moreover, KVKs empower farmers not only to enhance productivity but also to uphold the dignity and pride associated with agriculture as a profession.

Table: 1 Progress of KVKs in India from 1974 to 2025

Five Year Plan	Plan Period	No. of KVKs
IV	1969-1974	**1**
V	1974-1979	**29**
VI	1980-1985	**89**
VII	1985-1990	**183**
VIII	1992-1997	**261**
IX	1997-2002	**276**
X	2002-2007	**551**
XI	2007-2012	**630**
XII	2012-2017	**669**
NITI Aayog	2017-2020	**721**
NITI Aayog	2020-2024	**731**

Source: Annual Report of ICAR

Progress of KVKs in India from 1974 to 2025



Source: Indian Council of Agriculture Research

Table 1 highlights the progress of Krishi Vigyan Kendras (KVKs) in India from 1974 to 2024, in the post-Green Revolution period. The number of KVKs has grown remarkably from just one during the First Five-Year Plan to 731 centers by 2025. To further strengthen rural engagement, the Attracting and Retaining Youth in Agriculture (ARYA) project was launched, aimed at empowering rural youth by ensuring sustained income and productive employment in agriculture and allied sectors. The initiative also emphasizes efficient utilization of local resources through networking and convergence, thereby promoting sustainable agricultural development. Currently, the ARYA project is operational in 100 KVKs.

Journey of KVKs in India (1974- 2025)

Over the past five decades, Krishi Vigyan Kendras (KVKs) have emerged as pivotal institutions in strengthening India's agricultural landscape. From a single KVK established in 1974, the network has expanded remarkably to 731 centers by 2025. The Government of India has taken significant measures to establish KVKs in nearly every district across states and union territories, marking an encouraging step toward empowering rural farmers and promoting agricultural development.

However, challenges persist. In several states, the agricultural sector continues to struggle due to unequal allocation and distribution of resources. Policy shortcomings, political and bureaucratic neglect, weak public administration, and disparities in the distribution of KVKs have hindered balanced growth. These issues underscore the need for more inclusive policies and equitable resource distribution to fully realize the transformative potential of KVKs in Indian agriculture.

Over the past five decades, Krishi Vigyan Kendras (KVKs) have emerged as pivotal institutions in Indian agriculture. Their numbers have grown significantly, from just one in 1974 to 731 in 2025. The Government of India has taken several initiatives to establish KVKs at the district level across states and union territories, which is a positive step toward encouraging and empowering rural farmers. However, despite this progress, certain states continue to face serious challenges in the agricultural sector due to unequal allocation and distribution of resources. In many cases, agriculture has been pushed backward by the indifference of policymakers, political leaders, bureaucrats, and gaps in public administration. Additionally, the uneven distribution of KVKs across the country has further deepened these regional disparities.

Journey of KVKs in India from 1974- 2025

Year	Journey of KVKs
1974	First KVK in Puducherry 21st march 1974
1974	Vocational training
1987	On –Farm testing
1997	Technology assessment & refinement
2015	Technology assessment, demonstration & capacity development
2021-26	Single window knowledge. Resource and Capacity Development

The Distribution of KVKs by Institution Type in India

A majority of KVKs, accounting for 66.62 percent**,** are managed by State Agricultural Universities**.** This is followed by Non-Government Organizations (13.81%)**,** ICAR Institutes (9.02%), and the State Government (5.19%)**.** Central Agricultural Universities contribute 3 percent, while the Public Sector Undertakings represent the smallest share, with only 0.27 percent.

Table: 2 Distributions of KVKs by Institution Type in India - 2025

Sl.No	Host Institution	Number of KVKs	Share of total KVKs (%)
1	State Agricultural University	487	**66.62**
2	Central Agricultural Universities	22	**3.00**
3	ICAR Institutes	66	**9.02**
4	Non-government Organization	101	**13.81**
5	Public Sector Undertaking	2	**0.27**
6	State Govt.	38	**5.19**
7	Central University	3	**0.41**
8	Deemed University	7	**0.95**
9	Other Educational Institution	5	**0.68**
10	**Total**	**731**	**100.0**

Source: Indian Council of Agriculture Research

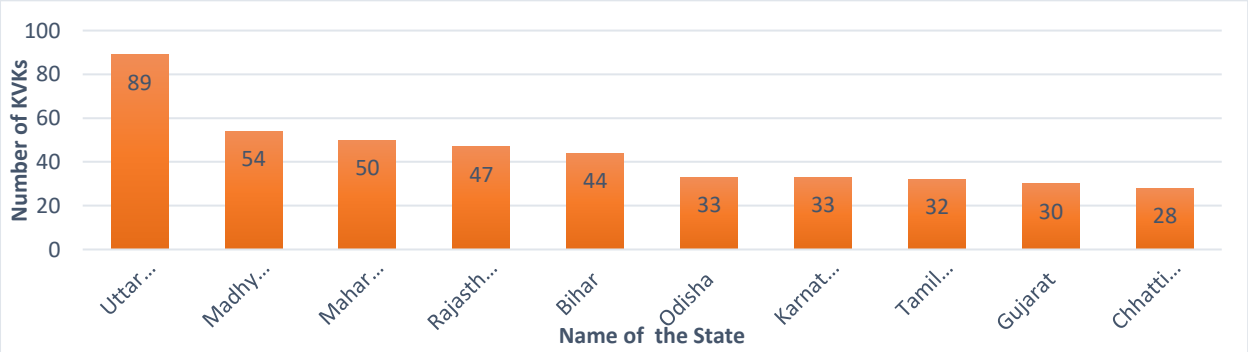
Table 2 highlights the distribution of KVKs by institution type in India (2025). The majority, 66.62 percent, are managed by State Agricultural Universities, followed by 13.81 percent under Non-Government Organizations, 9.02 percent by ICAR Institutes, 5.19 percent by State Governments, and 3 percent by Central Agricultural Universities. The smallest share, just 0.27 percent, is held by Public Sector Undertakings.

Table: 3 Top 10 KVKs States in India - 2025

SlNo.	Name of the State	No. of KVKs	(%) of KVKs
1	Uttar Pradesh	**89**	**12.17**
2	Madhya Pradesh	**54**	**7.38**
3	Maharashtra	**50**	**6.83**
4	Rajasthan	**47**	**6.42**
5	Bihar	**44**	**6.01**
6	Odisha	**33**	**4.51**
7	Karnataka	**33**	**4.51**
8	Tamil Nadu	**32**	**4.37**
9	Gujarat	**30**	**4.10**
10	Chhattisgarh	**28**	**3.83**
	Total	**440**	**60.19**
	Remaining states	**291**	**39.81**
	Grand Total	**731**	**100**

Source: Annual Report of ICAR

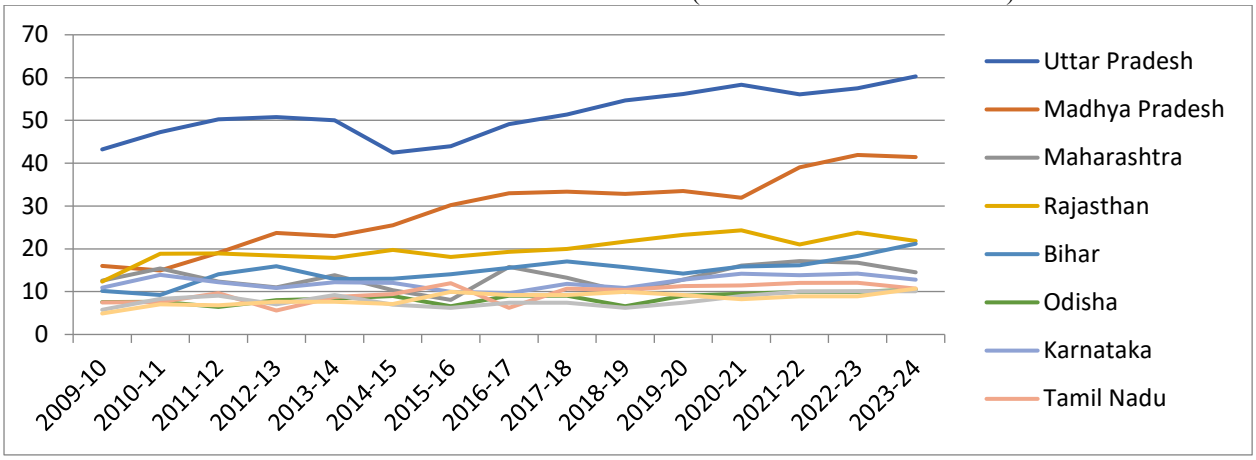
Top 10 KVKs States in India



The above Table 3 presents the Top 10 states with the highest number of Krishi Vigyan Kendras (KVKs) in India as of 2025. Currently, the Indian Council of Agricultural Research (ICAR) has established a total of 731 KVKs across 28 states and 8 Union Territories. Uttar Pradesh leads with 89 KVKs, followed by Madhya Pradesh with 54, Maharashtra with 50, Rajasthan with 47, and Bihar with 44. Odisha and Karnataka each have 33 KVKs, Tamil Nadu has 32, Gujarat has 30, and Chhattisgarh accounts for 28.

Total Food Grains Production of Top 10 KVKs States in India from 2009-10 to 2023-24

(Production – Million Tonnes)



The below Table 4 shows the Total Food Grains Production of the Top 10 KVK States in India from 2009-10 to 2023-24. Among these states, Uttar Pradesh stands out as the leading state, not only in having the highest number of KVKs but also in contributing the largest share of total food grain production in the country compared to the other nine states.

The below Table 4 highlights the Total Food Grain Production of the Top 10 KVK States in India from 2009-10 to 2023-24. These ten states together account for over 60 percent of India's food grain production and house 60 percent of the total KVKs in the country. The remaining 26 states and Union Territories contribute less than 40 percent of food grain output and KVK distribution. Over the years, food grain production in these top 10 KVK states has shown a consistent increase. Several factors influence food grain production and productivity, including the availability of quality seeds, fertilizers, pesticides, economic support, irrigation and power facilities, Minimum Support Price (MSP), and other essential agricultural inputs. Alongside these, KVKs play a critical role by transferring agricultural knowledge and skills from the planting stage to the harvesting stage, thereby enhancing both production and productivity.

To address emerging challenges, it is necessary to focus on sustainable resource management, higher productivity with sustainability, and enhancing farmers' income by improving efficiency in the farm-to-market value chain. Since the establishment of the first KVK in 1974, these institutions have empowered farmers and contributed significantly to agricultural development by:

- Showcasing frontier technologies
- Capacity development of stakeholders
- Acting as frontrunners in agricultural technology application
- Providing technological information and quality inputs
- Practicing participatory approaches in planning, implementation, and evaluation
- Assessing and refining technologies for diverse agro-climatic conditions

Contributions of KVKs at the National Level

As a single-window Agricultural Technology Information Centre (ATIC), KVKs are expected to produce and supply quality inputs such as seeds, planting material, bio-agents, livestock, and fingerlings to farmers. They also play a crucial role in identifying and documenting farmer-led innovations while converging their activities with ongoing agricultural and rural development programs.

Tble:4 Total Food Grains Production of Top 10 KVKs States in India from 2009-10 to 2023-24

(Production – Million Tonnes)

Name of the State	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
U P	43.20	47.25	50.29	50.75	50.03	42.47	44.01	49.14	51.37	54.63	56.17	58.32	56.11	57.51	60.28
M P	16.02	14.95	19.05	23.69	22.98	25.49	30.21	32.98	33.35	32.80	33.52	31.96	39.05	41.93	41.46
MH	12.59	15.42	12.32	10.97	13.85	10.33	8.07	15.79	13.25	9.86	12.82	16.07	17.14	16.73	14.50
RJ	12.35	18.83	18.96	18.37	17.90	19.75	18.10	19.28	19.96	21.68	23.23	24.32	21.05	23.81	21.87
BH	10.15	9.22	14.05	15.94	12.91	13.05	14.10	15.58	17.04	15.69	14.23	15.85	16.19	18.34	21.20
OD	7.55	7.62	6.43	8.01	8.36	8.97	6.59	9.06	9.06	6.59	9.06	9.52	9.95	9.95	10.50
KT	10.96	13.88	12.20	10.86	12.21	12.05	9.97	9.64	11.79	10.85	12.78	14.19	13.81	14.18	12.77
TN	7.51	7.59	9.64	5.59	8.78	9.46	11.94	6.22	10.71	10.40	11.27	11.45	12.05	12.07	10.70
GJ	5.76	8.34	9.07	7.06	9.18	6.99	6.23	7.42	7.42	6.23	7.42	8.97	10.06	10.07	10.09
CH	4.90	7.06	6.84	7.64	7.60	7.08	9.96	9.23	9.23	9.96	9.23	8.23	8.90	8.90	10.71
Total	**133.99**	**150.16**	**158.85**	**158.88**	**163.8**	**155.82**	**159.18**	**174.34**	**183.18**	**178.59**	**189.73**	**198.88**	**204.31**	**213.49**	**214.08**
India Total	**218.11**	**244.49**	**257.44**	**257.13**	**264.77**	**252.02**	**252.22**	**271.98**	**285.01**	**284.95**	**297.50**	**308.65**	**315.62**	**329.69**	**332.22**

Source: Agriculture Statistics at a glance of India reports in various years

Note: UP- Uttar Pradesh, MP-Madhya Pradesh, MH- Maharashtra, RJ- Rajasthan, BH- Bihar, OD- Odessa, KT-Karnataka, TN- Tamil Nadu, GJ- Gujarat, CHH- Chhattisgarh

Table: 5 Total Food Grains Production of Top 10 KVKs States in India from 2009-10 to 2023-24

(Production – Million Tonnes)

Name of the State	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**CAGR**
U P	43.20	47.25	50.29	50.75	50.03	42.47	44.01	49.14	51.37	54.63	56.17	58.32	56.11	57.51	60.28	**2.25**
M P	16.02	14.95	19.05	23.69	22.98	25.49	30.21	32.98	33.35	32.80	33.52	31.96	39.05	41.93	41.46	**6.56**
MH	12.59	15.42	12.32	10.97	13.85	10.33	8.07	15.79	13.25	9.86	12.82	16.07	17.14	16.73	14.50	**0.95**
RJ	12.35	18.83	18.96	18.37	17.90	19.75	18.10	19.28	19.96	21.68	23.23	24.32	21.05	23.81	21.87	**3.88**
BH	10.15	9.22	14.05	15.94	12.91	13.05	14.10	15.58	17.04	15.69	14.23	15.85	16.19	18.34	21.20	**5.03**
OD	7.55	7.62	6.43	8.01	8.36	8.97	6.59	9.06	9.06	6.59	9.06	9.52	9.95	9.95	10.50	**2.22**
KT	10.96	13.88	12.20	10.86	12.21	12.05	9.97	9.64	11.79	10.85	12.78	14.19	13.81	14.18	12.77	**1.02**
TN	7.51	7.59	9.64	5.59	8.78	9.46	11.94	6.22	10.71	10.40	11.27	11.45	12.05	12.07	10.70	**2.39**
GJ	5.76	8.34	9.07	7.06	9.18	6.99	6.23	7.42	7.42	6.23	7.42	8.97	10.06	10.07	10.09	**3.81**
CH	4.90	7.06	6.84	7.64	7.60	7.08	9.96	9.23	9.23	9.96	9.23	8.23	8.90	8.90	10.71	**5.35**

Source: Agriculture Statistics at a glance of India reports in various years

Note: UP- Uttar Pradesh, MP-Madhya Pradesh, MH- Maharashtra, RJ- Rajasthan, BH- Bihar, OD- Odessa, KT-Karnataka, TN- Tamil Nadu, GJ- Gujarat, CHH- Chhattisgarh

Strengthening Farmers in Rural India

Indian agriculture is still dominated by small and marginal farmers, who face constraints in market access, quality inputs, credit facilities, and advanced technologies factors that weaken their bargaining power and profitability. To mitigate these challenges, farmer collectives such as cooperatives and Farmer Producer Organizations (FPOs) have emerged as important support mechanisms. The Government of India launched the Central Sector Scheme (CSS) on "Formation and Promotion of 10,000 FPOs" in 2020, followed by the approval of the "Plan for Strengthening and Deepening the Reach of Cooperatives" in 2023. As of 25th April 2024, 8,454 FPOs have been registered across the country, though many are still in their early stages. To ensure sustainability, robust policy support is essential. The Commission for Agricultural Costs and Prices (CACP) emphasizes the importance of linking FPOs with digital platforms such as e-NAM and commodity derivative markets to improve market access, ensure better price discovery, and enhance the profitability of member farmers.

Table: 6 Top TEN Farmer Producer Organizations States (FPOs) in India

Sl.No	**Name of the State**	**No. of FOPs**	**%**
1	Uttar Pradesh	1,246	14.03
2	Madhya Pradesh	622	7.00
3	Bihar	580	6.53
4	Maharashtra	579	6.52
5	Rajasthan	533	6.00
6	Andhra Pradesh	449	5.05
7	Odisha	448	5.04
8	Assam	427	4.81
9	Gujarat	419	4.72
10	Tamil Nadu	414	4.66
	Total	**5717**	64.41
	Remaining states	**3158**	35.59
	Grand Total	8,875	100

Source: Department of Agriculture & Farmers Welfare Ministry of Agriculture of India

The above Table 6 presents the distribution of the Top Ten Farmer Producer Organization (FPO) Societies in India. Out of a total of 8,875 FPOs across the country, 66.41 percent are concentrated in the top ten states, while the remaining states and Union Territories account for 35.59 percent. Uttar Pradesh leads with the highest number of FPOs (1,246), followed by Madhya Pradesh (622), Bihar (580), Maharashtra (579), Rajasthan (533), Andhra Pradesh (449), Odisha (448), Assam (427), Gujarat (419), and Tamil Nadu (414), which occupies the tenth position.

Table: 7 Top 10 KVKs & Farmer Producer Organizations States in India - 2025

SlNo.	Name of the State	No. of KVKs	**(%) of KVKs**	**No. of FOPs**	**(%) of FOPs**
1	Uttar Pradesh	89	12.17	1,246	14.03
2	Madhya Pradesh	54	7.38	622	7.00
3	Maharashtra	50	6.83	579	6.52
4	Rajasthan	47	6.42	533	6.00
5	Bihar	44	6.01	580	6.53
6	Odisha	33	4.51	448	5.04
7	Karnataka	33	4.51	(AP)449	5.05
8	Tamil Nadu	32	4.37	414	4.66
9	Gujarat	30	4.10	419	4.72
10	Chhattisgarh	28	3.83	Assam 427	4.81
	Total	**440**	**60.19**	**5717**	**64.41**
	Remaining states	**291**	**39.81**	**3158**	**35.59**
	Grand Total	**731**	**100**	**8,875**	**100**

Source: Author

The above table 7 presents the Top 10 states in India with the highest number of KVKs and Farmer Producer Organizations (FPOs) in 2025. At present, ICAR has established 731 KVKs across 28 states and 8 Union Territories. Uttar Pradesh ranks first with 89 KVKs, followed by Madhya Pradesh (54), Maharashtra (50), Rajasthan (47), Bihar (44), Odisha (33), Karnataka (33), Tamil Nadu (32), Gujarat (30), and Chhattisgarh (28). Similarly, FPOs are also largely concentrated in these top ten states. Out of 8,875 FPOs in India, 66.41percent are located in these states, while the remaining 35.59 percent are distributed across other states and Union Territories. Uttar Pradesh again leads with 1,246 FPOs, followed by Madhya Pradesh (622), Bihar (580), Maharashtra (579), Rajasthan (533), Andhra Pradesh (449), Odisha (448), Assam (427), Gujarat (419), and Tamil Nadu (414).

Contribution of KVKs in State Policy

Kerala

- KVK Pathanamthitta has been designated as the State Resource Centre for Jackfruit Value Addition, following its successful pilot programme on jackfruit-based entrepreneurship promotion.
- KVK Alappuzha has been recognized as the State Resource Centre for Agro-processing and Value Addition.

Lakshadweep

- After Sikkim, Lakshadweep has been declared an organic territory, with large-scale organic certification facilitated by the KVK.

Maharashtra

- The Farm Pond Model developed by KVKs has been scaled up as a State-level Programme.

Bihar

- Climate Resilient Agriculture (CRA) policy now covers all 38 districts with active KVK support.
- The Nutri-sensitive Agricultural Resources and Innovations (NARI) initiative has been integrated with the Nutri-Garden and Anganwadi Programme, reaching 18,000 centres.

Jharkhand

- The State Government has adopted Bora Bandi Technology for soil and water conservation, enabling diversification of the rice–vegetable cropping system across 500 villages.

West Bengal

- Land Shaping Technology in the Sunderbans has increased cropping intensity to 270% and farmer income from ₹30,000/ha to ₹4 lakh/ha.
- This technology has been expanded over 2,000 hectares and attracted ₹30 crore investment from the State Government.

IV. Conclusion and Recommendations

Based on the evaluation of literature, it is evident that the rural economy and agricultural sector play a pivotal role in India's economic development. Krishi Vigyan Kendras (KVKs) have emerged as significant contributors to rural transformation by offering knowledge, skills, and guidance to farming communities. With

their multidisciplinary teams, KVKs work in a participatory mode with farmers and rural stakeholders through activities such as:

- Farm advisory services
- Vocational training for farmers, farm women, SHG members, and rural youth
- Frontline demonstrations
- On-farm testing

KVKs play a vital role in enhancing the skills of rural farmers and equipping them with innovative practices. However, in certain areas, the impact of training remains limited, suggesting the need for modifications in training modules and curriculum to make them more region-specific and need-based. In conclusion, KVKs serve as knowledge hubs, improving farmers' technical capabilities and problem-solving skills in agriculture and allied sectors. The scientists working in KVKs not only provide continuous technical support but also motivate farmers to explore new entrepreneurial ventures for sustainable livelihoods. Much like a lighthouse guiding sailors at sea, KVKs illuminate the path for farmers, helping them navigate challenges and progress towards self-reliance and prosperity.

Managerial Implications

The findings of this study highlight the significant role of training in fostering rural and agricultural development. The study also brings attention to the unequal distribution of KVKs across India, indicating the need for policy measures to strengthen their presence in underrepresented states. Furthermore, it will help identify the reasons why certain rural areas lag behind in development. The insights generated will serve as valuable feedback for managers, executors, and trainers of KVKs, enabling them to address existing gaps and improve the planning and organization of future training programmes.

Way Forward

This study highlights the significant role of Krishi Vigyan Kendras (KVKs) in agricultural and rural development, particularly through their support to farmers, farm women, and rural youth. Moving forward, future research should explore the contribution of other agencies in promoting sustainable development. Further studies are also required to examine the challenges faced by rural youth and farmers in accessing and effectively utilizing KVK services.

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