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### Evaluating the interventions made under Rastriya Krishi Vikas Yojana (RKVY) for the beneficiaries of Nadia district in West Bengal

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#### Abstract

The Rastriya Krishi Vikas Yojana (RKVY) was introduced to enhance agricultural productivity and rural livelihoods through targeted interventions. Launched in 2007, the Rastriya Krishi Vikas Yojana (RKVY) is an umbrella scheme aimed at the comprehensive development of agriculture and allied sectors. It provides states with the flexibility to design and implement agricultural and allied activities based on their respective district or state agricultural plans. This study evaluates the various interventions implemented under RKVY in the Nadia district of West Bengal, focusing on their level of execution for the beneficiaries. The research assesses the effectiveness of these initiatives in improving the socio-economic conditions of farmers and identifies key constraints affecting their implementation. The study was carried out in the villages of Allaipur, Sikarpur, Tarinipur, Char Sarhati, Gheropara, Kholshi Bajar, Bhandarkona, Dighol Gram, Kugachi, Banamali Para, Kadambagachi, and Narayanpur. These villages fall under the Kalyani, Haringhata, and Chakdaha blocks of Nadia district. A total of 120 respondents were selected using the quota sampling technique, which is a type of non-probability sampling method. The data was collected through a structured interview schedule. The results indicate that although RKVY has contributed to improving the livelihoods of numerous farmers, additional interventions are required to achieve more balanced and sustainable benefits.

**Keywords:** Rastriya Krishi Vikas Yojana (RKVY), agricultural productivity, rural livelihoods, state agricultural plans, socio-economic conditions, farmer's income, crop development, horticulture, agricultural mechanization, natural resource management, post harvest management, animal husbandry, dairy, fisheries, extension, public investment, infrastructure, bureaucratic hurdles, resource constraints, awareness campaigns, capacity building

#### Introduction

Rastriya Krishi Vikash Yojana (RKVY) was initiated in 2007. As an umbrella scheme for holistic development of agriculture and allied sectors by allowing states to choose their own agriculture and allied sector development activity as per the district/state agriculture plan. The scheme has come a long way since its inception and has been implemented across two plan periods (11<sup>th</sup> and 12<sup>th</sup> plan). During the 11th plan an amount of rupees 22408.76 crore was released to states and 5768 projects were implemented. In the 12<sup>th</sup> plan 31488.44 crore was released and over 7600 projects were implemented in the sector of crop development, horticulture, agricultural mechanization, natural resource management, marketing, post-harvest management, animal husbandry, dairy, fisheries, extension etc. Till 2013 -14 the scheme was implemented as an additional central assistant to state plan schemes with 100% central assistance. It is converted into a centralised sponsored scheme in 2014-15 also with 100% central assistance since 2015-16 the funding pattern in of the scheme has been altered in the ratio of 60:40 between central and state (90:10 for Northeastern States and

Himalayan States). For union territories the funding pattern is 100% central grant. The Rastriya Krishi Vikas Yojana (RKVY) aims to achieve and sustain the targeted annual growth in the agriculture and allied sectors during the 12th Plan period by promoting comprehensive and integrated development. The key objectives of the scheme include:

- Encouraging state governments to enhance public investment in agriculture and allied activities.
- Granting greater flexibility and autonomy to states in planning and implementing agricultural initiatives.
- Ensuring the formulation of district and state-level agricultural plans based on agro-climatic conditions, technological availability, and natural resources.
- Aligning agricultural plans with local crop preferences, priorities, and needs of the region.
- Reducing yield gaps in major crops through targeted interventions.
- Enhancing farmers' income by maximizing returns from agriculture and allied sectors.
- Bringing measurable improvements in the production and productivity of agriculture and allied sectors by addressing challenges holistically.

The study aimed to examine the interventions carried out under the Rastriya Krishi Vikas Yojana (RKVY) in Nadia district. It began by outlining the program's objectives, structure, and framework, emphasizing its key goals, target beneficiaries, and financial provisions. A mixed-method approach was employed, incorporating surveys, interviews, and field observations for data collection. The research evaluated stakeholder involvement, resource utilization, and project execution. While agricultural projects were largely successful, infrastructure initiatives faced delays due to bureaucratic hurdles and resource constraints. Despite positive impacts on productivity and income, challenges such as limited awareness and administrative inefficiencies persisted. The evaluation revealed that while most interventions were implemented as planned, agricultural projects had higher completion rates compared to infrastructure-related initiatives, which faced delays. However, challenges such as limited awareness, resource constraints, and administrative inefficiencies were identified. To address these issues, the study recommended targeted awareness campaigns, investments in capacity-building, and more efficient bureaucratic processes to ensure timely project execution and maximize benefits for farmers. These findings provided valuable insights into the effectiveness and challenges of RKVY interventions in the district.

**Research Methodology**

The study was conducted in Nadia district of West Bengal comprising 3 blocks, 6-gram panchayats, 12 villages in the study area. This was conducted in West Bengal, a state where agriculture plays a crucial role in both employment and economic contribution. With its varied agro-climatic conditions, nutrient-rich soil, and ample water supply from major rivers such as the Ganges, Hooghly, and Damodar, the region is well-suited for cultivating a diverse range of crops. Out of 23 districts of West Bengal, Nadia districts was purposely selected. Total of three blocks were randomly selected for the study. There are 18 blocks in the Nadia district out of which Kalyani, Haringhata, and Chakdaha were randomly selected. Total six-gram panchayats were selected randomly for the study. The selected gram panchayats are Madanpur-II, Sarhati from Kalyani block, Kastodanga-II, Nagarkhura-II from Haringhata block and Ghetugachi, Deuli from Chakdaha block. A total of twelve villages were selected for the study. The selected villages were Allaipur and Sikarpur from Madanpur-II, Tarinipur and Char sarhati from Sarhati, Gheropara and Kholshi bajar from Kastodanga-II, Bhandarkona and Dighol gram from

Nagarkhura-II, Kugachi and Banamali para from Ghetugachi, Kadambagachi and Narayanpur from Deuli. Total number of the respondents were 120. Each village 10 no of respondent farmers were selected by following Quota Sampling technique coming under the non-probability sampling method. To understand the intervention made under RKVY and its level of implementation by the beneficiaries. A list of statements was developed based on the pilot study and review of literature. The number of individuals or observations in each class of attributes/variables is called frequency of that class of variables. The arrangement of Frequencies in different classes of a variable is called The Frequency distribution of the variables. Percentages were employed in the descriptive analysis to enable easy comparisons. This approach enhanced the clarity and precision of the data, helping to organize the findings effectively.

$$\text{Percentage} = \frac{\text{no. of respondents}}{\text{total no. of respondents}} \times 100$$

Arithmetic mean (X) of variable is obtained by dividing the sum of all the variety values of a series of observations by the total number of observations, Thus, if there are n observations of a variable, x having values x<sub>1</sub>, x<sub>2</sub>, .... x<sub>n</sub> then

$$\text{Arithmetic mean } (\bar{X}) = \frac{x^1 + x^2 + \dots + x_n}{n} = \frac{1}{n} \sum_{i=1}^n x_i$$

Ranking reflects individuals' priorities regarding their thoughts and feelings. The ranking process involved assigning the first rank to the highest mean score, the second rank to the next highest mean score, and so forth.

**Results and Discussion**

**1. Level of implementation of RKVY interventions**

To evaluate the level of implementation of various RKVY interventions in Nadia district, a detailed analysis was conducted. This analysis provides insights into the areas where RKVY initiatives have been embraced extensively by farmers, as well as those that face challenges in adoption. By understanding which interventions are mostly implemented and which are less adopted. Additionally, it highlighted the priorities and needs of farmers, reflecting on what aspects of agricultural development are most relevant in the local context of the study area in Nadia district. The findings offer guidance on where further emphasis or adjustment might be needed to better serve the farmers.

**Table 1:** Level of implementation of RKVY interventions- (N=120)

Sl. No	Statements	Great extent		Moderate extent		Little extent		Mean	Rank
		F	%	F	%	F	%		
1.	Promotion of high yielding varieties and hybrid seeds							15.25	V
	a.(i) Method demonstration	80	66.7	29	24.1	11	9.2		
	(ii) Result demonstration	25	20.8	84	70	11	9.2		
	b. Giving technical support by government field functionaries	35	29.2	63	52.5	22	18.3		
	c. Creating awareness about the merits of high yielding varieties	76	63.3	44	36.7	0	0		
	d. (i) giving financial assistance in form of loan	39	32.5	49	40.8	32	26.7		
	(iii) Giving financial assistance in the name of incentives	12	10.0	4	3.3	104	86.7		
	e. Use of IPM	63	52.5	57	47.5	0	0		

	f. Use of nutrient management	44	36.7	71	59.2	5	4.1		
2.	Soil health management							18.63	III
	a. Soil sample collection	94	78.3	0	0	26	21.7		
	b. Issues of health card	36	30.0	2	1.7	82	68.3		
	c. Revealing farmers to use organic fertilizer	40	33.3	60	50.0	20	16.7		
	d. Encouraging farmers to use organic fertilizer	75	62.5	44	36.7	1	0.8		
	e. Use of balance nutrient for higher yield	45	37.5	72	60.0	3	2.5		
	f. Use of biofertilizer and micronutrient	43	35.8	56	46.7	21	17.5		
	g. Use of vermicompost	97	80.8	9	7.5	14	11.7		
	h. Organizing training programmes on soil health management practices	85	70.8	3	2.5	32	26.7		
3.	Integrated pest management							17.43	IV
	a.(i) Use of pesticides	62	51.7	30	25.0	28	23.3		
	(ii) Use of natural pest predators	3	2.5	22	18.3	95	79.2		
	b. Use of pest control equipment	27	22.5	88	73.3	5	4.2		
	c. Attending training programmes on pest identification and their management	105	87.5	3	2.5	12	10.0		
	d. Use of beneficial insects	2	1.7	2	1.7	116	96.6		
	e. Attending training in farmer field school on IPM	73	60.8	25	20.8	22	18.3		
	f. Adopting genetically improved seeds with built in pest resistance	57	47.5	51	42.5	12	10.0		
	g. Getting advisory support from functionaries of agricultural department	69	57.5	49	40.8	2	1.7		
4.	Water resource management							9.67	VIII
	a.(i) Construction of check dams	0	0	0	0	120	100.0		
	(ii) Construction of water harvesting structures	4	3.3	20	16.7	96	80.0		
	(iii) Construction of irrigation canals	0	0	0	0	120	100.0		
	b. (i) Renovation of check dams	0	0	0	0	120	100.0		
	(ii) Renovation of water harvesting structures	4	3.3	2	1.7	114	95.0		
	(iii) Renovation of irrigation canals	0	0	0	0	120	100.0		
	C. (i) Use of micro irrigation system drip irrigation	64	53.3	29	24.2	27	22.5		
	(ii) Use of micro irrigation system sprinkler irrigation	2	1.7	2	1.7	116	96.6		
5.	Farm mechanization							7.21	IX
	a. Getting subsidy for farm machineries and equipment	115	95.8	5	4.2	0	0		
	b. Visiting custom hiring centre for agricultural machinery	1	0.8	0	0	119	99.2		
	c. Use of ecofriendly machinery	0	0	2	1.7	118	98.3		
	d. Field demonstration to showcase benefit of farm mechanization	28	23.4	91	75.8	1	0.8		
6.	Horticulture development							24.50	I
	a.(i) Promotion of horticultural crops - fruit	33	27.5	53	44.2	34	28.3		
	(ii) Promotion of horticultural crops – vegetables	63	52.5	51	42.5	6	5.0		
	(iii) Promotion of horticultural crops – flowers	30	25.0	46	38.3	44	36.7		
	(iv) Promotion of horticultural crops – spices	27	22.5	46	38.3	47	39.2		
	b. Training programmes on post-harvest management	4	3.3	2	1.7	114	95.0		
	c. Use of high value crop to boost farmer's income	7	5.8	111	92.5	2	1.7		
	d. Training programmes on modern horticultural practices	12	10.0	11	9.2	97	80.8		
	e.(i) Enhancing farmer's skill in nursery management	56	46.7	40	33.3	24	20		
	(ii) Enhancing farmer's skill in grafting	37	30.8	28	23.4	55	45.8		
	(iii) Enhancing farmer's skill in pruning	24	20	5	4.2	91	75.8		
	f.(i) Use of – green house	0	0	11	9.2	109	90.8		
	(ii) Use of – poly house	0	0	11	9.2	109	90.8		
	(iii) Use of – shade nets	0	0	11	9.2	109	90.8		
	g. Developing cold storage facilities, pack house, processing units to improve post-harvest handling	1	0.8	0	0	119	99.2		
	h. Training workshops, field demonstrations on advanced horticulture practices	5	4.2	15	12.5	100	83.3		
	i. Availing financial support and subsidies	21	17.5	71	59.2	28	23.3		
7.	Animal husbandry and dairy development							15.80	VI
	a. Use of improved breeds of livestock poultry	46	38.3	65	54.2	9	7.5		
	b. Getting support for feed and fodder development	34	28.3	70	58.4	16	13.3		
	c. Use of better feeding, health care and management practices	33	27.7	80	66.7	7	5.8		
	d.(i) Support for the development of dairy infrastructure – milk collection centres	0	0	0	0	120	100		
	(ii) Support for the development of dairy infrastructure – chilling units	0	0	0	0	120	100		
	e. Availing regular veterinary services and vaccination programmes	115	95.8	0	0	5	4.2		
	f.(i) Use of balanced feed	3	2.5	112	93.3	5	4.2		
	(ii) Use of fodder resources	19	15.8	20	16.7	81	67.5		
8.	Fisheries development							6.25	X
	a. Construction of fishponds	41	34.2	0	0	79	65.8		
	b. Use of fish farming practices	33	27.5	8	6.7	79	65.8		
	c. Promotion of aquaculture	38	31.7	3	2.5	79	65.8		
	d. Training on modern fish farming	16	13.3	3	2.5	101	84.2		
9.	Market infrastructure and linkages							20.85	II

	a.(i) Development of market yard	98	81.7	22	18.3	0	0		
	(ii) Development of storage facilities	1	0.8	45	37.5	74	61.7		
	b. (i) Use of market facilities – wholsale market	110	91.7	8	6.7	2	1.7		
	(ii) Use of market facilities – rural hat	97	80.8	2	1.7	21	17.5		
	(iii) Use of market facilities – cold storage units	3	2.5	0	0	117	97.5		
	c. (i) improving – transportation	110	91.7	0	0	10	8.3		
	(ii) improving – logistics infrastructure	0	0	0	0	120	100		
	d. Encouraging the establishment of small-scale processing units	0	0	0	0	120	100		
	e.(i) Promoting – digital platforms market information	118	98.3	2	1.7	0	0		
	(ii) Promoting – price discovery	0	0	29	24.2	91	75.8		
	(iii) Online trading	0	0	0	0	120	100		
10.	Organic farming and sustainable agriculture							11.89	VII
	a. Support for vermicomposting	106	88.3	2	1.7	12	10.0		
	b. Support for green manuring	98	81.6	17	14.7	5	4.2		
	c. Support for organic certification process	2	1.7	37	30.8	81	67.5		
	d. Implementing climate resilient agriculture practices	12	10.0	11	9.2	97	80.8		
	e.(i) Use of agro forestry	17	14.2	23	19.2	80	66.6		
	(ii) Use of conservation agriculture	1	0.8	23	19.2	96	80.0		
	(iii) Use of other climate smart practices	0	0	2	1.7	118	98.3		

From the above table 4.1.5, it is enfolding that serial no 6 delineating the statement “horticulture development” which is suitable to study area i.e., Nadia district is great extent in this intervention by the farmers respondents ranked in No.1 position. Horticulture development ranked highest in Nadia district due to a combination of favourable agro-climatic conditions, high-value crops that boost income, and strong market demand for fresh produce. The focus on fruits, vegetables, flowers, and spices allows farmers to diversify their income and reduce risk compared to traditional crops. Skill development programs, especially in nursery management, grafting, and post-harvest techniques, have improved productivity and reduced wastage. Government support, including financial aid and extension services, has further facilitated the adoption of horticultural practices. Additionally, the labour-intensive nature of horticulture creates employment opportunities, making it particularly attractive for small farmers. Its resource efficiency and adaptability to local conditions ensure its long-term sustainability, securing its top rank among agricultural interventions in the district.

Similarly, the second positions are occupied by the statement “market infrastructure and linkages”. Market Infrastructure and Linkages ranked second in Nadia district due to its significant impact on farmers' access to larger markets and better prices for their produce. The development of market yards and the widespread use of wholesale markets have provided farmers with direct channels to sell their crops, reducing dependency on middlemen and improving income through fair pricing. Additionally, the promotion of digital platforms for market information has been a major success, with 98.3% of farmers utilizing these platforms to stay informed about market trends, prices, and demand. This access to timely market information empowers farmers to make better decisions, ensuring they sell their produce at the best possible price and increasing their overall profitability. The intervention's high adoption rate and its clear benefits in improving market access and income security explain why it ranked second in the district.

The third position has gone to the statement “soil health management”. Soil Health Management ranked third in Nadia district due to its essential role in ensuring long-term

agricultural productivity and sustainability. The widespread adoption of interventions like soil sample collection, issuance of soil health cards, and the promotion of organic fertilizers has improved farmers' understanding of their soil's nutrient needs. This has led to more informed and efficient use of fertilizers, boosting crop yields while maintaining soil fertility. The positive response to training programs on biofertilizers and balanced nutrient management reflects farmers' growing interest in sustainable farming practices. These efforts not only help improve soil quality but also reduce dependency on chemical inputs, aligning with both environmental sustainability and the long-term economic interests of farmers. This combination of immediate benefits and long-term sustainability explains why Soil Health Management ranks highly in the study area. The interventions in Fisheries Development, Farm Mechanization, and Water Resource Management ranked lower in Nadia district due to several reasons. Fisheries Development, despite the availability of water bodies, saw minimal uptake of modern fish farming techniques, largely because 84.2% of farmers did not attend relevant training. This training gap indicates a lack of awareness or interest, reducing its appeal as a viable income-generating option. Similarly, Farm Mechanization ranked low due to limited use of custom hiring centres and eco-friendly machinery. While subsidies exist, smallholder farmers may find the equipment unsuitable or too costly, and field demonstrations have not adequately addressed their specific needs. This indicates that farmers face barriers in accessing and adopting advanced machinery, hindering its widespread adoption. Water Resource Management faced a lack of engagement in essential projects like check dams, water harvesting, and irrigation systems. This could be due to poor infrastructure planning or reliance on alternative water practices. While drip irrigation saw some adoption, sprinkler systems were underutilized, possibly because of cost and limited awareness. Overall, these interventions failed to align with smallholder farmers' practical needs, leading to their lower ranking.

### Conclusion

The implementation of RKVY in Nadia district has led to significant improvements in agricultural productivity.

Through the provision of modern farming techniques, quality seeds, and irrigation facilities, farmers have experienced increased crop yields, which have positively affected their income levels. RKVY has encouraged farmers to diversify their crops and engage in allied activities such as livestock rearing, poultry farming, and aquaculture. This diversification has reduced dependence on a single crop and provided additional sources of income, contributing to overall economic stability. Training programs and workshops organized under RKVY have empowered farmers with knowledge and skills related to sustainable farming practices, pest management, and marketing strategies. This empowerment has enhanced their confidence and decision-making abilities, leading to better farm management. The scheme has facilitated the development of essential infrastructure, such as roads, storage facilities, and market access. Improved infrastructure has not only reduced post-harvest losses but has also enhanced market connectivity, allowing farmers to fetch better prices for their produce. By providing targeted support and resources, the program has contributed to reducing socio-economic disparities in the district. The initiative has improved access to credit and financial services for farmers, enabling them to invest in their farms. This access to finance has been crucial in promoting entrepreneurship and self-sufficiency among beneficiaries. RKVY has emphasized sustainable farming practices, leading to greater awareness of environmental issues among farmers. This shift towards sustainable agriculture has long-term benefits for the ecological balance in the region.

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