

# Performance of Incentive-Based Environmental Policies on Farmers in Dharwad District of Karnataka State

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## Abstract

This study investigates the effectiveness of incentive-based environmental policies, specifically *Savayava Bhagya* (organic farming) and *Raitha Siri* (millet promotion), in fostering sustainable agricultural practices among farmers in Dharwad Taluk, Karnataka. The research evaluates policy awareness, participation, economic benefits, and environmental outcomes using primary data collected from 30 farmers, including both beneficiaries and non-beneficiaries. Findings reveal that while *Savayava Bhagya* significantly reduced cultivation costs and improved profitability, *Raitha Siri* lacked substantial financial incentives and was limited to subsistence cultivation. Peer networks emerged as the primary source of policy information (90%), highlighting gaps in official outreach and mass media effectiveness. Furthermore, only 33.33 percent of respondents attended formal policy training, underscoring the need for enhanced capacity-building programs. Although 73.33 percent of farmers expressed high awareness levels, 40% of them were dissatisfied with government responsiveness and subsidy adequacy. Environmental benefits were evident, with 47.36 percent acknowledging improved soil fertility, yet pest management and initial yield drops remained persistent challenges. The study concludes that policy restructuring, targeted outreach, and increased financial aid are crucial to enhance policy inclusivity and long-term sustainability. Recommendations include expanding subsidy amounts, simplifying registration processes, and strengthening extension services, especially for smallholder and less-educated farmers.

**Key words:** Incentive-based environmental policies, *Savayava Bhagya*, *Raitha Siri*, Farmers' awareness and perception, Economic and environmental impact

India's agricultural transformation increasingly depends on successfully integrating environmental sustainability into policy frameworks. Incentive-based environmental policies act as key tools, motivating farmers to adopt eco-friendly practices while maintaining profitability. Karnataka's *Savayava Bhagya* and *Raitha Siri* programs exemplify efforts to connect agricultural productivity with ecological resilience. However, in Dharwad district also practically implemented these policies for the farmer which has significant challenges. The region's vulnerability to droughts, combined with a predominance of small-scale farms and limited education among farmers, exacerbates the challenges in policy implementation and the realization of its impact [1-2]. Furthermore, while environmental regulations often aim for long-term ecological benefits, their short-term economic viability remains a critical concern for farmers.

In Dharwad district, the implementation of incentive-based environmental policies through seed villages, field demonstrations, and farmer training has shown clear evidence of environmental and livelihood co-benefits, highlighting the dual role such programs can play in conservation and rural development [3]. Farmers exposed to these interventions adopted improved soil management practices, including the use of organic amendments and balanced fertilizer application, which not only enhanced soil health and water retention but also

reduced input costs [4]. At the same time, access to quality seeds and technical guidance encouraged crop diversification into oilseeds, pulses, and horticultural crops, thereby lowering production risks and strengthening household food security. These ecological improvements were directly linked to livelihood gains, as farmers benefitted from higher yields, premium prices for quality seed under seed village programs, and supplementary income from small-scale enterprises such as mushroom cultivation. The Dharwad experience illustrates that when incentives are timely, transparent, and coupled with technical and market support, farmers perceive conservation not as a cost but as an opportunity for profit and resilience. However, the benefits were not universal; in cases where implementation lacked follow-up support, timely payments, or effective market linkages, outcomes were limited, underscoring that the true success of IBEPs depends on strong institutional backing and consistent execution [5-6].

Existing research mainly concentrates on macro-level policy evaluations. However, few studies examine local aspects of awareness, adoption behavior, and tangible outcomes in semi-arid regions like Dharwad. This research aims to address that gap by providing empirical insights into farmers' experiences and the socioeconomic-environmental performance of incentive-based programs in the area. Understanding farmer's perceptions, participation barriers, and

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environmental challenges in adopting these policies can guide future policy design. The study highlights the importance of targeted interventions that promote inclusivity, efficiency, and effectiveness, particularly for vulnerable farming communities. In this direction two objectives were chosen for the study they are; To evaluate the economic impact of environmental policies on farmers in Dharwad district; and to assess the awareness and perception of the policies in the study area.

## MATERIALS AND METHODS

Dharwad district was purposively selected for the study since it has diversified cropping systems. The district is basically known with crop production of sorghum, maize, wheat, cotton, bengal gram, green gram, groundnut and soybean. In addition, the district is known for the cultivation of horticulture crops like mango, papaya, banana, onion, dry chilli, garlic and turmeric. The district is also known for cultivation of millets with suitable agro climatic conditions. In consultation with Raith Samparka Kendra and Krishi Sakhi 30 beneficiaries were selected across the district. Primary data were collected in 2025 through personal interview method using well-structured schedule which focus on two environmental policy schemes such as *Savayava Bhagya* and *Raitha Siri*. Quantitative data

were analyzed using descriptive statistics, percentage analysis, and average computation and also, perceptions were assessed using a Likert scale.

## RESULTS AND DISCUSSION

Data depicted in (Table 1) presents the socio-economic characteristics of farmers in Dharwad district. The majority (53.33%) of respondents were aged above 50, indicating that farming in this region is predominantly managed by older individuals, which may affect adoption rates of modern agricultural technologies. Additionally, all respondents were male, suggesting that women's participation in farming under incentive-based environmental policies is either minimal or not formally recognized [7]. Education levels vary, with 40 percent of farmers lacking formal education, which could limit their understanding of policy benefits and application procedures. Since 63.33 percent of farmers operate small-scale farms (<5 acres), financial constraints and resource availability play a crucial role in their capacity to implement sustainable practices effectively [8]. These findings emphasize the necessity for improved outreach strategies, particularly targeting smallholder and less-educated farmers, to bridge knowledge gaps and enhance accessibility to government programs [9].

Table 1 Socio-economic profile of respondents (n=30)

S. No.	Variables and characteristics	Number of respondents	Percentage (%)
1.	Age		
	< 50	13	43.33
	=50	1	3.34
	> 50	16	53.33
2.	Educational qualification		
	No formal education	12	40.00
	Primary	6	20.00
	Secondary / 10 <sup>th</sup>	2	6.67
	Higher / PUC	6	20.00
	Degree	4	13.33
3	Type and size of agricultural operation		
	Small-scale (<5 acres)	19	63.33
	Medium-scale (5-20 acres)	9	30
	Large-scale (>20 acres)	2	6.67

Table 2 Awareness of environmental policies among respondents (n=30)

Awareness of policy	No. of respondents	Percentage (%)
Savayava Bhagya (Organic farming)	16	36.36
Raitha Siri (Millet promotion)	14	31.82
Both	14	31.82

Data in (Table 2) illustrates farmers' awareness of incentive-based environmental policies. It indicates that 36.36 percent farmers were aware of Savayava Bhagya, 31.82 percent were aware of Raitha Siri, and 31.82 percent aware of both policies. This suggests moderate policy awareness, but also a lack of targeted information campaigns ensuring a

comprehensive understanding of each initiative. This is in relation to the formal education rates observed in (Table 1), indicates awareness-building efforts should involve simplified communication strategies, such as community-led discussions or visual demonstrations, to improve farmer engagement with policies [10].

Table 3 Policy participation among respondents

Policy participation	No of respondents	Percentage (%)
Received benefits from Savayava Bhagya	10	33.33
Received benefits from Raitha Siri	8	26.67
Did not receive benefits	12	40.00

The data in (Table 3) represents the categorized respondents based on whether they have received benefits from the schemes or not. The results indicate that 33.33 percent of farmers benefited from Savayava Bhagya, whereas 26.67

percent received incentives under Raitha Siri. However, 40 percent of the respondents did not receive any benefits despite the presence of multiple schemes, indicating a gap in policy outreach or registration processes [11].

Table 4 Source of information on environmental policies

Source	No. of respondents	Percentage (%)
Government officials	2	6.67
Media (TV, Radio, News)	0	0.00
Other farmers	27	90.00
Gram panchayat	1	3.33

Data described in (Table 4) highlights how farmers learn about environmental policies. The results indicate overwhelming reliance on peer networks (90 percent) reflects a gap in formal government communication channels, as government officials only account for 6.67 percent of information dissemination. Additionally, media outlets such as television (TV) and radio have a negligible impact indicating

insufficient use of public outreach platforms. These findings suggest that government agencies must enhance direct engagement with farmers, perhaps through localized workshops, agricultural extension officers, and targeted mass media campaigns. Community leaders and farmer cooperatives could also serve as intermediaries to facilitate wider policy understanding [12].

Table 5 Training attendance among respondents (n=10)

Training attendance	No. of respondents	Percentage (%)
Attended training on policies	10	33.33
Did not attend training	20	66.67

Data defined in (Table 5) demonstrates that only 33.33 percent of farmers attended formal training sessions, leaving 66.67 percent without any structured learning about policy implementation. This signifies a major limitation in capacity-building initiatives, which directly impacts effective policy adoption. Improving training accessibility including subsidized

workshops, mobile training units, and personalized advisory services could increase participation while ensuring farmers fully comprehend policy frameworks [13]. The low training participation highlights a critical gap in capacity building, underscoring the need for more accessible and inclusive farmer training initiatives to improve policy adoption.

Table 6 Farmers perception of environmental policies (n=30)

Perception statement	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	F	%	F	%	F	%	F	%	F	%
These schemes are beneficial for the environment	11	36.67	9	30	10	33.33	0	0	0	0
I understood the objectives and goals of the schemes	7	23.33	20	66.67	3	10	0	0	0	0
I am fully aware of these schemes	22	73.33	3	10	5	16.67	0	0	0	0
The subsidy amount is adequate	9	30	1	3.33	7	23.33	0	0	11	36.67
The application process is simple	23	76.67	0	0	7	23.33	0	0	0	0
I would recommend these schemes to others	9	30	4	13.33	17	56.67	0	0	0	0
The scheme is accessible to individuals from diverse backgrounds	21	70	9	30	0	0	0	0	0	0
These policies helped me reduce chemical usage	7	23.33	6	20	17	56.67	0	0	0	0
Government support is timely (payments)	10	33.33	8	26.67	12	40	0	0	0	0
The scheme is very effective	10	33.33	4	13.33	5	16.67	6	20	5	16.67
I am satisfied with the benefits provided	9	30	1	3.33	12	40	0	0	8	26.67

Data demarcated in (Table 6) examines farmers' attitudes towards policy effectiveness. While 73.33 percent claim full awareness, 40 percent remain dissatisfied with government support, questioning the adequacy of financial assistance. Additionally, 76.67 percent find the application process simple, yet 36.67 percent strongly disagree on subsidy adequacy, signaling a need for policy revisions. These perceptions suggest

that while farmers acknowledge policy benefits, many believe financial aid is insufficient. Increasing subsidy amounts and ensuring efficient payment disbursement could improve overall satisfaction levels [14]. Although farmers recognize the benefits and simplicity of policies, dissatisfaction with financial support underscores the need for subsidy enhancement and timely disbursement to improve effectiveness.

Table 7 Economic impact of policies

Indicator	Before the scheme	After the scheme
Average yield (Ton/acre)	4.60	3.70
Average cost of cultivation (₹/acre)	21,900	1,390
Average net profit (₹/acre)	80,000	2,00,000

Data in (Table 7) evaluates how Savayava Bhagya and Raitha Siri affected farmer profitability. While Savayava Bhagya led to a net profit increase from ₹ 80,000 to ₹ 2,00,000 per acre, Raitha Siri did not yield financial gains, as millet cultivation was primarily for self-consumption rather than

commercial sale. These findings suggest that Savayava Bhagya effectively enhances economic sustainability, whereas Raitha Siri requires restructuring to encourage market-oriented millet production. Farmers should be provided with incentives to commercialize millet cultivation, ensuring that policy benefits

extend beyond subsistence farming [15]. The results show that Savayava Bhagya significantly boosts farm profitability, while

Raitha Siri needs restructuring with market-oriented incentives to move millet cultivation beyond subsistence.

Table 8 Financial assistance received under policies (n=18)

Financial support range (₹)	No. of respondents	Percentage (%)
< ₹5000	16	88.89
₹5000 - ₹10,000	2	11.11
₹10,000 - 20,000	0	0.00

Data in (Table 8) shows that 88.89 percent of farmers received less than ₹5,000 in financial aid, revealing substantial inadequacies in subsidy amounts. Given that these funds are

insufficient for meaningful farm-level improvements, policy revisions should prioritize increasing financial support to encourage the adoption of sustainable farming practices [16].

Table 9 Financial impact of subsidies on farmers (n=18)

Level of financial benefit received	No. of respondents	Percentage (%)
Greatly helped	8	44.44
Moderately helped	2	11.12
Slightly helped	8	44.44
Not at all	0	0.00

The data in (Table 9) examines the impact of financial assistance on farmers. 44.44 percent found the support greatly helpful, whereas an equal percentage considered it only slightly

beneficial. These findings underscore the need for restructuring subsidies to ensure that funding allocation is sufficient for all farmers to benefit significantly.

Table 10 Impact of environmental policies on agriculture

Improved aspect	No. of selections	Percentage (%)
Soil fertility	18	47.36
Crop productivity	10	26.32
Biodiversity	10	26.32

The data in (Table 10) presents the environmental benefits of incentive-based policies. 47.36 percent of farmers reported improvements in soil fertility, which aligns with organic farming principles promoted by Savayava Bhagya.

However, challenges such as low initial yields (36.17%) and difficulties in pest and disease management (36.17%) indicate that support mechanisms should be strengthened for long-term success in organic farming.

Table 11 Challenges faced in policy adaptation

Challenges faced	No. of selections	Percentage (%)
Low yield and income initially	17	36.17
Hard to control pests and diseases naturally	17	36.17
Insufficient financial aid	13	27.66

Data in (Table 11) identifies barriers to policy adoption, such as low initial yields (36.17%) and difficulties in organic pest control (36.17%). Addressing these challenges calls for

robust technical support measures, such as integrated pest management practices and incentives aimed at stabilizing yields.

Table 12 Farmers suggestions for policy improvement

Suggested improvement	No. of selections	Percentage (%)
Increase subsidy	13	15.86
Enhance policy outreach	22	26.82
Provide organic certification	17	20.73
Ensure better government responsiveness, including timely action on certification requests and accuracy in processing farmer data, such as landholding details for Raitha Siri beneficiaries	30	100.00

The data in (Table 12) presents recommendations from farmers, with 100 percent requesting better government responsiveness, and 26.82 percent advocating for expanded

outreach efforts. Implementing these changes could significantly improve policy effectiveness while fostering higher levels of farmer trust and satisfaction.

Table 13 Impact of Savayava Bhagya vs Raitha Siri

Particulars	Savayava Bhagya (Organic farming)	Raitha Siri (Millet promotion)
Total beneficiaries	10	8
Financial assistance (₹/year)	4000	1000-10,000
Yield improvement (%)	-19.56	No change (self-consumption)
Cost of cultivation before (₹)	21,900	No significant difference
Cost of cultivation after (₹)	1,390	No significant difference

Data in (Table 13) demonstrates that Savayava Bhagya significantly reduced cultivation costs, but Raitha Siri did not alter financial outcomes, reinforcing the need for commercialization strategies to improve millet-related policy effectiveness.

#### Policy implications

Strengthening awareness and outreach enhance formal training programs to surpass current attendance levels of 33.33 percent and reduce reliance on peer-to-peer networks (currently 90%) by increasing government-led communication through launching mass media campaigns to widen outreach and improve farmer engagement.

Increase financial assistance beyond ₹5,000 to make sustainable adoption economically feasible by Redesigning *Raitha Siri* to incentivize commercial millet production, moving beyond subsistence-level cultivation.

Expedite organic certification under *Savayava Bhagya*, ensuring timely access to premium markets.

Develop frameworks aligned with the constraints faced by small-scale farmers (63.33%) regarding land, capital, and labor and also expand technical support for organic crop management, pest control, and disease prevention.

## CONCLUSION

The investigation into the socio-economic characteristics and policy engagement of farmers in Dharwad district reveals that while incentive-based environmental schemes such as

*Savayava Bhagya* and *Raitha Siri* hold significant potential, their impact is constrained by limited outreach, inadequate financial support, and structural barriers faced by smallholder farmers. Farming is largely managed by older, less-educated male farmers, which influences both awareness and adoption of sustainable practices. Despite moderate awareness, 40 percent of respondents had not received any benefits, reflecting inefficiencies in policy delivery mechanisms. Reliance on peer networks (90%) rather than formal government communication highlights a critical gap in extension services, while low training attendance (33.33%) further restricts informed participation. Although *Savayava Bhagya* has demonstrated strong economic and environmental benefits through reduced cultivation costs and improved soil fertility, *Raitha Siri* remains limited to subsistence-level millet production, lacking commercial incentives. Key challenges—including low initial yields, pest management difficulties, and insufficient subsidies—underscore the need for enhanced technical and financial support. Farmers strongly advocate for increased subsidies, better government responsiveness, organic certification, and improved outreach mechanisms. Overall, for these policies to achieve their intended objectives of promoting sustainable agriculture, they must be restructured to prioritize smallholder needs, ensure timely and adequate financial assistance, strengthen capacity-building through formal training, and establish reliable extension and certification systems. By addressing these gaps, the government can enhance farmer participation, satisfaction, and long-term adoption of environmentally sustainable practices.

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