

## A Critical Analysis of Government of India's Agricultural Development Programmes and their Outcomes in Bhagalpur District

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### ABSTRACT

Agriculture remains a vital sector of the Indian economy, supporting rural livelihoods, ensuring food security, and contributing significantly to national income. In this context, the Government of India has introduced several agricultural development programmes aimed at enhancing productivity, stabilizing farm income, and promoting sustainable agricultural practices. The present study critically examines the implementation and outcomes of major agricultural development programmes in Bhagalpur district of Bihar, with a focus on their effectiveness at the grassroots level. The study adopts a descriptive and analytical research design based on both primary and secondary data. Primary data were collected from 120 farmers across six development blocks of Bhagalpur district through structured interview schedules, while recent government reports and agricultural records were used as secondary sources. The findings reveal that the overall implementation of agricultural development programmes in the district is moderate. About 68.3% of the respondents benefited from input subsidy schemes and 61.7% from the Soil Health Card scheme, whereas coverage under irrigation development (38.3%) and crop insurance schemes (45.8%) remained relatively low. Participation in government programmes resulted in tangible improvements in farming outcomes, as 54.2% of farmers reported an increase in crop productivity with yield gains ranging between 10–18%, and 49.2% experienced an increase in annual farm income. Crop insurance contributed to income stability for 45.8% of the respondents. Statistical analysis using Chi-square and t-tests confirms that agricultural development programmes have a significant positive impact on productivity and income, while also revealing significant differences in benefits across farmer categories. Medium farmers derived greater advantages compared to small and marginal farmers due to better access to information, resources, and institutional support. However, the study also highlights persistent challenges such as administrative delays, procedural complexities, limited awareness, inadequate irrigation coverage, and socio-economic constraints. The study concludes that although agricultural development programmes have improved agricultural outcomes in Bhagalpur district, targeted interventions, simplified procedures, and farmer-centric implementation strategies are essential to ensure inclusive and sustainable agricultural development.

**Keywords:** Agricultural Development Programmes, Primary Data, Bhagalpur District, Farmers' Welfare, Rural Development.

### Introduction

Agriculture has historically been the backbone of the Indian economy, contributing significantly to employment generation, food security, and rural development. According to recent estimates, agriculture and allied sectors provide livelihood to nearly 42% of India's total workforce, while contributing approximately 18% to the national Gross Domestic Product (GDP). Despite rapid industrialization and expansion of the service sector, agriculture continues to play a central role in sustaining rural livelihoods, particularly in economically less-developed states such as Bihar. Recognizing the strategic importance of

agriculture, the Government of India has launched numerous agricultural development programmes aimed at enhancing productivity, ensuring income stability, and promoting sustainable farming practices.

Over the years, India's agricultural policy framework has undergone a significant transformation. While early initiatives focused primarily on increasing food grain production to achieve self-sufficiency, recent programmes emphasize farmers' welfare, risk management, technological adoption, and market integration. Government expenditure on the agricultural sector has increased steadily, with the Union Budget allocating over ₹1.25 lakh crore to agriculture and allied activities in recent years. Major initiatives related to subsidized agricultural inputs, irrigation expansion, crop insurance, soil health management, and institutional credit have been introduced to address structural challenges faced by farmers, especially small and marginal cultivators who account for nearly 86% of total landholdings in India.

Bihar is one of the most agriculture-dependent states in the country, with nearly 70% of its population relying on agriculture and related activities for livelihood. The state has a high proportion of small and marginal farmers, many of whom cultivate less than one hectare of land. Bhagalpur District, located in eastern Bihar, reflects these characteristics vividly. The district has a predominantly rural population, with agriculture as the principal economic activity. Paddy, wheat, maize, pulses, and oilseeds are the major crops grown in the region. However, agricultural productivity in the district remains below the national average for several crops due to factors such as fragmented landholdings, dependence on monsoon rainfall, limited irrigation coverage, and low levels of mechanization.

Empirical evidence suggests that less than 45% of the net sown area in Bhagalpur district is assured under irrigation, making farmers highly vulnerable to climatic variability. Additionally, survey-based studies indicate that only about 50-60% of eligible farmers are effectively covered under key government schemes such as crop insurance and input subsidy programmes. These limitations underline the importance of assessing not only the presence of agricultural development programmes but also their actual outcomes at the field level.

Although government agricultural programmes have resulted in measurable improvements such as an average 10-15% increase in crop yields among beneficiary farmers and expanded access to subsidized seeds and fertilizers implementation gaps remain significant. Issues related to delayed benefit disbursement, lack of awareness, administrative complexity, and inadequate extension services continue to restrict the full realization of programme objectives. Small and marginal farmers, in particular, face difficulties in accessing institutional credit and modern agricultural technologies.

The localized and data-driven assessment becomes essential to understand the effectiveness of agricultural development programmes. The study seeks to critically analyse the outcomes of government agricultural initiatives in Bhagalpur district by integrating recent field-level evidence with updated official records. Such an analysis is vital for identifying strengths and weaknesses in programme implementation and for formulating policy recommendations that are responsive to local agro-climatic and socio-economic conditions. The study aims to contribute to the broader discourse on inclusive and sustainable agricultural development by providing empirical insights relevant to planners, policymakers, and researchers.

### **Objectives of the Study**

- To examine the extent of implementation of major agricultural development programmes in Bhagalpur district.
- To assess the impact of these programmes on agricultural productivity and farm income.
- To analyse farmers' awareness and accessibility regarding government agricultural schemes.
- To compare the programme benefits received by small/marginal farmers and other categories of farmers.
- To identify key challenges affecting the effective implementation of agricultural development programmes.

### **Hypotheses of the Study**

- H<sub>1</sub>:** Government agricultural development programmes have a significant positive impact on agricultural productivity and farmers' income in Bhagalpur district.
- H<sub>2</sub>:** There is a significant difference in programme benefits between small/marginal farmers and medium farmers.

### Research Methodology

The present study adopts a descriptive and analytical research design to evaluate the outcomes of government agricultural development programmes in Bhagalpur district. Both qualitative and quantitative approaches have been employed to ensure comprehensive analysis.

- **Sources of Data:** The study is based on primary data, supported by the latest available secondary sources. Primary data were collected through structured interview schedules administered to 120 farmers selected from six development blocks of Bhagalpur district. The sample included small, marginal, and medium farmers to ensure representation across farm sizes. Personal interviews and field observations were also conducted to gain deeper insights into farmers' experiences.

Secondary data were collected from recent district agricultural reports, government publications, census records, policy documents, and research journals to contextualize and validate the primary findings.

- **Sampling Technique:** A multistage random sampling technique was used. In the first stage, blocks were selected randomly. In the second stage, villages were chosen from each block, followed by random selection of farmers from each village.
- **Tools of Data Collection:** Structured questionnaires, interview schedules, and observational checklists were used for primary data collection.
- **Techniques of Analysis:** Collected data were analysed using percentages, averages, and comparative analysis. Simple statistical tools were applied to test the formulated hypotheses and interpret relationships between programme participation and outcomes.

### Coverage of Agricultural Development Programmes

The extent of implementation of agricultural development programmes in Bhagalpur District was examined by assessing the coverage of major government schemes among the sampled farmers. The findings indicate that flagship programmes launched by the Government of India have achieved moderate penetration at the grassroots level. Among the surveyed farmers, schemes related to input subsidies and soil health management showed relatively higher coverage compared to insurance and irrigation-based programmes. Approximately 68% of respondents reported receiving benefits under at least one agricultural input subsidy scheme, indicating satisfactory outreach. However, coverage under crop insurance and irrigation development programmes remained comparatively limited, particularly among marginal farmers. This uneven distribution reflects disparities in awareness, administrative access, and infrastructural availability across different villages and blocks of the district.

### Programme-wise Implementation Status

An analysis of programme-wise implementation reveals variations in execution and farmer participation. Input-related schemes such as subsidized seeds and fertilizers were implemented more effectively due to their direct and immediate benefits. In contrast, programmes requiring formal registration, documentation, and institutional linkage such as crop insurance and credit-based schemes experienced lower participation rates. The study found that while 60% of farmers were aware of crop insurance schemes, only 46% were actually enrolled. Similarly, irrigation-related programmes reached only 38% of the sampled farmers due to limited infrastructure and procedural delays. These findings suggest that administrative simplicity plays a crucial role in determining the extent of programme implementation at the local level.

### Farmer Participation and Regional Variation

Farmer participation varied significantly across blocks and farm-size categories. Medium farmers showed higher participation rates compared to small and marginal farmers, mainly due to better access to information and institutional support. Nearly 72% of medium farmers reported benefiting from at least two government schemes, whereas this figure declined to 55% among marginal farmers. Regional variation was also observed, with villages closer to block headquarters exhibiting better programme coverage. This highlights the role of extension services, accessibility, and local governance in influencing programme reach. The extent of implementation of major agricultural development programmes in Bhagalpur district was assessed by examining farmers' participation in different schemes. Table 1 presents the programme-wise distribution of beneficiaries and the percentage coverage of major agricultural development programmes in the study area.

**Table 1: Implementation of Major Agricultural Development Programmes in Bhagalpur District**

<b>Agricultural Programme</b>	<b>Farmers Benefited (No.)</b>	<b>Percentage (%)</b>
Input Subsidy Schemes (Seeds & Fertilizers)	82	68.3
Soil Health Card Scheme	74	61.7
Crop Insurance Schemes	55	45.8
Irrigation Development Programmes	46	38.3
Institutional Credit-linked Schemes	59	49.2

Source: Based on Primary Data

It is evident from Table 1 that input subsidy schemes (68.3%) and the Soil Health Card scheme (61.7%) recorded relatively higher coverage among farmers. In contrast, irrigation development programmes (38.3%) and crop insurance schemes (45.8%) showed comparatively lower participation, particularly among marginal farmers, indicating uneven programme outreach.

#### **Impact on Agricultural Productivity**

One of the primary goals of government agricultural development programmes is to enhance crop productivity through improved access to quality inputs, irrigation facilities, and technical guidance. The field-level evidence collected from farmers in Bhagalpur District indicates a noticeable improvement in crop productivity among programme beneficiaries. Farmers who regularly availed subsidized seeds, fertilizers, and soil health advisory services reported higher yields compared to non-beneficiaries. Approximately 54% of the sampled farmers stated that their crop output increased after participation in government-supported schemes. The productivity gains were more pronounced in paddy and wheat cultivation, with reported yield increases ranging between 10 to 18% over previous years. However, the magnitude of productivity improvement varied depending on farm size, irrigation access, and consistency of scheme benefits.

#### **Impact on Farm Income and Economic Stability**

In addition to productivity enhancement, agricultural development programmes aim to stabilize and augment farmers' income. The study findings suggest that programme participation has contributed positively to income levels, though the extent of impact differs across farmer categories. About 49% of respondents reported a moderate increase in annual farm income due to reduced input costs and improved yields. Crop insurance schemes played a significant role in income stabilization, especially during periods of crop loss caused by floods or erratic rainfall. Farmers covered under insurance schemes reported reduced financial stress and improved capacity to reinvest in agricultural activities. However, delays in claim settlement and partial compensation limited the income-enhancing potential of such schemes for some beneficiaries.

#### **Differential Impact Across Farmer Categories**

The impact of agricultural development programmes on productivity and income was not uniform across all farmers. Medium and large farmers experienced comparatively higher gains than small and marginal farmers. Nearly 65% of medium farmers reported both productivity and income improvements, whereas only 42% of marginal farmers experienced similar benefits. Limited landholdings, inadequate irrigation, and lower awareness levels constrained the ability of marginal farmers to fully utilize programme advantages. These disparities highlight the need for targeted interventions and customized support mechanisms to ensure inclusive benefits. To assess the impact of agricultural development programmes on crop productivity and farm income, farmers' responses regarding changes in output, cost of cultivation, and income stability were analysed. Table 2 highlights the impact of agricultural development programmes on productivity and income indicators.

**Table 2: Impact of Agricultural Development Programmes on Productivity and Income**

<b>Impact Indicator</b>	<b>Farmers Responded (No.)</b>	<b>Percentage (%)</b>
Increase in Crop Productivity	65	54.2
Reduction in Cost of Cultivation	58	48.3
Increase in Annual Farm Income	59	49.2
Income Stability due to Crop Insurance	55	45.8
No Significant Change Observed	34	28.3

Source: Based on Primary Data

The data presented in Table 2 indicate that 54.2% of farmers experienced an increase in crop productivity, while 49.2% reported an increase in annual farm income. Additionally, 45.8% of respondents benefited from income stability through crop insurance, reflecting the positive but uneven impact of government interventions.

### Level of Awareness among Farmers

Awareness is a crucial prerequisite for effective participation in agricultural development programmes. The field survey conducted in Bhagalpur District reveals that farmers' awareness regarding government agricultural schemes is moderate but uneven. About 62% of the respondents were aware of at least three major agricultural development programmes implemented by the Government of India. Awareness levels were relatively higher for input subsidy schemes and soil health-related initiatives due to their direct linkage with routine farming activities. In contrast, awareness about crop insurance, market-linked schemes, and credit-based programmes was comparatively lower, especially among marginal farmers and elderly cultivators.

### Sources of Information and Communication Channels

The study also examined the primary sources through which farmers received information about agricultural programmes. Findings indicate that informal sources such as fellow farmers and local input dealers played a dominant role in disseminating information. Nearly 48% of respondents reported obtaining scheme-related information from fellow farmers, while 35% depended on input suppliers. Formal sources like agricultural extension officers and Krishi Vigyan Kendra's were accessed by only 28% of the respondents. Digital platforms and mobile-based advisories were used by just 22% of farmers, reflecting limited digital literacy and infrastructural constraints in rural areas. This overreliance on informal channels often resulted in incomplete or inaccurate information.

### Accessibility and Procedural Constraints

Accessibility to government programmes depends not only on awareness but also on procedural ease and institutional support. The study found that 44% of farmers faced difficulties in the application process due to complex documentation requirements, online registration issues, and delays in verification. Small and marginal farmers, in particular, encountered challenges related to land record discrepancies and lack of technical assistance. Approximately 38% of respondents reported delays in benefit disbursement, which reduced the timely usefulness of subsidies and insurance claims. These constraints significantly affected farmers' willingness to participate in future programmes.

### Variation in Awareness and Access across Farmer Categories

Significant variation was observed in awareness and accessibility across different farmer categories. Medium farmers exhibited higher awareness and better access due to stronger institutional linkages and educational advantages. About 70% of medium farmers were aware of multiple schemes, compared to 52% among marginal farmers. Similarly, accessibility challenges were more pronounced among marginal farmers, with 49% reporting procedural difficulties, compared to 31% of medium farmers. This disparity highlights the need for targeted outreach strategies. Farmers' awareness and accessibility play a crucial role in the effective utilization of agricultural development programmes. Table 3 presents the level of awareness, sources of information, and accessibility-related challenges faced by farmers in Bhagalpur district.

**Table 3: Farmers' Awareness and Accessibility of Agricultural Development Programmes**

Indicator	Farmers (No.)	Percentage (%)
Aware of Major Agricultural Programmes	74	61.7
Information through Informal Sources	58	48.3
Access to Extension Officers/KVKs	34	28.3
Faced Procedural Difficulties	53	44.2
Experienced Delay in Benefit Disbursement	46	38.3

Source: Based on Primary Data

As shown in Table 3, about 61.7% of farmers were aware of major agricultural programmes, while only 28.3% had access to extension officers or Krishi Vigyan Kendras. A significant proportion of farmers faced procedural difficulties (44.2%) and delays in benefit disbursement (38.3%), limiting effective participation.

### Comparative Benefits in Access to Government Schemes

The distribution of benefits from agricultural development programmes varies significantly across different categories of farmers in Bhagalpur District. The comparative analysis reveals the following key points:

- Medium farmers demonstrated higher enrolment rates in government schemes due to better access to information and institutional support.
- Small farmers showed moderate participation, largely restricted to input subsidy and soil health-related programmes.
- Marginal farmers faced greater challenges in accessing benefits due to limited landholdings, documentation issues, and lower awareness levels.
- Approximately 72% of medium farmers benefited from at least two agricultural programmes, compared to 58% of small farmers and 45% of marginal farmers.

These differences highlight the unequal reach of development programmes despite their universal design.

### Differences in Productivity and Income Gains

The comparative impact of agricultural programmes on productivity and income also varies across farmer categories. The study findings reveal:

- Medium farmers experienced higher yield improvements due to better utilization of subsidized inputs and irrigation facilities.
- Small farmers reported moderate gains in productivity, primarily in staple crops such as paddy and wheat.
- Marginal farmers experienced limited improvements due to fragmented landholdings and inadequate access to complementary resources.
- Around 65% of medium farmers reported increases in both productivity and income, while this figure declined to 50% among small farmers and 42% among marginal farmers.

This pattern suggests that farm size and resource availability significantly influence the magnitude of benefits derived from government programmes.

### Constraints Faced by Different Farmer Categories

Despite participation in agricultural development programmes, farmers across categories encountered varying constraints:

- Marginal farmers reported higher procedural difficulties, including delays in benefit transfer and online registration issues.
- Small farmers faced challenges related to insufficient credit and delayed input delivery.
- Medium farmers reported comparatively fewer constraints but expressed concerns over delayed insurance settlements.
- Nearly 49% of marginal farmers reported serious implementation-related problems, compared to 37% of small farmers and 26% of medium farmers.

These constraints limit the equitable distribution of programme benefits and reduce overall effectiveness. To examine disparities in programme benefits across different categories of farmers, a comparative analysis was carried out. Table 4 compares access to schemes, productivity gains, income improvement, and constraints among marginal, small, and medium farmers.

**Table 4: Comparative Distribution of Programme Benefits by Farmer Category**

Farmer Category	Benefited from 2 Schemes (%)	Productivity Increase (%)	Income Increase (%)	Faced Major Constraints (%)
Marginal Farmers	45	42	40	49
Small Farmers	58	50	47	37
Medium Farmers	72	65	60	26

Source: Based on Primary Data

Table 4 clearly reveals that medium farmers derived greater benefits from agricultural development programmes, with higher productivity (65%) and income gains (60%), whereas marginal farmers reported lower benefits and higher implementation-related constraints (49%).

#### **Administrative and Procedural Challenges**

The effective implementation of agricultural development programmes in Bhagalpur District is hindered by several administrative and procedural constraints. The major issues identified through field investigation are as follows:

- Complex application and registration procedures discourage farmer participation.
- Dependence on online portals poses difficulties for farmers with limited digital literacy.
- Delays in verification of land records and beneficiary details slow down programme execution.
- Lack of coordination between implementing agencies leads to overlapping responsibilities and inefficiencies.

Approximately 44% of the respondents reported facing serious administrative difficulties while applying for government schemes.

#### **Information and Awareness-Related Constraints**

Limited awareness remains a critical barrier to effective programme utilization. The study reveals the following information-related challenges:

- Inadequate dissemination of scheme guidelines at the village level.
- Overreliance on informal information sources such as fellow farmers and local dealers.
- Limited outreach of extension officers and agricultural advisory services.
- Absence of timely updates regarding scheme modifications and deadlines.

Nearly 38% of farmers indicated that insufficient or unclear information prevented them from availing full benefits of agricultural development programmes.

#### **Infrastructure and Institutional Limitations**

The success of agricultural programmes is closely linked to the availability of supporting infrastructure and institutional mechanisms. The major constraints identified include:

- Limited irrigation facilities and uneven coverage across villages.
- Inadequate access to institutional credit, especially for marginal farmers.
- Poor market infrastructure affecting price realization for agricultural produce.
- Insufficient manpower in extension services at the block and village levels.

About 41% of respondents reported that infrastructural limitations significantly reduced the effectiveness of government interventions.

#### **Socio-Economic and Farmer-Specific Challenges**

Socio-economic conditions also influence farmers' ability to participate in and benefit from development programmes. The study highlights the following farmer-specific issues:

- Small landholdings restrict economies of scale and technology adoption.
- Low educational levels affect understanding of scheme procedures.
- Risk-averse behaviour discourages participation in credit-linked schemes.
- Seasonal migration reduces farmers' availability for scheme-related formalities.

Nearly 46% of marginal farmers cited socio-economic constraints as a major obstacle to programme utilization.

The study also identified major challenges affecting the effective implementation of agricultural development programmes in the district. Table 5 summarizes the key administrative, informational, infrastructural, and socio-economic constraints reported by farmers.

**Table 5: Major Challenges Affecting Implementation of Agricultural Development Programmes**

Type of Challenge	Farmers Affected (No.)	Percentage (%)
Administrative & Procedural Issues	53	44.2
Information & Awareness Gaps	46	38.3
Infrastructure & Institutional Limits	49	40.8
Socio-economic Constraints	55	45.8

Source: Based on Primary Data

It is evident from Table 5 that socio-economic constraints (45.8%) and administrative and procedural issues (44.2%) were the most commonly reported challenges, followed by infrastructural limitations (40.8%) and information gaps (38.3%).

### Hypothesis Testing

The hypotheses formulated for the present study were tested using descriptive statistics, percentage analysis, Chi-square test, and independent sample t-test based on primary data collected from 120 farmers across six development blocks of Bhagalpur district. The testing procedure followed a systematic and structured approach as detailed below.

**Hypothesis 1:** Government agricultural development programmes have a significant positive impact on agricultural productivity and farmers' income in Bhagalpur district.

- **H<sub>0</sub> (Null Hypothesis):** Government agricultural development programmes have no significant impact on agricultural productivity and farmers' income in Bhagalpur district.
- **H<sub>a</sub> (Alternative Hypothesis):** Government agricultural development programmes have a significant positive impact on agricultural productivity and farmers' income in Bhagalpur district.

### Identification of Variables

- **Independent Variable:** Participation in agricultural development programmes
- **Dependent Variables:**
  - Crop productivity
  - Farm income
  - Income stability (crop insurance)

### Statistical Evidence

Primary data analysis revealed measurable improvements among beneficiary farmers.

**Table 6: Impact of Agricultural Development Programmes on Productivity and Income**

Indicator	Farmers Reporting Improvement (No.)	Percentage (%)
Increase in Crop Productivity	65	54.2
Increase in Annual Farm Income	59	49.2
Income Stability through Crop Insurance	55	45.8
No Significant Improvement	34	28.3

Source: Based on Primary Data

### Statistical Test Applied

A Chi-square ( $\chi^2$ ) test of independence was applied to examine the association between programme participation and improvement in productivity and income.

**Table 7: Chi-Square Test Results**

Test Statistic	Value	df	Significance (p-value)
Pearson Chi-Square	9.84	1	0.002
N of Valid Cases	120		

At 5% level of significance ( $\alpha = 0.05$ ): If  $p\text{-value} < 0.05$ , reject  $H_0$ .

### Interpretation

Since the calculated p-value (0.002) is less than 0.05, the null hypothesis ( $H_0$ ) is rejected, and the alternative hypothesis ( $H_a$ ) is accepted. This confirms that government agricultural development



programmes have a statistically significant positive impact on agricultural productivity and farmers' income in Bhagalpur district.

**Hypothesis 2:** There is a significant difference in programme benefits between small/marginal farmers and medium farmers.

- **H<sub>0</sub> (Null Hypothesis):** There is no significant difference in programme benefits among different categories of farmers.
- **H<sub>a</sub> (Alternative Hypothesis):** There is a significant difference in programme benefits between small/marginal farmers and medium farmers.

**Table 8: Comparative Programme Benefits by Farmer Category**

Farmer Category	Benefited from 2 Schemes (%)	Productivity Increase (%)	Income Increase (%)
Marginal Farmers	45	42	40
Small Farmers	58	50	47
Medium Farmers	72	65	60

Source: Based on Primary Data

#### Statistical Test Applied

An independent sample t-test was applied to compare mean benefit scores between farmer categories.

**Table 9: Independent Sample t-Test Results**

Test	t-value	df	p-value
Productivity & Income Gain	2.71	118	0.008

At  $\alpha = 0.05$ , if  $p\text{-value} < 0.05$ , reject  $H_0$ .

#### Interpretation

Since the p-value (0.008) is less than 0.05, the null hypothesis ( $H_0$ ) is rejected, and the alternative hypothesis ( $H_a$ ) is accepted. This confirms that programme benefits vary significantly across farmer categories, with medium farmers deriving greater advantages than small and marginal farmers.

#### Findings of the Study

Based on the analysis of primary data collected from 120 farmers in Bhagalpur district and supported by statistical testing, the following key findings emerge:

- **Moderate Implementation of Programmes:** Agricultural development programmes show moderate implementation in Bhagalpur district. Input subsidy schemes (68.3%) and Soil Health Card schemes (61.7%) have higher coverage, whereas irrigation (38.3%) and crop insurance programmes (45.8%) show limited reach, especially among marginal farmers.
- **Positive Impact on Productivity:** About 54.2% of farmers reported increased crop productivity, with yield improvements of 10–18% in major crops. Chi-square test results confirm a statistically significant positive impact of government programmes on agricultural productivity.
- **Improvement in Farm Income and Stability:** Nearly 49.2% of respondents experienced increased farm income, while 45.8% benefited from income stability through crop insurance. However, delays in claim settlement reduced the effectiveness of income support for some farmers.
- **Moderate Awareness and Limited Access:** Although 61.7% of farmers were aware of major schemes, only 28.3% accessed formal extension services. Dependence on informal information sources led to incomplete understanding and reduced effective participation.
- **Administrative and Procedural Constraints:** Procedural complexities affected programme utilization, with 44.2% of farmers facing documentation and registration difficulties and 38.3% reporting delays in benefit disbursement.
- **Unequal Distribution of Benefits:** Programme benefits varied significantly across farmer categories. Medium farmers benefited more than small and marginal farmers in terms of scheme access, productivity, and income gains, as confirmed by t-test results.

- **Infrastructure and Socio-economic Barriers:** Limited irrigation, inadequate institutional credit, poor market infrastructure, and small landholdings were major constraints, with 45.8% of farmers citing socio-economic barriers.
- **Validation of Hypotheses:** Statistical analysis supports both research hypotheses, confirming a significant positive impact of agricultural development programmes and significant inter-category differences in benefits.

Overall, the findings indicate that while agricultural development programmes have improved agricultural outcomes in Bhagalpur district, their impact remains uneven due to administrative, infrastructural, and socio-economic constraints.

### Conclusion

The study concludes that Government of India's agricultural development programmes have made a meaningful contribution to improving agricultural productivity, farm income, and income stability in Bhagalpur district, particularly through increased access to subsidized inputs and crop insurance. Statistical evidence confirms a significant positive impact of these programmes; however, the benefits are not uniformly distributed, with medium farmers gaining more than small and marginal farmers. Administrative delays, procedural complexities, limited irrigation coverage, inadequate extension services, and moderate awareness levels continue to restrict effective programme utilization. Socio-economic constraints such as small landholdings and limited institutional access further deepen these disparities. Therefore, while the programmes have strengthened agricultural outcomes, their overall effectiveness depends on simplifying procedures, strengthening extension and infrastructure, and adopting farmer-centric, region-specific strategies to achieve inclusive and sustainable agricultural development in Bhagalpur district.

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