

**FARM LAWS IN INDIA: REASONING, CONSEQUENCES, AND WAY AHEAD
FOR AGRICULTURAL REFORMS**

By

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MA, DMM, DCJ

DISSERTATION

Presented to the Swiss School of Business and Management Geneva

In Partial Fulfillment

Of the Requirements

For the Degree

DOCTOR OF BUSINESS ADMINISTRATION

SWISS SCHOOL OF BUSINESS AND MANAGEMENT GENEVA

July 2025

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Dedication

THIS DISSERTATION IS DEDICATED TO ALL THE FARMERS OF INDIA WHOSE
PERSEVERENCE AND SWEAT ENSURES FOOD SECURITY FOR OVER 1.4
BILLION PEOPLE IN INDIA

ACKNOWLEDGEMENTS

First, I acknowledge the Swiss School of Business and Management- the institute that has given me an invaluable opportunity to conduct this research. My infinite gratefulness goes to God almighty and my parents, Late Shri Gajanan Raste and Smt. Swati Raste, whose sacrifices paved the way for every step I took in my life.

Several individuals supported me in the journey of this doctoral dissertation on the complex and crucial domain area. This dissertation is not merely a research study but a testimony to the spirit of those who guided me and believed in me. My research guide Professor Josip Burusic, mentored me wholeheartedly throughout my research journey. I sincerely appreciate the help of a General Manager in NABARD, and two FPO executives whose support enabled me to bridge the gap in an academic exercise and the on-ground experience of farmers. My heartfelt thanks to respondents especially the unassuming voices at the grassroots. You entrusted me with your insights, strengths, and vulnerabilities, and your responses inculcated the soul into this academic edifice. My profound gratitude goes out to the Senior Social Scientist for being both a demanding critique and a staunch supporter. Your unwavering belief and support became the wind under my sails, when I dithered in my conviction.

I pray that this dissertation will serve as a beacon for policymakers, illuminating the concerns of millions of small and marginal farmers. My hope is that the authorities and the policymakers take necessary steps to find solutions that address the issues

impacting Indian Agriculture and ensure a brighter future for the backbone of India's agricultural landscape.

ABSTRACT

FARM LAWS IN INDIA: REASONING, CONSEQUENCES, AND WAY AHEAD FOR AGRICULTURAL REFORMS

This study examines India's 2020–21 farm laws, analyzing their objectives, socio-economic impact, and implications for agricultural reform in one of the world's most agrarian economies. Employing a mixed-methods approach, the research integrates structured surveys of 347 farmers with in-depth interviews of policymakers, economists, and agricultural experts. It also draws on policy documents, market reports, and case studies to assess the laws' effects on farmer incomes, market efficiency, rural livelihoods, and alignment with global sustainability goals. Findings reveal that while the reforms aimed to modernize agriculture, enhance investment, and streamline markets, they generated widespread concern among small and marginal farmers. Key issues include the potential erosion of the Minimum Support Price (MSP) system, risks in contract farming, and fears of corporate dominance. Resistance was strongest in states dependent on Agricultural Produce Market Committees (APMCs). The research identifies both opportunities and risks: improved market access and reduced intermediaries on one hand, and increased vulnerability for disadvantaged farmers on the other. It calls for policy revisions to ensure equity and protection, including strengthening APMCs, securing contract farming agreements, and leveraging digital tools to enhance market integration. The study aims to emphasize inclusive, participatory reforms that prioritize social justice and resilience. It offers strategic recommendations to balance modernization goals with rural socio-economic realities and ensure that agricultural reforms contribute to a sustainable and equitable future.

KEYWORDS

Farm Laws, Agricultural Reforms, Minimum Support Price (MSP), Market Liberalization, Contract Farming, Rural Economy, Farmer Welfare, Sustainability, Agricultural Policy, Socio-economic Impact.

LIST OF ABBREVIATIONS

APMC –Agricultural Produce Market Committee

eNAM – National Agricultural Market

FGDs –Focus Group Discussions

FPO –Farmer Producer Organisation

HYV - High-yielding Varieties

IOT –Internet of Things

MSP – Minimum Support Price

NABARD- National Bank for Agriculture and Rural Development

NSSO –National Sample Survey Office

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CHAPTER 1

INTRODUCTION

1.1 Introduction

India's agricultural sector is at a critical juncture, and the need for reforms to support small-scale farmers cannot be overstated. Implementing policies that address land consolidation, financial support, technology adoption, market access, and social infrastructure is essential to empower small-scale farmers. These reforms should be designed to promote inclusivity and ensure that the benefits of agricultural development reach those who need them the most. The ongoing dialogue between the government and farmer unions is a significant step towards finding a resolution that balances the interests of all stakeholders. The government must listen to the concerns of small-scale farmers and work towards creating a supportive environment that enables their prosperity and sustenance. By prioritizing the welfare of small-scale farmers and implementing comprehensive agricultural reforms, India can pave the way for a more sustainable, equitable, and prosperous agricultural sector.

1.2 Research Problem

The problems found in Indian agriculture and what the farm laws aim to do explain the reasons behind them. There are many different issues in the Indian farming sector. A major difference exists in income between farmers and workers in other industries, with farmers earning less. The reasons for this income difference include lower productivity, reduced market opportunities, and fragmented land ownership. To face these hurdles, the new laws are meant to enhance and modernize agriculture in India. A primary purpose of the reforms is to help farmers generate more income by expanding marketing opportunities and enabling them to deal directly with buyers and sellers. These changes hope to make the agriculture

market fairer by giving farmers an easier way to trade their goods at better prices. The main issue involves reviewing why the farm laws were made, assessing their potential outcomes and creating a plan for changing agriculture that is both effective and includes everyone. The subject is made more difficult by the complex way economic, social, political and ethical factors influence Indian agriculture. Understanding why these laws were introduced, what effects have so far been observed and the particular obstacles to ensuring balance for every participant are crucial. Dealing with this issue is challenging because global agriculture is changing fast and is being impacted by the greater importance of technical progress, increased market openness and protecting the environment. The problem further involves making practical suggestions that help farmers who are most vulnerable while promoting market agriculture. Letting us understand and resolve this issue is important for the Indian agricultural sector to grow, protect its environment and deal well with future issues. Since the issues discussed are so serious and detailed, the research thesis is designed to examine the rationale for the farm laws, analyze their effects on Indian agriculture and set out a complete approach to make future agricultural reforms successful. Through a thorough analysis of these elements, the present study aims to offer a sophisticated comprehension of the obstacles and possibilities inherent in the farm laws, thus making a valuable contribution to well-informed policymaking, the promotion of sustainable agricultural methods, and the enhancement of the welfare of Indian farmers and rural populations.

1.3 Purpose of Research

This research attempt aims to fill the gap in the existing literature by conducting a complete analysis of the three farm laws in India. It seeks to examine the reasoning behind these laws and their wide-ranging impact on the agricultural sector. Considerable scholarly discussion has taken place, yet extant literature frequently concentrates on certain facets or perspectives,

resulting in knowledge gaps about the broader ramifications of agricultural legislation. This study inquiry necessitates a thorough and multifaceted investigation encompassing farm legislation's economic, social, legal, and ethical aspects and associated changes. Persistent demonstrations, public discourse, and varied perspectives about agricultural legislation further compound the issue. The presence of these contrasting ideas underscores the necessity for a comprehensive and unbiased analysis that transcends partisan perspectives. The problem statement involves providing a thorough and well-supported analysis that promotes a more profound comprehension of the underlying difficulties and their potential consequences.

1.4 Significance of the Study

Given the covering of farms in India, most farmers have adopted sustainable, eco-friendly agricultural techniques. There have been rising concerns lately over how Indian agriculture can be profitable and sustainable. So, new insurance programs and public investments are being set up to help farmers prevent losses and use environmentally safer farming techniques. As a result, both functions and users in farming now need a wider and more thorough approach to agricultural management. The study will investigate the reasons for these reforms and the results they had on Indian agriculture. Since India's agriculture industry has various challenges, the purpose of farm laws is to address them. Among the problems are ensuring farmers can support themselves and the environment, helping traditional family farms grow, involving rural women in work and worries over farmers' weakness and risks. Factors leading to unstable farming in the post-reform period should be understood, for example, insufficient irrigation, poorly developed rural infrastructure and climate conditions (Das, 2021). Evaluating the Effects Scientifically Researches into farm laws in India help us understand the effects the current situation has on the nation's agriculture. It will show us how land reforms influence the well-being of farmers, agricultural results and reduce poverty

(based on Sharma et al., 2018). This study investigate whether the farm laws favor or harm many small and marginal farmers by carefully analyzing complex difficulties such as food security and employment in the farm industry which affect both areas. The analysis also considers the ability of agriculture to increase income, problems with land laws and their effects on the rural economy by gathering information during structured talks with stakeholders, by reviewing data collected before and by studying government policies. It will help discover if insurance and other change measures help farmers guard against losses and reduce environmental harm. Focusing on the above problems, research on farm laws in India will look for answers to agricultural reform. This will involve exploring alternative approaches to improve economic viability and sustainability in agriculture, such as promoting organic and natural farming inputs, enhancing rural infrastructure, and addressing the issues of irrigation and climatic factors. Additionally, this research study will examine the role of technology and innovation in transforming Indian agriculture and disseminating advanced farming practices. In conclusion, research study on farm laws in India is essential to understand the reasoning behind agricultural reforms, explore their consequences, and identify solutions for agricultural reform.

The complicated mix of reasons for agricultural instability after reform calls for more detailed study of how the various factors interact. Little access to irrigation, weak rural infrastructure and climate effects have been pointed out as the main causes for instability in agriculture. On the other hand, all these factors affect farmers together which makes it necessary to handle every one of them. In India, analysis of land tenure security and tenancy laws has shown the interesting relationship between land law reforms and both farming productivity and poverty reduction. The importance of policy is highlighted by the link between strong land ownership rights, land reform and the adoption of healthy farming methods. We need to look more closely at the background and demands that lie behind the

changes in agriculture. Investigation of social interactions in a potato contract farming scheme from Maharashtra offered important learning about the impact of reforms in Indian agricultural markets. To make policies that help everyone in the community, we must learn about the details of their social lives. Looking into how advances in technology and innovation can change farming is extremely important. Agribusiness firms helping farmers with everything they need on the farm signals that fast adoption of new farming technology could soon revolutionize agriculture. Because of these new technologies, farmers are more prepared to modify their work to suit any changes. Analyzing the main reasons, challenges and possible ways to improve agriculture in India will prove useful for shaping effective new policies in the field. This study stresses the need for researching farm laws in India. According to Das (2021), research can help by revealing the main reasons for unstable agriculture, including insufficient irrigation, rural service systems and unfavorable climate conditions. It is possible to relate land tenure security and tenancy changes to outcomes such as productivity in farming, poverty and level of farm investment. The research is meant to help us understand the farm sector in India, both at present and what is likely to happen in the future. The finding will help policymakers productively engage with stakeholders and steer the discourse to find long-term solutions in this complex matter, making the farm sector economically more productive so that farmers prosper and the economy booms.

1.5 Research Purpose and Questions

This research aims to enhance clarity and provide insights by focusing on the research problem and addressing the following important questions:

1. What were the principal motivations and rationales for the implementation of farm laws in India?

2. What are the immediate and long-term impacts of these regulations on farmer income, market dynamics, supply chains, and rural economies?
3. To what extent do the farm laws conform to global agricultural trends, technical improvements, and imperatives for sustainability?
4. What ethical considerations are involved in the implementation of these laws and the ensuing reforms?

CHAPTER II

REVIEW OF LITERATURE

2.1 Theoretical Framework

Agricultural policy reform has been a subject of significant debate and research across various countries. In the United States, efforts to reform farm policies have a long history, with attempts to reduce market interventions and fiscal costs of transfers to the agricultural sector (Orden, 2002). The Federal Agriculture Improvement and Reform (FAIR) Act of 1996 was initially thought to mark a substantial departure from past farm programs. However, subsequent analysis proved otherwise, highlighting the challenges in implementing lasting reforms (Orden, 2002). Interestingly, agricultural policy decisions can have important environmental consequences, as reflected in the soil conservation and environmental protection components of the 1985 and 1990 Farm Bills in the U.S. (Ringquist et al., 1995). Implementing the Conservation Reserve Program has significantly improved air quality in areas affected by agricultural air pollution (Ringquist et al., 1995). In the context of agricultural law, the development and evolution of legislation can be classified into four distinct but overlapping eras: traditional development, transitional family farm, industrial agriculture Big Ag, and post-industrial food democracy (Hamilton, 2013). This classification helps understand the role of laws in promoting the goals and values of different periods and predicting legal conflicts between different versions of agriculture (Hamilton, 2013). For effective agricultural reforms, it is crucial to have quality legislation, as proper regulation is essential for the development of agricultural cooperatives and the sector (Teleuyev & Ndzhiki, 2019).

The recent enactment of Farm Laws in India has sparked widespread protests and debates, highlighting the complex interplay between socio-economic factors and environmental

sustainability in agriculture (Sankar, 2020). These laws, hailed as a watershed moment by neoliberal market analysts, have been compared to the 1991 economic reforms, emphasizing liberalization, privatization, and globalization (Sankar, 2020). “A critical review of these laws reveals profound implications for social justice and environmental sustainability” (Sankar, 2020). “The new legislation is seen as a continuation of attempts by neoliberal markets and states to commodify food and farming activities, raising concerns about the ontological questions of what constitutes food and farming” (Sankar, 2020). The peasant resistance to these laws is considered part of the more significant environmental justice movements (Sankar, 2020). Interestingly, the impact of these laws on farm profitability and sustainability remains questionable. While subsidies have contributed to increased farm output and income in the short term, their long-term effects on profitability and sustainability are debatable (Mishra et al., 2024). In many cases, subsidies have led to overproduction, market distortions, and environmental degradation, undermining the overall sustainability of agricultural systems (Mishra et al., 2024). In conclusion, the Farm Laws in India represent a significant shift in agricultural policy, with far-reaching socio-economic and environmental implications. The laws have sparked a debate on the future of farming and farmers in India, raising concerns about potential changes in market forms and their impact on small farmers (Gill, 2021). As the agricultural sector grapples with these changes, there is a need for a more targeted and efficient approach to agricultural support, one that prioritizes resource conservation, climate resilience, and rural development (Mishra et al., 2024).

The Indian government's introduction and subsequent repeal of three farm laws in 2020 sparked significant debate and protests, highlighting the complex interplay between agricultural policy, economic reform, and social justice (Singh & Bhogal, 2021). These laws, aimed at expanding farmers' marketing choices and increasing incomes, were met with widespread resistance from farmers demanding their repeal and the legal guarantee of

minimum support prices (MSP) for agricultural produce (Chatterjee & Krishnamurthy, 2021; Singh & Bhogal, 2021). Research suggests that the farm laws may have been misdirected in several respects, failing to address the actual state of agricultural markets adequately and existing regulations in India (Chatterjee & Krishnamurthy, 2021). Critics argue that the reforms were part of a broader neoliberal agenda to commodify food and farming activities, raising concerns about social justice and environmental sustainability (Sankar, 2020). This perspective situates the farm laws within the larger narrative of the neo-liberalization of nature, challenging traditional notions of food and farming (Sankar, 2020). The government's response to the protests and subsequent repeal of the laws highlights the need for a more nuanced approach to agricultural reform. Studies indicate that successful implementation of such reforms requires addressing imperfections and concerns and fulfilling certain conditions (Dev, 2021). These include rationalizing subsidies, implementing land reforms, leveraging technology, strengthening institutions and governance, and improving rural infrastructure (Dev, 2021). In conclusion, the research emphasizes the importance of understanding the complex dynamics of agricultural markets, intermediation, and the broader economic context when implementing agricultural marketing reforms (Chatterjee & Krishnamurthy, 2021). The farm law controversy underscores the need for a balanced approach that considers both economic objectives and social justice concerns while also addressing the environmental implications of agricultural policies (Dev, 2021; Sankar, 2020).

The recent changes in farm laws in India, particularly the introduction and subsequent repeal of the three farm laws in 2020-2021, have sparked significant debate and research in agricultural economics and policy. These laws were intended to modernize India's agricultural market by encouraging investment and increasing competition (Saha et al., 2023). However, they faced widespread opposition from farmers who feared the withdrawal of state-provided security nets (Saha et al., 2023; Singh & Bhogal, 2021). The farm laws aimed to

expand farmers' marketing choices and increase their incomes. However, they triggered massive protests centred around two key demands: repealing the laws and making the Minimum Support Price (MSP) a legal right (Singh & Bhogal, 2021). Critics argue that the reforms may have been misdirected in many respects, emphasizing the need for a better understanding of intermediation, public investment, and improvements in production conditions (Chatterjee & Krishnamurthy, 2021). Interestingly, the resistance to these laws came from three central nodes: farmers, states, and regional identities. The linking factor between these nodes was the perception that the laws would weaken states' federal agricultural rights through centralized agribusiness restructuring (Singh, 2022). This highlights the complex interplay between agricultural policy, federalism, and ecological sustainability in India's agrarian landscape. In conclusion, the farm laws and their repeal represent a critical juncture in India's agricultural policy. The debate surrounding these laws underscores the need for a more nuanced approach to agricultural reform that considers the diverse stakeholders involved and the potential long-term impacts on India's agrarian economy and federal structure (Sankar, 2020; Singh & Singh, 2022). Future research should focus on developing eco-socialist visions for farm laws that balance economic growth with environmental sustainability and social justice (Sankar, 2020; Singh, 2022).

The rationale for farm laws, particularly in the context of India's Farm Laws, has been a subject of discussion and debate. Agricultural policies and laws are crucial for ensuring food security, improving farmer welfare, and promoting sustainable agricultural practices (Mogues et al., 2015). The need for agricultural reforms in India has been driven by various factors, including environmental degradation, climate change, and socio-economic disparities (Sekhar et al., 2024). Integrating traditional agricultural techniques with modern farming practices has been proposed as a potential solution to address these challenges (Sekhar et al., 2024). This approach aims to combine the sustainability and ecological harmony of traditional methods

with the advancements of contemporary agriculture. However, implementing such integrated approaches faces several barriers, including sociocultural factors, economic constraints, and policy issues (Sekhar et al., 2024). Research has shown that non-climatic factors, such as demographic characteristics, asset and income, education, and access to financial institutions, play a significant role in farmers' adaptive behaviour and their response to agricultural policies (Bahinipati & Patnaik, 2021). This highlights the importance of considering these factors when formulating farm laws. Furthermore, studies have emphasized the need for evidence-based policies that can effectively scale up farm-level adaptation mechanisms (Bahinipati & Patnaik, 2021). In conclusion, the rationale for agricultural laws, including India's Farm Laws, is rooted in the need to address complex agricultural sector challenges. Future research should focus on establishing causal relationships between farm-level options and climate change, as well as examining the impact of government policies on specific agricultural issues (Bahinipati & Patnaik, 2021). Additionally, there is a need for targeted education and awareness programs for farmers and consumers, as well as continued policy and government support to promote sustainable and inclusive agricultural practices (Sekhar et al., 2024).

A review of research comparing agricultural laws in India with those of other countries concerning farm laws in India reveals several key insights and contrasts in agricultural policies and practices. The agricultural sector in India has undergone significant changes over the past decades, transitioning from subsistence farming to commercial agriculture (Shirur et al., 2022). The introduction of the Farm Laws in 2020 aimed to modernize further and liberalize the agricultural sector. However, these laws faced substantial resistance from farmers, states, and regional identities, primarily due to concerns about weakening states' federal agricultural rights and the increasing centralization of agribusiness (Singh, 2022). In contrast to India's centralized approach, the United States employs a more decentralized

extension system operating under a learning model. At the same time, Nepal and India primarily follow a 'top-down expert model' for program delivery (Ghimire, 2014). This difference in approach highlights the varying degrees of farmer involvement and autonomy in agricultural decision-making across countries. The debate surrounding the Farm Laws in India has highlighted the need for an eco-socialist vision in agriculture, critiquing both traditional right-wing and left-wing discourses on agriculture and development (Singh, 2022). This perspective emphasizes the importance of protecting agriculture as a state subject within Indian federalism and resisting the influence of agribusiness capitalism to maintain ecological sustainability and local farming practices. In conclusion, comparing agricultural laws in India with those in other countries reveals a complex interplay of factors, including historical context, cultural mandates, and public policy (Ghimire, 2014). As India navigates its agricultural policies, balancing modernization with sustainability and farmer welfare remains a critical challenge.

Research on the relationship between farmer income and law regulations, particularly in the context of Farm Laws in India, reveals complex interactions between agricultural policies, economic factors, and social dynamics. Studies indicate that agricultural reforms and law regulations significantly impact farmer income and livelihoods. For instance, the recently enacted Farm Laws in India have been a subject of intense debate and protest (Behera, 2024). These laws, aimed at transforming agriculture and increasing farmer income, were implemented without detailed stakeholder consultations, leading to widespread farmer protests (Behera, 2024). The reforms were compared to the 1991 economic reforms based on liberalization, privatization, and globalization principles (Sankar, 2020). Interestingly, research highlights contradictions in the implementation and reception of these laws. While proponents argue that the laws could boost agricultural productivity and farmer income, critics view them as part of a larger narrative of commodification that may have profound

implications for social justice and environmental sustainability (Sankar, 2020). The protests against these laws have been seen as part of more significant environmental justice movements, reflecting the complex interplay between agricultural policies and socio-economic factors (Sankar, 2020). In conclusion, the relationship between farmer income and law regulations involves economic, social, and environmental considerations. The case of Farm Laws in India demonstrates the challenges in balancing agricultural reform with farmer interests and highlights the need for comprehensive stakeholder engagement in policy formulation. Future research could focus on developing more inclusive approaches to agricultural policy-making that consider the diverse needs of farmers across different income brackets and farming practices.

Research on the relationship between farmer income and law regulations, particularly in the context of India's Farm Laws, reveals complex interactions and diverse perspectives. The Farm Laws enacted by the Indian government in 2020 aimed to increase farmers' income by offering greater freedom to sell produce and encouraging private investment (Dev, 2021). However, these laws sparked widespread protests and debates about their potential impact on farmers' livelihoods (Behera, 2024; Gill, 2021). Critics argue that the laws could lead to the dominance of big private corporate agencies, potentially altering market forms and price determination mechanisms (Gill, 2021). Some researchers draw parallels with similar laws in the United States during the 1980s, negatively impacting small farmers (Gill, 2021). Interestingly, the debate surrounding these laws extends beyond economic considerations. Some scholars argue that the Farm Laws represent a continuation of neoliberal attempts to commodify food and farming activities, raising concerns about social justice and environmental sustainability (Sankar, 2020). This perspective situates the farmers' protests within the context of environmental justice movements (Sankar, 2020). In conclusion, the relationship between farmer income and law regulations involves economic, social, and

environmental dimensions. While proponents of the Farm Laws argue for their potential to increase farmer income through market liberalization, critics emphasize the need for a more holistic approach that considers the diverse needs of farmers, the importance of federalism in agricultural policy, and the potential ecological consequences of agricultural restructuring (Singh, 2022). Future research should focus on developing comprehensive policy frameworks that balance economic objectives with social and environmental concerns in the agricultural sector.

Research on the relationships between market dynamics and law regulations, particularly in the context of Farm Laws in India, reveals complex interactions and potential implications for agricultural markets and farmers' welfare. Studies indicate that market dynamics significantly influence the formulation and implementation of law regulations in the agricultural sector. The recent Farm Laws in India, introduced in 2020 and repealed in 2021, aimed to modernize agricultural markets by encouraging investment and increasing competition (Saha et al., 2023). However, these laws sparked widespread protests from farmers who feared reduced state support and increased vulnerability (Saha et al., 2023). This highlights the tension between market-oriented reforms and existing social safety nets in agricultural policy. Interestingly, research suggests that the impact of such laws may be more nuanced than initially perceived. An examination of similar laws implemented in the United States during the 1980s and the abolition of APMC market regulation in Bihar in 2006 provides insights into the potential long-term effects on small farmers and market structures (Gill, 2021). These findings underscore the importance of considering historical precedents and local contexts when designing agricultural market reforms. In conclusion, the research emphasizes the need for a balanced approach to agricultural market reforms considering economic growth and social development imperatives (Gurtoo, 2008). Future policy initiatives should focus on better understanding intermediation, increasing public investment, improving production

conditions, and addressing the broader economic context of agricultural marketing reforms (Chatterjee & Krishnamurthy, 2021). This holistic approach may help reconcile the often conflicting goals of market efficiency and farmer welfare in the context of evolving agricultural policies and regulations.

Research on the relationships between economy, policy, and law regulations reveals complex interactions that significantly impact various sectors, including agriculture. Studies have shown that legislative changes can profoundly affect economic outcomes and social dynamics (Chairunnisya et al., 2024; Simanjuntak et al., 2024). For instance, implementing sustainable food agricultural land protection policies in Indonesia demonstrates the growing recognition of the need to balance economic growth with environmental sustainability (Chairunnisya et al., 2024). Interestingly, the approach to policy-making and legislative reform varies across countries. While some nations, like Singapore, have demonstrated a strong reciprocal relationship between company law and economic events (Ooi & Tan, 2019), others have explored novel approaches, such as the omnibus law method, to support economic growth and adapt to global trends (Simanjuntak et al., 2024). However, these approaches are not without controversy, as evidenced by the pros and cons debated among stakeholders.

In conclusion, the interplay between economy, policy, and law regulations is multifaceted and context-dependent. While specific research on Farm Laws in India is not provided in the given context, the general principles observed in other countries suggest that agricultural policies can have significant economic and social implications. Future research should focus on evaluating the effectiveness of agricultural policies in balancing economic growth, food security, and environmental sustainability, particularly in the context of developing economies (Chairunnisya et al., 2024; Simanjuntak et al., 2024).

The relationship between technology development and legal regulations has been the subject of significant research, particularly in the context of agricultural laws. In the context of Farm Laws in India, the intersection of technology and legal frameworks presents an interesting case study. While specific research on Indian Farm Laws and technology is not provided in the given context, we can draw parallels from other areas where technology and law intersect. For instance, the rapid advancement of deep fake technology has introduced challenges in data security, privacy, and intellectual property rights, necessitating urgent legal reforms in India. Similarly, the agricultural sector may face technological advancements that require corresponding legal adaptations. The relationship between technology development and legal regulations is complex and dynamic. As seen in South Korea's technology sector, intellectual property laws have fostered innovation (Ji-Min, 2024). This suggests that well-crafted legal frameworks can also incentivize technological advancements in agriculture. However, it's important to note that laws must be carefully designed to balance innovation with other societal needs, such as consumer protection (Khan et al., 2023) and ethical considerations in healthcare (Singh et al., 2024). Future research could explore how Farm Laws in India can be structured to promote technological innovation while safeguarding farmers' rights and interests.

The farm laws implemented in India have had profound implications for the agricultural sector, particularly the fear related to withdrawal of

the Minimum Support Price (MSP) system, which previously provided farmers with price security. Without MSP, farmers fear exploitation by private buyers and potential income losses, especially for those dependent on government procurement. The push for contract farming offers farmers access to markets and technology but raises concerns about unfair contracts and reduced bargaining power. Additionally, the creation of unified markets aims to

provide flexibility in selling produce beyond regulated Agricultural Produce Market Committees (APMCs) but has faced resistance from farming communities (Singh et al., 2021).

Diverse Perspectives on Farm Laws

The introduction of farm laws has sparked diverse reactions. Proponents argue that these reforms can modernize agriculture and expand market opportunities for small-scale farmers. Critics, however, highlight potential exploitation by corporations and the absence of legal MSP guarantees. The resulting protests underscore the complexity of implementing such legislation in a diverse and populous nation like India (Beriya, 2021; Krishnamurthy, 2021).

Resistance and Government Response

Political, economic, and social concerns drove India's recent resistance to agricultural reforms, particularly the protests against the 2020 Farm Laws. At the heart of the farmers' objections was the fear that these laws would dismantle existing protections, such as the Minimum Support Price (MSP) system and state-regulated mandis (markets), which many small and marginal farmers depend on for stable incomes and market access. The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, the Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, and the Essential Commodities (Amendment) Act were seen as favouring large agribusinesses by opening up agriculture to greater privatization and reducing state involvement in procurement and distribution mechanisms (Chandrasekhar, 2022).

One of the primary causes of the resistance was how these laws were introduced—rushed through Parliament without adequate consultation or debate. Farmers and civil society organizations criticized the lack of democratic process, arguing that the government bypassed

necessary deliberation with stakeholders and states (Georgekutty & Varghese, 2024). The top-down policy approach and exclusion of farmers from meaningful dialogue bred deep mistrust. These legislative methods revealed deeper structural issues in India's policymaking processes, where executive dominance overshadowed parliamentary scrutiny, leading to broader concerns about the erosion of democratic norms.

Economically, farmers feared that dismantling the mandi system would weaken their bargaining power and increase vulnerability to exploitation by private buyers. The concern was not just about corporatization but about land insecurity and loss of livelihood. Many smallholders, already grappling with debt and uncertain incomes, viewed the reforms as potentially threatening their survival (Singh & Shergill, 2021). Additionally, long-standing agrarian distress—including rising input costs, declining profitability, and growing indebtedness—created fertile ground for resistance. These structural issues were exacerbated by the perception that the reforms did not address the core economic challenges faced by farmers but instead shifted the power dynamics further away from them.

Social and cultural dimensions also played a significant role in sustaining the protest movement. The protests were powerful in Punjab and Haryana, regions with a long-standing history of state support and heavy reliance on wheat and rice procurement under MSP. For many farmers, the protest was about policy preserving agrarian identity and resisting a model they perceived as undermining their autonomy and traditional agricultural systems (Grewal & Bainiwal, 2022). Furthermore, farmers' unions, particularly in Punjab, such as the Bhartiya Kisan Union (Ekta Ugrahan), played a critical role in mobilizing support and maintaining the non-violent nature of the protests. Their strategies emphasized inclusivity, mass mobilization, and long-term resistance (Shyam et al., 2024).

The influence of the protests on government policy was substantial. After nearly a year of sustained demonstrations, which included blocking highways, mass sit-ins at the borders of Delhi, and global solidarity movements, the government ultimately repealed the three farm laws in November 2021. This reversal marked a rare and significant policy U-turn for the central government and underscored the impact of grassroots mobilization on national policymaking. Scholars have highlighted this outcome as a vital lesson in public policy, demonstrating the importance of inclusive governance and stakeholder engagement (Behera, 2024). The rollback also reignited debates on the future direction of agricultural reform in India and emphasized the need for democratic legitimacy in economic policymaking.

The Indian government's response to the widespread protests against the 2020 Farm Laws was marked by legislative inflexibility, delayed stakeholder engagement, and eventual political retreat. The effectiveness of this response has been a topic of intense debate, especially as the protests ultimately led to the repeal of the laws, revealing both institutional weaknesses and vital lessons for future agricultural reform.

Initially, the government's approach to the farm laws lacked inclusivity and consultation. The three acts were introduced and passed rapidly, without thorough parliamentary scrutiny or stakeholder deliberation, creating mistrust among farmers and civil society. As noted by Georgekutty and Varghese (2024), the protests exposed serious flaws in the legislative process, including bypassing parliamentary committees, the marginalization of state governments, and the concentration of power in the executive. These top-down methods provoked significant backlash, mainly because the reforms were perceived as favouring corporate interests over the welfare of small farmers.

In the face of mounting protests—one of the most significant and most sustained in Indian history—the government's initial strategy was to defend the reforms and frame them as

essential for liberalizing agricultural markets. However, this position failed to resonate with the farming community, especially in northern states like Punjab and Haryana, where concerns over the weakening of the Minimum Support Price (MSP) system and loss of mandi protections were deeply felt (Kumar, 2022). The prolonged deadlock and inability of the government to negotiate meaningful compromises led to a political impasse that lasted over a year.

Over time, the scale and persistence of the protests, including mass mobilizations and international attention, compelled the government to reassess its position. The announcement in November 2021 to repeal the laws was a significant concession, reflecting the limitations of a policy approach that lacked grassroots legitimacy. According to Singh and Shergill (2021), repealing the laws marked a rare reversal under a majority government and underscored the political cost of ignoring rural voices. This move also signalled the capacity of collective resistance to influence national policy, even in an environment characterized by executive dominance.

From a governance perspective, the farm law episode highlighted the risks of enacting structural reforms without democratic consensus. The lack of trust between the government and farmers was rooted in the content of the laws but also in the process of their enactment. Behera (2024) argues that future reforms must be grounded in participatory dialogue, federal cooperation, and transparent communication to ensure credibility and acceptance. Moreover, the episode has revitalized discourse on federalism and the role of states in agricultural policy, suggesting that future reforms must involve state governments as equal partners.

The government's response also generated broader implications for policymaking in India. While repealing the laws was a tactical retreat, it did not resolve the more profound agrarian crisis. Farmers demand legally guaranteed MSPs, debt relief, and comprehensive agrarian

reform prioritizing sustainability and equity. The protests thus serve as a reminder that agricultural reform must align with the lived realities of farmers rather than being designed primarily to attract private investment or align with global market logic.

2.2 Theory of Reasoned Action:

Evolution of Farming Practices in India

The evolution of farming practices in India has been a significant journey, transitioning from traditional methods to modern agricultural techniques. This transformation has been driven by the need to enhance productivity, meet the demands of a growing population, and address environmental concerns. Traditional farming in India, which relied heavily on indigenous knowledge and ecological balance, included crop rotation, polyculture, and organic manures. These methods were closely tied to local cultural traditions and the natural environment, ensuring sustainability and minimal environmental degradation. However, as the population grew, the need for higher productivity became more pressing, revealing the limitations of traditional practices in meeting the growing demand for food.

The Green Revolution began in the 1960s and marked a pivotal shift in Indian agriculture, introducing high-yielding varieties (HYVs) of crops, chemical fertilizers, and pesticides. These innovations led to a significant increase in agricultural productivity, particularly in states like Punjab and Haryana, where irrigation systems were expanded and mechanization through tractors and combine harvesters began to take root. While the Green Revolution significantly boosted production, it also created environmental challenges such as soil degradation, depletion of groundwater, and over-reliance on chemical inputs, highlighting the unsustainable aspects of modern agricultural methods.

Recent research suggests that the future of farming in India lies in integrating traditional and modern agricultural techniques. Studies have demonstrated that blending sustainable

indigenous practices, like agroforestry and organic farming, with modern technologies, such as precision agriculture, can lead to more environmentally friendly and productive farming systems. For instance, Sekhar et al. (2024) argue that integrating traditional knowledge with modern advancements can enhance biodiversity, improve soil health, and make agriculture more sustainable in the long term. This integration is seen as a way to balance the ecological harmony of traditional farming with the productivity gains of modern techniques, creating resilient and productive farming systems.

As the environmental costs of conventional farming become more apparent, there is a growing shift towards sustainable farming practices that focus on ecological balance and climate resilience. Natural farming, a system that avoids chemical inputs, is gaining traction as a solution to these challenges. This approach, which emphasizes minimal soil disturbance and organic fertilizers, is becoming increasingly popular in India as farmers seek alternatives to the harmful effects of conventional agriculture. Vaja et al. (2024) discuss how natural farming can preserve soil health and reduce synthetic inputs' environmental and health risks. Additionally, organic agriculture has grown, fueled by the increasing consumer demand for chemical-free products and government support for organic certification programs (Chowdary, 2020).

Technological advancements, particularly in smart farming, have also played a key role in modernizing Indian agriculture. Innovative farming techniques, including the Internet of Things (IoT), drones, and artificial intelligence (AI), enable farmers to optimize resources, enhance crop yields, and reduce labour costs. These technologies benefit areas with limited water resources, such as Ladakh, where innovative farming practices are implemented to increase productivity in cold, arid regions (Angchuk et al., 2024). Furthermore, mobile applications and satellite-based monitoring are helping farmers make data-driven decisions to

manage their crops more effectively (Jadhav et al., 2024). These innovations are poised to revolutionize farm management in India, making it more efficient and sustainable.

The socio-economic impacts of the Green Revolution and its subsequent shift towards organic farming practices in India are significant and multifaceted, affecting both livelihoods and productivity. The Green Revolution, initiated in the 1960s, profoundly transformed Indian agriculture by introducing high-yielding varieties (HYVs), chemical fertilizers, and modern irrigation techniques. This period saw a rapid increase in food production, particularly in regions like Punjab, Haryana, and Uttar Pradesh, contributing to food security and reducing hunger. However, while it achieved short-term gains, the long-term socio-economic consequences have been more complex.

The Green Revolution increased agricultural productivity, significantly boosting the incomes of wealthier farmers who could afford the new technologies. However, it also created disparities. Large-scale farmers with better access to resources benefitted the most, while small and marginal farmers, especially in rain-fed and less-developed areas, faced challenges in accessing these inputs. The reliance on chemical fertilizers and pesticides resulted in increased costs, adversely impacting the profitability of farming in many regions. Additionally, the overuse of these chemicals led to environmental degradation, including soil fertility loss, water contamination, and biodiversity decline, ultimately affecting the long-term sustainability of farming (Das, 2017).

As the environmental and health consequences of the Green Revolution became more apparent, there was a growing shift towards organic farming. Organic farming, which relies on natural fertilizers and ecological practices, emerged as an alternative to mitigate the damage caused by intensive chemical agriculture. Research suggests organic farming practices have had positive socio-economic impacts, especially in dryland regions. Studies

indicate that organic farming enhances soil fertility, reduces input costs, and promotes biodiversity, improving resilience against climate change. Moreover, farmers engaged in organic farming often report better health outcomes due to reduced exposure to harmful chemicals (Reddy, 2017).

Despite its benefits, the transition to organic farming has not been without challenges. The shift has led to yield reductions during the conversion period, which can be financially stressful for farmers accustomed to the higher yields of conventional farming. Additionally, the lack of robust markets for organic produce and the complexities of certification pose further barriers. However, with the growing demand for organic products, particularly in urban areas and international markets, the economic potential for organic farming is expanding (Singh, 2024). This has prompted calls for more substantial government support through subsidies, research, and better market access to help farmers transition and ensure that organic farming becomes a viable, long-term solution (Yadav, 2018).

Furthermore, organic farming aligns with broader sustainability goals. It helps conserve water, reduces chemical inputs, and promotes better resource management, which are crucial for the long-term sustainability of agriculture in India. The shift towards organic practices also supports rural livelihoods by fostering more resilient farming systems that are less reliant on external inputs and more in harmony with local ecosystems (Kavitha & Chandran, 2017). Thus, while the Green Revolution played a crucial role in enhancing food production, the move towards organic farming is essential to ensuring sustainable, equitable agricultural development in India.

2.3 Human Society Theory

Global Context and Neoliberal Influences

Global neoliberal agricultural policies have significantly shaped the economic and social dynamics of farming in developing countries, with India being a prime example of how these global trends have affected local agricultural practices. The neoliberal economic model, which emphasizes market liberalization, deregulation, and privatization, gained traction globally in the 1990s, reshaping the agricultural policies in many developing nations, including India. In India, the economic liberalization that began in 1991 marked a significant shift, particularly in the agricultural sector, which has traditionally been one of the largest employers in rural areas. Neoliberal reforms promoted the removal of subsidies for farmers, reduced government intervention in agricultural markets, and encouraged the privatization of key services like irrigation and credit. While these reforms were intended to integrate India's agricultural markets with the global economy, they also led to economic challenges, particularly for small-scale farmers.

The economic impact of these reforms has been mixed, with large agribusinesses and corporations benefiting from removing trade barriers and expanding free markets. At the same time, small farmers have faced increased competition and market volatility. Siddiqui (2015) points out that while India's overall GDP has grown substantially, the agricultural sector has lagged, with slower growth rates and rising rural unemployment. The decline in state support, the removal of subsidies, and the withdrawal of the government from price regulation left farmers vulnerable to market fluctuations. This shift has contributed to an agrarian crisis, characterized by rising input costs, stagnant or declining incomes for farmers, and increasing levels of indebtedness, particularly among small-scale farmers. These conditions have also exacerbated food insecurity, shifting the focus from food security to market efficiency and global competitiveness.

Socially, the effects of neoliberal reforms have been profound. The push for deregulation and privatization of agricultural markets weakened the support systems that protected small farmers. The traditional role of the Agricultural Produce Market Committees (APMCs) as intermediaries between farmers and buyers was reduced, leaving farmers with limited bargaining power, as they were now subject to the whims of private corporations. This has led to widespread protests, most notably the 2020–2021 farmers' movement, which directly responded to the neoliberal farm laws introduced by the Indian government. These laws, which aimed to liberalize India's agricultural markets, were perceived by many farmers as a threat to their livelihoods, as they feared losing government protections like Minimum Support Price (MSP) and being at the mercy of large corporations (Kumar, 2022). The farmers' resistance to these neoliberal policies, which included mass protests and calls for repealing the farm laws, highlights the growing discontent with the neoliberal agricultural agenda.

In addition to economic distress, neoliberal agricultural policies in India have also had significant social consequences, especially for marginalized groups such as women farmers. Priya (2024) discusses how women-led farm households, already at a disadvantage due to patriarchal norms and limited access to resources, were disproportionately affected by these reforms. The neoliberal shift, which favoured large-scale commercial farming and corporate involvement, exacerbated women farmers' inequalities, limiting their access to markets and resources. Moreover, these changes contributed to social unrest in rural areas, where the consequences of neoliberalism, such as increasing debt and displacement, led to higher rates of farmer suicides and social instability.

Despite the adverse impacts, neoliberal agricultural policies have spurred debates about alternative agricultural models prioritizing sustainability, inclusivity, and environmental

justice. As highlighted by Jha (2024), there is a growing recognition that the neoliberal model has failed to address the needs of small farmers and the broader rural population. The resistance movements in India have pushed for reforms focusing on fair market access, environmental sustainability, and protecting farmers' rights. These movements underscore the need for a balanced approach integrating market liberalization with strong support systems for farmers, especially those in vulnerable and marginalized positions. Moreover, there is an increasing call for policies that promote agro-ecological practices, enhance food sovereignty, and provide long-term solutions to the agrarian crisis.

The environmental and social consequences of neoliberal agricultural reforms in India have been profound, mirroring similar outcomes observed in other developing nations that have embraced neoliberal economic policies. Neoliberalism, which advocates for deregulation, privatization, and market liberalization, has reshaped agricultural landscapes, leading to positive and negative consequences.

In India, neoliberal reforms have contributed to a significant agrarian crisis, with small-scale farmers bearing the brunt of the changes. These reforms, which started in the 1990s, emphasized the reduction of state subsidies and promoting private-sector involvement in agriculture, including deregulating agricultural markets. This shift has resulted in increased market volatility, rising input costs, and the marginalization of small farmers. While the large-scale commercialization of agriculture has benefited corporations and agribusinesses, smallholder farmers have often faced economic instability, worsening debt, and food insecurity (Singh, 2020). As Siddiqui (2015) notes, the liberalization of trade under the World Trade Organization's agreements has exposed Indian farmers to the volatility of global markets, reducing their bargaining power and ability to secure stable incomes. The environmental consequences are equally concerning, as the overuse of chemicals, including

pesticides and fertilizers, has led to soil degradation, water pollution, and biodiversity loss (Mishra, 2020).

Socially, neoliberal reforms have exacerbated inequality and socio-economic distress. The commodification of agriculture and the increasing influence of multinational corporations in the agricultural sector have reduced the bargaining power of farmers, particularly in rural areas. Farmers in regions like Punjab, where agriculture has traditionally been a large part of the economy, have experienced growing alienation from the state and market forces, which prioritize corporate interests (Kaur & Saratchand, 2023). This has sparked massive resistance, most notably through the farmers' protests of 2020-2021, which opposed the government's farm laws, which are seen as neoliberal. These laws were perceived as facilitating corporate encroachment into agriculture, leaving farmers vulnerable to exploitation and diminishing their access to essential resources like Minimum Support Price (MSP) and regulated markets (Kumar, 2022).

Compared to other developing nations, the environmental and social consequences of neoliberal agricultural reforms in India share commonalities with countries like Nigeria and West Bengal. In these regions, the push for market-driven agricultural systems has led to environmental degradation and displacement of local populations. As Idrissa (2019) highlights, the neoliberal agenda has disrupted traditional farming practices and weakened the state's role, allowing large corporations to dominate agricultural sectors at the expense of small farmers and local communities. Similarly, in West Bengal, the expansion of multinational corporations like PepsiCo in agriculture has undermined small-scale farming, leading to economic and social distress for local farmers (Ray, 2017).

Furthermore, the neoliberal model has often overlooked the needs of women farmers, exacerbating gender inequalities in rural areas. The neoliberal emphasis on market efficiency

has marginalized women, who traditionally play a significant role in agriculture but have limited access to resources and decision-making power. Priya (2024) discusses how women-led farm households in India, particularly in regions with high levels of farmer suicides, have suffered disproportionately from the neoliberal reforms, facing heightened vulnerability in the face of deregulated markets and corporate interests.

Addressing the Agrarian Crisis

The ongoing agrarian crisis in India results from deep-rooted structural, economic, environmental, and policy-related factors that have compounded over decades. Despite agriculture employing more than half of India's workforce, it contributes less than 20% to GDP, reflecting chronic inefficiencies and vulnerabilities in the sector. Understanding and addressing the crisis through comprehensive policy reforms is essential for ensuring rural livelihood security, food sovereignty, and balanced economic development.

One of the primary causes of the agrarian crisis is the declining profitability of farming due to a mismatch between rising input costs and stagnating or falling output prices. Himanshu (2021) identifies the neglect of structural issues—such as lack of investment in rural infrastructure, poor irrigation coverage, and absence of price support—as central to the current crisis. The terms of trade have shifted against agriculture, leaving farmers vulnerable to market fluctuations, particularly in the absence of effective state procurement mechanisms and regulated markets. Furthermore, policies such as demonetization and erratic market interventions have exacerbated rural economic distress.

Another major factor is the withdrawal of the state from agricultural investment and support services. Since the liberalization era, public spending on rural development, irrigation, and research has declined, while private sector involvement has increased. As Jha (2024)

explains, this transition has increased farmers' exposure to global price shocks and input market monopolies while weakening institutional safety nets such as credit availability, crop insurance, and extension services. The result has been widespread indebtedness, with many small and marginal farmers pushed into the informal credit sector, where high interest rates drive them deeper into poverty.

Environmental degradation also plays a critical role in the crisis. Unsustainable agricultural practices—intensified by the Green Revolution—have led to soil exhaustion, groundwater depletion, and biodiversity loss. Climate change has intensified agriculture's unpredictability through erratic rainfall and extreme weather events. According to Ittyerah and Holla (2018), these environmental changes and socio-economic stressors have adversely affected incomes and nutritional outcomes in rural India, particularly for women and children.

Socially, the agrarian crisis has led to a breakdown in rural livelihoods, large-scale migration, and rising mental health issues. One of the most visible and tragic manifestations has been the high rate of farmer suicides, especially in states like Maharashtra and Andhra Pradesh. Thakur (2024) highlights the case of Marathwada, where a combination of indebtedness, crop failures, and lack of institutional support has devastated farming communities. This distress has further fueled rural-urban migration, contributing to urban unemployment and overburdened city infrastructures.

To address these systemic issues, comprehensive policy reforms must move beyond short-term relief measures such as loan waivers and minimum support price announcements. Effective reform must begin with increasing public investment in rural infrastructure—particularly irrigation, storage, and transport—to reduce input costs and post-harvest losses. There must also be a shift towards agro-ecological practices that are climate-resilient and

tailored to regional conditions, promoting sustainable use of land, water, and seeds (Ittyerah & Holla, 2018).

Institutional reforms are equally crucial. Strengthening rural credit systems through low-interest loans, revamping crop insurance, and ensuring timely procurement at remunerative prices can provide the financial cushion farmers need. As Jha (2024) argues, empowering farmers through decentralized governance, cooperatives, and inclusive decision-making processes will foster resilience and restore trust in the system. Additionally, social welfare measures such as universal health coverage, education, and nutrition schemes must be integrated into rural development strategies to support agrarian communities holistically.

Climate-resilient farming practices and improved access to irrigation, credit, and rural infrastructure offer a powerful strategy for addressing India's ongoing agrarian crisis. These components can work synergistically to reduce farmers' vulnerability to climate shocks, increase productivity, and enhance rural livelihoods.

Climate-resilient agricultural practices help stabilize farm output under variable climate conditions. Techniques such as crop rotation, integrated soil management, drought-tolerant crop varieties, and water-saving irrigation have improved yields and farmer incomes. For example, a study in Odisha found that adopting crop rotation and integrated soil management increased farm incomes by 27–45% and improved paddy yields by around 2.5 quintals per acre. These gains were linked to access to extension services, credit, and input subsidies (Jena et al., 2023). Similarly, in drought-prone regions, interventions under the National Innovations in Climate Resilient Agriculture (NICRA) program increased farm incomes by over 40%, especially during drought, enabling better water management and diversified farming systems (Samuel et al., 2024).

Irrigation infrastructure is especially critical in building agricultural resilience. Most Indian agriculture is still rainfed, making it highly vulnerable to erratic rainfall and droughts. Studies show that efficient irrigation systems like drip and sprinkler irrigation can conserve water while enhancing productivity. For instance, an assessment in Odisha demonstrated that districts with better irrigation systems and socio-economic support maintained higher agricultural resilience during climate disasters (Das et al., 2019). Moreover, climate-smart irrigation strategies, such as rainwater harvesting and irrigation scheduling, can significantly reduce water use and increase resilience at both farm and basin levels (Hafeez et al., 2022).

Rural infrastructure—roads, storage facilities, electricity, and digital connectivity—is foundational in enabling farmers to adopt climate-resilient practices and access markets and services. Integrated efforts that combine physical infrastructure with institutional capacity building (like farmer training and cooperatives) are particularly effective. Improved infrastructure also supports dissemination technologies and agricultural extension, which is crucial for scaling up successful practices (Shehrawat et al., 2023).

Access to affordable credit is another essential factor. Credit enables farmers to invest in resilient technologies, purchase inputs, and manage risks. However, many smallholder farmers lack access to formal finance. Strengthening rural banking, expanding microfinance, and integrating green finance mechanisms could address this gap. Green finance initiatives that support precision farming, conservation practices, and clean energy adoption have shown promise in improving both environmental outcomes and rural economic resilience (Liu, 2024).

To maximize the benefits of these interventions, policies must ensure integration and context-specific implementation. Climate resilience is highly localized; what works in one agro-climatic zone may not be suitable for another. Regional assessments, such as those using

Climate-Resilient Agriculture Indexes, help identify the most effective interventions based on local needs and vulnerabilities (Singh et al., 2021). Moreover, empowering farming communities through participatory planning and social networks improves the adoption of new practices, as peer learning and community involvement often increase trust and knowledge dissemination (Chaudhuri et al., 2020).

The Role of Technology and Social Equity

Adopting digital platforms and agricultural technologies is transforming India's rural economy, particularly by empowering marginalized farmers and advancing social equity in the agricultural sector. These technologies offer new opportunities to overcome traditional barriers such as market inaccessibility, information asymmetry, and financial exclusion—issues that have historically disadvantaged small and marginal farmers.

Digital platforms like KisanMitr and educational agriTech tools such as FarmED have emerged as key enablers for connecting farmers with markets, technical advice, and institutional support. These platforms provide real-time access to weather forecasts, crop prices, and cultivation techniques, helping farmers make informed decisions. For instance, KisanMitr facilitated collaboration across stakeholders—farmers, innovators, and extension workers—making technology more accessible and tailored to farmers' real needs. This was particularly crucial for reverse migrants during the COVID-19 pandemic, who used such tools to make farming viable again (Poti & Joy, 2021).

Mobile technologies also play a significant role in enhancing the income security of small farmers. Tools like eKutir demonstrated during the pandemic that digital platforms can sustain food systems by maintaining market linkages and income streams even during crises. Farmers using mobile platforms could bypass intermediaries, improve transparency, and

increase profits (Ferguson et al., 2024). Moreover, case studies show that mobile phones have allowed small farmers to access insurance, credit, and expert guidance remotely. Otherwise, it is difficult to obtain services due to rural infrastructure constraints (Gururaj et al., 2016).

Digital inclusion directly impacts social equity by extending the benefits of technological innovation to women and socially disadvantaged groups. Research in Kerala found that mobile phones significantly empowered rural women farmers by enhancing their access to information, markets, and social networks. However, the study highlighted persistent barriers such as poor digital literacy and inadequate mobile infrastructure, emphasizing the need for targeted interventions (Udisha & Philomena, 2024). Similarly, in Odisha, education, income, and media exposure positively influenced ICT accessibility. At the same time, age and lack of training acted as barriers—underscoring the importance of digital literacy initiatives and equitable access to technology (Satapathy et al., 2024).

Government initiatives under the Digital India program have laid the foundation for digital empowerment in rural regions by expanding internet access, setting up Common Service Centres, and promoting e-markets like eNAM. However, studies have revealed that many farmers still face challenges such as poor digital literacy, lack of timely financial support, and limited awareness of digital tools. To fully realize the transformative potential of digital platforms, the government and stakeholders must address these gaps by investing in rural infrastructure, digital education, and inclusive design (Kumari et al., 2018).

Economic, educational, infrastructural, and social barriers hinder the adoption of agricultural technologies among small-scale farmers in India. These challenges limit productivity and the equitable distribution of technological benefits, reinforcing inequalities within the agricultural sector. To address this, inclusive policies are essential to facilitate adoption and ensure that

technological progress translates into tangible social and economic upliftment for marginalized communities.

Among the most prominent barriers are economic constraints. High costs associated with new technologies and limited access to affordable credit prevent many smallholders from adopting tools that could significantly improve their yields and income. For instance, a case study from Karnataka under the Bhoosamrudhi programme found that even minimal levels of technology adoption could result in an average income increase of ₹3,200 per month among non-adopters (Kapoor et al., 2024). However, such adoption remains limited without adequate financial support mechanisms like subsidies and microcredit tailored to smallholder needs.

A second major obstacle is the lack of awareness and digital literacy, particularly in rural and marginalized communities. Despite growing mobile penetration, many farmers remain unaware of available technologies or lack the skills to use them effectively. Research indicates that landholding size, educational attainment, and geographic location significantly influence the likelihood of adopting technology (Johnpaul, 2025). Without digital literacy, even the most accessible tools fail to create a meaningful impact among intended users.

Infrastructure gaps further inhibit adoption. Inconsistent electricity supply, poor internet connectivity, and inadequate transportation infrastructure make implementing, maintaining, or benefiting from new technologies difficult. Even high-potential innovations such as drones and precision agriculture tools remain underutilized in rural areas due to operational limitations and logistical hurdles (Puppala et al., 2023).

Social and behavioural dynamics also contribute to low adoption rates. A meta-analysis revealed that psychological resistance to change, low-risk appetite, and reliance on traditional methods prevent many small and marginal farmers from embracing innovations (Tayang et al., 2024). Often, farmers require visible, community-based success stories before they are

willing to adopt unfamiliar practices. Cultural norms and lack of trust in external interventions also slow down technology uptake.

Institutional barriers—particularly inadequate extension services and poorly designed training programs—limit farmers' ability to understand and apply modern technologies. Many government-led training initiatives fail to provide localized or practical instruction, resulting in limited engagement. Research in West Bengal identified three significant barriers to practical technology transfer training: lack of comprehension, inadequate customization, and poor generalization of training content (Chandra et al., 2018).

Inclusive policy solutions must address these systemic issues holistically. One of the most impactful approaches is expanding targeted financial support. Subsidies, input vouchers, and low-interest loans empower smallholders to invest in technological tools. Rural training programs should also be restructured to focus on region-specific practices, delivered in local languages, and include peer-led demonstration farms for better engagement and trust-building (Chandra et al., 2018).

Infrastructure development is another priority. Without reliable electricity, transport, and digital networks, the scalability of any technological solution is limited. Investments in these areas would benefit agriculture and strengthen rural economies (Puppala et al., 2023). Simultaneously, policies must promote participatory planning processes where farmers—especially those from marginalized backgrounds—are involved in designing and implementing new tools and practices.

Localized and culturally relevant digital platforms have also shown promise. For example, mobile advisory services that include local language support and are tailored to regional cropping patterns have significantly increased adoption and productivity among users (Gupta

et al., 2020). These findings underscore the need to design technology not just for farmers but also for farmers.

Lastly, long-term strategies must invest in education and awareness-building. Integrating agricultural science and digital literacy into rural schooling can generate tech-savvy farmers equipped to engage with evolving agricultural systems. As scholars emphasize, informed and educated farmers are more likely to understand, adapt, and optimize new technologies (Akhtar & Parveen, 2015).

Literature Gaps

1. Limited Focus on Long-term Socio-Economic Impacts of Agricultural Reforms:

While the literature provides insights into the immediate socio-economic consequences of agricultural reforms, there is a lack of exploration into their long-term effects on farmers' livelihoods, particularly for small-scale and marginalized farmers. Longitudinal studies that track the enduring socio-economic impacts of these reforms are needed.

2. Gendered Perspectives on Agricultural Reforms:

Although the gendered impacts of agricultural policies are beginning to receive attention, there is limited research on how neoliberal agricultural reforms disproportionately affect women farmers. Future research could investigate gender-specific barriers to technology adoption, market access, and the broader socio-economic consequences for women farmers in rural India.

3. Technology Adoption and Digital Literacy in Rural India:

The literature highlights the potential of technology in transforming farming practices, but there is a gap in understanding the barriers to technology adoption among small-scale farmers, especially in terms of digital literacy and infrastructure constraints. Research could explore the effectiveness of digital literacy programs and mobile-based platforms in promoting technology adoption for marginalized farmers.

4. Absence of Regional Perspectives in Agricultural Policy Reforms:

The literature tends to focus on national-level perspectives, with limited examination of regional disparities in the implementation and reception of agricultural reforms. Research is needed that explores how agricultural policies are perceived and implemented across different Indian states, considering each region's unique agricultural challenges and needs.

2.4 Summary

The literature review chapter delves into the complex landscape of agricultural reforms, focusing on key shifts in farming practices and the socio-economic and environmental challenges faced by farmers in India. It begins by highlighting the global context of agricultural policy reforms, particularly in the United States, where significant efforts were made to reduce market interventions and fiscal transfers to the farm sector. The chapter discusses the evolution of agricultural legislation, breaking it down into distinct eras, such as traditional development, industrial agriculture, and post-industrial food democracy. These historical developments underscore the role of agricultural law in shaping farming practices and guiding reforms that align with different socio-economic and environmental goals.

In India, the chapter closely examines the enactment of the controversial Farm Laws in 2020 and the widespread protests that followed. These laws, designed to liberalize agricultural markets, raised concerns about their implications for social justice and environmental sustainability. Critics argue that the statutes favoured neoliberal market forces, potentially undermining small farmers' access to key support systems like the Minimum Support Price (MSP) and state-regulated markets. The research suggests that while these reforms aimed to modernize India's agricultural market, their implementation failed to address farmers' underlying challenges, such as market volatility, indebtedness, and lack of adequate infrastructure. The chapter emphasizes the importance of considering broader socio-economic factors when assessing the impact of such reforms.

Much of the literature review focuses on the Green Revolution and its socio-economic impacts on Indian agriculture. Introduced in the 1960s, the Green Revolution brought about technological advancements that increased productivity, particularly in states like Punjab and Haryana. However, it also led to environmental degradation and rising inequalities between large and small-scale farmers. The chapter transitions into the evolving nature of farming practices, advocating for integrating traditional and modern techniques to create more sustainable farming systems. Research highlights the importance of agroforestry, organic farming, and precision agriculture in addressing environmental challenges, such as soil degradation and water depletion, while enhancing productivity.

The literature also covers the influence of global neoliberal agricultural policies on India, particularly after the country's economic liberalization in 1991. These policies emphasized deregulation, market liberalization, and privatization, which reshaped the farm sector and led to challenges like rising input costs and increasing market volatility for small farmers. The chapter critiques the neoliberal model for its adverse effects on smallholder farmers,

particularly women, who faced further marginalization in the agricultural sector. The widespread resistance to these policies, most notably through the 2020–2021 farmers' protests, reflects the growing discontent with the neoliberal agenda and the need for a more inclusive and sustainable approach to agricultural reform.

Finally, the literature review explores the role of technology in transforming India's agricultural landscape. Digital platforms and technologies such as mobile apps, IoT, and AI are seen as tools to empower farmers, especially marginalized ones, by providing access to critical information, markets, and financial services. However, significant barriers remain, including digital literacy, high costs, and infrastructure gaps. The chapter stresses the importance of addressing these barriers through targeted interventions to ensure that technological advancements benefit all farmers equitably.

CHAPTER III

METHODOLOGY

3.1 OVERVIEW OF THE RESEARCH PROBLEM

The farm laws in India, introduced to address the challenges within the agricultural sector, necessitate a comprehensive examination to fully understand their underlying rationale and implications. These laws emerged as a response to the significant disparities between India's farming and non-agricultural sectors, particularly the income gap between farmers and workers in other industries. This disparity contributes to low agricultural productivity, limited market access, and fragmented land holdings (Gulati & Cahill, 2018). The primary objective of the farm laws is to modernize and enhance the agricultural sector by increasing farmers' income, providing better marketing opportunities, and reducing the role of intermediaries. By facilitating a more competitive and transparent agricultural market, these reforms aim to enable farmers to sell directly to buyers, improving their prices and profitability.

The research problem centres on critically evaluating the rationale behind these laws, analyzing their potential impact on the agricultural sector, and devising an effective strategy for implementing efficient and inclusive reforms. This issue is further complicated by the intricate interplay of economic, social, political, and ethical factors that shape India's agricultural framework. It involves understanding the motivations for implementing the laws, their effects, and the challenges in ensuring fair and equitable benefits for all stakeholders involved. Moreover, the research problem encompasses the need to navigate the evolving global agricultural landscape, where technological advancements, market liberalization, and environmental sustainability are increasingly important. It also involves developing policy suggestions that effectively reconcile market-oriented agricultural approaches with protecting vulnerable farmers' livelihoods.

This research aims to investigate the rationale behind the farm laws, analyze their effects on various facets of Indian agriculture, and propose a comprehensive framework for future agricultural reforms. Through a detailed exploration of these aspects, the study intends to provide a deeper understanding of the challenges and opportunities presented by these laws, contributing to informed policymaking, promoting sustainable agricultural practices, and improving the welfare of Indian farmers and rural communities.

3.2 Operationalization of Theoretical Constructs

India's farm laws and their impact on the agricultural sector, Operationalization of Theoretical Constructs involves translating abstract concepts (like income disparity, market access, policy impact) into measurable variables or indicators that can be studied empirically. Below is a structured Operationalization of the Theoretical Constructs table based on your research problem and objectives:

Theoretical Construct	Definition	Operational Indicators	Measurement Tools/Methods
Income Disparity	Gap between average income of agricultural vs. non-agricultural workers	- Average monthly farm income- Average income in non-farm sectors- Ratio of farm to non-farm income	NSSO reports, NABARD surveys, Govt economic data
Market Access	Extent to which farmers can access competitive markets	- Number of selling points per farmer- Share of produce sold outside APMCs- Use of digital platforms	Field surveys, FPO data, digital transaction records

Theoretical Construct	Definition	Operational Indicators	Measurement Tools/Methods
Farmer Profitability	Net returns farmers gain after production and transaction costs	- Cost of cultivation vs. selling price- Input/output ratio- Gross/Net Margin per hectare	Farm-level accounting data, Ministry of Agriculture reports
Role of Intermediaries	Dependence of farmers on middlemen for selling produce	- % of produce sold through middlemen- Price difference with and without middlemen	Interviews, transaction analysis, market case studies
Policy Impact (Farm Laws)	Perceived and actual changes due to implementation of laws	- Awareness of farm laws- Change in marketing behavior- Legal disputes or protests	Structured surveys, FGDs, media analysis
Inclusiveness of Reform	Degree to which reforms benefit all stakeholders (small, marginal, women farmers)	- Distribution of benefits by landholding size- Farmer perceptions- Gender-based access analysis	Stratified surveys, stakeholder interviews, equity audits
Sustainability of Agriculture	Long-term viability of agricultural practices post-reform	- Adoption of eco-friendly practices- Soil and water conservation methods- Crop diversification	Environmental audits, satellite imagery, extension data
Political Economy of	Influence of political and institutional factors on law	- Political party narratives- Policy lobbying by	Content analysis of

Theoretical Construct	Definition	Operational Indicators	Measurement Tools/Methods
Reform	formulation and reception	stakeholders- Public protests or support	debates, stakeholder interviews
Technological Modernization	Integration of digital and tech tools in agricultural processes	- Use of mobile-based apps- Access to e-markets (e-NAM)- Use of precision farming tools	ICT use surveys, app analytics, extension department data
Ethical Implications	Fairness, transparency, and justice in implementation and outcomes	- Stakeholder satisfaction- Reported grievances- Cases of exploitation or exclusion	Ethics audit, legal case analysis, grievance redress data

Notes for Implementation:

- Quantitative tools such as surveys and secondary data analysis (NSSO, Ministry of Agriculture, NABARD) will support income, productivity, and market-related constructs.
- Qualitative tools like focus group discussions (FGDs), stakeholder interviews, and thematic analysis will help capture the socio-political and ethical dimensions.
- Consider using a mixed-methods approach, which you've already indicated, to triangulate findings across constructs.

3.3 Research Purpose And Questions

The primary purpose of this research is to comprehensively investigate the reasoning behind the three farm laws introduced in India, assess their impact on the agricultural sector, and evaluate the broader socio-economic and environmental consequences of these reforms. This study aims to fill the existing gap in the literature by offering a well-rounded analysis that considers the farm laws' economic, social, legal, and ethical aspects. By scrutinizing these legislative measures, the research seeks to provide insights into their intended and unintended consequences on farmers, markets, rural economies, and the sustainability of agricultural practices.

Through this exploration, the study will delve into the multiple factors influencing agricultural policy reform in India while also addressing the protests and public discourse surrounding the laws. The research also intends to explore the alignment of farm laws with global agricultural trends and sustainability initiatives, examining how they contribute to or challenge established norms in agricultural policy.

The research will specifically address the following questions:

1. What were the principal motivations and rationales for implementing agricultural laws in India?
2. What are these regulations' immediate and long-term impacts on farmer income, market dynamics, supply chains, and rural economies?
3. To what extent do the farm laws conform to global agricultural trends, technical improvements, and imperatives for sustainability?
4. What ethical considerations are involved in implementing these laws and the ensuing reforms?

3.4 Research Design

Quantitative Research Design

The quantitative research design of this study utilizes a cross-sectional survey approach, which is ideal for examining the relationship between agricultural reforms, particularly the newly implemented Farm Laws in India, and various socio-economic factors affecting farmers. A structured questionnaire was employed to gather primary data from a sample size of 347 farmers representing diverse agricultural communities from multiple regions of India. These farmers were selected using stratified random sampling to ensure that various agricultural sectors—such as crop farming, livestock, and mixed farming—were well-represented. The questionnaire was designed to gather detailed insights into the demographic profile of the respondents, including their age, gender, educational background, farming experience, landholding size, and income sources. Additionally, it included questions about their awareness of the Farm Laws, perceptions of these reforms, and how these laws may impact their future in agriculture.

The data collected from these surveys was analyzed using descriptive statistics, such as frequency distributions, means, and standard deviations. These statistical tools helped summarise the farmers' demographic characteristics and farming practices, providing an overview of the general trends across different groups of farmers. For example, by analyzing responses on income and farming methods, the study explored the income disparities between agricultural and non-agricultural sectors and how these disparities influence farmers' attitudes toward the new laws. Inferential statistics were applied to test the relationships between variables further. A key analytical tool was the Kruskal-Wallis test, which was used to compare perceptions among farmers with varying socio-economic characteristics, such as

income sources, education, and region. This statistical approach helped us understand how farm size or education affects attitudes towards farm law reforms and their perceived impacts on agricultural sustainability and profitability.

Moreover, regression analysis was utilized to examine the potential predictors of farmers' attitudes towards the Farm Laws. This included factors such as their level of access to markets, dependence on government subsidies, and their overall economic situation. The quantitative research design thus enables a comprehensive understanding of the statistical relationships and trends between the key variables of interest in the study, providing evidence for informed policy recommendations.

Qualitative Research Design

While the study predominantly utilizes a quantitative approach, it also integrates qualitative methods to offer a more prosperous, contextual understanding of the complexities surrounding the Farm Laws and their impact on Indian farmers. Semi-structured interviews were conducted with a subset of the survey respondents based on their willingness to engage in more detailed discussions and their geographical diversity. This smaller sample size of 30 farmers was selected to allow for an in-depth exploration of individual experiences, perceptions, and the socio-political factors shaping their views on agricultural reforms.

The semi-structured interview approach provided flexibility, allowing the interviewers to probe further into specific responses while ensuring the core topics were covered. The interview questions were designed to explore the personal narratives of farmers regarding farm laws, their historical relationship with state subsidies, and their experiences with market access and intermediaries. Topics such as the role of contract farming, the impact of government intervention (or lack thereof), and the perceived benefits or drawbacks of the

new market regulations were discussed. The interviews were conducted conversationally to facilitate open-ended responses and enable farmers to express their opinions and concerns freely.

The qualitative data obtained through these interviews were analyzed using thematic analysis. This method involved identifying recurring themes, patterns, and sub-themes related to farmers' experiences, mainly focusing on market access, land security, income generation, and sustainability of farming practices. The thematic analysis effectively revealed the underlying socio-cultural and economic factors influencing farmers' perceptions. Key themes from the interviews included the fear of losing access to government-backed Minimum Support Prices (MSP), concerns about the increasing dominance of private corporations in agriculture, and the perceived erosion of farmers' bargaining power.

Therefore, the qualitative component of the study complemented the quantitative findings by providing nuanced insights into the farmers' lived experiences. While the survey results offered broad statistical patterns, the interviews revealed the more profound personal challenges farmers face, such as the uncertainty created by policy shifts and the complex intersection of traditional farming knowledge with modern agricultural practices. This qualitative data is essential in understanding the emotional and cultural dimensions of farmers' resistance to the Farm Laws, offering valuable perspectives for designing future inclusive and effective agricultural policies.

3.5 Population and Sample

Quantitative Sample

Sampling Frame: The qualitative research involved farmers from areas in Punjab, Haryana and Uttar Pradesh where agriculture is at its highest, since all three states have felt the effects

of the new farm laws in India. Areas were chosen because their agricultural outputs are important in India and because the farm laws strongly affected them. There were 347 farmers in the sampling frame to include different-sized farms and views. For the part of the study using numbers, stratified random sampling was applied. Farmers were separated into three groups: small, medium and large, as well as by the main crops they grew. To ensure all the categories of farmers were equal, random sampling was performed in these strata. Because of this technique, the results about farmers have become more trustworthy and can apply to a broader scope. Number of Participants: Quantitative studies used a total of 347 farmers from the highest-agricultural-activity spots in Punjab, Haryana and Uttar Pradesh. The sample size selected helps to include diverse farms, providing a representative and reliable picture of the effects of farm laws.

Qualitative Sample

The researchers based their sample on experienced individuals engaged with farm laws, like farmers, experts in agriculture, bureaucrats who implement farm laws, bankers who finance farmers and policymakers informed about the impacts of these laws. Agricultural reform experience in India was examined through the participation of persons very knowledgeable about the subject. Researchers employed purposive sampling when selecting those to participate in the qualitative research. Among these criteria, people taking part had to be linked to the farm laws and farming, as this helped them understand and explain the impact the policies had on the industry. Thanks to this approach, we found individuals who knew more about the subject. For their active part in or extensive research on agricultural reforms in India, these individuals could explain farm laws' impacts on those involved in agrarian life.

3.6 Participant Selection

Quantitative:

A total of 347 farmers were selected from three major agricultural states—Punjab, Haryana, and Uttar Pradesh—chosen due to their significant agrarian activities and the pronounced impact of the farm laws in these regions. The selection employed a stratified random sampling technique to ensure diversity across farm sizes (small, medium, and large) and types of agricultural activities (crop farming, livestock, and mixed farming). This stratification aimed to capture a broad spectrum of farmer demographics, economic conditions, and farming practices, reducing selection bias and enhancing the generalizability of the quantitative findings.

Qualitative:

For the qualitative component, purposive sampling was used to select 30 participants from among the survey respondents who expressed willingness to engage in more detailed discussions. This subset was chosen based on geographical diversity and the potential to provide rich, contextual insights into the socio-economic and political dimensions of the farm laws. Additionally, the qualitative sample included agricultural experts and policymakers with direct experience or knowledge of the reforms to offer a well-rounded perspective. This approach ensured in-depth exploration of individual experiences and attitudes that complemented the broader quantitative data.

3.7 Instrumentation

In both parts of the study, the researchers used different tools to capture what farmers think and experience about the 2020-21 Farm Laws.

Quantitative Instrument:

To guide the quantitative phase, a formal questionnaire was designed. Data from the survey was collected using sections which gathered information about age, gender, educational background, farm size, sources of income, subsidies, loans, feelings about farm laws, the Minimum Support Price, access to markets and adoption of available technology by farmers. There were questions with specific answers, scales for opinions and thoughts and choices for grouping the data. A small group of farmers was selected to check that the items on the survey were clear, related to the topic and could be trusted. Adjustments were put in place following the comments received before a large administration. In rural places where reading and writing were rare, survey teams gave the questionnaire in local languages directly to each respondent.

Qualitative Instrument:

For this part, a semi-structured guide was created to help have in-depth conversations. The guide included questions that allowed the researchers to explore farmers' stories and opinions about the new laws, covering contract farming, losing protected markets, Minimum Support Price and other political topics. Because the format was semi-structured, interviewers could address new trends and ensure they understood people's answers without deviating from the main research goal. The researchers asked participants questions in the language that made them comfortable and more candid. The interviews were transcribed after receiving permission and to help analyze them.

3.8 Data Collection Procedures

Quantitative Method

For the quantitative data collection, a structured survey was designed and administered to farmers in regions with high agricultural activity, specifically in Punjab, Haryana, and Uttar

Pradesh. These regions were selected due to the significant impact of the farm laws on agricultural practices in these states. The survey included closed-ended questions, Likert scale items, and multiple-choice questions to capture key demographic information, economic conditions, and the farmers' perceptions of the farm laws. The survey focused on aspects such as income sources, satisfaction with the Minimum Support Price (MSP), market access, adoption of technology, and interactions with government and corporate entities. The data collection process involved face-to-face interviews conducted by trained surveyors, particularly in rural areas, ensuring high participation rates and accurate responses. Digital surveys were also employed to gather reactions from policymakers and other stakeholders. Pilot testing was conducted to refine the survey questions and ensure clarity and reliability. Challenges such as recall bias and social desirability bias were acknowledged, especially when addressing sensitive topics like income and loan access. Additionally, the digital surveys excluded respondents without internet access or smartphones, potentially limiting participation from certain farmer groups.

Qualitative Method

For the qualitative data collection, semi-structured interviews were conducted with key informants, including farmers, agricultural experts, policymakers, and activists. These individuals were selected based on their involvement in formulating, implementing, or analysing the farm laws and their subsequent impact on the agricultural sector. The interviews were designed to explore the underlying motivations for the farm laws, their immediate and long-term effects on farmers, and the broader socio-economic and ethical implications. Key topics covered in the interviews included the economic benefits or risks for farmers, the role of large agribusinesses, and concerns regarding food security and social justice. The semi-structured format allowed flexibility for interviewees to elaborate on their responses and provide in-depth insights into their personal experiences and viewpoints. These interviews were conducted both in-person and remotely, depending on logistical feasibility. While this qualitative method provided rich, contextual insights, it faced challenges such as accessibility to key informants and potential interviewer bias. However, the qualitative data complemented the quantitative findings by offering a deeper understanding and context to the statistical results, ultimately enriching the research.

3.9 Data Analysis

Quantitative Data Analysis

For the quantitative analysis, the data collected through structured surveys was analyzed using various statistical techniques. Initially, descriptive statistics were employed to summarize and describe the main features of the data. This included measures of central tendency (mean, median) and measures of dispersion (standard deviation, range) to capture the distribution of responses. The key variables analyzed included demographic information

such as age, gender, marital status, and income sources, as well as factors like farmer satisfaction with Minimum Support Price (MSP), market access, and technological adoption. This approach helped quantify the extent of the relationships and determine significant factors influencing farmer opinions and behaviors. To ensure the validity of the data, responses were cross-checked with available official agricultural records where possible. However, challenges such as recall bias and social desirability bias were acknowledged, particularly with sensitive questions related to income and loan access. Statistical software like SPSS or R was utilized to perform the analysis, ensuring that the results were processed accurately and systematically.

Qualitative Data Analysis

The qualitative data, gathered from interviews with farmers, policymakers, and other stakeholders, was analyzed using thematic analysis. Thematic analysis is a method used to identify, analyze, and report patterns or themes within qualitative data. The interview transcripts were carefully read, and codes were applied to highlight significant responses or concepts related to the study's focus on farm laws.

The analysis identified several recurring themes, such as the role of market liberalization in shaping agricultural policies, the impact on small and marginal farmers, concerns over the commodification of agriculture, and the ethical implications of the reforms. These themes were categorized and further analyzed to understand the broader socio-economic and political contexts that influenced perceptions of the farm laws.

The findings from the thematic analysis provided valuable insights into the subjective experiences of farmers and other stakeholders, offering a more profound understanding of the nuances of how the farm laws were perceived and their real-world impact. This approach

allowed the research to uncover the complex and often divergent views on farm laws that might not be fully captured through quantitative methods alone.

Ethical considerations were integral to the research design and execution for analyzing the three datasets. Recognizing the linguistic diversity among farmers, especially in Punjab, Haryana, and Uttar Pradesh, surveys were designed and administered in local languages to ensure comprehension and comfort. Trained surveyors fluent in the regional dialects conducted in-person interviews, enabling effective communication and reducing barriers to participation. Informed consent was obtained in the participants' native languages, ensuring they fully understood the study's purpose, scope, and voluntary nature. Confidentiality was strictly maintained by anonymizing responses, particularly for sensitive information such as income levels, loan access, and perceptions of government policies. Participants were assured of their right to withdraw at any stage without penalty.

3.9 Research Design Limitations

Limitations of Quantitative Research Methodology

While robust in its methodology, the quantitative research design of this study encountered several limitations that may impact the reliability and generalizability of the findings. One significant limitation is the regional focus on Punjab, Haryana, and Uttar Pradesh, key agricultural hubs in India. While these regions are highly relevant to the study, the findings may not apply to other states with different farming practices, economic conditions, or social dynamics. The geographical focus on these three states limits the broader applicability of the results to other parts of India, where farming conditions and the effects of the farm laws may differ.

Additionally, the reliance on self-reported data, particularly for sensitive topics such as income, loans, and satisfaction with government policies, presents another limitation. Self-reported data is prone to recall bias, where respondents may not accurately remember or disclose information, and social desirability bias, where they may provide answers that are perceived as more socially acceptable. These biases can compromise the accuracy of the data and affect the validity of the conclusions derived from it. The potential for such biases means that the data may not fully reflect the farmers' and policymakers' authentic experiences and perceptions.

Another limitation of the quantitative study was excluding participants without smartphone or internet access, particularly for farmers in more remote or technologically underdeveloped areas. Digital surveys targeting policymakers may have similarly excluded less tech-savvy individuals, further narrowing the scope of the data. The technological divide in rural India, with varying levels of access to digital tools, means that the survey may not fully capture the perspectives of farmers from all backgrounds, particularly those without access to modern technologies.

Finally, the cross-sectional nature of the survey data represents a key limitation. Since the data was collected at a single point, it does not allow for the analysis of trends or the establishment of causal relationships between the farm laws and their long-term impacts. The absence of a longitudinal perspective means that the research cannot track changes over time or provide insights into the sustained effects of the farm laws. The limitations of the quantitative approach suggest that future research should incorporate longitudinal designs and mixed-methods strategies to provide a more nuanced and comprehensive understanding of the impacts of farm laws.

Limitations of Qualitative Research Methodology

The qualitative research design, which was intended to complement the quantitative data, also encountered several limitations that could impact the depth and comprehensiveness of the findings. One of the primary limitations was ensuring that the qualitative data adequately represented the diverse experiences of all stakeholders involved in the agricultural reforms. While the study focused on farmers in the key agrarian states of Punjab, Haryana, and Uttar Pradesh, it may not have fully captured the perspectives of farmers from other regions or from marginalized groups, such as landless labourers and tenant farmers, who may experience the effects of the farm laws differently.

The qualitative data was also primarily gathered through interviews and focused group discussions. The reliance on these methods means that the findings may be influenced by interviewer biases or the respondents' willingness to provide candid responses, particularly on sensitive topics like income, debt, and satisfaction with government policies. The data collected through these methods may be subject to social desirability bias, where participants tailor their responses to what they believe is expected or socially acceptable, potentially limiting the authenticity of the insights.

A major constraint of the qualitative research approach is that there is potential for subjectivity in interpreting the data. Qualitative data analysis often involves a degree of interpretation and inference, which can introduce researcher bias. The subjective nature of qualitative research means that the findings may be influenced by the researchers' perspectives, potentially affecting the overall objectivity of the analysis. While the study endeavored to comprise a varied set of participants, there could be a possibility of some unintentional exclusion of certain stakeholders, such as those with opposing views or those in remote geographies.

Lastly, while the qualitative research design provided rich, in-depth insights into the farmers' experiences and perceptions, it faced limitations in terms of generalizability. The insights gained from interviews and focus groups, while valuable for understanding individual and collective experiences, may not fully represent the entire population of farmers in India. The qualitative sample, while diverse, may still lack the breadth necessary to generalize the findings to the broader population of farmers across different states and regions.

3.9 Conclusion

The Methodology Chapter of this dissertation outlines the research design, data collection methods, and analytical techniques used to investigate the impact of the 2020-21 farm laws on Indian farmers. The study adopts a mixed-methods approach, combining quantitative and qualitative research methods to understand the topic comprehensively.

The quantitative research design utilizes a cross-sectional survey approach to collect primary data from 347 farmers from the key agricultural states of Punjab, Haryana, and Uttar Pradesh. These states were selected due to their significant agrarian activity and the prominent impact of the farm laws. The survey, structured with closed-ended questions, collected data on farmers' demographic profiles, income sources, market access, and their perceptions of the farm laws. The data was analyzed using descriptive statistics, such as frequency distributions and means, to summarize farmers' demographic characteristics and farming practices. To understand relationships between variables, inferential statistics, including the Kruskal-Wallis test and regression analysis, were used to explore how socio-economic factors like income or education influence attitudes toward farm laws and their potential impact on agricultural sustainability.

The study also integrates qualitative research to complement the quantitative findings. Semi-structured interviews were conducted with 30 farmers selected from the same regions. These interviews allowed for a deeper exploration of personal experiences and perceptions related to the farm laws. Topics such as the loss of Minimum Support Price (MSP) guarantees, market access, and the role of contract farming were explored. The qualitative data were analyzed using thematic analysis, which helped identify recurring themes regarding the socio-cultural and economic factors influencing farmers' views on the reforms.

The research focuses on four key questions: the motivations behind the farm laws, their immediate and long-term impacts, their alignment with global agricultural trends, and the ethical considerations involved in their implementation. By combining quantitative data on farmer demographics and perceptions with qualitative insights into personal experiences, the study aims to provide a well-rounded perspective on the effects of farm laws.

The study's sampling procedures ensured diversity, with stratified random sampling for the quantitative research to represent farmers of different farm sizes and purposive sampling for qualitative research to select key informants with in-depth knowledge of the farm laws. The data collection methods involved structured surveys and semi-structured interviews administered in the local languages to ensure accessibility for all participants.

Ethical considerations were given priority, ensuring that informed consent was obtained from all participants, confidentiality was maintained, and the data collection process was inclusive. The research is designed to minimize bias and ensure the validity of the results through robust and transparent methodologies.

CHAPTER IV:

RESULTS

4.1 Research Question One

This chapter presents the results of the research conducted to evaluate the impact of the Farm Laws 2020 on the agricultural sector in India. The analysis is based on a mixed-methods approach, combining quantitative data from a cross-sectional survey of 347 farmers and qualitative data from in-depth semi-structured interviews with key stakeholders, including farmers, agricultural experts, and policymakers.

The quantitative results provide insights into the socio-demographic characteristics of the farming community, such as age, gender, landholding size, and farming practices. It also explores critical aspects of farming operations, such as the use of technology, market access, credit facilities, and the challenges farmers face in the current agricultural landscape. These findings help identify the economic and social factors influencing farmers' perceptions and adoption of the new farm laws, shedding light on their attitudes towards market reforms, the Minimum Support Price (MSP) system, and other key policy changes.

The qualitative results offer a deeper understanding of the subjective experiences and concerns of farmers regarding the Farm Laws. By capturing their personal narratives and concerns, the interviews provide valuable context to the statistical patterns observed in the quantitative analysis. Key themes explored in the qualitative findings include the perceived risks of exploitation under contract farming, the erosion of bargaining power, and the fears surrounding the dismantling of the existing Agricultural Produce Market Committee (APMC) system.

Together, the quantitative and qualitative data paint a comprehensive picture of how the Farm Laws are perceived by Indian farmers and the broader agricultural community. This chapter seeks to present and interpret these results in a way that informs future policy development, agricultural reforms, and strategies for improving the livelihoods of farmers in India.

Quantitative Results

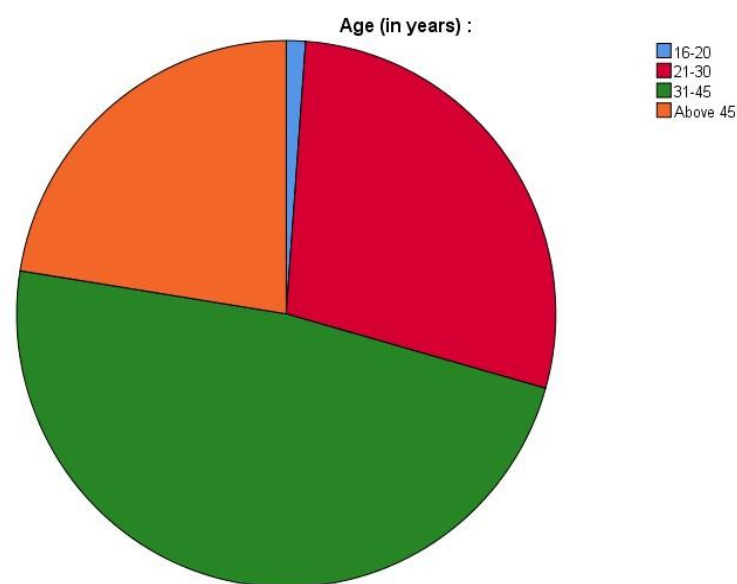


Figure 1 Distribution of Age

Age Distribution: The majority of respondents fall within the productive age group, which is critical for understanding the population involved in farming and their adaptability to reforms.

Gender Representation: Predominantly male respondents, reflecting the traditional structure of agricultural labor.

Tenure in Farming: A significant portion of respondents have been engaged in farming for over 20 years, emphasizing generational dependence on agriculture.

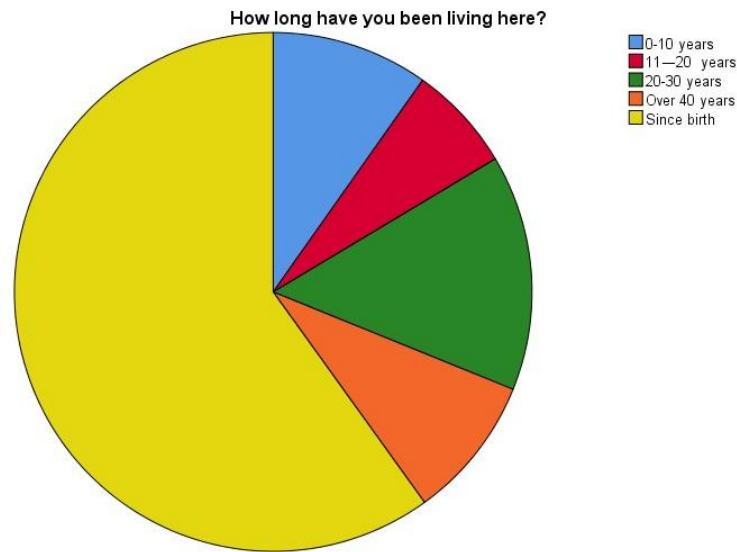


Figure 2 Distribution of Have You Been Living Here

Out of the 347 respondents, the largest group, representing 59.9% (208), have lived in their current location since birth, indicating strong generational ties to their land and community. Farmers who have lived in the area for 20-30 years comprise 14.7% (51 respondents), while 9.8% (34 respondents) have lived there for 0-10 years. Additionally, 8.9% (31 respondents) have been in the area for over 40 years, and 6.6% (23 respondents) have lived there for 11-20 years. The cumulative percentages highlight that 40.1% of respondents have lived in the area for 30 years or less, while the majority have significantly longer associations with their land. This data reflects a community with deep-rooted connections to their homes and farming practices, suggesting a potential reluctance to migrate or change occupations due to these longstanding ties.

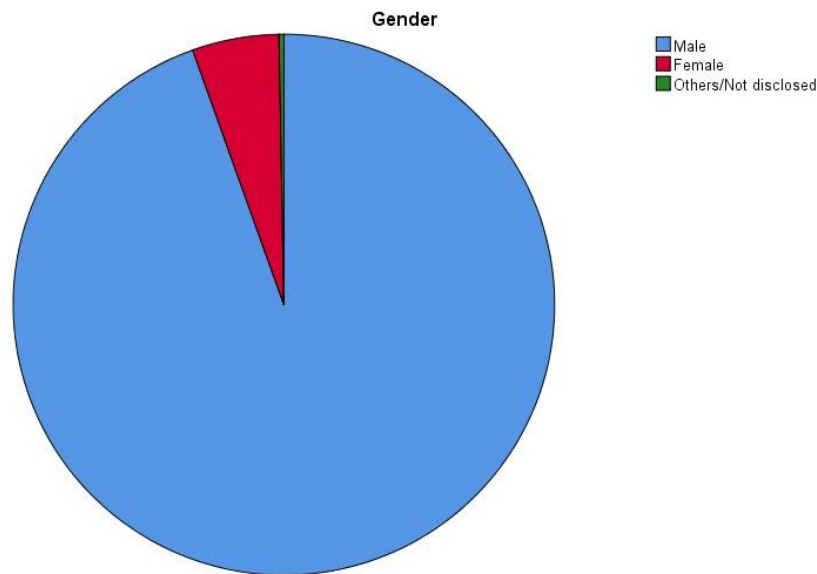


Figure 3 Distribution of Gender

The Gender statistics provide a breakdown of gender representation among the 347 respondents. Most respondents are male, with 328 individuals making up 94.5%. In comparison, 18 respondents are female, accounting for 5.2%. Additionally, one respondent identified as "Others/Not disclosed," representing 0.3% of the total.

This data highlights a significant gender disparity in farming communities, with men overwhelmingly represented. The low percentage of female respondents suggests that while women may contribute to farming activities, they may not consistently be recognized as primary decision-makers or landowners. This disparity underscores the need for more inclusive policies and initiatives to encourage women's active participation and representation in agriculture.

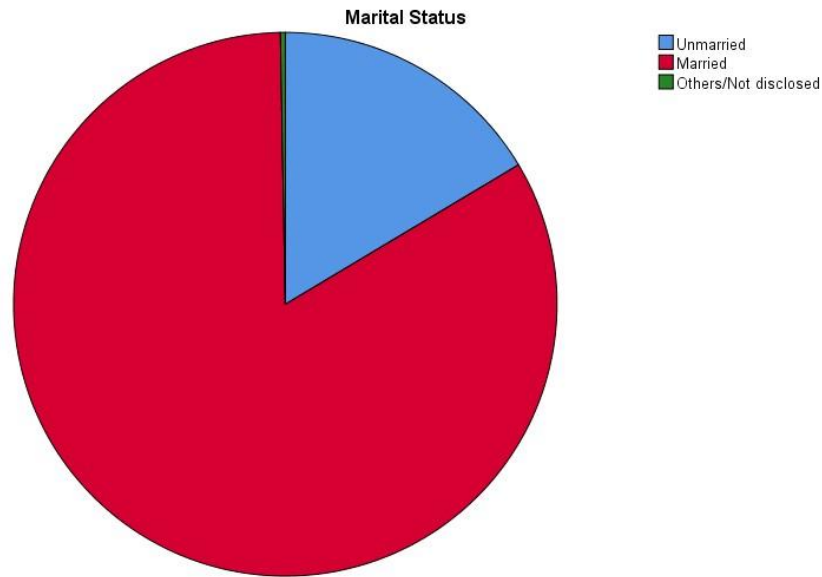


Figure 4 Distribution of Marital Status

The Marital Status statistics provide a breakdown of the marital status of the 347 respondents. Most respondents are married, with 289 individuals representing 83.3%. In comparison, 57 respondents are unmarried, making up 16.4% of the group. Additionally, one respondent identified as "Others/Not disclosed," accounting for 0.3% of the total.

The cumulative percentages show that 16.4% of respondents are accounted for by including the unmarried group, and with the married group, the total rises to 99.7%. The "Others/Not disclosed" category completes the full 100%.

This data indicates that a significant portion of the farming community comprises married individuals, which may reflect traditional family structures common in rural and agricultural settings. The small percentage of unmarried individuals suggests that marriage is a prevalent social norm, potentially influencing farming practices, household responsibilities, and decision-making dynamics.

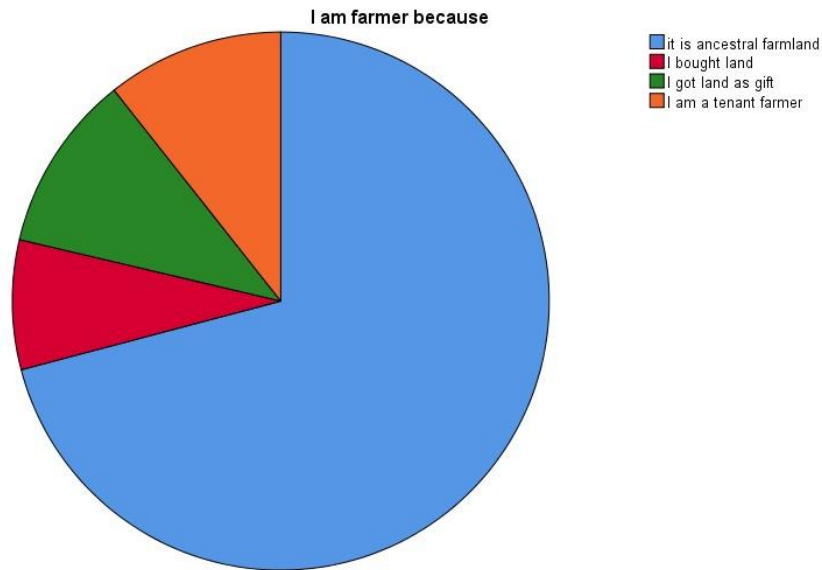


Figure 5 Distribution of I am farmer because

Out of the 347 respondents, the majority, 246 individuals (70.9%), stated that they are farmers because it is ancestral farmland, reflecting deep generational ties to agriculture. This indicates that farming is primarily a family tradition passed down through generations. Additionally, 37 respondents (10.7%) reported that they are farmers because they received land as a gift, and another 37 respondents (10.7%) identified as tenant farmers, meaning they farm land they do not own. A smaller group, 27 respondents (7.8%), mentioned that they became farmers because they purchased land. The cumulative percentages show that 70.9% of respondents farm ancestral land, with the remaining reasons (land purchase, gifts, or tenancy) bringing the total to 100%. This data highlights that most farmers rely on inherited land, while a smaller portion has entered farming through other means. The presence of tenant farmers underscores the diversity in land ownership and farming arrangements, which may impact long-term farming stability and decision-making.

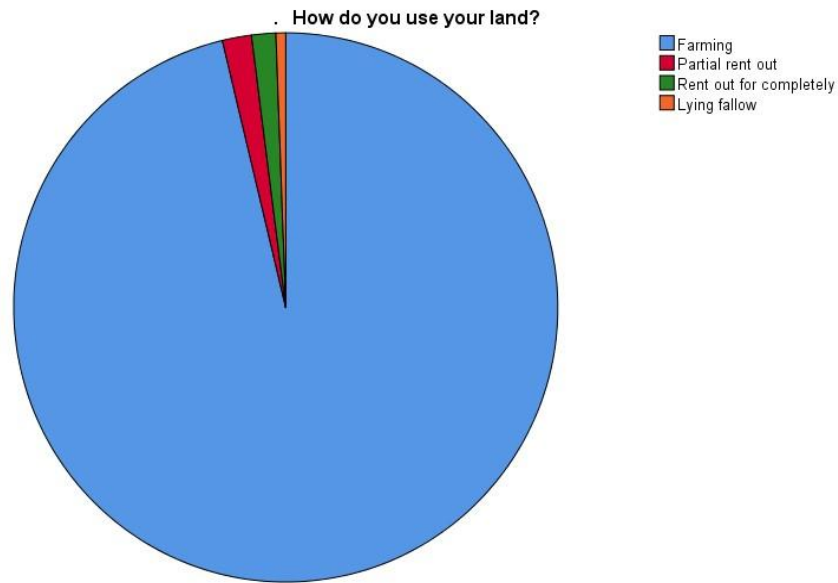


Figure 6 Distribution of How do you use your land

The overwhelming majority, 334 respondents (96.3%), use their land primarily for farming, indicating a strong commitment to agricultural practices as their primary land use. A small proportion, six respondents (1.7%), reported that they partially rent out their land. Additionally, five respondents (1.4%) indicated that they rent out their land entirely, suggesting a reliance on leasing as an income strategy. Finally, two respondents (0.6%) mentioned that their land is lying fallow, indicating that only a tiny fraction of land is not actively used for farming. The cumulative percentages show that 98.0% of respondents actively utilize their land by including farming and partial rent-out. The remaining 2.0% either rent out their land entirely or let it lie fallow. This data emphasizes that most landowners are engaged in direct agricultural activities, with only a few choosing rental or non-farming options. This reflects the importance of farming as a livelihood and the continued reliance on land for agricultural productivity.

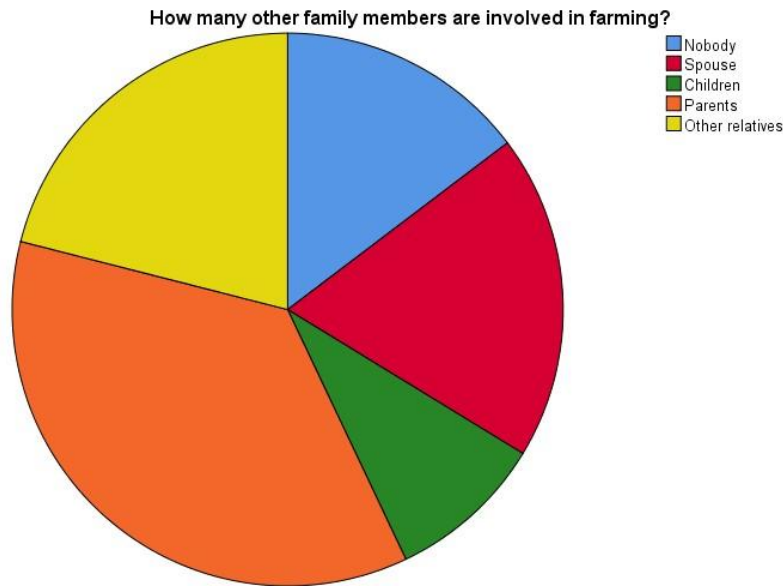


Figure 7 Distribution of How many other family members are involved in farming

Among the 347 respondents. A significant portion, 125 respondents (36.0%), reported that their parents are involved in farming, highlighting the generational nature of agricultural work. Additionally, 73 respondents (21.0%) mentioned that other relatives participate in farming activities, reflecting extended family support of farm tasks.

Sixty-six respondents (19.0%) reported that their spouse is involved in farming, indicating that farming responsibilities are often shared within the immediate family. Meanwhile, 32 respondents (9.2%) indicated that their children participate in agriculture, showing that younger generations contribute less than older generations.

Interestingly, 51 respondents (14.7%) reported that nobody else in their family is farming, suggesting they manage agricultural work independently. The cumulative percentages show that 85.3% of respondents have some level of family involvement in agriculture, including parents, spouses, children, and other relatives. This data underscores that farming in these communities is family-centred, with different generations and extended family members playing key roles in sustaining agricultural practices.

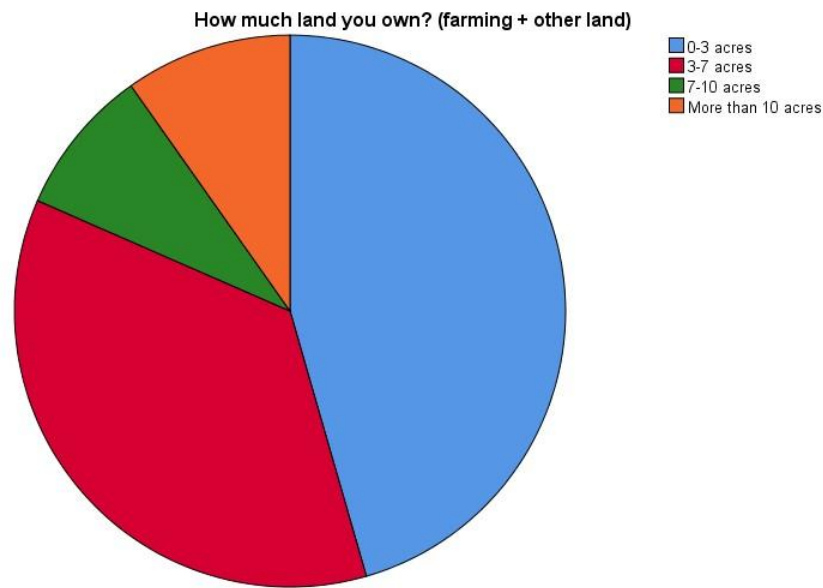


Figure 8 Distribution of How much land do you own? (farming + other land)

The land ownership among the 347 respondents was gathered through a question: "How much land do you own? (farming + other land)". The largest group, 158 respondents (45.5%), own between 0-3 acres of land, indicating that nearly half of the respondents are small landholders, which could limit their agricultural productivity and income potential.

The second-largest group, 125 respondents (36.0%), own between 3-7 acres, suggesting that many farmers possess moderate-sized holdings. Additionally, 30 respondents (8.6%) reported owning 7-10 acres, representing a smaller group of farmers with slightly more extensive landholdings. Finally, 34 respondents (9.8%) own more than 10 acres of land, indicating that a minority of farmers have substantial landholdings. The cumulative percentages show that 81.6% of respondents own 7 acres or less, underscoring that the majority are small to mid-sized landowners. This distribution suggests that most farmers operate on limited land, which may affect their capacity for large-scale farming and income diversification. The data highlights the need for support systems tailored to small and mid-sized landholders to improve productivity and sustainability.

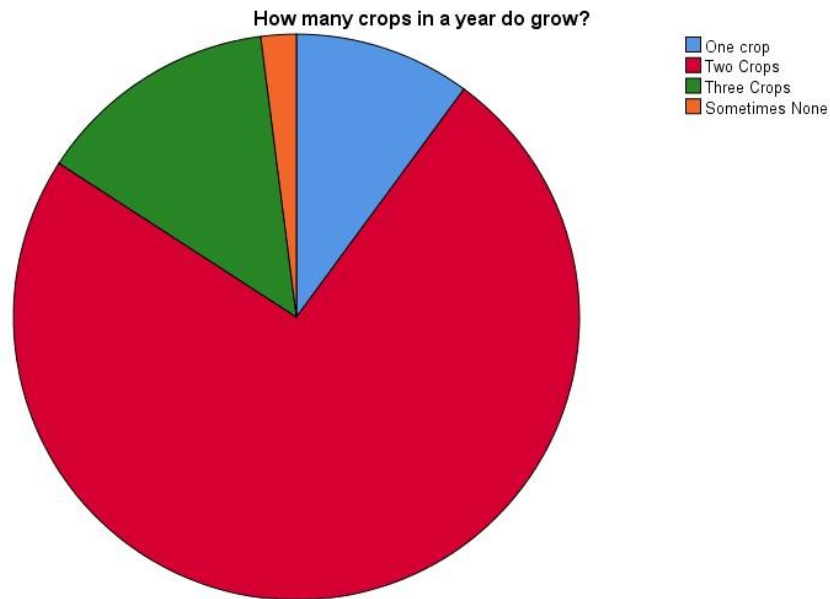


Figure 9 Distribution of How many crops in a year do you grow?

The majority, 257 respondents (74.1%), reported growing two crops yearly, indicating that double cropping is the predominant practice, likely due to favourable conditions or the need to maximize land productivity. A smaller group, 48 respondents (13.8%), grow three crops yearly, reflecting intensive farming practices or access to resources such as irrigation that enable year-round cultivation. Meanwhile, 35 respondents (10.1%) grow only one crop per year, which could be due to limitations in resources, land quality, or seasonal constraints. Additionally, seven respondents (2.0%) reported growing no crops at times, suggesting periods of fallow land, possibly due to financial constraints, unfavourable weather, or other challenges. The cumulative percentages show that 98.0% of respondents grow at least one crop yearly, with a strong trend toward two or three crops annually. This data underscores the importance of multi-cropping practices for sustaining livelihoods and maximizing farm output. However, the presence of farmers growing only one or no crops highlights the challenges some face in maintaining consistent agricultural productivity.

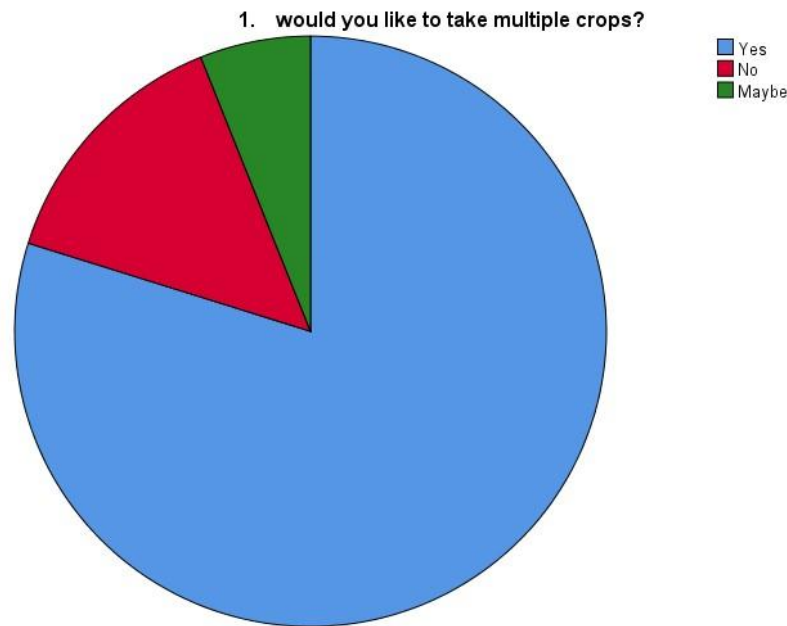
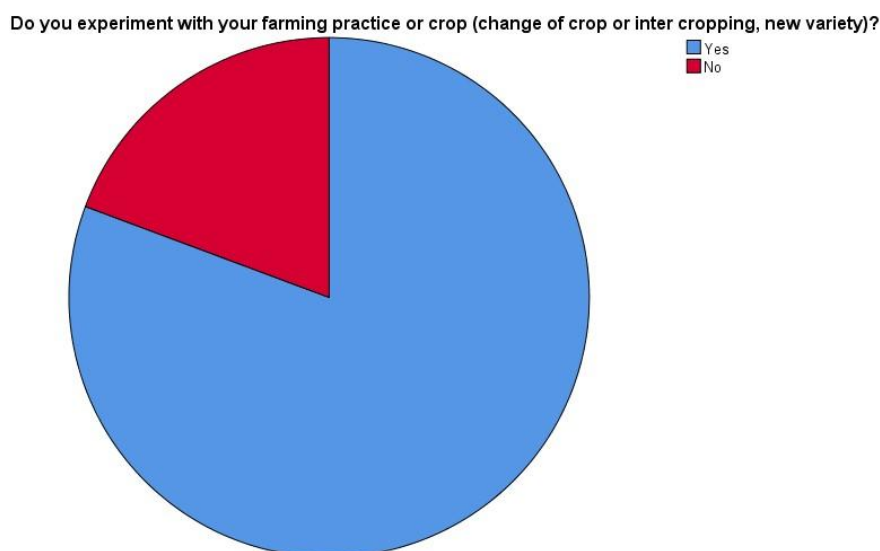


Figure 10 Distribution would you like to take multiple crops

A significant majority, 277 respondents (79.8%), expressed a desire to grow multiple crops, indicating a strong interest in maximizing land productivity and diversifying their agricultural output. This reflects the potential for increased yields and resilience through multi-cropping if appropriate resources and support are available. In contrast, 49 respondents (14.1%) answered "No," suggesting that some farmers may face limited resources, water availability, labour, or knowledge that prevent them from adopting multiple cropping. Additionally, 21 respondents (6.1%) indicated "Maybe," showing uncertainty or needing more information or support before committing to multi-cropping practices. The cumulative percentages show that 93.9% of respondents have a clear stance, with the majority favouring multi-cropping. This data highlights a significant opportunity for agricultural extension services, training programs, and infrastructure development to help farmers transition to multi-cropping systems, which could enhance productivity, income, and food security.



**Figure 11 Distribution of Do you experiment with your farming practice or crop
(change of crop or inter cropping, new variety)**

As regards the adoption of innovative farming practices among the 347 respondents. The majority, 280 respondents (80.7%), reported experimenting with their farming practices, indicating a strong willingness to try new methods, such as changing crops, intercropping, or adopting new crop varieties. This openness to experimentation suggests that most farmers are adaptable and interested in improving productivity, efficiency, and resilience. In contrast, 67 respondents (19.3%) answered "No," indicating that a smaller group of farmers prefer to stick with traditional farming methods. This reluctance to experiment could be due to limited resources, lack of knowledge, or fear of potential losses. The cumulative percentage shows that by including the farmers who experiment with their practices, 80.7% of respondents are accounted for, and with those who do not experiment, the total reaches 100%. This data highlights the potential for agricultural programs and initiatives to support experimentation, such as providing training, resources, and information on new techniques, which could lead to more sustainable and profitable farming practices.

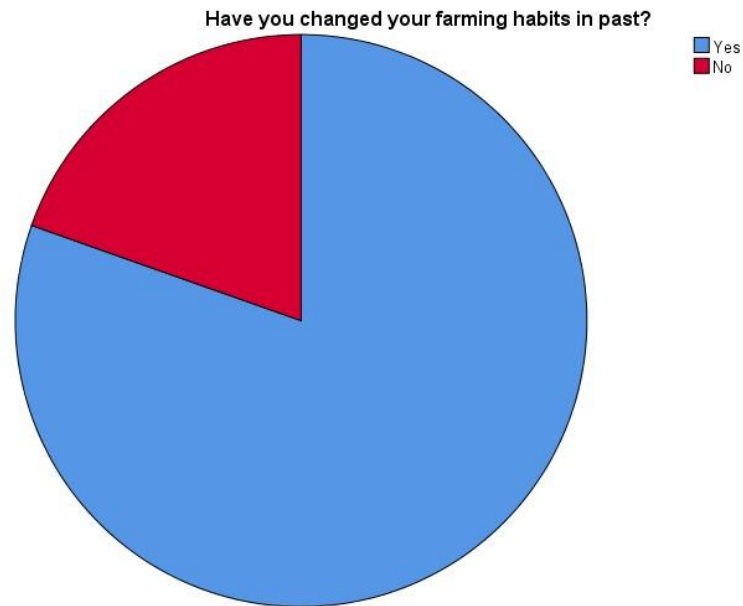


Figure 12 Distribution of Have you changed your farming habits in the past?

Out of the 347 respondents, the majority, 279 respondents (80.4%), indicated that they have changed their farming habits in the past. This demonstrates a significant level of flexibility and responsiveness among farmers, suggesting that most are open to adopting new techniques, technologies, or crop varieties to improve their productivity and sustainability. On the other hand, 68 respondents (19.6%) reported that they have not changed their farming habits. This group may prefer traditional practices due to familiarity, limited access to resources or information, or concerns about potential risks associated with change. The cumulative percentages show that 80.4% of respondents are adaptable to change, while 19.6% have maintained consistent farming habits. This data highlights the importance of continued support through education, training, and resource access, as most farmers are willing to evolve their practices to enhance outcomes. In contrast, others may benefit from targeted interventions to encourage innovation and modernization.

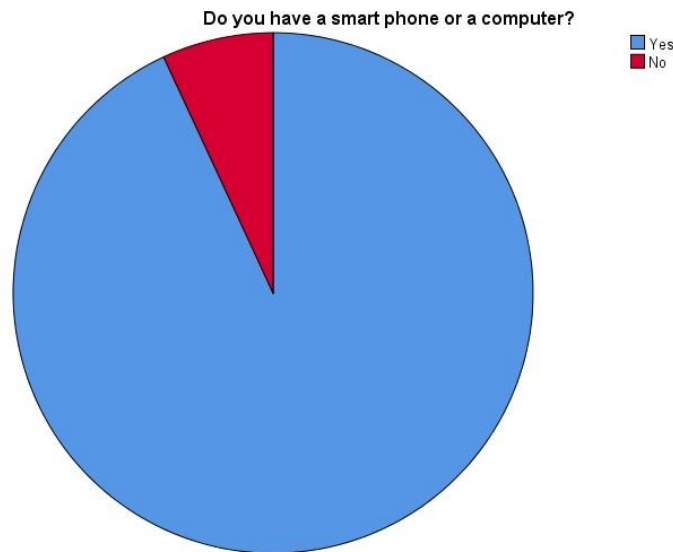


Figure 13 Distribution of Do you have a smart phone or a computer?

Regarding the level of technology access among the 347 respondents, a significant majority, 323 respondents (93.1%), reported owning a smartphone or a computer, indicating a high level of access to digital technology. This suggests that most farmers can use digital tools for communication, information access, and potentially for farming-related apps and resources. Twenty-four respondents (6.9%) reported that they do not have a smartphone or a computer, highlighting a slight but notable digital divide. These individuals may face challenges accessing digital information and resources, which could limit their ability to benefit from modern agricultural technologies and market updates. This data reflects widespread technology adoption in the farming community and underscores the potential for leveraging digital tools to support agrarian practices, enhance productivity, and improve communication. However, targeted efforts may be needed to bridge the gap for those without access to ensure inclusivity in digital advancements.

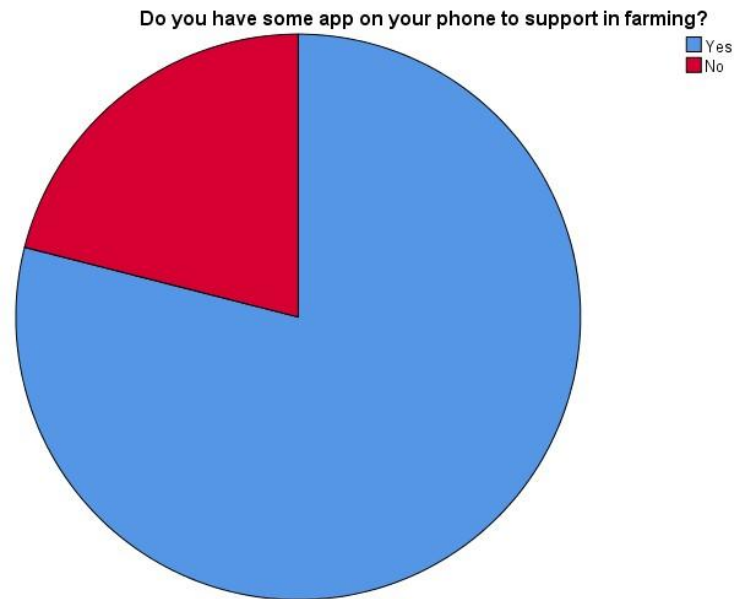


Figure 14 Distribution of Do you have some app on your phone to support in farming?

Among the 347 respondents, the majority, 274 respondents (79.0%), reported having at least one farming-related app on their phones. This indicates a widespread adoption of digital tools to assist with agricultural activities, such as weather updates, market prices, pest control, and other farming practices. It suggests that most farmers recognize the value of technology in enhancing productivity and making informed decisions. Seventy-three respondents (21.0%) do not use farming apps, reflecting a segment of farmers who may not have access to or are aware of these tools or may prefer traditional methods. The cumulative percentages show that 79.0% of respondents use farming apps, while 21.0% do not. This data underscores the potential of digital applications to support farmers and highlights the importance of expanding awareness, training, and accessibility for those yet to adopt such technologies.

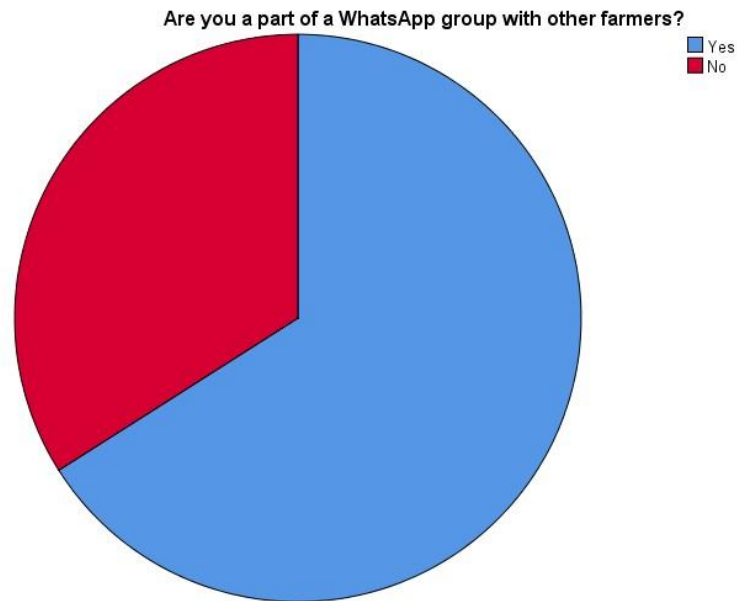


Figure 15 Distribution of Are you a part of a WhatsApp group with other farmers?

Out of the 347 respondents, a significant majority, 229 (66.0%), reported being part of a WhatsApp group with other farmers. This indicates that many farmers leverage social media to share information, discuss farming practices, exchange ideas, and stay updated on agricultural developments. One hundred eighteen respondents (34.0%) stated that they are not part of a WhatsApp group, suggesting that over a third of farmers may not use this platform for communication. This could be due to limited digital literacy, lack of interest, or lack of awareness about the benefits of such groups. This data highlights the potential of social media as a tool for community building, knowledge sharing, and problem-solving in agriculture. Increasing awareness and providing digital training to the remaining farmers could further enhance the benefits of these communication networks.

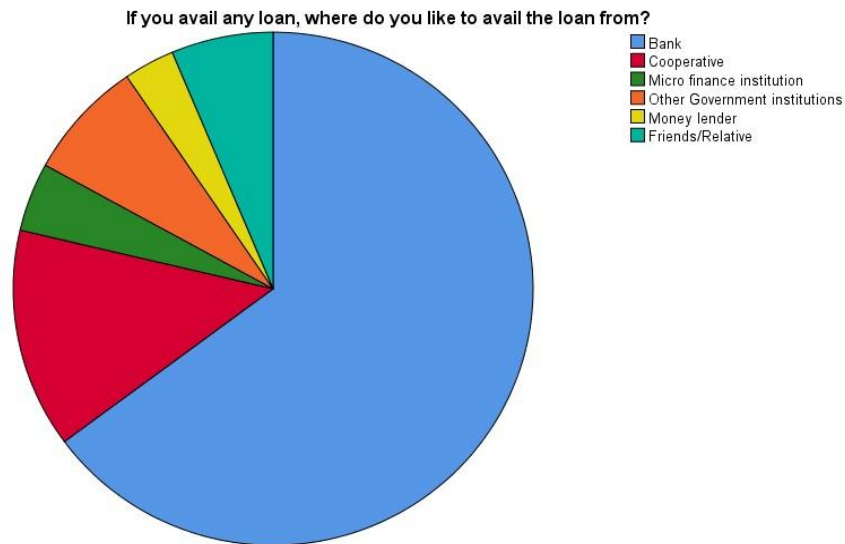


Figure 16 Distribution of If you avail any loan, where do you like to avail the loan from?

The question "If you avail any loan, where do you like to avail the loan from?" provides insights into farmers' preferred sources for borrowing among the 347 respondents. The majority, 225 respondents (64.8%), like to take loans from a bank, indicating a firm reliance on formal financial institutions for credit needs. This preference suggests that many farmers trust banks for better interest rates, reliability, and structured loan processes. Forty-eight respondents (13.8%) prefer cooperatives for availing loans, highlighting the role of cooperative societies in supporting farmers through community-based lending. Another 26 respondents (7.5%) opt for other government institutions, reflecting some reliance on government-backed schemes or financial services. A smaller group, 15 respondents (4.3%), prefer microfinance institutions, which cater to those who may not have access to traditional banking services. Furthermore, 11 respondents (3.2%) reported borrowing from a money lender, and 22 respondents (6.3%) prefer to borrow from friends or relatives, indicating that informal lending still plays a minor role.

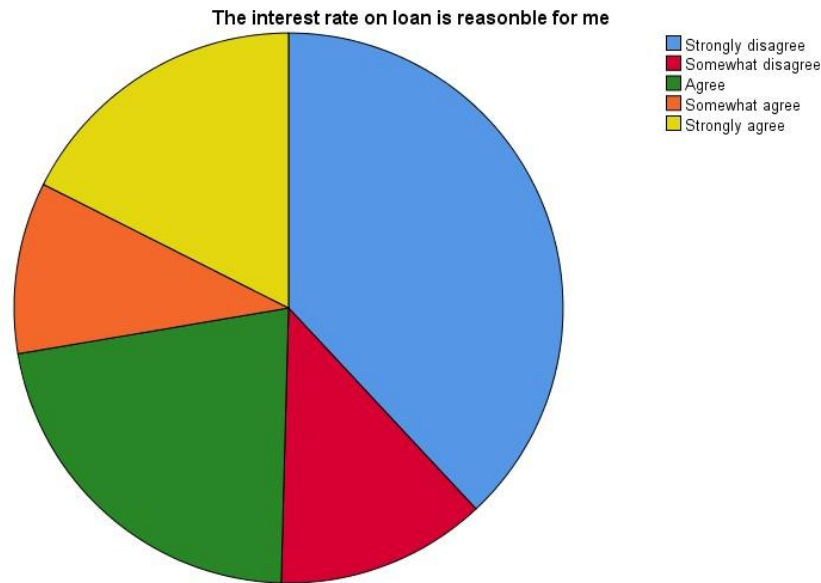


Figure 17 Distribution of The interest rate on loan is reasonable for me

This data underscores the importance of accessible and affordable formal credit for farmers and the need to reduce dependence on high-interest informal lending options. A significant portion, 132 respondents (38.0%), strongly disagree that the interest rate on loans is reasonable, indicating widespread dissatisfaction. Additionally, 43 respondents (12.4%) somewhat disagree, bringing the total percentage of dissatisfied respondents to 50.4%. On the other hand, 76 respondents (21.9%) agree that the interest rates are reasonable, while 35 respondents (10.1%) somewhat agree, showing moderate satisfaction. Additionally, 61 respondents (17.6%) strongly agree that the loan interest rates are reasonable. Together, these groups account for 49.6% of respondents who find the interest rates at least somewhat reasonable. The high percentage of dissatisfaction indicates that many farmers face challenges with high interest rates, which may hinder their financial stability and ability to invest in their farming operations. Addressing these concerns through lower interest rates or more favourable loan terms could greatly benefit farmers.

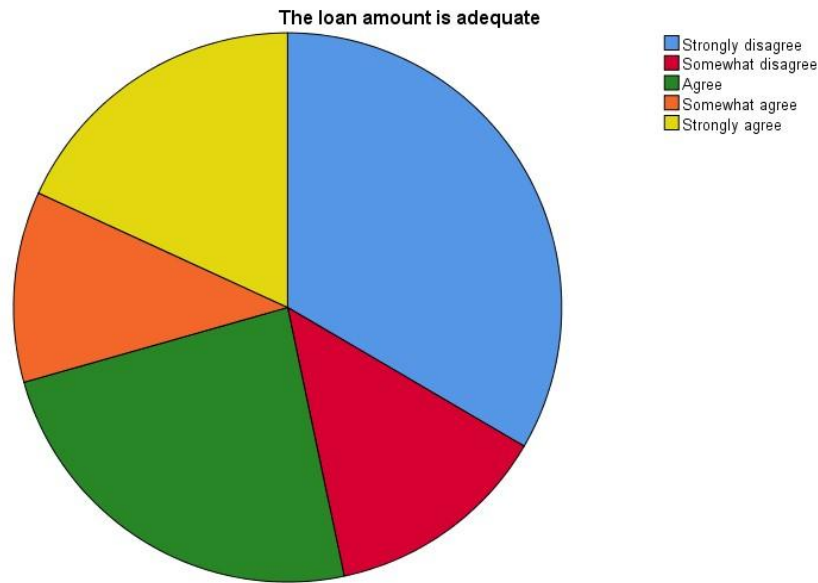


Figure 18 Distribution of The loan amount is adequate

Out of the 347 respondents, a significant portion, 116 respondents (33.4%), strongly disagree that the loan amount is adequate, reflecting dissatisfaction with the sufficiency of the funds provided. Additionally, 46 respondents (13.3%) somewhat disagree, bringing the total percentage of dissatisfied respondents to 46.7%. In contrast, 83 respondents (23.9%) agree that the loan amount is adequate, while 39 respondents (11.2%) somewhat agree, indicating moderate satisfaction. Additionally, 63 respondents (18.2%) strongly agree that the loan amount meets their needs. Together, these groups make up 53.3% of respondents who are at least somewhat satisfied with the loan amounts. This data highlights a divide in the perception of loan adequacy, suggesting that while many farmers are happy with their loan amounts, a substantial number believe that the funds are insufficient to meet their needs. Improving access to more significant loan amounts or offering flexible lending solutions could help address the financial requirements of more farmers.

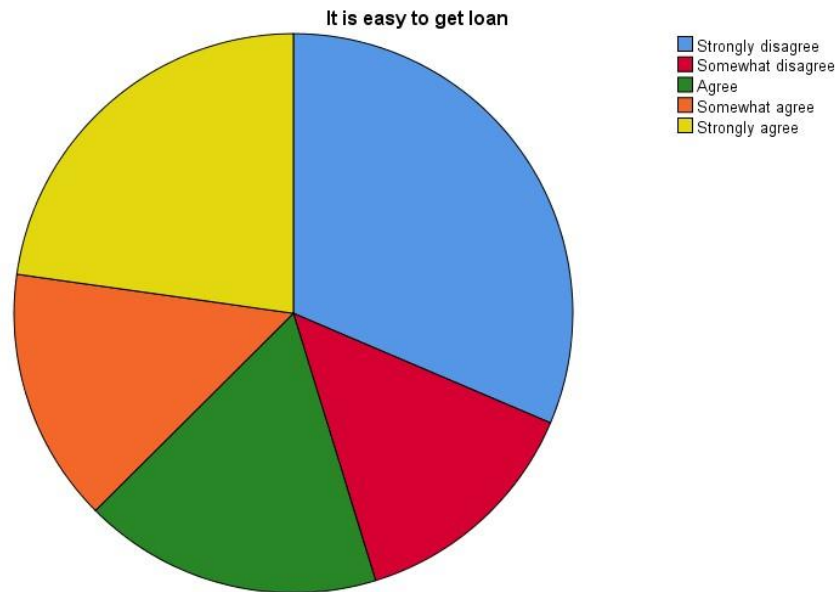


Figure 19 Distribution of It is easy to get loan

As regards farmers' perceptions of the loan application process among the 347 respondents, a significant portion, 109 respondents (31.4%), strongly disagree that it is easy to get a loan, indicating widespread difficulty and frustration with the loan process. Additionally, 48 respondents (13.8%) somewhat disagree, bringing the total percentage of dissatisfied respondents to 45.2%. On the other hand, 60 respondents (17.3%) agree that getting a loan is easy, while 51 respondents (14.7%) somewhat agree, suggesting moderate satisfaction. Furthermore, 79 respondents (22.8%) strongly agree that obtaining a loan is easy. Together, these groups represent 54.8% of respondents who find the loan process manageable. This data reveals a divide in experiences, suggesting that while many farmers find the loan process accessible, a significant proportion still face obstacles such as bureaucratic hurdles, lack of documentation, or stringent requirements. Addressing these challenges by streamlining loan procedures and improving access to financial services could help more farmers secure the funding they need.

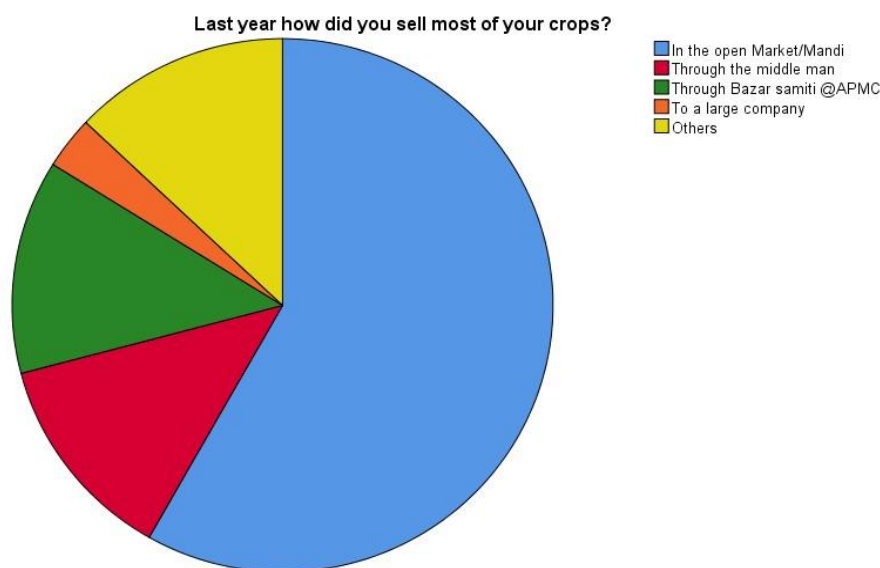


Figure 20 Distribution of Last year: how did you sell most of your crops?

The question "Last year, how did you sell most of your crops?" provides insights into the primary selling channels used by the 347 respondents. The majority, 202 respondents (58.2%), sold their crops in the open market or mandi, indicating that this remains the most common and accessible method for farmers to sell their produce. Additionally, 45 respondents (13.0%) sold their crops through a Bazar Samiti at APMC (Agricultural Produce Market Committee), while another 44 respondents (12.7%) sold through an intermediary, reflecting a notable reliance on intermediaries who facilitate crop sales but may reduce farmers' profits. A smaller group, 11 respondents (3.2%), sold their crops to a large company, indicating limited engagement with corporate buyers or contract farming arrangements. Furthermore, 45 respondents (13.0%) sold their crops through other means, including direct sales to consumers, cooperatives, or informal networks. This data highlights the reliance on traditional market systems and the need to improve market access, reduce intermediaries dependency, and expand opportunities for direct or corporate sales to enhance profitability for farmers.

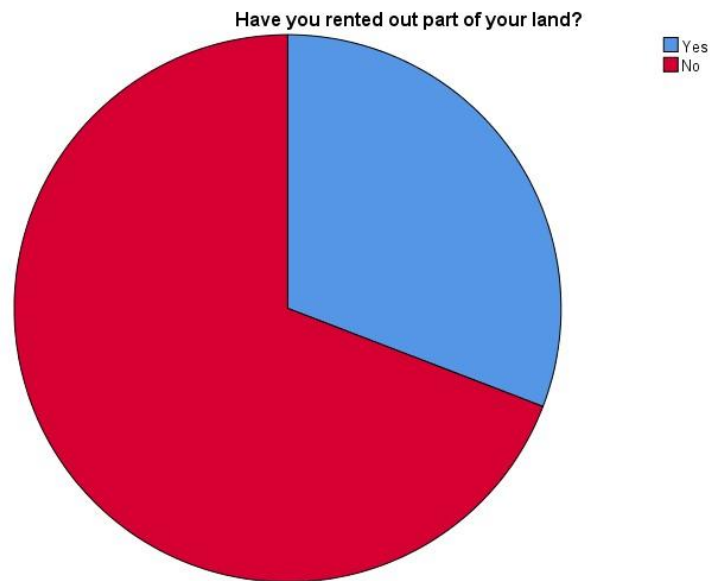


Figure 21 Distribution of Have you rented out part of your land?

The statistical insights into land rental practices show that a majority among the 347 respondents, 240 respondents (69.2%), reported that they have not rented out any part of their land, indicating that most farmers prefer to retain full control over their farmland for their own cultivation or other uses. 107 respondents (30.8%) stated that they have rented out part of their land. This could be due to various reasons, such as an inability to fully utilize the land, financial constraints, lack of manpower or seeking additional income by renting out part of their farmland. This data highlights that while the majority of farmers actively use their land themselves, a notable portion participates in rental practices, which may reflect diverse strategies for managing land resources and generating income. The majority, 265 respondents (76.4%), reported that they have not taken farmland on lease or rent, indicating that most farmers rely on the land they own for their agricultural activities. 82 respondents (23.6%) stated that they have taken farmland on lease or rent, suggesting that a significant minority engage in leasing land to expand their farming operations. This could be driven by factors such as limited land ownership, the need to increase production, or the desire to diversify crops and maximize income. This data highlights that while land leasing is not the

norm for most farmers, it remains a notable practice for some who aim to scale up their agricultural activities or supplement their existing landholdings.

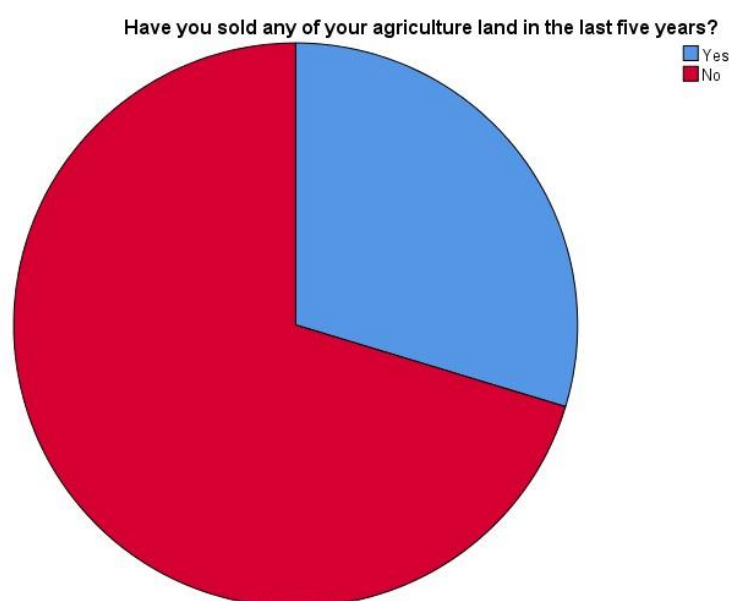


Figure 22 Distribution of Have you sold any of your agriculture land in the last five years?

A sensitive question "Have you sold any of your agricultural land in the last five years?" provides insights into land ownership changes among the 347 respondents. A majority, 244 respondents (70.3%), reported that they have not sold any agricultural land in the last five years, indicating that most farmers prefer to retain their land for continued agricultural use or as a long-term asset. 103 respondents (29.7%) stated that they have sold agricultural land during this period. This suggests that financial pressures, debt, or other personal reasons may have driven these land sales. This data highlights a concerning trend of land sales among some farmers, which could affect their long-term livelihoods. It underscores the need for support systems, such as financial assistance or debt relief, to help farmers retain ownership of their land and sustain their agricultural practices.

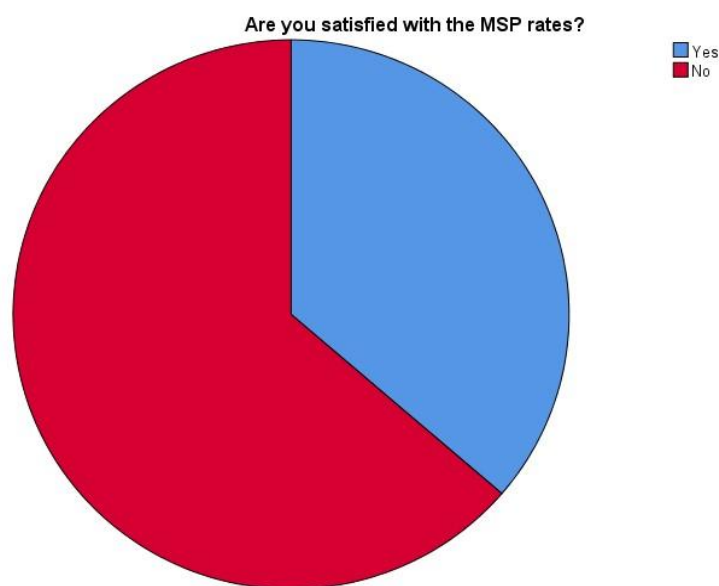


Figure 23 Distribution of Are you satisfied with the MSP rates?

The answers to the question "Are you satisfied with the MSP rates?" provide insights into farmers' satisfaction with the Minimum Support Price (MSP) rates among the 347 respondents. A majority, 221 respondents (63.7%), reported that they are not satisfied with the MSP rates, indicating widespread dissatisfaction with the government-set prices for crops. This suggests that many farmers feel the MSP does not adequately cover their costs or provide sufficient profit margins. 126 respondents (36.3%) stated that they are satisfied with the MSP rates, indicating that a smaller but notable proportion of farmers find the prices acceptable or beneficial. This data highlights a critical issue within the agricultural sector, suggesting the need for reforms in MSP policies to ensure that they meet farmers' expectations and provide fair compensation. Improving MSP rates, ensuring timely payments, and expanding the range of crops covered by MSP could help address these concerns and enhance farmers' livelihoods.

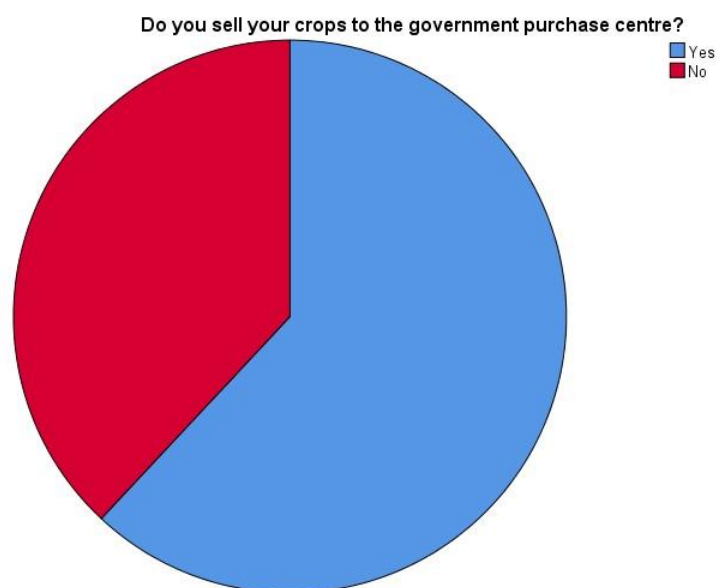


Figure 24 Distribution of Do you sell your crops to the government purchase centre?

The related question "Do you sell your crops to the government purchase centre?" provides insights into farmers' participation in government procurement programs. Among the 347 respondents, a majority, 215 respondents (62.0%), reported that they sell their crops to the government purchase centre, indicating significant reliance on government-supported procurement systems, such as those offering Minimum Support Prices (MSP). This suggests that many farmers view government purchase centres as a reliable or necessary outlet for selling their produce. On the other hand, 132 respondents (38.0%) stated that they do not sell their crops to the government purchase centre. These farmers may prefer alternative selling options, such as open markets, middlemen, or private buyers, possibly due to factors like accessibility issues, delays in payment, or dissatisfaction with the prices offered by government centres. This data highlights the importance of government purchase centres in supporting farmers and suggests that improving their efficiency, accessibility, and pricing policies could enhance their effectiveness in serving the farming community.

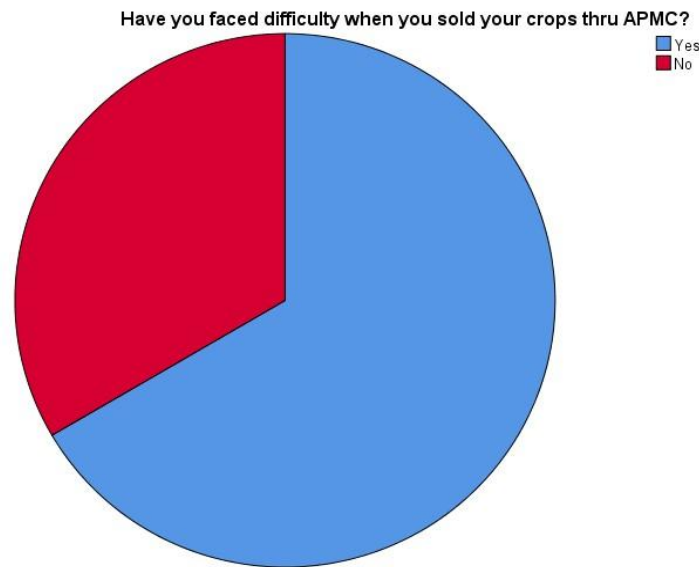


Figure 25 Distribution of Have you faced difficulty when you sold your crops thru APMC?

A related question "Have you faced difficulty when you sold your crops through APMC?" provides insights into farmers' experiences with the Agricultural Produce Market Committee (APMC) system among the 347 respondents. A significant majority, 231 respondents (66.6%), reported that they faced difficulties when selling their crops through APMC markets. This indicates widespread challenges such as delayed payments, high commission fees, lack of transparency, or bureaucratic hurdles within the APMC system. In contrast, 116 respondents (33.4%) stated that they did not face difficulties when selling through APMC, suggesting that for a minority of farmers, the system functions relatively smoothly.. This data underscores the need for reforms in the APMC system to address these difficulties, improve efficiency, and ensure a more transparent and farmer-friendly marketplace. Enhancing infrastructure, reducing middlemen influence, and streamlining processes could significantly benefit farmers and improve their marketing experience.

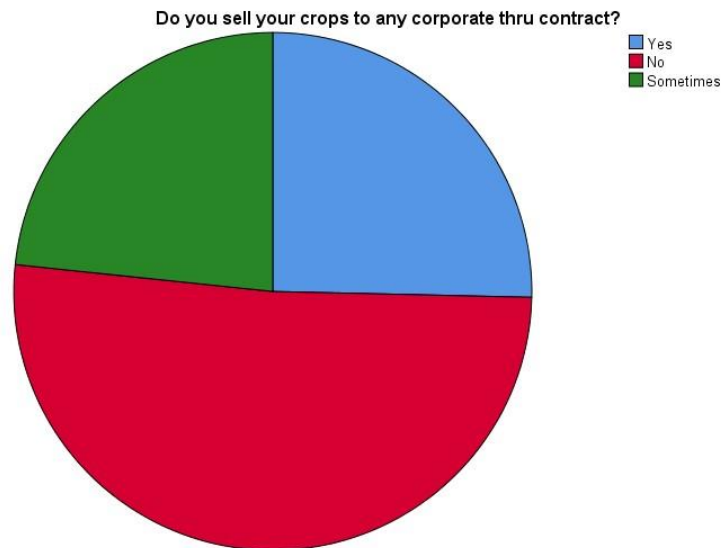


Figure 26 Distribution of Do you sell your crops to any corporate through contract?

When asked, "Do you sell your crops to any corporate through contract?" the largest group, 178 respondents (51.3%), reported that they do not sell crops to any corporate through contract, indicating that over half of the farmers still prefer traditional market channels, such as open markets or middlemen, for selling their produce. On the other hand, 88 respondents (25.4%) stated that they sell crops to corporates through contract, showing that a quarter of the farmers have adopted contract farming practices, likely due to the potential for secure pricing and guaranteed sales. Additionally, 81 respondents (23.3%) reported that they sometimes sell their crops through contract farming, reflecting occasional or conditional participation in these agreements. The cumulative percentages reveal that 48.7% of farmers engage in contract farming, either regularly or occasionally, while the remaining 51.3% do not participate. This data suggests that while contract farming is gaining traction, most farmers still rely on conventional selling methods. Expanding awareness, ensuring fair contracts, and providing support to address concerns related to transparency and pricing could encourage more farmers to adopt contract farming and benefit from its potential stability and security.

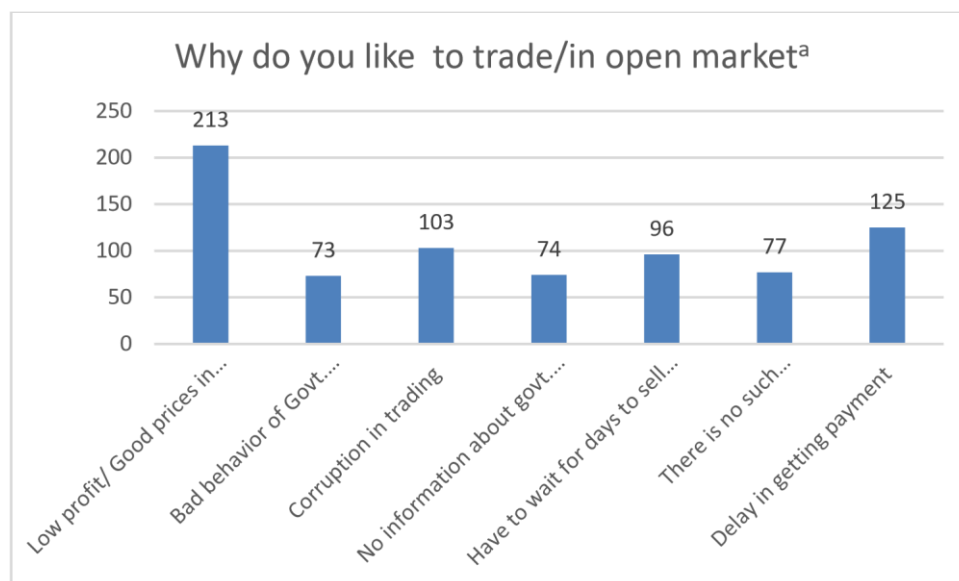


Figure 27 Distribution of why do you like to trade/in the open market

Statistics provide insights into farmers' reasons for preferring to sell their crops in open markets rather than through government procurement centres. The data reflects 761 responses from the 347 respondents, indicating that many farmers identified multiple reasons. The percentages are based on the number of cases (347 respondents). The findings are as follows:

Low profit/Good prices in the open market were the most frequently cited reason, with 213 responses (28.0% of total responses), representing 64.2% of cases. This indicates that most farmers believe they get better prices or higher profits in the open market than in government procurement centres.

Delays in getting payment were reported 125 times (16.4% of total responses), representing 37.7% of cases. This highlights a significant issue with delayed payments in government centres, which forces farmers to seek quicker transactions in the open market.

Corruption in trading was mentioned 103 times (13.5% of total responses), representing 31.0% of cases. This reflects dissatisfaction with unethical practices within the trading system at government procurement centres.

Having to wait days to sell a crop was cited 96 times (12.6% of total responses), representing 28.9% of cases, indicating that delays in selling at government centres discourage farmers from using them.

Lack of storage facility at the centre was reported 77 times (10.1% of total responses), representing 23.2% of cases, showing that inadequate storage infrastructure at government centres poses challenges for farmers.

No information about the government centre was mentioned 74 times (9.7% of total responses), representing 22.3% of cases, suggesting a lack of awareness or communication regarding government procurement processes.

Government officials' lousy behaviour was cited 73 times (9.6% of total responses), representing 22.0% of cases, reflecting negative experiences with officials at government centres.

The key reasons farmers prefer trading in the open market include better prices (64.2%), delayed payments (37.7%), and corruption (31.0%) at government centres. Other significant factors include long waiting times (28.9%), lack of storage facilities (23.2%), and poor communication (22.3%). Addressing these challenges in government procurement processes—such as improving payment timelines, reducing corruption, enhancing storage infrastructure, and ensuring better communication—could encourage more farmers to sell their crops through official channels.

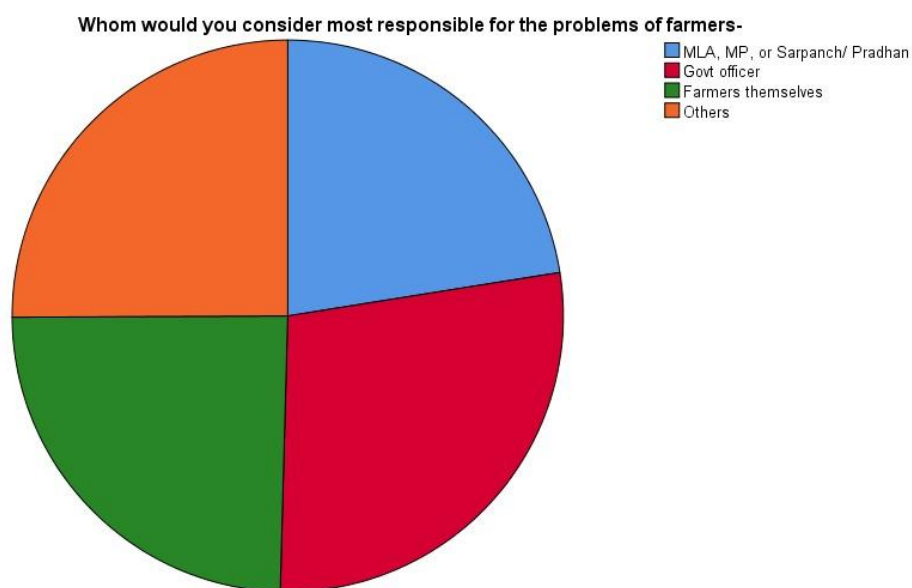


Figure 28 Distribution of whom would you consider most responsible for the problems of farmers

A related question, "Whom would you consider most responsible for the problems of farmers?" was asked to gain insights into farmers' perceptions of accountability for their challenges. The responses reflect diverse viewpoints on where the responsibility lies.

Ninety-seven respondents (28.0%) identified government officers as the primary cause of farmers' problems, suggesting dissatisfaction with administrative inefficiencies, bureaucracy, or lack of adequate policy implementation.

Eighty-seven respondents (25.1%) attributed responsibility to "Others," including market forces, intermediaries, corporate entities, or unpredictable climatic conditions.

Eighty-five respondents (24.5%) held farmers themselves responsible, possibly due to issues related to traditional practices, lack of cooperation, or resistance to adopting modern techniques.

Seventy-eight respondents (22.5%) blamed MLAs, MPs, or Sarpanch/Pradhan, indicating dissatisfaction with political leadership and local governance.

The cumulative percentages reveal a relatively even distribution of blame, with no single group overwhelmingly responsible. This data highlights the complexity of the challenges farmers face and suggests that addressing these issues will require a multi-faceted approach involving government officials, policymakers, farmers, and other stakeholders to create a more supportive agricultural environment.

What is the main source of your income?

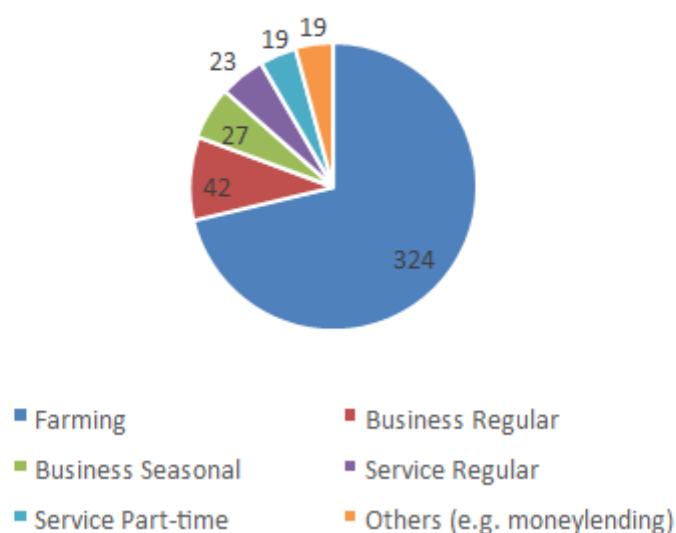


Figure 29 Distribution of What is the main Source of your income?

The Figure "What is the main source of your income?" provides insights into the A critical review of s for respondents. The data shows the following distribution:

Three hundred twenty-four responses (71.4% of total responses), representing 93.4% of 71.4% cases, rely on farming as their primary income source. This highlights that the vast majority of respondents rely on agriculture as their primary source of livelihood.

Regular business is the primary income source for 42 responses (9.3% of total responses), covering 12.1% of cases. This indicates that a smaller segment of respondents supplement their income or depend primarily on business activities outside of farming.

This data underscores the heavy dependence on farming for income, with only a tiny fraction deriving their livelihood from business activities. This reliance on agriculture emphasizes the importance of stable agricultural policies, fair crop prices, and support systems to sustain farmers' livelihoods. Diversifying income sources may be a potential strategy to improve financial stability and resilience in the farming community.

What are the other sources of income in your household?

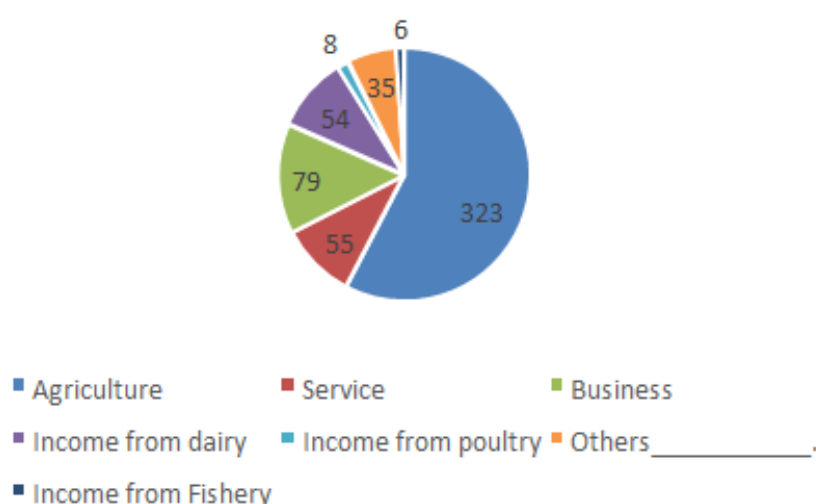


Figure 30 Distribution of What are the other sources of income in your household?

As regards the diversification of income sources among the 347 respondents. The data reveals multiple supplementary income streams beyond primary agriculture. The total number of responses (560) exceeds the number of respondents due to various sources selected by each household. The findings are as follows:

Agriculture is the most common additional income source, reported 323 times (57.7% of total responses), representing 93.1% of cases. This indicates that even when farming is a primary income source, it contributes to supplementary income.

The business was cited 79 times (14.1% of total responses), covering 22.8% of cases, showing that many households rely on business activities to diversify income.

Service (such as salaried employment) was mentioned 55 times (9.8% of total responses), representing 15.9% of cases, indicating that formal employment provides financial support for some families.

Income from dairy was reported 54 times (9.6% of total responses), covering 15.6% of cases, reflecting the importance of livestock for additional earnings.

Income from poultry was mentioned 8 times (1.4% of total responses), representing 2.3% of cases, showing limited reliance on poultry farming.

Other sources of income were reported 35 times (6.3% of total responses), representing 10.1% of cases, highlighting miscellaneous forms of supplemental earnings.

Income from fishery was reported 6 times (1.1% of total responses), covering 1.7% of cases, indicating a niche practice among a small group of households.

The cumulative percentage of 161.4% reflects that many households simultaneously rely on multiple sources of income. This data underscores the importance of income diversification for economic resilience, with farming, business, and livestock-related activities playing crucial roles in supporting rural livelihoods.

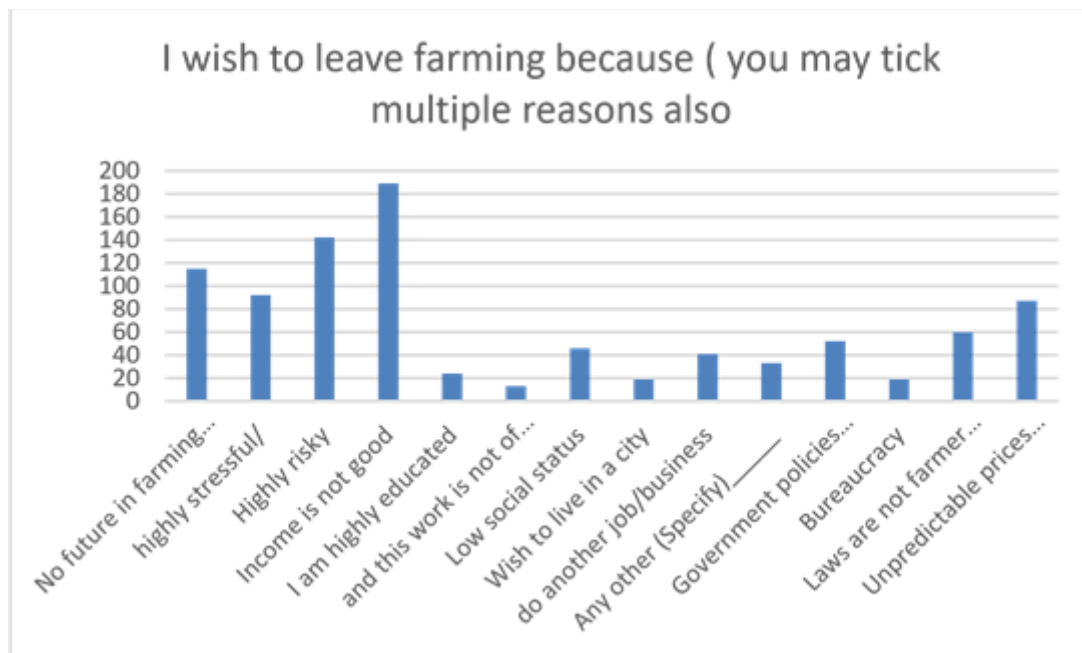


Figure 31 Distribution of I wish to leave farming because

A vital point, "I wish to leave farming because", provides insight into why some farmers are considering leaving agriculture. The total number of responses reflects multiple reasons respondents give, and the percentages are based on the number of cases (347 respondents). The data reveals the following reasons for wanting to leave farming:

Income is not good was cited 189 times (20.3% of responses), representing 54.5% of cases. This indicates that low income is the most significant factor driving farmers to consider leaving farming.

Highly risky was mentioned 142 times (15.2% of responses), covering 40.9% of cases, suggesting that uncertainties related to weather, market prices, and other risks make farming an unstable livelihood.

No future in farming was cited 115 times (12.3% of responses), representing 33.1% of cases, indicating that a lack of long-term prospects discourages farmers.

The agriculture sector is highly stressful and was mentioned 92 times (9.9% of responses), representing 26.5% of cases, reflecting the emotional and physical stress associated with farming.

I am highly educated was reported 24 times (2.6% of responses), representing 6.9% of cases, showing that some higher education-level farmers seek better opportunities outside of agriculture.

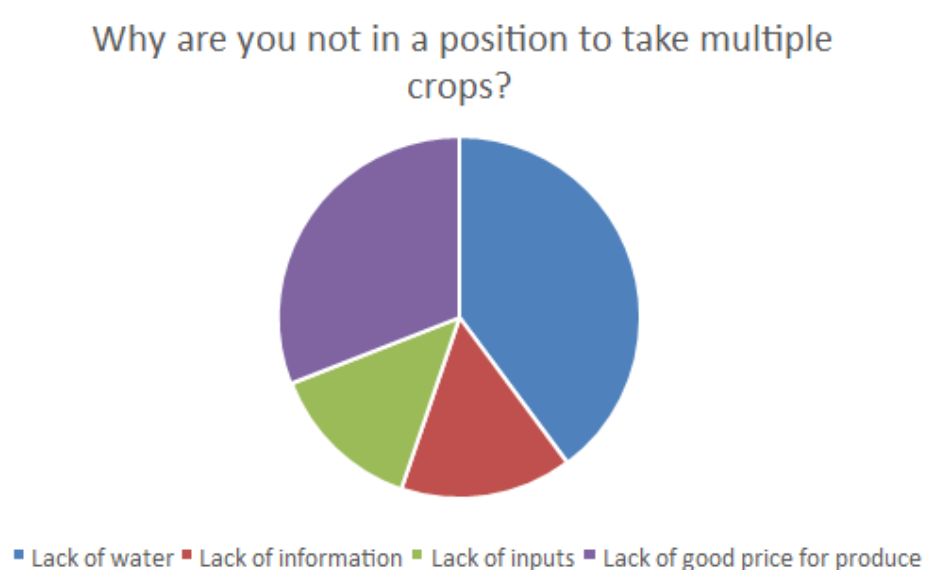


Figure 32 Distribution of Why not you can take multiple crops

The "Why not you can take multiple crops?" statistics provide insights into the reasons why farmers are unable to practice multiple cropping. The data reflects 485 responses from the 347 respondents, indicating that multiple reasons were selected. The percentages are based on the number of cases (347 respondents). The findings are as follows:

Lack of water was cited 193 times (39.8% of responses), representing 55.6% of cases. This indicates that over half of the farmers face water scarcity, which prevents them from growing multiple crops.

Lack of good price for produce was mentioned 150 times (30.9% of responses), representing 43.2% of cases. This suggests that many farmers avoid multiple cropping due to concerns about low returns on their produce, making additional cropping unprofitable.

Lack of information was cited 75 times (15.5% of responses), representing 21.6% of cases. This reflects a significant gap in knowledge or access to technical guidance that hinders the adoption of multiple cropping.

Lack of inputs (such as seeds, fertilizers, or equipment) was mentioned 67 times (13.8% of responses), representing 19.3% of cases. This highlights how limited access to necessary agricultural resources constrains multiple cropping.

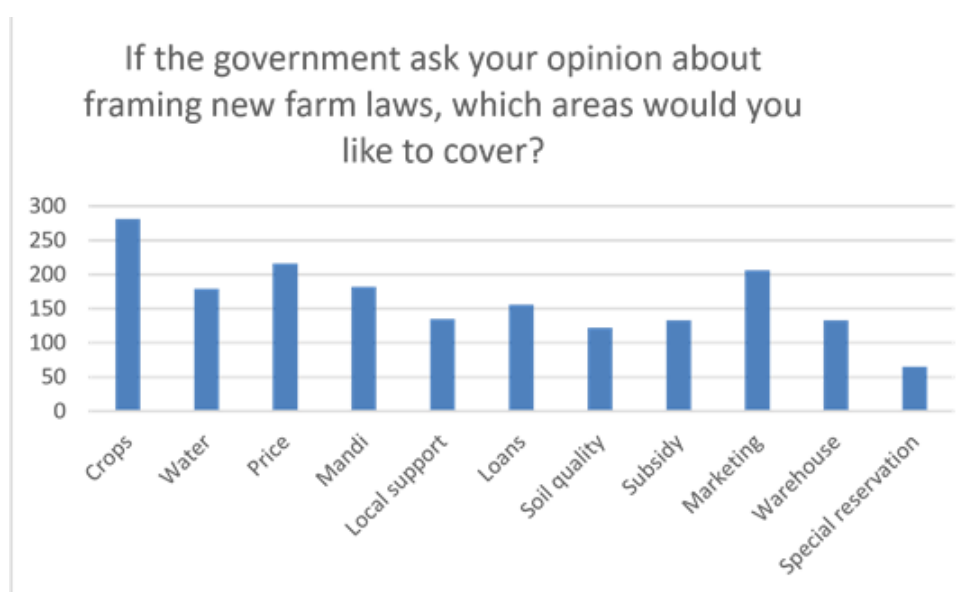


Figure 33 Distribution of If the government asks your opinion about framing new farm laws, which areas would you like to cover?

The response provides insights into the priority areas farmers want addressed in farm laws. The data reflects 1808 responses from the 347 respondents, indicating that each respondent selected multiple areas of concern. The percentages are based on the number of cases (347 respondents).

The findings are as follows:

Crops were the most frequently cited area, with 281 responses (15.5% of total responses), representing 81.0% of cases. This shows that the majority of farmers want the government to focus on policies related to crop production and management.

Price was mentioned 216 times (11.9% of total responses), representing 62.2% of cases, highlighting the need for fair and consistent pricing policies to ensure farmers receive adequate compensation for their produce.

Marketing was cited 206 times (11.4% of total responses), representing 59.4% of cases, indicating a strong demand for better marketing systems to help farmers sell their crops more effectively and profitably.

Water was reported 179 times (9.9% of total responses), representing 51.6% of cases, reflecting the importance of reliable water resources and irrigation systems.

Mandi (marketplace regulations) was cited 182 times (10.1% of total responses), representing 52.4% of cases, emphasizing the need for reforms in agricultural produce market committees (APMCs) and related infrastructure.

Loans were mentioned 156 times (8.6% of total responses), representing 45.0% of cases, indicating that many farmers want improvements in loan accessibility and affordability.

Subsidy and Warehouse were each cited 133 times (7.4% of total responses), covering 38.3% of cases, highlighting the need for government support in the form of subsidies and storage infrastructure.

Local support was mentioned 135 times (7.5% of total responses), representing 38.9% of cases, indicating the importance of community-based support systems for farmers.

Soil quality was cited 122 times (6.7% of total responses), representing 35.2% of cases, showing concern for maintaining and improving soil health.

Special reservation was mentioned 65 times (3.6% of total responses), representing 18.7% of cases, reflecting a need for policies that provide specific benefits or protections for marginalized farming communities.



Figure 34 Distribution of what are the problem areas that you constantly face?

A follow up question "What are the problem areas that you constantly face?" provides insights into the challenges farmers encounter regularly. The data reflects 1113 responses from the 347 respondents, indicating that each respondent identified multiple issues. The percentages are based on the number of cases (347 respondents). The findings are as follows:

Electricity and Marketing were the most frequently cited issues, each reported 201 times (18.1% of total responses), representing 57.9% of cases. This highlights the widespread challenges related to unreliable electricity supply and marketing difficulties, such as selling crops effectively and profitably.

Loan availability/repayment was mentioned 164 times (14.7% of total responses), representing 47.3% of cases. This indicates that nearly half of the respondents struggle with accessing loans or repaying them, reflecting financial constraints.

Storage/Transport to Mandi was cited 133 times (11.9% of total responses), representing 38.3% of cases. This underscores the challenges of storing produce and transporting it to markets, which can affect crop quality and profitability.

Input supply was mentioned 131 times (11.8% of total responses), representing 37.8% of cases. This reflects difficulties in accessing essential farming inputs such as seeds, fertilizers, and equipment.

Remunerative pricing was reported 104 times (9.3% of total responses), representing 30.0% of cases, indicating dissatisfaction with the prices farmers receive for their produce.

Fleecing at APMC was cited 94 times (8.4% of total responses), representing 27.1% of cases, highlighting issues related to unfair practices, exploitation, or corruption in APMC markets.

No information about prices of other mandis/markets was mentioned 85 times (7.6% of total responses), representing 24.5% of cases, indicating that a lack of market price information hampers farmers' ability to make informed selling decisions.

The top challenges faced by farmers include electricity supply (57.9%), marketing (57.9%), and loan availability/repayment (47.3%). Other significant issues include storage and transport (38.3%), input supply (37.8%), and remunerative pricing (30.0%). Addressing these problems through improved infrastructure, access to financial resources, fair market practices, and better information systems could significantly enhance farmers' productivity and livelihoods.

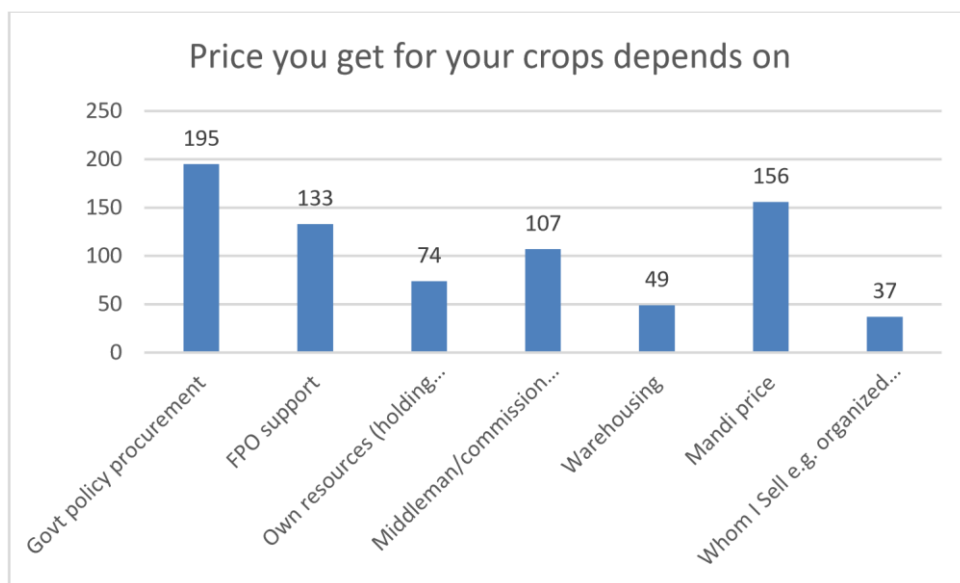


Figure 35 Distribution of Price you get for your crops depends on

The question "Price you get for your crops depends on" highlights the factors that influence the prices farmers receive for their crops. The data reflects 751 responses from the 347 respondents, indicating that each respondent identified multiple factors. The percentages are based on the number of cases (347 respondents). The findings are as follows:

Government policy procurement was cited 195 times (26.0% of total responses), representing 56.2% of cases. This shows that more than half of the farmers believe that government policies and procurement schemes, such as Minimum Support Price (MSP), significantly impact the prices they receive.

Mandi price was mentioned 156 times (20.8% of total responses), representing 45.0% of cases. This highlights the importance of market rates in local mandis (agricultural markets) in determining crop prices.

FPO (Farmer Producer Organization) support was cited 133 times (17.7% of total responses), representing 38.3% of cases. This indicates that farmers rely on collective bargaining and support from FPOs to achieve better prices.

Middleman/commission agent was reported 107 times (14.2% of total responses), representing 30.8% of cases. This reflects the influence of intermediaries in determining prices, often leading to concerns about exploitation.

Own resources (holding capacity) was mentioned 74 times (9.9% of total responses), representing 21.3% of cases. This shows that farmers' ability to store their crops until prices are favorable plays a role in determining their income.

Warehousing was cited 49 times (6.5% of total responses), representing 14.1% of cases. This highlights the role of storage infrastructure in influencing pricing decisions.

Whom I sell to (e.g., organized retail like ITC) was mentioned 37 times (4.9% of total responses), representing 10.7% of cases. This indicates that sales to organized retail channels can influence pricing, though fewer farmers engage in this practice.

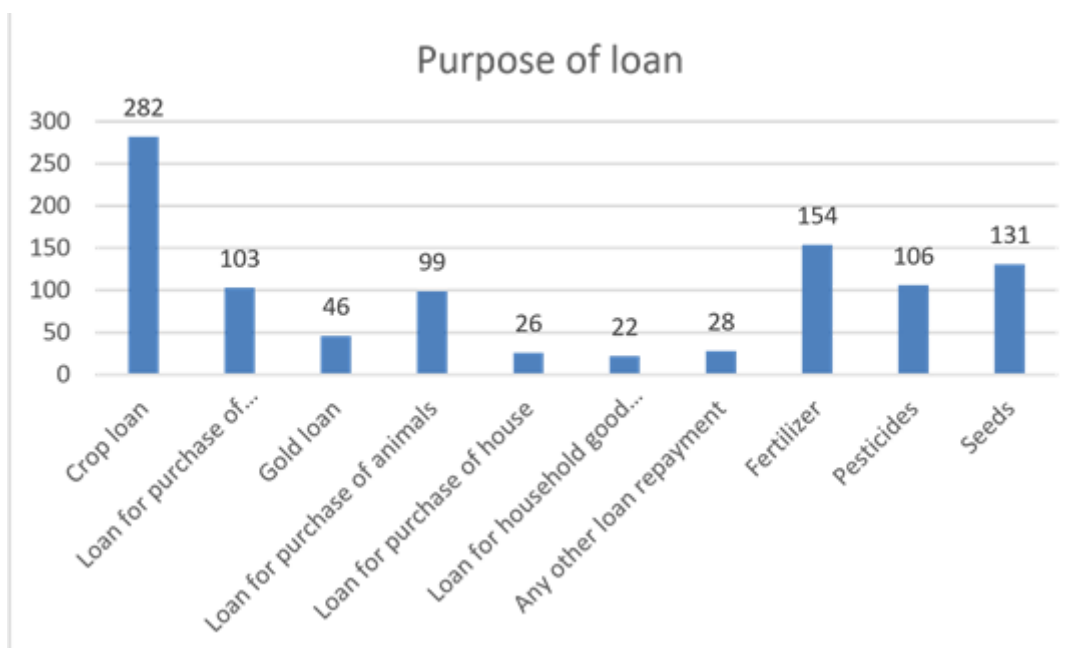


Figure 36 Distribution of Purpose of loan

The "Purpose of Loan" statistics provide insights into farmers' credit patterns. The data reflects 997 responses from the 347 respondents, indicating that many farmers identified multiple purposes for their loans. The percentages are based on the number of cases (347 respondents). The findings are as follows:

Crop loan was the most frequently cited purpose, with 282 responses (28.3% of total responses), representing 81.3% of cases. This indicates that most farmers take loans to finance crop cultivation, including expenses for seeds, fertilizers, and other crop-related costs.

Fertilizer loans were mentioned 154 times (15.4% of total responses), representing 44.4% of cases. This shows that nearly half of the farmers need loans to purchase fertilizers.

Seeds were cited 131 times (13.1% of total responses), representing 37.8% of cases, highlighting the importance of credit for buying quality seeds.

A loan for the purchase of a tractor or farm equipment was reported 103 times (10.3% of total responses), representing 29.7% of cases, reflecting the need for mechanization and equipment to enhance productivity.

Pesticides were mentioned 106 times (10.6% of total responses), representing 30.5% of cases, showing farmers rely on loans to manage pest control effectively.

A loan for the purchase of animals was cited 99 times (9.9% of total responses), representing 28.5% of cases, indicating the importance of livestock in farm operations and household income.

The gold loan was mentioned 46 times (4.6% of total responses), representing 13.3% of cases, showing that some farmers use gold as collateral to secure credit.

Loans for repayment of other loans were cited 28 times (2.8% of total responses), representing 8.1% of cases, indicating that some farmers take loans to manage existing debt burdens.

Loans for household goods (motorcycle, TV, or fridge) were reported 22 times (2.2% of total responses), representing 6.3% of cases, reflecting the use of credit for essential household items.

A loan for the purchase of a house was mentioned 26 times (2.6% of total responses), representing 7.5% of cases, showing that a small portion of farmers take loans for housing needs.

The primary purposes for loans among farmers are crop loans (81.3%), fertilizer (44.4%), and seeds (37.8%), reflecting the critical need for credit to support essential farming activities. Other significant loan purposes include farm equipment (29.7%), pesticides (30.5%), and livestock (28.5%). This data underscores the importance of accessible agricultural credit to ensure farmers can manage their production costs and improve productivity. Additionally, the need for loans to repay existing debts highlights financial stress among some farmers. Addressing these needs through affordable credit and supportive policies can enhance farmers' financial stability and agricultural outcomes.

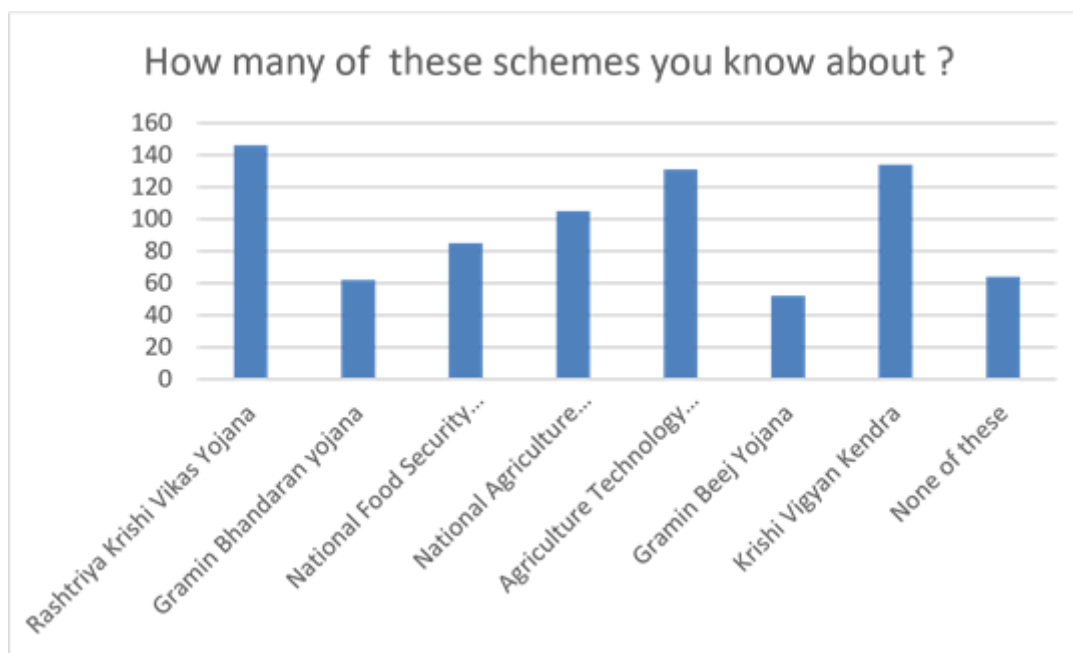


Figure 37 Distribution of How many of these schemes you know about?

The data related to the question "How many of these schemes do you know about?" reflects 293 responses from the 347 respondents, indicating that many respondents are aware of multiple schemes. The percentages are based on the number of cases (347 respondents). The findings are as follows:

Rashtriya Krishi Vikas Yojana (RKVY) was the most frequently recognized scheme, mentioned 146 times (18.7% of total responses), representing 42.1% of cases. This scheme focuses on enhancing agricultural productivity and infrastructure, and its higher recognition indicates that many farmers are aware of its benefits.

National Food Security Mission (NFSM) was cited 85 times (10.9% of total responses), representing 24.5% of cases. The NFSM aims to increase the production of key crops like rice, wheat, and pulses, showing that about a quarter of respondents know this initiative.

Gramin Bhandaran Yojana was mentioned 62 times (8.0% of total responses), representing 17.9% of cases. This scheme supports the construction of rural warehouses to improve storage facilities, but awareness remains relatively low among farmers.

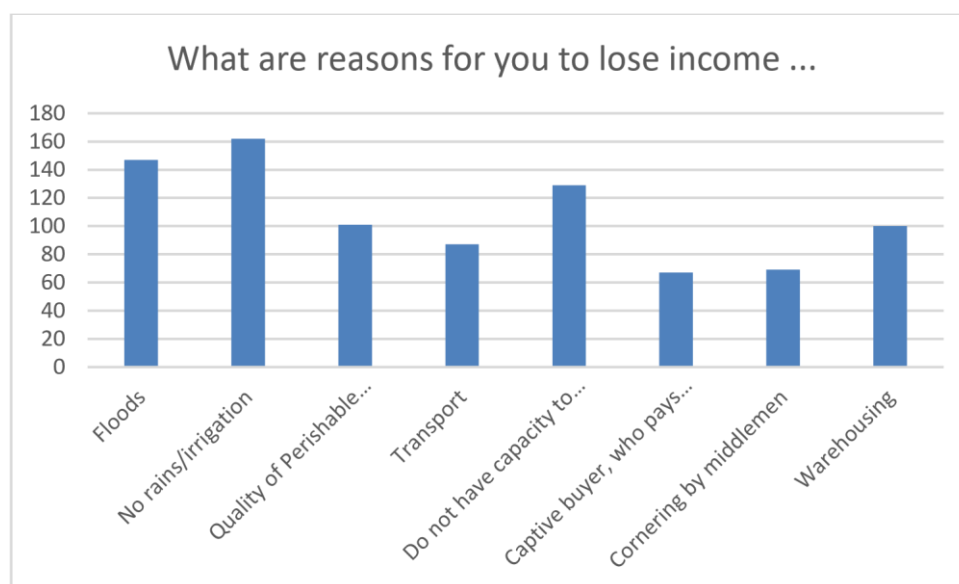


Figure 38 Distribution of What are reasons for you to lose income

The question "What are the reasons for you to lose income?" provides details of the challenges and factors that lead to income loss among the 347 respondents. The data reflects 762 responses, indicating that many respondents selected multiple reasons. The percentages are based on the number of cases (347 respondents). The findings are as follows:

No rains/irrigation was the most frequently cited reason for income loss, with 162 responses (18.8% of total responses), representing 46.7% of cases. This highlights the significant impact of water scarcity and inadequate irrigation on farming income.

Floods were reported 147 times (17.1% of total responses), representing 42.4% of cases, showing that extreme weather events significantly cause income loss for many farmers.

Do not have the capacity to hold and sell when rates go up was cited 129 times (15.0% of total responses), representing 37.2% of cases. This indicates that limited storage capacity forces farmers to sell crops at lower prices, affecting their income.

The quality of perishable produce goes further down if APMC sales don't happen on the same day, which was mentioned 101 times (11.7% of total responses), representing 29.1% of cases. Delays in selling perishable goods lead to quality deterioration and financial loss.

Transport issues were cited 87 times (10.1% of total responses), representing 25.1% of cases, reflecting the impact of poor transportation infrastructure and logistics on timely market access.

Cornering by intermediaries was reported 69 times (8.0% of total responses), representing 19.9% of cases, indicating that exploitation by intermediaries reduces farmers' A captive buyer who pays an advance lower than the market rate was mentioned 67 times (7.8% of total responses), representing 19.3% of cases. This reflects how some farmers are locked into pre-arranged agreements that offer lower prices than the market.

The primary reasons for income loss among farmers include no rains/irrigation (46.7%), floods (42.4%), and lack of storage capacity (37.2%). Other significant factors are delays in selling perishable goods (29.1%), transport issues (25.1%), and intermediaries exploitation (19.9%). Addressing these challenges through improved irrigation, flood management, storage facilities, transportation infrastructure, and fair market practices can help mitigate income losses and enhance farmers' financial stability.

Which crops do you grow Mainly?

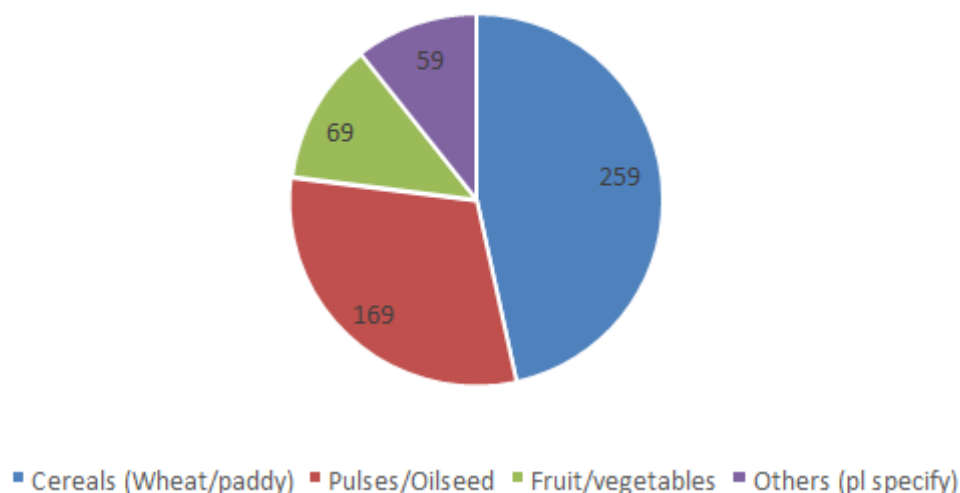


Figure 39 Distribution of Which crops do you grow mainly?

To understand the cropping patterns, a question was asked, "Which crops do you grow mainly?" to the 347 respondents. The data reflects 556 responses, indicating that many farmers grow multiple types of crops. The percentages are based on the number of cases (347 respondents). The findings are as follows:

Cereals (Wheat/Paddy) were the most commonly grown crops, cited 259 times (46.6% of total responses), representing 74.6% of cases. This shows that most farmers focus on staple food crops, such as wheat and rice, which are central to food security and livelihoods.

Pulses/Oilseeds were mentioned 169 times (30.4% of total responses), representing 48.7% of cases. This indicates that nearly half of the farmers cultivate pulses (e.g., lentils, chickpeas) or oilseeds (e.g., mustard, groundnut) to diversify crops and meet market or household needs.

Fruits and vegetables were reported 69 times (12.4% of total responses), representing 19.9% of cases. This suggests that a smaller group of farmers focus on perishable produce like fruits and vegetables, which may require different resources and market access.

Other crops were cited 59 times (10.6% of total responses), representing 17.0% of cases. This category includes crops outside the main classifications, reflecting diverse agricultural practices.

The data highlights that most farmers grow cereals (74.6%) and pulses/oilseeds (48.7%), while fewer cultivate fruit/vegetables (19.9%) and other crops (17.0%). The cumulative percentage of 160.2% indicates that many farmers engage in multi-cropping. This diversity in crop cultivation suggests that while staple cereals dominate, crop diversification is notable, which can help improve food security and income resilience. Efforts to support farmers with better market access, storage facilities, and diversification opportunities can further strengthen agricultural sustainability.

4.2 Research Question Two

The farm laws introduced by the Indian government in 2020 have sparked a contentious and prolonged dispute between the government and farmers across the country. These bills aimed to bring reforms to the agricultural sector, intending to provide better market access, eliminate intermediaries, and increase farmers' income. However, implementing these bills faced vehement opposition from farmers, who argued that the legislation would undermine their livelihoods and leave them vulnerable to exploitation. In September 2020, the Indian government passed three farm laws: The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Bill, and The Essential Commodities (Amendment) Bill. These bills aimed to liberalize agricultural markets, promote contract farming and remove restrictions on the trade of essential commodities. The Farm Laws 2020 refer to three agricultural bills passed by the Parliament of India in September 2020. These bills were:

1. The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill: This bill aims to create a framework that allows farmers to sell their produce outside the traditional Agricultural Produce Market Committee (APMC) mandis. It permits farmers to engage in trade and commerce of agricultural products with buyers directly, including through electronic platforms and other alternative market channels. The bill promotes barrier-free inter-state and intra-state trade of farm produce.

2. The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Bill: This bill provides a legal framework for contract farming, enabling farmers to enter into agreements with agribusiness firms, processors, wholesalers, exporters, or large retailers for the sale of future farming produce at pre-agreed prices. It aims to protect farmers' interests by ensuring fair and transparent agreements and providing a mechanism for dispute resolution.

3. The Essential Commodities (Amendment) Bill: This bill amends the Essential Commodities Act of 1955 and seeks to deregulate certain essential commodities' production, supply, and distribution. It removes commodities like cereals, pulses, oilseeds, edible oils, onions, and potatoes from the list of essential commodities, allowing for free trade unless there is a significant price rise due to exceptional circumstances such as war, famine, or natural calamity.

However, the Farm Laws 2020 sparked widespread protests by farmers and farmer organizations, particularly from the states of Punjab and Haryana. Opponents argue that the laws could undermine the existing government-regulated agricultural market system and threaten the Minimum Support Price (MSP) system, which guarantees a specific price for certain crops. Farmers' concerns primarily revolve around potential exploitation by big corporations, loss of bargaining power, and dismantling of existing support mechanisms.

These laws have been a subject of significant debate, with the Indian government engaging in dialogues and proposing amendments to address some of the concerns raised by farmers. However, as of my knowledge cutoff in September 2021, the situation surrounding the Farm Laws remains dynamic and subject to ongoing developments.

The dispute surrounding the Farm laws 2020 in India stems from various concerns farmers and agricultural stakeholders raised. Here are some key reasons for the dispute and the solutions provided by the government:

1. Minimum Support Price (MSP): Farmers are concerned that the farm laws do not explicitly mention the continuation of the MSP system. MSP is the price at which the government assures farmers that it will purchase certain crops from them to provide them with a minimum income. The government has reiterated that the MSP system will continue and has made statements assuring farmers of its importance.

2. APMC and Mandi System: The bills allow farmers to sell their produce outside the Agricultural Produce Market Committees (APMCs) or mandis. Farmers worry that dismantling the APMC system may leave them vulnerable to exploitation by private traders or corporations. The government has clarified that the bills do not abolish the APMC system but provide an additional option for farmers to sell their produce outside of mandis. It emphasizes that the APMC system will continue to operate, and farmers can choose the mode of selling that suits them best

3. Contract Farming: Some farmers express concerns about contract farming, fearing being disadvantaged while negotiating agreements with agribusinesses and corporations. They worry about unfair contract terms and the possibility of corporate dominance. The government argues that contract farming will provide farmers access to technology, inputs,

and markets. It has stated that the bills contain provisions to protect farmers' interests and ensure fair contract farming practices, including dispute resolution mechanisms.

4. Dispute Resolution Mechanism: Farmers demand a robust and independent dispute resolution mechanism to address conflicts that may arise under contract farming or other aspects of the bills. The government has assured the establishment of a dispute resolution mechanism at the sub-divisional or district level to provide quick and fair dispute resolution. It aims to provide farmers with a forum to address grievances and protect their rights.

5. Farmer-Protestor Demands: Apart from concerns specific to the three farm laws, farmer-protesters have called for the repeal of the laws altogether. They demand a legal guarantee for MSP, withdrawal of penalties for stubble burning, and a broader discussion on agricultural reforms. The government has talked with farmer unions to address their concerns. It has made offers to amend specific provisions of the bills while emphasizing the importance of continued dialogue.

It is important to note that the government's solutions are their proposed measures to address the concerns raised by farmers. The ongoing dialogue between the government and farmers aims to find common ground and resolve the dispute in a manner that ensures the welfare and interests of farmers while also addressing the need for agricultural reforms.

The Farm Laws 2020 in India have been a subject of intense debate due to their potential advantages and disadvantages. On the advantage side, these bills aim to liberalize agricultural markets by giving farmers greater market access and freedom to sell their produce outside designated Agricultural Produce Market Committees (APMCs). This can enable farmers to seek better prices and explore alternative marketing channels, potentially boosting their income. The bills also promote contract farming, allowing farmers to enter into agreements

with agribusiness firms, providing them with assured prices, inputs, and technology, thereby reducing production risks. Additionally, the bills encourage private investment in agricultural infrastructure, including storage facilities, which can help reduce post-harvest losses and increase farmers' bargaining power.

However, there are several concerns and disadvantages associated with the Farm Laws. One major issue is the absence of an explicit provision guaranteeing farmers' Minimum Support Price (MSP). This has raised fears that farmers may be vulnerable to exploitation by private corporations, who could offer lower prices without MSP protection. Critics also argue that the bills may weaken the existing APMC system, potentially marginalizing small and marginal farmers who rely on APMC mandis for their sales. There are concerns about the unequal bargaining power between farmers and agribusiness firms and the lack of dispute resolution mechanisms for contract farming disputes. Additionally, there are apprehensions about the long-term consequences of reducing government intervention in agricultural markets.

Overall, while the Farm Laws 2020 have the potential to bring positive changes to the agricultural sector by liberalizing markets and enhancing farmer autonomy, their implementation and addressing the concerns surrounding MSP, APMC system, and farmer protection are crucial to ensure the welfare of farmers and the sustainability of India's agricultural sector.

1. What is your opinion about the Farm Laws in India?

There are advocates who argue that the Farm Laws became necessary because the agriculture sector needed new reforms and came closer to modernization. They say that present laws do not match the problems farmers now encounter in the modern world. It was thought that the

laws would have let farmers make their own decisions, connect with buyers directly, reach more markets and bargain for best prices. Also, those who supported the laws believe they would have led to investment by private companies, better infrastructure and a rise in the use of modern farming measures, helping farmers make more money and become more productive. Still, there is a lot of opposition to the Farm Laws and many critics are worried about the negative effect these laws could have on marginalized farmers. Some argue that because officials rushed to implement the laws, they did not first consult with affected communities and missed including safety measures that would help small and marginalized farmers. They believe removing APMC mandis without having another plan may allow private players to exploit farmers and decrease the bargaining power of local mandis. In addition, legal experts worry that the new rules might weaken the Minimum Support Price system and this system protects farmers from falling crop prices. Many in the field stress the value of practical action and talking with experts in achieving the success of agricultural change. Both groups say that reforms in farming should proceed gradually and involve all main parties, especially focusing on small and marginalized farmers. They stress that when infrastructure, information and dispute settlements are in place, farmers will benefit from the new rules without facing bigger problems. In addition, people are requesting that the process of making decisions becomes more transparent, so farmers and their representatives can contribute through meaningful dialogue.

2. Are the current Farm Laws in India sufficient to meet global expectations and the SDGs in the farm sector?

The farm sector in India plays a crucial role in ensuring food security, alleviating poverty, and achieving sustainable development goals (SDGs). The recent implementation of farm laws aimed to address various challenges farmers face and improve agricultural markets'

efficiency. However, stakeholders vary on the sufficiency of these laws to handle global expectations and meet SDGs in the farm sector. The opinions regarding the sufficiency of the current farm laws in India to handle global expectations and meet SDGs in the farm sector are diverse. While some believe the laws fall short and require substantial amendments and reforms, others see them as a positive starting point. To effectively address global expectations and achieve SDGs, it is essential to consider the input of all stakeholders, integrate reforms, incentivize sustainable behaviour, and invest in necessary infrastructure. By implementing comprehensive changes, India can work towards a more resilient, efficient, and sustainable agricultural sector.

3. What are your suggestions for improving the farm sector in India through some policy changes or policy modifications?

One should always analyze the local background and farmers' difficulties in different places in India before making any policy change. Regular monitoring, assessment and modification of policies depend on feedback and the outcomes achieved are vital for a successful implementation. Major policy changes should only happen after thoroughly understanding what is important to farmers. Appropriate solutions to their challenges should be put into law. To be successful, we need to pay attention to how the recipients react and often communicate any policy updates and adjustments. Farmers should not lose any profit. Instead, they should benefit equally from what they produce in agriculture. Efforts should be aimed at making farmers sell their products directly, without need for intermediaries. Market mechanisms are important targets for reform, especially to improve how prices and access are determined and by developing several sales channels for agricultural products. Policy reforms, stronger markets and digital progress are key to achieving that. Small and marginal farmers who depend on land rentals from landlords require special help to avoid unfair treatment. The use

of collective and contract farming, helping farmers with funds and skills and building FPOs are ways to help and strengthen these farmers. Work needs to be done to enhance the crop insurance process and guarantee farmers receive coverage when they need it. In addition, great care should be given to the soil and seeds to improve the quality of the yields. People in India have given a wide variety of opinions about the Farm Laws that were introduced last year. There are those who believe the laws encouraged reforms, though others are disturbed by the threats they might create for farmers. Any reforms in agriculture must address the real issues farmers raise and be designed through proper consultation and with everyone involved. The effects of the bills will vary depending on how they are put into action, together with related laws and by how much farmers' needs are met. The overarching goal is to achieve growth in farming, assure farmers' welfare and conduct safeguarding action in an ever-changing agricultural sector.

4.2 Summary of Findings

Part of the study's qualitative results touch on Farm Laws passed by the Indian government in 2020 which led to a lot of debate and demonstrations, especially in Punjab and Haryana. The purpose of these reforms was to increase farmers' profits, give them greater access to markets and cut out anything that stood between them and direct sales to buyers. At the same time, farmers have strongly opposed them, saying the reforms might result in big corporations exploiting them, remodel government-regulated agricultural markets and negatively affect their work. Among the three Farm Law passed in September 2020 are The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Bill and The Essential Commodities (Amendment) Bill. The first bill lets farmers sell their produce to buyers outside of the set Agricultural Produce Market Committees and electronically. The

second bill allows farmers to form agreements with agribusinesses to sell their future harvests at previously agreed prices. According to the third bill, some essential items are no longer regulated, so they can be traded freely unless rare things like natural catastrophes lead to a price hike. Lawmakers made these bills to help agriculture markets open up, motivate private investments and better develop infrastructure. Even with possible benefits, some problems have been identified. Experts fear that the MSP assurance for certain crops lacks clear coverage under the new laws. According to the government, MSP will stay, though there are fears among farmers that whatever protections they had may now be removed. Some farmers see the bill's new guidelines for selling outside APMCs as a problem since it could weaken the mandi system they depend on. The government has said that the APMC system will continue, yet the situation hasn't completely relieved every concern.

As presented in the second bill, contract farming also concerns me. Being in a disadvantageous position, farmers suspect they might fail to agree on fair terms with major agribusiness companies. Yet, the government thinks these agreements will benefit farmers by ensuring they get a stable price, can use new technology and have easy access to inputs, thus cutting the risks of farming. Still, critics point out that it is possible for parties to take advantage of each other and that the process to resolve disputes is not very defined. The government has suggested reforms, actualizing a way for farmers to deal with disputes locally and quickly at the district level. Nevertheless, various farmers' groups are still insisting that the law be completely removed because they believe it does not protect marginalized farmers from exploitation. People have pointed out that farmers were rarely consulted about the law and that the regulations do not do enough to protect them. Critics of the Farm Laws are calling for agricultural changes that consider the different needs of smallholder farmers. A number of commentators feel that the laws could help modernize the industry and grant farmers new opportunities to join different markets and ask for better prices. Yet, some

people consider that the oversight laws were created too fast and without the proper discussion. As a result, people are asking for more ways to include farmers in farming policy, especially when issues like Minimum Support Price and market access are on the table. Suggestions for improving agriculture center on increasing market opportunities, refurbishing infrastructure and honoring inclusive plans that safeguard the interests of small farmers. Also, efforts are being made to enhance crop insurance, give sufficient support and boost collective farming initiatives. Efforts should be made to give farmers better access to information and tools so they can handle new farming methods and achieve higher results.

4.2 Conclusion

This chapter shares the main findings about the socio-economic conditions, ideas and necessary actions concerning the 2020 Farm Laws in India. The farming community, according to the research, is mostly composed of men, older members and people who have carried on their family's farming traditions. For many farmers, the main source of income is agriculture and a smaller number adds dairy, start small businesses or take on temporary jobs. On the other hand, frustration with crop prices, difficulty getting loans and a lack of key resources are widespread for farmers. While it's clear that there are some signs of technological use such as phones and WhatsApp, farmers still don't rely much on farming-specific apps. Farmers are mostly dissatisfied with the old farm laws for worrying that large firms will exploit them, MSP will be abolished and APMC will no longer protect them. As a result, many people have lost confidence in what the government does regarding agriculture, leading to widespread demonstrations. Some farmers can see that the reforms could bring them more market access and offer contract opportunities, but others object because regulations do not guarantee support for small farmers. The results show that raising these issues about protecting MSP, supporting fair contract farming and otherwise preserving

APMC must be done as soon as possible. Farmers are still demanding the laws be repealed, because the government's proposed solutions have not cleared up their main issues.

CHAPTER V:

DISCUSSION

5.1 Discussion of Results

The findings from this study explain the types of challenges India's farmers face and their perspectives about the 2020 Farm Laws and the general agricultural systems in India. The survey results indicate that 65 percent of farmers belong to the age groups of 31-45, so middle-aged individuals lead in farming tasks. The fact that women make up only 5.5% of farmers is due in large part to the fact that their jobs on farms usually don't give them the same decision-making or land ownership rights as men. Due to this gender difference, we should focus on creating policies that encourage women to play bigger roles in agricultural decision-making. According to the study, about 69.5% of farmers depend entirely on farming for livelihood, but some also work in other businesses or keep dairy cows. The fact that rural economies depend so much on agriculture means agriculture plays a key role in them. At the same time, overdependence on agriculture puts farmers in danger from changing market trends, weather changes and additional risks. The survey found that 72% of respondents ran into difficulties getting loans because of problems with both the money's expense and the amount of time it takes to process applications. This result is consistent with studies highlighting how financial challenges prevent farmers from getting credit, so reforming agricultural credit systems is necessary. Most respondents expressed worries about how normally crop prices are set and if farmers are treated fairly by the current market situation. The 2020 Farm Laws are significant here, because most respondents said the laws would make it harder for small farmers to thrive financially. These worries are compounded by the future of the Minimum Support Price (MSP) system which certain farmers think could be affected by the new changes to farm laws. Although the government has pledged that MSP

will be upheld, smallholders are doubtful and say more steps are needed to keep traders from exploiting them in the market.

Villages with all-weather road access are high, but the study also points out that health centres and milk collection centres are scarce in a lot of places. This means stronger efforts to provide rural infrastructure to let farmers benefit from extra help and support. It also points out that many more farmers are using technology in their farming, as over half of those surveyed own smartphones. At the same time, the small number of farmers using specialist apps hints there may be unused opportunities to help improve farming and make better choices. As a result, we need to invest further in better education and infrastructure to help Indian agriculture adapt to digital technologies. The study also reveals how people view and perceive the 2020 Farm Laws. Although the laws were meant to level agriculture markets and expand farmers' selling options, most people were worried these laws might lead to corporations exploiting farmers. The main topic of concern was about pulling back MSP for growers and possibly loosening the APMC system. The difficulties were worsened by a lack of good ways to resolve disputes in contract farming and no specific protections for small farmers. Doubts about government decisions are clear from the fact that 38% of those surveyed said they became less confident in agricultural reforms after the protests against the farm laws. However, farmers in the study often seemed ready to adopt new ways of farming. More than one-third of respondents said they have tried crop rotation and intercropping to be more sustainable. Nevertheless, the expansion of these methods remains blocked due to financial and infrastructure problems which means farmers require more help to access them. The findings show that over one in four respondents moved from rural to urban areas as they struggled with less farm income and little prospect for new opportunities. As more people choose to migrate, it becomes clear that farmers need economic assistance and means to look for work other than farming.

5.2 Discussion of Research Question One

The qualitative data of this study helps explain the quantitative results and gives greater understanding of farmers' thoughts and worries related to the 2020 Farm Laws and Indian agriculture. Generally, the 2020 Farm Laws were brought in to help the agrarian market progress, but this has caused a major dispute among farmers, with much of the debate taking hold in Punjab and Haryana. The Government introduced the Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, the Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Bill and the Essential Commodities (Amendment) Bill, hoping they would make agricultural markets more open, attract investors and give farmers easier access to the market. Still, farmers and other groups believe these laws may negatively affect marginal and small farmers, so many have strongly opposed them. Farmers were concerned that little mention of the MSP was included in the changes. The MSP gives farmers a basic price for certain crops, meaning they do not have to worry about market changes. The government has promised farmers that MSP will stay, but most are concerned because the system might not be able to function well without a law to enforce it. Because of this uncertainty, farmers do not trust small groups making new decisions and many think this could allow companies to exploit them by offering less money for their crops. The APMC (Agricultural Produce Market Committee) system which used to support most of India's agricultural commerce, is also a source of concern today. Because of the new rules, farmers are able to sell outside APMCs and talk to buyers using technology. Even though the provision aims to increase the benefits that farmers receive, many farmers worry that deregulating the APMC system will leave them at risk of exploitation. Although the government says both systems will run together, farmers still worry because it seems their bargaining power is weakening.

This way of farming allows agreement-making with firms to sell farmers' produce at previously agreed prices. Although the government says this system will offer farmers fair prices and new methods backed by resources, many farmers are worried about being taken advantage of. Many people worry that farmers may have no choice but to sign contracts that work to the advantage of major agricultural businesses. In addition, the lack of a strong and independent way to resolve contract farming disputes has worried farmers a lot. They want a clear and practical method for handling conflicts as part of these contracts and the government has promised to organize such a process districtwide. The opposition to the Farm Laws brought out by the protests has also made it clear that a wider range of people and ideas are necessary in the lawmaking process. It is widely argued by farmers that the new laws were introduced so quickly that no proper talks with all farmers, particularly those who have little land, could take place. It has been made clear that farmers should have a say in decisions that shape their ways of earning money, so that their needs are met before major reforms are put into practice. While there is strong resistance, there are also people in the farming community who feel the Farm Laws could bring the modernization and changes the sector is in need of. Supporters say the laws will give farmers more control over sales, allow them to sell in different markets and decrease their reliance on middlemen. Moreover, providing private financing for storage structures may lower losses immediately after harvest and help farmers negotiate better contracts. So, though the measures are valuable, there are still issues about how well they are implemented and keeping small farmers safe.

Issues around the Farm Laws demonstrate the difficulties facing agricultural change in India. Although there is widespread agreement on improving and opening the markets, it is necessary to manage the reforms to make sure all groups gain and small farmers' interests are sustained. The conclusions point out that MSP should be guaranteed in all future reforms, the APMC structure retained and strong argument-settling procedures built into contract farming.

Additionally, everyone involved in agriculture should be included and farmers should have a key role in decision-making. For election policy, the government should strive to help farmers by widening access to markets, building better infrastructure and ensuring adequate security and services for small farmers. Farmer-producer organizations (FPOs) are being encouraged because they give farmers a chance to bargain for fairer prices through unification. Moreover, better crop insurance, consistent payment of crops and access to credit can solve many of the financial problems faced by farmers. At the same time, the government should introduce reforms that encourage sustainable farming and ensure the farming industry's continued development.

5.2 Discussion of Research Question Two

1. Principal Motivations and Rationales for the Implementation of Agricultural Laws in India?

The principal motivations behind implementing the 2020 farm laws in India stemmed from the need to modernize and liberalize the farm sector, which inefficiencies and outdated practices have plagued. The Indian government sought to enhance market access for farmers by allowing them to sell their produce outside the traditional Agricultural Produce Market Committees (APMCs), thereby reducing the monopoly of intermediaries. Additionally, the government aimed to attract private investment into the sector, which would help improve infrastructure, such as storage and transportation, and reduce post-harvest losses. These changes were also intended to give farmers more autonomy in negotiating prices, improve their bargaining power, and enable them to enter into forward contracts with agribusiness firms, ensuring assured prices and reducing production risks. The broader rationale was to make the agricultural market more competitive, boost income for farmers, and integrate Indian agriculture more effectively into global supply chains.

However, implementing these laws also had an underlying goal of streamlining the regulatory environment for agriculture. By deregulating certain commodities and allowing farmers to sell outside the APMC system, the government intended to create a more open and efficient market structure that could better respond to domestic and international demand. This move was perceived as a step toward modernizing India's agricultural infrastructure, moving away from state-controlled systems toward market-driven dynamics, and aligning with the broader objective of enhancing agricultural competitiveness in a globalized world.

2. Immediate and Long-Term Impacts of These Regulations on Farmer Income, Market Dynamics, Supply Chains, and Rural Economies?

The immediate impacts of the 2020 farm laws have been a mixed bag, with some farmers welcoming the reforms while others, particularly from small and marginal farms, expressed deep concerns. The immediate impact on farmers' income was largely hostile due to the uncertainty surrounding the laws, especially regarding the Minimum Support Price (MSP). Farmers feared that the absence of explicit provisions to guarantee MSP would lead to exploitation by large corporate buyers who may offer lower prices for their produce. The lack of clarity around the continuity of the MSP system further exacerbated these fears, leading to protests across the country. In some areas, the lack of effective implementation and infrastructure meant that farmers did not see immediate benefits from market access or contract farming.

In the long term, the regulations can significantly alter market dynamics by reducing the role of intermediaries, enhancing competition, and giving farmers more choices in where to sell their crops. With better market access and bypassing traditional APMC markets, farmers could secure better prices and reduce transaction costs. Promoting contract farming could lead to more stable income for farmers, as they would have pre-agreed prices and better

access to technology and inputs. However, the success of these reforms is contingent on their proper implementation, adequate infrastructure, and farmers' ability to negotiate favourable contract terms.

Supply chains, particularly those related to the distribution and storage of agricultural products, could also see significant improvements. With private investments in infrastructure encouraged by these laws, farmers may benefit from better storage facilities, reducing post-harvest losses. However, these benefits likely accrue over time. A supportive regulatory framework must accompany them to ensure that private investments are directed toward improving infrastructure rather than maximizing profits for large corporations.

Rural economies, which rely heavily on agriculture, could experience long-term economic growth if the laws lead to greater efficiency and profitability in the sector. The increased market access, better infrastructure, and stable incomes could contribute to poverty alleviation and increased economic activities in rural areas. However, shifting toward a more market-driven system may also result in more significant income disparities, especially if small-scale farmers cannot negotiate favourable terms or if larger agribusinesses displace them.

3. Conformance of the Farm Laws to Global Agricultural Trends, Technical Improvements, and Imperatives for Sustainability?

The 2020 Farm Laws align with specific global agricultural trends, particularly those emphasizing market liberalization, technological advancements, and sustainability. Globally, there is a trend toward removing barriers to trade, enabling farmers to sell directly to buyers, and reducing the role of intermediaries in agricultural markets. The push for deregulation of

certain commodities and the encouragement of contract farming align with these trends, which aim to make agricultural markets more competitive and transparent.

In terms of technical improvements, the laws are aligned with global imperatives to modernize agriculture by encouraging the use of technology. For example, the provision for online trading and the ability to sell crops through electronic platforms reflects a move towards digitalization, a growing trend in agriculture worldwide. Additionally, promoting contract farming could lead to more efficient supply chains, as agribusinesses typically bring advanced farming techniques, better inputs, and access to global markets.

However, the sustainability aspect of the laws remains uncertain. While the laws aim to liberalize the market, their long-term environmental sustainability is questioned by many critics. There is concern that increased commercialization could lead to the overuse of natural resources, such as water, fertilizers, and pesticides, especially if large agribusinesses prioritize short-term profit over environmental stewardship. Additionally, the laws do not explicitly address sustainable farming practices or climate resilience, which is central to the global discourse on agricultural reform. The focus on market-driven reforms may undermine efforts to promote environmentally sustainable practices unless coupled with other policies incentivizing sustainable farming techniques and providing climate-resilient infrastructure.

4. Ethical Considerations Involved in the Implementation of These Laws and the Ensuing Reforms?

The ethical considerations surrounding the implementation of the 2020 Farm Laws are complex and multifaceted. A significant concern is the potential for exploitation of small farmers by large corporations. While the laws were intended to provide greater autonomy for farmers by allowing them to engage in contract farming and sell their produce outside

APMCs, there is a risk that the power imbalance between small farmers and large agribusinesses could lead to unfair contracts, lower prices, and poor working conditions for farmers. The absence of a robust and independent dispute resolution mechanism further exacerbates this concern, as farmers fear they will have no recourse if they are taken advantage of.

Another ethical issue is the potential erosion of the MSP system, which has long been seen as a safety net for farmers, particularly small and marginal ones. Although the government has assured that MSP will continue, the lack of legal guarantees raises concerns about whether it will be effectively implemented. Without a clear, legally enforceable MSP framework, farmers may be left vulnerable to exploitation without government-mandated minimum prices, undermining the reforms' fairness and justice.

The laws also raise questions about the inclusivity of the policymaking process. Many critics argue that the reforms were introduced without adequate consultation with farmers, particularly those in marginalized communities. The protests against the laws highlighted the deep dissatisfaction and mistrust among farmers, who felt their voices were not heard during the decision-making process. The government's approach to implementing these laws, without sufficient engagement and transparency, raises ethical concerns about the fairness and equity of the reform process.

CHAPTER VI:

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

6.1 Summary

Agricultural sector in India has developed considerably since planning began in 1951. Even so, the sector requires impetus for growth. Having private, efficient and competitive agrarian markets requires appropriate reforms to the agricultural market. Farming no longer is a simple practice, but as agribusiness and being joined to the retail and export sectors is key in making India prosperous. The results of the research help us understand the present condition of Indian agriculture and the intended changes thru implementation of farm laws. The result highlight the need to encourage agriculture to be privately run, efficient and competitive such as finding solutions for land access, allowing farmers to freely trade their goods and direct negotiation between farmers and business traders. According to the research, spending more on understanding and using agricultural research and development is crucial to help develop science-based farming that includes indigenous knowledge. While research makes a case for reform in Indian agriculture, we should also look at what others have to say. They point out that small-scale farmers could end up dealing with big traders and companies, who have the advantage in a completely free market. They are troubled by the speed of agricultural industrialization, as it may cause heavy use of chemicals and harm the environment by polluting soil and water.

While concerns appear that encouraging market production in farming may cause traditional methods to be ignored which could harm the way local and indigenous farming has fed communities for generations. As agribusiness and market-based farming expand, it is possible that small-scale farmers will be minimized, together with their cultural traditions

which could negatively affect biodiversity. To ensure sustainable and equitable growth in agriculture, a policy framework with detailed elements is needed. For this, we must make sure policies are inclusive, involve communities and help small-scale farmers, protect the environment and maintain the heritage of farming by indigenous groups. Blending different opinions and handling future difficulties will allow India to remake its agricultural sector in a way that promotes shared progress, protects nature and safeguards cultural identity. India's agricultural system is not straightforward and, therefore, important to look at from several different sides when working on reforms. Even though economic growth and productivity have improved, it's important to take criticisms into account and incorporate them into policies. If it lines its development path with respect for small-scale farmers, nature and traditional practices, India can achieve balanced and sustainable growth. Supporting India's agriculture requires rebuild farmer knowledge and practices that have been forgotten over the years. Combining local methods with modern farming can both increase production and make agriculture sustainable as it helps deal with climate problems. Until we respect indigenous knowledge and practices in agriculture, our food systems will find it hard to grow more sustainably.

The three farms laws in question viz. Farmers Produce Trade and Commerce (Promotion and Facilitation) Act, 2020, Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, 2020 and Essential Commodities (Amendment) Act, 2020, are seen by a set of farmers as laws that could put their ability to earn a living at risk. Whereas others state that these regulations will help the sector attract investors, move farming into the future and improve farmers income. Farms laws could have made it easier for foreign investors to invest in farming by relaxing concerns about government regulation. The goal was also to improve the way food is provided and to invite investment in modern storage for agricultural goods. Farmers could fix a price for their produce even before

planting, thanks to contract farming laws. Still, some farmers are not in favor of these laws, since they claim they will hurt their ability to support themselves. Those in favor of the farm regulations argued that their main benefits were an increase in market reach, the option of contract farming, new infrastructure projects and attracting private investments. But farmers were concerned that the laws would stop the existing method of selling through intermediaries, end MSP-linked procurement, destroy the traditional mandi system and let large companies unfairly influence their business. Other reasons for farmers uniting include: MSP issues, less power in negotiations, problems with contract farming, a lack of discussion and not enough safety for farmers. They thought officials at the top directed all policies and that getting rid of present protection measures would harm their security and daily needs. To bring changes to farming, the Indian government has approved legislation targeting farm produce markets. On the other hand, small farmers are protesting, since they worry the changes will harm their ability to make a living. The law aims to do away with middlemen, so farmers must sell to registered dealers and the MSP-based procurement is eliminated. As a result, farmers could be abused and the standard mandis may collapse.

Repealing the farm laws may stop infrastructure growth and change the level of competition along with pricing. Some people are in favor of the rules, saying they will boost private investments, promote new technologies and improve agricultural infrastructure, helping farmers get better pay and be more productive. Opponents worry that the law may see small-scale farmers lose bargaining power, face more exploitation, receive fewer benefits from the government and result in the MSP system being broken down. We are uncertain about what the farm laws will do to India's agriculture in the long run because their results rely on implementation, how people react to them and certain factors. Potential effects that might meet us after a few years are changes in the market, unequal distribution of income, new technology, attention to the environment and repercussions on society and culture. It is hard

to know for sure what the long-term results of the farm laws will be for India's agriculture, since the sector's structure is so varied and always changes. The result will be influenced by how the rules are used, how policies underpin them and how different parties respond to them. Over the next few years, it will be necessary to watch and examine the results of the farm laws on India's agribusiness.

6.2 Implications

Conclusions from this study can be applied to agricultural policy, rural development, financial institutions, technology use and making agriculture sustainable. These effects are vital for people in charge of food policy, farmers and rural communities. The study recommends new rules to update the farming industry and look after the interests of minor and marginal farmers. Many respondents said they were concerned that there were no clear legal guarantees for the Minimum Support Price (MSP) system. A threat to MSP protection worries farmers and makes it clear that strong and enforceable laws are needed to avoid smallholders being exploited by markets. The government should guarantee that MSP can continue and should write legislation that prevents major companies from deciding on market rates. According to the study, upholding and upgrading the APMCs help farmers receive proper prices. Because many farmers indicated they were worried about selling in open markets, it is necessary to find a good balance between liberalization and protecting farmers. In addition, the results demonstrate that strong ways to resolve disagreements play a key role in contract farming. Since these systems do not exist, farmers worry a lot, highlighting the requirement for independent ways to help settle disagreements under these agreements.

In terms of rural development, the study highlights substantial infrastructure challenges that impede the full benefits of agricultural reforms. While two third of the surveyed villages have all-weather road connectivity, essential public services such as health centres and milk

collection facilities remain scarce in rural areas. These gaps in rural infrastructure call for urgent attention from policymakers to enhance access to critical services. Improved infrastructure supports farming activities and helps rural communities thrive by boosting other aspects of rural development. Additionally, the study points to a troubling migration trend, with 24% of respondents moving to urban areas due to declining agricultural income and limited opportunities. Policy interventions that support farming and create diverse livelihood options in rural areas are needed to combat this. Strategies for rural entrepreneurship, skill development, and community-based job creation could reduce rural-urban migration and promote more sustainable rural economies.

The findings also suggest that the growing role of technology in farming presents an opportunity to enhance agricultural productivity and market access. While over half of the respondents own smartphones, the limited use of farming-specific apps indicates untapped potential in digital tools. To bridge this gap, there is a pressing need for increased digital literacy programs and the development of accessible, farmer-friendly apps. These apps can provide farmers with real-time information on market prices, weather updates, pest management, and more. Farmers can make more informed decisions, improve productivity, and gain better market access by improving access to these technologies. Additionally, the study supports the idea that digital platforms for trading agricultural produce can empower farmers to bypass intermediaries, securing better prices and reducing transaction costs.

Regarding sustainability, the study highlights the importance of integrating sustainable farming practices into the policy framework. While the 2020 Farm Laws aim to liberalize the agricultural market, their long-term environmental sustainability remains a critical concern. The push for modernization must go hand in hand with promoting sustainable practices. Farmers in the study expressed interest in adopting crop rotation and intercropping, which are

vital for improving soil health and reducing dependency on chemical inputs. Therefore, policy measures encouraging and incentivizing these practices, such as subsidies for organic farming or water-efficient irrigation systems, are essential. Additionally, there is a need to balance market-driven reforms with environmental considerations, ensuring that increased commercialization does not lead to resource depletion or environmental degradation.

Finally, the study points to several areas for future research. Given the mixed reactions to the 2020 Farm Laws, further studies could explore the effectiveness of these laws in specific regions or sectors, focusing on their impact on the livelihoods of small and marginal farmers. Longitudinal research examining how the laws have influenced income disparities, the MSP system, and the adoption of contract farming would provide valuable insights. Additionally, research on the environmental impacts of the reforms is essential to assess whether the laws contribute to sustainable farming practices or exacerbate ecological challenges. As digitalization plays a growing role in farming, exploring the intersection of technology and agriculture, particularly in enhancing market access and productivity, should be a focus of future studies.

While robust in its methodology, the quantitative research design of this study encountered several limitations that may impact the reliability and generalizability of the findings. The research was explicitly conducted in India and may not directly apply to other regions or countries. One significant limitation is the regional focus on Punjab, Haryana, and Uttar Pradesh, key agricultural hubs in India. While these regions are highly relevant to the study, the findings may not apply to other states with different farming practices, economic conditions, or social dynamics. The geographical focus on these three states limits the broader applicability of the results to other parts of India, where farming conditions and the effects of the farm laws may differ.

Additionally, the reliance on self-reported data, particularly for sensitive topics such as income, loans, and satisfaction with government policies, presents another limitation. Self-reported data is prone to recall bias, where respondents may not accurately remember or disclose information, and social desirability bias, where they may provide answers that are perceived as more socially acceptable. These biases can compromise the accuracy of the data and affect the validity of the conclusions derived from it. The potential for such biases means that the data may not fully reflect the farmers' and policymakers' authentic experiences and perceptions.

Another limitation of the quantitative study was excluding participants without smartphone or internet access, particularly for farmers in more remote or technologically underdeveloped areas. Digital surveys targeting policymakers may have similarly excluded less tech-savvy individuals, further narrowing the scope of the data. The technological divide in rural India, with varying levels of access to digital tools, means that the survey may not fully capture the perspectives of farmers from all backgrounds, particularly those without access to modern technologies.

Finally, the cross-sectional nature of the survey data represents a key limitation. Since the data was collected at a single point of time, it does not allow for the analysis of trends or the establishment of causal relationships between the farm laws and their long-term impacts. The absence of a longitudinal perspective means that the research cannot track changes over time or provide insights into the sustained effects of the farm laws. The limitations of the quantitative approach suggest that future research should incorporate longitudinal designs and mixed-methods strategies to provide a more nuanced and comprehensive understanding of the impacts of farm laws.

6.3 Recommendation for Future Research

Based on the discussion of possible exclusions and limitations in the research, here is a set of recommendations for future research to enhance the comprehensiveness and applicability of findings in the context of agricultural policy and reform in India:

Expanding Regional Coverage

Recommendation: Future research should include more diverse regions across India, mainly focusing on underrepresented areas such as the southern, northeastern, and central states. This would provide a more comprehensive understanding of the regional variations in agricultural practices, challenges, and impacts of policy reforms.

Rationale: Expanding regional coverage ensures that the unique challenges and opportunities in different agricultural zones are addressed, leading to more inclusive and practical policy recommendations (Sundaram & Patel, 2019).

Recommendation: Research should specifically include the perspectives and challenges marginalised groups face, such as women farmers, smallholder farmers, and landless labourers. Studies should employ gender-sensitive and socio-economic stratification methods to capture the diverse experiences within the agricultural community.

Rationale: Including marginalized groups in research helps develop equitable policies that address the specific needs of these vulnerable populations, thereby promoting social justice and reducing inequality (Agarwal, 2020).

Conducting Longitudinal Studies

Recommendation: Future research should adopt longitudinal study designs that track changes over time, allowing for analysing trends and long-term impacts of agricultural policies. This

approach would provide deeper insights into how farmers adapt to reforms, the sustainability of income improvements, and the evolution of market conditions.

Rationale: Longitudinal studies are essential for understanding the dynamic nature of agricultural practices and the long-term effects of policy interventions, which are often missed in cross-sectional studies (Bellemare & Bloem, 2020).

Integrating Environmental and Climate Factors

Recommendation: Research should integrate environmental and climate-related factors, such as climate change, water availability, and soil health, into the analysis of agricultural reforms. This could involve interdisciplinary studies that combine environmental science with agricultural economics and policy analysis.

Rationale: Considering environmental factors is critical for ensuring that agricultural policies are sustainable and resilient to climate variability, supporting long-term agricultural productivity and farmer livelihoods (Das & Dutta, 2018).

Addressing Technological Disparities

Recommendation: Future research should investigate the technological disparities among farmers, focusing on access to digital tools, internet connectivity, and modern farming equipment. Studies should explore ways to bridge the digital divide, particularly for smallholder farmers and those in remote areas.

Rationale: Addressing technological disparities ensures that all farmers can benefit from technological advancements crucial for increasing productivity and market access in a rapidly digitizing economy (Saravanan & Suchiradipta, 2018).

Analyzing Market Dynamics and Global Influence

Recommendation: Research should delve deeper into the complexities of market dynamics, including global market influences, price volatility, and the role of intermediaries. This could involve comparative studies that examine how different market structures impact farmers' income and resilience.

Rationale: A thorough understanding of market dynamics is necessary for developing policies that enhance market efficiency and stability, ensuring that farmers can secure fair prices for their produce (Rastogi & Dutta, 2015).

Exploring Ethical and Social Justice Dimensions

Recommendation: Future research should explore the ethical and social justice dimensions of agricultural reforms, mainly focusing on land rights, equity, and the fair distribution of benefits among different socio-economic groups. This could involve participatory research methods that engage farmers and other stakeholders in the research process.

Rationale: Incorporating ethical and social justice considerations into agricultural research ensures that policies are economically beneficial and socially equitable, protecting the rights and livelihoods of marginalized communities (Sen, 2009).

Developing Case Studies on Successful Policy Interventions

Recommendation: Future research should document and analyze case studies of successful policy interventions and agricultural practices from various regions within India and internationally. These case studies should highlight best practices, challenges, and lessons learned.

Rationale: Case studies provide valuable insights into what works in different contexts, offering practical examples that can inform policy development and implementation in other regions or under similar circumstances (Krishnamurthy, 2021).

Focusing on Interdisciplinary Approaches

Recommendation: Encourage interdisciplinary research that combines insights from economics, sociology, environmental science, and technology to provide a holistic view of the agricultural sector. This approach should integrate various perspectives and methodologies to address complex agricultural challenges comprehensively.

Rationale: Interdisciplinary research allows for a more nuanced understanding of the multifaceted nature of agricultural issues, leading to more robust and comprehensive policy solutions (Sundaram & Patel, 2019).

Research scholars and policymakers could take into consideration these recommendations for future research, which can help in developing an all-inclusive and context-specific understanding of the farm sector, leading to effective and equitable reforms.

6.4 Conclusion

This study has provided a comprehensive analysis of the 2020 Farm Laws and their potential impact on the agricultural sector in India. By examining the socio-economic conditions of farmers, the evolving regulatory landscape, and the broader implications of these reforms, the research highlights both the opportunities and challenges presented by these legislative changes. While the laws aimed to modernize the agricultural sector, enhance market access, and attract private investment, the findings underscore the complexities and controversies accompanying such large-scale reforms.

The quantitative results revealed that most farmers in India, particularly those within the 31-45 age group, continue to rely heavily on agriculture as their primary source of livelihood. Despite some interest in diversifying income streams, financial barriers, infrastructure challenges, and dissatisfaction with crop prices remain significant concerns. Implementing the 2020 Farm Laws was met with mixed reactions, with many farmers fearing exploitation, particularly in the absence of explicit guarantees for the Minimum Support Price (MSP) system. The findings highlighted the need for reforms that balance market liberalization with safeguards for small-scale farmers and ensure that technological advancements are integrated equitably into farming practices.

The qualitative results further emphasized the concerns raised by farmers regarding the lack of legal clarity and the erosion of the MSP system. The opposition to these laws reflects the fears of smallholders who worry that their bargaining power will be undermined in an open market dominated by large agribusinesses. Additionally, concerns about dismantling the Agricultural Produce Market Committees (APMCs) and introducing contract farming were raised, pointing to the need for more robust dispute resolution mechanisms and greater transparency in policy implementation.

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APPENDIX A:

QUESTIONNAIRE

The repealed Farm laws

The Laws in question are

the Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act (FPTCA), 2020;

the Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm

Services Act (FAPAFSA), 2020, and

the Essential Commodities (Amendment) Act (ECA), 2020.

Questionnaire for FPOs/Coop Manager

Name of the Organisation

Address

Contact Person details

Legally Registered as

☐ Society

☐ Company

☐ Trust

☐ Coop

☐ Others (pl elaborate)

Formation Date

Officer Bearers/Board members

1

2

3

4

5

Manager/CEO Name:

Manager/CEO Qualification :

Manager /CEO Tenure in Organisation

I. Memberssship details

No of Members

Annual Membership fees, if any

Joining fees if any

Break up Gender-wise

☐ Men

☐ Women

Average Land-holding of members (acre)

Irrigated/rainfed area

No of Crops in a year taken in the area

1. Who undertakes activities like, land preparation, planting, weeding , harvesting etc

a. farmers themselves

b. Farmers and labour

c. Labour only

2. Wage for hired workers in your region

☐ Minimum wage prescribed ,

☐ less than minimum

☐ more than minimum

3. How do you plan activities in your FPO/Cooperative Society

☐ Quarterly

☐ Seasonal

☐ Yearly

4. Do you have a 5 year plan for the FPO

☐ Yes/

☐ No

5. Do you have standard operating practice

☐ Yes/

☐ No

6. Do you have record for individual members for 5 years

☐ Yes

☐ no

7. How do you collect data

- ☐ Digital
- ☐ Manual

8. Do you interact with Government agencies

- ☐ Yes
- ☐ no

9. Reasons for your interaction with govt agencies

- ☐ Policy
- ☐ Funds
- ☐ Impediments
- ☐ Networking
- ☐ Training/awareness
- ☐ Information
- ☐ Avail benefits of schemes
- ☐ Others

10. How often do you provide information to member about Government schemes and farm laws and implications

- ☐ Regular interval
- ☐ Sporadic
- ☐ never

11. Frequency of your interaction with govt machinery

- ☐ Fortnightly
- ☐ Monthly
- ☐ Quarterly
- ☐ Never

12. Do you have adequate warehousing and storage capacity in your area

- ☐ Yes
- ☐ No
- ☐ Partially functional
- ☐ Available but not suitable
- ☐ Available but not affordable

13. Who are the clients of the produce of your members

- ☐ Local trader
- ☐ Adhatiya (middleman)
- ☐ Big trader in APMC
- ☐ Government
- ☐ Company
- ☐ Others

14. Are there processing units in your area for your members produce

- ☐ Yes
- ☐ No
- ☐ Yes but they are inadequate

- ☐ Yes , ut they are not functional
- ☐ No, but new one is being set up
- ☐ Yes, but that is captive for a company

15. Is govt machinery responsive

- ☐ Sometimes
- ☐ Always
- ☐ Never

16. How frequently do you need intervention from the govt

- ☐ Never
- ☐ Sometimes
- ☐ Always

17. Are your members aware of the controversies related to 3 farm laws

- ☐ Some
- ☐ None
- ☐ All

18. What is the opinion of farmers for 3 farm laws

- ☐ Some support
- ☐ Some oppose
- ☐ Need more information

19. What is your view on farm laws

- ☐ They are beneficial
- ☐ They are against the interest of farmers
- ☐ Neutral

20. What are the problems faced by your members

- ☐ Storage
- ☐ Marketing
- ☐ Pricing
- ☐ Input cost and availability
- ☐ Water availability
- ☐ Electricity availability
- ☐ Subsidies
- ☐ Awareness and Training
- ☐ Processing
- ☐ Distance to mandis
- ☐ Government support

21. Which areas need to improve to support your members

- ☐ Logistics
- ☐ Warehousing
- ☐ Marketing
- ☐ MSP/Subsidies
- ☐ Credit (loans)
- ☐ Awareness/TRaining

22. The 3 farms laws will benefit the members for

- ☐ Better realisation of crop value
- ☐ Better logistics and transport
- ☐ Better availability of network
- ☐ Better availability of information/support

23. What would be your suggestion to the government for farm regulations

- ☐ Bring them back
- ☐ Modify and bring them back
- ☐ No need for them

24. Are your members aware of the indirect benefits to farmers given by the government

e.g.

- ☐ Interest subvention
- ☐ Fertilizer subsidy
- ☐ MSP
- ☐ No income tax on Agri income
- ☐ Concessional rate for Electricity

25. Do you think that the indirect benefits help the farmers or should there be change

- ☐ They are helpful and continue
- ☐ They are not helpful as others corner benefits
- ☐ They must be tweaked to give maximum benefits to farmers
- ☐ They must be abolished and direct benefits be given to farmers
- ☐ No opinion

26. Do direct benefits scheme help your farmer members

- ☐ Yes, it stops leakages in the system and farmers get their due
- ☐ No, they just splurge the money
- ☐ Somewhat

27. On a scale of 1 to 10, how important is the role of FPO for the farmer?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10

28. on a scale of 1 to 10, how important is the role of FPO for you?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7

- ☐ 8
- ☐ 9
- ☐ 10

29. On a scale of 1 to 10, how important is the role of FPO for the government?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10

30. On a scale of 1 to 10, how important is the role of FPO for the society?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10

31. FPOs should be actively involves in any government policy decisions.

- ☐ Strongly agree
- ☐ Somewhat Agree
- ☐ Neutral
- ☐ Somewhat disagree
- ☐ Strongly disagree

32. Farm laws are effective only when we have a central network to reach out to each and every farmer

- ☐ Strongly agree
- ☐ Somewhat Agree
- ☐ Neutral
- ☐ Somewhat disagree
- ☐ Strongly disagree

33. The protest about the farm laws were supported by FPOs

- ☐ Strongly agree
- ☐ Somewhat Agree
- ☐ Neutral
- ☐ Somewhat disagree
- ☐ Strongly disagree

34. Local community and political leaders control FPOs strongly

- ☐ Strongly agree
- ☐ Somewhat Agree
- ☐ Neutral
- ☐ Somewhat disagree
- ☐ Strongly disagree

35. Local political leaders are not always supporting central government schemes for farmers

- ☐ Strongly agree
- ☐ Somewhat Agree
- ☐ Neutral
- ☐ Somewhat disagree
- ☐ Strongly disagree

APPENDIX B:

INFORMED CONSENT

Research Title: Farm laws in India: Reasoning, Consequences, and Way ahead for Agricultural Reforms

Principal Investigator: My name is Arun Raste. I am a DBA learner at SSBM GENEVA. I am conducting a study and you are invited to participate.

Purpose of the Study:

An academic survey is being conducted by me to gauge the opinion of Indian farmers and stakeholders on issues related to farming and the repealed farm laws of 2020-21. For this exercise, I will be interviewing farmers and stakeholders across the country. This survey is an independent study and is not linked to any political party or government agency.

Procedures:

During this survey, I will ask you a series of questions related to your farming practices, your views on the repealed farm laws, and your general experiences in the agricultural sector. The interview will take approximately 40 to 50 minutes to complete. Participation in this survey is entirely voluntary, and you may choose to answer or not answer any questions asked. Your participation is crucial for gathering valuable insights, and the findings of this survey will be used for a research paper and may also be used in articles published in various journals.

Confidentiality:

All information you provide will be kept confidential and used solely for academic purposes. Your responses will be anonymized to ensure that no personally identifiable information is

included in the study's results. The data will be securely stored and accessed only by the researcher and authorized personnel.

Potential Risks and Benefits:

There are no significant risks associated with participating in this study. Your participation will contribute to valuable insights into improving health insurance marketing strategies, which may ultimately benefit consumers and the industry.

Consent Statement:

By signing below, you confirm that you have read and understood the information provided above. You consent to participate in this study and allow the researcher to use your responses for academic purposes.

Participant's Name: _____

Participant's Signature: _____

Date: _____

Researcher's Signature: _____

Date: _____