



The Social Science Review
A Multidisciplinary Journal
ISSN: 2584 – 0789

(Open Access, Peer-Reviewed, Refereed, Bi-Monthly Journal)
www.tsreview.in

CROP DIVERSIFICATION: CONCEPT, TYPES, NEED AND GOVT. POLICIES

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Abstract

Even after 75 years of India's Independence, its economy is still now agrarian in nature. More than half of its populations are still now dependent on the growth of agricultural sector for their livelihood. But the growth of cultivable land reaches to its saturation level. Further due to urbanization and climate change growth of primary sector become more vulnerable. At these situation economists suggests the crop diversification to improve the growth rate of the primary sector as well as to reduce the vulnerability of climate change. What is the meaning of crop diversification and why we need the diversification are explained here with the help of existing literature.

Keywords: *Crop diversification, Cropping pattern, Factors, High value crops*

Introduction

The idea of Crop diversification is not a new one. But now climate change, global warming, urbanization, water scarcity etc. has created a huge problem in agricultural production and productivity which has ultimately threaten our food security. Not only that, since the Green Revolution, the production of excessive food crops has reduced the productivity of the land, and the profitability of agriculture has also declined due to mono-cropping. The only way to get rid of this problem is diversification of cropping pattern. India is a country of 1.4 billion people with nearly 20 million people live below the poverty line. If food security is threatened here, many people will suffer from famine. India has one of the largest developing economies in the world. Here are the greatest concentrations of natural resources, and a sizable section of the population makes their living from agriculture. Our economy is based primarily on agriculture. India's population, as per the 2011 Census, is 121.0 crore out of which 67% make their living either directly or indirectly from agriculture. Approximately 55% of all workers in the country are employed by it. The production of food and a significant increase in the production of fruits, vegetables and dairy products to meet the requirements of the population ensures the food security of the country. Agriculture also has a significant impact on the growth of trade, transport and other sectors. It has played a very important role in Indian and international trade. It has been demonstrated that inadequate agricultural growth has a number of detrimental repercussions on the economy, such as price hikes and farmer suffering (Economic Survey, GOI, 2018). Despite agriculture contributes significantly to the Indian economy, farmers and workers are becoming disappointed with this sector as a result of the

perception that it is an unsustainable and unproductive occupation. The expansion of cultivable land for increased agricultural employment and income in India has been restricted since the 1970s. The Green Revolution technology, which initially boosted crop yields, faced diminishing returns after the 1980s due to environmental problems, reaching a saturation point. Climate change and unpredictable weather further threaten agricultural development. The issues of diminishing crop yields, increased agricultural risks decreasing fertility of soil, and deterioration of the environment cannot be resolved only by agricultural technological developments. This poses a risk to societal goals of improving food, economic, and nutrition security, essential for a sustainable farming system. To prepare for impending issues, there is a crucial need for a significant overhaul of the agricultural sector by the state. A key factor in promoting agricultural development is agricultural diversification, defined as a shift toward cultivating high-value crops. A key factor in promoting agricultural development is agricultural diversification, defined as a shift toward cultivating high-value crops. While not a new strategy, climate change has increased its importance, as it mitigates risks associated with agriculture, improves soil fertility, ensures food security, generates employment, and enhances farm profitability. Implementing crop diversification through techniques like rotation and intercropping can help households overcome these challenges. One of the most affordable, effective, and well-balanced strategies for minimizing agricultural volatility is believed to be crop diversification. Crop diversity is the best strategy for attaining important social goals involving high agricultural production, farm revenue, and food security. Additionally, it plays a crucial role in pest and disease management in crops, significantly lowering the likelihood of complete crop failure. Beyond boosting output and income, crop diversity directly impacts food availability and nutrition, thereby increasing household purchasing power.

The term "cropping pattern" denotes how various crops are cultivated in a specific area, representing the distribution of cultivated land for different crops over a given time period in a particular geographical region. A change in cropping patterns signifies alterations in the proportion of land allocated to different crops between two periods due to crop substitutions and the introduction of new crops. This shift reflects economic and structural changes within the economy. In recent times, there has been a growing interest in sustainable agriculture. In contemporary discussions, there has been an upsurge in theoretical debates and policy considerations regarding agricultural diversification as a distinct form of agricultural development. It is now widely recognized that promoting agricultural diversification can significantly enhance both agricultural employment and income. In rural areas where agriculture is the main source of livelihood, diversification can also contribute to reducing poverty levels. Since the early 1980s, agricultural systems in many Southeast Asian regions have moved away from monocultures of rice or cereal-based systems towards more lucrative non-cereal crops (Joshi et al., 2004). Simultaneously, governmental initiatives in India to encourage agricultural diversification in various regions commenced around 1983–84. Post this period, there was a decline in India's cereal acreage, as reported by Chand et al. (2008).

Agricultural Diversification

In addition to economic expansion, Rosegrant and Hazell (1999) define agricultural diversification as the process of gradually shifting resources away from conventional farming practices to diverse, market-driven production systems. This transformation driven by better rural infrastructure and quick technological advancements in agricultural production systems—especially in the production of staple crops. The broadening of income sources for rural households' is a key aspect of agricultural diversification. Consequently, it is linked to growing commercialization and structural changes in the economy, wherein the GDP share of the agricultural sector decreases. In addition to cultivating new crops, this process involves the development of new marketing and agro-food-related industrial activities that impact the entire rural economy (Goletti et al., 1998; Francesco, 1999). Crop diversification, a subset of agricultural diversification, involves reallocating a farm's productive resources, such as land, money, labor, and machinery, into different agricultural pursuits. By providing practical options for growing

various crops, crop diversification enables the efficient use of agricultural resources and is considered a risk management strategy under unpredictable conditions. The variation in crop diversity across regions is influenced by agro-climatic conditions, resource endowments, and infrastructure.

The concept of agricultural diversification is somewhat unclear, as it involves the transfer of resources from less profitable to more lucrative crop production when diversifying production. Expanding the area where high-value crops are grown is one aspect of it. This ambiguity could be addressed by distinguishing between diversification at the regional or community level and diversity at the farm level.

Types of Diversification

In India, two main forms of agricultural diversification are prevalent.

- i) Horizontal diversification involves cultivating multiple crops instead of focusing on just one. Horizontal diversification is very beneficial to small farmers with small holdings of land. They are able to raise cropping intensity and boost their income.
- ii) Vertical diversification entails the integration of diverse crops with industrialization. Farmers engage in activities such as horticulture, agro-forestry, livestock ranching, and the cultivation of fragrant herbs as part of this diversification approach.

Rationale for agricultural diversification

The necessity for diversification arose when excessive emphasis was placed on the production of staple food grains through the use of Green Revolution technology in agriculture in South East Asian countries throughout the 1980s. The price of rice was going down which prompted a shift in crop patterns towards more lucrative commodities, was considered a preferable alternative (World Bank, 1988). Diversification was deemed essential towards high value food products for the growth and development of the agricultural sector (Rosegrant and Hazel, 2000; DFID, 2002). Additionally, agricultural diversification was perceived as an instrument for the structural transformation of developing countries (Vyas, 1996).

Agricultural diversification plays a crucial role in alleviating rural poverty by creating employment opportunities for small and marginal farmers, thereby augmenting their income flow (Vyas, 1996; Barghouti et al., 2007). The rationale behind agricultural diversification is multifaceted, which can be viewed from (i) country-level (stimulation of agricultural growth), (ii) regional-level (mitigation of negative externalities resulting from mono-cropping), (iii) farm-level (generating income and job), and (iv) resource-level (preservation and improvement of the natural resource base, particularly land and water).

In the context of a developing country like India, agricultural diversification can address issues of seasonal unemployment or underemployment. Studies by Reddy (1991) and Joshi et al. (2002) have demonstrated that the crop diversification can lead to a rise in employment in rural areas. They argue that cultivating labor-intensive crops such as potatoes, vegetables, cabbage, and fruits can provide more employment opportunities than traditional crops like paddy and wheat. The impact of diversification was also quantified by Dolan and Sorby (2002), Athurkola and Sen (1998), Benzinger (1996), and Joachim Von Braun (1995). They argued that diversification alters the character of work in addition to increasing the level of employment. Vyas (1996) highlights the importance of creating agriculture-related industrial jobs for the modern youth.

Moreover, diversification of agriculture also serves as a tool for risk management, particularly for the small farmers who are generally risk averse. They are largely happy with their ability to produce enough food grains on their own. They never take a chance. But they require cash flow. By diversifying their agricultural activities, these farmers can reduce risks and fulfill their cash flow needs.

However, there is a contentious debate in the literature regarding whether small and marginal landholders can effectively diversify their production from cereals to high-value commodities due to their small scale of operation (Dorjee et al., 2007). Despite having abundant family labor, these farmers also deal with a lot of obstacles, as stated in the following lists: a) Market risk; b) Limited loan availability; and c) Inadequate information and d) technology. All these hurdles put them at a disadvantage group in compare to larger farmers (Minot and Roy, 2006).

Factors determining the pace and degree of diversification

In existing literature, efforts have been made to identify the factors affecting the extent and speed of agricultural diversification. The agro-economic status of a region, as noted by Vyas in 1996, significantly shapes the diversification of its agriculture. These influencing factors have the potential to impact agricultural diversification at different levels, including the national, state, and farm levels. While there are conflicting findings regarding the role of small landowners and specific infrastructure elements like irrigation and transportation in agricultural diversification, the majority of studies suggest that small landowners tend to benefit from cultivating high-value commodities such as labor-intensive crops (e.g., vegetables and fruits) and display a preference for diversification, (Joshi et al. 2007).

Agricultural diversity is shaped by factors on both the supply and demand sides. The growing demand for high-value agricultural products is linked to increasing income levels and urbanization (Joshi et al. 2004, Rao et al. 2007). The market, technology, and roads in particular have all been identified as supply-side variables (Joshi et al. 2004, 2007). Infrastructure, technology, and institutional factors are identified as significant non-price variables that encourage the cultivation of high-value crops on a larger scale. The adoption of modern technologies in agricultural production, better infrastructure in rural areas, and various kinds of food requirements have all contributed to agricultural diversification (Rosegrant and Hazel, 2000).

Demand side factors

It is believed that the two demand-side factors that have the most effects on agricultural diversification are urbanization and the increase in per capita income. Urbanization contributes to a shift in dietary preferences, leading to a heightened consumption of high-value agricultural goods. Simultaneously, a surge in per capita income amplifies demand by empowering individuals with greater purchasing capacity. According to research conducted in India, these two demand-side factors are crucial for agricultural diversification (Joshi et al. 2007, Rao et al. 2007).

Supply side factors

On the supply side, variations in agricultural diversity across regions are attributed to discrepancies in technological and infrastructural development. These factors are recognized as key determinants influencing agricultural diversity at the supply side.

Technology

Advancements in technology, increased utilization of chemical fertilizers, the application of pesticides and insecticides for pest management, the adoption of High Yielding Variety (HYV) seeds, and the implementation of irrigation represent various aspects of the ongoing mechanization in agriculture. Furthermore, farm mechanization has had a big influence on agricultural diversity. The incorporation of modern production methods has greatly assisted farmers in optimizing local advantages stemming from diverse factors such as climatic conditions, soil types, affordable labor, and the skills of the workforce. Among the technological factors influencing agricultural diversification, irrigation emerges as the most influential. It is crucial to note that the widespread adoption of diversification depends heavily on the availability of irrigation facilities (Dorjee et al., 2007). In the context of Indian agriculture, irrigation has played a pivotal role in shaping crop diversification, (Vyas 1996). Numerous research (Chand and

Chouhan, 2002; De, 2003; Sharma, 2005; Kumar et al., 2012; Mandal and Bezbaruah, 2013) have demonstrated that irrigation affects the Simpson's index of diversity and increases the area under food grain crops like fruits and vegetables.

Infrastructure

Infrastructure such as roads, market access, market networks, different forms of transportation, communication systems, and much more connect rural communities to urban marketplaces and even interstates. The extent of agricultural diversification is undeniably influenced by the growth of infrastructure and enhanced access to markets. Investment in rural infrastructure and market access has been identified as one of the six components of improved crop diversification (Pingali & Rosegrant, 1995). Delgado (1995) stresses the importance of reducing resource and product transaction costs between regions to encourage extensive diversification, advocating for a robust transportation and communication system. Delgado and Siamwalla (1997) and Barghouti et al. (2007) further emphasize the necessity of a well-developed infrastructure to overcome barriers preventing small and marginal farmers from engaging in agricultural diversification. Particularly for perishable products, the construction of roads and expansion of market access are identified as key drivers in the shift towards producing high-value agricultural commodities. Establishing a link between agricultural producers and consumers, while enabling small farmers to participate in diversification, significantly reduces both transit costs and transaction expenses. Various studies conducted in India, (Joshi et al., 2007; Sharma, 2005; Kumar et al., 2012) consistently reveal a strong association between increased road connectivity and market access, leading to agricultural crop diversification in favor of high-value commodities.

Institutional factors

Institutional credit and agricultural production inputs have a greater impact on agricultural producers' cropping selections than other factors when it comes to agricultural diversification (Vyas, 1996). Both positive and negative effects of institutional factors exist on agricultural diversification in the direction of high-value crops. The Simpson index indicates that the more institutional funding employed in agriculture, the more diverse the sector will become (Jha et al., 2009). The small landowners have little or no access to institutional finance, so they are forced to borrow money at excessive high interest rates from informal lenders. Village moneylenders supply forty percent of the credit they require (Rao and Tripathy, 2001). However, research by Sharma (2005) and Kumar (2012) suggests that while credit plays a role, it only marginally contributes to driving agricultural diversification toward high-value crops.

Size of landholding

The primary focus should be on addressing the issue of diversification among marginal and small landowners. Research in India indicates that small landowners are more inclined to engage in agricultural diversification, particularly towards high-value products like vegetables (Joshi et al., 2007; Rao et al., 2007). They have also been observed to allocate a larger percentage of their land to high-value agricultural crops compared to larger farmers (Birthal et al., 2008).

Several national studies in the agriculture sector also clearly show a relationship between farm size and the cost of diversification (Birthal et al. 2007, Jha et al 2009). Small landowners may face various obstacles that hinder their opportunities and initiatives in agricultural diversification, possibly explaining their lower interest compared to larger farmers. In contrast to their larger counterparts, small and marginal farmers show less interest in diversifying towards fruit production due to the sector's higher capital investment and longer gestation period (Birthal et al., 2007; Birthal et al., 2008).

The 2000–2001 agricultural census in India reveals that small farmers with 2 hectares or less of land constitute 81.9% of the nation's total land holdings. These farmers encounter challenges such as limited land for their food grain needs, limited access to credit, lack of market knowledge and technological expertise, and higher transportation costs when selling their limited surplus in distant urban markets

(Birthal et al., 2005). Additionally, small farmers are observed to be risk-averse, as fruit production involves more hazards than food grain production. Consequently, small farmers in North-Western India exhibit less interest in agricultural diversification compared to large and medium farmers (Jha et al., 2009). Variations in regional agro-climates and soil conditions are also found to have a substantial influence on the pattern of agricultural diversification (Walker et al., 1983). A farm's ability to diversify is heavily dependent on its resource base, including the quantity and quality of land, irrigation systems, availability of draught power, and the farm's family labor (Jha et al., 2009). However, there are contradictory results regarding the relationship between agricultural diversification and farm size. While Singh et al. (1985) demonstrate an adverse relationship at the micro level, Mondal and Bazbaruah's (2013) study in the Assamese floodplains shows a positive relationship.

Studies relating to factors influencing the agricultural area, production and productivity

Balishter et al. (1985) investigated agricultural diversification in the Agra district of Uttar Pradesh by collecting primary data from 42 sample villages, chosen through a stratified random sampling process based on farm size (small, medium, and large categories). The study compared data from the years 1961-1962 and 1983-1984. Using Herfindahl Index, Simpson Index, and Entropy Index, the researchers found that the average farm size decreased for large and medium farmers but increased for small farmers, attributing this change to income growth resulting from diversification. Factors influencing diversification included the introduction of new farm technology, adoption of high-yielding seed varieties, transportation, per capita income, and regulated markets.

Thovre and Galgalikar (1985) used Herfindahl index, the index of maximum proportion, and modified entropy index to study farming diversification, particularly incorporating dairy enterprises. They noted India's crop production dependence on factors like monsoons, price incentives, fertilizer subsidies, and effective marketing, causing a risky, irregular income. To address this, they proposed integrating enterprises for a consistent income. Dairy animals, as per the researchers, offer steady, three-dimensional benefits—quick, regular, and cash returns. Regardless of holding size, return on investment ranged from 35% to 64% without milch cattle and it was increase upto 80% with milch cattle. Mixed farming significantly boosting farmers' income.

Taur (1992) examined agricultural diversification in each U.S. state. He had measured diversification for 1988 by using indices like Simpson, entropy, and Herfindahl. These indices assessed the number of crops and uniformity of production in each state. Ranking changed based on the number of commodities and uniformity of production. California and Alaska were most and least diversified by the number of commodities, while Vermont was least diversified by uniformity. From 1960 to 1988, annual indices indicated New York was consistently the least diversified compared to Iowa

Chandrasekhar (1993) explored transformations in West Bengal's agricultural sector and the shift from farm to non-farm employment, examining its role in rural development. Drawing on the quinquennial employment survey of the NSSO, he observed a rise in non-agricultural activities in rural India, driven by agricultural growth, especially post the green revolution. This analysis, encompassing India overall and specifically West Bengal, demonstrated that the observed occupational diversification in rural India wasn't indicative of a decline in rural dynamism post the green revolution but rather reflected the prolonged impact of the process, even after twenty-five years.

Shah, Amita (1997) in her paper "Food Security and Access to Natural Assets: A Review of Recent Trends," examined shifts in the country's food grain production. She found that, across most states, including arid regions, yield-based food production increased, and diversification occurred prior to liberalization. Shah stressed the significance of transitioning from oilseed to food grain production for the economic viability of dry land farming. Despite a marginal decrease in the area under food grain crops

post-liberalization, the trend was not consistent across crops and regions. Per capita food grain availability continued to grow or fluctuate pre-liberalization.

Shiyani and Pandya (1998) assessed crop diversification in Gujarat's diverse agro-climatic zones over an extended period. They noted a shift from subsistence to commercial crops, with varying growth rates across crops like Tur, Castor, Rapeseed, Mustard, Sugarcane, Maize, wheat, where as compound growth rate of acreage was negative for pearl millet, jowar, and cotton. The study recommended establishing agro-processing industries, enhancing infrastructure, implementing crop protection measures, constructing and maintaining irrigation works, prioritizing research, and distributing quality seeds based on crop patterns and regional farmer needs.

Chand and Haque (1998) discussed the detrimental impacts of the rice-wheat rotation system in the Indo-Gangetic region post the green revolution. They emphasized issues like water logging, soil salinity, and the overexploitation of natural resources during the post-green revolution. The short interval between rice and wheat rotations hindered land preparation and input use, reducing yields. Addressing these challenges in the East Indo-Gangetic region requires developing human resources, technological advancements, and improved managerial expertise for timely research, training, and better agricultural operations, input utilization, and natural resource conservation to solve low productivity problems and Rice-wheat cropping system yield instability.

Bhaumik (2007) used the Probit Regression Model to analyze occupational diversification among rural workers in West Bengal. The study found that 54% and 62% of the rural workforce in advanced and backward regions, respectively, were engaged in the farm sector. About one-eighth of the total workforce operated in both farm and non-farm sectors, termed as 'multi-active.' Notably, three-fourths of farm workers were self-employed, while one-third worked as wage laborers. The non-farm sector demonstrated greater potential for employment and higher earnings. Recommendations included policies to develop the non-farm sector for poverty reduction. Education, younger age, higher caste, lower operational area, and lower land-man ratio increased the likelihood of obtaining non-farm employment. The study concluded that individuals with higher education and training were less inclined towards agricultural jobs.

Sharma(2007) conducted an investigation into the crop diversification process in Himachal Pradesh, initiated in the 1960s for apples and the 1980s for vegetables. Farmers, including small and marginal ones, adopted high-value cash crops like ginger, cauliflower, garlic, peas, tomato, and cabbage, resulting in substantial increases in employment opportunities and income. Factor analysis identified factors like a robust market in neighboring countries, basic infrastructure, high price responsiveness of products, and diverse self-help groups as positive influences on crop diversification. Regression analysis highlighted the pivotal roles of road length and bank branches in driving crop diversification. Sharma also underscored issues from advanced-stage diversification, such as diminished soil fertility, environmental impact, biodiversity reduction, and health hazards due to prolonged chemical fertilizer use. Addressing these challenges is crucial for ensuring the ecological sustainability and economic viability of high-value cash crops, but obstacles include inadequate infrastructure, aging apple plantations, irrigation shortages, and climate change.

Raju and Chand (2007) explored the impact of government-initiated insurance schemes on farmers' well-being, discovering that despite the schemes, actual benefits didn't effectively reach farmers. This resulted in low coverage, dissuading farmers from taking risks and leaving them reliant on nature. The authors urged the government to introduce new efforts and a specific mechanism for broader farmer coverage, proposing private sector involvement for increased coverage and agricultural sector stability and diversity of the cropping pattern.

Bidyut Kumar Ghosh (2011) conducted research on factors influencing cropping pattern variations in India, revealing a predominance of food grains in land allocation. The study concluded that Institutional and Technological Changes (ITC) primarily influence agricultural crop cultivation.

S. Pal and S. Kar (2012) used secondary data to examine crop diversification in different blocks of Malda district, West Bengal and compared district and state-level status. They observed concentration on a few crops like paddy (Boro & Aman), potato, and master seeds. While patterns of changes in crop diversification were similar for the state and the district, Malda district consistently outperformed the state. Various indices, including Herfindahl, Simpson, Gini's coefficient, Entropy, Modified Entropy, Ogive, and Entropy and Berry's measures, were employed to establish this. The study suggested that small farmers, unable to increase income solely by raising yields, actively adopt crop diversification. However, it found that poor farmers still tend to stick to mono or duo cropping cycles. Urban and suburban areas, due to market proximity, exhibited higher levels of crop diversification compared to rural poor farmers. Notably, the master seed, high-value crops, lost priority between 2001 and 2008, with farmers adopting uniform crop cultivation and close rotation. The study emphasized that changes in cropping patterns in the region were not substantial. The poverty of the farmers was the main obstacle for diversification. The authors recommended government support to increase crop diversification and the development of the agricultural allied economy.

Dasgupta and Bhoumik (2014) conducted a study on crop diversification in West Bengal from 1980—81 to 2009—10 and examined the impact of crop diversification on agricultural output growth and factors influencing changes in cropping patterns. Using secondary data, they divided the period into two sub-periods, 1980—81 to 1994—95 and 1995—96 to 2009—10, to assess the impact of globalization. The Herfindahl Index was calculated for the entire period, indicating an increase in the cultivation area for Boro Rice, potato, and mustard seed, while Aman, Aus, pulses, sugarcane, and jute decreased. The rate of diversification, as measured by the Herfindahl Index, varied in the two sub-periods, slowing down after 2000-01 and almost stagnating after 2007—08. The authors identified the yield effect as the primary driver of crop diversification, with small farm size playing a significant role. While the adoption of crop diversification was linked to the high demand for high-value crops and the cash requirements of farmer families, the authors stressed that successful diversification requires better infrastructure and technological support, particularly in irrigation. However, they noted a decline in the diversification process after 2000-01, particularly after 2005-06, due to insufficient irrigation expansion.

Aheibam et al. (2017) investigated crop diversification influencing factors in Manipur's Ukhrul district. They analyzed social factors (family size, gender, age, knowledge, dependency ratio, training participation), economic factors (plough and machinery access, access to hired labor, improved seed), and agronomic factors (farm size, fertilizer, tillage) on the degree of cropping pattern diversification. Using the Simpson Index and Heckman two-stage model on primary field data, they found positive influences on diversification from education, farming experience, plough access, fertilizer, irrigation, training participation, and market proximity. Conversely, farm size, hired labor, gender, age, family size, dependency ratio, machinery access, and modern seed availability showed non-significant impact on crop diversification in the region.

Policy Implication

We can infer from the aforementioned study that policies are necessary to encourage crop variety. The argument put up by most academics supporting agricultural diversification toward high-value items is that it can improve the standard of living for small farmers by increasing their ability to invest, facilitating their access to markets, and reducing transaction costs. Furthermore, diversification can accelerate the expansion of the agriculture industry (Birthal et al., 2008). In regions where small farmers do not frequently use it, crop diversification can dramatically increase farmers' incomes (Mondal and Bezbaruah, 2013). Most studies have concentrated on enhancing public sector policies to increase farmers' access to loans and irrigation systems, as well as on building out infrastructure like communication networks and

roads. Furthermore, they need to be developed with attention for local uniqueness and variances (Sharma, 2005). Systems for delivering loans and inputs should be designed to meet the needs of small and marginal farmers (Vyas, 1996). But faster growth would free up more resources that might be utilized to promote and expedite agricultural diversification, hence the topic of raising food grain yield cannot be ignored (Vyas, 1996). Of course, the government has established boards, committees, and missions such as the National Horticulture Board (1984), National Horticulture Mission, and introduced several regulations, such as the Agricultural Produce Market Committee Act, in an effort to encourage agricultural diversification and remove obstacles that small and marginal farmers face when participating in agricultural diversification. Diminished import duties, corporation taxes, and excise taxes are among the fiscal incentives that are provided concurrently. Additionally, the state government developed a link between employment guarantee programs and horticulture output (Birthal et al., 2007). Adequate institutional and legal frameworks must be established in spite of the aforementioned rules in order to support contract farming and vertical integration (Vyas, 1996).

Conclusion

Based on the above discussion, we may conclude that crop diversification is crucial to the growth of our agricultural sector. Because, it reduces the threat of climate change while also assisting farmers to increase their income. Many farmers in India have already begun to switch to higher-value crops in their crop cycles. Various state programs have accelerated the shift in cropping patterns in favor of high-value crops, but the government has reduced its intervention since globalization. This is the issue that needs to be given more attention for the protection of small and marginal farmer and promotion of crop diversification.

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