REVIEW ARTICLE Agricultural Reviews, Volume 46 Issue 4: 671-675 (August 2025)

Farm Diversification Programmes in Haryana: A Review

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10.18805/ag.R-2646

ABSTRACT

The Green Revolution in the late 1960s enabled India to overcome a severe food shortage and achieve food grain self-sufficiency. Recent trends in crop farming witnessed a multifold shift towards paddy and wheat specialization in Haryana. The sustainability of the future agricultural production system in terms of soil, water, climate and market characteristics is threatened by continuous mono cropping of the rice-wheat cropping system. Increased rice-wheat mono cropping trend necessitates diversification on account of ecological concerns. So, farm diversification is an important strategy to maintain sustainability of the Haryana state agriculture. This article briefly discusses the various diversification initiatives performed in Haryana and their effects.

Key words: Farm Diversification, Impact, Programmes.

About 65 per cent of ground water in Haryana is of poor quality and the second generation problems of green revolution in the state have caused a steep decline in resource base, soil quality (soil compaction, soil salinity, sodicity, water logging and pesticide residue), soil organic carbon content and hydrological imbalance, that have increased the overall cost of cultivation. There is a remarkable increase in pollution of soil, water and environment in this state (Haryana Kisan Ayog Report, 2014). In order to manage the ecological constraints, farm diversification will be one of the suitable strategies for the state. Recent trends in crop farming witnessed a multifold shift towards paddy and wheat specialization in Haryana. So farm diversification is an important strategy to maintain sustainability of agriculture in the state (CRRID, 2017).

Schemes in Haryana primarily with the goal of farm diversification

Newly Implemented schemes in Haryana in connection with farm diversification

The Haryana government has launched the Meri Fasal Mera Byora (MFMB) Yojna on December, 2018 in an effort to improve the welfare of the farmers. The Haryana government offers a variety of services to farmers on a single window online portal through MFMB. The gateway was created to make sure that farmers received the benefits provided by the state government, such as insurance coverage, reimbursement for crop loss brought on by natural disasters and other financial aid under various programmes. Farmers register themselves on this portal giving details of their land and crops. The government will receive precise information about the name and area of the crops grown throughout the state through this site. It unites the departments of revenue, food and civil supplies, consumer affairs and agriculture and farmers' welfare on a single platform. Farmers are required to upload information on the crops they sowed in their fields to this portal at the Common Service Centers (CSCs) at their area (Phogat and Kumar, 2021).

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How to cite this article: Jose, E. and Ponnusamy, K. (2025). Farm Diversification Programmes in Haryana: A Review. *Agricultural Reviews*. **46(4):** 671-675. doi: 10.18805/ag.R-2646.

Submitted: 14-06-2023 **Accepted:** 13-02-2024 **Online:** 22-03-2024

The Haryana State Agricultural Marketing Board (HSAMB) and the Department of Food and Supplies of the Haryana government collaborated to create the "e-Kharid" portal (ekharid.nic.in) for giving farmers up-to-date information and prompt payment for their crops in the state of Haryana. By registering in this portal, the Haryana government has charged the State Agricultural Marketing Board with providing farmers the Minimum Support Price (MSP) for their products. Many farmers registered on the MFMB portal to sell their crops at MSP during the Rabi season, including wheat, mustard, gram and sunflower, according to the study. However, the e-Kharid portal revealed that only wheat is the one primary crop that farmers sell at MSP. Only few farmers sell their mustard crop harvest at MSP. No farmers went to the mandis to sell their remaining produce. It occurs as a result of the extremely low MSP that the government provides for these crops. As a result, in the 2020-21 period, farmers sell their commodities to private buyers for greater prices than the MSP (Phogat and Kumar, 2021).

As part of crop diversification, the government has launched a new programme to boost pulse and oilseed crops during *Kharif* 2022. In accordance with this plan, 70,000 acres will be dedicated to the promotion of pulse crops (green gram and pigeon pea) and 30,000 acres will be devoted to the promotion of oilseed crops (castor andgroundnut). Farmers raising pulses and oilseeds would receive financial assistance of Rs. 4,000 per acre (Millennium post, 2022).

The Haryana government, which is promoting the cultivation of indigenous cotton, will assist the farmers by providing an incentive of 3,000 rupees per acre (Manoj, 2022).

Crop Diversification Programme (CDP)

Since 2013-2014, the Department of Agriculture and Farmers Welfare (DA and FW) has been implementing the Crop Diversification Programme (CDP), a sub-scheme of the Rashtriya Krishi Vikas Yojana (RKVY), in the Original Green Revolution States of Haryana, Punjab and Western Uttar Pradesh. The goal of the CDP is to switch from the water-intensive paddy crop to alternative crops like pulses, oilseeds, coarse cereals and nutri cereals. From 2015-16, the CDP was expanded to include the diversification of tobacco crop in the ten states that produce tobacco: Andhra Pradesh, Bihar, Gujarat, Karnataka, Maharashtra, Odisha, Tamil Nadu, Telangana, Uttar Pradesh and West Bengal. Assistance is provided under CDP for the demonstration of alternative crops, agricultural mechanisation and value addition, site-specific initiatives and capacity building (PIB, 2022).

Mera Pani Meri Virasat (MPMV)

The government of Haryana has introduced the MPMV programme to replace paddy with maize, cotton, pearl millet and pulses on 1 lakh hectares in selected blocks with water tables higher than 40 metres. Additionally, the production of paddy would be prohibited in those areas where the groundwater level is higher than 35 metres. Ratia in the Fatehabad district, Siwan and Guhla in the Kaithal district, Pipli, Shahbad, Babain and Ismailabad in the Kurukshetra district and Sirsa in the Sirsa district are the blocks where the ground water table is greater than 40 metres. Thanesar and Pehoma in the Kurukshetra district as well as Fatehabad and Jakhal in the Fatehabad district, are the blocks where the water levels are above 35 meters. Farmers who diversified over 50 per cent of their paddy area for the kharif season (2019-20) will receive Rs. 7,000 per acre. Additionally, farmers will not be permitted to sow paddy in any new locations where it was not grown a year before. Farmers in the designated blocks who diversify more than 50 per cent of their paddy land will be eligible to sell the government all of their diversified crops at the MSP (Ministry of Jalshakti, GoI, 2020).

Bhavantar Bharpayee Yojana (BBY) scheme

The BBY scheme was introduced at Ganger village in the Karnal district on December 30, 2017. This program's primary goal is to guarantee fair pricing to farmers for their produce while placing an emphasis on crop diversity. Tomato, onion, potato and cauliflower have been included in the program's initial phase. For tomato and potato, compensation would be granted at a rate of Rs. 400 per quintal. Onions and cauliflower will receive Rs 500 per quintal, respectively. The government will make up the difference if the farmers receive less money for these vegetables than the regulated price. In order to safeguard the interests of farmers, Haryana is the first state in the nation to set minimum protected pricing for vegetables. It is necessary for the farmer to register with Bhavantar Bharpayee e-Portal during harvest in order to receive advantages under this programme (https://www.edristi.in/bhavantar-bharpayee-scheme/).

Crop Cluster Development Program (CCDP)

The CCDP - "Baagwani Villages" is a programme based on the creation of on-farm infrastructure necessary for organised marketing of Fresh Fruits and Vegetables (FFV) for Farmer Producer Organizations/Farmer Producer Companies. It will provide a full supply chain beginning with production and continuing through value addition until produce reaches the market. Small farmers, face difficulties as a result of the greater usage of quality standards because those standards sometimes call for higher investment that they may not be able to make or maintain. Since these small and marginal farmers are part of FPOs that are supported in the horticulture crop clusters in the State of Haryana, government intervention is necessary to invest and support them. Under this project, Horticulture Department had identified 140 potential horticulture clusters covering 340 Baagwani villages all across the state initially and now these clusters have been increased to 393 with 1763 villages (SFAC, 2018).

Jal Hi Jeevan Hai Scheme

The program's goal is to encourage farmers to diversify their crop rotation and to cultivate water-efficient crops like maize and pigeon pea in place of water-intensive ones like rice in order to save water. In accordance with the plan, Rs. 200 per acre will be deposited into farmers' accounts at the time of registration and the remaining Rs. 1800 will be added after the sowing data has been verified within two months. Under the plan, free hybrid seeds would also be made available. The State Government would entirely procure the diverse crops produced.

Impact studies of agricultural schemes in Haryana

Pulse promotion in Haryana- From secondary data covering the years 1970-1971 to 2016-2017, an analysis was made to determine the growth and trends in the area, production and productivity of pulses in Haryana in comparison to India. This demonstrates that while productivity growth trends were positive, the area and production growth trends in Haryana were not. However, in India, there are rising tendencies in the nation's output and productivity. In this study, it also discovered that, compared to the recommendations of the of nutrition, the daily intake of pulses was low in the state but positive growth trend was seen in export and import (Nimbrayan, 2019).

Mission for Integrated Development of Horticulture (MIDH)

To evaluate the effects of the MIDH scheme, a study was conducted among Kinnow fruit growers in Sirsa district of

Haryana. Based on both primary and secondary data, trends in area, yield and productivity of kinnow were computed. The findings revealed a promising growth trend for the horticultural industry. From 2005-06 to 2017-18, Haryana's total horticultural crops' CGR in terms of area, production and productivity was found to be 5.08 per cent, 7.55 per cent and 2.34 per cent, respectively. Kinnow's average total establishment cost, operational cost, NPV, IRR and payback period were found to be Rs. 122460, Rs. 56662, Rs. 747703.64, 26.24 per cent and 7 years respectively. The main obstacles that fruit growers had to overcome included a lack of facilities for processing and storage, insufficient post-harvest management facilities, inadequate marketing infrastructure, shortage of high-quality planting supplies *etc* (Priyadarshini *et al.*, 2020).

Soil Health Cards

In different regions of the country, an impact research on Soil Health Card scheme was undertaken and it was discovered that the fertiliser application in the state of Haryana deviated from the prescribed dosage. For states like Pondicherry, Andhra Pradesh, Karnataka, Tamil Nadu, Himachal Pradesh and Maharashtra, the NPK ratio was near to the suggested standard. NPK ratios in the south and east are often closer to recommendations. However, the suggested doses are very different in the northern states of Jharkhand, Rajasthan, Punjab, Haryana, Uttarakhand and Uttar Pradesh and they need to be adjusted (Reddy, 2017).

e NAM

There were 113 mandis in the state of Haryana. Out of 113, Haryana has 54 APMCs that are connected to e-NAM. A study was conducted in Haryana to assess the constraints in eNAM system. It reveals that the absence of information distribution was noted by about 82 per cent of farmers and 62 per cent of farmers reported difficulties with the selling process. About 96.7 and 58 per cent of farmers, respectively, cited difficulties with the online payment procedure and delays with payments. Additionally, cent per cent of the merchants emphasised the lack of information dissemination, 80 per cent of the traders noted the difficulty of the selling procedure, 14.7 per cent claimed the absence of skilled employees to assist them with e-NAM and 85.3 per cent of the traders experienced delays in online payments. Additionally, about 89.3 per cent of respondents, who were traders reported, having trouble in obtaining a licence to conduct business and about 86.7 per cent of mandi authorities agreed that the mandi lacked basic infrastructure (Kaur *et al.*, 2021).

Kisan Credit Card (KCC)

The KCC Scheme had a considerable positive influence on KCC holders' income, according to a study of its impacts in the Haryana district of Rohtak. This was proven by using a paired t-test to determine the influence of the KCC programme on farmer production. The study also showed that farmers had higher total factor production rising from 1.38 to 1.64 during the pre-loan and post-loan periods. The average total factor production increased from 0.26 to 18.9 per cent. The majority of KCC owners completely decreased their agricultural indebtedness. The study's findings shows that KCC beneficiaries had improved yields, productivity and net income (Ahlawat and Singh, 2020).

Micro irrigation subsidy

A study was undertaken in three salinity and drought-prone districts of Haryana ie, Bhiwani, Mohindergarh and Nuh to assess impact of micro irrigation. This study was completed through exhaustive consultation of literature, field observations, interaction with officers and farmers and pre-designed performa-based survey for collection of field data from 150 beneficiary farmers from 6 blocks (a cluster of 25 farmers in each block) in 3 districts. The field data collected from number of farmers across three districts comparing the cost of cultivation, gross and net returns from crops irrigated by flood, mini-sprinkler and drip irrigation has conclusively proved that financial benefits increase by 60 to 80 per cent on shifting from flood to mini-sprinkler irrigation and more than 100 per cent upon adopting drip irrigation. Such benefits in vegetable crops, cultivated with drip irrigation were more than 200 per cent as compared to flood irrigation. Additionally, the study found that micro irrigation's high adoptability was a result of subsidies (Grewal and Lohan, 2021).

Pradan Mantri Fasal Bima Yojana (PMFBY)

The effectiveness of various crop insurance programmes in Haryana has been analysed by the study. According to the report, there is just one programme called PMFBY operating in Haryana and it surpasses the earlier programmes. PMFBY was initially optional for farmers who weren't loan recipients but required for those who were. In 2020, it was changed and made completely voluntary for all farmers. From the study, it is suggested that training sessions to be held periodically at the Gram Panchayat level to inform farmers about crop insurance and its advantages (Kumar and Phougat, 2021).

An investigation was conducted to evaluate the effects of Integrated Murrah Development Scheme (IMDS) on socioeconomic level of the beneficiaries as well as on the productive and reproductive performance of the beneficiaries' Murrah buffaloes. The majority of beneficiaries (73.75 per cent) experienced a medium overall impact of IMDS on their socio - economic status, with high (17.50 per cent) and low (8.75 per cent). While the majority of beneficiaries (89.38%) of IMDS were found to have a medium level productive and reproductive performance of Murrah buffaloes. The study found that such development initiatives ought to be encouraged in order to raise both the socioeconomic standing of farmers and the level of animal milk production (Jadoun, 2013).

Fisheries promotion

Training programmes for farmers are urgently needed, according to an impact assessment on the fisheries industry

in Haryana. There are also reasons to support small-scale entrepreneurs and self-help groups for smallholder farmers to open aquaria shops. In addition, public-private partnerships for the development of infrastructure, the manufacture of high-quality shrimp seed and feed and the use of cold storage facilities for selling can support shrimp culture. Additionally, to lower the risk and economic losses, fisheries and aquaculture need to have access to disaster relief measures. In the State of Haryana, a Fisheries Mission with a clear plan of action must be launched (Gupta, 2019).

In a survey evaluating the effectiveness of agricultural development programmes in Haryana, the majority of respondents said that the Pradhan Mantri Fasal Beema Yojana and the Pradhan Mantri Krishi Sinchai Yojana (Per Drop More Crops) were doing well. The respondents indicated that the ATMA, NFSM and MIDH schemes, respectively, were all performing well, with 64 per cent, 52 per cent and 50 per cent of the respondents agreeing. A little over half of those surveyed (52%) said the programme to promote agricultural mechanisation for in-situ crop residue management was working well. The majority of the farmers in the sample felt that programmes like the Soil Health Cards, Small Farmers Agribusiness Consortium and Prampragat Krishi Vikas Yojana (PKVY) were not operating well (Shehrawat *et al.*, 2020).

A study on the role of custom hiring centres in crop residue management found that reduced cost of cultivation (Wheat) Rs. 28500/ ha in Happy Seeder as compared to Rs. 36000/ ha in conventional sowing and water savings of 25-30 per cent were found. Due to this, the benefit cost ratio was also higher in the Happy Seeder at 3.40 as opposed to 2.70 in traditional sowing (Prem *et al.*, 2019).

SUMMARY

Glance of reviews of various studies highlighted that farm diversification plays a critical role in the sustainability of the farming sector in the country. Interventions are meant to promote the adoption of farm practice among farmers. From the above studies, it was observed that schemes for the promotion of agriculture had a positive impact on the adoption rate among farmers. Adequate amount of incentives and timely provision of the compensation amount are likely to further improve the utilization of these programmes among farmers. If difficulties during its implementation are addressed properly, its impact can be accelerated to its expected level.

CONCLUSION

Increased rice-wheat mono cropping trend necessitates diversification on account of ecological concerns. So, farm diversification is an important strategy to maintain sustainability of the Haryana state agriculture.Interventions are meant to promote the adoption of farm practice among farmers. From the study, it was observed that schemes for the promotion of agriculture had a positive impact on the adoption rate among farmers. Adequate amount of incentives and timely provision of the compensation amount are likely to further improve the utilization of these programmes among farmers.

Conflict of interest

All authors declared that there is no conflict of interest.

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