



A 360° status analysis of Doubling Farmers' Income Post stipulated deadline in India

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ABSTRACT: The aim of Government of India was to double farmers' income by the end of 2022, when the country marks 75 years of independence. Achieving the goal of doubling farmers' income in a short period of time required identifying the sources of income growth for farmers and creating the conditions that would allow them to maximize their income growth potential. Based on different literature, we examined the sources of agricultural growth and proposed policy options for making agriculture a remunerative industry. There is no doubt that technology is one of the most important sources of growth, and agricultural research is one of the best ways to grow. To double farmers' income by 2022, the Indian government formed an inter-ministerial committee in 2016 to assess existing problems. A number of policies, reforms, development programs, and schemes have been adopted and implemented by the Government to increase farmers' incomes. A continuous improvement of the Indian agriculture sector is necessary to maximize output and ensure food security. The NSSO calculated the average monthly income of agricultural households to be Rs. 6426 in 2012-13 and Rs. 10218 in 2018-19, representing a 62% increase having the compound annual growth rate (CAGR) is 8.0366%. Throughout our review, we examine the concept of doubling farmers' income, its current status, the efforts by government, and innovative approaches to doubling farmers' incomes.

Keywords: Agriculture Sector, Current Progress, Farmers' Income, Future approaches, Government Schemes.

INTRODUCTION

There is a lot of potential for food grains in India, as we know that by Using one Jute Sack to stake over another, one can reach the moon, return, still reach 1/3rd of the moon, i.e. more than 2.547 times the moon distance (Lal *et al.*, 2022). However, global hunger remains an issue of debate even in the 21st century. So what is the best thing for farmers? The Indian government intends to double farmers' incomes by 2022, when the country celebrates its 75th anniversary of independence. The Finance Minister proposed doubling farmers' income in six years in the 2016-17 budget. As a measure of farmers' welfare and agriculture transformation, income is the most pertinent measure. Farmers' income was set to double by 2022 under a government target set in February 2016. This issue was brought to the attention of the DFI Committee in September 2018, and it was given the responsibility of overseeing its implementation and making recommendations. Its emphasis on the feasibility and effectiveness of measuring farmers' incomes is one

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of the report's most valuable contributions. However, it does not discuss variations in income across landholding categories, and should have emphasized marginal and small farms, which account for 85 percent of farming households. As part of a pioneering growth strategy, Enhancing crop production and productivity, Combined with a profitable and efficient farming system, can help reduce hunger significantly. Increasing women's participation in agriculture will boost the GDP and ensure that India's 5 trillion dollar dream is achieved before 2025-26, and it will also contribute to doubling farmers' incomes (Shukla *et al.*, 2022). A variety of interventions can be used to enhance agricultural productivity, including government extension policies and institutional reforms. Balkrishna *et al.* (2022) emphasize the need for a defined path and timeframe for working on such interventions. The Chat GPT is working with the farming community to improve farming practices, increase crop production, and double farmers' incomes (Lal, 2022).

In addition to supporting various development programs, the Indian government has implemented a lot of schemes, and recently, added income transfers under PM-KISAN. Implementation of different innovative agricultural approaches such as advanced farming methods, precision agriculture, diversification and commercialization and climate-smart agriculture, will definitely result in income generation. The use of agricultural sensors and drones has enabled farmers to better understand their fields, identifying areas to address or intervene in by making informed and timely decisions; they can double their income and improve productivity (Shukla *et al.*, 2022). The Indian government has put in a lot of effort, but there are still some challenges in the agriculture sector, and this study offers useful recommendations that can help guide policymakers towards doubling farmers' income.

As the biggest source of employment and livelihoods in rural India, the potential of agriculture and related industries is undeniable. Migrant workers often engage in labor-intensive tasks such as planting, weeding, and harvesting crops. Their contribution can help farmers increase productivity and efficiency, leading to higher yields (Kumar *et al.*, 2022). In addition to nurturing to 1.3 billion Indians, agriculture also provides 54% livelihood and contributes 17% to the Gross Value Added (GVA) of the country (Annual Report 2016-17). There's also a low growth rate and productivity in Indian agriculture due to factors like declining natural resources, increasing input costs, climatic fluctuations, and loss after harvest are contributing factors to fragmented land holdings. Rural prosperity and economic growth are seriously impacted by declining farm productivity and income. The agrarian distress we've seen over the past few years is a result of these factors interplaying. It's hard for Indian agriculture to grow to achieve sustainable development because of these factors. This agrarian distress can't be solved unless farmers' incomes go up (Chand, 2016a). Due to the ongoing agrarian distress in India and the depressed market for agricultural commodities globally, farmers' incomes continue to be a concern.

Why Double Farmers' Income?

Over the past few decades, agriculture development in India has primarily focused on raising output and improving food security. As a result, India is now food self-sufficient and exporting food, not only on a global scale, but on a per person basis as well. There weren't any direct measures to help farmers out in the strategy. Farmers' incomes stayed low because of this, which is why so many farm households are poor. In the 1990s, there was a lot of agrarian distress in the country due to low absolute incomes and a large and deteriorating disparity between farmers and non-agricultural workers that turned quite serious. Over the period 1995-2004, farmers suicides also went up, the farm income shocks, the loss of income from farming, and the low farm income were all a big problem. As a result of the low

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farm income and its high fluctuation, farm investments and interest in farming are suffering, and cultivators are leaving farming more and more, especially younger people. As a result, agriculture could be negatively impacted in the future.

Farmers' income in Mission 2022

Agrarian distress is a huge issue in India and our Hon'ble Prime Minister Sri Narendra Modi addressed a Kisan rally on 28 February, 2015 in Bareilly and called on the nation to double farmers' incomes by 2022 (Chand, 2016, 2017).

Dalwai (2018) suggested an annual growth rate of 10.4% to achieve DFI (real) well by 2022, based on past income growth rates of farmers. The country hasn't achieved such ambitious growth rates in the last four years (Dalwai, 2018; Gulati and Saini 2016; Gulati & Saini 2018).

What are farmers' earnings?

Based on the 70th round of NSSO, agricultural households earned Rs.6,426, of which rupees 2,071 came from wages, rupees 3,081 came from crop production, rupees 763 from animal farming, and rupees 512 from non-farm work. Data from the 77th round of NSSO, in 2018-19, showed an average monthly income of rupees 10, 218, with wages (rupees 4, 063) earning the most, followed by crops (Rs. 3,798). The income from animal farming has increased substantially (from Rs. 763 to Rs. 1, 582).

An overview of the concept and the timeline

There are several points that need to be clarified to determine if the farmers' income can be doubled. The substantive points are:

1. When will the farm income be doubled and what is the target year?
2. What is to be doubled farmers' output, value added, or income?
3. Either real income or nominal income should be doubled
4. Did the targeted income only include agricultural income or other sources of income for farmers?

It is expected that farmers' current incomes will double by the year 2015-16, seven years from the base year, according to the target year for doubling their incomes. In order to achieve a 10.4% annual growth rate by 2022-23, it is also crucial to clarify what will double. The most important issue is farmers' income, output, agricultural sector income, value added, or GDP. If technology, input prices, wages, and labour use could result in per unit cost savings for farmers, income would increase at a much faster rate than output. Farm output increased 2.65 times during these seven years whereas farmers' income tripled. This means that doubling farmers' income is not the same as doubling farm output. Due to high inflation in agricultural prices, farmers' nominal incomes will double in a shorter period of time than expected. It appears that the government intends to double the income of farmers at real prices in circumstances where non-agricultural prices do not rise, or rise at very low

rates. Only information about cultivators up to 2011-12 is available. As a result, the per cultivator income is assumed to be calculated at the same rate as during 2004-05 to 2011-12, since farm workers continue to withdraw from agriculture at the same rate. At current market prices, per capita income is estimated at Rs. 12019.

A strategy to increase farmers' incomes

Four sources of growth in output and income can be identified.

1. Infrastructure development initiatives
2. Science and technology
3. The policies and
4. Mechanisms at the institutional level

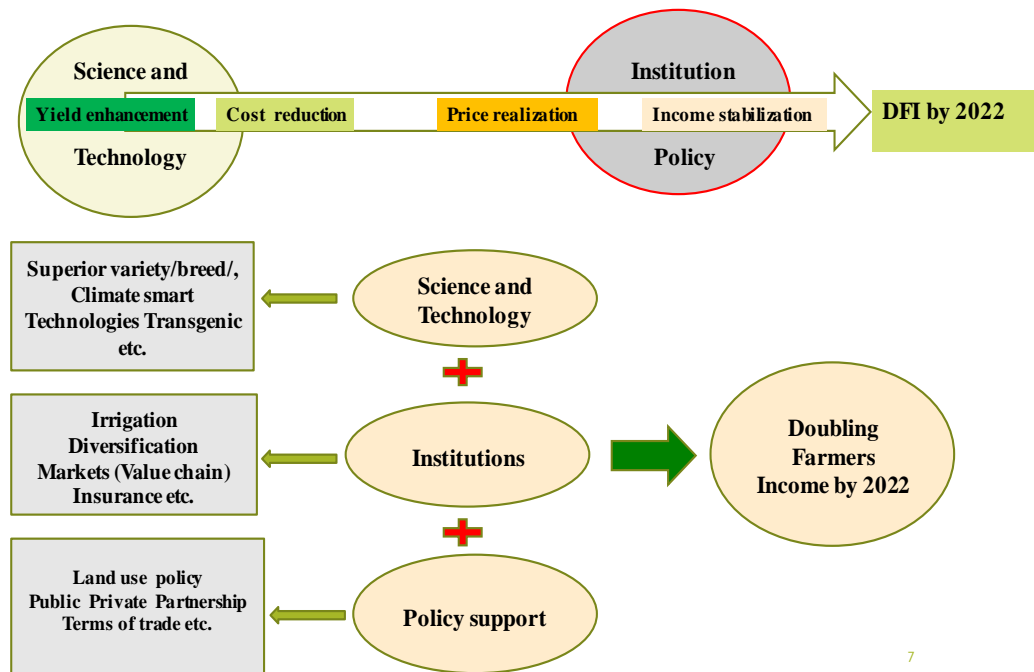


Fig. 1. Framework of Doubling farmers' income (Sendhil *et al.*, 2017).

Science and technology that optimizes resource use efficiency can reduce production costs and increase net income as well as increase productivity. In order to raise income, it must be used collectively, from planned production to value-added marketing. There is a serious input crisis in rural areas, which directly impacts production through water shortages, fodder shortages, and poor seeds/breeds/strains. Due to the fact that most of the holdings are small or marginal, collective or joint farming will result in significant cost savings. A combination of integrated farming, mixed farming and diversification should be incorporated into each farm household. For farmers to be productive and efficient, public-private partnerships must be prioritized. Aside from production, farmers must also be able to get the right price. Information and communication technology (ICT) can provide better market connectivity and price realization through competitive markets, value chains, and improved linkages to enhance farm income. In order to address agrarian distress and promote farmer welfare, farming income is crucial (Chand & Singh 2016). In order to promote farmers' welfare, reduce agrarian distress, and equalize farmers and non-agricultural workers, the goal of doubling farmers' income by 2022-23 is crucial.

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The government has doubled farmers' incomes as a result of its efforts. An Inter-Ministerial Committee was formed in 2016, April to examine the issues related to "Doubling the Income of Farmers" and to recommend strategies for achieving it. As a result of the report, the Government must implement a number of policies, reforms, and programs to double farmer income by the year 2022. Among the seven sources of income growth identified by the Committee were:

- i. Crop productivity increases
- ii. Increased productivity of livestock
- iii. Reduced production costs with resource efficiency
- iv. Intensifying cropping
- v. Increasing the value of agriculture through diversification
- vi. Farmers' produce should be remunerated
- vii. Manpower shift from farms to non-farm occupations

Principles of the strategy for doubling farmer's income:

- i. Improving productivity across agricultural sub sectors to increase total output
- ii. Reducing production costs by rationalizing
- iii. Providing agricultural products at a fair price
- iv. Management of risks effectively

v. Technology adoption for sustainability

Impact of Government Policies for DFI:

To achieve higher incomes for farmers directly or indirectly, the government has adopted and implemented several policies, reforms, and development programs (Fig. 2).

Unprecedented enhancement in budget allocation

There was only Rs. 25460.51 crore allocated to the MoA&FW (including DARE, DAH&F) in the budget for 2015-16. The amount has increased by more than 5.44 times to rupees 1,38,550.93 crore in 2022-23. The compound annual growth rate (CAGR) is 27.3814 percent.

PM KISAN: Income support scheme to farmers. As of now, more than 2 lakh crore has been distributed under PM-KISAN (2019) to more than 11.3 crore eligible farmer households as part of the income support program, which is calculated as providing rupees 6000 per year in three equal installments.

Pradhan Mantri Fasal Bima Yojana (PMFBY). Farmers were faced with high premium rates due to capping and reductions in sum insured because of PMFBY's launch in 2016. More than 38 crore farmers have enrolled in the program since its launch 6 years ago, and more than 11.73 crore (Provisional) farmers have received payments from the program. More than 1,24,223 crore rupees has been paid to farmers as their

share of premiums during this period. As a result, farmers have received about Rs. 493 for every 100 rupees of premium they paid.

Institutional credit for agriculture sector. In 2015-16, the agricultural sector had Rs. 8.5 lakh crore of institutional credit, but in 2022-23, it will have Rs. 18.5 lakh crore. The KCC offers concessional institutional credit at 4% interest per year to farmers in the Animal Husbandry and Fisheries sector. Since February 2020, Kisan Credit Cards (KCC) has been involved in providing concessional institutional credit to all PM-KISAN beneficiaries. A credit limit of rupees 4,33,426 crore has been granted to KCC as of November 2022 for new applications of Rs. 376.97 lakh.

Minimum Support Price (MSP). All major Kharif, Rabi, and other commercial crops in India as a whole have been mandated to receive a 50% increase in the MSPs over the weighted average cost of production for all of them as of 2018. According to the MSP for paddy (common) between 2013-14 and 2022-23, the price for paddy has increased from rupees 1400 per quintal to rupees 2125 per quintal in year 2022-23, and for wheat, it has increased from rupees 1400 per quintal in year 2013-14 to rupees 2125 per quintal for wheat from 2013-14 to 2022-23.

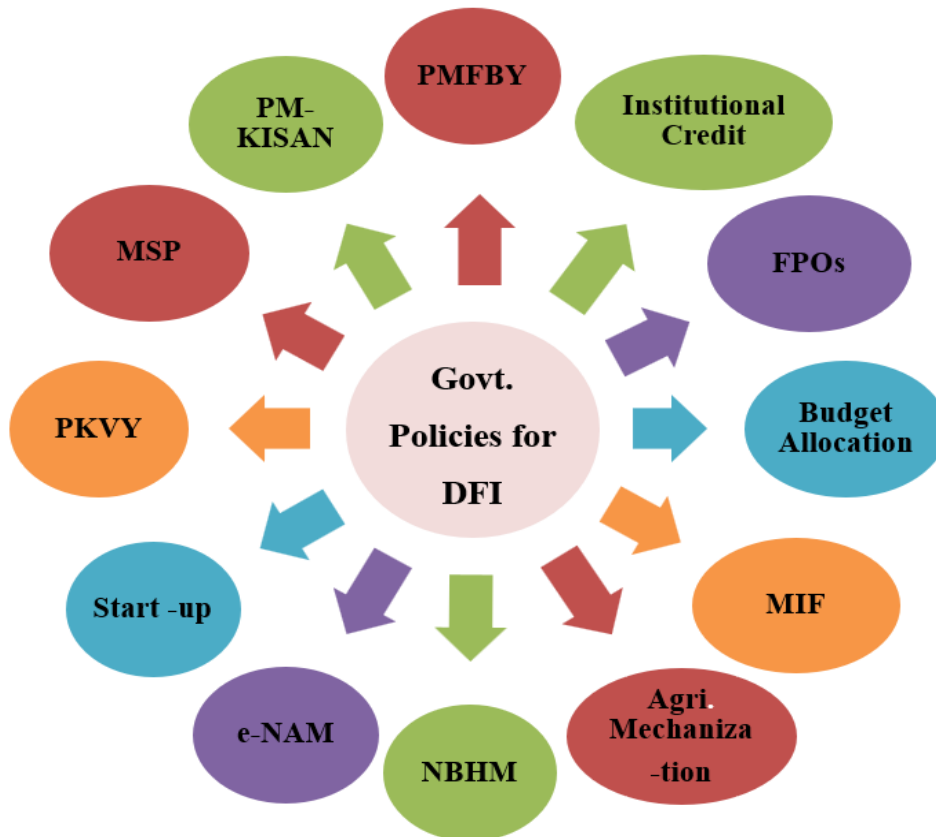


Fig. 2. Government policies for DFI.

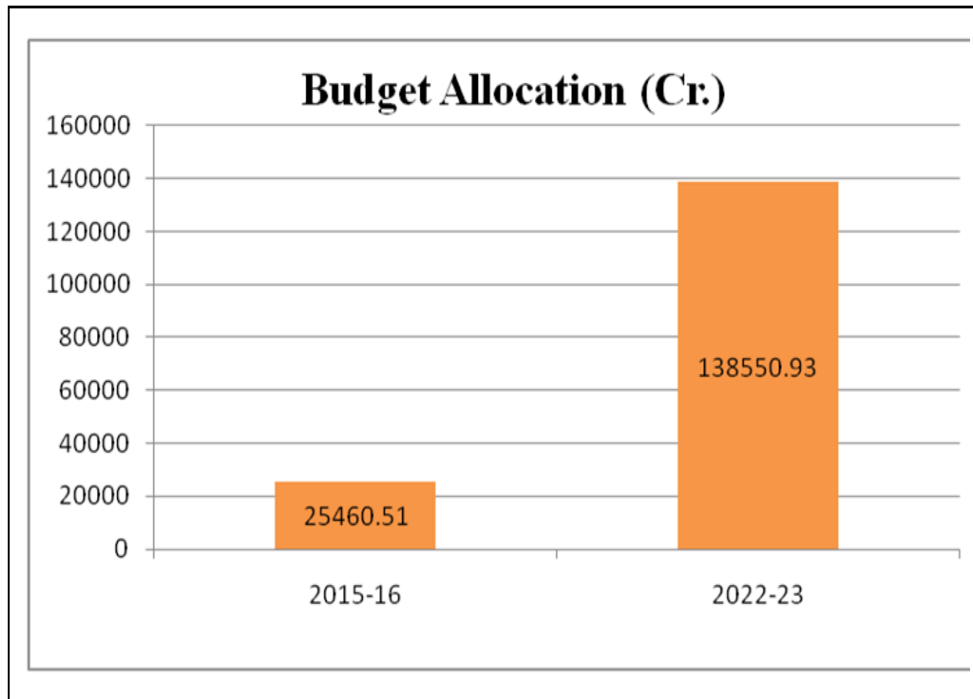


Fig. 3. Budget allocation for MoA&FW.

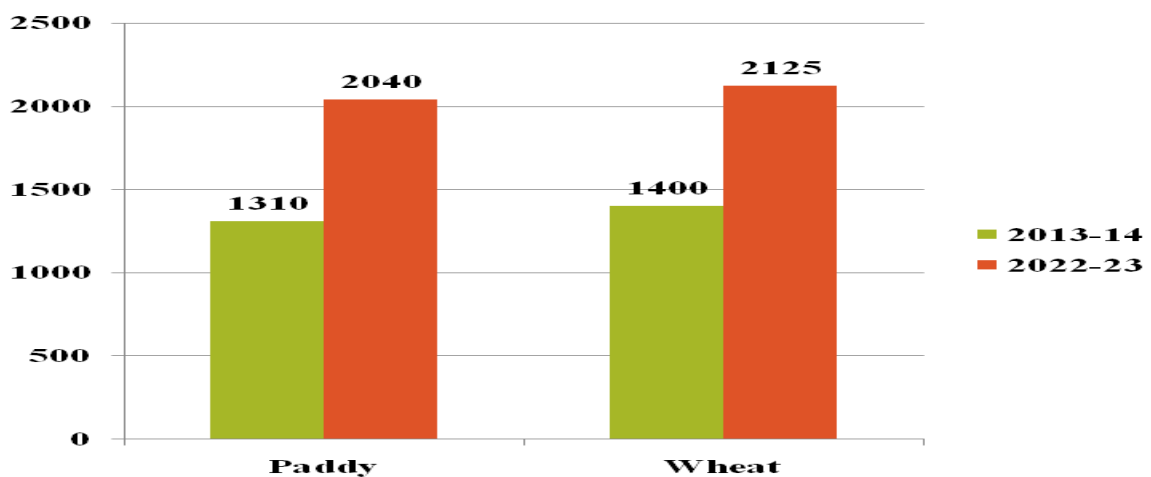


Fig. 4. MSP of paddy and wheat.

Promotion of organic farming. To promoting the organic farming, Paramparagat Krishi Vikas Yojana (PKVY) was launched in 2015-16. Namami Gange Programme has covered 123620 hectares of land and natural farming 4.09 lakh hectares of land. A total of 32384 clusters have been formed. Farmers in Uttar Pradesh, Uttarakhand, Bihar and Jharkhand are practicing organic farming on both side of the holy Ganga river to control the pollution. A sustainable natural farming system will be promoted through the scheme, according to the government. Bhartiya Prakratik Krishi Padhati (BPKP). Farmers' income will be enhanced, resources will be conserved,

the environment and food will be safe and healthy, and the cost of cultivation will be reduced.

Per Drop More Crop (PDMC). Drip and sprinkler irrigation systems as a micro irrigation technologies, are used to increase productivity at the farm level through the PDMC program launched in 2015-16. Under Micro irrigation through the PDMC scheme 69.55 lakh hectares have been covered.

Micro Irrigation Fund (MIF). In the Budget Announcement for 2021-22, there will be an increase in the corpus of NABARD's Micro Irrigation Fund to Rs.1000 crores, which will cover an area of 17.09 lakh hectares. There is a total of 4710.96 crores worth of projects registered under the fund.

Farmer Producer Organisations (FPOs). There will be a budget outlay of Rs 6865 crore for the Agriculture Sector Formation and Promotion Scheme which will be launched by the Hon'ble PM Sri Narendra Modi on February, 29th, 2020 in order to bring scales of economy to agriculture operations. As of 31st October, 2022, there were 3855 farms registered under the new FPO scheme.

National Beekeeping and Honey Mission (NBHM). It is a part of the Atma Nirbhar Bharat Abhiyan launched in 2020, it increases crop productivity by pollinating crops and increases honey production. The beekeeping sector has been allocated Rs.500 crore from 2020-2021 to 2022-2023. Over 114 projects have been approved/sanctioned under this scheme during 2020-21 & 2021-22.

Agricultural Mechanization (AM). The purpose of mechanization in agricultural is to reduce drudgery and modernize agriculture. The government has allocated fund Rs.5490.82 crores between 2014-15 and March, 2022 for agricultural mechanization, subsidizing 13,88,314 machines and equipments. In addition to 18,824 customized hiring centers (CHCs), 403 high-tech hubs (HTHs), and 16,791 farm machinery banks, farmers can rent agricultural equipment and machines from these centers. The current financial year has seen 65302 machines distributed on subsidy, as well as 24 CHCs, 12 hi-tech hubs, and 1260 village-based machines banks.

Soil Health Card Scheme (SHC). A soil health card scheme was launched for the first time in 2014-15 with the aim of optimizing nutrient use in agriculture. Since then, around 42.25 crore soil health cards have been distributed to farmers across three phases over a period of time.

e- National Agriculture Market (e-NAM). This platform has been integrated with 1260 mandis from 22 states and three UTs and has been estimated to have more than 1.74 crore farmers and 2.36 lakh traders registered with this platform by 31 October 2022, based on the data collected by the National Aggregation Agency. A total of 6.5 crore MT of trade was recorded on the e-NAM platform as of 31.10.2022, with 19.24 crore numbers (bamboo, betel leaves, coconuts, lemons & sweet corn) recorded.

National Mission for Edible Oils (NMEO). There has been a positive development in the Oil Palm, NMEO scheme, with a total outlay of rupees 11,040 crore. This will result in an increase of 6.5 lakh hectares under plantation. Out of these, 3.28 lakh hectares will be in the north western states and 3.22 lakh hectares will be in the rest of the country. It provides farmers with a simple price fixing formula for fresh fruit bunches (FFBs) and

assures industry procurement with Viability Prices. Farmers will receive a viability gap payment if industry pays less than viability price until October 2037.

Agri Infrastructure Fund (AIF). Different agriculture infrastructures have been developed with the support of the AIF scheme since its inception in 2020. Over 18133 agricultural infrastructure projects have been sanctioned under the AIF scheme since its inception in 2020. It has been estimated that there are currently around 8076 warehouses in the country, 2788 primary processing units (PPUs), 1860 custom hiring centers (CHCs), 937 sorting & grading units (SGUs), 696 cold storage projects, 163 assaying units and around 3613 community farming assets across the country.

Introduction of Kisan Rail. The Ministry of Railways has launched Kisan Rail as a train service exclusively for the transportation of perishable (i.e. fruits and vegetables) agricultural commodities. The first Kisan Rail service started in July 2020 and has so far been operated on 167 routes and 2359 services have been conducted.

MIDH - Cluster Development Programme. By using a market-led approach, this program aims to integrate and develop horticulture clusters' pre-production, production, post-harvest, logistics, branding and marketing activities through a market-led approach to the development of horticulture clusters. CDP has been selected to pilot in 12 of the 55 horticulture clusters identified by DoA&FW.

Start-up Ecosystem in agriculture and allied sector. As of FY 2019-20 to FY 2022-23, DA&FW knowledge partners and incubators have selected 1055 startup companies as part of its grant-in-aid program. It has been determined by the Directorate of Finance and Planning that Rs. 6317.91 lakhs will be released as part of this project in order to fund Knowledge Partners and RKVY-RAFTAAR (Rastriya Krishi Vikas Yojana) Agri Business Incubators, respectively.

Export of Agri and Allied Agri- Commodities. Agri and allied commodities exports have grown rapidly. Agri and allied exports increased by 53.1% from \$32.81 billion in 2015-16 to \$50.24 billion in 2021-22.

The government's efforts at positive implementation of these schemes have resulted in a significant increase in farmer income. In Fig. 6, According to 70th round of NSSO (2012-13) and 77th round of NSSO (2018-19), on an average monthly income per agricultural household was rupees 6426 and rupees 10,218, respectively, an increase of 62%. It has a compound annual growth rate of 8.0366%.

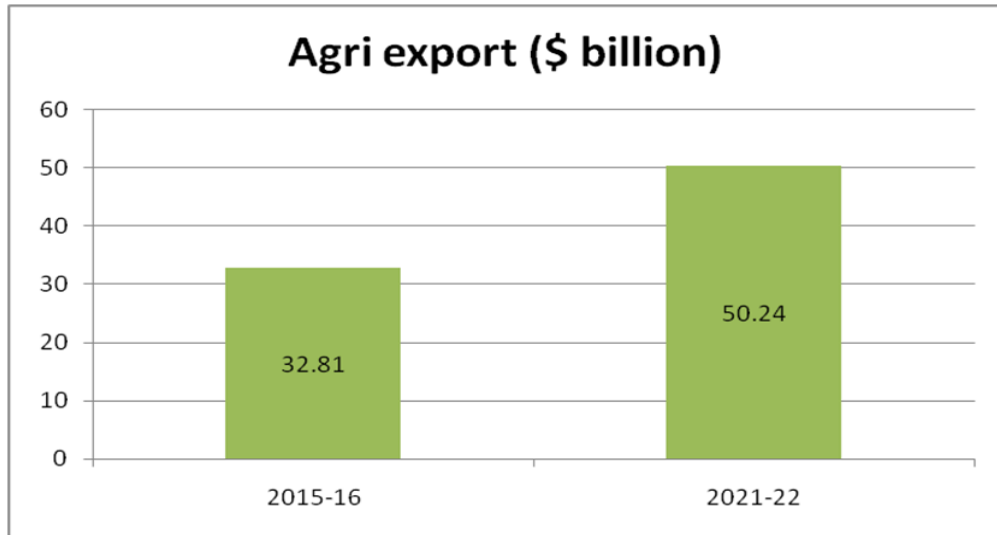


Fig. 5. Agricultural Export.

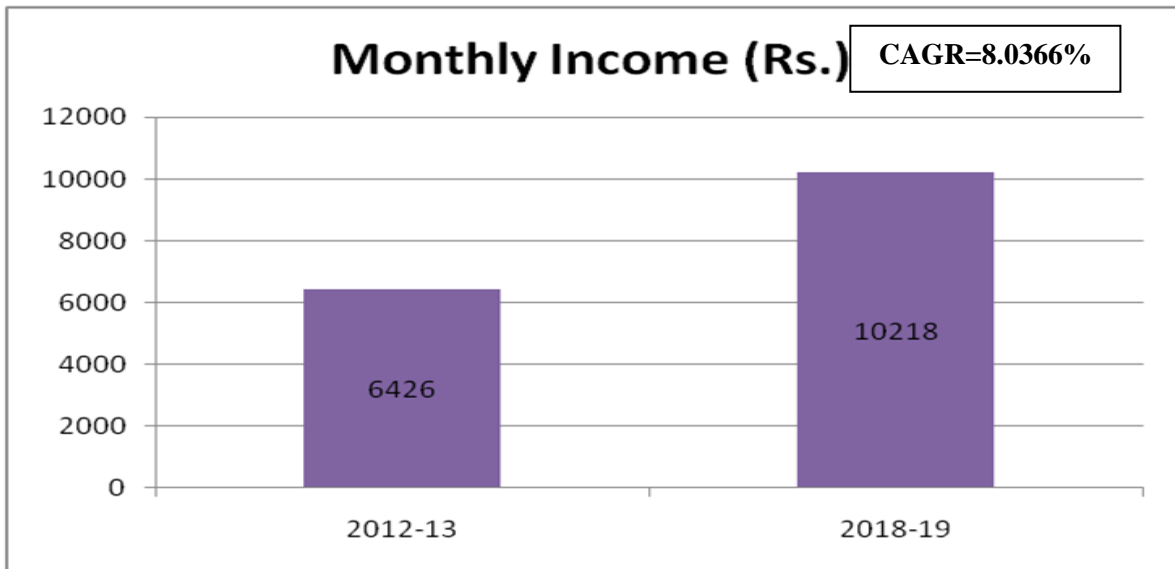


Fig. 6. NSSO, monthly income data.

CONCLUSIONS

It is not an easy task to double the farmers' incomes by 2022, but it is a very laudable goal that needs to be achieved. To double farmers' income, a strategy that focuses on development initiatives, technological advancements, and policy reforms in agriculture needs to be adopted. It is crucial for research institutes to make technological breakthroughs so that the production frontier can be shifted and input efficiency can be raised. There is a need for ICAR and SAUs to develop a model of farming system by combining all their technologies and focusing on farm income as the primary goal. There is only one way to accomplish this, and that is to work relentlessly on gaps and loopholes and with concerted

efforts, in accordance with the mission mode action plan, with special attention. The welfare of our farmers has to be the priority when it comes to agricultural development for the development of the national economy, and with a particular focus on the fact that Farmers are the only people in the world who can supply us with the food we need, so we must take care of them. As a result of the high dependence of the Indian agricultural industry on monsoon, there are a number of interventions that can be made, including research, technology promotion, extension, post-harvest management, processing, and marketing, all in accordance with the comparative advantages of each state and region as well as their agro climatic characteristics. Consequently, the country will

be able to indeed achieve its goal of doubling farmers' incomes if it takes this step.

FUTURE SCOPE

A comprehensive reform of the market and land lease is essential to increasing farmers' incomes. Modern knowledge and capital have been lacking in agriculture. Agricultural liberalization is needed to attract private investment. Small farm businesses can benefit from FPOs and FPCs. Farmers' income will increase significantly if MSPs are ensured alone through competition and government intervention.

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