

Demand for Grants 2020-21 Analysis

Agriculture and Farmers' Welfare

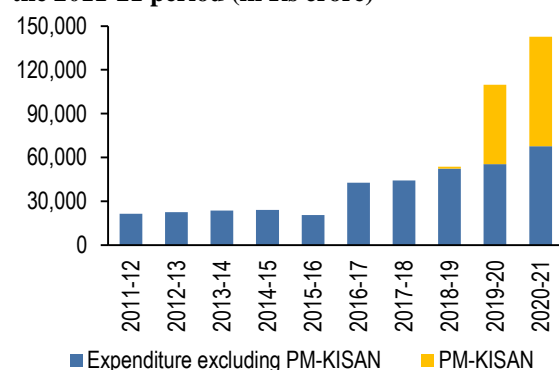
The Ministry of Agriculture and Farmers' Welfare has two Departments: (i) Agriculture, Cooperation and Farmers' Welfare, which implements policies and programmes related to crop husbandry and farmers' welfare, and manages agriculture inputs, and (ii) Agricultural Research and Education, which coordinates and promotes agricultural research and education in the country. This note examines the allocations to the two Departments within the Ministry and their expenditure, and discusses issues in the agriculture sector.

Overview of Finances

The Ministry has been allocated Rs 1,42,762 crore in 2020-21.¹ Allocation to the Ministry accounts for 5% of the central government's budget. This allocation is 30% higher than the revised estimate for 2019-20, primarily due to a higher allocation of Rs 75,000 crore to PM-KISAN (income support scheme for farmers) for 2020-21.² For 2019-20 as well, the scheme was allocated Rs 75,000 crore at the budgeted stage, which has now been revised down to an estimate of Rs 54,370 crore.

PM-KISAN accounts for 53% of the allocation to the Ministry in 2020-21. Other expenditure items of the Ministry, including interest subsidy for short-term credit to farmers and Pradhan Mantri Fasal Bima Yojana, have been allocated Rs 67,762 crore in 2020-21, a 22% increase over the previous year.

Figure 1: Expenditure of the Ministry during the 2011-21 period (in Rs crore)



Note: Figures for 2019-20 are revised estimates. Figures for 2020-21 are budget estimates.
Sources: Expenditure Budget, Union Budgets (2011-21); PRS.

Note that the Ministry's expenditure saw a major increase in 2016-17 due to the Interest Subsidy Scheme (for providing interest subsidy on short-term loans to farmers). The scheme, which is being accounted under the Ministry of Agriculture since 2016-17, was under the Ministry of Finance earlier.

Policy proposals in the Budget Speech

In her budget speech, the Finance Minister made the following proposals regarding agriculture:

- The government will encourage states which undertake the implementation of model laws relating to land leasing, agricultural produce and livestock marketing, and contract farming.
- The government will provide Viability Gap Funding for setting up warehouses at the block/ taluk level. A Village Storage scheme has been proposed to be run by Self-Help Groups.
- 'Kisan Rail' with refrigerated coaches will be set up to build a seamless national cold supply chain for perishables. 'Krishi Udaan' will be launched on international and national routes.

Departments: The Department of Agriculture, Cooperation and Farmers' Welfare has received 94% of the allocation to the Ministry in 2020-21, while 6% has been allocated to the Department of Agricultural Research and Education (Table 1).

Table 1: Allocations to the Ministry (in Rs crore)

Department	2018-19 Actuals	2019-20 Revised	2020-21 Budgeted	% change in 2020-21 over 2019-20
Agriculture, Cooperation and Farmers' Welfare	46,076	1,01,904	1,34,400	31.9%
Agricultural Research and Education	7,544	7,846	8,363	6.6%
Total	53,620	1,09,750	1,42,762	30.1%

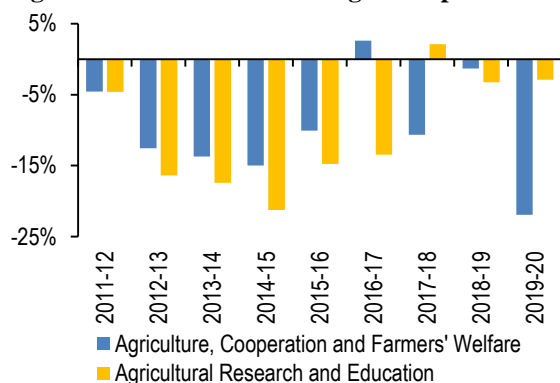
Sources: Expenditure Budget, Union Budget 2020-21; PRS.

The Department of Agriculture, Cooperation and Farmers' Welfare has been allocated Rs 1,34,400 crore in 2020-21, a 32% increase over the revised estimate of 2019-20. More than 78% of the Ministry's budget is proposed to be spent on three schemes under this Department: PM-KISAN (53%), Interest Subsidy Scheme (15%), and Pradhan Mantri Fasal Bima Yojana (11%).

In 2020-21, Agricultural Research and Education has been allocated Rs 8,363 crore, a 7% increase over the revised estimate of 2019-20.³ The allocation to Indian Council of Agricultural Research (ICAR) accounts for 61% of the Department's allocation in 2020-21. Table 6 and Table 7 in the Annexure show the major heads of allocation in the two Departments.

Budgeted vs actual expenditure: Expenditure by both the Departments has been lower than their budget allocations in most years during the period 2011-20 (Figure 2). In 2019-20, the Ministry has estimated a 21% cut in expenditure as compared to the budget allocation, primarily due to Rs 20,630 crore underspending in PM-KISAN. The Standing Committee on Agriculture (2015-16) observed that a slow pace of utilisation of funds in the first half of the financial year results in a cut in allocation for the rest of the year, which leads to underspending.⁴

Figure 2: Deviation from budgeted expenditure



Note: Figures for 2019-20 are revised estimates.

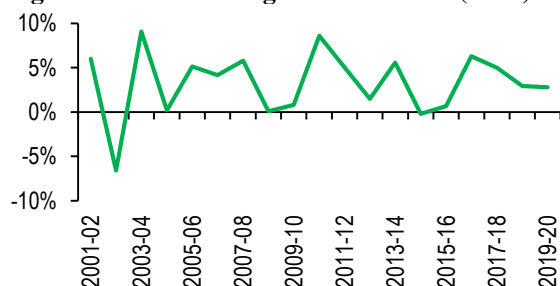
Sources: Expenditure Budget, Union Budgets (2011-20); PRS.

Issues in the sector

Growth of the agriculture sector

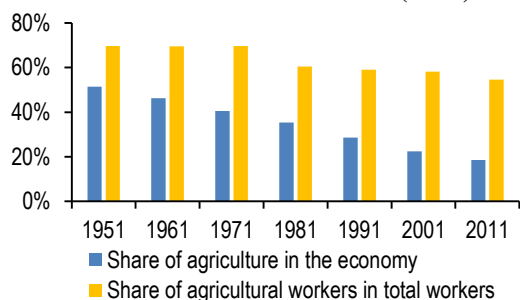
Growth of the sector comprising of agriculture and allied activities has been volatile over the years (Figure 3). In 2019-20, the sector is estimated to grow at 2.8%, as compared to 2.9% in 2018-19.

Figure 3: Growth of agriculture sector (in %)



Sources: Central Statistics Office (CSO), MOSPI; PRS.

Figure 4: Share of agriculture in the economy and in the total number of workers (in %)



Sources: Agricultural Statistics at a Glance 2017, Ministry of Agriculture and Farmers' Welfare; CSO, MOSPI; PRS.

The contribution of the agriculture sector in the economy has significantly decreased from 51% in 1951 to 19% in 2011. As per the Economic Survey 2019-20, this has declined to 16.5% in 2019-20.⁵ Meanwhile, the share of workers who are dependent on agriculture has decreased at a lower rate from 70% in 1951 to 55% in 2011. This implies that the average income of these workers grew at a slower pace than that of workers in other sectors. The Committee on Doubling Farmers' Income (Chair: Mr. Ashok Dalwai, 2017) observed that one way of significantly improving income of farmers is by shifting the agricultural workforce to more productive employment in non-farm sectors.⁶

Income support to farmers

The PM-KISAN scheme was launched in February 2019 to provide income support of Rs 6,000 per year (disbursed in three instalments of Rs 2,000) to farmer families with the aim of supplementing their financial needs in procuring inputs for appropriate crop health and yields.⁷

Earlier, only small and marginal landholder farmer families, i.e. families with total cultivable landholding of up to two hectares, were eligible for the scheme. In May 2019, the Union Cabinet approved extension of the scheme to all farmer families irrespective of their size of landholdings. With this increase in coverage, expenditure on the scheme was estimated to increase from Rs 75,000 crore to Rs 87,218 crore in 2019-20.⁸ However, allocation to the scheme for 2019-20 has been cut down from Rs 75,000 crore at the budgeted stage to Rs 54,370 crore at the revised stage. Till December 13, 2019, Rs 29,877 crore was released under the scheme for the year 2019-20.⁹

Further, in 2018-19, of the estimated Rs 20,000 crore expenditure under the scheme, only Rs 1,241 crore (6.2% of the budget allocation) was spent.

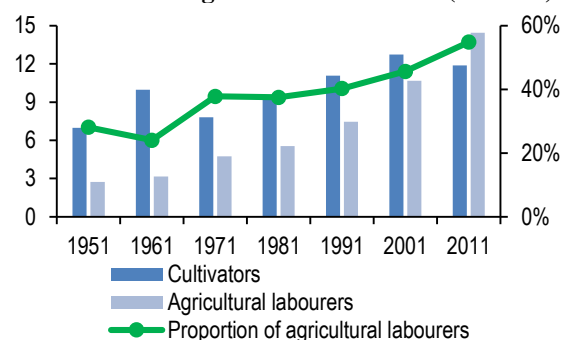
Implementation: Initially, the scheme was expected to cover 12.5 crore beneficiaries.⁸ With the increase in coverage, the revised number of beneficiaries are estimated to be 14.5 crore.⁸ As on February 11, 2020, 8.9 crore beneficiaries have been covered under the scheme.¹⁰ However, the number of beneficiaries reached under different instalments vary. The number of beneficiaries under the four instalments disbursed so far is as follows: (i) 8.5 crore (December 2018-March 2019), (ii) 7.6 crore (April-July 2019), (iii) 6.2 crore (August-November 2019), and (iv) 3.1 crore (December 2019-March 2020). State-wise details are given in Table 9 in the Annexure.

The Standing Committee on Agriculture (2019-20) noted that the issues being faced in the implementation of the scheme are: (i) non-availability of proper land records in many states, (ii) slow pace of identification of beneficiaries and uploading of data by states, (iii) issues with

matching of demographic data between PM-KISAN database and Aadhaar data, (iv) incorrect bank accounts, and (v) poor internet connectivity in rural areas hampering the uploading of data.¹¹ The Committee recommended that the government enhance coordination with states where enrolment is slow and take corrective steps.

Land as an eligibility criterion: Farmer families which own cultivable landholding are eligible for receiving income support under the scheme. The beneficiaries are identified by states based on their land records. The scheme does not cover landless agricultural labourers who form 55% of the agricultural workers in the country (Figure 5).¹² Agricultural workers include cultivators and labourers working in the agriculture sector. The share of landless agricultural labourers in total agricultural workers has increased over the years from 28% in 1951 to 55% in 2011. The share of cultivators has reduced from 72% to 45% during the same period.

Figure 5: Breakup of agricultural workers into cultivators and agricultural labourers (in crore)



Sources: Agricultural Statistics at a Glance 2017, Ministry of Agriculture and Farmers' Welfare; PRS.

Agricultural credit

Agriculture credit is provided to farmers at a subsidised cost through the Interest Subsidy scheme.¹³ Under the scheme, interest subsidy of two percent is provided to farmers on their short-term crop loans of up to three lakh rupees. An additional interest subsidy of three percent is provided to farmers repaying their loan on time (within a year).

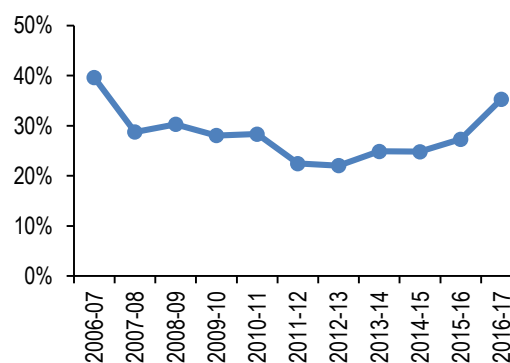
In 2020-21, the scheme has been allocated Rs 21,175 crore, an 18.5% increase over the 2019-20 revised estimates.

Inadequate allocation for unsettled claims: The Standing Committee on Agriculture (2017) noted that the budget allocation to the scheme has been inadequate.⁴² It observed that, in 2018-19, against an estimated requirement of Rs 41,748 crore for unsettled claims (including past claims), Rs 15,000 crore (36%) was allocated. Of this, Rs 13,046 crore was spent hence, leaving Rs 28,702 crore as unsettled claims.

Short-term vs long-term loans: In 2015, the Committee on Medium-term Path on Financial Inclusion under the Reserve Bank of India (RBI) observed that the Interest Subsidy Scheme for short-term crop loans discriminates against long-term loans.¹⁴ Short-term crop loans are used for pre-harvest activities such as weeding, harvesting, sorting and transporting. Long-term loans are taken to invest in agricultural machinery and equipment, or irrigation. The Committee observed that the scheme does not incentivise long-term capital formation in agriculture, which is essential to boost productivity in the sector.

The share of long-term loans in total agricultural credit declined between 2006-07 (40%) and 2012-13 (22%) (Figure 6).¹⁵ However, the share has increased to 35% in 2016-17. A low share of long-term loans in agricultural credit implies that farmers are taking loans for recurring expenditures rather than to fund long-term investments.

Figure 6: Share of long-term credit (2006-17)



Sources: Committee on Doubling Farmers' Income (2017), Ministry of Agriculture and Farmers' Welfare; PRS.

An Internal Working Group under the RBI (2015) observed that the Interest Subsidy scheme has distorted the agricultural credit system.¹⁶ Further, it stated that banks granted loans under the scheme without establishing that the loans are for agriculture, and claiming interest subsidy as well as priority sector benefit.

Land ownership: The RBI Committee (2015) observed that the owner of the land is often not the cultivator even in the case of small and marginal holdings. For example, a landowner may get the benefit of subsidised credit at times, and may be the moneylender to his cultivator.¹⁴ The Committee recommended that agricultural credit must flow to the actual cultivator for which substantial reform is necessary.¹⁴ Further, it stated that the subsidised credit increases the probability of misuse. The Committee on Comprehensive Financial Services for Small Businesses and Low-Income Households (2016) also recommended the transfer of benefits to farmers directly, instead of subsidy and waivers.¹⁷

Considering that access to agricultural credit is linked to formal land titles, the RBI Committee (2015) recommended that credit eligibility

certificates, which would act as tenancy or lease certificates, should be issued to tenant farmers.¹⁴ These certificates would enable landless tenant cultivators to obtain agricultural credit.

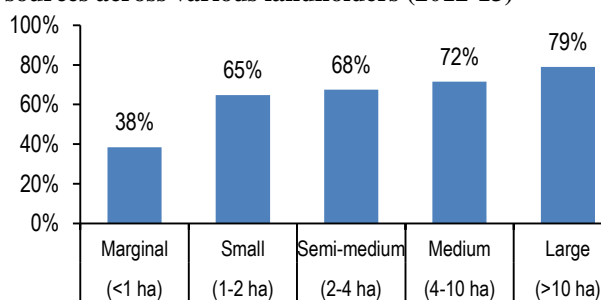
An Internal Working Group of the RBI constituted to review Agricultural Credit (2019) noted that the absence of a proper land leasing framework and a lack of land records inhibited access to institutional credit. It recommended that the centre should encourage the states to digitise and update land records in a timebound manner.¹⁹

Small and marginal farmers: Farmers with landholdings of less than a hectare primarily borrow from informal sources of credit such as moneylenders, whereas those with landholdings of two or more hectares primarily borrow from banks (Figure 7).¹⁴ Informal sources of credit are typically offered at higher rates of interests, and may not have proper documentation.

Note that 68% of the agricultural landholdings in the country belong to the marginal (less than one hectare) category.¹⁸ Another 18% belong to the small (between one to two hectare) category. Further, the share of the marginal category in total agricultural landholdings has been increasing over the years, from 51% in 1970-71 to 68% in 2015-16.

The Internal Working Group of the RBI to Review Agricultural Credit (2019) observed that only 41% of small and marginal farmers had been covered by banks. It recommended that bank lending targets to small and marginal farmers be revised upwards from the existing 8% to 10%.¹⁹

Figure 7: Share of borrowings from institutional sources across various landholders (2012-13)



Sources: Committee on Medium-term Path on Financial Inclusion (2015), Reserve Bank of India; PRS.

Crop insurance

Crop insurance is provided to farmers under the Pradhan Mantri Fasal Bima Yojana (PMFBY).²⁰ The scheme covers all farmers, including tenant farmers and sharecroppers, who are growing notified crops in notified areas. In 2020-21, the scheme has been allocated Rs 15,695 crore, a 15% increase over the 2019-20 revised estimate. Issues related to crop insurance raised over the years are:

Awareness about crop insurance: The Economic Survey 2018-19 noted that the share of agricultural households insuring their crops was low.²¹ Less

than 5% of the agricultural households cultivating major crops, such as rice and wheat, insured crops. Lack of awareness about crop insurance among farmers was the major factor for not insuring their crops. Further, lack of awareness about availability of crop insurance programmes was another reason.

The Standing Committee on Finance (2016) recommended that awareness should be created about what crops should be grown based on factors such as soil quality and incidence of rainfall.²²

Coverage of farmers: In 2018-19, 5.18 crore farmers were insured under the scheme.²³ Note that PMFBY is mandatory for farmers with loans and optional for those without loans.²⁰ Majority (73%) of the farmers had to compulsorily enrol under the scheme, whereas 27% were non-loanee farmers.

The Comptroller and Auditor General of India (2017) observed a low coverage of farmers without loans under the previous crop insurance schemes. It recommended the Ministry to ensure coverage of more farmers including those without loans.²⁴

Assessment of losses: The Standing Committee on Agriculture (2017) observed that the state governments are not readily accepting and adopting the use of technology for assessing yield loss. It also observed that crop cutting experiments are not being carried out diligently.⁴² The Committee recommended that the Ministry should pursue state governments to adopt technology aids and satellite imagery for crop cutting experiments.

Timely settlement of claims: Claims under the insurance scheme must be settled within two months from the crop harvest. The Standing Committee on Agriculture (2017) recommended that an institutional mechanism be put in place to monitor faster settlement of pending claims.⁴²

The Ministry revised the operational guidelines of the scheme in September 2018 (effective from the Rabi season 2019-20).²⁵ The revised operational guidelines specify penalties for state governments and insurance companies in case of a delay in settlement of claims. Insurance companies are required to pay farmers 12% interest on the claim amount in case of a delay beyond two months. Further, states are required to pay 12% interest for a delay in release of their share of premium.

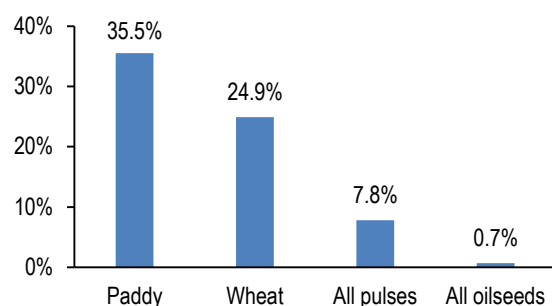
Minimum Support Prices (MSPs)

MSP is the price at which the government agencies purchase farmers' produce of certain notified crops.

The Finance Minister in the 2019-20 budget speech announced that MSPs for certain Rabi and Kharif crops will be provided at least at one and a half times the production cost.²⁶ This production cost, A2+FL, includes costs of inputs such as seeds and fertilisers, and implied cost of family labour. While MSPs are announced for 23 crops every year, public procurement is limited to a few such as

paddy, wheat, and, to a limited extent, pulses.²⁷ The procurement is also largely from a few states. Three states (Haryana, Madhya Pradesh, and Punjab) which produce 45% of the wheat in the country account for 81% of its procurement.²⁸ For paddy, six states (Andhra Pradesh, Chhattisgarh, Haryana, Odisha, Punjab, and Telangana) with 38% of production have 82% share in procurement.²⁸

Figure 8: Percentage of crop production that was procured at MSP in 2016-17



Sources: Committee on Doubling Farmers' Income (2017), Ministry of Agriculture and Farmers' Welfare; PRS.

Other issues with the implementation of MSPs include: (i) low awareness among farmers before the sowing season (according to NITI Aayog, 62% of the farmers were informed of MSPs after the sowing season), (ii) long distances to the procurement centres, (iii) increasing cost of transportation for farmers, and (iv) inadequate storage capacity.²⁹ The NITI Aayog noted that the agricultural pricing policy needs to be reviewed to ensure that farmers are receiving remunerative prices for their produce. Farmers are often forced to engage in distress sales, i.e. selling below MSPs.

In September 2018, the Union Cabinet approved the PM-AASHA scheme for procurement of crops from farmers.³⁰ The scheme provides states with the option to opt for another procurement mechanism (price deficiency payment system). This mechanism does not involve any physical procurement of crops. Direct payment of the difference between the MSPs and the selling/modal prices of the crops will be made to pre-registered farmers in their bank accounts. Farmers who sell their crops in the notified market yards through a transparent auction process will be eligible.

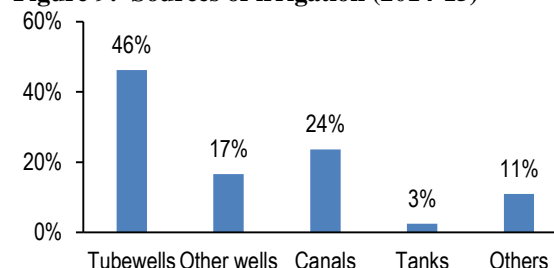
Irrigation

As of 2014-15, 49% of the country's net sown area was under irrigation.³¹ The remaining agricultural area in the country depends on rainfall. Major irrigation sources for agriculture include tubewells (46%) and other wells (17%), and canals (24%).³²

Sources such as canals and tubewells use the flood irrigation technique, where water is allowed to flow in the field and seep into the soil.³³ This results in wastage of water since excess water seeps into the soil or flows off the surface without being utilised.

It has been recommended that farmers move from flood irrigation to micro-irrigation (drip or sprinkler irrigation systems) to conserve water.³⁴

Figure 9: Sources of irrigation (2014-15)



Sources: Land Use Statistics at a Glance (2014-15), Ministry of Agriculture and Farmers' Welfare; PRS.

The Pradhan Mantri Krishi Sinchai Yojana (PMKSY) was launched in 2015 to increase the coverage of the irrigated area.³⁵ The Ministry implements the 'Per Drop More Crop' component under the scheme to increase water efficiency through micro-irrigation and other interventions. In 2020-21, Rs 4,000 crore has been allocated for the scheme, a 97% increase over the revised estimates of 2019-20. During the 2013-20 period, 50.7 lakh hectares (ha) of the area has been covered under micro-irrigation (Table 2).³⁶

Table 2: Area covered under micro-irrigation in lakh hectares under PMKSY

Year	Target	Achievement	In %
2013-14	6.6	4.3	65%
2014-15	5.7	4.2	74%
2015-16	5	5.7	114%
2016-17	8	8.4	105%
2017-18	12	10.5	88%
2018-19	16	11.6	73%
2019-20*	14	6	43%
Total	67.3	50.7	75%

Note: Data as of February 14, 2020.

Sources: Website of Pradhan Mantri Krishi Sinchai Yojana, as accessed on February 5, 2020; PRS.

Shortfall in funds: Allocation to the scheme has been increasing over the years, but it is revised down at later stages (Table 3).⁴² Allocation to the scheme in 2019-20 has been revised down by 42% from Rs 3,500 crore (BE) to Rs 2,032 crore (RE).

Table 3: Budgeted vs actual expenditure under PMKSY under the Ministry (in Rs crore)

Year	Budgeted	Actual	% shortfall
2015-16	1,800	1,556	14%
2016-17	2,340	1,991	15%
2017-18	3,400	2,819	17%
2018-19	4,000	2,918	27%
2019-20 (RE)	3,500	2,032	42%

Note: Figure for 2019-20 are Revised Estimates.

Sources: Expenditure Budget, Union Budgets (2015-20); PRS.

Soil health and fertilisers

While the Department of Fertilisers under the Ministry of Chemicals and Fertilisers is responsible for monitoring the production, distribution, and prices of fertilisers, the Department of Agriculture, Cooperation and Farmers' Welfare is responsible for the promotion of balanced use of fertilisers.³⁷ Balanced use refers to the use of a proper combination of various nutrients and other micro-nutrients. Three major nutrients are primarily used: Nitrogen (N), Phosphatic (P), and Potassic (K). The government subsidises fertilisers through: (i) subsidy for urea (containing N fertiliser), and (ii) nutrient-based subsidy for P and K fertilisers.

Rs 71,309 crore is allocated to the Department of Fertilisers for fertiliser subsidy in 2020-21, an 11% decrease (Rs 8,689 crore) over the 2019-20 revised estimate (Table 4).

Table 4: Fertiliser subsidy allocation (Rs crore)

Subsidy	2018-19 Actuals	2019-20 Revised	2020-21 Budgeted	% change in 2020-21 over 2019-20
Urea	46,514	53,629	47,805	-10.9%
Nutrient based	24,090	26,369	23,504	-10.9%
Fertiliser subsidy	70,604	79,998	71,309	-10.9%

Sources: Expenditure Budget, Union Budget 2020-21; PRS.

Prices of urea are controlled by the government, whereas the prices of P and K fertilisers are market-driven.³⁷ This has led to the lower prices of urea (N) over the years, whereas market prices of P and K fertilisers have remained higher. This is one of the reasons for imbalanced use of nutrients as urea is used more than other fertilisers.³⁷ While the recommended ratio of use of the N, P, and K fertilisers is 4:2:1, this ratio in India in 2016-17 was at 6.7:2.7:1.³⁸ Details of consumption of N, P, and K fertilisers are given in Table 8 in the Annexure.

Overuse of fertilisers could lead to an imbalance of nutrients in the soil and deteriorate the soil quality. The Standing Committee on Agriculture (2015) observed that use of fertilisers in the country was not based on scientific analysis of soil due to near absence of soil testing facilities, low awareness, and over-reliance on urea.³⁸

In order to provide farmers with information regarding the quality of their soil, the Soil Health Card scheme was launched in 2015. Under the Soil Health Card scheme, farmers are issued soil health cards, which contain information such as nutrient status of soil and recommended dose of nutrients to be provided to improve its fertility.

Rs 315 crore has been allocated for the National Project on Soil Health and Fertility in 2020-21, a 102% increase over the revised estimates of 2019-20. During the first cycle (2015-17) of the scheme, 10.74 crore soil health cards were provided.³⁹

During the year 2019-20, 12.4 lakh Soil Health Cards were distributed to farmers under Model Village Project.⁴⁰

Rashtriya Krishi Vikas Yojana

The umbrella scheme was initiated in 2007 for ensuring holistic development of agriculture and allied sectors by allowing states to choose their own development activities as per district and state agriculture plans.⁴¹

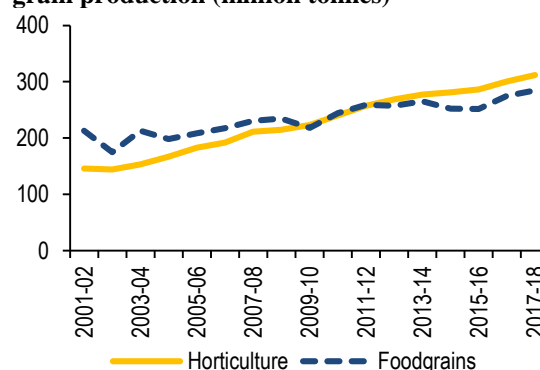
With the aim of making farming a remunerative economic activity, the Ministry provides financial assistance to states to spend on sub-schemes such as: (i) pre-harvest and post-harvest infrastructure, (ii) value addition using agribusiness models, and (iii) projects based on local and national priorities.

Rs 3,700 crore has been allocated to the scheme for 2020-21, a 34% increase over the 2019-20 revised estimate. The Standing Committee on Agriculture (2017) observed that allocations are not utilised optimally and timely. This is due to delay in the approval of projects and funds by states and consequent slow progress of implementation, causing a reduction in the release of funds.⁴² For instance, in 2019-20, the scheme was allocated Rs 3,745 crore at the budgeted stage, which has been cut down by 26% to Rs 2,760 crore as per the revised estimates.

Horticulture

Between 2001-02 and 2018-19, the production of horticulture crops increased from 146 million tonnes to 312 million tonnes (Figure 10).⁴³ This implies that the horticulture production increased at an average rate of 4.9%. Production of food grains increased at a rate of 1.7% during the same period.

Figure 10: Comparison of horticulture and food grain production (million tonnes)



Sources: Horticulture Statistics at a Glance 2018, Ministry of Agriculture and Farmers' Welfare; PRS.

In 2018-19, fruits and vegetables contributed to 31% and 59% of the total horticultural production respectively. The National Mission on Horticulture seeks to promote horticulture by providing availability of quality inputs such as planting material, and post-harvest interventions such as reduction in losses and access to markets. In 2020-21, the scheme has been allocated Rs 2,300 crore,

which is 45% more than the revised estimate of 2019-20.

Over the past few years, the actual expenditure under horticulture has been lower than the budgeted allocation, except in 2013-14 (Table 5).

Table 5: Expenditure under central sector schemes and centrally sponsored schemes on horticulture (in Rs crore)

Year	Budgeted	Actual	Budget vs Actual
2012-13	2,212	1,860	-15.9%
2013-14	2,556	2,857	11.8%
2014-15	2,263	1,959	-13.4%
2015-16	2,000	1,699	-15.1%
2016-17	1,620	1,496	-7.7%
2017-18	2,329	2,035	-12.6%

Sources: Horticulture Statistics at a Glance 2018, Ministry of Agriculture and Farmers' Welfare; PRS.

Agricultural Marketing

The Integrated Scheme on Agriculture Marketing includes sub-schemes such as: (i) agriculture marketing infrastructure, to create storage capacity and farmer consumer markets, (ii) market research and information network, (iii) strengthening of Agmark grading facilities, (iv) agro-business development to provide market linkages to farmers, and (v) e-NAM (National Agriculture Market), which is a national electronic market platform on which farmers can sell their produce.

In 2020-21, the scheme has been allocated Rs 490 crore. This is 48% higher than the 2019-20 revised estimate. However, the allocation in 2019-20 has been revised down by 45%, from Rs 600 crore to Rs 331 crore. As of January 2019, 585 mandis across 18 states were integrated with e-NAM.⁴⁴

APMCs: Agriculture marketing in most states is regulated by the Agriculture Produce Marketing Committees (APMCs) established by state governments. The Standing Committee on Agriculture (2018) observed that small and marginal farmers face various issues in selling their produce in APMC markets such as inadequate marketable surplus, long-distance to nearest APMC markets, and lack of transportation facilities. Most farmers lack access to government procurement facilities including APMC markets.⁴⁴

The Committee observed that provisions of the APMC Acts are not implemented in their true sense, due to reasons such as: (i) limited number of traders in APMC markets thereby reducing competition, (ii) cartelisation of traders, and (iii) undue deductions in the form of commission charges and market fee.⁴⁴ It observed that APMC Acts need to be reformed urgently. The Acts are highly restrictive in promotion of multiple channels of marketing and competition in the system.

15th Finance Commission's recommendations on agricultural reforms

The 15th Finance Commission, in its report for 2020-21, proposed certain criteria for providing performance-linked incentives to states. The Commission included the implementation of agricultural reforms as one of the criterion. States would be eligible for certain financial incentives if they enacted and implemented the features of: (i) The Model Agricultural Produce and Livestock Marketing (Promotion and Facilitation) Act, 2017, (ii) The Model Agricultural Produce and Livestock Contract Farming and Services (Promotion and Facilitation) Act, 2018, and (iii) The Model Agricultural Land leasing Act, 2016.⁴⁵

The Model Agricultural Produce and Livestock Marketing (Promotion and Facilitation) Act, 2017: The Act aims to create a single agricultural market for agricultural produce and livestock. It seeks to remove intermediaries by integrating farmers, exporters, consumers and others in a single supply chain and by promoting a direct interface between producers and consumers. The Act aims to encourage e-trading to promote both transparency and integration of markets within each State/UT. Inter-state trading license, grading and standardization and quality certification are provided for with an aim to promote a national market for agricultural produce and livestock.

The Model Agricultural Produce and Livestock Contract Farming and Services (Promotion and Facilitation) Act, 2018: The Act aims to facilitate contract farming to improve production and marketing of agricultural produce and livestock. It constitutes "Registering and Agreement Recording Committee" at District, Block or Taluka level. It seeks to support contracting farmers by providing insurance cover and purchasing agricultural produce as per the contract. The Act aims to expand contract farming to small and marginal farmers through the promotion of Farmer Producer Organisation or Companies.

The Model Agricultural Land Leasing Act, 2016: The Act aims to improve access to land by landless and marginal farmers by permitting and facilitating the leasing of agricultural land. It legalises land leasing in all areas. The Act provides for the automatic resumption of the land after the lease period and removes the clause of adverse possession of the land. It promotes access to institutional loans, insurance and relief to tenants and sharecroppers.

Agricultural Research

The Indian Council of Agricultural Research (ICAR) has been allocated Rs 5,138 crore for the year 2020-21. This is 5.5% higher than the revised estimate of 2019-20. The allocation is primarily for salaries, pensions and administrative expenses and support for different schemes under ICAR.

Research under crop sciences and animal sciences have been allocated Rs 965 crore and Rs 486 crore in 2020-21. Observing that vegetable oils, pulses, cashew are among the major commodities imported between 2011 and 2016, the Standing Committee on Agriculture (2017) observed that there is a need for enhancing the production of these commodities.⁴⁶ It also recommended the central

government to allocate additional funds to ICAR for this purpose.

The Committee noted that the production of animal vaccine is inadequate in the country. It recommended that adequate resources and manpower must be devoted to ICAR for the development of animal vaccines.

International comparison: The Committee on Doubling Farmers' Income (Chair: Mr. Ashok Dalwai, 2018) observed that the expenditure on agricultural research in India has remained around 0.3-0.4% of the agriculture GDP since 2001

(except in 2011 when it was 0.52% because of higher plan allocations by the government).⁴⁷

The Committee observed that this is substantively lower in comparison to many developed countries, and also vis-à-vis comparable developing economies. The share of agricultural research in agriculture GDP is much higher in Brazil (1.8%), Mexico (1.05%), Malaysia (0.99%), and China (0.62%). It observed that in the high-income countries, the share stands at 3.01%. The Committee recommended that expenditure on agricultural research should be increased to upto one percent of agriculture GDP.

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Annexure

Allocation to major expenditure heads under the Departments

Table 6: Allocation to major heads of expenditure under the Department of Agriculture, Cooperation and Farmers' Welfare in 2020-21 (Rs crore)

	2018-19 Actuals	2019-20 Budgeted	2019-20 Revised	% change in RE of 2019-20 over BE of 2019-20	2020-21 Budgeted	% change in BE of 2020-21 over RE of 2019-20
PM-KISAN	1,241	75,000	54,370	-27.5%	75,000	37.9%
Interest subsidy for short-term credit to farmers	11,496	18,000	17,863	-0.8%	21,175	18.5%
Pradhan Mantri Fasal Bima Yojana	11,937	14,000	13,641	-2.6%	15,695	15.1%
Pradhan Mantri Krishi Sinchai Yojana (Per Drop More Crop)	2,918	3,500	2,032	-41.9%	4,000	96.8%
Market intervention scheme and price support scheme (MIS-PSS)*	1,400	3,000	2,010	-33.0%	2,000	-0.5%
PM-AASHA	4,721	1,500	321	-78.6%	500	55.8%
Pradhan Mantri Kisan Man Dhan Yojana	-	900	200	-77.8%	220	10.0%
Green Revolution	11,758	12,561	9,965	-20.7%	13,320	33.7%
Rashtriya Krishi Vikas Yojna	3,370	3,745	2,760	-26.3%	3,700	34.1%
National Mission on Horticulture	1,997	2,225	1,584	-28.8%	2,300	45.2%
National Food Security Mission	1,606	2,000	1,777	-11.2%	2,100	18.2%
Department	46,076	1,30,485	1,01,904	-21.9%	1,34,400	31.9%

*for procurement of pulses and oilseeds

Sources: Demand no. 1, Expenditure Budget, Union Budget 2020-21; PRS.

Table 7: Allocation to major heads of expenditure under the Department of Agricultural Research and Education in 2020-21 (Rs crore)

	2018-19 Actuals	2019-20 Budgeted	2019-20 Revised	% change in RE of 2019-20 over BE of 2019-20	2020-21 Budgeted	% change in BE of 2020-21 over RE of 2019-20
ICAR headquarters	5,056	4,869	4,869	0.0%	5,138	5.5%
Crop sciences	868	934	859	-8.1%	965	12.3%
Agricultural education	761	819	688	-16.0%	740	7.6%
Animal sciences	421	453	452	-0.2%	486	7.4%
Department	7,544	8,079	7,846	-2.9%	8,363	6.6%

Sources: Demand no. 2, Expenditure Budget, Union Budget 2020-21; PRS.

Consumption of Fertilisers

Table 8: Consumption of fertilisers in terms of N, P, and K nutrients (in lakh tonnes)

Year	Urea (N)	Phosphatic (P)	Potassic (K)	Total (N+P+K)
2005-06	127.2	52.0	24.1	203.4
2006-07	137.7	55.4	23.3	216.5
2007-08	144.2	55.1	26.4	225.7
2008-09	150.9	65.1	33.1	249.1
2009-10	155.8	72.7	36.3	264.9
2010-11	165.6	80.5	35.1	281.2
2011-12	173.0	79.1	25.8	277.9
2012-13	168.2	66.5	20.6	255.4
2013-14	167.5	56.3	21.0	244.8
2014-15	169.4	60.9	25.3	255.8
2015-16	173.7	69.8	24.0	267.5
2016-17	167.4	67.1	25.1	259.5
2017-18	169.6	68.5	27.8	265.9

Sources: Agricultural Statistics at a Glance 2018, Ministry of Agriculture and Farmers' Welfare; PRS.

Implementation of PM-KISAN**Table 9: State-wise number of beneficiaries of the PM-KISAN scheme and instalment-wise number of recipients (As on February 11, 2020)**

State	Number of Beneficiaries	First Instalment (Dec 18-Mar 19)	Second Instalment (Apr 19-July 19)	Third Instalment (Aug 19-Nov 19)	Fourth Instalment (Dec 19-Mar 20)
Andaman and Nicobar Islands	16,584	16,504	15,909	15,048	10,617
Andhra Pradesh	51,54,980	51,17,781	41,75,957	41,14,193	31,35,612
Arunachal Pradesh	56,628	50,820	42,529	8,556	2,765
Assam	31,07,195	27,04,200	24,14,304	19,74,747	9,52,266
Bihar	54,98,078	53,48,465	47,02,794	31,56,473	6,70,525
Chandigarh	457	457	425	267	247
Chhattisgarh	19,81,216	18,80,819	16,54,160	9,93,519	1,04,905
Dadra and Nagar Haveli	10,564	10,435	10,309	8,656	5,761
Daman and Diu	3,587	3,463	3,372	3,095	2,331
Delhi	13,727	12,479	11,468	9,047	1,864
Goa	8,339	7,248	6,278	5,176	3,173
Gujarat	47,88,238	48,26,236	47,01,941	43,84,553	25,63,936
Haryana	15,42,748	14,54,111	14,37,275	13,43,219	10,01,515
Himachal Pradesh	8,75,212	8,63,955	8,43,492	7,73,642	5,35,693
Jammu and Kashmir	9,57,049	9,30,696	8,84,219	7,89,200	5,48,782
Jharkhand	15,15,528	14,52,601	7,43,938	6,56,350	3,20,170
Karnataka	49,73,543	49,05,076	46,72,645	36,04,478	3,52,488
Kerala	28,23,238	27,73,270	27,11,527	25,95,771	19,74,496
Lakshadweep	1,516	0	0	0	0
Madhya Pradesh	57,53,671	55,13,954	49,57,931	28,86,351	123
Maharashtra	90,73,782	84,57,153	68,21,942	52,87,162	20,21,367
Manipur	2,05,549	1,73,789	96,815	50,988	31,649
Meghalaya	72,690	70,236	64,747	36,890	22,010
Mizoram	69,420	67,534	65,510	53,698	21,598
Nagaland	1,70,286	1,68,749	1,61,731	87,829	29,996
Odisha	36,54,583	36,28,657	29,30,610	20,65,516	3,94,684
Puducherry	9,778	9,503	9,170	7,509	914
Punjab	22,39,849	22,40,071	22,14,919	14,67,311	14,32,400
Rajasthan	59,54,395	52,04,516	48,20,425	37,22,203	18,84,456
Sikkim	8,849	11	11	0	0
Tamil Nadu	36,16,504	35,28,387	33,72,052	31,41,155	23,17,369
Telangana	35,02,566	34,81,591	34,14,194	31,67,793	22,91,010
Tripura	1,96,462	1,94,696	1,89,720	1,82,126	1,40,460
Uttar Pradesh	2,02,34,707	1,87,35,405	1,71,04,668	1,49,91,796	77,28,816
Uttarakhand	7,14,783	7,01,781	6,70,035	6,03,658	4,53,114
West Bengal	0	0	0	0	0
Total	8,88,06,301	8,45,34,649	7,59,27,022	6,21,87,975	3,09,57,112

Sources: Website of PM-KISAN scheme as accessed on February 12, 2020; PRS.