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AGRICULTURE INITIATIVES

National Mission For Sustainable Agriculture (NMSA)

National Mission for Sustainable Agriculture (NMSA) has been made operational from the year 2014-15 which aims at making agriculture more productive, sustainable, remunerative and climate resilient by promoting location specific integrated /composite farming systems; soil and moisture conservation measures; comprehensive soil health management; efficient water management practices and mainstreaming rainfed technologies.

Need of the Initiative

Indian agriculture remains predominantly rainfed covering about 60% of the country's net sown area and accounts for 40% of the total food production. Thus, conservation of natural resources in conjunction with development of rainfed agriculture holds the key to meet burgeoning demands for food grain in the country. Towards this end, National Mission for Sustainable Agriculture (NMSA) has been formulated for enhancing agricultural productivity especially in rainfed areas focusing on integrated farming, water use efficiency, soil health management and synergizing resource conservation.

About NMSA

- NMSA derives its mandate from Sustainable Agriculture Mission which is one of the eight Missions outlined under National Action Plan on Climate Change (NAPCC).
- It aims at promoting sustainable agriculture through a series of adaptation measures focusing on ten key dimensions encompassing Indian agriculture namely;
  - 'Improved crop seeds
  - livestock and fish cultures'
  - 'Water Use Efficiency'
  - 'Pest Management'
  - 'Improved Farm Practices'
  - 'Nutrient Management'
  - 'Agricultural insurance'
  - 'Credit support'
  - 'Markets'
  - 'Access to Information'
  - 'Livelihood diversification'

- NMSA give special emphasis on soil & water conservation, water use efficiency, soil health management and rainfed area development.
- The focus of NMSA will be to infuse the judicious utilization of resources of commons through community based approach.
- National Mission for Sustainable Agriculture (NMSA), includes programmatic interventions like Soil Health Card (SHC), Paramparagat Krishi Vikas Yojana (PKVY), Mission Organic Value Chain Development for North Eastern Region (MOVCDNER), Rainfed Area Development (RAD), National Bamboo Mission (NBM) and Sub-mission on Agro Forestry (SMAF).

Program Components

NMSA has following four (4) major programme components or activities:

- **Rainfed Area Development (RAD):** RAD will adopt an area based approach for development and conservation of natural resources along with farming systems. This component will introduce appropriate farming systems by integrating multiple components of agriculture such as crops, horticulture, livestock, fishery, forestry with agro based income generating activities and value addition.
- **On Farm Water Management (OFWM):** OFWM will focus primarily on enhancing water use efficiency by promoting efficient on-farm water management technologies and equipment. This will not only focus on application efficiency but, in conjunction with RAD component, also will emphasize on effective harvesting & management of rainwater.
- **Soil Health Management (SHM):** SHM will aim at promoting location as well as crop specific sustainable soil health management including residue management, organic farming practices by way of creating and linking soil fertility maps with macro-micro nutrient management, appropriate land use based on land capability, judicious application of fertilizers and minimizing the soil erosion/degradation.
- **Climate Change and Sustainable Agriculture:** Monitoring, Modeling and Networking (CCSAMMN): CCSAMMN will provide creation and bidirectional (land/farmers to research/scientific establishments and vice versa) dissemination of climate change related information and knowledge by way of piloting climate change adaptation/mitigation research/model projects in the domain of climate smart sustainable management practices and integrated farming system suitable to local agro-climatic conditions.

Objectives

- To make agriculture more productive, sustainable, remunerative and climate resilient by promoting location specific Integrated/Composite Farming Systems.
- To conserve natural resources through appropriate soil and moisture conservation measures.
- To adopt comprehensive soil health management practices based on soil fertility maps, soil test based application of macro & micro nutrients, judicious use of fertilizers etc.
- To optimize utilization of water resources through efficient water management to expand coverage for achieving 'more crop per drop'.
- To develop capacity of farmers & stakeholders, in the domain of climate change adaptation and mitigation measures.
- To establish an effective inter and intra Departmental/Ministerial co-ordination for accomplishing key deliverables of National Mission for Sustainable Agriculture under the aegis of NAPCC.

Implementation of the Scheme

National Advisory Committee (NAC)

- National Advisory Committee(NAC) under Chairmanship of Secretary (A&C) along with the representatives of Ministry of Water Resources, Rural Development, Panchayati Raj, Environment & Forest, Food Processing Industries, Tribal Affairs, Agricultural Research & Education and Animal Husbandry Dairying & Fisheries have been constituted to provide strategic direction for guidance and planning for effective implementation of the mission.

State Level Committee (SLC)

- At State level, State Level Committee (SLC) chaired by Agriculture Production Commissioner(APC)/ Principal Secretary/Secretary (Agriculture/Horticulture) with representation from concerned line Departments like Revenue, Animal Husbandry, Fisheries, Forests etc., CEO of SLNA, SAUs and ICAR Centers will oversee planning and implementation of the Mission.

District Level Architecture

- District Mission Committee (DMC) will be entrusted with project formulation, implementation and monitoring of NMSA. DMC may be headed by Collector or CEO of Zilla Parishad /District Council.

Other organizations involved

- Climate Change Cell (CCC) of DAC&FW along with Soil & Land Use Survey of India (SLUSI) will serve as knowledge networking centre
- Soil and Land Use Survey of India (SLUSI)
- National Centre of Organic Farming (NCOF)
- Central Fertilizer Quality Control & Training Institute (CFQCTI)

How the Scheme is working so far?

- Since, 2015-16 an area of 30.69 lakh ha has been brought under micro irrigation so far.
- Since inception of the scheme, an area of 6,811.57 ha has been brought under Integrated Farming System.
- Indian Council of Agricultural Research (ICAR) has developed 45 models for climate resilient Integrated Farming Systems (IFS) which are replicated in Krishi Vigyan Kendras (KVKs) for demonstration and extended through the Rainfed Area Development (RAD) programme.
- Climate resilient villages have been developed, one in each of 151 districts under the project National Innovations in Climate Resilient Agriculture (NICRA).
- An atlas on vulnerability of Indian agriculture to climate change has been prepared by Central Research Institute of Dryland Agriculture (CRIDA), Hyderabad.
- District Agriculture Contingency Plans for 648 districts have been prepared for managing weather aberrations for sustainable agriculture.
- Due to preparedness and introduction of climate resilient varieties, total food grain has increased from 208.60 Million Tonnes in 2005-06 to 284.95 Million Tonnes in 2018-19 (4th Adv. Est.) and horticulture production from 116.9 Million Tonnes in 2004- 05 to 313.85 Million Tonnes in 2018-19 (3rd Adv. Est.).
- In Andhra Pradesh, during the Pethai and Titli cyclones of 2018, the crops cultivated through natural farming showed greater resilience to heavy winds than conventional crops.

Way Forward

- Despite government policy support, organic farming currently covers only two per cent of the country's total net sown area (140 million ha). India has about two million certified organic producers, but reliable information about uncertified organic farmers is not available.
- Indian government recognises the importance of promoting sustainable agriculture, the focus remains heavily skewed towards green revolution-led farming.
- Merely 0.8% of the Ministry of Agriculture and Farmers Welfare budget is allocated to National Mission for Sustainable Agriculture indicating a significant scope to support sustainable agriculture further.
- Focus on knowledge exchange and capacity building among farmers and agriculture extension workers on SAPSs. Leveraging and building-on the extensive prevailing on-ground CSO capacity would be a great first step.

- Restructure the government support to farmers. Instead of encouraging resource- intensive cultivation through inputs-based subsidies, align incentives towards resource conservation while rewarding outcomes (such as total farm productivity, enhanced ecosystem services) and not merely outputs such as yields. It will allow a multitude of farming approaches, including SAPSs, to flourish.
- Support rigorous evidence generation through long-term comparative assessment (between resource-intensive and sustainable agriculture) in view of changing-climate to inform long-term resilient approaches to nutrition security. It would help enable an evidence- backed and context-relevant scale up of SAPSs.

Paramparagat Krishi Vikas Yojna (PKVY)

"Paramparagat Krishi Vikas Yojna (PKVY)" aims at development of sustainable models of organic farming through a mix of traditional wisdom and modern science to ensure long term soil fertility buildup, resource conservation and helps in climate change adapatation and mitigation.

Need of the Initiative

Considering the heavy dependence on fertilizers and pesticides by Indian farmers and the adverse health and environmental impacts of these chemicals government of India has been promoting Organic farming in the country.

About PKVY

- Launched in 2015, a sub-component of Soil Health Management(SHM) scheme under National Mission of Sustainable Agriculture(NMSA).
- It primarily aims to increase soil fertility and thereby helps in production of healthy food through organic practices without the use of agro-chemicals.
- PKVY also aims at empowering farmers through institutional development through clusters approch not only in farm practice management, input production, quality assurance but also in value addition and direct marketing through innovative means.
- Participatory Gurantee System under PGS-India programme will be the key approach for quality assurances under the PKVY.
- The farmers will have option to adopt any form of organic farming in complince of PGS-India standards.
- While adopting a system it must be ensured that the system adopted is compatible to the area and crop and assures optimum yield and provides adequate measures to manage nutrients,pests and diseases.

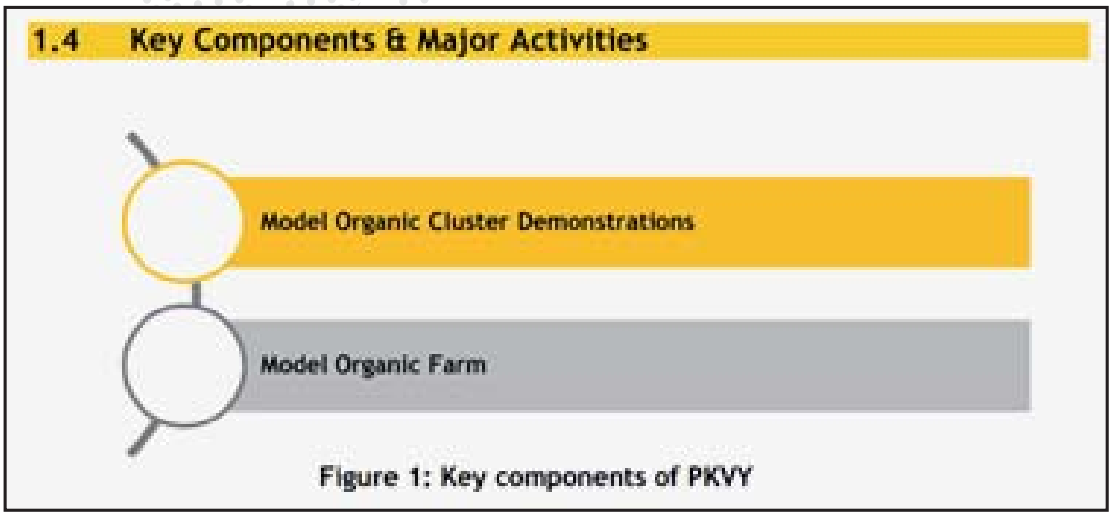

Figure 1: Key components of PKVY

- Funding pattern under the scheme is in the ratio of 60:40 by the Central and State Governments respectively. In case of North Eastern and Himalayan States, Central Assistance is provided in the ratio of 90:10 (Centre: State) and for Union Territories, the assistance is 100%.

- Farmers will have the flexibility to use appropriate package of practice(s) best suited to their situations.

Objectives

The objective is to produce agricultural products free from chemicals and pesticides residues by adopting eco- friendly, low- cost technologies. Key Thrust areas of PKVY in promoting organic farming include the following:

- Promote organic farming among rural youth/ farmers/ consumers/ traders
- Disseminate latest technologies in organic farming
- Utilize the services of experts from public agricultural research system in India
- Organize a minimum of one cluster demonstration in a village

Implementation Framework

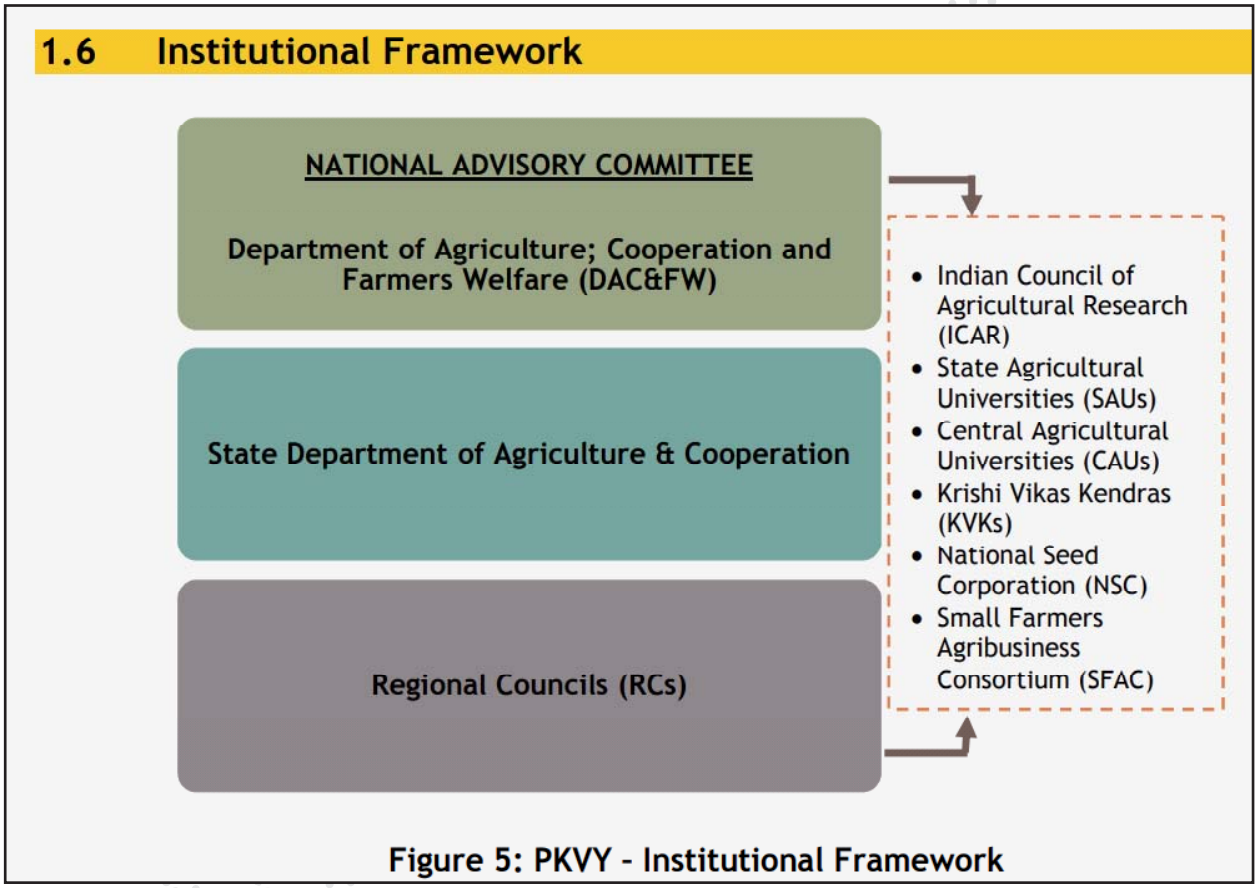

Figure 5: PKVY - Institutional Framework

How the initiative had worked?

- Cost reduction (cost saving): There is an immediate reduction in the cost of cultivation (cost saving) up to 10 to 20% as the beneficiaries are not using purchased fertilizers and pesticides.
- Due to reduction in costs, there was increase in net returns ranging from 20 to 50%.
- Savings in purchased inputs (cash expenses): The benefits are significant in crops like paddy and cotton, for which farmers spend huge amount of money on purchase of fertilizers and pesticides before PKVY.
- Price premium was observed in some clusters, which are nearer to large cities and have good linkages with large markets (the price premium was ranged from 10% to 30% based on the type of market linkage, commodity and market linkage. In general price premium is not widely observed.
- Yield improvement observed only in a few farmers who do all PKVY practices since last few years, but in general there was no significant yield increase in first year.

- There was huge scope of area increase of organic area in tribal, rainfed, hilly and remote areas.

Way Forward

- **Timely action:** Plan preparation, release of fund and implementation needs to be streamlined.
- **Identification of potential zones (Organic Special economic Zones):** There was a need for identification of potential zones like rainfed areas, tribal areas, where traditionally farmers use less fertilizers for intensive efforts for promoting organic clusters. Creation of organic special Economic zones (OSEZ) where the tribal population is more such as Chhattisgarh, Jharkhand, Srikakulam in Andhra Pradesh.
- **Incentives:** Announcing incentives to the farmers (master farmers) who adopt organic farming for the first 3 – 5 years to compensate low yields.
- **A multi-agency approach**, involving public, private and NGOs may be encouraged. Currently there was little involvement of institutions like KVKs, ATMAs and SAUs to promote organic agriculture.

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)

The overreaching vision of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) will be to ensure access to some means of protective irrigation to all agricultural farms in the country, to produce 'per drop more crop', thus bringing much desired rural prosperity.

Need of the Initiative

Out of about 141 m.Ha of net area sown in the country, about 65 million hectare (or 45%) is presently covered under irrigation. Substantial dependency on rainfall makes cultivation in unirrigated areas a high risk, less productive profession. Empirical evidences suggest that assured or protective irrigation encourages farmers to invest more in farming technology and inputs leading to productivity enhancement and increased farm income.

About PMKSY

- Launched in 2015, PMKSY seeks to achieve convergence of investments in irrigation at the field level.
- PMKSY has been formulated amalgamating schemes viz. Accelerated Irrigation Benefit Programme (AIBP) of Ministry of Water Resources, River Development & Ganga Rejuvenation; Integrated Watershed Management Programme (IWMP) of Department of Land Resources; and On Farm Water Management (OFWM) component of National Mission on Sustainable Agriculture (NMSA) of Department of Agriculture and Cooperation.
- All the States and Union Territories including North Eastern States are covered under the programme.
- PMKSY is to be implemented in an area development approach, adopting decentralized state level planning and projectised execution, allowing the states to draw their irrigation development plans based on district/blocks plans with a horizon of 5 to 7 years. States can take up projects based on the District/ State Irrigation Plan.
- The National Steering Committee (NSC) of PMKSY under the chairmanship of Hon'ble Prime Minister, will provide policy direction to programme framework.
- A National Executive Committee (NEC) under the chairmanship of Vice Chairman of NITI Aayog will oversee the programme implementation at national level.

Programme Components

■ Accelerated Irrigation Benefit Programme(AIBP)

- ► To focus on faster completion of ongoing Major and Medium Irrigation including National Projects.

■ PMKSY (Har Khet ko Pani)

- Creation of new water sources through Minor Irrigation (both surface and ground water)
- Repair, restoration and renovation of water bodies; strengthening carrying capacity of traditional water sources, construction rain water harvesting structures (Jal Sanchay);
- Command area development, strengthening and creation of distribution network from source to the farm;
- Ground water development in the areas where it is abundant, so that sink is created to store runoff/ flood water during peak rainy season.
- Improvement in water management and distribution system for water bodies to take advantage of the available source which is not tapped to its fullest capacity (deriving benefits from low hanging fruits). At least 10% of the command area to be covered under micro/precision irrigation.
- Creating and rejuvenating traditional water storage systems like Jal Mandir (Gujarat); Khatri, Kuhl (H.P.); Zabo (Nagaland); Eri, Ooranis (T.N.); Dongs (Assam); Katas, Bandhas (Odisha and M.P.) etc. at feasible locations.

■ PMKSY (Per Drop More Crop)

- Programme management, preparation of State/District Irrigation Plan,
- Information Communication Technology (ICT) interventions through NeGP-A to be made use in the field of water use efficiency, precision irrigation technologies, on farm water management, crop alignment etc. and also to do intensive monitoring of the Scheme
- The extension workers will be empowered to disseminate relevant technologies under PMKSY
- Topping up of input cost particularly under civil construction beyond permissible limit (40%), under MGNREGS for activities like lining inlet, outlet, silt traps, distribution system etc.

■ PMKSY (Watershed Development)

- Effective management of runoff water and improved soil & moisture conservation activities such as ridge area treatment, drainage line, treatment, rain water harvesting, in-situ moisture conservation and other allied activities on watershed basis.
- Converging with MGNREGS for creation of water source to full potential in identified backward rainfed blocks including renovation of traditional water bodies.

Objectives:

The broad objectives of PMKSY will be:-

- Achieve convergence of investments in irrigation at the field level
- Enhance the physical access of water on the farm and expand cultivable area under assured irrigation (Har Khet ko pani),
- Integration of water source, distribution and its efficient use, to make best use of water through appropriate technologies and practices.
- Improve on-farm water use efficiency to reduce wastage and increase availability both in duration and extent,
- Enhance the adoption of precision-irrigation and other water saving technologies (More crop per drop).
- Enhance recharge of aquifers and introduce sustainable water conservation practices
- Ensure the integrated development of rainfed areas using the watershed approach towards soil and water conservation, regeneration of ground water, arresting runoff, providing livelihood options and other NRM activities.
- Promote extension activities relating to water harvesting, water management and crop alignment for farmers and grass root level field functionaries.

- Explore the feasibility of reusing treated municipal waste water for periurban agriculture, and
- Attract greater private investments in irrigation

How the initiative is working?

- Till its inclusion under PMKSY in 2016, 297 irrigation/ multi-purpose projects were included for funding under AIBP. Out of these, 143 projects have been completed and 5 projects were foreclosed. An irrigation potential of 24.39 lakh hectare has been created through the completed projects.
- After launch of PMKSY in 2015-16, AIBP became a part of PMKSY. Under PMKSY-AIBP, 99 projects having ultimate potential of 76.03 lakh hectare have been prioritized for completion. Against the balance ultimate potential of 34.63 lakh hectare, 21.45 lakh hectare has been achieved till March, 2020.
- During this period, average annual rate of completion of projects has increased from 7 to 11, while the average annual rate of potential creation (lakh hectare) has increased from 4.5 to 5.4.

					(Rs. in crore)
Central Assistance	2016-17	2017-18	2018-19	2019-20	2020-21
Accclerated Irrigation Benefit Programme	3307.88	3593.61	2849.07	1738.76	1510.04
Ilar Khet Ko Pani	1001.91	1678.13	1343.23	1217.97	976.53
Per Drop More Crop	1991.24	2819.49	2918.38	2700.01	2562.18
Watershed Development	1471.72	1691.81	1780.55	1472.33	990.23

- The achievement by CADWM component upto March, 2021 is 14.96 lakh hectare, along with formation of 8,562 Water Users Associations.
- Under PMKSY-AIBP and CADWM, central assistance and State share is being provided through NABARD under Long Term Irrigation Fund (LTIF).
- There is also a provision whereby State share can be borrowed from NABARD by the State, with interest subvention beyond 6% to be borne by Government of India. The use of pressurized pipe irrigation and micro irrigation is being promoted to increase efficiency.
- Further, cropped area in the command of these 99 priority projects is being assessed by the Bhaskaracharya Institute For Space Applications and Geo-Informatics (BISAG) by using remote sensing techniques and 48.29 lakh hectare has been assessed during 2016-2020.

Way Forward

- Fund Utilization should be ensured in a given time period.
- Regular Monitoring and evaluation of achieved outcomes
- Field specialization and people participation should be ensured.

Pradhan Mantri Fasal Bima Yojana (PMFBY)

PMFBY provides a comprehensive insurance cover against failure of the crop thus helping in stabilising the income of the farmers.

Need of the Initiative

60% of the Indian agriculture comes under the rain-fed agriculture and the unpredictability of Monsoon along with changing climate patterns make farmers at loss in the end. Crop insurance is a means of protecting the agriculturist against financial losses due to uncertainties that may arise from crop failures/losses arising from named or all unforeseen perils beyond their control.

About the Scheme

- The Pradhan Mantri Fasal Bima Yojna was launched on 18th February 2016 by Prime Minister Shri Narendra Modi.
- The Scheme covers all Food & Oilseeds crops and Annual Commercial/Horticultural Crops.
- The scheme is implemented by empanelled general insurance companies.
- Selection of Implementing Agency (IA) is done by the concerned State Government through bidding.
- The scheme is compulsory for loanee farmers availing Crop Loan /KCC account for notified crops and voluntary for other others.
- The scheme is being administered by Ministry of Agriculture.
- Integration of land records with the PMFBY portal, Crop Insurance mobile-app for easy enrollment of farmers and usage of technology such as satellite imagery, remote-sensing technology, drones, artificial intelligence and machine learning to assess crop losses are some of the key features of the scheme.
- The scheme makes it easier for the farmer to report crop loss within 72 hours of occurrence of any event through the Crop Insurance App, CSC Centre or the nearest agriculture officer.
- Premium cost over and above the farmer share is equally subsidized by States and GoI. However, GoI shares 90% of the premium subsidy for North Eastern States to promote the uptake in the region.

Objective of the Schemes

Pradhan Mantri Fasal BimaYojana (PMFBY) aims at supporting sustainable production in agriculture sector by way of

- Providing financial support to farmers suffering crop loss/damage arising out of unforeseen events
- Stabilizing the income of farmers to ensure their continuance in farming
- Encouraging farmers to adopt innovative and modern agricultural practices
- Ensuring flow of credit to the agriculture sector which will contribute to food security, crop diversification and enhancing growth and competitiveness of agriculture sector besides protecting farmers from production risks.

Rate of Premium to be paid by the farmer to Insurance Company

Type of Crop	Kharif	Rabi
Food grains including Cereals, Pulses and Oilseeds	2%	1.5 %
Annual Horticulture and Commercial Crops	5%	

Coverage of Risks and Exclusions under PMFBY Scheme:

Following stages of the crop risks leading to crop loss are covered under the Scheme. Addition of new risks by the State Govt other than the one mentioned below, by the State Govt. is not permitted.

- **Prevented Sowing/Planting/Germination Risk:** Insured area is prevented from sowing / planting / germination due to deficit rainfall or adverse seasonal/weather conditions. 25% of the sum insured will be paid and the Policy will be terminated.
- **Standing Crop (Sowing to Harvesting):** Comprehensive risk insurance is provided to cover yield losses due to non-preventable risks, viz. Drought, Dry spell, Flood, Inundation, widespread Pests and Disease attack, Landslides, Fire due to natural causes ,Lightening, Storm, Hailstorm and Cyclone.
- **Post-Harvest Losses:** Coverage is available only upto a maximum period of two weeks from harvesting, for those crops which are required to be dried in cut and spread / small bundled condition in the field after harvesting against specific perils of Hailstorm, Cyclone, Cyclonic rains and Unseasonal rains.

- **Localized Calamities**: Loss/damage to notified insured crops resulting from occurrence of identified localized risks of Hailstorm, Landslide, Inundation, Cloud burst and Natural fire due to lightening affecting isolated farms in the notified area.
- **Add-on coverage for crop loss due to attack by wild animals:** The States may consider providing add- on coverage for crop loss due to attack by wild animals wherever the risk is perceived to be substantial and is identifiable.
- **General Exclusions**: Losses arising out of war and nuclear risks, malicious damage and other preventable risks shall be excluded.

How the Scheme is working so far?

- 21 states implemented the scheme in Kharif 2016 whereas 23 states and 2 UTs have implemented the scheme in Rabi 2016-17.
- 29.19 crore farmer applications have insured their crops under the PMFBY since 2016.
- More than Rs 95,000 crore worth of claims have been provided to farmers since the launch of the scheme in the year 2016, against the total premium of Rs 17,000 crore paid by them
- Lowest premium for all farmers of India - 2% for all Kharif Food & Oilseeds crops, 1.5% for Rabi Food & Oilseeds crops and 5% for Annual Commercial/Horticultural Crops
- Largest crop insurance scheme in the history of independent India and globally, the third largest scheme in terms of premium

Way Forward

- Loan waiver schemes announced by state governments along with mandatory Aadhar linkage should be rationalised to enable PMFBY of greater coverage.
- There has been reports of delayed compensation by some of the states.
- Apart from this, a lot more needs to be done in bringing about a behavioural change regarding the cost of insurance being a necessary input and not a money-back investment.
- PMFBY needs to be streamlined with state crop insurance schemes and schemes like Restructured Weather Based Crop Insurance Scheme to include more risk areas not covered under them.
- Successful implementation of PMFBY is an essential benchmark in agricultural reform in India to make farmers self-sufficient in times of crisis and support the creation of a self sufficient kisan.

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