



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

**INSTA PT 2021
EXCLUSIVE PART-2**

AGRICULTURE

APRIL 2021 – JUNE 2021

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Rank 5
OGP 2019 + Core Batch



Dheeraj Kumar Singh
Rank 64
OGP 2019



Yashaswini B
Rank 71
Core Batch +
Mains Test Series 2019



Nidhin K Biju
Rank 89
Core Batch +
Mains Test Series



M V Satya Sai Karthik
Rank 103
OGP 2018



Kumar Shivashish
Rank 108
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Rank 167
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Abhishek Gowda MJ
Rank 278
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Hearty Congratulations to AIR 2 & 4 of our Online Test Series and all our proud 160+ Rank Holders in UPSC CSE 2019!

Government Schemes/ Programmes

1. Beed model of crop insurance

Maharashtra government has asked for state-wide implementation of the 'Beed model' of the crop insurance scheme [Pradhan Mantri Fasal Bhima Yagna \(PMFBY\)](#).

What is the 'Beed Model'?

The issue:

- Beed is a district located in the drought-prone Marathwada region.
- The district presents a challenge for any insurance company because farmers here have repeatedly lost crops either to failure of rains or to heavy rains.
- Given the high payouts, insurance companies have sustained losses.

The solution:

To attract the insurance companies, the state Agriculture Department decided to tweak the PMFBY guidelines for the district.

Under the new guidelines, the insurance company provided a cover of 110% of the premium collected, with caveats.

1. **If the compensation exceeded the cover provided**, the state government would pay the bridge amount.
2. **If the compensation was less than the premium collected**, the insurance company would keep 20% of the amount as handling charges and **reimburse the rest to the state government**.

Effects on the state government:

- In a normal season where farmers report minimal losses, the state government is expected to get back money that can form a corpus to fund the scheme for the following year.
- However, the state government would have to bear the financial liability in case of losses due to extreme weather events.

Why is the government pushing for it for the entire state?

Another source of funds: In the Beed model, the profit of the company is expected to reduce and the state government would access another source of funds.

Reduced burden for state: The reimbursed amount can lead to lower provisioning by the state for the following year, or help in financing the paying the bridge amount in case of a year of crop loss.

About PMFBY:

- Launched in 2016, the flagship PMFBY **insures farm losses against inclement weather events**.
- Farmers pay 1.5-2% of the premium with the rest borne by the state and central governments.
- It is a **central scheme implemented by state agriculture departments as per central guidelines**.

PMFBY to PMFBY 2.0:

Completely Voluntary: It has been decided to make enrolment 100% voluntary for all farmers from 2020 Kharif.

Limit to Central Subsidy: The Cabinet has decided to cap the Centre's premium subsidy under these schemes for premium rates up to 30% for unirrigated areas/crops and 25% for irrigated areas/crops.

More Flexibility to States: The government has given the flexibility to states/UTs to implement PMFBY and given them the option to select any number of additional risk covers/features like prevented sowing, localised calamity, mid-season adversity, and post-harvest losses.

Penalising the Pendency: In the revamped PMFBY, a provision has been incorporated wherein if states don't release their share before March 31 for the Kharif season and September 30 for rabi, they would not be allowed to participate in the scheme in subsequent seasons.

Investing in ICE Activities: Insurance companies have to now spend 0.5% of the total premium collected on information, education and communication (IEC) activities.

2. Mission for Integrated Development of Horticulture (MIDH)

The Ministry of Agriculture and Farmers' Welfare has provided an enhanced allocation of Rs. 2250 Crore for the year 2021-22 for 'Mission for Integrated Development of Horticulture' (MIDH).

About the 'Mission for Integrated Development of Horticulture' (MIDH):

It is a scheme for the holistic growth and development of the Indian horticulture sector.

- This Centrally Sponsored scheme covers vegetables, fruits, roots and tuber crops, aromatic plants, flowers, spices, bamboo, coconut, cashew and cocoa.
- MIDH also provides technical support and advice to state horticultural missions, Rashtriya Krishi Vikas Yojana (RKVY), Saffron Mission and the National Mission for Sustainable Agriculture (NMSA).
- MIDH is under **the Ministry of Agriculture and Farmers' Welfare, GOI.**
- Under MIDH, **Government of India (GOI) contributes 60%, of total outlay for developmental programmes in all the states except states in North East and Himalayas, 40% share is contributed by State Governments. In the case of North Eastern States and Himalayan States, GOI contributes 90% (as per [click here](#)).**

Sub Schemes:

1. National Horticulture Mission (NHM).
2. Horticulture Mission for North East & Himalayan States (HMNEH).
3. National Bamboo Mission (NBM).
4. National Horticulture Board (NHB).
5. Coconut Development Board (CDB).
6. Central Institute for Horticulture (CIH).

3. Large Area Certification scheme

14,491 ha area of UT of A&N Islands has become the first large contiguous territory to be conferred with organic certification under '**Large Area Certification**' scheme.

About the 'Large Area Certification' scheme:

- **Department of Agriculture and Farmers Welfare** under its flagship scheme of **Paramparagat Krishi Vikas Yojna (PKVY)** has launched this unique quick certification programme to harness these potential areas.
- Under LAC, each village in the area is considered as one cluster/group.
- All farmers with their farmland and livestock need to adhere to the standard requirements and on being verified get certified en-mass without the need to go under conversion period.
- Certification is renewed on annual basis through annual verification by a process of peer appraisals as per the process of PGS-India.

Benefits of LAC:

1. As per the established norm of organic production systems, the areas having chemical input usage history are required to undergo a transition period of minimum 2-3 years to qualify as organic.
2. During this period, farmers need to adopt standard organic agriculture practices and keep their farms under the certification process.

3. On successful completion, such farms can be certified as organic after 2-3 years. The certification process also requires elaborate documentation and time to time verification by the certification authorities.
4. Whereas under LAC requirements are simple and the area can be certified almost immediately.

4. Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)

- Union Cabinet approved the Central Sector Scheme – **“Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)” to support Indian brands of food products in the international markets.**
- The Production Linked Incentive Scheme for Food Processing Industry has been formulated based on the Production Linked incentive scheme of NITI Aayog under “AatmaNirbhar Bharat Abhiyaan for Enhancing India's Manufacturing Capabilities and Enhancing Exports”.

Scheme Objectives:

- Support creation of global food manufacturing champions;
- Strengthen select Indian brand of food products for global visibility and wider acceptance in the international markets;
- Increase employment opportunities of off-farm jobs,
- Ensuring remunerative prices of farm produce and higher income to farmers.

Salient features:

- The first component relates to incentivising manufacturing of four major food product segments viz. Ready to Cook/ Ready to Eat (RTC/ RTE) foods including Millets based products, Processed Fruits & Vegetables, Marine Products, Mozzarella Cheese.
- Innovative/ Organic products of SMEs including Free Range - Eggs, Poultry Meat, Egg Products in these segments are also covered under first component.
- The second component relates to support for branding and marketing abroad to incentivise emergence of strong Indian brands.
- Scheme will be implemented over a six year period from 2021-22 to 2026-27.

Administrative and Implementation Mechanisms:

- The Scheme would be monitored at Centre by the Empowered Group of Secretaries chaired by the Cabinet Secretary.
- Inter-Ministerial Approval Committee (IMAC) would approve selection of applicants for coverage under the scheme, sanction and release of funds as incentives.

5. Agricultural Markets and Farmer Friendly Reforms Index

- **NITI Aayog’s Agricultural Markets and Farmer Friendly Reforms Index — AMFFRI, an index that evaluates Indian states on the extent to which each of them undertook required agri-reforms;**
- **A low AMFFRI rank implies the state is undertaking desired reforms.**
- It was found that states that undertook reforms, and were thus ranked low on AMFFRI, witnessed a relatively faster agri-GDP growth rate and states which did not undertake required reforms, and thus were ranked high on the AMFFRI, witnessed relatively lower agri-GDP growth rates.
- There were some exceptions: Karnataka, Haryana and Maharashtra. These states undertook reforms, and thus had low AMFFRI ranks, but they witnessed a low agri-GDP growth rate. This is likely to be attributed to the delayed effect of reforms on the agri-performance.

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Major crops, cropping patterns in various parts of the country

1. GI certified mangoes

Sixteen varieties of mangoes including three GI certified varieties were exported to Bahrain from West Bengal & Bihar.

- These include GI certified **Khirsapati & Lakshmanbhog (West Bengal), Zardalu (Bihar)**.



Jardalu or Zardalu mango is a unique variety of mango grown in Bhagalpur and adjoining districts of Bihar. It received the GI tag in 2018.

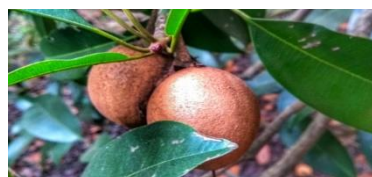
2. GI certified Jalgaon banana

- In 2016, Jalgaon Banana got GI certification which was registered with Nisargraja Krishi Vigyan Kendra (KVK) Jalgaon.
- Jalgaon district is in Maharashtra.
- India is the world's leading producer of bananas with a share of around 25% in total output.
- Andhra Pradesh, Gujarat, Tamil Nadu, Maharashtra, Kerala, Uttar Pradesh, Bihar and Madhya Pradesh contribute more than 70% of the country's banana production.



3. GI-certified Gholvad Chikoo

- GI-certified Dahanu Gholvad Chikoo from Maharashtra was exported to UK.
- GI certification of Gholvad Sapota is held by Maharashtra Rajya Chikoo Utpadak Sangh and the fruit is known for its **sweet and unique taste**. It is believed that the unique taste is derived from **calcium-rich soil of Gholvad village**.
- Chikoo is grown in many states- Karnataka, Gujarat, Maharashtra, Tamil Nadu, West Bengal and Andhra Pradesh. Karnataka is known to be the highest grower of the fruit, followed by Maharashtra.



4. Shahi litchi

Shahi Litchi from Bihar was recently exported to United Kingdom by air route.

- Shahi litchi was the fourth agricultural products to get GI certification from Bihar in 2018, after Jardalu mango, Katarni rice and Magahi paan.
- GI registration for Shahi Litchi is held with the Muzaffarpur-based Litchi Growers Association of Bihar.
- **India is the second largest producer of litchi (Litchi chin) in the world, after China.**
- The translucent, flavoured aril or edible flesh of the litchi is popular as a table fruit in India, while in China and Japan it is preferred in dried or canned form.
- **Bihar tops in terms of production of litchi in the country.**



5. World's 1st GM rubber sapling

- **World's first genetically modified (GM) rubber sapling** was recently planted at the Rubber Board's Sarutari research farm on the outskirts of Guwahati in **Assam**.
- It was developed at the Kerala-based Rubber Research Institute of India (RRII).

- With additional copies of **the gene MnSOD (manganese-containing superoxide dismutase)** inserted in it, the GM rubber is expected to tide over the severe cold conditions during winter, which is a major factor affecting the growth of rubber saplings.
- MnSOD gene used in the GM rubber was taken from the rubber plant itself.

6. Opium Cultivation

The Union government has decided to rope in the private sector to commence production of concentrated **poppy straw from India's opium crop** to boost the yield of **alkaloids**.

- Alkaloids are used for medical purposes and exported to several countries.

Opium poppy (Papaver somniferous) plant is the source of opium gum which contains several indispensable alkaloids such as morphine, codeine and thebaine. Morphine is the best analgesic in the world. In case of extreme and excruciating pain such as that of terminally ill cancer patients, nothing alleviates the suffering except morphine. Codeine is commonly used in manufacture of cough syrups.

Cultivation of opium:

Only a few countries are permitted to cultivate the opium poppy crop for export and extraction of alkaloids.

India currently only extracts alkaloids from **opium gum at facilities controlled by the Revenue Department in the Finance Ministry**. This entails farmers extracting gum by manually lancing the opium pods and selling the gum to government factories.

Background:

India's opium crop acreage has been steadily declining over the years and using the CPS extraction method is expected to help cut the occasional dependence on imports of products like codeine (extracted from opium) for medicinal uses.

7. MACS 1407

- It is a high-yielding and pest-resistant variety of soybean developed by Indian Scientists.
- It is suitable for cultivation in the states of Assam, West Bengal, Jharkhand, Chhattisgarh and North-Eastern states.
- The new variety has been developed by scientists from MACS – Agharkar Research Institute (ARI), Pune.
- The variety was developed using the conventional cross breeding technique.
- Its thick stem, higher pod insertion (7 cm) from ground, and resistance to pod shattering make it suitable even for mechanical harvesting.
- It is suitable for rain-fed conditions of north-east India.



8. Primary and Secondary Sources of Edible Oil

- **Primary sources (Soybean, Rapeseed & Mustard, Groundnut, Sunflower, Safflower & Niger) and secondary sources (Oil palm, Coconut, Rice Bran, Cotton seeds & Tree Borne Oilseeds).**
- The oilseed production of the country has been growing impressively. Despite this, there exists a gap between the demand and supply of oilseeds.
- **India depends on imports to meet its demand.** The major sources of these imports are Argentina and Brazil for soyabean oil; Indonesia and Malaysia palm oil; and Ukraine and Argentina again for sunflower oil.
- The major challenges in oilseed production is **largely rain-fed conditions** (70% area), high seed cost (Groundnut and Soybean), small holding with limited resources, low seed replacement rate and low productivity.

National Mission on Edible Oil-Oil Palm (NMEO-OP):

Prime Minister Narendra Modi has announced this new national initiative on palm oil production to help increase farm incomes.

- The scheme involves investment of over Rs 11,000 crore.

Aims and Objectives of the scheme:

1. Achieve self-reliance in edible oil.
2. Harness domestic edible oil prices that are dictated by expensive palm oil imports.
3. To raise the domestic production of palm oil by three times to 11 lakh MT by 2025-26.

Key features of the scheme:

- The special emphasis of the scheme will be in **India's north-eastern states and the Andaman and Nicobar Islands due to the conducive weather conditions in the regions.**
- Under the scheme, oil palm farmers will be provided financial assistance and will get remuneration under a price and viability formula.

Benefits and significance of the scheme:

It is expected to incentivise production of palm oil to reduce dependence on imports and help farmers cash in on the huge market.

Need for such schemes:

- India is the largest consumer of vegetable oil in the world. Of this, palm oil imports are almost 60% of its total vegetable oil imports.
- In 2016- 2017, the total domestic consumption of palm oil by India was 9.3 million MT, with 98.97 percent of it imported from Malaysia and Indonesia. This means India was producing only 1.027 per cent of its requirement.
- Also, in India, 94.1 per cent of its palm oil is used in food products, especially for cooking purposes. This makes palm oil extremely critical to India's edible oils economy.

Palm oil:

- Palm oil is currently the world's most consumed vegetable oil.
- It is used extensively in the production of detergents, plastics, cosmetics, and biofuels.
- Top consumers of the commodity are India, China, and the European Union (EU).

9. Basmati rice

- **India, the world's largest exporter of basmati rice**, has applied to the European Union for protected geographical indication (PGI) status of basmati rice. Pakistan has opposed this move.
- In India, historically, the long-grained, aromatic rice has been **cultivated in Indo-Gangetic plains at the foothills of the Himalayas.**
- In modern India, this region is spread over Himachal Pradesh, Punjab, Haryana, Uttarakhand, Uttar Pradesh, Delhi and Jammu and Kashmir.
- Basmati has also been grown for centuries in the Kalar tract, which lies between the Ravi and Chenab rivers in Pakistan's Punjab province.

(India's rice exports - Volume in million tonnes and Value in billion dollars)

	Basmati		Non Basmati	
	Volume	Value	Volume	Value
2020-21 (April-Dec)	3.38	2.94	8.21	3.07
2019-20	4.45	4.37	5.03	2.02
2018-19	4.41	4.71	7.53	3.00
2017-18	4.05	4.16	8.63	3.56
2016-17	3.99	3.22	6.81	2.55
2015-16	4.04	3.48	6.37	2.31

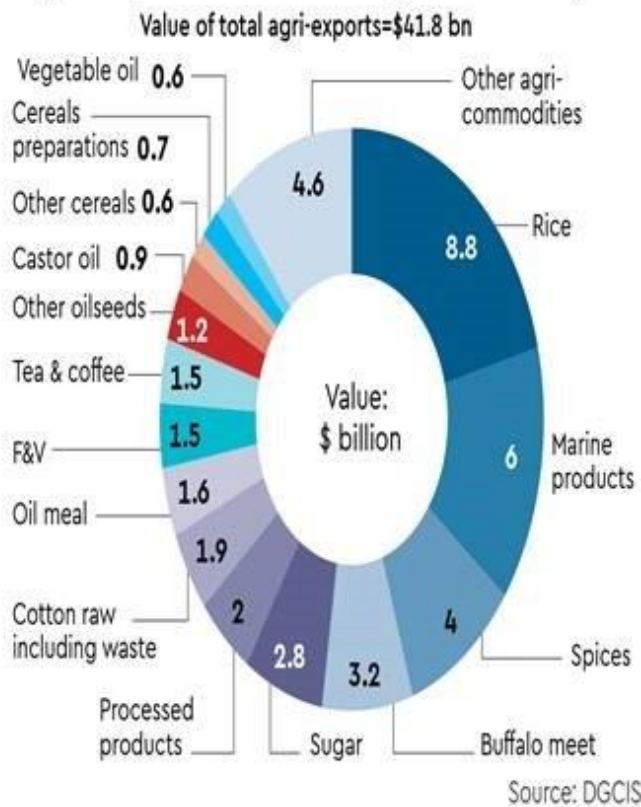
- Though basmati rice is grown in many parts of India, **APEDA got the GI tag for seven states located in the Indo-Gangetic plains**, including Himachal Pradesh, Punjab, Haryana, Uttarakhand, outskirts of Delhi, western Uttar Pradesh, and parts of Jammu and Kashmir.

China is the largest rice producer in the world followed by India.

India is the largest exporter of rice in the world.

10. Agri-Exports from India

Agri-exports from India (FY 2020-21)



Recent Developments / Technologies

1. Nano urea liquid

- Nano urea liquid is a patented technology of Indian Farmers Fertiliser Cooperative Ltd (IFFCO) developed at its Nano Biotechnology Research Center, Gujarat.
- IFFCO has priced nano urea liquid at ₹240 per bottle, which is 10 per cent cheaper than the cost of a bag of conventional urea.
- Nano urea liquid is environmental friendly, smart fertilizer **with high nutrient use efficiency** and a sustainable solution for curtailing pollution and reduction in global warming in the long run as it **reduces the emissions of nitrous oxide** into soil, air and water bodies.
- The size of one nano urea particle is 30 nanometre and when compare to the conventional urea it has about 10,000 times more surface area to volume size when compare to granular urea.
- Due to the ultra-small size and surface properties of nano urea, it gets absorbed by the plants when sprayed on their leaves. Upon penetration, these nanoparticles reach plant parts where nitrogen is required and release nutrients in a controlled manner.
- IFFCO said **nano urea requirement will be lower than conventional urea fertiliser to fulfil plant's nitrogen requirement.**
- The efficacy trials demonstrated that **nano urea increases crop productivity and can reduce the requirement of conventional Urea by 50 per cent.**
- Further, **application of nano urea (liquid) improves yield, biomass, soil health and nutritional quality of the produce.**
- Nano Urea liquid is completely safe for human, animals, birds, rhizosphere organisms and environment at the recommended levels of application.

It may be noted that **urea forms 82 per cent of the total nitrogenous fertilisers consumed in India** and it has recorded **exponential increase in consumption over the years.**

Around 30-50 per cent of nitrogen from urea is utilised by plants and the rest gets wasted due to quick chemical transformation as a result of leaching, volatilization and run off, thereby low use efficiency.

Departments / Organisations

1. National Dairy Development Board

- The National Dairy Development Board is an institution of national importance set up by an Act of Parliament of India.
- The Board was created to finance, support and support producer-owned and controlled organisations.
- Its programmes and activities seek to **strengthen farmer cooperatives** and support national policies that are favourable to the growth of such institutions.
- **Cooperative principles and cooperative strategies are fundamental to the board's efforts.**
- **The National Dairy Development Board (NDDB) now organises farmer's orientation programmes across the country, under which women farmers are trained in scientific best practices on animal health, fodder quality, clean milk production, and accounts management.**

Miscellaneous

1. Kadakhnath

- **Kadakhnath or Kali Masi** is a breed of chicken **originating from the Jhabua and Dhar districts of western Madhya Pradesh.**
- It received GI tag in 2017.
- It is popular for its black meat which is famous for its meat quality, texture, taste, and excellent medicinal values.
- It is also famous for its low cholesterol and high protein content.



2. Lumpy Skin Disease

The Bihar government sounded an alert and issued an advisory about the likely spread of the disease.

- Lumpy Skin Disease is a **viral illness that causes prolonged morbidity in cattle and buffaloes.**
- Caused by **the poxvirus Lumpy skin disease virus (LSDV).**

Symptoms:

- It appears as nodules of two to five centimetre diameter all over the body, particularly around the head, neck, limbs, udder (mammary gland of female cattle) and genitals. The lumps gradually open up like large and deep wounds.

Spread:

- It spreads through mosquitoes, flies and ticks and also through saliva and contaminated water and food.

Affected Countries:

- LSD is endemic to Africa and parts of West Asia, where it was first discovered in 1929.
- In Southeast Asia the first case of LSD was reported in Bangladesh in July 2019.
- In India it was first reported from Mayurbhanj, Odisha in August 2019.

Treatment:

There is no treatment for the virus, so prevention by vaccination is the most effective means of control.

Concerns:

- In India, which has the world's highest 303 million heads of cattle, the disease has spread to 15 states within just 16 months.
- This might have a devastating impact on the country, where most dairy farmers are either landless or marginal landholders and milk is among the cheapest protein sources.

3. World Bee Day

- May 20 is observed as World Bee Day annually.
- It was on this day in 1734 that **Anton Janša**, the pioneer of beekeeping, was born.
- The United Nations proclaimed May 20 as World Bee Day in 2017. The proposal was put forth by **Slovenia.**
- **2021 theme:** "Bee Engaged – Build Back Better for Bees".

Efforts by the government:

- Government is promoting Beekeeping as part of its aim to double farmers' income.
- The Government has allocated 500 crores towards Beekeeping under **the Atma Nirbhar Abhiyan.**

- The **National Bee Board** has created four modules to impart training as part of **the National Beekeeping and Honey Mission (NBHM)** and 30 lakh farmers have been trained in beekeeping. They are also being financially supported by the Government.
- The Government has launched '**Honey Mission**' as part of '**Sweet Revolution**'.
- India is among **the world's top five honey producers**.
- Compared to 2005-06 honey production has risen by 242% and exports shot by 265%.

Madhu Kranti portal:

- Madhu Kranti portal is an initiative of the **National Bee Board (NBB)**, Ministry of Agriculture and Farmers' Welfare under the National Beekeeping & Honey Mission (NBHM).
- This portal is being developed for online registration to achieve traceability source of honey and other beehive products on a digital platform.

Significance of Beekeeping:

- As per **Food and Agricultural Organization** database, in 2017-18, India ranked eighth in the world in terms of honey production (64.9 thousand tonnes) while China stood first with a production level of 551 thousand tonnes.
- Further, beekeeping can be an important contributor in achieving the 2022 target of doubling farmer incomes.

4. Military farms

Military farms have been closed after 132 years of service. The formal closing ceremony was held recently.

What are military farms?

- The farms were set up with the sole requirement of supplying hygienic cow milk to troops in garrisons across British India. The first military farm was raised on February 1, 1889, at Allahabad.
- Post-Independence, they flourished with 30,000 heads of cattle in 130 farms all over India. They were even established in Leh and Kargil in the late 1990s.
- For more than a century, the farms supplied 3.5 crore litres of milk and 25,000 tonnes of hay yearly.

Suggestions for closure:

- In 2012, the Quarter Master General branch had recommended their closure.
- In December 2016, the Lt. Gen. D.B. Shekatkar (retd.) committee, which was appointed to recommend measures to enhance combat capability and rebalance defence expenditure of the armed forces.

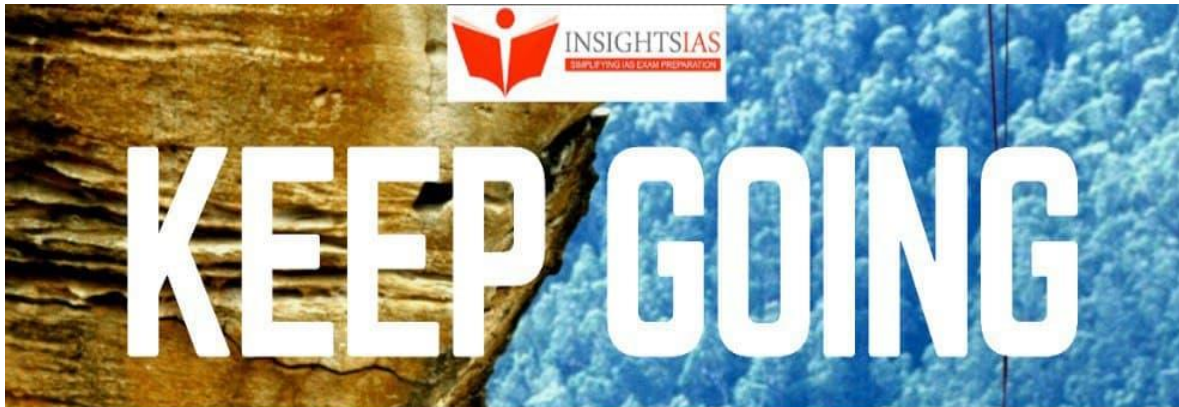
5. Practices can reduce emissions from agriculture

- There are a number of practices that can reduce emissions from agriculture. One is **alternate wetting and drying of paddy**. "By reducing the frequency of irrigation (letting the fields drain periodically), methane emissions from flooded rice production can be cut in half.
- Another method that can work is **increasing the productivity of milk and meat production**. "Increasing animal and herd productivity means that fewer animals are required to produce the same amount of milk or meat, which also reduces the emissions generated in producing that food."
- **Many of the practices used in organic agriculture are climate smart**. Organic agriculture enhances natural nutrient cycling and builds soil organic matter, which can also support resilience to climate change and sequester carbon in soils.

Alternate Wetting and Drying (AWD) is a **water-saving technology** that farmers can apply to **reduce their irrigation water consumption** in rice fields **without decreasing its yield**.

In AWD, irrigation water is applied a few days after the disappearance of the ponded water.

Hence, the field gets alternately flooded and non-flooded. **The number of days of non-flooded soil between irrigations can vary from 1 to more than 10 days** depending on the number of factors such as soil type, weather, and crop growth stage.



AT TIMES, YOU MAY FAIL, YOU MAY FALL, YOU MAY GET DISHEARTENED. BUT KEEP GOING

