



## Post-Modern Agriculture

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This article is based on **For a post-Covid-19 India, the need for postmodern agriculture** which was published in the Hindustan Times on 03/09/2021. It talks about the adoption of the postmodern approach in agriculture to deal with the present issues in modern (science-driven) agriculture.

David Quammen, author of the book '**Spillover**', has cautioned: "We disrupt ecosystems, and we shake viruses loose from their natural hosts. When that happens, they need a new host. Often, we are it." Much has already been depleted through careless stewardship of natural resources which has affected almost every sector including agriculture..

Looking at the issues of the agricultural sector in India, it is imperative that we require scientific innovation to feed a growing population. The challenge is to get the best blend of continuity and change for finding our way towards the new normal. This necessitates the new era of agriculture i.e **Post-modern Agriculture**.

### Post-modern Agriculture

- The postmodern approach to agriculture is premised on sustainability i.e **Sustainable Agriculture (SA)**.
- It makes use of most modern technology and integrates modern management methodologies, it is also involved with producing agricultural products of high economic value.
- The types and techniques of post-modern agriculture are fairly wide in scope. The choice of agricultural products, improvements to nurturing methods, considerations for health and safety and the marketing of produce are all within such scope
- Postmodern agriculture needs to be scientifically propelled. **Biotechnology, nanotechnology, Artificial Intelligence, remote sensing, communication technology** and such frontier disciplines will promote resource-efficiency. Management at the level of agricultural landscapes and watersheds will be increasingly relevant.
- The multifunctional character of agriculture with its economic, environmental and social dimensions is already coming to the centre-stage.

## Need For Postmodern Approach to Agriculture

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- **Negative Consequences of Green Revolution:** Modern agriculture, based on science-driven technologies and symbolised by the **Green Revolution**, is now viewed as a double-edged sword.
  - In tripling foodgrain production, **nitrogenous fertiliser use went up 10-fold** in India, with increasing application of agrochemicals and growing dependence on fossil fuel energy.
  - 18% of **greenhouse gas emissions** in the country are from agriculture.
  - Plagued by rapidly **receding groundwater aquifers** and 35% **land degradation**, our soil organic matter content is among the lowest in Asia.
  - **Monocultures of wheat and rice** are displacing the diversity of traditional farming systems.
  - Genetic homogeneity has been **detrimental to nutrition** while enhancing vulnerability to **biotic and abiotic stresses**.
- **Prospects of Sustainable agriculture (SA):** As postmodern agriculture is based on the concept of sustainability of agriculture, it counters monocultural production models.
  - Its essence is embedded in the heralding of the **Second Green Revolution or Evergreen Revolution**.
  - There are various farming systems today for enhancing agricultural output with less land, water and energy. Their techniques enhance productivity while restoring soil fertility, replenishing water quality, improving biodiversity and maintaining inter-generational equity.
  - **The National Mission on Sustainable Agriculture**, to achieve SA, is one of the eight missions of the **National Action Plan on Climate Change**.

## Strategy in Build Up to Post-modern Agriculture

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- **Agroforestry:** Agroforestry's 25 million hectares of tree-based farming systems provide fruit, fodder, fuel, fibre and timber while enriching the ecology through nutrient recycling, carbon storage, biodiversity preservation, soil and water conservation.  
It boosts farmer-resilience by enhancing incomes, nutrition and insurance against crop failure.
- **Conservation Agriculture (CA):** Conservation agriculture is practised in about two million hectares, primarily in India's wheat-rice region. It addresses low efficiency use of water, nutrients and energy.
  - Its practices include zero tillage, laser levelling, crop sequencing, precision irrigation, use of stress-tolerant and climate-resilient varieties, and retention of crop residues as opposed to burning.
  - However, adoption of conservation agriculture in rainfed areas is yet to take off.

- **Zero-Budget Natural Farming (ZBNF):** It has a back-to-the-basics approach where chemical-free farming with leguminous intercrops uses traditional in situ botanical extracts and livestock wastes to improve soil fertility and crop productivity while controlling cultivation costs.
  - Andhra Pradesh leads with a target of incentivising six million farmers to adopt this on eight million hectares by 2024.
  - ZBNF's science is under experimentation by the Indian Council of Agricultural Research (ICAR).
- **Organic farming:** It is being practised in only 2% of the net cultivated area. The **National Programme for Organic Production** accounts for 70% of coverage.
  - Despite the **Paramparagat Krishi Vikas Yojana** started in 2015, progress in organic farming has been slow.
  - However, Sikkim was declared an organic state in 2016.
- **Systems of Rice Intensification (SRI):** It exemplifies more from less. It uses the biological and genetic potential in plants and soil, and is known to increase rice yields by 20-50% with 25-50% reduction in water use, 30-40% fewer agrochemicals and 80-90% less seed.
 

**The National Food Security Mission** had visualised five million hectares under SRI. Broad estimates put SRI coverage at half a million hectares.
- **Other SA practices** include **climate-smart agriculture**, permaculture, regenerative agriculture, biodynamic cultivation, vertical farming and **hydroponics**, though on a small scale.

## Challenges

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- **Lack of Awareness Among Farmers:** Several SA programmes and practices being implemented by central and state governments, development banks, non-governmental organisations, private sector and agri-entrepreneurial start-ups have been ongoing for nearly two decades.
 

But a 2021 report by the Council of Energy, Environment and Water found that less than 4% farmers have adopted SA practices.
- **Weak Adoption at Grassroot Level:** There appears to be no recent holistic evaluation of SA by public agencies such as the **National Sample Survey Organisation** or by the **Development Monitoring and Evaluation Office** of NITI Aayog.
 

Clearly, well-intentioned policies and missions by themselves do not necessarily translate into large-scale and rapid adoption at the ground level.

## Way Forward

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- Following measures can be taken:
  - A **holistic assessment** of various SA programmes and practices and their adoption by farmers.
  - Constructing a framework for a **better understanding of SA's multifunctional nature** in different agroclimatic zones;
  - Developing templates to **measure progress of SA** by factoring in considerations of both productivity and environmental **costs and benefits**; and,
  - Designing a regime of mandates and deliverables to be rigorously monitored in the short- and long-term.
- **Adopting to Ecosystem Restoration:** As Covid-19 hopefully ebbs, the period coincides with the **United Nations (UN) Ecosystem Restoration Decade of 2021-2030** for embracing transformative changes towards a green recovery that nurtures resilient production and consumption systems.
- **Using Post-modern Technology:** The agriculture sector will require scientific innovations and frontier technology to maintain sustainable agriculture and promote resource-efficiency.

## Conclusion

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Overexploitation of natural resources, deforestation and **unsustainable intensification of agriculture** are environmental drivers of zoonotic diseases. Thus, Postmodern agriculture is needed in post-Covid times to save and replenish resources.

### *Drishti Mains Question*

Postmodern agriculture is needed in post-Covid times to save and replenish resources and achieve the evergreen revolution. Discuss.

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