Prospects of Cellular Agriculture

What is the issue?

India has an opportunity to become a leader in cultured meat sector by taking viable measures.

What is Cellular Agriculture?

- Cellular agriculture focuses on the production of agriculture products from cell cultures using a combination of biotechnology, tissue engineering, molecular biology, and synthetic biology.
- It aims to create and design new methods of producing proteins, fats, and tissues that would otherwise come from traditional agriculture.
- Most of the industry is focused on animal products such as meat, milk, and eggs, produced in cell culture rather than raising and slaughtering farmed livestock.
- The most well-known cellular agriculture concept is cultured meat.

What is the significance of Cellular Agriculture?

- The appeal of cellular agriculture is a combination of environmental, ethical and anti-Malthusian considerations.
- Proponents show figures of how much land, food grain, water, and carbon emissions it takes to produce a kilogram of meat and argue that these figures will be around 70% lower with cellular agriculture.
- Unlike conventional animal husbandry that has pretty much reached the limits of its efficiency, cellular agriculture has the potential to improve its resource intensiveness over time.
- If it can achieve scale, it can help make global food production more sustainable than it is now.
- This brave new sector is producing milk, eggs, gelatin, coffee, leather and silk using synthetic biology at low cost and with less labour involved in a short span of time.

What are the opportunities before India in this sector?

- India cannot afford to ignore the industry’s potential to become an inexpensive source of high-quality protein for its population.

- For instance, eggs in the midday meals served at government schools can be replaced by egg white proteins produced by fermenting yeast.
- The produce foods that are neither pure vegetarian nor non-vegetarian will allows marginal non-vegetarians to prevail over their moral compunctions about harming animal.
- And it could enable larger numbers of people to access higher quality nutrition and achieve better health outcomes.
- Recent market research suggests that Indians and Chinese might be more open to cultured meat than Americans.
- The US has to contend with formidable dairy farming interests and perhaps stronger consumer preferences for real red meat.
- The Chinese have fewer hang-ups and are likely to become major players in the game.
- Even so, India has an opportunity to become a major player in cellular agriculture.

What is India's plan on introduction of cultured meat?

- India occupies a middle ground when it comes to food choices, offering a less-queasy path for vegetarians, but still presenting a concern to those opposed to animal-origin foods.
- It's being called "ahimsa meat" in India and the Union government charged Hyderabad-based Centre for Cellular and Molecular Biology with the goal of producing it on a commercial scale in five years.
- The budgetary allocation, for this project clings around ₹4.5 crore at this initial stage.
- The Maharashtra government has approved a collaboration between the Institute of Chemical Technology and the Good Food Institute, a non-profit organization, to carry out research and development in cellular agriculture.
- In late 2018, Clear Meat, a Delhi-based startup, entered the scene with a highly ambitious goal of bringing a product to market in 18 months.

What further measures are needed?

- India have the ingredients to start accumulating intellectual property and global production capabilities.
- At the same time the sector needs greater public investment in research and development, as well as private investment in entrepreneurship.
- The government should hold firm on its positive attitude towards the science and the industry.

- The regulatory mindset ought to be to keep the doors open, but with ever-vigilant safeguards.

Source: Live Mint

