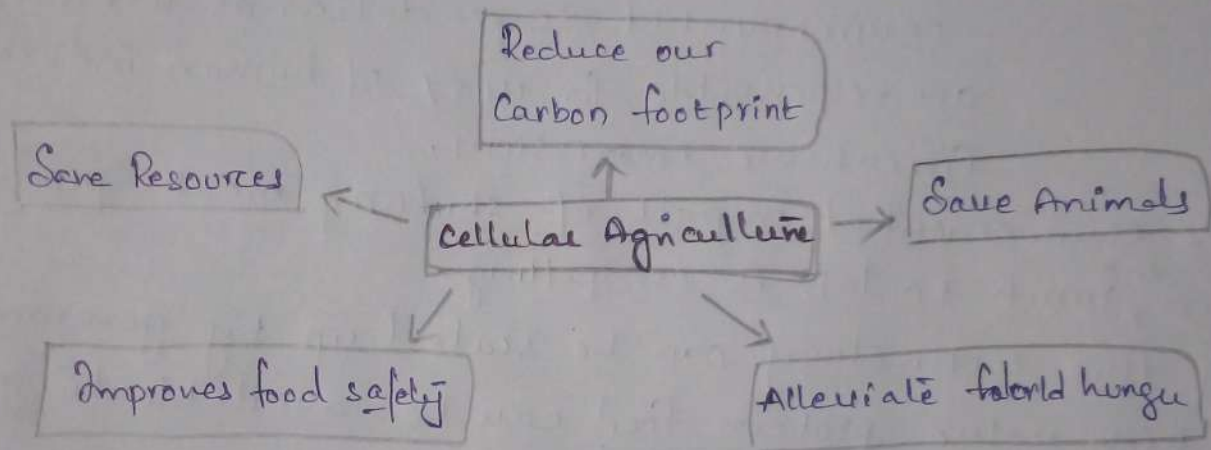


Q) What is meant by Cellular Agriculture? How does it help in sustainability of food production in India? Explain. (200w)

A) Cellular Agriculture :- It is a "multi-disciplinary" branch of science encompassing biotechnology, medicine and farming. It is a nascent technology that allows meat and other agricultural products to be "cultured from cells" in a fermentor rather than harvested on a farm.

The main use of this technology has been for food applications particularly "in-vitro" or "cultured meat" and also to create other products like eggs, leather, milk etc.



Despite India's rising economic power, it is struggling to adequately feed its population. As per 2016-'food sustainability Index' - "India scores last out of 25 countries in India, "Malnutrition" continues to be the main challenge. India has a very high prevalence of under-nourishment and micro nutrient deficiencies which has a strong negative impact on population's health.

To overcome all these challenges, cellular agriculture will be a welcome step to revolutionize the supply chain

of animal products and provide affordable, sustainable food and other materials to growing population with the use of limited resources and simultaneously mitigating environmental problems.

→ Sustainability in food production can be achieved through

→ cellular agriculture can eliminate the adverse consequences of the conventional meat production

eco-system - greenhouse gas emissions

- Antibiotic resistance &

- environmental degradation as livestock are responsible for 14.5% of human induced Greenhouse emissions.

→ The environmental impact of shifting meat production from ^{the} ranch to lab is compelling.

→ If this technology can be scaled up by government the high-value protein food can be available to growing population.

for instance, instead of egg supply in "mid-day meal scheme" high-value cell-based eggs can be supplied to reduce under-nourishment in children.

Hence, "government should catalyze growth" in this sector to meet growing food demands and in achieving "UN's Sustainable Development Goals" and adhering to "the Paris climatic agreement."