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New Age Agriculture

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Introduction

Around 12,000 years ago, sapiens took a shift from foraging to farming which completely changed the fate of Earth and with this mega shift, the era of the agriculture revolution started. Since then there are so many agricultural revolutions have been seen on different regions of Earth in different time-period such as First Agricultural Revolution (circa 10,000 BC), Arab Agricultural Revolution (8^{th}– 13^{th} century), British Agricultural Revolution (17^{th} – 19^{th} century), and Third Agricultural Revolution (1930s – 1960s). Today, more than 80% of humans' worldwide diet is produced from less than a dozen crop species many of which were domesticated many years ago.

In the early 1960s, Green Revolution emerged as the biggest agricultural revolution in Indian history. Though, the green revolution brought out India from a food-dearth country to a food-surplus country. But alongside increased environment and soil pollution many folds due to the application of chemicals and fertilizers in an uncontrolled amount which badly affected the lives of mankind. Although, the introduction of High Yielding Variety (HYVs), the application of fertilizers and chemicals during the green revolution was a necessary step to bring the country from a dearth of food scarcity to food sufficiency. And to date, India has emerged as a food surplus country and there is a need for qualitative enhancement in agriculture in today's hour. The exponential growth in population and shrinking per capita land holding has emerged as the most concerning issue in today's hour and the existing cereals and grain-based agriculture system cannot feed mankind in the longer run. And, therefore we need to introduce some advanced agriculture techniques which not only would make new-age farmers self-reliant but also build a nutrition-conscious society. Some of the new-age agriculture techniques have been described hereunder:

Hydroponics

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Hydro means *water* and ponics means *working* and that jointly makes Hydroponics: a farming culture in water without soil therefore it is sometimes also called as soil-less farming. And, this a new age agriculture or future of agriculture.

One who wants to eat fresh leafy vegetable but do not have the land to grow it can opt hydroponics which can be practiced at backyard, front yard or even in a balcony round the year. In general, Salad green, herbs, strawberries, tomato peppers, cucumber and variety of aromatic and flower plants can be grown in hydroponic system. Hydroponic forming practice not only give you fresh vegetables and flowers each morning but also makes your home environment beautiful and side works as corbon sink for the environment.

Aquaponics

Aquaponics is where the food cycle for fish ends and the food cycle for plants begin" (urbanfishfarmer.com). That means, Aquaponics is nothing but integrated farming of plants and aquatic animals in a recirculating environment (FAO).

The best thing about Aquaponics is that, it utilizes natural bacterial cycle to convert fish waste to plant nutrients and plant waste for fish nutrition and this is what makes aquaponics a natural food growing method which is environmentally friendly and harnesses the joint attribute of aquaponics and hydroponics without the need of filtrated water and chemical fertilizers. Aquaculture offers two agriculture products (fish and vegetables) being produced by a single nitrogen source. It is a completely natural system that mimics the lakes, ponds, rivers, and waterways on Earth.

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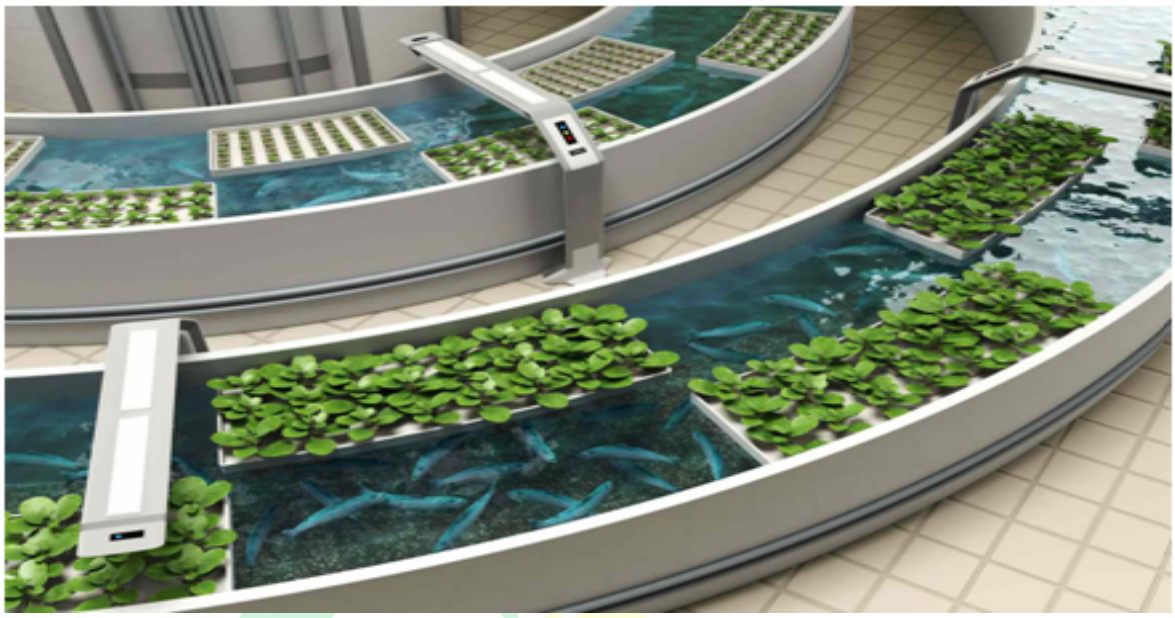
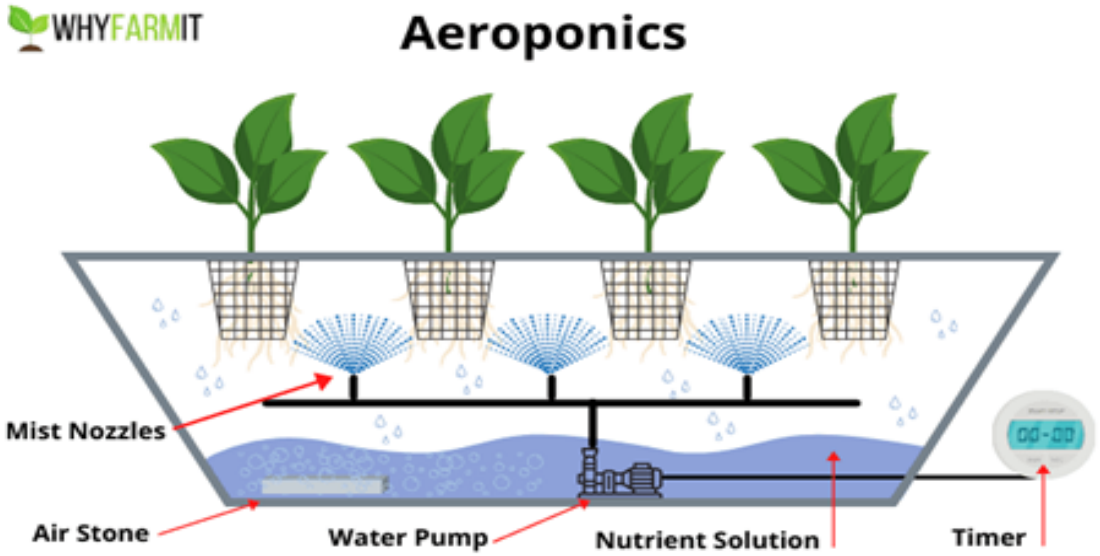


Aeroponics

Aeroponics is a most advanced form of hydroponics to date which is an alternative technique of soil-free cultivation. In Aeroponic system plants are grown using air, water and liquid nutrients.

In which, a regular misting of water and liquid nutrients are done into the plant stems and roots. Aeroponic system produces faster-growing plants than hydroponic system and the produce grown in these system is often more colourful, healthier and tastier.



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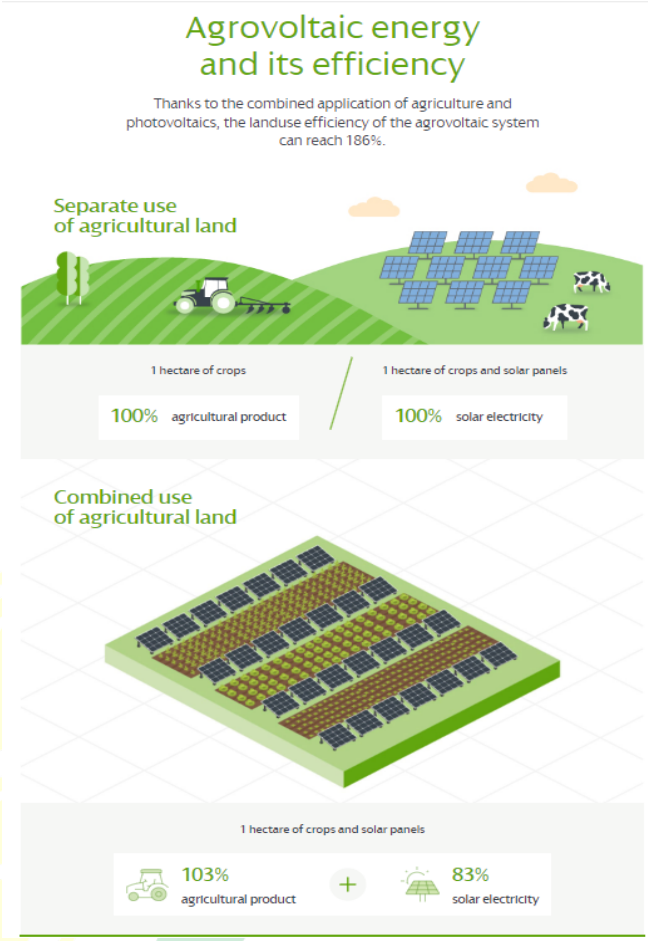
Argo-voltics is again a combination of solar panels with agriculture (food crops and livestock's) with the aim to maximize overall land productivity. Agro-voltics has potential to increase global land productivity by 35–73 %

In Agro-voltics, plants create cooler micrclimate for solar panels which enhances their performance efficiency where pennels in turn protects plants from sunburn and dehydration. And, that's how we get better crop yield and improved performance of solar panels at the end. Though, application of solar panels with crops is not an only idea, the combination of panels with livestock and irrigation canal are emerging advanced agro-voltics techniques.



Conclusions

`We had a long journey from a food deficit to food surplus country and for sure the journey was remarkably incredible but the scenario has been changed. Now we are the most populus country in the world (almost 17% of the global population) and this population has only 4% and 2.4% of the world's water and land resource, respectively. Therefore, to feed a huge population with limited resources, there is need take a paradism shift from the tradition agriculture system to the modern or smart agriculture system which can be called as new age agriculture system of 21st century. New age agriculture system not only offers the fresh food and flowers but also a great idea to connect the mankind from the nature and spread consciousness about our environment. The above-mentioned new age agriculture systems (Hydrponics, Aquaponics, Aeroponics and Agro-voltics) are just the reference techniques from where we can start but sky is the limit. There are tremendous possibilities in this area of

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development of new agriculture system; you may develop your own. This is your turn to create, develop and spread among the society.

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