



# Seed Connect

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The vagaries of climate change demand that our farming operations must be in sync with the local environment and should contribute to the ecosystem stability. Regenerative agriculture appears to be an assuring option. It allows sustainable way of farming and has great potential to build the resilience of ecosystems as it helps restore degraded soil, capture carbon dioxide and contribute to fighting climate change.

There are many activities that can fit into the definition of regenerative agriculture. Maintaining green cover on the soil, stabilization of organic matter, restoration of essential microbial life, avoiding soil tillage, and adopting agroforestry are some of the techniques of regenerative agriculture. High-yielding, pest-resistant, salt and heat-tolerant seeds too contribute to regenerative agriculture. They reduce the requirement of pesticides, fertilizers, and water, thus leaving the soil in good health. Moreover, they can prevent land conversion for agriculture due to higher productivity. Farmers must adopt the best regenerative agriculture techniques to fight climate change and protect our food security and our future.

Soil is important for combating climate change since it contains 2,500 gigatons of carbon—that is three times as much carbon as the entire atmosphere and four times that stored in all living plants and animals on the Earth. Research findings show that world soil lost 133 gigatons of carbon since the dawn of agriculture and the rate of carbon loss has increased significantly since the industrial revolution. Soil captures about 25 percent of carbon emissions through forests, farms, and grasslands, thus acting as a very important carbon sink.

It is imperative that farmers adopt sustainable ways of farming that can arrest soil degradation and capture more carbon from the atmosphere. Restoration of soil fertility and switching to farm practices

aimed at soil conservation have potential to lower emissions due to agriculture, enhance carbon sequestration, and build resilience to climate change. A project undertaken by Chennai-based food and agtech start-up in regenerative farming has shown that cultivation costs can be reduced, while enriching the soil organic carbon value. Regenerative agriculture has the potential to remove 100–200 gigatons CO<sub>2</sub> by the end of the century.

In this edition of Seed Connect we dwell on regenerative farming as well as studies to enable plants combat disease. We hope you find the newsletter informative.



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### **News from India and Around the World**

#### **Multi-Partnership of Aston University to Improve Crop Production In Kenya**

<https://indiaeducationdiary.in/multi-partnership-of-aston-university-to-improve-crop-production-in-kenya/>

Aston University has teamed up with engineering company Solargen Technologies (SGT) and the University of Nairobi through a Knowledge Transfer Partnership (KTP) to develop a smart irrigation system using solar and wind energy to provide year-round watering of land to improve crop production in Kenya. A KTP is a three-way collaboration between a business, an academic partner and a highly qualified researcher, known as a KTP associate. SGT is a leading energy, water and irrigation solution and service provider in Kenya. They work in partnership with non-governmental entities, government, and individuals to serve communities in rural and conflict-affected parts of Eastern Africa through customised solutions that meet their energy, water and food security needs.

#### **World Bank sees global food prices remaining high**

<https://www.theedgemarkets.com/node/652207>

The World Bank said agricultural, cereal, and export prices have remained relatively stable since its last Food Security update on Dec 13 last year. In its latest update dated Jan 12, the bank said domestic food price inflation continues to remain high in almost all countries. The global economy is projected to grow by 1.7% in 2023 and 2.7% in 2024, while food prices are expected to stay elevated. Meanwhile, countries that experience food crises absorb the largest volume of humanitarian

financing.

#### **Agri entrepreneurship can be game changer**

<https://www.veetrack.com/showarticles.aspx?UName=496465616C6D65646961&id=3233383933343530>

India is generally referred to as a country with “Agriculture Economy — Krishi Pradhan Desh”. Around 70 per cent of the population depend on agriculture and allied sectors and contribute to about 18 per cent of the GDP in the country. However, there are not many significant numbers of agricultural entrepreneurs in the country.

#### **Plant Peril**

<https://www.veetrack.com/showarticles.aspx?UName=496465616C6D65646961&id=3233383932363431>

Although the problem has plagued society forever, ‘plant pandemic’—the newer mainstream term given to the catastrophic spread of diseases among plants has become a cause for concern in the agricultural world, more so after the apparent menace of infectious I diseases post Covid19.

#### **Outcomes from COP-15 on Biodiversity: Competent Agreement or Cop-Out?**

<https://saifood.ca/outcomes-from-cop-15/>

With well over a dozen agenda items, it’s not possible to review all COP-15 outcomes, so this discussion will focus on one aspect that has significant implications for agriculture, digital sequence information (DSI). DSI refers to the digital information that is available about a plant species genetics, once it has been sequenced. In an agricultural context, it relates to the development of new plant varieties, designed to have improved agronomic traits, such as higher yield, improved diseases resistance or tolerance to alkaline soils. Discussions involving both DSI and access and benefits sharing (ABS) have predominantly been dominated by biodiverse-rich countries, who rightly advocate that if a new drug, vaccine or cosmetic product is developed based on the genetics found in a plant local to their country, an economic share of the benefits should accrue to the country where the genetic resource originates.

#### **A game changer for combating malnutrition, climate change**

<https://www.thehansindia.com/hans/opinion/news-analysis/a-game-changer-for-combating-malnutrition-climate-change-779740>

India is facing the triple burden of malnutrition, obesity and micronutrient deficiencies. The country is home to 224.3 million undernourished people, according to a report released by the Food and Agriculture Organization in 2019-2021.

#### **Agri exports up 12% to \$19.7b in Apr Dec**

<https://www.veetrack.com/showarticles.aspx?UName=496465616C6D65646961&id=3234303030393237>

A 12 per cent increase in the export of major agriculture and processed products during the first three quarters of the current fiscal has buoyed the Agricultural and Processed Food Products Export Development Authority (APEDA) to target a record \$2629 billion in this fiscal, against \$24.76 billion in 202122.

#### **A Case of Mechanisation in Horticulture Farms in India**

<https://www.thinkag.co.in/post/case-of-mechanisation-in-horticulture-farms-in-india>

An average fruit producing farm would require 860 mandays per hectare annually whereas cereal production requires only 143 mandays per annum. Crops like bananas, grapes and pineapples would need 1,000-2,500 mandays per hectare annually. That means labour requirements are going to shoot up with the advancement of horticulture. Skill required to perform farm operations to grow fruits is much higher than cereal or grain production, which adds to the complexity.

### **Regenerative farming can help cut input costs, improve soil ...**

A project undertaken by Chennai-based food and agtech start-up WayCool through its model farm Outgrow Agriculture Research Station (OARS) in regenerative farming has shown that cultivation costs can be reduced, while enriching the soil organic carbon value.

### **Radiation technologies to boost crop productivity, food ...**

The Center Stage of the International Conference on Radiation Technologies 'NICSTAR – 2023' featured applications of nuclear and radiation technology in boosting crop yield and produce storage for a sustainable future. Throughout the four-day meeting, nuclear scientists, food and agricultural technologists, and international experts discussed sustainability-focused plant mutation breeding, crop production, and protection technologies.

### **Singapore agri-genomics firm launches world's first climate-resilient strawberry variety**

A Singapore-based agri-genomics firm that has developed a proprietary genomics technology platform, has just announced the launch of the world's first climate-resilient strawberry variety. The novel strawberry variety is the first application of this transformative technology. The success of the novel strawberry variety and other innovations can be a game-changer in this global fight against food insecurity and malnutrition. These new growing methods that are based on advanced genomics science will help create nutrient-dense crop varieties that are resilient to drought and disease.

### **Research News**

#### **Chinese researchers find new way to synthesize starch, proteins from corn stalk**

<http://en.people.cn/n3/2023/0117/c90000-10196805.html>

Chinese researchers recently developed a method of high efficiency for synthesizing artificial starch and microbial proteins from corn stalk. This method can cut the production cost of artificial starch and provide a new way to produce food. Growing populations and climate change pose great challenges to food security. The efficient conversion of agricultural waste into artificial food is an important way to alleviate a food crisis and realize sustainable agricultural development. The researchers from the Biotechnology Research Institute under the Chinese Academy of Agricultural Sciences and other China-based institutions, used a multi-enzyme molecular system and baker's yeast to convert cellulose in corn stalks to artificial starch, and to produce microbial protein by fermentation under aerobic conditions.

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