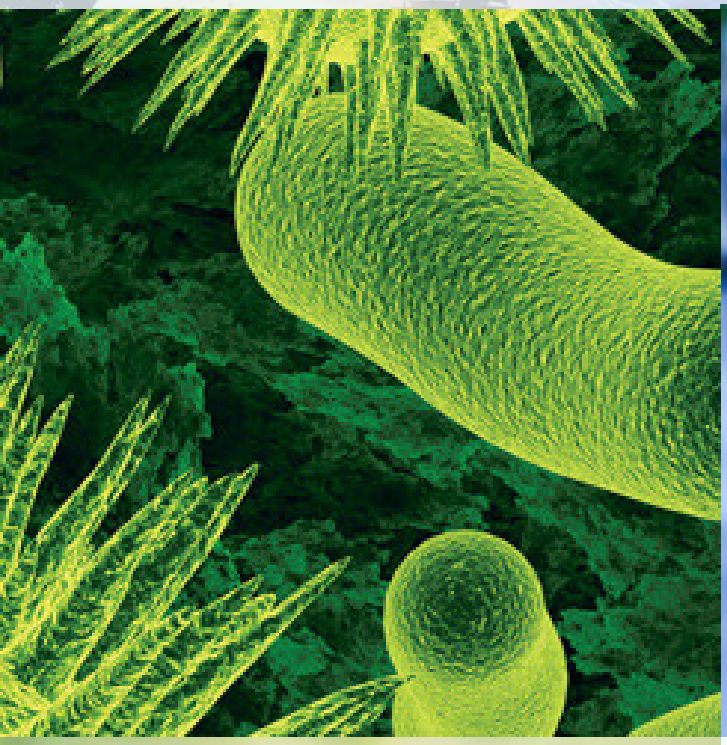
February 2022

ARBORETUM

THE MONTHLY NEWSLETTER

ANTHEIA, THE BOTANICAL SOCIETY
MIRANDA HOUSE



What's inside

National Science Day

This year's National Science Day theme will be 'Integrated Approach in S&T for Sustainable Future'.

National Science Day (NSD) is celebrated every year on February 28 to commemorate the discovery of the 'Raman Effect.

The government of India designated February 28 as National Science Day (NSD) in 1986. On this day scientist, CV Raman announced the discovery of the 'Raman Effect' for which he had awarded the Nobel Prize in 1930. On this occasion, theme-based science communication activities are carried out all over the country.

So, what is development? It is trying to get a country to participate in a globalizing world fully. That world, however, is essentially driven by technology. Energy, medicine and health, clean air and water, transportation, sanitation, management use, and conservation of natural resources are ultimately based on science and technology. So it is unmistakable that to be a part of that world, there must be science and technology elements in the development process.

"What we most need to learn is that in the major scientific matters which now affect human destiny, one cannot safely make decisions for today unless we realize that those same decisions determine the future. This realization may not lead to the right decisions, but it might help to obviate some of the worse."

Various vital activities must assemble a good base for science and technology for sustainable development. We believe that an overall strategy entails five specific elements intimately involving science and technology. These are:

- **Building Capacity for Sustainable Development**
- **Investing in Training the Next Generation**
- **Ensuring Access to Information**
- **Strengthening the Scientific Basis of Decision-Making**
- **Informing the Public**

Achieving sustainability in development demands new knowledge, which science and technology must provide. Research and innovation are essential to increasing our ability to deal with sustainable development challenges. We need to understand a phenomenon and its causes; assess impact, magnitude, time scale, and probability. We need to predict trends and the effects of taking specific actions. We need to develop and test solutions, predict outcomes, mitigate harm, and make informed policy decisions. Pursuing technical knowledge is an ongoing process; the knowledge base must be constantly renewed and replenished. The biological and physical sciences and engineering must work closely with the social and behavioural sciences to speed the application of innovations and insights to the needs of society.

I am sure that advances in S&T can enable countries to increase resource use efficiency and raise living standards necessary for global prosperity and long-term sustainability.

Indian Botanist

THE LADY WHO MADE 'SUGAR NO SPICE INTO EVERYTHING NICE'

DR. JANAKI AMMAL EDAVALATH KAKKAT

India's first lady to obtain her PhD in Botany – Dr Janaki Ammal Edavalath Kakkat (4 November 1897 – 7 February 1984), was a Botanist and cytogeneticist who is credited to make the sugarcane variety *Saccharum spontaneum* that not only could thrive in Indian conditions but also produced a higher yield. She is a pioneer scientist to receive the prestigious Padma Shri award in 1977. The Mongolian shrub's variety name, *Magnolia Kobus Janaki Ammal* and the new rose variety, *E.K. Janaki Ammal have been named after her.* She is awarded the national award of Taxonomy for her herbarium with over 25,000 species in Jammu Tawi. She wrote 'The chromosome Atlas of cultivated plants, ' which is a compilation of most of her contributions in botany. She truly defines the statement 'Mari chori kisi chore se Kam nahi, in the most socially and gender discriminatory times.

References:-

https://www.thebetterindia.com/75174/janaki-ammal-botanist-sugarcane-magnolia/

https://en.wikipedia.org/wiki/Janaki_Ammal#Research

Adult Trees grow better with a wide network of fungi

We already know that fungi and plants cooperate very well as trees rely on a network of fungal friends for good health. This cooperation interaction is known as symbiosis, where the plants provide the fungi with sugars made through photosynthesis. In contrast, fungi help plants get valuable minerals that the plants cannot otherwise reach.

Fungi also help the trees resist disease, prevent erosion, and absorb nutrients. Scientists at the University of Alberta have shown that adult tree growth is also connected to fungi in forest soil. The work has been reported in the Journal of Ecology.

"Large trees make up the bulk of the forest, so they drive what the forest is doing," said study author Joseph Birch, PhD, who led the study for his graduate thesis in the Faculty of Agricultural, Life & Environmental Sciences.

Fungi that colonize tree roots become like a kind of highway that water, nutrients, and other molecules, including those that help trees defend against insect attacks, can flow among trees. Trees that are low in resources can get some help from neighbours with nutrients or other essentials to spare. This network makes trees "like family units that support one another in times of stress," Birch noted.

Young seedlings also depend on symbiosis with fungi for their initial growth.

Scientists also discovered that the trees with large fungal networks also grow better, and the tree connected to two different fungal species grows even better than a tree with only one type of fungal "friends".

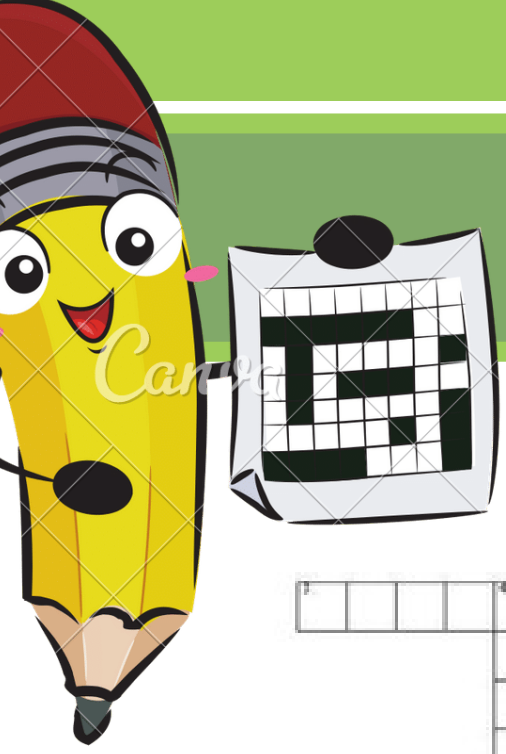
Large trees are crucial for the forest as they influence how the entire community lives. That is why discovering a new factor that helps the trees grow high is vital for forest preservation.

"Knowing whether fungal networks are operating the same way in other tree species could factor into how we reforest areas after harvesting them, and it could inform how we want to plant trees to preserve these networks."

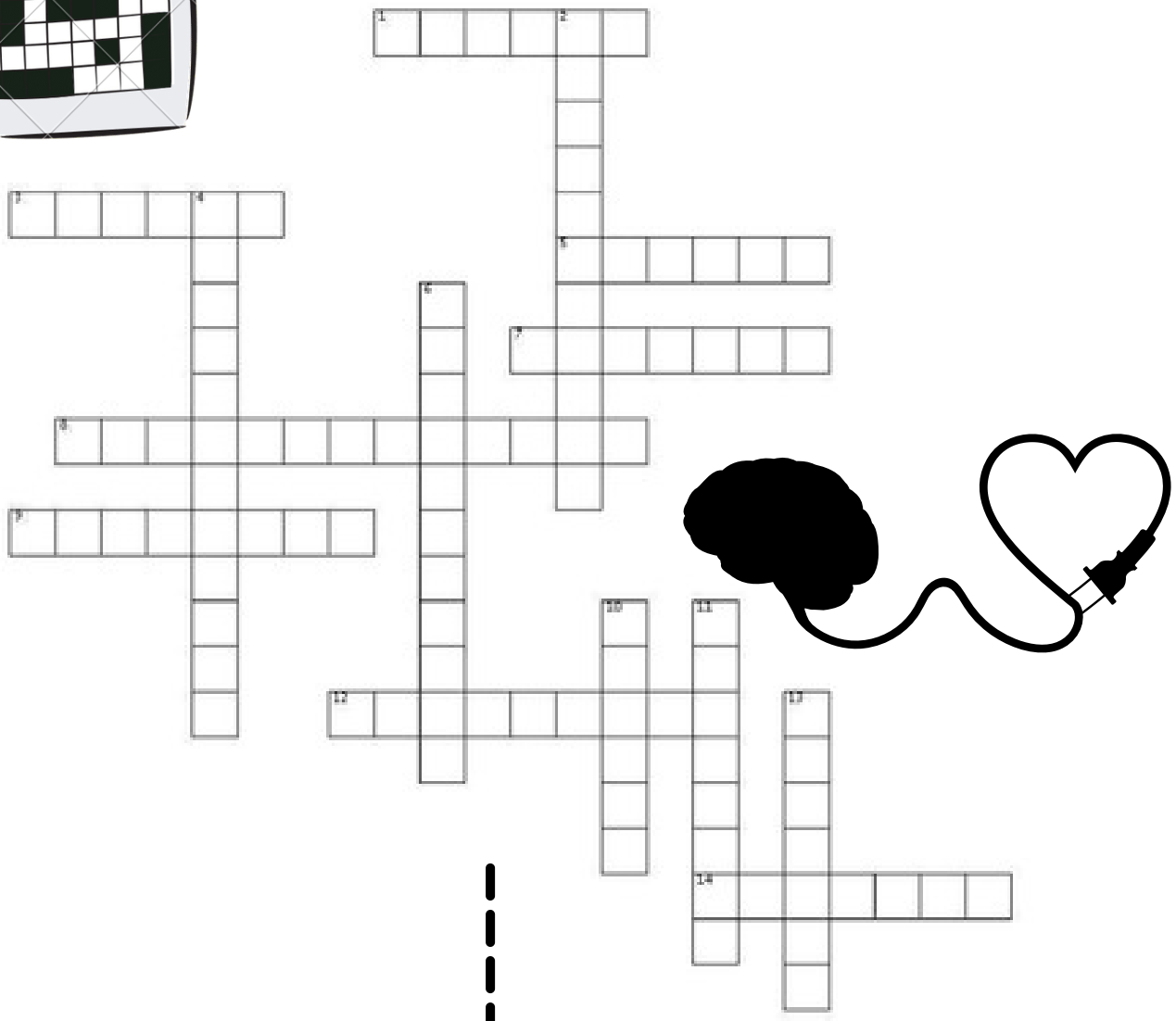
REFERENCE: https://www.labroots.com/trending/microbiology/19026/network-fungi-helps-trees-grow

The Ghost Orchid

"It is a race against time to identify new plants before they disappear forever."
In total, scientists across the world have named about 2000 new plant species each year for at least a decade. "It's almost bewildering that we are still discovering so many", said doctor Martin cheek at RBG Kew. "but now is our last chance to find a known species name then and hopefully protect them before they become globally extinct."
The New ghost orchid is one of 16 new orchids from thence and remote forest in Madagascar. It was named Didymoplex is Stella -silvae by Kew's Johan Hermans, Meaning "star of the forest" as it grows in complete darkness and has star-like flowers. It has no leaves for chlorophyll for photosynthesis and Gets All Its nutrients in Symbiosis with underground fungi.
The flower only poxes through the forest floor humus for a day to attract pollinators, which may be ants...
Three of the new orchids are already thought to be extinct in the wild due to the destruction of their forest homes, Including One Tree dwelling species that was probably eradicated due to the demand for or geranium oil used in aromatherapy. "sadly, Madagascar's many unique plants are under threat from deforestation and droughts, floods and fires caused by climate change," Send Harmens. "It really is a race against time."



Crossword



Across

1. WHO PROVED GENES ARE LOCATED ON CHROMOSOMES
3. WHAT TYPE OF FRUITS ARE BEANS
5. I HAVE NO LIFE SPAN AS I AM IMMORTAL
7. BALLOON LIKE EXTENSIONS OF XYLEM PARENCHYMA INTO VESSELS
8. YOU EAT MY BROTHERS TOMATO BRINJAL BUT YOU CANNOT EAT ME. WHO AM I.
9. S.R KASHYAP IS A SCIENTIST FAMOUS FOR
12. SYNZOOSPORE IS FOUND IN
14. POLLINATION IN A WATER LILY AND WATER HYACINTH IS BY

Down

2. THE EYES OF POTATO TUBER ARE
4. MODIFICATION OF ORGAN TO ANOTHER ORGAN
6. FLASK SHAPED FRUITING BODY OF ASCOMYCOTA
10. I AM THE REGION FOUND BETWEEN THE EPIDERMIS AND STELE
11. I AM CALLED THE REINDEER'S MOSS. WHO AM I
13. OFFSETS ARE PRODUCED BY

ANSWERS - 1.MORGAN, 2.AXILLARY BUD, 3.LEGUME, 4.MORPHALLAXIS, 5.AMOEBA, 6.PERITHECIUM, 7.TYLOSES,8.SOLANUM NIGRUM, 9.BRYOLOGY, 10.CORTEX, 11.CLADONIA, 12.VAUCHERIA, 13.MITOSIS

Feedback form

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