Prelim Bits 14-04-2023 | UPSC Daily Current Affairs

Accredited Agent for Health and Extension of Livestock Production (A-HELP)

A-HELP Program launched in the State of Uttarakhand.

- The program is a joint initiative of the Ministry of Fisheries, Animal Husbandry & Dairying and the Ministry of Rural Development.
- The program aims to address the healthcare needs of the livestock population in a village.
- Women members of self-help groups registered in the State Rural Livelihood Mission, are known as 'A-HELP'.
- A-HELPs will help in artificial insemination under Rashtriya Gokul Mission (RGM), and in preventing the livestock from infectious diseases.

  Rashtriya Gokul Mission aims to genetically improve the cattle population and promote and conserve indigenous cattle breeds.

- These A-HELP workers will also be instrumental in the implementation of the Livestock Insurance Scheme.

  Under the livestock insurance scheme, the crossbred and high yielding cattle and buffaloes are being insured at maximum of their current market price.

- A-HELP serves as the link between the livestock farmers and the veterinary services.
- The programme was successfully piloted in State of Madhya Pradesh and J&K (UT).

Reference

1. PIB | A HELP Program launched in the State of Uttarakhand

Antineutrinos

Antineutrinos detected using water for the first time.

Neutrinos

- A neutrino is a subatomic particle that is very similar to an electron, but has no electrical charge and a very small mass, which might even be zero.
- Neutrinos are one of the most abundant particles in the universe.
- They have very little interaction with matter and are incredibly difficult to detect.

While matter is built up of protons, electrons, and neutrons, each of which has a mass and a charge, antimatter particles have the same masses, but they have opposite charges.

Antineutrinos

- They are the antimatter of neutrinos and have a non-existent mass and charge.
- They rarely interact with other particles and this makes them difficult to be detected.
- They are produced as a by-product when neutrons separate into protons and electrons in nuclear reactors.



The Sudbury Neutrino Observatory (SNO)

- The observatory in Canada, was in the process of upgradation and was filled with ultrapure water, and the detector was being calibrated.

Ultrapure water is removed all organic & inorganic compounds; dissolved & particulate matter; volatile & non-volatile, reactive & inert; hydrophilic & hydrophobic; and dissolved gases.

- While looking through the calibrated data, the researchers picked up signals of an antineutrino that came from a nuclear power station hundreds of kilometres away.
- **Liquid scintillation -** Usually, in order to detect antineutrinos, scientists need to use a method called liquid scintillation.
- Liquid scintillation involves the use of chemicals like linear alkybenzene.
- This new discovery suggests it is possible to build neutrino detectors using ultrapure water, which is non-toxic, relatively inexpensive and easy to handle.

References

1. **The Indian Express Antineutrinos detected using water for the first time**
2. Neutrinos │Antineutrinos

Teja Singh Sutantar

Punjab CM unveils statue of Teja Singh Sutantar, a revolutionary leader who led the PEPSU Muzara.

Early life

- He was born in 1901 as Samund Singh in Aluna village of Gurdaspur district.
- In September 1921, he formed his own squad called ‘sutantar jatha’ (also called as swatantar meaning free/independent).
- In its maiden attempt, the jatha successfully liberated the gurdwara in a village called

Teja, in Gurdaspur district, from the mahants.
- This success earned him the moniker of Teja Singh Sutantar from his supporters.
- In 1923, Teja Singh came in contact with leaders of the Ghadar Party, and in 1925 he joined the Turkish military academy.

Political life

- Teja Singh became a prominent leader of communist party (CPI).
- **The Kirti –** He contributed revolutionary articles to the party journal, the Kirti, writing about issues that plagued peasants.
- Teja Singh was elected unopposed to the Punjab Legislative Assembly in May 1937 as a nominee of Indian National Congress, while he was still in prison.
- He continued to remain the member of Punjab Legislative Assembly till 1945.

Post-independence life

- He was a key leader in the PEPSU Muzara movement, which started in the 1930s and went on till 1952.
- **PEPSU –** The movement was started by landless peasants (muzaras) in PEPSU (Patiala and East Punjab States Union),
- The movement aimed to obtain ownership rights of the land they had been tilling for generations.
- **Lal Party –** Teja Singh formed his Lal (Red) Party with the Kirti group of the Punjab Communist Party as its nucleus.
- On April 12, 1973 he died of a heart attack in the central hall of the Parliament.

References

1. The Indian Express | Punjab CM unveils statue of Teja Singh Sutantar
2. The Tribune | 50 yrs on, Teja Singh Sutantar continues to live in folk tales

Kudmis

The Kudmis of the Chota Nagpur plateau were counted among Scheduled Tribes under the British, but were excluded from the list in independent India.

- Kudmis are a peasant community, concentrated in the Chota Nagpur plateau of West Bengal, Jharkhand and Odisha and are also found in Assam and northern West Bengal.
- During the British rule, they were in the Scheduled Tribe list, and were regarded as a primitive tribe, like the Munda, Oraon, Bhumij, Kharia, Santhal, and others.

Exclusion of Kudmis from the ST list

- After 1950, when the Scheduled Tribe list was prepared in independent India, Kudmis did not find a place on it.
- The Kudmis argue that in the British era, various documents listed them as a tribe and an aboriginal community of India, and they want that identity restored.

References

1. The Indian Express | Behind the Kudmis' agitation in Bengal and Jharkhand
2. The Indian Express | Kudmis seek ST status from Centre

Star-Planet Pair

Astronomers find a star-planet pair that mimics the relationship between our sun and earth.

YZ Ceti b

- It is a rocky, earth-sized exoplanet rotating around a small red dwarf star and is 12 light-years from Earth.

  Exoplanet is a planet that orbits a star other than our sun.

- Astronomers have detected a repeating radio signal from this exoplanet that suggests the presence of a magnetic field around it.
- Magnetic field is one of the prerequisites for a habitable planet.
- The astronomers determined that the planet takes just a couple of earth days to circle its star.
- The YZ Ceti b discovery was made using the Karl G. Jansky Very Large Array radio telescope in New Mexico.

Star-Planet pair

- To have an atmosphere and sustain water, a planet has to be at a certain distance from its star (Goldilocks zone), or it will get burnt.

  The Goldilocks Zone, or habitable zone, is the range of distance with the right temperatures for water to remain liquid.

Importance of magnetic field

- The survival of a planet's atmosphere depends on having or not having a strong magnetic field,
- The magnetic field protects the planet's atmosphere from being eroded by the charged particles blowing in from its star.

References

1. The Hindu | Why is a star-planet pair
2. Firstpost | Astronomers find a star-planet pair



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