

7. Short News

1. Tyler Prize 2026

Dr. Toby Kiers (evolutionary biologist) won the 2026 Tyler Prize for her work on Mycorrhizal Networks.

About the Tyler Prize

1. Often called the "Nobel Prize for the Environment."
2. Established in 1973; entails a \$250,000 award.

About Mycorrhizal Networks

Definition- A symbiotic partnership between fungi and plant roots.

Mechanism

Biological Marketplace- Fungi provide soil nutrients (phosphorus, nitrogen) to plants in exchange for carbon (sugars).

Structure- Fungal threads (hyphae) extend deep into the soil, vastly increasing the root's reach for water and nutrients.

Intelligence- They lack a brain but show "smart" behavior, moving nutrients from areas of abundance to scarcity based on demand.

Ecological Impact

- a. Climate- Act as a massive carbon sink, drawing down ~13 billion tonnes of CO₂ annually.
- b. Evolution- Helped early plants colonize land.

Major Types

- a. Arbuscular Mycorrhiza (AM)- Found in crops and grasses.
- b. Ectomycorrhiza (EM)- Found in forest trees (pines, oaks).

2. Pufferfish Poisoning

India reported its first confirmed case of freshwater pufferfish poisoning, highlighting a neglected risk.

Key Details

1. Toxin- Tetrodotoxin (a potent neurotoxin).
2. Mechanism- Blocks sodium channels in nerves, causing paralysis, respiratory failure, and death.
3. No Antidote- Treatment relies solely on respiratory support and symptom management.

The Fish- India hosts ~32 species (marine and freshwater).

Risk- Often caught as by-catch in rivers (Ganga, Brahmaputra) and sold mixed with other fish due to lack of regulation.

3. Indo-Israel CoE for Fisheries and Aquaculture

Event- Declaration signed at the 2nd Global Summit on "Blue Food Security" in Israel.

Highlights

Centres of Excellence (CoEs)- Establishment of CoEs for fisheries, modeled on the successful agricultural CoEs.

Technology Transfer- Will bring Israeli expertise in

Recirculating Aquaculture Systems (RAS)- Water-efficient fish farming.

Biofloc & Aquaponics- Sustainable high-yield methods.

Focus- Genetic improvement, pathogen-free seeds, and deep-sea fishing vessel design.

Significance- Boosts India's Blue Economy and status as the world's 2nd largest fish producer.

4. India's First State-funded BSL-4 Lab

Foundation stone laid in Gandhinagar, Gujarat for a Bio-Safety Level 4 (BSL-4) lab.

About BSL-4 Facilities

Purpose- The highest level of containment designed to study deadly pathogens with no known vaccines or cures (e.g., Ebola, Nipah, Congo Fever).

Status in India

- a. Existing (Civilian)- National Institute of Virology (NIV), Pune.
- b. Existing (Defense)- DRDO lab in Gwalior (est. late 2024).
- c. New- The Gandhinagar facility will be the first state-funded one.

5. Synthetic Cattle Breeds

NDRI registered two new breeds- Karan Fries and Vrindavani.

Synthetic Breeds

Definition- Created by cross-breeding Indigenous (*Bos indicus*) and Exotic (*Bos taurus*) cattle and stabilizing the traits over generations.

Goal- Combine the hardiness of Indian breeds with the high milk yield of foreign breeds.

The New Breeds

Karan Fries-

- a. Mix- Holstein Friesian (Global high yielder) x Tharparkar (Resilient Indian breed).
- b. Yield- Up to 46.5 kg/day (massive increase over indigenous average of 1-2 kg).

Significance- Better economic returns for farmers and climate resilience.

