Prelim Bits 08-09-2021 | UPSC Daily Current Affairs

Manda Buffalo

National Bureau of Animal Genetic Resources (NBAGR) has recognised the Manda buffalo as the 19th indigenous and unique buffalo breed of India.

- Manda buffaloes are found in the Eastern Ghats and plateau of Koraput region of Odisha.
- They are resistant to parasitic infections, less prone to diseases and can live, produce and reproduce at low or nil input system.
- They give birth to a calf every 1.5 to 2 years for the whole life of 20 years, after they get matured at around 3 years.
- **Uses** - These buffaloes contribute to the nutrition of households. Average milk yield is 2 to 2.5 litre in single milking with 8% fat.
- They assist in all the agricultural operations in the undulated hilly terrain for generations.
- With Manda buffalo recognised by NBAGR, both Centre and State governments must devise a strategy for conservation of these buffaloes.
- Besides, research would be carried out to enhance buffaloes' productivity through breeding strategy.

National Bureau of Animal Genetic Resources

- Affiliated to Indian Council of Agriculture Research (ICAR), NBAGR is the nodal agency for the registration of newly identified germplasm of **livestock and poultry** of the country.
- Mandate - Identification, Evaluation, Characterization, Conservation and sustainable Utilization of Livestock and Poultry Genetic Resources.

Heterosis

- A vast majority of commercially grown crops are hybrids, where two inbred lines are crossed, with their first-generation hybrid offspring exhibiting a vigour that is lacking in either of its parents.
- This property of hybrid vigour exhibited by the hybrid crop plants is known as heterosis.

Rhizomicrobiome (plant-root microbe interactions) is the rich collection of microbes that surround the roots of every plant.

- A recent study has found that there is a strong positive relationship between the heterosis of a hybrid plant and the soil microbes.
- In laboratory-sterilised soils that are totally devoid of microbes, both the inbred parents and hybrid offspring grow equally well i.e. no heterosis.
- When the soil environment was 'rebuild' using bacteria, there was an increase in heterosis.
- Fumigating, or steaming the soil in one experimental plot led to decreased heterosis, because

this soil was depleted of microbes.

Blood Honey

- Sunderbans being the home to the Royal Bengal tigers, every year people die venturing into the forests to collect this honey. Due to the risks involved in its collection, it is called blood honey.
- It is also called Sundarban honey, as it is collected by the Sunderbans' Moulis community.
- This comparatively less thick honey has high demand for its nutritional value and purity.
- As this honey is multi-floral and there is practically no use of antibiotics or pesticides in Sundarbans.
- It is nearly twice as expensive as the branded honey.
- **Reasons for the high cost** - One major part of the cost input is going deep into the forest area. This means that there are also no pesticides or chemicals or any other impurities in this honey.
- Additionally, the purpose of ventures like this is the financial upkeep of this community too.

Oil Spill in Gulf of Mexico

After Hurricane Ida, abandoned damaged oil pipelines have been discovered in the Gulf of Mexico while searching for the origin of a substantial oil spill.

- Oil spill is the contamination of rivers, bays and seawater due to oil pour as a result of a natural cause or accident or human error.
- **Causes** - Oil spills are caused by,
    1. Anthropogenic or human causes
        - Accidents (Most common) involving tankers, barges, pipelines, refineries, drilling rigs and storage facilities,
        - Deliberate acts by terrorists, acts of war, vandals or illegal dumping.
    2. Natural causes (like tsunami, etc)
- **Impacts** - Most oils float. Oil usually spreads out rapidly across the water's surface to form a very thin oil slick.
- In rare cases, very heavy oil can sometimes sink.
- Depending on the circumstances, oil spills can be very harmful to marine birds, sea turtles and mammals, and also can harm fish and shellfish.
- Oil destroys the insulating ability of fur-bearing mammals (sea otters), and the water-repelling abilities of a bird's feathers.

Measures to Control Oil Spills

- **Booms** are floating physical barriers, made of plastic, metal or other materials, which slow the spread of oil and keep it contained.
- **Skimmers** can physically separate spilled oil from the water's surface.
- **Sorbents** (materials that soak up liquids by either absorption or adsorption) can be used. Eg: Polyester-derived plastic, volcanic ash, etc.
- **Dispersants** (chemicals that disperse the oil into the water column) can be applied using aircraft or boats.
- In-situ burning of freshly spilled oil.
- Phosphorus-based and nitrogen-based **fertilizers** can be used for the microbes to grow and multiply quickly.

- **Biological agents** (hydrocarbon degrading bacteria like Pseudomonas putida) can be used to help break down oil into its chemical constituents.
- Using Elastomizers for chemical stabilisation of oil.

Gulf of Mexico

- It is a partially landlocked body of water on the south-eastern periphery of the North American continent.
- It is the world's largest gulf connected to the Atlantic Ocean by the Straits of Florida, and to the Caribbean Sea by the Yucatán Channel.

  Straits of Florida runs between the peninsula of Florida and Cuba.

  Yucatán Channel runs between the Yucatán Peninsula and Cuba.

- It was formed as a result of plate tectonics around 300 million years ago.
- The climate of the gulf region varies from tropical to subtropical.
- The shallow continental shelf regions of the Gulf of Mexico contain large deposits of petroleum and natural gas.
- This region is known for commercial fishing, as the gulf waters contain huge populations of fish, particularly along the continental shelf.

National Oil Spill Disaster Contingency Plan (NOS-DCP)

- This Plan was issued by the Ministry of Defense in 1996.
- It has designated Indian Coast Guard as the Central Coordinating Authority for combating marine oil spills in Indian waters and undertaking oil spill prevention and control.
- However, the NOS-DCP comes under the purview of the National Disaster Management Authority, Ministry of Home Affairs.
- It mandates the Coast Guard to coordinate with state departments, ministries, port authorities and environmental agencies to assist in oil spill cleaning operations.
- In 2015, the Coast Guard revised the NOS-DCP to meet international standards, setting up an Online Oil Spill Advisory system, etc

Source: The Hindu, The Indian Express, Business Insider, Panda.org

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