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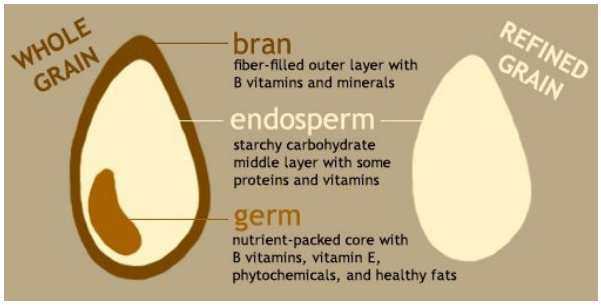
Millets

Grain-processing of millets raises new concerns in the consumption of millets.

- Millets are a group of cereal grains that belong to the Poaceae family (grass family).
- Millets are primarily grown during the kharif season in rainfed areas as these crops require less water and agricultural inputs than other cereals.
- As proposed by India, the United Nations General Assembly (UNGA) has declared 2023 as International Year of Millets (IYM).
- **Nutrients -** The nutritional content of millets includes carbohydrates, proteins, fibre, amino acids, and various minerals.
- Different millet varieties have different nutrient profiles.

Millet Variety	Rich in
Pearl millet	Higher protein content than rice, maize, and sorghum
Foxtail millet	Amino acid lysine
Finger millet	More crude fibre than wheat and rice
Proso millet	Amino acids leucine, isoleucine, and methionine



- **Processing of Millets -** 'Whole grain' refers to the endosperm, germ, and bran (pericarp + aleurone) whereas 'refined grain' refers only to the endosperm.
- Each millet kernel consists of 3 major parts, called pericarp, endosperm, and germ.
- The pericarp has an outer covering called the husk.
- The husk and the pericarp together protect the kernel from inhospitable ambient conditions, disease, and physical damage.
- The husk is removed from the grains because it is composed of cellulosic matter that the human body can't digest.
- **Decortication of Grain -** Removes any other outer covering and expose the seed.
- Both mechanical and hand-worked removescrude and dietary fibre.
- **Milling -** Grinding the grains into flour, and sieving to remove large 'impurities', including bran.
- Sieving makes the flour more digestible and its nutrients more accessible to the body but reduced nutrient content due to the loss of bran.

- The longer the grains were milled, the more protein, fat, and fibre contents the process removed.
- **Polishing** - Polishing is the process where the bran and the germ are rubbed off.
- For example, brown rice is changed to white rice by polishing.
- **Effects of polishing -** Processing and preparing millets for consumption can affect nutrients in three ways:
    - Enhance them
    - Suppress/remove them
    - Ignore them
- Polishing which removes 8-10% of grain weight also removed 60-80% of iron, magnesium, phosphorus, potassium, and manganese in both varieties.
- The loss of bran also compromised the grains' fibre content.

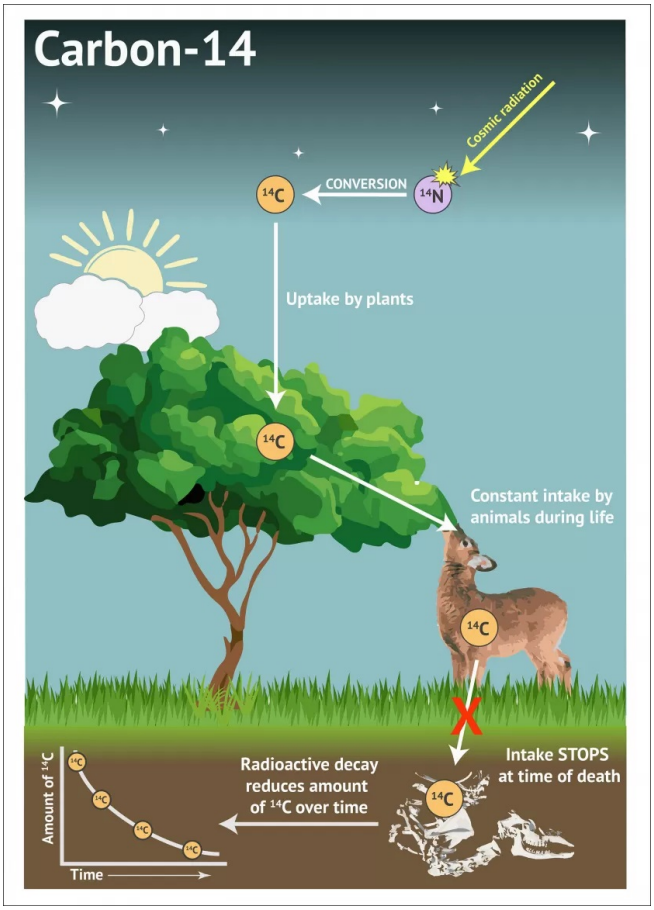
References

1. The Hindu - How are nutrients in millets affected by processing and polishing?

Carbon Dating

The Allahabad High Court ordered a 'scientific survey', including carbon dating, of a 'Shivling' said to have been found at the Gyanvapi mosque complex in Varanasi.

- Carbon dating is a widely-used method to establish the age of dead organic materials.
- **Isotopes -** Carbon occurs naturally in three isotopes: carbon 12, carbon 13 and carbon 14.
- The most abundant isotope of carbon in the atmosphere is C-12. A very small amount of C-14 is also present.
- The ratio of C-12 to C-14 in the atmosphere is almost static.
- The dating method uses Carbon-14 (C-14) which is radioactive and decays at a well-known rate.



- **Half-life -** The radioactive C-14 reduces to one half of itself in about 5,730 years, known as its 'half-life'.
- **Carbon dating -** Living things have carbon in them in various forms. Plants and animals get their carbon from the atmosphere.
- When they die, C-14 decay and the ratio of C-12 and C-14 changes.
- The changing ratio of C-12 to C-14 in the remains of a plant or animal after it dies is measured to deduce its approximate age.
- **Exceptions to carbon dating -** It cannot be used to determine the age of non-living things like rocks, for example.
- Also, the age of things that are more than 40,000-50,000 years old cannot be arrived at through carbon dating.
- This is because after 8-10 cycles of half-lives, the amount of C-14 becomes almost very small and is almost undetectable.
- **Alternate methods -** *Radiometric dating methods* which involve elements with half-lives of billions of years are used to determine age of very old objects.
- Potassium-argon dating - The radioactive isotope of potassium decays into argon, and their ratios can give a clue about the age of rocks.
- Uranium-thorium-lead dating - Uranium and thorium have several radioactive isotopes, and all of them decay into the stable lead atom.
- Cosmogenic nuclide dating (CRN) - It is applied to study the age of ice cores in Polar Regions.

References

1. IE - carbon dating of Gyanvapi 'Shivling': How does carbon dating work?

SDGs Localisation

Bhopal becomes the first city in India to adopt the localisation of the United Nations-mandated sustainable development goals (SDG).

- In 2015, all 193 member states of the UN adopted the Agenda 2030, which comprises of 17 SDGs and 169 targets.
- The member states report their progress towards achieving the goals through a voluntary national review (VNR) to UN's high-level political forum (HLPF).

- 'Agenda for Action: Sustainable Urban Transformation in Bhopal' was released by the Chief Minister of Madhya Pradesh.
- Bhopal will now have voluntary local reviews (VLR) demonstrate local government's capacity and commitments.
- Bhopal Municipal Corporation, UN-Habitat, other local stakeholders collaborate for VLR to track the progress towards the 2030 Agenda.
- Bhopal's VLR will measurably demonstrate the city's aspirations for a sustainable and inclusive urban transformation.
- The SDGs localisation translates the 'Agenda 2030' into local actions and impacts that contribute to the global achievement of the goals.
- In SDG localisation, VLRs have emerged as a powerful tool that forefronts local action towards SDGs.
- *New York City* became the first city to present its VLR to the HLPF in 2018.
- By 2021, some 33 countries had made 114 VLRs or similar review documents publicly available.

References

1. DTE - Bhopal: 1st Indian city to track progress towards meeting SDGs
2. SDGs UN - Voluntary Local Reviews

Electronic Voting Machines

The Election Commission denies Congress' claim on EVMs being brought from South Africa for Karnataka elections.

- Electronic Voting Machine (EVM) is an electronic device for recording votes.
- An Electronic Voting Machine consists of *two Units* – a Control Unit and a Balloting Unit – joined by a five-meter cable.
- The Control Unit is placed with the Presiding Officer or a Polling Officer and the Balloting Unit is placed inside the voting compartment.
- The Polling Officer in-charge of the Control Unit will release a ballot by pressing the Ballot Button on the Control Unit.
- This will enable the voter to cast his vote by pressing the blue button on the Balloting Unit against the candidate and symbol of his choice.
- **Capacity -** An EVM can record a maximum of 2,000 votes and a Balloting Unit has a provision for 16 candidates.

- EVMs (M3 EVMs) can cater to a maximum of 384 candidates including NOTA by connecting 24 Balloting Units.
- **Design** - The EVMs are devised and designed by the Technical Experts Committee (TEC) of the Election Commission in collaboration with 2 other Public Sector undertakings.
- **Manufacturing** - Bharat Electronics Ltd., Bangalore and Electronic Corporation of India Ltd., Hyderabad are the 2 PSUs that manufacture EVMs.
- **Discarding** - ECI has laid down a Standard Operating Procedure to discard EVMs and its chip.
- The process of destruction of EVM & its chip is carried out in the presence of the Chief Electoral Officer of the state or his representatives inside the factory of manufacturers.
- **Abroad connections -** India does not use any EVMs produced abroad, but many countries used EVM machines made in India in their elections, like Bhutan, Nepal and Namibia.
- The chip is manufactured abroad because India does not have the capability of producing semi-conductor microchips within the country.
- **Time line of EVMs -** EVMs were first used in 70-Parur Assembly Constituency of Kerala in the year 1982.
- EVMs are used from 1989 after the 1988 amendment to the Representation of the People Act of 1951.
- By 2001, all State Assembly elections saw EVM usage.
- In 2004's Lok Sabha election, all 543 constituencies had EVMs.
- The VVPAT was first introduced on 4th September, 2013 in the bye-election for 51-Noksen (ST) Assembly Constituency of Nagaland.

References

1. IE - Karnataka elections: Who manufactures EVMs?
2. ECI - Electronic Voting Machine

United Nations Forum on Forests (UNFF18)

UNFF18 held in New York, discussed the contributions of SFM to energy, livelihoods and the SDGs.

- **UNFF -** The UN ECOSOC established a subsidiary body the United Nations Forum on Forests (UNFCC) in 2000.
- The UN General Assembly adopted the first ever UN Strategic Plan for Forests 2017-2030.
- The Strategic Plan provides a global framework for actions at all levels to sustainably manage all types of forests and trees outside forests and halt deforestation and forest degradation.
- There are 6 Global Forest Goals and 26 associated targets to be achieved by 2030 in the Strategic Plan.
- These goals and targets are voluntary and universal.
- The Forum has universal membership, and is composed of all Member States of the United Nations and specialized agencies.

- The UNFF meet happens annually and will focus on discussions on implementation, technical advice and exchange of experiences.
- **UNFF18** - The 18th session of UNFF held in New York.
- UNFF18 discussed the contributions of sustainable forest management (SFM) to energy, livelihoods and the SDGs.
- India presented a case of a UNFF country-led initiative on long-term SFM.
- India also shared concerns on wildfires and the problems associated with current forest certification schemes.

References

1. DTE - UNFF18: Sustainable forest management takes centre stage
2. UN ECOSOC - UNFF