Prelim Bits 17-05-2022 | UPSC Daily Current Affairs

Fair and Average Quality Wheat

The Centre relaxed the Fair and Average Quality (FAQ) norms for "shrivelled and broken grains" of wheat in the ongoing rabi marketing season in Punjab, Haryana, and Chandigarh.

> The Centre has raised the FAQ permissible limit of "shrivelled and broken grains" of wheat to 18% from the existing 6%. This decision will reduce the hardship of farmers and avoid distress sale of wheat.

- Every year, before procurement begins in this region in April, the specifications to ensure the quality of the procured wheat are notified.
- These specifications are notified by the Storage and Research (S&R) division of the Department of Food & Public Distribution in the Union Ministry of Consumer Affairs.
- This year, wheat containing up to 0.75% foreign matter, 2% damaged grain, 4% slightly damaged grain, 6% shrivelled and broken grain, and 12% moisture was cleared for procurement.
- **Implementation** - The specifications are implemented at the time of procurement by the quality control wing of the Food Corporation of India (FCI), the central government's nodal agency for procurement.
- The FCI conducts physical and chemical analyses on the crops during the procurement process, and on the stored crop to ensure quality standards and parameters are met.
- **FAQ wheat** - According to FCI, fair and average quality (FAQ) wheat is one that meets all all-down specifications.
- FAQ wheat is fully developed, and has a proper shine or lustre.
- The main varieties are golden or pale yellow in colour, the grain is not dark, and does not have any streaks.
- It is properly dry, and meets all nutritional conditions, the values of which are tested in the lab in case of doubt.
- If a layman takes a handful of wheat and finds the grain is shiny and beautiful, it would usually mean that the wheat meets FAQ.

Reference

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2. https://newsonair.com/2022/05/16/centre-relaxes-fair-average-quality-norms-to-procure-wheat-in-punjab-haryana-and-chandigarh/

Lithium-Sulphur Cell Technology

Engineers in the USA have come up with a new Lithium-Sulphur (Li-S) cell technology.

- The Li-S cell technology could pave the way for the development of more efficient, sustainable

and cost-effective batteries than the current lithium-ion (Li-ion) batteries in use today.
- The Li-S batteries use Sulphur instead of the cobalt found in the electrolyte (the liquid inside the battery) in the Li-ion batteries.
- This is done by stabilizing gamma sulfur at room temperature to enable the carbonate electrolyte in the Li-ion batteries.

The Sulphur is an extremely common element that is cheaply available.

But the Cobalt is rare and expensive and associated with unethical mining in countries such as the Democratic Republic of the Congo.

- In a Li-S battery cell, metallic lithium is used as the negative electrode while the positive electrode is of sulfur.
- **One benefit** of Li-S batteries is that they have a higher theoretical energy density and can hold twice the charge of a regular Li-ion battery.
- **Problems** - In Li-S batteries, when sulphur reacts with lithium, it creates many intermediaries called polysulphides.
- These **polysulphides** dissolve in the electrolyte as the cell functions.
- This results in the loss of the energy storing capacity with each charging cycle of Li-S batteries.
- Another problem is that most Li-S technologies use **ether electrolytes** which have a boiling point of around 50 degrees celsius making them quite dangerous and inappropriate for most practical applications.
- **Vapour Deposition method** -The US engineers tried to address these problems with a new technique called Vapour Deposition method.
- In this method, the sulphur is physically confining into micropores of carbon in order to enable a Li-S battery with a carbonate electrolyte.
- If the sulphur is physically confined, even if polysulphides are found, they would not directly interact with the carbonate solvent species and that would help prevent an adverse reaction (Hypothesis).

Reference

1. https://indianexpress.com/article/technology/science/engineers-at-drexel-university-develop-new-lithium-sulphur-tech-that-can-revolutionise-batteries-7891660/
2. https://www.sciencedirect.com/topics/engineering/lithium-sulfur-batteries#:~:text=In%20a%20lithium%2Dsulfur%20battery,is%20typically%20about%202%20V.

Sudden Infant Death Syndrome

Researchers have identified a biochemical marker in the blood that could help identify newborn babies at risk for Sudden Infant Death Syndrome (SIDS).

- SIDS is the **unexplained death**, usually during sleep, of a seemingly healthy **baby less than a year old**.
- SIDS is known as crib death because the infants often die in their cribs.
- Butyrylcholinesterase (BChE) is an enzyme that plays a major role in the brain's arousal pathway.
- In the new study, the researchers have found that the babies who died of SIDS had **lower levels of the BChE enzyme** shortly after birth.

- So, the low levels of BChE would reduce a sleeping infant's ability to wake up or respond to its environment, leading to death in SIDS.
- **Other causes** - Physical factors (Brain defects, low birth weight, respiratory infection); and environmental factors (sleeping on the stomach or side, sleeping on a soft surface, sharing a bed or overheating)
- **Risk factors** - Infants are most vulnerable between the 2nd and 4th months of life.
- Boys are slightly more likely to die. Nonwhite infants are more likely to develop SIDS.
- Babies who live with smokers have a higher risk of SIDS (Secondhand smoke).
- Premature babies and babies having a low birth weight result SIDS.
- During pregnancy, the mother also affects her baby's risk of SIDS, especially if she is younger than 20, smokes cigarettes, uses drugs or alcohol, and/or has inadequate prenatal care.
- **Prevention** - The actions are to be taken based on the above risks like placing your baby to sleep on his or her back, etc.,
- Breast-feeding your baby for at least six months lowers the risk of SIDS.

Reference

1. https://www.thehindu.com/sci-tech/blood-marker-identified-for-babies-at-risk-of-sids/article65413718.ece
2. https://www.mayoclinic.org/diseases-conditions/sudden-infant-death-syndrome/symptoms-causes/syc-20352800

Anang Tal Lake

The Delhi Development Authority (DDA) is asked by a Union Minister to restore the historic Anang Tal Lake in Mehrauli, South Delhi.

- The Anang Tal Lake is believed to have been built a thousand years ago.
- It is said to be created by Tomar King, Anangpal II, in 1,060 AD.
- Anang Tal has a strong Rajasthan connection as Maharaja Anangpal is the maternal grandfather of Prithviraj Chauhan.
- The millennium old Anang Tal signifies the beginning of Delhi.

Reference

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2. https://www.newindianexpress.com/nation/2022/apr/27/centre-orders-restoration-of-historic-1000-year-old-anang-tal-lake-in-delhis-mehrauli-2447181.html
3. https://www.theindianwire.com/news/government-plans-to-declare-delhis-anang-tal-a-national-monument-330307/

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