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2 May, 2024

Balanced Fertilisation

Context: *Balanced fertilisation is expected to emerge as a significant policy objective for the incoming government post the Lok Sabha elections.*

➢ **Policy Focus on Balanced Fertilisation:**

- The government aims to discourage excessive application of urea, DAP, and MOP, which are rich in primary nutrients.
- This objective is anticipated to become a primary policy goal post the Lok Sabha elections.

➢ **Urea Consumption Trends:**

- Urea consumption reached a record 35.8 million tonnes by March 2024, marking a significant 16.9% increase from 2013-14 levels (30.6 million tonnes).
- Despite mandatory neem coating and a reduction in bag size from 50 to 45 kg in March 2018, urea consumption has consistently risen over the past six years.

➢ **Nutrient-Based Subsidy (NBS) System:**

- The NBS system, initiated in April 2010, aimed to promote balanced fertilisation by subsidising nutrients such as nitrogen (N), phosphorus (P), potassium (K), and sulphur (S).
- However, the exclusion of urea from the subsidy framework led to its continued high consumption.

➢ **Challenges and Imbalances:***

- Recent price controls on non-urea fertilisers have exacerbated nutrient imbalances in the market.
- DAP has become comparable in price to certain NPKS complex fertilisers, leading to over-application.

➢ **Addressing Price Hierarchy:**

- There is a need to establish a proper price hierarchy among non-urea fertilisers, prioritising DAP for rice and wheat cultivation.
- Encouraging the use of single super phosphate (SSP) in granular form, with a relatively low MRP of Rs 550-600 per bag, can improve its acceptability and reduce adulteration risks.

➢ **Opportunities for Rationalisation:**

- The decline in global fertiliser prices presents an opportunity for the government to rationalise domestic fertiliser prices and promote balanced plant nutrition.
- This could involve bringing urea under the NBS framework and adjusting subsidy rates on other nutrients accordingly.

All-India Consumption of Fertiliser Products (*in lakh tonnes*)

	Urea	DAP	MOP*	NPKS	SSP
2003-04	197.67	56.25	18.41	47.57	25.44
2009-10	266.73	104.92	46.34	80.25	26.51
2011-12	295.65	101.91	30.29	103.95	47.46
2013-14	306.00	73.57	22.80	72.64	38.79
2014-15	306.10	76.26	28.53	82.78	39.89
2015-16	306.35	91.07	24.67	88.21	42.53
2016-17	296.14	89.64	28.63	84.14	37.57
2017-18	298.94	92.94	31.58	85.96	34.39
2018-19	314.18	92.11	29.57	90.28	35.79
2019-20	336.95	101.00	27.87	98.57	44.03
2020-21	350.43	119.11	34.25	118.11	44.89
2021-22	341.80	92.72	24.56	114.79	56.81
2022-23	357.25	104.18	16.32	100.74	50.17
2023-24	357.80	108.12	16.45	110.73	45.44

**For direct application, excluding supply to complex fertiliser units.*

Source: Fertiliser Association of India.

Electoral rights of a Prisoner

Context: *Amritpal Singh, imprisoned leader of the pro-Khalistan group Waris Punjab de, plans to run for the Lok Sabha elections in Punjab's Khadoor Sahib seat on June 1.*

➢ **Legal Status of Voting Rights and Right to Be Elected:**

- The Supreme Court has established that free and fair elections are a fundamental aspect of India's constitutional framework.
- While elections are safeguarded as a basic constitutional principle, the rights to vote and be elected are considered statutory rights, subject to legislative regulations.
- The Supreme Court has affirmed that the right to vote is a statutory right and can be subject to statutory limitations.

➢ **Disqualification for Contesting Elections:**

- Section 8 of the Representation of People Act, 1951, outlines disqualification criteria for contesting elections, which come into effect upon conviction for certain offences.
- Disqualification applies only after conviction, not mere criminal charges.
- The disqualification period starts from the date of release and lasts for six years.

➢ **Exceptions to Disqualification:**

- The Election Commission of India has the authority to reduce or remove the period of disqualification.
- A convicted individual can contest if their conviction is stayed on appeal to a higher court.
- In cases where the conviction is stayed, the disqualification does not take effect.

Face to Face Centres

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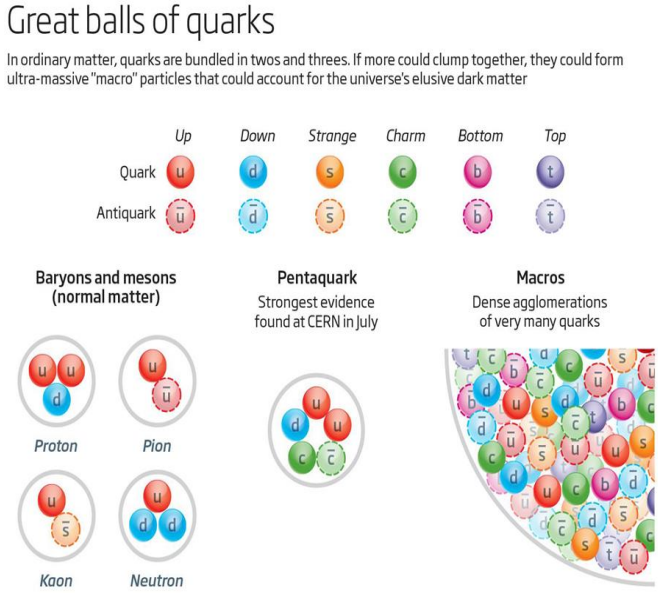
- **Challenges to Disqualification:**
  - In 2011, the Public Interest Foundation petitioned for disqualification of individuals with criminal charges framed against them or who filed false affidavits regarding their criminal history.
  - In 2016, advocate Ashwini Kumar Upadhyay filed a petition seeking permanent disqualification for convicted persons.
- **Restrictions on Voting Rights for Confined Persons:**
  - Section 62 of the RP Act restricts voting rights for individuals confined in prison, except for those in preventive detention.
  - The Supreme Court has upheld these restrictions, citing reasons such as resource constraints and the need to keep persons with criminal backgrounds away from the election process.
  - The court rejected challenges to Section 62(5) based on the right to equality, emphasising that voting rights are subject to statutory limitations.
- **Court Decisions and Precedents:**
  - In 1997, the Supreme Court rejected a challenge to Section 62(5) in the case of Anukul Chandra Pradhan, Advocate, Supreme Court v. Union of India.
  - The court upheld the constitutionality of Section 62(5) based on reasons such as statutory rights, resource constraints, and the nature of confinement.

Quark clumps

Context: *Physicists primarily investigate quarks through the behaviour and clustering of hadrons, with recent discoveries providing new insights into how quarks combine.*

- **Composition of Matter:**
  - Matter consists of atoms, comprising protons, neutrons, and electrons.
  - Protons and neutrons, distinct from electrons, are composite particles comprised of quarks.
  - Quarks aggregate into hadrons, such as protons and neutrons.
- **Recent Findings on Quark Clumping:**
  - A study published on February 20 demonstrated a higher propensity for the formation of three-quark clumps over two-quark clumps under specific conditions.
  - Another study, released on March 15, observed the existence of clumps composed entirely of heavier quarks, presenting challenges in their study due to their short lifespan.
  - Implications for Understanding Stars: Comprehensive comprehension of quarks is indispensable for elucidating nuclear fusion processes and the fate of stars, including the potential existence of quark stars.
- **Quark Matter in Neutron Stars:**
  - Hypotheses suggest the presence of quark matter within neutron stars, replacing neutrons under extreme densities.
  - Research indicates that the cores of massive neutron stars may predominantly consist of quark matter.
- **Astrophysical Observations and Quark Matter:**
  - The amalgamation of astrophysical observations with theoretical calculations is crucial for assessing the prevalence of quark matter in neutron stars.
  - Further accumulation of observational data is imperative for refining our understanding.
- **Quirky Properties of Quarks:**
  - Quarks exhibit six distinct flavours and possess unique attributes like colour charge.



  - The binding of quarks is facilitated by gluons, with their behaviour explicable through the framework of quantum chromodynamics.
- **Experimental Evidence of Quark Deconfinement:**
  - High-energy experiments, exemplified by those conducted at the Large Hadron Collider, furnish empirical support for the deconfinement of quarks.
  - The conjecture posits the existence of quark-gluon plasma in the early universe shortly after the Big Bang.
- **Prospects of Discovering Quark Stars:** The process of quark aggregation may engender the formation of quark stars, representing an enduring inquiry within the realm of physics.

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NEWS IN BETWEEN THE LINES

Vibhuti Falls

Recently, amid soaring temperatures in Karnataka, tourists sought refuge from the extreme heat by flocking to Vibhuti Falls in the Western Ghats.

About Vibhuti Falls:

- Vibhuti Falls is a waterfall in the **Western Ghats of Karnataka** and is considered to be one of the **most beautiful falls** in the region.
- The name "Vibhuti" means **"ashes of glory"** in Hindu mythology.
- The falls are located near a **large limestone rock formation,** which makes the water pure and **rich in minerals**.

Global Plastics Treaty

Activist and environmentalist groups deemed the conclusion of the Global Plastics Treaty negotiations as "disappointing."

About the Global Plastic Treaty:

- The negotiations for the Global Plastics Treaty were **held in Ottawa, Canada.**
- The primary objective of these negotiations was to **develop a legally binding agreement** aimed at "**ending plastic pollution**" on a global scale.
- Nearly **192 member countries participated** in the discussions, representing a diverse range of geographical regions and interests.
- These negotiations represented the fourth round of talks **since 2022**, following the resolution by countries to eliminate plastics.
- The **Intergovernmental Negotiating Committee (INC)** was formed to oversee the process and consisted of government representatives tasked with drafting a timeline for plastic elimination and production cessation.
- The negotiations encountered significant challenges due to the **intricate connections between plastics** and **oil economies**, the substantial presence of manufacturing businesses and the limited availability of affordable alternatives.
- Despite the challenges, there remains cautious optimism regarding the potential for reaching an ambitious agreement during the next meeting scheduled for **November 2024 in Busan**.
- India opposed restrictions on producing so called **primary plastic polymers** or virgin plastics, arguing that production reductions exceed the scope of **UNEA** (United Nations Environment Assembly) resolutions.

Red Colobus Monkeys

Recently, a study revealed the importance of conserving Red Colobus monkeys in Africa's tropical forests, suggesting that their preservation could significantly contribute to safeguarding these ecosystems.

About Red Colobus Monkeys:

- Red colobus monkeys (Piliocolobus spp.) are a **group of Old World monkeys** that are **native to equatorial Africa.**
- They are **reddish orange to reddish brown in color**, and either black or black and white.
- They have **no thumbs** or **only vestigial thumbs** and are **closely related to the black-and-white colobus monkeys** (genus Colobus).
- They are the most **threatened group of African monkeys**, with every form of the species listed as **threatened with extinction in 2020.**
- They serve as **primary indicators of biodiversity** decline in Africa's tropical forests.
- Large-bodied red colobus are particularly **vulnerable to hunting due to their meat yield**, leading to rapid population declines in African forests.

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Antares Star

Recently, the Indian Institute of Astrophysics (IIA) in Bengaluru filmed the moon using an eight-inch telescope equipped with a camera, passing in front of a bright red star Antares.

About Antares Star:

- Antares is a **bright red star** located in the **constellation of Scorpius** and is about **550 light-years away from Earth.**
- It is the **brightest star** in the Scorpius constellation, **often ref erred to as "Jyeshtha**" or **Alpha Scorpii** in Indian astronomy.
- It is classified as a **red supergiant star** that is several hundred times the **diameter** of the **sun and 10,000 times more luminous**.
- It holds a prominent position in the night sky, particularly visible during the summer months in the southern hemisphere.
- Due to its brightness and the moon's occasional passage in its path, **Antares undergoes occultations,** where it is briefly hidden by the moon, creating a notable celestial event.
- Antares is **visible in the Northern Hemisphere on summer** evenings with a **bright red** sparkle, and **in the Southern Hemisphere on winter** evenings as a **red beacon.**

Place in News

Rwanda

Recently, in a first, a migrant whose asylum application was rejected by the United Kingdom was sent to Rwanda under a voluntary scheme.

Rwanda (Capital: Kigali)

Location: Rwanda is a landlocked country located in East Africa.

Boundaries: Rwanda share its borders with **Tanzania** (East), the **Democratic Republic of the Congo** (West), **Uganda** (North) and **Burundi** (South).

Physical features:

- The highest point in Rwanda is **Mount Karisimbi,** located in the volcanic Virunga Mountains range.
- The major rivers in Rwanda include the **Nile River** (forming as the Kagera River), **Rusizi River**, **Akagera River** and **Nyabarongo** River.
- Rwanda possesses significant mineral resources, including **tin**, **tantalum**, **tungsten**, and **gold**.
- Rwanda is home to several major lakes, including **Lake Kivu**, **Lake Muhazi** and **Lake Ihema.**

POINTS TO PONDER

- Recently, Air Marshal Nagesh Kapoor took charge as the Air Officer Commanding-in-Chief Training Command of the Indian Air Force. What prestigious medals has he been honored with for his distinguished service in the Indian Air Force? **– Vayu Sena Medal (2008) and the Ati Vishisht Seva Medal (2022)**
- Who recently took charge as the Director General of Akashvani News? **– Maushumi Chakravarty**
- Which article of the Indian Constitution guarantees the "Right to practice any profession or to carry on any occupation, trade, or business"? **– Article 19(1)(g)**
- Which three countries form the Golden Triangle, a region historically known for opium production and drug trafficking? **– Myanmar, Thailand and Laos**
- When did the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act come into effect? **– May 1, 2014**