

NEWS TODAY

FSSAI operationalises provisions of Draft Food Safety and Standards (Food Product Standards and Food Additives) amendment regulations

- Draft amendment was notified by Food Safety and Standards Authority of India (FSSAI) under Food Safety and Standards Act 2006.
- Now provisions of draft related to limits of micronutrients in vitamin and mineral premix for manufacturing of fortified rice kernels (FRKs) have been operationalised (refer to the table).
 - ⊖ This will strengthen the national fortification programme.
- Fortification is addition of key vitamins and minerals to staple foods such as rice, wheat, oil, milk and salt to improve their nutritional content.
 - ⊖ Rice fortification refers to adding FRK-containing FSSAI-prescribed micronutrients (Iron, Folic Acid, Vitamin B12) to normal Rice (Custom Milled Rice) in the ratio of 1:100.
 - ⊖ coating, extrusion and dusting are key technologies for rice fortification.
 - ⊖ In India, extrusion technology is employed, where milled rice is pulverized and mixed with a premix containing vitamins and minerals.
- Benefits: Fortification is a cost-effective method for combating malnutrition.
- Key initiatives
 - ⊖ Distribution of fortified rice under
 - ◆ Saksham Anganwadi and Poshan 2.0
 - ◆ Centrally sponsored pilot scheme on "Fortification of Rice & its Distribution under Public Distribution System.
 - ⊖ '+F' logo by the FSSAI to identify fortified foods.
- Key issues: Fortified rice could be harmful to people suffering from thalassemia and sickle cell anaemia.



Micronutrient	Composition (per 100g of Vitamin and mineral premix)
Iron	8-20g/100g
Vitamin B9 (folic acid)	45-55mg/100g
Vitamin B12 (Cynocobalamine)	0.45-0.55mg/100g

India-bound cargo ship hijacked by Houthi rebels in Red Sea

- Saudi-led coalition (an alliance of nine countries from West Asia and North Africa, led by Saudi Arabia) termed this as an act of armed group of "piracy"
- The ship called Galaxy Leader is British-owned and Japanese-operated and was heading from Turkey towards Pipavav in Gujarat.
 - ⊖ The hijacking occurred approx. 150 km off the coast of Yemen's port city of Hodeida, near the coast of Eritrea.
- Red Sea is, a narrow strip of water extending southeastward from the Suez Canal to the Bab el-Mandeb Strait, which connects with the Gulf of Aden and then with the Arabian Sea.
- Importance of Red Sea trade Route:
 - ⊖ It is a crucial route for international trade and energy shipments, around 93-100%, of Arab countries' total exports pass through it.
 - ⊖ Approx. 10% of seaborne cargo sails through the Red Sea including most of the Asian trade with Europe.
 - ⊖ Both the US and China have Naval bases in Djibouti which points towards the geostrategic importance of this region.
- Challenges of Piracy
 - ⊖ Piracy can deter trade along key global shipping chokepoints and disrupt critical supply chains.
 - ⊖ Strong nexus with local mafia groups, illegal trafficking, or even terrorism.
 - ⊖ Higher costs arise as ships divert around piracy areas, requiring extra fuel, and increased shipping insurance premiums, etc.
 - ⊖ Poses a significant risk to sailors, the shipping industry, and the coastal states that border the piracy-prone zone.

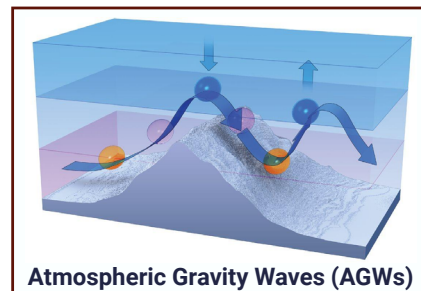
About Houthi rebels

- Houthis are a rebel group locked in a civil war with the Yemeni government for almost a decade.
 - ⊖ They are named after the Houthi tribe.
- They have been in power in northern Yemen, including the official capital Sanaa,
- Houthis, reported to be backed by Iran, also support Hamas and Hezbollah, involved in cross-border conflicts with Israel



NASA set to launch Atmospheric Wave Experiment (AWE) mission to the International Space Station (ISS)

- AWE is a pioneering NASA experiment designed to explore the interplay between terrestrial and space weather.
- It will examine **airglow** (colourful bands of light in Earth's atmosphere) to determine what combination of forces drives space weather in the upper atmosphere.
- It will also measure **Atmospheric Gravity Waves (AGWs)** at mesopause (an atmospheric layer that begins some 87 km in altitude).
 - ⊕ AGWs form as buoyancy lifts air upward, and gravity brings it back down.
 - ◆ The upward movement encourages cloud formation, while the downward movement promotes clear skies.
 - ⊕ These waves result from various processes like airflow over mountains, convection (e.g., thunderstorms), and frontal systems.
 - ⊕ They serve to connect different parts of the atmosphere, such as a surface storm causing can causes changes in the ionosphere.
- **Space Weather** describes the variations in the space environment between the sun and Earth.
 - ⊕ Sun is the primary source of space weather with the greatest disturbances usually caused by solar flares and subsequent geomagnetic storms.
 - ⊕ Space weather can affect power grids, radio or satellitebased communication, operations of navigation and Global Positioning Systems (GPS).



Atmospheric Gravity Waves (AGWs)

Significance of studying AGWs: A better understanding of how gravity waves in the upper atmosphere interact with the jet stream, polar vortex and other phenomena could be key to improved weather predictions and climate models.

China Sets Up Near-Space Command for Hypersonic Weapons Force

- **Near space** is a region above and adjacent to the national airspace, it extends from 18 km above sea level up to 160 km above sea level.
 - ⊕ The recent establishment of Near-Space Command and the incident of U.S. shooting down Chinese spy balloon earlier this year underscore growing belief that space may be next battleground.
- At present, Near Space region is a "no man's land."
- In this region air is too thin to support flight by most operational military aircraft, and yet gravity is too strong for a satellite to sustain itself in orbit.
 - ⊕ Hence, very few aircraft fly there.
- **Significance of Near Space:**
 - ⊕ Systems in this region can operate for weeks or months as opposed to Unmanned Air Vehicles, whose missions last 24-40 hours.
 - ⊕ Satellites in this region are less costly than those in geostationary orbits.
 - ⊕ System in Near Space could function as a surrogate satellite, offering advantages of:
 - ◆ shorter transmission distances, better communications, reconnaissance, and surveillance.
 - ⊕ Deployed equipment has small radar and thermal cross-sections making them relatively invulnerable to most traditional tracking and targeting methods.
- **Limitations:**
 - ⊕ Controlling and maintaining near-space equipment is challenging due to the turbulent lower atmosphere.
 - ⊕ Militarisation of this region poses significant diplomatic challenges.

➤ Hypersonic weapons fly at speeds of at least Mach 5 and are highly maneuverable and able to change course during flight.

International Cricket Council (ICC) bans transgender players from international women's cricket

- The ICC has barred cricketers who experienced male puberty from international women's games, regardless of surgery or gender reassignment treatment.
 - ⊕ ICC is the global governing body for cricket, headquartered in Dubai, UAE.
- **Gender reassignment surgery**, sometimes called **sex reassignment surgery**, is performed to transition individuals with **gender dysphoria** to their desired gender.
- ICC's new policy is based on the following principles (in order of priority) i.e.,
 - ⊕ protection of the integrity of the women's game, safety, fairness, and inclusion.
- **Debate around allowing transgenders in sports:**
 - ⊕ It centers around the balance of inclusion, sporting fairness, and safety in women's sports.
 - ⊕ **Physiological differences established during puberty** can create significant performance advantages.
- **Rules governing transgender persons** in sports vary by organization, For example;
 - ⊕ As per **World Athletics (WA)**, **Differences in sex development (DSD) athletes** must keep their **Testosterone below 2.5 nmol/L for 24 months** to participate in the female category across events.
 - ◆ **DSD is a condition** when an individual's physical sex traits don't match typical male or female development.
 - ◆ **Testosterone boosts athletic performance** by increasing muscle mass, strength, and hemoglobin levels.
 - ⊕ **World governing bodies for cycling (UCI) and swimming (FINA) and World Rugby** barred trans women from competing in women's events.
 - ⊕ **International Olympic Committee**, placing responsibility on individual federations to determine eligibility criteria in their sport for transgender people.

2nd India-Australia 2+2 Ministerial Dialogue held in New Delhi

- The meeting was co-chaired by India's Defence Minister & External Affairs Minister along with their Australian counterparts.
- Meeting highlighted the significance of a strong India-Australia defence partnership for Indo-Pacific and called for enhancing collaboration in information exchange, defence research, etc.
- **Strategic Convergence between India-Australia**
 - ⊕ Both democracies of Indo-Pacific have pluralistic societies and market economies.
 - ⊕ Hold a shared vision for Indo-Pacific that calls for a free, open, inclusive and resilient rules-based order in the region.
 - ◆ Australia-India Indo-Pacific Oceans Initiative Partnership (AIPOIP) helps shape maritime cooperation in Indo-Pacific.
 - ◆ Supply Chain Resilience Initiative by Australia, India, and Japan was launched for diversification of supply chain in the region.
 - ⊕ Shared interests in balancing China's growing assertiveness.
 - ⊕ Both are members of the Quad, along with Japan and US.
 - ⊕ Bilateral strategic partnership was elevated to Comprehensive Strategic Partnership in 2020.
- **Key defence cooperation**
 - ⊕ Military Logistics Support Agreement facilitates sophisticated logistic cooperation.
 - ⊕ Defence Science & Technology Implementing Arrangement facilitates interaction between defence research organizations in two countries.
 - ⊕ Information Fusion Centre - Indian Ocean Region (IFC-IOR) liaison officer to enhance maritime situational awareness.
 - ⊕ Joint Military Exercises: AUSINDEX, Malabar, AUSTRALIND, PITCH BLACK.
 - ⊕ Other areas of cooperation include cyber security, ocean-born trade security, etc.

Also in News

India Australia RISE Accelerator program

- Atal Innovation Mission (NITI Aayog) and Australia's national science agency (CSIRO) launched Rapid Innovation and Startup Expansion (RISE) accelerator program.
- It will support Australian and Indian circular economy startups and small-to-mid-sized enterprises (SMEs).
 - ⊕ A circular economy entails markets that give incentives to reusing products, rather than scrapping them and then extracting new resources.
- Program will be delivered virtually with opportunities to travel between both countries.
- Participating startups may also be eligible for up to Rs. 40,00,000 in non-equity grants.

Ghol or Black spotted Crocker

- Gujarat declared Ghol species as the state fish at the Global Fisheries Conference India 2023.
- Ghol fish is widely distributed in Indo-Pacific from Persian Gulf to Pacific Ocean.
 - ⊕ Its swim bladders are highly priced because of their medicinal and commercial values.
 - ⊕ It is exported to countries of south-east Asia (Hong Kong, Singapore and Malaysia).
 - ⊕ **Usage:**
 - ◆ To prepare isinglass (a form of collagen used mainly for the clarification of wine and beer).
 - ◆ Traditional medicine (believed to prevent bleeding in patients with urinary problems).
 - ◆ Cosmetics.

Lancet Countdown on Health and Climate Change report 2023

- **Key highlights**
 - ⊕ Global potential loss of income from the reduction in labour capacity due to extreme heat was \$863 billion in 2022.
 - ◆ It affected low and medium Human Development Index countries the most (particularly agricultural sector), exacerbating global inequities
 - ⊕ Climate change is exacerbating food insecurity by undermining crop yields, threatening food security of populations dependent on marine resources, etc.
- **Recommendation:**
 - ⊕ Health-centred approach to address climate crisis,
 - ⊕ Just, equitable, and rapid phase-out of fossil fuels, etc.

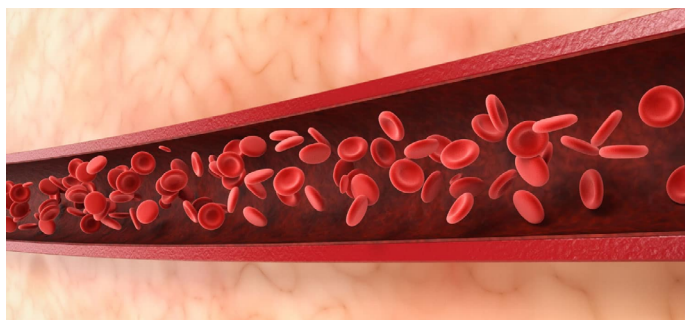
Gambusia (mosquitofish)

- A new study has revealed that two species of mosquitofish, Gambusia affinis and Gambusia holbrooki, have invaded various ecosystems across India.
- **About Gambusia:**
 - ⊕ The species has been widely introduced worldwide as a form of biological mosquito control; it feeds on mosquito larvae.
 - ⊕ **Native:** to the U.S
 - ⊕ **Habitat:** shallow waters and penetrate dense vegetation growth where larvae and pupae hide.
 - ⊕ It is among the prominent invasive alien species.
 - ⊕ In 1928, Gambusia was first introduced in India during British rule.



Haemoglobin in epidermis

- Study shows the presence of haemoglobin in the epidermis.
- **About Epidermis:**
 - ⊕ It is the **outermost layer of the skin**, forming a protective barrier against the external environment.
 - ⊕ It is made up of **five sublayers** that work together to continually rebuild the **surface of the skin**.
 - ⊕ **Various cells in the epidermis:** Keratinocytes, Melanocytes, Langerhans cells, and Merkel cells.
- **Haemoglobin** is a protein found in red blood cells, It has been identified in **keratinocytes of the upper epidermis**.
- ⊕ It **binds gases and exhibits** antioxidant properties, potentially contributing to barrier function.



Langlands Program

- Recently, a report claimed that the **Langlands Program** can be likened to **building bridges**.
- **Langlands Program**
 - ⊕ The program attempts to find connections between **number theory** and **representation theory**.
 - ⊕ It was set in **motion in 1967** by **Dr. Robert Langlands** at Princeton University.
 - ⊕ **In 2018, Dr. Langlands** was awarded the **Abel Prize** for the Langlands program.
 - ◆ Abel Prize is one of the highest honors for mathematicians which was established by the Norwegian Parliament in 2002.



Jupiter Icy Moons Explorer (JUICE Mission)

- European Space Agency's (ESA) JUICE probe will use **double gravity assist**, for the first time, from Earth and Moon to propel itself towards Jupiter.
- **Double Gravity assist** is a technique by which a spacecraft, with the help of the gravitational field of two celestial bodies, gets a speed boost.
- **About JUICE:**
 - ⊕ The **spacecraft was launched earlier** this year, to study Jupiter and its three icy and potentially ocean-bearing moons – **Ganymede, Callisto, and Europa**.
 - ⊕ **Objectives:** find out whether there could be places where the necessary conditions (water, biological essential elements, energy, and stability) to sustain life are present.
 - ⊕ **Period:** It has **embarked on an eight-year cruise** and will reach in 2031.
- **Other Missions to Jupiter:** Galileo, Juno, Europa Clipper, etc.



Ionosphere

- Gamma-ray burst (GRB) in **faraway galaxy** disturbed Earth's **Ionosphere**.
 - ⊕ GRBs are **short-lived bursts of gamma-ray light** (most energetic form of light).
 - ⊕ They can last from a **few milliseconds to several minutes**
 - ⊕ They shine hundreds of times **brighter than a typical supernova**.
- Ionosphere, stretching **50 to 400 miles above Earth's surface**, forms a **boundary between Earth's lower atmosphere and vacuum of space**.
 - ⊕ It contains **electrically charged gases called plasma**.
 - ⊕ **Satellites are deployed in this layer** including International Space Station
- It is **important for communications** as it reflects and modifies radio waves used for communication and navigation.

Places in news



Suriname (Capital: Paramaribo)

- An illegal gold mine collapsed in Suriname.
- **Political Features:**
 - ⊕ Located on the **northern coast of South America and is not landlocked** (opens into Atlantic Ocean).
 - ⊕ **Bordering nations:** French Guiana (east), Brazil (south), and Guyana (west).
- **Geographical Features:**
 - ⊕ **Vegetation:** Majorly Tropical rainforest.
 - ⊕ **Major rivers:** Marowijne, Corantijn (Courantyne), Coppename, Suriname, etc.
 - ⊕ **Highest Point:** Juliana Top
 - ⊕ **Minerals:** One of the **top producers of Bauxite** in the world.

