

UPSC CURRENT AFFAIRS NOTES 09-04-2024

Lavender Cultivation

According to officials, more than 700 acres of farmland has been brought under lavender cultivation in the Jammu and Kashmir area since 2017, and another 100 acres is set to be added.

About Lavender Cultivation



It is a crop native to Europe but was introduced in the temperate regions of Jammu & Kashmir state by the CSIR Aroma Mission.

It is a small, perennial aromatic herb shrub used in the fragrance, specialty food, and alternative medicine industries.

Propagation of lavender can be done by seeds, rooted cuttings, tissue culture, and layering.

Required climatic conditions

Soil: It can grow well in light well-aerated soil rich with organic matter. It grows best in neutral to alkaline soil which is free draining. This crop is very sensitive to waterlogging however can go well with poor or eroded soil.

Rainfall: It can produce well with an annual rainfall range from 300 to 1400 mm per year.



Climate: It is a hard and temperate plant that can tolerate drought and frost conditions. The ideal climatic conditions are cool winters and cool summers. It requires a good amount of sunlight.

It can be grown in areas that experience snowfall and have a hilly terrain.

Applications: Food and flavouring, Pharmaceutical and therapeutic, Cosmetic, and Industrial purposes etc.

It is a method of biological research in which fragments of tissue from an animal or plant are transferred to an artificial environment in which they can continue to survive and function.

Predicate Offence

The Supreme Court recently quashed a money laundering case after noting that there was no predicate offence in the case and no proceeds of crime.

About Predicate Offence

A predicate offence is a crime that is a component of a more complex criminal activity, often associated with money laundering or organised crime.

It serves as the underlying criminal act that generates proceeds or funds for the subsequent illegal activity.

The term “predicate offence” is usually used to describe money laundering or terrorist financing activities.

Predicate Offence under the Prevention of Money Laundering Act (PMLA):

The legislative intent behind predicate offences under PMLA finds its roots in the pursuit of curbing not only illicitly gained wealth but also income legally acquired yet concealed from the watchful eyes of public authorities.

The PMLA designates certain offences as predicate offences through the Schedule, consisting of three parts: Part A, Part B, and Part C.

Part A:

This section enumerates offences under the Indian Penal Code (IPC) that are deemed predicate offences.



Ranging from criminal conspiracy, waging war against the government, counterfeiting, to offences related to extortion, robbery, forgery, cheating, and more, Part A delves into the core fabric of criminal activities.

Part B:

Under this section, offences under the Customs Act become predicate offences if their value exceeds one crore rupees.

This section focuses on violations related to customs duties and regulations.

Part C:

This segment encompasses offences of cross-border implications, encompassing not only Part A's offences but also those against property under Chapter XVII of the Indian Penal Code.

Additionally, the wilful attempt to evade taxes, penalties, or interest under the Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015 also finds a place here.

The Supreme Court held that 'If there's no predicate offence, there are no proceeds of crime. Therefore, there can't be money laundering

CO2 levels

Data from the National Oceanic and Atmospheric Administration (NOAA) has revealed that global carbon dioxide levels reached a record high in 2023.

Carbon dioxide (CO₂) concentrations at the global surface increased by 2.8 parts per million (ppm) in 2023, reaching 419.3 ppm in 2022.

This was the twelfth consecutive year that carbon dioxide levels rose by more than 2 ppm.

This trend, according to NOAA's monitoring records, was not observed before 2014.

Further, the 2023 atmospheric CO₂ levels are now more than 50 percent higher than those found in the pre-industrial era.

India, it found, overtook the European Union to become the third-highest emitter globally.

The 2023 increase was the third-largest in the last decade and is likely a result of an ongoing increase of fossil fuel carbon dioxide emissions, coupled with increased fire emissions possibly as a result of the transition from La Nina to El Nino.

Note: El Nino and La Nina are the warm and cool phases of a recurring climate pattern across the tropical Pacific called the El Nino-Southern Oscillation, or “ENSO”. The world transitioned from a three-year run of El Nino to La Nina in 2023.

Findings of other reports

A December 2023 analysis from Global Carbon Project (GCP), an international consortium of scientists from more than 90 institutions, reported an increase in overall CO2 emissions by 1.1 percent compared to 2022 levels and 1.5 percent compared to pre-pandemic levels.

Why is this concerning?

This surge places us in a precarious position, mirroring atmospheric conditions from the Pliocene epoch, a period roughly 4.3 million years ago.

The Pliocene epoch was a time of significant environmental change. While not as hot as some periods in Earth’s history, global temperatures were several degrees higher than today and sea levels were significantly elevated.

During that geological period, sea levels were approximately 23 meters higher than today, and the average temperature was 7 degrees Fahrenheit higher than in pre-industrial times.

However, these changes in the Pliocene epoch were likely driven by natural fluctuations in Earth’s orbit and tilt, but the current surge is demonstrably caused by human activities.

ENSO, El Niño, La Niña

The ENSO cycle refers to the coherent and sometimes very strong year-to-year variations in sea-surface temperatures, rainfall, surface air pressure, and atmospheric circulation that occur across the equatorial Pacific Ocean.

El Niño refers to the above-average sea-surface temperatures that periodically develop across the east-central equatorial Pacific. It represents the warm phase of the ENSO cycle.

La Niña refers to the periodic cooling of sea-surface temperatures across the east-central equatorial Pacific. It represents the cold phase of the ENSO cycle.

Why do El Nino and La Nina Occur?

El Nino and La Nina are naturally occurring phenomena that result from interactions between the ocean surface and the atmosphere over the tropical Pacific. Changes in the ocean surface temperatures affect tropical rainfall patterns and atmospheric winds over the Pacific Ocean, which in turn impact the ocean temperatures and currents. The El Nino and La Nina-related patterns of tropical rainfall cause changes in the weather patterns around the globe as seen in the diagram to the right.

El Nino and La Nina episodes typically occur every 3-5 years.

Cape Buffalo

The recent study found that Cape Buffalo, one of the icons of Africa, suffered decimation in what is today's South Africa after Europeans began to colonize the region in 1652 Common Era (CE)

Details of the findings

Cape Buffalo populations were less genetically variable or diverse in the extreme southern part of their range. This means that there had been more interbreeding among them.

Lack of genetic diversity among the southern populations was linked to the mass hunting of the animals during the almost three centuries of European colonialism in the region.

They considered two hypotheses as to why this was so:

The rinderpest epidemic that struck Africa in the 19th century:

Africa south of the Zambezi River was struck by a rinderpest epidemic in the 1890s that killed more than 5.2 million cattle, oxen, sheep and goats. It also killed wild populations of Cape Buffalo, giraffes, and wildebeest. This event reduced their populations.

European colonization which began at the Cape of Good Hope on Africa's southern tip in 1652:



The decline in populations was caused by a combination of excessive hunting, fragmentation, and reduction of habitat, as well as systematic eradication of wildlife, during the colonial period.

The Cape Buffalo

The Cape Buffalo is one of the 'Big Five' species in Africa, the others being the lion, the leopard, the elephant, and the rhino.

It is one of the four subspecies of African Buffalo found south of the Sahara, the others being the forest buffalo, the West African Savanna Buffalo, and the Central African Savanna Buffalo.

The Cape Buffalo is found across the savannas of east and southern Africa.

They have a strictly herbivorous (graminivorous, florivorous) diet.

They feed on a wide variety of grasses, sedges, leaves, and other plants.

African buffalo are polygynandries (promiscuous) meaning that both males and females mate with multiple partners.

They mate and give birth only during the rainy seasons.

Cows usually reproduce every two years.

They give birth to a single calf after a gestation period of 11.5 months.

Males become reproductively mature when they are 4 to 6 years old.

International Union for Conservation of Nature's Red List: 'Near-Threatened'

SUVIDHA PORTAL

The Suvidha portal, developed by the Election Commission of India (ECI), is a technological solution aimed at ensuring fair and transparent elections by providing a level playing field for political parties and candidates.

About Suvidha Portal

primary objective of the Suvidha Portal is to streamline the process of requesting permissions and facilities by political parties and candidates during elections.



These include permissions for organising rallies, opening temporary party offices, conducting door-to-door canvassing, deploying video vans and helicopters, obtaining vehicle permits, and distributing pamphlets.

It upholds democratic principles by prioritising requests transparently based on the "First in First Out" principle, ensuring fairness in the allocation of resources and permissions.

Political parties and candidates can easily request permissions online through the Suvidha Portal, making the process more accessible and convenient. Additionally, offline options are available to ensure inclusivity, allowing those without internet access to submit their requests through alternative means.

What can be done on the Suvidha Portal?

Campaign Expenditure Management: Parties and candidates can file their election expenditure reports electronically through the Suvidha portal. This simplifies the process and reduces the need for physical paperwork.

Permission Requests: Permissions for various campaign activities like rallies, meetings, and processions can be sought electronically through the portal. This eliminates the need for manual applications and allows for faster approvals.

Candidate Information Management: Candidates can submit their nomination forms and affidavits online through the Suvidha portal. This expedites the nomination process and reduces the chances of errors.

Expenditure Monitoring: Political parties and candidates can monitor their campaign expenditures in real-time through the portal. This helps them stay compliant with spending limits set by the ECI.

Information Dissemination: The Suvidha portal serves as a central repository for election-related information. Parties and candidates can access and download vital documents like the Model Code of Conduct, electoral rolls, and polling booth locations.

Benefits of the Suvidha Portal

Transparency: By making campaign expenditure reporting and permission requests electronic, the Suvidha portal increases transparency in the election process. It reduces the scope for manipulation and misuse of funds.



Efficiency: The online platform streamlines various campaign-related tasks, saving time and effort for political parties and candidates. It eliminates the need for manual paperwork and multiple visits to government offices.

Convenience: The Suvidha portal provides a user-friendly platform accessible from anywhere with an internet connection. This makes it easier for parties and candidates, especially those in remote areas, to manage their campaigns effectively.

DHARMACHAKRAPURAM/PHANGIRI

Officials from the Department of Archaeology and Museums unearthed a significant coin hoard at the Phanigiri Buddhist site in Suryapet district, Telangana.

The discovery, included a pot containing 3,730 lead coins with distinct symbols.

The excavation team, led by N. Sagar and B. Mallu, found an earthen pot at a depth of two feet.

Inside the pot, they discovered lead coins with an elephant symbol on one side and a Ujjain symbol on the other, dating back to the Ikshvaku period (3rd to 4th century CE).

Alongside the coins, the archaeologists found stone beads, glass beads, shell bangle fragments, stucco motifs, broken limestone sculptures, a toy cart wheel, final nails, and pottery.

Phanigiri is a significant Buddhist site, and these artefacts add to its historical importance, with some artefacts being displayed at the New York Met Museum.

The discovery of the lead coins with distinctive symbols sheds light on the cultural and economic aspects of the Ikshvaku period in the region.

Further study and analysis of these artefacts will provide valuable insights into the history and civilization of ancient India.

Phanigiri

Phanigiri is a Buddhist site located in Suryapet district, Telangana, dating from the 1st Century BCE to the 4th century CE.



It is considered a significant discovery in the history of early India and is closely associated with the stupa complexes at Amaravati and Nagarjunakonda.

The village of Phanigiri is situated approximately 40 km from Suryapet city and houses a Buddhist complex.

The complex features a massive stupa and two apsidal halls containing stupas.

Within the complex are two large footprints believed to belong to Gautama Buddha, along with three viharas that once served as dwelling places for Buddhist monks.

Originally known as Dharmachakrapuram, the village's name was later changed to Phanigiri, derived from the words "phani" meaning snake and "giri" meaning hill, reflecting the shape of the hill on which it is located.

Andhra Ikshvaku Dynasty

The Andhra Ikshvaku dynasty ruled over the eastern Krishna River valley in India during the 3rd and 4th centuries CE.

Their capital was located at Vijayapuri, which is modern-day Nagarjunakonda in Andhra Pradesh.

They were known for their patronage of both Shaivism (Hinduism) and Buddhism, with several contributions to the construction of Buddhist monuments.

Political History:

The dynasty traced its ancestry back to the legendary king Ikshvaku, mentioned in ancient Sanskrit texts.

Vasishthiputra Chamtamula is regarded as the founder of the dynasty, rising to power after the decline of the Satavahana power.

Chamtamula was succeeded by his son Virapurushadatta, who ruled for at least 24 years and had multiple wives, including daughters of his paternal aunts.

Ehuvala Chamtamula, son of Virapurushadatta, ruled for over two decades and saw the kingdom reach its zenith.

Rudrapurushadatta succeeded Ehuvala and continued the dynasty, with his reign attested by inscriptions and a marital alliance with the Western Kshatrapas.

Territory and Religion:

The Ikshvaku kingdom covered parts of present-day Andhra Pradesh and Telangana, with inscriptions found in various locations.

They were known for their performance of Vedic sacrifices and patronage of Hindu and Buddhist shrines.

Buddhist monuments, including mahachaityas and monasteries, were constructed under the patronage of Ikshvaku rulers and their families.

Decline:

The decline of the Ikshvaku dynasty is attributed to possible invasions by the Abhiras and the rise of the Pallavas, who eventually gained control of their territory by the mid-4th century CE.

SATPULA DAM

Historical significance and enduring legacy of the Satpula, a 14th-century dam built by Mohammad Bin Tughlaq in Delhi.



Key Highlights

The Satpula dam, constructed in 1340, served dual purposes: providing irrigation water and acting as a defence structure against invaders.

The dam was strategically built to control the flow of water from a canal originating in the Aravalli hills.



It served as a boundary wall for Jahapanah, the fourth city of Delhi, and featured seven arches through which water flowed from the canal.

The dam's construction using Delhi quartz, a stone found in the Aravalli region, highlights the advanced masonry and architectural skills of the Tughlaq era.

The dam's structure includes slits on the top for surveillance, allowing guards to monitor and defend against potential intruders.

Sir Sayyid Ahmad Khan's Asar-us-Sanadid describes the dam's construction and its role in facilitating water flow through arched openings.

Cultural Significance

The Satpula dam holds spiritual significance, with beliefs in the healing properties of the canal water attributed to nearby Sufi saint Nasiruddin Mahmud.

Traditionally, the area hosted a Diwali mela where attendees would take a holy dip in the waters, reflecting the cultural and religious importance of the site.

Conservation Efforts

The Archaeological Survey of India (ASI) played a crucial role in conserving the Satpula Dam and preserving its architectural heritage for future generations.

Efforts to restore and maintain the site have contributed to its recognition as a significant historical landmark in Delhi.

Architectural Marvel

Despite the bustling urban environment of modern-day Delhi, the Satpula Dam retains a sense of serenity and historical charm, offering visitors a glimpse into the city's rich heritage.

Its unique architectural features and spiritual ambience make it a remarkable testament to the ingenuity of mediaeval Indian engineering and design.

GLYCAEMIC INDEX

Lancet paper provides compelling evidence linking high glycemic index (GI) diets with an increased risk of developing type 2 diabetes, especially among individuals with a higher Body Mass Index (BMI).

The study spanned five continents and involved a large cohort of 127,594 adults aged 35–70 years without known diabetes.



Details

Glycemic Index and Glycemic Load

GI ranks carbohydrate-containing foods based on their effect on blood glucose levels after consumption, while GL considers both the quality and quantity of carbohydrates in a serving.

GI and GL were estimated based on the intake of seven categories of carbohydrate-containing foods using country-specific food frequency questionnaires.

Findings

Association with Diabetes: A diet with a higher GI and GL was significantly associated with a higher risk of type 2 diabetes.

Impact of BMI: The association between GI and diabetes was stronger among individuals with a higher BMI compared to those with a lower BMI.

Incident Cases: After nearly 12 years of follow-up, 7,326 cases (5.7%) of type 2 diabetes occurred within the study population.

Implications

Preventive Measures: Consuming low GI and low GL diets may help prevent the development of type 2 diabetes.

Nutritional Choices: Making better food choices, particularly for individuals with a high BMI and family history of diabetes, can delay the onset of the disease.

Public Health Importance: The findings underscore the importance of dietary interventions in mitigating the global burden of type 2 diabetes.

Examples of Low and High GI Foods

Low GI Foods: Fruits, grains, lentils, non-starchy vegetables, legumes, dairy, brown rice.

High GI Foods: Sugar, sugary drinks, white polished rice, potatoes, white bread.

About Glycemic Index (GI)



The Glycemic Index (GI) is a numerical scale that ranks carbohydrates based on their effect on blood glucose levels after consumption.

It measures how quickly a carbohydrate-containing food raises blood sugar levels compared to pure glucose, which has a GI value of 100.

Foods with a high GI cause a rapid spike in blood sugar, while those with a low GI result in a slower, more gradual increase.

Determination of GI

Testing Protocol: GI values are determined through standardized testing protocols in which participants consume a portion of the test food containing 50 grams of available carbohydrates after an overnight fast.

Blood Glucose Monitoring: Blood glucose levels are then monitored over a period of two hours, and the area under the curve (AUC) is calculated to determine the food's GI value.

Reference Food: Pure glucose or white bread is used as the reference food, with a GI value of 100.

GI Categories

Low GI: Foods with a GI of 55 or less. They produce a gradual and steady increase in blood sugar levels.

Medium GI: Foods with a GI between 56 and 69. They produce a moderate increase in blood sugar levels.

High GI: Foods with a GI of 70 or higher. They cause a rapid spike in blood sugar levels.

Factors Influencing GI

Type of Carbohydrate: Simple carbohydrates typically have a higher GI than complex carbohydrates due to their rapid digestion and absorption.

Fiber Content: Foods high in fiber tend to have a lower GI because fiber slows down the digestion and absorption of carbohydrates.

Food Processing: Processing methods such as milling and refining can increase a food's GI by removing fiber and other nutrients that slow digestion.



Fat and Protein Content: Including fat and protein in a meal can lower its overall GI by slowing down digestion and the release of glucose into the bloodstream.

Benefits of Using GI

Blood Sugar Control: Choosing foods with a low GI can help stabilize blood sugar levels and prevent spikes and crashes, particularly for individuals with diabetes.

Weight Management: Low GI foods tend to be more filling and can help control appetite and promote weight loss.

Improved Energy Levels: Consuming foods with a low to moderate GI can provide sustained energy levels throughout the day.

Limitations of GI

Individual Variability: GI values may vary between individuals due to factors such as metabolism, insulin sensitivity, and the presence of other nutrients in a meal.

Food Combinations: The GI of a meal can be influenced by factors such as portion size, cooking methods, and the presence of fat, protein, and fiber.

Inaccuracy of GI Values: GI values are determined in controlled settings and may not always reflect real-world effects when foods are consumed as part of a mixed diet.

Application of GI

Food Choices: Using GI values as a guide, individuals can make healthier food choices by selecting foods with a lower GI and limiting those with a higher GI.

Meal Planning: Including a variety of low to medium GI foods in meals can help promote balanced blood sugar levels and overall health.

Athletic Performance: Some athletes use GI principles to optimize carbohydrate intake before and during exercise to sustain energy levels and performance.

About Body Mass Index (BMI)

Body Mass Index (BMI) is a simple numerical measure that is used to assess an individual's body weight relative to their height.



It is widely used as a screening tool to identify potential health risks associated with being underweight, overweight, or obese.

Calculation of BMI

Formula: BMI is calculated using the following formula: $BMI = \text{weight (kg)} / \text{height (m)}^2$

Units: Weight is typically measured in kilograms (kg) and height in meters (m). However, weight can also be measured in pounds (lbs) and height in inches (in), in which case the formula is modified.