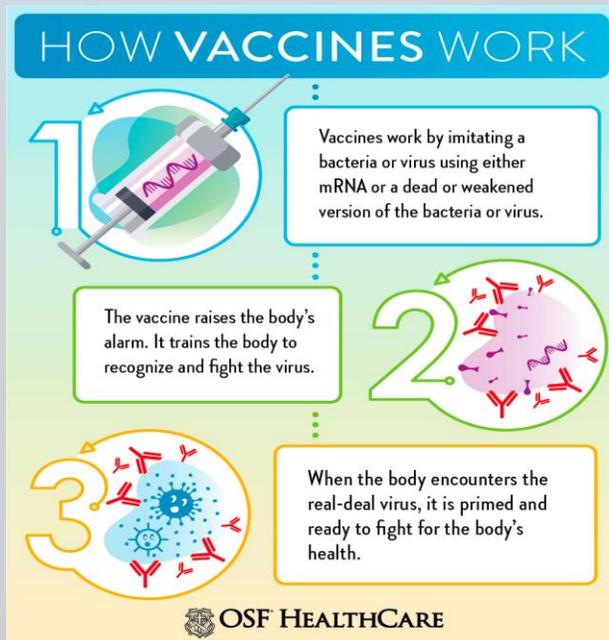
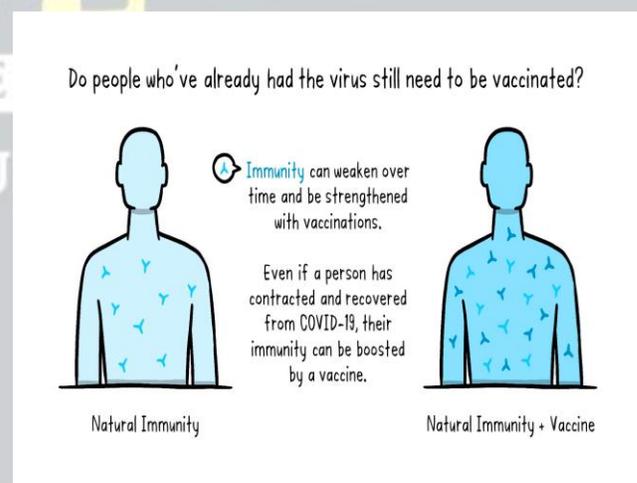
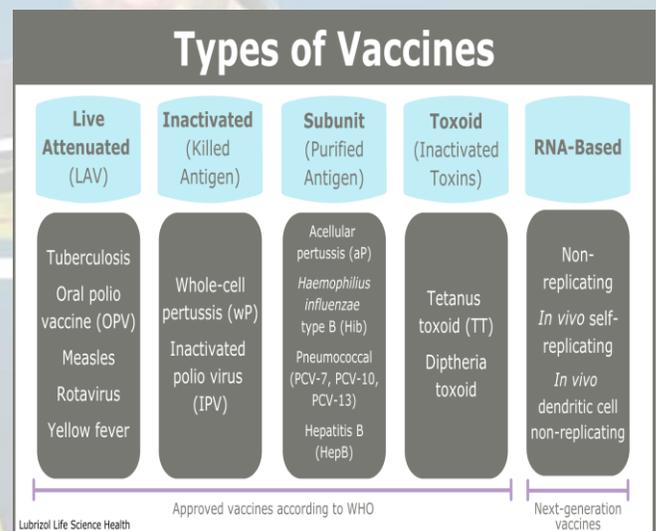


Vaccine efficacy

- Researchers update the composition of influenza vaccines every six months to match the strains of the virus that are circulating in the wild, so that the shots may provide protective immunity against the flu.
- But despite their best efforts, researchers rarely perfectly match the strains loaded in the vaccine with the strains circulating by the time the vaccines reach the market.
- The reason for this is the long gestation period usually at least six months between identifying the circulating strain and the development, manufacturing, and distribution of the vaccines.



- By the time the updated flu vaccine is available, the circulating strain may have drifted from the one contained in the vaccine, thanks to the high mutational rates of influenza viruses.
- The 'match' between strains included in the vaccine and strains in circulation is the most important factor controlling the vaccine effectiveness (VE) of flu vaccines.



Horseshoe crab

- Environmental groups petitioned the U.S. government seeking endangered species protection for the American horseshoe crab, a “living fossil” under threat from commercial harvests for bait and biomedical use as well as from habitat loss and climate change.
- These spine-tailed sea creatures, named for the shape of their body hells, were once a familiar sight to summer beachgoers along the U.S. mid-Atlantic and Gulf Coasts.
- But populations have crashed in recent decades, with spawning numbers down two-thirds from 1990 in the Delaware Bay estuary that was once their biggest stronghold, according to conservation groups.
- Research also shows their egg densities have fallen more than 80% in the past four decades.
- Those trends are tied to stress on other marine species that feed on their larvae and eggs, including the rufa red knot, a migratory shorebird whose own 2014 threatened-species listing cited horseshoe crab harvests as a contributing factor.
- Classified not as true crabs but as marine arthropods more closely related to spiders and scorpions, horseshoe crabs are among the

oldest living creatures on the earth, with fossils of their ancestors.



About Horseshoe crabs

- Horseshoe crabs have been around for more than 300 million years, making them even older than dinosaurs.
- They look like prehistoric crabs, but are actually more closely related to scorpions and spiders. The horseshoe crab has a hard exoskeleton and 10 legs, which it uses for walking along the seafloor.
- The body of the horseshoe crab is divided into three sections.
- Female horseshoe crabs are about one-third larger than the males. They can grow to be 18 to 19 inches (46 to 48 centimeters) from head to tail, while the males are approximately 14 to 15 inches (36 to 38 centimeters).
- The horseshoe crab species found around the United States (*Limulus polyphemus*) lives in the Atlantic

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Ocean along the North American coastline.

- Horseshoe crabs can also be seen along the East and Gulf coasts of the United States and Mexico.
- There are three other species of horseshoe crab worldwide, which are located in the Indian Ocean and in the Pacific Ocean along the coast of Asia.
- Horseshoe crabs utilize different habitats depending on their stage of development. The eggs are laid on coastal beaches in late spring and summer.
- After hatching, the juvenile horseshoe crabs can be found offshore on the sandy ocean floor of tidal flats.
- Threats to horseshoe crabs include **habitat loss** and overharvesting.
- Beach developments hinder horseshoe crab breeding. *Limulus polyphemus* is internationally listed as vulnerable
- Boroujen also known as *Urjen*, or *Oorjen*) is a city in the Central District of Borujen County, Chaharmahal and Bakhtiari Province, Iran, and serves as capital of the county.
- The city is populated by Persians with a minority of Lurs and Turkic peoples.

- Borujen is well known for its extremely cold weather, usually mentioned as one of the coldest Iranian cities in national weather forecasts

• MSP advantages and disadvantages

• Disadvantages

MSP is devoid of any legal backing. Access to it, isn't an entitlement for farmers. They cannot demand it as a matter of right. The government can procure at the MSPs if it wants to. The only crop where MSP payment has some statutory element is sugarcane.

MSP has not increased in proportion to the cost of production.

CACP is just "an attached office of the Ministry of Agriculture and Farmers Welfare". It can recommend MSPs, but the decision on fixing and enforcement rests finally with the government.

Though government announces MSP for 23 crops, it procures only 1/3rd of those.

There is lack of awareness amongst farmers and there is regional variation in implementation.

It kills competition and puts pressure on government finances.

The system has been often criticised at WTO platform.

• Advantages

The minimum support prices are a guarantee price for their produce from the Government.

MSP is announced before the sowing season so that the farmers can make an informed decision.

The major objectives are to support the farmers from distress sales and to procure food grains for public distribution.

It ensures adequate food grain production in the country.

In case the market price for the commodity falls below the announced minimum price due to bumper production and glut in the market, government agencies purchase the entire quantity offered by the farmers at the announced minimum price.

MSP thus increases the farmers' income which they can invest in new technology.

It also helps in achieving the Government's goal of doubling farmers income by the year 2022.

EXPRESS explained. | **HOW ARE MSPs DETERMINED?**

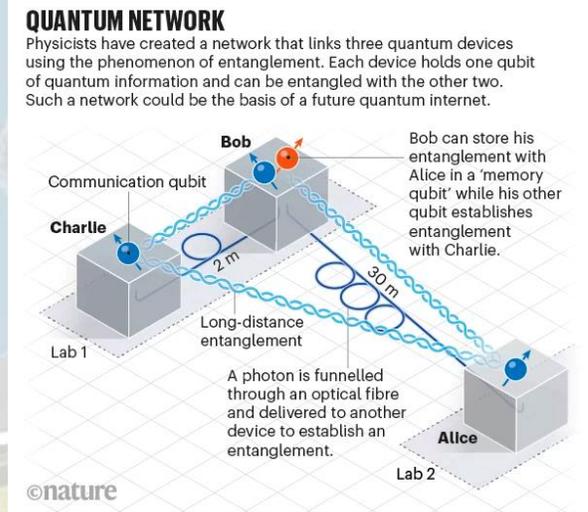
The Centre fixes MSPs for every kharif and rabi cropping season based on recommendations of the Commission for Agricultural Costs and Prices (CACP)

- When a farmer grows a crop, he incurs costs, some of it explicit and some implicit or unpaid. The CACP considers the following costs:

<p>1</p> <p>A2</p> <p>Covers all cash and in kind expenses incurred by farmers on seeds, fertilisers, chemicals, hired labour, fuel, irrigation, etc</p>	<p>2</p> <p>A2+FL</p> <p>Actual costs plus an imputed value of unpaid family labour</p> 	<p>3</p> <p>C2</p> <p>Includes 'A2+FL' along with revenues forgone on owned land (rent) and fixed capital assets (interest)</p>
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#QUIXPLAINED 2

- The quantum internet is a network that will let quantum devices exchange some information within an environment that harnesses the weird laws of quantum mechanics.



The Hindu

Gas flaring

- Gas flaring is the burning of the natural gas associated with oil extraction. The practice has persisted from the beginning of oil production over 160 years ago. It takes place due to a range of issues, from market and economic constraints, to a lack of appropriate regulation and political will.
- Flaring and venting are a waste of a valuable natural resource that should either be used for productive purposes, such as generating power, or conserved. For instance, the amount of gas currently flared each year about 139 billion cubic meters could power the whole of sub-Saharan Africa.

- Quantum entanglement is the phenomenon that occurs when a duet of particles are generated, interact, or share spatial proximity in such a way that the quantum state of each particle of the group cannot be described independently of the state of the others, including when the particles are separated by a large distance.

WHAT IS THE QUANTUM INTERNET?

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By saurabh pandey sir

Que-1 What is the Fujiwhara Effect?
 1- This is a phenomenon that occurs when two nearby cyclonic vortices move around each other and close the distance between the circulations of their corresponding low-pressure areas.
 2- The effect is named after Sakuhei Fujiwhara, the Japanese meteorologist who initially described the effect.
 3- There are two different ways in which Fujiwhara Effect can take place.
 Which of the following given above is/are correct
 a) 1 and 2 only b) 1 only
 c) 1, 2 and 3 d) 2 and 3 only

Que-2 Consider the following statements about SHAKTI Policy

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