Soyabean - Malwa Region of Madhya Pradesh

What is the issue?

- Malwa region is said to be India’s US Midwest, only because of soyabean.
- The significance of this crop in Malwa region and Madhya Pradesh, calls for addressing the current challenges to its production.

How did Soyabean take root in India?

- Soyabean in India has an American connection. The leguminous oilseed was hardly grown here till the mid-sixties.
- The first yellow-seeded soyabean varieties were introduced by University of Illinois scientists.
- They conducted field trials at the Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV) in Jabalpur, Madhya Pradesh.
- Many of these varieties - Bragg, Improved Pelican, Clark 63, Lee and Hardee - were released for direct cultivation.
- By 1975-76, the all-India area under soyabean had touched around 90,000 hectares.
- But a revolution in soyabean production took place only after that and in Malwa.
- Here, soyabean’s relevance, even vis-à-vis shaping electoral outcomes, is comparable to that of sugarcane in western UP.
How has Malwa plateau traditionally been?

- Malwa plateau region of western MP covers the districts of Dewas, Indore, Dhar, Ujjain, Jhabua, Ratlam, Mandasur, Neemuch, Shajapur and Rajgarh.
- Traditionally, the region grew only a single un-irrigated crop of wheat or chana (chickpea) during the rabi winter season.
- Farmers mostly kept their lands fallow during the kharif monsoon season.
- The reason was the monsoon’s unpredictability, as even if the rains arrived on time, it could be followed by long dry spells.
- Sometimes, it rained so much that the fields would get waterlogged, damaging the standing crop.
- So the farmers simply allowed the soil to retain water from the monsoon rain and take a rabi crop using this residual moisture.

How did Soyabean become suitable to Malwa?

- **Tubewells** - The change came with the advent of tube-wells in the mid-seventies.
- The Malwa plateau is made up of hard basaltic rocks of the Deccan Trap.
- Since these had aquifers with unutilised groundwater in many places, it was possible to drill tube-wells and grow irrigated wheat.
- So farmers now felt no need to conserve rainwater during monsoon as before.
- They could, instead, raise a kharif crop on this previously fallow land, and this turned out to be soyabean.
- **Soil** - Soyabean could grow well in Malwa region’s black cotton soil and did not require much effort.
• **Water** - Soyabean, unlike urad (black gram) or maize, could tolerate waterlogging for 2-3 days.

• It could also survive dry spells for over three weeks without much yield loss.

• **Nitrogen** - Being a legume, soyabean root nodules harboured atmospheric nitrogen-fixing bacteria.

• When harvested, it left behind 40-45 kg of nitrogen per hectare (equivalent to nearly two 50-kg urea bags) for the succeeding crop.

• **Duration** - Soyabean’s main advantage was its duration.

• The strains imported from US Midwest had a maturity period of 115-120 days from seed to grain.

• In 1994, JNKVV released an indigenously bred variety, JS 335 that matured in just 95-100 days.

• It also yielded 25-30 quintals per hectare, which was 5-10 quintals more.

• This variety, thus, very soon went on to occupy around 90% of India’s total soyabean area.

• The crop duration fell further to 80-90 days with varieties like JS 9560 and JS 2034, developed by the same university.

• The relative hardiness and shorter maturity (at least 10-15 days less than jowar or maize) made soyabean the ideal kharif crop.

• Farmers could sow it by late-June after the monsoon rains and harvest before mid-October, and could plant wheat in November.

• **Coverage** - Soyabean-wheat became the dominant crop cycle in Malwa region as in the US Midwest or paddy-wheat as in Punjab and Haryana.

• By 1979-80, the country’s soyabean area had reached 0.5 million hectares.

• It rose further and was 6 mh towards the end of the century, with Madhya Pradesh accounting for 70%.

• Within MP, soyabean cultivation spread to other districts as well, especially in the neighbouring Vindhya plateau.
What is the commercial potential of Soyabean?

- Soyabean’s potential was to an extent derived from sale of its oil domestically.
- But Soyabean had only 18-20% oil content, as against 40-45% in mustard or groundnut.
- So the real money lay in the balance 80-82% de-oiled cake and extractions, also called meal.
- The protein-rich meal could be exported out, especially to South-East/East Asia where it was used as an ingredient for animal feed.
- Realising the potential, business people started setting up solvent extraction plants for processing soyabean.
- From the mid-2000s, value of soya-meal shipments from India soared from just over Rs 1,360 crore to almost Rs 14,500 crore.
What is the recent challenge?

- **Production** - The boom in Soyabean production collapsed after 2013-14, along with a crash in global agri-commodity prices.
- Soya-meal exports and Soyabean realisations fell sharply.
- The crisis is not just economic, but ecological too.

- **Water** - The soyabean-wheat crop cycle has led to *groundwater overexploitation*, more so in Malwa.
- There is now need for digging wells deeper and deeper, as the top aquifers have been exhausted.

- **Pest** - Moreover, soyabean itself has over the years become prone to pest and disease attack.
- Yellow mosaic virus, once a problem confined to Northwest India, has now come even to soyabean in Central India.
- There are also fungal diseases such as collar rot, rhizoctonia root rot and pod blight.
- The pests that are increasingly causing crop damage include

  i. white fly (carrier of yellow mosaic virus)
  ii. stem fly (whose larva feeds on the inner part of the stem, making it hollow)
  iii. girdle beetle
  iv. tobacco caterpillar
- Cultivation - The main reason for pest and disease susceptibility is the absence of crop rotation and growing the same variety year after year.

- It is now for the policy-makers to address the production issues with this key crop grown in Madhya Pradesh.

Source: Indian Express