

Achieving Crop diversification in Punjab

Why in news?

Recent farmer protests raised questions about the sustainability of Paddy-Wheat cultivation especially in Punjab.

What is the extent of paddy-wheat cultivation in Punjab?

- In 2018-19, of the total gross cropped area paddy & wheat cultivation constituted to 84.6%.
- This ratio was just 32% in 1960-61 & 47.4% in 1970-71.
- This increase is at the expense of other crops.
- Wheat replaced chana, masur, mustard and sunflower & cotton, maize, groundnut and sugarcane area got diverted to paddy.
- Only vegetables (potato, pea) & fruits (kinnow) registered some acreage expansions which is very meagre.

Why is monoculture a problem?

- It increases vulnerability to pest and disease attacks.
- Crop and genetic diversity makes crops less sensitive to insects and attacks.
- Unlike pulses and legumes, wheat and paddy cannot fix nitrogen from the atmosphere.
- Their continuous cultivation leads to depletion of soil nutrients & increases the use of chemical fertilisers & pesticides.

Is Paddy cultivation creating problem in the state?

- Wheat is naturally adapted to its soil and agro-climatic conditions.
- It is a cool season crop & can only be grown where day temperatures are in the range of 30°C.
- Hence it is desirable to cultivate wheat in Punjab.
- However paddy (Pusa-44) is not very sensitive to high temperature & but needs higher irrigation.
- So the state's groundwater table depleted to 0.5 meters per annum on an average & is aggravated by state's policy of supplying free power for irrigation.
- Hence paddy can be grown in eastern central & southern India where water

is sufficiently available.

What are the steps taken by Punjab to address this problem?

- It enacted **Punjab Preservation of Subsoil Water Act in 2009**, which barred any nursery-sowing and transplanting of paddy before May 15 and June 15.
- But this has created another problem.
- It has pushed paddy harvesting to October-end leaving a small time to sow wheat (before the November 15 deadline).
- So farmers have to burn the stubble after harvesting leading to air pollution in Delhi.

How can this be avoided?

- Scientists at the Punjab Agriculture University have done a breed that shortened the duration of paddy varieties.
- PR-126 has a mere 123 days duration to mature (13 to 37 days less) and its yields 30 quintals per acre.
- In 2012, 39% of Punjab's non-basmati paddy area was under Pusa-44 & it was 20% this year.
- This is mainly because of PR-121 and PR-126 which crossed 71% of total area.
- Moreover PR-126 & PR-121 require only 23 & 26 irrigations respectively whereas Pusa-44 requires around 31 irrigations.
- This will save 3-4 irrigation if farmers adopt direct seeding of paddy when compared to transplanting.

What is the way forward?

- Only 10 lakh hectares (lh) area should be allocated to non-basmati paddy which are of shorter-duration varieties.
- These should be transplanted after June 20 and harvested well before mid-October.
- This gives farmers ample time to handle stubble without burning them.
- Water savings can be achieved through metering of electricity and direct seeding of paddy.
- The 10 lh less non-basmati area can be diverted to basmati varieties as they consume less water because of transplantation occurs only in July.
- Government can provide price incentive support to cotton, maize, groundnut, kharif pulses, chana, mustard & sunflower for crop diversification.

Source: The Indian Express

