

Paddy-Wheat Monoculture in Punjab

What is the issue?

Questions are being raised on the sustainability of paddy-wheat cultivation, especially in Punjab.

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

Monoculture refers to the practice of cultivation of a single crop at a given area

- Paddy-wheat cultivation adds up to 84.6% of the total area planted to all crops in Punjab in 2018-19.
- The real acreage share increase has taken place in paddy from below 7% in 1970-71 to almost 40% in 2018-19.
- The above gains have been at the expense of other crops such as pulses ,maize, bajra, oilseeds, cotton, groundnut ,sugarcane ,etc.
- The only crops that have registered some acreage expansions are vegetables (especially potato and pea) and fruits (kinnow).

TABLE 1: CROP-WISE PERCENTAGE SHARE OF TOTAL PLANTED AREA IN PUNJAB

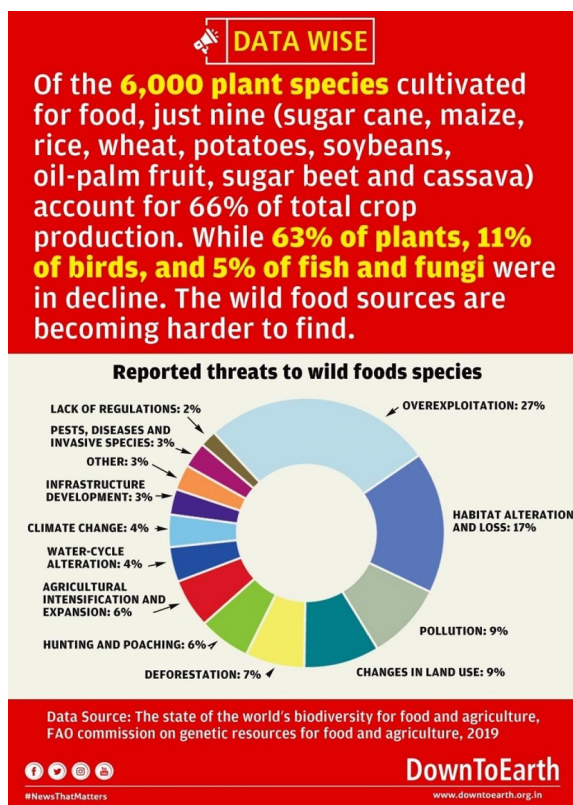
| | 1960-61 | 1970-71 | 1980-81 | 1990-91 | 2000-01 | 2018-19 |
|-------------|---------|---------|---------|---------|---------|---------|
| Wheat | 27.3 | 40.5 | 41.6 | 43.6 | 43.1 | 44.9 |
| Paddy | 4.8 | 6.9 | 17.5 | 26.9 | 31.3 | 39.6 |
| Pulses | 19.1 | 7.3 | 5.0 | 1.9 | 0.7 | 0.4 |
| Cotton | 9.4 | 7.0 | 9.6 | 9.3 | 7.6 | 5.1 |
| Maize | 6.9 | 9.8 | 5.6 | 2.5 | 2.1 | 1.4 |
| Oilseeds | 3.9 | 5.2 | 3.7 | 1.5 | 1.1 | 0.5 |
| Bajra | 2.7 | 3.7 | 1.0 | 0.2 | 0.1 | 0 |
| Sugarcane | 2.8 | 2.3 | 1.0 | 1.3 | 1.8 | 1.2 |
| Barley | 1.4 | 1.0 | 0.9 | 0.5 | 0.3 | 0.1 |
| Vegetables | 1.2 | 0.9 | 1.1 | 0.7 | 1.3 | 3.3 |
| Fruits | 0.6 | 0.6 | 0.4 | 0.8 | 0.5 | 1.1 |
| Other crops | 17.7 | 14.8 | 12.6 | 10.8 | 10.1 | 2.4 |

Source: Punjab Economic Survey 2019-20

What are the problems of monoculture?

- Increase in vulnerability to pest and disease attacks

- No nitrogen fixation unlike pulses and legumes
- Absence of crop rotation leads to depletion of soil nutrients
- Growing dependence on chemical fertilizers and pesticides
- Decline in water table since paddy is a water-guzzling crop where more than 30 irrigations are needed (5 irrigations for wheat)
- Punjab's groundwater table has been declining by 0.5 meters per annum on an average
- Soil salinity and waterlogging due to excess surface irrigation
- Nutrition insecurity because of lack of crop diversification
- Decrease in biodiversity
- Economically riskier for farmers



What measures have been taken so far?

- **Punjab Preservation of Subsoil Water Act in 2009**- bars any nursery-sowing and transplanting of paddy before May 15 and June 15, respectively
- But it pushes harvesting to October-end leaving little time for farmers contributing to stubble burning
- Minimum Support Prices (MSP) given to various crops incentivises crop diversification

How can the issues of monoculture be addressed?

- Limit Punjab's a non-basmati paddy area and ensure planting of only shorter-duration varieties
- Direct seeding of paddy can reduce the usage of inputs
- Water savings can be induced through metering of electricity
- Assured government price/per-acre incentive support must be provided for crops other than paddy and wheat
- Crop diversification, including rotation and intercropping and the use of diverse forage plants in pastureland must be promoted
- Prospective private buyers should be part of the extension effort
- But change is possible only if the State works closely with the Union Government

Source: The Indian Express, Businessline

