

Punjab's Leadership in Agriculture

Uncelebrated Facts

One of the most fertile states in India, Punjab (*the land of the five rivers*) is also hailed as the cradle of India's Green Revolution. However, contemporary press is full of negative narratives. They are all false, as this data-based booklet shows.



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Josefina Insaurralde, Argentina



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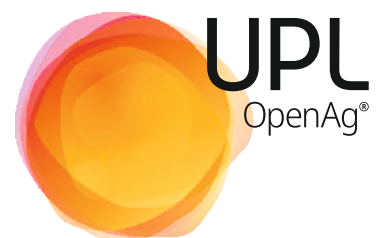
Jonathan Allen, USA



Samuel Maggi Locks, Brazil

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Why this Presentation?

- ◆ The image of Punjab agriculture remains sullied due to unchecked negative narratives.
- ◆ Punjab agriculture is a victim of adverse publicity mainly by foreign funded environmental activist NGOs.

This needs to be challenged and corrected.

Punjab Agriculture. Negative Narrative

Soils remain degraded

Water and air highly polluted

Severe water logging

Cancer rate is high

All these adversely affect the agricultural production in Punjab!

These scary tales are doing rounds in the public domain, propagated by foreign funded NGOs.



Are these TRUE?



Crop Yields in Punjab

Steady increase for over three decades

| Crop | 1990-91 | 2010-11 | 2019-20 |
|---------------------|---------|---------|---------|
| Wheat (tons/ha) | 3.72 | 4.69 | 5.00 |
| Rice (tons/ha) | 3.22 | 3.82 | 4.03 |
| Maize (tons/ha) | 1.78 | 3.69 | 3.58 |
| Groundnut (tons/ha) | 0.82 | 1.77 | 2.22 |

Source: Economic Survey-2020-21, Govt of Punjab

Wheat yields. Punjab vs Others

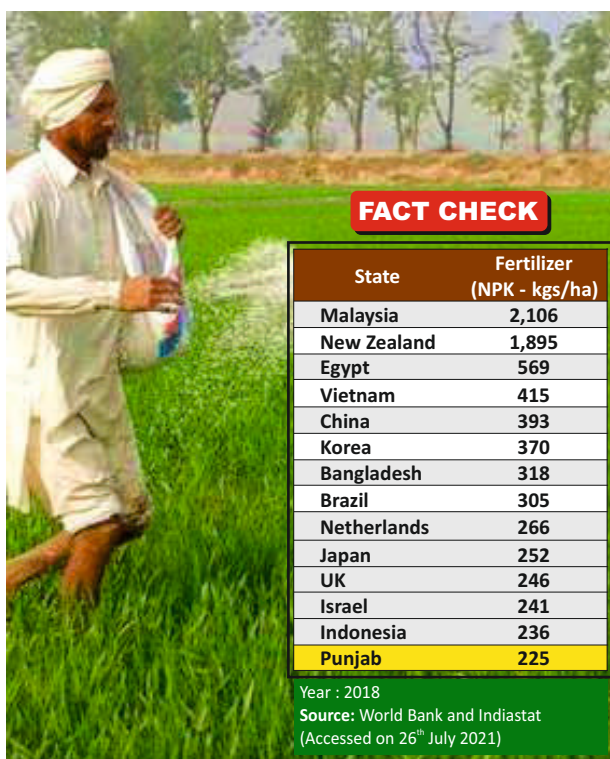
| State/Country | Yield (tons/ha) |
|---------------|-----------------|
| Punjab | 5.00 |
| Canada | 3.38 |
| USA | 3.47 |
| Russia | 2.70 |
| Brazil | 2.55 |

Source: Govt of Punjab, USDA Report

Average wheat yield in Punjab is much higher than the yields in major wheat producers in the world.

If Punjab soil were degraded and waters polluted, the crop yields should be on the decrease.

Do Punjab Farmers Use Excessive Fertilizers?



FACT CHECK

| State | Fertilizer (NPK - kgs/ha) |
|---------------|---------------------------|
| Malaysia | 2,106 |
| New Zealand | 1,895 |
| Egypt | 569 |
| Vietnam | 415 |
| China | 393 |
| Korea | 370 |
| Bangladesh | 318 |
| Brazil | 305 |
| Netherlands | 266 |
| Japan | 252 |
| UK | 246 |
| Israel | 241 |
| Indonesia | 236 |
| Punjab | 225 |

Year : 2018
Source: World Bank and Indiatat
(Accessed on 26th July 2021)

□ We all get to hear this criticism frequently: **Punjab farmers use excessive fertilizers leading to soil degradation.**

□ The data show Punjab farmers use much less fertilizers compared to other countries.

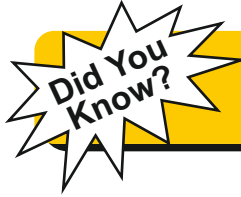
□ Remember, Punjab has the highest cropping intensity in the country.

□ For example, the average wheat yield in Punjab is 5 mt/ha, much higher than the USA's 3.47 mt/ha.

□ In case of rice, Punjab produces almost double than that of entire Japan does.

The criticism against Punjab farmers is a disinformation campaign by foreign funded environmental activists – designed to malign Punjab's agricultural progress.





Fish and Honeybees are Highly Sensitive to Chemical Pollution in the Environment.



Fish Production in Punjab:

Between 2006-07 and 2019-20, the fish production (aquaculture) has increased from 86,696 tons to 151,000 tons.

Punjab ranks first in India in fish productivity : 6,700 kgs/ha (2017-18).



Honey Production in Punjab:

Honey production in Punjab is estimated at 15,800 tons for the year 2019-20, one of the highest in the country.

Source: IndiaStat and Handbook on Fisheries Statistics - 2020 (Accessed on 27th December 2020)



Tractor Density (Number per 1000 ha)

| | |
|-----------|-----|
| Punjab | 115 |
| All India | 16 |

Source: Punjab Economic Survey 2019-20

The Tractor density in Punjab is higher than the developed countries.

Punjab and Cancer

The Tribune

VOICE OF THE PEOPLE
March 19, 2017

Punjab no 'cancer belt', it's a myth: Tata experts



Dr Rajesh Dikshit
TMH cancer expert

Experts from Tata Memorial Hospital (TMH), the country's top cancer treatment facility, have debunked as a "myth" the tag of

Lifestyle more to blame
Uranium and other heavy metals in groundwater or the rampant use of pesticides and agro-chemicals are not responsible for the high incidence of cancer in Malwa. Our studies blame the poor lifestyle for majority of cancer cases in Punjab - tobacco, alcohol abuse, obesity, late-age marriage.

- Dr Rajesh Dikshit, TMH cancer expert

"The kinds of cancer prevalent in the area are similar to the ones common across other parts of the country. The most common cancer prevalent in

number of cancer patients. Muktsar district fared the worst, closely followed by Mansa, Bathinda and Ferozepur. Dr Dikshit, however,

Cancer rate in Punjab is less than the national average of 106.6 per 1,00,000 population.

Pesticides. Carcinogenic?

WHO has not listed any pesticide to be carcinogenic to humans (Group 1)



Group 1 list of the WHO's International Agency for Research on Cancer (IARC) contains 120 substances considered to be carcinogenic to human.



*Substances in the **Group 1** list include: Processed red meat, Alcohol, Arecanut, Coal tar, Tobacco, X-ray etc.*

Not a single agrochemical figures in this list.

Understanding Carcinogens

Substances considered / suspected to be causing cancers.

- ❑ IARC (International Agency for Research on Cancer) of the WHO maintains different groups of carcinogens based on current scientific evidence for carcinogenicity. The list includes;

| Group | Description |
|--|--|
| Group 1 Carcinogenic to humans | Enough evidence to conclude that it can cause cancer in humans. |
| Group 2A Probably carcinogenic to humans | Strong evidence that it can cause cancer in humans, but at present it is not conclusive. |
| Group 2B Possibly carcinogenic to humans | Some evidence that it can cause cancer in humans but at present it is far from conclusive. |

Source: IARC and Europa Scientific Committees toolbox (Accessed on 28th September 2020)

- ❑ Remember, carcinogens do not cause cancer at all times/circumstances. The list describes the level of confidence that something can cause cancer; not how likely it will cause cancer.
- ❑ The public has been conditioned to **think chemicals** when they **think of cancers**. The truth is that many other substances are listed in Group 1 (carcinogenic to humans) by the IARC.

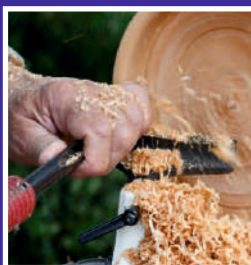
Substances in Group 1 that would surprise you!



Alcoholic Drinks (Beer, Wine, Whisky etc)



Indoor & Outdoor Pollution



Wood-dust



Processed Meat



Areca Nut (Supari)

Diesel Engine Exhaust, Welding fumes, Salted Fish etc.

Age-Standardized Cancer Rate - 2020

International Agency for Research on Cancer (IARC) of WHO has released in November 2020 updated age-standardized cancer rate.

| The Top 10 Countries. | | |
|-----------------------|-------------|--|
| Rank in 2020 | Country | Age-Standardized Cancer Rate (per 1,00,000 population) |
| 1 | Australia | 452 |
| 2 | New Zealand | 423 |
| 3 | Ireland | 373 |
| 4 | USA | 362 |
| 5 | Denmark | 351 |
| 6 | Netherlands | 350 |
| 7 | Belgium | 349 |
| 8 | Canada | 348 |
| 9 | France | 342 |
| 10 | Hungary | 338 |
| 172 | India | 97 |
| World Average | | 201 |

Source: International Agency for Research on Cancer, GLOBOCAN 2020 (Accessed on 16th December 2020)

- ✓ Six out of the top 10 are in the European Union. **EU is the world's cancer capital.**
- ✓ India ranks 172nd in the world with age-standardized cancer rate of 97 per 1,00,000 population.
- ✓ India's cancer rate is three times lower than the countries in EU and less than half of world average.
- ✓ Among the countries in India's neighborhood, Singapore has the highest cancer rate – 233 per 1,00,000 population. Singapore has no agriculture.
- ✓ Activists' attempt to blame modern agriculture for cancers is malicious.
- ✓ Within India, northeastern states such as Mizoram, Meghalaya, Arunachal Pradesh and Sikkim have high cancer rates (Source: ICMR). It is not Punjab as propagated by the activists.

Top 25 Indian States in Cancer Incidence Rate (per 100,000 population)

| Rank | States of India | Age-standardized incidence rate (per 100,000 population) |
|-------|------------------------------------|--|
| 1 | Mizoram | 186.5 |
| 2 | Meghalaya | 153.3 |
| 3 | Delhi | 148.6 |
| 4 | Arunachal Pradesh | 145.9 |
| 5 | Haryana | 139.1 |
| 6 | Assam | 134.4 |
| 7 | Nagaland | 127.1 |
| 8 | Kerala | 125.4 |
| 9 | Karnataka | 123.5 |
| 10 | Sikkim | 123.1 |
| 11 | Uttar Pradesh | 118.6 |
| 12 | Uttarakhand | 117.5 |
| 13 | Madhya Pradesh | 117.2 |
| 14 | Union territories other than Delhi | 115.1 |
| 15 | Jammu & Kashmir | 113.9 |
| 16 | Chhattisgarh | 112.0 |
| 17 | Rajasthan | 106.8 |
| 18 | West Bengal | 105.6 |
| 19 | Odisha | 103.4 |
| 20 | Himachal Pradesh | 103.3 |
| 24 | Punjab | 97.5 |
| India | | 106.6 |

- ❑ Six northeastern states appear in the top 10. Remember, these states do not practice intensive agriculture.
- ❑ Punjab that practices intensive agriculture ranks as low as 24th in cancer rate.

Source: The burden of cancers and their variations across the states of India: The Global Burden of Disease Study 1990-2016 (fig 1, appendix pg 30), published in Sept 18.

Leaders in Agrochemicals use & Agriculture Production

| Agricultural Production – 2020 | | | |
|--------------------------------|--------------|----------------------------------|---------------|
| Rank | Countries | Agriculture Production (US\$ bn) | World % share |
| 1 | China | 1127 | 31% |
| 2 | India | 487 | 13% |
| 3 | EU | 252 | 7% |
| 4 | USA | 197(2019) | 5% |
| 5 | Indonesia | 145 | 4% |
| 6 | Nigeria | 104 | 3% |
| 7 | Brazil | 85 | 2% |
| 8 | Pakistan | 60 | 2% |
| 9 | Russia | 55 | 1% |
| 10 | Japan | 52 (2019) | 1% |
| 11 | Other | 1,128 | 31% |
| Total - World | | 3,686 | 100% |

Source: World Bank Database (Accessed on 20th December 2021)

| Agrochemical Use - 2019 | | | |
|-------------------------|--------------|------------------|---------------|
| Rank | Countries | Use (tonnes) | World % Share |
| 1 | China | 17,63,000 | 42% |
| 2 | USA | 4,07,779 | 10% |
| 3 | Brazil | 3,77,176 | 9% |
| 4 | Argentina | 2,04,559 | 5% |
| 5 | Canada | 87,632 | 2% |
| 6 | France | 85,072 | 2% |
| 7 | Russia | 77,306 | 2% |
| 8 | Colombia | 69,862 | 2% |
| 9 | Australia | 63,416 | 1% |
| 10 | India | 61,702 | 1% |
| 11 | Other | 9,93,481 | 24% |
| Total - World | | 41,90,985 | 100% |

Source: FAOSTAT (Accessed on 20th December 2021)



China, USA and Brazil together account for ~ 61% of agrochemical use.

“Indian farmers use excessive agrochemicals” is a misinformation campaign by foreign funded activist NGOs.

Their agenda is to adversely affect the export competitiveness of India's agricultural commodities.

Pesticide consumption in European Union is much higher than India

| Particulars | 2012 | 2019 |
|----------------------------|----------------|----------------|
| EU - 28 | 343,801 | 367,779 |
| The Top 5 Consumers | | |
| 1. France | 63,548 | 85,072 |
| 2. Spain | 48,668 | 61,343 |
| 3. Italy | 61,889 | 48,567 |
| 4. Germany | 45,523 | 44,238 |
| 5. Poland | 21,886 | 24,281 |

Value : Tonnes of active ingredients

Source: FAOSTAT (Accessed on 26th July 2021)

🌾 **General belief that countries in the European Union use less pesticides is wrong.**

🌾 EU uses **600%** more pesticides than India.

🌾 Between 2012 and 2019 pesticides consumption in EU shot up by **23,978 tons**, which is nearly **50%** of India's total consumption.

🌾 Small countries like **France, Spain** and **Italy** have much smaller area under agriculture and produce much less than India, and use more pesticides than India.

🌾 The EU funded activist NGOs would hide these facts before the public here.

Pesticide Consumption in Various States of India (metric tonnes)

| Rank | State | 2020-21 | Rank | State | 2020-21 |
|--------------------|-----------------|--------------|---------------|----------------|---------|
| 1 | Maharashtra | 13,243 | 11 | Chhattisgarh | 1,639 |
| 2 | Uttar Pradesh | 11,557 | 12 | Gujarat | 1,573 |
| 3 | Punjab | 5,193 | 13 | Andhra Pradesh | 1,559 |
| 4 | Telangana | 4,986 | 14 | Jharkhand | 1,161 |
| 5 | Haryana | 4,050 | 15 | Orissa | 1,158 |
| 6 | West Bengal | 3,630 | 16 | Bihar | 995 |
| 7 | Jammu & Kashmir | 3,352 | 17 | Madhya Pradesh | 691 |
| 8 | Rajasthan | 2,330 | 18 | Kerala | 585 |
| 9 | Karnataka | 1,930 | 19 | Assam | 420 |
| 10 | Tamil Nadu | 1,834 | 20 | Uttarakhand | 135 |
| India Total | | | 62,193 | | |

Source: Directorate of Plant protection database (Accessed on 16th July 2021)

Pesticide Residues in Indian Agricultural Commodities

| Year | Samples Analysed | Samples above MRLs |
|--------------|------------------|----------------------|
| 2008-09 | 13,348 | 183 (1.37%) |
| 2009-10 | 14,225 | 147 (1.03%) |
| 2010-11 | 15,321 | 154 (1.01%) |
| 2011-12 | 16,948 | 270 (1.59%) |
| 2012-13 | 16,494 | 383 (2.32%) |
| 2013-14 | 16,790 | 435 (2.59%) |
| 2014-15 | 20,618 | 542 (2.63%) |
| 2015-16 | 22,103 | 522 (2.36%) |
| 2016-17 | 22,271 | 473 (2.12%) |
| 2017-18 | 23,660 | 523 (2.21%) |
| 2018-19 | 31,278 | 1,044 (3.3%) |
| Total | 213,056 | 4,676 (2.20%) |

Source : All India Co-ordinated Programme on Pesticide Residues
ICAR, Delhi.

MRL : Maximum Residue Limit

98% of the agricultural commodities comply with the legal upper limits(MRL) fixed for pesticide residues, making India's food among the safest in the world.

What is MRL for pesticide?

- **Maximum Residue Limit (MRL)** is not a toxicological safety limit. It is the highest level of pesticide residues for trading standard.
- MRL is not a threshold limit beyond which will sicken people.
- MRLs don't represent an unacceptable risk to public health. They are set at the highest level that may result from Good Agricultural Practice (GAP).
- MRL is usually set at least 100 times more than the toxicologically significant level.
- Monitoring the MRLs in the market samples of agrl products show whether or not or the extent which farmers apply pesticides according to the recommendations.

➤ UK has released pesticide residues report for 2019; **7.2%** of the samples were found to be above MRLs (Source: Expert Committee on Pesticide Residues in Food, UK).

➤ The corresponding figure in India is **3.3%**.

➤ This is **54%** lower compared to the UK.

An Act of Sabotage by Foreign Forces

India is the largest producer and exporter of Basmati rice.

In September 2016, a few activists from M/s Butch & Sundance, Netherlands obtained visa and permission from Indian embassy to shoot a documentary on Basmati titled "Queen of Rice".

After entering India they actually produced a different documentary called "The Price of Basmati", thoroughly tarnishing the image of Indian Basmati.

They breached the terms of visa and film shoot.

A Punjab based activist NGO – "Kheti Virasat" assisted this foreign entity in producing this illegal documentary in Indian soil.

This is an example of foreign forces sabotaging Indian agriculture with covert support from activist NGOs in India.





CCFI

Crop Care Federation of India

**We salute Indian farmers
who made India the 2nd largest producer
of Agriculture Commodities in the World.**



**India's farmers have achieved the
record production of US\$ 487*
billion worth of agriculture
produce in the year 2020.**

**World Bank*