



Centre for Environment & Agriculture

Myths and Misconceptions About Indian Agriculture and Factual Reality



“Our biggest weakness is not realizing / utilizing the strength of Indian agriculture. India's agri-input industry (seeds, fertilizers and pesticides) have played a significant role in making India a global leader in the field of agriculture.”

- Rajju Shroff
Chairman
Centre for Environment & Agriculture

What rank does India hold in the world population? Second. Even those with primary school education would give this right answer without a falter. Ask, instead, what rank does India hold in the world agricultural production? Even the most educated would fumble and fail to give the right answer. India ranks second in the world agricultural production too. However, this fact is unknown to many people.

A myriad of misinformation and disinformation has relegated the Indian agriculture to a dark corner. No other sector remains as misrepresented and misunderstood as the Indian agriculture sector. Foreign funded environmental NGOs have played a malicious role in creating and sustaining most of the myths and misconceptions about Indian agriculture. Dispelling the deep-rooted myths and misconceptions about Indian agriculture and bringing to the fore the sunny side of Indian agriculture is the need of the hour. This data driven advocacy fact sheet addresses that long felt need.

Popular misconceptions about Indian Agriculture:

1 Indian agricultural sector is not as advanced as the other two sectors in the economy. WRONG

Indian Agriculture Outshines the Other Sectors

Sector	World GDP	India's GDP	India's Share	India's Rank
Agriculture	5,202	459	13%	2
Industry	22,235	715	3%	5
Services	60,960	1,701	3%	9

Source: World Bank Database (Accessed on 07 October 2020)

India ranks 2nd in the world agriculture production. In case of industry and service sector it ranks 5th and 9th respectively.

Top 5 Global leaders in Agricultural Production

Country	Production (Million MT)
China	1620
India	459
USA	179
Indonesia	142
Nigeria	98

But, What is the popular perception?

5 Indian agriculture is a gamble on monsoon. WRONG

Indian agriculture is NOT a gamble on monsoon

Annual Rainfall (mm)

Year	Annual Rainfall (mm)
2008	1,035
2009	1,333
2010	1,201
2011	1,095
2012	1,014

Annual Agricultural Output (Million MT)

Year	Annual Agricultural Output (Million MT)
2008	101
2009	145
2010	206
2011	340
2012	418

Indian agriculture is a gamble on monsoon? The origin of this can be traced to the 50th anniversary of the Green Revolution in India in 2009 more than 100 years ago. Superficially it remains the "old parrot comment" all day, "This shows how old habits about Indian agriculture still linger and may prevent Indian agriculture under new light."

Indian agriculture in the 21st century is robust, resilient, structurally diverse and has diversified agri-inputs from seeds, fertilizers and insecticides to new crop varieties and modern technologies like precision agriculture, gene editing, etc.

The agri-inputs production by 100% in 15 years. Horticulture and livestock sectors are expected for 22% of agri-inputs production.

Monsoon rains are still essential but not agricultural production's root.

It is similar to look at India's agricultural growth through a century old monocrop system — as a Mid-east crop-based farming multiple cropping, adoption of modern technologies make India an agricultural powerhouse.

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Monsoon rains are still essential but not agricultural production's root.

9 Indian agricultural commodities are heavily contaminated with pesticide residues. WRONG

Pesticide residues in Indian agricultural commodities

Year	Sample Analyzed	Sample passing (%)
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	16,404	383 (2.33%)
2013-14	16,790	435 (2.59%)
2014-15	20,618	542 (2.63%)
2015-16	22,193	522 (2.35%)
2016-17	22,271	672 (3.02%)
2017-18	23,660	525 (2.21%)
2018-19	31,278	1,044 (3.34%)
2019-20	31,846	1,076 (3.38%)

Source: IARI's Coordinated Programme on Pesticide Residues (Accessed on 07 October 2020)

What is MRL for pesticide? MRL is usually set at least 100 times more than the toxicologically significant level. 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). Monitoring the MRLs is the market samples of products show whether or not to the extent which farmers apply pesticides according to the recommendations.

UK has released pesticide residues report for 2018. 2% of the samples were found to be above MRL. The corresponding figure in India is 2.33%. This is 50% lower compared to the UK.

90% of the agricultural commodities comply with the legal upper limit (MRL) for pesticide residues, making India's food among the safest in the world.

2 Indian agriculture is unable to feed the increasing population. WRONG

India - Population growth vs Agri. production growth

Category	Unit	2008	2019	Growth Rate from 2008 to 2019
Population	100 people	1,06	1,37	29%
Food grains	100 MT	197	207	51%
Vegetables	100 MT	94	192	104%
Fish	100 MT	6	13	113%
Fruits	100 MT	43	99	130%
Milk	100 MT	91	108	118%
Eggs	100 MT	17	103	179%
Poultry	100 MT	0.4	4	900%

India's agricultural production has comprehensively outpaced India's population growth. Source of dietary energy remains Vegetables/Lentils, Primary plant and milk based food items like eggs, meat and fish still forms a minor share in Indian diet.

Next phase of economic growth in Indian agriculture would require well equipped actions to accelerate agriculture.

6 Increasing CO₂ in the atmosphere has adversely affected agricultural production in India. WRONG

Increasing CO₂ Concentration and India's Agricultural Output

Atmospheric Concentration of CO₂ (ppm)

Year	CO ₂ Concentration (ppm)
1960	317
1970	325
1980	335
1990	354
2000	370
2010	391
2019	409

India's Agricultural Output (Million MT)

Year	Agricultural Output (Million MT)
1960	15
1970	26
1980	42
1990	66
2000	115
2010	201
2019	370

Increasing CO₂ concentration has not adversely impacted India's agricultural output. The agri. output for India rapidly rose ~350% between 2000 to 2019, when the atmospheric CO₂ increased 11% from 370 ppm to 409 ppm.

10 Indian rivers and inland water systems are polluted with pesticides affecting aquatic life systems. WRONG

India's lands and waters – polluted with agrochemicals?

India's Fish Production (Million MT)

Year	Marine	Inland	Total
1970-71	1.08	0.67	1.76
1980-81	2.00	1.33	3.33
1990-91	2.81	2.85	5.65
2000-01	2.25	4.08	6.33
2011-15	3.49	6.57	10.06
2015-16	3.38	7.21	10.59
2016-17	3.68	6.77	10.45
2017-18	3.56	8.77	12.33
2018-19	4.71	8.70	13.42

Fish species are highly sensitive to water quality and pollutants. India is the second largest fish producer in the world. 2/3rd of India's fish production comes from inland water sources. If our inland water is polluted as alleged, largescale aquaculture is not possible. While AP leads in fish production, Punjab leads in productivity.

3 Indian agriculture's growth has declined in recent years. We need a second Green Revolution. WRONG

India's Green Revolution Is GREENER now!

Indian agricultural output has accelerated in recent years!

Year	1968	1970	1980	1990	2000	2010	2014	2019
Agricultural Output (Million MT)	15	25	62	86	101	285	342	459

Green revolution in the 1960s, was food grains centric. Low yield. High value horticulture and livestock commodities drive the growth now!

Growth between 1960-2000: \$55Bn. Growth between 2000-2019: \$555Bn.

Pity those who say that India requires a second green revolution now. They know not the hard facts!

7 Farmers' suicides are rampant and on the increase in India. WRONG

Suicide trends in India

Farming sector

Year	Farming Sector (Suicides)
2000	0.00
2001	0.01
2002	0.02
2003	0.03
2004	0.04
2005	0.05
2006	0.06
2007	0.07
2008	0.08
2009	0.09
2010	0.10
2011	0.11
2012	0.12
2013	0.13
2014	0.14
2015	0.15
2016	0.16
2017	0.17
2018	0.18
2019	0.19

Non-farming sectors

Year	Non-farming Sectors (Suicides)
2000	0.00
2001	0.01
2002	0.02
2003	0.03
2004	0.04
2005	0.05
2006	0.06
2007	0.07
2008	0.08
2009	0.09
2010	0.10
2011	0.11
2012	0.12
2013	0.13
2014	0.14
2015	0.15
2016	0.16
2017	0.17
2018	0.18
2019	0.19

Farming sector is India's largest employment provider, shows steady decline in the suicide numbers. For every 100 suicides in India, 4 are from farming sector and 92 are from non-farming sectors. It shows the largest relative suicide rate in India (354 per one lakh population).

Public debate remains disproportionately focused on farmers' suicide. Suicides, whether by farmers or non-farmers deserve our equal empathy.

11 Pesticides use has adversely impacted honeybees and honey production in India. WRONG

Sweet Facts About Honey

India's Honey Production (Million MT)

Year	Production (Million MT)
2010-11	76
2011-12	81
2012-13	88
2013-14	95
2014-15	105
2015-16	120
2016-17	130

The growth is as sweet as honey indeed!

India's honey production increased ~60% in the last 6 years. India is now the 6th largest honey exporter in the world (USA is our major export market). India exports more honey than black pepper in recent years. There is no decline in pollination or productivity. There is a surge in production of crops pollinated crops. The so called Greens often tell you Black Lies for personal gain!

4 Nearly 60% of Indian labour force is engaged in agriculture. WRONG

INDIAN AGRICULTURE: Decreasing labour force and increasing output

Workforce in Agriculture (% of total workforce in India)

Year	Workforce in Agriculture (%)
2000	60
2001	58
2002	56
2003	54
2004	52
2005	50
2006	48
2007	46
2008	44
2009	42
2010	40
2011	38
2012	36
2013	34
2014	32
2015	30
2016	28
2017	26
2018	24
2019	22

India's Agricultural output (Million MT)

Year	Agricultural Output (Million MT)
2000	100
2001	110
2002	120
2003	130
2004	140
2005	150
2006	160
2007	170
2008	180
2009	190
2010	200
2011	210
2012	220
2013	230
2014	240
2015	250
2016	260
2017	270
2018	280
2019	290

As the Indian economy grew, the workforce engaged in agriculture sharply declined from 60% in 2000 to 22% in 2019. During this period, India's agriculture output accelerated from 100 to 290 million MT. Productivity in terms of per labour and per unit area also recorded a spectacular growth.

Use of modern inputs, technologies and machines enabled this glorious achievement. Now India ranks 2nd in agricultural production in the world!

8 Indian farmers use pesticides excessively and indiscriminately. WRONG

Pesticide Use Efficiency. A Contemporary Approach

Rank	Country	Value of agri-output (Million USD)	Value of pesticide used (kg)	Pesticide use efficiency (kg/ha)
1	USA	459	2	123
2	China	1920	8	120
3	France	84	0.7	22
4	Germany	27	0.5	61
5	Canada	18	1	20
6	Spain	27	0.8	16
7	Italy	30	1	19
8	Brazil	29	0.9	19
9	Australia	29	1	29
10	UK	10	0.7	25
11	USA	1709	8	22
12	France	83	2	29
13	Spain	27	0.8	21
14	Germany	27	0.5	21
15	Italy	30	1	20
World		3548	45	59

Pesticide use efficiency is the ratio of pesticide use to agricultural output (kg/ha). Highest efficiency belongs to the country that uses the lowest to produce the highest. Highest pesticide use efficiency is in India, for every \$4 less pesticide use, the agricultural output is \$153 less, the highest among the countries. Data clearly show Indian farmers use pesticides most optimally and efficiently. Small farms would involve small quantity application of pesticide as a given time/space. There is huge and indiscriminate use of pesticides in India - it is a deprioritized and neglected option by foreign funded agriculture. Disinformation against Indian agriculture by world environmental NGOs. Note: The traditional ranking on the basis of pesticide use per ha is outdated as modern pesticides require just a few grams per ha.

12 There is cancer catastrophe in India. WRONG

Is there Cancer Catastrophe in India?

World (2018)	India (2018)
Rank: 1, Country: Australia, Age Standardized Cancer Rate (per 100,000): 655	Rank: 1, Country: Monaco, Age Standardized Cancer Rate (per 100,000): 406
Rank: 2, Country: New Zealand, Age Standardized Cancer Rate (per 100,000): 450	Rank: 2, Country: Maldives, Age Standardized Cancer Rate (per 100,000): 153.1
Rank: 3, Country: Norway, Age Standardized Cancer Rate (per 100,000): 575	Rank: 3, Country: Cuba, Age Standardized Cancer Rate (per 100,000): 146.6
Rank: 4, Country: Hungary, Age Standardized Cancer Rate (per 100,000): 505	Rank: 4, Country: Azerbaijan, Age Standardized Cancer Rate (per 100,000): 145.9
Rank: 5, Country: USA, Age Standardized Cancer Rate (per 100,000): 502	Rank: 5, Country: Myanmar, Age Standardized Cancer Rate (per 100,000): 136.1
Rank: 6, Country: Belgium, Age Standardized Cancer Rate (per 100,000): 545	Rank: 6, Country: Oman, Age Standardized Cancer Rate (per 100,000): 134.4
Rank: 7, Country: Finland, Age Standardized Cancer Rate (per 100,000): 544	Rank: 7, Country: Iceland, Age Standardized Cancer Rate (per 100,000): 133.1
Rank: 8, Country: Netherlands, Age Standardized Cancer Rate (per 100,000): 540	Rank: 8, Country: Korea, Age Standardized Cancer Rate (per 100,000): 125.4
Rank: 9, Country: Switzerland, Age Standardized Cancer Rate (per 100,000): 535	Rank: 9, Country: Singapore, Age Standardized Cancer Rate (per 100,000): 123.1
Rank: 10, Country: Denmark, Age Standardized Cancer Rate (per 100,000): 534	Rank: 10, Country: Romania, Age Standardized Cancer Rate (per 100,000): 122.5
World Average: 495	Rank: 11, Country: India, Age Standardized Cancer Rate (per 100,000): 122.1
	Rank: 12, Country: Thailand, Age Standardized Cancer Rate (per 100,000): 97.5

Australia has the highest cancer incidence rate in the world. Top European countries figure in the top 10. Cancer rates in India is less than half of the global average. Small population states appear in the top 10, therefore, these states do not practice intensive agriculture. Punjab - that practices intensive agriculture as low as 24th in cancer rate.

Foreign funded activist NGOs suppress these hard facts when they allege "cancer catastrophe in India" linked to agriculture.

There are several such jaw dropping examples concerning Indian agriculture. However, they remain little known.

What does USDA say about India's Agricultural Policies?

Since the 1980s, Indian agriculture has undergone a shift in production as farmers have planted less area to food grains and more to high-value crops. This shift coincides with strong economic growth, which has boosted incomes and, in turn, expanded consumer demand for higher valued foods, such as vegetables, fruits, milk, and some meat products.

Yet, India's agricultural policies continue to follow a Green Revolution strategy developed to achieve grain self-sufficiency in the 1960s.

India's Agricultural Growth Propellers an analysis by United States Department of Agriculture (USDA) Economic Research Service - April 04, 2016

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