

# Patentmatics Monthly Bulletin July 2018.

## Area of Focus: On Challenges for Modern Indian Agriculture.

1. Indian agriculture has indeed come long way. Thanks to the historic decisions in updating and modernizing the State Agriculture Universities on the US model Land Grant Universities and the path breaking implementation of the Green Revolution, Indian agriculture has been a roaring success not only in enabling new hybrid plant varieties, availability of appropriate plant protection chemicals and fertilizers, locating and promoting entrepreneurial farmers in irrigated areas and last but not the least, providing monopoly procurements at MSP rates by States and so on, a sort of comprehensive Borlaug Plan itself. While this was in the early stages, subsequently the Green Revolution concepts have been extended to also many of the horticultural products as well.

2. Lately the S&T scenario has again seen through another transformation using the methods of plant genetics in very many cultivars by very committed R&D scientists in the renowned SAUs as well as the ICAR centers and large scale cultivation of the new varieties by entrepreneurial farmers in very many states as well. Some of the Pusa varieties like 1121 and its 'sister varieties' have earned in one year foreign exchange worth even as high as 2 Billion dollars through exports to countries like Iran, and so on. **As a matter of fact, some experts in the field have started highlighting the point that in India, T/T seems to be far superior in agriculture, beating other sectors like industry, IT etc hollow, they being treated even "the haggard"!**

Concurrently a totally new development has also taken place for selected crops in some states wherein the advanced MNCs provide to the willing farmers their proprietary plant varieties, relevant plant protection chemicals and complete matching agronomic practices! In essence, modern agriculture has come to stay in our country through a variety of strategies, making our country a surplus in production!

**3. *Indian Express* has been uniquely highlighting these fascinating developments in great detail through its weekly page on rural developments through very exhaustive enterprising reports from large number of States, from Tamil Nadu to UP as well as Orissa to Gujarat and Maharashtra and so on. The following article below in Indian Express exquisitely summarizes achievements of the sector.**

## **The Age of Surplus**

We have, indeed, entered a regime of “permanent surpluses” in most crops — a reality our policymakers are unable to grasp, stuck as they are in the era of the Essential Commodities Act.

Written by [Harish Damodaran](#) | Updated: June 12, 2018 8:37:54 am



There is practically no agri-commodity today that isn't a victim of “permanent surpluses”. (Representational Image/ PTI)

If there is one thing that has changed in Indian agriculture in recent times, it is supply response — the ability of farmers to increase production when prices go up. Traditionally, the supply curve in most crops was near vertical: No matter the price, the quantity harvested and sold remained virtually the same. Take pulses. Through the 1980s and till the 2000s, the country's output averaged just over 13 million tonnes (mt), falling to 11-12 mt in droughts and short of 15 mt even in the best years.

**In 2010-11, pulses production, for the first time, crossed not 15 mt, but 18 mt. Even in 2014-15 and 2015-16, both drought years, it stayed within 16-17 mt. And as farmers ramped up plantings in response to the high prices of 2015 and 2016, output soared to 23.13 mt in 2016-17 and 24.51 mt in 2017-18. The new crop year from July will open with more than four mt of domestically procured pulses stocks in government warehouses — something never seen before.**

**It isn't only pulses. In the past, sugar production typically took two years to recover from a drought. But 2017-18 will see output rebound to a record 32 mt-plus, from a seven-year-low of 20.26 mt last season. Thus, the old "sugar cycle", where three bumper years were followed by two lows, is dead. Now, we have only one-in-five bad years.**

**The same goes for vegetables. Last year, after drought in Karnataka drove up onion prices from July — they went past Rs 30 per kg in Maharashtra's Lasalgaon market by October — farmers sowed aggressively during the rabi winter season. The result: Average rates crashed to Rs 6-7 this April-May. Farmers did something similar when tomatoes scaled Rs 60-80/kg levels in Kolar (Karnataka) and Madanapalle (Andhra Pradesh) last July. Prices again plunged, to Rs 3-5/kg towards February, and haven't really looked up even in peak summer this time.**

**So, what has happened to elicit such supply response?**

**Better seeds and faster diffusion of technology have made a difference. HD-2967, a blockbuster wheat variety released in 2011, could cover a 10 million hectares area in a single season within five years. Along with HD-3086, a newer variety more resistant to yellow rust fungus, it has ensured that the Green Revolution's yield gains haven't plateaued yet: The average Punjab wheat farmer harvested 5.12 tonnes per hectare in 2017-18, as against 3.73 tonnes in 1990-91 and 2.24 tonnes in 1970-71. No less impactful has been Co-0238, a cane variety that not only yields more crop per hectare, but also more sugar from every tonne crushed. First planted in 2013-14, it now accounts for well over half of the cane area in North India, singularly responsible for UP's sugar output spiralling from 7.5 mt in 2012-13 to 12 mt this season.**

**But the story of yield increases isn't limited to publicly-bred open-pollinated varieties (OPV). The 50 quintals/acre yields that farmers in Bihar's Kosi-Seemanchal belt today realise from rabi corn is comparable to Midwest US levels. With planting of hybrids, as opposed to OPVs, paddy yields have gone up from 15 quintals to 25 quintals per acre even in the Adivasi areas of Jharkhand, Chhattisgarh and Odisha. Kolar farmers, likewise, grow three crops of tomato annually, while Maharashtra's Jalgaon district would be the world's seventh largest banana producer, were it a country. The technologies in all these — be it hybrid seeds, high-density cultivation using tissue-cultured plants, or drip irrigation — have been supplied by the likes of DuPont, Monsanto, Bayer, Syngenta and Jain Irrigation.**

**Advances in plant breeding and genetics aren't the sole reason, though, for improved supply response from farmers. The Operation Flood programme helped boost India's milk production from 22 mt in 1970-71 to 66.2 mt in 1995-96. Less appreciated is the subsequent jump — to 165.4 mt in 2016-17. That has come about as much from crossbreeding and more scientific dairying husbandry practices as investments in infrastructure — especially rural roads and electricity — which have enabled milk to be procured from the interiors and chilled at village collection centres.**

**In short, the farm supply curve has been flattened, both by better seed technology and improved roads, electricity, irrigation and communication infrastructure. Farmers are also more aware about prices and the latest hybrids/varieties, crop protection chemicals, machinery and agronomic practices — from laser levelling and raised-bed planting to seed treatment — than, say, 20 years ago. As a result, they take far less time to respond to high prices.**

**The flip side of a more elastic supply curve, however, is that it makes gluts commonplace and shortages temporary. We have, indeed, entered a regime of “permanent surpluses” in most crops — a reality our policymakers are unable to grasp, stuck as they are in the era of the Essential Commodities Act.**

The moment prices now go up, the immediate reaction is to impose stock-holding limits, allow duty-free imports, restrict exports and inter-state movement of produce, and even let loose income tax sleuths on alleged hoarders. These so-called supply-side management measures have acquired legitimacy with the policy of “inflation targeting”, whose success — given the 45.86 per cent weight of food items in the consumer price index — rests disproportionately on reining in farm produce prices. And adding the impact of demonetisation on the predominantly cash-based produce trade — the liquidity crunch in rural areas is far from over — the Great Depression moment in Indian agriculture has truly arrived.

There is practically no agri-commodity today that isn't a victim of “permanent surpluses”. Two years ago, garlic fetched an average Rs 60 per kg rate in Rajasthan's Kota mandi. Enthused by it, farmers in the Hadoti region planted more area, only to see prices halve last May, thanks to demonetisation. This May, rates at Kota further halved to Rs 14/kg.

In July 1932, an Iowa farmer named Elmer Powers wrote about hog prices collapsing to a third of their levels five years ago — how it had reduced him to “re-sharpening old razor blades” and using “any kind of soap instead of shaving cream”. That was at the height of the Depression. Then, too, US farmers dumped truckloads of milk and cream on roads. It led to the Roosevelt administration passing the Agricultural Adjustment Act, whose chief goal was “restoring farm purchasing power”.

The time has probably come for a similar New Deal for the Indian farmer”.

**4. In other words, Indian agricultural R&D and farm production has indeed come a long way; it can produce much more in a confident mode subject to the central and state governments of the day adopt a positive support policy by and large beneficial to the consumers but not at the cost of the farmers as has been the case in developed countries for their major commodities! All such support measures have also been classified into the three “boxes” belonging to the trade-distorting and non-trade-distorting categories as required by the WTO rules themselves!**

5. Amazingly enough, report has recently appeared in many newspapers describing the thinking of the GOI in regard to the essential plant protection items like the pesticides and which will continue to play a very crucial component of the Green Revolution phenomena itself for all categories of plant varieties, with the so-called organic products playing at best only a marginal role. A group of Indian pesticide manufacturers says that “the proposed Pesticides Management Bill, which is likely to be finalized this month, will harm both farmers and the domestic industry by not making it mandatory for the active ingredients of pesticides to be revealed in the registration process. The draft Bill will allow importers to register readymade products without registering the active pesticide ingredients”! This is just not permissible from any point of view including from their potentially harmful health effects from pesticide residues and which is the criterion for even clearance of any specific item by all well-known advanced authorities like the FDA in US. India also will necessarily have to follow the same rigorous criteria with respect to the API like in drugs.

5. This brings us to the last but not the least point in this connection, namely the Amended 2005 Indian Patent Act. In absence of any advanced dedicated R&D center for developing new patentable new chemical entities in the country, the 2005 Act has virtually put our interests within the hands of the advanced MNCs; with the dilution of the CL powers of the government in the 2005 Act even for its own purpose (which should include a livelihood issue like agriculture in our country along with drugs and pharma products), governments are increasingly being reduced to the role of paralyzed spectators when MNCs are slowly and steadily enmeshing themselves into the farm sector in many states already. In other words, progressive Indian farmers have to bear attacks from two sides – firstly the need for using the ‘best’ pesticides in the world to satisfy the environmental concerns highlighted by NGO organizations and secondly get exploited by the high costs charged by MNCs for their products! When asked repeatedly on why the farmers are still resorting to cultivation, Prof. MS Swaminathan had reportedly once surmised, “He knows only that profession even to make a livelihood for himself and his family”! Let us all trust that better days will come for the true “*annadaadaars*” who live in rural areas

and toil for feeding the nation who occasionally have been protesting with the sloganeering chorus that “We feed you, but who feeds me and my family!” It is imperative that the political leaders also appreciate the new challenges in agriculture so that they can raise the contemporary issues through their campaigns both inside and outside the parliament. Let me conclude with the celebrated poem often used by late protagonist Jawaharlal Nehru himself,

“The woods are lovely and dark,

I have promises to keep,

Miles to go before I sleep,

Miles to go, before I sleep”.

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