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GROUND ZERO

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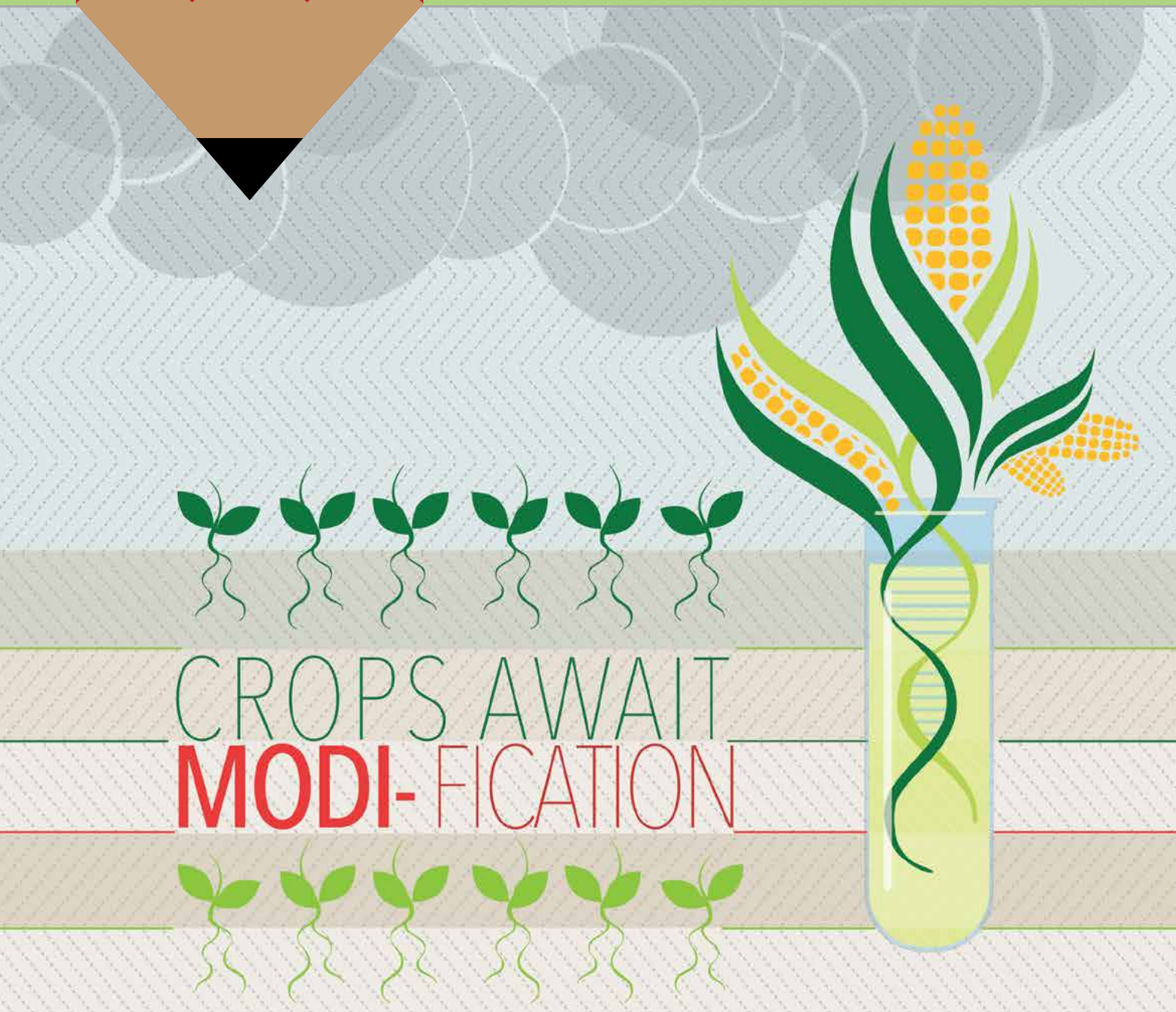

CROPS AWAIT MODI-FICATION

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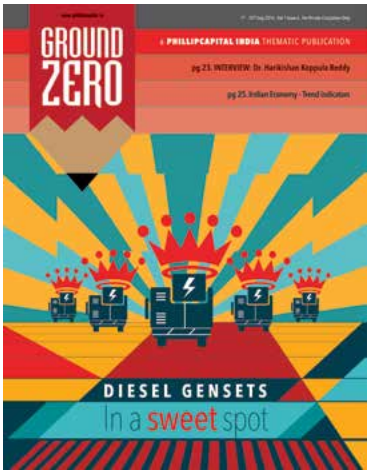
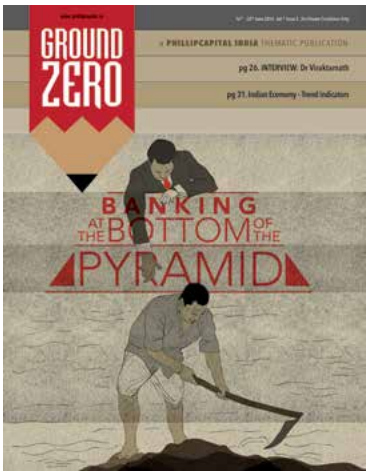
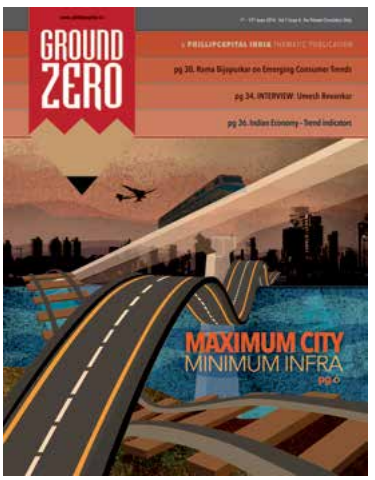
GROUND ZERO - PREVIOUS ISSUES



1st July 2014 Issue 6



16th June 2014 Issue 5



1st June 2014 Issue 4

LETTER FROM THE MANAGING DIRECTOR

Agriculture plays a pivotal role in the Indian economy and accounts for 14.6% of the country's GDP. However, India's massive increase in population – despite the declining growth rate – and substantial growth in incomes have put severe pressure on land and other resources to meet the growing food demand. With the stagnating growth of cultivated area and decreasing per-capita agricultural production, increasing productivity is the only feasible solution to meeting this increasing demand. As one of the most critical farm inputs in agricultural production, seeds hold the key for increased productivity. Coupled with biotechnology, quality hybrid seeds offer tremendous opportunity for improving the current low yields in Indian agriculture.

The Indian seed industry is rapidly changing in response to policy changes and the advent of new research and technologies. It is experiencing transformation in structure/composition and breath, intensifying competition, more thrust on R&D costs, and complex biotechnology. Since the BJP Government returning to power with majority at the centre there is immense interest in the agriculture sector - particularly the hybrid seeds. Understandly, given agriculture has been one of the pillars on which the Gujarat model of development has been designed. This issue of Ground Zero – "Crops await Modi-fication" penned by Agri Inputs' analyst Gauri Anand seeks to get the first hand view from industry experts and bureaucrats on governments preparedness to move to GM in food crops, the unfolding opportunity and challenges. To transform India, we must transform agriculture - Invest for a promising harvest!

Best Wishes

Vineet

CONTENTS

One same party, three different views

'Kum zameen, kum samay, zyaada upaj'

Narendra Modi
Hon Prime Minister

Field trials of # GM Crops is not a government decision. It is a recommendation of a committee. The government is yet to form its decision

tweeted **Prakash Javadekar**
Environment Minister

"The government policy is to allow GM crops after full scientific evaluation of its biosafety and impact on the environment and on the consumers," said in a written reply to the Lok Sabha

Sanjeev Kumar Balyan
Minister of State for Agriculture

"GM foods will not be allowed without full scientific evalution on the long-term effects on soil production and biological impact on consumers" – BJP Manifesto - the only partly to have made a reference to biotechnology in its manifesto

CROPS AWAIT MODI-FICATION

Seed is the only part of the agricultural chain that is growing at 20% a year and is insulated from both government subsidies and weather vagaries. In the clamor for higher yields and greater farmer acceptance, seed companies are hitting a sweet-spot in innovation and consolidation and this should sustain irrespective of where regulation heads. However, with any approval for BT in food crops (BT trials approved by the GEAC now await the Environment Ministry's OK; the Supreme Court's verdict on field trials is still pending), the size of this industry can grow manifold. Low yields and rising mouths to feed are two good enough reasons to drive tough reforms in the seeds sector. The profound acceptance of BT cotton and its tangible economic impact should lead the way for other crops such as BT brinjal and BT maize. Ground Zero's interaction with senior scientists, bureaucrats, and industry experts led to a broad scientific consensus that food on the market derived from GM crops poses no greater risk than conventional food. Brinjal crop normally requires up to 30 sprays of insecticides. With BT brinjal, the insecticide application can almost halve — so it is a choice of what is less harmful! With a pro-reform, pro-farmer government at the center, an expeditious resolution to matters that benefit the growth of this sector is likely!

BY GAURI ANAND

The contentious technology and its economic impact on farmers

"Better to die eating GM food than starve" – late Nobel Peace Laureate, Dr. Norman Borlaug, the US biologist who rescued India from a severe food crisis.

Genetically modified (GM) crops are a sensitive and controversial subject. The controversy is mainly about the effect of genetic modification on human health and the environment. GM crops have been scientifically modified to resist pest attacks or to introduce a new trait that does not occur naturally in the plant species. The proponents of this technology propagate its number of ecological benefits such as contribution to food security, sustainability and climate change. The critics however object to GM crops terming it an irreversible path mainly because normal non-GM seeds can't be sown in the same piece of land once GM seeds are sown — critics argue that this trait will leave the fate of India's food security in the hands of a few MNC's.

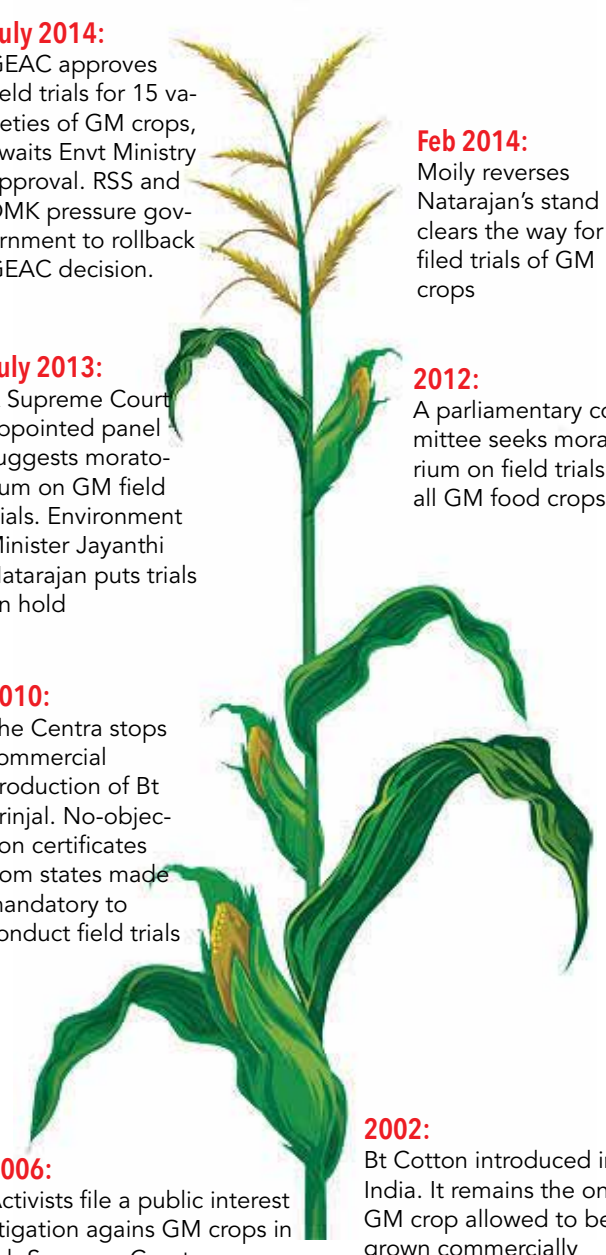
While the GEAC (Genetic Engineering Appraisal Committee) has approved field trials for 15 varieties of GM crops, it awaits the environment

There is an intelligence report, which claims that NGOs and activists spend Rs 400mn every month on agitating against the approval of BT technology in India – after all who funds this? – The anti-GM protest is due to vested interest – A leading senior scientist in conversation with Ground Zero

There is a lot of misinformation and inaccurate and false data all around. It is only to mount pressure on the government to disregard approving the BT technology – official of ISAAA (International Service for the Agri-biotech Applications)

CONTENTIOUS CROP

The journey of genetically modified crops in India



July 2014: GEAC approves field trials for 15 varieties of GM crops, awaits Envt Ministry approval. RSS and DMK pressure government to rollback GEAC decision.

Feb 2014: Moily reverses Natarajan's stand clears the way for filed trials of GM crops

July 2013: A Supreme Court appointed panel suggests moratorium on GM field trials. Environment Minister Jayanthi Natarajan puts trials on hold

2012: A parliamentary committee seeks moratorium on field trials of all GM food crops

2010: The Centra stops commercial production of Bt brinjal. No-objection certificates from states made mandatory to conduct field trials

2006: Activists file a public interest litigation agains GM crops in teh Supreme Court

2002: Bt Cotton introduced in India. It remains the only GM crop allowed to be grown commercially

Activists protest against approval of field-trials for GM crops

I honestly feel that the farmer of this country is wiser than me. He understands what crops should be taken and 93% of cotton growers are using this seed; I think, they are the sensible people and they are for the larger interests of the country. Therefore, it is not proper to say that BT cotton is not useful – Mr. Sharad Pawar, Former Indian Agriculture Minister

ministry's approval. RSS and DMK are pressuring the government to roll back the GEAC's decision.

India is the second-largest producer of cotton, thanks to the introduction of BT cotton, the only GM crop permitted (in 2002) in India so far. Farmers in Gujarat and Maharashtra initially were opposed to the idea of BT, given its higher price because of its ability to reduce the belligerent pest called the white bollworm. But BT cotton dramatically changed the relationship between farmer and the seed.

Before BT, less than 40% seeds used were hybrids (hybrid seeds are produced by manually crossing two genetically dissimilar parents; in BT, a bacteria is expressed in the seed to get a desired trait); now it is about 93%. Since introduction of BT, cotton yields have improved from 300kg/hectare to around 489 kg/hectare — a staggering 60% — and by some estimates, the use of BT cotton seeds alone has helped 20% of this growth. Cotton production has almost tripled in the last decade to 33.43mn bales.

In 2014, plantings of BT cotton in India were at 11.45mn hectares. Given delayed monsoons and firm cotton prices, it is expected that cotton sowings will rise by 5-6% in FY15. The principal beneficiaries were 7mn farmers growing on average 1.5 hectares of cotton. India's farm income from BT cotton enhanced by US$ 9.4bn between 2002 and 2010 and US$ 2.5bn in 2010 alone (Brookes and Barfoot, 2012).

BT cotton has transformed cotton production in India by

Summary of 12years of adoption and commercial release of BT Cotton in India, 2002-14

Year	No.of hybrids	No.of co., selling BT Cotton	Adoption of BT Cotton (Mn ha)	Total Cotton Area (Mn ha)	Bt Cotton Area (%)	No.of Bt Cotton Farmers (mn)	Cotton production (Mn Bales)	Cotton yield (kg/ha)	Total insecticides to control bollworms (mt tons)
FY03	3	1	0.05	7.70	1	0.05	13.60	302	4,470
FY04	3	1	0.10	7.60	1	0.08	17.90	399	6,599
FY05	4	1	0.50	8.90	6	0.30	24.30	463	6,454
FY06	30	3	1.30	8.90	15	1.00	24.40	467	2,923
FY07	62	15	3.80	9.20	42	2.30	28.00	521	1,874
FY08	131	24	6.20	9.40	66	3.80	31.50	567	1,201
FY09	274	30	7.60	9.40	81	5.00	29.00	525	652
FY10	522	35	8.40	10.30	81	5.60	30.50	503	500
FY11	780	35	9.40	11.00	85	6.20	31.20	475	249
FY12	884	40	10.60	12.20	88	7.00	35.30	493	222
FY13	1,097	44	10.80	11.60	93	7.20	33.40	489	-

A staggering jump in profits of cotton cultivators over the last decade

Cost/acre	Before Bt	After Bt
Yield in quintals	700	1000
Income	17500	35000
Prodn cost	9000	10225
seed	600	1125
Fertilisers	1600	1500
Insecticde	3500	1400
Human labour	1900	5000
Others	1400	1200
Net Income	8500	24775

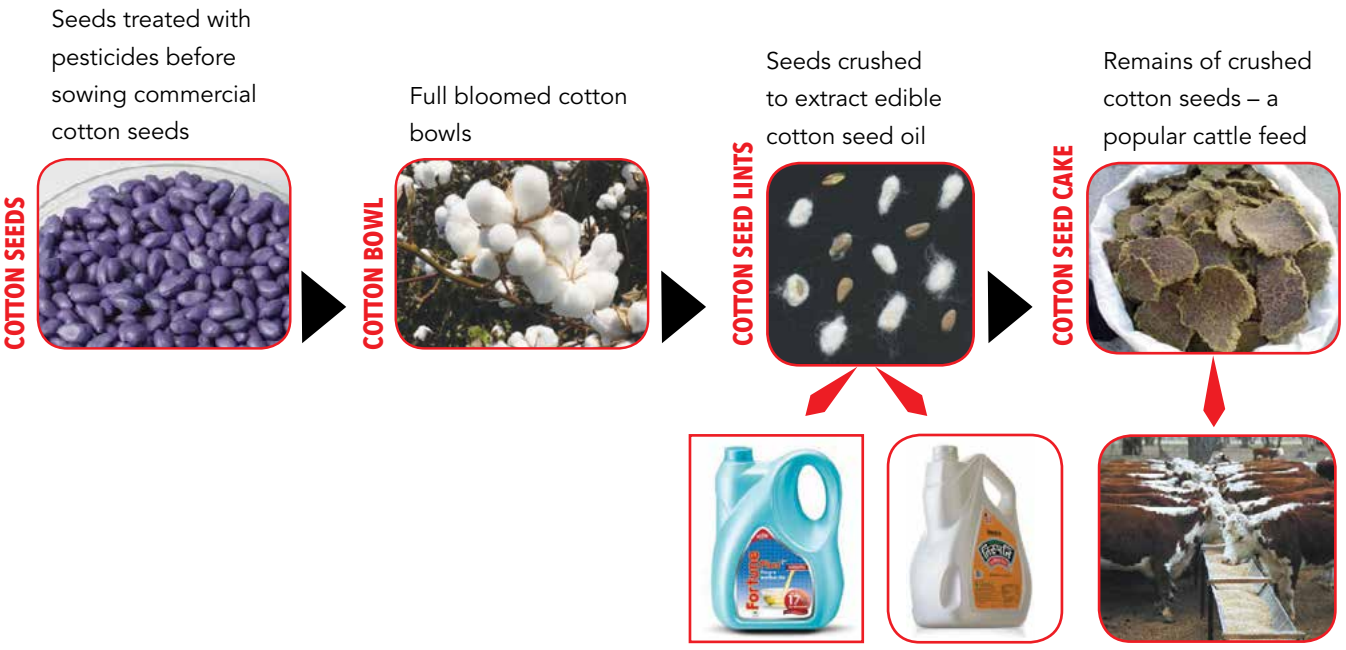
BT cotton has not only improved yields, it has also lowered insecticide usage (by about Rs 30bn), thus improving economics and driving profits. Our own estimates suggest that cotton profitability has improved to Rs 25,000/acre (from around Rs 8,000/acre).

increasing yield substantially, decreasing insecticide applications by ~50% (by some estimates the insecticide application has fallen by about Rs 30bn). Through welfare benefits, it has contributed to the alleviation of poverty of 7mn small resource-poor farmers and their families. It may be noted that the number of hybrids and companies have jumped manifold.

Cotton is an extremely versatile crop because it provides fiber, edible oil, and animal feed

Given the 10-fold jump in income, it is logical to see its profound acceptance. The reason for such popularity is more than the cotton fiber value per acre — raw cotton goes for a 'ginning' process in which the cotton lint is separated from its seed. The lint seed is then crushed to extract an oil that is rich in Omega 6 (essential fatty acid that can't be produced by the body) — a trans-fat-free oil. What remains after extracting the oil from the seed is called cottonseed oil cake — a widely accepted animal feed that is also used as an organic fertilizer. Therefore, the increase in cotton cultivation is not led by the fiber alone — the value of its by-product (oil and cattle feed) are also income-generating.

Cotton seed to cake value chain



Cotton seed, once sold to help offset ginning costs, is now a viable revenue stream. "Ginners pay farmers for cotton after factoring in earnings from all these products. So farmers also benefit from the value chain," says an oil mill owner from Vidharbha, Maharashtra.

Cottonseed oil rules the kitchens of Gujarat as the cheapest cooking oil, claims an Economic Times report/ Adani Wilmar's Fortune cottonseed oil is the biggest national name in the branded oil market – Source ET report.

While cottonseed oil is rising in supply and acceptability, groundnut oil is facing a crisis. Until a decade ago, a large proportion of groundnut crop in India was crushed for oil. Today, close to 95% of the harvest is eaten as a snack in India and overseas. That leaves mills with barely enough nuts to produce 120,000tonnes of groundnut oil in a year even as the production of cottonseed oil this year is 10x that.

Low prices of cottonseed oil give it a distinct edge over groundnut as well as mustard, soya, and sunflower oil, the other oilseeds grown in India. Thus, India has been indirectly consuming BT (oil and cattle feed) for over a decade today and this overwhelming empirical data proves that the BT toxin (bacillus thuringiensis is a gram-positive, soil-dwelling bacterium, commonly used as a biological pesticide) does not in any way impact human health, say industry experts.

The increased rapid acceptance, intense competition, and superior productivity has led to a fast displacing of leadership in the past decade. From Mahyco-Nuziveedu to Kaveri, the leaders are capturing greater market share — about 6-7% of the total players control 80% of the market. The indus-

BT Cotton seeds are a low margin earner for seed makers primarily because of the high share of royalty

Realisation	900	
Material consumption	290	Raw seeds, packing, chemicals
Royalty	180	paid to Monsanto for use of BT gene
R&D	15	
Selling & Distn	190	largely on sales schemes & promotions
Processing	60	chemicals, Power &fuel, processing, lease land, factory/farm maintenance
Other expenses	15	
Total Cost	750	
Ebitda Margins	150	
Margins (%)	16.7	

Maharashtra, Andhra, Gujarat and Karnataka are key cotton growing states in India

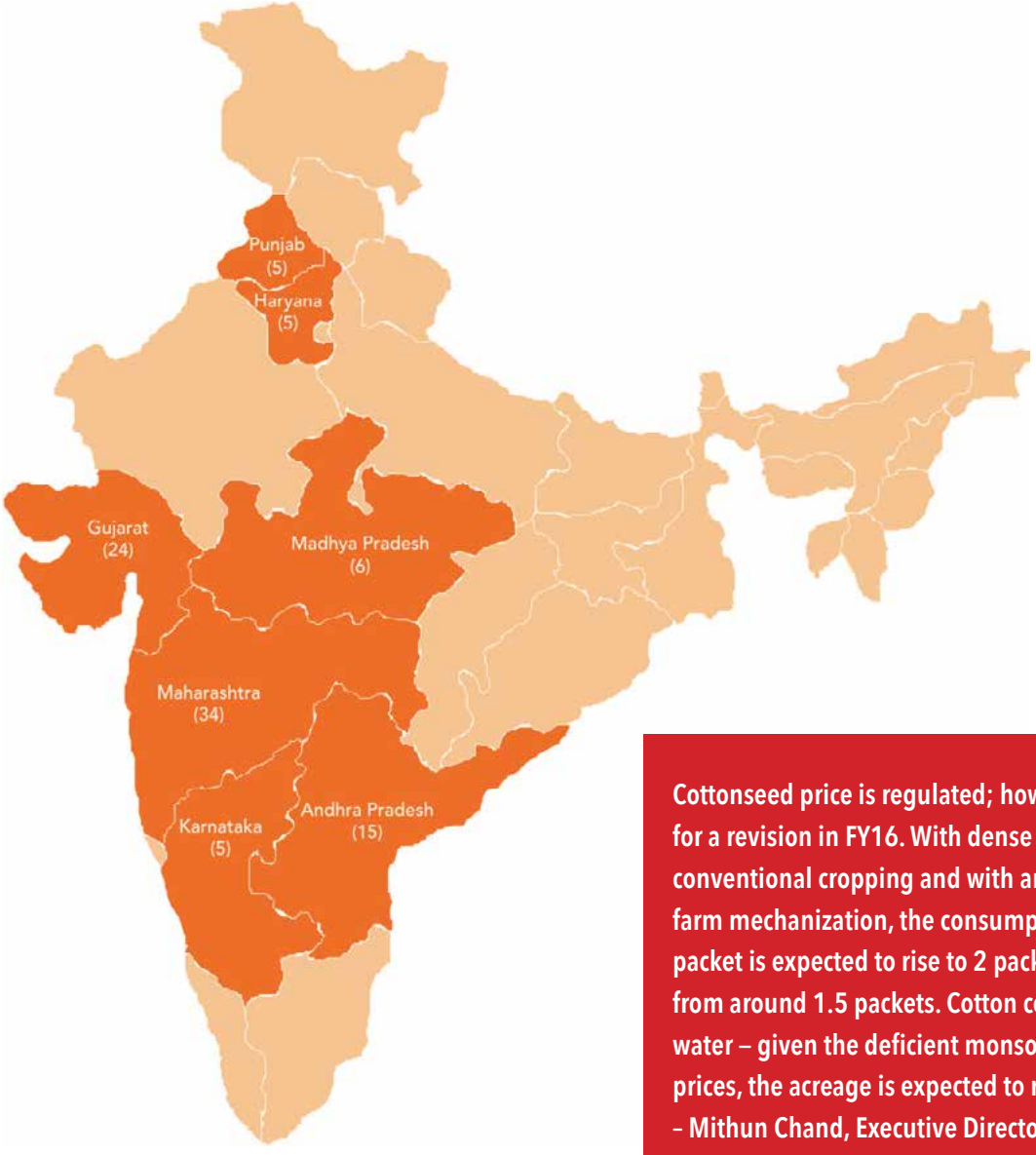
	Seed	Area	Prod	Yield	
State	**mn pckts**	**mn hect**	**mn kgs**	**kgs/hect**	
Maharashtra	150	41.3	80	329	Nuzi,Rasi,Ankur,Ajit,Monsanto, Mahyco, Kaveri strong players
AP	100	21.4	72	572	
Gujarat	50	23.63	85	612	About 50% of India's cotton seed is grown here; thus commerical sale of cotton seeds or cotton crops sowings is less
Karnataka	25	5.16	12	395	
MP	23	6.08	17	475	
TN	5	1.2	5	708	
All India	415	116.14	334	489	Cotton Seed market is valued at Rs 46bn

Key BT hybrid players in cotton

Company	Packets (mn)
Nuziveedu Seed	10
Kaveri Seeds	6
Mahyco	4
DCM Shriram	3
Ajit Seeds	2
Others	16
Total	**40**

try is now bracing for the next generation technology, RR Flex (presently it is BG 2 RR), a cotton seed that is herbicide tolerant, so crop damage would be limited due to use of herbicide and could also help lower labor costs. Mahyco (Maharashtra Hybrid Corporation, founded in 1964) is in the final stage of receiving approval — while the RCGM (Review committee on Genetic Manipulation) has already approved it, it is waiting for GEAC approval. It is estimated that on approval of this technology, the productivity can improve by about 20% and that seed realisation can improve by about Rs 150-200 per packet.

Key cotton producing states (area sown in each state as % of total)



Cottonseed price is regulated; however, it is due for a revision in FY16. With dense planting over conventional cropping and with an increase in farm mechanization, the consumption of seed per packet is expected to rise to 2 packets per hectare from around 1.5 packets. Cotton consumes less water – given the deficient monsoon and firm cotton prices, the acreage is expected to rise by 5% in FY15 – Mithun Chand, Executive Director, Kaveri Seeds

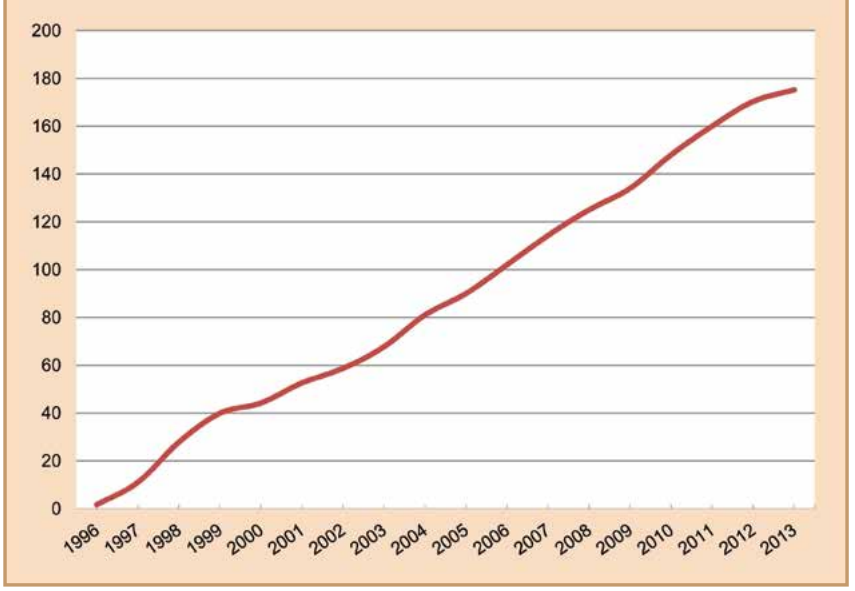
18th year of commercialization, yet no real negative trace on human health

A record 18mn farmers in 27 countries planted 175.2mn hectares (433mn acres) in 2013 – a sustained increase of 3% or 5mn hectares (12 million acres) over 2012 – ISAAA

Biotech crops increase in 2013 in their 18th consecutive year of commercialization: A record 175mn hectares of biotech crops were grown globally in 2013, at an annual growth rate of 3%, up 5mn from 170mn hectares in 2012. 2013 was the 18th year of commercialization (1996-2013), when growth continued after a remarkable 17 consecutive years of increases — 12 of the 17 years showed double-digit growth.

Biotech crops are the fastest-adopted crop technology. Millions of risk-averse farmers both large and small worldwide have determined that the returns from planting biotech crops are high. Hence, repeat planting is virtually 100% — an acid-test applied by farmers for judging the performance of any technology – Official, Monsanto

Global area of biotech crops, the first 18 years, 1996 to 2013



CREAM OF THE CROP

Top countries in terms of area under GM crops

Country/Area in million hectares (2013)/ Biotech crops

USA
70.1

Maize, Soybean, Cotton, Canola, Sugar beet, Alfalfa, Papaya, Squash

BRAZIL
40.3

Maize, Soybean, Cotton

ARGENTINA
24.4

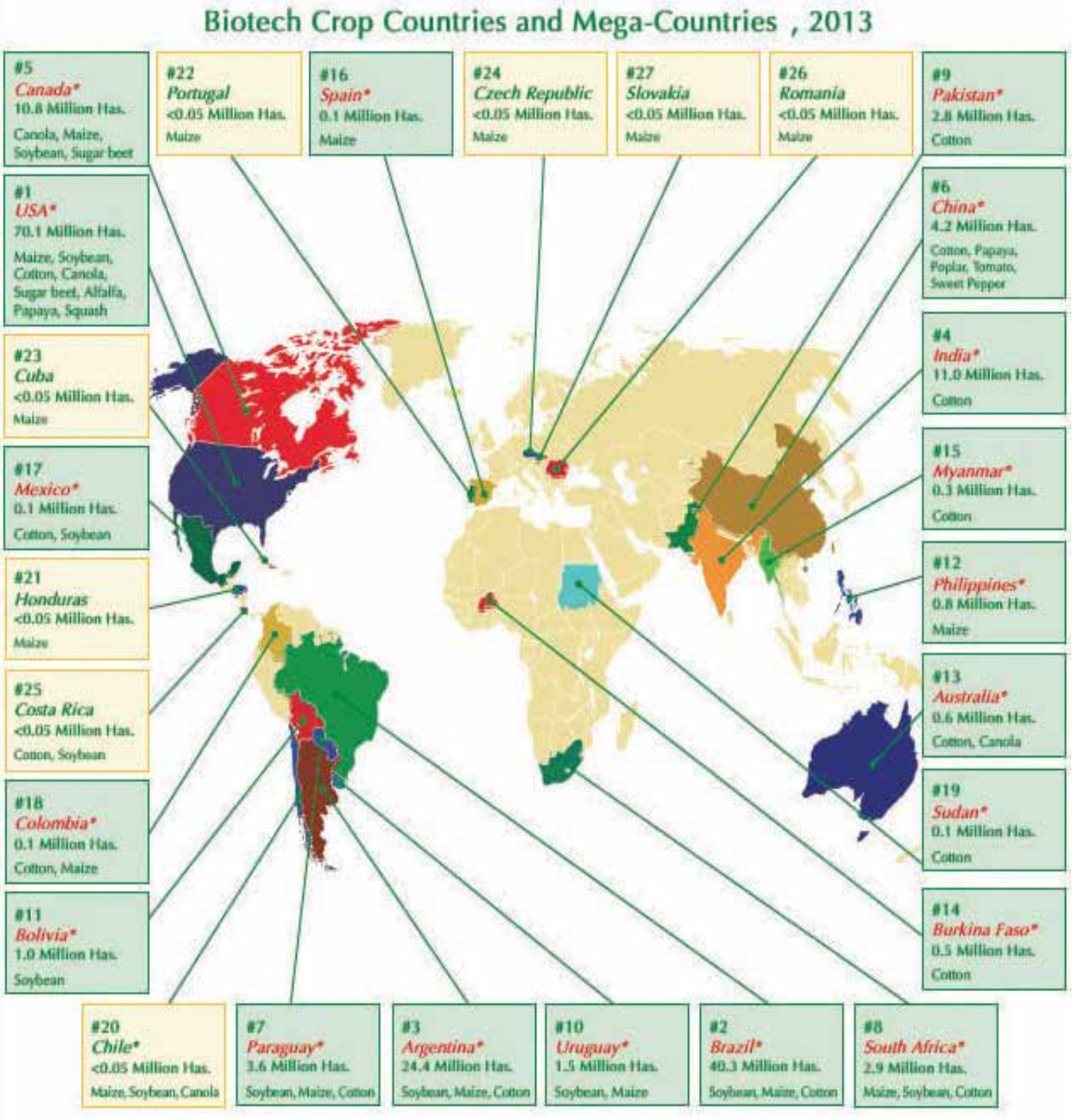
Maize, Soybean, Cotton

INDIA
11

Cotton

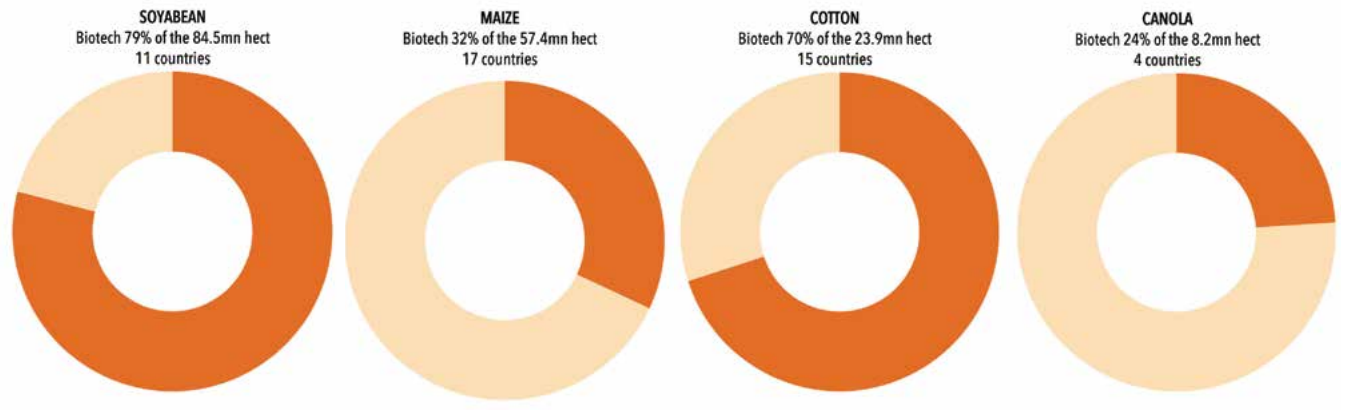
CANADA
10.8

Canola, Maize, Soybean, Sugar beet



If pollutants are any issue, our technology has gone far ahead to know how carnation flower (say purple) gets its colour and its gene is modified to get the desired colour (say pink), without expressing any foreign pollutant in the seed – this is termed genome editing – Dr. S. R. Rao, Advisor, Department of Biotechnology (GOI)

Globally planted 4 major biotech crops chart



Economic benefits of biotech crops

USA	53.1
Argentina	15.6
China	15.3
India	14.6
Brazil	8.4
Canada	4.9
Others	5
Total	**116.9**

Farmers wants new technology; I believe that biotechnology has been the trigger for our advancements and it is key to sustainable agriculture – Chengal Reddy, Secretary, CIFA

Of the record 18mn farmers the world over (vs. 17.3mn in 2012) that grew biotech crops, over 90% or >16.5mn were risk-averse, small, poor farmers. The latest available economic data suggests that farmers in China gained US$ 15.3bn and in India US$ 14.6bn (between 1996-2012) due to BT crops. In addition to economic gains, farmers benefited enormously from at least a 50% reduction in the number of insecticide applications. The top-four biotech countries in terms of global share of the million hectares planted globally are USA (40%), Brazil (23%), Argentin (14%), and India (6%).

Our scientists and private companies lack passion and commitment due to an unpredictable regulatory system – Dr. S. R. Rao, Advisor, Department of Biotechnology (GOI)

Future prospects

The future annual gains are expected to be lower due to already high rates of adoption (90% or more) in the principal biotech crops in mature markets. Bangladesh, Indonesia, and Panama approved biotech crop planting in 2013 with plans for commercialization in 2014. The six principal countries that have gained the most economically from biotech crops, during the first 17 years of commercialization (figures in US$ bn - in descending order)

The rapid adoption of biotech crops world over, in the initial 17 years of commercialization is in itself a testimony to BT crops as safe for human health. It also confirms the economic and health benefits to the farmers and society. As cotton/ maize is widely adopted in 15/17 countries, respectively, it is logical to expect that India will also adopt maize technology at some point in the future.

Non-cotton portfolio witnessing higher growth

In India, saved seeds dominate the hybrid seed market (in agriculture, seed saving is the practice of saving seeds for use from year to year for sowing. This is the traditional way farms were maintained). A hybrid seed is made by manually pollinating two parents to get an offspring with a desired trait; however, as it costs money to buy these seeds, the farmers prefer to sow 'saved' seeds from last year's crop, which accounts for about 75% of the total seed market in India even today.

Acceptance to hybrids has increased given the efficacy and higher yields, but they remain under-penetrated in key crops. The hybrid seed market in India is valued at ~US$ 2bn and cotton alone accounts for 40% (Rs 46bn) varietal wheat (Rs 20bn), paddy (Rs 16bn), and maize (Rs 11bn). The major contributing factor to the growth has been the increased adoption of BT cotton. Another significant factor is increased hybrid corn use, which has seen recent growth in both volume and value. Other hybrid crops such as hybrid rice, pearl millet, sunflower, and vegetables have also seen moderate growth.

The volume growth in the seed industry has mainly come through increased seed replacement rates (SRR). The penetration of commercial open-pollinated, hybrid and GM seeds has increased from 25% of total seed requirements to about 30%. However, the remaining 70% is still under farmer-saved seeds.

Cereals dominate gross sown area: The gross crop area in India is about 169mn hectares, of which the majority is cereal crops such as rice, wheat, corn, jowar, bajra, pulses, and oil seeds. Other key crops are cotton, sugarcane, and vegetables. In volume terms, the seed industry is dominated by open-pollinated rice and wheat from public state utilities. Cotton, corn, and vegetables are among the largest segments by value (because a high % of these are hybrids). Hybrid seeds are dominated by the private sectors.

Hybrid penetration is key crops still very low

	Crop area (mn ha)	Hybrid (%)
Paddy	45.0	5
Wheat	31.5	5
Cotton	10.0	92
Maize	9.5	60
Bajra	8.5	40
Jowar	7.0	20
Sflower	1.9	60

Indian seed industry valued at US$ 2 bn

Seed Ind size	Rs bn	mn hectare	Hybrid %	Players
Cotton	46	11.45	93	Nuziveedu (~22%); MM (11%); Kaveri (~17%),Ajeeth (10%),Ankur (10%)
Wheat	19.8	30.61	5	
Paddy	16	42	6	Bayer Crop Science (~40%); Kaveri (6%); Pioneer (15-20%); Rallis; Nuziveedu
Maize	11	9.72	60	Monsanto (18%); Du Pont (18%); Syngenta (12.5%);Kaveri (14%); Nuziv (12%)
Groundnut	9	4	75	
Soya	7.7	12.22	75	
Vegetables	8	8	82	Nunhems (subs of Bayer), Kaveri, Nuziveedu
Others	2	50.72	30	
Total	**119.5**	**168.72**		

Seeding basics

How are hybrid seeds produced? What is plant breeding?

Plant breeding is the process of using two parent plants to create an "offspring" plant. Just like a newborn baby will share characteristics of each of its parents, so a new seed will share characteristics of the "mother" and "father" plants that created it. The offspring is called a hybrid.

Farmers have cultivated new plant varieties for thousands of years through selective breeding. They did this by cross-pollinating two different (but related) plants over 6-10 plant generations. The process required patience, but farmers could create varieties that were healthier and stood up to his/her local microclimate (soil, weather patterns, and insects). In the mid-nineteenth century, Darwin and Mendel discovered a method of controlled crossing that could create hybrids in just one generation (F1 hybrid seeds), which were as natural as their historic counterparts.

Can the hybrid plants reproduce seeds that the farmer can save for replanting? Will those seeds produce a crop that is as good as the ones the original hybrid seeds produce?

The hybrid plants do reproduce seeds but the next generation seeds aren't as effective as their parents, thus yields suffer or lack essential traits. It is thus advisable to buy hybrid seeds year after year.

Do hybrid seeds require more water and fertilizer?

Hybrid seeds tend to consume less water but there is no empirical data to suggest that they consume less fertilizer.

What is biotechnology in plant?

It is the process of adding specific beneficial traits directly into the DNA of a plant. For e.g.: Pest-resistant cotton containing a trait from naturally-occurring bacteria that is safe for humans but toxic to the cotton worm, which reduced the amount of pesticides sprays used by the farmers (by some estimates down by Rs 30bn per year).

Is biotechnology new?

We have been using biological organisms to solve our problems all of our life. Remember the yeast in the bread or yogurt/curd (bacterial fermentation of milk). Also in the 20th century, researchers discovered penicillin (from penicillium fungi used in treating bacterial infections).

How does biotechnology score over plant breeding?

Plant breeding is largely a matter of trial and error. Plant breeders try hundred and thousands of combinations in order to make educated guesses about which traits to promote. To understand how traits were passed along from plant to plant, they had to actually breed the plants, grow them, and wait to see the results. Understandably, this was time-consuming process.

Biotechnology in crops dramatically reduces the time in creating new type of plants with desirable traits. With biotechnology, scientists can pinpoint desired traits and skip potentially thousands of generations of plant breeding. Also in the past, plant breeders were essentially blind to the inner workings of plants. With the benefit of modern science, breeders can now "see" inside the plants they intend to breed. Using a technique called "marker-assisted breeding," scientists can examine the DNA of seeds to find the ones that will produce the best plants. This simply means better seeds for farmers and faster food for us.

Other promising crops

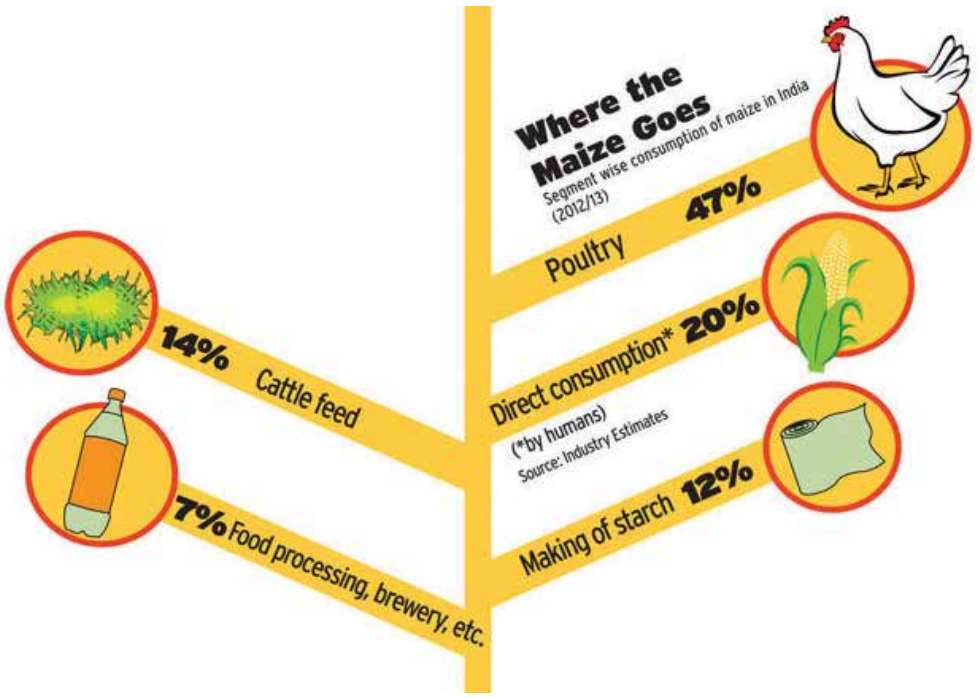
Maize or Indian Corn - seeing high growth: Maize production is growing faster than that of all other cereals, thanks to its growing demand as poultry feed, as well as for human and industrial consumption. It is the third-largest cereal crop grown after rice and wheat in India. Its acreage is about 9mn hectares, the third largest after rice and wheat in cereal crops. The demand for corn is continuously growing due to population growth and growing demand for poultry products – corn is the most important feed for the poultry industry. Corn production has almost doubled in a decade to about 24mmt, largely helped by an increase in yields (due to use of hybrid seeds) and partly because of an increase in acreage.

India has to produce more, not only to eat but also to feed: As per estimates, India will require 40-45mt of corn in next 15-20 years. This growth demand is led by rising incomes, dietary shifts, and increasing mouths to feed. Indian poultry consumption has increased by >10% over the last two decades. Corn is the major feed (60% of total feed industry) for poultry. Corn hybrid seeds cover about 60% of the total area sown of around 9mn hectares. The major corn-producing states are AP, Bihar, Gujarat, Maharashtra, Rajasthan, Tamil Nadu, and UP.

Area, production and yield of maize crop

	Area (mn hect)	Prodn (in mmt)	Yields (kgs/ per hect)	
			Kharif	Rabi/ Summer
FY04	7.50	14.18	1,932	2,987
FY05	7.60	14.71	1,740	3,224
FY09	8.33	16.72	2,048	4,387
FY10	8.60	21.73	1,740	3,694
FY11	8.80	21.76	2,285	4,003
FY12	8.71	22.26	2,234	3,765
FY13	9.50	23.50	2,244	3,969
FY14	-	24.19	-	-
CAGR (5yr)	2.66	2.17	1.84	-1.98
CAGR (9yr)	2.66	5.68	1.68	3.21

Unlike cottonseeds, where price is set by the state in concurrence with the centre, maize seeds have no price controls. Some states already support field trials for GM crops while states like Bihar and Tamil Nadu oppose. Monsanto India, Pioneer/Dupont, Dow Agri Sciences, Pioneer Overseas, and Syngenta Biosciences have applied for GM biosafety field trials with the GEAC. Of them, Monsanto is in the final leg of getting approval – while this will take about 3-4 years to be commercially launched (on approvals), it is said it can improve yields by 20-40%.



Key maize producing states (area sown in each state as % of total)

As Monsanto has been a pioneer in innovation technologies for increasing crop productivity for farmers globally, it is expected to have huge edge over competition should India approve GM in food crops. Monsanto GM corn is currently in the final stage of GEAC approval and on approval it shall take atleast 3 -4 years for Monsanto to commercially launch.

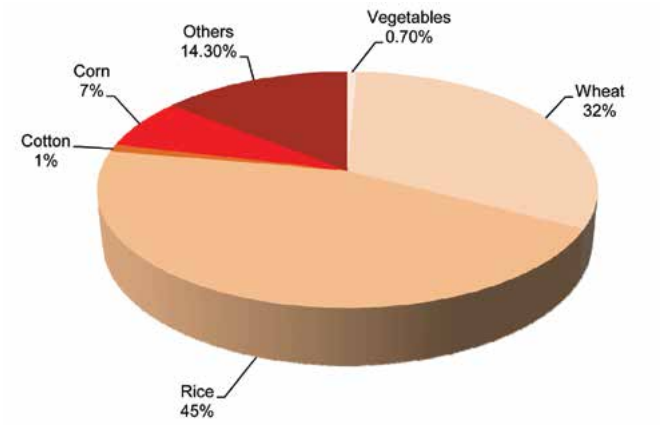
Hybrid rice penetration is just about 6% - huge opportunity

Rice is one of the few crops that are grown around the year in India. It is the largest sown crop (although acreage has fallen to 42mn hectares (down by 3mn)), and production is likely to be 106.29mmt in FY14. While India is the second-largest producer of rice, yields are half the global average because almost 95% of 42mn hectares of rice areas grow traditional high-yielding varieties (i.e., use of saved or varietal seeds) vs. 30% in China (the world's biggest rice grower) whose use of hybrid technology has boosted average yields to more than five tonnes per hectare. In India, yield per hectare has improved by 18% in the last decade; however, it has stagnated over the last 5 years. Rice is a water-intensive crop and only 55% of the acreage under cultivation is irrigated, partly explaining the lower yields and thus production.

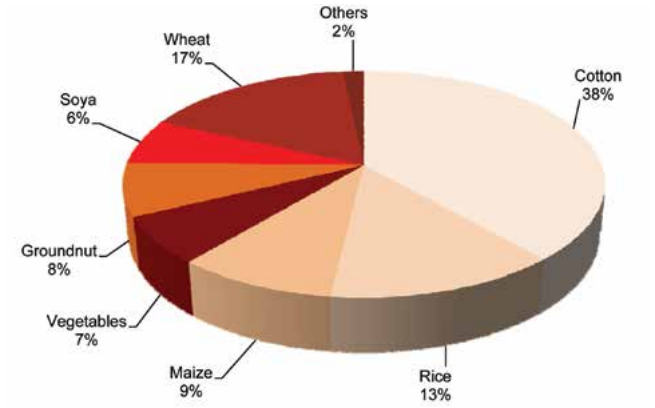
Difference in tastes was a great limiting factor for mass hybridization of rice across India and millers play an important role in propagating hybrids. It is the government's vision to increase area under hybrid rice to 10mn hectares by 2025 (was about 2mn hectares in FY13). Due to this aggressive target, BT in rice is a distinct possibility in the near future. Dupont, DCM Shriram, BASF, Pioneer, and Metahelix, are some of the companies who have applied for various stages of field trials.

While cottonseeds account for 40% of the seed industry (about US$ 2bn), they account for only 1% in volume terms. With more penetration of hybrid rice, it could well become the largest (presently about Rs 4bn vs. cotton at about Rs 30bn). Reports indicate that the union government is aiming to increase the area under hybrid rice cultivation to 25% of the total rice cultivation (by area) by 2015.

Crop share in volume terms

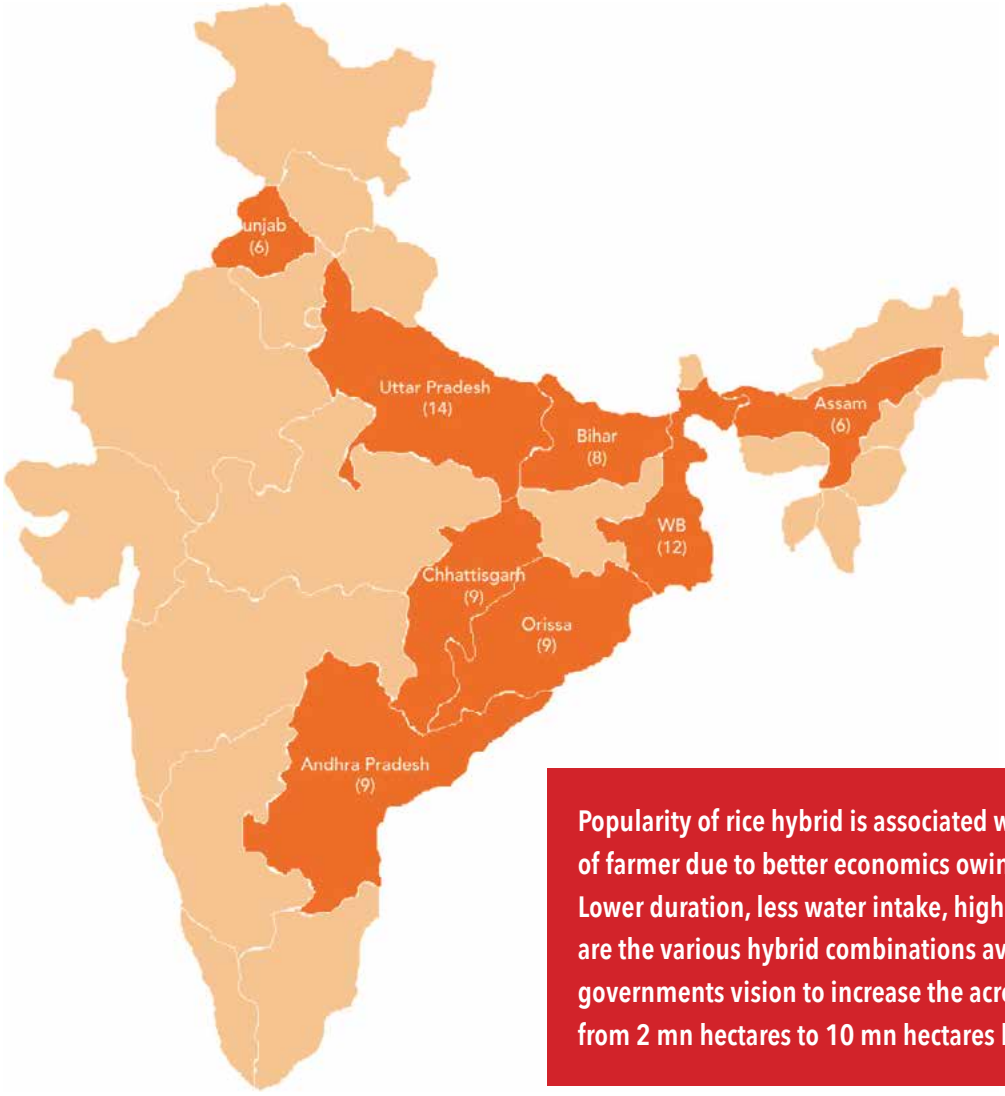


Crop share in value terms



Source: Ministry of Agriculture, Agricoop, PhillipCapital India Research

Key rice producing states (area sown in each state as % of total)



Popularity of rice hybrid is associated with the prosperity of farmer due to better economics owing to very high yield. Lower duration, less water intake, high yield and grain quality are the various hybrid combinations available today. It is the governments vision to increase the acreage under hybrid rice from 2 mn hectares to 10 mn hectares by 2025.

Vegetables seeds – fastest growing, high-margin segment

India is the second-largest vegetable producer (162mmt in FY13; China is the largest) in the world. Hybrid-vegetable seed is one of the fastest-growing segments in our country today and it is hybridized to the extent of ~80%. Although it is a small market for seed makers (companies may not earn revenues of >Rs 2bn), the margins are upwards of 50% unlike cotton (~15%) and corn (~25%). Vegetable seeds account for about 12% of seed industry in value terms; however, given increased acceptance the share should rise.

The Supreme Court is holding back research and field trials of new genetically modified (GM) crops, limiting growth prospects. India is the second-largest producer of eggplant and BT eggplant seed (when approved) should help increase the size of the vegetable seed segment (currently estimated at around US$ 190mn). Brinjal is a very pest-prone crop and normally requires up to 30 sprays of insecticides. It is estimated that insecticide consumption in brinjal can fall by 70% and improve yields almost 2x if BT brinjal is used. The approval for BT brinjal in India is still pending. Bangladesh has already approved BT in Brinjal in 2013 with commercialization in 2014. Ankur Seeds, Rasi Seeds, Bejo Sheetal, and Mahyco are some of the companies that have applied for field trials in BT brinjal.

Area, production and yields of key vegetables

	Area in '000 hect			Production in mmt			Yields kg/hect		
	2009	2013	CAGR%	2009	2013	CAGR%	2009	2013	CAGR%
Potato	1,828	1,992	2.2	34	45	7.2	18.81	22.76	4.9
Tomato	599	880	10.1	11	18	13.1	18.61	20.71	2.7
Onion	834	1,052	6.0	14	17	5.5	16.26	15.98	-0.4
Brinjal	600	722	4.7	10	13	6.7	17.30	18.62	1.9
Cabbage	310	372	4.7	7	9	5.6	22.16	22.94	0.9
Cauliflower	349	402	3.6	7	8	4.8	18.72	19.62	1.2
Tapioca	280	207	-7.3	10	7	-6.9	34.37	34.96	0.4
Okra	432	531	5.3	5	6	8.8	10.48	11.96	3.4
Peas	348	421	4.9	3	4	8.3	8.38	9.52	3.2
Others	2,399	2,627	2.3	29	34	4.2	12.14	13.07	1.9
Total	**7,979**	**9,206**	**3.6**	**129**	**162**	**5.9**	**16.18**	**17.62**	**2.2**

Other key crops

Other key crops for the Indian seed industry are pearl millet, sorghum, and sunflower. India is the largest producer of pearl millet (bajra) and has the largest area under sorghum (jowar). However, India's productivity is significantly below world average in these crops. For sorghum, the yield is roughly 800kg per hectare while the world average is around 1,400kg per hectare. For pearl millet, average yields have increased since the development of many single-cross pearl millet hybrids on the cytoplasmic male sterility (CMS) system. In view of increasing water shortages and deteriorating natural resources, sorghum and pearl millet should provide a useful option as they have significant potential as feed and food crops next to their current use as forage.

Key players and their positioning

"Everyone who has contributed to the field of agriculture needs to be given a standing ovation. I request you to applaud the farmers who feed the people of India, and not me." Narendra Modi, Prime Minister of India, addressing scientists at 86th ICAR Foundation.

Given India's declining per-capita land availability (halved to 2.2 hectares per person since 1960), population growth (0.8% CAGR to 1.7bn by 2050), rapid urbanization, and rising incomes and dietary shifts, food production is under immense stress. Indian yields are still the lowest, hybrid seed penetration still much lower (~25%). The passage of the food-security bill could further raise demand for food. The benefits for the seed industry are: 1) demand for hybrid seeds to rise (due to their higher yield) and 2) more discretionary income in the hands of farmers to result in more investment in hybrid seeds, thus, offering a huge opportunity.

The Indian seed industry is the 5th largest in the world and is valued at ~ US$ 2 bn (about 5% of the total world industry of US$ 45bn). The Indian seed industry has attained the fastest growth over last five years and has seen a FY09-13 CAGR of 18%. It has made considerable progress in the development of high-performance hybrid varieties of many crops, such as cotton, corn (maize), pearl millet, sunflower, and vegetables. However, the hybrid penetration in key crops is still very low.

Prime Minister Narendra Modi pointed out "Lab to land is our biggest challenge". Emphasized that farmers should be able to enhance production to increase their income and feed the country as well as the world. He pressed for the use of scientific technologies to help raise the agricultural production in "less land, less time" as he expressed concern over the depleting natural resources and the challenge of climate change. – A scientist who attended the ICAR meet

Even today, almost 70-75% of crop area is still under varietal seeds (re-used old seeds) and thus the macro opportunity is very huge. As per our workings, the domestic seed industry should grow to US$ 3bn over the next five years, a CAGR of 8.7%. Rising population, shrinking per capita land availability, low crop yields, and low penetration of hybrid seeds will drive this growth. The chief crop drivers would remain cotton, rice, maize, and vegetables. However, any earlier approval for BT brinjal or maize would mean an added opportunity of Rs 60bn, leading to an impressive CAGR of 17%.

India's next green revolution has just begun its snail-like journey towards a hopefully fruitful harvest. While elsewhere in the world, people have been eating GM crops for about two decades, the Indian policy makers have reservations against approving this technology as they consider it unsafe

Indian crop yields lowest, use of hybrids is vital

000 Kgs/ha	India	World	%
Paddy	3.37	4.31	-21.8
Wheat	2.80	3.09	-9.2
Maize	2.32	5.11	-54.5
Groundnut	1.07	1.55	-31.0
Sugarcane	68.88	71.51	-3.7

for human health. But regulatory pronouncement is progressive and seeks to ensure that at least the research work is not stopped.

Thus, while the Supreme Court-appointed technical expert committee had recommended a 10-year moratorium for field trials in genetically modified crops, the GEAC has filed an affidavit in favor of field trials and has also recently approved field trials of 15 varieties of GM crops, including, rice, brinjal, chickpea, mustard, and cotton after receiving NoC from the state governments.

The GEAC's consent now awaits the Environment Ministry's approval after which the companies need to obtain an NoC from state governments. Punjab, Haryana, Gujarat, and Andhra Pradesh were the only states to give their consent and the rest of the country has to agree to study the agronomic and environmental efficacy of the new seed. While the political parties (DMK, RSS) have sought the BJP government's intervention in this matter and demanded a cancellation, Ground Zero's interaction with a few bureaucrats suggests that the current government is pro-reforms and farmers and thus commercial GM may find its way through!

Hybrid seeds penetration rate – Rice penetration can drive seed industry value

Crops	Hybrid Penetration (%)	Key markets
Cotton	88	Maharashtra, Gujarat, AP
Corn	60	AP, Karnataka, Bihar
Rice	5.7	UP, Bihar, WB
Sunflower	75	Karnataka, AP, Maharashtra
Sorghum	40	Maharashtra, Karnataka
Pearl millet	60	Rajasthan, Maharashtra, Gujarat

BT Brinjal and BT Maize (both by Monsanto) are in advance stage of research and should the GEAC and Environment Ministry approve, commercialization in about 4-5 years is plausible. Refer the status of biotech/GM crops pending approval for field trials and commercial release ahead.

Consolidation in the domestic seed market – a key long-term value driver

Germplasm and R&D capabilities are the biggest entry barrier for the seed business. Unlike fertilizers/pesticides, the seeds are sown into the land to multiply so for a seed to become commercially successful, seed companies need access to a large number of contractual farmers and land bank — when these are not available, they become major entry barriers. In the light of rising R&D costs, labor, and intense competition, we have seen many acquisitions by MNCs and private equity companies in the past.

MNCs are acquiring Indian companies with research strengths (hybrid) in leading crops such as cotton, corn, and vegetables. Dupont, for example, purchased the cotton businesses of two Indian companies, Nandi Seeds and Nagarjuna Seeds. In 2007, Advanta India bought two domestic vegetable-seed companies (Unicorn and Golden Seeds) to strengthen their portfolio in the fast-growing vegetable-seed business in India, and later Advanta was acquired by UPL Ltd.

The domestic seed industry has also seen a lot of private equity play in the recent past. Private equity firms Blackstone and Summit Partners have taken stakes in Nuziveedu Seeds and Krishidhan Seeds, respectively. These investee companies will use the equity infusion for investments in R&D, technology, and product-related acquisitions, infrastructure, and international expansion. Nuziveedu Seeds already acquired two domestic companies in 2009 Pravardhan Seeds (cotton) and Yaaganti Seeds (corn). Rallis India acquired Metahelix and Dhaanya seeds. Rumors had surfaced that Bayer would acquire a strategic interest in Kaveri Seeds.

Fertilizer and agrochemicals companies are making inroads into the domestic seed industry. To offer a complete product basket of farm inputs to farmers, they may look at seed market M&A in search of new growth opportunities. This could drive further consolidation in the sector.

JK Agri Genetics: JK Agri, is a leading hybrid seed company engaged in R&D, production, processing and marketing of Vegetables, Cotton, Rice, Maize and Pearl millets among others. The company earned reevenue of Rs 1.90 bn – largely formed by Vegetables (Rs 450 mn); Cotton (Rs 450 mn); Rice (Rs 380 mn) and Maize (Rs 220 mn); Pearl millet (Rs 200 mn). JKAL guides for an overall topline growth of over 20%; subject to normal monsoons. It has commercialized four new products in cotton (has two products under trials) and is hopeful of these products gaining acceptance. Nine have been shortlisted for marketing RR Flex technology and JKAL is one of them. The company is a market leader in okra and has 10% market share in hybrid rice (market size 30 kmt). It pays full income tax (MAT rate applicable due to losses of previous years) and has the highest spend on R&D (8-10% of revenues) vs. other Indian seed makers. It is developing a biotech gene for rice and is second in line for a GEAC clearance. It is aiming at doubling its revenues over the next two years and expects margins to improve on fixed-cost absorption. JKAL has declared a maiden dividend of Rs 2.5/sh (8% payout).

Kaveri Seeds: Kaveri Seeds is one of India's leading and fastest-growing seed producers, with a broad product portfolio that includes hybrids for cotton, corn, paddy, bajra, sunflower, sorghum and various vegetables. In addition, in its Microteck division, Kaveri markets micronutrients and organic bio-pesticides. It has also recently set up a subsidiary named Kex Veg to cultivate premium exotic vegetables. Kaveri ranks among the most well-diversified seed companies in India, with strong competitive positions within the top 5 in almost all its seeds. The company has been steadily gaining market share in cotton (about 17% aims to touch 25%) through launch of its flagship products Jadoo, Jackpot and ATM. Cotton accounts for 65% of revenues followed by maize (15%) and other crops include rice, sunflower and bajra. The near term growth will be led by cotton (cotton seed price revision, further increase in market share) however the longer term growth would be led by a breakthrough in hybrid rice. Kaveri's cash and investments could form almost 66% of its total balance sheet, has asset turn's comparable to FMCG (4x), free cash flow yield is 4.3% (Free cash flow per sh). It has parked its cash in MF units, giving greater conviction in its real growth.

Metahelix: Metahelix is a strong R&D led company with focus on crop genetics and biotech trait development. It is the first Indian company to have developed proprietary BT trait Cry1C in BT cotton. It is also focusing on developing biotech traits for insect and weed protection technology in cotton, rice and maize crops. The company has acquired Dhaanya seed brands and has portfolio of important crops such as Rice, Maize, Cotton, Millet, Tomato, Okra, Hot Pepper. Metahelix is a fully owned subsidiary of Rallis India and after years of investment, Rallis hopes for a substantial scale up in seeds revenue and profits over next few years. It has developed and introduced many high performance hybrids in key crops in India and has obtained approvals for rice and corn hybrids in Indonesia, Thailand; approvals in Vietnam and Philippines in pipeline.

Monsanto India: Monsanto India is the only listed Monsanto entity outside the United States. It operates through a 100 yr old brand called Dekalb and it is India's largest selling hybrid maize seed brand with 25% market share. It derives 65% of its revenues from seeds business and rest from Agrochemicals. It has a ~ 60% market share in the global US$ 5.4 bn glyphosate industry and ~ 25% market share in the Indian Rs 8 bn glyphosate industry under the 'Roundup' brand. As Monsanto has been a pioneer in innovation technologies for increasing crop productivity for farmers globally, it is expected to have huge edge over competition should India approve GM in food crops. As for cotton, the current technology is BG 2 RR and it is likely to be replaced by RR flex (awaits final approval from GEAC); which would drive opportunity for its Roundup brands. Monsanto has been working on Roundup Ready and Yieldgard in-the-seed technologies to offer maize farmer's choice of superior insect protection, with convenient, flexible and effective weed management, to optimize maize yields. Monsanto GM corn is currently in the final stage of GEAC approval and on approval it shall take atleast 3 -4 years for Monsanto to commercially launch.

Nuziveedu: Nuziveedu is acknowledged as one of the largest seed companies in India. It is a market leader in hybrid cotton segment with ~ 25% market share led by excellent brands such as Mallika, Bunny and now Bhakti. Its research seed paddy also has a wide acceptance. The company has clocked revenues of Rs 12 bn in FY13, however growth has been faltering since due to intense competition from peers such as Kaveri and Mahyco. The company earns > 90% of its revenues from cotton. Private Equity firm, Blackstone is invested in Nuziveedu since 2010.

Key seed players snapsho

	Kaveri	Nuziveedu	JK Seeds	Advanta India	Monsanto India
About the company	Kaveri started off with seed production of public bred varieties of Corn, Pearl millet and Rice and subsequently also took up product distribution for a leading seed MNC. Its first ever proprietary private corn hybrid introduced in South India had an edge over other existing varieties in terms of yield. This mega success inspired it to venture into value added breeding and subsequently in 1986, evolved into a bigger entity under the name of kaveri seeds. It went public in Nov 2006. It then diversified into proprietary hybrid seeds of other crops such as Sunflower, Pearl Millet, Sorghum, Cotton and Rice.	Nuziveedu Seeds Limited operates as India's largest hybrid seed company. It is also the world's third-largest producer of cotton seed with revenues more than Rs. 6bn last year. It offers cotton, sorghum, maize, sunflower, pearlmillet, vegetables, and paddy products. Markets its products through a network distributors and dealers, as well as sub-dealers. The company was founded in 1973 and is based in Hyderabad, India. The company has its presence in 17 states and markets approximately 350 varieties of seeds products to more than 5.5 million farmers across the country.	JK Agri Genetics, an erstwhile division of JK Tyre was established in 1989 with its headquarters at Hyderabad, AP. The division is concentration on R&D, production, processing and marketing of hybrid seeds.	Advanta India is Associate company of United Phosphorus Limited a large Indian Agrochemical Company. It is the holding company for the global business of Advanta. Advanta utilises with the Molecular Marker Technology in some crops, while building up value added biotech traits through seeds. The company has an outstanding base, both in terms of its market share in key crops and its proprietary products and expertise. Advanta is now embarking upon a very aggressive growth strategy. While organic growth will be a key factor in this, strategic acquitions will play a crucial role in achieving our objectives set for the next five years.	Monsanto India Limited (MIL) - a subsidiary of the Monsanto Company, USA - is the only publicly listed Monsanto entity outside USA. MIL endeavors to boost crop productivity through its advanced research in maize cultivation, access to a wide library of global maize germplasm, breeding technology and techniques, new high-yielding hybrid seeds, best-in-class manufacturing facilities, extensive agronomic activities and on-farm technology development.
Key Products	Hybrid corn, sunflower, bajra, sorghum market share about 12-15%. Also gaining market share in cotton, currently ~ 5%	BT Cotton (claims to hold 40% market share); maize, paddy tomato and other vegetables	Hybrid cotton, Bajra, Paddy, Maize and vegetables	Cotton, Maize, Millet, Mustard, Rice, Sunflower and vegetables	MIL focuses on maize (Dekalb®, India's largest selling hybrid maize seed brand) and agricultural productivity (Roundup®, the world, as well as India's largest selling glyphosate herbicide).
Key Brands	Jadoo, Jackpot	Mallika & Bunny (BT cotton & maize hybrid)	JK		Dekalb and Roundup herbicide
Revenue	10 bn	~ Rs 10 bn	Rs 1.9 bn	Rs 0.83 bn	Rs 3.62 bn
PAT	2.1 bn	~ Rs 2.5 bn	Rs 0.1 bn	Rs 0.05 bn	Rs 0.42 bn
Market Cap Rs bn	48	Unlisted	1.75	26	10.9
Revenue break up	Seeds - 90%; Micro nutrients - 10%	BT Hybrid cotton seeds Rs 8 bn and other crops worth Rs 2 bn	Seeds 94 %, others 6%	Hybrid Seeds 100%	Seeds 65%, Agri Chem 35%
Share holding					
- Promoters	65.25	unlisted	65.39	65.32	72.14
- DII	9.84		0.03	1.31	3.27
- FII	12.12		-	22.8	1.39
- Others	15.79		34.58	10.57	23.20

Status of GM Crops pending approval for field trials and commercial release in India

Crop	Organisation	Event / Trait	Pending status
Brinjal	IARI, New Delhi	cry1Aabc/IR	
	Sungro seeds, New delhi	cry1Ac/IR	
	Mahyco, Jalna	cry1Ac/IR	
	TNAU, Coimbatore	cry1Ac/IR	
	UAS, Dharwad	cry1Ac/IR	
	IIVR, Varanasi	cry1Ac/IR	
	Bejo Sheetal, Jalna	cry1Fa1/IR	
	Ankur seeds	cry1Fa1/IR	Event Selection
	Rasi Seeds Pvt. Ltd	cry1Fa1/IR	Event Selection
Cabbage	Nunhems, Gurgaon	cry1Ba and cry1Ca/IR	
	Sungro seeds, New delhi	cry1Ac/IR	
Casor	Directorate of oilseeds research, Hyderabad	cry1Ec and cry1Aa	Event Selection
Cauliflower	Sungro seeds, New delhi	cry1Ac/IR	
	Nunhems, Gurgaon	cry1Ba and cry1Ca/IR	
Chickpea	Sungro seeds, New delhi	cry2Aa/IR	BRL-1 trials
Cotton	Mahyco, Jalna	cry1Ac and cry2Ab/IR&HT	Final stage
	Mahyco, Mumbai	MAH-11501 - MAH-5512/NUE	Event Selection
	Dow Agro Sciences, Mumbai	cry1Ac and cry1F/IR	Final stage
	JK Agri-Genetics, Hyderabad	cry1Ac and cry1Ec/IR	BRL-2 trials
	Metahelix, Bangalore	cry1C/IR	
	CICR, Nagpur and UAS, Dharwad	cry1Ac/IR	BRL-1 trials
	CICR, Nagpur	cry1Ac/IR	Event Selection
		cry1F/IR	Event Selection
	UAS, Dharwad	Event D1Ac to D7Ac (cry1Ac/IR)	Event Selection
		Event SB1Ac to SB12 Ac (cry1Ac/IR)	Event Selection
		Event J1Ac to J24 Ac (cry1Ac/IR)	Event Selection
		Event BNAcF (cry1Ac x cry1F/IR)	Event Selection
	Bayer BioScience Pvt. Ltd, Gurgaon	GHB119 x T304-40/IR	BRL-1 trials
		GHB 614/HT	BRL-1 trials
	Monsanto Holdings Privat Ltd, Mumbai	COT 102/IR	BRL-1 trials
		MON 15985 x COT102 (BGIII)/HTIR)	
		MON 15985 x COT102 x MON	
		88913 (BG 113 RRF)/HT&IR&HT	
Groundnut	ICRISAT, Hyderabad	Rice chit and DREB/FR, DST	
Maize	Monsanto, Mumbai	cry2Ab2 & cryA,105 and CP4EPSPS/IR & HT	Final stage
	Pioneer/Dupont, Hyderabad	cry1F and CP4EPSPS / IR&HT	BRL-2 trial
	Dow Agro Sciences, Mumbai	cry1F/IR	BRL-2 trial
	Pioneer Overseas Corporation, Hyderabad	Event DP-32138-1	BRL-2 trials
	Syngenta Biosciences Pvt Ltd Pune	cry1Ab and mepsps/IR/HT	BRL-2 trials
Mustard	Delhi University, New Delhi	bar, batnase, barstar/AP	Final stage

Crop	Organisation	Event / Trait	Pending status
Okra	Mahyco, Mumbai	cry1Ac/IR	
	Sungro seeds, New delhi	cry1Ac/IR	
	Bejo Sheetal, Jalna	cry1Ac/IR	
	Arya seeds, Gurgaon	CP-AV1/IR	
Potato	CPRI, Shimla	RB, GA20 Oxidase 1 gene/DR	
	NIPGR, Delhi	ama1/NE	
Rice	IARI, New Delhi	cry1Aabc, DREB, GR-1 & GR-2 (Golden Rice)/NE	
	TNAU, Coimbatore	Chi11/FR	
	MSSRF, Chennai	MnSOD/DST	
	DRR, Hyderabad	cry1Ac/IR	
	Mahyco, Mumbai	cry1Ac, cry2Ab/IR	
		Event OS_A17314/HT	BRL-1 trials
		AlaAt gene	Event Selection
		OSnhx1 gene	Event Selection
	Bayer CropScience, Hyderabad	cry1Ab and cry1Ca/IR	Event Selection
	Avesthagen	NAD9/NE	
	JK Agri Genetics Ltd., Hyderabad	JKOsE081 x E016/IR	BRL-1 trials
	BASF India Ltd, New Delhi		Event Selection
	Devgen Seeds and crop Technology Pvt. Ltd. Secunderabad	OSLR-01/IR, OSLR-04/IR	BRL-1 trials
		OSHT01/HT, OSHT-02/HT	BRL-1 trials
	Dupont India Pvt Ltd Hyderabad	IR	Event Selection
		HT	Event Selection
	Bioseed Research India Pvt Ltd Hyderabad	glyl and glyll genes/DST	BRL-1 trials
		T1-3, T1-5 and dreb gene/DST	BRL-1 trials
	BASF India Ltd, New Delhi		Event Selection
	Pioneer Overseas Corporation, Hyderabad	cry1Ab+cry2Ad	Event Selection
	Metahelix Life Sciences Ltd, Bangalore	cry1Ab/IR	Event Selection
Sorghum	NRCS, Hyderabad	cry1B/IR	
Sugarcane	Sugarcane Research Institute, UP	cry1Ac	Event Selection
Tomato	IARI, New Delhi	antisense replicase, ACC synthase gene, osmotin, DREB/IR, DR, FR, NE, DST	
	Mahyco, Mumbai	cry1Ac/IR	
	Avesthagen	NAD9/NE	

Legend
AP: Agronomic Performance, BR: Bacterial Resistance, DR: Disease Resistance, DST: Drought and Salinity Tolerance, FR: Fungal resistance, IR: Insect Resistance, HT: Herbicide Tolerance, NE: Nutritional Enhancement.

Abbrevation
TNAU-Tamil Nade Agricultureal University; IIVR-Indian Institute of Vegetable Research; UAS-University of Agricultural Sciences; CICR-Central Institute of Cotton Research; ICRISAT-International Crop Research Institute for Semi-Arid Tropics; CPRI-Central Potato Research Institure; NIPGR-National Institute of Plant Genome Research; IARI-Indian Agricultural Research Institure; MSSRF-MS Swaminathan Research Foundation; DRR-Direcorate of Rise Research; NRCS-National Research Center on Sorghum

Source: Indian GMO Research Information System (IGMORIS), 2013, Compiled by ISAAA, 2013.

Dr. N. Chattopadhyay

IMD's agriculture expert on Monsoon, Sowing, and government's plans to boost agriculture output

Dr. N. Chattopadhyay is an agriculture expert. He works as Deputy Director General of Meteorology (Agriculture Meteorology Division), at the India Meteorological Department, Pune. Agrimet, an arm of the IMD, works towards timely dissemination of weather information to farmers to ensure maximum agriculture produce. In his professional career of 20 years, Dr. Chattopadhyay has published around 50 papers in reputed national and international journals and has been honored with various awards for his contribution towards agriculture research and development. He is the Chairperson of Operational Agriculture Meteorology, representing 106 countries, at the World Meteorological Organization. In an interaction with Ground Zero, he talks about the current state of the monsoon, crop-wise progress in sowing, and the IMD's and government's focus on aiding farmers with real-time weather information to boost incomes and agriculture produce.

BY ANJALI VERMA

What is the current state of monsoon in India?

Significant improvement has taken place in July 2014 (from the deficient rainfall recorded in June). As of now, IMD is maintaining rainfall estimates at 93% ± 4% (of the Long Period Average). Although the advance of the South-West monsoon was considerably delayed initially, it covered the entire country on 17th July, with a delay of 2-days..

While tracing the progress of the monsoon, it is convenient to follow the advance of its two branches — Arabian Sea branch and Bay of Bengal branch. *(In normal conditions, the South-West Monsoon first sets over Andaman and Nicobar Islands around 20th May and progressively advances northwards towards Bangladesh, Assam-Meghalaya etc. The topography and the orientation of the hills in Assam-Meghalaya obstruct the current in the north and east directions, thereby causing good rainfall. The current is then deflected west wards. The Arabian Sea branch advances rapidly northwards along the west coast and reaches Kerala by 1st June. Around 10th June, the southwest monsoon covers the*

region south of a line running from Mumbai to Cuttack and then to Patna. The rapid northward and westward extension of the monsoon continues till the middle of June when the northern limit of the monsoon runs from Bhuj to Allahabad and then to Gorakhpur in the north. Allahabad is considered the meeting point of two branches of rainfall).

This year, the Bay of Bengal branch was strong and due to this, eastern India is well covered almost in time. The Arabian Sea branch has been relatively weak due to which June rainfall was deficient. Monsoon was not able to advance beyond coastal Karnataka till 14th June. Therefore, places like North Karnataka, Telangana, Rayalaseema, and Maharashtra got affected. Currently, the pace has picked up.

Monsoon will be active over most parts of the country, except south peninsula for the next 10-15 days.

What are your thoughts on the progress of El Nino? If delayed, can it impact winter crop?

El Nino is one of the parameters used in the Long-Range Forecasting model. Constant monitoring is being made to understand the status of El Nino. If there is good rain in September and contributes enough soil moisture, good harvest of rabi crop is expected.

How well is the government prepared to deal with monsoon deficiency?

The government is well prepared to address farmer's concerns; various measures have been taken to improve timing and quality of information. Timely information helps in saving farmer's expenses as sowing is done accordingly. Sufficient support is being provided by the government to IMD to ensure better/accurate analysis and faster information sharing with the farmers.

Due to subdued rainfall activities in some parts of the country during the season, contingency plans have been prepared for the farming community for interior Karnataka, Telangana, Maharashtra (except Konkan), Gujarat, Bihar, West Madhya Pradesh and Rajasthan jointly by IMD, Indian Institute of Tropical Meteorology (IITM), and Indian Council of Agricultural Research (ICAR).

How is the progress on farming/sowing?

With the recent pick-up in rainfall, the rice belt is comfortably placed now. Key rice sowing areas like West Bengal, Jharkhand, Orissa, Kerala, Coastal Karnataka, and Coastal Andhra Pradesh have received comfortable-to-good rainfall. Recently, Konkan and Goa have also been well covered. Therefore, rice sowing/transplanting is comfortable, sowing of soybean/oilseeds is gearing up.

Can you elaborate more on the state-wise status of rice sowing, as rice forms the most important summer crop and is a water-intensive crop?

Maharashtra: Rice sowing and transplanting were normal in Konkan and Goa. Improvement is being seen in other regions viz., Madhya Maharashtra, Marathwada, and Vidarbha — field preparation has started and more progress is anticipated.

Rajasthan: Good rainfall has recently started; short-duration rice crop can be taken in East Rajasthan.

Gujarat: Rainfall in south Gujarat has been good, middle Gujarat region is still facing problems; contingency crop-sowing plans are being conveyed to the farmers, which are expected to be beneficial

Punjab, Haryana: Although rainfall deficiency exists, irrigation facilities should help; however, water levels need to remain sufficient to aid irrigation. Punjab and Haryana are more important for the winter crop.

Madhya Pradesh: Rice is confined mainly to East MP areas. MP forms an important soybean belt, rainfall was deficient initially. A pickup in rainfall has been recorded recently and good progress on soybean sowing has been made. Rice transplanting in East MP has started.

What is the duration of a rice crop and rainfall requirement to ensure highest productivity?

Generally, the duration of a rice crop is of 120 days. Sowing of rice in the nursery is possible until 15th July to ensure highest productivity. Beyond 15th July, contingency plans are introduced. Short-duration crop comprises of 80-90 days, considering the rainfall deficiency

in June, rice varieties having a duration of 80-90 days are being recommended in some areas. There has been a two-day delay in monsoons (covering the whole of India); however, the recent monsoon spell has helped ward off fears on rice sowing. It is at a better stage now. Rice harvesting takes place in October and not much rainfall is required after mid-September.

Agricultural Meteorology Division has been started by IMD to assist farmers. Can you throw some light on the key services offered to farmers?

In order to decrease the vulnerability of agriculture to increasing climatic variability and ultimately to increase the crop production without putting additional stress on natural environment through weather forecast and agromet advisories, IMD is operating a project "Gramin Krishi Mausam Sewa" (GKMS). Farmers are assisted by providing advance rainfall information, which helps them in arranging for resources such as seeds, finances, etc. Timely advisories on drought/cyclone/excessive rainfall, and pest and crop diseases is disseminated through a multi-channel system (like radio, TV, print, internet), and SMS and IVR through stakeholders like Reuter Market Light, IFFCO Kisan Sanchar Limited (IKSL), NOKIA, Handygo, NABARD and Kisan Web Portal of Ministry of Agriculture. Currently, around 5.3 million farmers are getting the direct benefits of IMD's agromet services (out of total 700 million farmers) through SMS and IVR technology on mobile.

IMD also issues Agromet Advisory Service Bulletins at district, state, and national levels. The district level bulletins are issued by Agromet Field Units (AMFUs) located at State Agricultural Universities, ICAR institutes and IITs, and include crop specific advisories including field crops, horticultural crops and livestock. At present these bulletins are issued for 608 districts of the country. The State Level bulletin (covering all the states) is a composite of district AAS bulletins. These bulletins are jointly prepared by State Meteorological Centre of IMD and AMFUs and mainly used by State Government functionaries. This is also useful to the fertilizer and pesticide industries, the irrigation department, Seed Corporation, transport, and other organizations which cater to agriculture.

National Agromet Advisory Service Bulletins are prepared by National Agromet Advisory Service Centre, Division of Agriculture Meteorology, IMD, Pune, with inputs from various states. Ministry of Agriculture is prime user of these bulletins, which helps take important decisions in Crop Weather Watch Group (CWWG) meetings at a national level.

Effective approaches to delivery of climate and weather information to farmers through a participatory, cross-disciplinary approach is being carried out through organizing farmer-awareness programs. So far such seminars have been organized at 105 locations in the country. In the 12th Five Year Plan, IMD is organizing Farmer Awareness programs at various locations in the country.

IMD provides forecasts at different scales known as Nowcasting. Additionally, short-range (3-days) and medium-range (3-10 days) forecasting is done and weather forecast is disseminated to farmers along with advisories from agricultural experts through various kisan portals. Indian institute of Tropical Meteorology (IITM), Pune, has now developed the systems to provide rainfall information 15 days in advance as 15 days advance notice help farmers in arranging for finances, seeds, fertilizers, etc. This extended range weather forecast based AAS has been made operational from 15th July 2014. Quality and timely information are crucial for farmers and agricultural output of the country. Private companies like Mahindra & Mahindra and various other NGOs have approached IMD in assisting with information dissemination to the users across the country.

How crucial is the availability of irrigation facilities for Indian farmers? Can irrigation facility eliminate the need of rainfall?

Undoubtedly, irrigation facilities are crucial for farmers and the Indian government continues to focus on offering irrigation facilities to all farmers. A crop needs to be irrigated 4-5 times throughout its growing period. Irrigation facilities are generally expensive and dependent on ground water levels in areas other than canal irrigation systems. Rainfall is still crucial to ensure sufficient water levels for irrigation facilities. Also, cost of cultivation for rain-fed crop is cheaper than the irrigated crops.

Indian Economy – Trend Indicators

Monthly Economic Indicators

Growth Rates (%)	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14
IIP	(2.5)	(1.8)	2.6	0.4	2.7	(1.2)	(1.3)	(0.2)	0.8	(1.8)	(0.5)	3.4	4.7	4.4
PMI	50.1	50.3	50.1	48.5	49.6	49.6	51.3	50.7	51.4	52.5	51.3	51.3	51.4	51.5
Core sector	2.3	0.1	3.1	3.7	8.0	(0.6)	1.7	2.1	1.6	4.5	2.5	4.2	2.3	
WPI	4.6	5.2	5.9	7.0	7.0	7.2	7.5	6.4	5.2	5.0	5.7	5.2	6.0	5.4
CPI	9.3	9.9	9.6	9.5	9.8	10.2	11.2	9.9	8.8	8.0	8.3	8.6	8.3	7.3
Money Supply	12.1	12.8	12.5	12.2	12.5	13.0	14.5	14.9	14.5	14.5	14.2	13.9	13.2	12.2
Deposit	13.5	13.8	13.5	13.1	14.1	14.4	16.1	15.8	15.7	15.9	14.6	15.1	13.8	12.2
Credit	14.2	13.7	14.9	17.1	17.8	16.6	15.5	14.5	14.7	14.4	14.3	14.1	12.8	13.1
Exports	(1.1)	(4.6)	11.6	13.0	11.2	13.5	5.9	3.5	3.8	(3.7)	(3.2)	5.3	12.4	10.2
Imports	7.0	(0.4)	(6.2)	(0.7)	(18.1)	(14.5)	(16.4)	(15.2)	(18.1)	(17.1)	(2.1)	(15.0)	(11.4)	8.3
Trade deficit (USD Bn)	(20.1)	(12.2)	(12.3)	(10.9)	(6.8)	(10.6)	(9.2)	(10.1)	(9.9)	(8.1)	(10.5)	(10.1)	(11.2)	(11.8)
Net FDI (USD Bn)	1.9	1.8	1.7	1.7	3.3	1.8	2.4	1.9	0.4	(0.1)	2.9	2.2	-	-
FII (USD Bn)	6.7	(8.7)	(4.7)	(2.0)	0.2	(0.4)	-	2.9	2.6	1.5	5.4	(0.1)	-	-
ECB (USD Bn)	2.5	2.0	3.7	2.3	3.3	1.9	2.2	4.6	1.8	4.3	3.6	3.2	1.5	1.9
NRI Deposits (USD Bn)	1.7	2.5	1.3	1.2	5.9	4.5	14.6	2.0	0.7	0.7	2.5	1.4	-	-
Dollar-Rupee	55.1	58.4	60.6	63.0	63.8	61.6	62.6	61.9	62.1	62.2	61.0	60.4	59.3	-
FOREX Reserves (USD Bn)	287.9	284.6	280.2	275.5	276.3	283.0	291.3	295.7	292.2	294.4	303.7	309.9	312.7	315.8

Quarterly Economic Indicators

Balance of Payment (USD Bn)	Q4FY12	Q1FY13	Q2FY13	Q3FY13	Q4FY13	Q1FY14	Q2FY14	Q3FY14	Q4FY14
Exports	80.2	75.0	72.6	74.2	84.8	73.9	81.2	79.8	83.7
Imports	131.7	118.9	120.4	132.6	130.4	124.4	114.5	112.9	114.3
Trade deficit	(51.5)	(43.8)	(47.8)	(58.4)	(45.6)	(50.5)	(33.3)	(33.2)	(30.7)
Net Invisibles	29.8	26.8	26.7	26.6	27.5	28.7	28.1	29.1	29.3
CAD	(21.8)	(17.1)	(21.1)	(31.8)	(18.2)	(21.8)	(5.2)	(4.1)	(1.3)
CAD (% of GDP)	4.4	4.0	5.1	6.5	3.6	4.9	1.2	0.8	0.3
Capital Account	16.6	16.5	20.7	31.5	20.5	20.6	(4.8)	23.8	9.2
BoP	(5.7)	0.5	(0.2)	0.8	2.7	(0.3)	(10.4)	19.1	7.1

GDP and its Components (YoY, %)	Q4FY12	Q1FY13	Q2FY13	Q3FY13	Q4FY13	Q1FY14	Q2FY14	Q3FY14	Q4FY14
Agriculture & allied activities	3.9	1.8	1.8	0.8	1.6	4.0	5.0	3.7	6.3
Industry	7.4	(0.6)	0.1	2.0	2.0	(0.9)	1.8	(0.9)	(0.5)
Mining & Quarrying	6.5	(1.1)	(0.1)	(2.0)	(4.8)	(3.9)	-	(1.2)	(0.4)
Manufacturing	7.5	(1.1)	(0.0)	2.5	3.0	(1.2)	1.3	(1.5)	(1.4)
Electricity, Gas & Water Supply	7.6	4.2	1.3	2.6	0.9	3.8	7.8	5.0	7.2
Services	6.5	6.7	6.5	6.1	5.8	6.5	6.1	6.4	5.8
Construction	7.6	2.8	(1.9)	1.0	2.4	1.1	4.4	0.6	0.7
Trade, Hotel, Transport and Communications	4.0	4.0	5.6	5.9	4.8	1.6	3.6	2.9	3.9
Finance, Insurance, Real Estate & Business Services	10.9	11.7	10.6	10.2	11.2	12.9	12.1	14.1	12.4
Community, Social & Personal Services	5.5	7.6	7.4	4.0	2.8	10.6	3.6	5.7	3.3
GDP at FC	6.3	4.5	4.6	4.4	4.4	4.7	5.2	4.6	4.6

Annual Economic Indicators and Forecasts

Indicators	Units	FY6	FY7	FY8	FY9	FY10	FY11	FY12	FY13	FY14E	FY15E
Real GDP growth	%	9.5	9.6	9.3	6.7	8.6	8.9	6.7	4.5	4.6	5.2
Agriculture	%	5.1	4.2	5.8	0.1	0.8	8.6	5	1.4	4.0	2.4
Industry	%	8.5	12.9	9.2	4.1	10.2	8.3	6.7	0.9	0.0	2.9
Services	%	11.1	10.1	10.3	9.4	10	9.2	7.1	6.2	6.0	6.6
Real GDP	Rs Bn	32,531	35,644	38,966	41,587	45,161	49,185	52,475	54,821	57,486	60,475
Real GDP	US$ Bn	733	787	967	908	953	1,079	1,096	1,008	951	1,008
Nominal GDP	Rs Bn	36,925	42,937	49,864	56,301	64,778	77,841	90,097	101,133	113,205	126,723
Nominal GDP	US$ Bn	832	948	1,237	1,229	1,367	1,707	1,881	1,859	1,872	2,112
Population	Mn	1,106	1,122	1,138	1,154	1,170	1,186	1,202	1,219	1,236	1,254
Per Capita Income	US$	753	845	1,087	1,065	1,168	1,439	1,565	1,525	1,515	1,685
WPI (Average)	%	4.5	6.6	4.7	8.1	3.8	9.6	8.7	7.4	6.0	5-5.5
CPI (Average)	%	4.2	6.8	6.4	9	12.4	10.4	8.3	10.2	9.5	7.5-8
Money Supply	%	15.5	20	22.1	20.5	19.2	16.2	15.8	13.6	13.5	14.0
CRR	%	5	6	7.5	5	5.75	6	4.75	4.0	4.0	4.0
Repo rate	%	6.5	7.5	7.75	5	5	6.75	8.5	7.5	8.0	8.0
Reverse repo rate	%	5.5	6	6	3.5	3.5	5.75	7.5	6.5	7.0	7.0
Bank Deposit growth	%	24	23.8	22.4	19.9	17.2	15.9	13.5	14.4	14.6	15.0
Bank Credit growth	%	37	28.1	22.3	17.5	16.9	21.5	17.0	15.0	14.3	16.0
Centre Fiscal Deficit	Rs Bn	1,464	1,426	1,437	3,370	4,140	3,736	5,160	5,209	5,245	5,977
Centre Fiscal Deficit	% of GDP	4	3.3	2.9	6	6.4	4.8	5.7	5.2	4.6	4.7
Gross Central Govt Borrowings	Rs Bn	1,310	1,460	1,681	2,730	4,510	4,370	5,098	5,580	5,639	6,767
Net Central Govt Borrowings	Rs Bn	954	1,104	1,318	2,336	3,984	3,254	4,362	4,674	4,233	4,870
State Fiscal Deficit	% of GDP	2.4	1.8	1.5	2.4	2.9	2.1	2.3	2.2	2.5	2.5
Consolidted Fiscal Deficit	% of GDP	6.4	5.1	4.4	8.4	9.3	6.9	8.1	7.4	7.1	7.2
Exports	US$ Bn	105	129	166	189	182	251	310	307	319	328
YoY Growth	%	23.4	22.6	28.9	13.7	-3.5	37.6	23.4	-1.0	3.9	3.0
Imports	US$ Bn	157	191	258	309	301	381	500	502	466	500
YoY Growth	%	32.1	21.4	35.1	19.7	-2.5	26.7	31.1	0.5	-7.2	7.3
Trade Balance	US$ Bn	-52	-62	-92	-120	-118	-130	-190	-196	-148	-172
Net Invisibles	US$ Bn	42	52.2	75.7	91.6	80	84.6	111.6	107.5	115.2	118.1
Current Account Deficit	US$ Bn	-10	-10	-16	-28	-38	-45	-78	-88	-32	-54
CAD (% of GDP)	%	-1.2	-1	-1.3	-2.3	-2.8	-2.6	-4.2	-4.7	-1.7	-2.6
Capital Account Balance	US$ Bn	26	45	107	8	52	62	68	89	49	64
Dollar-Rupee (Average)		44.4	45.3	40.3	45.8	47.4	45.6	47.9	54.4	60.5	60.0

Source: RBI, CSO, CGA, Ministry of Agriculture, Ministry of commerce, Bloomberg, PhillipCapital India Research

PhillipCapital India Coverage Universe: **Valuation Summary**

		CMP	Mkt Cap	Net Sales (Rs mn)		EBIDTA (Rs mn)		PAT (Rs mn)		EPS (Rs)		EPS Growth (%)		P/E (x)		P/B (x)		EV/EBITDA (x)		ROE (%)		ROCE (%)	
Name of company	Sector	Rs	Rs mn	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E
Chambal Fertilisers	Agri Inputs	56	23,264	86,903	87,441	6,120	7,829	2,595	3,260	6.2	7.8	14.5	25.6	9.0	7.1	1.2	1.0	9.6	7.0	13.2	15.2	4.7	6.0
Coromandel Fertil	Agri Inputs	244	69,610	100,586	109,967	7,757	9,349	3,694	5,134	12.9	18.0	-15.4	39.0	18.8	13.6	3.1	2.5	10.6	9.6	16.2	18.6	14.9	18.7
Tata Chemicals Ltd	Agri Inputs	341	86,872	157,353	153,438	18,094	20,253	3,882	6,014	15.2	23.6	-55.3	54.9	22.4	14.4	1.6	1.9	8.6	7.5	7.0	13.3	14.3	7.0
Deepak Fertilisers	Agri Inputs	175	15,423	39,204	32,744	5,636	4,882	2,519	2,309	28.6	26.2	95.1	-8.3	6.1	6.7	1.1	1.0	4.0	4.3	18.4	15.0	13.1	10.9
Kaveri Seeds	Agri Inputs	750	51,645	10,112	12,138	2,213	2,858	2,092	2,681	30.4	39.1	64.5	28.6	24.6	19.2	10.0	7.1	23.3	17.7	40.6	36.8	46.5	42.0
PI Industries	Agri Inputs	397	53,981	15,955	19,194	2,892	3,532	1,884	2,398	13.8	17.6	92.6	27.3	28.6	22.5	7.8	6.0	18.9	15.6	27.1	26.7	26.6	27.7
Rallis India	Agri Inputs	217	42,180	17,466	19,423	2,613	3,140	1,519	1,813	7.8	9.3	23.2	19.3	27.8	23.3	5.9	5.0	16.3	13.5	21.2	21.5	20.0	20.5
United Phosphorus	Agri Inputs	314	134,753	105,800	121,145	20,196	20,464	10,145	11,775	23.7	27.5	29.4	16.1	13.3	11.4	2.6	2.1	7.6	7.4	19.7	19.7	13.1	14.1
Bajaj Auto	Automobiles	2103	608,568	197,176	214,578	41,057	42,124	32,419	34,242	112.0	118.3	4.7	5.6	18.8	17.8	6.6	5.6	14.7	14.3	35.4	31.4	35.3	31.7
Bharat Forge	Automobiles	693	161,326	66,435	67,200	10,271	11,461	4,179	5,444	17.9	23.4	83.4	30.3	38.6	29.6	6.2	5.4	17.4	15.2	16.1	18.3	10.8	13.0
Hero MotoCorp	Automobiles	2575	514,185	251,249	281,965	35,401	40,708	21,091	27,471	105.6	137.6	-0.4	30.2	24.4	18.7	9.2	7.7	14.5	12.6	37.7	41.0	38.4	43.3
Ashok Leyland	Automobiles	33	94,768	95,404	107,936	1,664	6,582	(4,764)	(417)	-1.8	-0.2	-431.2	-91.2	-18.6	-212.5	2.0	2.0	84.9	21.1	-10.6	-0.9	-1.9	2.2
M&M	Automobiles	1206	743,043	395,934	433,653	47,680	52,264	36,487	37,609	59.4	61.3	8.7	3.1	20.3	19.7	4.2	3.6	16.0	14.6	20.8	18.3	16.3	16.3
Maruti Suzuki	Automobiles	2507	757,194	426,448	454,213	50,900	59,501	27,831	33,411	92.1	110.6	16.3	20.1	27.2	22.7	3.6	3.2	14.6	12.3	13.4	14.1	13.1	13.9
Apollo Tyres	Automobiles	176	88,834	133,127	137,896	17,762	18,561	9,526	9,973	18.9	19.8	64.8	4.7	9.3	8.9	2.0	1.7	6.1	5.4	24.5	20.6	16.7	15.9
Tata Motors	Automobiles	462	1,387,030	2,306,771	2,742,017	374,029	433,713	139,910	180,577	43.9	56.6	41.4	29.1	10.5	8.2	2.8	2.1	4.3	3.8	26.1	25.3	16.7	16.2
ABB India	Cap Goods	1041	220,618	76,316	79,450	4,036	5,733	1,899	3,452	9.0	16.3	-28.0	81.8	116.2	63.9	8.2	7.6	55.4	39.0	7.1	12.0	7.6	11.0
BGR Energy	Cap Goods	198	14,266	35,204	40,640	4,281	4,820	1,329	1,622	18.4	22.5	-18.0	22.1	10.7	8.8	1.1	1.0	7.7	8.2	10.2	11.6	5.9	5.9
BHEL	Cap Goods	227	555,238	383,888	341,574	47,064	40,737	36,534	31,809	14.9	13.0	-44.8	-12.9	15.2	17.5	1.7	1.6	9.8	9.5	11.1	9.0	8.6	7.0
Alstom T&D	Cap Goods	335	85,699	35,171	41,100	3,102	4,235	1,142	1,927	4.5	7.5	-9.0	68.8	75.1	44.5	6.9	6.2	28.8	21.0	9.1	13.9	10.9	13.3
Crompton Greaves	Cap Goods	193	120,931	134,806	145,393	6,820	9,359	2,443	5,172	3.9	8.3	195.7	111.7	49.5	23.4	3.3	3.0	19.8	14.2	6.7	13.0	4.9	8.8
Engineers India	Cap Goods	290	97,611	18,236	17,653	3,766	3,672	4,789	4,670	14.2	13.9	-23.8	-2.5	20.4	20.9	4.0	3.6	21.2	21.3	19.5	17.3	20.4	18.1
Jyoti Structures	Cap Goods	55	4,493	30,703	30,855	2,964	2,947	722	641	8.8	7.8	11.3	-11.4	6.2	7.0	0.6	0.5	4.3	4.3	8.9	7.4	10.9	10.9
KEC International	Cap Goods	130	33,293	79,018	85,597	4,933	6,796	849	2,335	3.3	9.1	30.3	175.0	39.2	14.3	2.8	2.4	10.8	7.4	7.1	17.0	7.8	11.0
Larsen & Toubro	Cap Goods	1656	1,536,613	565,990	633,686	66,671	74,923	49,047	53,333	52.9	57.3	18.7	8.2	31.3	28.9	4.6	4.1	23.9	21.1	14.6	14.2	12.6	12.0
Siemens	Cap Goods	900	320,383	111,452	112,300	4,831	6,718	4,313	4,478	12.1	12.6	-18.8	3.8	74.3	71.5	7.9	7.5	65.1	46.6	10.7	10.5	7.8	8.1
Cummins India	Cap Goods	642	177,865	38,991	43,581	6,192	7,297	6,000	6,365	21.6	23.0	-9.5	6.1	29.6	27.9	6.9	6.2	28.6	24.1	23.4	22.3	20.2	19.8
Thermax	Cap Goods	907	108,081	50,999	56,347	4,373	4,371	2,544	2,591	21.3	21.7	-20.5	1.9	42.5	41.7	5.3	4.9	25.4	25.1	12.5	11.7	10.1	9.2
VA Tech Wabag	Cap Goods	1500	40,072	22,301	28,000	1,800	3,453	1,083	2,438	40.8	91.8	19.9	125.1	36.8	16.3	4.7	4.2	20.5	10.9	12.9	25.5	11.7	21.3
Voltas	Cap Goods	188	62,355	52,660	54,241	2,656	3,546	2,243	2,606	6.8	7.9	15.0	16.2	27.8	23.9	3.4	3.1	23.4	17.0	12.3	13.0	11.9	13.0
ACC	Cement	1442	270,795	109,084	124,747	13,690	19,901	10,947	11,876	58.2	63.2	-21.5	8.5	24.8	22.8	3.5	3.3	17.9	13.3	14.0	14.3	11.7	11.4
Ambuja Cement	Cement	212	328,558	91,180	231,471	15,689	43,739	12,538	21,587	8.1	10.9	-20.6	34.3	26.1	19.5	3.5	2.2	18.4	7.1	13.3	11.5	11.8	15.7
India Cement	Cement	99	30,472	50,848	57,302	5,914	7,517	(646)	754	-2.1	2.5	-131.0	-216.7	-47.2	40.4	0.8	0.8	10.3	7.7	-1.7	2.0	2.3	4.0
Mangalam Cement	Cement	214	5,712	6,997	10,689	582	1,496	418	651	15.7	24.4	-46.0	55.7	13.7	8.8	1.1	1.0	16.5	6.6	8.2	11.7	5.0	8.3
Shree Cement	Cement	7117	247,950	61,817	73,661	14,288	19,555	7,102	10,178	203.9	292.1	-29.3	43.3	34.9	24.4	5.5	4.6	16.9	12.2	15.8	18.7	14.8	17.8
Ultratech Cement	Cement	2476	679,332	214,437	268,219	38,264	56,545	22,060	33,943	80.4	123.8	-17.6	53.9	30.8	20.0	4.0	3.4	18.4	12.4	12.8	16.9	9.0	13.1

Note: For banks, EBITDA is pre-provision profit

PhillipCapital India Coverage Universe: **Valuation Summary**

		CMP	Mkt Cap	Net Sales (Rs mn)		EBIDTA (Rs mn)		PAT (Rs mn)		EPS (Rs)		EPS Growth (%)		P/E (x)		P/B (x)		EV/EBITDA (x)		ROE (%)		ROCE (%)	
Name of company	Sector	Rs	Rs mn	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E
OCL India	Cement	290	16,487	19,366	22,057	2,992	3,536	1,075	1,359	18.9	23.9	-32.6	26.4	15.3	12.1	1.4	1.3	7.0	5.6	9.4	10.9	8.8	9.2
JK Lakshmi Cement	Cement	221	25,952	20,566	22,994	3,018	4,318	1,123	2,091	9.5	17.8	-41.3	86.2	23.1	12.4	2.0	1.8	11.9	8.9	8.6	14.4	6.1	9.6
HeidelbergCement	Cement	60	13,506	13,648	17,256	864	2,598	(407)	591	-1.8	2.6	-232.1	-245.0	-33.2	22.9	1.6	1.5	29.3	9.5	-4.9	6.6	1.3	5.4
JK Cement	Cement	383	26,789	28,178	38,394	3,449	4,737	758	1,363	10.8	19.5	-67.1	79.7	35.3	19.7	1.5	1.4	14.7	9.6	4.3	7.4	4.3	6.2
Dalmia Bharat Ltd	Cement	447	36,263	28,670	37,139	3,263	6,095	(84)	521	-1.0	6.4	-104.3	-718.8	-430.7	69.6	1.2	1.2	21.9	13.2	-0.3	1.7	2.4	4.4
Andhra Bank	Financials	84	49,675	37,373	43,330	37,373	43,330	4,356	8,459	7.4	14.3	-67.9	94.2	11.4	5.9	0.6	0.5	NM	NM	5.1	9.4	0.3	0.5
Bank of Baroda	Financials	862	369,963	119,653	142,328	119,653	142,328	45,411	55,498	105.4	128.9	-2.2	22.2	8.2	6.7	1.1	0.9	NM	NM	13.8	15.0	0.8	0.8
Bank of India	Financials	286	183,366	106,289	128,652	106,289	128,652	30,691	37,211	47.7	57.9	3.6	21.2	6.0	4.9	0.7	0.6	NM	NM	12.6	13.6	0.6	0.6
Canara Bank	Financials	395	182,082	89,444	108,973	89,444	108,973	24,382	38,125	52.9	82.7	-18.5	56.4	7.5	4.8	0.8	0.7	NM	NM	10.0	14.4	0.5	0.7
Corporation bank	Financials	359	60,206	38,502	43,359	38,502	43,359	7,290	12,466	43.5	74.4	-53.6	71.0	8.3	4.8	0.6	0.6	NM	NM	7.4	11.9	0.4	0.5
HDFC Bank	Financials	836	2,012,622	184,234	222,367	184,234	222,367	85,364	101,908	35.9	42.8	26.9	19.4	23.3	19.5	4.6	3.9	NM	NM	21.6	21.8	2.0	2.0
ICICI Bank	Financials	1476	1,706,576	164,756	186,898	164,756	186,898	98,106	109,357	84.9	94.5	17.7	11.2	17.4	15.6	2.3	2.1	NM	NM	14.0	14.3	1.7	1.7
IOB	Financials	70	86,474	55,768	64,783	55,768	64,783	6,017	6,907	5.1	4.9	-16.5	-4.1	13.7	14.2	0.6	0.6	NM	NM	4.6	4.6	0.2	0.2
Oriental Bank	Financials	281	84,108	51,271	57,711	51,271	57,711	11,394	14,527	38.0	48.4	-16.5	27.5	7.4	5.8	0.7	0.6	NM	NM	9.2	10.9	0.5	0.6
PNB	Financials	923	334,191	161,460	185,043	161,460	185,043	33,426	47,217	92.3	130.4	-31.3	41.3	10.0	7.1	1.0	0.9	NM	NM	10.2	12.9	0.6	0.8
SBI	Financials	2501	1,867,329	673,371	793,549	673,371	793,549	136,339	160,717	182.6	215.3	-30.3	17.9	13.7	11.6	1.2	1.1	NM	NM	9.7	10.2	0.6	0.6
Union Bank	Financials	193	121,365	78,794	93,142	78,794	93,142	16,961	21,108	26.9	33.5	-25.6	24.5	7.2	5.7	0.7	0.7	NM	NM	10.4	11.9	0.5	0.6
HDFC	Financials	1064	1,667,776	70,030	81,419	75,402	87,013	54,402	62,753	34.9	40.2	11.2	15.4	30.5	26.5	6.1	5.4	NM	NM	20.5	21.1	2.7	2.7
Indian Bank	Financials	156	72,470	43,604	51,425	43,604	51,425	11,589	13,209	24.9	28.4	-32.2	14.0	6.3	5.5	0.6	0.6	NM	NM	10.5	11.0	0.7	0.7
Development Credit	Financials	79	19,756	3,684	4,310	3,684	4,310	1,505	1,730	6.0	6.9	47.3	15.0	13.1	11.4	1.8	1.6	NM	NM	14.7	14.6	1.2	1.2
AXIS Bank	Financials			119,516	134,633	119,516	134,633	62,177	74,366	132.3	157.5	19.6	19.0					NM	NM	17.4	17.9	1.7	1.8
Indusind Bank	Financials	549	289,485	28,907	34,150	28,907	34,150	14,080	17,580	26.8	33.4	32.0	24.9	20.5	16.4	3.3	2.8	NM	NM	17.5	18.7	1.8	1.8
Shriram Trans Fin	Financials	886	200,905	33,759	41,418	28,621	32,264	12,642	14,893	55.7	65.7	-7.1	17.9	15.9	13.5	2.4	2.1	NM	NM	16.3	16.7	2.7	2.8
LIC Housing Finance	Financials	296	149,557	18,989	22,433	18,470	21,630	13,172	15,644	26.1	31.0	28.7	18.8	11.4	9.6	2.0	1.7	NM	NM	18.8	19.1	1.5	1.5
Hindustan Unilever	FMCG	662	1,431,977	274,083	301,232	50,963	55,860	36,983	38,703	17.1	17.9	10.5	4.7	38.7	37.0	43.7	30.1	27.7	25.1	112.9	81.3	125.1	96.9
Marico Industries	FMCG	249	160,315	46,762	55,668	7,480	8,773	4,784	5,420	7.4	8.4	31.3	13.3	33.5	29.6	11.8	10.1	21.8	18.5	35.3	34.3	19.9	25.8
Jubilant Foodworks	FMCG	1293	84,690	17,360	22,233	2,576	2,855	1,244	1,302	19.1	19.9	-7.9	4.6	67.9	64.9	15.1	12.2	32.7	29.5	22.2	18.8	23.2	19.3
Godrej Consumer	FMCG	855	291,081	78,136	89,355	11,451	13,521	7,686	9,132	22.6	26.8	3.4	18.8	37.9	31.9	7.8	6.7	26.4	22.0	20.5	21.0	14.9	18.0
ITC	FMCG	357	2,841,951	328,826	367,047	124,548	139,193	87,850	94,407	11.1	11.9	17.4	7.5	32.2	30.0	10.8	9.3	22.6	20.0	33.5	31.1	27.7	26.2
Nestle	FMCG	5171	498,566	92,304	106,565	20,650	23,787	11,536	13,691	119.6	142.0	8.1	18.7	43.2	36.4	21.7	17.3	24.3	20.9	50.2	47.6	38.0	38.2
Colgate	FMCG	1632	221,872	35,449	40,392	6,645	7,921	4,923	5,630	36.2	41.4	-0.9	14.3	45.1	39.4	37.0	33.8	32.9	27.6	82.1	85.7	95.5	84.0
Glaxo Smithkline	FMCG	4826	202,958	35,640	41,250	5,271	6,586	5,165	6,289	122.8	149.5	18.3	21.8	39.3	32.3	12.6	10.9	35.4	28.2	32.1	33.9	34.6	36.2
Agro Tech Foods	FMCG	555	13,530	7,622	8,083	676	706	429	440	17.6	18.1	2.8	2.6	31.5	30.7	4.8	4.2	20.2	19.1	15.2	13.8	16.1	14.5
Dabur	FMCG	199	350,108	70,732	82,186	11,631	14,114	9,172	10,919	5.3	6.3	19.1	19.1	37.8	31.7	12.4	10.0	30.3	24.6	32.8	31.7	25.5	25.9
Emami	FMCG	552	125,388	18,837	22,014	4,242	4,809	3,815	4,224	16.8	18.6	21.2	10.7	32.9	29.7	13.2	10.3	29.1	25.1	40.0	34.8	38.6	35.0
Britannia	FMCG	1073	128,734	69,892	80,179	5,969	7,137	3,950	5,011	33.1	41.9	52.1	26.8	32.5	25.6	16.5	12.2	22.1	17.9	50.9	47.7	38.8	42.1

Note: For banks, EBITDA is pre-provision profit

PhillipCapital India Coverage Universe: **Valuation Summary**

		CMP	Mkt Cap	Net Sales (Rs mn)		EBIDTA (Rs mn)		PAT (Rs mn)		EPS (Rs)		EPS Growth (%)		P/E (x)		P/B (x)		EV/EBITDA (x)		ROE (%)		ROCE (%)	
Name of company	Sector	Rs	Rs mn	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E
Bajaj Corp	FMCG	230	33,947	6,707	7,799	1,849	2,069	1,770	1,969	12.0	13.4	5.8	11.2	19.2	17.2	6.5	6.4	17.7	15.3	33.8	37.3	30.2	28.5
Zydus Wellness	FMCG	601	23,500	4,246	4,898	1,057	1,208	1,101	1,232	28.2	31.5	13.4	11.8	21.3	19.1	7.0	5.6	19.8	16.6	32.9	29.2	37.2	32.7
Asian Paints	FMCG	637	611,009	125,816	147,204	19,979	24,587	12,267	14,977	12.8	15.6	10.1	22.1	49.8	40.8	15.1	12.3	30.3	24.6	30.4	30.1	30.5	31.4
Balrampur Chini	FMCG	76	18,626	31,031	33,081	2,677	3,261	374	773	1.5	3.2	-76.8	106.7	49.7	24.0	1.4	1.4	11.3	9.3	2.9	5.7	4.4	6.1
Tilaknagar	FMCG	51	6,276	8,242	9,337	1,699	2,020	583	674	4.7	5.4	-5.3	15.6	10.7	9.3	1.0	1.0	8.0	7.1	9.8	10.4	10.4	10.7
Radico Khaitan	FMCG	99	13,171	14,188	16,122	2,217	2,612	957	1,204	7.2	9.1	23.8	25.8	13.7	10.9	1.6	1.4	9.4	8.1	11.8	13.1	11.0	11.9
Berger Paints	FMCG	301	104,121	38,697	45,885	4,314	5,481	2,494	3,198	7.2	9.2	14.1	28.2	41.8	32.6	9.4	7.8	25.1	19.7	22.4	23.8	19.7	20.4
GMR Infrastructure	Infrastructure	25	110,122	87,095	97,535	25,654	37,581	(11,512)	(4,364)	-3.0	-1.1	152.5	-62.1	-8.5	-22.5	1.1	1.2	20.4	12.4	-13.1	-5.2	3.6	2.5
GVK Power	Infrastructure	15	23,451	28,209	23,865	9,461	13,157	(3,687)	(7,893)	-2.3	-5.0	9.7	114.1	-6.4	-3.0	0.8	1.1	24.3	18.0	-13.3	-36.1	0.7	0.3
IRB Infrastructure	Infrastructure	250	82,941	37,319	38,811	17,537	20,658	4,591	4,204	13.8	12.6	-17.5	-8.4	18.1	19.7	2.3	2.1	10.2	9.7	12.9	10.5	7.0	6.5
Adani Ports & SEZ	Infrastructure	268	555,291	43,458	43,259	28,006	31,001	22,527	22,748	10.9	11.0	23.3	1.0	24.7	24.4	5.9	5.0	22.9	19.0	24.1	20.4	13.8	12.5
HCL Technologies	IT Services	1581	1,106,909	257,694	329,625	57,539	86,787	40,142	62,283	56.9	88.1	63.3	54.8	27.8	17.9	7.8	5.9	19.5	12.9	28.1	32.8	26.3	33.0
Infosys	IT Services	3352	1,925,041	501,330	532,768	134,150	143,743	106,480	116,099	186.3	203.2	13.0	9.0	18.0	16.5	4.0	3.6	12.2	11.2	22.4	22.0	24.4	23.1
TCS	IT Services	2605	5,102,388	818,094	952,149	251,322	285,354	191,087	228,472	97.6	116.6	37.0	19.6	26.7	22.3	9.2	7.2	20.2	17.8	34.5	32.4	38.2	35.1
Tech Mahindra	IT Services	2176	511,011	188,313	218,077	41,836	48,255	26,821	32,303	112.9	135.7	26.4	20.2	19.3	16.0	5.0	3.8	11.4	9.8	25.8	23.9	30.7	26.2
Wipro	IT Services	550	1,357,927	434,269	476,274	99,942	110,582	77,966	88,971	31.7	36.1	27.0	14.1	17.4	15.2	3.9	3.4	13.1	11.7	22.7	22.2	23.7	22.8
Persistent Systems	IT Services	1285	51,412	16,692	19,289	4,303	4,970	2,493	3,200	62.3	80.0	32.9	28.4	20.6	16.1	4.2	3.5	11.7	10.2	20.4	21.8	19.4	21.4
KPIT Technologies	IT Services	156	30,420	26,940	29,219	4,233	4,248	2,391	2,738	12.8	14.7	18.5	14.8	12.2	10.6	2.3	1.9	7.8	7.3	18.8	18.0	17.3	15.6
Zee Entertainment	Media	289	277,570	44,217	48,800	12,043	13,012	8,938	7,918	9.3	8.2	24.2	-11.4	31.0	35.0	7.1	5.9	22.6	20.9	22.9	16.7	23.1	20.1
HT Media	Media	114	26,545	22,007	24,817	3,125	3,618	1,607	2,383	6.9	10.2	-3.7	49.0	16.6	11.1	1.5	1.3	9.4	7.5	8.8	11.7	12.0	12.4
Sun TV Network	Media	410	161,378	22,236	25,675	11,244	13,533	7,480	8,851	19.0	22.5	5.4	18.3	21.6	18.2	5.2	4.6	13.9	11.4	24.2	25.4	24.5	26.0
Jagran Prakashan	Media	119	38,968	17,243	19,080	4,009	4,331	2,037	2,396	6.4	7.6	-4.1	17.6	18.5	15.7	3.7	3.3	10.9	9.8	20.1	21.0	14.2	13.9
Den Networks	Media	212	37,689	10,961	18,840	2,951	6,227	411	1,934	2.8	13.2	-42.5	370.0	75.3	16.0	1.7	1.6	10.7	6.2	2.3	9.7	6.3	10.8
Dish TV	Media	59	62,829	25,090	28,762	6,240	6,904	(1,576)	(266)	-1.5	-0.2	138.8	-83.1	-39.9	-236.4	-20.1	-18.5	12.1	10.7	50.4	7.8	-5.1	7.3
Hathway Cable	Media	310	47,158	15,734	22,845	3,286	6,028	(823)	1,003	-5.6	6.6	-6.2	-218.2	-55.6	47.0	5.1	4.7	17.4	10.5	-9.2	10.0	1.0	7.7
Hindalco Inds	Metals	192	396,004	839,351	942,250	83,028	103,972	24,848	23,802	12.0	11.5	-23.9	-4.2	15.9	16.6	0.9	1.0	11.6	9.6	6.4	5.8	4.0	4.3
NALCO	Metals	62	159,918	66,488	73,421	9,342	12,366	6,917	9,091	2.7	3.5	16.7	31.4	23.1	17.6	1.3	1.3	12.8	9.7	5.7	7.2	4.8	6.7
Hindustan Zinc	Metals	163	688,516	134,590	136,642	69,615	67,705	69,663	67,680	16.5	16.0	0.7	-2.8	9.9	10.2	1.8	1.6	6.2	5.8	18.6	15.9	18.6	15.9
Tata Steel	Metals	557	541,113	1,486,136	1,546,908	164,110	176,126	36,225	33,570	37.3	34.6	990.3	-7.3	14.9	16.1	1.3	1.2	7.7	7.1	8.9	7.7	6.4	6.4
JSW Steel	Metals	1178	284,857	512,196	528,659	91,655	108,031	21,647	30,409	89.6	125.8	43.4	40.5	13.2	9.4	1.3	1.2	6.9	6.0	10.2	12.7	4.6	8.4
SAIL	Metals	87	361,175	463,345	511,913	43,534	59,861	19,639	19,884	4.8	4.8	-16.7	1.2	18.4	18.2	0.8	0.8	13.3	10.6	4.6	4.5	4.6	3.8
Sesa Sterlite	Metals	292	866,426	661,524	824,314	203,597	278,912	72,624	78,753	24.5	26.6	-7.5	8.4	11.9	11.0	1.2	1.1	7.8	5.5	9.9	9.9	14.5	9.4
Jindal Steel & Power	Metals	283	259,324	200,040	274,079	57,764	88,000	19,104	22,735	20.9	24.8	-32.9	19.0	13.6	11.4	1.1	1.0	10.6	7.0	8.4	9.2	4.8	5.6
Jindal Saw	Metals	81	22,305	65,531	70,919	6,474	7,751	1,572	2,222	5.7	8.0	-13.4	41.4	14.2	10.0	0.6	0.6	11.4	10.0	4.1	5.6	3.6	4.1
ONGC	Oil & Gas	401	3,429,896	1,732,345	1,919,523	549,854	667,980	265,049	314,818	31.0	36.8	9.4	18.8	12.9	10.9	2.0	1.8	6.7	5.2	15.4	16.3	11.2	11.4
Petronet LNG	Oil & Gas	184	138,225	377,476	451,057	14,984	18,254	7,119	7,661	9.5	10.2	-38.1	7.6	19.4	18.0	2.8	2.5	10.5	8.8	14.3	13.8	10.5	10.5

Note: For banks, EBITDA is pre-provision profit

PhillipCapital India Coverage Universe: **Valuation Summary**

		CMP	Mkt Cap	Net Sales (Rs mn)		EBIDTA (Rs mn)		PAT (Rs mn)		EPS (Rs)		EPS Growth (%)		P/E (x)		P/B (x)		EV/EBITDA (x)		ROE (%)		ROCE (%)	
Name of company	Sector	Rs	Rs mn	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E	FY14E	FY15E
Cairn India	Oil & Gas	309	589,267	188,439	181,006	141,607	130,121	117,750	107,013	61.9	56.3	2.0	-9.1	5.0	5.5	1.0	0.9	4.0	4.0	20.5	16.4	21.8	16.0
GAIL	Oil & Gas	428	542,781	586,357	592,534	72,420	79,477	48,092	47,649	35.9	37.6	13.1	4.7	11.9	11.4	2.0	1.8	8.6	7.6	16.6	15.5	12.8	11.6
Indraprastha Gas	Oil & Gas	371	51,940	39,174	45,929	7,614	8,237	3,440	3,946	24.6	28.2	-2.9	14.7	15.1	13.2	2.9	2.6	7.1	6.2	21.1	20.9	15.3	15.4
Gujarat State Pet	Oil & Gas	88	49,437	10,473	10,171	9,255	8,875	4,187	4,098	7.4	7.3	-22.2	-2.1	11.8	12.1	1.5	1.4	6.2	6.2	12.7	11.3	10.0	9.4
HSIL Ltd	Other	243	16,033	18,582	21,720	2,533	3,172	340	822	5.1	12.4	-41.8	141.8	47.2	19.5	1.6	1.5	10.4	8.0	3.3	7.6	1.7	3.7
Greenply Industries	Other	827	19,950	21,595	24,308	2,773	3,257	1,145	1,352	47.4	56.0	0.3	18.1	17.4	14.8	3.4	2.8	9.6	8.1	19.6	19.0	12.3	12.7
TRIL	Other	197	2,832	6,659	7,216	330	432	132	192	10.2	14.9	178.9	45.3	19.3	13.3	0.7	0.7	12.0	9.2	3.8	5.3	4.4	5.6
Kajaria Ceramics	Other	620	46,862	18,400	22,051	2,807	3,418	1,242	1,517	16.4	20.1	15.7	22.1	37.7	30.9	8.8	7.5	17.4	14.6	23.5	24.4	26.5	27.9
Havells Ltd	Other	1237	154,410	81,858	90,229	7,425	9,535	4,463	6,225	35.8	49.9	0.2	39.5	34.6	24.8	9.3	7.5	20.8	16.1	26.8	30.1	19.6	23.7
Aurobindo Pharma	Pharma	693	202,067	80,998	115,098	21,328	18,531	13,922	11,075	47.8	38.1	221.9	-20.5	14.5	18.2	5.4	4.1	11.2	12.8	31.3	22.7	23.8	18.5
Biocon	Pharma	480	96,010	28,513	33,210	7,111	7,960	4,324	5,160	21.6	25.8	24.1	19.3	22.2	18.6	3.2	2.8	13.6	12.0	13.7	15.3	11.8	13.1
Cadila Healthcare	Pharma	1123	229,871	71,151	81,672	12,360	15,473	7,897	9,886	38.6	48.3	14.9	25.2	29.1	23.3	6.7	5.4	20.3	16.1	24.4	23.2	14.4	15.9
Divi's Laboratories	Pharma	1496	198,584	25,321	30,054	10,145	12,112	7,344	9,031	55.4	68.1	22.3	23.0	27.0	22.0	6.7	5.6	19.6	16.3	26.1	25.4	0.0	0.0
Dr Reddy's Labs.	Pharma	2746	467,516	132,170	153,231	32,630	35,396	21,512	22,039	126.5	129.6	27.2	2.5	21.7	21.2	5.1	4.1	15.4	13.9	23.5	19.4	14.8	13.0
Glenmark Pharma	Pharma	636	172,597	59,839	70,372	13,101	15,485	7,236	8,656	26.7	31.9	15.4	19.6	23.9	19.9	5.7	4.5	15.1	12.2	23.8	22.6	10.8	14.4
Ipca Laboratories	Pharma	720	90,824	31,994	34,489	8,106	8,372	5,274	5,206	42.1	41.6	34.1	-1.3	17.1	17.3	4.6	3.7	11.8	11.5	26.9	21.2	19.7	18.5
Lupin	Pharma	1129	506,349	110,866	126,997	30,028	32,999	18,364	20,127	41.0	44.9	38.1	9.6	27.6	25.1	7.3	5.9	16.8	15.0	26.5	23.3	36.4	31.9
Sun Pharma	Pharma	779	1,614,011	160,372	179,198	72,285	76,001	53,526	52,590	25.8	25.4	47.3	-1.7	30.2	30.7	8.6	6.9	21.6	20.5	30.6	22.6	27.7	20.1
Phoenix Mills	Real Estate	373	53,991	12,165	15,674	5,634	7,798	2,204	3,470	15.2	24.0	168.8	57.5	24.5	15.6	2.5	2.5	13.2	9.5	11.3	15.4	8.1	10.1
DLF	Real Estate	205	364,609	83,499	102,193	28,529	36,262	8,199	9,484	4.8	5.6	7.0	15.7	42.6	36.8	1.2	1.2	19.7	15.6	2.8	3.2	5.1	5.4
Unitech Ltd	Real Estate	26	69,155	29,333	32,505	1,662	3,968	696	3,377	0.3	1.3	-66.8	385.3	99.4	20.5	0.6	0.6	76.8	32.0	0.6	2.8	1.1	2.0
Oberoi Realty	Real Estate	263	86,178	7,985	12,710	4,348	6,710	3,112	4,195	9.5	12.8	-38.4	34.8	27.7	20.5	2.0	1.9	18.8	13.9	7.1	9.1	7.1	10.2
Future Retail	Retail	127	28,528	116,051	105,209	10,674	9,890	(1)	182	0.0	0.8				161.7	0.9	0.9	7.6	8.6	0.0	0.6	4.6	4.2
Shoppers Stop	Retail	390	32,475	37,404	44,506	737	1,784	(764)	125	-9.2	1.5	629.7	-116.3	-42.4	259.1	7.6	7.4	53.4	22.4	-18.0	2.9	-6.5	2.4
Raymond Ltd	Retail	420	25,765	45,480	51,179	4,799	5,681	1,429	1,618	23.3	26.4	147.7	13.2	18.0	15.9	1.8	1.6	8.1	7.0	9.7	10.1	7.2	8.3
Bata India	Retail	1293	83,103	20,319	23,404	2,887	3,721	1,677	2,358	26.1	36.7	-2.5	40.6	49.5	35.2	9.9	8.2	27.9	20.8	20.0	23.2	20.6	25.4
Titan Company	Retail	333	295,322	109,274	123,361	10,443	11,719	7,346	8,428	8.3	9.5	1.4	14.7	40.2	35.0	11.7	9.3	28.2	24.5	32.7	29.6	31.0	25.2
Trent	Retail	1242	41,280	23,883	27,319	95	984	319	631	9.6	19.0	39.0	97.9	129.6	65.5	4.2	3.9	464.7	43.9	3.2	6.0	2.5	4.8
Bharti Airtel	Telecom	355	1,417,678	862,528	962,625	278,232	315,423	20,626	54,185	5.2	13.5	107.2	162.7	68.8	26.2	2.6	2.2	7.2	6.0	3.6	8.5	4.7	6.6
Reliance Comm	Telecom	132	317,466	218,800	231,552	72,850	76,172	11,370	10,479	5.5	5.1	52.4	-7.8	24.0	26.0	1.0	1.0	9.9	8.8	4.2	3.7	4.3	3.7
Bharti Infratel	Telecom	259	490,276	65,790	73,406	43,929	49,327	15,107	17,791	8.0	9.4	51.0	17.8	32.4	27.5	2.7	2.7	12.4	9.3	8.4	9.8	7.3	8.0
Idea Cellular	Telecom	149	529,660	265,189	310,381	83,336	101,534	18,513	25,054	5.6	7.0	83.1	24.6	26.7	21.4	3.0	2.4	8.7	7.9	11.2	11.1	7.1	6.8
OnMobile Global	Telecom	35	3,959	8,970	10,361	1,569	2,207	241	626	2.0	5.1	-52.1	159.9	17.5	6.7	0.4	0.4	1.3	0.5	2.4	5.8	2.6	5.8
Tata Communication	Telecom	373	106,405	195,596	213,551	30,036	32,762	352	2,491	1.2	8.7	-104.8	607.7	302.3	42.7	13.3	-129.4	6.2	6.6	4.4	-303.0	3.4	4.7
Concor	Logistics	1312	255,796	49,846	58,489	11,019	13,416	9,848	11,569	50.5	59.3	4.8	17.5	26.0	22.1	3.7	3.2	20.9	17.1	14.1	14.7	13.8	14.6

Note: For banks, EBITDA is pre-provision profit

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