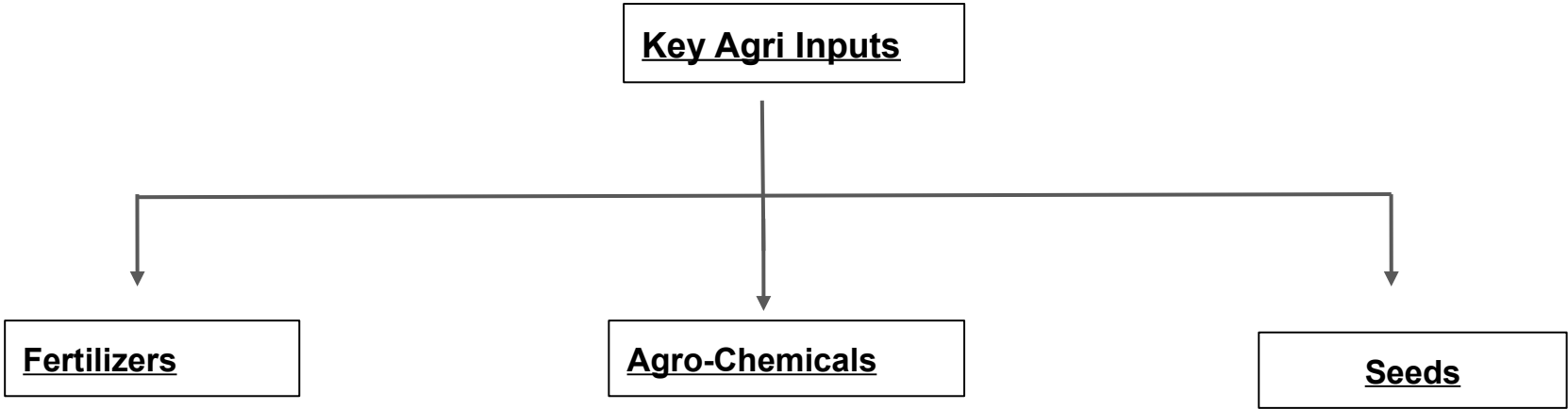




The Agri-Inputs Industry



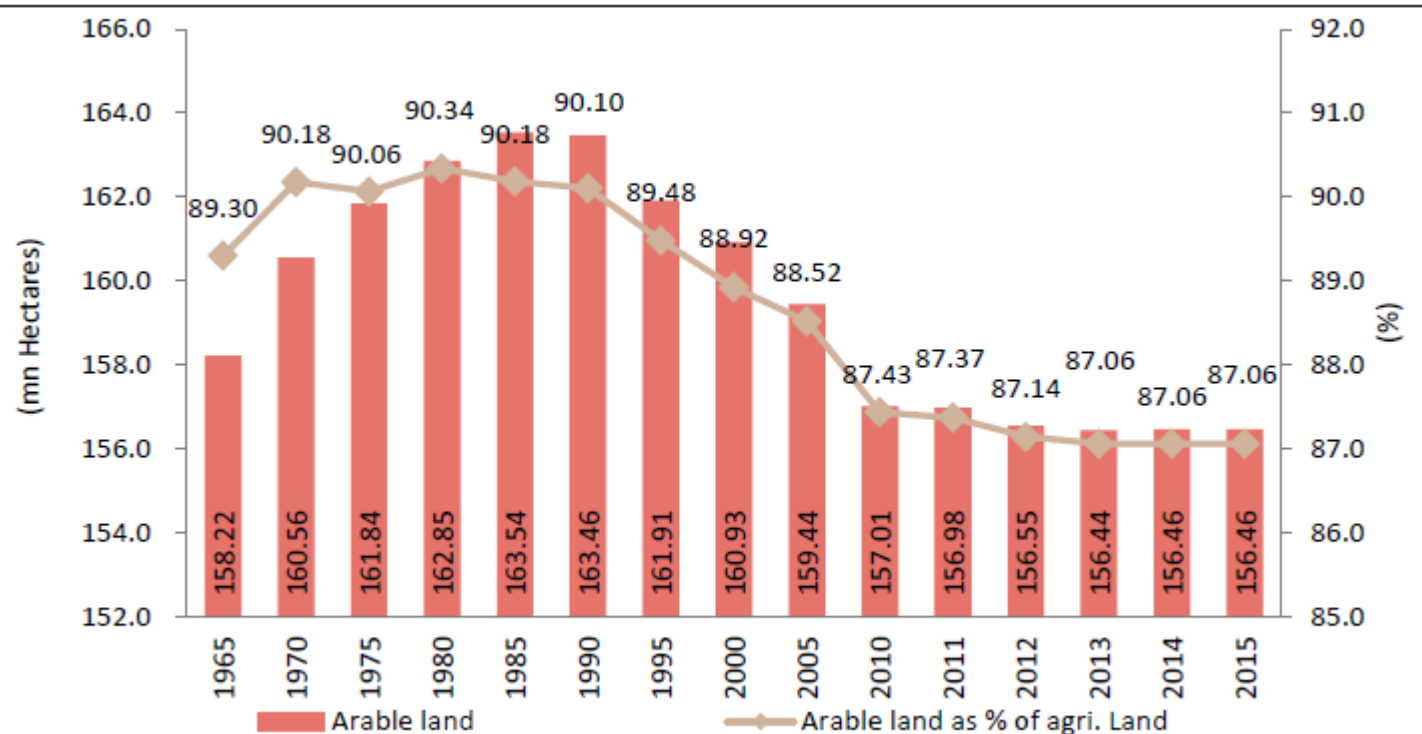
India – An Agrarian economy

- Livelihood of over 58% population dependent on agriculture
- Crucial for country's food security and rural sector growth
- Market Size : Global Agri-Inputs market (fertilizers & agrochemicals) is estimated at \$215 bn
- India's share at 12% and China at 30%.
- Rising population is driving demand for foodgrains

Agricultural seasons in India

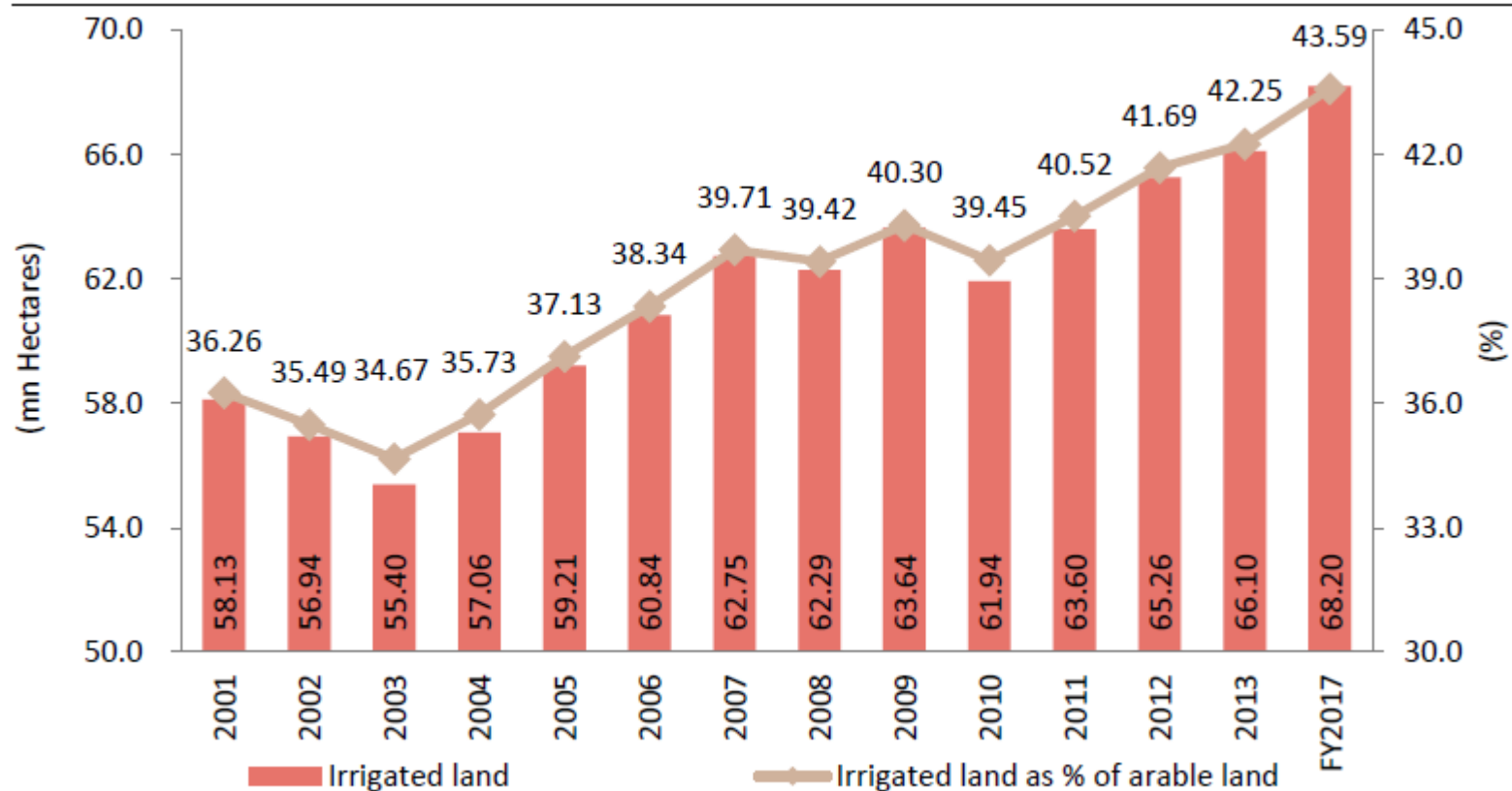
Rabi Season	Kharif Season
Winter Cropping season	Rainy season crop
Sowing is done after Monsoon	Sowing is done during Monsoon
Dependency on irrigation for water requirement	Crops have high requirement of water
Ex : Wheat, Pulses	Ex : Rice, Cotton

Declining trend in arable land



Source: FAO

Area under irrigation showing promising growth



Source: FAO, IBEF

Agriculture produce
(Farmer's Revenue)

Agri Inputs Cost

(Cost of Farmer)

Operating Cost

Fertiliser (50%)

Agrochemicals (20%)

Seeds (30%)

Labour Cost

Other Cost

Fertilizer Segment

Types of Fertilizers:

Total Consumption requirement		
<u>Fertilizer - 64 Mn Tons</u>		
	<u>Urea</u>	<u>Non Urea</u>
Manufactured	28 Mn Tons	24 Mn Tons
Imported	6 Mn Tons	6 Mn Tons
Total Reqd	34 Mn Tons	30 Mn Tons

1	<u>Urea</u>
2	<u>Non Urea</u>
A	DAP
B	Complex
C	Sulphuric based

Major Fertilizer ingredients - NPK

- 3 plant nutrients in order: Nitrogen (**N**), Phosphorus (**P**) and Potassium (**K**)
- Numbers reflect nutrient percentage by weight.

Eg : Label on a 50-kg bag 30 - 0 - 4 reveals that it contains -

30% nitrogen, 0% phosphorus & 4% potassium

- Each nutrient has its own characteristics :
- **Nitrogen** provides speedier leafy growth and rich green color;

Phosphorus focuses on strong root development;

Potassium enhances overall growth keeps plants healthy and balanced.



Characteristics of Fertilizers:

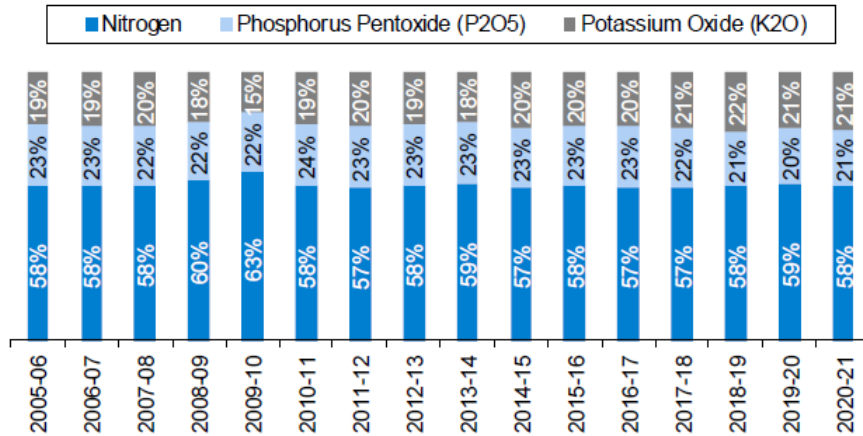
1	<u>Urea</u> 46-0-0
2	<u>Non Urea</u>
A	DAP 18-46-0
B	Complex 12-32-16
C	Sulphric based 15-20-20-9 16-20-0-13

- **Cost difference** : Urea - Rs 250 / 50kg Bag, DAP - Rs 1200 / 50kg
- **Subsidy** : Urea - Rs 2500 / 50 kg Bag, DAP Rs 2500 / 50kg Bag
- **Manufacturing process** :
Urea : Natural Gas >> Ammonia >> FG
Non Urea : Natural Gas >> Ammonia >> PA >> SA >> FG

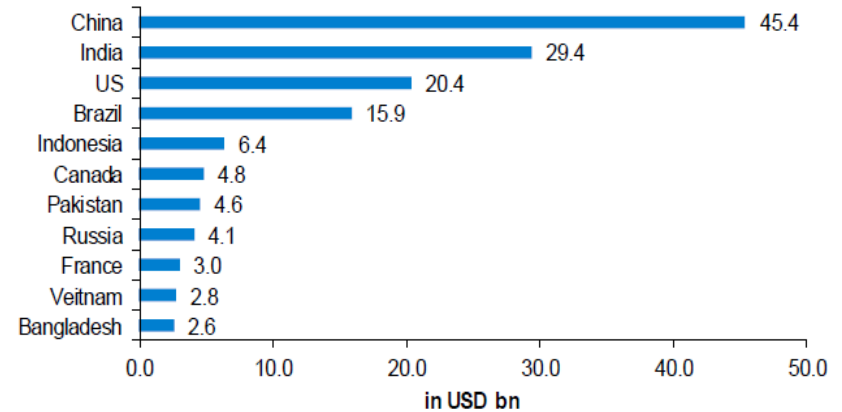
Global Fertilizer Industry

- Global Nitrogen / Phosphorus / Potash market has grown at CAGR of 2%/1%/2% over last decade
- China followed by US and India are Top-3 producers of nitrogenous fertilizers.
- Industry is highly concentrated with very few countries controlling most of production capacity

Global Production of fertilizers (by nutrient) (In Mn mt)



Consumption of fertilizers worldwide (In USD Bn)



Source: Industry

Non-urea consumption is growing faster in recent years in India

Products	FY19 (mn tonnes product)	10-year CAGR	5-year CAGR	3-year CAGR	Comments
Urea	31	1.4%	-0.1%	-0.8%	Stable growth due to curb on illegal usage, neem coating, and introduction of 45kg bags.
DAP	9	2.2%	0.3%	6.8%	Growing consumption in recent years with crop diversification and balanced nutrient usage.
Complex*	9	2.3%	1.9%	1.4%	Growing with DAP consumption.
SSP	3	4.2%	-3.1%	-4.8%	SSP is called the poor farmer's DAP. It has seen a slowdown over the past five years, mainly due to poor quality of products.
MOP	3	0.9%	7.4%	3.4%	Growth in cash crops cultivation and balanced nutrient usage is supporting potash consumption.
TOTAL	56	1.8%	0.5%	0.7%	Overall consumption is increasing gradually with growing crop production and yield.

Source: GOI

Product-wise raw material sourcing/usage

Products	Demand	Domestic production	Imports	Raw-materials requirement				
				Phosphoric acid	Phosphate rock	Ammonia	Sulphur	Sulphuric acid
Urea	30	24	6	Ammonia is produced from domestic gas and imported RLNG				
DAP	9	5	4	55% of demand is imported	85-90% of demand is imported	Demand is met largely from imports	Sulphur and sulphuric acid demand is largely imported. Some SSP and complex producers use domestically produced sulphur(from refineries) and sulphuric acid (copper smelter)	
Complex*	9	9	0.5					
SSP	3	4	Na					
MOP	3	NA	4	Entire requirement is imported				
TOTAL	55	41	15	80% of phosphate requirement is met through imports via finished products of raw material. 100% potash requirement is met from imports. 20% of urea requirement is met from imports.				

Some of the reform initiatives taken by Govt in recent years

<u>Recent initiatives</u>	<u>Description</u>	<u>Remarks</u>
Neem coating of Urea	Producers have to compulsory produce 'Neem' coated urea	This reduces illegal transfer into chemical industries
45-kg bag for Urea	Urea bag size reduced to 45kg from 50kg	Introduction of 45-kg bags is likely to reduce consumption
Free Exports	Products earlier placed under "restricted" category have been moved to "Free" category	Although India is still a net importer, This move will benefit non-urea companies who can now sell excess availability in neighbouring countries
GST	Uniform tax rates across the country	Urea MRP remains uniform across the country making it easy for farmers to procure it
New Investment policy for Urea	Aiming to fill the demand-supply gap with revenue & cost linked to USD	India will cover the demand-supply gap in 2-3 years with the addition of new plants such as Chambal, Matix fertilizers and few more revival plants

Non-Government Factors

Climate Change	Erratic weather patterns across the globe has impacted quality and consumption patterns of agri-inputs
Rising Food Demand	Rising Population & middle class income leads to changing food consumption patterns
Labour Shortage	Labour cost is a significant part of cost of cultivation
Rising Exports Market	Advantage of low cost production and availability of labour
Interest from Political Parties	Agriculture remains the centre of attraction for all political parties

Budgetary allocation

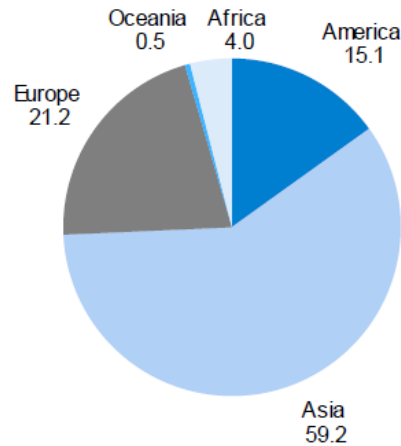
Particulars (INR bn)	Actual 2018-19	Actual 2019-20	Revised 2020-21	Budget 2021-22	Budget 2022-23
Crop Insurance Scheme	119	126	153	160	155
Interest Subsidy for short term credit to farmers	115	162	198	181	-
Market Intervention scheme and Price support scheme	14	20	10	36	15
Pradhan Mantri Annadata aay sanrakshan Yojna	47	3	3	-	-
PM-Kisan	12	487	650	675	680
PMKSY	29	27	26	20	20
National Food security mission	16	18	19	15	-

Budgetary allocation remains high; augurs well for the sector

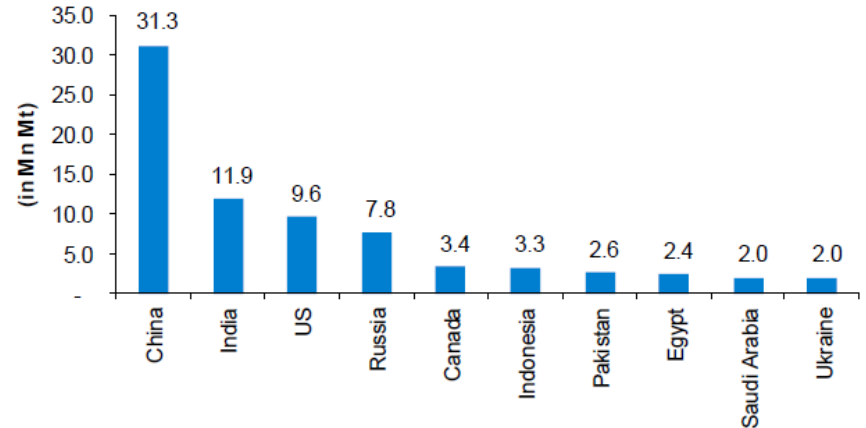
Nitrogen – Major contributor to the Fertilizer segment

- Any change in actions of major international players leads to demand/supply mismatch and hence change prices accordingly.
- Asia continues to dominate global Nitrogen (N) production with ~59% of total global production, followed by European region.

Nitrogen (N) Production- Asia is the highest contributor with 59.2%



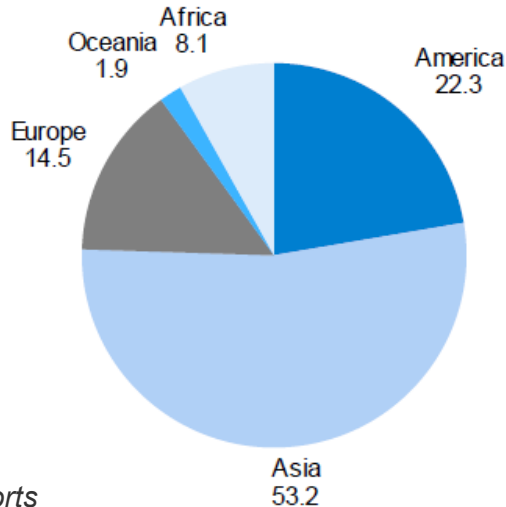
Top 10 countries by Nitrogen Production (CY20)



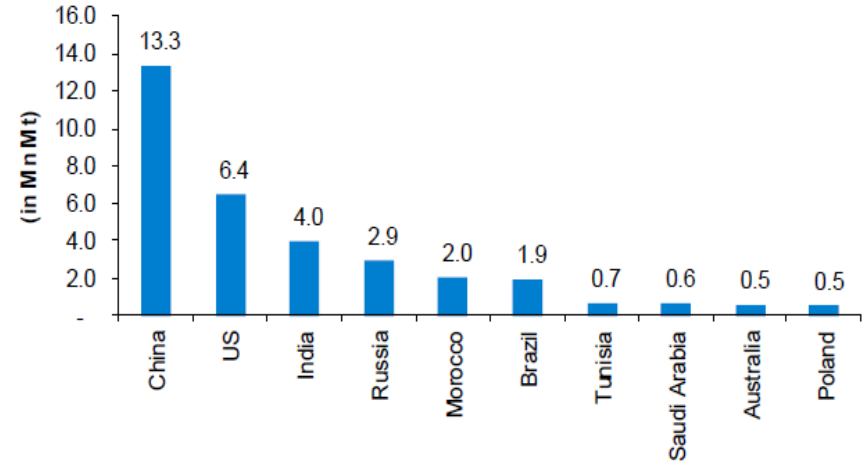
China continues to dominate global Phosphatic Fertilizers

- Asia contributes ~53% of the global phosphate production
- China influences global phosphate production with a sizeable contribution of ~40-45% to global trade
- Brazil & India contribute to major imports of phosphates, led by higher crop acreages in corn &

China dominates global Phosphate (P₂O₅) Production



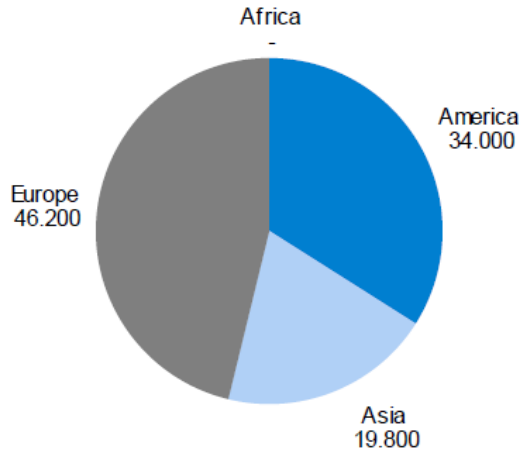
Top-10 countries by Phosphate (P₂O₅) production- (CY20)



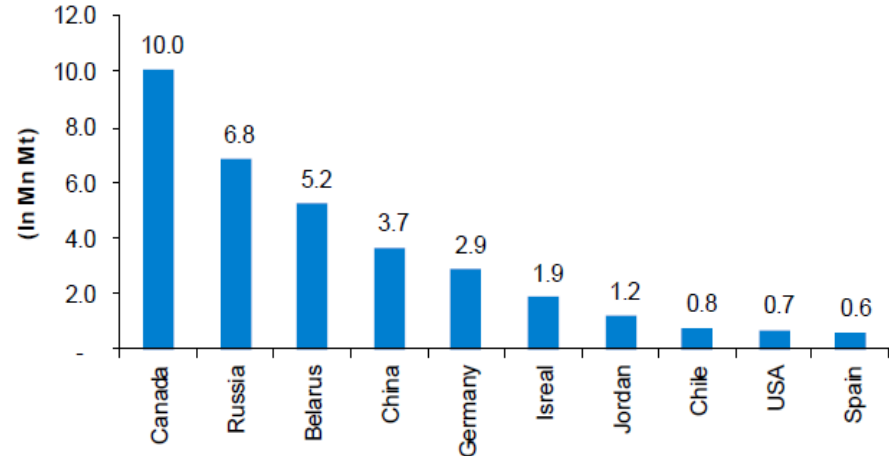
Potash Fertilizers - Largely led by European region

- Europe contributes ~46% of global potash production, followed by US & Asian regions
- Canada & Russia are the major producers
- China, Brazil & India contribute to majority of imports

Europe dominates global Potash (K₂O) production (%)



Top 10 countries by Nutrient Potash (K₂O)- Production (CY20)



Comparative analysis of Peer companies

Revenue trend

Companies	FY23 (Rs Crs)	Fertilizer share (%)	CAGR (%)		
			10 Year	5 Year	3 Year
Coromandel	29,600	80	13	22	31
National Fertilizer	29,500	95	16	27	31
Chambal Fertilizer	27,700	95	13	30	32
GSFC	11,300	85	6	13	14
Deepak Fertilizer	11,250	65	16	14	34

Source : Company Data

Margin (%) trend

Companies	FY19	FY20	FY21	FY22	FY23
Coromandel	11	13	14	11	10
National Fertilizer	8	7	8	4	4
Chambal Fertilizer	12	16	19	14	7
GSFC	9	4	7	15	14
Deepak Fertilizer	7	10	17	18	19

Source : Company Data

ROE (%) trend

Companies	FY19	FY20	FY21	FY22	FY23
Coromandel	23	27	28	26	28
National Fertilizer	14	-8	12	5	18
Chambal Fertilizer	17	38	37	27	15
GSFC	7	2	6	9	11
Deepak Fertilizer	4	4	16	20	27

Source : Company Data

Debtor Days

Companies	FY18	FY19	FY20	FY21	FY22
Coromandel	52	47	49	30	10
National Fertilizer	167	162	206	158	63
Chambal Fertilizer	133	132	154	97	37
GSFC	155	110	120	87	17
Deepak Fertilizer	98	91	98	66	34

Source : Company Data

Agro-chemicals Segment

Introduction

- Purpose
- **Types of Agrochemicals**

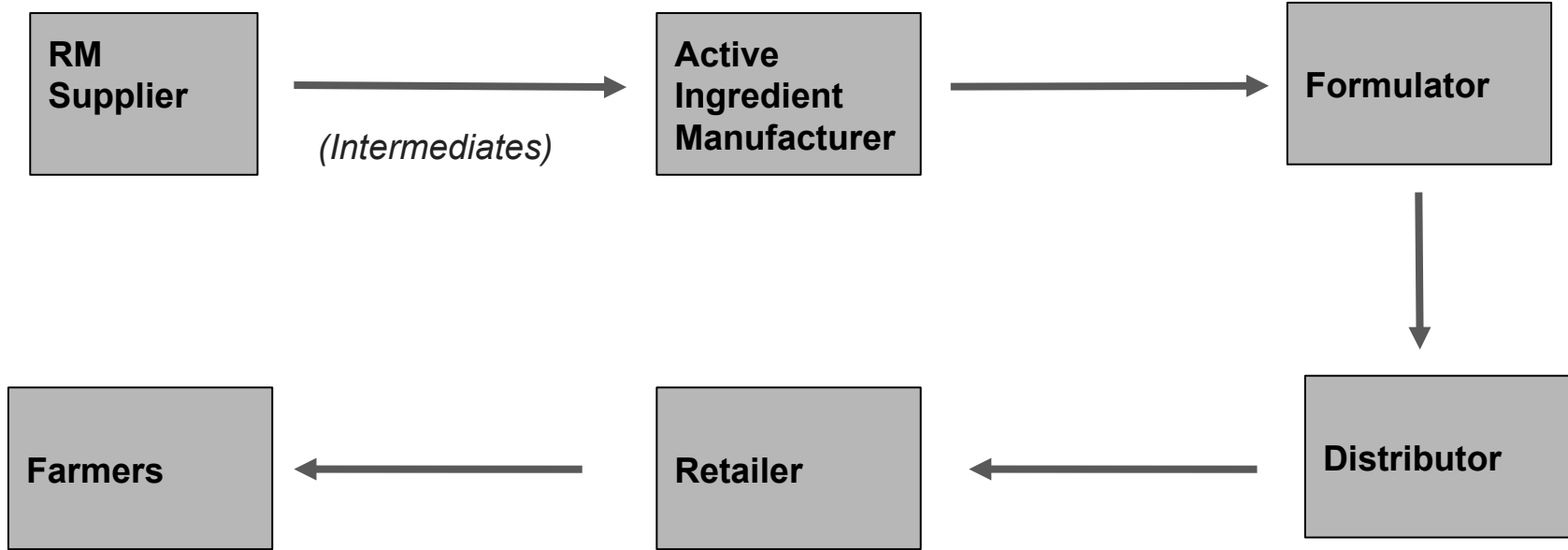
Insecticides

Fungicides

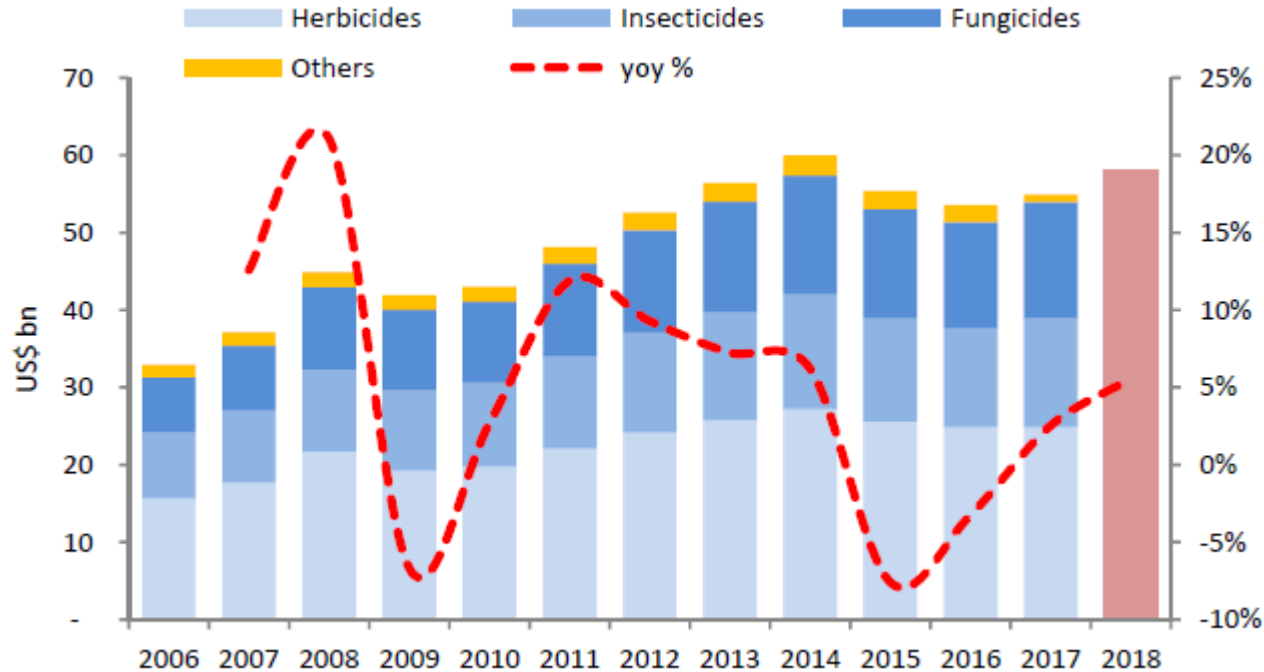
Herbicides

Others

Value Chain



World pesticides market is dominated by herbicides

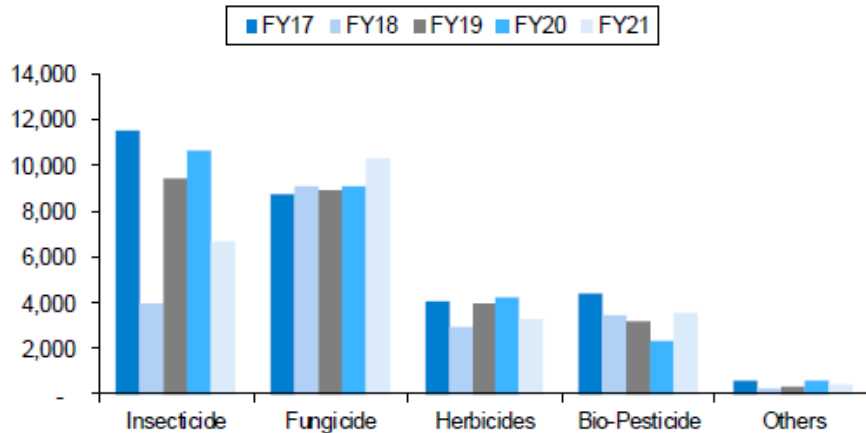


Source : DRHP

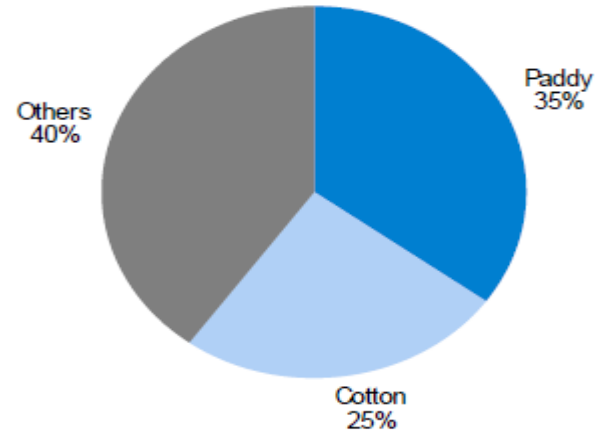
Industry largely skewed towards the insecticides segment

- Paddy and cotton are major agrochemicals consuming crops (consumes >60% of the total agrochemical consumption)

Category-wise consumption of Pesticides over the years (in MT)



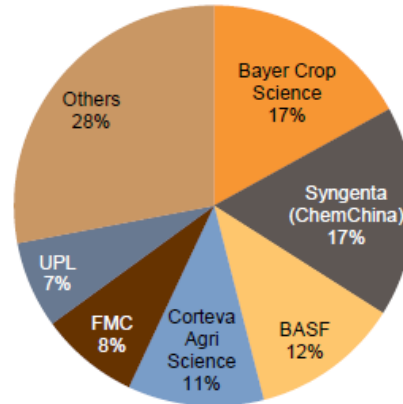
Paddy and Cotton dominates the domestic market



Consolidation in Global Agrochem Market

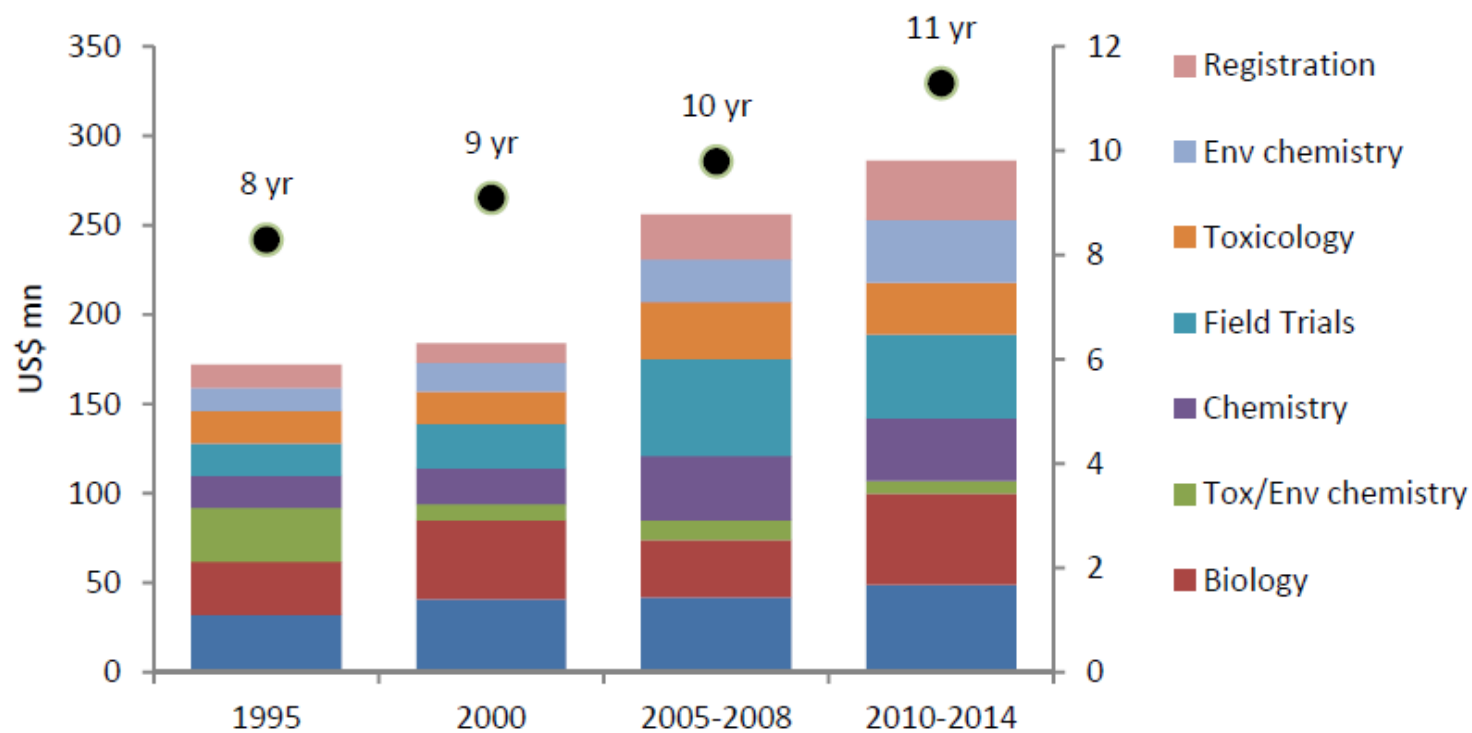
- Top-6 companies accounted for ~70% market share of the agrochem market.
- Post Arysta acquisition (July 2018), UPL became 6th largest agrochemical player globally.
- India's contribution has more than doubled from 4% (2010) to 9% (2019)
- China's contribution in exports moving up from 18% (2010) to 27% (2019)

Arysta acquisition made UPL 6th largest agrochem player globally



Source : Industry

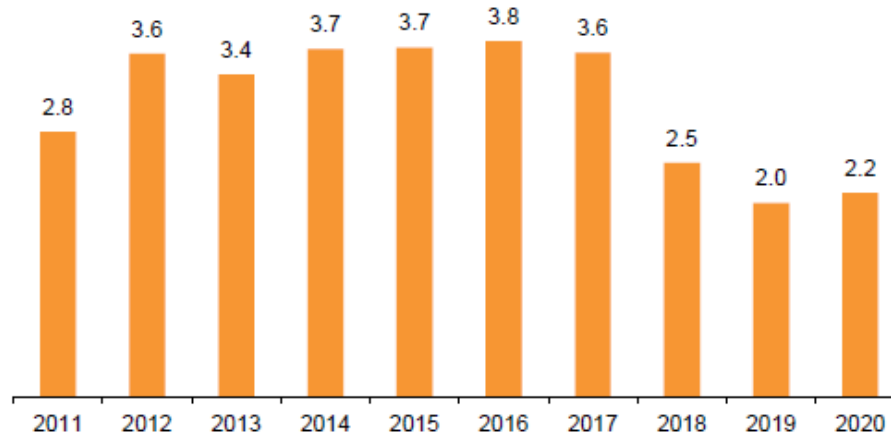
R&D timelines



China

- Agrochem production peaked in 2016 and declined thereafter
- Production rose from 2.8 mmt in 2011, peaking at 3.8 mmt in 2016, declining to 2.0 mmt in 2019
- Tightening of environment compliance led to multiple disruptions, environmental inspections and closures

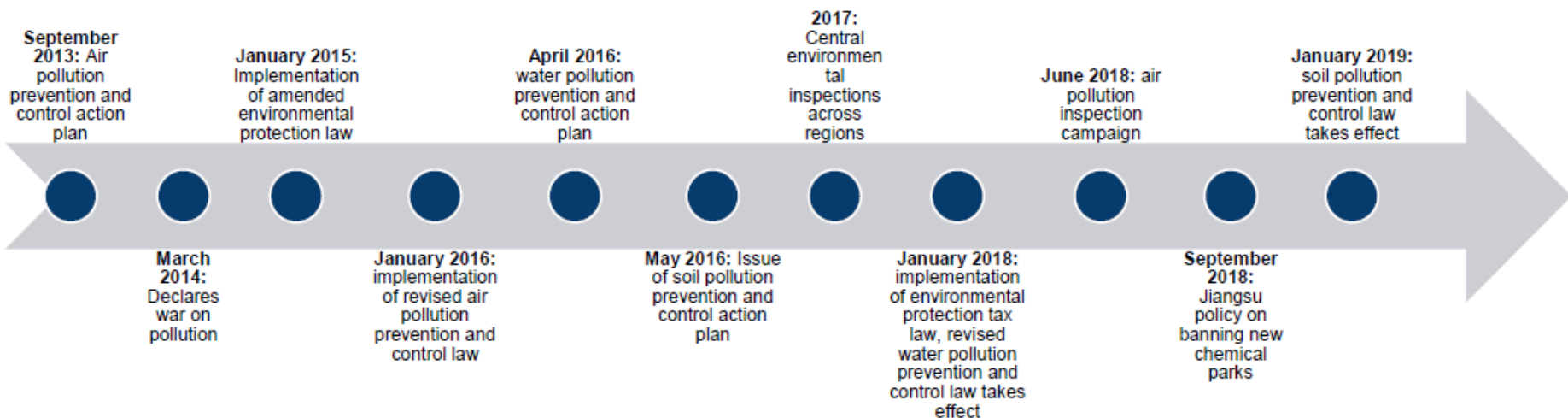
Chinese Agrochem Production Peaked in 2016 (mmt)



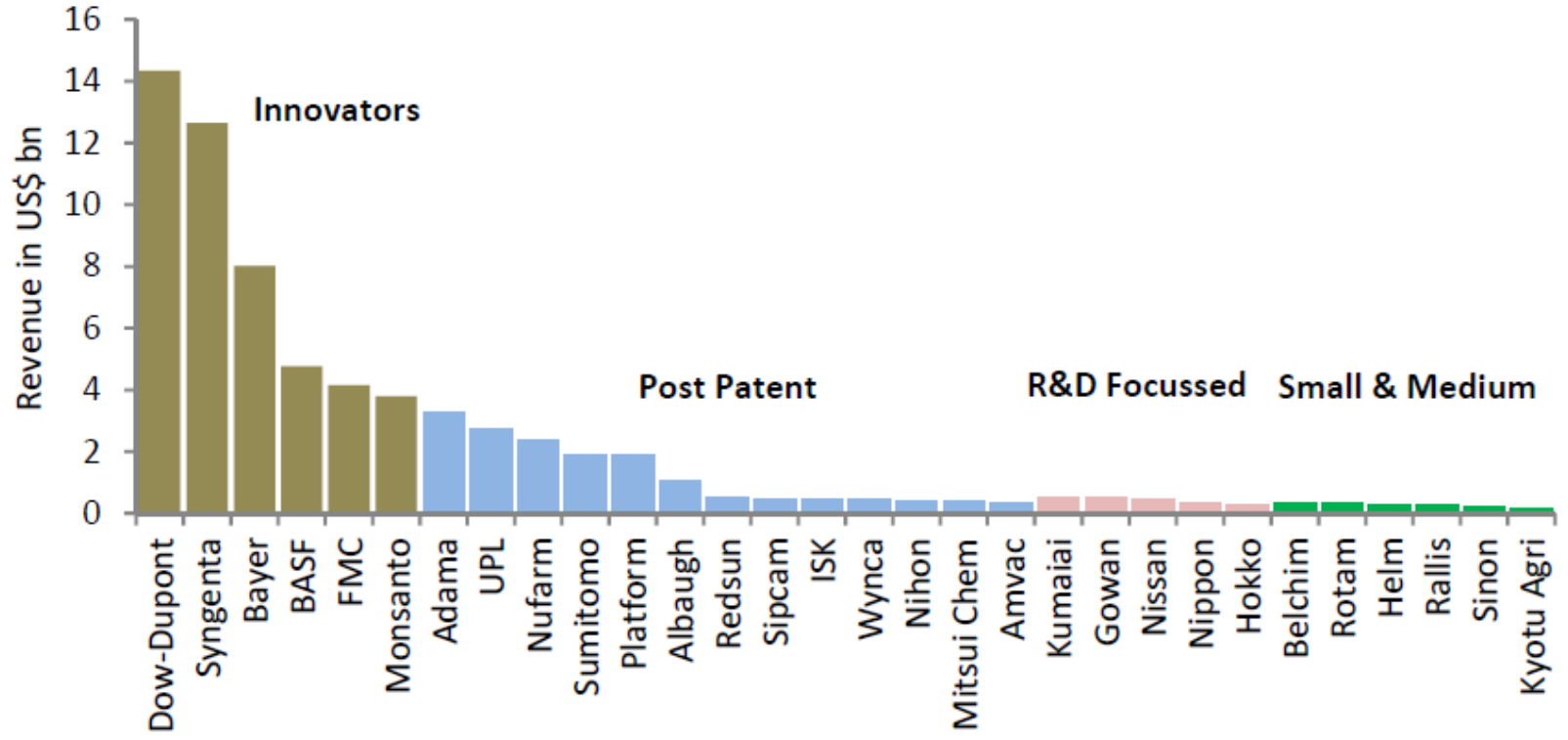
Source: China government

China Environmental Events Timeline

China environmental regulations escalated since 2013



Major companies' market position in crop protection industry

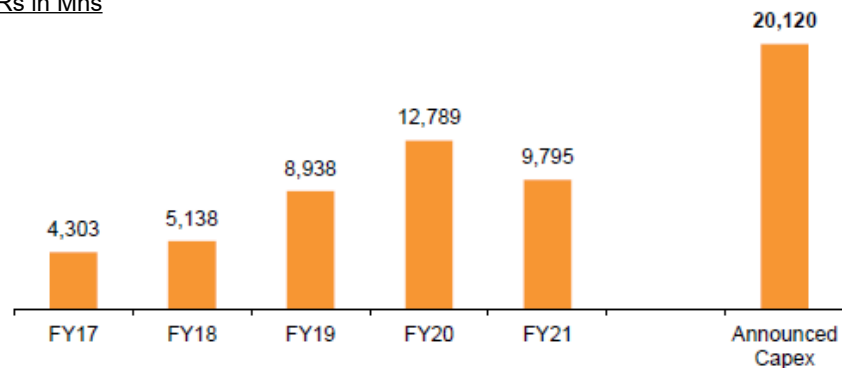


Source : Industry Reports

Indian Agrochem Investments on a Rise

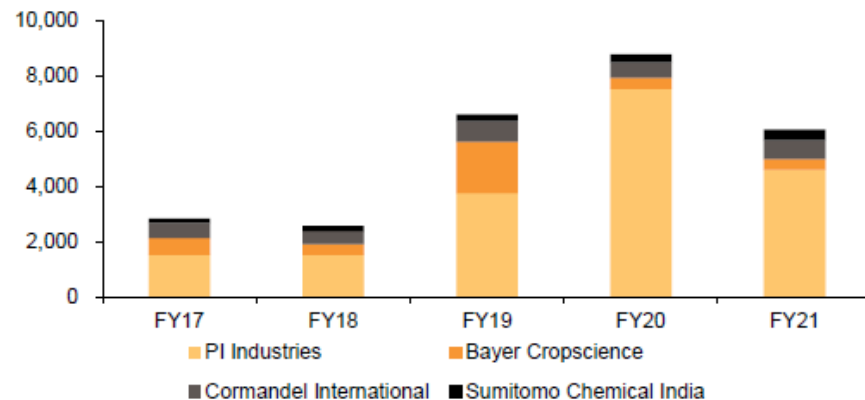
Agrochem capex accelerated in recent past and expected to continue

Rs in Mns



Source: Company Annual Reports

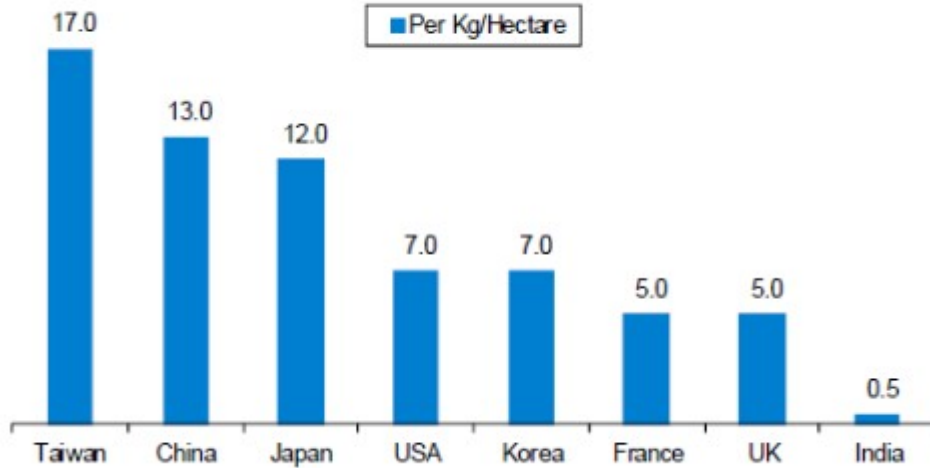
Agrochem companies with high quantum of capex (Rs mn)



Source: Company Annual Reports

Per-capita consumption much below global averages

Per-capita consumption of agrochemicals much below global averages

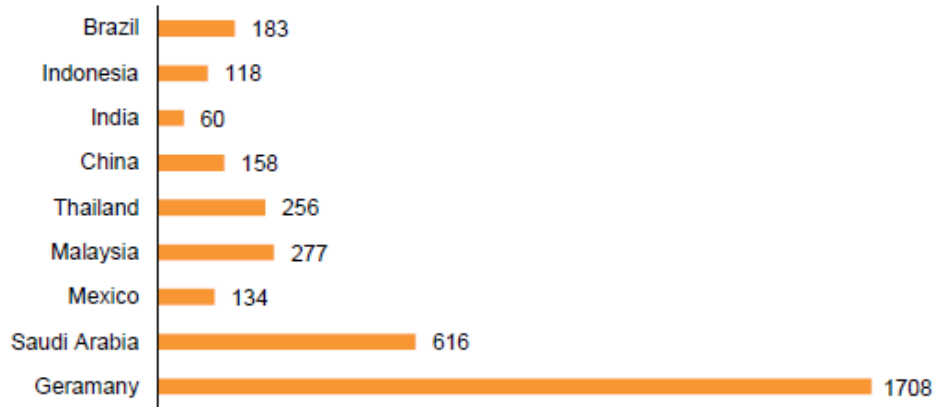


Source : Industry

Labor & Power cost advantage for India vs China

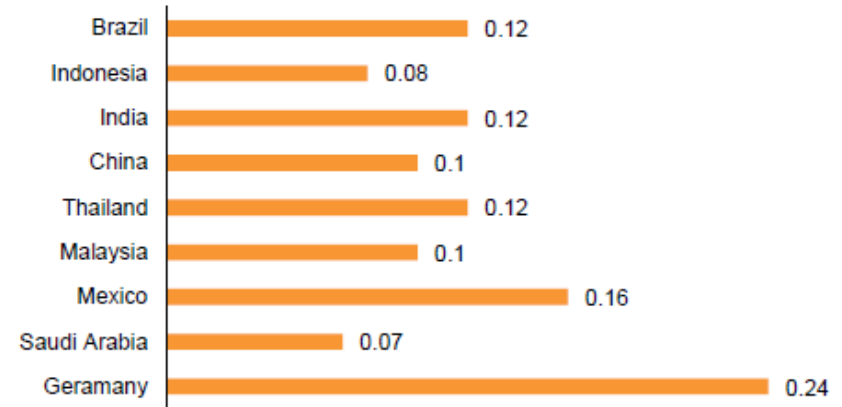
- Labor cost advantage in China has waned off over a period of time
- India's minimum labor wage rate is ~60% lower than that of China
- However, India's power cost is ~20% higher than that of China

Minimum labour rates (USD/month)



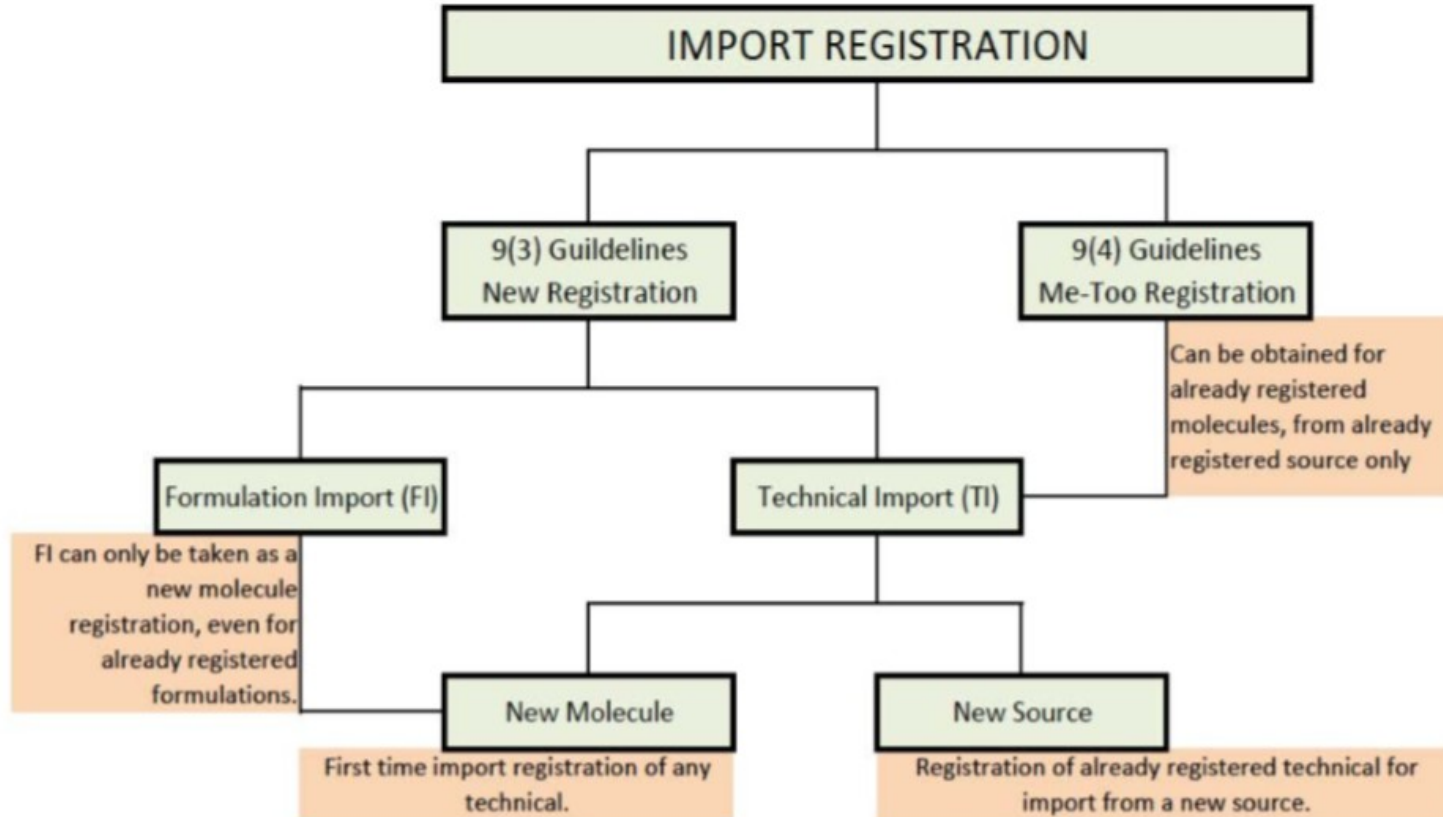
Source: FICCI

Power rates (USD/kWh)



Source: FICCI

India Regulations for Import



Regulatory Timelines

Activity	9(4)- ME-Too registration	9(3) and 9(3b)-Fresh Registration
Documentation & Form I & Other documents Verification by Legal	0.5 month	1 Month
CIB&RC Analysis, Covering:	1-3 Months	6-12 Months
Chemistry		
Bioefficacy		
Toxicology		
Packaging		
Sample Submission, collection & Analysis	3-6 Months	3-6 Months
MRL- Fixation (MoH)	1-3 Months	3-12 Months
Registration Certificate Issuance	2 Months	2 Months
Overall Process	Minimum 6 months	Minimum 12-36 Months

Comparative analysis of agro-chem companies

Revenue trend

Companies	FY23 (Rs Crs)	CAGR (%)			
		10 Year	5 Year	3 Year	1 Year
UPL	53,576	19	25	14	16
PI Inds	6,492	19	23	24	23
Bayer	5,140	7	14	13	9
Rallis India	2,967	8	15	10	14
Dhanuka	1,700	12	12	15	15

Source : Company Data

Margin (%) trend

Companies	FY19	FY20	FY21	FY22	FY23
UPL	17	19	22	21	19
PI Inds	20	21	22	22	24
Bayer	15	20	19	17	18
Rallis India	12	12	13	11	7
Dhanuka	15	15	19	18	16

Source : Company Data

ROE (%) trend

Companies	FY19	FY20	FY21	FY22	FY23
UPL	13	14	20	22	13
PI Inds	20	19	18	15	18
Bayer	17	19	19	25	26
Dhanuka	18	21	28	24	23

Source : Company Data

Fixed Asset Turnover

Companies	FY19	FY20	FY21	FY22
UPL	0.9	0.9	0.9	1.1
PI Inds	2.1	1.8	1.9	1.8
Bayer	7.5	6.9	7.5	8.1
Rallis India	2.7	2.8	3.5	3.2
Dhanuka	6.4	6.9	7.5	6.8

Source : Company Data

Agri Inputs - Various parameters

Parameters	Fertiliser	Agro-chemicals
<u>Nature of business</u>	Provides nutrients to plants and increases crop production and yields	Pesticides provide protection from pest/insects/weeds
<u>Regulations</u>	Urea is fully controlled by the government; non-urea products are partially controlled under nutrient-based subsidy policy	Pesticides are regulated under Insecticides Act 1968 and there is no pricing control
<u>Raw material sourcing</u>	Urea – Government sources largely via imported LNG. Natural gas cost is passed through as reimbursement via subsidies Non-urea : Heavily imported - Potash (100%), Phosphoric Acid (80%), Ammonia (90%)	Sourcing of raw materials varies from companies to companies with some dependency on China

Parameters	Fertiliser	Agro-chemicals
<u>Target market</u>	100% consumption within India, promoting exports for Non-Urea This may increase exports	50% of India's Agrochemicals revenues come from exports. Demand & supply situation in export market plays an important role for growth
<u>Role of monsoon</u>	Monsoon has a limited impact on consumption of fertiliser, as major usage is before the sowing takes place	Monsoon plays an important role for consumption of pesticides. Demand is largely function of pest incidence
<u>Competition</u>	Urea – Very low competition, as prices are regulated and about 20% is still imported Non-urea – Limited Competition with very few players	Very high competition, as share of unorganised sector is high. Branding of products, educating farmer's & regular new product offerings play an important role in growth

Key risks and concerns for the industry

- Higher dependence on monsoon
- High working capital needs
- Genetically modified seeds
- Currency risk
- Threat from non-genuine/illegal pesticides

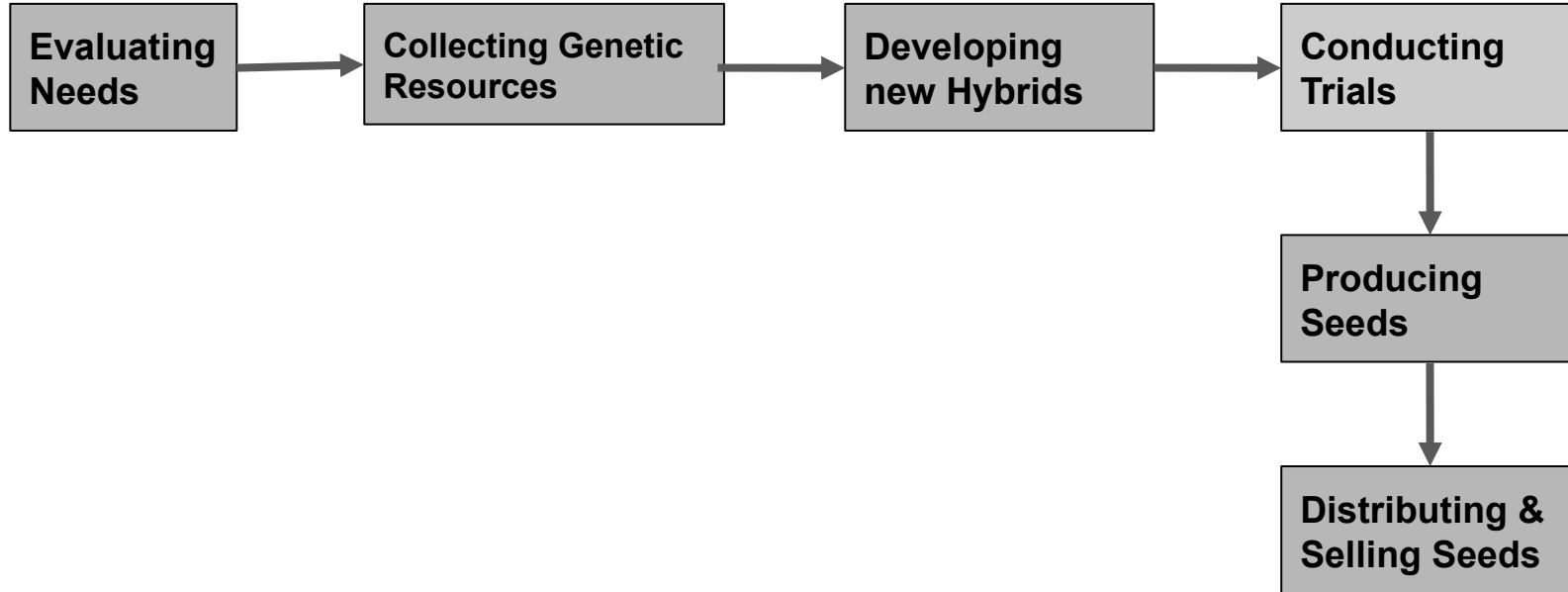
Seeds Segment

Seeds

- Seed is the most vital input for agricultural productivity
- Quality of seed accounts for 20% of productivity
- India is 5th largest market globally preceded by US, China, Brazil, and Canada
- Less prone to Monsoon
- Global seeds market is dominated by corn (34%), soybean (14%), and rice (11%).

Genetically Modified Seeds	Hybrid Seeds
The DNA has been modified using genetic engineering methods Eg : BT Cotton	Created by crossing 2 different varieties of same plant
Harmful for health	Not harmful
Need govt permission beyond cotton seeds	Hybrid Rice, Hybrid Maize, Hybrid vegetables

Stages of Product Cycle



Different stages of seeds

- Breeder
- Foundation and
- Certified Seeds

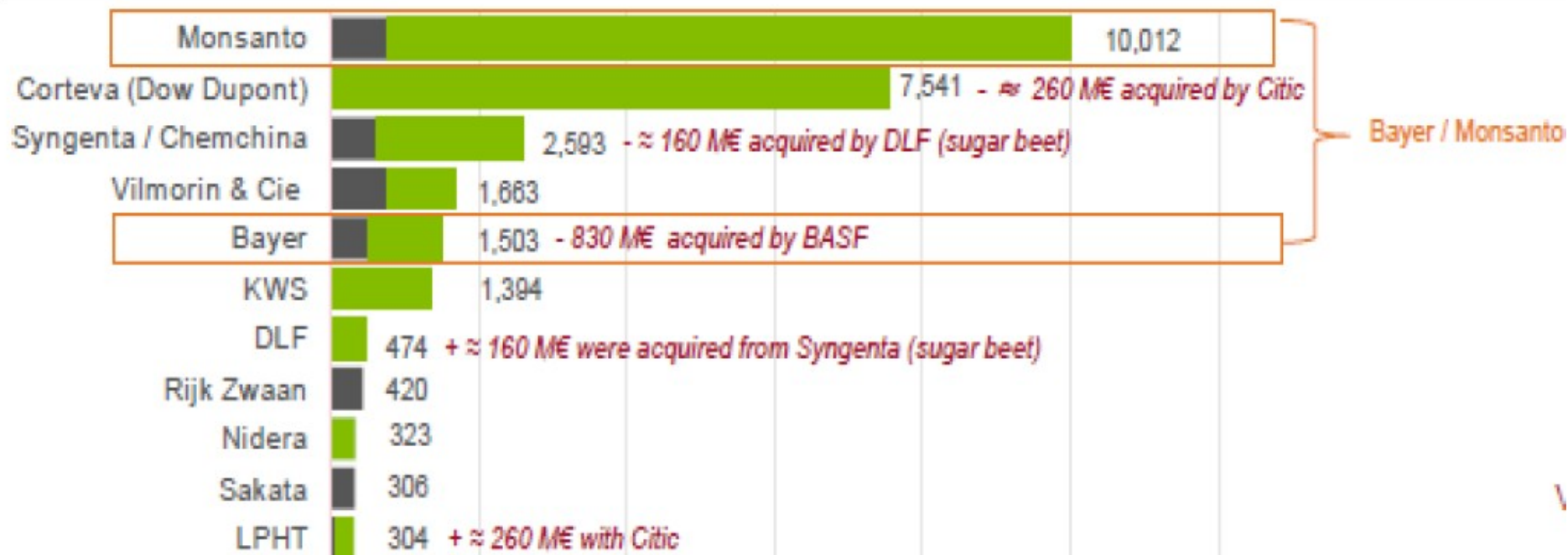
FDI Policy in Seed Sector

- Upto 100% under automatic route for development & production of seeds
- Facilitates domestic companies to strengthen R&D activities for development of better varieties of seeds

Reasons for high barriers of entry in seed sector

- Significant R&D investment
- Long R&D cycle of 7-10 years from development to commercialization
- Requirement of wide network across India
- Complex process of developing an effective hybrid seed
- Need for high degree of credibility with farmers

Global seed market dominated by few large players



Kaveri Seeds - Journey

- Incorporated in 1986
- Launched 1st hybrid Maize in 1997
- Got listed in 2007
- 2008 - Launched hybrid Cotton
- 2010 - Listed by Forbes best under a billion in Asia
- 2014 - Crossed turnover of Rs 1000 Crores

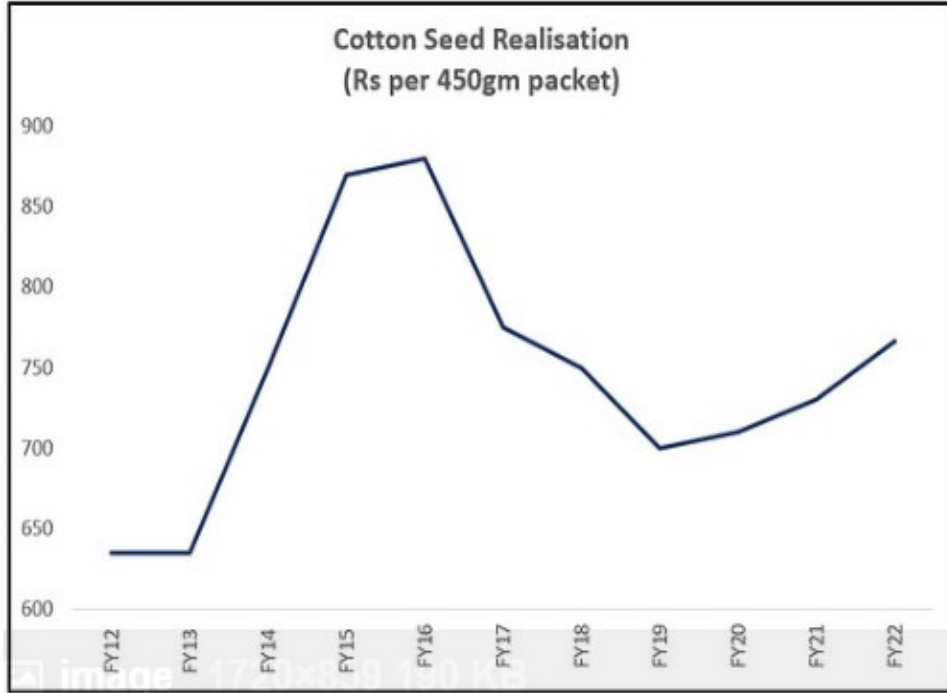
Kaveri Seeds

- Leading seed producer in India
- Very unique business model offering almost every seeds.
- Shift towards non-cotton business – less regulated, higher margin and faster-growing
- Seeds as an industry is less prone to Monsoon
- Promoters belong to Velama community which is an agricultural community

Seed wise Revenue break-up (in Crs) - FY23

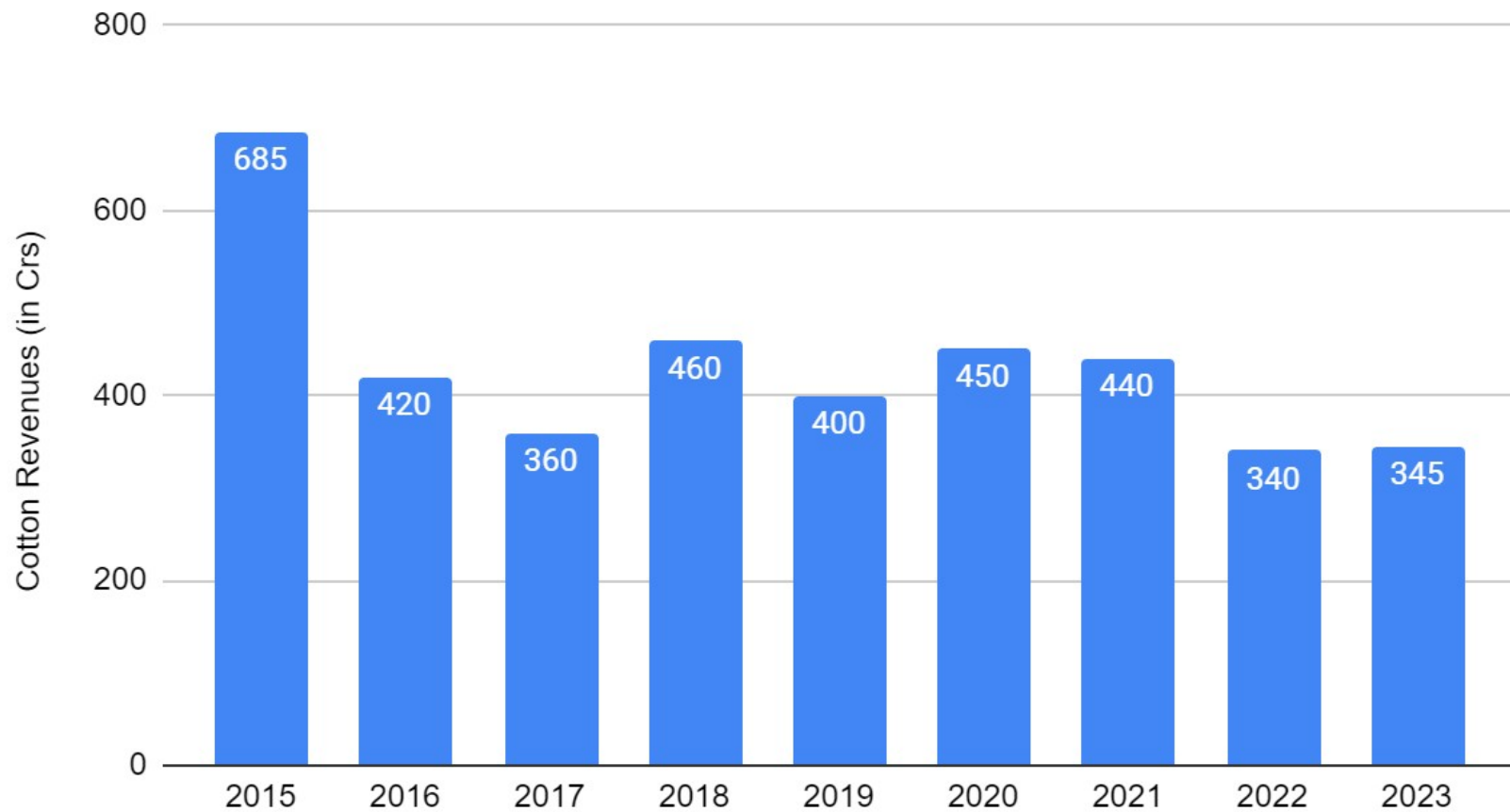
Crops	FY23 Revenue	%
Cotton	350	35%
Maize	240	25%
Hybrid Rice	180	20%
Rice	120	12%
Vegetables	50	5%

Cyclicality in Cotton Prices

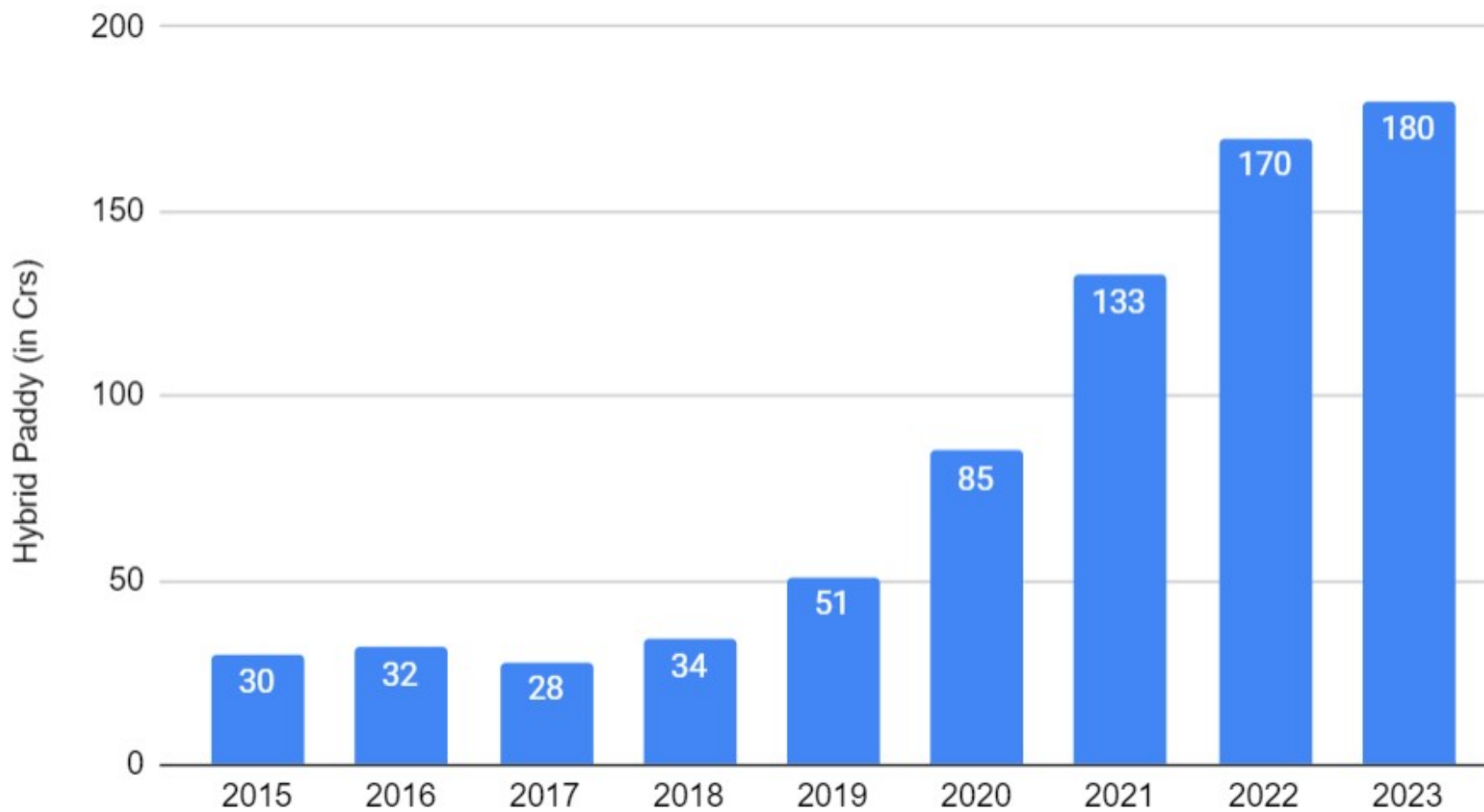


<u>Earnings Sensitivity</u>	
Cotton Seed Price	Fluctuates 5%
Impact on EBITDA	Upto 8%
Impact on PAT	Upto 10%

Cotton Revenues (in Crs)



Hybrid Paddy (in Crs)



Financial Nos - Kaveri

Particulars	2016	2017	2018	2019	2020	2021	2022	2023
Revenue (Rs)	740	700	820	800	930	1030	970	1070
Margins (%)	25%	20%	26%	26%	27%	28%	21%	24%
ROE (%)	20%	8%	21%	21%	26%	28%	17%	21%

Sources

- Ministry of Agriculture
- IBEF
- Company data
- DRHP
- CRISIL Report
- Sell side report
- Industry Reports

Thank You