

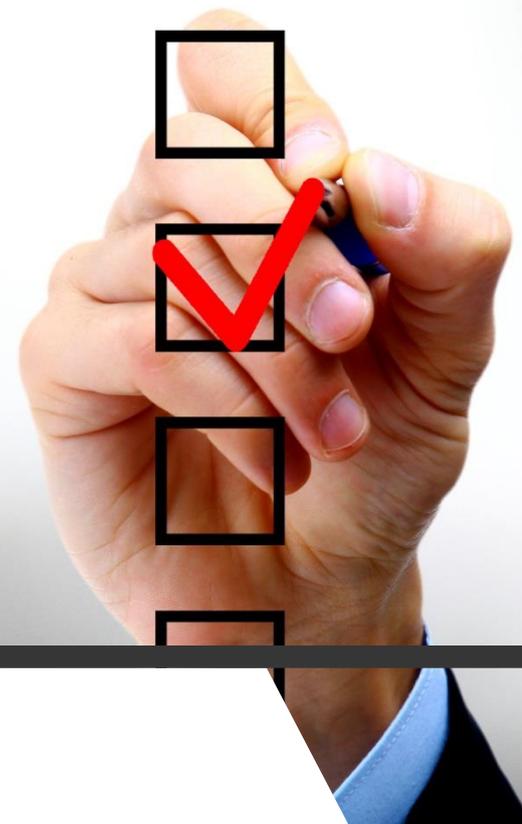


AGRICULTURE AND ALLIED INDUSTRIES



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EXECUTIVE SUMMARY

Global standing

- India is the largest producer of spices, pulses, milk, tea, cashew and jute; and the 2nd largest producer of wheat, rice, fruits and vegetables, sugarcane, cotton and oilseeds.
- India is currently the world's 4th largest producer of agrochemicals.
- India has the largest livestock population of around 512 million.

Favourable conditions

- At 157.35 million hectares, India holds the 2nd largest agricultural land in the world.
- India has the 10th-largest arable land resources in the world with 161 million tonnes. With 20 agri-climatic regions, all 15 major climates in the world exist in India. The country also possesses 46 of the 60 soil types in the world. Gross Value Added by agriculture and allied sectors increased 4.9 per cent in 2016-17.
- Strategic geographic location and proximity to food importing nations favour India in terms of exporting processed foods.

Increasing farm mechanisation

- India is one of the largest manufacturers of farm equipment such as tractors, harvesters and tillers. India accounts for nearly one-third of the overall tractor production, globally, with the tractor production in the country estimated to increase from 0.57 million units in FY16 and reach to 16 million units by 2030.

Rising consumption expenditure

- Consumer spending in the 1st quarter of 2017 was US\$ 286.86 billion; it is likely to reach US\$ 3.6 trillion by 2020.

Record production of food grains

- In FY16, total food grain production in India was recorded at 253.16 million tonnes, which increased to 275.68* million tonnes in FY17. During 2017-18 crop year, food grain production is expected to reach a record 277.49 million tonnes.

*Note: *4th Advance estimates, ** 1st advance estimates as on September 22, 2017*

Source: Ministry of Agriculture, Government of India

ADVANTAGE INDIA



- A large population and rising urban and rural incomes have aided demand growth. External demand has also been growing especially from key markets like the Middle East.
- Demand for processed food rising with growing disposable income, urbanisation, young population and nuclear families.
- Changing lifestyle and increasing expenditure on health and nutritional foods.

Robust demand

- Increasing demand for agricultural inputs such as hybrid seeds and fertilizers.
- Promising opportunities in storage facilities; potential storage capacity expansion of 35 million tonnes under the 12th Five Year Plan.
- Investment opportunities to arise in agriculture, food infrastructure and contract farming.
- Agrochemicals industries in India present immense growth opportunities.

Attractive opportunities

ADVANTAGE INDIA

- India benefits from a large agriculture sector, abundant livestock and cost competitiveness.
- Lured by the size and returns of the Indian market, foreign firms have strengthened their presence in India.
- High proportion of agricultural land (157 million hectares). Diverse agro-climatic conditions encourage cultivation of different crops.
- Leading producer of spices, jute, pulses; second largest producer of wheat, paddy, fruits and vegetables.

Competitive advantages

- Schemes like Paramparagat Krishi Vikas Yojana helps in developing organic clusters and make available chemical free inputs to farmers. Setting up of National Mission on Food Processing.
- 100 per cent FDI under automatic route for development of seeds.
- Promoting rationalisation of tariff and duties relating to food processing sector.

Policy support

Notes: FDI - Foreign Direct Investment, FY- Indian Financial Year (April - May), CAGR - Compound Annual Growth Rate, EPCG - Export Promotion Capital Goods Scheme, EHTP - Electronic Hardware Technology Park

Source: DIPP, Aranca Research

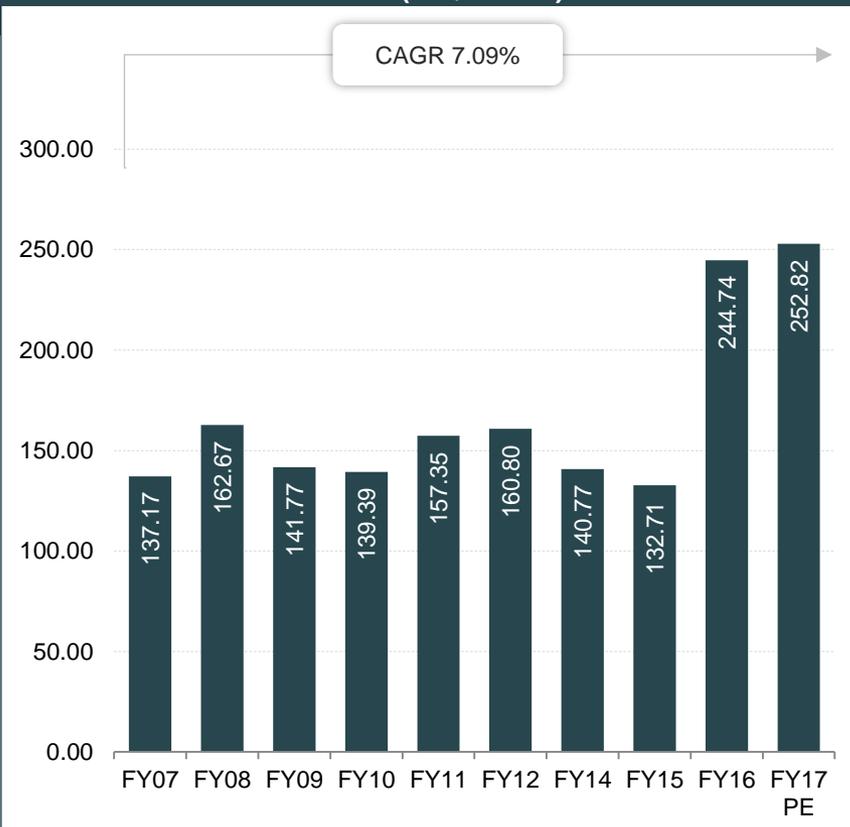
MARKET OVERVIEW



GROWTH IN AGRICULTURE

- Gross Value Added by agriculture, forestry and fishing combined was US\$ 252.82 billion in FY17 at constant prices.
- According to the advanced estimates of MOSPI, agriculture and allied sector recorded a CAGR rise of 7.09 per cent during, FY07-17.
- Quarterly Gross Value Added (GVA) by Agriculture, forestry and fishing increased 1.7 per cent in Q2 2017-18.
- Agriculture is the primary source of livelihood for about 58 per cent of India's population.
- As per Union Budget 2018-19, allocation of Rs 57,600 crore (US\$ 8.9 billion) was made for The Agriculture Ministry.
- As per Union Budget 2018-19, the farm credit is likely to be raised to INR 11 lakh crore (US\$ 170.74 billion)
- Cotton production in India is expected to increase 9.3 per cent to 37.7 million bales in 2017-18.
- Sugar production in India is expected to increase to a record 29.2 million tonnes in 2017-18 season (October-September).

GDP by value added – size of agriculture and allied activities (US\$ billion)



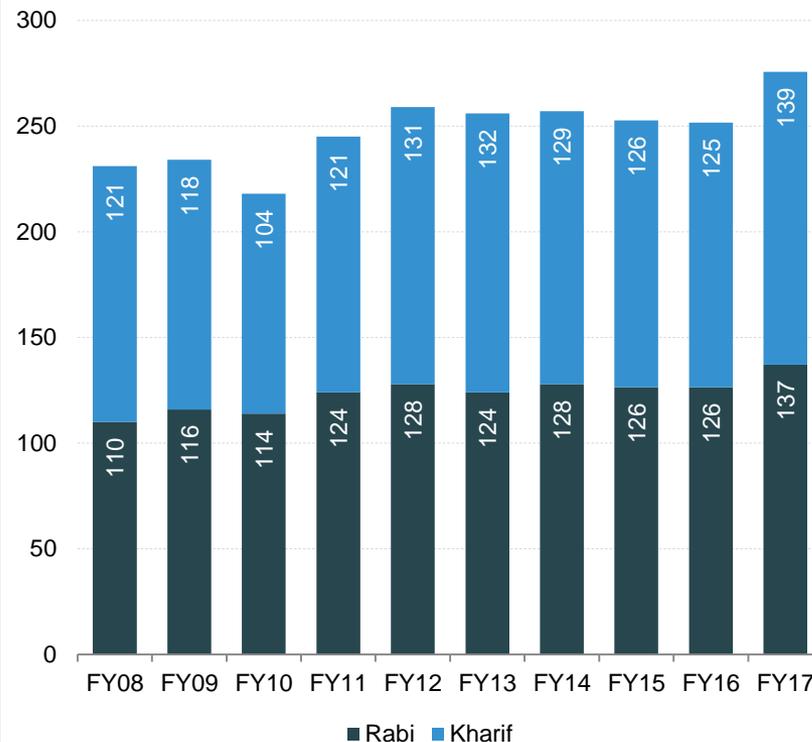
Notes: GDP – Gross Domestic Product, MOSPI – Ministry of Statistics and Programme Implementation, FY16 – Advance Estimates, PE – provisional estimate

Source: Ministry of Agriculture, Print Release, RBI, Aranca Research, MOSPI

MAJOR SEASONS: KHARIF AND RABI ... (1/2)

- There are two major agricultural seasons in India: Kharif and Rabi
- Kharif season lasts from April to September (summer); rice (paddy) is the season's main crop
- Rabi season lasts from October to March (winter); wheat is the season's main crop
- Total food grain production in the country is expected to reach record 277.49 million tonnes in 2017-18 crop year.
- As of February¹ 2018, total area sown with rabi crops in India crossed 64.288 million hectares.
- India imported 2.7 million tonnes of wheat in FY17 (till January 16, 2017) and an additional 1.2 million tonnes are to be imported by February 2017. India is expected to import up to 4 million tonnes of wheat in FY18.
- In March 2017, of 64.5 million hectares of agriculture land, the government insured 19 million hectares during the rabi season, to benefit 16.4 million farmers, under the Pradhan Mantri Fasal Bima Yojana (PMFBY) programme. The total amount for insurance for rabi crops is US\$ 10.16 billion.

**Production of food grains (million tonnes)
in Kharif and Rabi seasons**

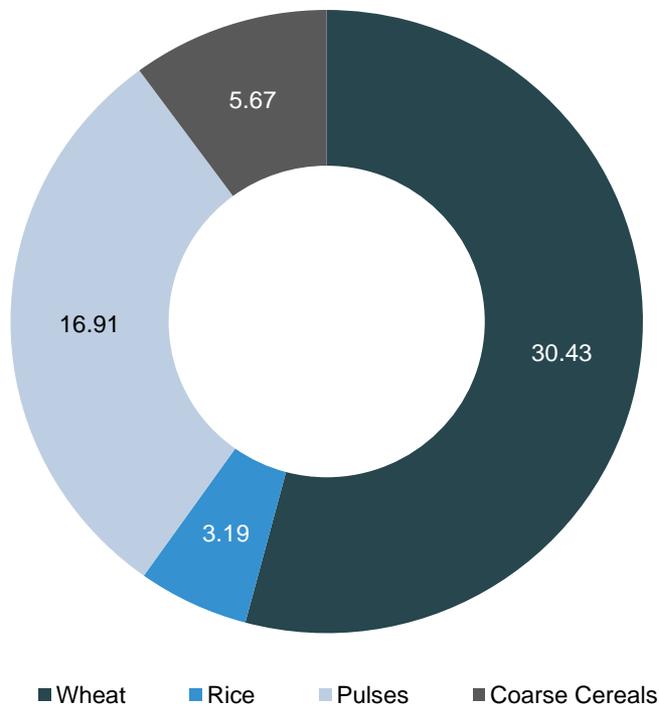


Source: * -As per 4th advance estimates, ¹ as on February 09, 2018

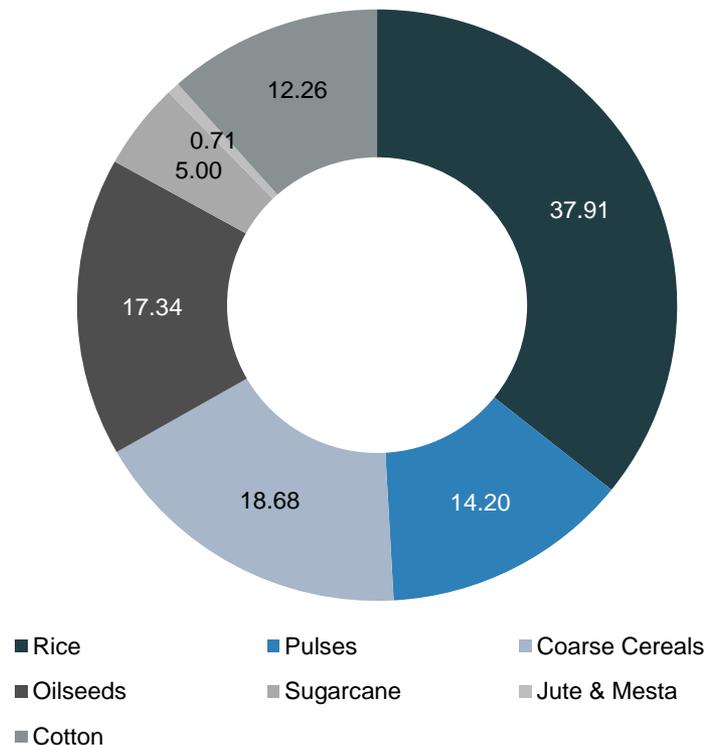
Source: Finance Ministry, Ministry of Agriculture

MAJOR SEASONS: KHARIF AND RABI ... (2/2)

Rabi area sown in FY18¹ (million hectares)



Kharif area sown in FY18² (million hectares)

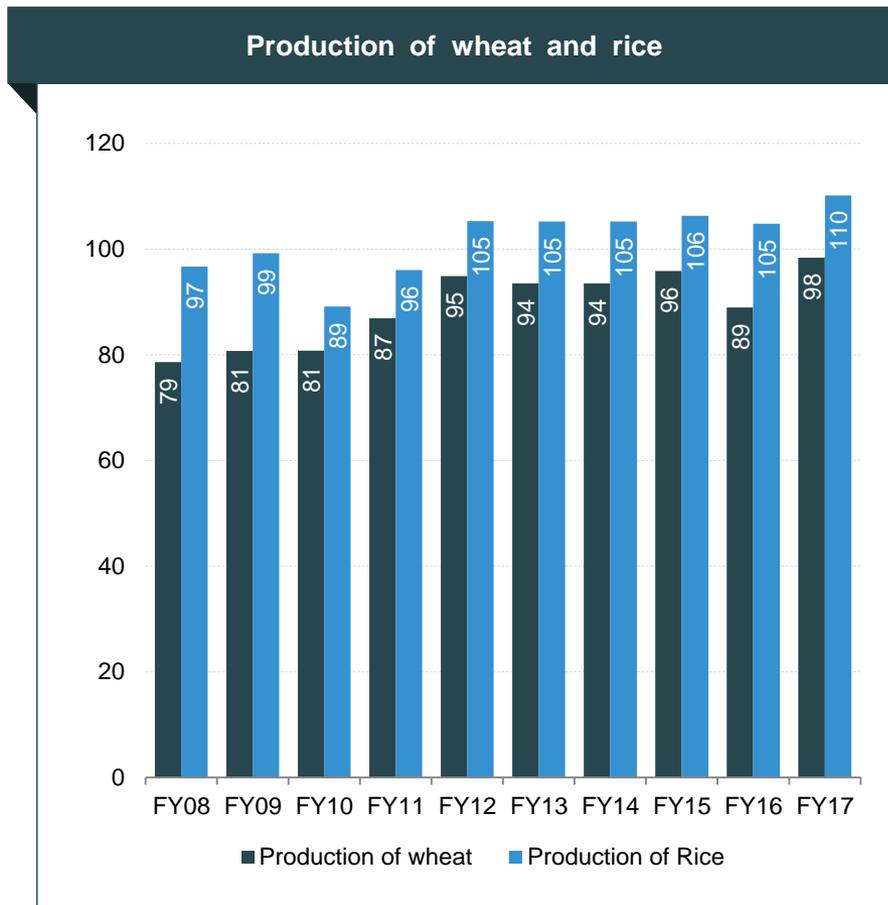


Notes: Rabi FY18¹ – As on January 09, 2018, Kharif FY18² – As on September 29, 2017

Source: Ministry of Agriculture, Aranca Research

PRODUCTION OF RICE AND WHEAT ON THE RISE

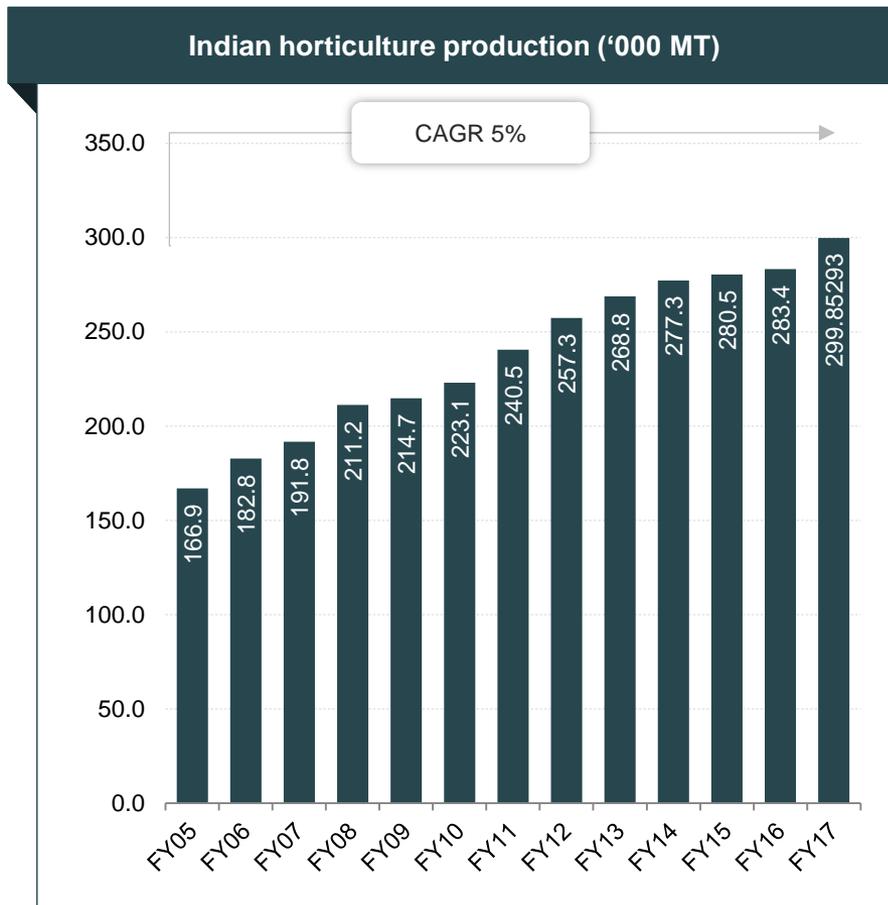
- Since 2010, production as well as yield of both major crops - rice and wheat has increased significantly.
- Production of wheat in 2016-17 stood at 98.38 million tonnes and that of rice was 110.15 million tonnes.
- As per 2nd advance estimates, production of rice is expected to reach record 111.01 million tonnes while production of wheat is expected to be 97.11 million tonnes in 2017-18 crop year.
- In FY16, as per the 4th advance estimates, yield of rice in the country reached 2.39 tonnes/hectare and that of wheat reached 2.4 tonnes/hectare.



Source: Ministry of Agriculture, Aranca Research

FRUIT AND VEGETABLE PRODUCTION CONTINUES TO INCREASE

- India ranks 2nd in global production of fruits and vegetables and is a leading exporter of mangoes and bananas. The country also exports grapes in a large quantity across the world.
- National Horticulture Mission, National Horticulture Board, Technology Mission for Integrated Development of Horticulture in North-East are some of the initiatives taken by the Government of India to boost the horticulture sector of the country
- The National Horticulture Board has launched a new capital investment subsidy scheme for construction and expansion of cold storages and storages of horticulture products
- During FY05-17, horticulture production in India grew at a CAGR of 5 per cent.
- Production of horticulture crops like vegetables and fruits is likely to touch a record 305.4 million tonnes (mt) in 2017-18.



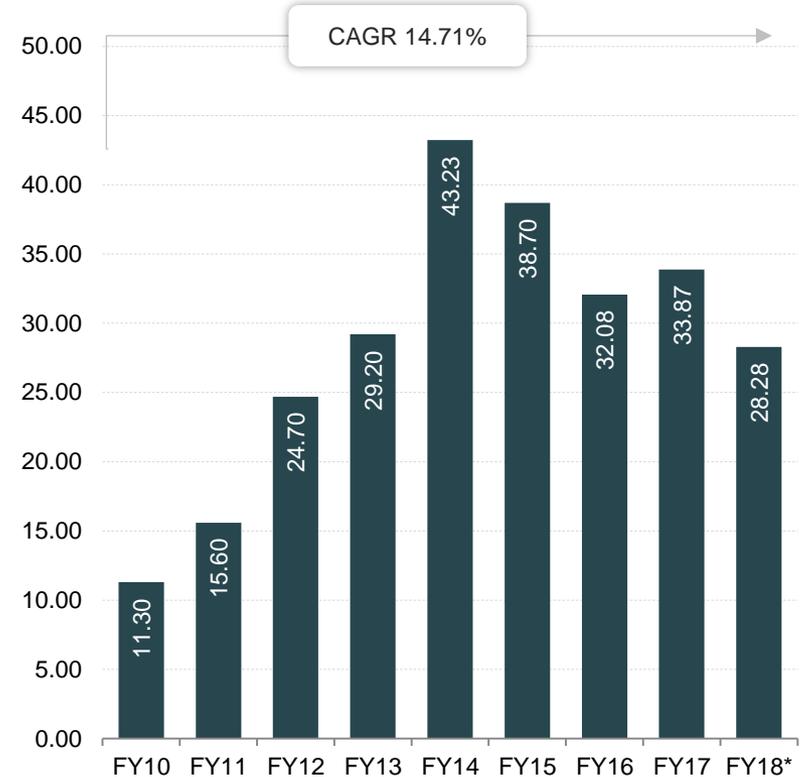
Notes: - CAGR Mentioned is for Production

Source: National Horticulture Board, Assorted Articles, FAO Stat, Aranca Research

SURGE IN DEMAND OF INDIAN AGRICULTURAL PRODUCTS ... (1/2)

- India is among the 15 leading exporters of agricultural products in the world.
- Total agricultural exports from India grew at a CAGR of 14.71 per cent over FY10-17 to reach US\$ 33.87 billion in FY17.
- The contribution of agriculture to total export was 12.26 per cent in FY17.
- Agricultural exports from India reached US\$ 28.28 billion during April-December 2017.

Agricultural exports from India (US\$ billion)¹



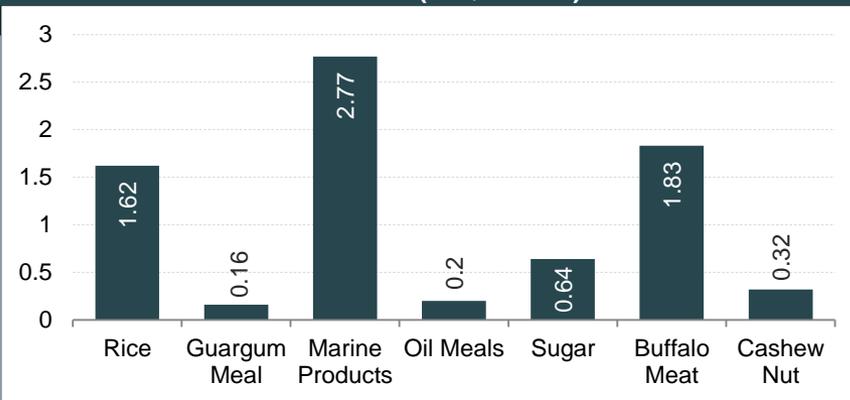
Notes: CAGR - Compound Annual Growth Rate, FY18* - up to December 2017, ¹ Principal Agriculture commodities

Source: Ministry of Commerce, World Trade Organisation, Indian Budget 2016, APEDA, Business Standard, DGCIS

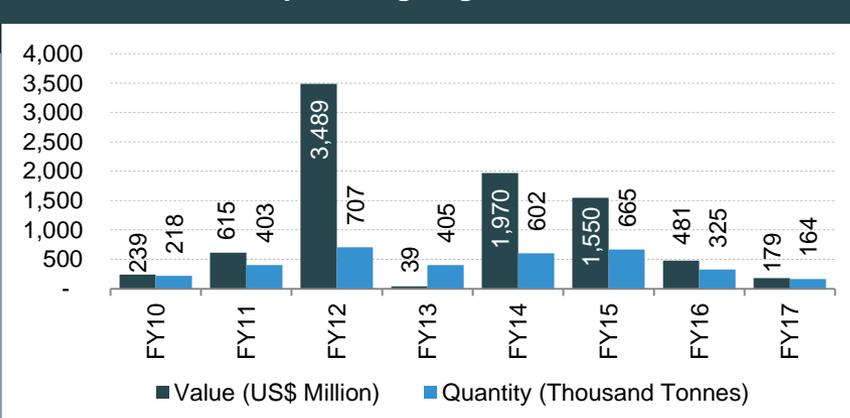
SURGE IN DEMAND OF INDIA AGRICULTURAL PRODUCTS ... (2/2)

- India exported Basmati rice worth US\$ 3.25 billion during FY17 and US\$ 2.91 billion in April-December 2017.
- Marine Products, Buffalo Meat are the next largest export items in terms of value; they accounted for 26.8 per cent and 5.76 per cent, respectively, of total agricultural exports in 2016-171.
- Buffalo meat exports reached US\$ 3.21 billion during April-December 2017.
- Guargum meal emerged as major export commodity; the value of exports rose at a CAGR of 6.88 per cent over FY10 -16.
- The Indian rice exports are expected to account over 29 per cent of the global rice trade in marketing year (MY) 2017-18 compared to 26.70 per cent in the MY 2016-17.

Key agricultural and allied sector exports from India in FY 2016-17¹ (US\$ billion)



Exports of guargum meal



Source: Ministry of Agriculture, APEDA, Aranca Research , 1 –Data is for April – September 2016

FOOD PROCESSING SEGMENTS and PRIVATE PLAYERS

Segments	Private Players		
Fruits, Vegetables and Processed Grains			
Milk and Milk Products			
Meat, Poultry and Marine Products			
Consumer Food (Alcoholic beverages, Soft drinks, Packaged drinking water and Packaged food)			

Porter's Five Forces Framework Analysis

Threat of Substitutes ●

- No close substitutes of products such as milk, fresh fruits and vegetables are available in the market

Bargaining Power of Suppliers ●

- Low bargaining power of suppliers as the population largely relies on unorganised sector for products such as milk and vegetables.

Competitive Rivalry ●

- Due to a large influence of unorganised sector in the industry, the competition is intense
- Existence of brand loyalty in certain products towards existing firms such as Amul in case of butter limits competition in these products

Bargaining Power of Customers ●

- Tastes and preferences of consumers in certain products change and hence brand loyalty is low in these products
- Low switching cost makes consumers switch from one supplier to another

Threat of New Entrants ●

- Capital Intensive - High investments are required to set up processing units; this acts as an entry barrier for new players

- Positive Impact
- Neutral Impact
- Negative Impact

Source: Aranca Research

RECENT TRENDS AND STRATEGIES



NOTABLE TRENDS IN FOOD PROCESSING

Changing consumer tastes

- Wide array of products, coupled with increasing global connectivity, has led to a change in the tastes and preference of domestic consumers
- This trend has been bolstered by rising incomes, increasing urbanisation, a young population and the emergence of nuclear families. Consumer preference is moving towards healthier snacks.

Entry of international companies

- Liberalisation and growth of organised retail have made the Indian market more attractive for global players
- With a large agriculture sector, abundant livestock, cost competitiveness, India is fast emerging as a sourcing hub of processed food. Danone, Nestle, Kraft Foods, Mondelez International, Heinz are the international players in food processing market in India
- Hindustan Coca-Cola Beverages is establishing two greenfield plants at Ahmedabad and Nellore, with an investment worth US\$ 148.74 million
- Nepal's CG Foods, manufacturer of Wai Wai Noodles, will invest US\$ 37.18 million to open quick service restaurants (QSRs) in India
- With 11 coffee outlets in Mumbai, as of March 2017, Australia's coffee chain - Di Bella is planning on expanding to Bengaluru, Delhi and Gujarat.

Rising demand on Indian products in international market

- Strategic geographic location and continuous increase in raw material production help India to supply cheaper products to other countries
- India's exports of processed food and related items was US\$ 2.87 billion in FY18 (April – May).
- Companies like Haldiram's and Bikanerwala have a presence in over 70 countries, whereby they provide Indian snacks.

Emphasis on Healthier Ingredients

- Food processing companies are serving health and wellness as a new ingredient in processed food, given that health conscious consumers prefer food products with lower carbohydrate content and with low cholesterol edible oils. e.g. zero-per cent trans fat snacks and biscuits, slim milk, whole wheat products, etc. ITC is planning to launch multigrain Bingo to increase its share in healthy snacks market.

Source: Ministry of Agriculture, Government of India

NOTABLE TRENDS IN FOOD PROCESSING

Higher Consumption of Horticulture Crops

- There is a surge in demand for fruits and vegetables as a result of a shift in consumption. Accordingly, Indian farmers are also shifting production towards horticulture crops to cash in on the growing demand
- As of February 2017, horticulture exports from India have increased by 17.4 per cent and 20.95 per cent in terms of value and volume, respectively
- Coca Cola is aiming to improve its sourcing of fruits for aerated drinks and juice beverages categories. As of May 2017, the company sources 2 lakh tonnes fruits, and is planning to further increase it by sourcing through its 'fruit circular economy' initiative.

Product Innovation as the Key to Expansion

- In FY16, Ministry of Food Processing Industries granted fund of US\$ 18.81 million for the ongoing Mega Food Park projects.
- Mother Dairy has bought an old plant in Nagpur, for US\$ 14.87 million for expansion beyond Delhi-NCR region.
- Heritage Foods, a Hyderabad-based company, has plans to add five more milk processing units in the next five years for an investment of US\$ 22.31 million, being a part of the former expansion plan to achieve US\$ 1 billion turnover by 2022.

Strengthening Procurement via Direct Farmer-Firm Linkages

- Contract farming has been operational in India for a long time now; however, the experience of the private sector players involved therein has been a mixed bag of successes and failures
- Largely, it has helped both the processing companies, via increasing sales and therefore augmenting their incomes, as well as providing access to better technology and fetching better prices by securing an assured market for Indian farmers.

Sensible Snacking

- Domestic consumers are now tuned in to the greater variety of foods available, thanks to both wider variety in offerings as well as their own international exposure. ITC and PepsiCo are shifting their focus on healthier snacks as the market for healthy snacks is growing with double speed

Source: Ministry of Agriculture, Government of India

STRATEGIES ADOPTED

Rising business and product innovation

- Companies have been moving up the value chain; for example, cooperatives are transitioning from being pure producers of milk to offering a wide range of dairy products.
- Both domestic and global firms have been focusing on product innovation to cater to domestic tastes, while also introducing international flavours; for example Ruchi Soya is innovating by entering into the ready-to-cook segment to meet the needs of people with significant time constraint to provide a rich source of protein in the breakfast category
- In 2016, Pepsi began selling new Diet Pepsi Classic Sweetener Blend containing aspartame and will also continue to sell the aspartame-free versions of Diet Pepsi.

Low - cost price strategy

- Low-cost price strategy is adopted so as to make the product affordable to the consumers by guaranteeing them value for money. The main aim is to provide quality products to the consumers at minimum cost, e.g., Amul Milk. Parle and Sunfeast works on their pricing and costs so as to make the products available at economical prices.

Joint Ventures and Tie ups

- Many global and Indian companies are getting into joint ventures to make global products available in India. Starbucks and TATA Alliance is one of the largest joint ventures.
- Bharti Enterprises and Delmonte Pacific Ltd is the largest fresh baby corn exporter in India
- In 2016, Future Consumers and LT foods entered into a joint venture to enhance manufacturing and distribution of rice and related products across the country
- In 2016, LT Foods had acquired branded rice business of Hindustan Lever
- In February 2017, PepsiCo's bottler - Varun Beverages, increased its stake from 60 per cent to 90 per cent, in its Zambia subsidiary.

Research

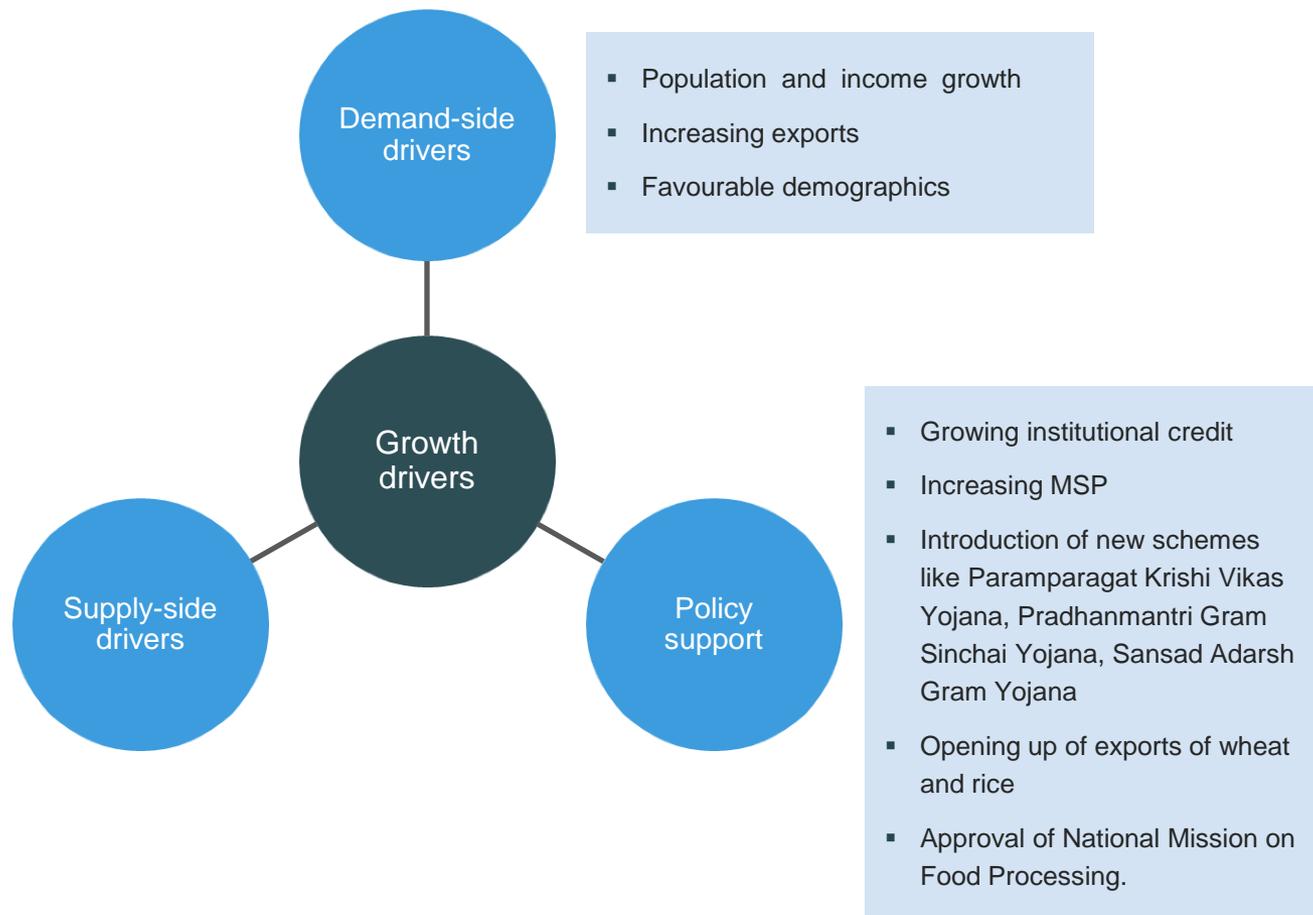
- Crop protection, soil enhancement, increased productivity are the major segments for the industry.
- Rallis acquired a research-led seeds company 'Metahelix' and launched a PGN product in the name of 'Ralligold'.

Source: Ministry of Agriculture, Government of India

GROWTH DRIVERS



GROWTH DRIVERS OF INDIAN AGRICULTURE

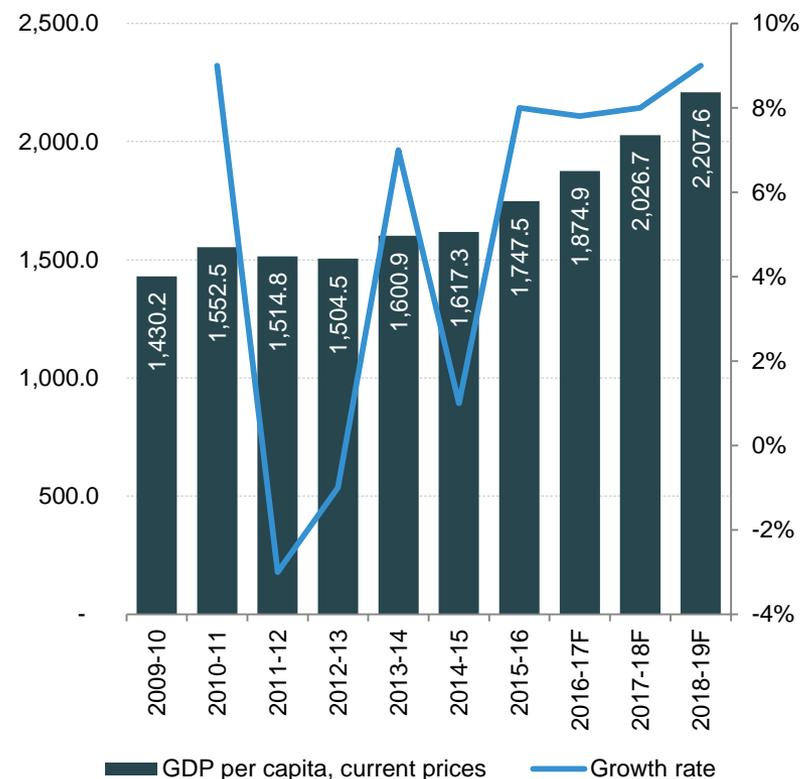


Source: Note: MSP - Minimum Support Price

RISING INCOME AND GROWING MIDDLE CLASS TO DRIVE DEMAND FOR PROCESSED FOOD

- Strong growth in per-capita income has resulted in greater demand for food items
- Incomes have increased at a brisk pace in India and would continue rising considering the country's strong economic growth prospects. According to IMF, nominal per capita income is projected to grow at CAGR of 4.94 per cent over 2010-19E
- During 2015-19, per capita income is expected to expand at a CAGR of 8.09 per cent
- Ministry of Food Processing has been allocated Rs 1,400 crore (US\$ 216.25 million) in Union Budget 2018-19.
- There has also been a shift in demand:
 - From carbohydrates to meat products (in line with the various phases of economic growth); &
 - To convenience foods, and organic and diet foods
- Strong economic growth since the 1990s has led to:
 - Rapid urbanisation and a growing middle class; and
 - Nuclear families and dual income households
 - Coupled with a young population and increasing media penetration, this has led to a surge in demand for packaged food, alcoholic and non-alcoholic beverages, snacks, savouries, etc.

Rising per capita income in India (US\$)

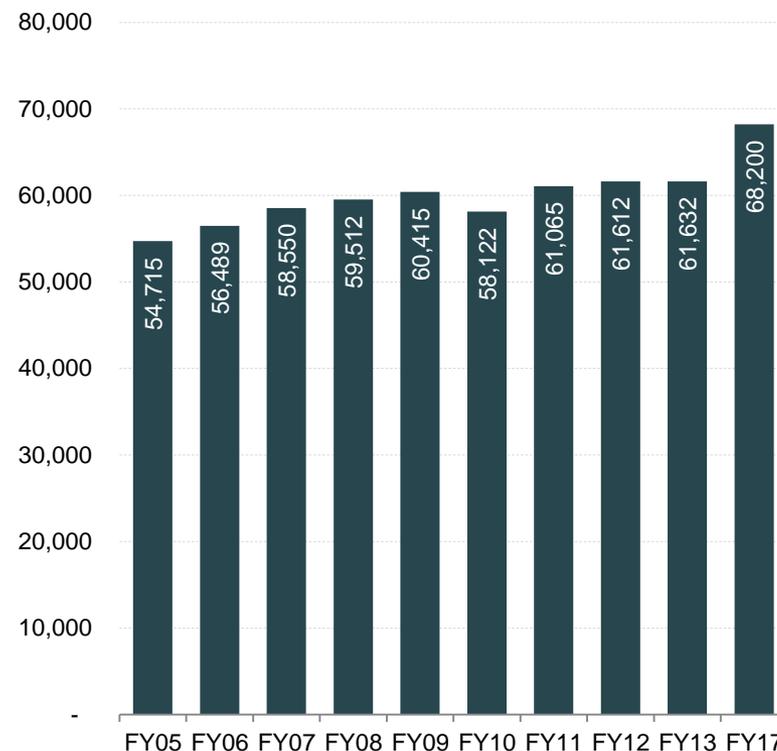


Source: IMF, World Bank

GROWING AREA UNDER IRRIGATION

- Gross irrigated area under food grains is estimated to have grown to 68.2 million hectares in FY17
- Of the wide variety of crops in India, rice and wheat are the most irrigated.
- With growing investments in irrigation, the dependence on monsoons has declined considerably over the years.
- As per Union Budget 2018-19, Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) will be implemented in 96 irrigation deprived districts in the country for which Rs 2,600 crore (US\$ 401.6 million) has been allocated.
- Under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) and 27 projects under the scheme will be completed by 2017 end. A total of Rs 7,772 crore (US\$ 1.16 billion) was released under PMKSY in FY17.
- A long term irrigation fund has been set up in NABARD. In Union Budget 2017-18, addition of US\$ 3.10 billion to this corpus was announced. Also, a dedicated micro irrigation fund will be set up in NABARD to achieve the goal , 'per drop more crop'. The initial corpus of the fund will be US\$ 775.67 million.
- Around 285 new irrigation projects will be undertaken in 2018 to provide irrigation for 18.8 million hectares of land.

**Gross irrigated area under food grains
('000 hectares)**

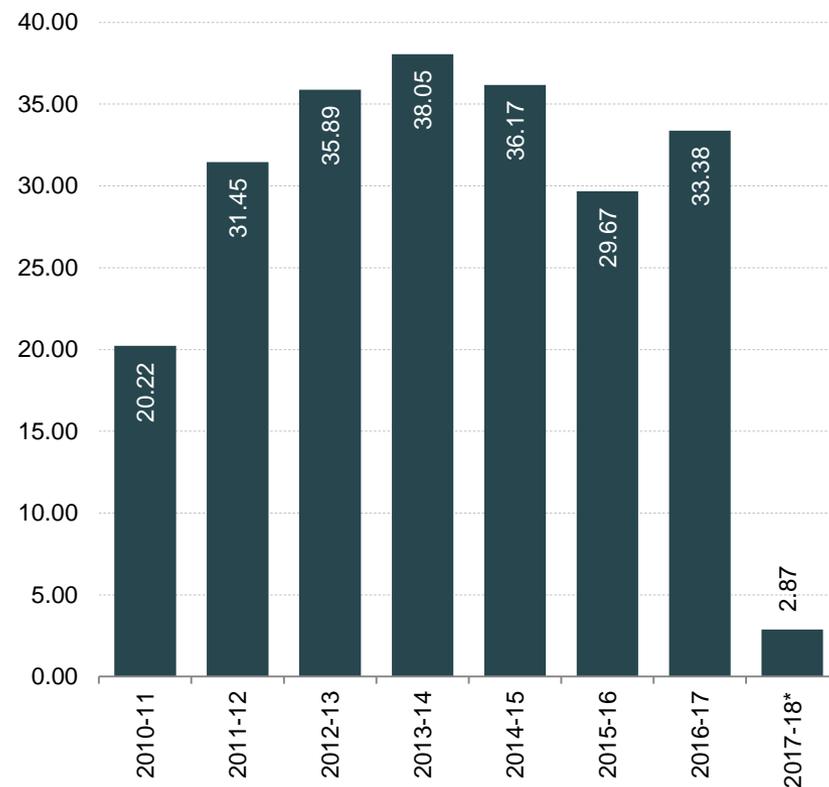


Source: Food and Agricultural Organisation US, Ministry of Agriculture, Union Budget 2017-18

EXPORTS OF PROCESSED FOOD AND RELATED PRODUCTS

- During FY11–17, India's exports of processed food and related products (inclusive of animal products) grew at a CAGR of 8.71 per cent, reaching US\$ 33.38 billion in FY17.
- Main export destinations for food products have been the Middle East and Southeast Asia
- The Gulfood 2017 event, organised in Dubai between February 26, 2017, to March 2, 2017, witnessed participation of 64 Indian exporters, offering a variety of processed food and agriculture products.
- The Ministry of Food Processing Industries and ANUGA, the largest promotional and investment trade fair, have signed an MoU for creating a business platform for Indian food processors and exporters.
- The Indus Food – an international food and beverage trade show was organized in January 2018, witnessing participation from around 500 prominent global buyers from the food and beverage industry.

Exports of processed food and related products (US\$ billion)



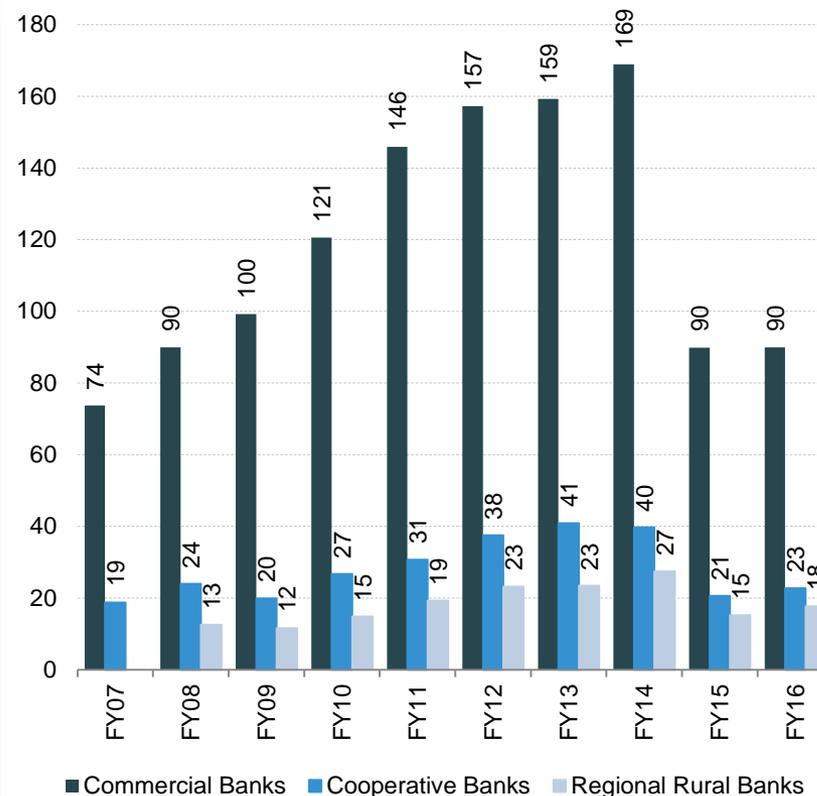
*Note: * April – May FY18 figures*

Source: Ministry of Commerce and Industry

INSTITUTIONAL CREDIT TO AGRICULTURE ON A RISE

- The Government of India is targeting US\$ 155.14 billion of agriculture credit in 2017-18.
- Up to September 2016, Rs 755,995.17 crore (US\$ 112.68 billion) has been disbursed as agriculture credit out of a target of Rs 9 lakh crore (US\$ 134.15 billion) for FY17.
- Institutional credit to the agriculture sector increased at a CAGR of 3.90 per cent during FY07–15.
- Farmers are allowed to avail crop loans at an interest of 7 per cent.
- In FY15, institutional credit to the agricultural sector was US\$ 89.90 billion from Commercial Banks, US\$ 20.60 billion from Cooperative Banks and US\$ 15.24 billion from Regional Rural Banks.
- During 2016-17, Agriculture and Allied sectors received direct loans of Rs 1,232.16 billion (US\$ 19.11 billion) from Regional Rural Banks (RRBs) and of Rs 1,427.58 billion (US\$ 22.15 billion) from co-operatives.

Institutional credit to agriculture¹ (US\$ billion)



Source: ¹ As per latest available data

Source: Ministry of Agriculture, RBI, National Sample Survey Organisation (NSSO), Aranca Research *: Provisional

COMPETITIVE ADVANTAGE

- India's comparative advantage lies in its favourable climate, large agriculture sector and livestock base, long coastline and inland water resources.
- India also has an edge in cost of production compared to its competitors in Asia and the developed world.
- In FY17, milk production increased by 20.12 per cent to 165.4 million tonnes. Dairy sector in India is expected to grow at 15 per cent CAGR from 2016-20 to reach Rs 9.4 trillion (US\$ 146.2 billion) in 2020.
- In FY17, rice production was estimated to be around 110.15 million tonnes.

	Units	Global Rank
Arable land (million hectares)	161	2
Area under irrigation (million hectares)	55	1
Coast line ('000 kilometers)	7.5	7
Cattle (million)	3.1	1
Arable land (million hectares)	161	2
Area under irrigation (million hectares)	55	1

Product	Production – FY17 (million tonne)
Milk	165.4
Pulses	22.95
Meat	7.4
Banana	30.441
Mango and Guava	23.32
Tea	1.2
Rice (Paddy)	110.15
Sugarcane	306.72
Wheat	98.38

Source: World Bank, FAOSTAT, CIA World Fact book, Ministry of Agriculture, Tea Board, APEDA, Directorate of Statistics, Indian Council of Agricultural Research (ICAR), Edelweiss Securities

FAVOURABLE POLICIES ARE SUPPORTING THE SECTOR GROWTH ... (1/2)

Paramparagat Krishi Vikas Yojana (PKVY)

- This scheme ensures the promotion of organic farming. US\$ 72.87 million has been allocated for the scheme during the year 2017-18.
- Adoption of farming will promote the balanced use of chemical fertilizers and enhance the quality of farm produce

Foreign Direct Investment (FDI)

- 100 per cent Foreign Direct Investment (FDI) is allowed under automatic route in storage and ware housing including cold storages and in development of seeds.
- With the recent clearance of Foreign Direct Investment (FDI) in multi-brand food retail, the government is looking to double food processing levels to 20 per cent.
- Cumulative FDI inflow to the food processing industries reached US\$ 8.37 billion between April 2000 and December 2017.

Pradhan Mantri Krishi Sinchai Yojana (PMKSY)

- The scheme ensures access to the means of irrigation to all agricultural farms in the country to produce 'per drop more crop', thus bringing much desired rural prosperity
- To increase agricultural production and productivity by increasing availability of water and its efficient use.

APMC farmers go cashless

- In January 2017, Indore Agricultural Produce Market Committee (APMC) adopted the cashless payment policy and farmers have started accepting alternative modes of payments such as cheques and RTGS.
- The Electronic National Agriculture Market (eNAM) was launched in April 2016 to create a unified national market for agricultural commodities by networking existing APMCs.

Niti Aayog, Contract Farming Law

- In February 2017, as an effort to protect the farmers against price volatility, Niti Aayog has come up with a law on contract farming, to protect the farmer's interest. The law on contract farming is considered important for private players, as it would induce competition, while ensuring better price of horticulture produce to farmers through advance agreement.

Notes: RKVY - Rashtriya Krishi Vikas Yojana

Source: Ministry of Agriculture, Union Budget, Aranca Research

FAVOURABLE POLICIES ARE SUPPORTING THE SECTOR GROWTH ... (2/2)

Tax incentives and other sops

- Import duty scrapped on capital goods and raw materials for 100 per cent export-oriented units.
- Full excise duty exemption for goods that are used in installation of cold storage facilities.
- Services like pre conditioning, ripening, waxing, retail packing, precooling, labelling of fruits and vegetables have been exempted from service tax.

Focus on R&D and modernisation

- In November 2016, Food Safety and Standards Authority of India (FSSAI) launched a major scheme worth US\$ 72 million, to address the urgent needs to upgrade food testing laboratories in India.
- Moreover, the government plans to launch a programme named as 'SAMPADA' for food processing sector, with investments worth US\$ 892.46 million to integrate current with new schemes, with an aim to reduce waste and double farmer's income.
- In September 2017, Nestle started India's first food safety institute in Manesar

Focus on infrastructure

- The sector has been assigned priority status for bank credit.
- 60 Agri Export Zones (AEZ) have been set up across the country
- In Union Budget 2018-19, government has allocated Rs 5.97 lakh crore (US\$ 92.22 billion) for the infrastructure sector.
- Between 2014-15 and 2017-18** capacity of 2.3 million metric tonnes was added in godowns while steel silos with a capacity of 625,000 were also created during the same period.
- Between FY06-17, 4,392 cold storage projects were sanctioned in India and 236 cold storage projects have been approved in 2017*.

National Mission on Food Processing

- MOFPI launched a new Centrally Sponsored Scheme (CSS) National Mission on Food Processing to promote facilities for post-harvest operations, including setting up of food processing industries in India. In Union Budget 2016-17, government announced to spend US\$ 1.1 million in Union territories only.

*Notes: RKVY - Rashtriya Krishi Vikas Yojana, * As of July 27, 2017, ** up to December 2017*

Source: Ministry of Agriculture, Union Budget, Aranca Research

HIGHLIGHTS OF UNION BUDGET 2018-19

- The government will set up an Agri-Market Infrastructure Fund to develop and upgrade the infrastructure in 22,000 Grameen Agricultural Markets (GrAMs) and 585 APMCs. The corpus of the fund will be Rs 2,000 crore (US\$ 308.93 million).
- Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) will be implemented in 96 irrigation deprived districts in the country for which Rs 2,600 crore (US\$ 401.6 million) has been allocated.
- A Fisheries and Aquaculture Infrastructure Development Fund (FAIDF) and an Animal Husbandry Infrastructure Development Fund (AHIDF) will be set up with a corpus of Rs 10,000 crore (US\$ 1.55 billion) to finance infrastructure requirements in these two sectors.
- Institutional credit to the agriculture sector would be raised to Rs 11 lakh crore (US\$ 169.9 billion) in 2018-19.
- Re-structured National Bamboo Mission will be launched with an outlay of Rs 1,290 crore (US\$ 199.26 million).
- Rs 200 crore (US\$ 30.89 million) allocated for supporting organised cultivation and associated industry.
- Minimum Support Price (MSP) for all unannounced kharif crops will be kept at one and half times of their production cost
- State-of-the-art testing facilities will be set up in all 42 mega food parks.

Source: Union Budget 2018

OPPORTUNITIES



Farm management services

- New agri business, which provides inputs such as seeds, fertilizers along with providing advice and training farmers on latest agricultural practices
- It introduces efficiencies into the whole gamut of agri practices
- Provides assistance to sell products at appropriate prices
- In June 2017, Bhoomee, a startup from Bengaluru created an app which offers a one-stop platform that enables farmers to connect to traders and vice-versa through their online portals and call centers.

Potential global outsourcing hub

- Limited arable land against growing population makes agricultural inputs crucial
- Huge opportunity exists for agri input segments like seeds and plant growth nutrients
- In India, commercial seeds only account for minor percentage (25 per cent) and huge demand is expected for quality branded seeds
- Global supermarket majors looking at India as a major outsourcing hub
- The government has helped by investing in AEZs, mega food parks, easier credit
- The establishment of food parks – a unique opportunity for entrepreneurs, including foreign investors to enter in the Indian food processing sector.
- In FY16, Ministry of Food Processing Industries has granted fund of US\$ 18.81 million for the ongoing Mega Food Park projects
- In October 2016, the Central Government announced that all 42 mega food parks will be operational by next 2 years.

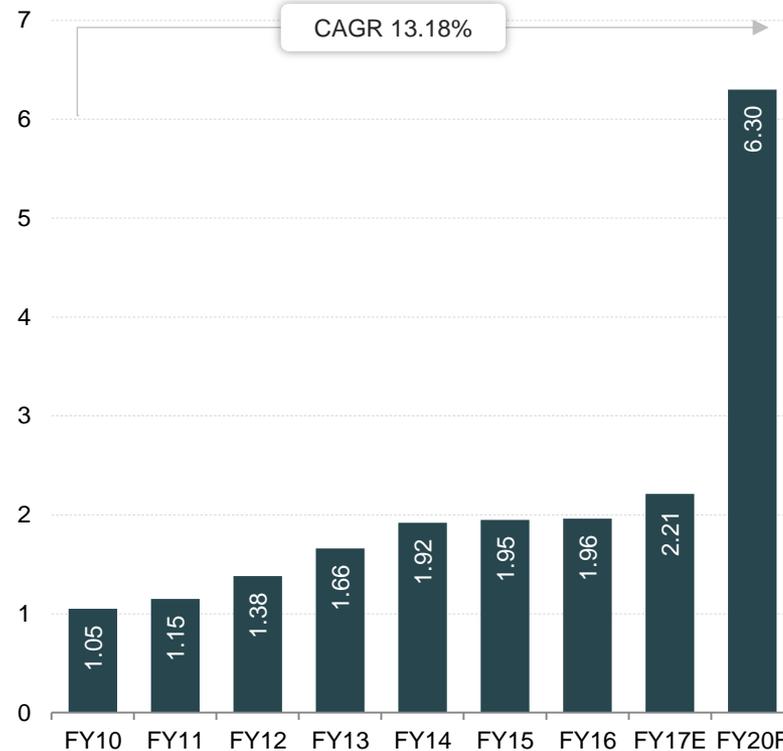
Supply chain infrastructure and contract farming

- The 12th Five Year Plan estimated a potential storage capacity expansion of 35 million tonnes
- Cold storage capacity needs to grow rapidly from the current level of 24 million tonnes
- Private warehouse operators are supported by multiple income streams, subsidy and available of credit
- It is expected that 4 per cent growth in the food grain storage capacity would restructure agricultural sector over the next few years
- Both firms and the government are eager to boost efficiency and access to markets
- Investment potential of US\$ 22 billion in food processing infrastructure; 100 per cent FDI in this area
- Firms increasingly taking recourse to contract farming in order to secure supply
- Supply chain infrastructure – this niche has investment potential in food processing infrastructure, the government's main focus is on supply chain related infrastructure like cold storage, abattoirs and food parks.

Source: Ministry of Agriculture, Aranca Research

- India is the 4th largest producer of agrochemicals, globally and ranks 4th in terms of production of crop protection chemicals. The market in India is expected to reach to US\$ 7.5 billion by FY19 and register exports of about 50 per cent of value of Indian crop protection industry.
- In 2015, India became one of the largest exporters of agrochemicals globally.
- Agrochemical companies in India witnessed a CAGR of 10 per cent from FY13-17E . Around 50 per cent of this growth was based on exports.

Exports of Agrochemicals* (US\$ billion)

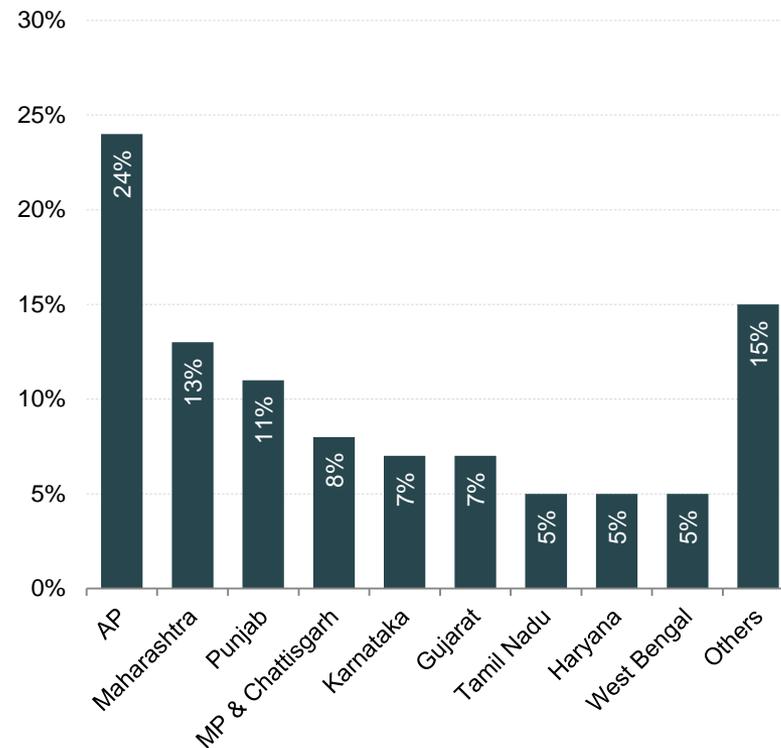


Note: * As per latest available data, FY17E – estimated figure

Source: Food and Agricultural Organisation US, Ministry of Agriculture, Aranca Research, JM Financial

- Agrochemical industry in India is set to grow at a significant pace; increasing population, decreasing per capita availability of arable land and focus on increasing agricultural yield will fuel the demand for agrochemicals
- India's per hectare agrochemical consumption is set to rise in the coming years, given the above-mentioned factors
- The seven states including Andhra Pradesh (AP), Maharashtra, Punjab, Madhya Pradesh and Chhattisgarh, Gujarat, Tamil Nadu and Haryana account for usage of over 70 per cent crop protection chemicals in India; wherein Andhra Pradesh is a leading consumer of agrochemicals with a market share of 24 per cent.

State wise Agrochemical Consumption* (FY15)



*Note: * As per latest available data*

Source: Food and Agricultural Organisation US, Ministry of Agriculture, Aranca Research

GOVERNMENT INITIATIVES THAT WILL FURTHER PROP UP THE SECTOR

- The Coffee Board is positioning India as a “Coffee Nation” and as the drink for Prime Minister Narendra Modi's vision of New India.
- In December 2017, the Department of Agriculture, Cooperation & Farmers Welfare proposed National Programme on use of Space Technology for Agriculture (NPSTA), which will use integrated space and geospatial tools for mapping, monitoring and management of agriculture.
- Allocation of US\$ 3.9 billion for RFID, US\$ 234 million for long – term rural credit fund, US\$ 7.03 billion for short – term cooperative rural credit finance fund, US\$ 3.9 billion for short – term RRB refinance fund
- Target of US\$ 155.14 billion agricultural credit during 2017 – 18.
- The Food Processing Industries have taken few initiatives for developing the food – processing sector that would enhance the exports of agro and processed foods and income of farmers
- Government is planning to invest US\$ 8 billion so as to revive 4 fertilizer plants and setting up 2 plants to produce farm nutrients
- Financial Outlay of US\$ 35.47 million has been announced under the National Dairy Development Board (NDDB) to boost milk output and per animal production of milk
- In March 2017, the government has approved the creation of buffer crops to stabilised prices as well as increase their imports, For the same, an agency named as Buffer Stock Management Agency (BSMA) has been formed, which is responsible for efficient management like liquidation, storage, maintenance and procurement of the stock.
- In March 2017, the government created a Banana Research Centre in Vaishali, Bihar, as the district's climate is best suited for production of bananas.
- In May 2017, the government signed an MoU with Malaysia to develop Ammonia and Urea manufacturing plant. The project is expected to cost around US\$ 2.1 billion and will have a capacity to produce 2.4 million tonnes of Urea and 1.35 million tonnes of Ammonia annually.
- In May 2017, the Ministry of Agriculture and Farmers Welfare launched e-Krishi Samvad, an internet-based platform that will provide direct and effective solutions to the problems faced by farmers and stakeholders in the agriculture sector.
- In May 2017, the Ministry of Agriculture voiced plans for the development of the agricultural sector under which the ministry has decided to set up 500,000 tonnes of cold storage capacity, 1,000 pack houses and 150 ripening chambers. The ministry also plans to rollout a model contract farming law by October 2017.

Source: Ministry of Agriculture, DIPP, Aranca Research; Note: RFID – Radio Frequency Identification

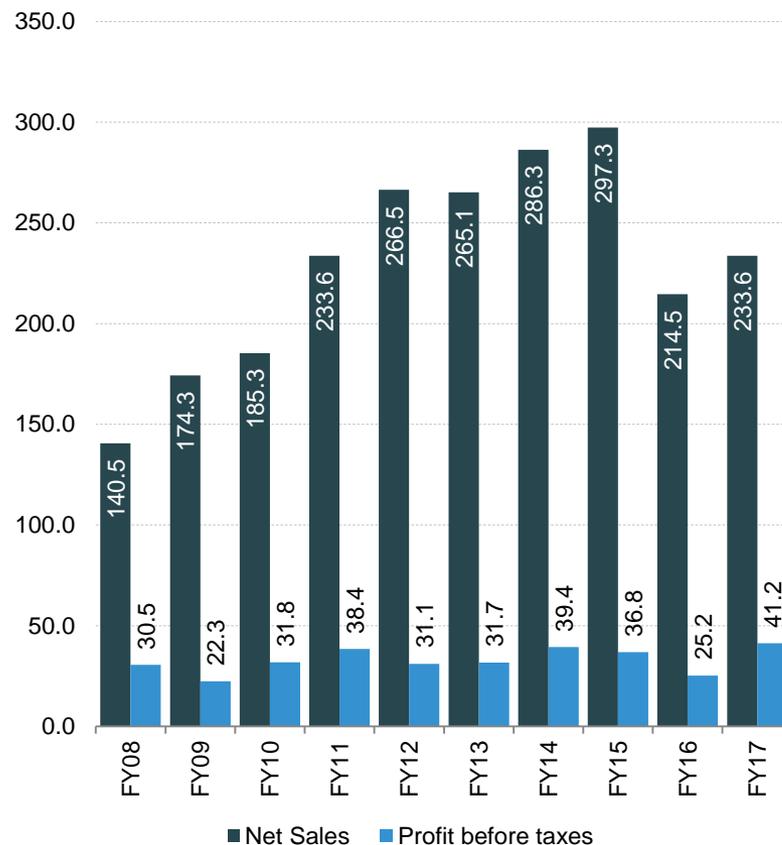
CASE STUDIES



RALLIS INDIA: BENEFITTING FROM DEMAND OF AGRICULTURAL INPUTS

- Rallis is a leading player in the agricultural inputs business and one of the largest player in agri chemical business
- Crop protection is the major segment for the company and it plans to expand its presence in seeds and PGN
- As part of the above mentioned plans, Rallis acquired a research-led seeds company 'Metahelix' and launched a PGN product in the name of 'Ralligold'
- Rallis India has set up Rallis Farm Management services to undertake contract farming
- Rallis Research Centre has won the prestigious New Millennium Indian Technological Leadership Initiative award for a molecule discovery
- Launched GeoGreen which has established itself as a brand for soil conditioner. It improves the soil health to enhance the productivity
- Programmes like MoPu – More Pulses, Samrudh Krishi have been initiated to drive the productivity of various agri services
- The company earned total income of Rs 360.41 crore (US\$ 55.67 million) in the third quarter of 2017-18.

Net sales and Profit Before Tax (US\$ million)



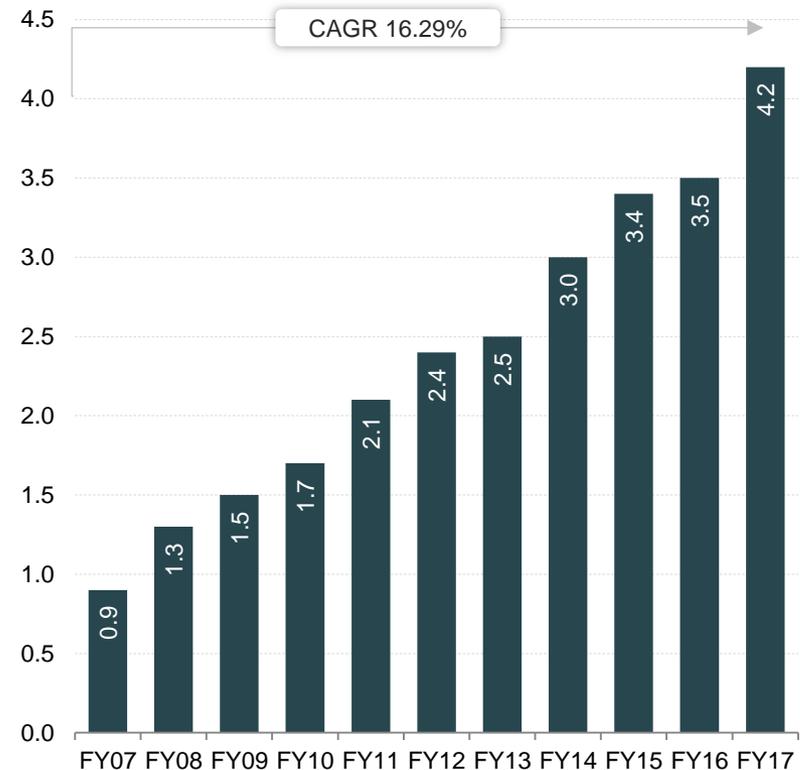
Note: PGN - Plant Growth Nutrients

Source: Company website, Aranca Research

THE AMUL SAGA: A COOPERATIVE MOVEMENT LEADS THE WAY ... (1/2)

- Gujarat Cooperative Milk Marketing Federation (GCMMF) is the largest food products marketing organisation in India
- Set up in 1967, it is India's largest exporter of dairy products and has been accorded 'trading house' status
- During FY17, Amul recorded 18 per cent increase in turnover over, to reach a value of US\$ 4.2 billion by FY17.
- Amul is the fastest growing dairy organisation in the world. It has risen to 15th position in the list of dairy companies in the world in September 2014, from 20th position in 2012.
- Amul is planning to invest US\$ 24.5 million in Punjab for expansion
- Amul is procured 21.7 thousand tonnes milk per day by January 2016.
- As on December 02, 2016, under its brand AMUL, GCMMF announced its plans to sell camel milk, in the country in the next 3 months.

Annual Sales (US\$ billion)



Source: Company website, Aranca Research

NUMBER OF PATENT APPLICATIONS GOING UP

- **Main brand:** Amul
- **Products:** milk (including flavoured), butter, margarine, cheese, curd, desserts, infant food

Facts and Features (FY17)

Producer members (million)	3.6
Village societies	18,600
Milk processing capacity (million litres/ day)	30.0
Total milk collection (FY17, billion litres)	6.44
Daily milk collection (FY17, million litres)	17.65
Milk drying capacity (million tonnes/ day)	860

Notable Awards

Award	Authority
Golden Peacock Eco-Innovation Award for the year 2016 for Bio-CNG Generation and Bottling Plant from Dairy Effluent	Golden Peacock Awards Secretariat, the Institute of Directors, New Delhi
Excellent performance in dairy product exports for 11 consecutive years	APEDA
CIO International IT Excellence Award (2003) for positive business performance through resourceful IT management and best practices	IDG's CIO Magazine (USA)
International Dairy Federation Marketing Award (2007) for Amul's pro-biotic ice cream launch	International Dairy Federation

Note: Figures mentioned are as per latest data available

Source: Office of Controller General of Patents, Design, Trade Marks and Geographical Indication, Intellectual Property India

INDUSTRY ASSOCIATIONS



Agency	Contact Information
National Institute of Agricultural Extension Management	Rajendranagar, Hyderabad–500 030, Andhra Pradesh Phone: 040-24016702 to 706 Fax: 040-24015388
National Institute of Agricultural Marketing (NIAM)	Bambala, Kota Road Jaipur–302033, Rajasthan Phone: 0141-2770027 Fax: 0141-2771938, 2770027
Central Insecticides Board and Registration Committee	Machinery Store Building, N.H.IV Faridabad Phone: 0129 -2413002.
Coconut Development Board	Kera Bhavan, SRVHS Road, Kochi Kerala–682011 Phone: 0484-2376265, 2377267, 2376553 Fax: 0484-2377902
National Dairy Development Board (NDDB)	PB No 40, Anand–388 001 Phone: 02692-260148/260149/260160 Fax: 02692-260157
National Horticulture Board (NHB)	Ministry of Agriculture, Government of India 85, Institutional Area, Sector-18 Gurgaon–122015, Haryana
National Oilseeds and Vegetable Oils Development Board (NOVOD)	Krishi Bhavan, New Delhi 110 114 Phone: 91-11-25846010

USEFUL INFORMATION



- AIBP: Accelerated Irrigation Benefit Programme
- Breeder seeds: Seeds move from germ-plasm (research) stage to breeder stage
- CAGR: Compound Annual Growth Rate
- Certified/quality seeds: Foundation seeds are further multiplied to get certified seeds, which are sold to farmers
- FMTTI: Farm Machinery Training and Testing Institutes
- Foundation seeds: Breeder seeds are multiplied as foundation seeds
- FY: Indian Financial Year (April to March) – FY12 implies April 2011 to March 2012
- KCC: Kisan Credit Card
- MSP: Minimum Support Prices
- NFSM: National Food Security Mission
- NMAM: National Mission on Agricultural Mechanisation
- PGN: Plant Growth Nutrients
- RKVY: Rashtriya Krushi Vikas Yojana is a central government scheme providing funds to state governments to spend on agriculture
- Wherever applicable, numbers have been rounded off to the nearest whole number

EXCHANGE RATES

Exchange Rates (Fiscal Year)

Year	INR Equivalent of one US\$
2004-05	44.81
2005-06	44.14
2006-07	45.14
2007-08	40.27
2008-09	46.14
2009-10	47.42
2010-11	45.62
2011-12	46.88
2012-13	54.31
2013-14	60.28
2014-15	61.06
2015-16	65.46
2016-17	67.09
Q1 2017-18	64.46
Q2 2017-18	64.29
Q3 2017-18	64.74

Exchange Rates (Calendar Year)

Year	INR Equivalent of one US\$
2005	43.98
2006	45.18
2007	41.34
2008	43.62
2009	48.42
2010	45.72
2011	46.85
2012	53.46
2013	58.44
2014	61.03
2015	64.15
2016	67.21
2017	65.12

Source: Reserve bank of India, Average for the year

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