AGRICULTURE

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**EXECUTIVE SUMMARY**

**2nd largest agricultural land**

- At 157.35 million hectares, India holds the second largest agricultural land in the world

**Favourable climatic conditions**

- 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

**Record production of food grains**

- In FY2015, total food grain production in India was recorded at 252.68 million tonnes, which increased to 253.16 million tonnes in FY16.

**Largest producer of major agricultural and horticulture crops**

- India is the largest producer of spices, pulses, milk, tea, cashew and jute; and the second largest producer of wheat, rice, fruits & vegetables, sugarcane, cotton and oilseeds

**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.

*Source: Ministry of Agriculture, Government of India, TechSci Research*
Robust demand
- A large population is the key driver of demand for agricultural products
- Rising urban and rural incomes have also aided demand growth
- External demand has also been growing especially from key markets like the Middle East

Competitive advantages
- High proportion of agricultural land (157 million hectares)
- Leading producer of spices, jute, pulses; second-largest producer of wheat, paddy, fruits and vegetables

Attractive opportunities
- 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
- The government plans to reduce the import duty on wheat from 10 per cent to 0 per cent, in order to boost the domestic availability of wheat in the country.

Policy support
- Schemes like Paramparagat Krishi Vikas Yojana (PKVY) helps in developing organic clusters and make available chemical free inputs to farmers.
- Other steps include Pradhanmantri Gram Sinchai Yojana that ensures improved access to irrigation; creation of an unified national agricultural market which would help boost the incomes of farmers
- 100 per cent FDI under automatic route for development of seeds

Source: Ministry of Agriculture, World Bank, FAOSTAT, TechSci Research

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• Stagnation in agriculture
• Low growth in crop and grain production (0.4 and 0.1 per cent p.a.)
• Food grain production of 59.2 MT in 1952–53, with a yield of 579.8 kg/ha

• Pioneering work of agricultural scientists and efforts of farmers led to Green Revolution
High Yield Variety (HYV) of seeds, increased use of fertilizers and irrigation resulted in a significant spike in production
Attained food security and reduced import of food grains

• Expanding cereal production
• Economic reforms introduced; greater encouragement to exports
• Surplus of production of agricultural commodities over domestic demand
• India emerges as a net exporter of agricultural products
• Increase in population and strong income growth

• 50 per cent increase in seed subsidy
• Additional financial assistance for horticulture crops
• Schemes like Pradhan Mantri Krishi Sinchai Yojana that accords high priority to water security
• Creation of Price Stabilization Fund (PSF) by the Department of Agriculture and Cooperation as a price control measure to dampen the impact on consumers
• Allocation of USD830 million for the development of micro irrigation, watershed and Pradhan Mantri Krishi Sinchai Yojana
• The Indian agricultural services and agricultural machinery have cumulatively attracted USD2,299.83 million from April 2000 to September 2016

Source: Ministry of External Affairs, RBI, Ministry of Agriculture, TechSci Research
Notes: MT - Metric Tonnes, P.A. - Per Annum
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SCHEMES INITIATED BY THE GOVERNMENT

Agricultural Technology Management Agency (ATMA)
- This technique facilitates retrieval of data and data entry from the internet based web portals without actually having internet by using a simple mobile phone.
- More than a dozen of services of innovative technology like USSD are being operationalized for farmers and other stakeholders.

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)
- Under the scheme, allocation of USD7.64 billion has been made for investment in irrigation, expanding cultivable area, improve efficiency of on-farm water to reduce wastage, enhance adoption of precision irrigation, etc.
- Governments of, majorly, all the states are funding agriculture sector and taking appropriate measures to achieve the targeted growth rate and address the issues being faced by farmers.

Pradhan Mantri Fasal Bima Yojana (PMFBY)
- In 2016, Central Government launched PM Mantri Fasal Bima Yojana for providing financial support to farmers and cover their crop losses. The scheme covers rabi, kharif crops as well as annual horticultural and commercial crops.
- PMFBY is a crop insurance policy and premium payable on the principle amount to the farmers.

Paramparagat Krishi Vikas Yojana (PKVY)
- This scheme ensures the promotion of organic farming.
- Adoption of farming will promote the balanced use of chemical fertilizers and enhance the quality of farm produce.

Source: Deptt. of Agriculture and Cooperation, Ministry of Agriculture, FAOSTAT, TechSci Research
GROWTH IN AGRICULTURE … (1/2)

- GDP of agriculture and allied sectors in India was recorded at USD 244.74 billion in FY16.
- According to the advanced estimates of MOSPI, agriculture and allied sector recorded a CAGR rise of 6.64 per cent during FY07-16.
- Agriculture is the primary source of livelihood for about 58 per cent of India’s population.

GDP by value added – size of agriculture and allied activities (USD billion)

Source: Ministry of Agriculture, Print Release, RBI, TechSci Research
Notes: GDP – Gross Domestic Product, MOSPI – Ministry of Statistics and Programme Implementation
FY16 – Advance Estimates
As per Union Budget 2016-17, the major focus would be on doubling farmers income by 2022. Other than that, the government would increase expenditure in farm and rural sector, infrastructure sector, social sector and also work on employment generation.

To establish a Long Term Irrigation Fund, under NABARD, an initial collection of nearly USD3.06 billion has been planned in Union Budget 2016-17. A multilateral funding of around USD0.92 billion to execute various programmes related to sustainable management of ground water resources.

As per Union Budget 2017-18, allocation of USD148.74 billion was made for agriculture sector and welfare of farmers. Also the provision of USD0.84 billion made for PMFBY under the same budget.
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.

According to the Ministry of Agriculture, total food grain production in the country in FY17 stood at around 271.98 million tonnes.

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.

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

CAGR: 1.11%

Source: Finance Ministry, Ministry of Agriculture, TechSci Research

1 - Data is 3rd Advance Estimate
Area Sown in FY17¹ (lakh hectares)

**Rabi**
- Wheat: 25.98
- Pulses: 56.16
- Oilseeds: 79.40
- Coarse Cereals: 74.55

**Kharif**
- Rice: 372.95
- Coarse Cereals: 142.02
- Oilseeds: 184.13
- Pulses: 179.6
- Cotton: 101.96
- Sugarcane: 45.77
- Jute & Mesta: 7.56

*Source: Ministry of Finance, Ministry of Agriculture, TechSci Research
Notes: Kharif FY17¹ – Data till September 2016
Notes: RABI FY17¹ – Data till November 2016*
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.

During 2013-14, production of wheat and rice in the country reached an all-time high, with the production of rice and wheat being recorded at 106.29 million tonnes and 95.85 million tonnes, respectively.

However, in FY16, production of rice stood at 103.61 million tonnes, whereas, production of wheat stood at 93.82 million tonnes.

According to second advance estimates, production of wheat in 2015–16 stood at 93.82 million tonnes, and that of rice was 103.61 million tonnes.

In FY15, yield of rice in the country reached 2.39 tonnes/hectare and that of wheat reached 2.9 tonnes/hectare.

Ministry of Agriculture is targeting to achieve 270 million tonnes production of food grains, during (July-June) 2016-17.
FRUIT AND VEGETABLE PRODUCTION CONTINUES TO INCREASE

* India ranks 2\textsuperscript{nd} 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 FY05-16, horticulture production in India grew at a CAGR of 4.91 per cent.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{Indian_horticulture_area_and_production.png}
\caption{Indian horticulture area and production}
\end{figure}

\textit{Source:} National Horticulture Board, Assorted Articles, FAO Stat, TechSci Research

\textit{Note:} \(^1\) - CAGR Mentioned is for Production, \(^2\) - Figure as of 2015

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India is among the 15 leading exporters of agricultural products in the world.

Total agricultural exports from India grew at a CAGR of 19 per cent over FY10-16 to reach USD32.08 billion in FY16.

The contribution of agriculture to total export was 12.47 per cent in FY15 and 12.28 per cent in FY16.

Agricultural exports increased from USD24.7 billion in 2011–12 to USD32.08 billion in 2015-16, at a CAGR of 6.75 per cent.

In FY17 (April–May 2016), agricultural exports from India stood at USD4.93 billion.


Notes: CAGR - Compound Annual Growth Rate

¹ - Data is for April – May 2016
India exported Basmati rice worth USD3.48 billion and 2.31 billion worth of non-basmati rice during FY16

Livestock Products and Fruits & Vegetables are the next largest export items in terms of value; they accounted for 26.8 per cent and 6.8 per cent, respectively, of total agricultural exports in 2015-16\(^2\)

Guargum meal emerged as major export commodity; the value of exports rose at a staggering CAGR of 45.3 per cent over FY10 -15

Total agricultural exports from India increased to USD32.08 billion in FY16

### Key agricultural and allied sector exports from India in 2015-16\(^2\) (USD billion)

<table>
<thead>
<tr>
<th></th>
<th>2015-16 FY16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>3.17</td>
</tr>
<tr>
<td>Guargum Meal</td>
<td>0.29</td>
</tr>
<tr>
<td>Livestock Products</td>
<td>2.17</td>
</tr>
<tr>
<td>Oil Meals</td>
<td>0.28</td>
</tr>
<tr>
<td>Sugar</td>
<td>0.43</td>
</tr>
<tr>
<td>Fruits and Vegetables</td>
<td>0.55</td>
</tr>
<tr>
<td>Cashew</td>
<td>0.33</td>
</tr>
</tbody>
</table>

### Exports of guargum meal (USD Million)

<table>
<thead>
<tr>
<th></th>
<th>Value (USD Million)</th>
<th>Quantity (Billion Tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY10</td>
<td>239</td>
<td>218</td>
</tr>
<tr>
<td>FY11</td>
<td>615</td>
<td>403</td>
</tr>
<tr>
<td>FY12</td>
<td>3489</td>
<td>707</td>
</tr>
<tr>
<td>FY13</td>
<td>707</td>
<td>39</td>
</tr>
<tr>
<td>FY14</td>
<td>1970</td>
<td>405</td>
</tr>
<tr>
<td>FY15</td>
<td>1550</td>
<td>665</td>
</tr>
<tr>
<td>FY16</td>
<td>553</td>
<td>365</td>
</tr>
<tr>
<td>FY17(^3)</td>
<td>66</td>
<td>60</td>
</tr>
</tbody>
</table>

Source: Ministry of Agriculture, APEDA, TechSci Research

1 - Data is for April 2015 – February 2016
2 - Data is for April 2015 – January 2016
3 – Data is for April – May 2016

For updated information, please visit www.ibef.org
**KEY AGRICULTURAL STATES AND THEIR CONTRIBUTIONS**

- **Karnataka** – largest producer of Sunflower seed, Maize, Ragi, Coffee and Cardamom
- **Gujarat** – largest producer of cotton (12.5 million tonnes)
- **Maharashtra** – largest producer of Jowar, Tobacco and Safflower
- **Punjab and Haryana** were the key states of green revolution. Punjab is one of the largest producers of food grains
- **Uttar Pradesh** – largest producer of wheat (30.00 million tonnes)
- **West Bengal** – largest producer of rice (15.80 million tonnes)
- **Assam** – largest producer of tea
- **Madhya Pradesh** – largest producer of soybean, pulses, Linseed

Source: Department of Agriculture & Cooperation, Notes: All figures as of 2015,¹ - Projected for 2014-15

¹Projected for 2014-15
GROWTH DRIVERS OF INDIAN AGRICULTURE

Demand-side drivers
- Population and income growth
- Increasing exports
- Favourable demographics

Supply-side drivers
- Hybrid and genetically modified seeds
- Mechanisation
- Irrigational facilities
- Green Revolution in Eastern India

Policy support
- Growing institutional credit
- Increasing MSP
- Introduction of new schemes like Paramparagat Krishi Vikas Yojana, Pradhanmantri Gram Sinchai Yojana, Sansad Adarsh Gram Yojana
- Opening up of exports of wheat and rice

Note: MSP - Minimum Support Price
India, the second-most populated country in the world, has to meet food consumption needs of over 1.280 million people.

India’s population reached 1.28 billion in FY15 compared to 1.26 billion in FY14.

In FY2016, India’s population stood at around 1.29 billion.

Population is a key demand driver of agricultural growth in the country.

India’s population is expected to reach 1.39 billion by FY21.
Domestic demand for agricultural and allied products has not only been rising due to rising population, but also as a result of greater consumption by a wealthier population.

Over FY07-16, India’s per capita income increased at a CAGR of 6.88 per cent and reached USD1182.9

Consumption expenditure in India is likely to reach USD3.6 trillion by 2020, up from an estimated USD0.2 trillion in FY16

Indian agriculture has also benefitted from rising external demand and the sector’s wider participation in the global economy.

**Per capita income at factor cost (USD)**

<table>
<thead>
<tr>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
</tr>
</thead>
<tbody>
<tr>
<td>650.0</td>
<td>746.0</td>
<td>849.0</td>
<td>714.9</td>
<td>793.6</td>
<td>811.6</td>
<td>715.4</td>
<td>662.0</td>
<td>1193.7</td>
<td>1182.9</td>
</tr>
</tbody>
</table>

**Source:** Central Statistical Organisation, TechSci Research
The Government of India has launched a new scheme, Pradhan Mantri Krishi Sinchai Yojana, that provides end – to – end solutions in irrigation supply chain & focuses on creating sources of assured irrigation, per drop more crop & harnessing rain water at micro - level through Jal – Sanchay & Jal - Sinchan.

The 2 major lift irrigation projects in Kohlapur; Tembhu & Takari Mhaisal-have received USD19 million & USD15 million by the Union Government.

In September 2016, allocation of USD3.06 billion was made, under NABARD, to establish a Long Term Irrigation Fund.

23 irrigation projects under Accelerated Irrigation Benefit Program (AIBP) would be fast tracked for completion before March 2017.

In February 2017, Government of West Bengal brought an additional 3 lacs acres of agricultural land with an aim to ensure welfare of farmers, under its irrigation programme. With no shortage of water supply, rabi & boro crops will be cultivated on that area.
Gross irrigated area under food grains is estimated to have grown to 61.632 million hectares in FY13.

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 FY17, the government has planned to bring 28.5 lakh hectares of land under irrigation for using water optimally, under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY).

Mechanisation helps in raising farm income by increasing productivity and limiting post-harvest losses.

Government of India is focussing on increasing its reach of farm mechanisation to the regions where availability of farm power is low and to small and marginal farmers.

Allocation of USD223 million was made for the establishment of Farm Machinery Banks and distribution of farm machinery and tools to farmers in various states in FY16.

The sale of tractors increased from 0.35 million units in FY07 to 0.57 million units in FY16, witnessing growth at a CAGR of 5.5 per cent.

Number of tractors sold

CAGR: 5.5%

Source: Department of Agriculture and Cooperation, State of Indian Agriculture 2013-14, ICRA, A report on ‘Farm Mechanization in India’, TechSci Research
 Sale of tillers increased at a CAGR of 8.6 per cent to 48,000 units over FY07-15

The government has set up a number of Farm Machinery Training and Testing Institutes to train farmers on the operation and maintenance of agricultural equipment

DAC proposes to initiate National Mission on Agricultural Mechanisation (NMAM) to spread the benefits of mechanisation among all levels of farmers especially small and marginal ones

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**Number of tillers sold**

- **FY07:** 24791
- **FY08:** 26135
- **FY09:** 35294
- **FY10:** 38794
- **FY11:** 55000
- **FY12:** 60000
- **FY13:** 25000
- **FY14:** 56000
- **FY15:** 48000

**CAGR:** 8.6%

**Source:** Department of Agriculture and Cooperation, A report on ‘Indian Tractor Industry’ by ICRA, TechSci Research
DAC - Dept. of Agriculture and Cooperation
In FY16, production of foundation seeds reached 149,542 tonnes from 74,800 tonnes in FY06.

There has been strong growth in the use of hybrid seeds due to their high yield and resistance.

Usage of hybrid seeds has been more prevalent in cash crops than food crops.

In FY16, production of certified seeds increased to 3.4 million tonnes from 1.4 million tonnes in FY06.

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**Production of seeds (‘000 tonnes)**

Source: Ministry of Agriculture, TechSci Research
Usage of hybrid seeds has boosted the yield of food grains to 2,070 kg/ hectare in FY15 from 1,756 kg/ hectare in FY07.

The government has been playing a proactive role in promoting greater use of hybrid seeds; it encourages private seed companies by providing a subsidy of 25 per cent of the capital cost subject to a maximum of USD50,000 per unit.

The government of India has targeted production of 270.1 million tonnes (MT) of food grains for FY17.

INSTITUTIONAL CREDIT TO AGRICULTURE ON A RISE

- Institutional credit to the agriculture sector increased at a CAGR of 12.8 per cent during FY07–14

- Farmers are allowed to avail crop loans at an interest of 7 per cent

- In FY15, institutional credit to the agricultural sector was USD18.07 billion from Regional Rural Banks

Institutional credit to agriculture (USD billion)

<table>
<thead>
<tr>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
</tr>
</thead>
<tbody>
<tr>
<td>73.76</td>
<td>89.94</td>
<td>99.24</td>
<td>120.54</td>
<td>145.86</td>
<td>157.26</td>
<td>159.27</td>
<td>168.88</td>
</tr>
</tbody>
</table>

Source: Ministry of Agriculture, RBI, National Sample Survey Organisation (NSSO), TechSci Research
RISING MSPs INCENTIVISE FARMING … (1/2)

* The MSP is announced well ahead of the sowing season so that the farmers can take informed decisions on cropping.

* The Indian government increases MSPs regularly to incentivise farmers to enhance production of crops and ensure there is adequate supply.

* The MSP for rice was raised from USD44 per quintal in FY14 to USD45.80 per quintal in FY15 at YoY growth of 4.1 per cent.

* MSP for rice reached to USD21.5 per quintal in FY16 (for Kharif season from July-October).

Source: Ministry of Agriculture, TechSci Research
Note: MSP is Minimum Support Price
1 - Data is for Kharif Season
Government has increased the MSP of pulses significantly in the past three years to encourage production and thereby reduce the supply shortage

MSP for Arhar increased from USD31.2 per quintal in FY07 to USD75.02 per quintal in FY16

Source: Ministry of Agriculture, TechSci Research
FAVOURABLE POLICIES ARE SUPPORTING THE SECTOR GROWTH … (1/2)

**Paramparagat Krishi Vikas Yojana (PKVY)**
- This scheme ensures the promotion of organic farming. USD 45.83 million has been allocated for the scheme during the year 2015-16.
- 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.
- FDI policy for agriculture was amended to allow 100 per cent FDI under automatic route for development of seeds.

**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 goes 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.

**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.

*Source: Ministry of Agriculture, Union Budget, TechSci Research*
*Note: RKVY - Rashtriya Krishi Vikas Yojana*
FAVOURABLE POLICIES ARE SUPPORTING THE SECTOR GROWTH … (2/2)

Pulses Production

• Government has allocated USD76.38 million to lift the production of pulses under National Food Security Mission (NFSM). The government would increase cover for about 622 districts under the initiative in FY17

Support through Initiatives

• Under MNREGA, government is planning to create 1 million compost pits for organic manure.
• A corpus of USD2.90 billion to be allocated for adding 0.22 million km of road, under PMGSY by 2019.

Regional Rural Bank Credit Refinance Fund

• The government plans to set up a Regional Rural Bank Credit Refinance Fund with a capital of USD2.1 billion to enhance the capacity of RRBs to disburse short term crop loans to small and marginal farmers.
• In FY17, the government raised the budget allocation for agriculture sector to USD137.5 billion.

Integrated Scheme of Oilseeds, Pulses, Oil palm and Maize (ISOPOM)

• ISOPOM scheme was launched in 2004 to provide flexibility and promote crop diversification; under ISOPOM, states can utilise the allotted funds to develop a crop of their choice.

Source: Ministry of Agriculture, Union Budget, TechSci Research
Notes: RRB – Regional Rural Bank, ISOPOM - Integrated Scheme of Oilseeds, Pulses, Oil palm and Maize, MNREGA - Mahatma Gandhi National Rural Employment Guarantee Act, PMGSY - Pradhan Mantri Gram Sadak Yojana

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HIGHLIGHTS OF THE BUDGET 2016 -17

**Agriculture GVA**
- Central Statistics Office (CSO) estimates the share of agriculture and allied sector comprising of agriculture, livestock, forestry & fishery was almost 15.35 per cent of the Gross Value Added (GVA) during FY16.

**Agricultural center for excellence**
- Announcement of plans to establish centers of excellence in agriculture in Assam and Jharkhand, agriculture universities in Andhra Pradesh and Rajasthan, and horticulture universities in Telangana and Haryana.

**Food grain production reached 253.16 MMT**
- Food grain production reached 253.16 million tonnes in 2015-16, in comparison with 252.68 million tonnes in 2014-15, which is projected to further increase to 280.6 million tonnes by 2020-21.
- MSP for every agriculture produce increased significantly.

**Agricultural exports estimated to increase**
- Agriculture exports from India, during FY16 reached to USD32.08 billion.
- The export of agricultural products is likely to cross USD45 billion by 2019 – 20.
- India’s exports of grapes to Europe and China are estimated to increase, with increase in production of exportable grapes. Nearly 80 per cent of the overall supply is sourced from Nasik, from a cultivated area of 55000 hectares, of which 33000 hectares of land is registered for cultivating grapes that are to be exported only.

Source: Union Budget, Ministry of Agriculture, TechSci Research
NABARD - National Bank for Agriculture and Rural Development

For updated information, please visit [www.ibef.org](http://www.ibef.org)
• To execute programmes related to sustainable management of ground water resources, an estimated fund of USD0.92 billion has been assigned

• Provision of USD76.38 million to enhance production of pulses, under National Food Security Mission in 622 districts

• Under the Paramparagat Krishi Vikas Yojna (PKVY), a provision of USD62.94 million has been made in order to promote organic farming and value chain development in the North East

• Under Pradhan Mantri Fasal Bima Yojana (PMFBY), a provision of USD840.2 million has been made.

• The target for agricultural credit has been increased to USD137.5 billion. Provided USD2.3 billion budget estimate for farmers.

• The government allocated USD130 million for farmers to encourage to take up other allied activities over next few years such as Pasudhan Sanjivini, Nakul Swasthya Patra, E-Pashudhan Haat and National Genomic centre.

• To improve efficiency and performance of Krishi Vigyan Kendras (KVKs), a national level competition for KVKs would be hosted with an award of USD0.08 million.

Source: Union Budget, Ministry of Agriculture, TechSci Research
NABARD - National Bank for Agriculture and Rural Development
## 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

### Agricultural inputs
- 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

### Logistics
- 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

*Source: Ministry of Agriculture, TechSci Research*
INITIATIVES THAT WILL FURTHER PROP UP THE SECTOR

Foreign Direct Investment (FDI)

- Cumulative FDI from April 2000 to September 2016 in agriculture services was USD1,859.17 million, whereas in agricultural machinery was USD440.66 million.

MOUs/Agreements

- MOUs/Agreements has been signed with 52 countries
- Number of partnerships with other countries have reached 63
- Provides better agricultural facilities in areas such as R & D, capacity building, germ – plasm exchange, post – harvest management, value addition/food processing, plant protection, animal husbandry, dairy and fisheries
- Helps in improving bilateral ties as well

Buyer Seller Meet

- In January 2017, the Spice Board in Guwahati organised a meet, which witnessed participation of spice producing farmers, sellers, exporters and importers from North East. The meet facilitated trial orders, which might turn into a potential spice trade worth US$1.48 million, by next year.

Source: Ministry of Agriculture, DIPP, TechSci Research
GOVERNMENT INITIATIVES THAT WILL FURTHER PROP UP THE SECTOR

- Allocation of USD3.9 billion for RFID, USD234 million for long-term rural credit fund, USD7.03 billion for short-term cooperative rural credit finance fund, USD3.9 billion for short-term RRB refinance fund
- Target of USD137.49 billion agricultural credit during 2016-17
- The Ministry of 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
- 250 markets Connected to e-NAM Platform as on October 2016. A total number of 585 markets are targeted to be integrated in first phase with e-NAM by March 2018. Under the e-NAM scheme government has allocated sum of USD 15.28 thousand for each mandi for setting up waste management plant.
- During September 2016, Ministry of Agriculture & Farmers Welfare signed a MoU to Promote Organic Farming on the Banks of River Ganga
- Government is planning to invest USD8 billion so as to revive 4 fertilizer plants and setting up 2 plants to produce farm nutrients
- Financial Outlay of USD35.47 million has been announced under the National Dairy Development Board (NDDB) to boost milk output & per animal production of milk
- Israel have strengthened its bilateral ties with India by helping the farmers to choose the right crops or vegetables and multiplying income of farmers
- As on October 2016, Punjab Agricultural University (PAU) and Field Fresh Foods (a joint venture between Bharti Enterprises & Del Monte Pacific Limited) signed a MoU to carry out a corn productivity research program.
- Government has fixed the minimum wages for unskilled agricultural labor in C-class towns in central sphere at USD 5.28 (INR 350) per day. The rates will be effective from November 2016
- As of February 2017, the government has created a buffer stock of 1.1 million tonnes of pulses & have asked the National Agricultural Cooperative Marketing of India (NAFED) & Food Corporation of India (FCI), to clear the older stock

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

For updated information, please visit www.ibef.org
The Government of India’s National Agriculture Policy envisages that “Private sector participation will be promoted through contract farming and land leasing arrangements to allow accelerated technology transfer, capital inflow and assured market for crop production especially of oilseeds, cotton and horticultural crops”.

The government is planning to revamp the old model Agriculture Produce Marketing Committee Act (APMC Act) and carve out the provisions on contract farming into a separate law to form a new Contract Farming Act.

### Foreign companies practicing contract farming in India

<table>
<thead>
<tr>
<th>Company</th>
<th>State</th>
<th>Crop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cargill India Pvt Ltd</td>
<td>Madhya Pradesh</td>
<td>Wheat, Maize and Soya bean</td>
</tr>
<tr>
<td>Hindustan Lever Ltd</td>
<td>Madhya Pradesh</td>
<td>Wheat</td>
</tr>
<tr>
<td>ITC - IBD</td>
<td>Madhya Pradesh</td>
<td>Soybean</td>
</tr>
<tr>
<td>Appachi</td>
<td>Tamil Nadu</td>
<td>Cotton</td>
</tr>
<tr>
<td>Nestle India Ltd</td>
<td>Punjab</td>
<td>Milk</td>
</tr>
<tr>
<td>Pepsi Foods Pvt Ltd</td>
<td>Punjab, TN</td>
<td>Chillies, Groundnut, Seaweed, Tomato and Basmati Rice</td>
</tr>
</tbody>
</table>
At present among successful contract farming practices undertaken in Gujarat:

- **Pepsi India, Arvind mills, Jojoba Oil Industries Ltd**
  - These are some companies who have approached the govt. and shown keen interest in doing research and contract farming in Agro-products in Gujarat under their backward integration projects.

- **Godrej Agrovat Ltd.**
  - Is also planning to grow high quality oil palm under contract farming in south Gujarat region by providing imported tissue culture plants and farming technology to the contract farmers.

- **Agrocell Corporation Ltd.**
  - It is doing contract farming of organic cotton and sesame seeds covering about 5000 acres in Kutch and Surendranagar district of Gujarat since last 8 years.
  - The farmers get 7-8 per cent more price than ordinary cotton in current market and concession in certain services from the company.

- **Atreyas Agro Organic Pvt. Ltd.**
  - Plans to grow Jetrophs Curcas by contract farming. They have target of covering more than 50,000 acres of irrigated & non-irrigated land of Gujarat.

*Source: Company reports, Assorted articles, TechSci Research*
• Contract farming agreement with farmers in Punjab
• PMG technology sourced from China

PepsiCo

• Company supported farmers in R&D and other farm activities
• Farmer started to grow two crops in one year

Groundnut

• Yields increased to 3-4 tonnes per hectare, much above national average of 1 tonne per hectare

Model extended to other states

• Created procurement centers to procure Barley in Rajasthan

SAB Miller

• Provide higher-quality certified seeds and training to 5,600 farmers in Rajasthan

Barley

• Increase in yields from 1.9 tons a hectare to 3.8 tons a hectare within the space of one year

Others followed the model

Source: Company reports, Assorted articles, TechSci Research
Note: PMG - Plastic Mulch Groundnut

For updated information, please visit www.ibef.org
Rallis India: Benefitting from Demand of Agricultural Inputs … (1/2)

Salient characteristics

- 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

Crop protection

Agri services

Contract farming

Seeds and PGN

Note: PGN - Plant Growth Nutrients
AGRICULTURE

RALLIS INDIA: BENEFITTING FROM DEMAND OF AGRICULTURAL INPUTS … (2/2)

Net sales (USD million)
Profit before taxes (USD million)

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Sales</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY08</td>
<td>140.50</td>
<td>30.50</td>
</tr>
<tr>
<td>FY09</td>
<td>174.30</td>
<td>22.30</td>
</tr>
<tr>
<td>FY10</td>
<td>185.30</td>
<td>31.80</td>
</tr>
<tr>
<td>FY11</td>
<td>233.61</td>
<td>31.10</td>
</tr>
<tr>
<td>FY12</td>
<td>266.45</td>
<td>38.40</td>
</tr>
<tr>
<td>FY13</td>
<td>265.14</td>
<td>31.70</td>
</tr>
<tr>
<td>FY14</td>
<td>286.28</td>
<td>39.40</td>
</tr>
<tr>
<td>FY15</td>
<td>297.26</td>
<td>36.76</td>
</tr>
<tr>
<td>FY16</td>
<td>214.53</td>
<td>25.20</td>
</tr>
</tbody>
</table>

Source: Company website, TechSci Research
Autonomous Bodies

- **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

Boards

- **Central Insecticides Board and Registration Committee**
  Machinary 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)**
  86, Institutional Area, Sector-18
  Gurgaon–122015, Haryana

**Councils**

• **Indian Council of Agricultural Research (ICAR)**
  Krishi Bhavan, New Delhi 110 114
  Phone: 91-11-25846010
**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 (Fiscal Year)

<table>
<thead>
<tr>
<th>Year</th>
<th>INR equivalent of one USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004–05</td>
<td>44.81</td>
</tr>
<tr>
<td>2005–06</td>
<td>44.14</td>
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<tr>
<td>2006–07</td>
<td>45.14</td>
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<tr>
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<td>2014–15</td>
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<td>2015–16</td>
<td>65.46</td>
</tr>
<tr>
<td>2016-17 (E)</td>
<td>67.23</td>
</tr>
</tbody>
</table>

### Exchange rates (Calendar Year)

<table>
<thead>
<tr>
<th>Year</th>
<th>INR equivalent of one USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>43.98</td>
</tr>
<tr>
<td>2006</td>
<td>45.18</td>
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<td>2007</td>
<td>41.34</td>
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<td>2008</td>
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<td>2009</td>
<td>48.42</td>
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<td>2010</td>
<td>45.72</td>
</tr>
<tr>
<td>2011</td>
<td>46.85</td>
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<tr>
<td>2012</td>
<td>53.46</td>
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<tr>
<td>2013</td>
<td>58.44</td>
</tr>
<tr>
<td>2014</td>
<td>61.03</td>
</tr>
<tr>
<td>2015</td>
<td>64.15</td>
</tr>
<tr>
<td>2016 (Expected)</td>
<td>67.22</td>
</tr>
</tbody>
</table>

Source: Reserve bank of India, Average for the year

For updated information, please visit [www.ibef.org](http://www.ibef.org)
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