

Outlook of Indian Pesticide Industry

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Executive Summary

As per the estimates of Central Statistics Office, the Indian agriculture sector remains the backbone of the nation's economy accounting for about 15% of the country's Gross Domestic Product. But it has to be understood that Indian agriculture is highly monsoon dependent and out of the 142 million hectares of net sown area, only 45% or 64 million hectares have access to irrigation facilities. Apart from high dependency on monsoon and irrigation facilities, the situation becomes critical when it is noted that about 15-25% potential crop production is lost due to pests, weeds and diseases. Therefore, in order to meet the growing demand borne out of increasing population, the productivity of the crops and efficient utilization of the arable land become essential factors. Thus in order to enhance productivity, the usage of pesticides play a vital role.

Currently, India is the fourth largest global producer of pesticides with an estimated market size of around \$4.9 billion in FY17 after United States, Japan and China. The current article delineates on the stages of agricultural inputs, the key segments of the pesticide industry, crop wise yields in India vis-à-vis different countries and plight of the pesticide industry due to minimum level of farmer awareness in India leading to low consumption. The Indian pesticide industry is predominated with generic version products and has a substantial opportunity to explore the drugs going off-patent during CY2017-2020 and through acquisitions and strategic partnerships of global giants with domestic players. Nonetheless the industry is faced with challenges such as abysmally low spending of R&D by Indian Players compared to the foreign players, seasonal demand as 70% of the pesticide consumption is skewed in favor of kharif crop, low brand awareness resulting in non-genuine products, inefficiencies in the supply chain and requirement of higher working capital investment due to elongated Inventory and credit periods. A brief upon the outlook of the industry and the rating dispersion of the CARE rated entities is also presented.

Indian Agriculture Sector Overview

The Indian agriculture sector remains the backbone of the nation's economy accounting for 15.35% of the country's Gross Domestic Product (GDP) as per the estimates of Central Statistics Office (CSO). Though the share of Indian agriculture in GDP has witnessed a decline over the years, a trend expected in a developing economy, the food grain production in India registered a CAGR of about 2% during the period FY2010-2011 and FY2016-2017. Indian agriculture is highly monsoon dependent, out of the 142 million hectares of net sown area, only 45% or 64 million hectares have access to irrigation facilities. According to CSO, the market size of agriculture and its allied sectors (including agriculture, livestock, forestry and fishery) during FY16 was about Rs.16.02 lakh crore and has shown a marginal growth of about 1-2% compared to earlier year. Its contribution to the Gross Value Added (GVA) has also reduced by 100 bps to 15.35% during FY16 compared to earlier year.

Domestic Pesticide industry to grow consistently albeit with high dependence on erratic monsoons

Pesticides comprise of a large group of chemicals that are used in agriculture to control plants and animals infestation. Pesticides, being the last input in agricultural operation, are used for preventing the destruction of crops from pests like insects, weeds, etc, thereby increasing the agricultural production. On the production front, pesticides are first manufactured as technical grade product (85% or more of the active chemical ingredients), which has a higher commercial purity. The active ingredients are then mixed with inert ingredients (solvents, adjuvant and fillers) to achieve the desired formulation. The active ingredient kills the pest whereas the inert ingredient facilitates ease of handling, spraying and coating on plants.

Stages of Agriculture Inputs



Source: CARE

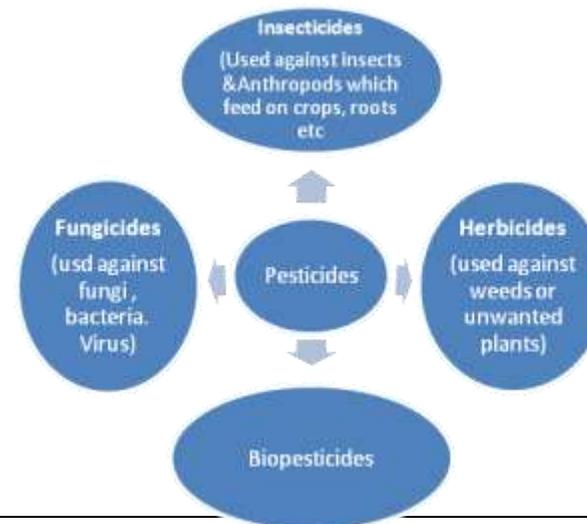
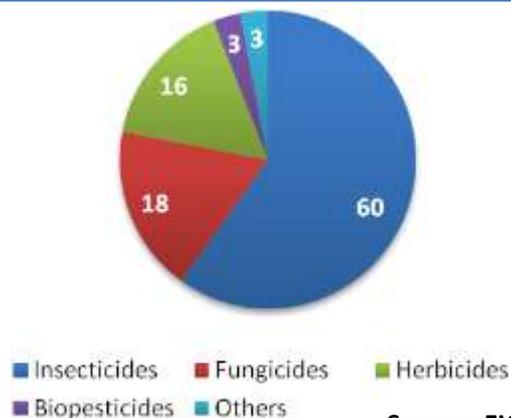
Currently, India is the fourth largest global producer of pesticides with an estimated market size of around \$4.9 billion in FY17 after United States, Japan and China. Considering the above average rainfall across India which concomitantly leads to increase in agricultural production, CARE expects that the growth in consumption of Indian pesticides would be about 10%. India's share in global pesticide market is around 10% in FY17. India's pesticides consumption is one of the lowest in the world with per hectare consumption of just 0.6 Kg compared to US (5-7 Kg/ha) and Japan (11-12 Kg/ha). In India, paddy accounts for the maximum share of pesticide consumption around (26%-28%) followed by cotton (18% -20%).

Erratic rains typically impact sowing and make farmers miss the application of pesticides. The two consecutive years of FY15 & FY16 has suffered poor monsoons which lead to a slump in pesticide sales. However, players have managed to reduce the impact of a poor monsoon on domestic sales during that period by ramping up their export presence. Poor irrigation infrastructure has led to a strong correlation between Indian agriculture and monsoon. However, FY17 turned out to be a good monsoon year after two consecutive years of below normal south-west monsoon (June-September) rainfall. As per the Indian Meteorological Department (IMD), the south west monsoon received 97% of the rainfall and the positive effect of the same is reflected in the Income statement and financial risk profiles of the pesticide companies during FY17. Furthermore as per IMD forecast India is likely to receive healthy monsoon rains this year at 96 percent of the 50-year average of 89 cm, thus bearing a positive effect on all the industries dependent on agriculture.

Key Segments

In India, the pesticides are broadly divided into five types and the market share of the same is provided in the below charts. Insecticides cover the major part of the pie i.e. 60% of the market share, whereas Fungicides 18%, Herbicides 16% and the rest 6% by others. Bio-pesticides are an emerging category and are currently a small proportion of the market but have a huge growth potential considering its non-toxic nature.

% of key segments in pesticide industry



Source: Compiled by CARE

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How pesticides are crucial for improving agricultural productivity

The importance of pesticides has been increasing over the last few decades driven by the need to improve overall agricultural productivity, in order to safeguard adequate food availability and sufficiency for the growing global population. Every year in India pests and diseases eat away on an average 15-25% of food produce. Past three financial years (FY14-16) have been a challenging year for crop protection chemicals market in India as well as throughout the world. However, FY17 turned out to be a good monsoon year. As per Economic survey of India, agriculture sector has grown by 4.1% in FY17.

In order to offset the growing demand for food grains either the area under the production should be increased or productivity of the existing land should be improved. As the arable land is limited, increasing productivity is the only option available. This can only be achieved through usage of high yielding seeds, fertilizers and pesticides. As the crop yield increases, the incidence of pest attack rise which leads to increased demand for pesticides.

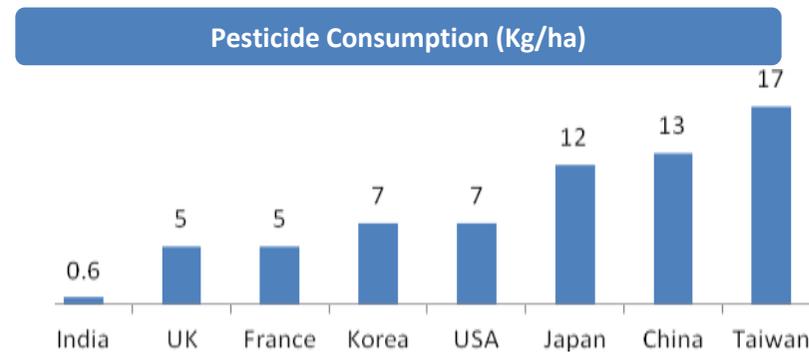
The following table gives the crop-wise yield in some countries:

| Crop-wise yield in different countries (in 2016E) | | | | Kilogram per hectare |
|---|-------|--------|-------|---------------------------------|
| Country | Paddy | Maize | Wheat | |
| India | 3,620 | 2,603 | 3,151 | |
| Brazil | 5,411 | 5,270 | 2,249 | |
| Russia | 5,897 | 4,794 | 2,860 | |
| China | 6,935 | 6,861 | 5,349 | |
| Japan | 6,710 | 2,731 | 4,410 | |
| USA | 8,663 | 10,948 | 2,991 | |
| | | | | Source: Compiled by CARE |

In India, more than 40,000 different types of insects have been recorded and of these about 1,000 have been listed as potential pests for economic plants. 500 pests have caused serious damage to agricultural output at some point in time and 70 others have been causing damage more often. Therefore, pesticides have been recognized as an essential tool in India to increase agricultural production by preventing crop losses before and after harvesting.

Plight of the pesticide industry due to minimum level of farmer awareness in India leading to low consumption

Low level of farmer awareness regarding pesticides has resulted in lower per hectare pesticide consumption in India. Educating the farmers about the advantages of pesticide and its safe usage will lead to increase in demand for pesticide in the country. Therefore the per hectare consumption of pesticides in India is amongst the lowest in the world and currently stands at about 0.6 kg/ha against around 5-7 kg/ha in the UK and about 13 kg/ha in China.

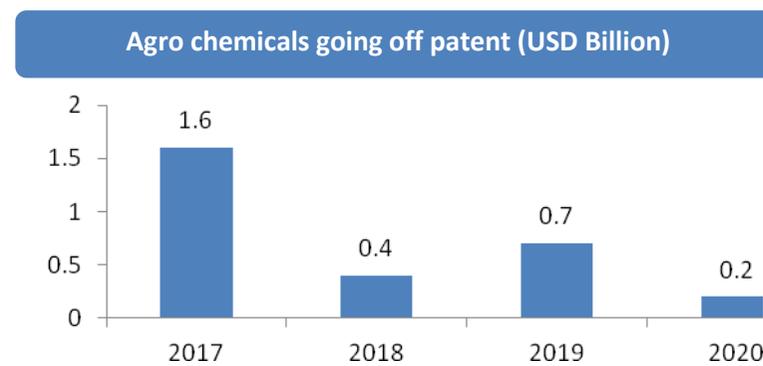


Source: FICCI

Opportunities and drivers of Pesticide Industry

Off Patent Products and Export Opportunities

Pesticides worth USD 4.1 billion are expected to go off-patent by 2020. This provides significant export opportunities for Indian players. Globally in regulated markets, patented products constitute about 20-22% share of the total pesticide market which is expected to decrease to around 13-15% by 2020 as a result of the patent cliff.



Source: FICCI

The Indian crop protection industry is dominated by generic products with more than 80% of molecules being non-patented. Exports currently constitute almost 50% of the industry turnover.

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Globally, India is the thirteenth largest exporter of pesticides. Most of the exports are off-patent products. The major exports from India happen to Brazil, USA, France and Netherlands. The key growth drivers are India's capability in low cost manufacturing, availability of technically trained manpower, seasonal domestic demand, overcapacity, better price realization globally and strong presence in generic pesticide manufacturing.

Acquisitions and Strategic Partnerships albeit low Investments

R&D involves long gestation period and high capital requirement. Many Indian companies are building strategic partnerships with global pesticides companies from USA, Europe, Japan and China. In return, Indian companies provide strong distribution network and sales infrastructure. A comparatively intense competition among large-scale players has led to mergers & acquisitions in the pesticides market with only six players including Syngenta AG (Switzerland), Bayer Crop Sciences (Germany), BASF (Germany), The Dow Chemical Company (U.S.), Monsanto (U.S.), and DuPont (U.S.) controlling more than 80% of the global pesticide product sales. Furthermore, almost all these companies have their subsidiaries in India.

Below is the list of companies where merger/acquisitions and partnerships happened during FY15-17.

| Acquirer | Acquired/Partnership |
|---|------------------------|
| Best Corp Science (India) Private Limited | Chemtura Chemicals Ltd |
| Excel Crop Care | Aimco |
| Bayer Crop Sciences (Subsidiary of Bayer AG(Germany)) | Montanso |
| Nagarjuna Agrichem Ltd | Helm AG (Partnership) |

Source: Compiled by CARE

The capacity additions during FY17-19 in the pesticide industry are expected to be muted. The outstanding capacity stood at 1,412 thousand tonnes in 2016-17 and is likely to increase by just around 2-3% by March 2018. The domestic pesticide industry is plagued with over-capacity. It operates at a capacity utilization of less than 60 per cent.

The list of projects that are likely to be commissioned are as follows:

- **Nagarjuna Agrichem Limited** has entered into a Memorandum of Understanding (MoU) with Government of Andhra Pradesh (GoAP) for setting up of a green-field unit in the state of Andhra Pradesh. The estimated project cost is Rs.150 crore and the company is expecting to start this project in FY19.
- **Agrico Organics** is setting up a technical grade pesticide unit at Bharuch in Gujarat with an investment of Rs.70 crore. This project is likely to become operational by June 2017.

| Year | Projects completed | Capacity addition | Outstanding capacity |
|-------------|--------------------|-------------------|----------------------|
| | Rs. crore | '000 tonnes | '000 tonnes |
| 2013-14 | 557.20 | 20.58 | 1,388.19 |
| 2014-15 | 196.00 | 15.97 | 1,404.16 |
| 2015-16 | 50.00 | 8.10 | 1,412.26 |
| 2016-17 (E) | 0.00 | 0.00 | 1,412.26 |

Source: CMIE

Challenges

Although farming yields across the globe per hectare have doubled in the past five years due to increased use of hybrid seeds, fertilizer, crop protection chemical, etc., the challenges to further increase the productivity continue to exist. Risk of land degradation, fall in the per capita arable land and increasing water scarcity are the major hurdles in increasing farm production and productivity. Few more major challenges are listed briefly below:

Low Research and Development (R&D) spending

In India average expenditure on R&D for pesticides is abysmally low at about 1-2% of sales, compared to global companies where average expenditure is about 6-7% of sales. The low expenditure of the Indian players towards R&D is due to concentrating on marketing generic and off-patent products by focusing on applied research.

| R&D expense of Indian pesticide companies | | |
|---|-------|-------|
| % to net sales | FY 15 | FY 16 |
| Bayer Crop Sciences | 0.58 | 0.73 |
| Excel Crop | 1.19 | 1.72 |
| UPL | 0.80 | 0.76 |
| Rallis India | 1.26 | 1.60 |
| Monsanto India | 3.60 | 6.07 |
| Nagarjuna agrichem | 0.79 | 1.01 |

Source: Company Annual Reports

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| R&D expense of global pesticide companies | | |
|---|-------|-------|
| % to net sales | CY15 | CY16 |
| Syngenta (Switzerland) | 10.16 | 10.16 |
| Bayer (Germany) | 16.00 | 17.00 |
| Dow (US) | 3.30 | 3.30 |
| Dupont | 1.70 | 1.65 |

Source: Company Annual Reports

High working capital requirement

The Industry requires high working capital investment due to high Inventory and long credit period. Due to the seasonal demand for pesticides, companies have to stack up inventory well before the season. This increases the inventory holding cost. Also, the industry has to extend long credit period due to intense competition amongst the players. As, pesticides are the last input in the agricultural operation, after having invested in seeds and fertilizers, farmers have little surplus money left for purchasing pesticides and therefore, providing long credit is necessary to stimulate the demand.

| Working cycle (days) | FY15 | FY16 |
|----------------------------------|------------|------------|
| Raw material cycle | 55 | 62 |
| WIP cycle | 20 | 20 |
| Finished goods cycle | 53 | 62 |
| Debtors | 77 | 82 |
| Gross working capital cycle | 204 | 226 |
| Creditors | 94 | 100 |
| <i>Net working capital cycle</i> | <i>110</i> | <i>126</i> |

Source : CMIE

Seasonal Demand

The demand for pesticides emanates majorly from agricultural production. Therefore, the demand for pesticides in India is seasonal as crops are mainly sown in two cropping seasons, namely Kharif (July - November) and Rabi (October - February). The demand is skewed in favour of kharif crops with about 70% of annual pesticide consumption.

Brand Awareness and need of efficient distribution system

There is a significant share of local pesticides products available in the market. According to industry estimates these products are ineffective and are unable to kill the pesticides could account for more than about 35-40% of the pesticides sold in India. Furthermore, they result in by products which harm the soil and environment which will result in crop loss and soil fertility. This is primarily on account of lack of efficient distribution system. On account of this the pesticide companies are unable to reach the farmers and educate them about the products.

Regulatory Framework

As pesticides are toxic and hazardous to mankind and the environment, the Government of India regulates the manufacture, sale, transport, export/import etc. of pesticides under the guidelines of the *Insecticides Act, 1968*. As per this Act, no pesticide is allowed for production/import without registration.

The GOI has initiated 'Soil Health card scheme' in February 2015 which is aimed at improving soil health and reducing input costs for farmer. It will contain crucial information on macro nutrients in the soil, secondary nutrients, micro nutrients, and physical parameters. The card will be accompanied by an advisory on the corrective measures that a farmer should take to improved soil health and obtain a better yield.

Paramparagat Krishi Vikas Yojana has been launched by GOI to support and promote organic farming and thereby improve soil health. This will encourage farmers to adopt eco-friendly concept of cultivation and reduce their dependence on fertilizers and agricultural chemicals to improve yields.

Outlook:

Domestic pesticide market is expected to grow steadily as the farmers have learnt modern techniques of farming which has led to increased dependence on pesticides to enhance crop production. Furthermore, the agriculture industry in India, baring wheat segment, is highly dependent on monsoon as area under irrigation is relatively low, therefore erratic rainfall might restrict growth of pesticides consumption. However, FY17 turned out to be a good monsoon year after three consecutive year of below normal south-west monsoon (June-September) rainfall. As per the Indian Meteorological Department the south west monsoon received 97% of the rainfall. With strong global demand for pesticides and India being the low cost producer, exports of pesticides from the country are expected to remain buoyant.

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Rating Dispersion:

The players across the industry have fairly steady credit profile exhibiting steady revenue growth and profitability irrespective of the monsoon failures mainly on account of diversified revenue profile. Further consolidation and business tie ups are the major opportunities in the industry. However, most of the players in the industry display high working capital intensity primarily on account of high credit extended to the farmers and seasonal demand. Hence, strong distribution network, appropriate pricing, brand recall and dealer margins are some of the critical factors for an industry player to succeed.

CARE has rated around 65 companies, out of which more than 68% of the rated companies are in investment grade. And the credit profiles of most of the companies remained stable.

