



Pesticides

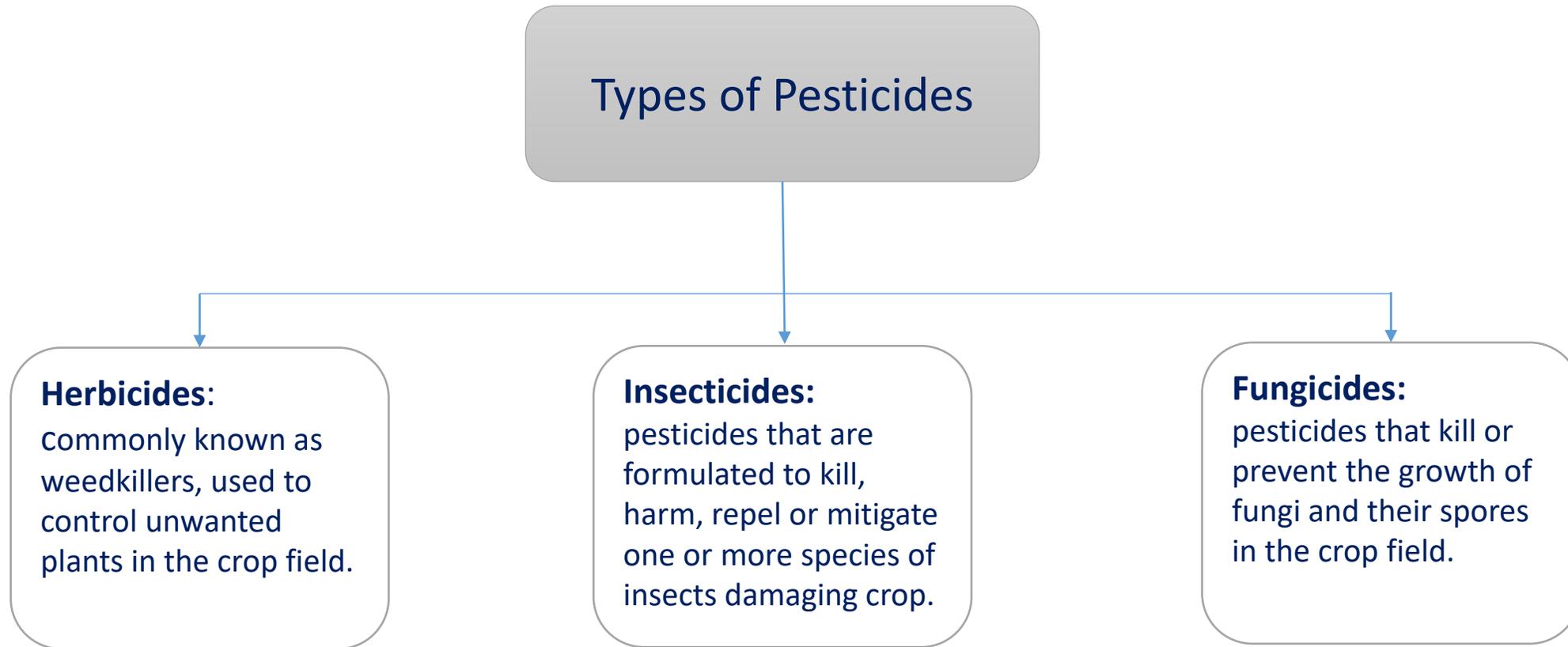
An Overview

TABLE OF CONTENTS



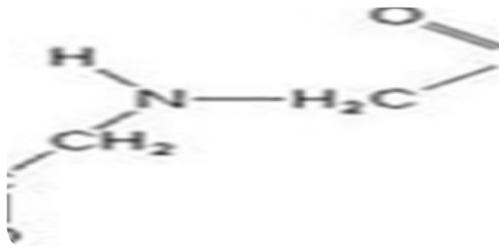
Contents	Page No.	Contents	Page No.
Introduction	1	Rating Curve	15
Global Industry Overview	3	SWOT Analysis	16
Local Industry Overview	5	Outlook	17
Local Industry Supply	6	Bibliography	18
Local Industry Demand	7		
Business Risk	9		
Financial Risk	11		
Regulatory Environment	13		
Duties and Taxes	14		

- **Pesticide:** A mixture of chemical/other components used for preventing, destroying, repelling or mitigating pests mainly from crops.





Production Process



Manufacturing of Pesticides Active Ingredients (PAIs) by chemical reaction of two or more chemical components.



Formulation of PAIs with solvents to produce different types of pesticides.



Granular Form of Pesticides.



Liquid Form of Pesticides.

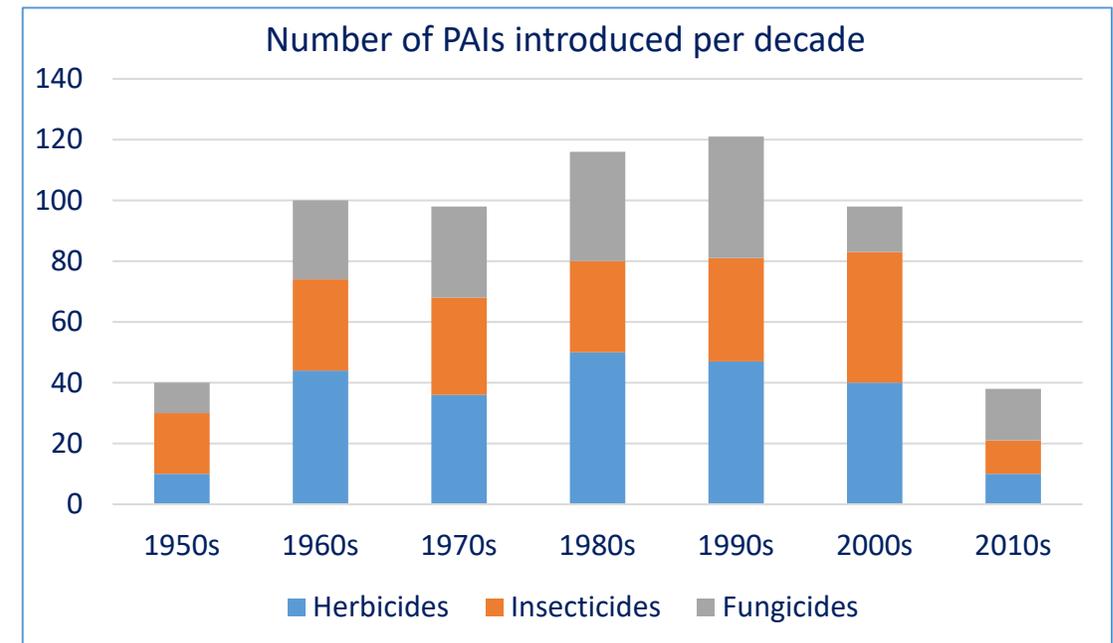


Powder Form of Pesticides.



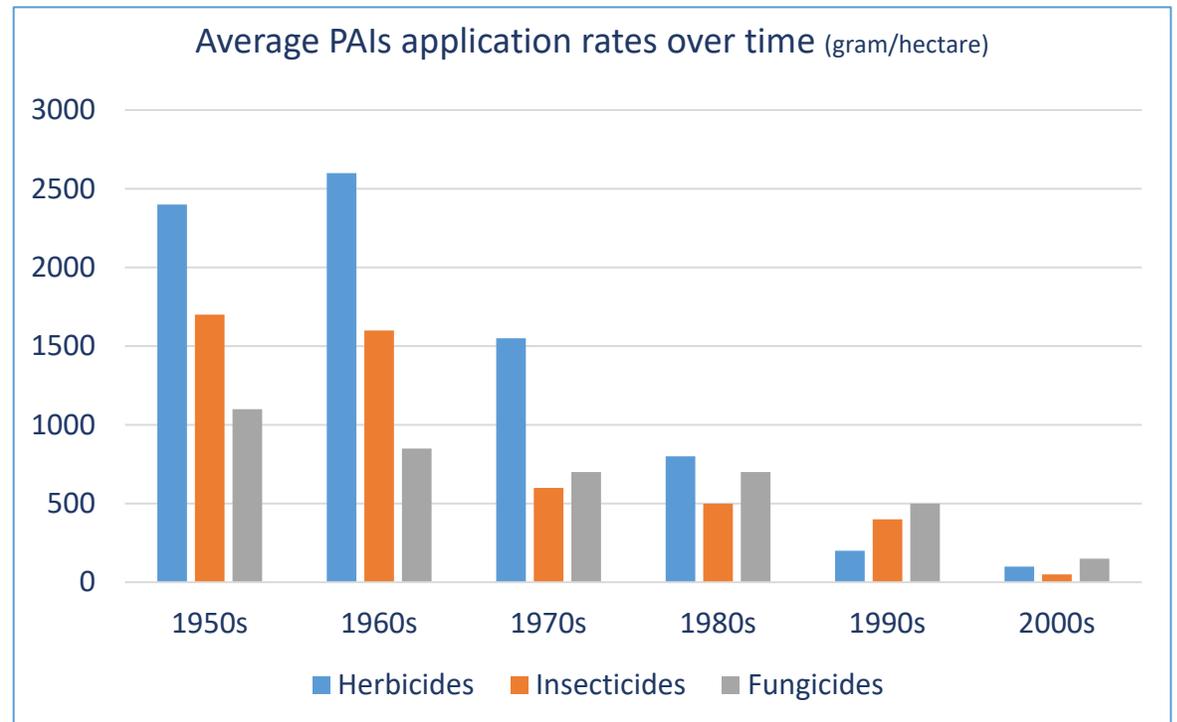
Overview

- The pesticides industry has been long evolving. In 1960s, around 100 PAIs were available to the farmers whereas, now more than 600 PAIs are available globally.
- Global pesticides industry is valued over USD~50 billion with more than 40 different groups operating in the Industry. New entrants bring new modes/techniques. This is important for addressing resistant or mutating virus, weeds, and pests etc.
- The pesticides industry is R&D intensive. Major companies across the globe invest around 7%-10% of their sales annually in research and development area. However, despite the high investment in innovation and development, the rate of new PAIs being introduced has remained sluggish due to stringent approval procedures.
- To keep up with new safety regulations, many products have been withdrawn from the market over the years, either as a result of being banned due to impact on environment and health, or because they were not supported during reregistration process.
- It is also important to note that while the pesticides have dramatically improved the efficacy and safety profile of new products, the capacity of regulatory systems in low income countries to protect confidential business information related to a new product is often insufficient, jeopardizing the industry's investment, stifling innovation and sometimes leaving farmers without access to new technology



Overview

- As Pesticides Industry has gradually evolved over the years, there has been a significant reduction in the application rate of a pesticides per hectare. Farmers, therefore need to apply a lower dosage of pesticides products to achieve the same efficacy.
- Average application rates in the 1950s were 1,200, 1,700, and 2,400 grams of PAIs used per hectare for fungicides, insecticides, and herbicides, respectively. By the 2000s the average use rates were reduced to 100, 40, and 75 g/ha. This technology evolution means the amount of PAIs used by a farmer today is around 95% lower than the rate used in the 1950s.
- Increased efficiency of new PAIs along with the improvement in seeds resistance led to reduction in quantity of PAIs use per hectare.
- In recent years, the interest of both the larger R&D based companies including off patent manufacturers, as well as many smaller enterprises and start-ups has been increasing in biopesticides.
- Over the last 20 years, the rate of new biological product introduction has frequently exceeded that of conventional products and the trend looks set to continue as more people look for environmental friendly and organic products.
- In terms of patent activity, CY17 was the first year that there were more patents for biological pesticides than conventional crop protection products: 173 compared to 117.



PESTICIDES | LOCAL INDUSTRY

Overview

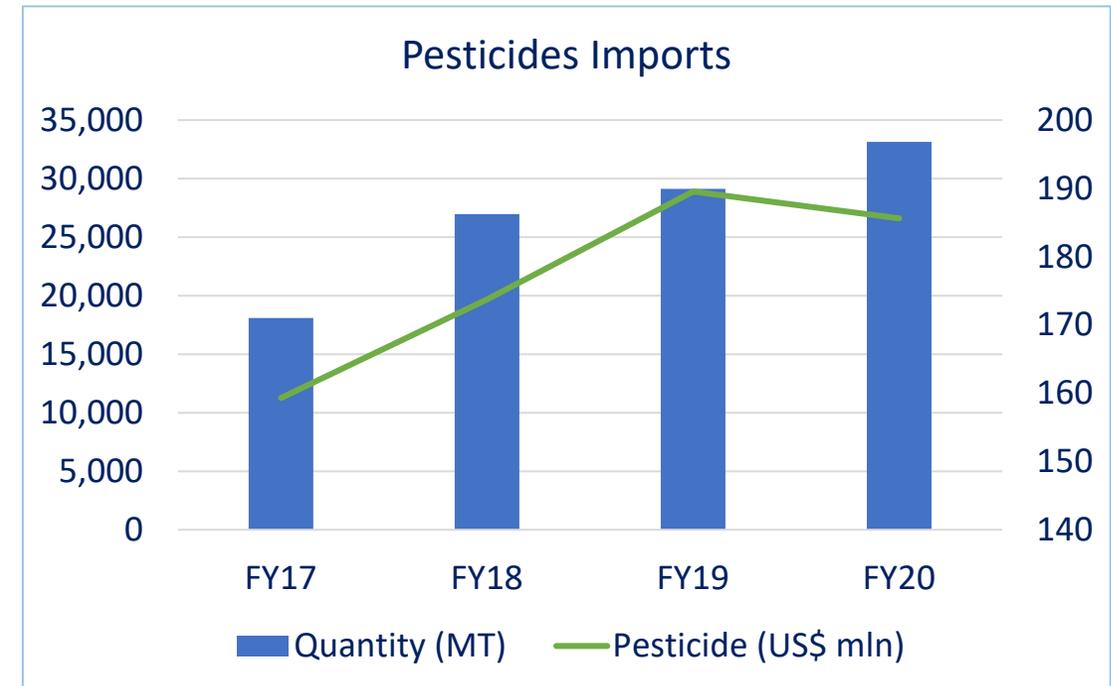
- Pakistan’s pesticides Industry was estimated at USD~371mln in FY20 (USD~379mln in FY19), with YoY decrease of ~2%, owing to reduction in area under cultivation of cotton crop – a major insecticide consuming crop.
- During 6MFY21, the production of the cotton crop was recorded at ~5.37 mln bales (6MFY20: ~8.14mln bales), down ~34% YoY. Area under cultivation of cotton crop also reduced by ~8% and was recorded at ~2.31mln hectares (FY20:~2.53mln hectares).
- The Industry’s contribution to the GDP is ~0.15%. The significance of the Industry is reflected by its importance in crop protection and ultimately food security for the country.
- Demand of pesticides products, majorly insecticides, is expected to remain under pressure during FY21 due to reduction in area under cultivation of cotton crop during the period.
- The sector is composed of many small players. As per the latest list of Department of Plant Protection, around 272 pesticides importers are registered in Pakistan.
- Local companies sell their products through dealers to end consumers. Considering the similar nature of the products competition amongst companies is high.

Snapshot	FY19	FY20
Imports (US\$ mln)	190	186
Quantity (MT)	29,135	33,146
Revenue (US\$ mln)	379	371
Contribution to GDP	0.15%	0.15%
Registered Importer	272	
Registered Product	170	
Structure	Unorganized	
Association	Pakistan Crop Protection Association	

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Supply | Raw Materials

- Pakistan largely depends upon imports to meet the local demand of the pesticides industry. Pesticides import can be divided into two categories, (a) pesticides products; manufactured pesticides and (b) pesticide active ingredients.
- Total pesticides imports were recorded at USD~186mIn in FY20 (FY19: USD~190mIn) with a CAGR of ~6% over five years. The quantity imported during FY20 was recorded at ~33,146 MTs (FY: ~29,135 MTs) with YoY growth of ~14% whereas the value of imports was reduced by ~2% during FY20.
- Owing to reduction in international prices of pesticides, average price of pesticides at import stage is reduced from USD~6,506/MT in FY19 to USD~5,600/MT in FY20, with YoY decrease of ~14%.
- Currently, China is the single largest exporter of pesticides to Pakistan as it accounts for more than ~90% of the total pesticides products and PAIs imports. Significant reliance on a single country increases the risk of supply chain disruptions. The risk is further amplified by the nature of the products, as prior registration and approval is required for the import of each pesticides product.
- In terms of chemical types, insecticides constitute major portion of pesticides imports in Pakistan followed by herbicides and fungicides.

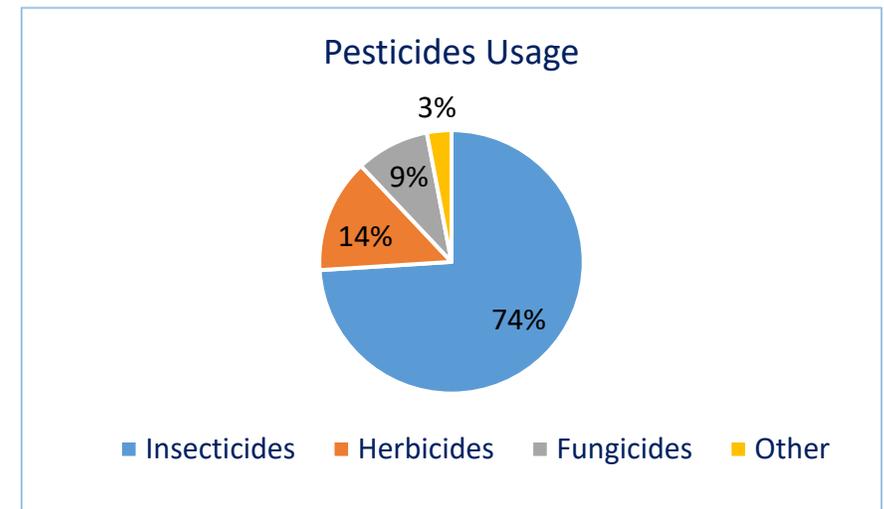
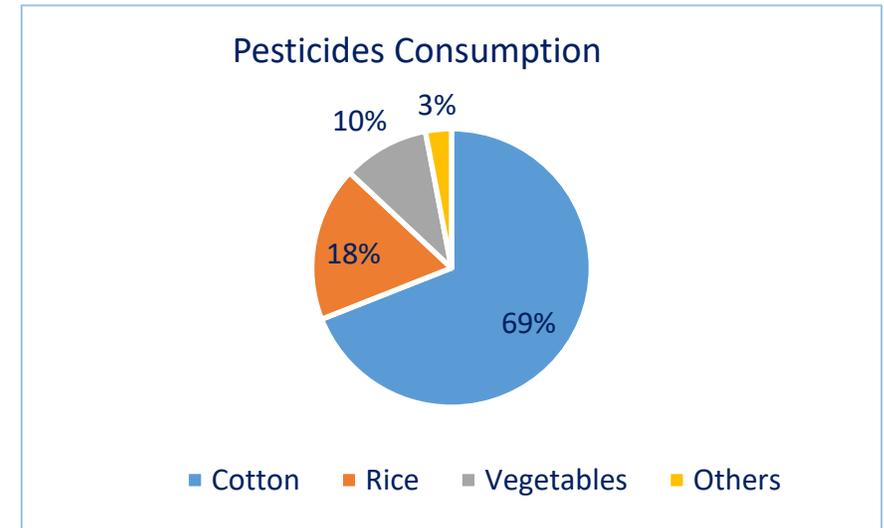




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Demand

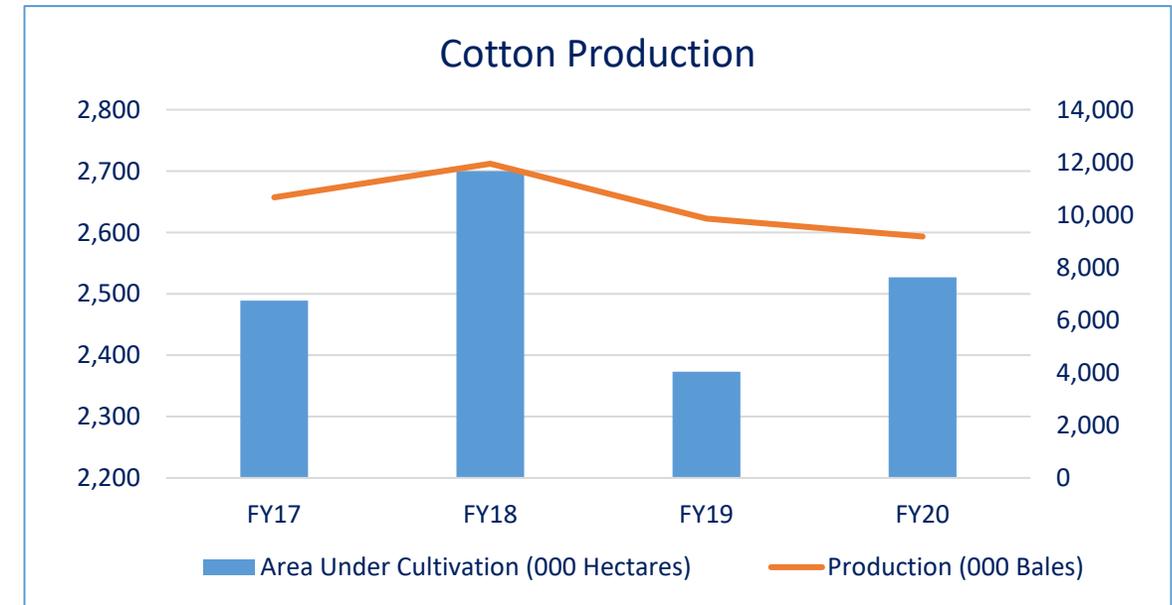
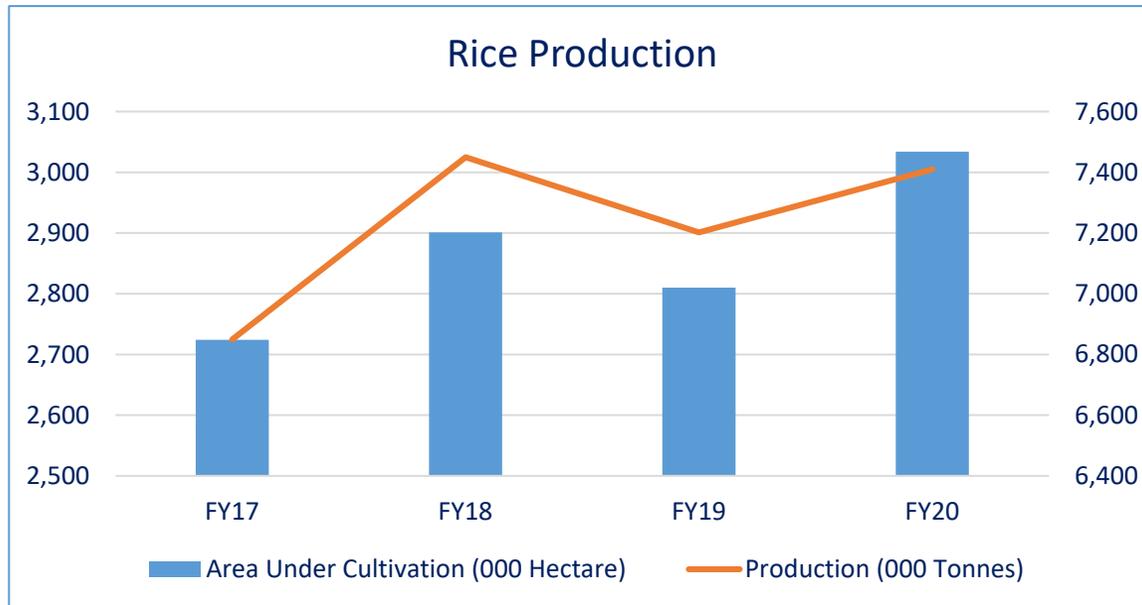
- Agriculture is one of the important sectors of Pakistan as it contributed ~19% to the country's GDP in FY20 (FY19: ~19%) . The Sector is also the largest employer of the country's workforce.
- Crops make up more than ~35% of the agriculture sector. Pesticides are an important ingredient for the crop sector along with fertilizers and seeds.
- As per estimates, over ~69% of the pesticides are consumed by cotton crop only and the remaining ~31% are used for other crops such as sugarcane, rice, tobacco, paddy, maize, fruits and vegetables.
- All three major types of pesticides are commonly used in Pakistan. However, insecticide makes up ~74% of the total market followed by herbicides and fungicides having market share of ~14% and ~9%, respectively.
- The pesticides companies sell their products to end consumers through dealers. Dealers usually buy in bulk from the companies and sell products in their respective markets.



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Demand

- Despite an increase of ~3% in area under cultivation of cotton crop during FY20, the production of the crop was recorded at ~9.18mln bales (FY19:~9.86mln bales) during the period with YoY decrease of ~7%. Cotton production during 1HFY21 was recorded at ~5.37mln bales (1HFY20: ~8.14mln bales), a dip of ~34% YoY, while area under cotton cultivation declined by ~8% from same period last year. For rice, the area under cultivation and production increased by ~6% and ~3% respectively in FY20.
- Increased area under cultivation of rice crop during FY20 supported the demand of the pesticides products in wake of drop in area under cultivation of cotton crop. The reduced production of cotton crop during FY21 is expected to reduce the demand of pesticides products as well.
- Considering the homogeneous nature of the products, the competition amongst the companies is high.





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Business Risk | Operating

- Operating Risk:** This risk particularly refers to the difficulties relating to the operations of the pesticides players which can hamper the profitability and performance of the sector. The sector is highly dependent on imported chemical compounds to meet the local demand. Being highly dependent on imports, the inherent risk of supply chain disruption is high. The sector's costs are therefore subject to exchange rate volatility as well.
- China is the single largest exporter of the chemical compounds to Pakistan, as it constitute more than ~91% of total pesticides imports. High dependence on single country for the important ingredient for crop protection further increases the supply chain risk.
- Globally, the demand of biopesticides is growing, as the sector is expected to grow with CAGR of ~14.7% to reach USD~8.5 billion by CY25 from an estimated value of USD~4.3 billion in CY20. In Pakistan, biopesticides has very low market share and considering the lack of local expertise for the product, the application of biopesticides is expected to remain low in coming periods as well.

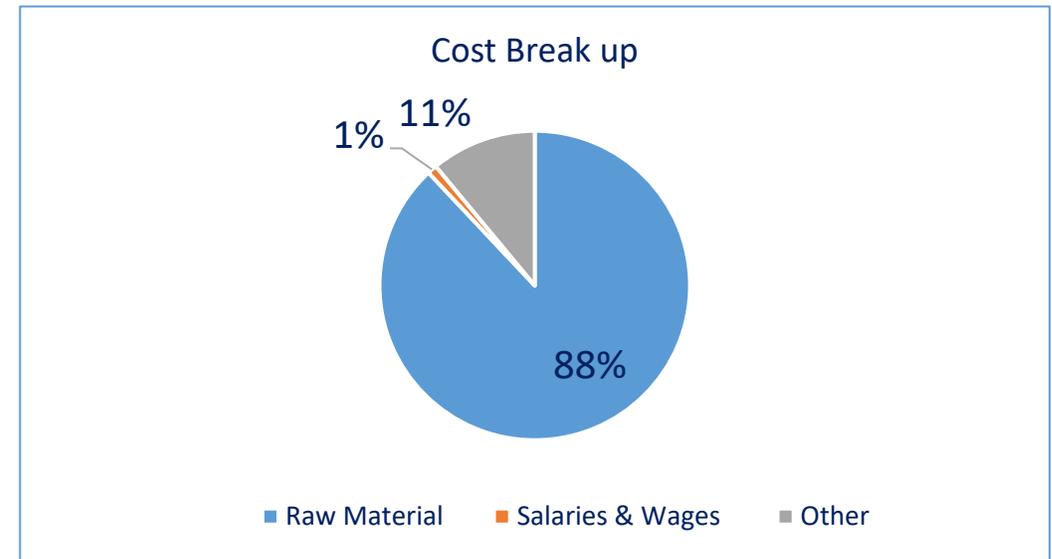
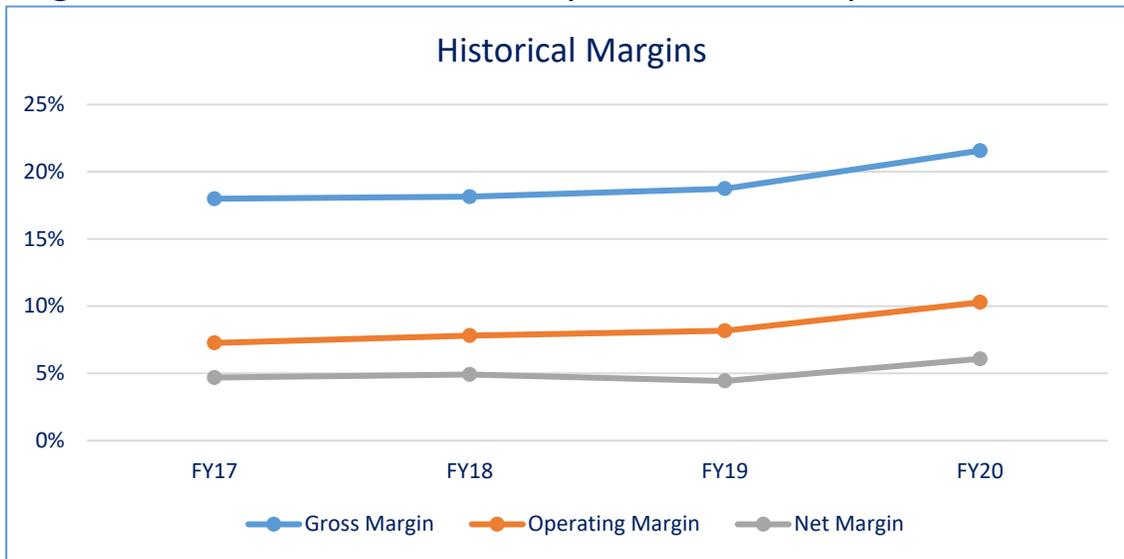
Imports of Major Chemical Compounds	FY20 (PKR mln)	China's Share (%)	Others %
Nitrile F.C	13,562	94%	6%
Diaminotoluene	5,700	97%	3%
Pyrimidin Ring	2,711	89%	11%
Thiocarbamates	2,018	100%	-
Others	5,590	80%	20%
Total	29,581	92%	8%



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Business Risk | Turnover & Margins

- The estimated revenue of the sector was recorded in the range PKR ~60-70bln during FY20. Turnover of the sector is expected to remain under pressure during FY21 owing to reduction in area under cultivation of cotton crop during the period.
- The sector is characterized by high margins. Companies with strong brand names enjoy healthier margins than the small players. The Industry's direct costs are majorly dominated by raw material costs (PAIs). This reflects that margins are significantly dependent on the International prices and exchange rate fluctuations since the sector is highly dependent on imported raw material.
- Profits margins of the sector increased during FY20 owing to reduction in international prices of pesticides products. As all local companies are dependent on imports to meet local demand, the impact of increase in international prices of pesticide products and exchange rate movements is borne by both local companies and end consumers.

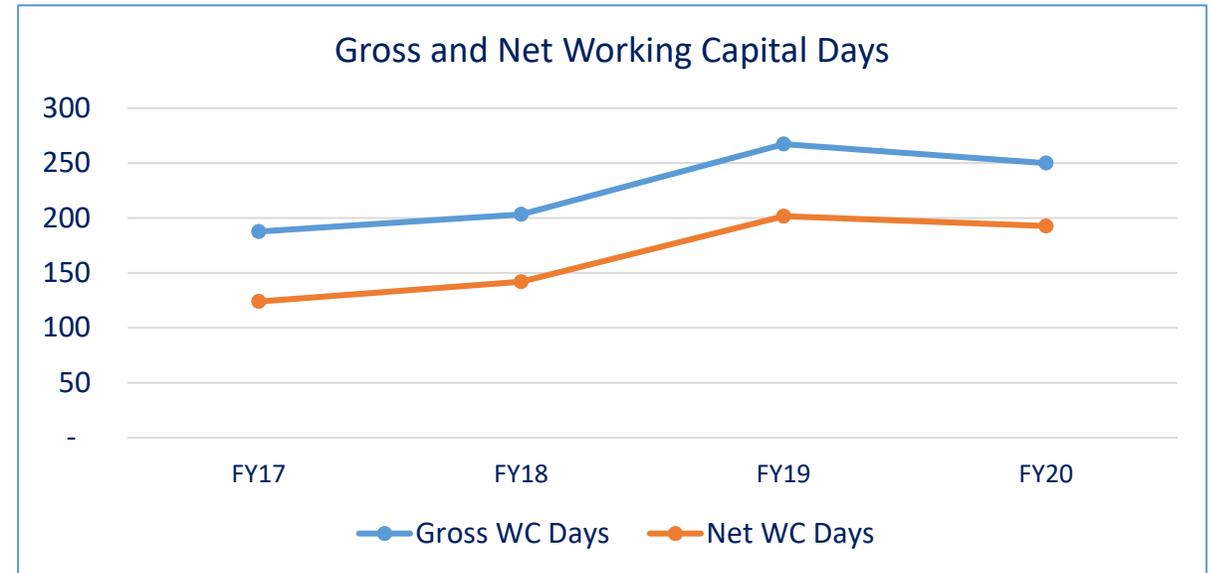
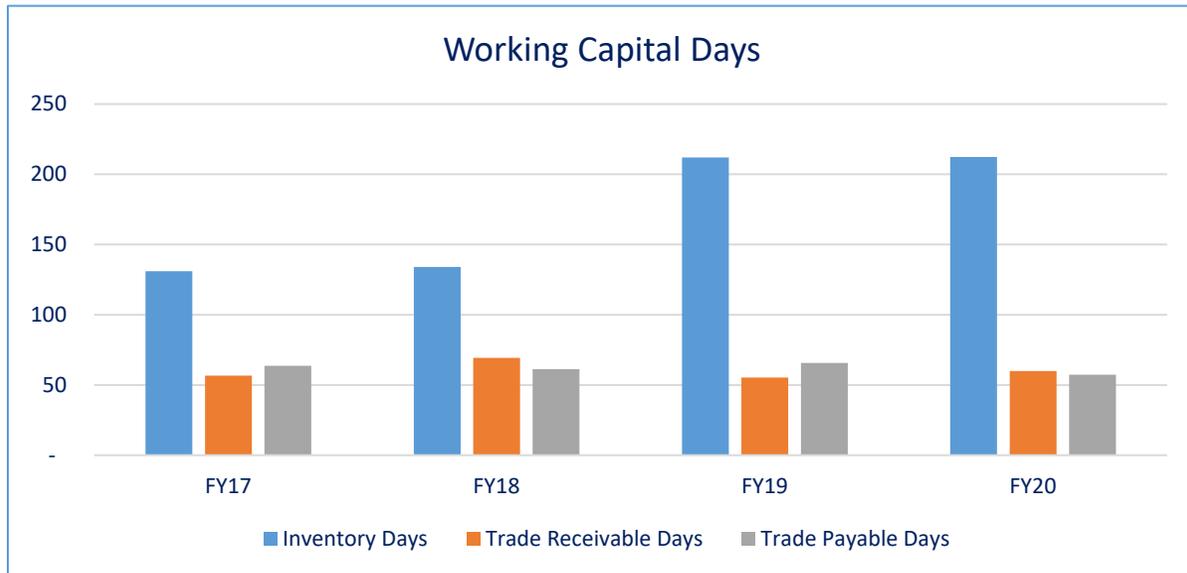


Note: Calculations are based on PACRA rated clients.

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Financial Risk | Working Capital

- The Industry’s working capital cycle is dominated by its Inventory days.
- The average receivable days of the Industry reflect an increasing trend from 55 in FY19 to 60 in FY20, depicting delays in recovery owing to reduced farmers economics amid covid-19 lock down. Further, the inventory days was recorded at ~212 days during FY20 (FY19: ~212 days).
- The Industry’s average net working capital cycle has now gone down from ~202 days in FY19 to ~193 days in FY20.



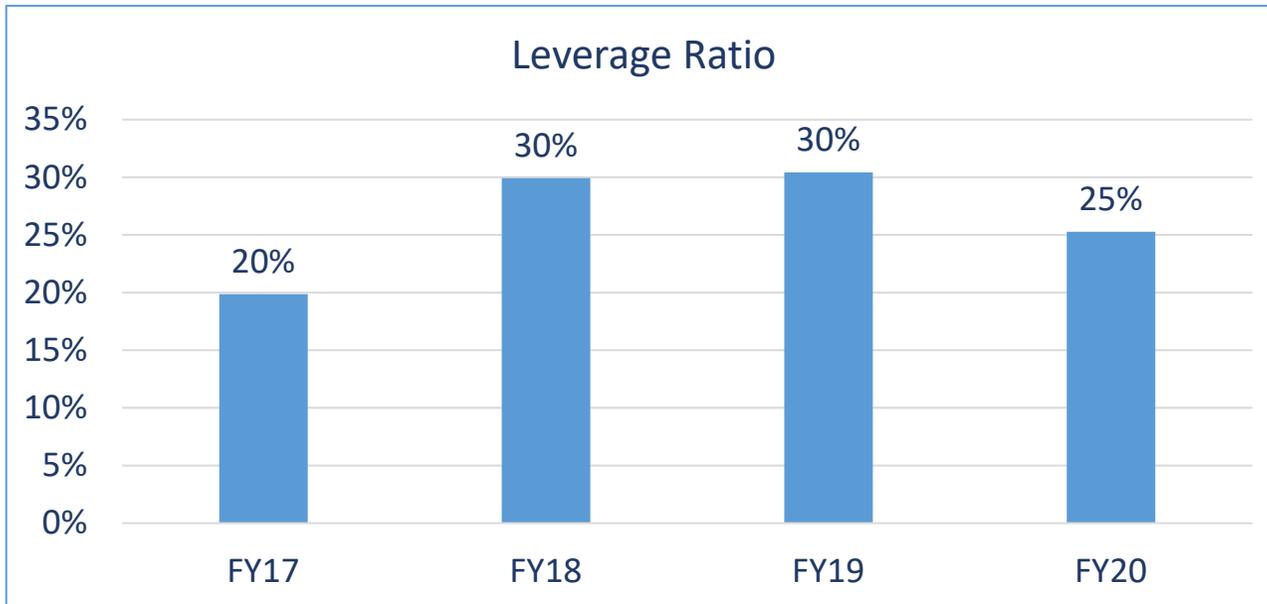
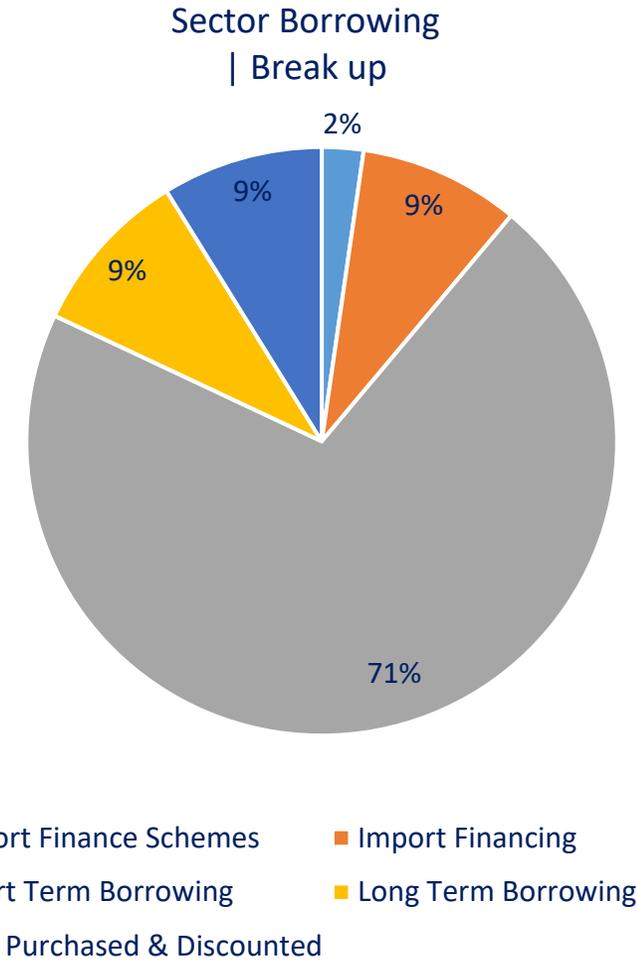
Note: Calculations are based on PACRA rated clients.



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Financial Risk | Borrowings

- The Industry’s total borrowing was recorded at PKR~29bln as at End-Dec’20 (PKR~22bln as at End-Dec19) up ~32% YoY.
- The increase in the sector borrowing is attributed to higher short term borrowing, majorly in the 1HFY21 owing to rising working capital needs.
- The Industry’s debt book is dominated by short-term financing (~70% as at End-Dec’20) due to reliance on running finance lines to fuel imports/purchases and lower need for capital investment in the Industry. The capital structure is sound. Overall debt financing stands at an average of ~25% in the capital structure.



Note: Calculations are based on PACRA rated clients.

Regulatory Framework

- Agricultural Pesticides Ordinance 1971 (APO) and Agricultural Pesticides Rules 1973 (APR) were enacted by Government of Pakistan (GOP) to regulate the import, manufacturer, formulation, sale, distribution and use of Pesticides. According to APO, the registration of the pesticides product is required before import, manufacture, formulation and sale in the country.
- The Department of Plant Protection, (DPP) is an attached Department of Ministry of National Food Security and Research. The Department is responsible for import, manufacturing, formulation of Pesticides in Pakistan besides quarantine functions whereas, function to regulate inspection, testing, distribution, use, sale and storage has been shifted to the Provincial Agriculture Departments after 18th Constitutional Amendment.
- According to the DPP list, more than ~170 registered products are valid for use as of today. Further according to APO, the registration of the manufacturer, formulator, importer and seller of pesticides product is required as well. According to the list of DPP, there are around ~272 importers are registered in the country.
- Development of new products is technical as well as capital intensive in nature. Promulgation of stringent laws related to patent registration and their enforcement promotes companies to invest more in research and development.
- Promulgation and enforcement of environment protection law in line international best practices would encourage local players to invest more in research and development that would ultimately enhance the sectors' value addition.

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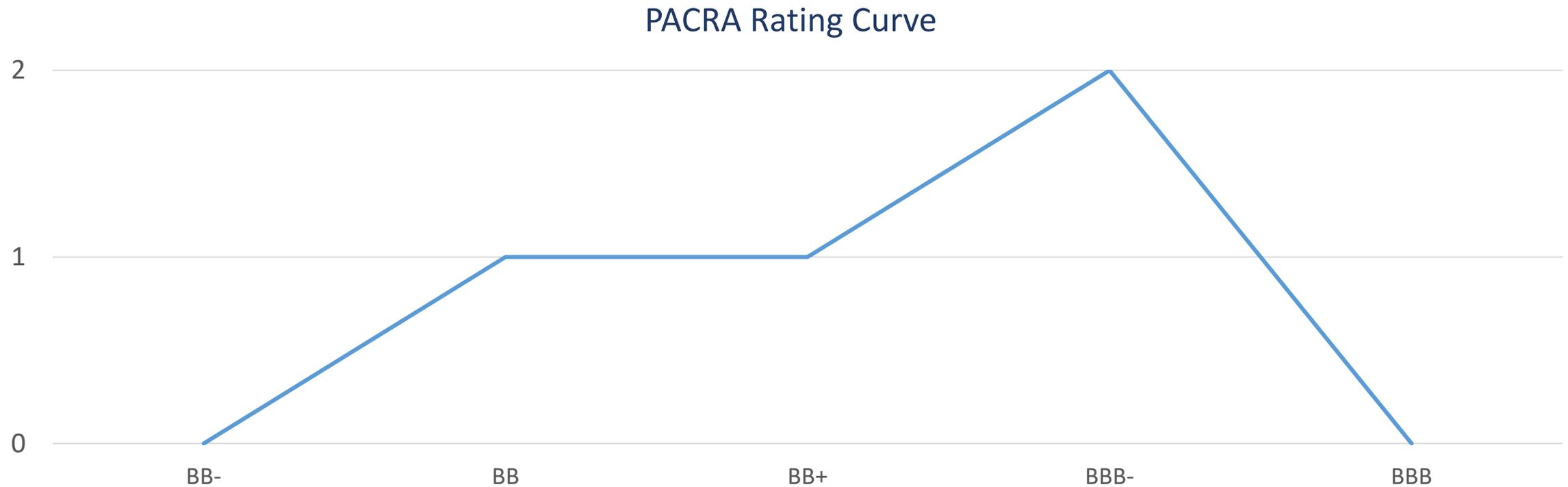
Duties & Taxes

PCT Code	Description	Custom Duty		Additional Custom Duty		Sales Tax		Income Tax	
		Ingredients for Pesticides	FY19	FY20	FY19	FY20	FY19	FY20	FY19
2921.5110	Diaminotoluene Base	0%	0%	2%	2%	17%	17%	11%	11%
2926.9050	Nitrile F.C Base	0%	0%	2%	2%	17%	17%	11%	11%
2933.5950	Pyrimidin Ring Base	0%	0%	2%	2%	17%	17%	11%	11%
2930.9070	Thiocarbamates Base	0%	0%	2%	2%	17%	17%	11%	11%
	Finished Goods	FY20	FY19	FY19	FY20	FY19	FY20	FY19	FY20
3808.5210	Pesticides Products	3%	3%	2%	2%	17%	17%	11%	11%

- Custom duty structure is designed to ease the import of ingredients of the products to ensure better crops.
- The custom duty of 3% on ingredient for the pesticides was removed in FY19 to increase the local formulation of chemical compounds.

Rating Curve

- PACRA rates 4 entities in the pesticides sector.
- The sector's entity ratings bandwidth is BB to BBB-.



SWOT Analysis

- Vital role in crop protection and yields
- Stable Demand
- Healthy margins
- Low import duties



- Unorganized sector lacking corporate culture
- High Competition
- Complete dependence on imported chemical compounds
- Exposure to exchange rate movement
- No investment in research and development

- Supply chain disruptions
- Reduced crop production
- Reduction in area under cultivation
- Low barrier to entry
- Rising health concern due to excessive use of pesticides

- Foster investment in research and development through supportive legislation.
- Increase efficiency and improve quality through technological upgrade
- Low interest rates
- Introduction of biopesticides

Outlook: Stable

- Local industry relies heavily on imported raw material to meet local demand, which increases the exposure to exchange rate movements coupled with increased risk of supply chain disruption.
- Demand of the pesticides products usually remains stable considering its importance in the crop protection market whereas, the revenue of the sector is expected to remain under pressure during FY21 considering the low production of major insecticides consuming crops.
- The investment required to setup new formulation plant is not significant whereas working capital requirement of the sector is high. To manage their working capital needs, the sector usually prefers short term borrowing that constitute considerable portion of total borrowing of the sector. High reliance on short term borrowing is a depiction of aggressive working capital management.
- The sector is also expected to face challenges of delay in recovery owing to reduced farmers economics amid substantial decrease in area under cultivation of cotton crop, which will further increase the working capital requirement of the sector.
- Considering the healthy margins and sector ability to pass on impact of increased cost of raw material to customers, the resilience of the sector profitability amid fluctuating cost of imported raw material is high.
- The sector is characterized by low value addition due to negligible investment in research and development by both local and multinational companies.

- Pakistan Bureau of Statistics (PBS)
- State Bank of Pakistan (SBP)
- Federal Board of Revenue (FBR)
- PACRA Database
- Environmental Protection Agency
- Phillip-McDougall
- World Bank
- Department of Plant Protection
- Pakistan Economic and Social Review
- Pakistan Journal of Agricultural Sciences
- Ministry of Finance
- Ministry of National Food & Security
- FAO

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