



# Pesticides

## Sector Study

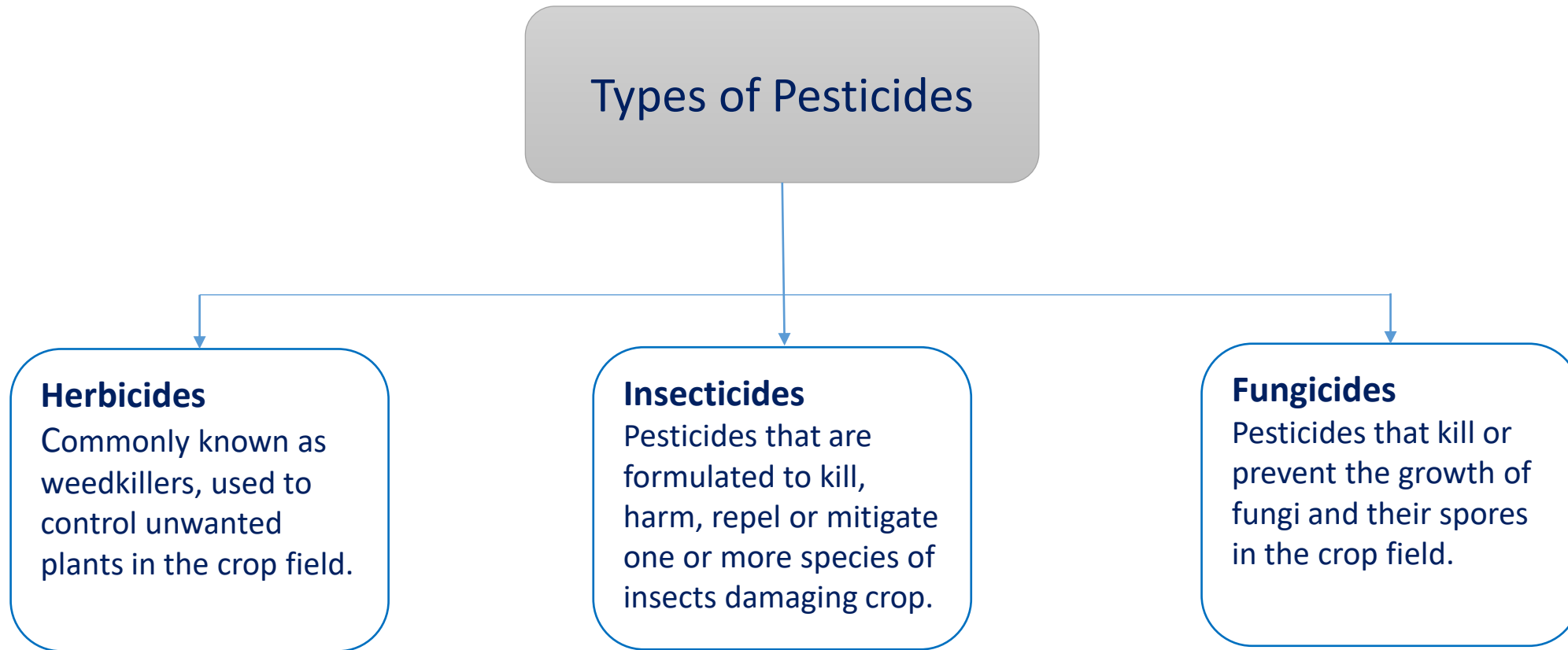
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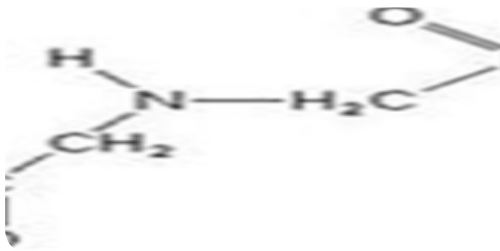
## Introduction

**Pesticides** are the chemical substances which are used for prevention of plant diseases, weeds and being used widely for increasing the quantity as well as quality of food products.



# Pesticides

## 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.

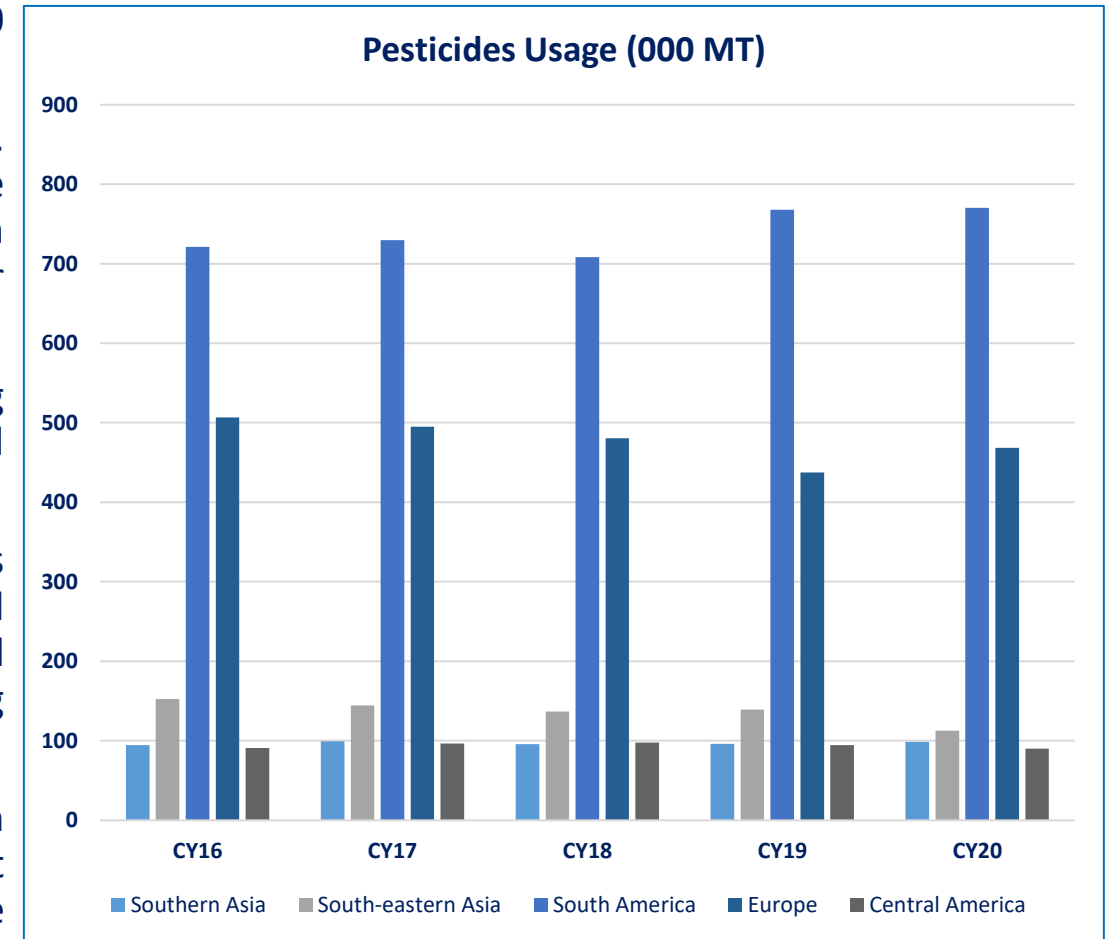


Liquid Form of Pesticides.

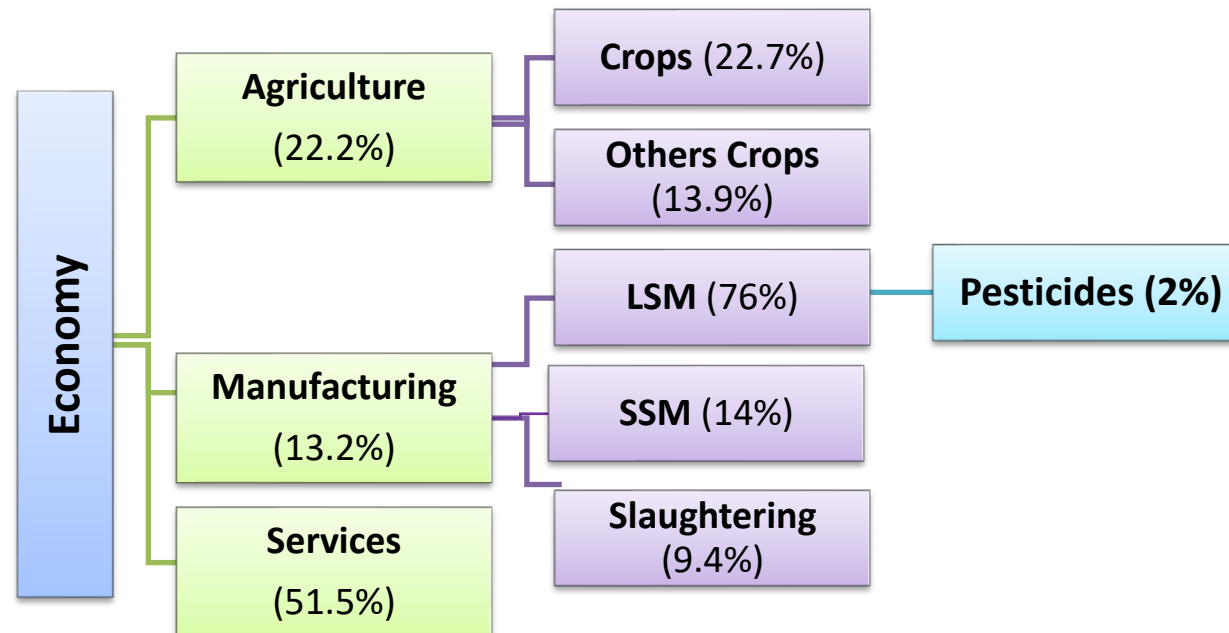


Powder Form of Pesticides.

- Global pesticide use has grown steadily over decades - Between 1990 and CY17, their usage increased by ~80%.
- Current pesticide consumption stands at ~4.0mln MT around the globe. Half of these applied comprise herbicides, ~30% are insecticides, while fungicides make up ~17% of the total pesticides consumed. South America and Europe have, on average (CY16-20), remained major consumers of pesticides.
- In CY19, global pesticides market was valued at USD~84.5bln, exhibiting an growth rate of ~4% since CY15. by CY23-end, the market is expected to reach USD~130.7bln, growing at ~11.5%.
- The global pesticides industry is R&D intensive. Major companies across the globe invest ~7%-10% of their sales annually in research and development. However, despite the high investment in innovation and development, the rate of new PAIs (Pesticides Active Ingredients) being introduced has remained sluggish due to stringent approval procedures.
- In terms of trade, total pesticides exports in CY20 amounted to ~9.3mln MT, with China being the largest exporter. India was the fourth largest exporter, with ~522,000 MT of pesticides exported. The top five importers in CY20 were the USA, Brazil, Canada, Australia and France, accounting for ~15% of the total imports.



- Pakistan’s economy can be broadly divided into three segments: Agriculture, Industry and Services. During FY22, Pakistan’s economy (Real GDP) grew by ~6.0% (FY21: ~5.7%), on account of ~4.4% growth in Agriculture (FY21: ~3.5%), ~9.8% growth in Manufacturing (FY21: ~10.5%) and ~6.2% growth in Services (FY21: ~6.0%) segments .
- At current basic prices, important Crops contributed ~22.7% in the agriculture sector (FY21: ~21.6%) and ~5.4% to GDP, while Other Crops accounted for ~13.9% in agriculture sector (FY21: ~14.2%) and ~4.9% to GDP.





## Local | Overview

- Pakistan’s pesticides industry is estimated at PKR~95.3bln in FY22 (FY21: PKR~69.3bln), with a YoY increase of ~30%, owing to the overall growth in crops sector and resultant demand. The growth can also be attributed to increased prices on the back of expensive raw material.
- Pakistan largely depends upon imports to meet the local demand of the pesticides industry. Apart from procuring raw material in the form of chemicals, the country also imports final products in the form of insecticides. During FY22, total insecticides imports clocked in at ~36,000 MT (FY21: ~38,000 MT), amounting to PKR~36.4bln, or USD~201.7mln (FY21: PKR~30.1bln, or USD~189.9mln). Increased dollar values may be indicative of higher international prices.
- During 7MFY23, imports of insecticides were recorded at ~22,000 MT, up ~16% YoY. In value terms, imports reached USD~114.5mln or PKR~25.6bln (7MFY22: USD~103.0mln or PKR~17.6bln).
- The sector is composed of numerous small players. As per the latest list of Department of Plant Protection, ~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 the players is high.

Industry Snapshot	FY21	FY22
Imports Final Product (PKR mln)	30,118	36,400
Imports Final Product (000 MT)	37.6	35.8
Imports Chemicals (PKR mln)	27,189	30,400
Imports Chemicals (000 MT)	17	21
Revenue* (PKR mln)	69,303	95,288
Registered Importers	272	
Registered Products	170	
Structure	Unorganized	
Association	Pakistan Crop Protection Association	

\*Revenue figures are estimated, based on PACRA-rated clients with ~12% share in the pesticides’ market.  
 Note: Final product includes insecticides.

# Pesticides

## Supply | Raw Material

- Pakistan largely depends upon imports of raw materials (i.e., chemicals) to meet the local supply of the pesticides industry. In terms of chemical type, insecticides form the largest share of pesticides imports, followed by herbicides and fungicides.
- During FY22, total imports of chemicals stood at PKR~30.4bln, up ~11.8% YoY, while in volumetric terms, imports were recorded at ~20,000 MT, compared with ~17,500 in FY21.
- Currently, China is the single largest exporter of pesticides chemicals to Pakistan, accounting for ~85% of the total pesticides products.
- In FY22, Nitrile F.C formed the largest chunk of imports, accounting for ~51% of the import bill (pesticides chemicals) (FY21: ~64%). In volumetric terms, the country imported ~8,000 MT as against ~8,600 MT the preceding year.
- Diamino Toluene formed ~24% of total chemicals imported in value terms (FY21: ~16%) , whereas the volume imported increased to ~6,500 MT, as against ~3,008 MT the preceding year. This chemical is mostly used in fungicides stabilizers.

Imports   Major Chemical Compounds (PKR mln)	HS Code	FY21	FY22	China's Share FY22 (%)	Others FY22 %
Nitrile F.C	2926	17,317	15,584	99%	1%
Diamino toluene	2921	4,325	7,357	98%	3%
Pyrimidin Ring	2933	2,299	3,094	97%	11%
Thiocarbamates	2930	2,195	3,000	100%	-
Oth. Nitrosated Base	2909	567	907	36%	64%
Others*	-	486	458	80%	20%
<b>Total</b>	-	<b>27,189</b>	<b>30,400</b>	<b>85%</b>	<b>15%</b>

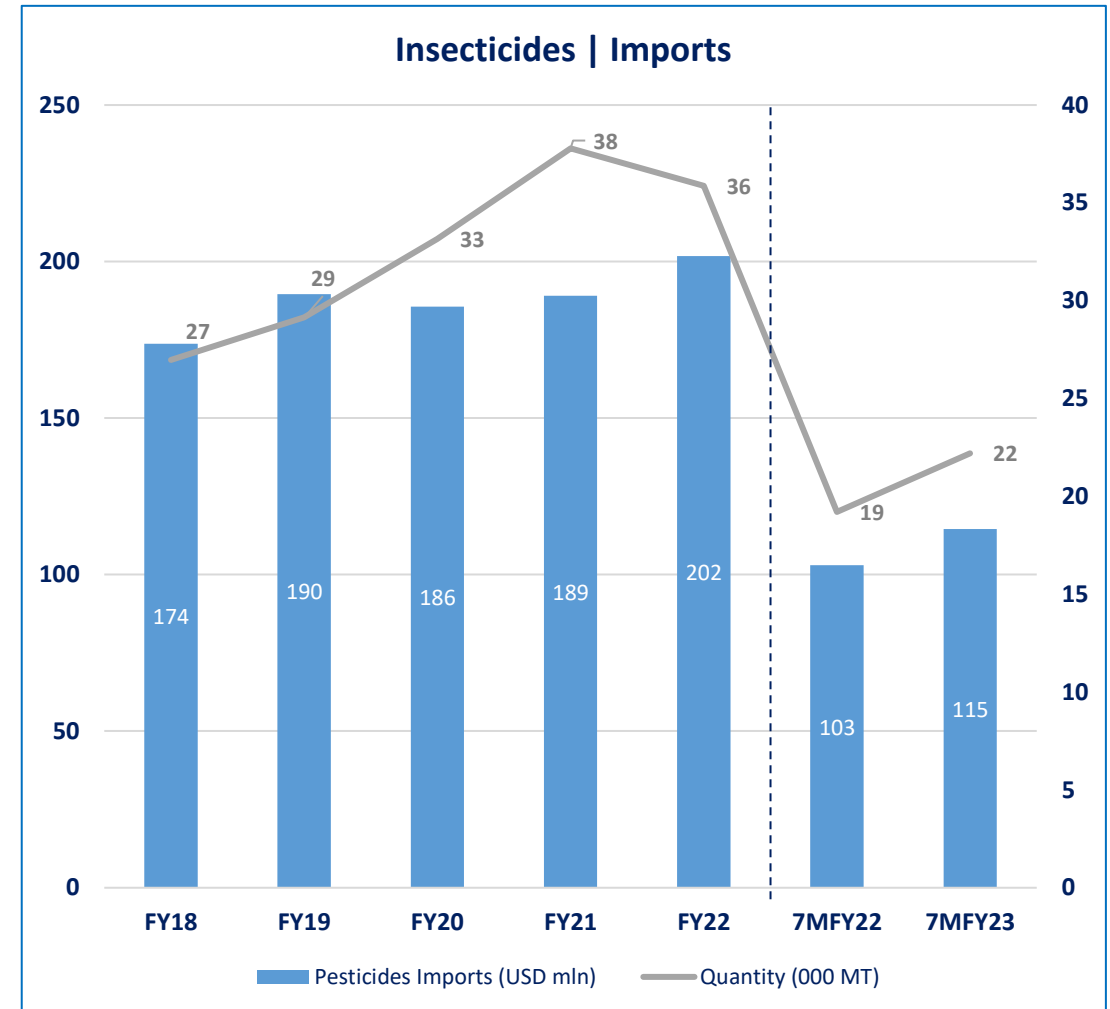
\*Others include the following HS Codes: 2919,2909,2921.4390,2930,2933,2934 and 2938 (these accounted for ~2% of import bill for chemicals import in FY22).



# Pesticides

## Supply | Final Product

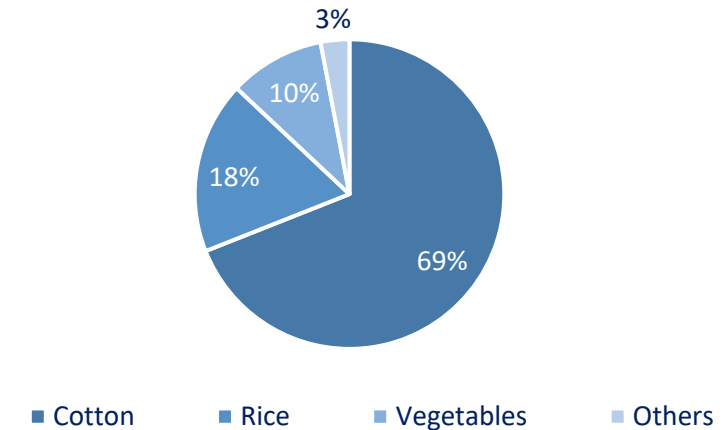
- In terms of the final product, Pakistan imports insecticides, which have exhibited a CAGR of ~3.0% over the past five years (FY18-22).
- During FY22, insecticides imports (USD value) increased by ~7%, while there was a volumetric decline of ~5% YoY, from ~38,000 MT in FY21 to ~36,000 MT. This reflects increased international prices. In PKR terms, imports increased by ~21% YoY, which likely came about due to rupee depreciation.
- During 7MFY23, imports increased both in value terms and volumetrically by ~11% and ~16%, respectively.
- In terms of chemical type, insecticides form the largest share of pesticides imports, followed by herbicides and fungicides.
- In the case of insecticides, Pakistan imported ~33% from Thailand, ~22% from China, ~17% from France, ~6% from Viet Nam and ~22% from other countries (FY22).



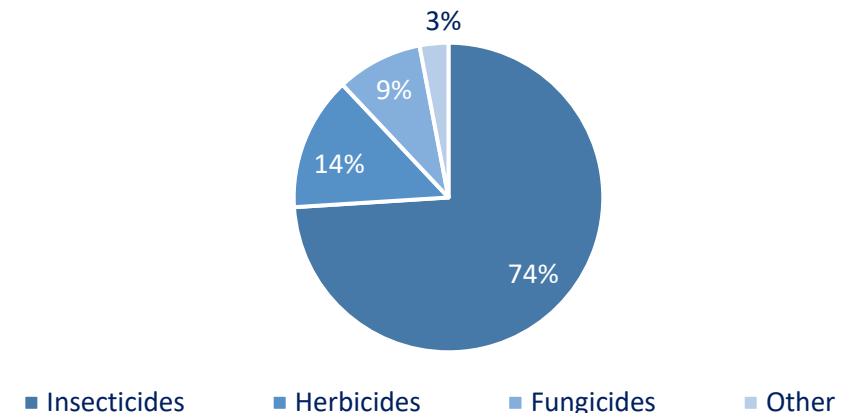
## Demand

- Agriculture is a significant sector, in that, it is an important demand driver of pesticides.
- In FY22, crops made up ~38.8% of the agriculture sector. Pesticides are an important ingredient for the crop sector, along with fertilizers and seeds.
- As per estimates, ~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 shares of ~14% and ~9%, respectively.
- The pesticide companies sell their products to end-consumers through dealers. Dealers usually buy in bulk from the companies and sell products in their respective markets.

Pesticides Usage | By Crops



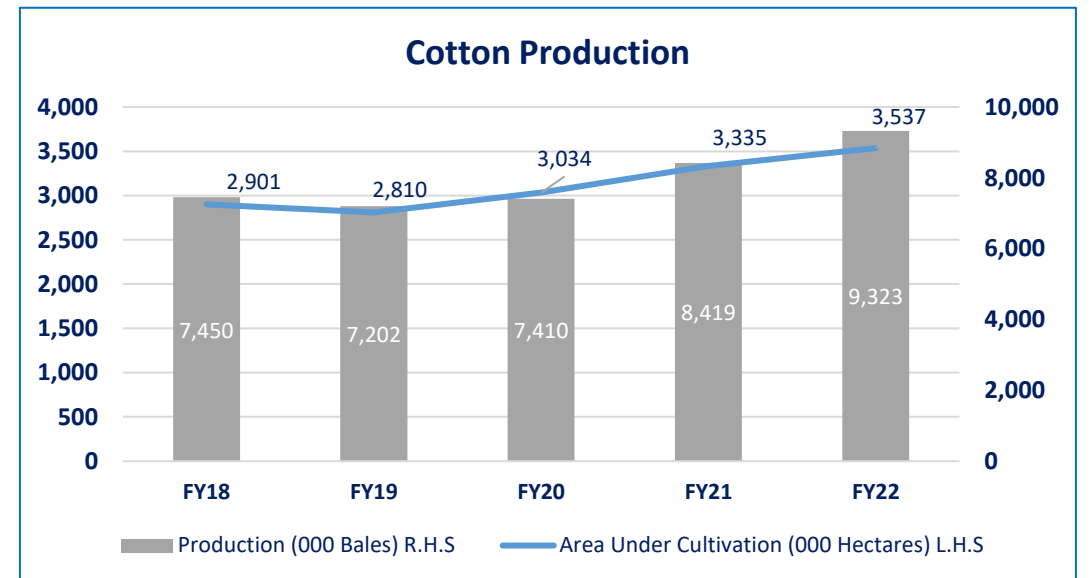
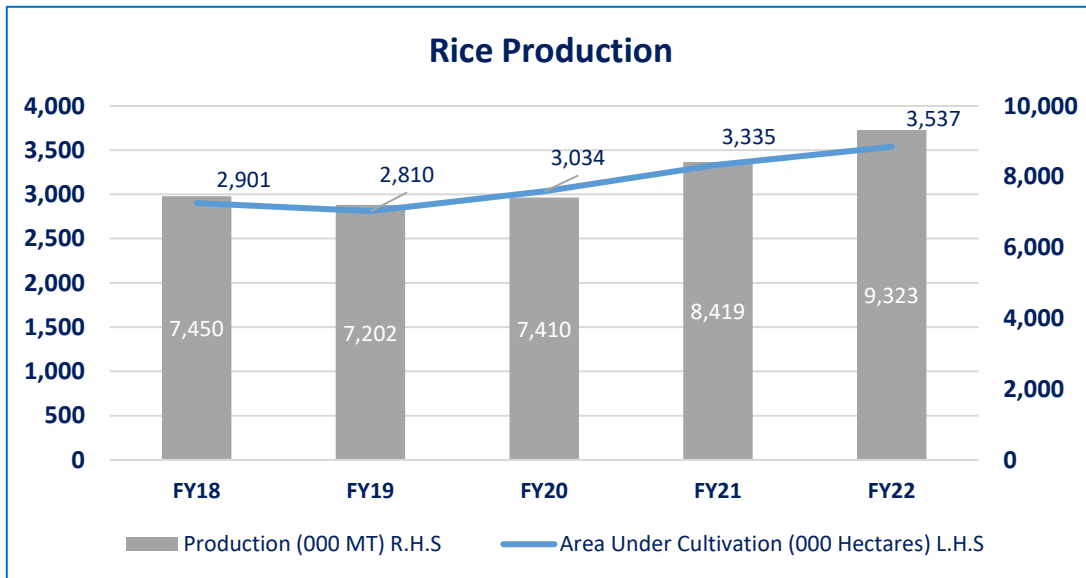
Pesticides Usage | By Types



# Pesticides

## Demand

- The local pesticide industry usually comprises an annual offtake of approximately PKR~60bln to PKR~70bln (FY22). In terms of crop usage, cotton is considered to be the most pesticide-intensive crop in the country.
- In FY23, a production target of ~11mln cotton bales was hoped to be achieved. However, after the floods, the estimated production figure has now been revised downwards to ~4.8mln bales for FY23, which amounts to a loss of ~7.0mln bales (or ~60%). Although this is likely to impact local demand for pesticides, it is expected that the estimated yield lost will be imported. This is likely to keep pesticides sales intact.
- With respect to rice production, the figure posted a growth of ~10.7% during FY22. However, going forward, the USDA has revised down rice production estimates to ~6mln MT in FY23, with the flood impact factored in. This will likely impact pesticides demand as well.



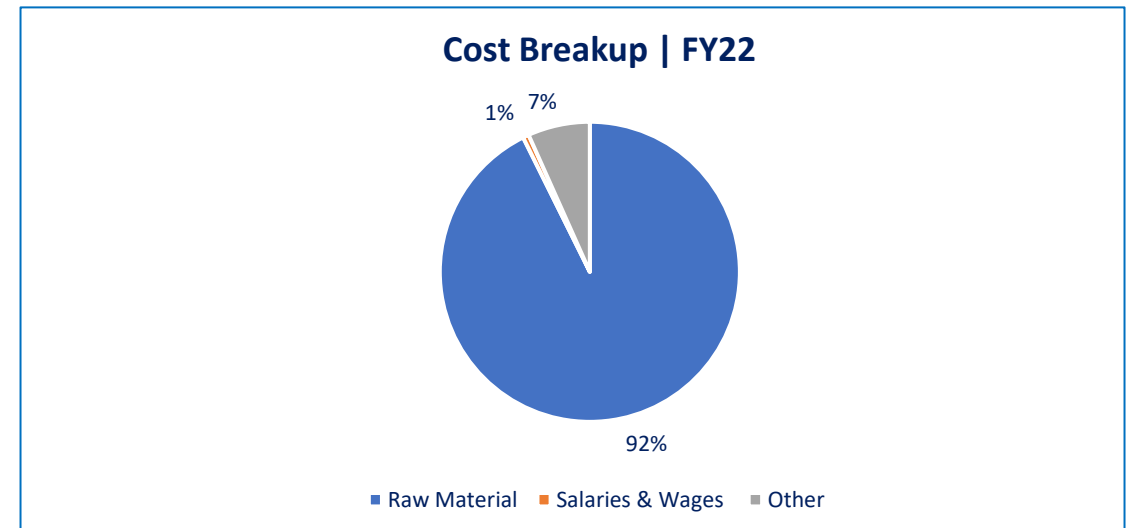
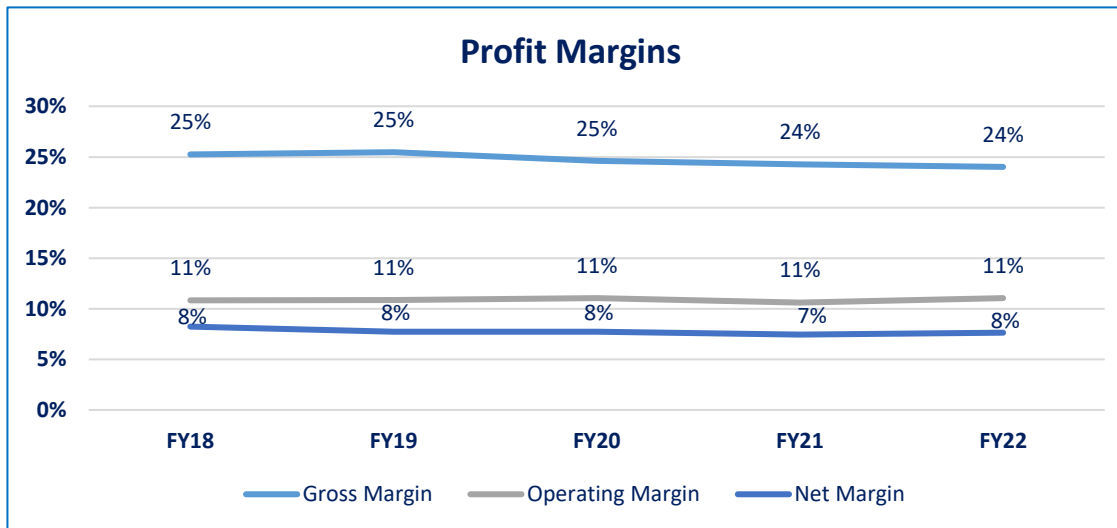
## Business Risk

### Operational Risk

- This risk refers particularly to the difficulties relating to operations of the pesticide 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 constituted ~85% of total pesticides imports in FY22. High dependence on a single country for the important crop protection ingredients further increases the supply chain risk.
- Globally, the demand of biopesticides is growing, as the sector is expected to grow with a CAGR of ~15.7% to reach USD~18.15bln by CY29, from an estimated value of USD~6.1bln in CY22 (CY21: USD~5.6bln). They form ~4-5% of the global pesticides market but the figure is expected to reach ~28% in the near term. A major demand driver for biopesticides is organic farming.
- In Pakistan, biopesticides have a low market share and considering the lack of local expertise for the product, the application of biopesticides is expected to remain low in the coming periods as well.

## Business Risk | Margins

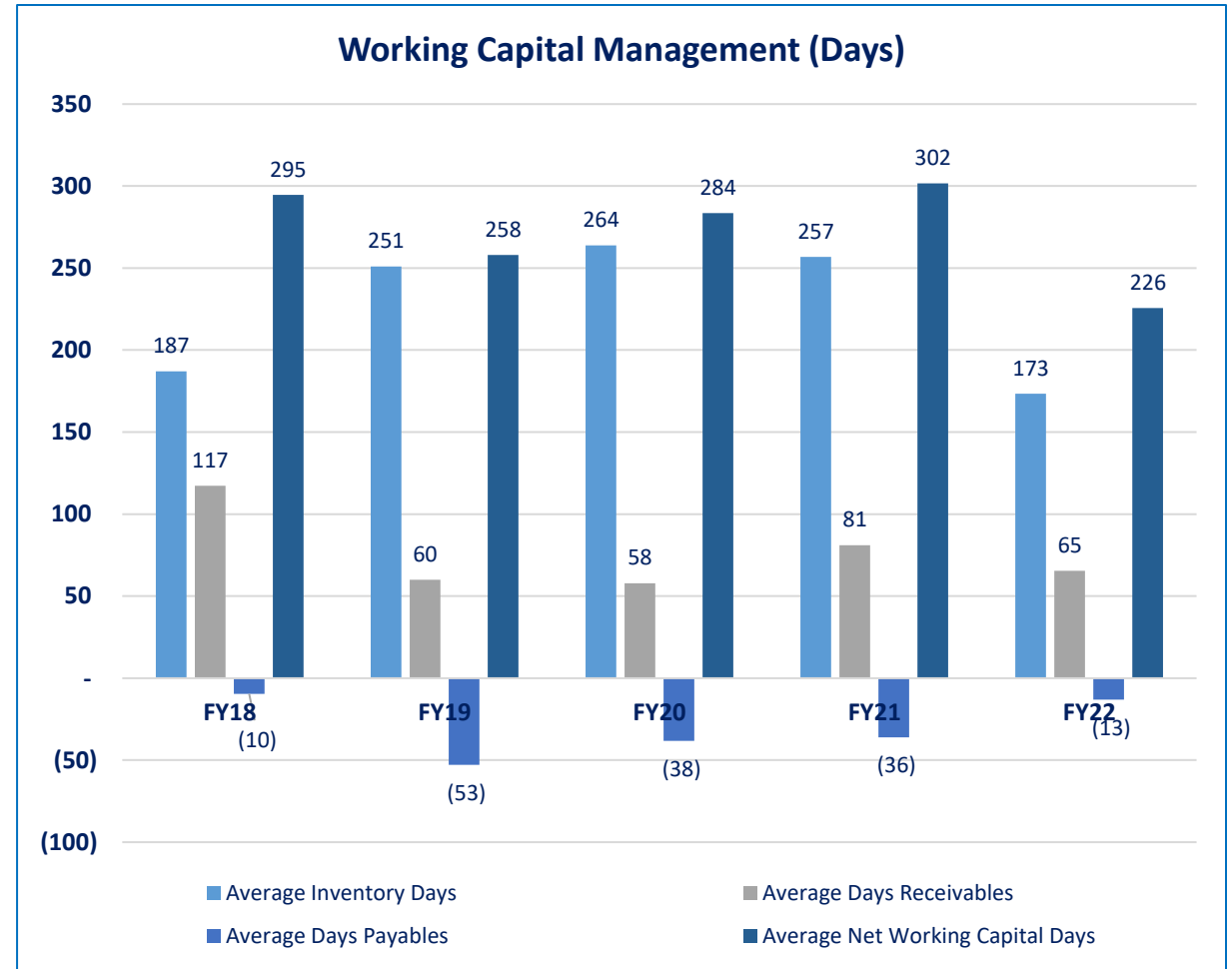
- The sector is characterized by moderate margins. Since there is reliance on imports of raw material, and even the final product, to meet local demand, margins are dependent on international prices and exchange rate fluctuations. Any price revisions are also passed on to end-consumers. It is expected that further rupee depreciation will result in increased raw material costs, which will, in turn, reflect in increased local prices.
- During FY22, the sector’s average gross and operating margins remained intact at ~24% and ~9%, respectively, the same as last year. These reflect stable sales volumes and controlled operating expenses. However, going forward, crop production (cotton and rice) is forecast to be lower in the current fiscal year due to flood impact. This may result in reduced demand, which will affect sales and resultantly, the average gross margins. Operating margins are also expected to take a hit due to the recent inflationary pressures building up.
- The average net margins (FY18 – FY22) of the sector recorded at ~8%. In FY22, the sector’s net margins marginally increased to ~8%, from ~7% the previous year, likely due to lower short-term borrowings. However, since the latest available financials are not inclusive of the interest rate hikes which mostly came about in 4QFY22, it is expected that net margins will decrease in the near term due to increased finance costs.
- The sector’s direct costs are majorly dominated by raw material costs, which make up ~92% of the total cost mix.



Note: Calculations are based on PACRA-rated clients.

## Financial Risk | Working Capital Management

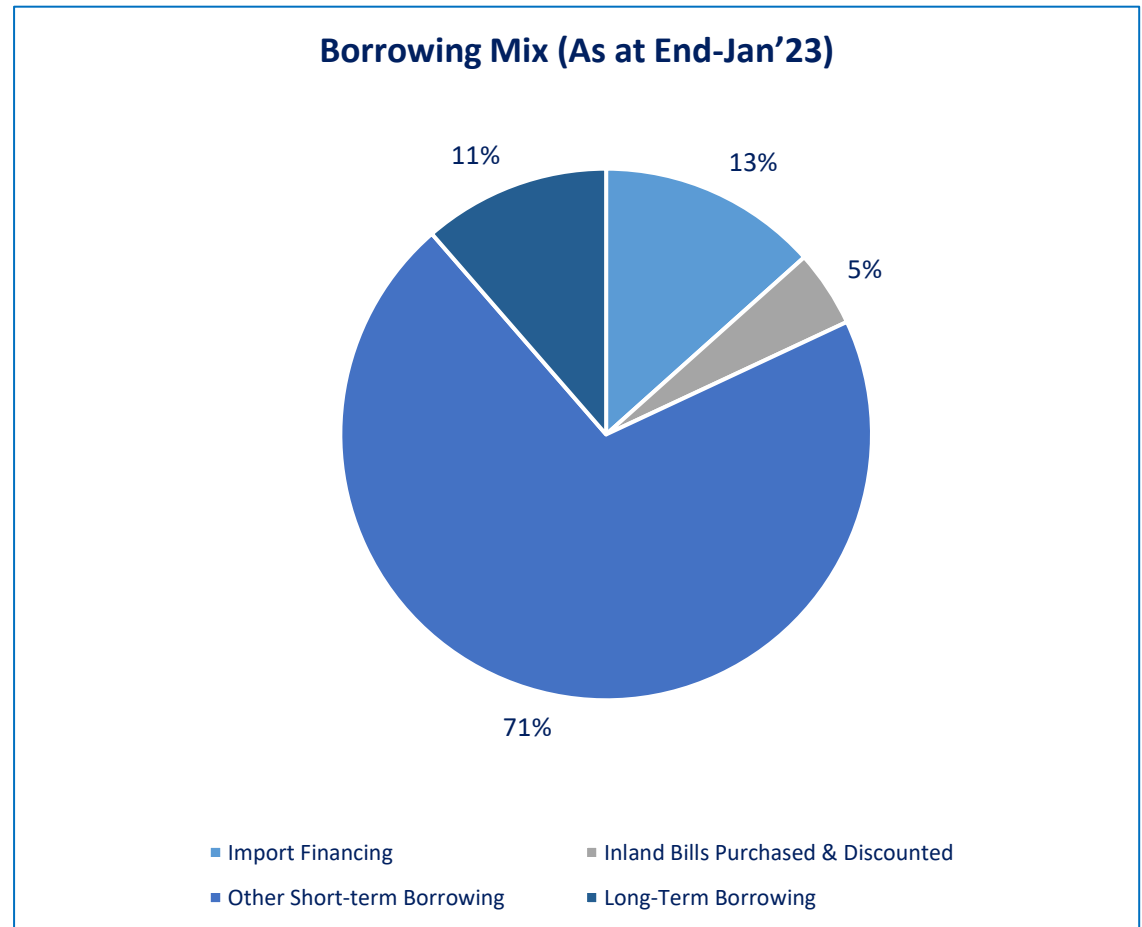
- The sector’s working capital cycle links to the crop seasons of the country during which pesticides are majorly consumed.
- Average inventory days of the sector over the past five years (FY18-22) are recorded around ~226 days (~7 months).
- The number of inventory days in FY22, however, declined considerable to ~173 days, improving by ~79 days. This can be linked with increased sales during FY22, as area under cultivation and production for both cotton and rice increased during the year, as depicted earlier. It also reflects well-planned inventory management by the sectors’ players.
- Average days receivables also improved to ~65 days in FY22 (FY21: ~81 days). On the other hand, average days payables also improved significantly by ~23 days, indicating players’ capacity to pay off their creditors earlier than usual.
- Overall, average net working capital cycle improved from ~302 days in FY21 to ~226 days in FY22, majorly on account of better offtakes and inventory flows.





## Financial Risk | Borrowing Mix

- The sector's total borrowings, as at End-Jan'23, were recorded at PKR~28.6bln (PKR~28.5bln as at End-Jan'22), a marginal YoY increase of ~0.03%, indicating that the sector's borrowing needs have stayed largely stable.
- The sector's debt book is dominated by short-term borrowings, which comprise ~89% of the total borrowings mix, with no change in this composition, year-on-year.
- Import financing made up ~71% of total short-term borrowings (~73% as at End-Jan'22). This is likely due to reliance on running finance lines to fuel imports/ purchases and lower need for capital investment in the industry.
- Long-term borrowings, on the other hand, made up a meager ~11% of the total borrowings mix, staying the same as in the preceding year.
- The sector is moderately leveraged, with average leverage ratio over the past five years (FY18-22) staying at ~31%.



## Regulatory Framework

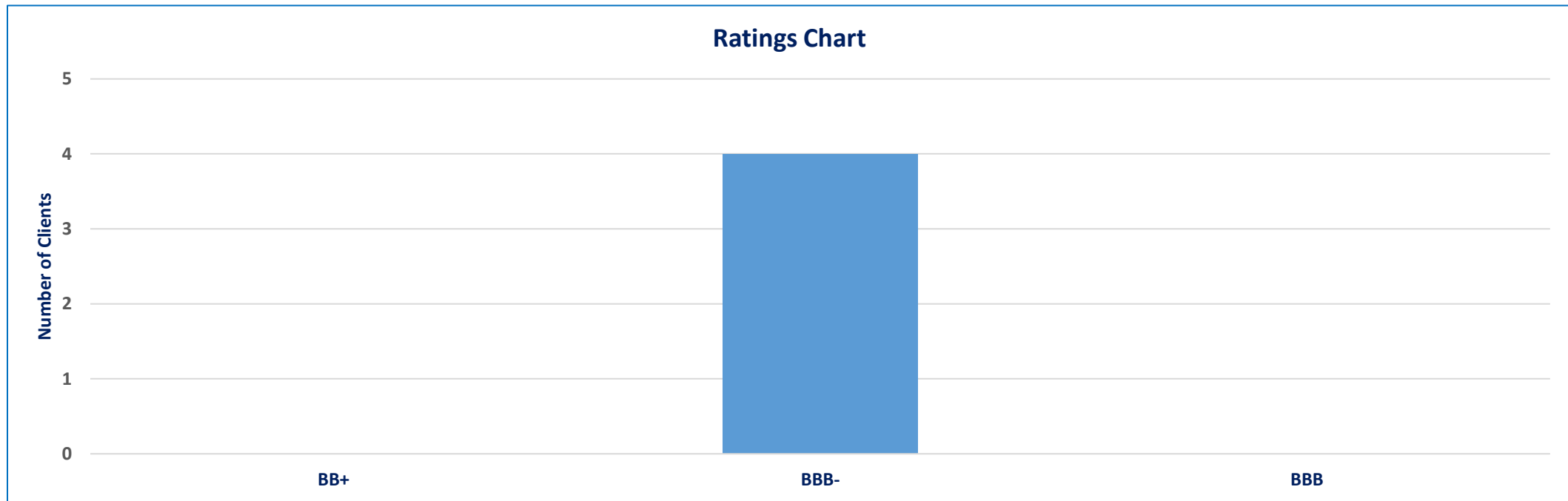
- Agricultural Pesticides Ordinance 1971 (APO) and Agricultural Pesticides Rules 1973 (APR) were enacted by the Government of Pakistan (GoP) to regulate the import, manufacturer, formulation, sale, distribution and use of pesticides. According to APO, the registration of the pesticides product is required 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 18<sup>th</sup> 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 pesticide product is required as well. According to the list of DPP, there are around ~272 importers 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 with international best practices would encourage local players to invest more in research and development that would ultimately enhance the sector's value addition.

## Duty Structure

PCT Code	Description Ingredients for Pesticides	Custom Duty		Additional Custom Duty		Sales Tax		Income Tax	
		FY22	FY23	FY22	FY23	FY22	FY23	FY22	FY23
2921.5110	Diaminotoluene Base	0%	0%	2%	2%	17%	18%	11%	11%
2926.9050	Nitrile F.C Base	0%	0%	2%	2%	17%	18%	11%	11%
2933.5950	Pyrimidin Ring Base	0%	0%	2%	2%	17%	18%	11%	11%
2930.9070	Thiocarbamates Base	0%	0%	2%	2%	17%	18%	11%	11%
	<b>Finished Goods</b>	<b>FY22</b>	<b>FY23</b>	<b>FY22</b>	<b>FY23</b>	<b>FY22</b>	<b>FY23</b>	<b>FY22</b>	<b>FY23</b>
3808.5210	Pesticides Products	3%	3%	2%	2%	17%	18%	11%	11%

## Ratings Chart

PACRA rates 4 entities in the pesticides sector. The sector's entity ratings fall in the 'BBB-' category.



## SWOT Analysis

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

Strengths

- Unorganized sector lacking corporate culture
- High competition
- Complete dependence on imported chemical compounds
- Exposure to exchange rate movement
- Lack of investment in research and development

Weaknesses

- Supply chain disruptions
- Reduced crop production
- Reduction in area under cultivation
- Low barriers to entry
- Rising health concern due to excessive use of pesticides
- Increasing usage of alternates like biopesticides

Threats

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

Opportunities

## Outlook: Stable

- Pesticides are an essential input for the crops sector of the country. The importance of the sector reflects in its economic significance since it is a major sub-segment of the agriculture sector. In FY22, the agriculture sector contributed ~22.2% to total GDP, with the share of crops being recorded at ~36.6%. Important Crops contributed ~22.7% in the agriculture sector (FY21: ~21.6%) and ~5.4% to GDP, while Other Crops accounted for ~13.9% in agriculture sector (FY21: ~14.2%) and ~4.9% to GDP.
- Pakistan's pesticide industry is almost fully reliant on imported raw materials to meet local demand. While this practice is expected to continue, it increases the industry's exposure to exchange rate movements coupled with increased risk of supply chain disruptions. Since pesticides users are mostly farmers with low purchasing power, increasing product prices in line with currency and international price movements remains a challenge for the sector players when input costs rise.
- Demand of the pesticides products usually remains stable considering its importance in the crop protection market. However, pesticide application has been strongly associated with the production of cotton crop in the country. Due to the flash floods that hit the country in August'22, cotton output has been revised down by ~60%. While the shortfall is expected to be met through imports, demand of pesticides is expected to remain stable. Going forward, with higher financing costs due to increasing interest rates coming into play, along with rupee depreciation, is expected to dent the sector's margins.
- The sector is characterized by low to medium business risk. The financing needs of the sector are met largely through short-term borrowings as these make up for ~89% of total borrowings in FY22. ~13% of total short-term borrowings comprise import financing, since the sector operates mainly on imported raw material in the form of chemicals. Moreover, the sector is moderately leveraged at ~31% (FY22).
- The working capital management of the sector improved in FY22, mainly due to improvement in average inventory days, and decline in average days payables. Average net working capital cycle improved from ~302 days in FY21 to ~226 days in FY22.
- One of the key risk elements facing the sector is low R&D investment. Additionally, increased international prices, coupled with volatile exchange rate directly impacts local prices and largely determines the sector's performance.



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- FAO

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