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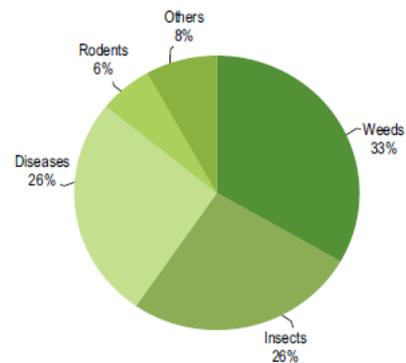
Role of Responsible Crop Protection Solutions in Indian Agriculture

- Crop losses due to pests, diseases, weeds and improper storage and transportation estimated at 20-30% annually in India, valued at more than Rs. 45,000 crores.
- Mis-interpretation of Maximum Residual Levels (MRLs) tarnishing Crop Protection/ Agro-chemical industry image and Indian Agri-exports. Myths on the need for Crop Protection Products
- MRLs found in 2.6% of samples, contrary to the general perception, ICAR study establishes low pesticides residues in India lower than EU permissible limits.
- Sustainable farmer engagement enhances responsible usage of crop protection products: Crop Life India.

2 November, 2015: New Delhi : **“Every year in India, pests and diseases eat away, on an average, 20-30% of food, worth about Rs. 45000 crore, produced by the farmers.”** states the Department of Chemicals and Petrochemicals in its written reply to Parliamentary Standing Committee, 2012-13. Crop protection solutions, commonly referred to as pesticides or agrochemical products, play a vital role in controlling the pests, weeds, fungi that infect and damage crops thereby significantly reducing the quantity and quality of food production. Crop protection being a key contributor to improve productivity, it is estimated that annual crop losses could double without the use of crop protection products. Misinterpretations on the need for MRLs has created myths and misconceptions on the need for Crop Protection products to wards of pests and diseases.

“At Crop Life India , our motto is to help advance Indian agriculture in a sustainable way by making available modern , safer and more effective crop protection solutions and enabling millions of small as well as large farmers in better and successful crop protection management . We engage with the farming community on a continuous basis to enhance responsible use of crop protection solutions, safe storage and handling, correct application techniques” says Ram Mudholkar, Chairman Crop Life India.

Figure 1: Losses caused by different pests (%)



Source: Industry Reports, Analysis by Tata Strategic

Maximum Residual Levels: MRLs are set for each registered pesticide in each crop based on the comprehensive assessment of the properties of the active substance. Residual levels from good agricultural practices are defined for each treated crop, acting as an indicator for the correct use of pesticides while ensuring compliance with legal requirements for low residues on unprocessed food absolutely safe for human consumption, including trading being standards for export and imports. Responsible use of crop protection solutions helps to protect crops while keeping residues within permissible limits. The report does not say that food produced in India is unsafe and unfit for consumption, on the other hand the results reported by ICAR is lower than the globally standards of EU permissible limits. Continuous engagement of the government and the crop protection industry has promoted safe and judicious use of crop protection solutions amongst farmers, apart from the approval of newer and safer molecules by the regulatory

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Crop Protection – A key contributor to Crop Productivity		
Crop	Avoidable Crop Loss (%)	Cost : Benefit Ratio
Cotton	49 - 90	1:7
Rice	21 - 51	1:7
Mustard	35-75	1:12
Groundnut	29-42	1:26
Maize	20-25	1:3
Sugarcane	8-23	1:13
Pulses	40-88	1:4

Source > IARI - Pesticides - A Critical input for increasing crop yield
Source: IARI –Pesticides vs Crop Yield

authorities. Some of the reasons cited for pesticide residues in food commodities are :- Non-judicious and indiscriminate use of Pesticides; Insufficient time between pesticide application and harvest; Frequent application of pesticides- more than recommendations; (Recommendation of non-approved pesticides by SAU's/ICAR/State Agricultural Departments; Use of Non-recommended pesticides (CIB&RC) and Use of Spurious pesticides. (Refer K.K.SHARMA Network Coordinator, All India Network Project on Pesticide Residues Indian Agricultural Research Institute, New Delhi, at the Doubling Food Production in

Five Years February 1-3, 2013, New Delhi Crop Care Foundation of India)

Media interpretations of the annual progress report (April 2014-March 2015) of ICAR, titled, “**Monitoring of Pesticide Residues at National Level** “, citing indiscriminate usage of pesticides at the farm and retail level, as the cause of residual levels beyond permissible limits found in food commodities, may create misconceptions on the need for crop protection solutions to ward of pests and diseases, amongst the growing population whose lives depend on the food we eat. Out of 20,618 samples analysed, no residues were detected in **16,761 samples (81.3%)**; residues were detected in 3,857 (18.7%) and residues above **MRL in 543 samples (2.6%)** as prescribed by Food Safety and Standards Authority of India (FSSAI). Residues of non-approved pesticides were detected in 12.5 % of the samples. Samples of vegetables, fruits, spices, red chili powder, curry leaves, rice, wheat, pulses, fish/marine, meat and egg, tea, milk and surface water, were collected from the various markets such as retail outlets, agricultural produce marketing committee (APMC) markets, farm gates and organic outlets located across the country.

European Food Safety

<http://www.efsa.europa.eu/en/pesticides/mrls> **Maximum Residue Levels (MRLs) are the upper legal levels of a concentration for pesticide residues in or on food or feed based on good agricultural practices and to ensure the lowest possible consumer exposure.**

Crop Protection & Regulatory guidelines: The approval and use of commercial crop protection products in all contexts is highly regulated all over the world, including India. In fact, India has a much more robust regulatory system and knowledgeable regulatory officials compared to most other countries. The Indian regulatory system is rapidly evolving to harmonize with global systems and FAO guidelines in order to support both the domestic industry as well as International players to ensure farmers have the best choice of products and latest innovations on par with farmers across the world. **Discovery of new molecules is**

a highly specialized R&D activity- it is significant to note that, on an average, only one molecule out of 100,000 screened chemical compounds gets finally identified and selected for full development while going through the rigorous R&D process. From discovery in the labs to the introduction at the farmer level it takes more than 8-10 years and involves an investment of more than 1600 Crores .Further, in India the product has to undergo 3-4 years of stringent evaluation on efficacy, safety, MRLs and other parameters as per guidelines established by CIB&RC (Central

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Insecticide Board & Registration Committee) and another 1-2 years for review of data and final registration approval.

CropLife India the association of technology driven crop science industry, has introduced more than 243 molecules out of the 260 registered in India until 2014-15 and works extensively with millions of farmers throughout India in imparting knowledge and education to growers in proper application and use of crop protection solutions. Companies play an important role in helping farmers protect crops from pests and grow crops successfully and safely - indeed, thus enabling farmers to provide the required food security in the country.

Crop Protection & Pest Control :As per FAO, (1972) Integrated pest control is a pest management system that, in the context of associated environment and population dynamics of the pest species, utilizes all suitable techniques and methods in as compatible a manner as possible and maintains pest population at level below those causing economic injury. Traditionally, crop protection solutions or agrochemicals have been manufactured through chemical synthesis but lately biochemical processes are gaining popularity. Usually, these crop protection products involves active ingredients in a definite concentration along with adjuvants which enhance their performance, safety and usability. Crop Protection products are diluted in recommended doses and applied on seeds, soil, irrigation water and crops to prevent the damages from pests, weeds and diseases. As per the UN, the global population currently stands at 7 billion, and is expected to rise to 9.3 billion by 2050. This will require increase in global food production by 70% in order to meet the rising demand. Globally, up to 40% of crop output is lost due to attack of pests, weeds and diseases. To overcome these challenges, it is essential to use crop protection products .India will become a population of 1.7 billion by 2050. By 2050 total calorie requirement will go up from 2495 to 3000. Food grain production would need to increase by 5.5 MT annually.

Contribution during National Emergencies : CropLife India member companies have also come to the rescue of Indian Agriculture during national crop emergencies due to infestation of pests such as Phalaris minor, Heliothis armigera, Rice BPH, Cotton White fly & CLCV by CropLife India every year continues to demonstrate its sustained commitment through various engagements and practices along with the government and its stakeholders infusing new technologies, policies and projects extending the reach across the states in the country.

ABOUT CROPLIFE INDIA

Crop Life India is an association of technology driven crop science industry, committed to responsible crop care and crop production for the safe and sustainable development of Indian agriculture. It promotes the benefits and responsible usage of crop protection products, as well as sound science based regulatory system to protect people and the environment, timely access to crops, usage of new pesticides to support a sustainable agriculture system in India. It is a unit of Crop Life International, a global federation of the plant size industry in over 90 countries.

CropLife India, the association of the Plant Science Industry represents, 15 R&D based member companies engaged in manufacture, import and export of crop protection products. Member companies are focused on bringing in innovative technologies aimed at improving agricultural productivity in a sustainable manner.

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