

Leading the Vision

Stewardship in the Plant Science Industry

CropLife
INTERNATIONAL

Tackling India's Fake Pesticides



25% by value and **30%** by volume of the pesticide market is counterfeit or illegal



Indian farmers spend **\$125 billion** on pesticides every year



In 2017, **60%** of the Punjab cotton crop was lost due to the use of illegal pesticides

India will overtake China to become the most populated country on the planet in 2024, according to a UN forecast, reaching 1.5 billion people by 2030. The expectation on farmers to feed the growing population is huge, but their efforts are being undermined by criminals. It is estimated that almost 25 percent of the pesticide market in India is counterfeit or illegal. Given Indian farmers spend \$125 billion on pesticides every year, a significant figure is likely spent on illegal products that undermine stewardship efforts across the country.

The knock-on cost is significant. According to a [report from the Indian Chamber of Commerce](#), the use of ineffectual, illegal products leads to the loss of 10.6 million tons of food per year. Meanwhile, exporters fear the use of counterfeits will threaten India's position as one of the world's leading grain exporters – worth \$26 billion a year – due to traces of illegal products found on shipments.¹

In the Indian state of Punjab, the problems with counterfeit pesticides are taking a toll not only on the food supply, but also on farmers' confidence. When a farmer purchases a crop protection product or seed for their field, they expect it to work. If the products fail, farmers lose their investment and waste their money. In 2017, the *Times of India* reported that 60 percent of the Punjab cotton crop was lost due to the use of illegal, ineffective pesticides.²

“The sale of substandard, spurious and counterfeit pesticides is a major problem with serious implications for farmers, Indian agriculture, society and the economy at large,” says Dr. J. S. Sandhu from the Indian Council of Agricultural Research. “These products not only fail to take care of pests, but also inflict damage on crops and

the environment. The resultant loss is multiple not only to farmers, who are cheated, but lower yields also have an impact on the national economy.” ↓

> 1 Study On Sub - Standard, Spurious/Counterfeit Pesticides in India, 2015 - Federation of Indian Chambers of Commerce and Industry (FICCI), TATA Strategic Management Group

> 2 Pests threaten cotton: Captain Amarinder Singh to visit Bathinda, Mansa today | Chandigarh News - Times of India.

What are counterfeit and illegal pesticides?

Counterfeits are those products where the packaging, trademark and labelling is copied to appear identical to original, legitimate pesticides. Illegal products, on the other hand, make no attempt to copy the appearance of an authentic product and may have basic or incomplete labels.

Both counterfeit and illegal products are made by criminals who violate laws including those to protect crops and farmers. In both cases, the contents of the container are unknown and may contain a variety of active ingredients of varying quality, or no active ingredients at all. These copies are dangerous. They can fail to perform as expected, can severely damage a crop, and pose unknown health risks to users.



What does CropLife International do about counterfeit pesticides?

In user markets the focus is on raising farmer awareness, promoting the integrity of legal distribution, and encouraging joint regulatory and police enforcement actions.

Farmer awareness is delivered through effective stewardship and education. CropLife International does this through communications, advocacy, and training that has reached more than 3.7 million farmers since 2005. Farmers are taught how to take all reasonable precautions, to buy from legitimate authorized sellers, and to report (anonymously if needed) any suspected sales of counterfeit or illegal pesticides to the relevant authority.

Coupled with capacity-building at the farmer level, CropLife International is engaged with major global efforts to tackle illegal products, working collaboratively with organizations such as the [Business Alliance to Stop Counterfeiting and Piracy](#) and the [REACT Anti-Counterfeiting Network](#). Here, the focus is on effective law enforcement to close illegal production sites and promote the full enforcement of existing legislation, as well as improving legislation to target the growing trade in counterfeit and illegal pesticides.



Rajoli Eranna, a local farmer in the Adoni region of Andhra Pradesh, India, participated in CropLife International's training on IPM, responsible use, and the secure storage of crop protection products.

Stewardship and awareness raising

To help address the problem, CropLife International, CropLife Asia and CropLife India are engaged with a range of stakeholders including the Ministry of Agriculture, border control authorities, the Federation of Indian Chambers of Commerce & Industry and farmer groups.

Raising awareness of the trade in counterfeits is one core action. For the past three years CropLife India has joined the government to send letters to 200,000 pesticide dealers, to warn about the risks of counterfeit products and potential sanctions for those supplying illegal products to farmers. CropLife India is also developing an online training program consisting of multiple e-learning modules and assessments to help dealers tackle fake products.

Incorporating anti-counterfeit messaging into stewardship training is another important activity. This year, CropLife India has begun a personal protective equipment (PPE) project in Punjab and Andhra Pradesh. The aim is to work with the supply chain and raise farmer awareness around the responsible use of pesticides, including how to recognize and select legitimate products. By working with NGOs, the government, and health services, CropLife India and its members aim to reach 400,000 farmers over the course of the project.

There is evidence that the message is getting through. In another flagship project, undertaken in the Adoni region of the state of Andhra Pradesh, CropLife International, CropLife Asia and CropLife India [partnered with two local Indian NGOs to provide stewardship training](#). The project trained 128,000 farm families over a six-year period. Immediately after training, 93.2 percent of farmers were aware of the dangers of counterfeit pesticides (including how to recognize and avoid them), rising to 97 percent four years later, as good practices spread through the community. ↓



Corn cob devastation caused by fall armyworm

All stakeholders – including government, industry, NGOs and the food industry – must continue to invest in anti-counterfeit measures like these, to ensure farmers can effectively protect their crops and can meet the challenge to feed a population soon to hit 1.5 billion. 💧

WAYS TO STOP COUNTERFEITS AROUND THE WORLD



100 committee workshops to fight illegal pesticides

Hosting workshops in Ivory Coast

Educational workshops are an important approach to ensuring stakeholders are able to effectively tackle illegal pesticides. For example, CropLife Africa Middle East has supported anti-counterfeiting training workshops in Ivory Coast. Over 100 workshops have been hosted across the country, held in partnership with the Directorate of Crop Protection and the Ministry of Agriculture and Rural Development, aimed at members of local committees. Attendees learned about the benefits of pesticides, how pesticides are registered and certified with distributors, and stewardship practices to maximize the benefits of legal pesticides.

Keeping counterfeit products off the market is essential in the fight against fall armyworm

Training farmers in Kenya

Last year, fall armyworm (FAW) destroyed maize crops on 50,000 hectares in Kenya. Criminals have taken advantage of farmers' demand for crop protection solutions to deal with this voracious pest by increasing the supply of illegal products onto the market, leaving crops susceptible to damage. In its general response to FAW, CropLife Kenya has held five seminars in the worst affected areas, supported by the Kenya Markets Trust, to demonstrate effective integrated pest management techniques to effectively manage the problem. Messaging on counterfeit and illegal products has become a core element of the training to ensure farmers use approved, legitimate products.

Of 51 pesticide retailers surveyed, 23 of them carried repackaged insecticides and fungicides

Educating retailers in Guatemala

To tackle counterfeiting in Guatemala, the local CropLife association (Arequima) joined other stakeholders to work with 379 pesticide outlets in communities throughout the country. El Programa de Supervisión y Auditoría (the supervision and auditing program) started in September 2017 and lasted through that December. The goal was to train and educate pesticide retailers in the responsible use and management of crop protection products and to uphold registration standards for the retailers. Without proper licenses and registrations, these retailers can become access points for illegal and counterfeit products.

Perspective

Pesticide labelling initiative to help farmers tackle pest resistance



Andy Ward, CropLife International Director of Stewardship, talks about the crop protection industry's voluntary commitment to include mode of action information on all product labels by 2023.

To support the widespread adoption of responsible resistance management practices, CropLife International members recently made a voluntarily commitment to include mode of action (MOA) labelling on all product labels by 2023.

Resistance management is an essential pillar of effective stewardship. If pests become resistant to the crop protection products that are designed to eliminate them, the pest will thrive. The inclusion of MOA information on product labels will ensure growers have simple access to critical information to support implementation of resistance management.

Our [MoA labelling guidance](#) provides a clear and simple method to inform pesticide retailers and users about the type of pesticide and its mode of action group. The MOA

Australia leads by example on MOA labelling

Australia was the first country to [legally require](#) pesticide manufacturers to add the mode of action (MOA) to their product labels as part of a strategy in the overall management of resistance to herbicides, insecticides and fungicides.

CropLife Australia played a key role advocating for the legislation and the resistance management activity group classifications are determined by three CropLife Australia Resistance Management Review Groups, in conjunction with researchers, agronomists and farmers, and take into account any relevant Australian and international information. Current MOA tables are available on the [CropLife Australia website](#).

GROUP C2 HERBICIDE

GROUP C2 INSECTICIDE

GROUP C2 FUNGICIDE

Black and white, easy to read Mode of Action labeling

groups can be used to identify products with the same mode of action; these should not be used repetitively.

MOA labelling is currently only a regulatory requirement in a small number of countries, for example in Australia (see box), but we want to encourage all pesticide regulatory authorities to consider the mandatory use of MOA labelling.

In the meantime, we are encouraging all pesticide manufacturers – outside of our membership – to adopt voluntary MOA labelling on their products.

With the support of our [fungicide](#), [herbicide](#) and [insecticide](#) resistance Action Committees (RACs), CropLife International continues to advance the understanding and practice of responsible resistance management. In addition to the MOA initiative, all RACs have communication resources which include websites, training modules, brochures, and posters to emphasize the need to increase diversity in pest control. 💧

Partnership Profile

Preventing resistance by protecting seeds in Latin America

Who:

Four partners have joined to deliver an insect resistance program for biotech seeds. These are:

- ArgenBio - the Argentine Council for Information and Development of Biotechnology that contributes to understanding about biotechnology and its development
- Asociacion Semilleros Argentinos (ASA) - an organization that represents the seed industry in Argentina
- Canara de Sanidad Agropecuaria y Fertilizantes (CASAFE) - an association that represents the crop protection industry
- CropLife International and its Insecticide Resistance Action Committee

Where:

In Argentina's major corn growing regions.

What:

The insect resistance management initiative sought to increase communication capabilities within Argentina and provide stakeholders with resources to talk about resistance management. ArgenBio developed a website, a brochure and a Q&A as external tools and released five media articles to news sources. A social media campaign from September

2017 through March 2018 garnered engagement with key farmers and authorities with thousands of interactions on Facebook and Twitter. In addition to the online campaign, the partners set up nine training sessions for 1,000 farmers and other stakeholders.

Results:

The campaign and training helped to align recommendations and messaging from the agriculture industry. The efforts from the partnership also raised awareness among government authorities, the entire value chain, and academia about the problems and potential solutions surrounding resistance. The National Agricultural Technology Institute in Argentina will work with Aapresid, an association that promotes no-till farming and Aacrea, the Argentine Association of Regional Consortiums for Agricultural Experimentation, to promote refuge planting as a step to resistance management.

Next Steps:

ArgenBio, ASA, and CASAFE will continue training farmers and key stakeholders. The communication actions and campaigns from last year will in 2018, and the partners hope to maintain momentum on the strong advocacy for mandatory refuge planting from 2017. Development of a trivia game on IRM to be used in trade shows and trainings in rural areas is underway and the partners will continue to provide farmers and third-parties with effective communication tools. 💧



Participants in the Insect Resistance Management initiative in Argentina

Sharing the Story

What are biologicals and why are they important?

Biological crop protection products, also called “biologicals,” represent a broad category of plant protection products that are derived from living organisms.

Growers use biologicals to complement chemical products in an integrated pest management (IPM) program, or as stand-alone method, for protecting plants from disease, insect pests and competition from weeds.

Here Robyn Kneen, Head Global Regulatory Affairs Biologics Bayer, explains more.



Q How do biologicals differ from pesticides?

The biggest difference between biologicals and chemicals is that biologicals are made from living or naturally occurring materials and chemicals are not. Biologicals can be chemically synthesized but nature-like in composition. Both types of products offer protection against a wide variety of plant diseases, insect pests, and weeds for the farmers who use them.

Q How do they fit into an IPM strategy?

Biologicals won't replace chemical crop protection products but they do complement each other when used with an effective IPM strategy. They can provide a more holistic approach for growers to maximize crop yields, improve quality and minimize pest resistance.¹

Q How are biological products regulated?

The regulatory environment for biologicals differs between countries and regions.² Generally, authorities around the world recognize that biological plant protection products are beneficial but different from chemical plant protection products. Even so, this recognition has not necessarily lead to consistent approaches in regulatory requirements or review processes.³

In some countries, biologicals are registered under specific legislation, or they may be registered in a similar manner to chemical plant protection products. Sometimes there are reduced data requirements and other times, there may be no well-defined process at all for their registration at all.

Q How do farmers ensure the responsible use of biologicals?

In similar ways to chemical crop protection. Farmers can apply biologicals with the same equipment used for their chemical products directly to plants or to the soil in which the plants are grown, or as a seed treatment.⁴

Because they may contain living organisms as active ingredients, biologicals may have certain storage, handling and application requirements that are critical to their efficacy. Growers are responsible for these best management practices as well as thoroughly reading labels and following instructions from the manufacturer. These instructions detail proper storage temperature, ↓

application timing and methods, product shelf life and compatibility.⁵

Q What crops are biologicals used on?

On more crops than you think! Biologicals are used throughout the world with a wide range of fruits, vegetables and tree-nuts, as well as row and field crops.^{6,7} Biologicals are versatile and work in both organic and conventional crop production systems.⁸

Q What are the key benefits of biologicals in agriculture?

Sustainability: Biologicals are an essential tool in sustainable agriculture. They are a functional component to an effective Integrated Pest Management (IPM) strategy and contribute to environmentally responsible production systems.

Crop Yield and Quality: Biologicals help improve crop yields and quality. This helps growers deliver healthy and affordable feed and food products to consumers around the world. Biologicals help with resistance management because of their different modes of action which results in increased yields and farm profitability over the long term.⁹

Flexibility in Spray Programs: Biologicals offer growers convenience and flexibility in spray timing due to short re-entry (REI) and pre-harvest intervals (PHIs).¹⁰ Short re-entry means that farmers can go into the field or greenhouse immediately or within a short

period after a biological crop protection product application. Short PHIs refer to the wait time between application and harvest. Having short ones allow harvest and shipping schedules to be better maintained. Growers can also more easily manage the differences in residue requirements when getting their products to the food value chain.¹¹

Residue Management: Biologicals typically do not linger in the environment. Since they rapidly degrade, possible harmful exposure risk to humans and the environment is reduced.¹² Biological products are often exempted from Maximum Residue Limits (MRLs) – helping to improve the global marketability of crops treated with biologicals.¹³

Resistance Management: Biologicals are often characterized by multiple modes of action. Therefore they are less prone to developing resistance to target pests compared to chemical plant protection products that rely on a single mode of action.¹⁴ Biologicals have an increasingly important role as a source of novel modes of action and they address gaps driven by regulatory restrictions, resistance and market access requirements.¹⁵

Q Are biologicals safe?

Yes! Biologicals go through stringent registration and science-based risk assessment to make sure they are safe for humans and the environment. All crop protection products, whether biological or chemical, must meet the highest safety criteria to be approved for use.

Q Are biological products as effective as chemical crop protection products?

They are effective in different ways. Many modern biological crop protection products are expected to match the performance of chemical products,¹⁶ particularly when pest or disease pressure is low to moderate.

Even with advances in technology and increasing investment in R&D, biologicals deliver lower levels of control and more variable performance than their chemical counterparts. For example, biologicals might reduce pest pressure, but not remove the pest entirely.¹⁷ Additionally, some biologicals take longer to act on the target disease or pest, but their effects may be longer lasting.¹⁸ Many biologicals are best used as a preventative and may perform the best when applied early in the season.

Q Are biologicals considered organic?

No. Biological crop protection products are not necessarily considered to be organic, but they can be a valuable tool for organic growers. Biologicals can be certified by independent certification bodies for use as inputs for organic agriculture. The rules for use vary by regulation, but despite the products themselves not being organic, they still can function as a pesticide available to organic growers. 💧

1 Bayer Q&A Document

2 A Guide to Biological Crop Protection, BASF

3 Briefing Paper and Q&A on the Safety of Biologicals and their Responsible and Ethical Management at Bayer

4 Bayer Q&A Document

5 A Guide to Biological Crop Protection, BASF

6 Bayer Q&A Document

7 Biologicals Brochure, Bayer

8 Biologicals 2016, Agrow

9 Biologicals: Enhancing Crop Protection One-Pager, Bayer

10 Bayer Elevator Speech

11 Biologicals Positioning Document, Bayer

12 <http://www.agr.gc.ca/eng/?id=1467731464942>

13 Biologicals: Enhancing Crop Protection, Bayer

14 Biologicals 2016, Agrow

15 Biocontrols Q&A, Syngenta PPT

16 Biological Crop Protection Overview for CropLife International, BASF PPT

17 Briefing Paper and Q&A on the Safety of Biologicals and their Responsible and Ethical Management at Bayer

18 Bioprotection Against Nutrient Robbers, Bayer Research 23

