



# Pest Control for Crops



## Mini-Documentary: [\*Rice Abundant\*](#)

### Targeted and Sophisticated Chemistry

New chemistries are helping farmers all over the world combat the devastating effects of pest damage. These advances are particularly helpful to small farmers who are at risk of losing their entire yield to a single, aggressive crop infestation.

Growers are no longer powerless against pests and diseases that feed on their crops. The latest innovations in crop protection are extremely sophisticated and targeted, with enormous benefits for farmers such as Deden Hermansyah, the Indonesian rice farmer featured in the DuPont mini-documentary, “Rice Abundant.” Before he received help, insects had decimated 80% of his crops and almost ruined his way of life.

In many developing countries between 40-50% of crops are lost to pests, diseases and inadequate storage before they reach the market.

*Wasting away: pests and diseases eat into food security, Centre for Agriculture and Biosciences Int'l (CABI), Oct. 16, 2009*

Working alongside local experts from the Indonesian Agency for Agricultural & Research Development (IAARD), DuPont scientists were able to restore rice crop yields for Deden and other rice farmers in Indonesia with a breakthrough product called DuPont™ Ferterra® 0.4 GR Insecticide – powered by DuPont™ Rynaxypyr®.

Ferterra® is one of several new DuPont insect control products containing Rynaxypyr® in a new class of highly sophisticated chemistry, anthranilic diamides, developed by DuPont. This type of insecticide goes to work quickly, activating the insect ryanodine receptors to stop insect feeding almost immediately, minimizing crop damage.

“Tackling pests, diseases and inadequate storage is part of the solution to improving food security.”  
Dr. Trevor Nicholls, CEO, CABI, World Food Day 2009



## IPM, A Common-Sense Approach to Pest Control

Integrated Pest Management (IPM) is a comprehensive approach to pest control that combines biological, cultural, physical and chemical methods to ensure stable crop production while minimizing risks to the environment, health and the economy. In basic terms, IPM is a common-sense approach to prevent and solve pest problems while minimizing economic, health and environmental impacts.

The mode of action for Rynaxypyr® has a minimal impact on beneficial insects while controlling many pests that have become resistant to other insecticides, making it an excellent partner in Integrated Pest Management (IPM) programs

### A Global Security Issue

According to the Food and Agriculture Office (FAO) of the United Nations, the world will need to produce 60% more food to feed the forecasted population in 2050. Crop production is expected to continue to account for 80% of the world's food supply. The FAO believes that reducing food losses due to crop pests is pivotal in meeting the world's current and future food needs.

The BBC reported that “the threat posed to crop production by plant pests and diseases is one of the key factors that could lead to ‘a perfect storm’ that threatens to destabilize global food security. Already, the biological threat accounts for about a 40% loss in global production and the problem is forecast to get worse, scientists warn.”

### The IPM system has several stages:

The first step is to identify and monitor the pest and the damage. At this point, it is important to determine which pests are present, how many there are and what damage they have caused. Proper identification of the pest is critical to determine the best management strategy.

After the pest is identified and the damage is assessed, the next step is to determine the best control method or methods. Often, a multi-faceted approach is the most effective strategy for long-term pest management. IPM groups these methods into the following categories:

- **Cultural controls** – practices that provide a planting environment to reduce pest infestation such as rotating fields and crops;
- **Biological controls** – the use of natural enemies to control the pest population and damage. These can be predators, pathogens, parasites or other natural enemies of the identified pest;
- **Mechanical or physical controls** – these common-sense methods include netting or screen barriers for insects, traps for rodents, mulches for weed management; and
- **Chemical controls** – the use of pesticides. In IPM, pesticides are selected and applied in a way that minimizes their possible harm to people and the environment. IPM-compatible pesticides are selected because they will do the job and have the least impact on other organisms and for air, soil, and water quality.

## Innovation through Collaboration Creates Powerful Solutions

At DuPont, we believe that innovation through collaboration achieves more than what we can do alone. Every day we share our deep knowledge and technical expertise with customers, business partners, non-governmental organizations (NGOs) and government entities to spur new thinking. Together, we can find innovative solutions to challenges that affect people and the planet.

Back in Indonesia, it was exactly this type of collaboration with IAARD that helped DuPont bring leading-edge science and technology to rice farmers in the remote village of Kuta Rakyat. Together, we were able to improve the quality and yield of their crops, as well as the productivity and sustainability of their farming operations.