

# FEEDING THE WORLD

## Biopesticides Will Play a Growing Role

In 10 years, experts predict there will be 1.2 billion more people to feed. With arable land and water resources limited, can that be done? The challenge is further complicated by growing regulatory and consumer concerns driving the need for food with lower pesticide residues and cleaner, sustainable agriculture.

During a recent telephone interview, Marcus Meadows-Smith, AgraQuest® CEO, focused on what the company is doing to provide innovative answers.

One of the solutions is increasing yield-per-acre productivity, Meadows-Smith stressed. Included in the challenge is: (1) increasing farmer productivity; (2) providing more clean, low residue food; (3) improving the environment; and (4) providing new pest control tools for the grower.

The answer, according to the AgraQuest® executive, is the use of more biopesticides and “Low Chem” products. Also part of the solution is ICM spray programs becoming the mainstream option for growers and the agrochemical industry.

### **Increasing Farmer Productivity**

Meanwhile, if grower productivity is to increase, new products and spray programs must have superior performance and deliver grower profit, the CEO stressed. All pesticides must fit an acceptable risk and environmental profile. Biopesticides must become performance driven – efficacious and consistent.

Biopesticide performance must include: disease control, yield

enhancement, no residue (exempt from residue limits) and help produce attractive and marketable fruit, he explained.

There must be flexibility: Multiple modes of action to reduce the risk of resistance management, he added. Intervals of 0-day pre-harvest and 4-hour re-entry would also be necessary components as would the use of tank-mix compatible products.

### **Provide Clean, Low-Residue Food**

Looking and listening to the news media, there are growing consumer concerns about the safety of the food they eat. Because of that, new rules on residues are emerging. MRLs are being lowered all over the world, the AgraQuest official said. Low-chem



Marcus Meadows-Smith, AgraQuest® CEO, talks about the growing role of biopesticides in helping feed the world.

# NEW WORLD

## Role in Controlling Pests and Diseases

programs reduce residues. Replacing even one synthetic pesticide application with a biopesticide will reduce residues.

### Improve the Environment

As noted earlier, consumers and regulators are demanding environmentally responsible products and sustainable farming, the AgraQuest CEO said. Biopesticides generally have low environmental impact and are sustainable.

AgraQuest's Serenade®, for example, has the efficacy and reliability of the leading synthetic contact fungicide, Meadows-Smith emphasized. It is a proven replacement for mancozeb and can be used on many commodities requiring fungicide protection.

### New Pest Management Solutions

Growers need a complete, effective toolkit of new pest management solutions, the speaker stressed, pointing out the large number of older, toxic pesticides being taken off of the market. In Europe, for example, 600 out of 1,000 active chemistries have been de-listed and 300 more are under review.

While the synthetic pesticide industry is investing approximately \$4 billion per year in new chemistries, the last new mode of action in herbicides was found in the 1980s, the AgraQuest CEO said. In the fungicide arena, only two new modes of actions (MOAs) have been discovered during the past 20 years, and one lost efficacy to resistance within three years.

Eighty percent of the insecticide market belongs to only four MOAs, he continued. One new active costs \$240 million to launch after screening 140,000 molecules.

### New Active Ingredients

Biopesticides represent the faster and more cost effective source for new, protected, efficacious active ingredients for agriculture and related fields, Meadows-Smith declared. While biological products are widely accepted and used as pharmaceuticals, progress has been slower in agriculture. Nonetheless, biological products are much cheaper and faster to bring to market. Synthetics cost \$150-\$240 million versus \$10-\$25 million for biologicals. In addition, synthetics take 5-7 years versus 2-3 years (in the U.S.) for biologicals.

### Defining Low Chem

The "Low Chem" sector represents a major growth opportunity, he declared. "Low Chem" is defined as the integrating of biopesticides with conventional chemistry. It produces high yielding and clean crop management programs, and is an incremental sector to organic and IPM.

Such programs reduce the chemical load, he said. Growers can replace a synthetic spray with a biopesticide without reducing the efficacy or yield. This leads to increased productivity without increasing chemical load. They also can increase the efficacy and yield of a spray program by adding a biopesticide spray to the current conventional program.

### Entrance of Ag Major

Is "Low Chem" of gaining interest among ag majors? Between 2007 and 2007 growth in the "Low Chem" sector is expected to grow into a \$5 to \$10 billion market, Meadows-Smith predicted. New acquisitions and partnerships are being announced.

Afla-Guard has been acquired by Syngenta, BioNem by Bayer and Serenade is now being distributed in many countries by BASF.

Among the reasons for the acquisitions is obtaining a piece of the "Low Chem" sector; biopesticides comply with MRL and help in achieving better resistance management; they produce higher yielding spray programs and lead to increased profit, the CEO said. Overall, that translates into faster growth for the whole biopesticide industry.

### Product Portfolio

Current AgraQuest commercialized fungicides include Serenade Max, Serenade ASO, Rhapsody, Sonata and Ballard plus. The company's insecticide portfolio includes Requiem and Baritone.

In the onion market, Serenade control *Alternaria* Purple Blotch with no residues, while a Requiem insecticide program produced the highest onion yields among leading insecticides; in both tomatoes and potatoes, Serenade active in-furrow use at planting (QST 713) increases total yield; in tomatoes, Requiem has been shown to control whiteflies, while reducing virus incidence on the fruit;

Headquartered in California, AgraQuest's manufacturing facilities are in Mexico. The company has direct sales in both the U.S. and Mexico and, via partners, its eight registered brands from four active ingredients are sold in 25 countries around the world. Seven new actives will be tested in U.S. field trials in 2010. AgraQuest has established four major partnerships, including BASF and Alpharma, and is a leader in the emerging \$10 billion Low Chem space. 🍅