

Feeding the world....

Biopesticides Will Play a Growing Role



Marcus
Meadows-Smith

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

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 deliver consistent efficacy along with their reduced risk.

Biopesticide performance must include: disease control, yield enhancement, no residue (exempt from residue limits) and must help produce attractive and marketable fruit, he explained.

There must be flexibility: Growers need multiple modes of action to reduce the risk of resistance management, he added. They also need the ease-of-use of Intervals of 0-day pre-harvest and 4-hour re-entry and need products which can be tank-mixed with existing synthetic chemistries.

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 standards on residues are emerging. MRLs are being lowered all over the world, the AgraQuest official said, either by governmental regulators or by food retailers who know their consumers want food with reduced pesticide residues. Low-chem 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 Avenue for Active Ingredient Development

Biopesticides represent the faster and more cost effective source for new,



Grower standard



SERENADE SOIL
Health, vigor = yield

le in Controlling Pests and Diseases

patent-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.

AgraQuest, in fact, is expecting to progress seven new fungicide leads to field development stage in 2010, according to Meadows-Smith, along with two new insecticide leads and a lead for a novel nematicide.

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 on both a crop and the environment, 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. Alternatively, growers can increase the efficacy and yield of a spray program by adding a biopesticide spray to the current conventional program, without replacing any synthetic sprays.

Entrance of Major AgChem

Is “Low Chem” of gaining interest among ag majors? Between 2007 and 2017 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 within this dynamic segment regularly. Afla-Guard has been acquired by Syngenta, Bayer recently announced its plans for a new product microbial nematicide and Serenade is now being distributed in many countries by BASF.

Among the reasons for the acquisitions is the desire to obtain a piece of the “Low Chem” sector; biopesticides comply with MRL restrictions 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 markets the fungicides Serenade® MAX, Serenade® ASO, Rhapsody®, Sonata® and Ballad®Plus. The company’s insecticide portfolio includes Requiem® and Baritone®. In January 2010, they introduced Serenade®SOIL, a new fungicide based on the same active ingredient in Serenade ASO and Serenade MAX. SerenadeMAX is designed for application to the soil at planting and protects seeds and young plants from the devastating effects of soil diseases like *pythium*, *phytophthora*, *fusarium*

and *rhizoctonia* and markedly increases yields in crops like tomatoes, potatoes and cucurbits.

The long-time strength of AgraQuest’s portfolio has been its fit in fruit and vegetables. In the onion market, Serenade controls *Alternaria* Purple Blotch with no residues, while a Requiem insecticide program produced the highest onion yields among leading insecticides; in both tomatoes and potatoes, SerenadeSOIL used at planting (QST 713) increases total yield and grower profitability by reducing culls and increasing potato size; in tomatoes, Requiem has been shown to both control whiteflies and reduce their feeding, which reduces virus incidence on the fruit.

More recently, AgraQuest has been expanding its portfolio for control of pests in row crops. BalladPlus delivers economic control of soybean diseases and the best return on investment among soybean fungicides in terms of yield and profit; Serenade ASO controls sclerotinia in canola and the highest yields.

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. AgraQuest has established four major partnerships, including BASF, Bayer Environmental Sciences and AlphaPharma, and is a leader in the emerging \$10 billion Low Chem space. ●