

Biocontrols M&A Boom Begins to Bear Fruit

Posted By: Jackie Pucci | October 10, 2015

There's a widely held belief in the crop protection world that when multinationals dived into the biologicals space it legitimized the industry.

"Companies that weren't in the biopesticide industry before are seeing growth, and they want to get involved. You see that energy at industry events," says Rick Melnick, Valent BioScience's (VBC) global marketing and brand manager.

"And when businesses grow," Melnick adds, "they have more money to spend on R&D."

The M&A biologicals boom of the past few years "has affected R&D to a great extent," says Juergen Huff, who heads the Functional Crop Care business for BASF, which acquired U.S. biological seed treatment firm Becker Underwood for \$1.02 billion in late 2012.

To illustrate, he offers some examples of new products BASF is launching to growers worldwide, including its new foliar biofungicide Serifel. BASF used existing formulation technology to reduce use rates for the product by increasing spore counts – the "active ingredient" in biological terms, Huff explains. The company has also made "great progress" in its foliar bioinsecticide research.

"Shelf life is increasing, stability is increasing and we are increasing the number of living organisms in these (biological) products," Huff tells *FCI*. "It's a very nice and productive marriage between the pipelines that came out of the smaller players and the ideas that went in at an early stage of the advanced research that you find in the big R&D companies in agriculture."

Higher investments in R&D from companies like Bayer CropScience, Novozymes and Monsanto BioAg, and BASF have accelerated product development, "particularly field trials and also screening for discovery of new microbes," says Pam Marrone, CEO and founder of Marrone Bio Innovations. Marrone says her company continues to invest heavily in R&D to support formulation and process enhancements of its existing products, Grandevo, Venerate, and Regalia, and move ahead its pipeline. Its new microbial nematicide is set for a 2016 launch, she adds.

When it comes to timing and foresight, Sumitomo Chemical Co. perhaps beat all of them, and it has reaped the benefits. The Japanese giant shrugged off the once prevailing view of biologicals as a dubious "replacement" for synthetic chemicals and snapped up Abbott Laboratories' Ag Specialties business, which became Valent BioSciences, in 2000 – a decade before its competitors began their M&A blitz.

From the moment VBC opened the doors to its Osage, Iowa, facility last June – the first ever purpose-built biorational manufacturing facility in the world – it instantly went into overdrive trying to keep up with unforeseen demand. **Orders for its product DiPel (*Bacillus***

thuringiensis spp.kurstaki), used to control the ongoing *Helicoverpaarmigera* outbreak in Brazil, went “through the roof,” as Melnick puts it.

The \$146-million plant supplies the majority of the biorational leader’s products derived from fermentation. The company is now looking seriously at expanding its portfolio into biofungicides, he says.

“The ag industry is more receptive to the notion of biorationals than ever before,” Melnick says. “Before, people tended to think of it as an either-or (conventional chemistries or biopesticides) proposition, but typically they’re not intended to work that way. Biorationals work best in a program alongside conventionals, where each has an important role and benefits,” Melnick says.

Today, co-developing biologicals and conventional products with the goal of bringing solutions to the market that work together is a given. “That’s a key change you’ll see in the next five years, with (biological acquisitions by) Bayer, Syngenta, BASF ... They are bringing a complete portfolio of solutions to the grower,” adds Melnick.

One of the products that emerged from the BASF-Becker Underwood integration this year is Xanthion, an in-furrow fungicide for corn that is a chemical-biofungicide combo.

Still Room to Grow

The \$2-billion biopesticide market is outperforming nearly every other segment in ag with an estimated compounded annual growth rate at 17%, fueled by tougher regulatory and MRL standards, and a constant appetite for new modes of action on the back of weed resistance and neonicotinoid bans.

Sara Olson, analyst with Lux Research in Boston, says that the major agrochemical companies’ internal R&D spending for biologicals is “not so impressive as their acquisition and open innovation spends,” but in any case, they are finally taking a serious look at developing biologicals for crop protection.

It is still early for biologicals in terms of legitimate market attention from major players, Olson points out. Whereas the vast majority of conventional agrochemicals come from six major companies, it takes nearly 60 biopesticide companies to make a majority of biologicals today. This is due in part to the relative youth of the industry, but also due to the significantly lower barriers to entry for biological crop protection compared to conventional.

“With typical R&D budgets for biopesticides near 10% that of a conventional synthetic, it’s no wonder smaller companies are still able to compete with the majors,” she says.

Another factor in strengthening biological pipelines: consumer demand for organics. Sales of organic food and non-food products in the United States alone hit a record \$39.1 billion in 2014, up 11.3% from the previous year, according to the Organic Trade Association. Organic sales now near a 5%-share of the total food market.

“The organic industry would not be able to grow at that rate without biopesticides, there is no doubt about that,” Melnick, who also chairs the Biopesticide Industry Alliance, says. “As the

organic industry has grown, we see a ton of growers that are producing both conventional and organics. A byproduct of that is that growers gained experience with biopesticides and they've found ways to incorporate them into conventional acreage as well. It's a global phenomenon."

Gains in Latin America, Europe, India

Latin America is experiencing an explosion of growth in biopesticides, and R&D in that region is expected to shift more toward biopesticides going forward, Olson says. "Likewise, European growers are becoming more constrained by the shifting regulatory situation in the EU, suggesting an opportunity for biologicals to provide a less-constrained option for crop protection."

In India, public sector spending in R&D of biologicals is on the rise, says Dr. Venkatesh Devanur, CEO of Hyderabad-based biologicals firm Agri Life, part of SOM Phytopharma Limited. Indian Council of Agricultural Research laboratories are funded by the country's Ministries of Agriculture and Biotechnology.

"These laboratories are screening good isolates of microbials, developing registration dossiers and offering technology transfer to (small- and medium-sized enterprise)-sector companies." Large numbers of SMEs are now registering biologicals in the country, he says.

In August, Netherlands-based Koppert opened its latest research facility in Hyderabad in a joint venture with Devanur's company to manufacture microbials for pest and disease management and biostimulants for both local and international markets. It will develop innovative solutions with local R&D experts.

"India and South Asia are home to over 300 million upwardly mobile middle-class consumers who now aspire to have residue-free food. Farmers want to restore soil health, so sustainable agricultural practices are being considered very favorably in this part of the world," says Devanur.

According to Huff, BASF is developing almost all of its biological inoculant products for applications in global markets, with Latin America, Brazil and Argentina the largest among them alongside North America. Eastern Europe is another area where it is seeing opportunities "that weren't there 10 years ago. The soybean market we won't ignore and is important for us," Huff says.

He adds that with increasing adoption of modern agriculture in Asia, BASF is looking to bring biologicals solutions notably to India and China "as soon as possible."