

Biopesticides Are in High Demand in Today's Pest Management Programs

Tim Damico, Certis USA Executive V.P.—NAFTA

Everyone is leaping onto the Biopesticide bandwagon. And, for good reasons. Although biopesticides are less than 5 percent of the global crop protection market, the estimated market for biopesticides worldwide in 2015 was estimated to be \$2.7 billion. The market is conservatively estimated to grow 14 to 17 percent annually and is projected to reach \$4.1 billion in 2018. It is the fastest growing segment in crop protection.

Demand for Biopesticides

North America (USA and Canada) represents 40 percent of the global demand for biopesticides. That demand is driven by a number of factors that include the increased interest in green agricultural practices, and the loss of many conventional products to reregistration and/or performance issues.

Product development has also driven up demand for biopesticides. Today more and better biological active ingredients and products are available that can compete with, as well as complement conventional chemical pesticides.

Demand, too, is driven by our increased knowledge about biopesticides and how to use them. More applied research and on-farm demonstrations are available than ever before. We've refined application rates and methods, and we have a better understanding of biological modes of action and how best to use them in pest management and crop production programs.

Availability of biopesticides is important. There are more than 60 companies that are developing and/or selling Biopesticide products today.

Biopesticides are Problem Solvers

Biopesticides hold significant benefits for the PCA and the grower.

Biopesticides offer:

- Minimal impact on non-target organisms
- Complex modes of action, so they are not prone to resistance and help reduce the development of resistance when used in resistance management programs
- Pest control thereby enhancing crop quality and yields
- Improved export opportunities, because most are residue exempt
- An improved environmental profile, including low REIs and PHIs
- Organically approved status that allows organic growers to control pests while maintaining their certified status

One charge frequently leveled at Biopesticide products is that they are expensive. Like conventional pesticides, some BioControls do cost more to use per acre. But when biopesticides can solve a problem in the field, the products become cost-effective. Here are some real world uses of biopesticides:

Growers are willing to purchase a low load copper product that costs two times the price of a traditional copper fungicide to solve REI and crop phytotoxicity challenges.

Apple growers routinely add two different biologicals (yeast/bacteria) to counter fireblight resistance while preventing russetting.

Corn growers spend \$4 more per acre for a combination of conventional and biological pesticides to achieve early season disease and insect control with in-furrow applications.

What are Biopesticides?

Microbial Pesticides

As defined by EPA:

Bacteria, fungi, virus, protozoans, etc.

Biochemical Pesticides

As defined by EPA:

Fermentation products, plant extracts, plant growth regulators, etc., with a non-toxic mode of action.

Today bio-based pesticides are available in a variety of options:

Insecticides
Plant growth regulators
Insect growth regulators
Fungicides
Herbicides
Nematicides

Top 10 States in Organic Sales, 2014

1. California	\$2.2 billion
2. Washington	\$515 million
3. Pennsylvania	\$313 million
4. Oregon	\$237 million
5. Wisconsin	\$201 million
6. Texas	\$199 million
7. New York	\$164 million
8. Colorado	\$147 million
9. Michigan	\$125 million
10. Iowa	\$103 million

Source: USDA Census of Agriculture

In sweet corn, a viral Biopesticide is combined with a traditional OP or pyrethroid to counter resistance and achieve better control and long-term residual worm control.

For Organic Production or Conventional

More biopesticides are applied to conventionally grown acres than are applied on organic acres. But, the use of biopesticides has allowed growers of certified organically grown crops to meet the increasingly high demand for organic food. Organic food sales have grown at least 10 percent annually since 2008, and in 2015 its growth was 12 percent. Total organic sales were \$27 billion in 2012 and today they are at \$38 billion or 4 percent of the total industry.

Biopesticides have found success and broad acceptance in the specialty agriculture, high-value crops of vegetables, fruits, nuts and vines. Increasingly, as PCAs and growers of row crops examine the use of biopesticides, they will jump on the biopesticide bandwagon, too. 🐌

The Global Biopesticide Market by Region				
Region	2012*	2015*	2018*	CAGR% 2012-2018
North America (USA/Canada)	625	975	1430	18.0
Europe	420	660	965	18.1
Latin America (includes Mexico)	265	545	902	27.9
Asia	300	460	720	18.6
Rest of the World	50	80	120	18.3
Total	1660	2720	4137	19.9
*Millions USD-Grower Level Source: DunhamTrimmer LLC				