

develop and implement Regional Technology Transfer Strategies for biopesticides that have been shown to be efficacious and economically viable. Stakeholders include:

- Government funding agencies,
- Biopesticide companies,
- University research and extension personnel,
- Crop consultants,
- Commodity groups, and
- Other grower organizations.

These multi-year Regional Strategies include a means to measure increases in the adoption of new technology over time. Information will be stored in a searchable database accessible to all growers and other interested individuals.

The IR-4 Database

The BDGP and IR-4 have developed user-friendly databases, housed on the IR-4 Web site. These databases serve as a critical reference tool for growers looking to IPM systems that include biopesticides. These databases include:

- Pesticide product labels for relevant biopesticide use,
- Handling guidance searchable by crop, pest, or location, and
- Current or historical accounts of biopesticide research projects searchable by the name of the biopesticide or by the food commodity being grown.

To access the IR-4 Database, visit:

ir4.rutgers.edu/biopesticides.html

What Are Biopesticides?

Biopesticides are derived from natural materials such as animals, plants, bacteria, and minerals. Biopesticides target specific pests and generally pose little or no risk to humans or the environment. Traditional pesticides, by contrast, are generally synthetic materials that not only affect the targeted pest, but also unintended organisms such as beneficial insects, surrounding vegetation, and wildlife. Biopesticides fall into three main classes:

- *Microbial Pesticides* – A microorganism (e.g., a bacterium, fungus, virus, or protozoan) serves as the active ingredient to control pests.
- *Plant-Incorporated Protectants (PIPs)* – Pesticidal substances produced by genetically-altered plants.
- *Biochemical Pesticides* – Naturally-occurring substances that control pests by non-toxic mechanisms. Biochemical pesticides include substances such as insect sex pheromones that interfere with mating, as well as various scented plant extracts that attract insect pests to traps.

Biopesticides can be used to significantly reduce reliance on traditional pesticides. With few exceptions, biopesticides are not intended to function as “stand-alone” pest control products that can substitute other pesticides one-for-one. Biopesticides are most effective when used as a component of an IPM program.

For more information on the BDGP, please visit:



www.epa.gov/pestwise/biodemo

PestWise

Biopesticide Demonstration Grant Program



Demonstrating and promoting biopesticide
solutions

Biopesticide development requires testing and observation to demonstrate the efficacy and safety of the technology. The Biopesticide Demonstration Grant Program (BDGP) serves as a “real-time” laboratory for growers across the country to assess new and pioneering biopesticides across a wide variety of agricultural situations. With an ever-increasing base of public support, the BDGP promotes use of biologically-based products by providing funds to university researchers who cooperate with growers and biopesticide companies to demonstrate the effective use of biopesticides within Integrated Pesticide Management (IPM) systems. These biopesticide demonstrations are having a significant positive impact on the future of reduced-risk pest control and pesticide use.

Biopesticide Demonstration Grant Program

Established in 2003, the BDGP is a pesticide risk reduction partnership program—one of the U.S. Environmental Protection Agency’s (EPA) collaborative PestWise programs. Through its partnerships, the BDGP seeks to:

- Increase awareness of effective options for integrating biologically based technologies into existing crop production systems; and
- Promote the use of novel combinations of biopesticides to enhance product performance.

The BDGP is jointly funded and administered by EPA and the U.S. Department of Agriculture (USDA)/Interregional Research Project #4 (IR-4). The BDGP is a competitive grants program, funding field demonstrations of registered biopesticides used within IPM systems. University researchers partner with growers and biopesticide companies to develop

grant proposals which are screened and rated based on the proposal’s efficacy, study design, and risk reduction potential.

During the first five years of the BDGP, more than 50 grants, totaling \$1.2 million, were awarded. The final results of each funded demonstration will be stored in a searchable database that is accessible to all growers and other interested individuals.

Challenges to Increased Adoption of Biopesticides

While the use of biopesticides has many benefits, growers have not widely adopted these technologies. In 2006, biopesticides only represented approximately 4% of the total pesticides applied nationally. The BDGP works to overcome the barriers that hinder the increased national adoption of biopesticides. Some of these barriers include:

- Lack of information,
- Limited availability,
- Concern about efficacy,
- Concern about cost,
- Concern about ease of application,
- Uncertainty about biopesticide use within conventional agricultural production systems, and
- Lack of resources for grower training.

To overcome these obstacles, the BDGP strives to increase growers’ confidence in adopting new biopesticide technologies. The BDGP works to



continually raise awareness about effective options for integrating biologically-based technologies into existing crop production and IPM systems. To increase grower confidence and awareness, the BDGP facilitates direct communication with growers and institutions. Grower-to-grower training within commodity organizations has proven to be a potent communication tool for behavioral, practical change.

The Biopesticide Technology Transfer Initiative

Biopesticide penetration into the pesticide market is essential for broader adoption by growers nationwide. The effective introduction of biopesticides into the market, though, can be challenging since many companies lack the resources and field presence necessary to accomplish this at a truly significant level.

EPA is providing resources for the transfer of promising biopesticide technologies through the Biopesticide Technology Transfer Initiative. Partnerships are formed with key stakeholders to

