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## Advice to growers of Agrisure™ Rootworm Trait (MIR 604) hybrids and their neighbors

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# Advice to growers of Agrisure™ Rootworm Trait (MIR 604) hybrids and their neighbors

## **Abstract**

Syngenta's decision to proceed with encouraging farmers to plant Agrisure™ Rootworm Trait (MIR 604) hybrids has created concern among many people in the Midwest as well as around the world.

Certainly hybrids resistant to rootworm feeding are an advantage especially as corn following corn acreage increases. However, the fact that at this time the new Syngenta events are not approved in many countries outside of the United States presents marketing and production problems. These concerns apply equally to customers who buy corn directly and to customers who buy protein feed products from either corn wet milling or dry grind ethanol plants.

## **Keywords**

Agronomy, Agricultural and Biosystems Engineering

## **Disciplines**

Agricultural Science | Agriculture | Agronomy and Crop Sciences | Bioresource and Agricultural Engineering

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## Advice to growers of Agrisure™ Rootworm Trait (MIR 604) hybrids and their neighbors

*by Roger Elmore, Mark Westgate, and Lori Abendroth, Department of Agronomy, and Charles R. Hurburgh, Iowa Grain Quality Initiative Management Team*

Syngenta's decision to proceed with encouraging farmers to plant Agrisure™ Rootworm Trait (MIR 604) hybrids has created concern among many people in the Midwest as well as around the world.

Certainly hybrids resistant to rootworm feeding are an advantage especially as corn acreage increases. However, the fact that at this time the new Syngenta events are not approved in many countries outside of the United States presents marketing and production problems. These concerns apply equally to customers who buy corn directly and to customers who buy protein feed products from either corn wet milling or dry grind ethanol plants.

### What should corn producers be aware of and what can they do?

#### The situation

The MIR 604 trait has been approved for domestic markets, but it is not approved in most export markets. Farmers who sign the Grain Use/Marketing Commitment and Agrisure™ Stewardship Agreement assume the responsibility to deliver the grain to an appropriate market that will then direct it to users who will not enter it or its products in export trade.

#### Precautions

- Make certain to arrange a market for the grain. Some feed mills and ethanol plants may accept transgenic hybrids with this trait, others may not. Feeding the grain to livestock on site, or selling it to livestock feeders may be the best options. Tell the buyer when you are delivering Agrisure™ RW corn. In addition to confirming that the buyer will accept it, this can lessen your potential liability should problems arise.
- Keep accurate records of where this corn is planted and then where it is stored after harvest. Entering the GPS coordinates for the perimeter of each field containing an Agrisure™ RW hybrid is strongly recommended if possible. Without this information, the chances of remembering which field or bin contains the Agrisure™ RW grain, and then actually delivering this grain to the appropriate markets are greatly reduced. There is little chance to recover if the Agrisure™ RW grain is mixed with other approved traits. If this happens, many more bushels will be involved.
- Check with the local ethanol plant or processor in advance of delivering Agrisure™ RW grain. The grain to ethanol process concentrates protein, mycotoxins, etc., in the distillers dried grains with solubles (ddgs) fraction. Thus, ethanol plants that export ddgs may not accept transgenic hybrids with the MIR 604 trait.
- Be aware that outcrossing can occur between corn plants in neighboring fields due to windblown pollen. This is especially important for corn destined for markets that have zero tolerance for the MIR 604 gene. Figure 1 is from a recent Ph.D. dissertation from Iowa State University documenting the outcrossing to expect between two adjacent

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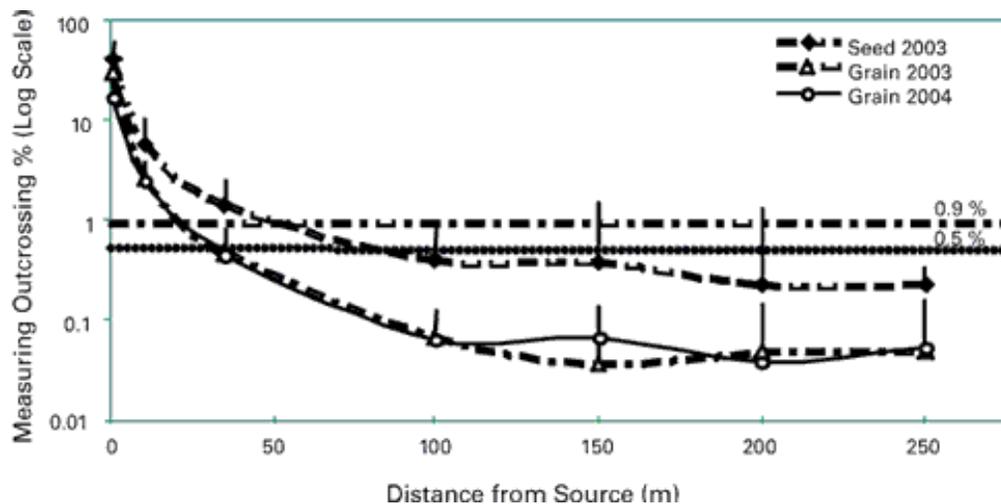
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corn fields flowering at the same time. Outcrossing was measured in three situations: a seed corn production field and two for grain production. Refer to the lines labeled "Grain 2003" and "Grain 2004" in the figure. Outcrossing decreased rapidly as distance from the field edge increased. But 0.5 percent (i.e., 5 per 1,000) of the grain harvested approximately 115 feet (35 meters) into the field contained genes delivered by pollen from the neighboring field. As shown in the figure, when the distance between the fields is only 0 to 35 meters, the amount of outcrossing is greater than 0.5 percent.

At 35 meters, the lines intersect and the amount of outcrossing is less than 0.5 percent from that point onward. The level of outcrossing was even greater (refer to "Seed 2003" line) when local pollen production was artificially reduced to mimic levels typical of a hybrid seed production field.



Relationship between measured outcrossing and distance from pollen source (1 meter = 3.25 feet). Measured outcrossing decreased exponentially with increasing distance from the pollen source. Source: Juan Astini, 2007, Ph.D. dissertation, Iowa State University

#### Resources

- [Agrisure](#)
- [Iowa Corn Growers Association, "Know before you grow" national Web site](#)
- [Iowa Department of Agriculture and Land Stewardship press release dated April 23, 2007](#)

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