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# 2005 Preliminary insecticide evaluations

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**Abstract**
The soybean entomology laboratory at Iowa State University has just completed its first round of insecticide evaluations against soybean aphids. We present data from this evaluation as a reminder of two issues that growers may be facing right now: product selection and preharvest intervals. This data is considered preliminary because we are returning to these plots later in the summer to measure residual activity of these products.

**Disciplines**
Agriculture | Entomology

# Insects and Mites

## 2005 Preliminary insecticide evaluations

by Matt O'Neal, Kevin Johnson, and Wayne Ohnesorg, Department of Entomology

The soybean entomology laboratory at Iowa State University has just completed its first round of insecticide evaluations against soybean aphids. We present data from this evaluation as a reminder of two issues that growers may be facing right now: product selection and preharvest intervals. This data is considered preliminary because we are returning to these plots later in the summer to measure residual activity of these products.

We conducted two efficacy trials, one at the Northeast Research Farm near Nashua in Floyd County and the other at the Northwest Research Farm near Sutherland in O'Brien County. The products and rates tested are listed in Table 1 and 2. At Nashua, all products are replicated 4 times, with treatments 1,2,4-7 replicated 6 times. Untreated plots were monitored and when soybean aphid populations reached threshold (250/plant), foliar insecticides were applied (1 August). We counted aphids on 5 plants per plot at 3 and 10 days after treatment. We will continue to scout these fields at roughly 17 and 24 days after treatment. At Sutherland, treatments were replicated 4 times, and treated on 29 July with populations well below 250 aphids/plant. Aphids were scouted 4 and 9 days after insecticides were applied. These plots also will be scouted at roughly 17 and 24 days after treatment.

**Table 1. List of insecticides tested in efficacy trials at the Nashua Research Farm in northeast Iowa**

| Product Name | Class | Rate |
|---|---|---|
| 1. Check (untreated) | N/A | N/A |
| 2. Gaucho (seed treatment) | Nicotinoid (NIC) | 65 g/100 kg |
| 3. Cruiser (seed treatment) | NIC | 50 g/100 kg |
| 4. Cruiser (seed treatment) | NIC | 100 g/100 kg |
| 5. Trimax | NIC-foliar based | 1.5 oz/acre |
| 6. Fulfill | Pymetrazione | 2.3 oz/acre |
| 7. Warrior | Pyrethroid (PY) | 3.2 oz/acre |
| 8. Decis | PY | 1.9 oz/acre |
| 9. Lorsban 4E | Organophosphate (OP) | 16 oz/acre |
| 10. Lorsban 4E +Baythroid | PY + OP | 4 oz/acre + 2 oz/acre |
| 11. Baythroid | PY | 2.8 oz/acre |
| 12. Proaxis | PY | 3.2 oz/acre |

**Table 2. List of insecticides tested in efficacy trials at the Sutherland Research Farm in northwest Iowa**

| Product Name | Class | Rate |
|---|---|---|
| 1. Check (untreated) | NA | NA |
| 2. Proaxis | PY | 3.2 oz/acre |
| 3. Decis | PY | 1.9 oz/acre |
| 4. Lorsban 75WG | OP | ½ lb/acre |
| 5. Lorsban 4E +Baythroid | PY, OP | 4 oz/acre + 2 oz/acre |
| 6. Warrior | PY | 3.2 oz/acre |
| 7. Baythroid | PY | 2.8 oz/acre |
| 8. Orthene 97S | OP | 12 oz/acre |

A couple things are noticeable in the results (Figures 1a and 1b). First, foliar-applied, broad-spectrum insecticides (organophosphates and pyrethroids) provided the greatest impact on soybean aphid populations. It is interesting to note that soybean aphids are beginning to return to treated plots at the Sutherland plot (Figure 1b). Whether these will increase to a substantial degree is not clear. In relation to all insects, broad-spectrum insecticides are weapons of mass destruction, killing both herbivores like the soybean aphid and beneficial insects like the predators that feed on aphids. Removing these beneficial insects may increase the risk for aphid outbreaks after an insecticide application. We will continue to scout these plots for at least 20 days to determine if adequate residual activity occurs for these products. With this in mind, a set of interesting products to watch in the future are insecticides like Trimax and Fulfill. These are considered "reduced-risk" insecticides that may have a limited impact on insect predators. Although not currently labeled for use in soybeans, they may be useful tools in the future for managing aphids in a manner that does increase the risk for later soybean aphid outbreaks.

A second noticeable result is the efficacy of the pyrethroids (Baythroid, Warrior, Decis, and Proaxis) compared to an organophosphate applied alone (Lorsban) and in combination with a pyrethroid (Baythroid). This tactic is thought to combine the longer residual activity of a pyrethroid with the faster immediate kill of an organophosphate. Our data suggests that

these products work well alone and a combination is not necessary. This will be an issue later in the season as the longer preharvest intervals of certain pyrethroids (Warrior and Baythroid, both 45 days) may prevent the use of these products. Combining these products also may be a concern in the longer term as exposure to both active ingredients could cause soybean aphid populations to become resistant to both active ingredients.

Reference to products or trade names in this publication does not imply endorsement and exclusion does not imply nonapproval.

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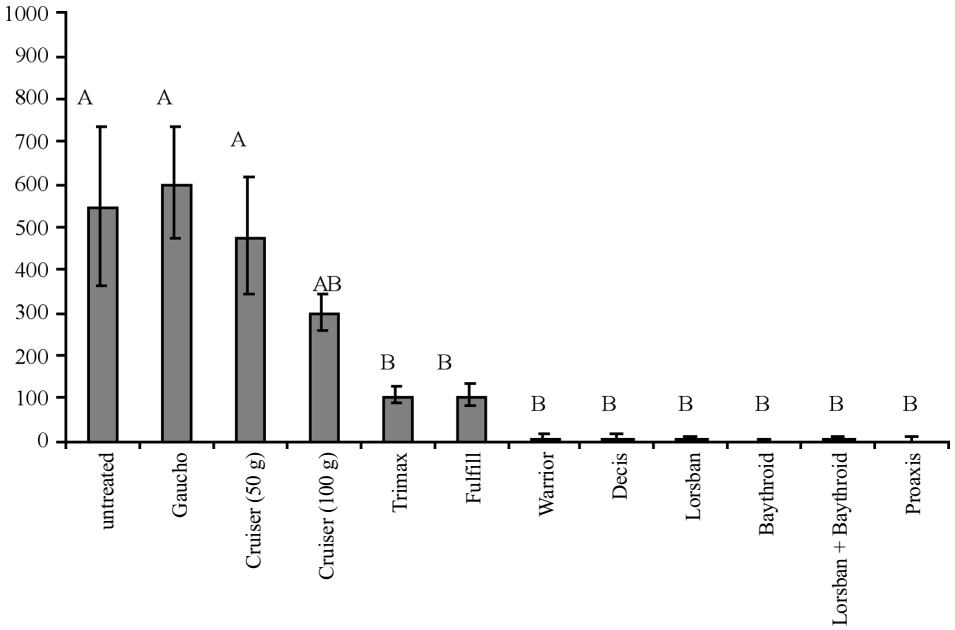


**Figure 1a. Nashua (northeast Iowa). Average soybean aphids per plant (± SEM) 10 days after foliar insecticide treatment applied on 1 August, 2005.**

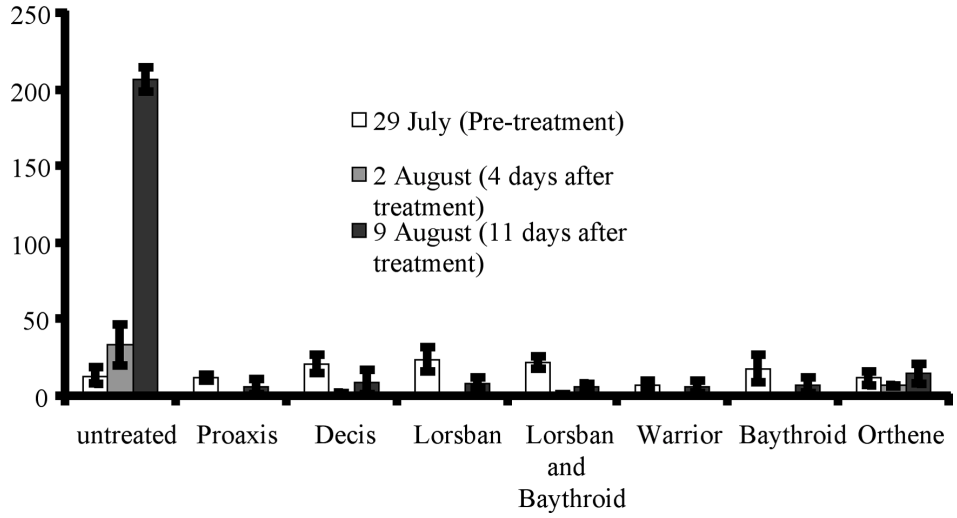


**Figure 1b. Sutherland (northwest Iowa). Average soybean aphid per plant (+ SEM) before and after a foliar insecticide treatment applied on 29 July, 2005.**