

Seed and foliar insecticide treatment of soybean for control of bean leaf beetles in 2004
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Methods & Procedures

Plots of Asgrow Ag3703 RR soybeans were planted on the University of Kentucky, Research and Education Center on 25, May 2004 using a John Deere MaxEmerge 2, no-till planter, calibrated to deliver nine seeds per row foot. Plots were 4, 30" rows by 25' long. No-tillage culture was used and a tank mix of the herbicides, Roundup at 1 Qt / A., Canopy at 6.0 fl.oz. /A and Duel II at 1pt./A, was applied on 5/20/04. All seed was treated with Rival + Allegiance fungicides applied by Gustafson¹. The study was planted as a randomized complete block design (Steel and Tory 1960) with five replications. Treatments were randomly assigned using SAS "Proc Plan" (SAS 2000).

All non-insecticide treated seed were planted first. All plots with a specific insecticide treated seed were planted before changing to treatments with other insecticides. In plots that received "insecticide seed treatments", the two center rows were planted with treated seeds and the two outer rows were untreated. Gustafson applied all insecticide seed treatments¹. Four untreated rows were planted around the complete circumference of the test. In plots that received a "foliar treatment" the insecticide was applied using a CO₂ powered, back-pack sprayer, calibrated to deliver twenty gallons per acre at 45 PSI pressure and four miles per hour, through four 8003 nozzles on 18" centers. Growth stage (GS) designations are from Fehr and Caviness (1977).

The treatments are as follows:

1. Untreated
2. Gaucho FS, 62.5 G A/100 KG (1.0 oz. A/CWT)
3. Cruiser FS, 30 G A/100 KG (0.48 oz. A/CWT)
4. Gaucho FS, 62.5 G A/100 KG (1.0 oz. A/CWT) + Baythroid 2 EC, 35 GM A/HA (2 fl.oz/A) @ GS:V2
5. Baythroid 2 EC, 35 GM A/HA (2 fl.oz/A) @ GS: V2
6. Warrior 28 GM A/HA (3.2 fl.oz/A) @ GS: V2
7. Baythroid 2 EC, 35 GM A/HA (2 fl.oz/A) @ GS: V2 @ GS: V2 and R4
8. Warrior 28 GM A/HA (3.2 fl.oz/A) @ GS: V2 and R4

Foliar applications were made at two plant stages. The first was on 29 June 04 at GS V2-3 (trts. 4-8) and the second on 29 July 04 at GS: R4 (trts. 7 & 8).

Insects: Insect populations were monitored on a weekly basis using a three foot "shake cloth" (Barnes and Jones 1970). Additionally, bean leaf beetle populations were monitored in an adjacent field. One half of the field was in a cover crop of grass and red clover, the other half was planted to soybean. The clover/grass mixture was sampled

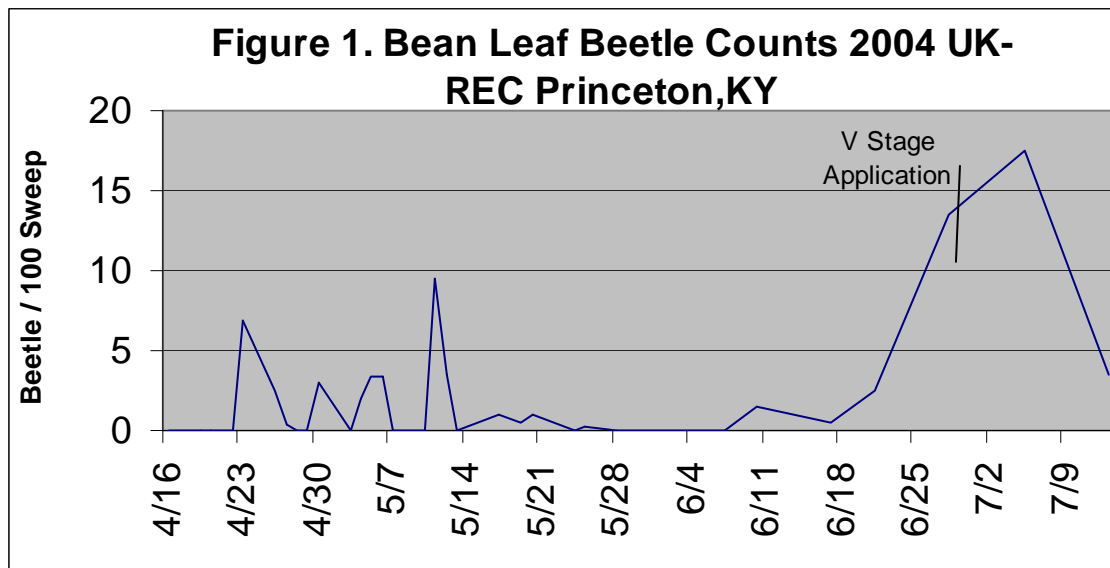
until the soybeans emerged. Afterwards the soybeans were sampled. Each sample consisted of 10 sets of 20 sweeps. Data were standardized as beetles per 100 sweeps per sample date.

Virus Symptoms: On 08 September all untreated plots were visually evaluated for virus symptoms.

Yield: At harvest time plots were trimmed to a length of twenty feet. On 29 September 04, the two center rows of each plot were harvested using a Hege 125c “small plot” combine. Plot yields were standardized to bushels per acre at 60 pounds per bushel and 13 percent moisture.

Results & Discussion

Foliar applications: Plant emergence was somewhat uneven, which made it difficult to apply the foliar treatments based solely on plant stage. Therefore, the “V2” stage applications were made based on sweep net counts of Bean leaf beetle adults. The application was timed to occur as the BLB 1st summer population was beginning to peak (See Figure 1.).



Insects: Populations of insects in the plots were trivial. A variety of insects, (e.g. bean leaf beetle, green cloverworm, grasshoppers, Japanese beetle, green stinkbug, yellow striped armyworm, striped cucumber beetle etc.) were collected from the plots. However, no populations were even remotely large enough to be analyzed.

Virus Symptoms: Visual examination of untreated plots indicated that there were insufficient viral symptoms to warrant sampling and analysis.

Yield: There were no significant differences in either yield or test weight due to

treatments (Table 1.).

Table 1. Yield of soybean plots on the UK-REC in Princeton, KY treated with various seed and foliar applied insecticides in the 2004 growing season.			
Treatment	n	Yield \pmSE (Bu./A)	Test Weight \pm SE (60 lb. / Bu.)
1. Not Treated	5	57.4 \pm 3.4	56.3 \pm 0.2
2. Gaucho FS, 1.0 oz. A/CWT	5	58.6 \pm 4.2	56.5 \pm 0.2
3. Cruiser FS, 0.48 oz. A/CWT	5	61.9 \pm 2.8	56.5 \pm 0.1
4. Gaucho FS, 1.0 oz. A/CWT + Baythroid 2 EC, 2 fl.oz/A @ GS:V2	4	58.8 \pm 4.3	56.3 \pm 0.2
5. Baythroid 2 EC, 2 fl.oz/A @ GS: V2	5	55.8 \pm 4.0	56.5 \pm 0.2
6. Warrior 3.2 fl.oz/A @ GS: V2	5	58.6 \pm 4.2	56.5 \pm 0.2
7. Baythroid 2 EC, 2 fl.oz/A @ GS: V2@ GS: V2 and R4	5	57.7 \pm 5.4	56.3 \pm 0.1
8. Warrior 3.2 fl.oz/A @ GS: V2 and R4	4	53.7 \pm 1.3	55.9 \pm 0.4
ANOVA of Yield was not significant for treatment at $F(7, 26) = 0.63$, $Pr>F = 0.7261$ ANOVA of Test Weight was not significant for treatment at $F(7, 26) = 1.03$, $Pr>F = 0.4374$			

References

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