**Management of Soybean Insect Pests, 01-2024**

**Quarter 4 / Annual**

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**RATIONALE/JUSTIFICATION FOR RESEARCH:**

Up to date non-biased information is critical for making any agricultural management decision, including insect management decisions. As production practices change, the impact of pests can change also. An example of this is greater risk from early season/soil insects as a result of reduced tillage and increased plant residue from the previous crop, native winter vegetation, and/or cover crops. Also, uncommon and unexpected insect pest issues can occur. For example, redbanded stink bug infestations were much more widespread during 2017 and 2022, and soybean looper during 2022. As a result, many studies were conducted with regard to management, damage potential, and treatment thresholds. Also, many current management tools are under reregistration review. It is possible that some of the older insecticides, which growers rely on, may have uses either restricted or revoked in the near future. With a limited number of insecticides already, this would make insect management in soybeans, and all crops more challenging. Insecticide resistance can be a major issue for insect management, and new insecticides are not being brought to market regularly anymore. “Routine” studies to evaluate current insecticides, along with reports from growers and consultants provide the first indications of pending insecticide resistance issues. Current market conditions have reduced profit margins considerably. The most informed and economical insect management decision is always important, but may be even more important when profit margins are small. To keep information current, studies must be regularly conducted to evaluate management strategies and tools and to provide information on unexpected insect issues.

**Objectives**:

To provide up to date information on insect management strategies/tools for soybean insect pests.

**First Quarter**

Trials have been planted. Early season trials have been sampled.

**Second Quarter**

Currently some trials are ongoing, some trials are being harvested, and data are being summarized.

**Third Quarter**

All data have been collected and are currently being summarized.

**Fourth Quarter / Annual:**

During 2024 experiments were conducted to evaluate the performance of selected insecticides against a range of soybean insect pests including, seedling/soil insects (corn rootworm, wireworm, pea leaf weevil), soybean looper, and stink bugs (including redbanded stink bug). With the exception of soybean looper, insect infestations were low.

One experiment was conducted to evaluate the performance of at-planting insecticides against seedling/soil pests. At 14 days after emergence all of the insecticide seed treatments resulted in greater plant population than Evergol Energy Soybean (Fungicide Only) (Table 1).

Eight experiments were conducted to evaluate the performance of selected insecticides against soybean looper. In the first trial different formulations of methoxyfenozide (Intrepid and Troubadour) and Intrepid Edge (methoxyfenozide plus spinetoram) were evaluated (Table 2). Both formulations of methoxyfenozide performed similarly. Especially at the earlier sample dates Intrepid Edge reduced looper densities compared to the methoxyfenozide only products. All of the insecticides resulted in lower defoliation (<9%) compared to the non-treated control (34.7%). In the second trial, all of the insecticides reduced looper densities compared to the non-treated on all sample dates, with one exception (Table 3). In this trial looper densities in the non-treated plots did not exceed 12 per 25 sweeps. In the third trial, densities were <15 per 25 sweeps on all sample dates (Table 4). All of the insecticides reduced looper densities compared to the non-treated at 2, 4, and 7 DAT, except Vantacor and Intrepid at 2 DAT. At 9 and 18 DAT all of the insecticides resulted in fewer loopers compared to the non-treated, except Intrepid and Acephate at 9 DAT and Acephate at 18 DAT. In the fourth trial, looper densities did not exceed 16 per 25 sweeps (Table 5). All rates of Denim and Intrepid Edge reduced looper densities compared to the non-treated on all sample dates and maintained defoliation <7%. In the fifth trial, soybean bean looper densities in the non-treated plots exceeded 20 per 25 sweeps on two sample dates (Table 6). All insecticides reduced looper densities at 3, 5, and 7 DAT compared to the non-treated control, except Elevest at 6.8 oz and Vantacor at 5 DAT. Defoliation in the treated plots at 13 DAT was <5%, while defoliation in the non-treated plots was 27%. In the sixth trial, all of the insecticides reduced looper densities on all sample dates, with two exceptions at 7 DAT (Table 7). Also all insecticides maintained defoliation at 10 DAT below 7% compared to the non-treated (16.6%). In the seventh trial, looper densities in the non-treated plots ranged from 12.5 to 34.6 per 25 sweeps across sample dates (Table 8). All of the insecticides resulted in fewer loopers compared to the non-treated on all sample dates, except for Intrepid at 2 DAT. Also all of the insecticides maintained defoliation below 11% at 14 DAT, while defoliation in the non-treated plots was 28%. In the eighth, trial looper densities ranged from 8.8 to 29.8 per 25 sweeps across sample dates (Table 9). At 3 DAT only Intrepid Edge and Steward reduced looper densities compared to the non-treated. At 5 and 7 DAT all of the insecticides, except Intrepid at 5 DAT, reduced loopers compared to the non-treated control. At 10 and 14 DAT all of the insecticides, except Intrepid and Acephate, reduced loopers compared to the non-treated control. Acephate suppressed looper densities at 5 and 7 DAT, but densities increased at 10 and 14 DAT. All of the insecticides maintained defoliation below 13% at 17 DAT, while defoliation in the non-treated plots was ca. 45%.

Four experiments were conducted against stink bugs. Stink bug densities were low in all trials. Green, southern green, brown, and redbanded stink bugs were observed. In the first trial, all of the insecticides reduced stink bug densities at 3 and 7 DAT compared to the non-treated control, except Warrior at 3 DAT and Wrangler at 7 DAT (Table 10). In the second trial, all of the insecticides reduced stink bugs compared to the non-treated control at 5 and 7 DAT, except Denim at 7 DAT (Table 11). In the third and fourth trials, all of the insecticides reduced stink bugs compared to the non-treated control at 2 DAT (Tables 12 and 13). Differences among treatments were observed at 5 and 7 DAT, but stink bug densities were low overall.

Table 1. Impact of selected soybean seed treatment packages on stand establishment and yield.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Rate | Insecticide | Plants per acre | Yield |
| Treatment | fl oz/cwt | component | 14 DAEe | bu/acre |
| Evergol Energy Soybean | 1.0 | - | 57,663b | 30.4 |
|  |  |  |  |  |
| Evergol Energy Soybean + | 1.0 + |  | 78,408a | 29.5 |
| Poncho/Votivo | 3.28 | Ponchoa |  |  |
|  |  |  |  |  |
| CruiserMaxx Vibrance | 3.2 | Cruiserb | 85,269a | 30.4 |
|  |  |  |  |  |
| CruiserMaxx Vibrance +  | 3.2 | Cruiserb | 85,759a | 31.8 |
| Avicta | 3.0 |  |  |  |
|  |  |  |  |  |
| Intego Suite | 3.37 | Nipsita | 76,285a | 29.5 |
|  |  |  |  |  |
| Evergol Energy Soybean + | 1.0 + |  | 75,631a | 34.2 |
| Gaucho | 2.5 | Gauchoc |  |  |
|  |  |  |  |  |
| Evergol Energy Soybean + | 1.0 |  | 75,794a | 33.4 |
| Poncho/Votivo +  | 3.28 | Ponchoa + |  |  |
| Gaucho | 2.5 | Gauchoc |  |  |
| . |  |  |  |  |
| Vibrance Trio +  | 1.55 |  | 86,412a | 32.9 |
| Fortenza | 1.084 | Fortenzad |  |  |
|  |  |  |  |  |
| CruiserMaxx Fortenza + | 3.2 | Cruiserb + | 85,269a | 30.4 |
| Fortenza | 1.084 | Fortenzad |  |  |
| *P>F* |  |  | <0.01 | 0.19 |

Means within columns followed by a common letter are not significantly different (FPLSD, *P*=0.05).

aActive ingredient – Clothianidin, Class - Neonicotinoid.

bActive ingredient – Thiamethoxam, Class - Neonicotinoid.

cActive ingredient – Imidacloprid, Class - Neonicotinoid.

dActive ingredient – Cyantraniliprole, Class - Diamide.

eDAE=Days after emergence.

Table 2. Evaluation of selected insecticides against soybean looper, I.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Rate/acre | Soybean Looper / 25 Sweeps | % Defoliation |
| Treatment | (fl oz product) | 2 DATc | 4 DAT | 7 DAT | 9 DAT | 11 DAT | 14 DAT |
| Intrepid 2Fa | 4.0 | 19.1ab | 27.8b | 9.0ab | 16.3ab | 7.8ab | 7.1b |
| Intrepid 2Fa | 6.0 | 23.3a | 15.0c | 6.5bc | 9.3bc | 2.3c | 8.3b |
| Troubadour 2Fa | 4.0 | 14.0b | 17.5c | 4.5bcd | 11.0bc | 5.7b | 7.6b |
| Troubadour 2Fa | 6.0 | 17.0ab | 12.0cd | 3.0cd | 5.0c | 3.7bc | 4.4bc |
| Intrepid Edge 3Fb | 4.0 | 4.2c | 5.5de | 3.8cd | 4.0c | 2.2c | 5.9bc |
| Intrepid Edge 3Fb | 5.0 | 4.0c | 3.0e | 0.5d | 3.3c | 2.1c | 2.8c |
| Non-Treated | - | 19.4ab | 36.8a | 12.0a | 23.5a | 11.7a | 34.7a |
| *P>F* |  | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |

Means within columns followed by a common letter are not significantly different (FPLSD, *P*=0.05).

aActive ingredient – Methoxyfenozide, Class – Dicacylhydrazine IGR.

bActive ingredients – Spinetoram plus Methoxyfenozide, Classes – Spinosyn and Dicacylhydrazine IGR.

cDAT=Days after treatment.

Table 3. Evaluation of selected insecticides against soybean looper, II.

|  |  |  |
| --- | --- | --- |
|  | Rate/acre | Soybean Looper / 25 Sweeps |
| Treatment | (fl oz product) | 2 DATd | 4 DAT | 7 DAT |
| Intrepid Edge 3Fa | 5.0 | 0.7c | 0.3b | 0.0b |
| Steward 1.25ECb | 5.0 | 0.6c | 1.8b | 0.0b |
| Steward 1.25ECb | 7.0 | 0.7c | 0.3b | 0.8b |
| Steward 1.25ECb | 9.0 | 1.2bc | 0.5b | 0.3b |
| Denim 0.16ECc | 8.0 | 3.4ab | 0.8b | 0.0b |
| Non-Treated | - | 10.2a | 11.3a | 5.0a |
| *P>F* |  | <0.01 | <0.01 | <0.01 |

Means within columns followed by a common letter are not significantly different (FPLSD, *P*=0.05).

aActive ingredients – Spinetoram plus Methoxyfenozide, Classes – Spinosyn and Dicacylhydrazine IGR.

bActive ingredient – Indoxacarb, Class – Oxydiazine.

cActive ingredient – Emamectin Benzoate, Class - Avermectin.

dDAT=Days after treatment.

Table 4. Evaluation of selected insecticides against soybean looper, III.

|  |  |  |
| --- | --- | --- |
|  | Rate/acre | Soybean Looper / 25 Sweeps |
| Treatment | (fl oz product) | 2 DATf | 4 DAT | 7 DAT | 9 DAT | 18 DAT |
| Vantacor 5SCa | 1.7 | 7.8ab | 2.3b | 1.5b | 1.8b | 1.5b |
| Besiege 1.252CSb | 10.0 | 4.2bc | 1.5b | 0.3b | 2.3b | 2.0b |
| Intrepid Edge 3Fc | 5.0 | 1.5de | 1.5b | 0.3b | 4.0b | 4.3b |
| Intrepid 2Fd | 6.0 | 8.8ab | 4.5b | 1.0b | 10.3a | 5.3b |
| Acephate 90Se | 1.1h | 1.6cde | 2.0b | 1.0b | 7.0ab | 10.5a |
| Steward 1.25ECf | 9.0 | 0.8e | 1.0b | 0.0b | 1.8b | 3.5b |
| Steward 1.25ECf + Intrepid 2Fd | 7.0 + 4.0 | 0.4e | 1.0b | 0.0b | 1.8b | 2.8b |
| Denim 0.16ECg | 8.0 | 2.8cd | 2.0b | 0.3b | 2.0b | 4.5b |
| Non-Treated | - | 13.2a | 10.8a | 7.8a | 10.3a | 4.0b |
| *P>F* |  | <0.01 | <0.01 | <0.01 | <0.01 | 0.01 |

Means within columns followed by a common letter are not significantly different (FPLSD, *P*=0.05).

aActive ingredient – Chlorantraniliprole, Class – Diamide.

bActive ingredients – λ Cyhalothrin plus Chlorantraniliprole, Classes – Pyrethroid and Diamide.

cActive ingredients – Spinetoram plus Methoxyfenozide, Classes – Spinosyn and Dicacylhydrazine IGR.

dActive ingredient – Methoxyfenozide, Class – Dicacylhydrazine IGR.

eActive ingredients – Acephate, Class – Organophosphate.

fActive ingredient – Indoxacarb, Class – Oxydiazine.

gActive ingredient – Emamectin Benzoate, Class - Avermectin.

hlb (wt.) form. / acre.

fDAT=Days after treatment.

Table 5. Evaluation of selected insecticides against soybean looper, IV.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Rate/acre | Soybean Looper / 25 Sweeps | % Defoliation |
| Treatment | (fl oz product) | 3 DATc | 6 DAT | 8 DAT | 13 DAT |
| Intrepid Edge 3Fa | 5.0 | 1.3b | 0.3b | 1.0b | 4.5b |
| Denim 0.16ECb | 6.0 | 0.3b | 0.5b | 0.6b | 6.0b |
| Denim 0.16ECb | 8.0 | 1.3b | 0.0b | 0.8b | 3.8b |
| Denim 0.16ECb | 10.0 | 1.0b | 1.0b | 0.4b | 3.0b |
| Denim 0.16ECb | 12.0 | 0.8b | 0.7b | 0.7b | 6.8b |
| Non-Treated | - | 15.8a | 9.5a | 9.5a | 19.3a |
| *P>F* |  | <0.01 | <0.01 | <0.01 | <0.01 |

Means within columns followed by a common letter are not significantly different (FPLSD, *P*=0.05).

aActive ingredients – Spinetoram plus Methoxyfenozide, Classes – Spinosyn and Dicacylhydrazine IGR.

bActive ingredient – Emamectin Benzoate, Class - Avermectin.

cDAT=Days after treatment.

Table 6. Evaluation of selected insecticides against soybean looper, V.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Rate/acre | Soybean Looper / 25 Sweeps | % Defoliation |
| Treatment | (fl oz product) | 3 DATd | 5 DAT | 7 DAT | 14 DAT | 17 DAT |
| Elevest 2.22SCa | 6.8 | 5.9b | 6.8ab | 4.8bc | 5.8 | 4.3b |
| Elevest 2.22SCa | 9.6 | 3.6b | 2.0c | 1.3c | 3.5 | 2.0b |
| Besiege 1.252SCb | 10.0 | 6.1b | 4.1bc | 7.1b | 4.6 | 1.9b |
| Vantacor 5SCc | 1.2 | 6.4b | 9.7ab | 7.7b | 4.7 | 3.5b |
| Non-Treated | - | 21.1a | 17.1a | 21.1a | 12.3 | 27.2a |
| *P>F* |  | <0.01 | <0.01 | <0.01 | 0.12 | <0.01 |

Means within columns followed by a common letter are not significantly different (FPLSD, *P*=0.05).

aActive ingredients – Bifenthrin plus Chlorantraniliprole, Classes – Pyrethroid and Diamide.

bActive ingredients – λ Cyhalothrin plus Chlorantraniliprole, Classes – Pyrethroid and Diamide.

cActive ingredient – Chlorantraniliprole, Class – Diamide.

dDAT=Days after treatment.

Table 7. Evaluation of selected insecticides against soybean looper, VI.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Rate/acre | Soybean Looper / 25 Sweeps | % Defoliation |
| Treatment | (fl oz product) | 3 DATg | 5 DAT | 7 DAT | 10 DAT |
| Intrepid Edge 3Fa | 5.0 | 1.2bc | 1.5cd | 1.5bc | 5.6b |
| Steward 1.25ECb + Intrepid 2Fc | 5.0 + 4.0 | 1.2bc | 2.4bc | 2.9abc | 5.3b |
| Steward 1.25ECb + Intrepid 2Fc | 7.0 + 4.0 | 3.9b | 0.4de | 1.1bc | 5.3b |
| Denim 0.16ECd + Intrepid 2Fc | 6.0 + 4.0 | 0.0c | 0.2d | 0.6c | 5.8b |
| Denim 0.16ECd + Intrepid 2Fc | 8.0 + 4.0 | 0.3c | 2.1bc | 1.6bc | 6.4b |
| Acephate 90Se + Intrepid 2Fc | 0.83f + 4.0 | 1.3bc | 4.2b | 3.3ab | 5.5b |
| Non-Treated | - | 14.6a | 11.5a | 7.7a | 16.6a |
| *P>F* |  | <0.01 | <0.01 | 0.02 | 0.01 |

Means within columns followed by a common letter are not significantly different (FPLSD, *P*=0.05).

aActive ingredients – Spinetoram plus Methoxyfenozide, Classes – Spinosyn and Dicacylhydrazine IGR.

bActive ingredient – Indoxacarb, Class – Oxydiazine.

cActive ingredient – Methoxyfenozide, Class – Dicacylhydrazine IGR.

dActive ingredient – Emamectin Benzoate, Class - Avermectin.

eActive ingredients – Acephate, Class – Organophosphate.

flb (wt.) form. / acre.

gDAT=Days after treatment.

Table 8. Evaluation of selected insecticides against soybean looper, VII.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Rate/acre | Soybean Looper / 25 Sweeps | % Defoliation |
| Treatment | (fl oz product) | 2 DATc | 4 DAT | 7 DAT | 9 DAT | 11 DAT | 14 DAT |
| Intrepid 2Fa | 4.0 | 20.8a | 15.9b | 3.9b | 6.4bc | 4.9bc | 10.1bc |
| Intrepid 2Fa | 5.0 | 15.2ab | 17.5b | 3.9b | 9.7bc | 3.1bc | 4.9c |
| Intrepid Edge 3Fb | 4.0 | 5.5cd | 4.1c | 1.7bc | 3.9bc | 1.7de | 5.6bc |
| Intrepid Edge 3Fb | 4.0 | 4.9cd | 3.2c | 1.1c | 3.0c | 3.8bcd | 5.8bc |
| Intrepid Edge 3Fb | 5.0 | 3.5d | 3.5c | 0.9c | 2.4c | 1.1e | 4.8c |
| Non-Treated | - | 19.4a | 34.6a | 11.3a | 17.5a | 12.5a | 28.0a |
| *P>F* |  | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.01 |

Means within columns followed by a common letter are not significantly different (FPLSD, *P*=0.05).

aActive ingredient – Methoxyfenozide, Class – Dicacylhydrazine IGR.

bActive ingredients – Spinetoram plus Methoxyfenozide, Classes – Spinosyn and Dicacylhydrazine IGR.

cDAT=Days after treatment.

Table 9. Evaluation of selected insecticides against soybean looper, VIII.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Rate/acre | Soybean Looper / 25 Sweeps | % Defoliation |
| Treatment | (fl oz product) | 3 DATc | 5 DAT | 7 DAT | 10 DAT | 14 DAT | 17 DAT |
| Intrepid Edge 3Fa | 4.5 | 2.7b | 1.7d | 2.9d | 1.4d | 1.2d | 4.1cd |
| Intrepid 2Fb | 4.0 | 15.2a | 16.3ab | 13.7b | 9.4ab | 6.2abc | 12.5b |
| Acephate 90Sc | 1.11g | 9.4a | 6.7bc | 10.6b | 8.0ab | 10.0a | 9.1bc |
| Vantacor 5SCd | 1.7 | 10.5a | 8.5b | 8.0bc | 3.4bcd | 2.5cd | 3.2d |
| Besiege 1.252SCe | 10.0 | 9.7a | 7.9b | 7.5bc | 5.6bc | 3.0bcd | 6.0cd |
| Steward 1.25ECf | 7.0 | 2.5b | 2.6cd | 3.4cd | 2.0cd | 2.9bcd | 2.9a |
| Non-Treated | - | 18.9a | 24.4a | 29.8a | 16.6a | 8.8ab | 44.9a |
| *P>F* |  | <0.01 | <0.01 | <0.01 | <0.01 | 0.03 | <0.01 |

Means within columns followed by a common letter are not significantly different (FPLSD, *P*=0.05).

aActive ingredients – Spinetoram plus Methoxyfenozide, Classes – Spinosyn and Dicacylhydrazine IGR.

bActive ingredient – Methoxyfenozide, Class – Dicacylhydrazine IGR.

cActive ingredients – Acephate, Class – Organophosphate.

dActive ingredient – Chlorantraniliprole, Class – Diamide.

eActive ingredients – λ Cyhalothrin plus Chlorantraniliprole, Classes – Pyrethroid and Diamide.

fActive ingredient – Indoxacarb, Class – Oxydiazine.

glb (wt.) form. / acre.

hDAT=Days after treatment.

Table 10. Performance of selected insecticides against total stink bugs infesting soybeans, I.

|  |  |  |
| --- | --- | --- |
|  | Rate/acre | Total Stink Bugs / 25 Sweepsh |
| Treatment | (fl oz product) | 3 DATi | 5 DAT | 7 DAT |
| Warrior II 2.08CSCa | 1.92 | 3.5ab | 2.1 | 0.7bc |
| Sniper 2ECb | 5.12 | 0.9c | 1.9 | 0.4bc |
| Sniper 2ECb | 6.4 | 0.8c | 0.6 | 0.9bc |
| Endigo ZCX 2.7CSc | 4.5 | 1.9bc | 0.9 | 0.3c |
| Acephate 90Sd | 0.55g | 1.2bc | 1.2 | 1.7bc |
| Acephate 90Sd | 0.83g | 3.2b | 2.6 | 1.6bc |
| Leverage 360 SCe | 2.8 | 1.2bc | 1.3 | 0.2c |
| Wrangler 4SCf | 1.5 | 3.0bc | 1.8 | 2.4ab |
| Non-Treated | - | 6.9a | 4.3 | 5.2a |
| *P>F* |  | <0.01 | 0.32 | 0.01 |

Means within columns followed by a common letter are not significantly different (FPLSD, *P*=0.05).

aActive ingredient – λ Cyhalothrin, Class – Pyrethroid.

bActive ingredients – Bifenthrin, Class – Pyrethroid.

cActive ingredients – λ Cyhalothrin, Class – Pyrethroid plus Thiamethoxam, Class - Neonicotinoid.

dActive ingredients – Acephate, Class – Organophosphate.

eActive ingredients – β Cyfluthrin, Class – Pyrethroid plus Imidacloprid, Class - Neonicotinoid.

fActive ingredient –Imidacloprid, Class - Neonicotinoid.

glb (wt.) form. / acre.

hGreen, Southern Green, Brown and Redbanded stink bug adults plus nymphs.

iDAT=Days after treatment.

Table 11. Performance of selected insecticides against total stink bugs infesting soybeans, II.

|  |  |  |
| --- | --- | --- |
|  | Rate/acre | Total Stink Bugs / 25 Sweepsh |
| Treatment | (fl oz product) | 3 DATi | 5 DAT | 7 DAT |
| Acephate 90Sa | 0.75g | 0.5 | 1.3bc | 0.8b |
| Endigo ZCX 2.7CSb | 5.0 | 0.0 | 0.6c | 0.6b |
| Sniper 2ECc | 6.4 | 0.3 | 0.4c | 0.2b |
| Leverage 360 SCd | 2.8 | 0.5 | 1.1bc | 0.4b |
| Acephate 90Sa + Sniper 2ECc | 0.83g + 6.4 | 2.5 | 0.4c | 0.7b |
| Wrangler 4SCe + Sniper 2ECc | 1.5 + 6.4 | 0.0 | 0.2c | 0.0b |
| Acephate 90Sa + Sniper 2ECc | 0.55g + 5.12 | 0.0 | 0.6c | 0.4b |
| Denim 0.16ECf | 8.0 | 2.3 | 2.2b | 2.4a |
| Non-Treated | - | 6.0 | 4.7a | 3.7a |
| *P>F* |  | 0.33 | <0.01 | <0.01 |

Means within columns followed by a common letter are not significantly different (FPLSD, *P*=0.05).

aActive ingredients – Acephate, Class – Organophosphate.

bActive ingredients – λ Cyhalothrin, Class – Pyrethroid plus Thiamethoxam, Class - Neonicotinoid.

cActive ingredients – Bifenthrin, Class – Pyrethroid.

dActive ingredients – β Cyfluthrin, Class – Pyrethroid plus Imidacloprid, Class - Neonicotinoid.

eActive ingredient –Imidacloprid, Class - Neonicotinoid.

fActive ingredient – Emamectin Benzoate, Class - Avermectin.

glb (wt.) form. / acre.

hGreen, Southern Green, Brown and Redbanded stink bug adults plus nymphs.

iDAT=Days after treatment.

Table 12. Performance of selected insecticides against total stink bugs infesting soybeans, III.

|  |  |  |
| --- | --- | --- |
|  | Rate/acre | Total Stink Bugs / 25 Sweepsh |
| Treatment | (fl oz product) | 2 DATi | 4 DAT | 7 DAT |
| Warrior II 2.08CSCa | 1.92 | 1.4bc | 0.5b | 0.3bc |
| Sniper 2ECb | 5.12 | 0.6bc | 0.3b | 0.1c |
| Sniper 2ECb | 6.4 | 0.2c | 0.0b | 0.1c |
| Endigo ZCX 2.7CSc | 4.5 | 0.7bc | 0.0b | 0.0c |
| Acephate 90Sd | 0.55g | 0.3bc | 0.0b | 0.6abc |
| Acephate 90Sd | 0.83g | 0.2c | 0.5b | 0.4abc |
| Leverage 360 SCe | 2.8 | 1.0bc | 0.3b | 0.3bc |
| Wrangler 4SCf | 1.5 | 1.9b | 1.3b | 1.5ab |
| Non-Treated | - | 5.8a | 3.5a | 1.8a |
| *P>F* |  | <0.01 | <0.01 | 0.02 |

Means within columns followed by a common letter are not significantly different (FPLSD, *P*=0.05).

aActive ingredient – λ Cyhalothrin, Class – Pyrethroid.

bActive ingredients – Bifenthrin, Class – Pyrethroid.

cActive ingredients – λ Cyhalothrin, Class – Pyrethroid plus Thiamethoxam, Class - Neonicotinoid.

dActive ingredients – Acephate, Class – Organophosphate.

eActive ingredients – β Cyfluthrin, Class – Pyrethroid plus Imidacloprid, Class - Neonicotinoid.

fActive ingredient –Imidacloprid, Class - Neonicotinoid.

glb (wt.) form. / acre.

hGreen, Southern Green, Brown and Redbanded stink bug adults plus nymphs.

iDAT=Days after treatment.

Table 13. Performance of selected insecticides against total stink bugs infesting soybeans, IV.

|  |  |  |
| --- | --- | --- |
|  | Rate/acre | Total Stink Bugs / 25 Sweepsh |
| Treatment | (fl oz product) | 2 DATi | 4 DAT | 7 DAT |
| Acephate 90Sa | 0.75g | 0.0b | 0.0c | 0.0b |
| Endigo ZCX 2.7CSb | 5.0 | 0.0b | 0.1bc | 0.0b |
| Sniper 2ECc | 6.4 | 0.2bc | 0.1bc | 0.1b |
| Leverage 360 SCd | 2.8 | 0.3b | 0.0c | 0.1b |
| Wrangler 4SCe + Sniper 2ECc | 1.5 + 6.4 | 0.0b | 0.1bc | 0.0b |
| Acephate 90Sa + Sniper 2ECc | 0.55g + 5.12 | 0.2b | 0.1bc | 0.1b |
| Denim 0.16ECf | 8.0 | 0.4b | 0.9ab | 0.3b |
| Non-Treated | - | 2.4a | 1.9a | 2.6a |
| *P>F* |  | <0.01 | 0.02 | <0.01 |

Means within columns followed by a common letter are not significantly different (FPLSD, *P*=0.05).

aActive ingredients – Acephate, Class – Organophosphate.

bActive ingredients – λ Cyhalothrin, Class – Pyrethroid plus Thiamethoxam, Class - Neonicotinoid.

cActive ingredients – Bifenthrin, Class – Pyrethroid.

dActive ingredients – β Cyfluthrin, Class – Pyrethroid plus Imidacloprid, Class - Neonicotinoid.

eActive ingredient –Imidacloprid, Class - Neonicotinoid.

fActive ingredient – Emamectin Benzoate, Class - Avermectin.

glb (wt.) form. / acre.

hGreen, Southern Green, Brown and Redbanded stink bug adults plus nymphs.

iDAT=Days after treatment.