Objective: Which method provides the best control for vine borers in winter squash?

Hypothesis: ??

Farmer-Cooperator will:
- Follow Research Protocols for study
- Take photos throughout the project
- Keep in contact with PFI with updates and questions
- Turn in all data by November 2019

Practical Farmers of Iowa will:
- Help set up research protocol.
- Monitor progress of project and provide support when needed.
- Publish results in a PFI research report, on PFI website, and potentially other outlets.
- Provide $550 cooperator payment at conclusion of project year.

Project Design:
- Each farm will set up a randomized, replicated trial with three replications of four or five treatments on their preferred winter squash variety.
  - **Slocum:**
    - Red Kuri squash, 8 plants/plot
    - Treatments: Control (no treatment), Newspaper, Bt Injection, Row Cover
    - 4 treatments x 3 reps = 12 plots
    - 12 plots x 8 plants per plot = 96 plants total for trial
  - **Quee:**
    - Blue Hubbard squash, 8 plants/plot
    - Treatments: Control (no treatment), Newspaper, Bt Injection, Row Cover, Spinosad
    - 5 treatments x 3 reps = 15 plots
    - 15 plots x 8 plants per plot = 120 plants total for trial

- **Data Collected:**
  - Scouting: Number of plants alive after 40 days and 80 days.
  - Harvest: Number of fruit
  - Complete excel workbook with information on treatment and planting for each farm.
• Example Trial Layout:

```
<table>
<thead>
<tr>
<th>Rep 1</th>
<th>Rep 2</th>
<th>Rep 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Row Cover</td>
<td>Newspaper</td>
</tr>
<tr>
<td>Newspaper</td>
<td>Control</td>
<td>Bt Injection</td>
</tr>
<tr>
<td>Bt Injection</td>
<td>Newspaper</td>
<td>Control</td>
</tr>
<tr>
<td>Row Cover</td>
<td>Bt Injection</td>
<td>Row Cover</td>
</tr>
</tbody>
</table>
```

**Project Timeline:**

<table>
<thead>
<tr>
<th>March</th>
<th>April - October</th>
<th>November</th>
</tr>
</thead>
</table>
| • Edit/Approve Protocol  
• Complete MOU & pre-survey | • Start seed  
• Layout plots, Prepare treatments, Transplant  
• Conduct trial and collect data! Take photos!  
• 40-day scout, 80 day scout by plot  
• Record harvest count by plot  
• Update other cooperators and PFI with progress of trial | • Turn in data and photos  
• Take post-survey |

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