Southern armyworm on callaloo

*Spodoptera eridania* Southern Armyworm

### Prevention
- Remove old plants after final harvest of callaloo to reduce food for pest.
- Cultivate during the cooler months (October-February) when armyworm pest population is low.
- Cover nursery with white shade covering (seran netting allowing 70% light) to prevent egg laying by adult pests on seedlings.
- Use exclusion cages to protect small plantations, especially for summer production, when pest population is at its highest.
- Exclusion cages can be made using bamboo pieces (frame) and shade covering (seran netting allowing 80% light) with double doors.
- Reduce stress to plants by providing adequate water and nutrients (informed from results of soil tests).
- Remove weeds from fields, as weeds may be a source of food and shelter for southern armyworm.

### Monitoring
- Southern armyworm is found throughout Jamaica. The caterpillar (larva) is a pest on many vegetables, grasses and ornamentals. Hence, pest monitoring and management is done at all stages of the crop.
- Monitor the crop once a week in the nursery and twice a week if transplanted.
- Examine 25 plants (using an interval of e.g. 8 plants) looking at 3 young and 3 old leaves per plant.
- Count armyworm caterpillars.
- Caterpillars are pale green or blackish green with a uniform light brown or reddish brown head. Larger caterpillars have narrow white lines on their back and sides. Each side also has a broad yellowish or whitish stripe. A series of dark tiny triangles is usually present on the back along the length of the body.
- Caterpillars are found on the underside of leaves, and are most active at night.
- If number of caterpillars found on the 25 examined plants is: 16-17 DO NOT SPRAY. 18-30 check more plants. 31-32 consider SPRAY
- If only 10 plants are examined: 2-3 DO NOT SPRAY. 4-15 check more plants. 16-17 consider SPRAY.

### Direct Control
- Handpick and crush pest caterpillars observed during monitoring, when numbers do not warrant chemical treatment.
- Introduce natural pest enemies such as parasitic wasps (*Cotesia marginiventris*, *Chelonus insulans* Cresson and *Meteorus autographae* Musebeck).
- When using a pesticide or botanical, always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, pre-harvest interval, max number of sprays, restricted re-entry interval. Do not empty into drains and water sources.
- Always consult recent list of registered pesticides produced by the Pesticide Control Authority of Jamaica.
- For foliar sprays, thorough coverage of the upper and lower sides of the leaves is necessary and impacts on how well the product works. Consult your local RADA extension Officer for help with sprayer calibration.

<table>
<thead>
<tr>
<th>Direct Control</th>
<th>Restrictions</th>
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<tr>
<td><em>Bacillus thuringiensis</em> aizawai products as foliar spray. Contact biopesticide product which works by ingestion (pest must eat treated material). After consuming the pesticide, pests will stop feeding but remain alive for 2-3 days before it dies. This works best on young larvae.</td>
<td>WHO toxicity class III (slightly hazardous). Pre-harvest interval (PHI) ½ day Restricted re-entry interval (REI) ½ day.</td>
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<td>Spinosad-based products; foliar spray; contact and stomach action. Pest must come into contact with product and or eat treated material for product to be effective.</td>
<td>WHO toxicity class III (slightly hazardous). PHI 1 day, REI 4 hours.</td>
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**Note:**
- Weeds should be removed from field to prevent food sources for armyworm.
- Remove all weeds from nursery beds to prevent cultivation of caterpillars.
- Uncover nursery during high or cool nights.
- Check for insects in high density areas.

_Sources:_
- Auburn University - Smith, Ronald.
- Bugwood.org

*Photo credits:*
- Larval stages of Southern armyworm showing variation in colour (Ronald Smith, Auburn University, Bugwood.org - CC BY).
- Feeding damage (shot holes) and frass (Ronald Smith, Auburn University, Bugwood.org - CC BY).
- Example exclusion cage (Howard F. Schwartz, Colorado State University, Bugwood.org)

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