IPM for Argentine Ants: Efficacy Studies

Urban Entomology
UC Riverside
Summary of Efficacy Studies

- Rust laboratory
  - Strategies to control Argentine ants
  - Insecticide runoff studies
Ant Populations Around Homes

Estimate

ONE MILLION!

ant visits to bait stations over 24 h*

Population Estimates

- Sugar water consumption from vials
  - 10 near house
  - 10 in yard
- Left out 24 hrs
  - Measure consumption
  - 0.3 mg per visit to calculate average number of ant visits/vial over 24 hours*

Treatment Evaluation

- Estimate populations
  - Pre-treatment
  - Post-treatment
    - 1, 2, 4, and 8 wks
      - Calculate % reduction

- Treatments
  - Replicated at 5 homes
  - Untreated control sites
  - Traditional & Experimental
Industry Collaboration

- Herb Field: Chief Operating Officer
  - Effective strategies to control Argentine ants

Lloyd Pest Control
Termidor

- Perimeter + spot spray (3 gallons)
  - Edges of sidewalks and driveway
Termidor Spray (0.06%)
Talstar Spray (0.06%)
Combination Treatment

- Termidor perimeter spray
- Talstar granules broadcasted
  - Foliage
Termidor + Talstar Granules

**Year 1**

- Mean # of Ant Visits
- Locations: Near, Away
- WEEK 1: 96%
- WEEK 2: 90%
- WEEK 4: 58%

**Year 2**

- Mean # of Ant Visits
- Locations: Near, Away
- WEEK 1: 90%
- WEEK 2: 65%
- WEEK 8: 93%
Spot Spray

- One gallon of Termidor
  - Only active ant trails
  - Capitalize on horizontal transfer of fipronil
Termidor Spot Treatment

Year 1

Year 2

Mean # of Ant Visits

LOCATION
Away
Near

Pretreat WK1 WK2 WK4 WK6 WK8

Pretreat WK1 WK2 WK4 WK6 WK8

81% 64% 56% 82%

40% 90%
Strategies to Reduce Runoff

- No spray zone (NSZ)
  - Within 15 ft. of street
  - Within 5 ft. of sidewalks and driveway
Pin-Stream Application

- Perimeter treatment
  - One gallon Termidor
Pin-Stream Application

Mean No. Ant Visits/Vial

- Pretreatment
- Week 1
- Week 2
- Week 4
- Week 8

Locations:
- Away
- Near

- Mean No. Ant Visits/Vial
- Pretreatment: 78%
- Week 1: 23%
- Week 8: 78%
Commercial & Experimental Baits

- Gourmet Liquid Ant Bait (1% borate)
- Vitis (0.001% imidacloprid)
- Experimental bait
  - Thiamethoxam
- Bait dispenser
  - KM AntPro
    - 4 to 6 stations
Liquid Baits

Gourmet

Vitis

LOCATIONS

% of Ant Visits

Mean # of Ant Visits
Thiamethoxam Bait

0.001%

0.003%
Baiting: How Cost-Effective?

- Herb Field conducted 9 mo study
  - Comparing Vitis with traditional treatment
Cost Analysis

- Tracked material and labor costs
  - 6 homes: traditional
  - 6 homes: bait
    - Inspection + mapping
    - Learning curve
      - To increase efficiency
## Cost Analysis: Traditional vs. Baiting

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Callbacks</th>
<th>30 days</th>
<th>31-90 days</th>
<th>91-180 days</th>
<th>181-270 days</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional: Termidor</td>
<td>0</td>
<td>$123</td>
<td>$94</td>
<td>$94</td>
<td>$94</td>
<td>$404</td>
</tr>
<tr>
<td>Talstar G</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CyKick</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid bait: Vitis</td>
<td>3</td>
<td>$243</td>
<td>$164</td>
<td>$125</td>
<td>$142</td>
<td>$674</td>
</tr>
</tbody>
</table>