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INSECTICIDE TOXICITY DATA FROM VIRGINIA AND RESEARCH PLANS IN 2011

Green bean dip bioassay

- Insecticidal solution based on 100 gal / acre water output.
- Filter paper + one green bean were:
  - dipped in solution for 5 seconds.
  - Dried ½ hr under a fume hood.
  - Placed in a 9-cm Petri dish.
- 5 adults or 2nd to 3rd instars per dish.
- 4 Petri dishes per treatment for a total of 20 insects per bout.
- Mortality at 24, 48, and 72 hrs

Intoxication

- Insects were considered “intoxicated” or “down” if they could not right themselves.

Abbott's Formula (Abbott 1925) was applied when there was mortality in the control

$$\text{Corrected \%} = 100 * \left\{ 1 - \frac{\text{N in Trt after Trt}}{\text{N in Control after Trt}} \right\}$$

2011 BMSB % Mortality – Pyrethroids Only

Insecticide	Product	Product Rate /Acre	# times tested	Average	
				% mortality	% Dead and down
Beta-Cyfluthrin	Baythroid XL	2.8 fl. oz	4	45	96
beta cyfluthrin + Imidacloprid	Leverage 360	2.8 fl. oz	1	84	94
Bifenthrin	Bifenture 2EC	6.4 fl. oz	1	100	100
Bifenthrin	Bifenture 10DF	12.8 oz	2	100	100
Bifenthrin	Capture LFR	6.8 fl. oz	2	43	100
Bifenthrin + imidacloprid	Brigadier	9.85 fl. oz	1	100	100
Bifenthrin + acetamiprid	Bifenture 2EC + Assail 30SG	6.4 fl. oz + 4 oz	1	100	100
Cypermethrin	Up-Cyde 2.5 EC	5 fl. oz	1	100	100
Esfenvalerate	Asana XL	9 fl. oz	3	24	31
λ-cyhalothrin	Lambda-cy	3.84 fl. oz	2	74	78
λ-cyhalothrin	Warrior II	2.5 fl. oz	2	57	93
λ-cyhalothrin + acetamiprid	Lambda-cy + Assail 30SG	3.84 fl. oz + 4 oz	1	93	100
λ-cyhalothrin + Thiamethoxam	Endigo ZC	5.5 fl. oz	3	77	98
Permethrin	Permethrin 3.2EC	8 fl. oz	1	50	95
Permethrin	Perm-up 3.2 EC	8 fl. oz	2	98	98
Permethrin + acetamiprid	Perm-up 3.2 EC + Assail 30SG	8 fl. oz + 4 oz	1	100	100

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Permethrin	Permethrin 3.2EC	8 fl. oz	1	50	95
Permethrin	Perm-up 3.2 EC	8 fl. oz	2	98	98
Permethrin + acetamiprid	Perm-up 3.2 EC + Assail 30SG	8 fl. oz + 4 oz	1	100	100

2011 BMSB % Mortality – Non-Pyrethroids

Insecticide	Product	Product Rate/Acre	# times tested	Average % mortality	Average % Dead and down
Acephate	Acephate 97UP	16 oz	1	100	100
Acephate	Orthene 97	16 oz	2	58	70
Acetamiprid	Assail 30SG	4 oz	2	70	78
Acetamiprid	Assail 70	1.7 oz	1	86	100
Carbaryl	Sevin XLR Plus	48 fl. oz	2	38	38
Dinotefuran	Scorpion 3.24	7.7 fl. oz	2	82	93
Dinotefuran	Venom	5.5 oz	1	15	100
Endosulfan	Thionex 3EC	42.6 fl. oz	1	90	100
Flubendiamide	Belt SC	5 fl. oz	3	23	23
Imidacloprid	Provado + NIS	8 fl. oz	3	17	33
Methomyl	Lannate LV	16 fl. oz	2	78	78
Methomyl	Lannate LV	24 fl. oz	3	76	78
Methomyl	Lannate LV	40 fl. oz	3	90	92
Oxamyl	Vydate L	16 fl. oz	2	41	41
Oxamyl	Vydate L	24 fl. oz	2	49	63
Oxamyl	Vydate L	32 fl. oz	2	10	18
Oxamyl	Vydate L	48 fl. oz	2	82	82
Thiacloprid	Calypso + NIS	4 fl. oz	3	15	18
Thiacloprid	Calypso + NIS	8 fl. oz	4	29	46
Thiamethoxam	Actara 50WG	5.5 oz	3	49	86

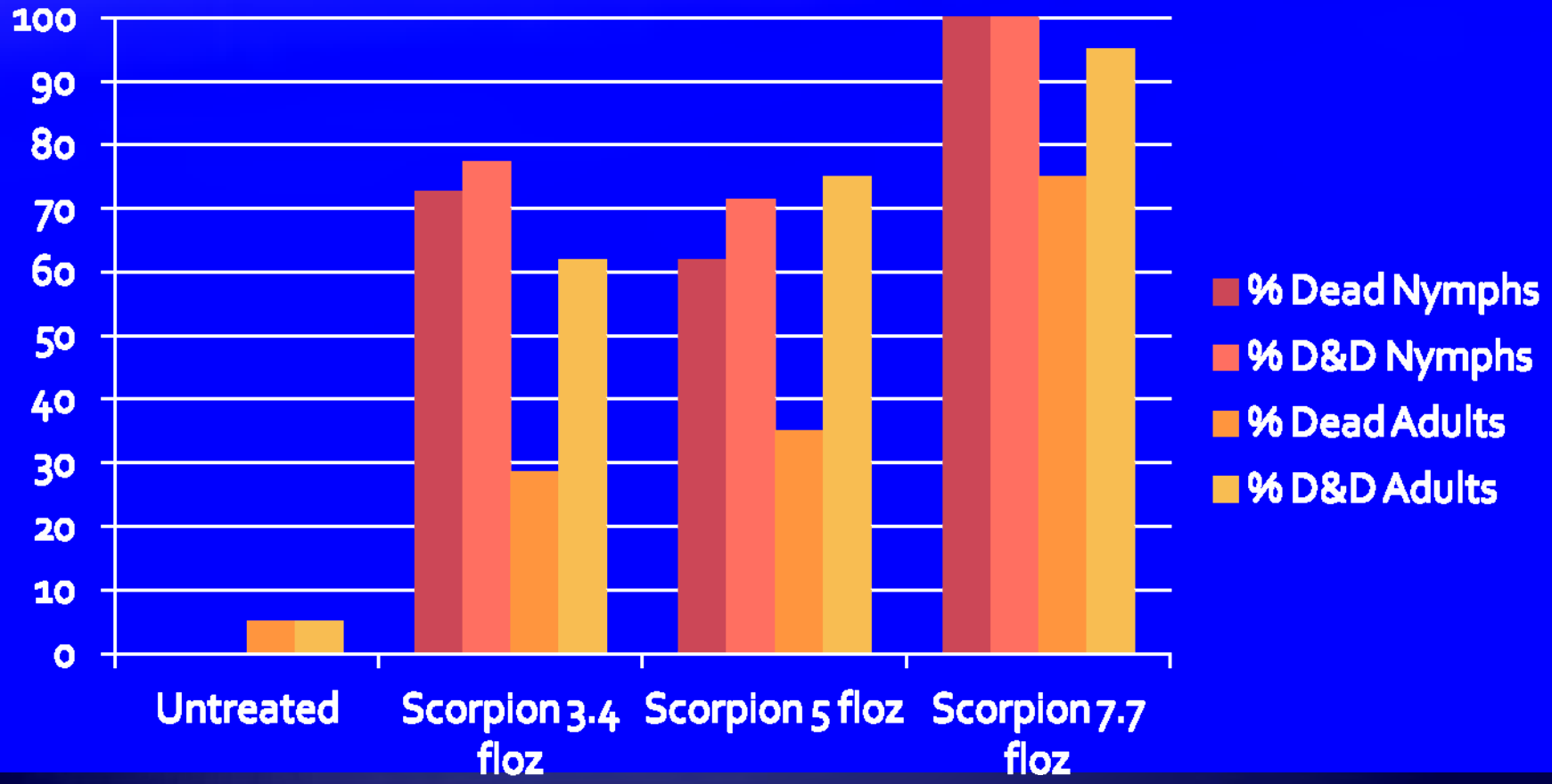
% dead and down brown marmorated stink bugs (72 h)
Insecticides at highest rates only

% dead and down brown marmorated stink bugs (72 h) – pyrethroids only (at highest rate)

SCORPION 35SL Insecticide

(Dinotefuran)

Results of 72hr exposure to dipped green bean



Research plans for 2011

- Continue green bean dip assays
- Whole-plant tomato assays in the greenhouse (cage 5 bugs per plant after treatments, 4 reps/trt)
- Look at systemic products as drenches

Research plans for 2011

- Field insecticide trials on bell peppers in collaboration with Hamilton, Dively, Brust, Whalen, Ghidiu – 2011 NE-RIPM GRANT
- Pepper host plant choice experiments

Research plans for 2011

- Novaluron and diflubenzuron bioassays
- MOA: Inhibitors of chitin biosynthesis, type o
- BMSB adult females – fertility of the eggs
- BMSB eggs – do they hatch?
- Molting effects on nymphs

Research plans for 2011

- 2011 SRIPM GRANT - **NC State: Brown Marmorated Stink Bug: Impact of an Invasive Pest on Orchard and Vegetable IPM -** Walgenbach, Kuhar, and Abney

- **Objectives:** The overarching goals of this project are to determine the role of various managed and non-managed habitats on the population ecology of the invasive pest, BMSB and to develop management strategies to minimize crop losses in vegetables.

Research plans for 2011

- Repellent s
  1. Methyl salicylate
  2. Beta caryophylene
  3. Limonene
  4. Eucalyptol

Polymer string containing repellents

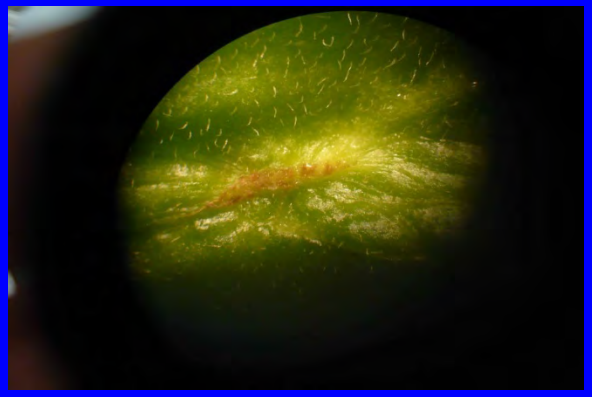
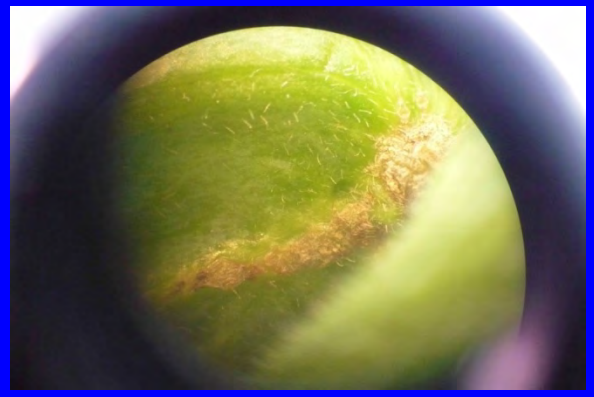
Dynamics of freezing point of BMSB – collaboration with Don Mullins (Virginia Tech)

- Supercooling point determination and analysis of BMSB whole body extracts for changes in two polyols (glycerol and inositol) after different temperature regimes during winter diapause.







Okra images courtesy of Barbara Leach