Reconsidering soil-applied insecticides

Blake Wilson

LATMC Sugarcane Breakout

Marksville, LA

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Sugarcane Insecticide Use

Insecticides for borer control[1, 2]

- Reduced by approximately 60% since 2000
- Selective chemistry
- Integrated management

No other pests require regular control

Environmental impact is very low relative to other field crops

Should be viewed favorably by EPA

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Wilson et al. 2020, Wilson 2021

Sugarcane Insecticide Use

Thimet® 20-G
Lock'nLoad®

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Sugarcane Insecticide Use

Used by ≈ 43% of growers (55,000 acres/year)
Nearly, $1 million spent annually

Thimet (phorate)

- **Organo-phosphate (EPA review)**
- **Broad spectrum, kills fire ants at label rate (15 lbs/acre)**
- **Hazardous to the applicator**
- **Requires investment in application equipment**

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Sugarcane Insecticide Use

- **Is Thimet use justified?**
  - **No data demonstrating benefits to yield in Louisiana**
    - **3 large plot trials from 2017-2019 showed no effect**
  - **Anecdotal evidence suggests poor stands can occur without it**
  - **Roughly half of plant cane acres aren't treated, issues are rare**

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A single report of replanting due to wireworms since 2017

Wireworm Collections 2020-2021

Beer-soaked corn baits

- **2020-2021: estimated capture rate was < 0.3 larvae/trap**
- **2022: 0.02 larvae/trap**

Pastures, grassy fallow land had nothing

>70% of larvae came from a field of second stubble

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Wireworm Trials 2021-2022

Inoculated trials on station – 1 larva per row foot

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Wireworm Trial – USDA Houma

Treatment	Rate (fl oz/a)	Stand per acre				Stalk Wght (lbs)	Tons/ acre
		Oct 2021	Dec 2021	Apr 2022	Sept 2022		
Infested	NA	15,636 d	33,636 c	48,000	56,364	2.9	83.0
Uninfested	NA	24,545 bc	42,727 abc	58,546	57,455	3.2	91.7
A22466	2.74	22,545 c	45,273 abc	54,727	61,091	3.3	100.1
A22466	4.56	22,364 c	41,090 bc	54,000	52,727	3.0	77.5
A22466	6.84	29,627 ab	48,909 ab	51,454	55,818	3.1	87.2
Platinum	5.67	33,455 a	54,727 a	58,909	52,727	2.8	81.9
	F =	8.40	6.31	0.67	0.83	1.55	2.55
	df =	5, 20	5, 20	5, 20	5, 20	5, 20	5, 20
	P =	<0.001	0.001	0.650	0.546	0.220	0.061

Collaboration with Hannah Penn and Randy Richard
HoCP 12-615, planted 26 August 2021
1 wireworm, 3.5 internodes per row-foot

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Wireworm Trial – SRS

Treatment	Rate/acre (fl oz)	Plants/acre			Stalk Weight (lbs)	TCA
		Dec 21	May 22	Sept 22		
Uninfested control		15,240	73,569 AB	57,329 AB	2.7 AB	77.0 AB
Infested control		11,974	45,993 B	43,904 B	2.6 B	56.9 B
Broflanilide	4.56*	14,514	71,853 AB	58,418 AB	2.9 AB	86.6 A
Broflanilide	2.28	17,779	86,7202 A	67,126 A	2.8 AB	93.2 A
Broflanilide	1.14	17,779	83,454 AB	45,718 B	2.6 B	58.7 B
Broflanilide	0.57	14,151	64,969 AB	54,427 AB	2.5 B	67.7 AB
Broflanilide	1.14**	8,708	60,958 AB	50,073 B	2.8 AB	69.0 AB
Thimet	3 lbs/a	11,611	67,852 AB	55,152 AB	3.2 A	87.1 A
	F =	0.69	2.49	5.72	4.36	5.71
	Df =	7, 21	7, 21	7, 21	7, 21	7, 21
	P =	0.676	0.050	<0.001	0.004	<0.001
	SE =	5,297	8,369	2,133	0.1	8.0

HoCP 12-615, planted 27 September 2021
0.8 wireworm, 4 internodes per row-foot
*Uninfested
**Pre-emergence soil application

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Looking ahead

Platinum label anticipated in 2024

- **Billet planting data are encouraging**
- **Yield benefits from growth stimulation?**

Broflanilide possible in 2025

Where do these products fit?

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Looking ahead

Investigation of wireworm pest status needed

- Consultant/farmer collaborations needed
- Records analysis?
- Strip trials on commercial farms
- Statewide surveys

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Questions?
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