

Sugarbeet Root Maggot



Sugarbeet Root Maggot (SBRM)

Adult Fly



Maggot (larval stage)



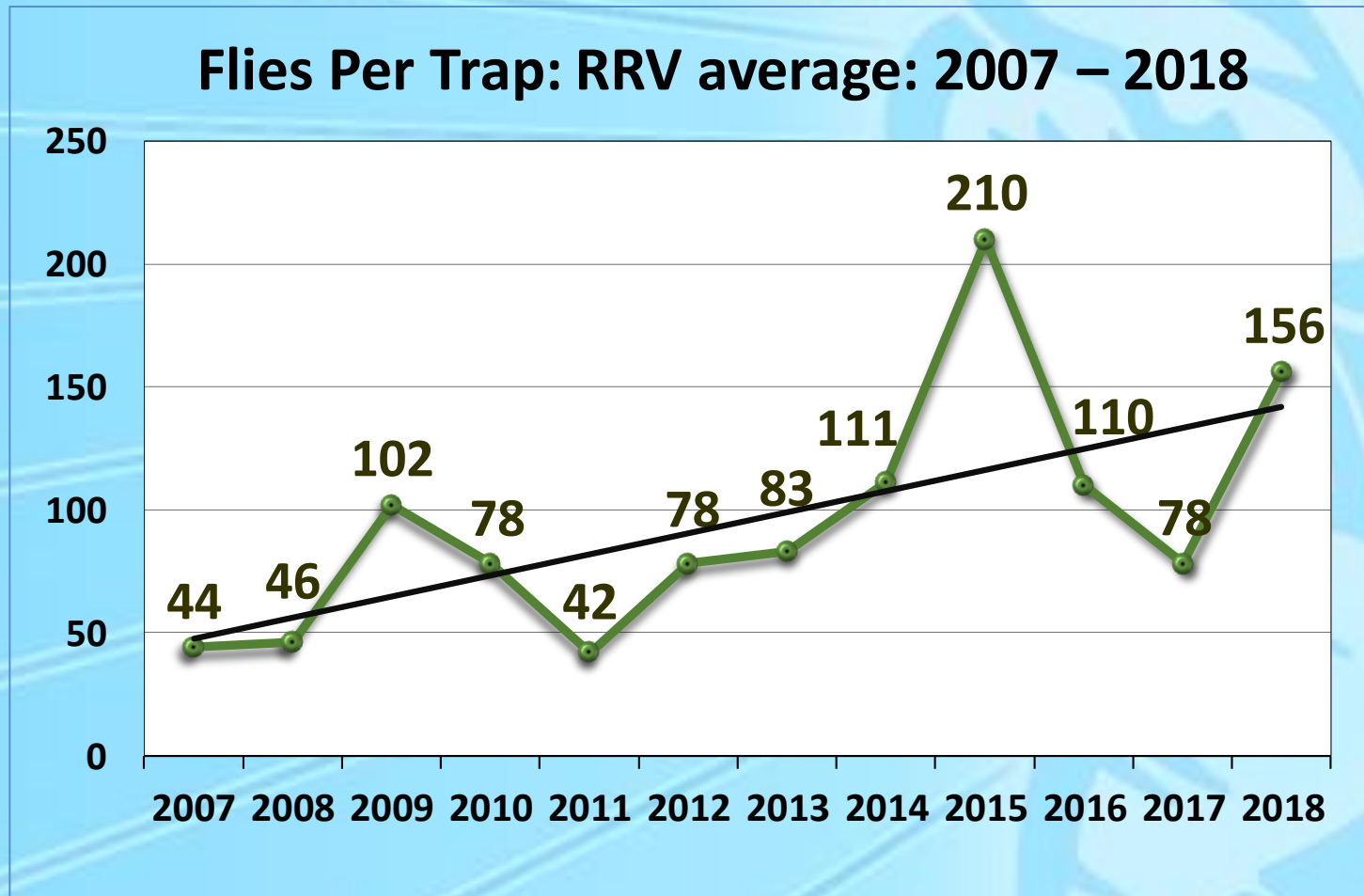
- Maggots overwinter as larvae, pupate and emerge in spring as flies in previous years beet fields
- Adult flies are monitored in current year beet fields with sticky stakes

Sugarbeet Root Maggot

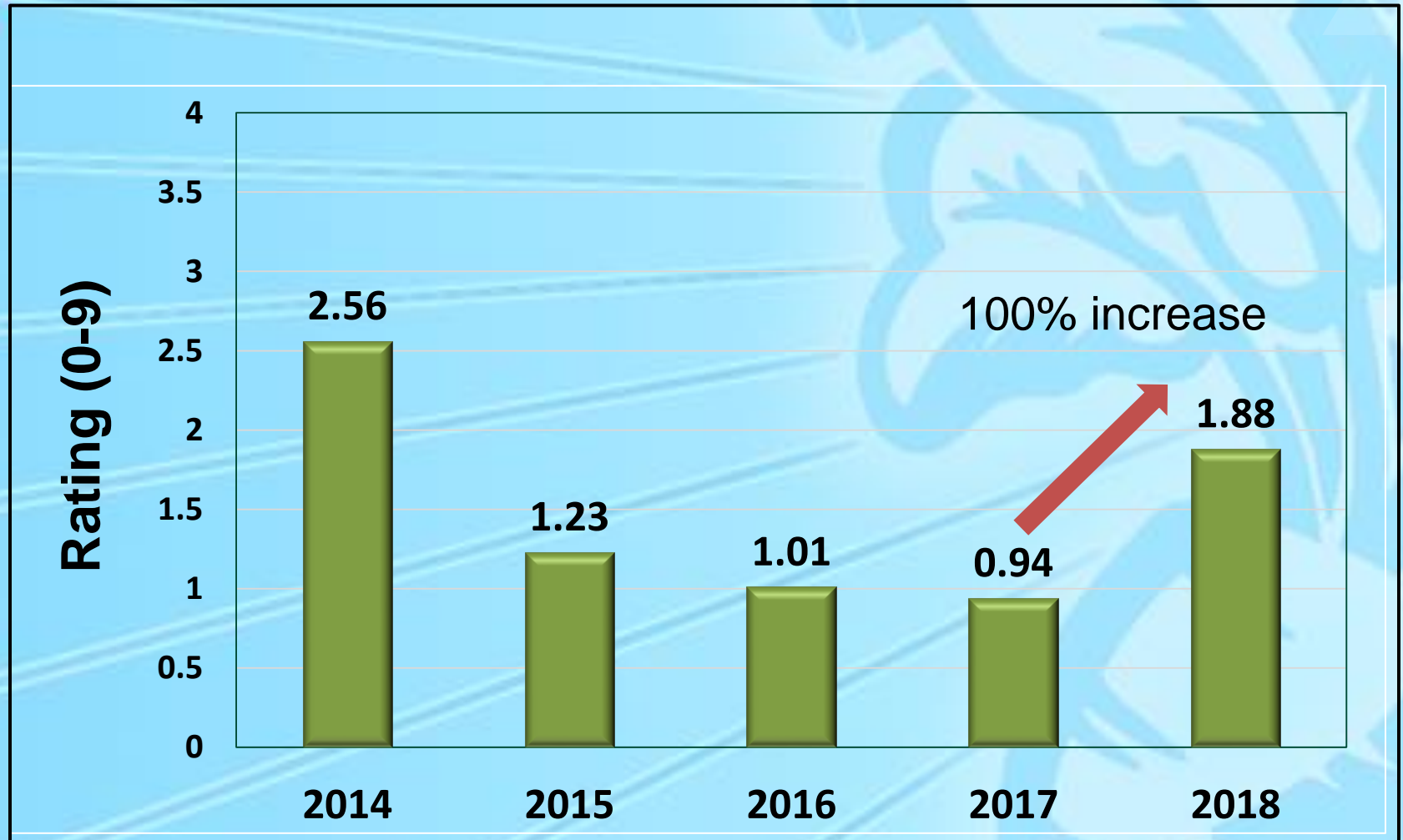
- Peak fly activity can occur anytime after 600 Degree Days are accumulated, on average, this occurs at 650 Degree Days
 - Degree Days are monitored at each NDAWN site in the RRV
 - NDSU and ACSC staff monitor sticky stakes 3x/week during fly activity weeks
- It is important to know that warm weather (around 80° F), and calm to low wind conditions are most conducive for fly activity
- Flies will remain fairly inactive in cool, rainy, or windy conditions



Root Maggot Populations are on the Rise!



Average Root Maggot Damage in Grower Fields with Cumulative Fly Count Above Threshold*



*Economic Threshold: 43+ flies/trap (assumes no at-plant insecticide protection).

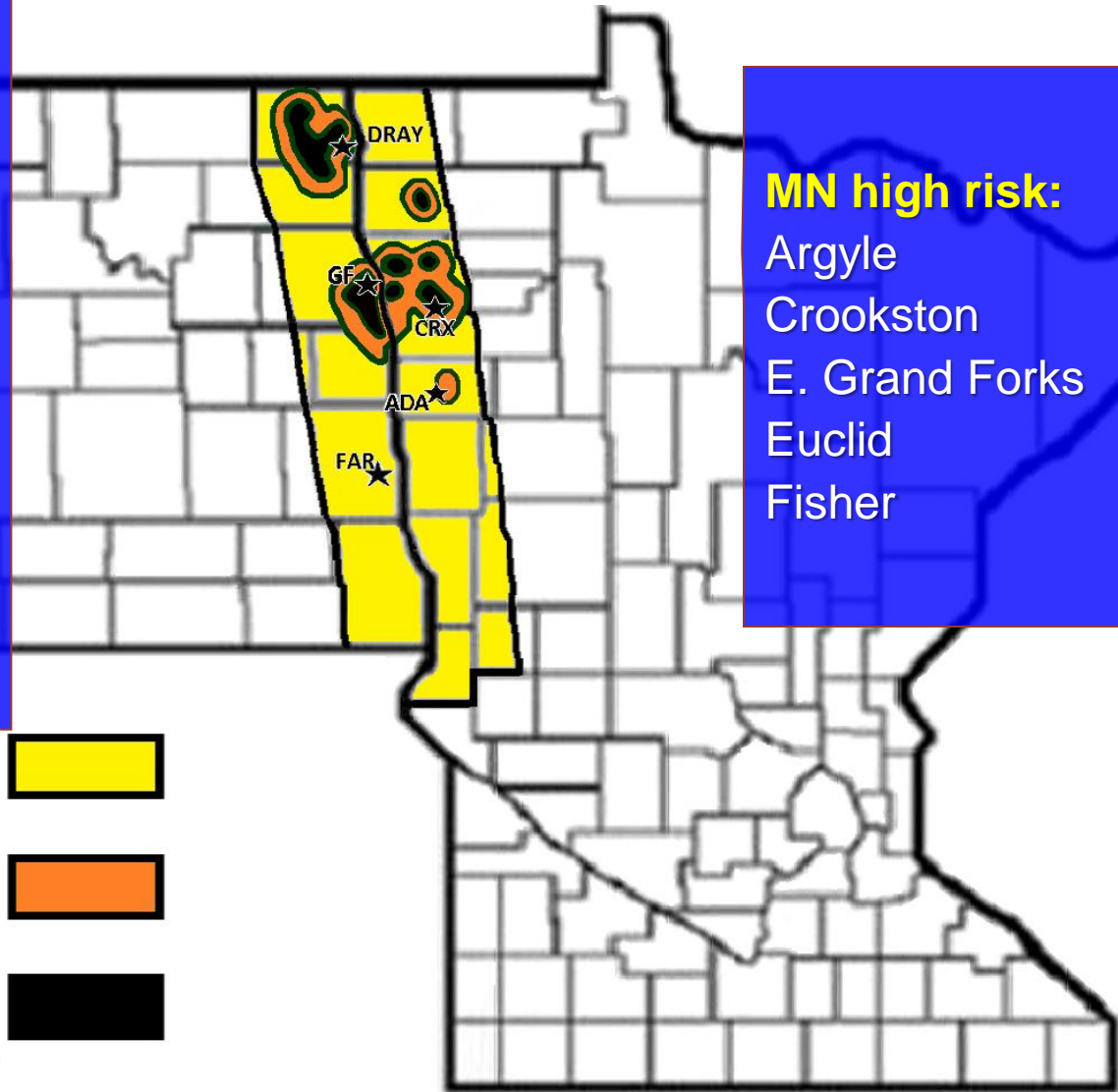
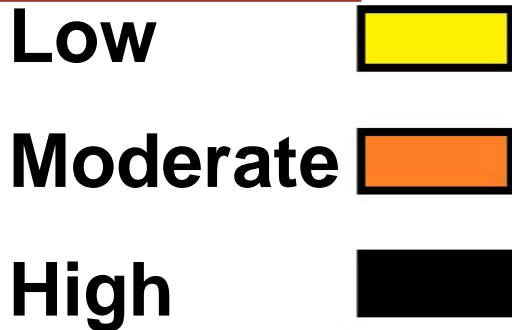
2019 Root Maggot Forecast*

ND high risk:

Auburn
Bathgate
Bowesmont
Cavalier
Drayton
Grand Forks
Reynolds
St. Thomas
Thompson

MN high risk:

Argyle
Crookston
E. Grand Forks
Euclid
Fisher



*Based on fly counts & root maggot feeding injury ratings

Other Potential Root Maggot Risk Areas

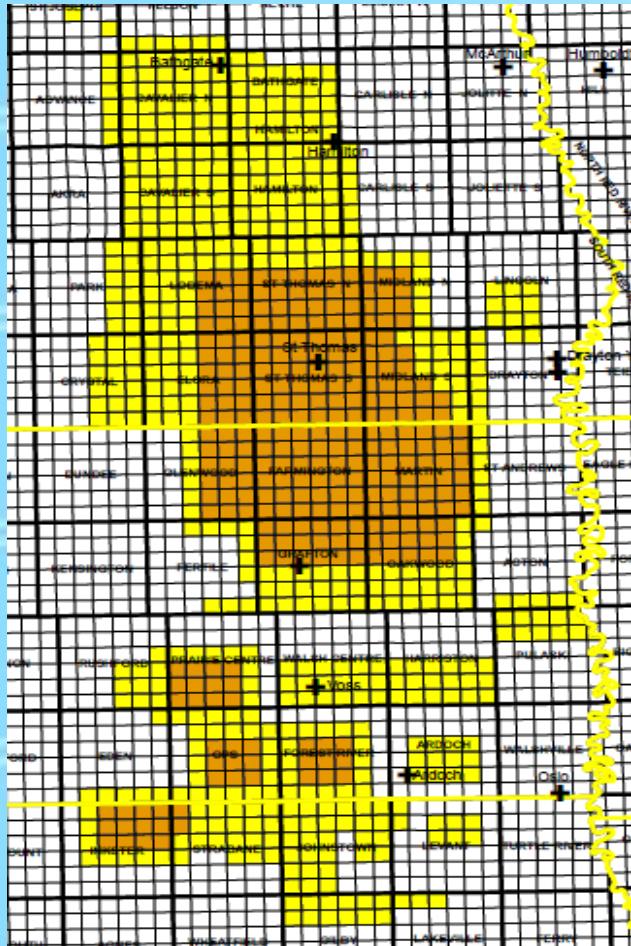
North Dakota:

- Buxton
- Cashel
- Crystal
- Grafton

Minnesota:

- Ada
- Eldred
- Fisher

Maggot fly observations 2015 vs 2018 in the Northern Valley area

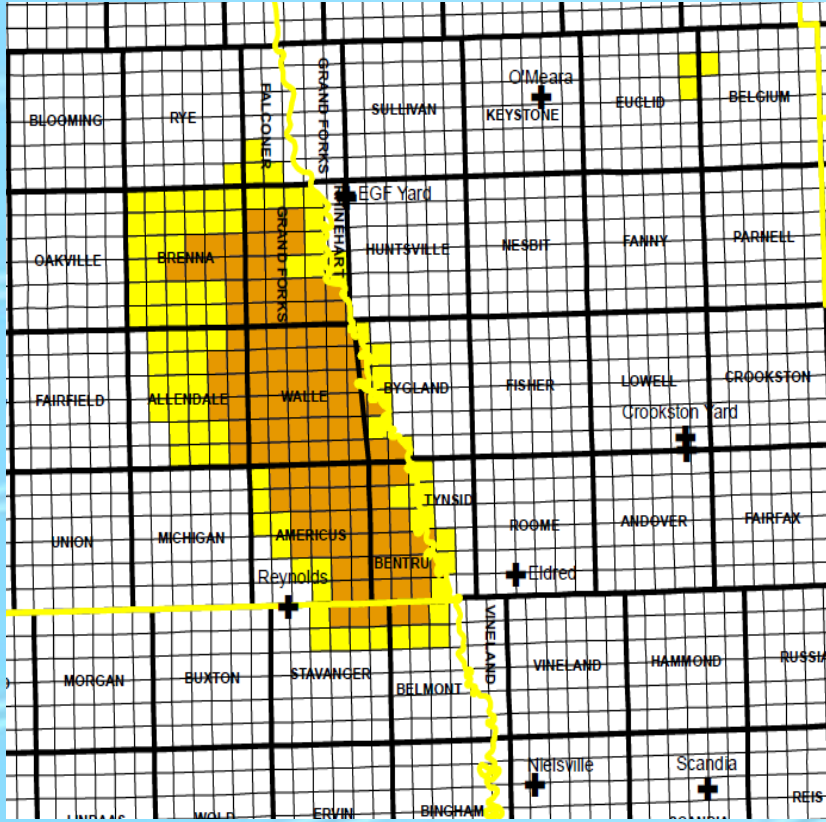


2015 crop year

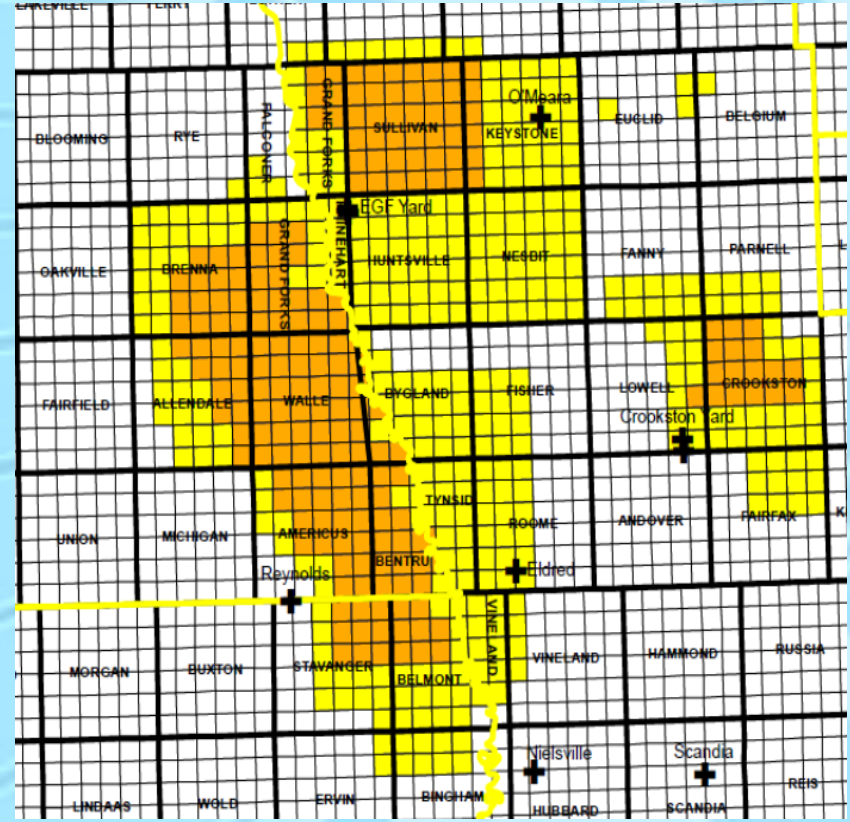


2018 crop year

Maggot fly observations 2015 vs 2018 in the EGF-CRK area

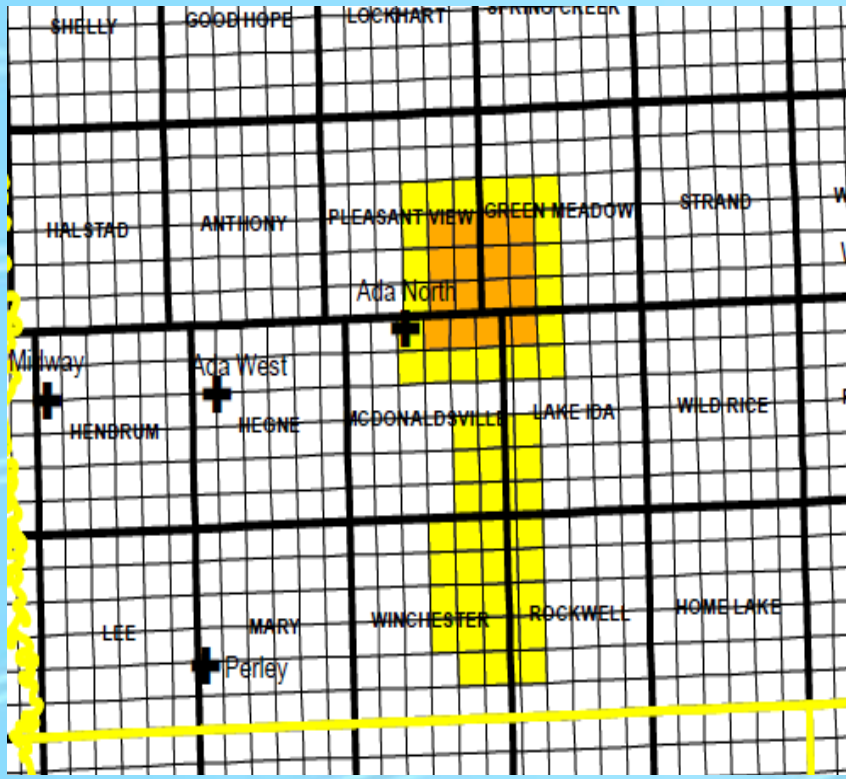


2015 crop year

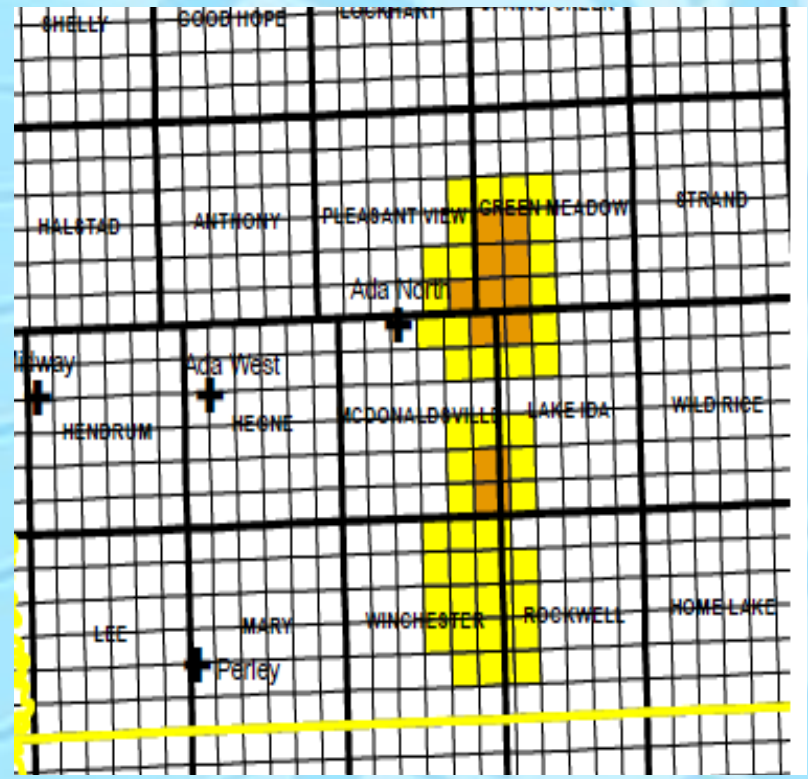


2018 crop year

Maggot fly observations 2015 vs 2018 in the Ada-Borup area



2015 crop year



2018 crop year

Single Post Sprays for SBRM Control

St. Thomas, ND, 2015 – 2018

Treatment	RSA (lb/ac)	Tons/ac	\$\$ above Check
Counter 8.9# B + Lorsban Adv. 2 pts	8,824 a	29.8 a	\$429
Counter 8.9# B + Lorsban Adv. 1 pt	8,580 ab	29.1 ab	\$392
Counter 7.5# B + Lorsban Adv. 2 pts	8,398 ab	29.3 ab	\$333
Poncho Beta + Lorsban Adv. 2 pts	8,181 ab	28.6 ab	\$309
Poncho Beta + Lorsban Adv. 1 pt	7,971 bc	27.6 bc	\$300
Counter 7.5# B + Lorsban Adv. 1 pt	7,962 bcd	27.3 bcd	\$310
Counter 7.5# B	7,419 cd	25.7 cde	\$238
Poncho Beta	7,385 cd	25.5 de	\$240
Counter 8.9# B	7,318 d	25.3 e	\$231
Check	5,617 e	20.4 f	
LSD (0.05)	648.8	2.03	---

Additive Granular Insecticides for SBRM Control: 2015-2018

Treatment	RSA	Tons/ac	\$\$/ac above check
Counter 8.9# Band + Thimet 7# Post Band	9,135 a	30.9 a	\$436
Poncho Beta + Counter 8.9# Post Band	8,957 ab	30.9 a	\$390
Poncho Beta + Counter 8.9# At-plant Band	8,872 abc	30.8 a	\$371
Poncho Beta + Counter 5.25# At-plant Band	8,583 abc	30.0 ab	\$330
Counter 7.5# Band + Thimet 7# Post Band	8,488 abcd	29.9 ab	\$307
Poncho Beta + Thimet 7# Post Band	8,335 bcde	29.1 abc	\$302
Poncho Beta + Counter 5.25# Post Band	8,232 cde	29.5 ab	\$255
Counter 8.9# Band	7,893 def	28.1 bcd	\$226
Poncho Beta	7,851 def	27.9 bcd	\$225
Counter 7.5# Band	7,737 ef	27.0 cd	\$240
Counter 5.25# Band	7,355 f	26.2 d	\$172
CHECK	6,042 g	22.2 e	
LSD 0.05	679.3	1.97	

Single, Dual & Triple Applications for SBRM Control
St. Thomas, ND: 2016-2018

Seed Trt.	At-plant	Post	RSA (lb/ac)	\$\$ above Check
Poncho Beta	Counter 8.9#	Lorsban Advanced 1 pt	9,940 a	\$479
Poncho Beta		Counter 8.9#	9,381 ab	\$401
Poncho Beta	Counter 8.9#		9,323 abc	\$394
Counter 8.9#		Thimet 7#	9,320 abc	\$411
Poncho Beta	Counter 8.9#	Thimet 7# + Lors. Adv 1 pt	9,175 a-d	\$365
Poncho Beta	Counter 5.25#		8,963 b-e	\$339
Counter 7.5#		Thimet 7#	8,742 b-f	\$308
Poncho Beta		Thimet 7#	8,550 c-f	\$270
Poncho Beta		Counter 5.25#	8,439 def	\$240
Poncho Beta			8,324 ef	\$260
Counter 8.9#			8,089 f	\$202
Check			6,450 g	
		LSD (0.05)	802.8	



Postemergence Spray Timing for SBRM Control

St. Thomas, ND: Combined Analysis (2015-2018)

Treatment	Timing (from peak fly)	RSA (lb/ac)	\$\$ above Check
Counter 7.5 lb + Lorsban Adv. 2 pts 2X	7 days pre / 4 days post	9,132 a	\$436
Counter 8.9 lb + Lorsban Adv. 2 pts	2 days pre / 4 days post	8,764 ab	\$330
Counter 7.5 lb + Lorsban Adv. 1 pt 2X	7 days pre / 4 days post	8,593 abc	\$361
Counter 7.5 lb + Lorsban Adv. 1 pt + Mustang Maxx 4 fl oz	2days pre	8,557 abc	\$292
Counter 7.5 lb + Lorsban Adv. 2 pts	2days pre	8,352 bc	\$296
Counter 7.5 lb + Mustang Maxx 4 fl oz	2days pre	8,113 c	\$304
Counter 7.5 lb + Lorsban Advanced 1 pt	2days pre	8,038 cd	\$267
Counter 20G 8.9 lb		7,451 de	\$180
Counter 20G 7.5 lb		7,090 e	\$136
Check	---	5,884 f	---

NS

LSD (0.05)

639.6

Root Maggot Control Recommendations

- High risk areas

- High rate of Counter (8.9# of 20G) at plant fb,
- Thimet (7.0#) post application fb,
- Lorsban at 2 pints/ac about 7 days pre peak fly fb,
- Lorsban at 2 pints/ac about 4 days post peak fly

*For additional protection a seed treatment at plant may be included

Root Maggot Control Recommendations

- Moderate risk areas

- Moderate rate of Counter (7.5# of 20G) at plant fb,
- Lorsban at 2 pints/ac about 2-4 days pre peak fly with a possible second Lorsban application 11 days after first

- **OR**

- A seed treatment at plant fb,
- Lorsban at 2 pints/ac about 2-4 days pre peak fly with a possible second Lorsban application 11 days after first

*Thimet may be an option between planting and the first Lorsban application

** Counter treatments tend to lead to higher returns

Root Maggot Control Recommendations

- Light populations
 - A moderate at plant application of counter (7.5# of 20G) or a seed treatment fb,
 - Monitoring during the growing season to see if a post application of Lorsban at 1 pint/ac is needed

Summary – Root Maggot Control

- Root maggot populations emerged early in 2018, and remained at alarming levels for ~3 weeks!
- Average population has increased in 2018, and there is an increase in number of areas affected
 - Populations need to be monitored and proper management control measures implemented
- Aggressive control efforts will be needed in 2019

Summary – Root Maggot Control

- Multiple applications of **any** chlorpyrifos (e.g., Lorsban) liquid:
 - Requires 10 days between applications
- **Mustang Maxx or Asana XL** - can be used as 2nd or 3rd applications if flies resurge before 10 day minimum is met for Lorsban (Chlorpyrifos)
- Tank mixing Lorsban sprays w/ Roundup?
 - 2 yrs of testing: No crop injury or reduced SBRM control
 - Not warranted on label (grower incurs the risk)
- Only use Lorsban 4e if tank mixing with Roundup (Glyphosate).
- Keys to success with seed treatments:
 - Know your acres / risk
 - Vigilance in fly monitoring
 - Good postemergence control (mod./high populations)



Summary – Root Maggot Control

- At-plant granules or seed treatment insecticides pay for themselves under moderate SBRM pressure
- Under moderate and high SBRM pressure, granules or seed treatments should **not** be relied on as stand-alone tools
- Post insecticide applications provide good SBRM control & revenue benefits that optimize economic return. They are the keys to success



Questions?
