Thrips Control in Drip Irrigated Onions December 11, 2014

University of Idaho

College of Agricultural and Life Sciences

Drip Irrigation

Used on ~50% of onion acreage in the Treasure Valley



Benefits to thrips/IYSV control with drip irrigation

- Less water and nutrient stress, reduced symptom expression.
- Less reliance on air application of insecticides.
- Opportunity to target thrips with systemic products

High IYS Incidence

Significant relationship between IYS and:

Salinity (positive) EC, SAR, Base Saturation, K

Soil Color (negative) Only with moderately resistant variety

Texture Heavier soils associated with higher IYS

Soil Nitrogen (positive) Ammonium N and Total N

Influence of spray volume on thrips populations

at Parma, ID during 2007 growing season



Values are means of 3 foliar insecticide treatments and 4 reps

How and when we apply insecticides may be more critical than what we apply

 To be successful you must understand your target and where it is located

Getting insecticides down close to the thrips is difficult!





Movement of soil mobile vs soil binding compounds

On Emitter

Blue dye (a -0 hrs, Red dye (a -3 hrs, Blue dye (a -6 hrs + 2 hrs of water = Total water run time 8 hrs,

Contraction of the local division of the loc

Tape was here

Both dyes highly soluble, red dye binds to the soil

Photo Courtesy of DuPont

Strategies

Drip applications replace foliar program
Drip applications plus foliar program*
Seed treatments plus foliar program*

* Need to increase net returns above cost of foliar program

Treatment Schedule

Treatment	May 18th	June 4th	June 14th	June 23rd	July 1st	July 8th	July 11th	July 15th	July 21st	July 22nd	July 28th	Aug 1st	Aug 5th
Grower Standard			Movento @ 5oz/ac	Movento @ 5oz/ac	Agri-Mek @ 16oz/ac	Agri-Mek @ 16oz/ac		Radiant @8oz/ac		Radiant @8oz/ac	Lannate @ 3pts/ac		Lannate @ 3pts/ac
Admire drip + Grower Standard	Admire @ 14oz/ac	Drip + foliar program							Radiant @8oz/ac	Lannate @ 3pts/ac		Lannate @ 3pts/ac	
Non-Treated Check	No Spray all season												
Movento drip + Grower Standard			Move @ 5o:	Drip substituted into foliar program						Radiant ⊉8oz/ac	Lannate @ 3pts/ac		Lannate @ 3pts/ac
Lannate-drip		Lannate @ 3pts/ac		Lannate @ 3pts/ac	Lannate @ 3pts/ac		Lannate @ 3pts/ac		Lannate @ 3pts/ac			Lannate @ 3pts/ac	
Vydate-drip	Vydate @ 1qt/ac	Vydate @ 1qt/ac	Drip instead of foliar program									Vydate @ 1qt/ac	
Vydate fb Lannate-drip	Vydate @ 1qt/ac	Vydate @ 1qt/ac		Vydate @ 1qt/ac	Lannate @ 3pts/ac		Lannate @ 3pts/ac		Lannate @ 3pts/ac			Lannate @ 3pts/ac	
Sepresto + Grower Standard			Move @ 5o:	Seed treatment + foliar program						Radiant @8oz/ac	Lannate @ 3pts/ac		Lannate @ 3pts/ac

The only way to control IYSV is to control thrips populations





Thrips Control Oregon State University, Ontario



 Average thrips populations compared to iris yellow spot severity, Malheur Experiment Station, Oregon State University, Ontario, OR, 2005.

Programs with the best thrips and IYSV control have the highest yields



Programs with the best thrips and IYSV control have better size



How can that be?

- 1 thrips per plant is about 150,000 per acre
- On July 21, 2011 the check had 9.5 million thrips per acre

- On July 21, 2011 the best treatment had 4.4 million thrips per acre



Thrips populations by date



Options for early season control

> Furrow

- Sepresto seed treatment (Clothianadin + Imidacloprid)
- Farmore seed treatment (Thiamethoxin + Spinosad)
- Early foliar applications
- > Drip
 - Seed treatments
 - Admire (Imidacloprid)
 - Vydate (Oxamyl)
 - Lannate (Methomyl)
 - Early foliar applications

Do seed treatments and Admire improve thrips control?





Seed treatments



Can we control thrips and IYSV with drip applications?









Can we target drip applications better?





How much do these strategies improve thrips control?



How much do these strategies improve IYSV control?



Beneficial Insects - 2012



What is the impact on yield and size?



What is the impact on your bottom line?



Average for 2011-13

Acknowledgements

Funding/support provided by the Idaho/Eastern Oregon Onion Research Committee, DuPont, Gowan, Bayer, Nunhems, and Clearwater Irrigation

Bill Buhrig (OSU), Oksana Adams, Jerry Neufeld, Ronda Hirnyck, Jim Barbour



