Improved Nutsedge Control on Bed Edges with Metam Potassium and Soil Surfactants



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How fast can nutsedge grow? 1 week 4 weeks



Purple nutsedge (Cyperus rotundus)

Metam Potassium

- It controls nutsedge but it has been erratic in the past.
- Drip applications are more consistent than sprayed or rototilled.



Purple nutsedge (*C. rotundus*)



Yellow nutsedge (C. esculentus)

Metam Potassium

• Drip requires 2 or more tubes on bed top.

 Water volume: 1 acre-inch of water or more (1 acre-inch ≈ 100 m³).

Concentration: 5000-6000 ppm in water.

Metam Potassium

Concentration + duration = efficacy (Rate + water volume) + duration = efficacy



Control

6000 ppm

What about bed edges?





Control

4690 ppm

Soil Surfactants: Integrate[™]

Designed to reduce water surface tension and improve lateral movement.

> Alkoxylated polyols and glucoethers.

> Application:

- > Drip irrigation.
- Conventional sprayer.

Improved metam potassium activity?



Water only Water + Integrate

5 minutes after application in sand



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Control: One drip tape, 1h (31%)





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4 596

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Control: Two drip tapes, 1h (67%)



Water + Integrate: Two drip tapes, 1h (92%)



Control: Two drip tapes, 1h (28%)

Water + Integrate: Two drip tapes, 1h (74%)



Objective

Evaluate the performance of metam potassium against nutsedge when Integrate was applied to the soil.



Materials and Methods Location and seasons: > GCREC, IFAS, Univ. of Florida, Balm, Fla. 3 studies: No crop: Spring & summer 2012 Tomato and pepper: Fall 2012.

Materials and Methods Metam potassium (K-Pam & Sectagon K54): ➢ 60 lb/acre & 5500 ppm. > Hydraulic injector (Dosatron). **Integrate:** ➢ 1 gal/acre. > 1-2 days before metam potassium. > Hydraulic injector (Dosatron).

Materials and Methods Spring, summer & fall 2012: One drip tape (0.45 gal/100 ft/acre). I ft between emitters. > Nutsedge populations. Plots: Between 30 and 60 ft long. RCBD with 6 replications.



Spring 2012

Nutsedge Population



Control: >350 nutsedge/60-ft row

Summer 2012

Nutsedge Population



Control: >350 nutsedge/30-ft row

Summer 2012

Moisture (5 weeks)



MK alone MK + Integrate



Fall 2012



Summary

Integrate improved nutsedge control when combined with metam potassium.

▶ 25-30%.

Lateral movement of water carrying MK.

Effects on early tomato yields?
Only one Sandea application in tomato?

Weed Science Research Program At GCREC

Improve fumigant efficacy
Bed shape and size
Alternative fumigants
Herbicide evaluation
Pre-emergence herbicides under the plastic
Post emergence herbicides over the bed top
Integrated weed management systems

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