Poa annua Control with Methiozolin (‘PoaCure’)

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Methiozolin

Moghu Research Center

South Korea

Registered for turf in Korea April 2010 ‘PoaCure’
Formulation
2.06 lb ai/gal EC

Moghu; working on a granular formulation for turf since 2009
Structure:

Chemical name: Methiozolin
Brand name: PoaCure®
Code name: MRC-01
Chemical name: 5-(2,6-Difluoro-benzyloxymethyl)-5-methyl-3-(3-methyl-thiophen-2-yl)-4,5-dihydro-isoxazole
CAS registration number: 403640-27-7
Empirical formula: C_{17}H_{17}F_{2}NO_{2}S
Molecular weight: 337.39

Formulation (25% EC)
Product
• Initial research was in rice

• Active on grass species
  • Poa annua f. annua
  • Poa annua f. reptans
  • Junglerice/barnyardgrass, crabgrass, goosegrass
• Pre-emergence activity (Moghu’s MSDS)
• Post-emergence with some pre-emergence
  (Walker, AU, personal communication, 2011)
• Mode of action: inhibits cell wall biosynthesis
  and pigment inhibition
• ‘PoaCure’ labeled in 2010 in S. Korea

  for Poa annua control in:
  creeping bentgrass greens and
  perennial ryegrass and Kentucky bluegrass fairways
Primarily root/crown/stem uptake

(Walker and Belcher, Auburn, Univ., 2010)

4 L/ha
1.26 fl oz/M
0.42 gal/A
Early USA Research

1. Do not add surfactant
2. Can apply to wet turf
3. Light irrigation after application
   - Limits foliar uptake
   - More available for root uptake
4. Implications for granular formulation
Early WSU Research

• Fall 2010; 2 locations
  • Palouse Ridge Golf Club @ Pullman
    • New ‘T-1’ green
    • <5% Poa annua
  • Chewelah Golf & County Club
    • Older ‘Penncross’(?) nursery green
    • 25-30% Poa annua
• Fall 2010 applications:
  • Rates
    • 3 and 6 L/ha
      (0.94 fl oz/M and 1.88 fl oz/M)
  • Frequency
    • Single applications
    • Multiple applications every 3 weeks
Palouse Ridge Golf Club # 9 green
Single applications: Sept. 16, Oct. 7, or Oct. 28, 2010
Poa annua counts (#/sq ft): May 25, July 8, and Aug. 19, 2011
Poa annua control with multi-year (2011 and 2012), single fall applications of PoaCure at Palouse Ridge GC, Pullman, WA.
Chewelah Golf and Country Club

Single and multiple apps.: Sept.17, Oct. 8, and Oct. 29, 2010
Methiozolin 6 L/ha
App. 9/17 – 10/8/10

1.3% Poa
-94.9
% change
9/17/10 to
5/23/11

Chewelah Golf and Country Club
Chewelah, WA
5/23/11
Chewelah Golf and Country Club
Chewelah, WA
5/23/11

31.7% Poa
+53.3
% change
9/17/10 to
5/23/11
*Poa annua* control with PoaCure on bentgrass greens

3 applications @1.2 fl oz/1000 ft² (4 L/ha) at 2 week intervals; Fall 2011

Colfax Golf Course
Picture taken 9-28-12
Sand from a green 6 months following last application of PoaCure

Bentgrass emergence not affected; 4 + 4 + 4 L/ha at 2 week intervals
Methiozolin Residual Soil Activity Study

Material & Methods:

Greenhouse study; winter 2013

Grass species: annual bluegrass, creeping bentgrass, perennial ryegrass, and Kentucky bluegrass

Soil medium: 90% sand and 10% peat moss

PoaCure applied:
0, 4, 4 + 4, and 4 + 4 + 4 L/ha (2 wk intervals)
2, 2 + 2, and 2 + 2 + 2 L/ha (2 wk intervals); only creeping bentgrass

Seeded 4, 8, 12, 16, or 20 wk after final PoaCure application
Emergence counts made 1, 2, 3, and 4 wk after each planting
4 wk counts converted to emergence as % of control for graphs

CHECK  
4L/ha  
4L + 4L/ha  
4L + 4L + 4L/ha  

4 L/ha = 1.2 fl oz/1000 ft²

2 L/ha = 0.6 fl oz/1000 ft²
DEMO trial: Greens
Grand National, AL
Photo: 3-15-2011
Non-treated

PoaCure ≈1.2 fl oz/M (4 L/ha)
Nov. 19 + Dec. 21, 2010

PoaCure ≈0.9 fl oz/M (3 L/ha)
Grand National, AL
Photo taken 3-15-2011

PoaCure ≈1.2 fl oz/M (4 L/ha)
3 apps in 2009
Fairways
>40% *Poa annua*  
2013. 05. 16  
After 3 apps  
2014. 05. 11
Major story of the 2015 US Open: “Poa annua and fescue”

2015 US Open at Chambers Bay, University Place, WA
PoaCure Demo Trial
Chambers Bay; Oct. 8, 2012
So how much *Poa annua* was on the greens?

- Nos. 7, 10 and 13 were pure fescue
- Nos. 2, 3, 4, 5, 8, 11, 14, 16, 17 and 18 – 80% fescue/15% colonial bent/5% or less *Poa annua*
- Nos. 6, 9 – 75% fescue/15% bent/10% *Poa annua*
- Nos. 1, 12 and 15 – 65% fescue/15% bent/30% *Poa annua*
“# 18 green; very little *Poa annua*”
“discoloration not all *Poa*, lots of colonial bent and two fine leaf fescues”
USGA agronomist, Larry Gilhuly, 2015
Chambers Bay #13 Green 3/12/13; 100% fescue for US Open
WSU Disclaimer

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Questions?

More turfgrass information: TURF.WSU.EDU

Updates on PoaCure research from different regions:

- www.moghru.com/en/index
- Twitter @PoaCure, @MoghruUSA

Other questions regarding PoaCure, contact:

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