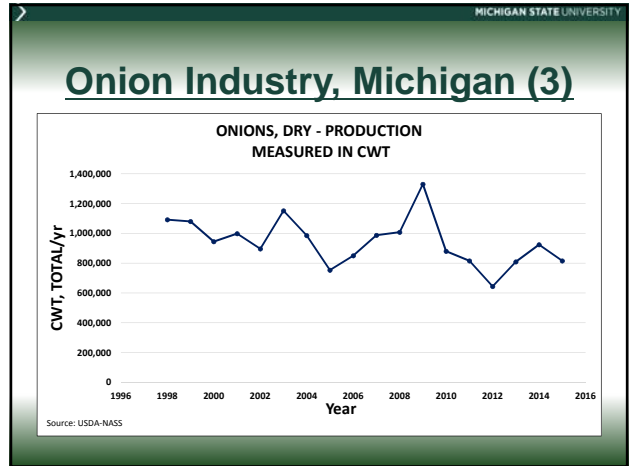
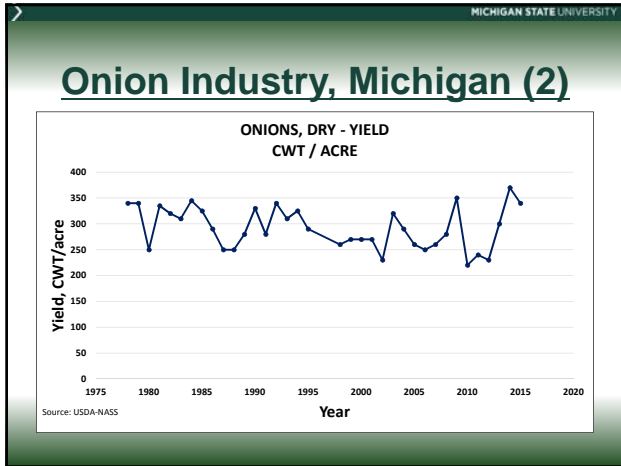
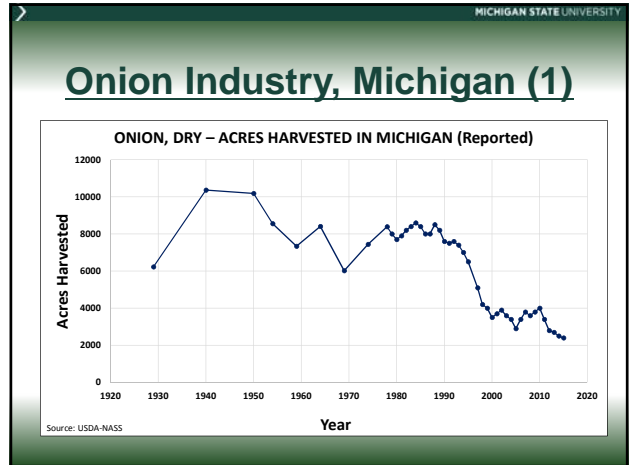


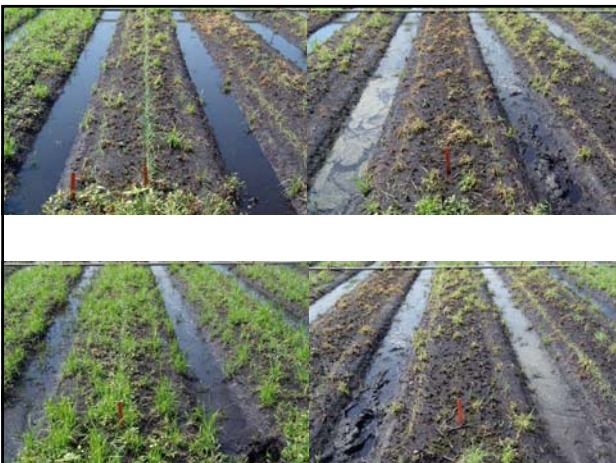
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Weed Management in Onion and Potential New Labels

Bernard Zandstra
Michigan State University

Empire State EXPO 2016
Syracuse, NY
January 20, 2016





Current PRE Herbicide Labels for Onion

1. Prowl H₂O: Muck Soil, 2 qt x 3 appl PRE
Mineral Soil, 1.5-3 pt after 2 LS
2. Dual Magnum: 0.67-1.3 pt x 2 appl after 2 LS
3. Outlook: 21 fl. oz. after 2 LS
4. Chateau: 1-2 oz. at 3-6 LS; max. 3 oz./yr

POST Herbicides for Onion

- GoalTender:** 2-6 fl. oz. after 1 LS; max. 16 oz./yr
MI 24(c) SLN
- Buctril:** 8-16 fl. oz. PRE or 2-5 LS
- Starane:** 5 fl. oz. at 2-6 LS
MI 24(c) SLN
- Nortron:** 16 fl. oz. x 4 appl anytime
- Fusilade, Poast, Select Max:** grass control

Major Weed Problems in Onions

- Ladysthumb, smartweed
- Yellow nutsedge
- Mustards (shepherd's purse, marsh yellowcress, Virginia pepperweed)
- Composites (Common ragweed, common groundsel)
- Common lambsquarters
- Spotted spurge
- Nightshades (eastern black, hairy)
- Pigweeds, amaranths

Preemergence Herbicides, Muck (1)

| Treatment | Rate lb ai/A | Onion Rating | | | Yield kg/plot |
|--|--|--------------|------|------|------------------|
| | | 5/21 | 5/29 | 6/19 | |
| 1 Prowl H ₂ O | 1.9 x 3 appl | 1 | 1 | 1.3 | 48 |
| 2 Prowl H ₂ O | 3.8 x 3 appl | 1 | 1.3 | 1.3 | 49 |
| 3 Prowl H ₂ O Chateau | 1.9 x 3 appl 0.032 x 3 appl | 1.3 | 1.3 | 1.8 | 50 |
| 4 Prowl H ₂ O Chateau Chateau | 1.9 x 3 appl 0.064 PRE 0.032 PO1 | 1.3 | 1.5 | 1.5 | 51 |

Preemergence Herbicides, Muck (2)

| Treatment | Rate lb ai/A | Onion Rating | | | Yield kg/plot |
|-----------------------------------|---------------------------|--------------|------|------|------------------|
| | | 5/21 | 5/29 | 6/19 | |
| 5 Prowl H ₂ O Zidua | 1.9 PRE 0.133 PO1 | 1 | 1 | 1.8 | 50 |
| 6 Prowl H ₂ O Zidua | 1.9 x 2 appl 0.133 PO2 | 1 | 1.5 | 2 | 48 |
| 7 Prowl H ₂ O Zidua | 1.9 PRE 0.267 PO1 | 1.5 | 1.5 | 1.3 | 51 |
| 8 Zidua Prowl H ₂ O | 0.133 PRE 1.9 PO1, PO2 | 1.3 | 1 | 2.3 | 45 |

Preemergence Herbicides, Mineral (1)

| Treatment | Rate lb ai/A | Onion Rating | | | Yield kg/plot |
|-------------------------------------|---------------------------------|--------------|-----|------|------------------|
| | | 5/20 | 6/4 | 7/20 | |
| 1 Prowl H ₂ O | 0.95 x 3 appl | 1.3 | 1 | 1.3 | 127 |
| 2 Prowl H ₂ O Chateau | 0.75 x 3 appl 0.016 x 3 appl | 1.7 | 1.3 | 1.7 | 126 |
| 3 Prowl H ₂ O Zidua | 0.75 PRE 0.133 PO1 | 1.3 | 1.7 | 2 | 126 |
| 4 Prowl H ₂ O Zidua | 0.75 x 2 appl 0.133 PO2 | 1.3 | 1.7 | 2.3 | 128 |

Preemergence Herbicides, Mineral (2)

| Treatment | Rate lb ai/A | Onion Rating | | | Yield kg/plot |
|---|-----------------------|--------------|-----|------|------------------|
| | | 5/20 | 6/4 | 7/20 | |
| 5 Zidua | 0.133 PRE | 3.3 | 3 | 4 | 68* |
| 6 bicyclopyrone | 0.033 PRE | 3.3 | 2 | 4.7 | 67* |
| 7 Prowl H ₂ O bicyclopyrone | 0.75 PRE 0.033 PO1 | 1 | 1.3 | 1.3 | 124 |
| 8 Handweeded | | 1 | 1 | 1.3 | 128 |





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Postemergence Herbicides, Muck (1)

| Treatment | Rate lb ai/A | Onion Rating | | | Yield kg/plot |
|--------------|--------------------------|--------------|-----|------|------------------|
| | | 5/29 | 6/9 | 6/19 | |
| 1 GoalTender | 0.063 x 3 appl (2 oz) | 1 | 2.5 | 2.3 | 46 |
| 2 GoalTender | 0.125 x 3 appl (4 oz) | 1.5 | 3.5 | 2 | 50 |
| 3 GoalTender | 0.25 x 3 appl (8 oz) | 2 | 4 | 3 | 48 |
| 4 GoalTender | 0.125 x 3 appl (4 oz) | 1.5 | 3.5 | 3 | 46 |
| Chateau | 0.032 x 3 appl (1 oz) | | | | |

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Postemergence Herbicides, Muck (2)

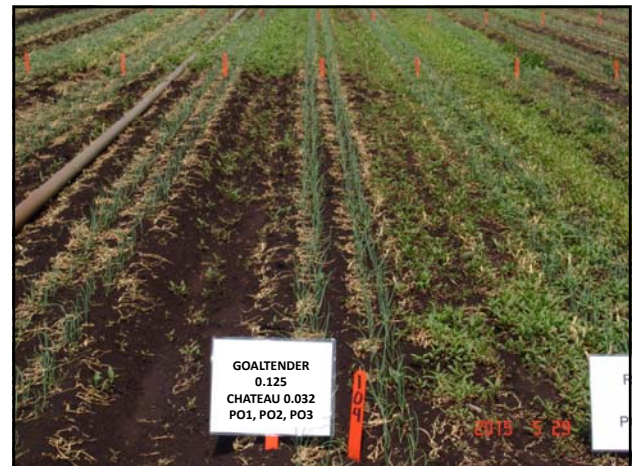
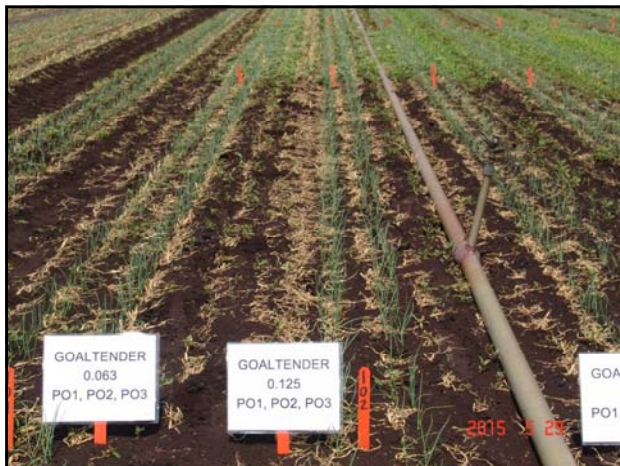
| Treatment | Rate lb ai/A | Onion Rating | | | Yield kg/plot |
|-----------------|--------------------------|--------------|-----|------|------------------|
| | | 5/29 | 6/9 | 6/19 | |
| 5 bicyclopyrone | 0.033; 2 LS | 1 | 1.5 | 1 | 38* |
| 6 Reflex | 0.125; 2,4 LS | 1 | 2.5 | 2.5 | 41 |
| 7 Ultra Blazer | 0.25 | 1 | 3.5 | 4 | 45 |
| 8 GoalTender | 0.063 x 3 appl (2 oz) | 1 | 3.5 | 3 | 47 |
| Buctril | 0.12; 2,4 LS | | | | |
| 9 Handweeded | | 1 | 1.3 | 1.3 | 47 |



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Ladysthumb Control

| Treatment | Rate lb ai/A | LATH Rating | | |
|-------------------------|----------------------------------|-------------|-----|------|
| | | 5/29 | 6/9 | 6/19 |
| 1 GoalTender | 0.063 x 3 appl | 6.5 | 5.5 | 7.3 |
| 2 GoalTender | 0.125 x 3 appl | 7.5 | 6.8 | 9 |
| 3 GoalTender Chateau | 0.125 x 3 appl 0.032 x 3 appl | 6.8 | 6.8 | 9.5 |
| 4 GoalTender Buctril | 0.063 x 3 appl 0.12 x 2 appl | 5.5 | 7 | 9.3 |



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New GoalTender 4SC Label in 2014

24(c) SLN for Michigan

1. For appl. to onion at **1 true leaf stage**
2. The 2d true leaf should have emerged
3. Rate: 4-6 fl oz (0.125 – 0.188 lb ai)
4. 2 - 3 appls; max. 16 fl oz. (0.5 lb ai)/year
5. Minimum 20 gpa; 45 day PHI



Onion 1 LS



Onion 1 LS



Onion 2 LS



Onion 2 LS

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GoalTender 24(c) SLN MI Label

FIFRA 24(c) Special Local Need Label

GoalTender®

24(c) Special Local Need Registration 0,0,0-MeS

This year's registration must not be distributed or used in accordance with the SLN registration after June 30, 2016.

For Application to Dry Bulb Onions at the First True Leaf Growth Stage

For Distribution and Use Only in the State of Michigan

Conditions and Rates of Use for Special Local Need

USE OF GoalTender is restricted to the registered use. GoalTender is a Restricted Use Pesticide (RUP) and is not to be used in any other manner than as directed on the label. GoalTender is not to be used in any other manner than as directed on the label. GoalTender is not to be used in any other manner than as directed on the label. GoalTender is not to be used in any other manner than as directed on the label.

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IR4 Onion Herbicide Projects 2016

1. Stinger for perennial sowthistle control
2. Bicyclopyrone PRE and POST
3. Reflex POST
4. Ultra Blazer POST

Other Onion Herbicide Projects

1. **Zidua** after 2 LS; company project
2. **Chateau PRE + Prowl H₂O**
3. **Chateau POST + GoalTender**
4. **Prowl H₂O PRE** on mineral soil

Onion Preemergence Weed Control Summary

1. Prowl H₂O (2 qt) + Buctril (8-12 fl. oz.) prior to emergence
2. Prowl H₂O (2 qt) + Dual Magnum (1.3 pt) at 2 LS
3. Prowl H₂O (2 qt) + Chateau (2 oz) at 3-4 LS
4. Chateau (1 oz) at 5-6 LS
5. Outlook (21 fl. oz.) at 6+ LS (30 day PHI)

Onion Postemergence Weed Control Summary

1. Make first GoalTender application at 1 LS (2-4 fl. oz.)
2. Make second GoalTender application at 2 LS (2-4 fl. oz.)
3. If LATH is a problem, add Buctril (6-8 fl. oz.). Apply only in sunny, dry weather.
4. Apply GoalTender twice more (4 fl. oz. each)
5. Include a grass control herbicide as needed.

A Proposed Onion Weed Control Plan

1. **April 1 – 15:** Seed onion and barley
2. **7 – 14 days later:** Prowl H₂O (2 qt) + Buctril (12 fl. oz.) + Chateau (1 oz) PRE
3. **Onion 1 LS:** GoalTender (4 oz) + Prowl H₂O (2 qt)
4. **2 – 3 LS:** GoalTender (2 oz) + Chateau (1 oz)
5. **3 – 4 LS:** Dual Magnum (1 qt)
6. **4 – 6 LS:** Prowl H₂O (2 qt) + Chateau (1 oz) + GoalTender (4 oz)
7. **6 - 7 LS:** Dual Magnum (1 qt)
8. **7 – 8 LS:** Outlook (1 qt)
9. GoalTender (4 oz)

Acknowledgements

- Michigan AgBio Research
- MSU Extension
- USDA-NIFA
- Michigan Onion Research Committee
- Kumiai Chemical Co.
- Dow Agrosiences
- Syngenta Crop Protection
- Valent USA
- BASF
- Keilen Farms
- Van Drunen Farms
- Vogel Farms

Labels

farmassist.com
cdms.net

Thank You

Bernard Zandstra
zandstra@msu.edu