

Corn Weed Management Systems

“The only good weed, is a dead weed”

Canadian Forage and Grassland
AGM Moncton , Nov. 13th, 2019
Eric Richter, CCA – Ont.
TSR – PEI and Nova Scotia
Syngenta Canada



Corn Production System – “TOP THREE BMP’s”

- 1. “GENETICS” First – NO PERFECT HYBRID
- 2. Unlocking Genetic potential with optimum “FERTILITY”
- **3. “WEED MANAGEMENT” – PROTECTING YIELD POTENTIAL & MITIGATING STRESS**



Corn Production System – Genetic Potential?



Goal: Mitigate stress and Protect against poor compensatory ability

BU / ACRE ?

Corn Weed Management Systems – What are growers primary NEEDS?

- What stage of growth do you want weed control?
- Do you incorporate your herbicide with fertilizer?
- What problem weeds are you challenged with?
- Are you challenged with resistance issues eg. Triazines, Glyphosate?
- Application equipment available?
- Time resource available for herbicide application(s)?
- Crop rotation considerations?

Corn Weed Management Systems

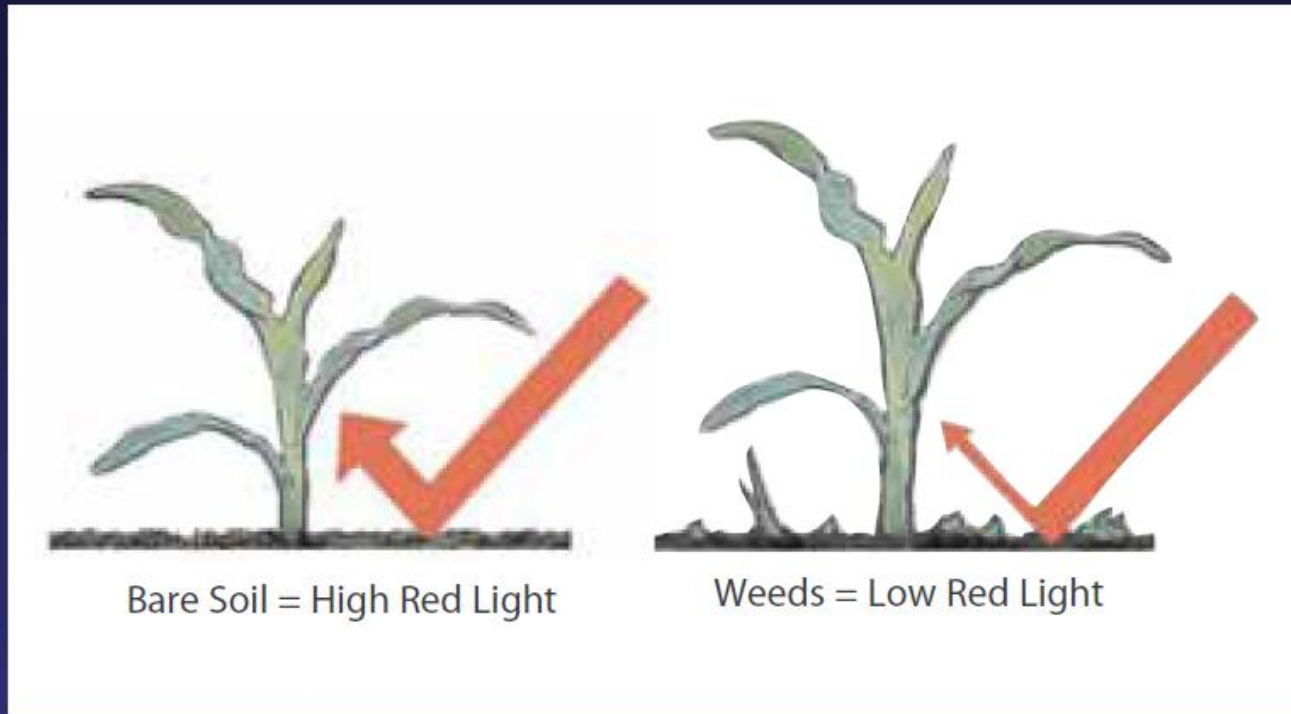
- A) “1” Pass Pre-Emerge
- B) “2” Pass Pre-Emerge and Post-Emerge
- C) “1” Pass Post-Emerge
- D) “2” Pass Post-Emerge (Early and Late)



Foundation Acre® Program for Corn

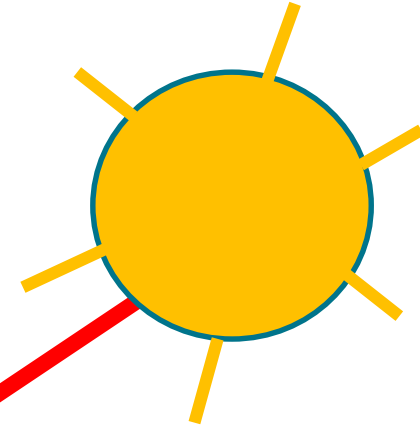
“Why is it important?”

Corn ‘Sees’ Early Weeds



Foundation Acre® Program for Corn

“Why is it important?”

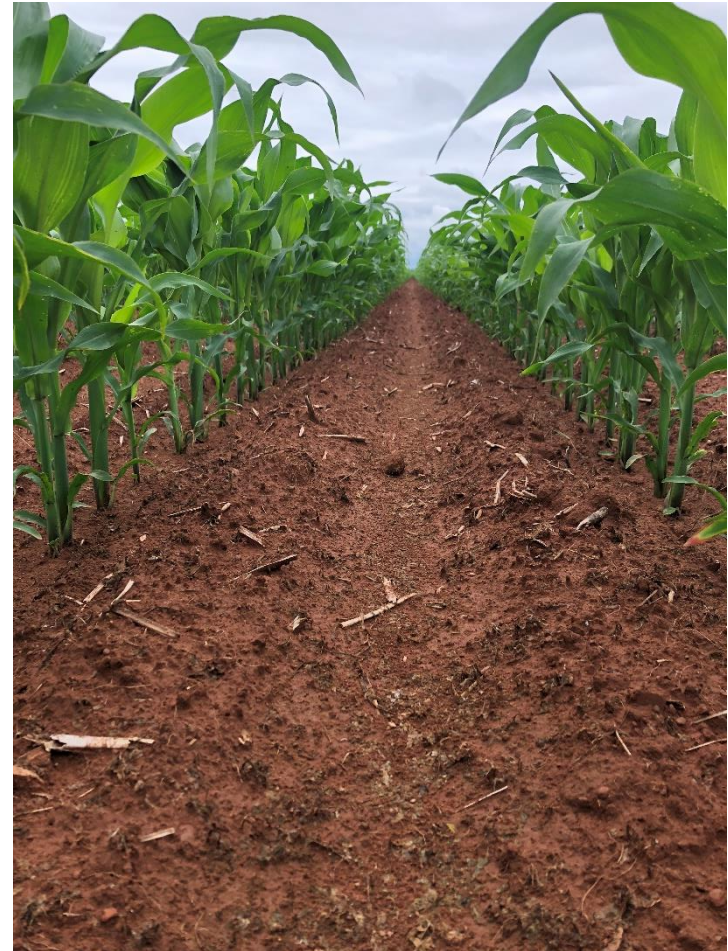


Corn Production System – “CRITICAL” Yield Stages

Corn Growth Stages	
VE	Emergence. First leaves push through coleoptile and emerge above soil surface. Requires about 100-125 GDUs.
V(n)	"n" represents number of leaves with visible collars. From V1-V10: 1 leaf every 82 GDUs. From V10 forward: 1 leaf every 50 GDUs.
V1	First leaf collar visible. First leaf has oval shaped tip.
V5	Leaf and ear shoot initiation complete and number of kernel rows determined.
V6	Growing point at or above soil surface. Nodal root system established and plant is now using nodal roots for nutrients and water.
V12	Number of ovules and kernels per row being determined.
VT	Last branch of tassel is completely visible. Silks not visible. Foliar fungicides should be applied after VT is complete.

Why does early season weed control matter?

- Weeds compete for light, moisture, and nutrients that rob the corn crop's yield potential throughout the season
- Weed competition increases stand and growth variability throughout your fields, affecting yield and profitability
- Pre-emergence application helps keep late-emerging weeds small and uniform for more successful post-emergence control applications



Critical Weed-Free Period For Yield

Soybean growth stage	Average yield loss if weeds are not controlled
VE to V2	10%
V2-V3	5%
V3-R1	5%

C. Swanton and F. Tardif
Department of Plant Agriculture
University of Guelph

The Power of Residual herbicides

- Positive impact on yield
- Strengthen resistance management
- Improved consistency of weed control
- Improved weather risk mitigation
- Improved time management
- Reduced weed seeds returning to the seed bank
- Less worry and more money in growers' pockets

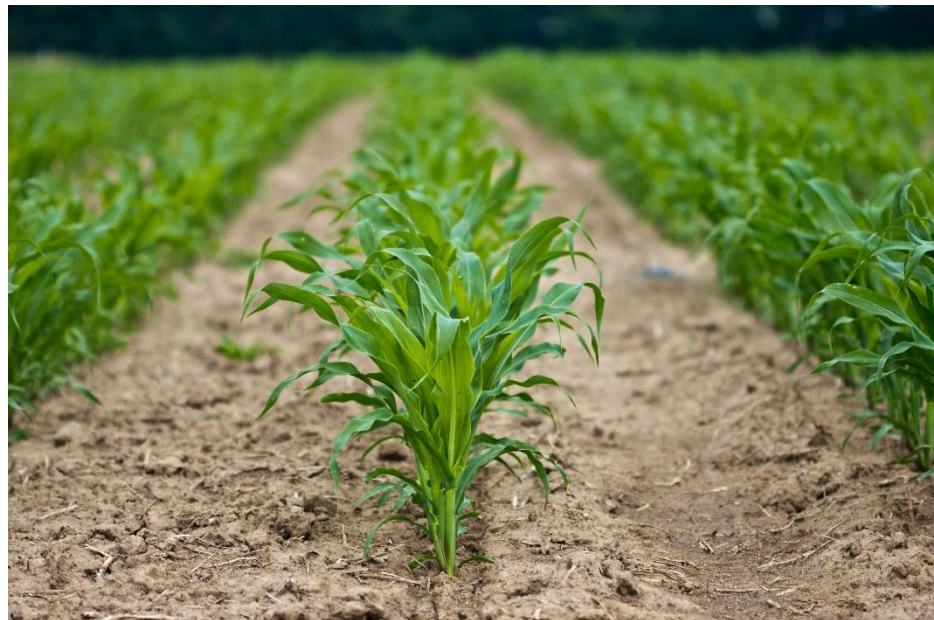


Photo taken June 21, 2011.



Foundation Acre® Corn Research

by Clarence Swanton

**Root morphology was affected
by neighbouring weeds**

1. Increased shoot height
2. Reduced root:
 - a) Total length
 - b) Surface area
 - c) Volume
 - d) Dry weight



Foundation Acre® Corn Weed Management



Foundation Acre® Corn Weed Management Post program with no-residual



Problem Weed Shifts

2016

2007

Rank	Weed	Rank	Weed
1	Canada Fleabane	1	Common Ragweed
2	Lambsquarters	2	Lambsquarters
3	Common Ragweed	3	Quackgrass
4	Eastern Black Nightshade	4	Pigweeds
5	Pigweeds	5	Foxtails
6	Dandelion	6	Sow Thistles
7	Giant Ragweed	7	Velvetleaf
8	Canada Thistle	8	Nightshades
9	Velvetleaf	9	Dandelion
10	Field Bindweed	10	Canada Thistle

Problematic weeds = Yield Robbing Escapes



Problematic Weeds



Pictures – 2019, PEI Syngenta



Problematic Weeds



Pictures – 2019, PEI Syngenta



Resistance Fighter Strategy

- “Multiple Modes” of “Effective Activity”



Multi-targeted control of difficult weeds in corn.

- Helps improve corn's yield potential by keeping fields clean
- Built-in resistance management with four active ingredients and three modes of action
- Combines the active ingredients of Lumax® EZ with bicyclopyrone for enhanced activity against key weeds, including:
 - Velvetleaf
 - Waterhemp¹
 - Canada fleabane¹
 - Lamb's-quarters
 - Common ragweed
 - Foxtails
 - Proso millet²

For
Foundation Acre®
one-pass control

Equipment Considerations – “Calibration, Application Process & Timing”



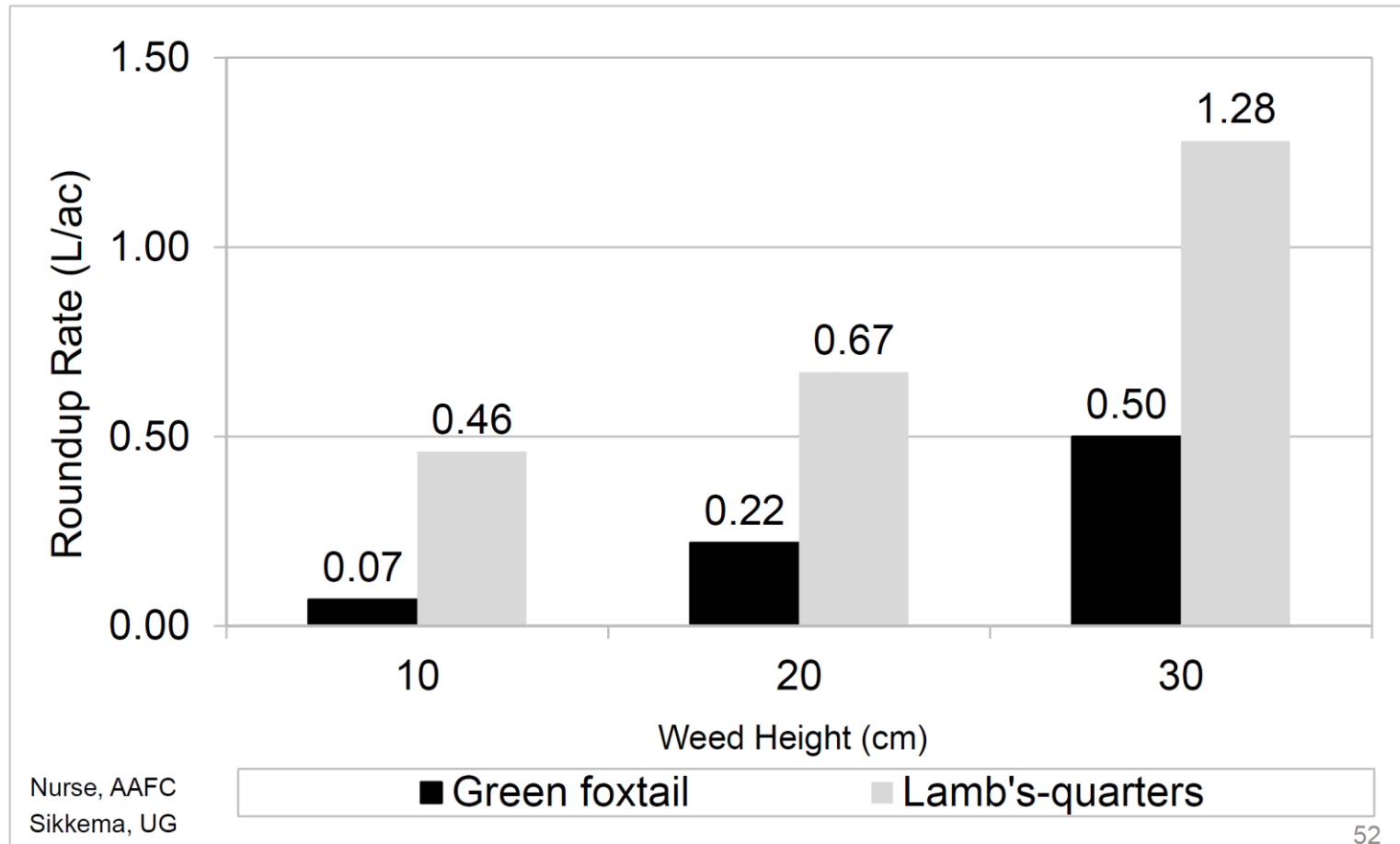
Herbicide Compatibility Challenges

- 1. Consult label to confirm compatibility issues
- 2. Try to limit components in tank mixes
- 3. Conduct jar test if you have any doubt
- 4. Observe preferred Tank-Mixing process “WALES”
- 5. Watch inclusion of liquid fertilizers
- 6. Use recommended surfactants
- 7. Ask manufacturer about any known antagonism

Weed management “Watch outs”

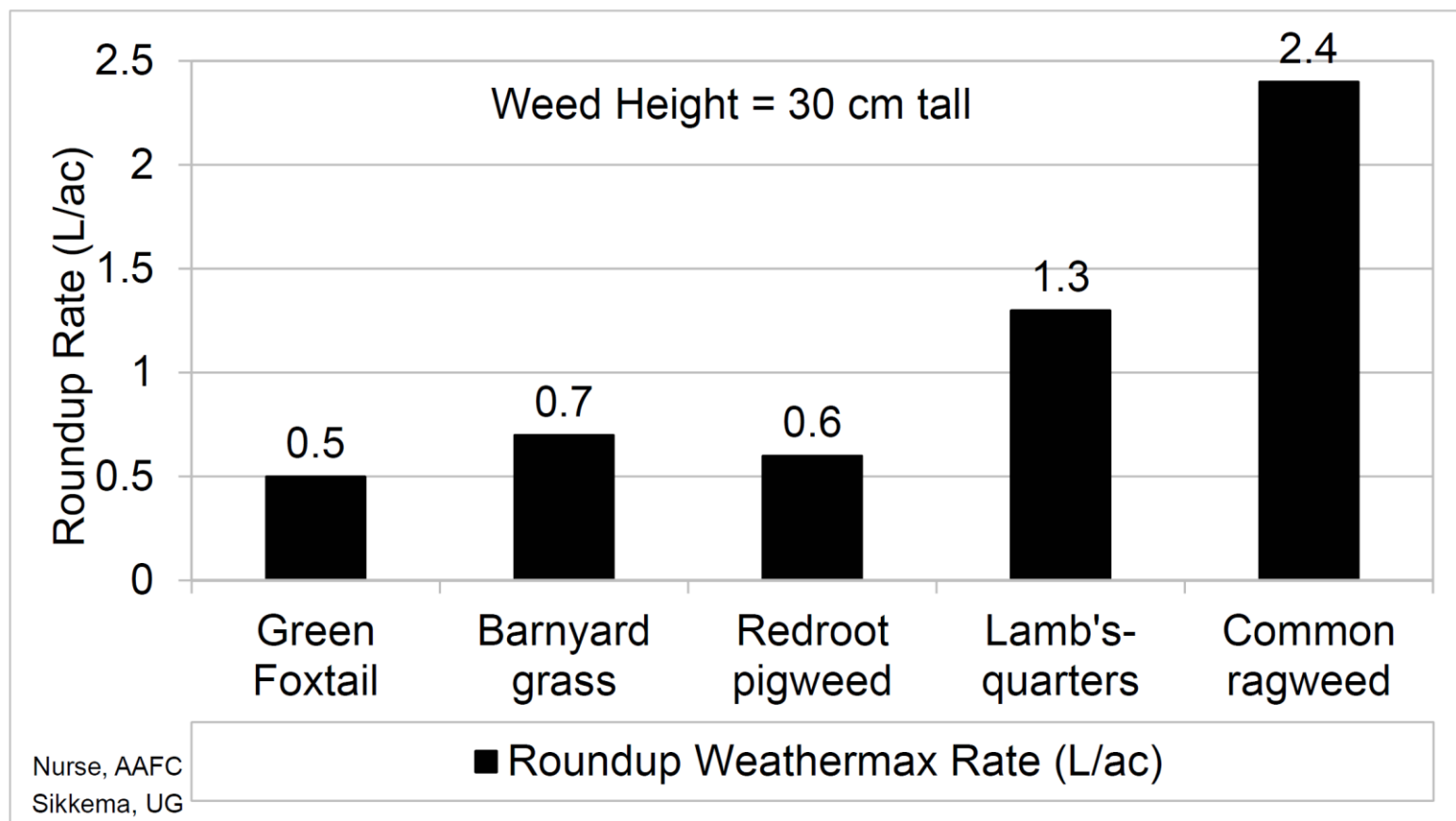


You have to adjust the rate of Roundup depending on weed height for 90% control



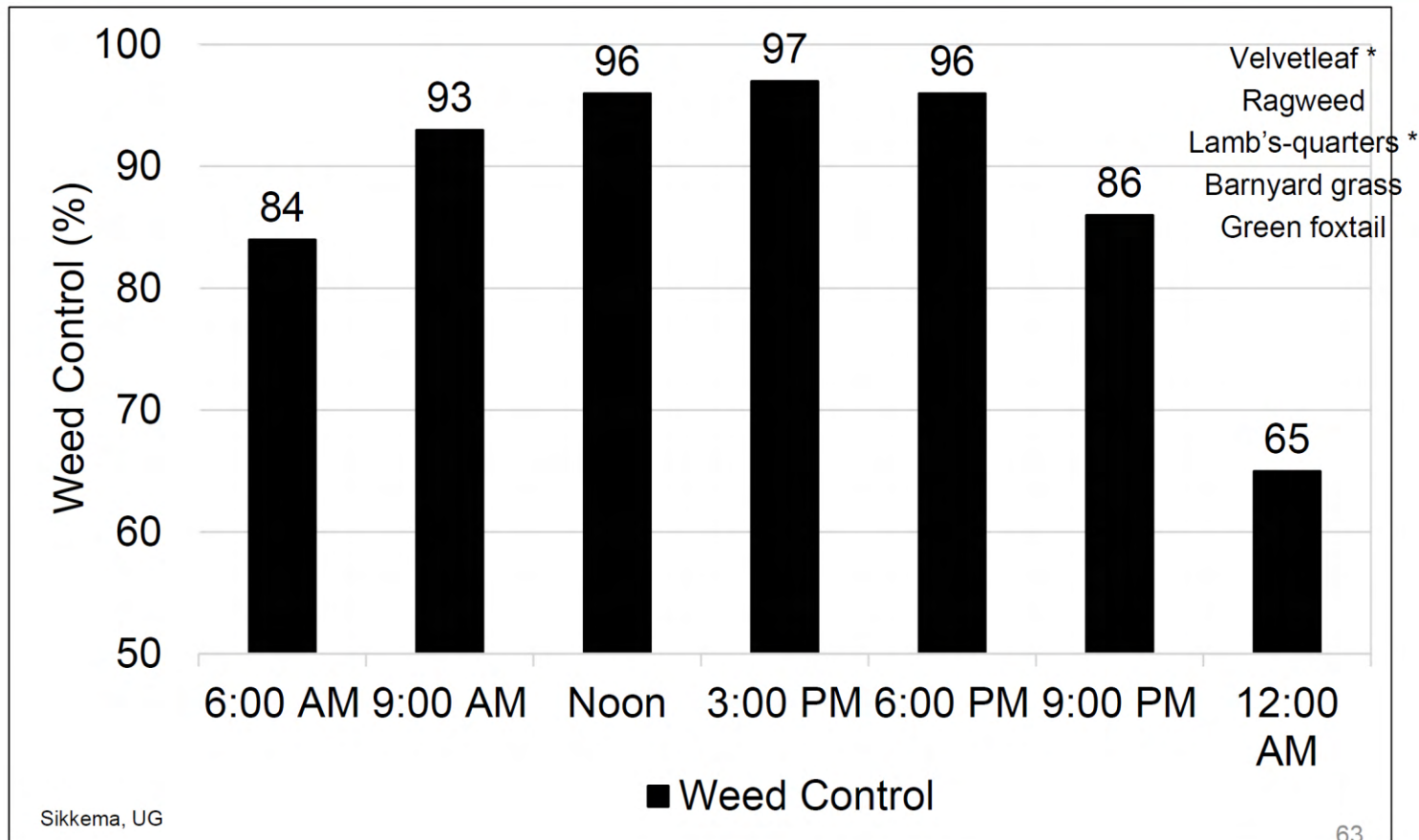
Source: P. Sikkema U of G Weed Management Lecture #24

You have to adjust the rate of Roundup depending on weed species for 90% control



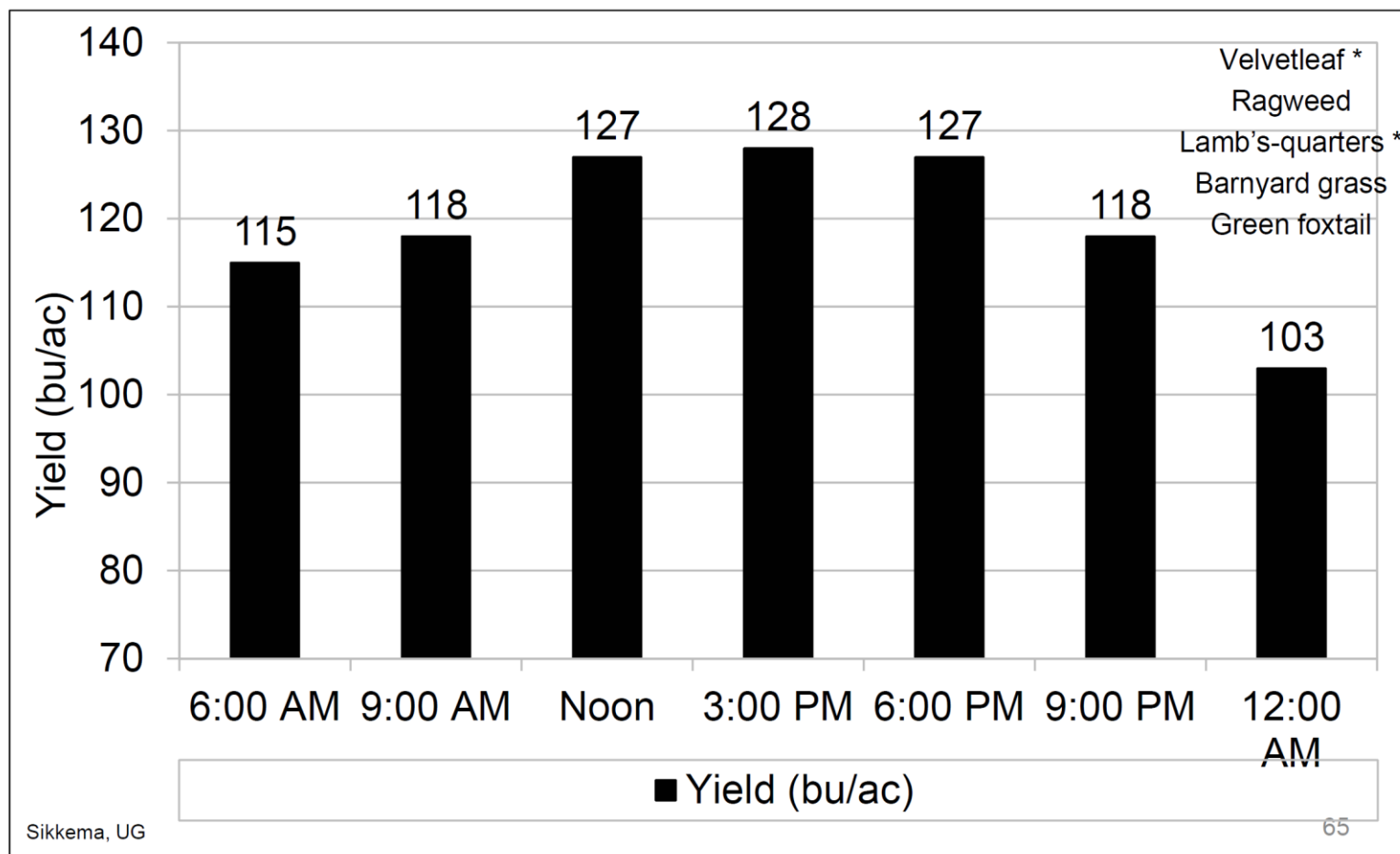
Source: P. Sikkema U of G Weed Management Lecture #24

Weed control with Liberty is reduced when sprayed very early or very late in the day



Source: P. Sikkema U of G Weed Management Lecture #24

Corn yield was reduced when Liberty was sprayed very early or very late in the day



Source: P. Sikkema U of G Weed Management Lecture #24

Your 2019 Fall Weed Management control program is your 2020 weed control program



A successful weed management
strategy always starts before the
crop is planted



Corn Weed Management Systems - Conclusion

“The only
good weed
is a dead
weed”



Thank you

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