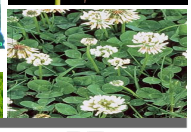
Annual & Perennial Grass Control

Roch Gaussoin, Extension Turfgrass Specialist,



Washington Turf & Landscape Show, Virtual On-Demand Webinar 2023

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Scan QR code with phone for copy of presentation

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Outline for today's presentation

- Pre, post or both for better annual grass control?
- Top 10 Perennial Weedy Grass Control Recommendations
- On-line resources for research-based information on turfgrass weed control

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Pre, post or both for better annual grass control?

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Grassy Weeds

- ***Crabgrass****
- ***Foxtail****
- ***Goosegrass(*)***
- ***Grassy sandbur****
- ***Barnyardgrass****
- Quackgrass
- Bromegrass
- Nimblewill

Preemergence control possible; ****preferred method***

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Broadleaf Weeds

- ***Prostrate spurge****
- ***Henbit****
- ***Prostrate Knotweed****
- Dandelion
- Plantain
- Ground Ivy

Preemergence control possible; ****preferred method***

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When to apply preemergence herbicides

- Soil temperatures exceed 50°F
- Occurs first:
  - In landscape beds
  - Thinned turfgrass
  - Near sidewalks
  - Better to apply early than late

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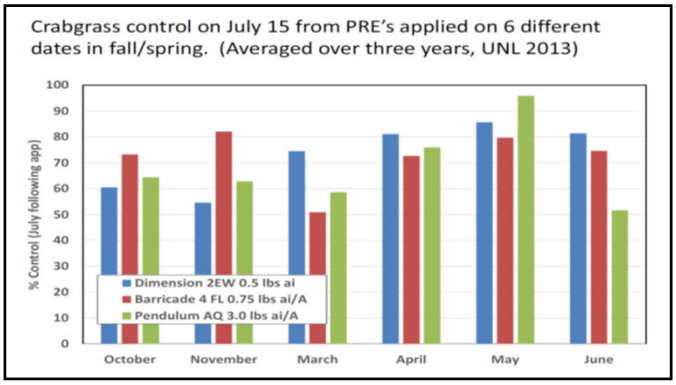

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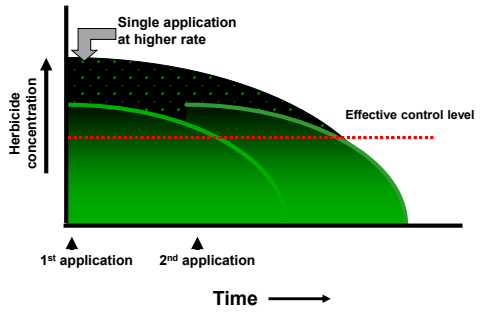
Split preemergence herbicide applications



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Preemergence Herbicide "efficacy"

- Less than adequate control
- Timing and application rates are correct, so…?

- Reasons for "failure"
  - Poor turf conditions
  - Tough weeds/lots of them
  - High rainfall/irrigation
  - Non-Uniform application
  - Insufficient early irrigation/rainfall

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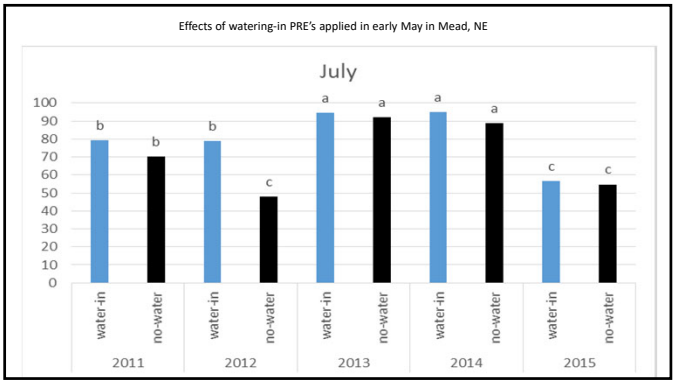

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Effective Use of Preemergence Herbicides

- Start with heathy turf
- Better to apply too early
- App timing is flexible within reason (earlier/split apps)
- Water in
- Uniform application is essential
- Label rates
- Split applications can provide extended season control

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Weed Seed Germination Soil Temperatures

- Crabgrass >55° to 60°F for 7 to 10 days up to 95°F
- Goosegrass >65°F for several weeks
- Yellow Foxtail 68° to 92°F
- Barnyardgrass 72° to 90°F
- Grassy Sandbur 52 F to 75 F
- Prostrate Spurge 60°F to 100°F
- Henbit 68 and 59
- Prostrate Knotweed 35-40 cease at 50˚ F

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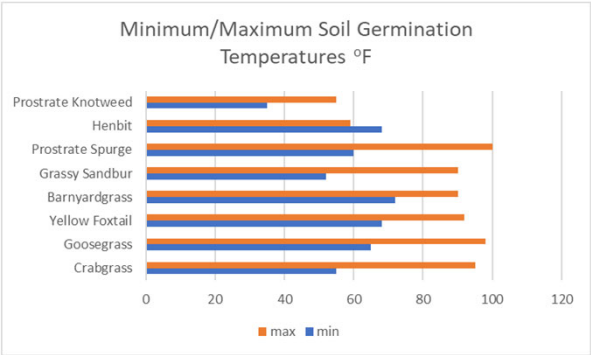

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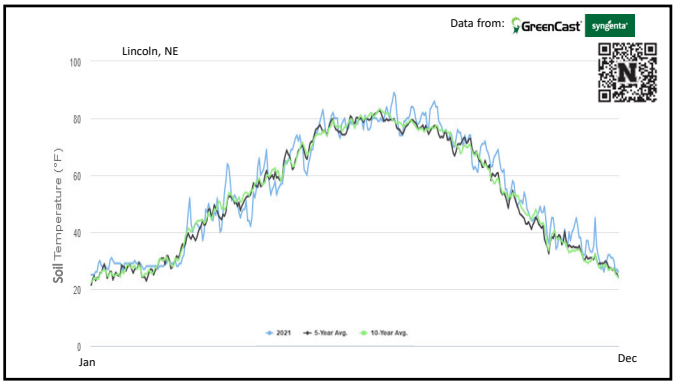

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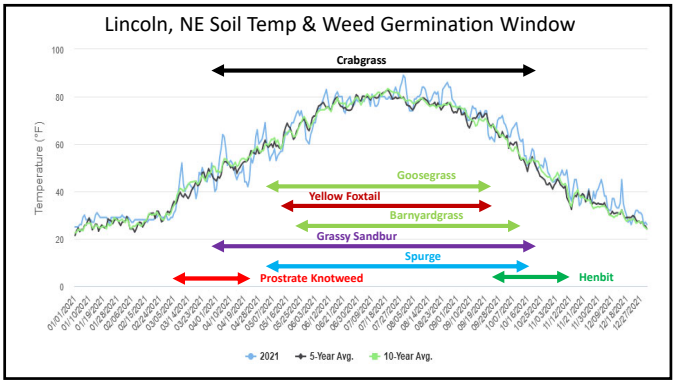

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First Attempt: 2022

- Barricade (prodiamine), Dimension (dithiopyr) and Pendulum (pendimethalin) applied at full rate on May 1 or June 1, 2022
- Same applied at ½ rate on May 1 FB same on June 15
- Drive XLR8 (quinclorac) applied at full rate on June 1
- Drive XLR8 applied with each pre on June 1
- 2 locations in proximity, one with heavy crabgrass and one with heavy yellow foxtail
- Data collected on cover and converted to % control based on untreated

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--------% Control-------

				July 9, 2022		August 29, 2022	
				Crabgrass	Foxtail	Crabgrass	Foxtail
Untreated Check				0h	0g	0f	0g
Dimension 2EW	2	pt/a	1-May	100a	45cde	94a	51bcd
Dimension 2EW	1	pt/a	May 1-June 15	92ab	13fg	68a-d	13fg
Barricade 4FL	30	fl oz/a	May 1	90ab	18efg	76abc	42b-f
Barricade 4FL	15	fl oz/a	May 1-June 15	44efg	25efg	37de	48b-e
Pendulum Aquacap	4.2	pt/a	May 1	95ab	24efg	89a	43b-f
Pendulum Aquacap	2.1	pt/a	May 1-June 15	89ab	21efg	78ab	30d-g
Dimension 2EW	2	pt/a	June 1	84abc	32def	69a-d	43b-f
Barricade 4FL	30	fl oz/a	June 1	31fg	23efg	20ef	35c-f
Pendulum Aquacap	4.2	pt/a	June 1	27g	15fg	17ef	17efg
Drive XLR8; Dimension	64; 2	oz/a; pt/a	June 1	90ab	98a	45b-e	88a
Drive XLR8; Barricade	64; 30	oz/ac	June 1	85abc	88a	43cde	63abc
Drive XLR8; Pendulum	64; 4.2	oz/a; pt/ac	June 1	83ab	93a	46b-e	66ab
Drive XLR8 + MSO	64	fl oz/a	June 1	73bcd	78ab	34ef	66ab

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--------% Control-------

				July 9, 2022		August 29, 2022	
				Crabgrass	Foxtail	Crabgrass	Foxtail
Untreated Check				0h	0g	0f	0g
Dimension 2EW	2	pt/a	1-May	100a	45cde	94a	51bcd
Dimension 2EW	1	pt/a	May 1-June 15	92ab	13fg	68a-d	13fg
Barricade 4FL	30	fl oz/a	May 1	90ab	18efg	76abc	42b-f
Barricade 4FL	15	fl oz/a	May 1-June 15	44efg	25efg	37de	48b-e
Pendulum Aquacap	4.2	pt/a	May 1	95ab	24efg	89a	43b-f
Drive XLR8; Dimension	64; 2	oz/a; pt/a	June 1	90ab	98a	45b-e	88a
Drive XLR8; Barricade	64; 30	oz/ac	June 1	85abc	88a	43cde	63abc
Drive XLR8; Pendulum	64; 4.2	oz/a; pt/ac	June 1	83ab	93a	46b-e	66ab
Drive XLR8 + MSO	64	fl oz/a	June 1	73bcd	78ab	34ef	66ab

20

--------% Control-------

				July 9, 2022		August 29, 2022	
				Crabgrass	Foxtail	Crabgrass	Foxtail
Untreated Check				0h	0g	0f	0g
Dimension 2EW	2	pt/a	1-May	100a	45cde	94a	51bcd
~~Dimension 2EW~~	~~1~~	~~pt/a~~	~~May 1-June 15~~	~~92ab~~	~~13fg~~	~~68a-d~~	~~13fg~~
Barricade 4FL	30	fl oz/a	May 1	90ab	18efg	76abc	42b-f
~~Barricade 4FL~~	~~15~~	~~fl oz/a~~	~~May 1-June 15~~	~~44efg~~	~~25efg~~	~~37de~~	~~48b-e~~
Pendulum Aquacap	4.2	pt/a	May 1	95ab	24efg	89a	43b-f
~~Pendulum Aquacap~~	~~2.1~~	~~pt/a~~	~~May 1-June 15~~	~~89ab~~	~~21efg~~	~~78ab~~	~~30d-g~~
Dimension 2EW	2	pt/a	June 1	84abc	32def	69a-d	43b-f
Barricade 4FL	30	fl oz/a	June 1	31fg	23efg	20ef	35c-f
Pendulum Aquacap	4.2	pt/a	June 1	27g	15fg	17ef	17efg

21

--------% Control-------

				July 9, 2022		August 29, 2022	
				Crabgrass	Foxtail	Crabgrass	Foxtail
Untreated Check				0h	0g	0f	0g
Dimension 2EW	2	pt/a	1-May	100a	45cde	94a	51bcd
~~Dimension 2EW~~	~~1~~	~~pt/a~~	~~May 1-June 15~~	~~92ab~~	~~13fg~~	~~68a-d~~	~~13fg~~
Barricade 4FL	30	fl oz/a	May 1	90ab	18efg	76abc	42b-f
~~Barricade 4FL~~	~~15~~	~~fl oz/a~~	~~May 1-June 15~~	~~44efg~~	~~25efg~~	~~37de~~	~~48b-e~~
Pendulum Aquacap	4.2	pt/a	May 1	95ab	24efg	89a	43b-f
~~Pendulum Aquacap~~	~~2.1~~	~~pt/a~~	~~May 1-June 15~~	~~89ab~~	~~21efg~~	~~78ab~~	~~30d-g~~
Drive XLR8; Dimension	64; 2	oz/a; pt/a	June 1	90ab	98a	45b-e	88a
Drive XLR8; Barricade	64; 30	oz/ac	June 1	85abc	88a	43cde	63abc
Drive XLR8; Pendulum	64; 4.2	oz/a; pt/ac	June 1	83ab	93a	46b-e	66ab
Drive XLR8 + MSO	64	fl oz/a	June 1	73bcd	78ab	34ef	66ab

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Summary 2022

- Apply early rather that later
- Split apps with lower rates were problematic
- Foxtail populations were near 100% resulting in poor control and questionable data for objective
- Use of post emergence annual grass herbicides (quinclorac (Drive); mesotrione (Tenacity); topramezone (Pylex) provides added benefit in timing flexibility and broadleaf activity

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Second Attempt: 2023

- More treatments; more products
- **Foxtail** only
- 2 locations, one managed as utility turf (monthly mow at 4" HOC, no irrigation, 50-60% foxtail) or irrigated rough/lawn (3.5 HOC weekly, irrigated, 25-30% foxtail)

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Untreated Check			
Dimension 2ew	2	pt/a	May 1
Dimension 2ew	1	pt/a	May 1 June 1
Barricade 4fl	30	fl oz/a	May 1
Barricade 4fl	15	fl oz/a	May 1 June 1
Pendulum Aquacap	4.2	pt/a	May 1
Pendulum Aquacap	2.1	pt/a	May 1 June 1
Specticle	6	oz/a	May 1
Specticle	3	oz/a	May1 June 1
Dimension 2ew	2	pt/a	June 1
Barricade 4fl	30	fl oz/a	June 1
Pendulum Aquacap	4.2	pt/a	June 1
Specticle	6	oz/a	June 1

4 pre's, early & late apps, split apps-½ rate

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Dimension 2ew	2	pt/a	June 1
Acclaim Extra	9	oz/a	June 1
Barricade 4fl	30	fl oz/a	June 1
Acclaim Extra	9	oz/a	June 1
Pendulum Aquacap	4.2	pt/a	June 1
Acclaim Extra	9	oz/a	June 1
Specticle	6	oz/a	June 1
Acclaim Extra	9	oz/a	June 1
Dimension 2ew	2	pt/a	June 1
Drive XLR8 + MSO	64	oz/a	June 1
Barricade 4fl	30	fl oz/a	June 1
Drive XLR8 + MSO	1	oz/a	June 1
Pendulum Aquacap	4.2	fl oz/a	June 1
Drive XLR8 + MSO	64	fl oz/a	June 1
Specticle	6	oz/a	June 1
Drive XLR8 + MSO	64	fl oz/a	June 1
Acclaim Extra	9	oz/a	June 1
Drive XLR8 + MSO	64	oz/a	June 1

late apps, full rate pre's, w post, post alone

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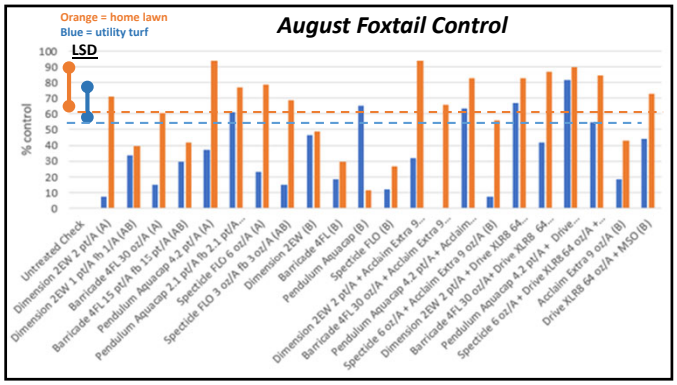

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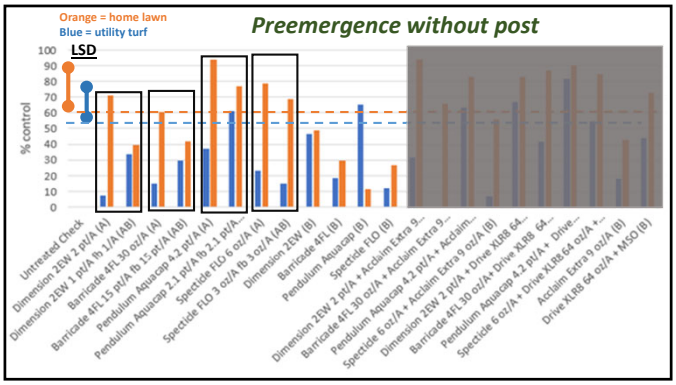

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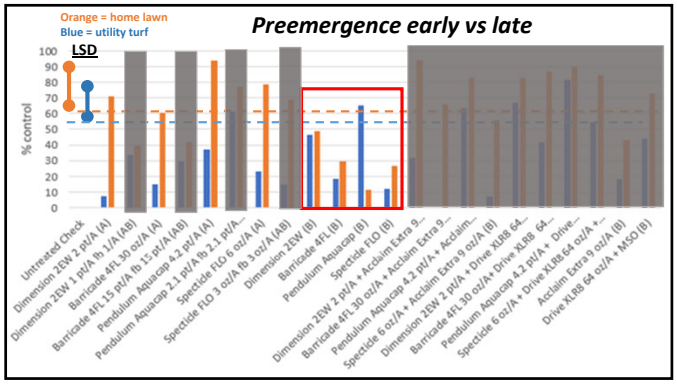

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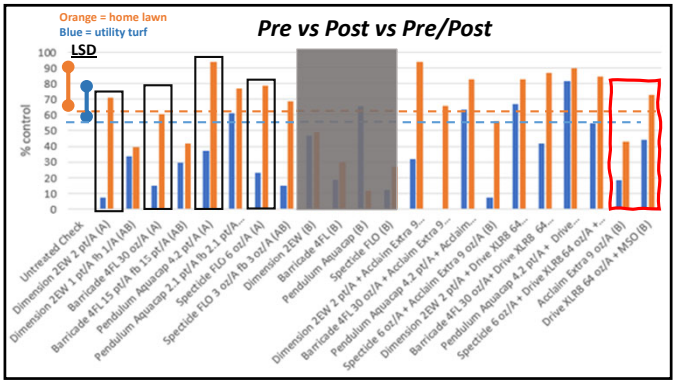

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Summary 2022/2023

- Apply early rather than later *in both years*
- Split apps with lower rates were problematic ***in both years***
- Foxtail populations were near 100% resulting in poor control and questionable data for objective; ***similar in 2023 in one location***
- Use of post emergence annual grass herbicides (quinclorac (Drive XLR8); mesotrione (Tenacity); topramezone (Pylex) provides added benefit in timing flexibility and broadleaf activity; ***Acclaim and Drive XLR8 in 2023 with similar results***

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Perennial Grass Control

"The best way to control undesirable perennial grasses in the lawn is to spot treat with glyphosate." (1994)

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Perennial Grass Control Top 10

- Windmillgrass
- Nimblewill
- Tall Fescue
- Orchardgrass
- Quackgrass
- Creeping Bentgrass
- Rough Bluegrass
- Smooth Brome
- Bermudagrass
- Zoysiagrass

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Windmillgrass – *Chloris verticillata*

- Warm-season, native perennial
- Topramezone (Pylex) plus triclopyr provide the best control
- Mesotrione (Tenacity) and Acclaim Extra (fenoxaprop) less expensive option
- Adding triclopyr (Turflon Ester Ultra or Triclopyr 4) at 1 qt/A to either topramezone, fenoxaprop, or mesotrione will significantly improve control.
- Apply at least 2 times, target applications in the late spring and early summer

Image from Midwest Weeds and Wildflowers, Missouri State University.

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Nimblewill – *Muhlenbergia schreberi*

- Warm-season, perennial
- Mesotrione (Tenacity) applied in the spring (with NIS), two or three applications.
  - For three applications, use the 5 fl oz/A rate (or 6, 6 and 4 fl oz/A) due to label restrictions.
  - Late summer and fall applications will work but start by August for best results.
- Topramezone (Pylex) at 1-1.5 fl oz/A at 21- to 28-day intervals starting in late April; include a methylated seed oil.

Above image from Midwest Weeds and Wildflowers, Missouri State University.

Above and right image from Purdue University.

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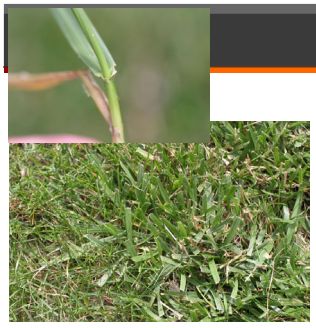
Tall Fescue – *Schedonorus arundinaceus*



Above images from University of Missouri Plant Sciences.

- Cool-season, perennial
- Chlorsulfuron (Telar XP and Chlorsulfuron 75DF) is a selective herbicide registered for tall fescue control, previously sold as Corsair, which is now off market.
- Telar XP and Chlorsulfuron 75DF contain the same active ingredient as Corsair, *only labelled for industrial sites and roadsides*

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Orchardgrass – *Dactylis glomerata*

Left and below images from University of Missouri Plant Sciences.

Right image from PennState Plant Science.

- Perennial, cool season grass
- Bluish-green foliage
- Upright, hollow, flattened stems
- Fibrous root system, rarely with short rhizomes.

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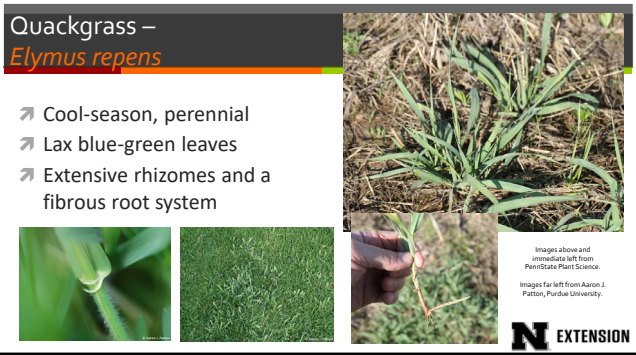
Quackgrass – *Elymus repens*

- Cool-season, perennial
- Lax blue-green leaves
- Extensive rhizomes and a fibrous root system



Images above and immediate left from PennState Plant Science.

Images far left from Aaron J. Patton, Purdue University.

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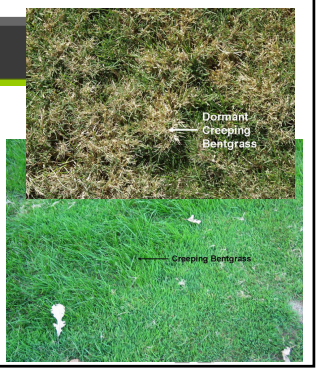
Creeping Bentgrass – *Agrostis stolonifera*

- Cool season, perennial
- Mesotrione (Tenacity) is safe for use in Kentucky bluegrass (5-8 fl oz/A), perennial ryegrass (5 fl oz/A), tall fescue (5-8 fl oz/A), and fine fescue (5 fl oz/A) and will control creeping bentgrass
- Timing is critical. Begin applying in early September. Three or four applications at two-week intervals. At least three applications are required for best results. Loses effectiveness later in the fall.
- Spring and summer applications provide less consistent control.

Images at right from University of Minnesota Extension.



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Rough Bluegrass – *Poa trivialis*

Images above from Rutgers Turf Blog, turfblog.Rutgers.edu.

- Cool-season, perennial
- Bispyribac-sodium (Velocity SG) is registered on golf courses and sod farms, but no other turf sites.
- Availability is limited.
- Raising the mowing height (3 inches tall or greater) will help to reduce rough bluegrass over time.
- Extremely shade tolerant.

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Smooth Brome – *Bromus enermis*

- Cool-season, perennial
- Research conducted at Nebraska with Mesotrione (Tenacity) + NIS
  - 5.3 fl. oz./acre three times 10 days apart or
  - 8 fl. oz./acre applied two times 10 days apart,
  - applied in July resulted in about 85% control by Sept. 15.
- Spring applications had <30% control.

Image above from Katy Chayka, Minnesota Wildflowers.

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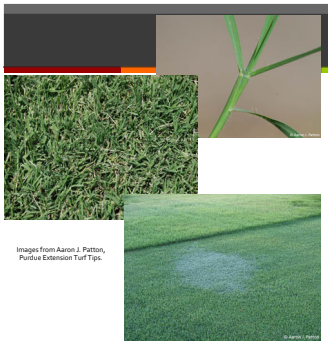
Bermudagrass, *Cynodon spp.*



Images from Aaron J. Patton, Purdue Extension Turf Tips.

- Warm-season, perennial
- No "efficient" selective herbicides in cool-season turf.
- Three applications of topramezone (Pylex) at 1.33 fl oz/A at 21-day intervals starting in late summer to *suppress* bermudagrass. For best results, tank-mix triclopyr at 1 qt/A and include a MSO.
- Repeat applications of fenoxaprop (Acclaim Extra) 28 fl oz/A during late spring and late-summer/fall provide suppression. Adding triclopyr improve turfgrass safety and suppression.
- Use with with an overseeding of a desirable cool-season turfgrass post last application; repeat for 2-3 consecutive years.

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Zoysiagrass – *Zoysia spp.*

- Warm-season, perennial
- No "efficient" selective herbicides in cool-season turf.
- Like bermudagrass, three applications of topramezone (Pylex) at 1.33 f l oz/A with MSO at 21-day intervals starting in late summer will *suppress* zoysiagrass (no triclopyr).
- Use with an overseeding of a desirable cool-season turfgrass after the last application; repeat for 2-3 consecutive years.
- Expect 50-75% zoysiagrass removal per year with this topramezone, plus overseeding strategy.

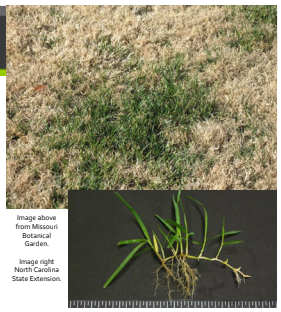

Image above from Missouri Botanical Garden.

Image right North Carolina State Extension.

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"The best way to control undesirable perennial grasses in the lawn is to spot treat with glyphosate."

- ~~Windmillgrass~~
- ~~Nimblewill~~
- ***Tall Fescue***
- ***Orchardgrass***
- ~~Creeping Bentgrass~~
- ***Rough Bluegrass***
- ***Quackgrass***
- ~~Smoothbrome~~
- ~~Bermudagrass~~
- ~~Zoysiagrass~~

Options now exist for 60% of the top ten!

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Turfgrass Weed Control for Professionals

https://mdc.itap.purdue.edu/item.asp?Item_Number=TURF-100

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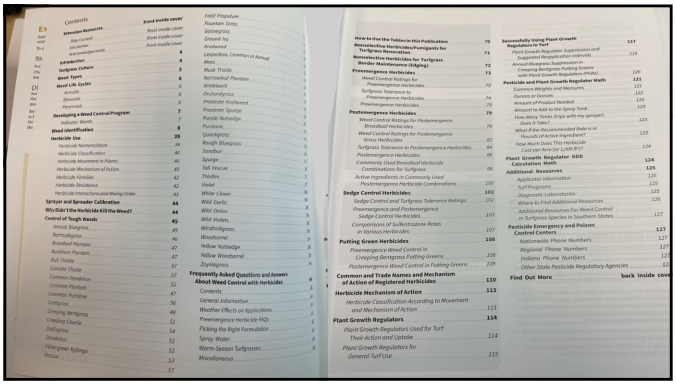

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Other resources:

- http://www.mobileweedmanual.com/ Jim Brosnan, Ph.D.

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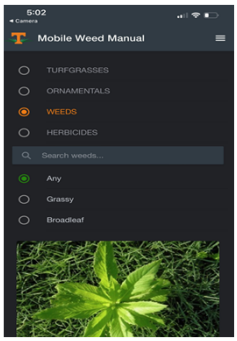

Very user friendly with both turf and ornamentals, no cost to end user

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Contact Information

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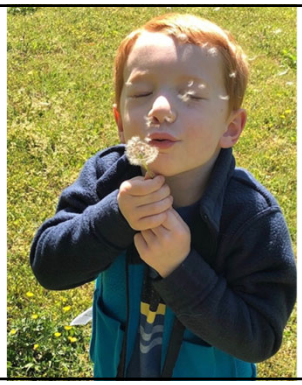
- rgaussoin1@unl.edu

Thank you!



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