

Dandelion



Mouse-ear Chickweed- Post emergence

- MCPP
- Carfentrazone
- Dicamba





White clover

- MCPP
- Clorsulfuron (Lontrel)
- Quinclorac

Postemergence Broadleaf Control

- Benzoic Acid
 - Dicamba

Postemergence Broadleaf Control

- Phenoxy Acids
 - 2,4-D
 - MCPP

Postemergence Broadleaf Control

- Pyridines
 - Clopyralid
 - Triclopyr

Postemergence Broadleaf Control

- Carfentrazone

Yellow nutsedge

- MSMA-warm season grasses
- Bentazon-repeat applications maybe necessary (basogran)
- Halosulfuron-not for greens.

Postemergence Sedge Control

• Sulfonylurea	Trade Name
– Foramsulfuron	Revolver
– Halosulfuron (cool season)	Sledge Hammer
– Sulfosulfuron-methyl (“)	Certainty
– Trifloxysulfuron	Monument

Crabgrass-Preemergence

- Pendimethalin- Ky bl, flf, Prye, TF mature
- Prodiamine-same as above plus CB not greens
- Siduron- same as prodiamine

Crabgrass-Postemergence

- Dithiopyr- 1 to 3 leaf stage
- Fenoxaprop- 1 to 3 leaf stage
- Quinclorac- Good activity on mature plants
- MSMA- for use on warm season grasses

Poa annua-preemergence

- Benefin
- Dithiopyr
- Oxadiazon
- Pendimethalin
- Prodiamine

Poa annua-Postemergence

- Ethofumesate
- Bispyribac-sodium
- Cumyluron

Postemergence-Bermudagrass

Fenoxaprop-ethyl





Tolerance of Some Fully Established Turfgrass Species to Some Selective Turfgrass Herbicides and Suppressants Labeled for Use in the U.S.

Herbicide Generic Name	Annual Bluegrass	Creeping Bentgrass	Kentucky Bluegrass	Perennial Ryegrass	Bermudagrass
Atrazine					T ¹
Benefin		T	T	T	T
Bensulide		T	T	T	T
Clopyralid		T	T	T	T
2,4-D			T	T	T
Dicamba	T	T ¹	T	T	T
Dithiopyr		T ²	T	T	T
Ethofumesate		T ²	T	T	T ³

T Adequate tolerance when used according to label.

m Labeled for use, but has marginal tolerance in some situations.

1 Injury may occur to certain species or cultivars. Read label.

2 Not labeled for 1 or more of: Greens, collars, or tees.

3 Use only on dormant turf.

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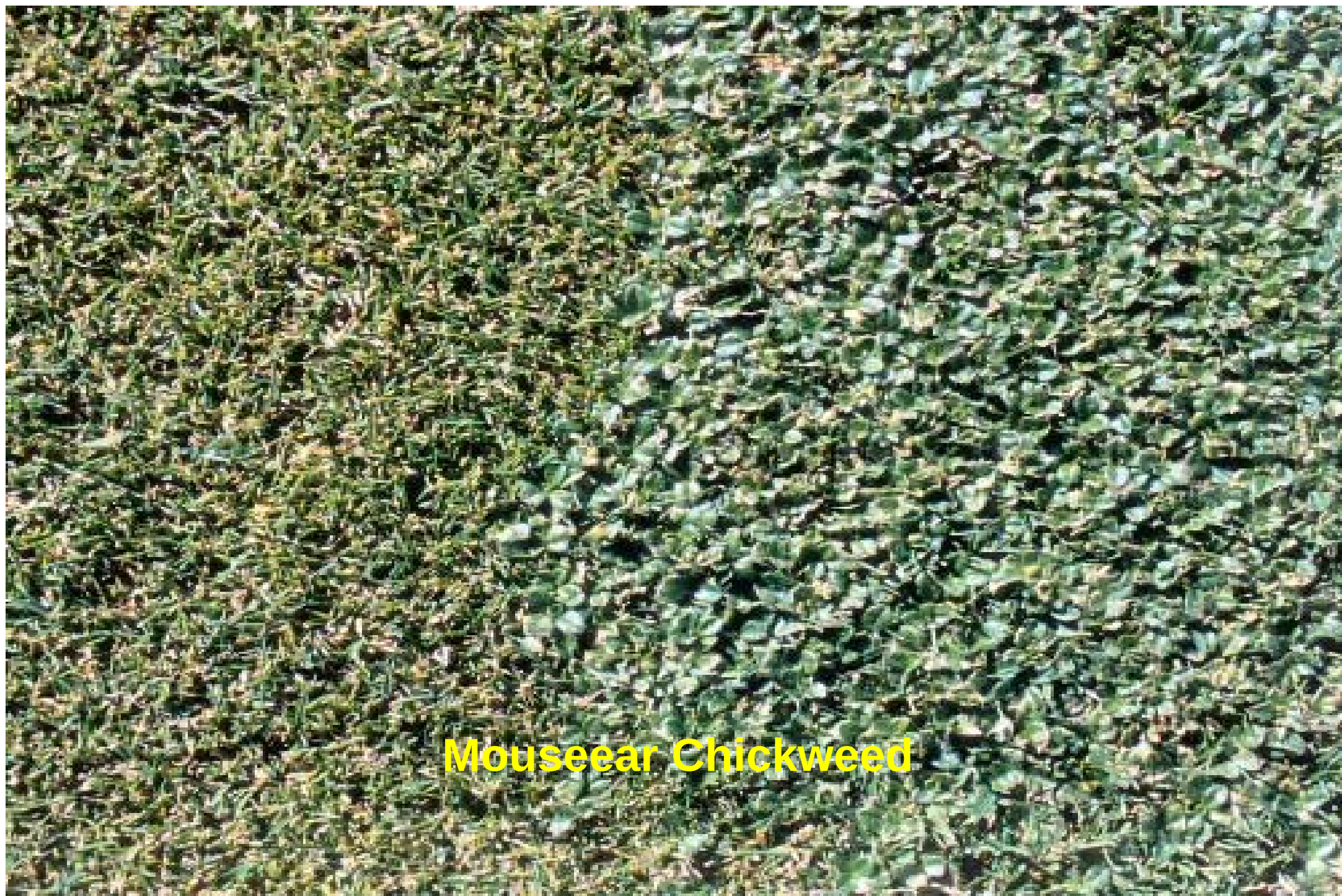
Herbicide Generic Name	Annual Bluegrass	Creeping Bentgrass	Kentucky Bluegrass	Perennial Ryegrass	Bermudagrass
Fenoxaprop-ethyl	T	T ²	T	T	
Mecoprop	T	T	T ¹	T	T
Oxadiazon		T	T	T	T ³
Paclobutrazol		T	T	T	T ¹
Pendimethalin	T ²	T ²	T	T	T
Prodiamine		T	T	T	T
Quinclorac	T ¹	m	T	T	T ¹
Triclopyr	T Adequate tolerance when used according to label.			T	

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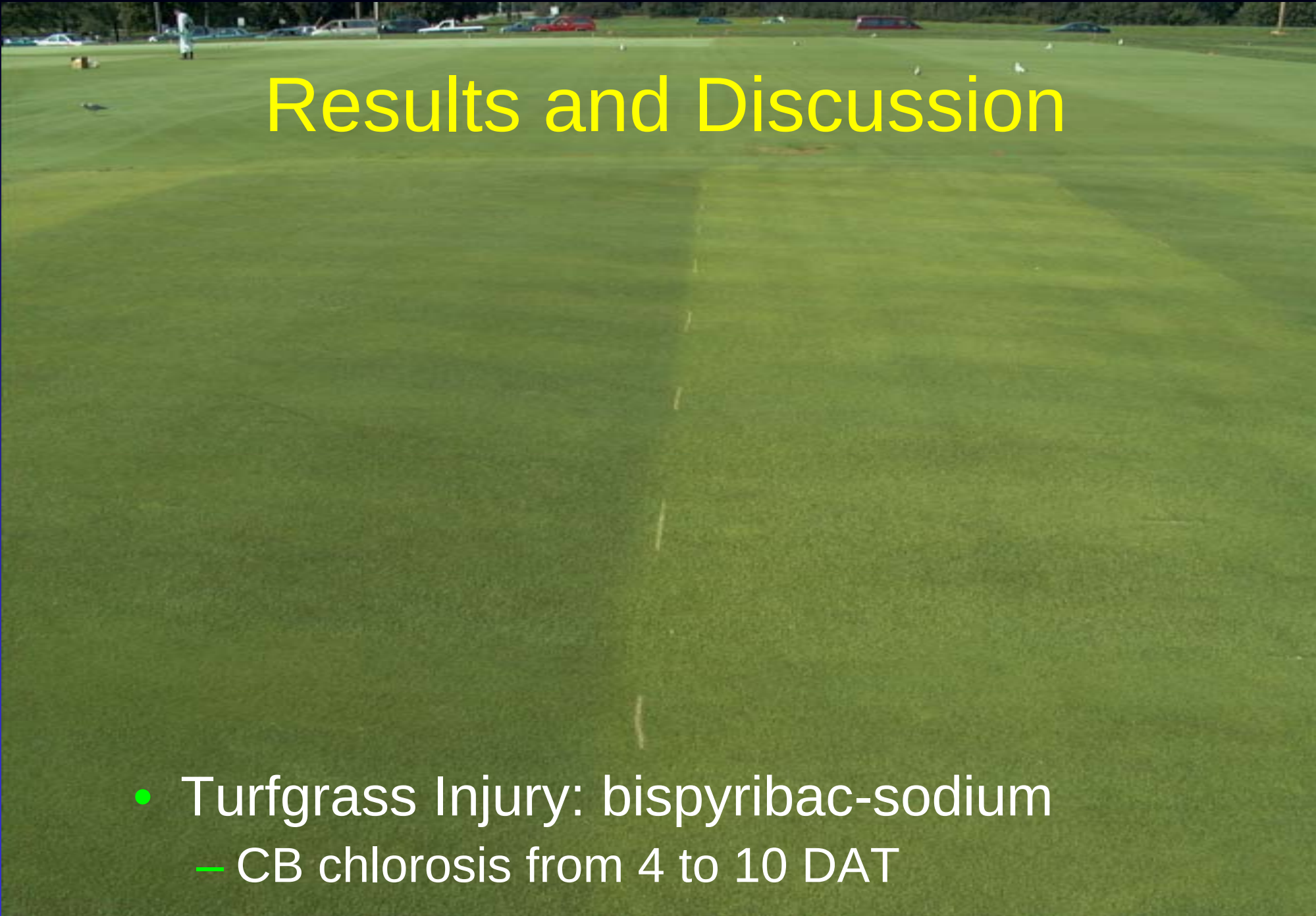
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Mouseear Chickweed



Results and Discussion

- Turfgrass Injury: bispyribac-sodium
 - CB chlorosis from 4 to 10 DAT

Results and Discussion

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 - AB chlorosis becomes severe

Results and Discussion

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Results and Discussion

Treatment	Rate	Percent Poa Cover		
		6/2001	6/2002	6/2003
	ai ha ⁻¹			
Untreated		72 abc	52 bc	64 bc
Paclobutrazol (TGR)	560 g	38 e	20 ef	14 e
Paclobutrazol (TGR)	818 g	41 e	18 f	14 e
Ethephon	31.1 kg	77 ab	60 b	41 d
Trinexapac-ethyl	280 g	62 bcd	55 b	60 bcd
Prohexadione	280 g	65 abcd	53 bc	58 bcd
Ethofumesate	1.7 kg	82 a	65 ab	70 ab
Cumyluron	32 L prod	48 de	15 f	5 e
Flumioxazin	202 g	79 ab	75 a	95 a
Primisulfuron	17.3 g	50 de	53 bc	62 bcd
Bispyribac-sodium	111 g	54 cde	23 ef	5 e

Treatment means separated using Fisher's Protected LSD (P=0.05)

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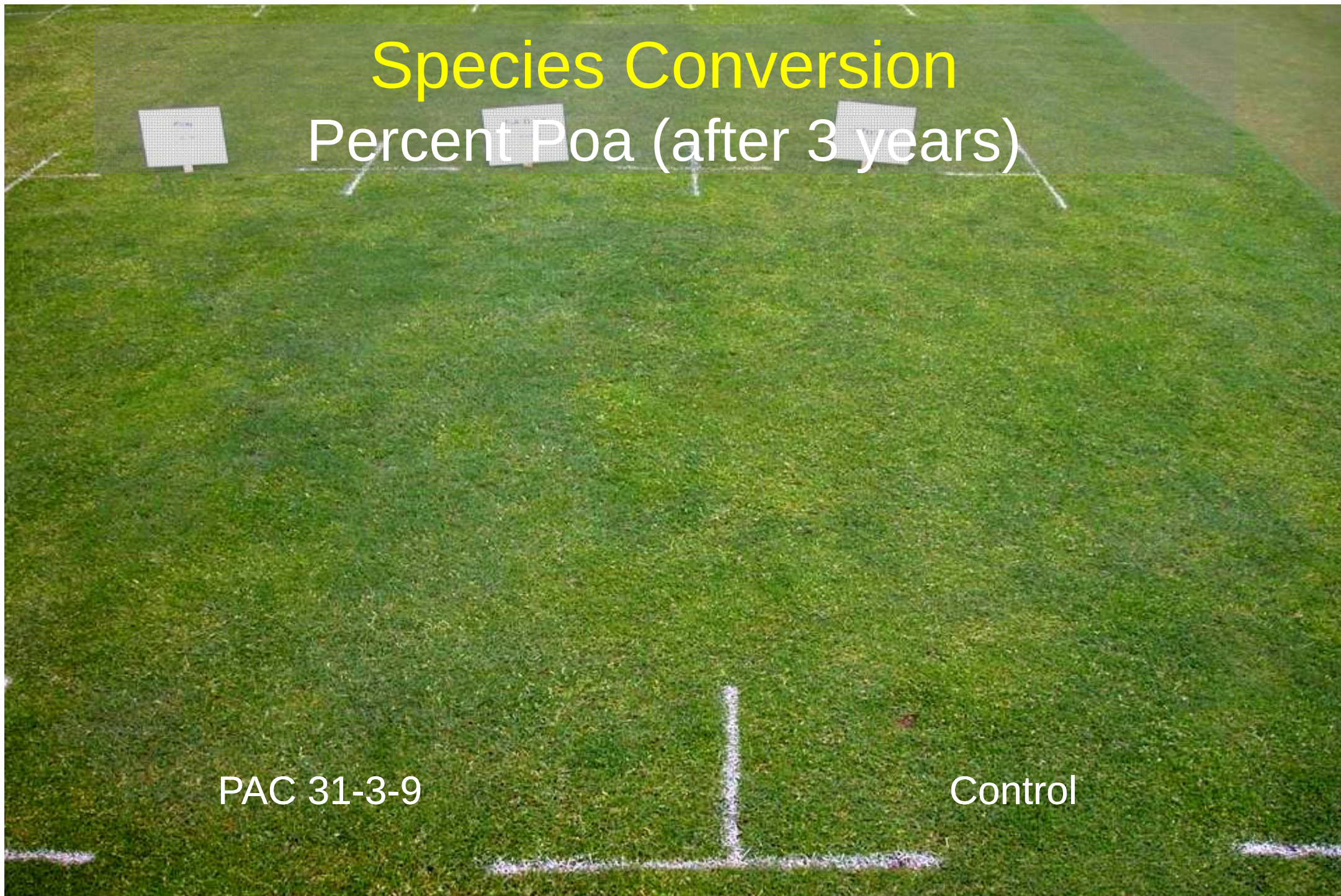
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Species Conversion

Percent Poa (after 3 years)

PAC 31-3-9

Control



Species Conversion

Percent Poa (after 3 years)

PAC 31-3-9

Control

Species Conversion

Percent Poa (after 3 years)

Flumioxazin

Cumyluron

Species Conversion

Percent Poa (after 3 years)

Bispyribac-sodium
Velocity

Primisulfuron
Beacon

Conclusions

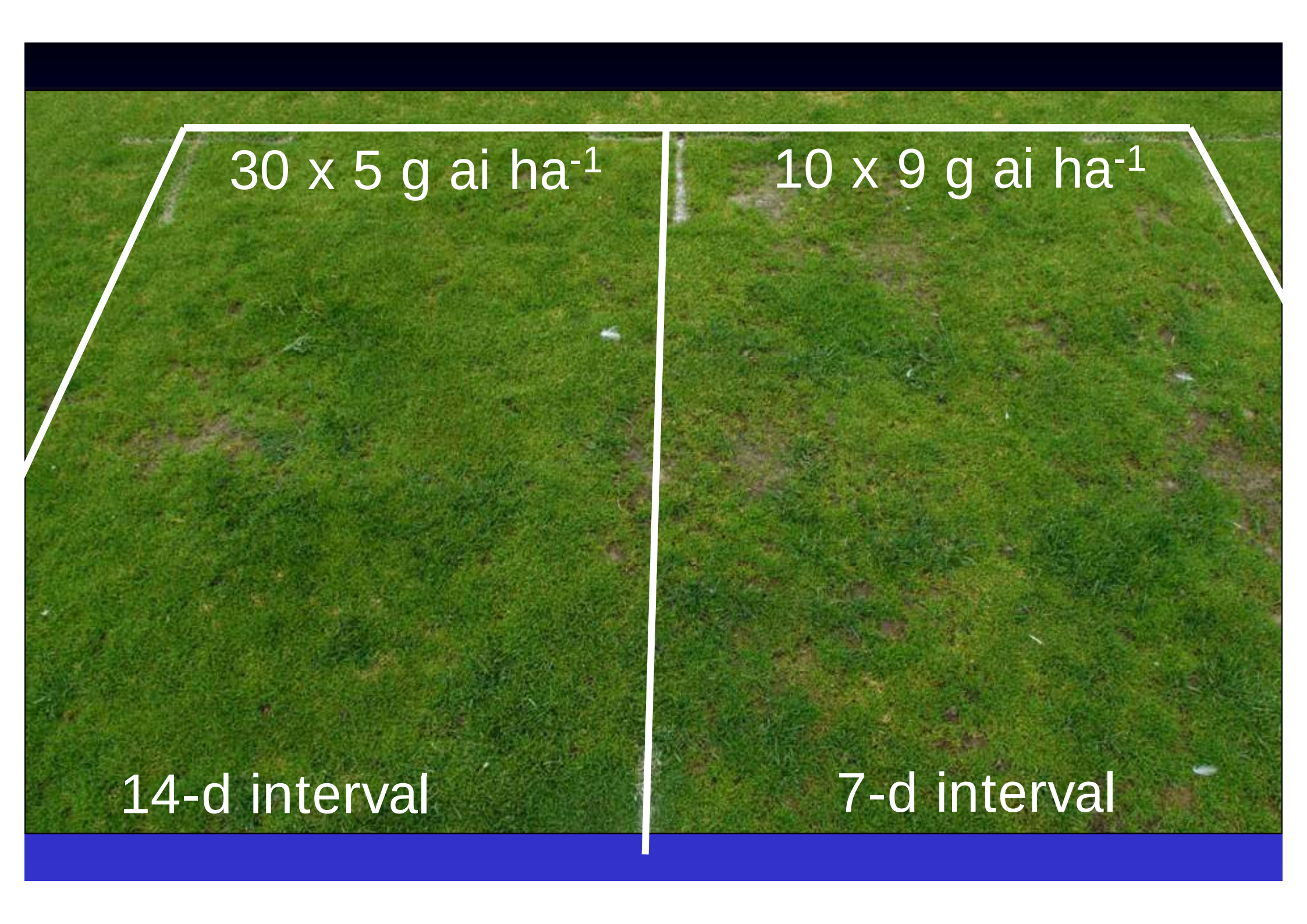
- Most effective treatments
 - Bispyribac-sodium, Cumyluron and paclobutazole (TGR)
 - Cumyluron did not display acute symptoms
- PGR treatments
 - Ethephon, trinexapac-ethyl and prohexadione-calcium were no different from the control



111g ai ha⁻¹

2 x 5 g ai ha⁻¹

14-d interval

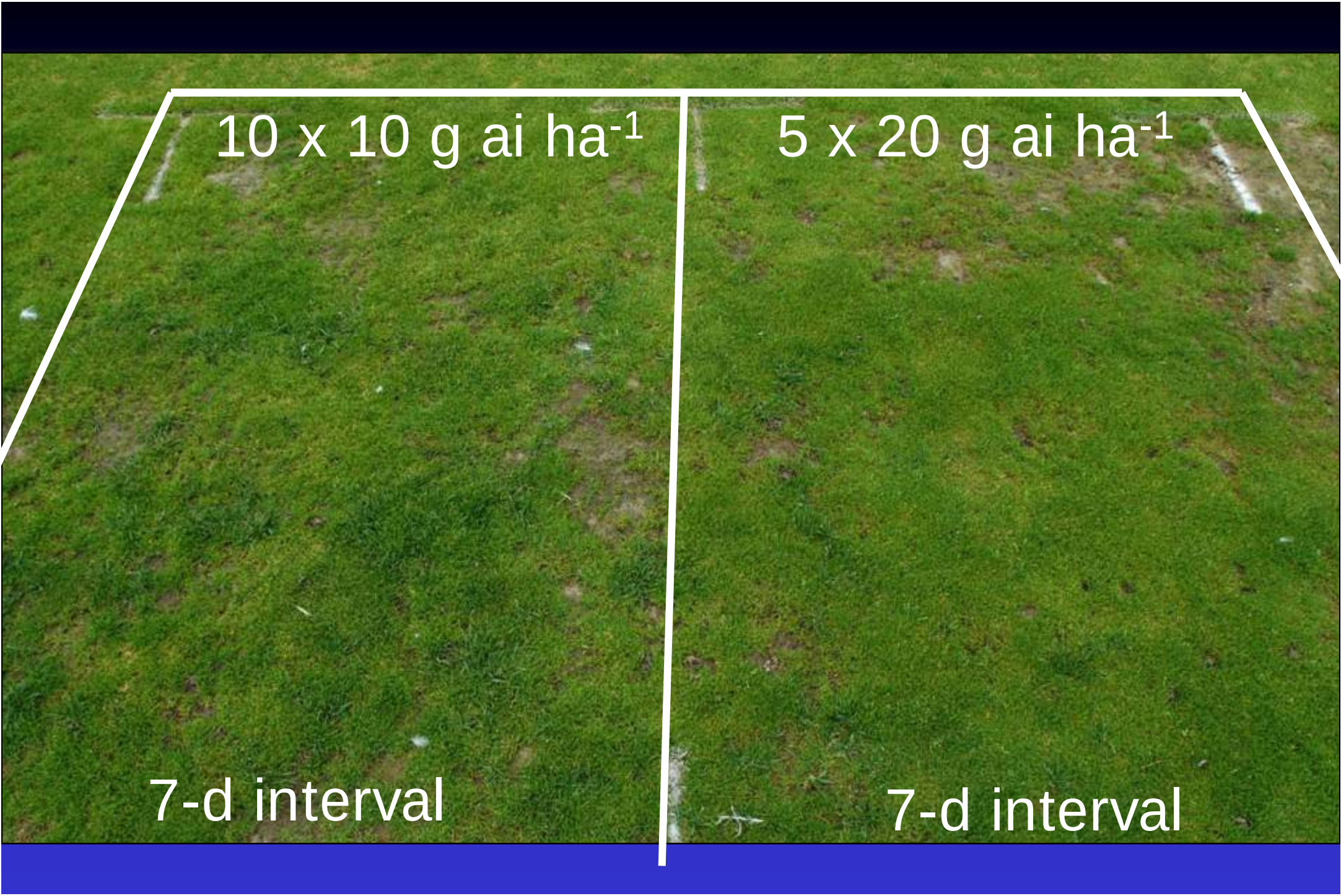


$30 \times 5 \text{ g ai ha}^{-1}$

$10 \times 9 \text{ g ai ha}^{-1}$

14-d interval

7-d interval

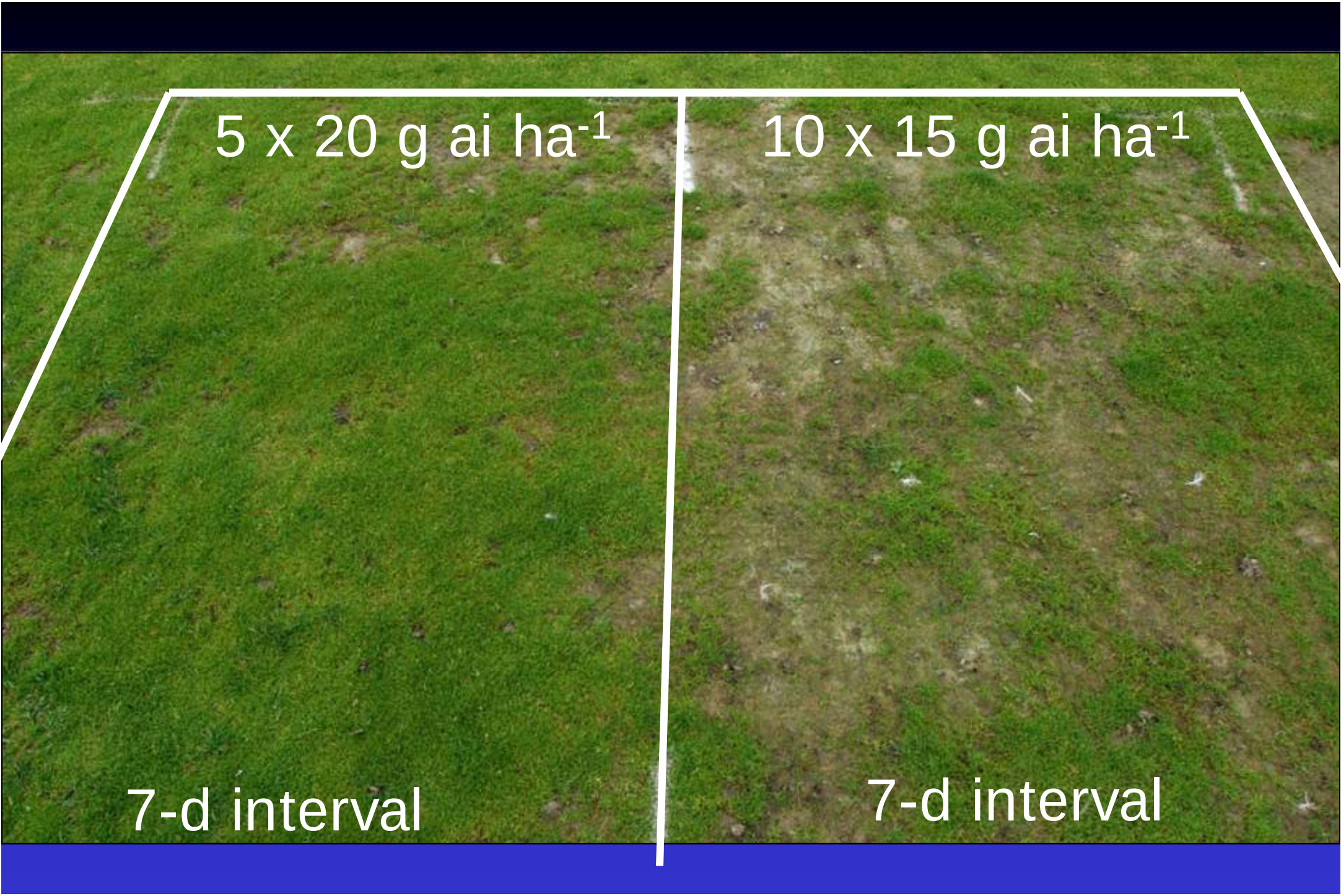


$10 \times 10 \text{ g ai ha}^{-1}$

$5 \times 20 \text{ g ai ha}^{-1}$

7-d interval

7-d interval

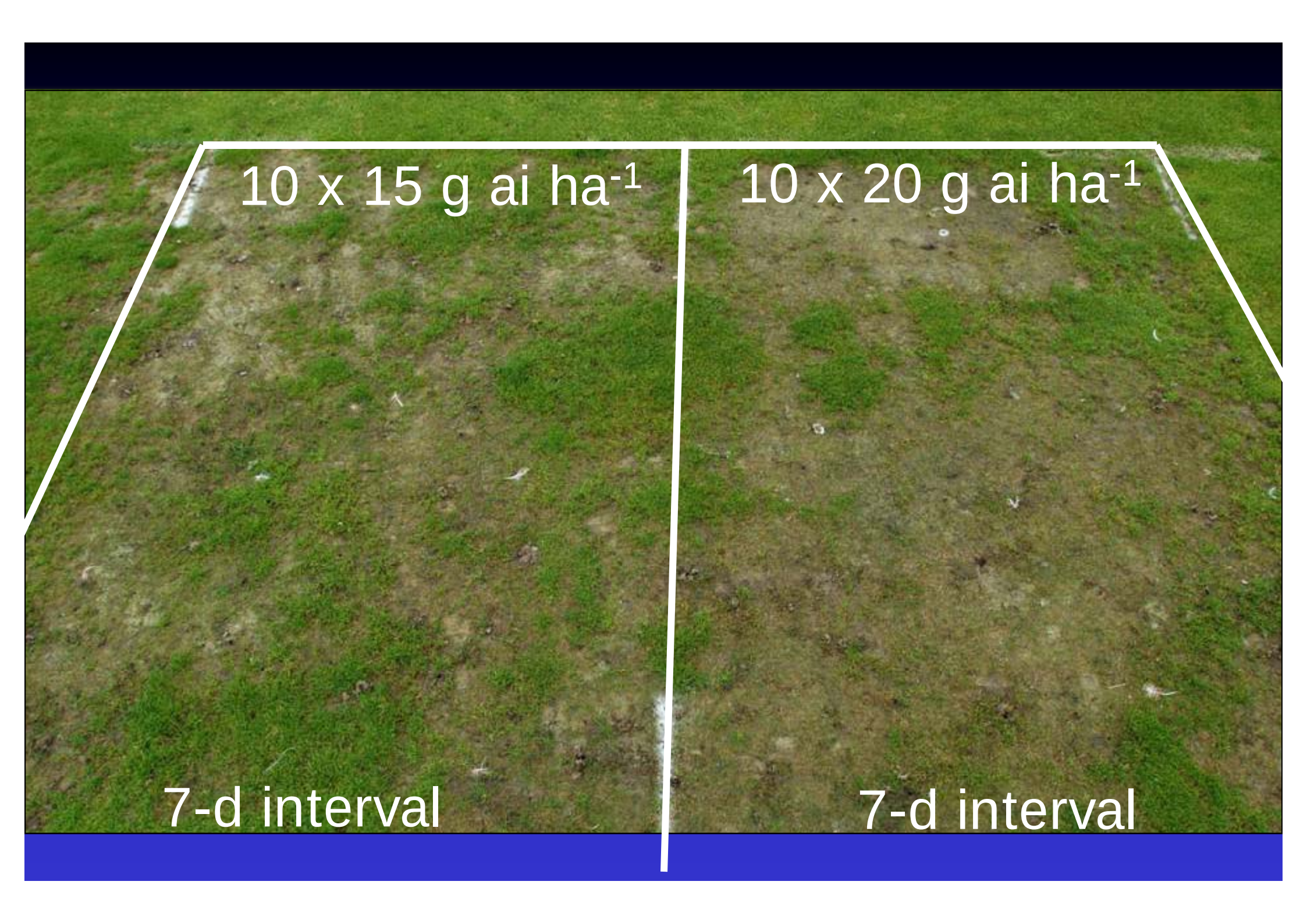


$5 \times 20 \text{ g ai ha}^{-1}$

$10 \times 15 \text{ g ai ha}^{-1}$

7-d interval

7-d interval

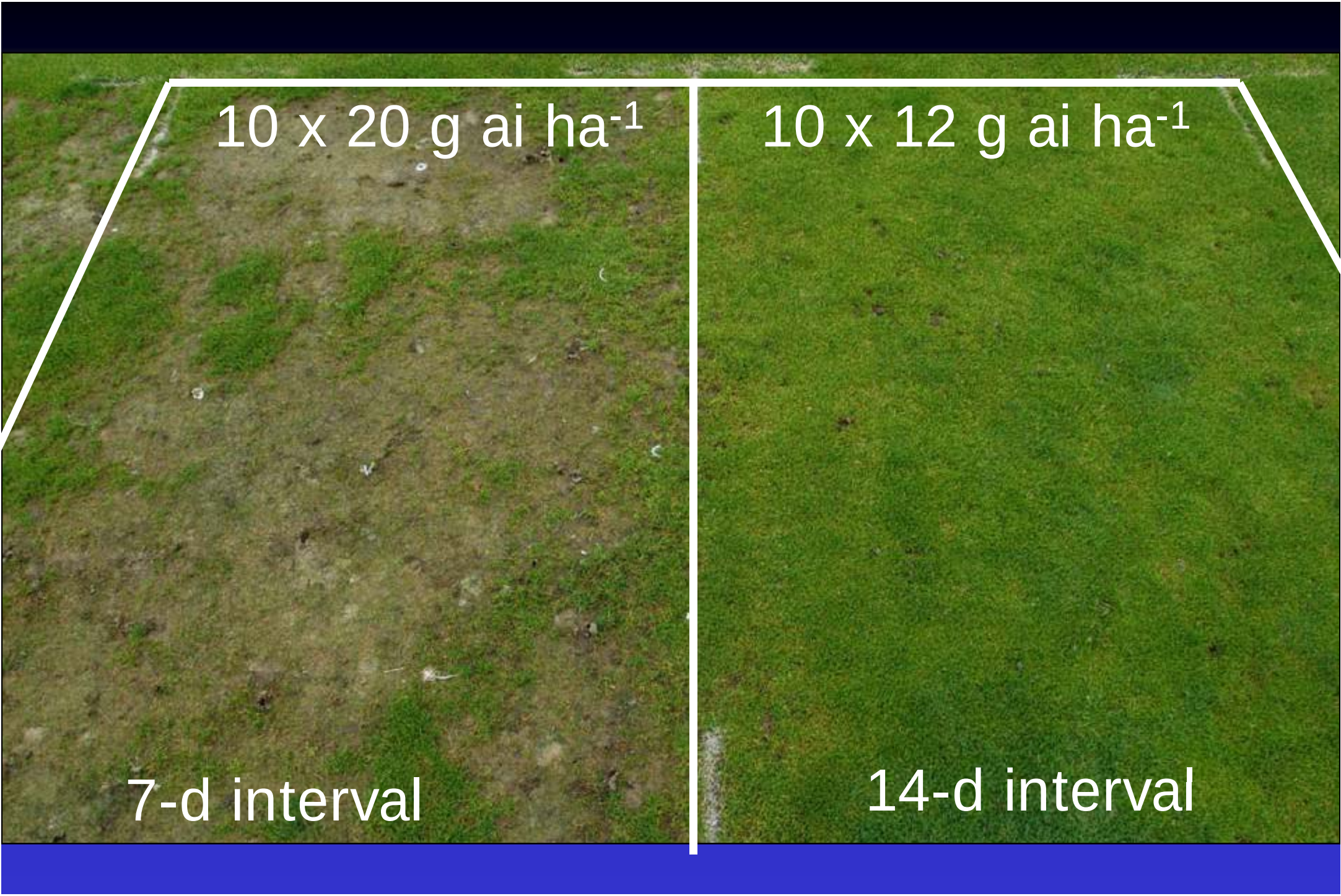


$10 \times 15 \text{ g ai ha}^{-1}$

$10 \times 20 \text{ g ai ha}^{-1}$

7-d interval

7-d interval



$10 \times 20 \text{ g ai ha}^{-1}$

$10 \times 12 \text{ g ai ha}^{-1}$

7-d interval

14-d interval

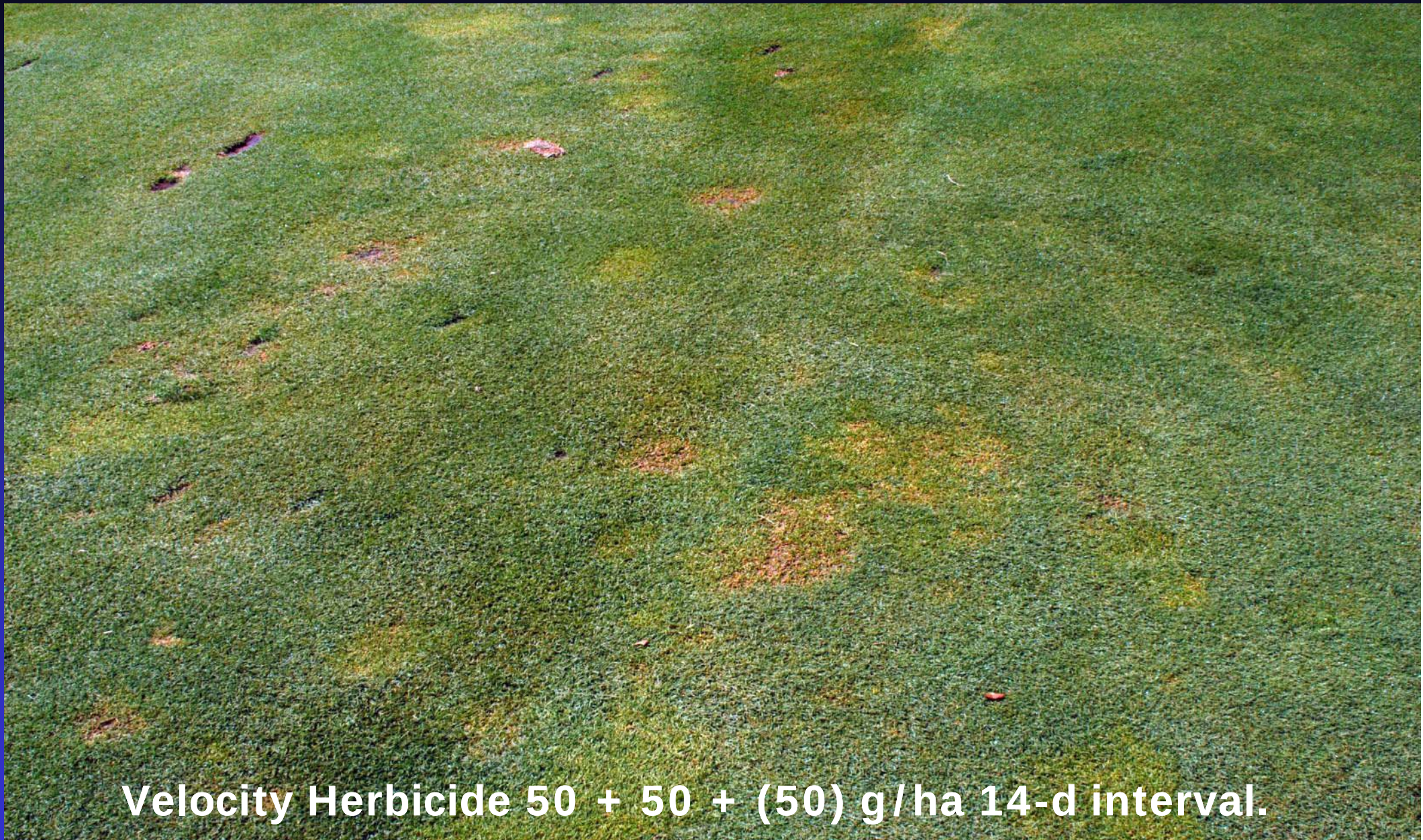


10 x 12 g ai ha⁻¹

Untreated

14-d interval





Velocity Herbicide 50 + 50 + (50) g/ha 14-d interval.







Species Conversion

Greens Height (after 1 season)

- 'Providence' creeping bentgrass
- Maintained at 3 mm
- Topdressed bi-weekly
- Velocity at 12 g 7-d or 50 g 28-d
- Trimmit at .067kg 7-d or 0.28 kg 28-d
- Season total of 150 g and 0.84kg ai/ha





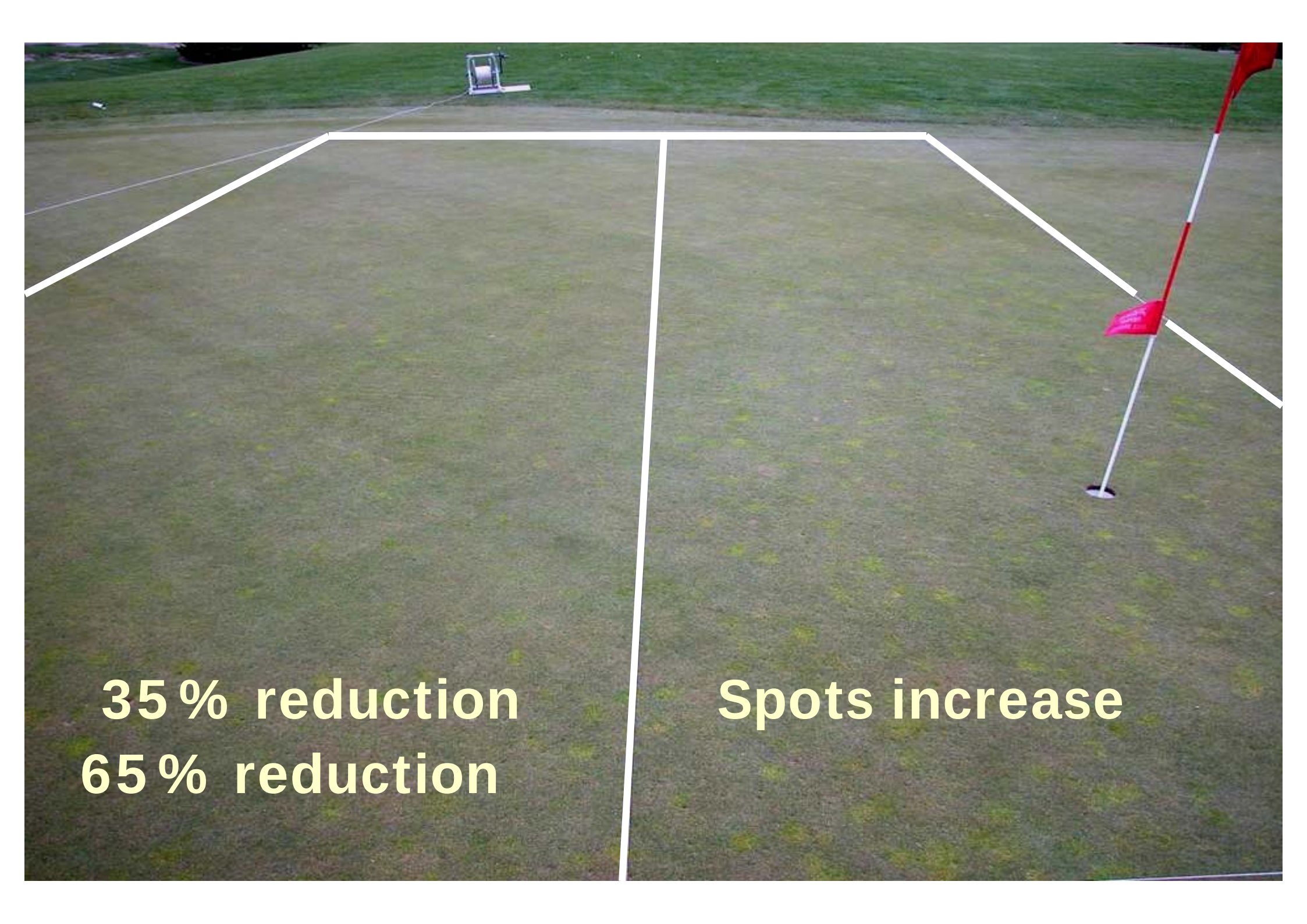












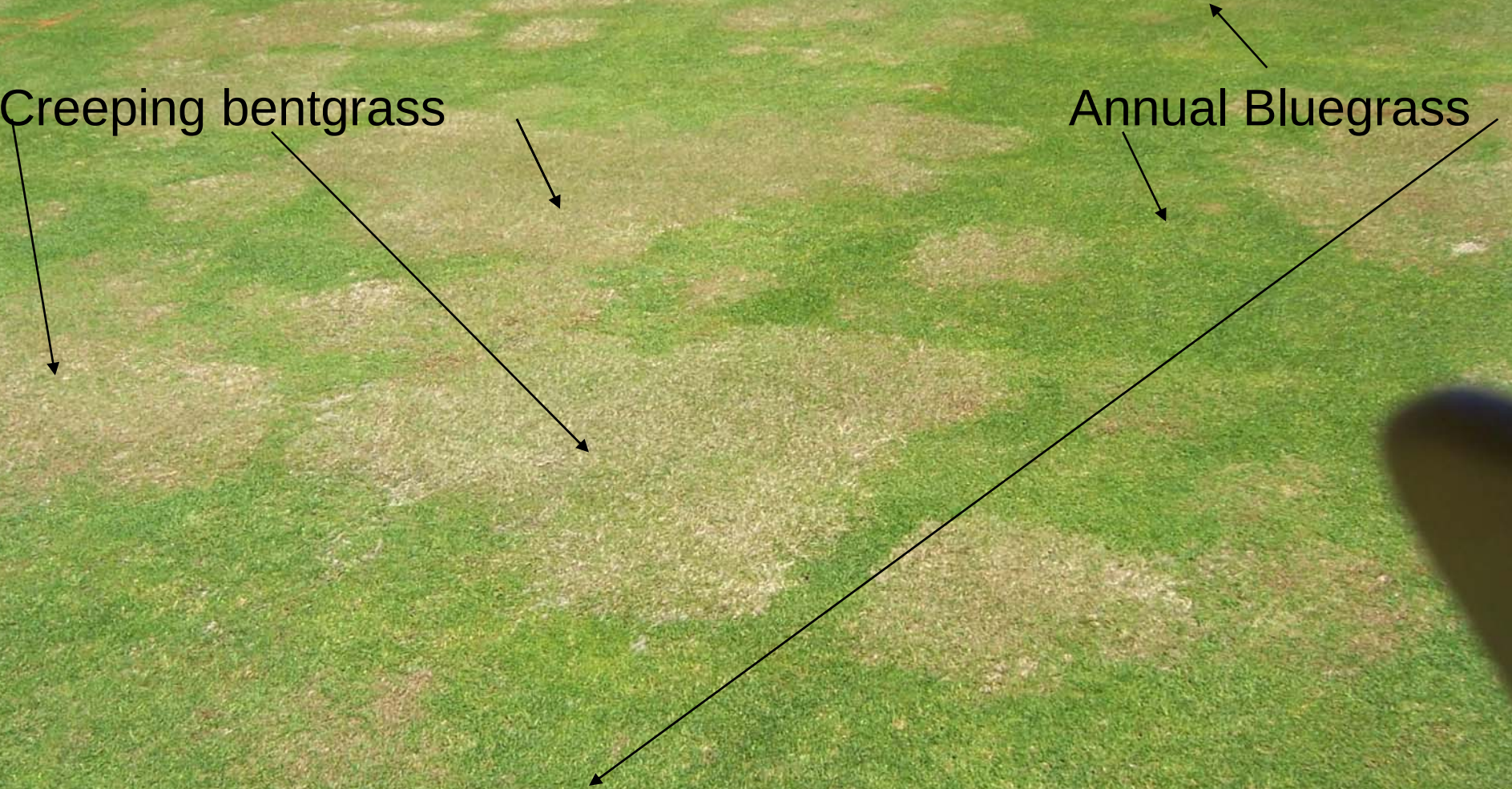
**35 % reduction
65 % reduction**

Spots increase

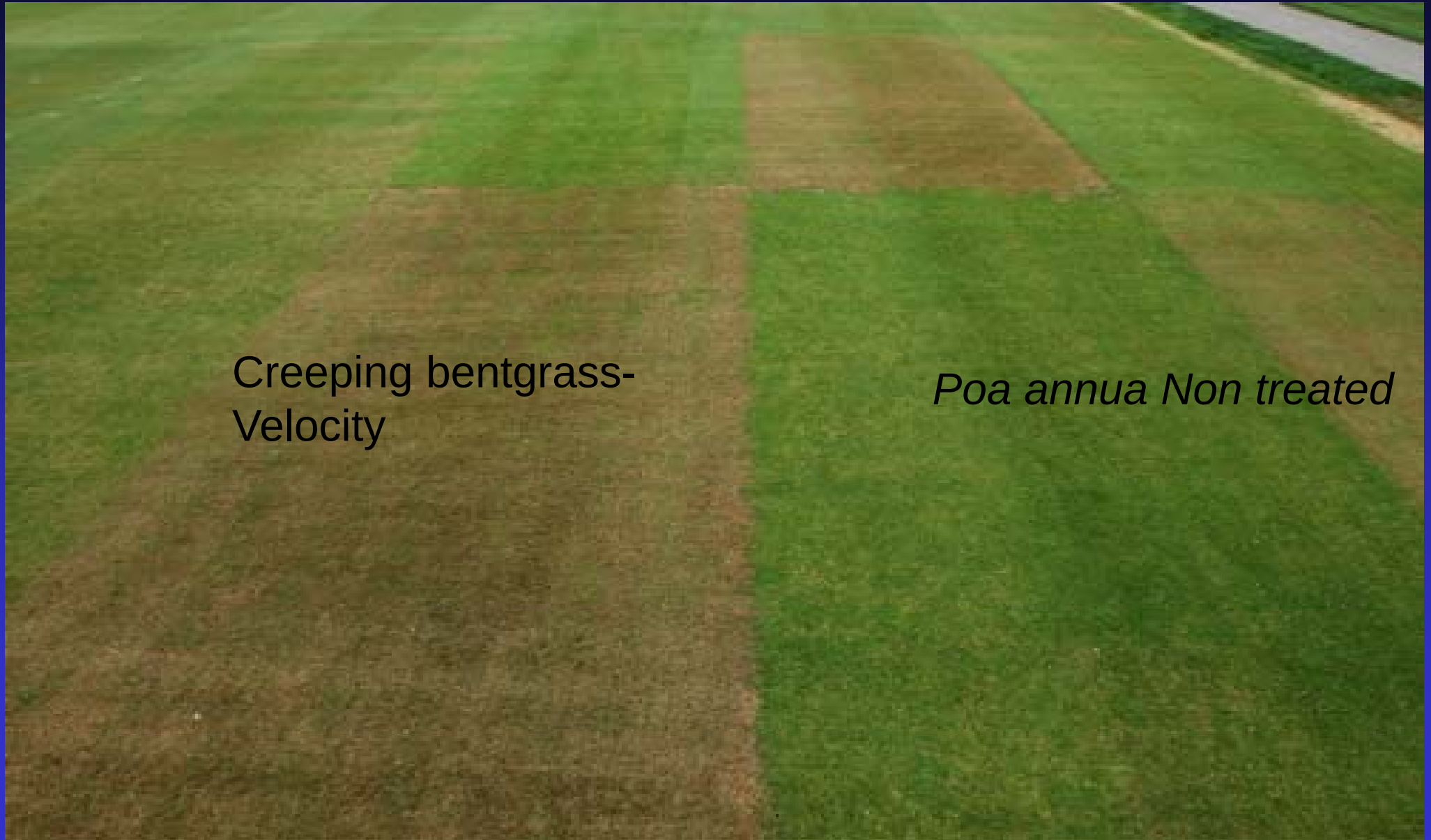
Fusilade Application

Creeping bentgrass

Annual Bluegrass



Velocity plots treated with Fusilade



Creeping bentgrass-
Velocity

Poa annua Non treated

Repeat Applications

**150 g Applied As
50 g ai/A
1X per week**



After Fusilade Application

Repeat Applications

**150 g Applied As
50 g ai/A
2X per week**



After Fusilade Application

Repeat Applications

**150 g Applied As
20 g ai/A
3X per week**



After Fusilade Application

Velocity 80 WP Herbicide

Description	Current Thinking - MSU
Greens rates	12 g ai ha 7-d (16 apps)
Fairway rates	40-50 g ai ha, 3-4 apps (4-7-d int)
Fairway rates	25 g ai ha, 6-8 apps (7-d int)

