



Identification & Control of Old World Bluestem

Walter H. Fick
Department of Agronomy
Kansas State University



Origin of Old World Bluestems

Caucasian bluestem (*Bothriochloa bladhii*)

- Australia and South Asian

Yellow bluestem (*Bothriochloa ischaemum*)

- China, Africa, Eurasia, Mediterranean

Caucasian bluestem (*Bothriochloa bladhii*)



Photo by Mike Haddock

- Blue-green leaves
- 2-3 ft tall
- Stems glabrous
- Usually with long hair at base of leaf blade
- Also called Australian bluestem, B. Dahl

Yellow bluestem (*Bothriochloa ischaemum*)



- Yellow-green leaves
- Up to 3 ft tall
- Stems decumbent at base, grooved on one side, glabrous to short-hairy at nodes
- Upper leaf surface with hair near collar
- Also called King Ranch Bluestem, Turkestan Bluestem, Plains, WW-SPAR, Ironmaster
- Major identifying characteristic is digitate inflorescence



Caucasian Bluestem



Yellow Bluestem

Photos by Walt Fick

Broomsedge (*Andropogon virginicus*)





Old World Bluestem in Riley County



Stand of Caucasian Bluestem in Greenwood County, KS





Ropewick Study by Keith Harmony at Hays, KS

- 50:50 mixture of glyphosate with water
- Spray 2 lbs/acre broadcast
- Applied at head emergence

	Y1	Y2	Y3
Ropewick, 1 pass	31	69	65
Ropewick, 2 pass	64	91	91
Spray	93	99	98

**Chase County – 2014 Rate Study (0-1 lb/acre imazapyr)
(% cover 1 year after treatment)**

Category	0	0.25	0.5	0.75	1
Old World Bluestem	30	10	8	13	4
Warm-season grass	19	30	41	30	35
Cool-season grass	1	5	4	2	2
Forbs	21	16	18	22	20
Bare ground	14	21	18	30	28
Litter	3	3	2	2	2

Chase County – 0.25# Imazapyr 3 MAT



Chase County – 0.5# Imazapyr 3 MAT



Caucasian bluestem – Riley County



**Riley County – 2014 Rate Study (0-1 lb/acre imazapyr)
(% cover 1 year after treatment)**

Category	0	0.25	0.5	0.75	1
Old World Bluestem	44	27	23	12	1
Warm-season grass	7	8	3	7	2
Cool-season grass	3	5	2	3	6
Forbs	28	37	43	44	43
Bare ground	9	23	39	44	52
Litter	12	3	6	4	8

Chase County – June 13, 2014



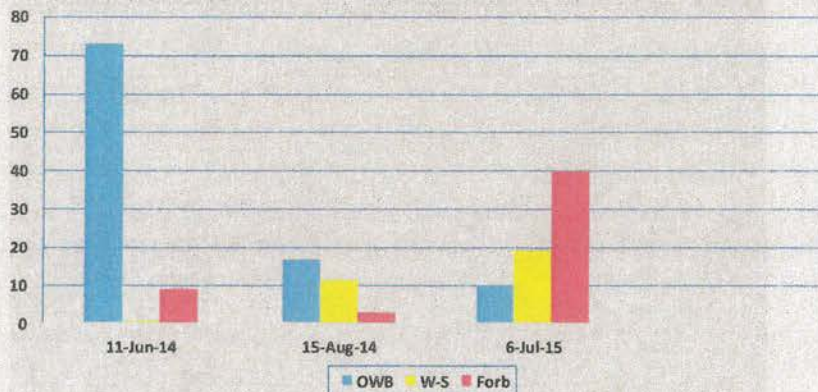
Chase County – July 15, 2014
(0.25 lb/A Imazapyr)



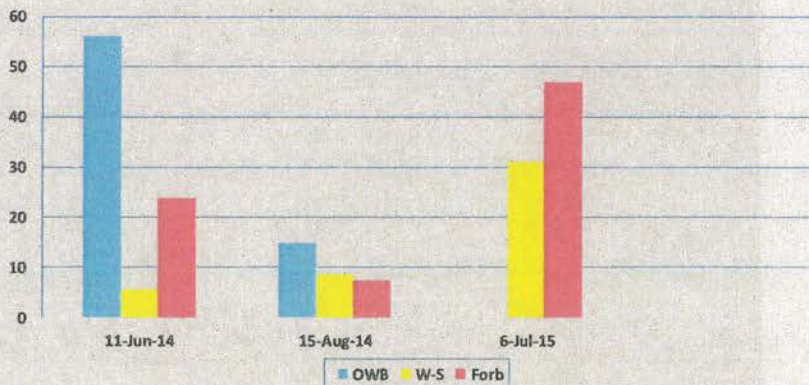
Chase County – September 15, 2014
(1 or 2 applications of 0.25 lb/A imazapyr)



Vegetative Cover With 0.25 lbs Arsenal
Chase County



Vegetative Cover With 0.25 lbs Arsenal Applied Twice
Chase County



Percent control of Caucasian bluestem treated in 2016-17

Treatment	Rate (lbs/acre)	11 MAT
Imazapyr	0.5	74 a*
Glyphosate	2.0	99 a
Untreated	--	9 b

* Means separated by LSD_{0.05}

Percent cover response to herbicide treatment in Chase County – July 8, 2016

Imazpyr (0.5)	Litter	Bare	OWB	W-S	C-S	Forb
Original	0.5	11.7	28.4	25.2	2.4	18.0
11 MAT	7.6	13.8	7.3	31.3	1.5	28.3
Glyphosate (2.0)	Litter	Bare	OWB	W-S	C-S	Forb
Original	0.7	13.4	20.9	29.8	1.8	16.1
11 MAT	13.4	29.6	0.2	0.6	4.1	55.7
Untreated	Litter	Bare	OWB	W-S	C-S	Forb
Original	0	15.6	31.6	19.8	1.4	18.1
11 MAT	5.6	19.1	28.8	15.6	0.8	18.1

Percent control of Caucasian bluestem treated in 2018-19

Treatment	Rate (lbs/acre)	11 MAT	14 MAT
Imazapyr	0.5	99 a*	100 a
Glyphosate	2.0	88 b	62 b
Untreated	--	0 c	0 c

* Means separated by LSD _{0.05}

Percent cover response to herbicide treatment in Chase County – July 12, 2018

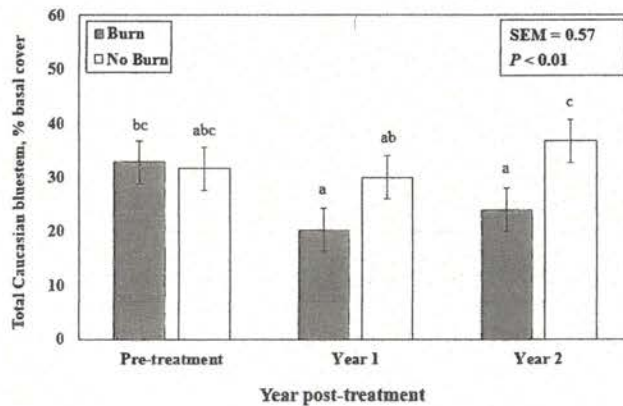
Imazapyr (0.5)	Litter	Bare	OWB	W-S	C-S	Forb
Original	12.3	25.5	46.4	6.6	0.5	0.6
11 MAT	3.3	48.8	0.3	3.9	2.3	37.7
Glyphosate (2.0)	Litter	Bare	OWB	W-S	C-S	Forb
Original	13.3	22.6	43.8	2.7	0	4.4
11 MAT	4.8	33.6	4.8	1.2	2.0	48.4
Untreated	Litter	Bare	OWB	W-S	C-S	Forb
Original	11.7	29.8	32.0	5.6	0.2	3.1
11 MAT	8.0	19.1	28.8	15.6	0.8	18.1

Percent Control of Caucasian Bluestem in Chase County in 2020 – 12 MAT

Treatment	Rate (lbs/A)	% Control
Imazapyr	0.25	78
Imazapyr	0.375	79
Imazapyr	0.5	62
Glyphosate	2.0	73

Note: April-June precipitation 74% of normal

Effect of August 14, 2019 prescribed burn on Caucasian bluestem basal cover in the Kansas Smoky Hills (Ramirez 2021)





Old World Bluestem Control Options

- Spot treatment or wiping/wicking with glyphosate
- Tillage and planting Roundup Ready crop
- Burn or mow prior to herbicide application
- Imazapyr treatment
- Renovation of OWB infested sites needs further study
- Growing season burn??



Contact Information

Walter H. Fick

Department of Agronomy – TH

Kansas State University

Manhattan, KS 66506

Phone: (785) 532-7223

E-mail: whfick@ksu.edu