



Buffalograss Establishment and Management: *Myths and Misconceptions*



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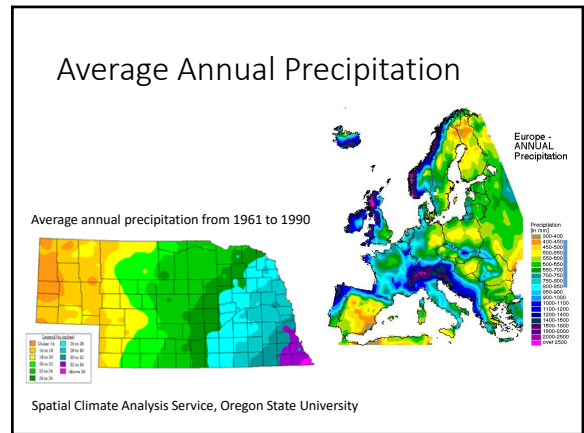
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Buffalograss

- *Buchloë dactyloides* (Nutt.) Engelm.
[*Bouteloua dactyloides* (Nutt.) Columbus]
- Warm season perennial species
- Stoloniferous
- Sod forming
- Fine textured
- Dark bluish-green color
- Excellent drought/heat/cold tolerance



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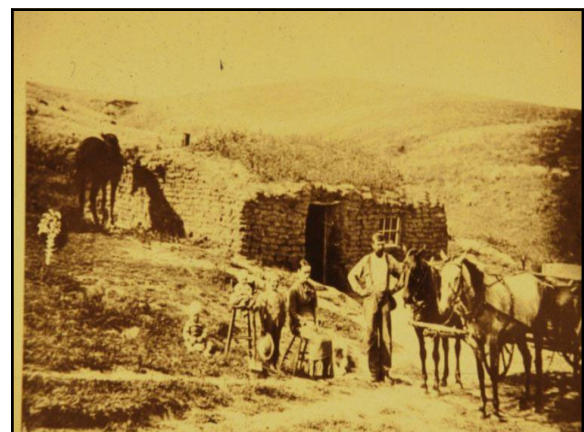
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Buffalograss is dioecious





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Historical Perspective

- 1930's mention as a lawn grass (Wenger)
- Water and Environmental Concerns in the 1970's
- USGA Grant in Early 1980's

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Buffalograss as a *Turfgrass* Species

- A Warm Season Species that has Cold Tolerance
- A Low Maintenance
- A True "Native" Species

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Water use

Well watered turf
<5.5 considered low ET rate

Turfgrass species and cultivar	ET rates		
	Aug. 1982	May 1984	Sept. 1984
	mm d ⁻¹		
Buffalograss, Texas Common	5.3a*	4.6ab	4.4a
Centipedegrass, Georgia Common	5.5abc	4.7ab	4.9bc
Bermudagrass, Arizona Common	5.8bcd	4.2a	4.9bc
Bermudagrass, Tifgreen	5.4ab	4.6ab	5.2c
Bermudagrass, Tifway	5.9de	4.1a	4.9bc
Seashore paspalum, Adalayd	6.2ef	5.1b	4.7ab
Zoysiagrass, Meyer	5.8cde	4.7ab	5.6d
St. Augustinegrass, Texas Common	6.3f	4.8ab	5.6d
Zoysiagrass, Emerald	6.5f	4.9b	6.0e
Bluegrama, Common	5.7bcd	--	--
Bahiagrass, Argentine	6.3f	--	--
Tall fescue, Kentucky 31	7.1g	5.1b	--
CV	7.3	11.8	12.8

Kim and Beard, 1988

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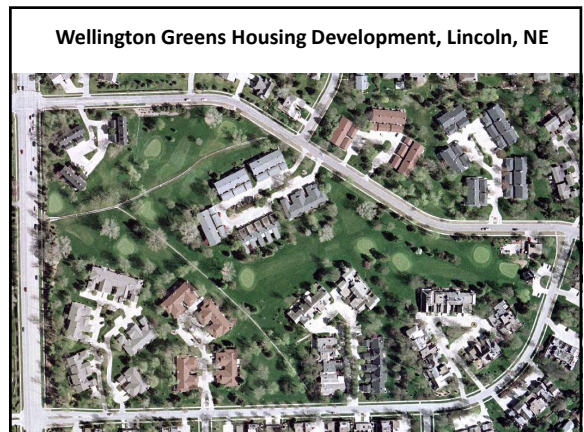
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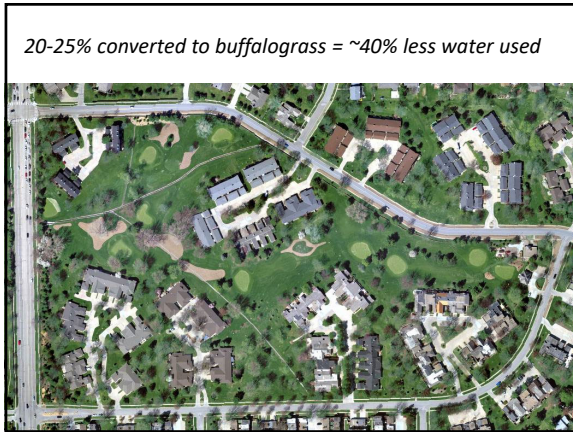
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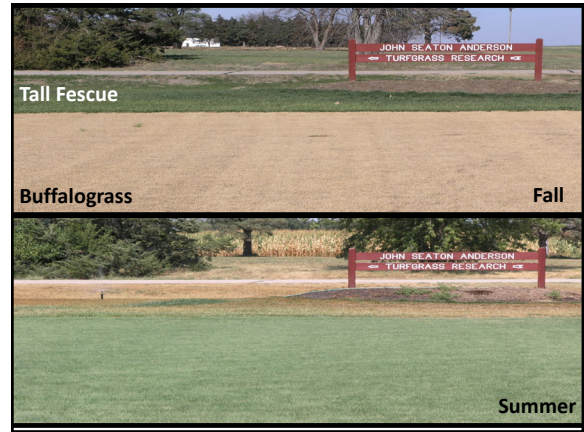
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RESEARCH

Addressing Misperceptions Regarding Buffalograss Tolerance to Sandy Soils, Traffic, and Shade

Keenan Amundsen,* Luqi Li, Robert C. Shearman, Roch E. Gaussoin

ABSTRACT
Buffalograss [*Buchloe dactyloides* (Nutt.) Engelm. syn. *Bouteloua dactyloides* (Nutt.) Columbus] is often reported as being intolerant of shade, traffic, and sandy soils. Historically, these observations were made on early turf-type cultivars or common

Department of Agronomy & Horticulture, Univ. of Nebraska-Lincoln, 279 Plant Science Hall, Lincoln, NE 68583. Received 17 May 2016. Accepted 9 Aug. 2016. *Corresponding author (kamundsen2@unl.edu). Assigned to Associate Editor Eric Watkins.
Abbreviations: NTEP, National Turfgrass Evaluation Program; PAR, photosynthetically active radiation.

Int. Turfgrass Res. J. 2017

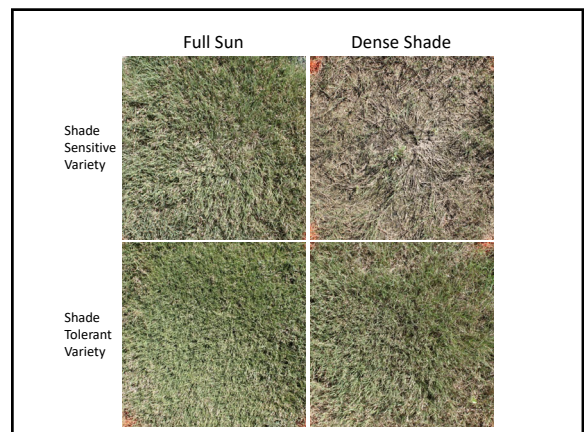
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Traffic Tolerance



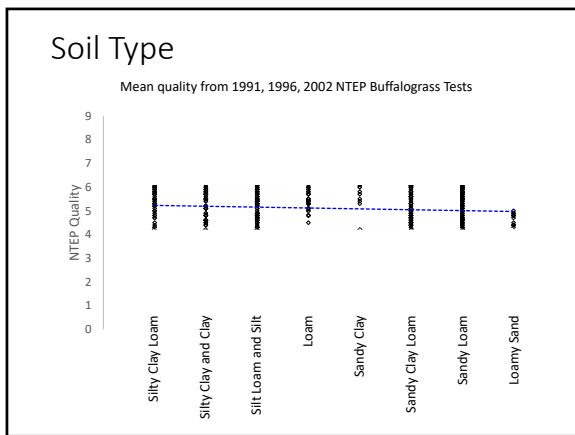
Traffic applied weekly June through October to mature buffalograss stand for two years

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Traffic tolerance



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RESEARCH REPORTS

Bur Seeding Rate Effects on Turf-type Buffalograss Establishment

over 1 month at rates of 20 to 40 g/m². These results indicate that bur seeding rates of 20 to 40 g/m² are advisable where rapid establishment of turf-type buffalograss is desired, and rates as low as 5 g/m² can be used when establishment within two growing seasons is deemed reasonable.

R.C. Shearman¹, H. Budak², S. Severmuth³, and R.E. Gaussoin⁴

Buffalograss is native to the Great Plains of North America, ranging from Mexico to Canada (Beetle, 1950; Reeder, 1971). It is

- Bowie at 0.5, 1.0, 2.0, 4.0, 8.0 #/PLS
- 4-8 #/PLS when rapid establishment is desired
- As little as 1.0 #/PLS is slower but not unacceptable if economics is critical

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HORTSCIENCE 37(3):xxx-xxx, 2002.

Planting Depth Effect on Emergence and Morphology of Buffalograss Seedlings

Neil L. Heckman¹, Garald L. Hors², and Roch E. Gaussoin¹
 Department of Agronomy and Horticulture, University of Nebraska-Lincoln, Lincoln, NE 68583-0724

this is not considered a measure of seedling vigor. Seedlings in a stand emerging near the same time and close to the planting date have greater vigor than seedlings emerging over a longer period of time and longer after the planting date. This measurement is called the emergence rate index and was first documented by Everts and Burns (1973). However, to fully evaluate a seedling population, both total emergence and seedling vigor must be considered in combination.
 Even with greater internode elongation in warm-season grasses, emergence decreases with relative depth (Peterson and Meyer

- 3 cultivars at 0.5, 1.0, 1.5, 2.0, 2.5 and 3.0" depth
- 0.5-1.0" best; go deeper (1.0") if site is not irrigated.

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HORTSCIENCE 37(2):371-373, 2002.

Nitrogen, Phosphorus, and Potassium Effects on Seeded Buffalograss Establishment

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 Department of Horticulture, Forestry and Recreation Resources, Kansas State University, Manhattan, KS 66506

Michael D. Frost³ and James H. Baird⁴
 Department of Horticulture and Landscape Architecture, Oklahoma State University, Stillwater, OK 74078

Additional index words: turfgrass, *Buchloe dactyloides*

Abstract. Field studies were conducted in Kansas, Nebraska, and Oklahoma in 1996 to evaluate the influence of nitrogen (N), phosphorus (P), and potassium (K) applied alone or

- KSU, OSU and UNL
- Establishment enhanced up to 150 #/acre N
- K, no effect; P depended on location
- 1-1.5 #/M preplant in a conventional starter fertilizer

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CROP PHYSIOLOGY & METABOLISM

Nitrogen Rate and Mowing Height Effects on Turf-Type Buffalograss


K. W. Frank,* R. E. Gaussoin, T. P. Riordan, R. C. Shearman, J. D. Fry, E. D. Miltner, and P. G. Johnson

- Established in UT, KS and NE
- 1.5 #N/yr “best” quality
 - 1 or 2 applications spaced 30-45 days apart during active growth
- 2-3 “best” mowing height

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Mowing Response

- Left unmown ~8-12”
- Certain cultivars can tolerate low mowing
- May improve spring greenup



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Irrigation

- Supplemental irrigation
 - limited moisture
 - higher maintenance
- Irrigate to maintain active growth
- Deep soaking during July and Sept may benefit high maintenance areas
- Occasional to no watering for low maintenance
- ~1” per month

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Overseeding Buffalograss Turf with Fine-Leaved Fescues

S. Severmutlu, T. P. Riordan, R. C. Shearman,* R. E. Gaussoin, and L. E. Moser

ABSTRACT

...tures exist in forage, pasture, and turfgrass areas (Stoutemeyer, 1953; Youngner, 1958; Wilkinson et al. 1968; ...

- **2-4 #/M**
- **blue >hard = chewings**
- **Single aeration pass followed by broadcast seeding**
- **Fall better than spring**
- **Recommendation**
 - Blue fescue
 - Establish buffalograss first
 - Fall seed at 1-2 lbs/M

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RESEARCH REPORTS

Colorant Effects on Dormant Buffalograss Turf Performance

R.C. Shearman¹, L.A. Wit², S. Severmutlu³, H. Budak⁴, and R.E. Gaussoin⁵

entering winter dormant (1973). Riordan (1991) acceptance of buffalograss, as species, was limited by its dormancy, particularly in climates. Colorants can dye dormant turfgrasses their green appearance or turfgrass performance (I Gibault, 1985; Van Dam, Dam and Kurtz, 1971; Yoi Fuchigami, 1958). Similar can be used as a temporary to enhance the appearance

- Appearance equivalent to adjacent cool season grasses
- Enhanced spring green-up

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Establishment Herbicides (old recommendation)

- Seeded
 - Plateau (do not exceed 2-4 oz/acre)
 - Princep (some label restrictions)

PAPERNO FROM HORTICULTURE, VOL. 24(4), JULY 1997
A Publication of the American Society for Horticultural Science, Alexandria, VA 22314
HortScience 32(4):683-686, 1997.

Buffalograss Establishment with Preemergence Herbicides

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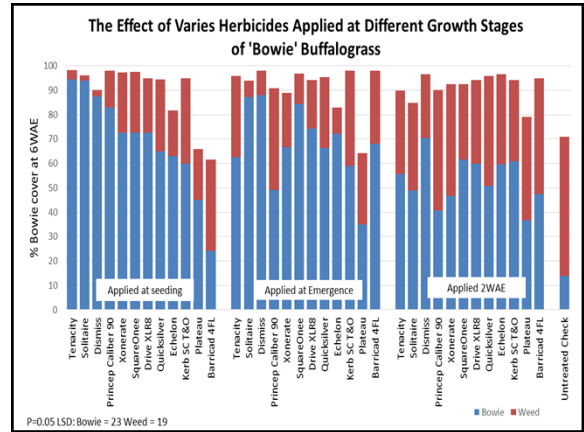
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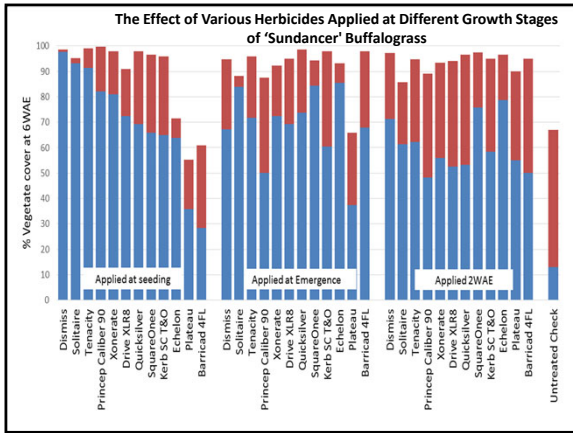
Materials and Methods
One experiment was conducted at the Rocky Ford Turfgrass Research Center in Manhattan, Kan. (KS), and two at the John Seaton Horticultural Research Facility in...

time of seeding was tolerant to cyanazine [2-[[4-chloro-6-ethylamino)-1,3,5-triazin-2-yl]amino]-2-methylpropanenitrile], mesalsulfuron [2-[[[[(4-methoxy-6-methyl)-1,2,3,5-triazin-2-yl]amino]carbonyl]amino]sulfonyl]benzoic acid], propanil [5-chloro-N,N'-bis(1-methyltetrahy-1,2,5-triazin-2-yl)diamine], and pyridithiobac [2-chloro-6-[(4,6-dimethoxy-2-pyrimidinylthio)benzoic acid]]. This study was conducted to evaluate selected preemergence herbicides that could be used to improve seeded buffalograss establishment.

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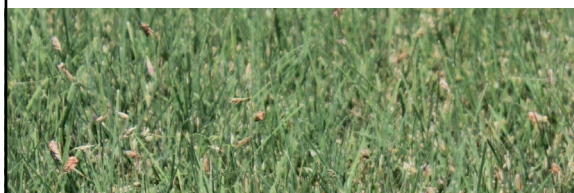
Broadleaf & Grassy Weed Control During 1st Year

- 1st year during establishment
 - Tenacity grassy weeds, broadleaves, sedges
 - Drive XLR8 grassy weeds, broadleaves
 - SquareOne grassy weeds, broadleaves
 - Solitaire grassy weeds, broadleaves
 - Quicksilver broadleaves
 - Dismis sedges, grassy weeds, broadleaves
 - Pre-emergence: season long weed control
 - prodiamine(60 DAS), pendimethalin (4 mowings 90 DAS)

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Established Buffalograss Weed Control

- Spring Preemergence (Essential application)
 - Proflaminate
 - Pendimethalin
 - Dithiopyr* (do not apply until second year after establishment)



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Herbicide Tolerance of Buffalograss

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Corresponding author: Ryan M. Goss, rgoss@nmsu.edu

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Application to established stand	Rate	Symbol	Reference
asulam	2.24	⊕	10
atrazine	2.2	●	4
benefin	3.4	○	4
benefin + oryzalin	1.7 + 1.7	○	4
benefin + trifluralin	2.3 + 1.1	○	4
DCPA	16.8	○	4
diclofop	1.12	○	10
dithiopyr	0.6	○	4
diuron	2.8	●	4
isoxaben	1.1	○	4
metolachlor	4.5	●	4
metsulfuron	0.017	○	10
MSMA	2.24	⊕	10
oryzalin	2.2	○	4
pendimethalin	3.4	○	4
proflaminate	1.7	○	4
quinclorac	0.56	○	10
sethoxydim	0.56	⊕	10
simazine	2.2	○	4

* Susceptibility: ● = susceptible, ⊕ = moderately susceptible and ○ = tolerant.
Y number refers to reference number in Literature Cited; Table 1 = modified from Table 1.

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Summer Weed Control

- Summer treatment
 - Choose your poison based on weeds present
- Least opportune time to manage weeds
 - Unightly weeds require treatment
- Potential damage
 - High heat
- Lucky! Many herbicides labeled for established buffalograss

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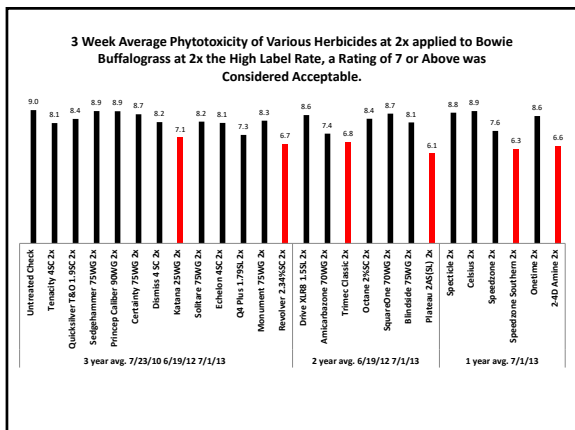
Summer application safety on established buffalograss

- 25 herbicides applied at high label and 2x
 - Bowie buffalograss stand
- Applied in above normal application temperatures
 - Mid-July

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Tenacity 4SC	8 fl oz/a	Drive XLR8 1.5SL	64 fl oz/a
Tenacity 4SC	16 fl oz/a	Drive XLR8 1.5SL	128 fl oz/a
Quicksilver T&O 1.95C	2.1 fl oz/a	Amicarbazone 70WG	5 oz/a
Quicksilver T&O 1.95C	4.2 fl oz/a	Amicarbazone 70WG	10 oz/a
Sedgehammer 75WG	1.33 oz/a	Trimec Classic	4 pt/a
Sedgehammer 75WG	2.66 oz/a	Trimec Classic	8 pt/a
Princep Caliber 90WG	1 lb/a	Dixtane 2HSC	2 fl oz/a
Princep Caliber 90WG	2 lb/a	Dixtane 2HSC	4 fl oz/a
Certainty 75WG	1.25 oz/a	SquareOne 70WG	18 oz/a
Certainty 75WG	2.5 oz/a	SquareOne 70WG	36 oz/a
Dismiss 4 SC	12 fl oz/a	Blindside 75WG	10 oz/a
Dismiss 4 SC	24 fl oz/a	Blindside 75WG	20 oz/a
Katana 25WG	3 oz/a	Plateau 2AS(SL)	8 fl oz/a
Katana 25WG	6 oz/a	Plateau 2AS(SL)	16 fl oz/a
Solitare 75WG	32 oz/a	Specticle	5 oz/a
Solitare 75WG	64 oz/a	Specticle	10 oz/a
Echelon 4SC	24 fl oz/a	Cerius	4.9 oz/a
Echelon 4SC	48 fl oz/a	Cerius	9.8 oz/a
D4 Plus 1.79SL	7 pt/a	Speedzone	4 pt/a
D4 Plus 1.79SL	14 pt/a	Speedzone	8 pt/a
Monument 75WG	0.53 oz/a	Speedzone Southern	4 pt/a
Monument 75WG	1.06 oz/a	Speedzone Southern	8 pt/a
Revolver 2.34NSC	0.8 fl oz/1000 ft ²	Onetime	64 fl oz/a
Revolver 2.34NSC	1.6 fl oz/1000 ft ²	Onetime	128 fl oz/a
		2-4D Amine	1.5 qt/a
		2-4D Amine	3 qt/a

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Glyphosate

- “dormant” glyphosate applications in the Spring can be disastrous
- Fall after “hard” frost not a problem
- Contact nonselective (diquat) acceptable

*Reprinted from Crop Science
Vol. 36, No. 4*

Basal Growth Temperatures and Growth Rate Constants of Warm-Season Turfgrass Species

J. B. Unruh, R. E. Gaussoin,* and S. C. Wiest

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Buffalograss Savings

- “No matter what we’ve done (or not done) to buffalograss, average quality was similar and only slightly less than more intensively managed cool-season Kentucky bluegrass and creeping bentgrass maintained as a golf course fairway”

Cole Thompson, PhD

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Where to from here for buffalograss?

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Sundancer

- Rapid establishment
- Broad adaptation range
- Enhanced turfgrass quality



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Rapid establishment

May 9th, 2012



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Rapid establishment

June 26th, 2012



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Rapid establishment

July 6th, 2012



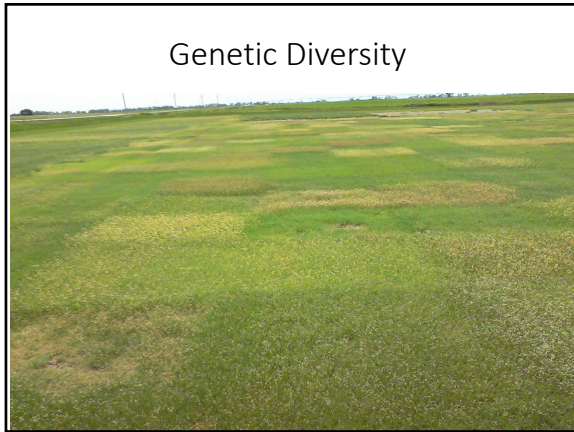
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Rapid establishment

August 8th, 2012



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Buffalograss Working Group
(past and present)

Bob Shearman, PhD	<i>Keenan Amundsen, PhD</i>
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<i>Roch Gaussoin, PhD</i>	Jeff Witkowski
Fred Baxendale, PhD	<i>Matt Sousek</i>
Zac Reicher, PhD	<i>Luqi Li</i>

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Acknowledgments

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GROUP

 **Nebraska Turfgrass Association**

 **USGA**

 **USDA** National Institute of Food and Agriculture
UNITED STATES DEPARTMENT OF AGRICULTURE

 **TODD VALLEY FARMS**

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Extension Presentations

2021

Reference: Biology, Turfgrass for the Health Care Field, University of Nebraska-Lincoln, TurfCareLink, August 10, 2021.
Reference: Horticulture, Research in Horticulture, Turfgrass for Health Care, TurfCareLink, and TurfCareLink, August 10, 2021.
Reference: Horticulture, Research in Horticulture, Turfgrass for Health Care, TurfCareLink, and TurfCareLink, August 10, 2021.
Reference: Horticulture, Research in Horticulture, Turfgrass for Health Care, TurfCareLink, and TurfCareLink, August 10, 2021.
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