

# Alternative Turf Species for Reducing Water Use and Mowing

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# Sustainable Turf Species

## Most Desirable Characteristics

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- Drought tolerant
- Reduced mowing frequency
- Spread aggressively – Compete against weeds
- Do not spread aggressively – Maintenance
- Reasonably priced or cost effective
- Also:
  - Tolerant of foot traffic
  - Green year-round – minimal dormancy

# Turf Demonstration Project Species / Irrigation Study

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- Compare 3 species / blends...
  - Tall fescue / Kentucky bluegrass blend
  - 'UC Verde' buffalograss
  - Field sedge (*Carex praegracilis*) /  
Dune sedge (*Carex pansa*)
- ...under 3 irrigation treatments
  - 80%, 60%, and 40% ET

# Turf Demonstration

## Native Grasses

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- Compare Calif. native grasses
  - Seashore bentgrass (*Agrostis pallens*)
  - Hall's bentgrass (*Agrostis hallii*)
  - Molate red fescue (*Festuca rubra* 'Molate')
  - Tufted hairgrass (*Deschampsia caespitosa*)
  - June grass (*Koeleria macrantha*)
  - Blue grama (*Bouteloua gracilis*)
- Evaluations
  - Mowing frequency, clipping weight, visual

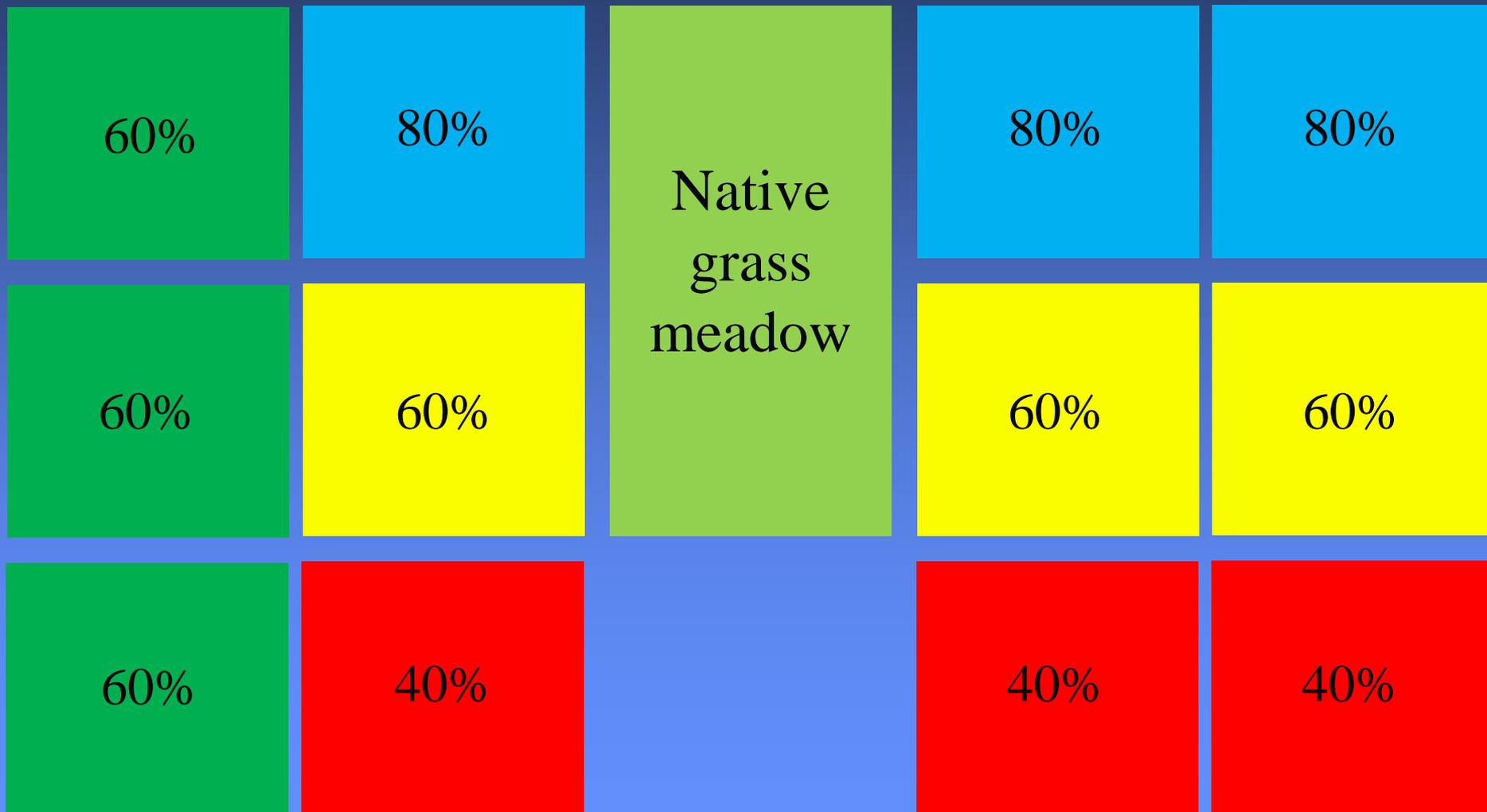
# Turf Demonstration

Planted Sept. 2010

Agrostis	Field sedge	Native grass meadow	UC Verde Buffalo	Tall Fescue
	Dune sedge			
Molate	Field sedge		UC Verde Buffalo	Tall Fescue
T. hairgrass	Dune sedge			
Junegrass	Field sedge		UC Verde Buffalo	Tall Fescue
Blue grama	Dune sedge			

# Irrigation

July 28 – Sept. 23



# Irrigation

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- ETo = Reference evapotranspiration
- Local data from UC IPM web site
- Watered every 4 days
- Standards:
  - » 80% for cool-season grasses
  - » 60% for warm-season grasses

# Irrigation Summer 2010



# Compost, Nozzles, and Borders



# Sod - Tall Fescue Blend

All planting - Sept. 23, 2010



# 'UC Verde' Buffalograss



Other varieties  
available too  
(‘Legacy’, ‘Prestige’)



Unmowed

Mowed

# 'UC Verde' Buffalograss

## Characteristics

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- Buffalograss native to U.S.
- UC Verde developed by UC, 2003
- Max. height: 4-8 inches
- Infrequent mowing (2-3 wks.); can be mowed once a year
- Highly drought resistant – “Up to 75% water use reduction”
- Winter dormancy

# 'UC Verde' Buffalograss Planting Scheme

## July Planting, Fresno



UC Verde  
Plugs



2 weeks



4 weeks

6 weeks



Sept. 2009



# Graduate School of Management, UC Davis

'UC Verde' Buffalograss

June 2010



Feb. 2011



# 'UC Verde' Buffalograss



Spreading  
(stolons)

# UC Verde Buffalograss



July



August  
-before mowing

August  
-after mowing



# UC Verde Buffalograss

## Jan. 2012



# Carex Species for Turf



Field sedge (*C. praegracilis*)  
Dune sedge (*C. pansa*)  
Texas sedge (*C. texensis*)



*C.  
praegracili*

s



# Sedge Family



Triangular  
blades & seeds



# Carex Turf Species

## Characteristics

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- Native throughout U.S. and Calif.
- Taxonomy is ambiguous; much variation
- Most in hort. trade were collected from dunes in Central Calif. coast
- Drought tolerant (?)
- Summer dormancy (?)

# Carex



*C. pansa*

*C. praegracilis*



Spreads  
slowly  
(rhizomes)

# Rust on *Carex*

Feb. 2011

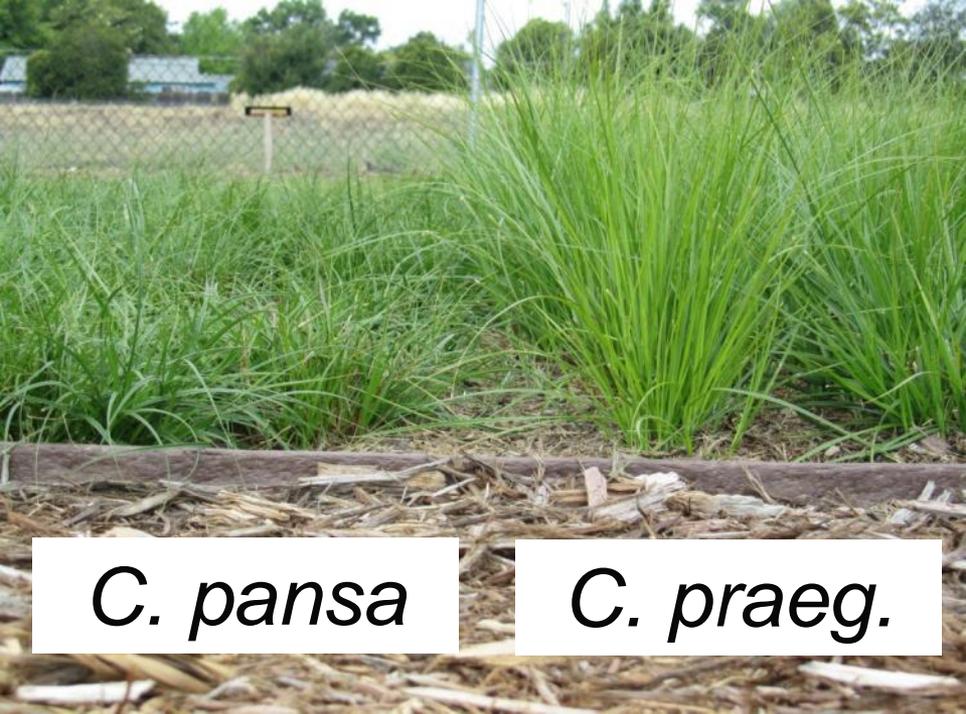


*C. pansa*

*C. praegracilis*



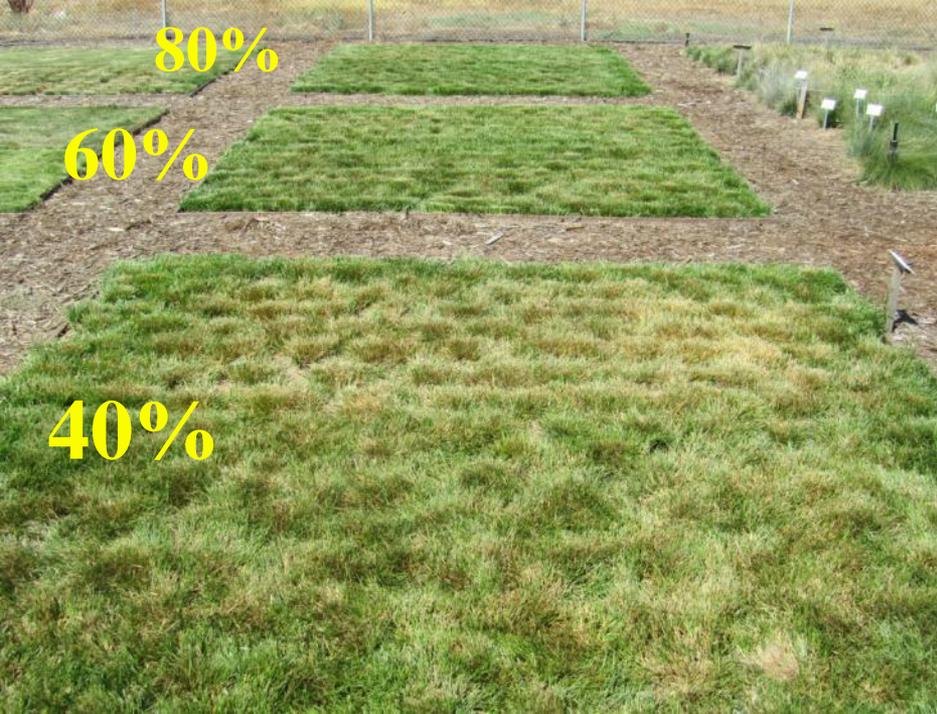
Carex  
May 2012



*C. pansa*

*C. praeg.*





# Carex Under Stress Late August 2011

80%  $ET_0$   
(some dormancy)



40%  $ET_0$



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# California Native Species

# Molate Red Fescue

*Festuca rubra* 'Molate'



- Fine texture, upright growth
  - Tolerant of many soils
  - Native of coastal areas
  - Inactive (dormant?) in Central Valley heat





# Tufted Hairgrass

*Deschampsia caespitosa*

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- A densely tufted, rather short-lived bunchgrass, growing 2 to 4 feet tall
- Forage species
- Tolerates poor drainage

Left: Tufted Hairgrass  
Right: Molate Fescue

May 2011



Sept. 2011  
(60% ETo)



# Bentgrass (*Agrostis*)

- “Bent”: Shallow roots, bend just below the soil surface, grow laterally
- Fairly tolerant of shade
- Withstands low mowing heights
- Tolerates some traffic (rhizomes)
- *A. stolonifera* used for putting greens

*Agrostis  
hallii*



*Agrostis  
pallens*

# Native Bentgrass Spp. *Agrostis*



*A. hallii*  
(plugs)

*A. pallens*  
(seeded)



Sept. 2011  
(60% ETo)

# Blue Grama

*Bouteloua gracilis*



- Large component of grass prairies
- Used in landscapes
- Clumping and spreading
- Fully dormant in winter





# Blue Grama

*(Bouteloua  
gracilis)*



# Blue Grama (left)

Jan. 2012



# Junegrass

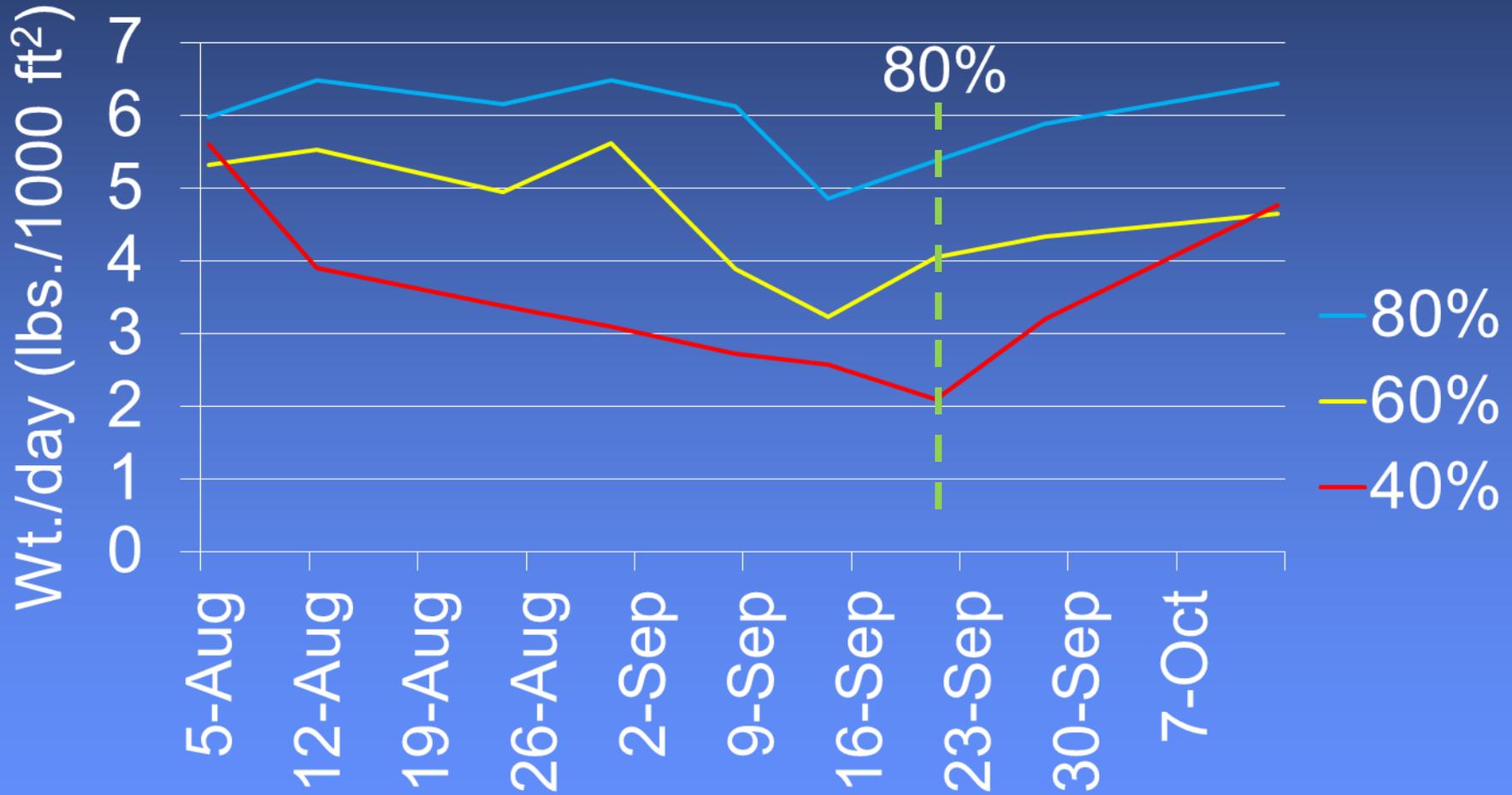
*Koeleria macrantha*



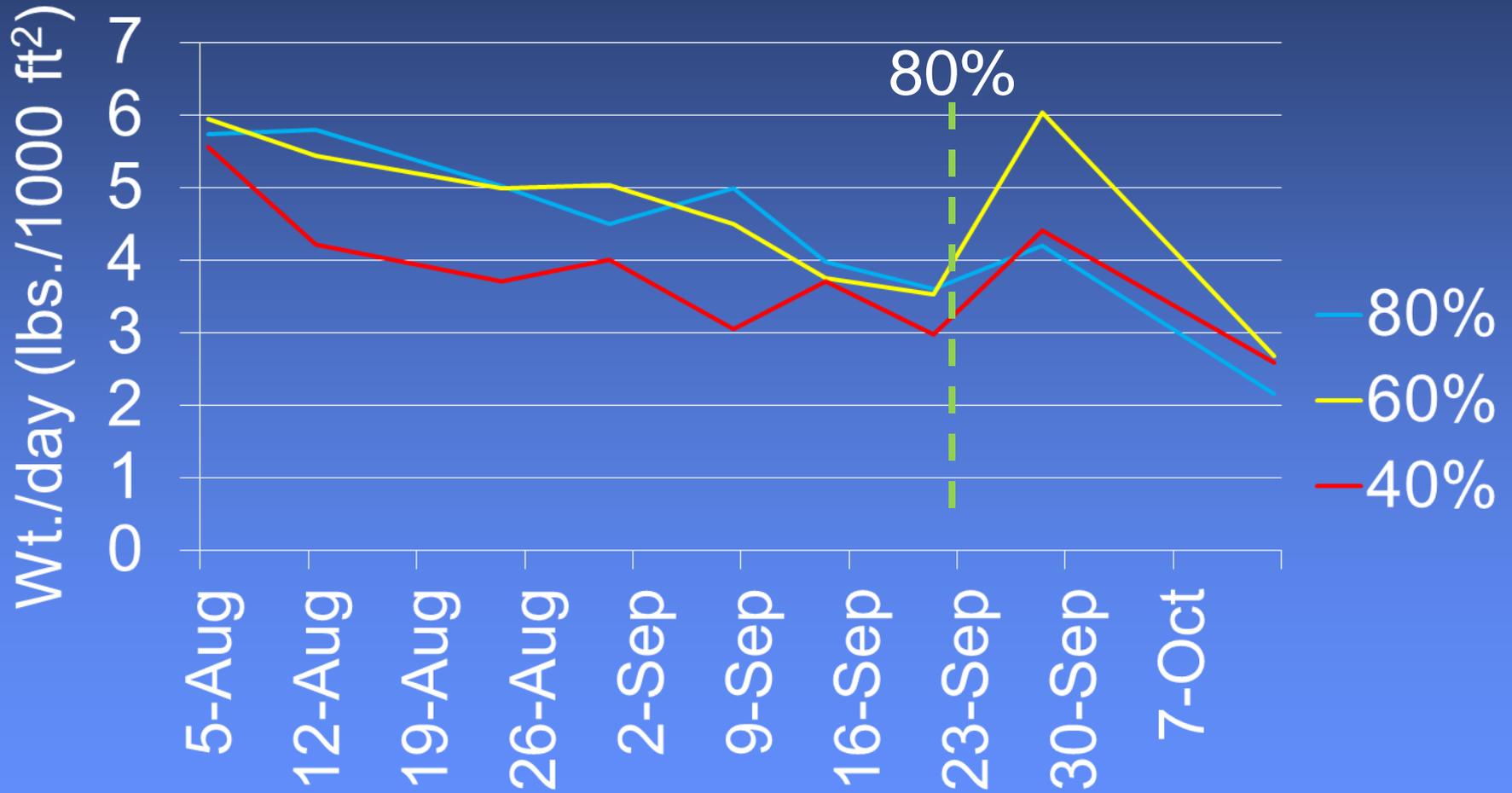
- Tufts of narrow bluish-green blades
- Does not tolerate heavy, wet soils
- Great left unmowed, not a good turf



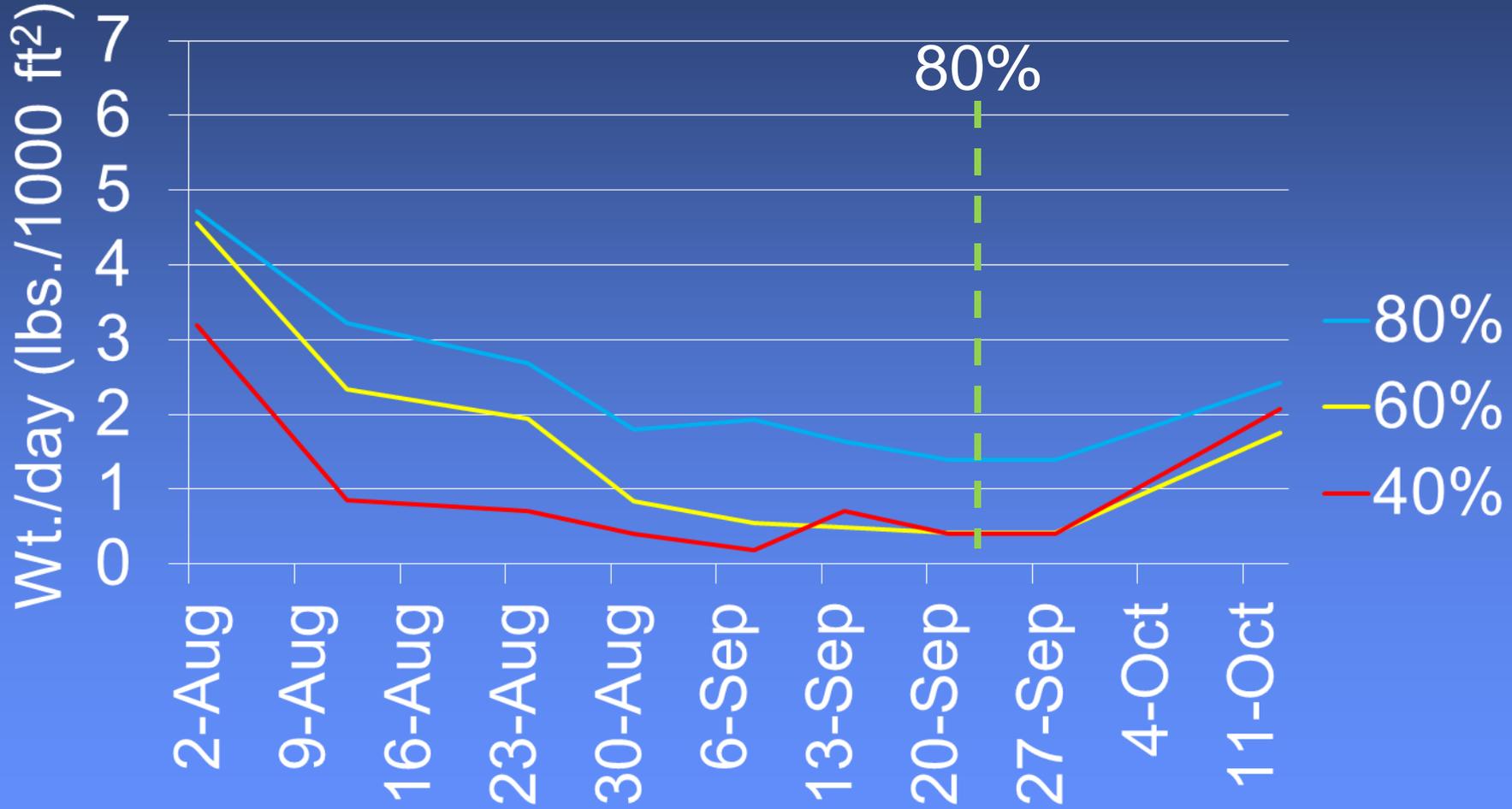
# Fresh Clipping Weights Tall Fescue



# Fresh Clipping Weights UC Verde

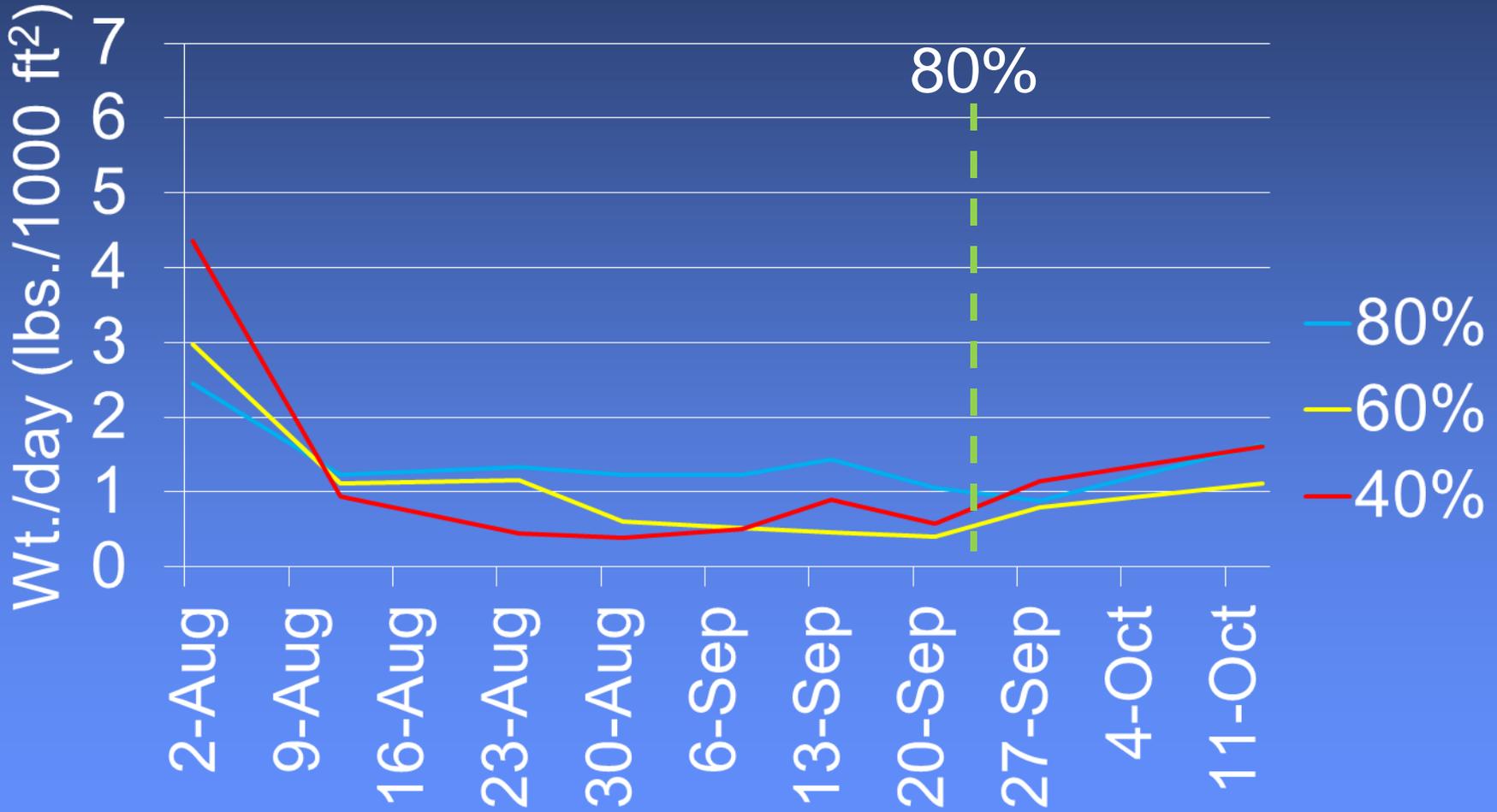


# Fresh Clipping Weights Field sedge (*Carex praegracilis*)



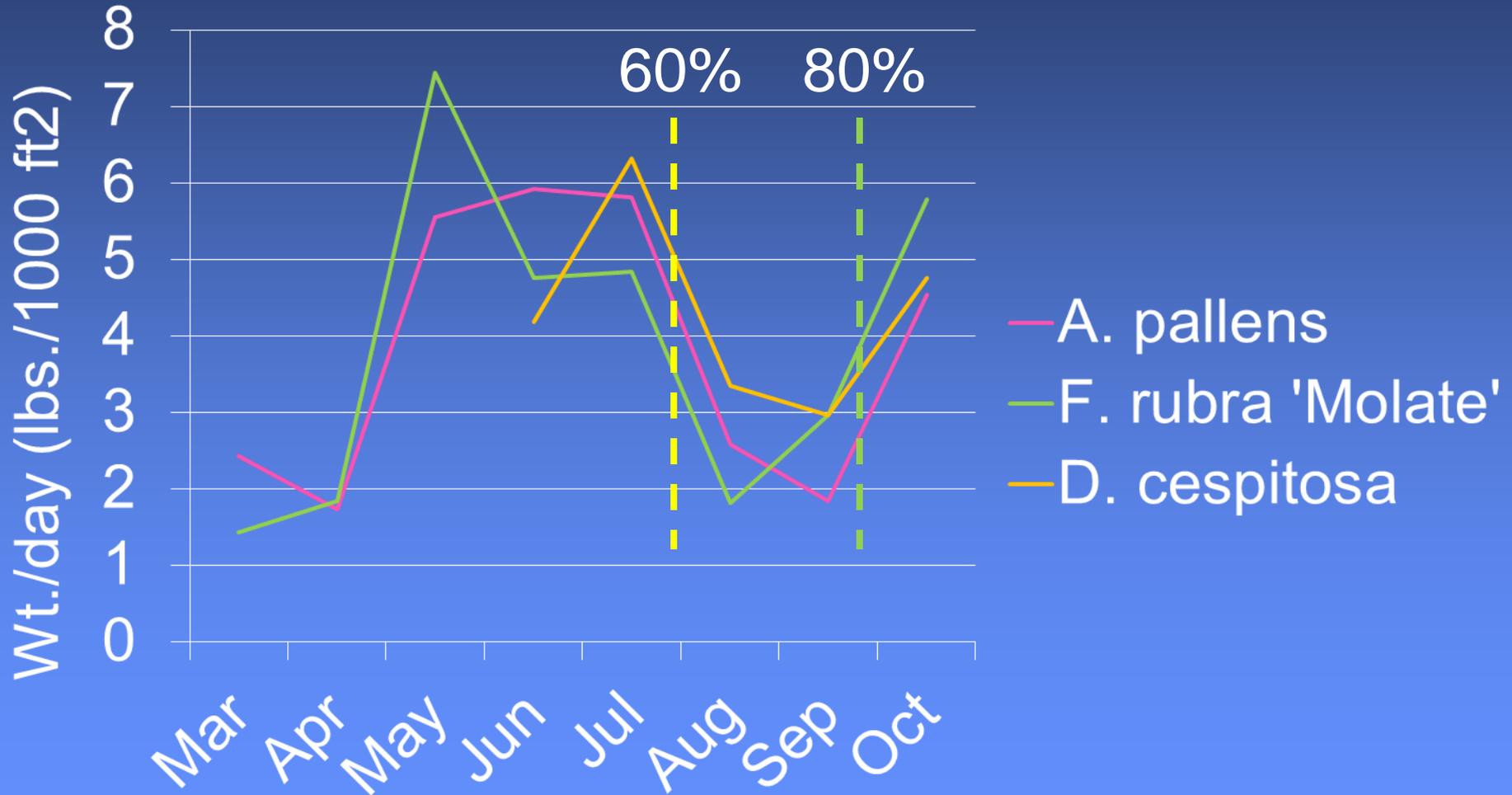
# Fresh Clipping Weights

## Dune sedge (*Carex pansa*)



# Fresh Clipping Weights

## Native grasses



# Turf Demonstration

## Conclusions – 2011

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- Tall fescue dark green, but needs water!
- UC Verde promising for reducing water use
- Dune sedge also promising vs. field sedge:
  - » Less growth, less rust, mowed turf softer
- Several native grasses promising, but have some dormancy and require full watering to keep green (year 1 data)