

2007 USDA-CSREES National Water  
Conference, Savannah, GA

# Irrigation Requirements of Low Water Use Turfgrasses in 2 Climate Zones

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## PLANT SCIENCE NEWS

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# Water War Enters New Stage

San Juan-Chama Project and the



San Juan-Chama Project and the Corps League El Perro Diablo detachment, including Jesse Rodriguez, left, stand at attention at Veterans Park during commemorating Victory over Japan Day. The featured speakers were Pearl Harbor survivor Stanley Kotovsky and University Army ROTC professor Lt. Col. Frank Sherman.

Chairman Gregory Apolonia wanted to limit Pecos Hills to Garza's district. Because Garza is a Democrat, and Pecos Hills is heavily Republican, Garza suggested such a change would hurt his chances for re-election in 2002. Garza will be the only commissioner running for re-election next year.

Apolonia did not respond to Garza's accusations during the questioning of Sharp, but earlier in the meeting he said he had no input into the proposed plans. Sharp said his company did meet with a commissioner. But when Garza asked Sharp to reveal the name of the commissioner, Sharp declined to answer, citing confidentiality rules. Garza did not pursue the question any further.

He asked Sharp if he was aware that when Research and Polling Inc. entered its contract with the county, the firm presented a time line for meeting with all the commissioners to get input into the

See Restricting, Page A-7

**SHORT ON WATER:** A federal judge's ruling will keep the Rio Grande, soon here looking north from the Montano Bridge in Albuquerque, flowing for the endangered silvery minnow.

SON/JOURNAL

## How Bad Is The Drought

Craig Runyan  
Water Quality Coordinator

Areas throughout the country are experiencing drought conditions. The situation is particularly disturbing to residents east of the Mississippi, where drought is generally not considered a threat. Some state and local



New Mexico State University is an equal opportunity institution. NMSU and the U.S. Dept.

# Officials grapple with limited water

By Christopher Schurtz  
Sun-News

Debated and fought over for decades, the complex issues surrounding water rights in the Texas, New Mexico and Mexico region are far from being resolved.

And the rapid population growth of the region will likely exacerbate tensions over water rights in the coming years if a more coordinated effort at settlement is not made.

This is one sentiment agreed on by a panel of area water experts Tuesday during a hearing of the Senate Energy and Natural Resources Committee at New Mexico State University, hosted by committee chairman Sen. Jeff Bingaman, D-N.M.

Bingaman said the population of the region, according to the most recent census figures, has grown at a rate exceeding other areas of the country.

Combined with an already scarce supply of clean, available water in most areas in the region, he said, the increased demand that will come with the population boom will further strain the water supply.



Sen. Jeff Bingaman, D-N.M., speaks before members of the Mesilla Valley Economic Alliance and the Rotary Club on Tuesday at the Mesilla Valley Best Western Inn.

## Bingaman says alternative fuels, research needed

By Christopher Schurtz  
Sun-News

Sen. Jeff Bingaman, D-N.M., criticized several energy policy decisions made by President George W. Bush, saying more must be done in pursuing "enlightened policies" concerning energy production and conservation.

In town Tuesday to host a hearing of the committee concerning water issues, Bingaman spoke of his energy plan to a packed room before area political and social leaders and members of the Mesilla Valley Economic Alliance and the Rotary Club.

The chairman of the U.S. Senate Committee on Energy and Natural Resources, Bingaman said he disagrees with the Bush administration's proposals to drill for oil in the Alaskan National Wildlife Refuge Alaska.

opardy

# DROUGHT MANAGEMENT



5/12/00

## Las Campanas uses thirsty, drought-intolerant grasses

By ANNE CONSTABLE/The New

grass bentgrass and bluegrass. In fact, he said, bentgrass uses less water than bluegrass and ryegrass grows best at higher temperatures, between 80 and 95 degrees.

# Councilors Want To Ban Thirsty Grasses

## Proposal Aims To Save Water

By DAN MCKAY  
Journal Staff Writer

Two city councilors plan to propose a host of new water-conservation measures, including a ban on the sale or installation of bluegrass and other high-water-use turf in Albuquerque.

quereque.

Councilors Eric Griego and Michael Cadigan stressed that the proposal is not yet in its final form. But they said it could be ready for introduction at a council meeting as early as next week. It would likely be sent to a committee.

"We need to get real serious about water conservation," Cadigan said in an interview Monday.

Under the proposal, he said,

restrictions on bluegrass would have exceptions. Parks, playgrounds and parts of golf courses, for example, could keep high-water-use grass.

Homeowners who have bluegrass could keep it. But those planting new grass would have to use a less thirsty variety, such as fescue or a fescue blend.

"People put (bluegrass) in and then spend a ton watering it," Griego said. "This is a first

step in revisiting our water policy."

Albuquerque already has a host of water-conservation measures, such as daytime restrictions on watering during the summer. The city also offers incentives for voluntary efforts to conserve water, such as replacing lawns with drought-tolerant landscapes or installing low-flow toilets.

The conservation rules are part of a plan to slow depletion

of the aquifer, which is currently the city's sole source of water.

Mayor Martin Chávez said earlier this year that the city is studying what additional conservation measures would be needed to bring Albuquerque's water use in line with other Southwestern cities. The city's current goal is to reduce water use to 175 gallons per person

See COUNCILORS on PAGE A3

# Grasses



Ornamental Grasses  
Native Grasses  
Low-input Grasses



Turfgrasses



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# Summer Mean Evapotranspiration Rates of Different Turf Species

ET rate		Cool season	Warm season
in/wk	mm/day		
2.0 – 3.5	7.2 – 12.6	Tall Fescue	
1.8 – 3.1	6.6 – 11.2	Perennial ryegrass	
1.7 – 2.2	6.2 – 8.1		Seashore paspalum
1.6	5.7		Blue grama
1.5 – 2.0	5.3 – 7.3		Buffalograss
1.0 – 2.2	4.0 – 8.7		Bermudagrass
1.3 – 2.1	4.8 – 7.6		Zoysiagrass
1.1 – 1.8	4.1 – 6.6	Kentucky bluegrass	

Gaussoin, 2003



# Water Use vs. Drought Resistance

Water Use (ET) is not synonymous with the plant's ability to resist drought

## Drought avoidance:

- Ability to avoid tissue damaging water deficits
- o Deep root system
  - o Reduced leaf area (rolled, folded leaf blades)
  - o Leaf orientation and extension
  - o Bermudagrass
  - o Seashore paspalum
  - o Tall fescue

## Drought tolerance:

- Ability to endure low tissue water deficits
- ❖ Hardiness to low tissue water deficits
  - ❖ Escape
  - ❖ Buffalograss dormancy
  - ❖ St. Augustinegrass high dehydration tolerance



# Strategies to Reduce (Potable) Irrigation Water Consumption for Turf

1. Artificial Turf
2. Use of adapted / native (low water use) turfgrass species
3. Irrigation with non-potable/impaired water
4. Accept quality reduction
5. Increase irrigation efficiency
  - I. Scheduling
    - a) Climate data
    - b) Soil water status
  - II. Improve Water Distribution

# Objective

Assess the effects of limited irrigation on visual quality of low maintenance turfgrasses in two different climate zones

# Material and Methods

- 1) 2 Locations
  - A. Tucumcari, NM (6B: -5 to 0F; 4115 ft)
  - B. Riverside, CA (9B: 25 to 30F; 1020 ft)
- 2) Warm and cool season grasses
- 3) Irrigated at 70% PET  
(calculated weekly)
- 4) Fertilized 1 lbN/1000ft<sup>2</sup>
- 5) 3" Mowing height

# Data

- 1) Visual Rating for Color and Quality from 1=worst to 9=best
- 2) Collected every 2 weeks

# Cool Season Grasses

<i>Poa arachnifera x poa pratensis</i>	Hybrid Texas bluegrass	HB342
<i>Festuca arundinacea</i>	Tall fescue	Southeast
<i>Festuca longifolia</i>	Hard fescue	Hardtop
<i>Poa compressa</i>	Canada bluegrass	Barpressa
<i>Deschampsia cespitosa</i>	Tufted hairgrass	Barcampsia
<i>Koeleria macrantha</i>	Crested hairgrass	Barleria
<i>Elymus junceus</i>	Russian wildrye	Bozoisky

# Warm Season Grasses

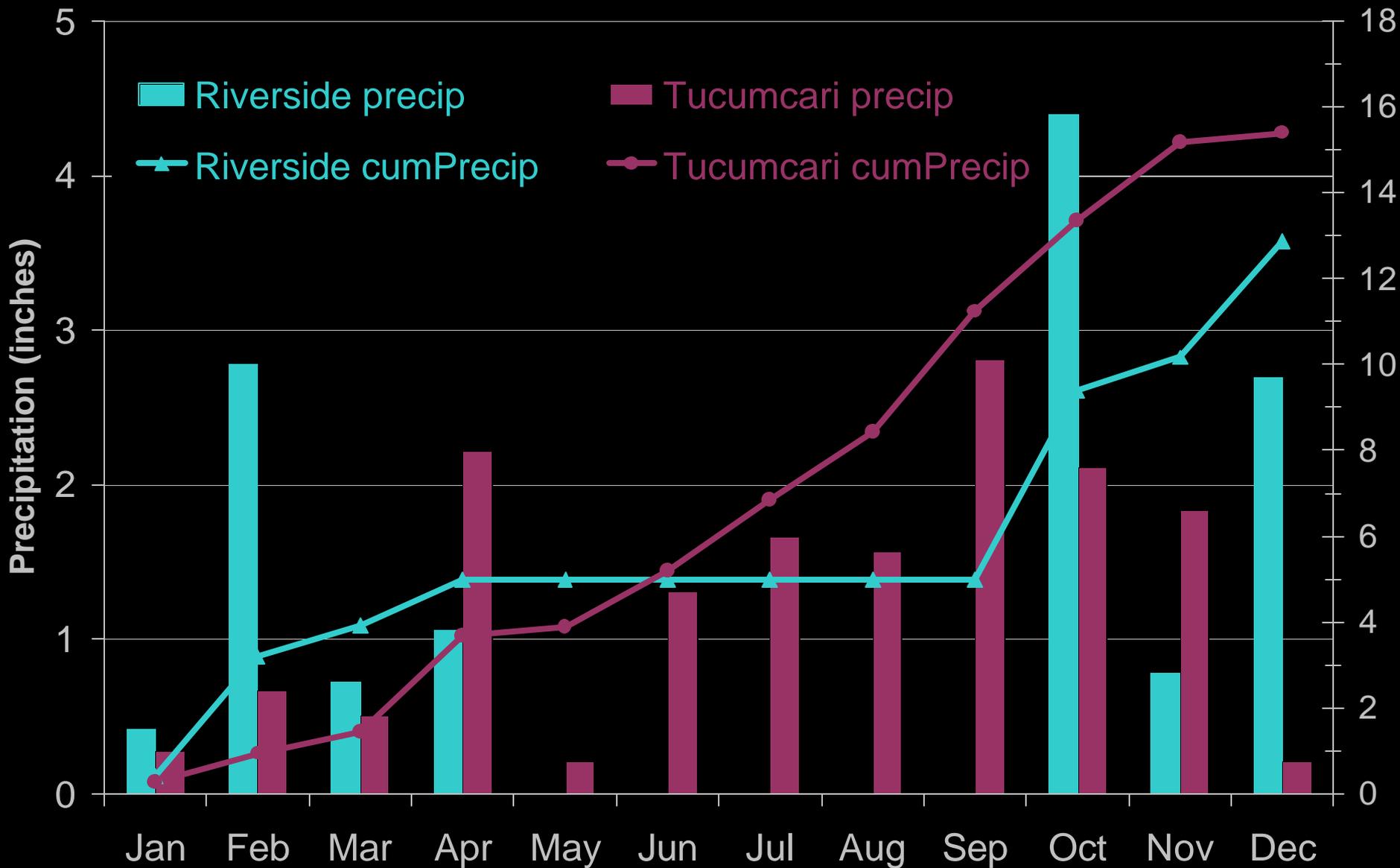
<i>Bouteloua gracilis</i>	Blue grama	Alma & Hachita
<i>Bouteloua eriopoda</i>	Black grama	
<i>Bouteloua curtipendula</i>	Sideoats grama	Vaughn
<i>Cynodon dactylon</i>	Bermudagrass	Sahara & Princess
<i>Distichlis spicata</i>	Saltgrass	A137 & A138
<i>Buchloe dactyloides</i>	Buffalograss	SWI 2000, Legacy, Cody
<i>Zoysia japonica</i>	Zoysiagrass	De Anza & Zenith
<i>Muhlenbergia wrightii</i>	Spike muhly	El Vado



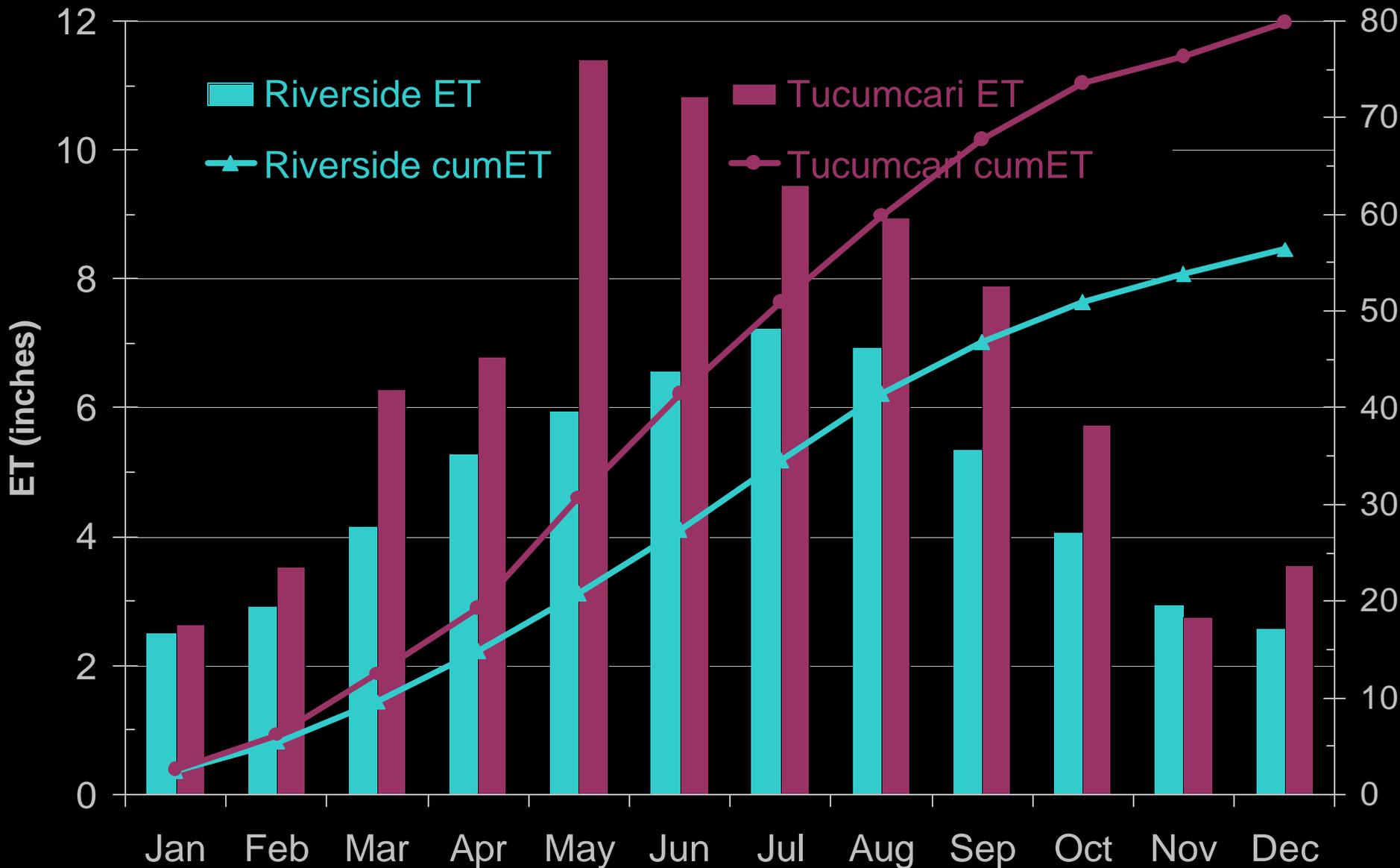




# 2004 Precipitation



# 2004 Evapotranspiration (ET)



# Results - Color

Tucumcari		Color	Color	Riverside	
Hard fescue	Hardtop	7.0A	4.9	DT12	Sporobolis
Hybrid Texas bluegrass	HB 342	6.6B	4.7	HB 342	Hybrid Texas bluegrass
Crested hairgrass	Barleria	6.2C	4.7	Princess	Bermuda-grass
Sideoats grama	Vaughn	4.3I	3.7	Cody	Buffalograss
Black grama	Black grama	3.8J	3.6	Barpressa	Canada bluegrass
Zoysiagrass	De Anza	3.3K	3.6	Legacy	Buffalograss

# Results - Quality

Tucumcari		Quality	Quality	Riverside	
Hard fescue	Hardtop	7.0A	6.5A		Seashore Paspalum
Hybrid Texas bluegrass	HB 342	6.9A	5.1B	Princess	Bermuda-grass
Bermuda-grass	Princess	6.5B	4.9B	Sahara	Bermuda-grass
Zoysiagrass	De Anza	5.4J	3.2H	Bozoisky	Russian wildrye
Zoysiagrass	Zenith	5.4J	3.1HI	A138	Saltgrass
Black grama	Black grama	4.8K	2.9I	Alma	Blue grama

# Summary

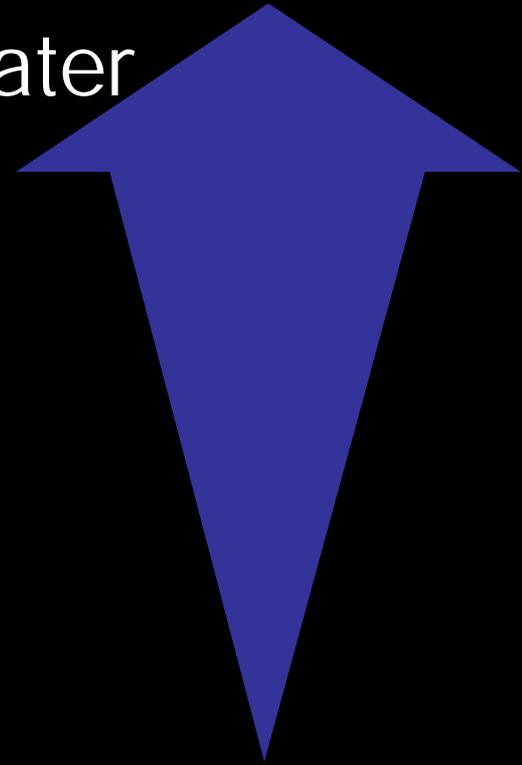
- 1) Color and quality ratings for top 3 performing grasses higher in Tucumcari than in Riverside
- 2) Cool season grasses were top 3 performing grasses in Tucumcari
- 3) Low maintenance grasses such as blue grama, black grama, and buffalograsses rate lowest in Tucumcari and Riverside

# Conclusion

- 1) Given the same reduced amount of irrigation water “high water use grasses” performed better than “low water use grasses”
- 2) This indicates that traditional cool season grasses may need less water than historically been thought
- 3) In order to make useful recommendations, regional testing under water limiting conditions is necessary

# Strategies for (Potable) Irrigation Water Conservation

- 1) Substitute with non-potable water
- 2) Adjust quality expectations
- 3) Improve water delivery and/or distribution
- 4) Irrigation scheduling
- 5) Species/cultivar selection



# Acknowledgements

