

How I Saved 72 Million Gallons of Water Annually

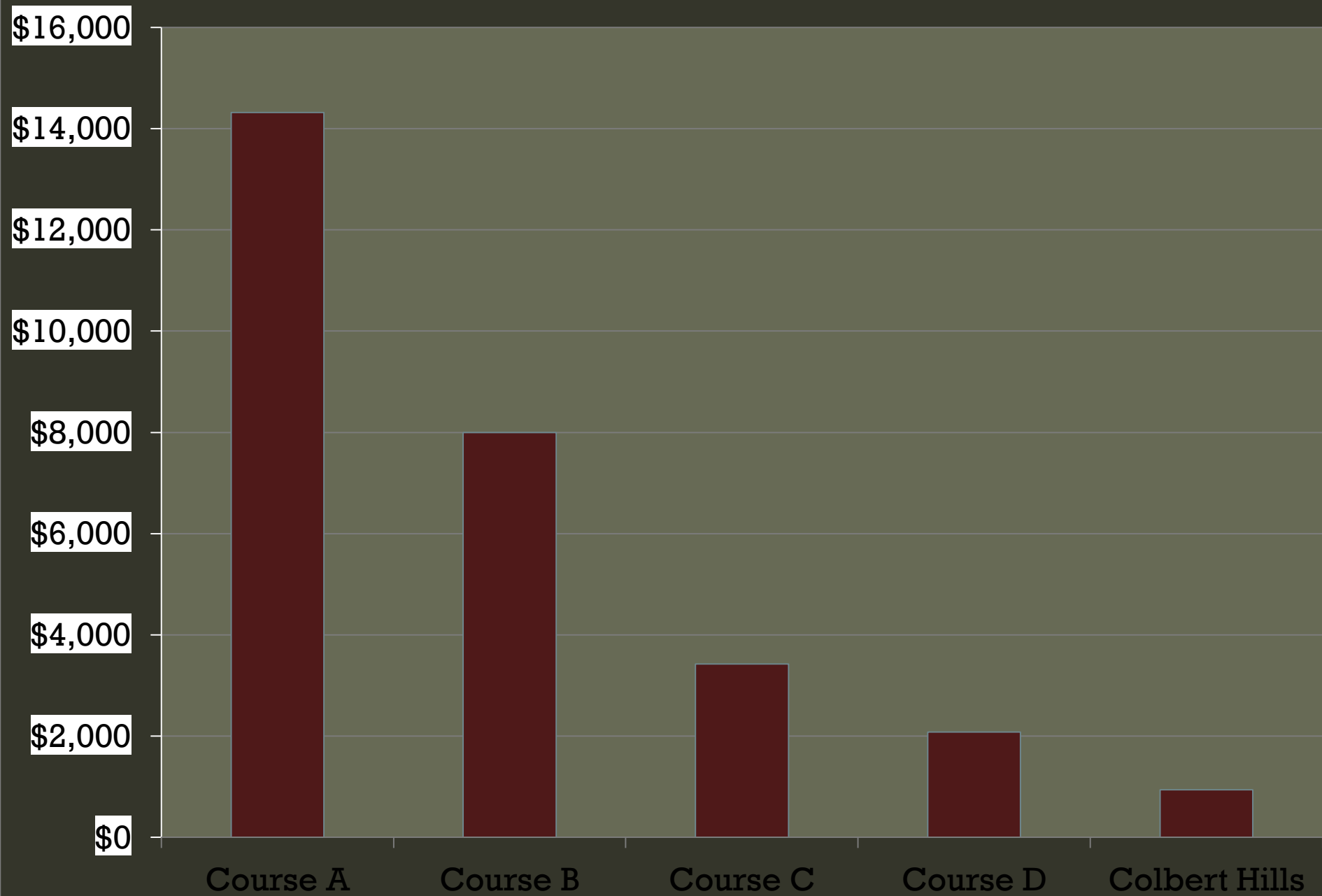
Matthew Gourlay CGCS
@mattgourlaycgcs

Moneyball

● *There are rich teams, and there are poor teams. Then there's 50 feet of crap. And then there's us. – Billy Beane*

MONEYBALL
IN THEATERS SEPTEMBER 23

Maintenance Budget per Acre



Water Management Plan

- ◉ Water Conservation
- ◉ Developing a Conservation Ethic
- ◉ Water Efficiency Practices
- ◉ Irrigation Water Management
- ◉ Weather Station
- ◉ Irrigation System

Developing a Conservation Ethic

- ◉ Superintendent
- ◉ Turf Team
- ◉ General Manager
- ◉ Golf Professional
- ◉ Greens Committee
- ◉ Board
- ◉ Members

Soils

- Kansas Soils:
Exceptional Quality
- Agriculture is largest
industry
- Wheat











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Par 5

Colbert Hills

Irrigation

- RainBird
- 1,870 Heads 2017
- 2,805 Heads 2000



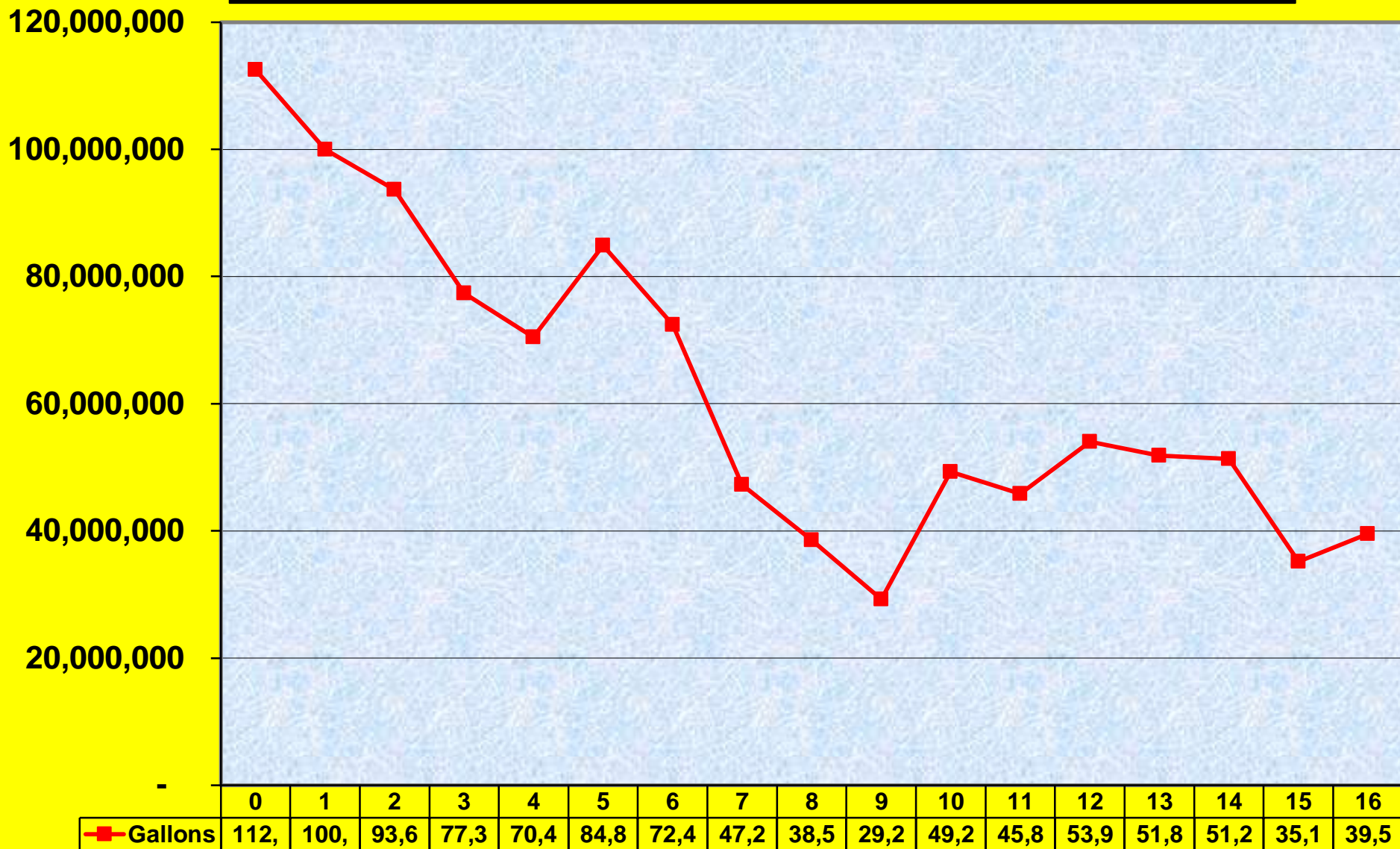




Water Quality



Colbert Hills Irrigation Use Gallons





Turfgrass

- ◉ 40 Native Grasses (Tallgrass Prairie)
- ◉ Zoysiagrass
- ◉ Bermudagrass
- ◉ Tall Fescue
- ◉ Fine Fescue
- ◉ Kentucky Bluegrass
- ◉ Perennial Ryegrass
- ◉ Creeping Bentgrass
- ◉ Colonial Bentgrass



Burning

- ◉ Removes old growth
- ◉ Controls invasive species
- ◉ Nutrient replenishment
- ◉ Improved wildlife
- ◉ Promotes prairie grass
- ◉ Finds Irrigation Heads















Great way to find irrigation heads to be removed



Plant Hardiness













Summer of 2012

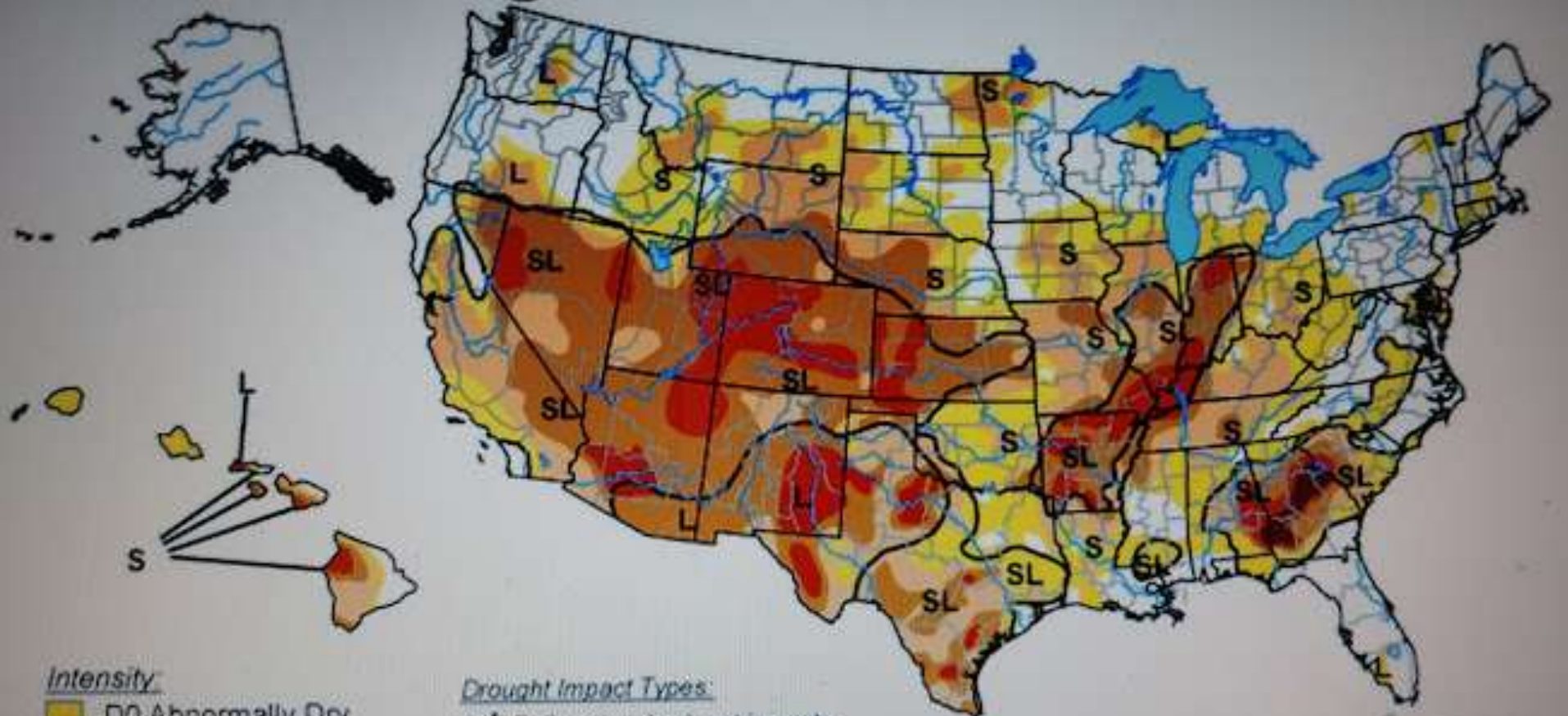
- Hottest on record
- Worst drought since the 50's



U.S. Drought Monitor

June 26, 2012

Valid 7 a.m. EDT



Intensity

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types

- Delineates dominant impacts
- S = Short-Term, typically <6 months
(e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months
(e.g. hydrology, ecology)

USDA



J.S. Drought Monitor

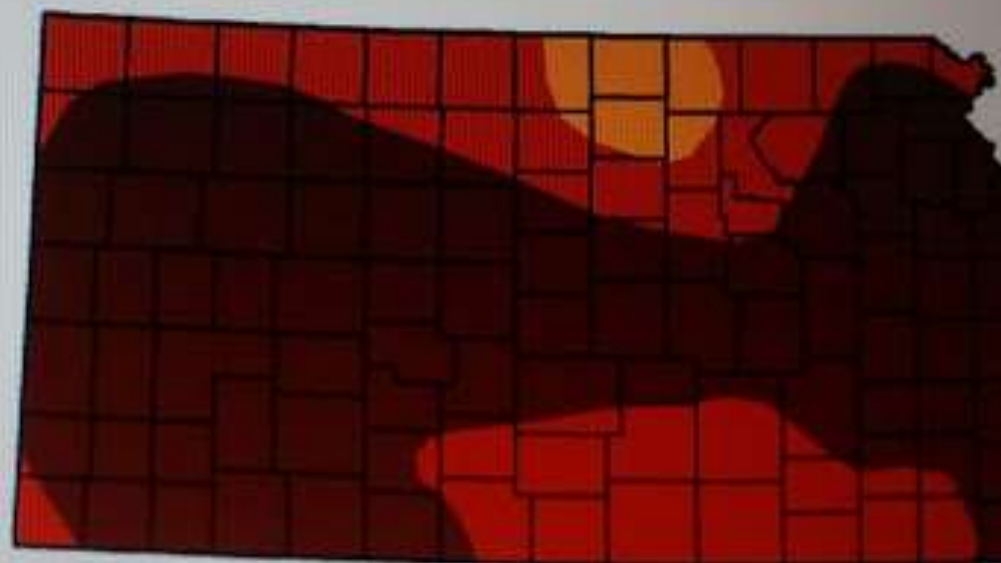
Kansas

August 21, 2012

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	100.00	96.43	66.93
Last Week (08/14/2012 map)	0.00	100.00	100.00	100.00	89.84	63.30
3 Months Ago (05/22/2012 map)	15.30	84.70	13.27	2.36	0.03	0.00
Start of Calendar Year (12/27/2011 map)	42.48	57.52	47.15	23.21	12.79	0.22
Start of Water Year (09/27/2011 map)	16.39	83.61	66.03	48.78	28.54	17.63
One Year Ago (08/16/2011 map)	26.90	73.10	64.14	44.28	23.60	14.55



Intensity



Drought Monitor focuses on broad-scale conditions.

UCDA



Drought in Kansas

- ◉ 18.64 inches of rain
- ◉ Purchase water
- ◉ 51 million gallons of additional water
- ◉ This would be enough water to cover the football field at Bill Snyder Stadium 119 feet tall costing \$140,000
- ◉ 18 days to apply through irrigation.



● May 18, 2012 Drought Conditions



June 27, 2012















Before & After



















Colbert Hills

- Irrigated Turf in 2000 - 144.2069 Acres
- Irrigated Turf in 2017 – 76.0811 Acres



Thank You

Matthew Gourlay CGCS
Director of Golf Course Operations
Colbert Hills Golf Course
@mattgourlaycgcs