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Ag Water Conservation

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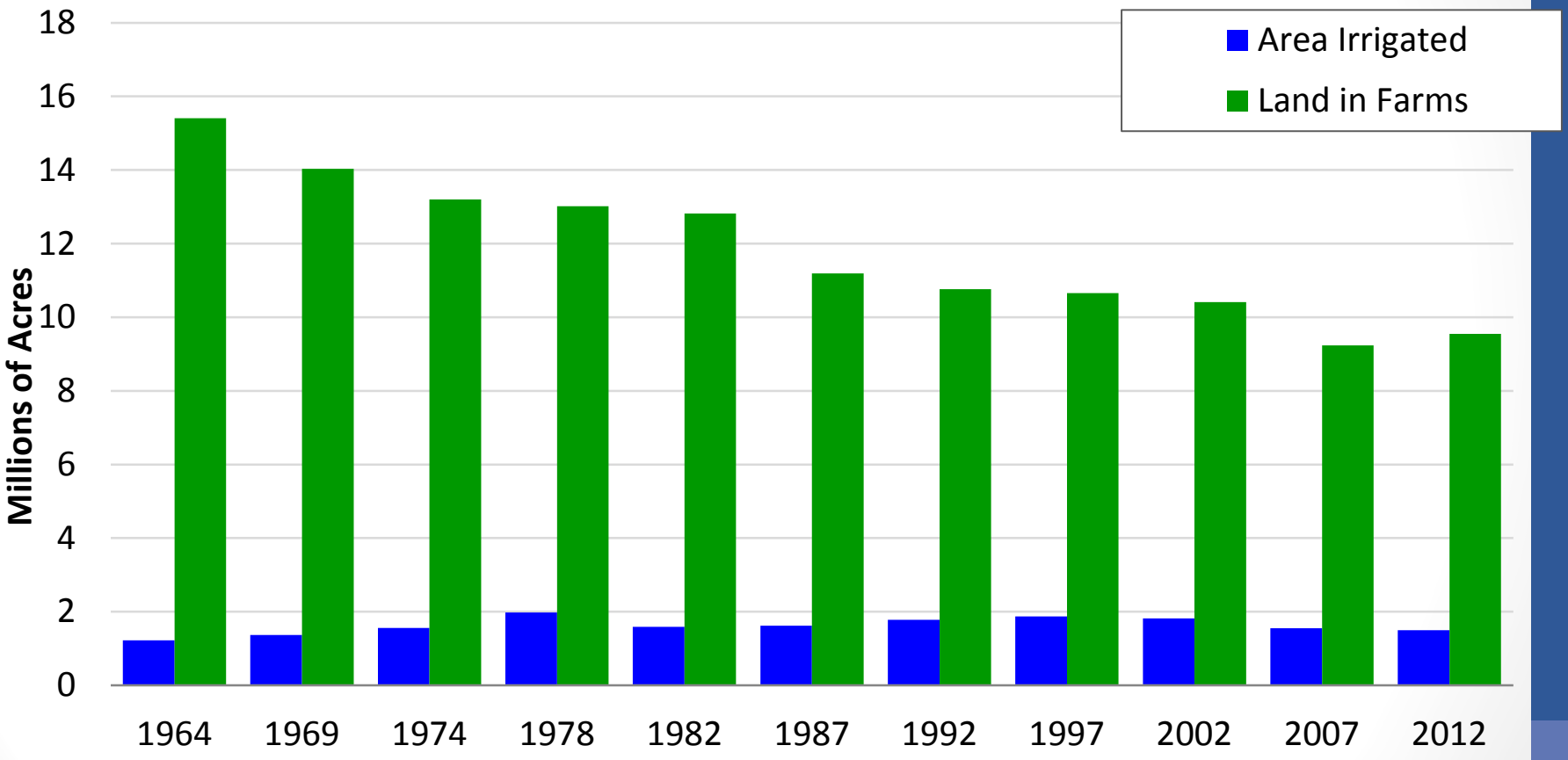
Historical
Land in Farms & Irrigated Acreage

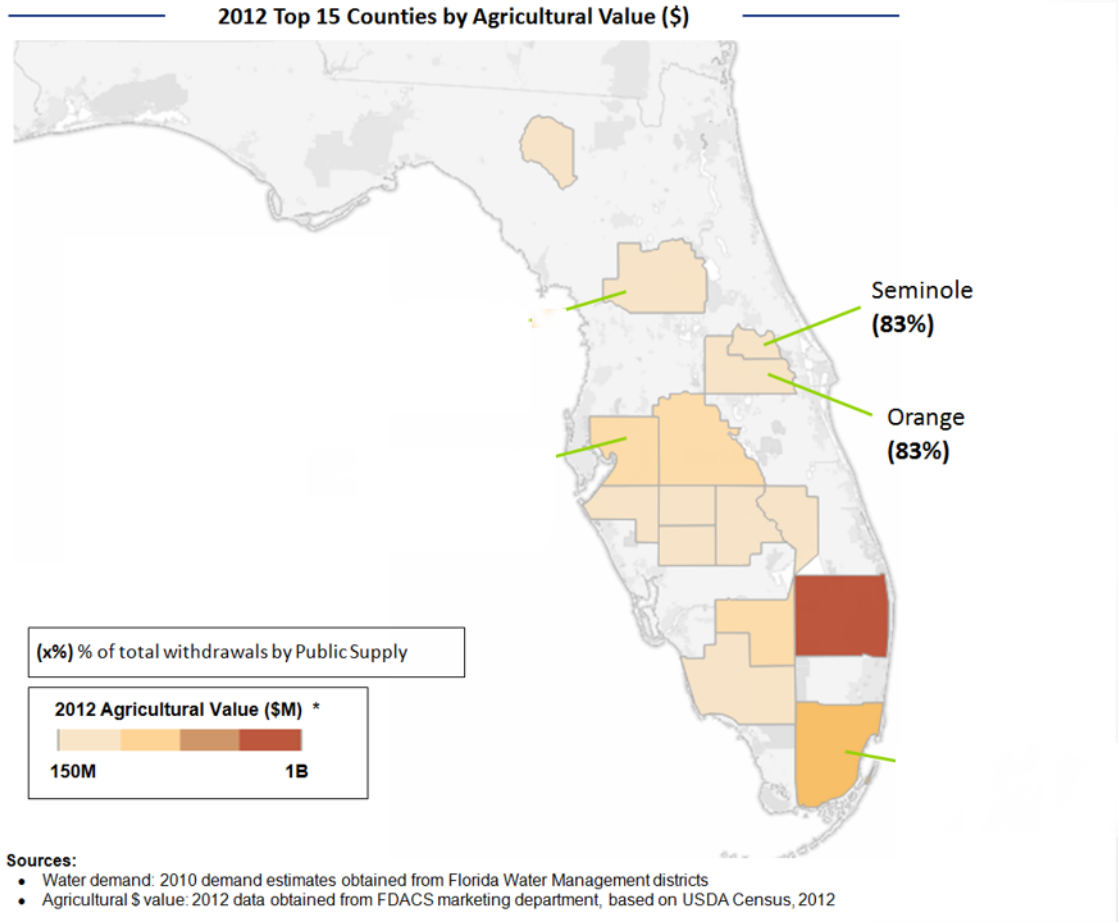


Sources:
1997 and 2012 National Ag Census– State Data – Florida

Top producing agricultural counties compete for water

Key Observations

- 2 of the top 15 agricultural producing counties face potential competition for water from public supply
- Demand from public supply in these counties averages over 80% of water demand compared to the overall public supply average of 41%



FSAID Estimated Irrigated Acres (2016)

Irrigated Acreage Estimates and Projections by County							
	2015	2020	2025	2030	2035	Difference	Difference
SFWMD						2035-2015	%
Orange	**1,969**	**1975**	**1994**	**1994**	**2007**	**18**	**2%**
Osceola	21,957	22,386	23,419	25,295	25,648	3691	17%
Polk	5165	5165	5098	5098	5098	-67	-1%
SJRWMD							
Lake	9746	8917	7938	6939	5543	-4202	-43%
Orange	**5067**	**5144**	**5333**	**5485**	**5690**	**623**	**12%**
Osceola	3053	5301	5460	5843	7394	4341	142%
Seminole	**1784**	**1547**	**1320**	**1099**	**697**	**-1097**	**-61%**
SWFWMD							
Lake	498	465	413	274	268	-23	-46%
Polk	87,257	85,792	84,350	82,966	81,952	-5,665	-6%

Ag Conservation Goals

- Minimum 4.3 MGD
- Develop an implementation strategy
- Expand evaluation of Ag BMP's
- Evaluation of irrigation efficiency

Important Considerations for Agricultural Conservation

- Crop type
- Irrigation system type
- Soil characteristics
- Drainage Characteristics
- Existing BMP's
- Cost Sharing
- Participation Rates

Issues and Concerns for Ag Water Conservation

- Regulations
- Alternative Water Supply
- Water Demand Projections
- Future Agricultural development
- Diversity of Florida Agriculture
- Population Growth

Mobile Irrigation Lab

- Limited ability to develop conservation programs
- Tool to determine how effective you are at improving efficiency at a definitive point in time
- Currently only being in Lake County.

	Year	Pre-Eval	Post-Eval	# Acres	Water Saving Pre	Water Saving post	Ave per Farm
Lake	July 2015-16	124	53 (43%)	1595	0.34 MGD	0.30 MGD	0.005 MGD
State	2009-15	5060	5060		119 BGY	7 BGY (19 MGD)	0.003 MGD

FARMS Program

- Electronics
- Irrigation System Retrofits
- Maintenance and Management
- Water Control
- Additional Practices
- Tailwater Recovery
- Frost/Freeze Protection

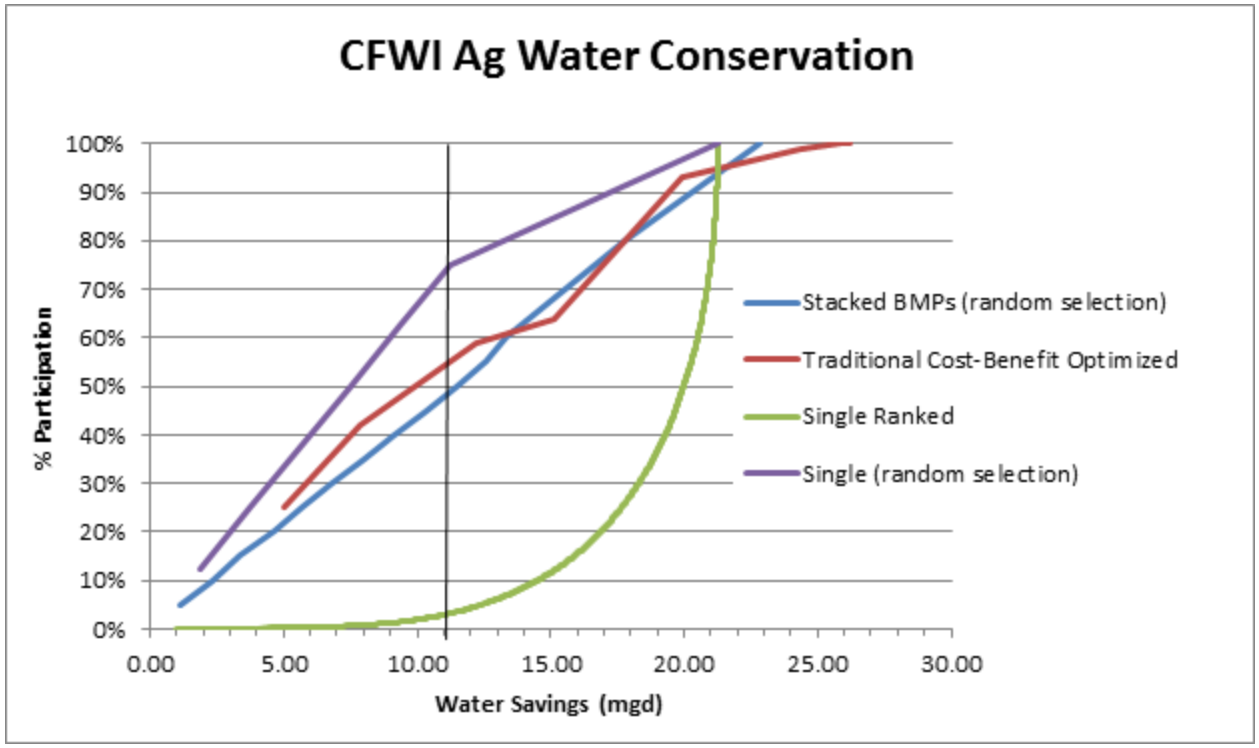
2015 Assumptions

- 15% participation rates
- 20% savings rate
- 4.3 MGD Savings
- Made note that these numbers were derived from SWFWMD data applied to CFWI
- Numbers would change as more information became available from cost share programs

Ag CUP's in CFWI

		Number of CUP Permits in CFWI				
District		<100,000 GPD	100,000-500,000 GPD	>500,000 GPD (SJRWMD, SFWMD) >400,000 GPD (SWFWMD)	Total	% of permits
SJRWMD		175	67	9	**251**	10%
SWFWMD		1794	214	41	**2049**	86%
SFWMD		4	41	46	**91**	4%
Total		**1973**	**322**	**96**		
% of permits		83%	13%	4%		
Total Permits	2391					

Water Savings based on BMP Implmentation Rates



Savings Matrix

Crop	2010 Acres	2035 Acres	BMP	TTL Cost per pump station	Avg acreage of model	Cost per acre	Avg Savings (gpd)	Avg Savings per acre (gpd/acre)	Cost per gpd per acre	Potential Savings 100% MGD	Potential Cost 100%	Potential Savings 50% MGD	Potential Cost 50%
Citrus	74,822	74,362	Auto On/Auto Off SMS	$ 23,078	69.3	$ 333.02	5,300	76.5	$ 4.35	5.6	$ 24,763,726	2.8	$ 12,381,863
	74,822	74,362	Auto On/Auto Off Weather Sensor	$ 24,647	69.3	$ 355.66	5,300	76.5	$ 4.65	5.6	$ 26,447,334	2.8	$ 13,223,667
	74,822	74,362	Weather Station / Auto stop	$ 5,000	70.3	$ 71.12	2,500	35.6	$ 2.00	2.6	$ 5,288,905	1.3	$ 2,644,452
	74,822	74,362	Filter Replacement	$ 15,000	70.3	$ 213.37	5,000	71.1	$ 3.00	5.3	$ 15,866,714	2.6	$ 7,933,357
	74,822	74,362	MIL Effic increase	$ 10,000	71.3	$ 140.25	5,000	70.1	$ 2.00	5.3	$ 10,429,453	2.6	$ 5,214,727
Total										**24.4**	**$73.4 million**	**12.2**	**$41.4 million**

Cost Share

- SWFWMD
- 3 MGD Saving Goal (portion allocated to CFWI)
- 5% savings or average 2100 GPD
- Pump retrofit automation (auto on and off, weather stations and sensors for determining on and off) require 78% participation rate

- SJRWMD
- 2 (2015,2016) years, 3 out of 5 funded
- Data still being gathered on savings
- Believe a reasonable rate is 6% participation rate

- SFWMD
- No projects funded in CFWI over the past 2 years

Funding

- SJRWMD Cost Share $3 million ($1.5 million to Tri-County Ag, $1.5 million for the rest of the district). Fund 75% of cost
- SWFWMD Cost Share based on cost effectiveness. Fund 50% of cost.
- SFWMD no cost share in CFWI

Bottom Line

- Concerns
  - Participation rates
  - Allocated cost share funds
  - Quantifying water use (metering small wells)
  - Ag Demand Models
- 4.3 MGD may not be achievable
- Conservatively, over the next 20 years it would take an 80% participation rate and $35-40 million to reach goal

Next Steps

- Continue working on BMP matrix
- Wait on Ag Demand analysis to be completed
- Revise estimates
- Bring group back together

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Questions