

## Ag Sub-Team Preliminary Findings/Issues

### Background – How Ag Water Savings Were Derived in RWSP

The 2015 RWSP conservation chapter identifies the agriculture BMPs and the concerns the group had over all to develop a methodology to identify conservation BMP's. The group looked at 3 approaches 1. MIL, 2. FAARMS program, and 3. FARMS program. The MIL program conducts pre and post evaluations of irrigation systems, St. John's River Water Management District (SJRWMD) irrigation efficiency method (FAARMS) uses standardized Florida agricultural geodatabases that include acreage, crop type, and irrigation system type, and finally Southwest Florida Water Management District (SWFWMD) FARMS program (a programmatic approach) uses an agricultural BMP reimbursement cost share program to reduce ground water use by using AWS and conservation programs.

Although MIL's have the potential to develop a point in time evaluation of an agricultural irrigation system the program has limited ability to develop conservation programs. It is a tool to see how effective a producer is at improving efficiency for a definitive point in time and only if a follow up evaluation is done. This program is only being conducted in Lake County within the CFWI region. From July 2015 to July 2016. There were 124 evaluations conducted with only 53 follow ups (43%). These evaluations were conducted on 1595 acres in Lake County. The potential water savings during the pre-evaluation was .34 MGD and the post evaluation follow up showed an actual savings of 0.30 MGD. From 2009-2015 statewide there were 5060 evaluations conducted indicating potential 119 BGY saving. On follow up evaluations the actual saving was 7BGY saving (19MGD). The 5060 evaluations saved on average .003 MGD per evaluation (FDACS personal communication 2016). It is important to note that many of the MILS conducted outside of the region are not representative of agricultural operations with in the CFWI region. With the limited amount of data available in the region and the statewide evaluation not being represented of the CFWI region the ag sub team chose to consider alternative methodologies to estimate potential ag water savings.

The sub team considered the FAARMS program from SJRWMD and believed this model had potential to look at irrigation efficiency methods or practices to develop agricultural irrigation estimates for conservation. The sub team was pressed by time to develop an agricultural savings potential and the group felt additional research was needed to characterized current crop efficiencies for crop type and irrigation systems in central Florida. Also additional documentation and further database review was needed using updated information. Currently this program has been shelved. UF is working with FDACS to update the ASFIRS modeling program for permit development but this should also be able to help look at conservation through efficiencies of irrigation systems.

With time running out to develop a water savings goal the group turned to the SWFWMD FARMS. It must be noted in this program participation rates are critical to the success of getting to the savings goal. It was estimated that based on previous programs that 10% to 15% participations rates would be the norm. It is also important to note the conservation potential will vary based on crop grown, irrigation system type, drainage characteristics, other on site-specific conditions, and existing conservation BMP's already in practice. The programmatic approach includes 7 overall programs (electronics, irrigation system retrofits, maintenance and management, water control, additional practices, tailwater recovery and frost freeze protection). There were several BMP's in each category identified. Without firm data for the CFWI region the group was forced to use data from SWFWMD and extrapolate results to the CFWI region. After much discussion and up against time the group choose to

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use an average 20% savings rate and a participation rate of 15% to achieve the 4.3 MDG goal of water savings. However, the group made note that this number was derived from SWFWMD data (as they do have the largest number of farms in the CFWI area) and was applied to CFWI region as a whole. This number would change as more info became available from cost share programs.

### Development of Implementation Program

Once the plan was adopted the team had the challenge to implement this programmatic approach. What became clear very quickly is as we delved into the data more intently, agricultural conservation was going to face some real challenges.

### Estimate of Participation Rates Needed to Achieve 4.3 mgd in Water Conservation

In SJRWMD there are a total of 251 CUP permits and in SWFWMD there are 2049 permits and in South Florida Water Management District (SFWMD) there are 91 permits.

#### CUP Permits

	Number of Permits <100,000 MGD	% of Total Permits	Number of Permits that are 100,000-500,000 MGD	% of Total Permits	Number of Permits >500,000 MGD(SJRWMD) >400,000(SWFWMD)	% of Total Permits
SJRWMD	175	70%	67	27%	9	3%
SWFWMD	1794	87.6%	214	10.4%	41	2%
SFWMD	4	4%	41	45%	46	51%

The data showed that within the SJRWMD 70% of permits and within SWFWMD 87.6% permits were less than 100,000 MGD's. It was also noted that in Polk county that most of the permits involved small grower sites that were less than 40 acres. This lead to a discussion on participation rates and cost share programs. As a general rule large growers in the area have already implemented BMPs identified in the RWSP, so there is very little potential for additional savings. SWFWMD felt the only possible BMP to implement would be automated pump control measures. In an effort to estimate 3 MGD savings (which would be SWFWMD portion in the CFWI region) it would require a 5% saving or on average 2100 gallons/ day saving/farm. The cost of retrofit would be \$10-15K per automation and require a **78% participation rate and cost over \$35 million**. These participation rates needed to achieve the savings goal are extremely high and not likely to be achieved, as no other program has been able to achieve such high participation.

### Existing Funding Programs

The subteam conducted a review of existing funding programs. In SJRWMD, two cooperative funding cycles have occurred (2015, 2016). Three projects out of 5 were funded in the CFWI region. Data is being gathered on these projects to estimate water savings. Based upon current cooperative funding efforts, SJRWMD believed that a 6% participation rate was reasonable. In SFWMD, funding has been the

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issue and no agricultural conservation projects have been funded in CFWI in the past 2 years. Currently, SWFWMD funds 50% of the retrofits through cost share and SJRWMD funds 75%. This would also have an effect on participation rate of small growers.

Funding of cost share program in the region (programmatic method) varied. SJRWMD allocated \$3 million to projects with \$1.5 million going to the tri-county ag area resulting in only \$1.5 million in the rest of the district for cost share programs. In SWFWMD the primary justification was cost effectiveness. The SWFWMD uses a maximum cost for upgrading electronics was \$1.72/1000g saved but when looking specifically at projects in the ridge area of CFWI the cost was \$3.97/1000g saved. As a result, no projects have been funded in the CFWI region within SWFWMD. In SFWMD no cost share funds have been specifically allocated to CFWI and no one from CFWI region has applied for funding

For a AG water conservation funding program to work in the CFWI, the water management district would need to increase allocated dollars for BMP programs as well as increasing cost share percentages.

### FSAID III projections and Estimates

The final concern noted was projections from FDACS FSAID model. The AG subteam fully understands that FDACS is working very hard to get a working model for ag water demand projections in place. It has already gone through three iterations and they are currently workings on FSAID IV. Although the AG subteam fully supports FDACS in their approach and continued updates to the model, there are concerns over the regression analysis used to develop a conservation potential. FSAID III indicates a 25 MGD saving in conservation over the next 25 years. However, the current CFWI RWSP estimates savings of 4.3 MGD over the next 20 years. There are also concerns over acreage projections especially in Polk county. These issues need to be resolved before FSAID becomes the accepted protocol for demand use and conservation potential within the CFWI region.

### Conclusions

Given the above concerns the ag sub team does not feel the 4.3 MGD is a realistic goal to achieve water savings because:

1. Unrealistic participation rates are needed, approximately 80% participation is needed
2. Allocated cost share dollars, the AG subteam estimates that it would cost \$35-40 million to reach the goal and
3. FSAID projections need further work.

It is important to note that the AG subteam wants to get this plan completed as accurately as possible. It may take longer than anticipated to complete the task of developing saving measures. Getting something done quickly instead of getting it done correctly is a concern. As such the ag sub team is requesting guidance from the management oversight committee on developing and finalizing ag conservation projections.

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