

California Water Plan Update 2009
Resource Management Strategy Workshops: Agricultural Water Use Efficiency
August 26, 2008

Agricultural WUE/Agricultural WUE in California

- header and footer in this document need to be standardized to match other RMS
- **following on Kamyar's question:** can look at flood management connection for Agricultural Lands Stewardship
 - **add:** drought and importance of thresholds as opposed to extreme events is also an important consideration – big issue associated with climate change and water
- **clarify:** does not explain how much regulated water goes to agriculture and to urban issues, shows agriculture using about 80% of water available for human use, but it's not that large an amount of water that's regulated for use
 - Kamyar notes that Water Use Portfolio will talk about different uses with quantitative numbers – can provide a link in this text to that piece
- **clarify:** should consistently use either cultivated acreage or irrigated acreage in both this RMS and the Agricultural Lands Stewardship RMS, cross-check with DWR Land & Water staff
 - this number can be updated through 2005, have been dramatic changes (and in all places where possible/relevant, e.g., table 1 was based on a 2000 survey and a more recent one may not exist)
 - Agricultural Water Management Council doing survey on benefits that will be out in October, will not cover entire state but will cover major players and trends
- **clarify:** AWMC – the role and activities could be added here
- **clarify:** include putting carbon in the soil and grading in definition of management practices because some of these can retain moisture (could go in page 2 under bullets, #s 4 or 5, or subsection on page 3 also talks about water management and might be relevant to have subsection on land management
- **clarify:** in general, draws a lot on CALFED WUE group, which is outdated
 - staff feel this CALFED study is still the best available, and do work to keep the information current
- **clarify:** in general, goes back and forth between documents which have different methodologies, so which document is being used where needs to be qualified
- **clarify:** under management activities, efficiency gains of the past are roughly 50% from breeding programs and 50% from operation
- **clarify:** definition should include, water supply, water quality benefits, environmental, and energy efficiency benefits, and greenhouse gas reduction benefits
- **clarify:** 1980-2000 figure, but here would be really good to know what the base was, agricultural production per unit of water – what the identified increase was on top off, and also the 11% revenue figure
- **clarify:** whether numbers correct for paragraph 3 on Agricultural Water Management Council information is correct

- **clarify:** Placeholder Box #-1 this needs updating – CALFED WUE QOs program has been returned to agencies (and replaced with targeted benefits), **but** the objectives should remain here – they continue to be important and **clarify** current status of these QOs/TBs
- **clarify:** AWUE usually has irrigation efficiency formula but that’s incorrect, need to take this into account but add a reuse function, particularly in recharge – could put in a box, it is published information (on-farm efficiency and basin or regional-level efficiency)
 - Kamyar notes that this is important because efficiency in urban versus agricultural context is different – has to be treated before reused for urban; so total or gross AWUE implies that downstream supply is being taken away or left in stream, meaning that while number larger at intake gate, downstream farmers have to find more water supply. So at the core this concept is very important but difficult to describe. In urban context, applied water savings are what matter, while in agriculture, the amount diverted is reused multiple times and therefore WUE has to be looked at at the basin level
 - for downstream users, AWUE is often not worth the extra work and cost (can flag in issues)
 - **add:** even though may be re-used, the quality is not the same each time re-used, so downstream users can require treatment costs (which also increase energy demand), and also water into groundwater table may be contaminated – mention in introduction, but also raise in issues section
- **add:** with groundwater use, there a recharge benefit that needs to be considered
- **clarify:** page 3 first line needs a date
- **add:** need base acreages
- **clarify:** Placeholder Box #-2 next to last line should say have advances but have already achieved many of the reductions
- **clarify:** water management paragraph: automated systems: not clear whether overall cost will go down
- **clarify:** “needs year again where says “recently”
- **add:** there’s a final report on this topic from August 2006, should be upgraded to this
- **clarify:** 85% improvement – from what we have, or to 85% efficiency?
- **clarify:** “by 2030” – but what was the start date? (likely 2000)
- **clarify:** page 4 “applied water, minimize weed growth, and improve crop growth and productivity/value”
- **clarify:** have reducing transpiration listed, clarify what this was from – it is not from deficit irrigation, that’s in next sentence
- **clarify:** page 5: Colorado River Water is not new water, it’s agriculture water being transferred to urban users
- **clarify:** page 5 last paragraph, 94K acres per year: note that’s not new water to California, it’s to make up what we’re not getting from Colorado River anymore

Potential Benefits of Agricultural WUE

- **clarify:** describe how water rights handled so people understand that water conservation and beneficial use so understand that conserved water does not automatically just return to the system
- **clarify:** Table 2: range of years, helpful to add a horizontal line to be able to read and understand it
 - **clarify:** under annual spending: what year were the dollars in?
 - **clarify:** objective says 507 has no unit, and may be irrelevant now (it is *tafy*)
 - **clarify:** does not include Salton Sea or Owens River either, and maybe other things
 - **clarify:** define irrecoverable flows
 - **clarify:** text should match investment order in table, text from next page actually talks about irrecoverable flows
- **add:** historical benefits from WUE improvements – figures on where this water has gone (stay in environment, go to urban uses, expand agricultural development, or making up water lost through legal rulings), because this will indicate whether it is an energy cost or energy benefit (maybe DWR or USBR)
 - **clarify:** if water rights being preserved, then there will be an on-farm use or something, so this would also have to be part of the description; this came up in issues as well and needs to be reflected in recommendation, and also tied to water transfers – what do we do with saved water?
- **clarify:** middle 2nd paragraph: recoverable results based on QOs...: thought these were based on what users could produce, not objectives, the sentence needs to be re-written
 - **clarify:** next paragraph has same problem

Potential Costs of Agricultural WUE

- **clarify:** first line: *CALFED* ROD
- **clarify:** p2: doesn't include use reductions in Klamath, but included Canals, so not consistency
- **clarify:** "ROD assumed" – *on-farm* irrigation efficiency
- **clarify:** need years in next paragraph
- **add:** costs of initial installation and then maintenance costs, that's not broken out but presumably in next 50 years will be shifting
- **add:** table 3: there may be projects to include from Prop 204 (salinity, etc), and can look forward to Prop 94 earmarks

Major Issues Facing Agricultural Lands Stewardship

General:

- **add:** as CALFED transitions, what is the replacement for this

- **add:** even though may be re-used, the quality is not the same each time re-used, so downstream users can require treatment costs (which also increase energy demand), and also water into groundwater table may be contaminated (mentioned in introduction)
- **add:** groundwater impacts are significant (e.g., loss of recharge), and reuse issue and timing – all of these are major issues that need elaboration
- **add:** demand will harden over time and this an issue for how long AWUE can be relied on, particularly with climate change
 - **add:** tree or vine (permanent) crops also reduce flexibility
 - **add:** water allocation system also gets skewed to summer when you have permanent crops, so winter distribution system becomes strained
- **add:** water rights description on page 10 needs to be expanded, where to the rights go – and this to a recommendation
- **add:** need to raise the issues of what crops we choose to grow in the state and how much agriculture we grow in the state: from climate change perspective, if we come to rely on imports, this increases greenhouse gas emissions, so we do not want to push AWUE so much that pushes key crops out of the state so much that increases overall carbon footprint – can check in with Ricardo Amon, CEC

Implementation

- **add:** need flexibility in water use so that agriculture can respond to market signals

Resource Requirements

- **add:** automation for canal deliveries – Anisa Divine will submit a paragraph on this

Education and Motivation

- **add:** if you want farmers to work with greater efficiency, that means working without a net; the risk of this needs to be improved by improving the net – crop insurance does not cover if I do not do everything possible (over-engineer, over-supply)
 - **add:** USDA has a risk management agency, may want to flag here and follow on with recommendation

Dry-Year Considerations

- **add:** dry years at bottom of page 10: Water Code sets policy issues and restrictions on how much can be transferred out of any given county, this should be cited
- **add:** MWD had agricultural user program where get reduced rate but get first hit, and this year 30% reduction
- **add:** farmers aren't looking at dry conditions or drawdown, but land fallowing and then abandonment of crops already planted, so this section is like band-aid approach to a more severe problem on water supply, particularly when demand skewed to the summer
- **clarify:** definition means achieving at least the same output with less, not doing less, so fallowing is not part of AWUE
 - crop idling and land retirement are part of a separate RMS for this reason
 - in urban WUE, however, serving a greater population with the same water is counted as efficiency – at least in common sense popular understandings (Kamyar notes the UWUE RMS does not view it this way)

Recommendations to Promote and Facilitate Agricultural Lands Stewardship

- **clarify:** there was an Appropriate Measurement (measurement efficiency) panel, generally industry supported, measuring to get greatest benefit – these should be made available for review before endorsed
- **clarify:** #8 should be stronger language and clarify to whom it is targeted, water rate structures are local issue
 - **counter:** good portion of agencies are regulated by CPUC which will look to pricing as a means to improve WUE, at least investor-owned utilities
 - there are multiple ways to use rate structures, the specificity helps but also should not be restrictive
 - general recommendation to authors is to use bolder language to get a better debate, a cleaner discussion – but need need to flag that this is a *step approach* to 2050
 - **counter:** rate structures do not improve efficiency, prices need to be kept low
- **add:** #2: federal side should be mentioned, and some specifics added if possible
- **add:** #6 expand CIMIS – this is a success story, should add an extra sentence about the achievements, and should have some priority within this – satellite imagery is major
- **add:** #2 we added hardware upgrade and water management to this list of bullets
- **add:** #5: encourage more signatories: a few small agencies left, moving toward collecting data and available to show progress and AWMC disseminates this, but there is no longer much emphasis on signing
- **add:** page 13 there's a weblink that needs added
- **add:** #1 is unclear what is meant by prioritization – all grant programs, implementation programs, all geographic areas? also needs updated to include IRWMPs and probably remove CALFED – all CALFED references will be checked.
- **add:** #2 – this needs the earlier context of who the AWMC is, and also how it operates – does it implement, or do its signatory agencies?
- **add:** #6: this is better description than what's in the issues section on Education and Motivation – this provides good context for the recommendation
- **clarify:** page 14 box 2 – this is statutory language, need to note this
- **add:** page 15 – permanent crops is a concern when water is lost, so Kern County's increases may not be a benefit – so need to make sure context is updated
- **add:** no recommendation exists about partnering with other entities – USDA, NRCS, Luana Kiger will provide draft text

Attendance

In Room:

Manucher Alemi, DWR
Beverly Anderson, Sac River Area

Conservation Forum
Lisa Beutler, CCP

Gail Cismowski, CVRWQCB
Ed Craddock, Sutter County RCD
Philip Erro, Fresno County Farmer
Megan Fidell, DWR
Dorian Fougeres, CCP
Justin Frederickson, CFBF
Kamyar Guivetchi, DWR
Bruce Gwynne, DOC-DLRP
Barbara Hennigan, Hennigan Farms
Bob Hennigan, Hennigan Farms
Gerald Horner, SWRCB
Rebecca Kanegawa, Montgomery-Watson
Harza
Bob Languell, SWRCB
Lew Moeller, DWR
Leslie Morgan, Yuba County RCD
Roy Patterson, DWR
Fran Spivy-Weber, SWRCB
Ken Trott, CDFA
Mike Wade, Agriculture Water Management
Council
Betty Yee, CVRWQCB

On Phone/GoToMeeting:

Ricardo Amon, CEC
Marian Ashe, CalEPA
Anisa Divine, Imperial Irrigation District
Luana Kiger, NRCS
Fred Lee, Fred Lee & Associates
Rafael Maestu, SWRCB
Melanie Powers, CABY
Lorraine White, CEC