A Missing Link in Water Conservation Efforts

A new approach to addressing the non-point source problem of improving agricultural water use efficiency

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  - $3.7 million in subsidies for over 20,500 pump efficiency tests
  - $4.5 million in cash incentives for 1,180 pump retrofit projects

Today's discussion…

1. Suggestion for accelerating improvements in agricultural water use efficiency

2. Suggestion for using proven approach of an existing energy efficiency program

Ag Water Use as a NPS-type Problem…

- Diffuse
- Legal operation – yes
- Any one farm/field causing the problem - no
- Cumulative effect:
  - Depending on level of investment, DWR Bulletin 160 estimates up to 1 million acre-feet/year conservable

NPS Slow to Evolve…

Generally not catastrophic, but predictable (most times)…

- The activities causing the problem are “entrenched” with large investments in:
  - Hardware
  - Management training/experience
  - Infrastructure
- Cultural environments may be established
- Certain benefit/cost structures may be established
- If entrenched, generally slow to disappear (not a “silver bullet” problem- long term effort needed).

NPS program design…

There are generally three components…

1. PROBLEM AWARENESS - If management doesn't see a problem, or doesn't believe it is their problem, nothing will change.

2. SOLUTION AWARENESS - If management sees the problem but doesn't see that there is anything that can be done, nothing will change.

3. RESOURCES - However, even if management sees the problem and has a solution, nothing will be done unless resources (time, expertise, money) are available to implement the solution.

Advanced Pumping Efficiency Program…

Ten-year program to address ag water pumping energy efficiency (CPUC funding through PG&E)

Utilizes three-step programmatic approach:

1. Education / Technical Assistance – general problem/solution awareness encouraging use of…

2. Subsidized pump efficiency tests – site-specific problem knowledge that can lead to…

3. Pump retrofit/repairs partially funded with a cash incentives – targeted resources

Current Approach on Water Side…

- Education – yes, although note reduction in UC Cooperative Extension efforts
- Targeted Resources – bond monies have been available / NRCS efforts
- Site Specific Information - ??????

We Can Evaluate Irrigation Systems/Events…

- Existing protocols – developed in 1980s
  - Furrow / border strip / sprinkler / micro
  - Evaluate both:
    - system design, maintenance and management
    - individual irrigation events
- Current existing Mobile Irrigation Laboratories
  - Kern County
  - Santa Maria
  - Coachella

Suggestion – Expand evaluations effort…

- Create more site-specific knowledge of problems and solutions
  - Cornerstone to addressing NPS problems
  - Benefits/Cost analysis may improve solution adoption, regardless of “free” money
  - Is it hardware or management?

Expand Evaluation Efforts – HOW?

1. Revise protocols to match current technology and issues
   - Specific benefits/costs analysis
   - Management versus hardware
   - Evaluation tools
   - Sliding scale of effort

2. Consider using APEP approach

Suggestion – use APEP model…

- Private Contractors that satisfy participation criteria
- Consistent protocols and reports
- Subsidized efforts – the irrigator must have some “skin” in the game
- Limits on subsidies to an individual
- Sliding scale of costs depending on level of effort needed from evaluator
- Provides for feedback from field

Westlands Water District Efforts (80s)…

- Used private contractors using consistent evaluation protocols
  - Some issues in management (APEP also)
  - Flexibility / low start-up costs
- Successful in reducing percolation
  - Consistent messaging
    - Shorten furrow lengths
    - Tailwater return systems
    - Sprinklers on problem fields and germinations
    - Faster water advance times

Summary…

- Ag Water Conservation is a NPS problem
- Long-term, consistent approach needed
  - General problem/solution awareness
  - Site-specific information
  - Targeted resources
- State deficient in providing site-specific information
- Protocols are available

Summary…

1. Expand irrigation event/system evaluations

2. Utilize approach adopted by proven Advanced Pumping Efficiency Program
   - Pre-qualified, private contractors
   - Consistent protocols and reporting
   - Subsidized effort – participant is involved
   - Limits on subsidy with a sliding scale
   - Web-based tools (WWW.WATERIGHT.ORG)

Advanced Pumping Efficiency Program…

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