San Joaquin County and Delta Water Quality Coalition

Lead Agency:
San Joaquin County Resource Conservation District

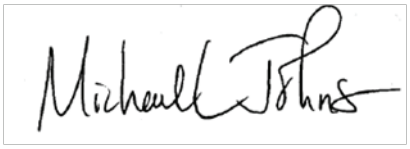
June 1, 2010

Pamela Creedon
Chris Jimmerson
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

Dear Ms. Creedon,

The San Joaquin County and Delta Water Quality Coalition (SJCDWQC) is submitting an addendum to its Management Plan Update Report which was submitted on April 1, 2010. This addendum includes the Management Practice Summary which reviews survey information collected from growers in priority watersheds in 2009. The SJCDWQC was to submit an addendum to the Management Plan Update Report on May 30, 2010 which was a Sunday. Since Monday, May 31, was a holiday the addendum is being submitted on the next business day, June 1, 2010.

Submitted respectfully,



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MLJ LLC

SJCDWQC Management Practice Summary Addendum

May 30, 2010

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SUMMARY OF IMPLEMENTED MANAGEMENT PRACTICES – ADDENDUM REPORT

The Coalition identified four general classes of management practices that would be effective at reducing negative impacts of agricultural discharges on water quality:

1. Reduction in application rates (including switching to low risk products),
2. Sprinkler or microspray irrigation,
3. Retention pond/holding basin, and
4. Grass waterways or grass filter strips.

The Coalition's Management Plan submitted on September 30, 2008 anticipated that due to Coalition outreach, reduction in application rates would occur from April to September in 2009 and structural improvements such as the construction of sprinkler or microspray irrigation systems would occur by December 2010 (Table 1).

Table 1. Management Practices implementation schedule.

Sample Site Subwatershed	Management Practice	Constituents of Concern	Anticipated Implementation Date	Anticipated Evaluation Date
Lone Tree Creek @ Jack Tone Rd	Reduction in application rates	Chlorpyrifos	April - September 2009	April 2010
	Sprinkler or microspray irrigation	Chlorpyrifos	December 2010	April 2011
	Retention pond/holding basin	Chlorpyrifos, Copper, Diuron, *Selenastrum* toxicity, Sediment toxicity	December 2010	April 2011
Duck Creek @ Hwy 4	Reduction in application rates	Chlorpyrifos	April - September 2009	April 2010
	Sprinkler or microspray irrigation	Chlorpyrifos	December 2010	April 2011
Unnamed Drain to Lone Tree Creek @ Jack Tone Rd	Reduction in application rates	Chlorpyrifos	April - September 2009	April 2010
	Sprinkler or microspray irrigation	Chlorpyrifos	December 2010	April 2011
	Retention pond/holding basin	Chlorpyrifos	December 2010	April 2011
	Center grass rows, grass waterways, or grass filter strips	Chlorpyrifos, Diuron, *Selenastrum* toxicity	December 2010	April 2011

This addendum is an interim report to assess implementation of management practices from 2008 through 2010 as well as evaluate the effectiveness of management practices. A final evaluation will be submitted in April 2011. Management practices are evaluated based on survey responses from growers in the following high priority subwatersheds:

1. Duck Creek @ Hwy 4
2. Lone Tree Creek @ Jack Tone Rd
3. Unnamed Drain to Lone Tree Creek @ Jack Tone Rd (also called Temple Creek)

The Coalition determined the amount of acreage within each of the high priority subwatersheds that had the potential for direct drainage (Table 2). This acreage was determined using GIS land use layers and is an estimation of parcel acreage based on those layers. The Coalition focused on the San Joaquin County portion of the Lone Tree Creek and Unnamed Drain to Lone Tree Creek subwatersheds since there is only a small portion of the upper subwatershed that is located in Stanislaus County. The parcels with direct drainage were compared to member parcels enrolled within the Coalition. Member parcels with direct drainage were linked to permittee information and queried for past pesticide use. Some members contacted to complete surveys were determined to not need management practices due to the crop type (i.e. pasture) or lack of pesticide use, and consequently no survey was necessary. These members were considered as a part of the members contacted even though they were not required to fill out a survey (Table 2).

Table 2. Priority subwatershed direct drainage acreage and priority member acreage information.

Priority Subwatershed	Acreage: total sub-watershed[1]	Acreage: potential to drain directly[2]	Acreage: priority members with pesticide use	Acreage: priority members with no pesticide use	Percentage of subwatershed acreage contacted[3]	Percentage of direct drainage contacted[3]
Duck Creek @ Hwy 4	11,111	8,904	5,814	655	58%	73%
Lone Tree Creek @ Jack Tone Rd	24,014	14,583	4,646	874	23%	38%
Unnamed Drain to Lone Tree Creek @ Jack Tone	24,500	19,417	8,112	1536	39%	50%

[1]Total subwatershed acreage only includes San Joaquin County; the small portion of Stanislaus County was not included due to the distance of that acreage to the downstream monitoring location.
[2]Acreage estimated from land use parcel acreage.
[3]The acreage contacted includes both members with and without pesticide use; only members with pesticide use filled out management practice surveys.

Coalition members with direct drainage and past applications of pesticides of concern were contacted to attend grower meetings and fill out management practice surveys. Growers filled out surveys answering questions regarding their current management practices for 2008 and whether or not they were planning to implement management practices in 2009 or 2010. Growers that indicated that they would implement one or more new management practices were contacted again and asked 1) if they implemented the practice(s) in 2009, 2) if they did not implement the practice(s) in 2009 why not, and 3) if they implemented any other/additional practices not already listed.

The Coalition developed a survey designed to identify and record current management practices and any practices that the growers intended to implement the next year. Coalition members attended grower meetings where Coalition representatives reviewed current water quality issues. Discussion focused on exceedances of water quality trigger limits for pesticides

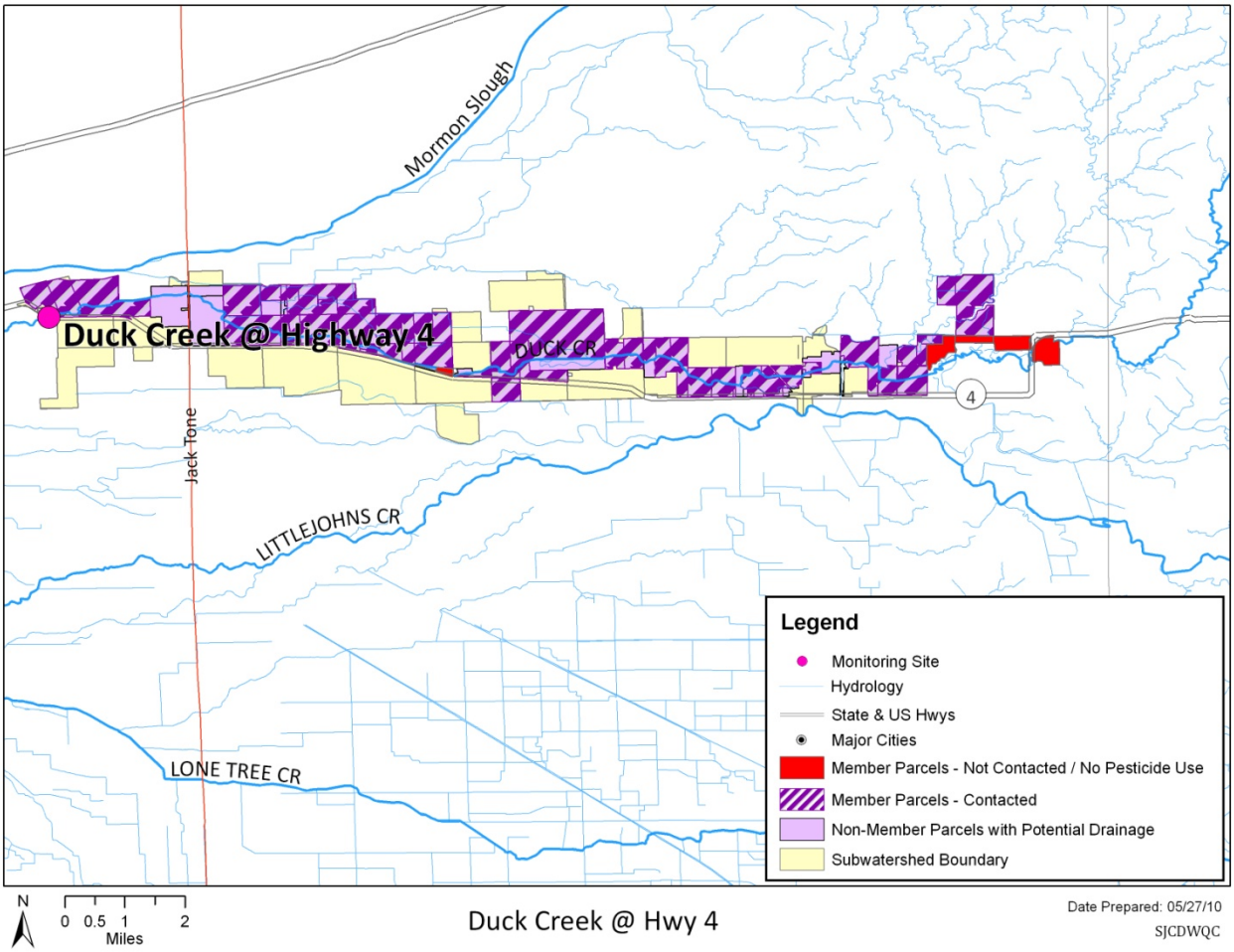
such as chlorpyrifos. As the Coalition continued surveying members over time, the survey format and style was refined based on a review of responses and feedback from growers. Therefore not all surveys had exactly the same questions and a crosswalk of questions was created to compare the different versions of the surveys. Recommended management practices are grouped into two main categories: pesticide application management practices and runoff management practices. The management practices identified in Table 1 are a subset of practices within these categories (Table 3).

Table 3. Management practice categories and associated management practices recommended to growers.

Management Practice Category	Management Practice	Identified in Original Management Plan
Pesticide Application Management Practices	Reduction in application rates	✓
	Alternative material application	
	Spot treating	
Runoff Management Practices	Sprinkler or microspray irrigation	✓
	Retention pond/holding basin	✓
	Grass waterways or grass filter strips	✓
	Reduce water volumes using irrigation management	
	Treat runoff waters with PAM or other materials	

Duck Creek @ Hwy 4

Figure 1. Duck Creek @ Hwy 4 member parcels with direct drainage potential.



A majority of the Duck Creek subwatershed has direct drainage (8,904 acres) based on GIS land use layers (Table 2, Figure 1). Seventy-three percent of the parcels with direct drainage are enrolled in the Coalition (6,648 acres) and 35 members representing 5,814 acres filled out surveys with current management practice information (Table 2).

Of the members who filled out the surveys, 43% recorded that they had tail water runoff and 90% recorded that they have storm water runoff (Figure 2 and 3). The most common management practice currently implemented by growers in Duck Creek is using less of pesticides of concern including chlorpyrifos (37%, Figure 4). Additional management practices include reduction of runoff water using irrigation management, use of center grass rows, grass waterways or grass filter strips and installation of micro sprinkler or drip irrigation. A small percentage of growers (5%) have installed retention ponds, holding basins or return systems (Figure 4). In 2008, approximately half of the direct drainage acreage enrolled in the Coalition used one or more management practice specific to runoff management and/or pesticide application management.

Figure 2. Percentage of acreage of priority members within Duck Creek with tailwater runoff.

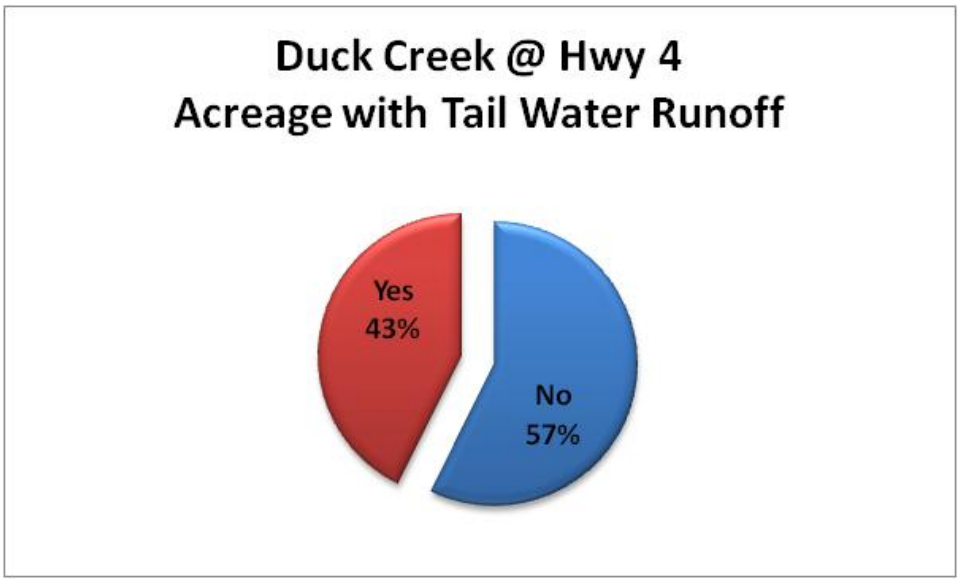


Figure 3. Percentage of acreage of priority members within Duck Creek with storm water runoff.

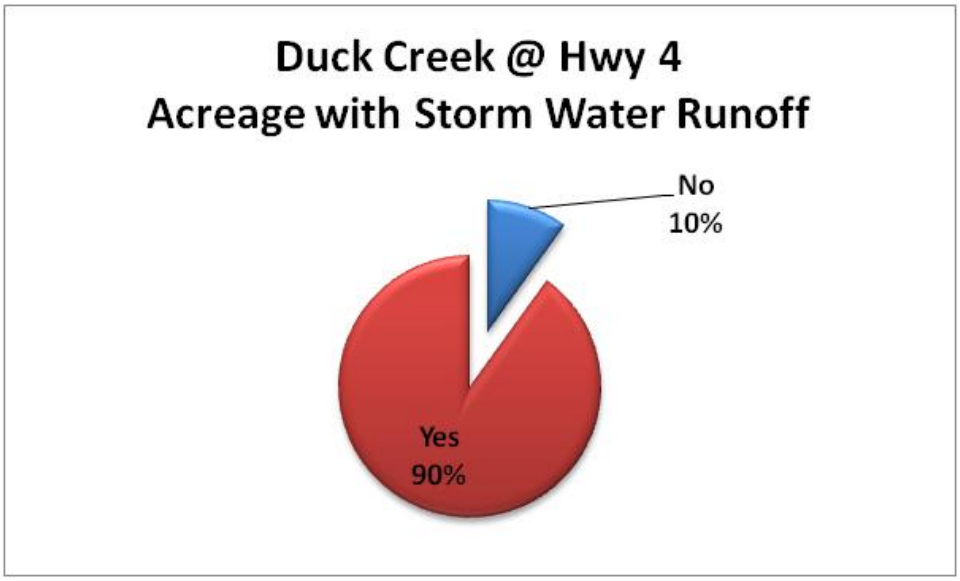
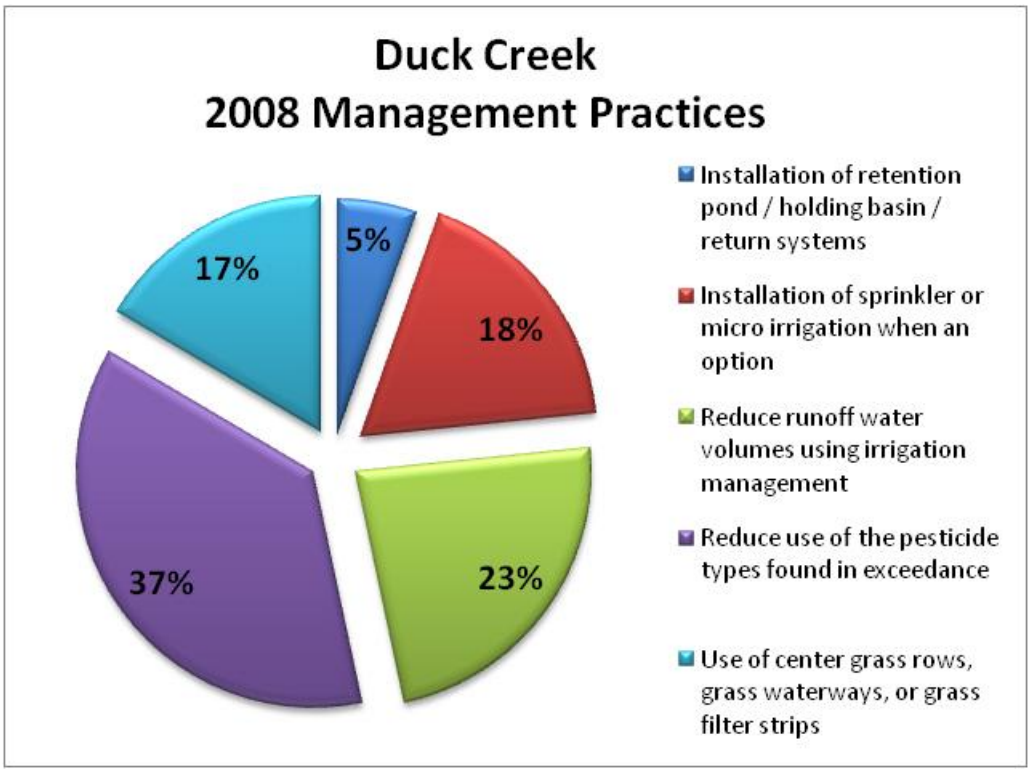


Figure 4. Duck Creek @ Jack Tone Rd 2008 management practices.



Of the growers that indicated that they intended to implement additional practices in 2009, 30% intend to implement practices to reduce applications of pesticides of concern including chlorpyrifos (Figure 5). Twenty-four percent intend to implement the use of vegetation (center grass rows, grass waterways or grass filter strips) to reduce both water and sediment runoff (Figure 5). Additional irrigation management practices to reduce water runoff will be implemented by 14% of the growers who filled out a survey, 6% intend to install sprinkler or micro irrigation and 2% intend to install a retention pond, holding basin or return system (Figure 5). Three percent indicated that they do not make management practices decisions but would talk to the appropriate person and 21% of the growers who filled out a survey did not indicate that they would implement any additional practices in 2009 (Figure 5).

Growers that filled out surveys indicating that they intended to implement additional management practices were contacted during the spring of 2010 with follow up surveys. The Coalition is still following up with growers and has received surveys back from approximately half of those contacted. The preliminary results of those surveys indicate that additional management practices were implemented across 3,332 member acres with direct drainage to Duck Creek. Implemented practices include installation of sprinkler or microspray irrigation, reducing runoff water volume using irrigation management, reducing use of pesticides of concern, and using center grass rows, grass waterways or grass filter strips (Figure 6).

Figure 5. Duck Creek @ Jack Tone Rd 2009 management practices (to be implemented).

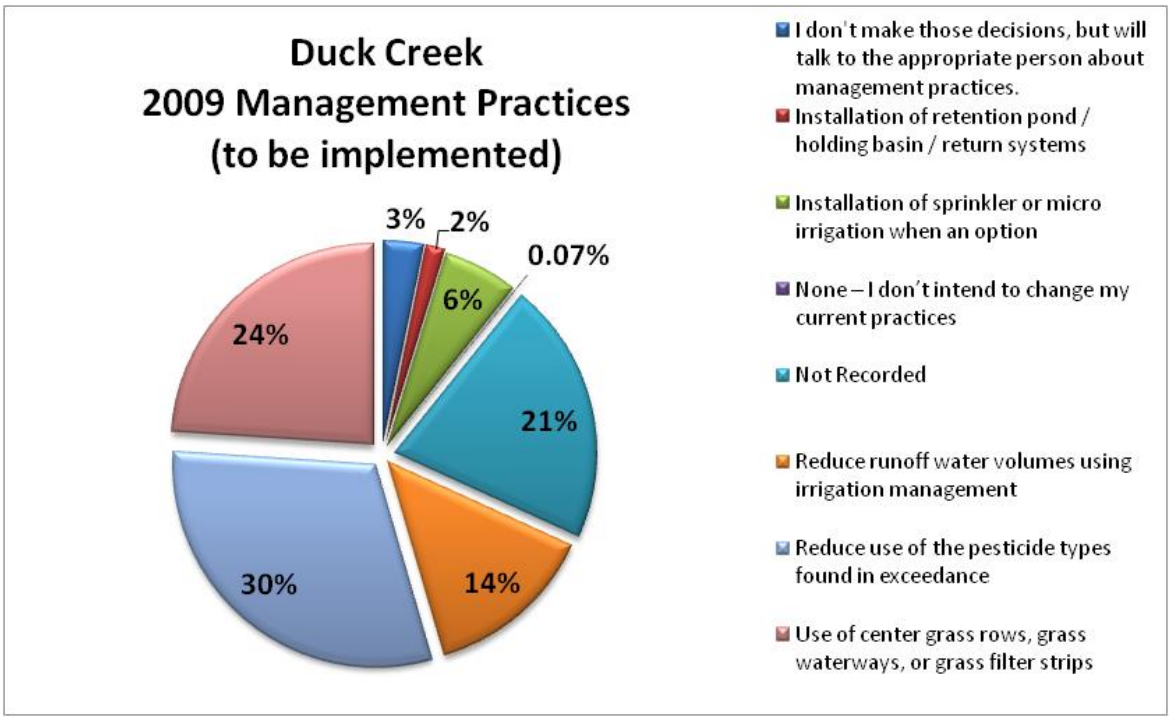
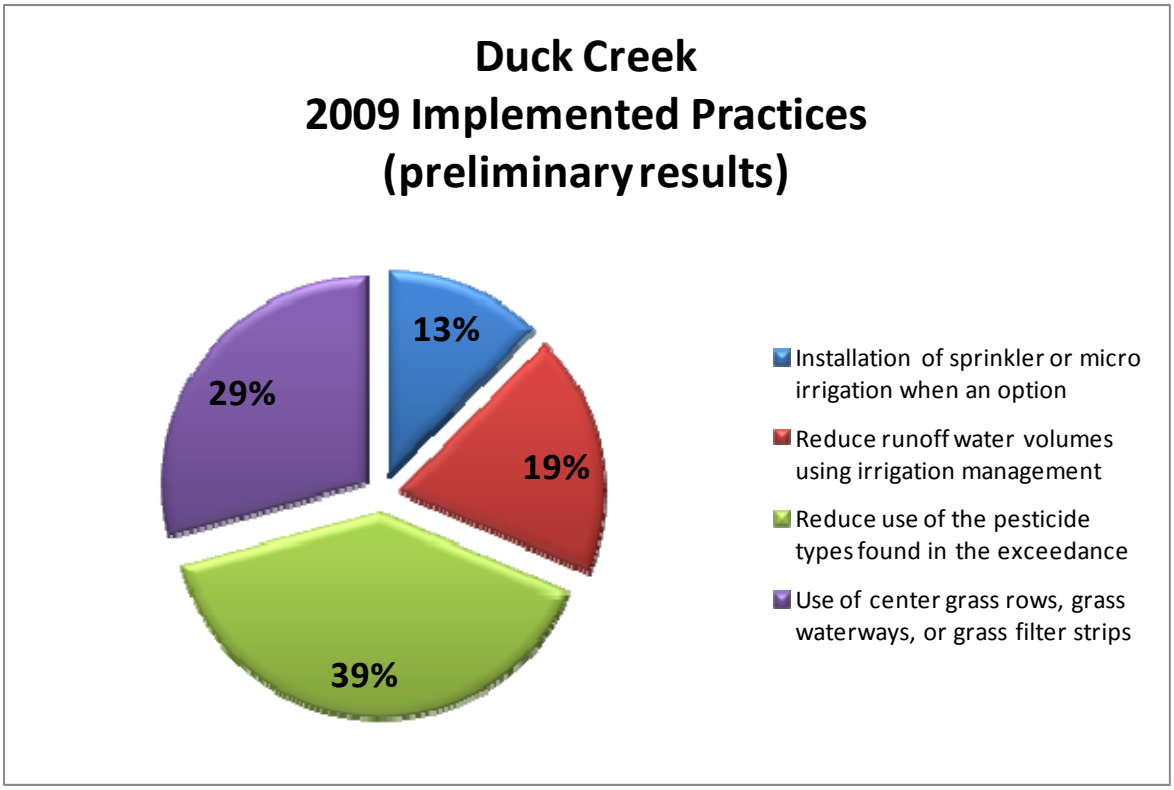
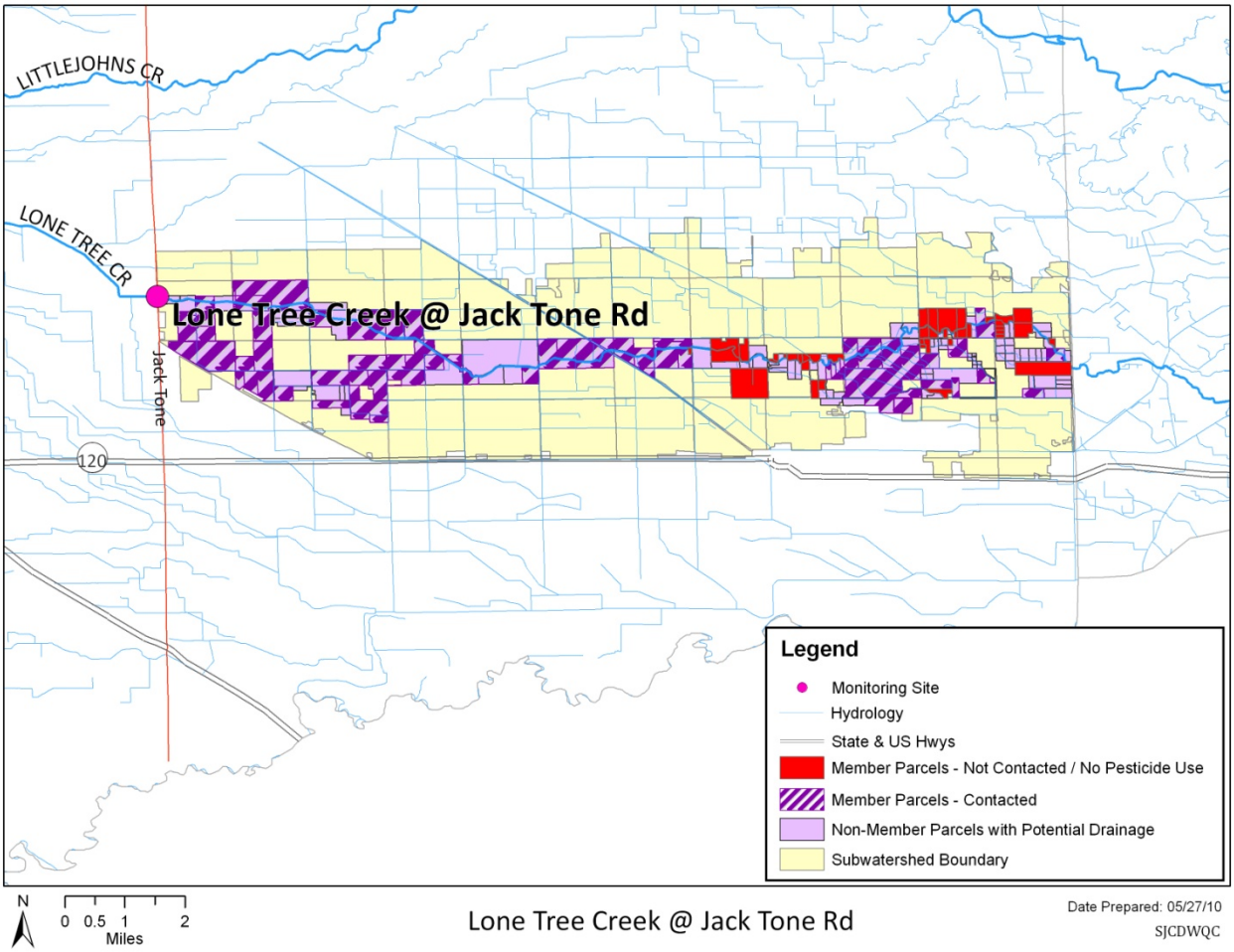


Figure 6. Duck Creek @ Jack Tone Rd 2009 implemented management practices. Preliminary results based on 2010 follow up surveys.



Lone Tree Creek @ Jack Tone Rd

Figure 7. Lone Tree Creek @ Jack Tone Rd member parcels with direct drainage potential.



Sixty percent of the Lone Tree Creek subwatershed (San Joaquin County portion) was determined to have direct drainage (14,583 of 24,014 acres) based on GIS land use layers (Table 2, Figure 7). Thirty-eight percent of the parcels with direct drainage are enrolled in the Coalition (5,520) and 43 members representing 4,646 acres filled out surveys with current management practice information (Table 2).

Of the members who filled out the surveys, 43% recorded that they had tail water runoff and 66% recorded that they have storm water runoff (Figure 8 and 9). The most common management practice currently implemented by growers in Lone Tree Creek is using less of pesticides of concern including chlorpyrifos (25 4%) followed closely by reducing runoff water volumes through irrigation management (21%, Figure 10). Additional management practices include use of center grass rows, grass waterways or grass filter strips and installation of micro sprinkler or drip irrigation (Figure 10). A small percentage of growers (7%) have installed retention ponds, holding basins or return systems and 2% of the acreage represented by growers who filled out surveys treated with Polyacrylamide (PAM) (Figure 10). Fifteen percent

of the growers who filled out a survey did not respond regarding current management practices. In 2008, approximately 46% of the direct drainage acreage enrolled in the Coalition recorded the current use one or more management practices specific to runoff management and/or pesticide application management.

Figure 8. Percentage of acreage of priority members within Lone Tree Creek with tailwater runoff.

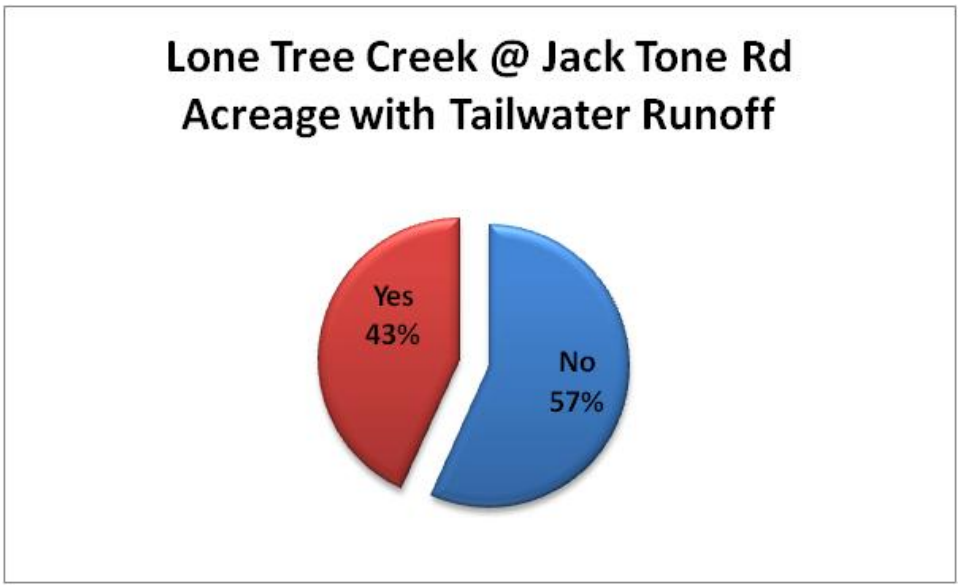


Figure 9. Percentage of acreage of priority members within Lone Tree Creek with stormwater runoff.

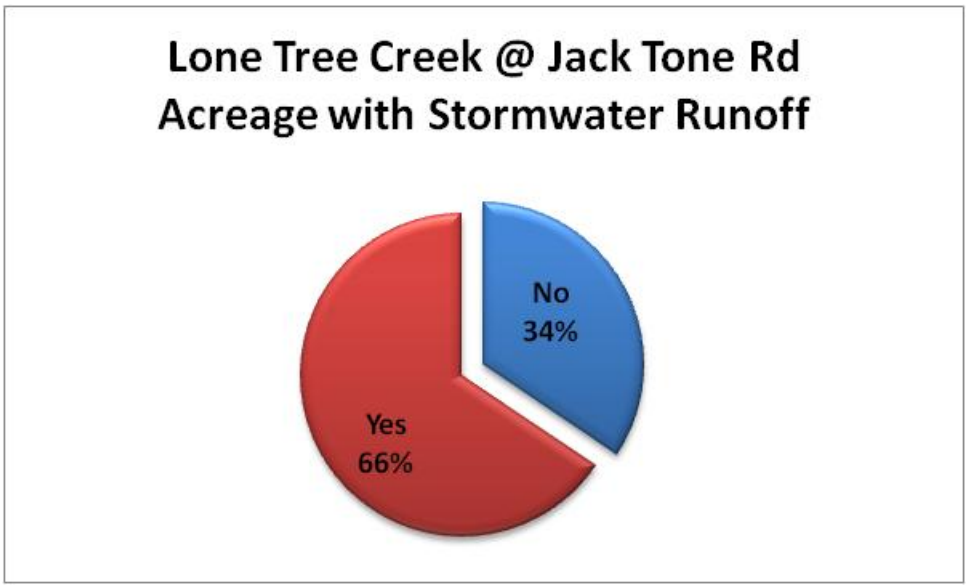
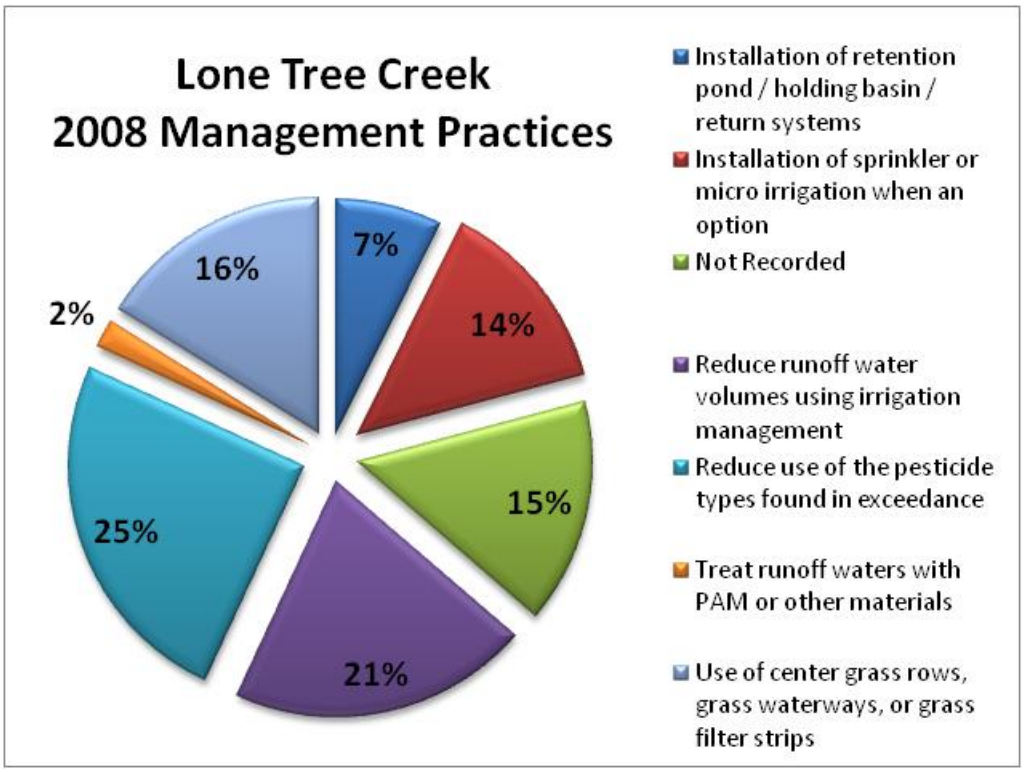


Figure 10. Lone Tree Creek @ Jack Tone Rd 2008 management practices.



Of the growers that indicated that they intended to implement additional practices in 2009, 36% intend to implement practices to reduce applications of pesticides of concern including chlorpyrifos (Figure 11). Twenty-five percent intend to implement irrigation management practices to reduce water runoff, 12% intend to install micro sprinkler or drip irrigation, 6% intend to install a retention pond, holding basin or return system, and 9% intend to use center grass rows, grass waterways or grass filter strips (Figure 11). Twelve percent of the growers who filled out a survey did not indicate that they would implement any additional practices in 2009 (Figure 10).

Preliminary results of the follow up surveys indicate that additional management practices were implemented across 2,958 member acres with direct drainage to Lone Tree Creek. Implemented practices include installation of sprinkler or microspray irrigation, reducing runoff water volume using irrigation management, reducing use of pesticides of concern, and using center grass rows, grass waterways or grass filter strips (Figure 12).

Figure 11. Lone Tree Creek @ @ Jack Tone Rd 2009 management practices (to be implemented).

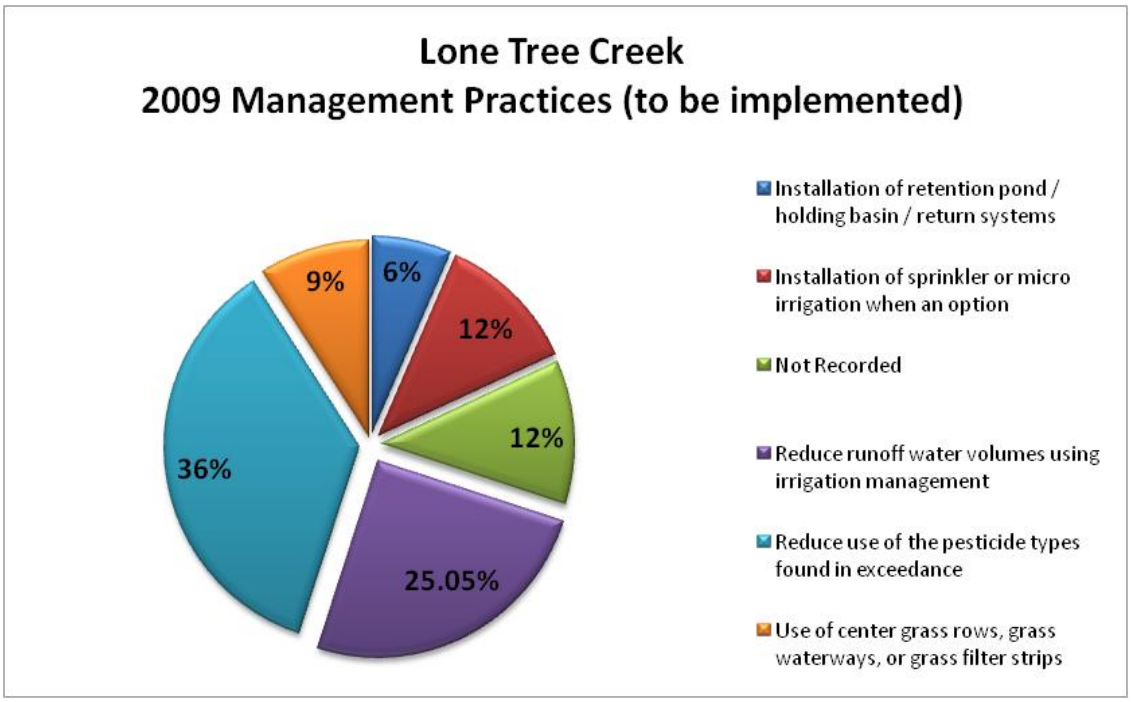
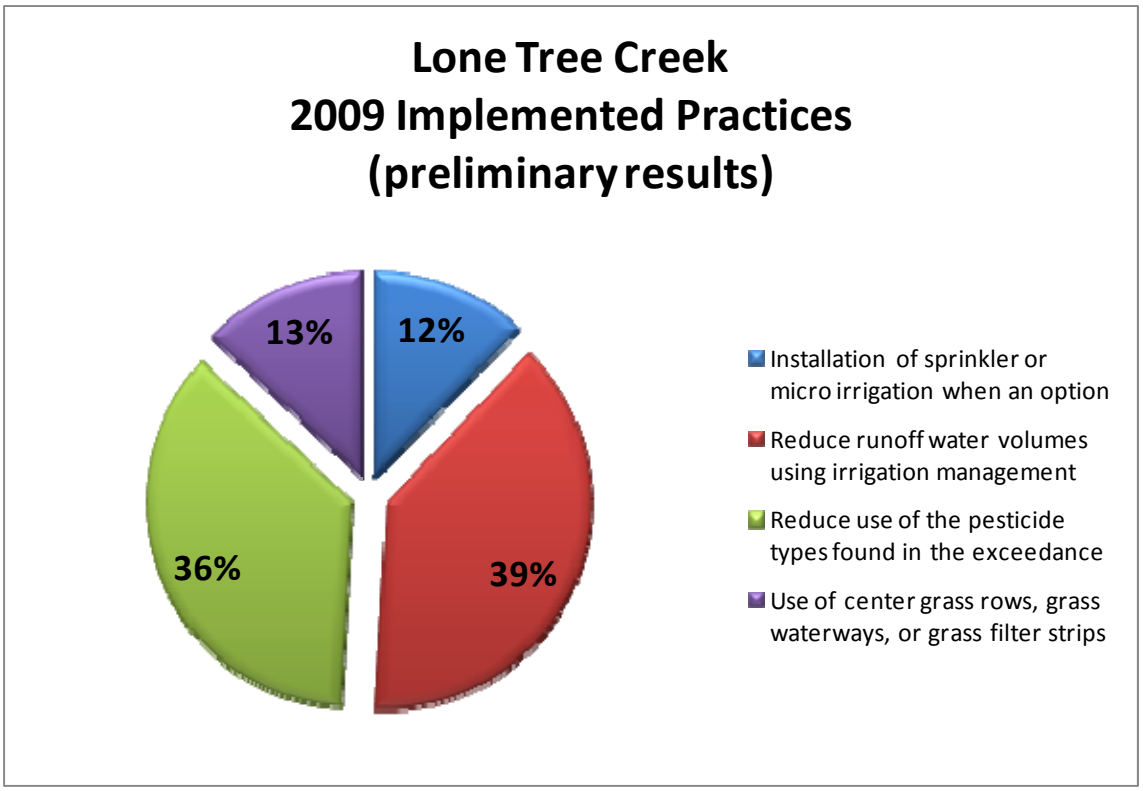
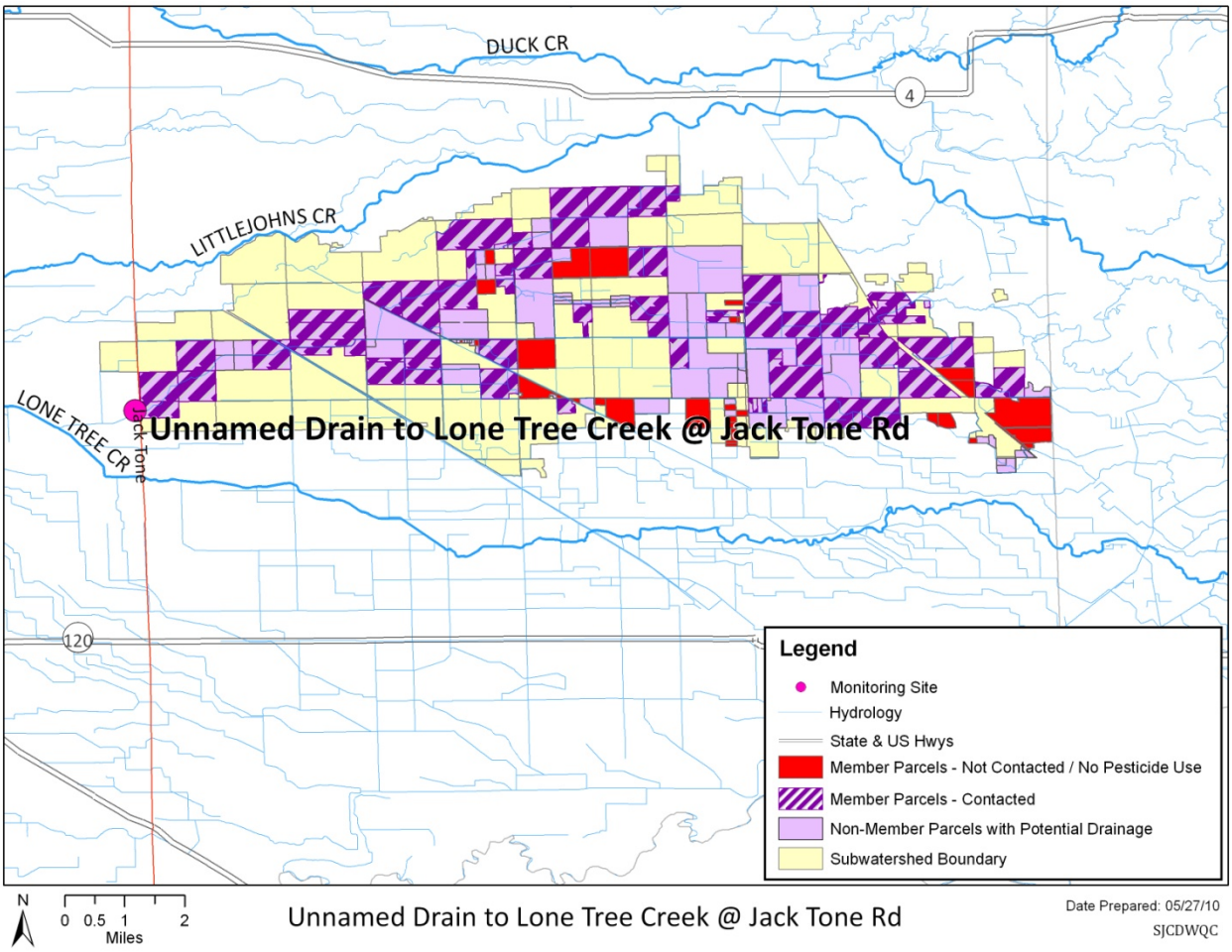


Figure 12. Lone Tree Creek @ Jack Tone Rd 2009 implemented practices. Preliminary results based on follow up surveys.



Unnamed Drain to Lone Tree Creek @ Jack Tone Rd (Temple Creek)

Figure 13. Unnamed Drain to Lone Tree Creek @ Jack Tone Rd member parcels with direct drainage potential.



Seventy-nine percent of the Unnamed Drain to Lone Tree Creek subwatershed (also known as Temple Creek, San Joaquin County portion) was determined to have direct drainage (19,417 of 24,500 acres) based on GIS land use layers (Table 2, Figure 13). Fifty percent of the parcels with direct drainage are enrolled in the Coalition (9,648) and 46 members representing 8,112 acres filled out surveys with current management practice information (Table 2).

Of the members who filled out the surveys, 33% recorded that they had tail water runoff and 20% recorded that they have storm water runoff (Figure 14 and 15). The most common management practice currently implemented by growers in the Unnamed Drain to Lone Tree Creek subwatershed is using less pesticides including chlorpyrifos (27%) followed closely by two irrigation management practices including reducing runoff water volumes through irrigation management (21%) and installing sprinkler or microspray irrigation (25%) (Figure 16). Additional management practices include use of center grass rows, grass waterways or grass

filter strips (14%) and installation of a retention pond, holding basin or return system (13%, Figure 16). In 2008, a majority of the direct drainage acreage (63%) enrolled in the Coalition recorded the implementation of one or more management practices specific to runoff management and/or pesticide application management.

Figure 14. Percentage of acreage of priority members within Unnamed Drain to Lone Tree Creek with tailwater runoff.

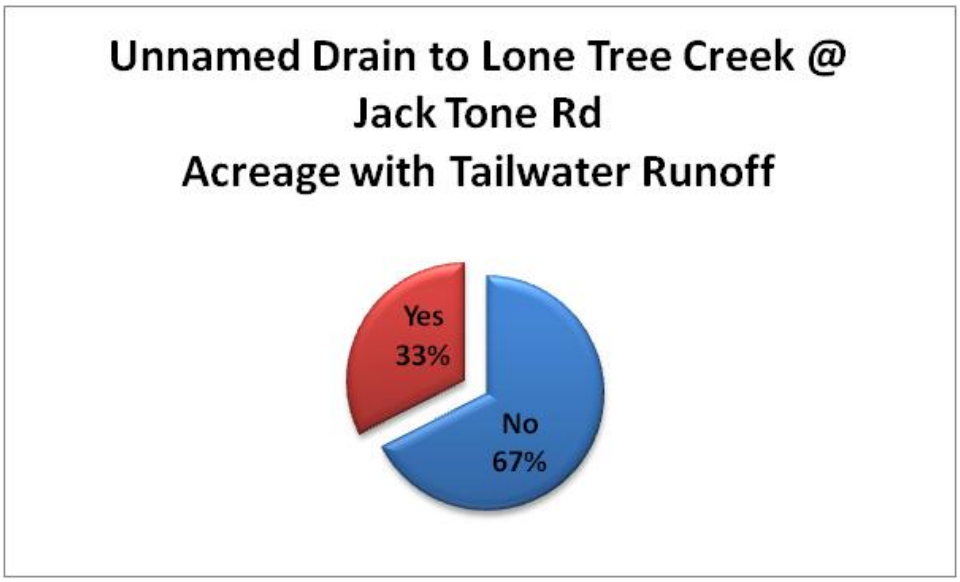


Figure 15. Percentage of acreage of priority members within Unnamed Drain to Lone Tree Creek with stormwater runoff.

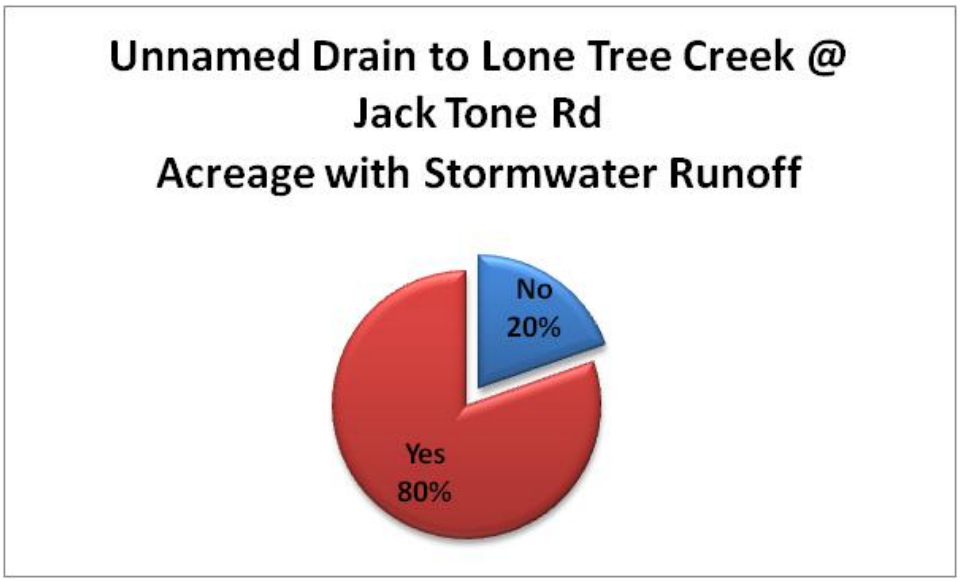
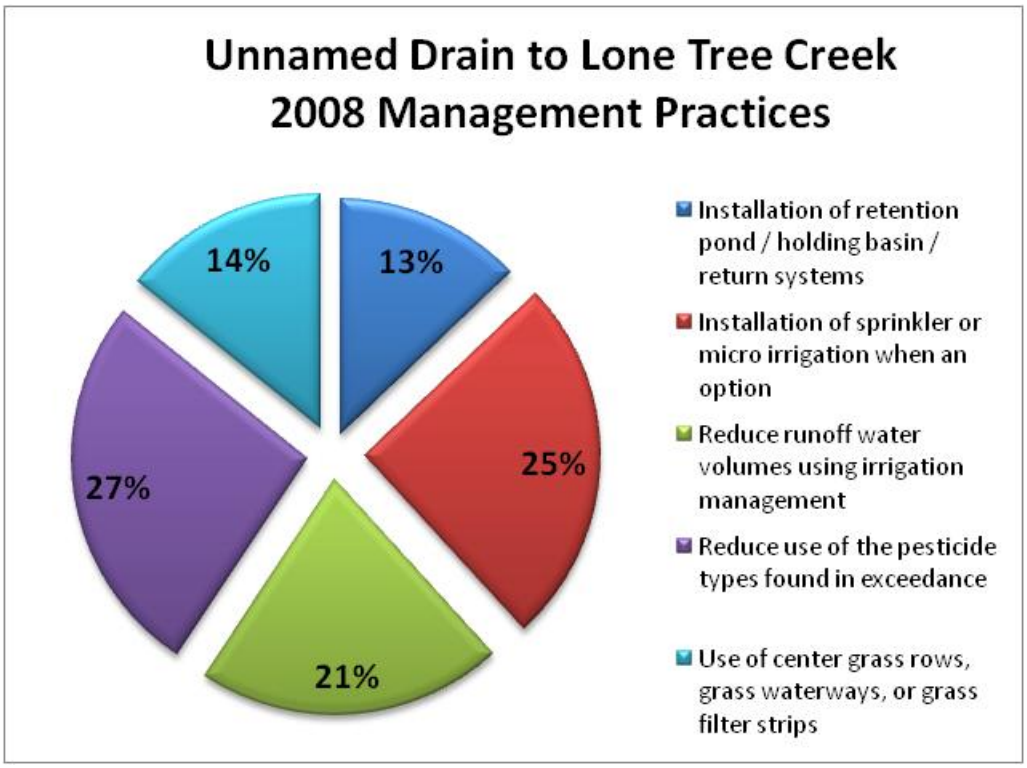


Figure 16. Unnamed Drain to Lone Tree Creek @ Jack Tone Rd 2008 management practices.



Of the growers that indicated that they intended to implement additional practices in 2009, 27% intend to implement practices to reduce applications of pesticides including chlorpyrifos (Figure 17). Twenty-two percent intend to install micro sprinkler or drip irrigation, 18% intend to implement irrigation management practices to reduce water runoff, 12% intend to install a retention pond, holding basin or return system, and 15% intend to use center grass rows, grass waterways or grass filter strips (Figure 17). Ten percent of the growers who filled out a survey did not indicate that they would implement any additional practices in 2009 and 1% indicated that they do not make management practice decisions but would talk to the appropriate person about management practices.

Preliminary results of the follow up surveys indicate that additional management practices were implemented across 4,649 member acres with direct drainage to Lone Tree Creek. Implemented practices include installation of sprinkler or microspray irrigation, reducing runoff water volumes using irrigation management, reducing use of pesticides of concern, and using center grass rows, grass waterways or grass filter strips (Figure 18).

Figure 17. Unnamed Drain to Lone Tree Creek @ Jack Tone Rd 2009 management practices (to be implemented).

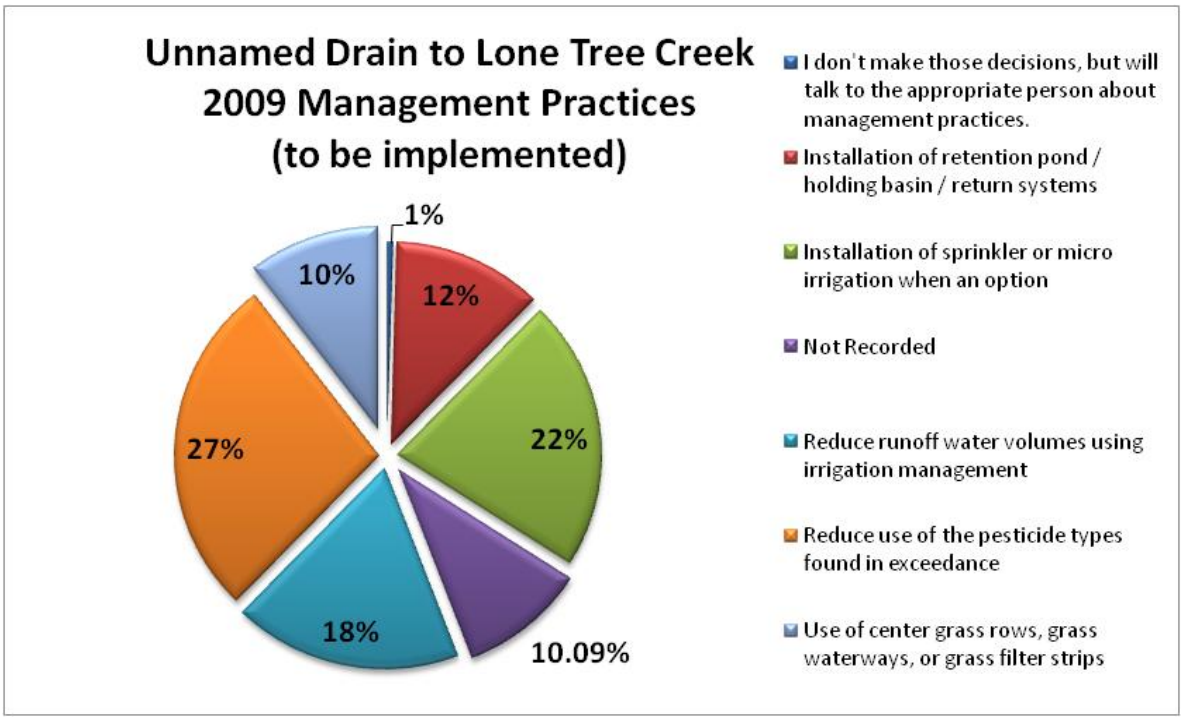
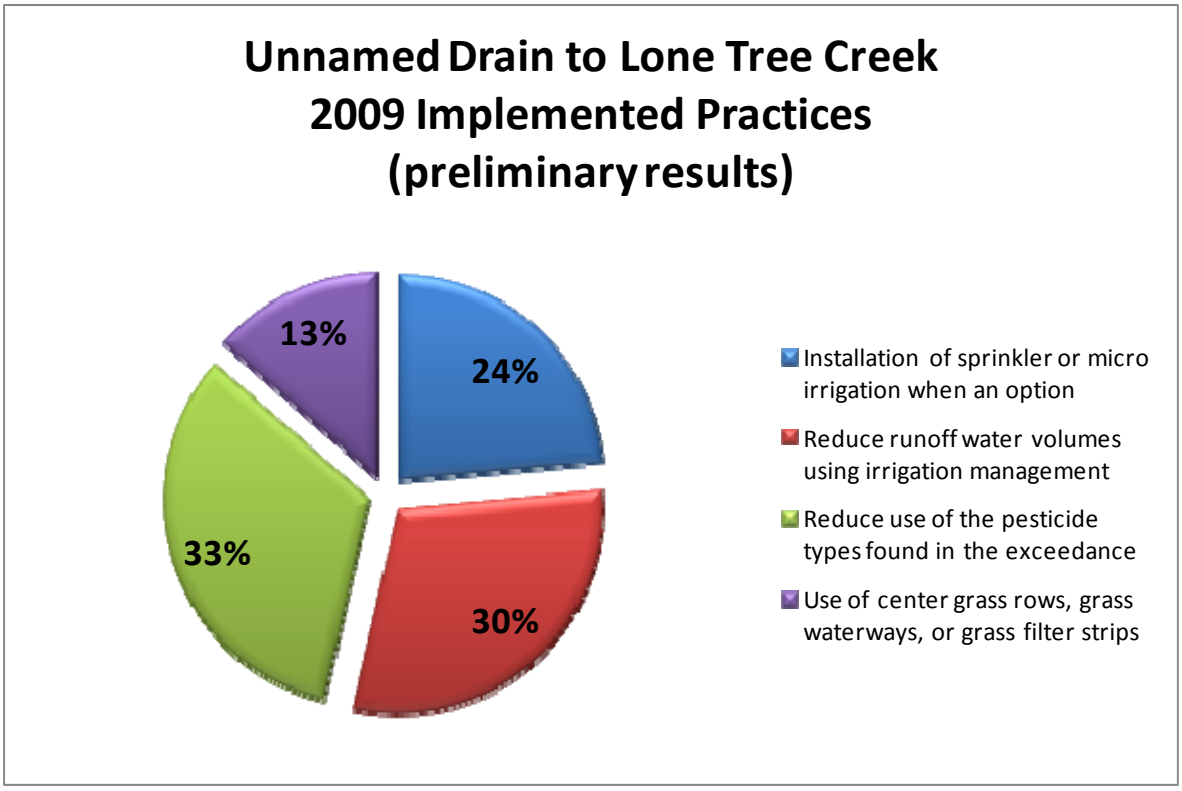



Figure 18. Unnamed Drain to Lone Tree Creek Rd 2009 implemented practices. Preliminary results based on follow up surveys.