

EXECUTIVE SUMMARY

The California Rice Commission (CRC) is fulfilling the regulatory requirements required by the Central Valley Regional Water Quality Control Board (CVRWQCB) for the 2005 Rice Pesticides Program by preparing the following summary of rice pesticide applications, water monitoring of surface waters and laboratory analysis results. Historically, the Department of Pesticide Regulation (DPR) has been responsible for program administration with the CRC paying a portion of the monitoring expenses. In 2003, the CRC assumed DPR's program responsibilities of sample monitoring, laboratory analysis, program recommendations and report writing. The mandated responsibility of pesticide enforcement on compliance is still under purview of the DPR.

Kleinfelder has been the contractor collecting water samples for the Rice Pesticides Program since 1995. The CRC continues to contract with Kleinfelder by expanding the contract to include: 1) development of charts; 2) development of maps; 3) weather information; 4) laboratory analytical results, and; 5) writing the sampling monitoring summary.

The CRC's responsibility involves writing the sections that summarize the: 1) planting season; 2) rice acreage; 3) pesticide applications; 4) permit conditions; 5) seepage control; 6) coordinating the DPR and county agricultural commissioner (CAC) enforcement activities; 7) pesticide sales; 8) formation of the Storm Event Work Group; 9) pesticide use trends, and 10) sorting the pesticide use data provided by DPR.

In 1983, California's pesticide regulatory agency (now DPR, then a California Department of Food and Agriculture (CDFA) division), the CACs, the Department of Fish and Game (DFG), State Water Resources Control Board (SWRCB), CVRWQCB and the rice industry worked together to develop and implement a plan to control discharges of pesticides from rice fields. In 1990, the CVRWQCB established a water quality objective based on the secondary Maximum Contaminant Level (MCL) for thiobencarb in its *Fourth Edition Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins*. The Basin Plan also established

performance goals¹ for molinate and thiobencarb in 1990 and for carbofuran, malathion and methyl parathion in 1991. The objective of the Rice Pesticides Program is to protect water quality in receiving waters adjacent to rice fields, including agricultural drains. Over the years, the Rice Pesticides Program has proven successful in significantly reducing rice pesticides in the Sacramento River.

All pesticide use data for 2005 are based on preliminary data reported to DPR at the end of the rice pesticide application period, and prior to inclusion in the DPR pesticide use report database. The rice pesticide use data in this report are subject to revision after error-checking procedures are carried out by DPR on the data submission.

In summary, the significant highlights of the 2005 rice pesticide application season were:

- A total of 511,000 acres were planted in the Sacramento River Basin, a decrease of 94,000 acres compared to 605,000 acres planted in 2004.
- A total of 13 emergency release inquiries were made with eight authorizations.
- No performance goal or MCL exceedances for thiobencarb and molinate.
- The CACs issued enforcement and compliance actions for water-hold and seepage violations.
- Usage increases were noted in the following rice pesticides by comparison of 2004 to 2005:

¹ Performance goals are target concentrations developed to protect the beneficial uses of surface water from rice pesticide contamination and provide a level by which compliance with a monitoring program could be measured.

ACTIVE INGREDIENT/TRADE NAME	2004-ACRES TREATED	2005-ACRES TREATED	TOTAL ACRES INCREASE
Carabryl	0	2,242	2,242
Lambda cyhalothrin (Warrior®)	46,208	50,416	4,208
Malathion	0	301	301
Methyl parathion	0	82	82
Penoxsulam (Granite GR)*	0	66,206	66,206

Pesticides that are in bold are included in the *Fourth Edition Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins*.

* Reduced-risk herbicide.

- Usage decreases were noted in the following rice pesticides by comparison of 2004 to 2005:

ACTIVE INGREDIENT/TRADE NAME	2004-ACRES TREATED	2005-ACRES TREATED	TOTAL ACRES DECREASE
Bensulfuron-methyl (Du Pont™ Londax® Herbicide)	30,086	14,166	15,920
Bispyribac-sodium (Regiment™)*	90,611	53,159	37,452
Carfentrazone-ethyl (Shark®)*	43,114	23,226	19,888
Clomazone (Cerano™)	83,014	65,351	17,663
Cyhalofop-butyl (Clincher™)*	179,884	73,345	106,539
Diflubenzuron (Dimilin®)	4,301	1,915	2,386
(s)-cypermethrin (Mustang™ 1.5 EW Insecticide)	36,741	19,816	16,925

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ACTIVE INGREDIENT/TRADE NAME	2004-ACRES TREATED	2005-ACRES TREATED	TOTAL ACRES DECREASE
Molinate (Ordram™)	85,537	38,555	46,982
Propanil (Stam™ 80 EDF, Super WHAM!® CA, WHAM EZ CA®)	309,987	284,565	25,422
Thiobencarb (Abolish™, Bolero®)	118,691	100,571	18,120
Triclopyr TEA (Grandstand™)	266,702	219,864	46,838

Pesticides that are in bold are included in the *Fourth Edition Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins*.

* Reduced-risk herbicide.

- No reportable treated acreage for methyl parathion in 2003 and again in 2004. In 2005, 82 acres were treated.
- The CVRWQCB staff consulted with the DFG to conclude that toxicity testing would be on a triennial basis, and a requirement for 2005. Toxicity testing using *Ceriodaphnia dubia* was performed once per week at Colusa Basin Drain 5 (CBD5) for eight weeks (April 26-June 14, 2005). No sample was collected on May 3, 2005, due to contractor error. The CRC has seven rather than eight toxicity analysis for 2005. All toxicity analysis resulted in no significant mortality of *Ceriodaphnia dubia*.
- The CRC maintained the five primary monitoring sites from 2004. Please see Chapter 3 for a map and description of the monitoring sites.
 - CRC monitoring sites for 2005:
 - Colusa Basin Drain #5 (CBD5)
 - Butte Slough #1 (BS1)
 - Colusa Basin Drain #1 (CBD1)
 - Sacramento Slough #1 (SS1)
 - Sacramento River Village Marina (SR1)

- The performance goals for the requisite pesticides were not exceeded. The following is a summary of rice pesticide detections in the Sacramento River Basin in 2005.

The CVRWQCB Basin Plan establishes performance goals, which protect aquatic life in all water bodies, for the pesticides monitored for the Rice Pesticides Program.

- Molinate at 10.0 ppb
- Thiobencarb at 1.5 ppb
- Malathion at 0.1 ppb
- Methyl parathion at 0.13 ppb

SITES	MOLINATE	THIOBENCARB
CBD5	• Five detections below the performance goal ranging from 0.78 ppb to 2.44 ppb.	• Sixteen detections below the performance goal ranging from 0.09 ppb to 0.45 ppb.
BS1	• Seven detections below the performance goal ranging from 0.53 ppb to 3.60 ppb.	• Fifteen detections below the performance goal ranging from 0.03 ppb to 0.36 ppb.
CBD1	• Three detections below the performance goal ranging from 0.34 ppb to 1.53 ppb.	• Fifteen detections below the performance goal ranging from 0.11 ppb to 0.67 ppb.
SS1	• Three detections below the performance goal ranging from 0.70 ppb to 2.90 ppb.	• Fourteen detections below the performance goal ranging from 0.03 ppb to 0.63 ppb.
SR1	• Two detections below the performance goal ranging from 0.10 ppb to 0.19 ppb.	• Six detections below the performance goal ranging from 0.03 ppb to 0.07 ppb.

Management practices must achieve compliance with the secondary MCL of 1 ppb for thiobencarb, as a water quality objective in any water body designated as municipal or domestic supply. All municipal waters must also comply with a thiobencarb primary MCL of 70.0 ppb and the molinate MCL of 20.0 ppb. The Cities of Sacramento (SRR) and West Sacramento (WSR) monitor at their respective water treatment plant intakes on the Sacramento River.

SITES	MOLINATE	THIOBENCARB
SRR	• One detection at 0.10 ppb.	• No levels detected.
WSR	• Four detections ranging from 0.12 ppb to 0.16 ppb.	• One detection at 0.11 ppb.

Concentrations at WSR were higher than SRR probably due to the WSR site location north of the confluence of the American River. The SRR site received more dilution as a result of being located closer to the American River confluence with the Sacramento River.

In mid-June, the CRC received a call from the Sacramento CAC that the Reclamation District 1000 (RD1000), within the Natomas Central Mutual Water District (NCMWD), had requested an emergency release. The situation gave the CRC an opportunity to test the Storm Event Work Group Communications Plan. On Saturday, June 11, 2005, the CRC met Kleinfelder, the Sacramento CAC and RD1000 at Pump #8 off Del Paso Boulevard to sample prior to the emergency release. Another sample was collected at the big drain north of Sankey Road and west of Highway 99. The sample was representative of Pump #4, which acts as a closed system per agreement between the Sutter CAC and RD1000. On June 18, the CRC received a call for a second emergency release at RD1000. The events leading up to the emergency releases will be discussed in Chapter 2. Summary of the RD1000 emergency release monitoring:

Sample Dates	California Rice Commission <i>Detection Limit: 0.5 ug/L</i> Thiobencarb		California Rice Commission <i>Detection Limit: 0.5 ug/L</i> Molinate		City of Sacramento Discovery Boat Dock <i>Detection Limit: 0.10 ug/L</i>	
	Pump 8	Drain at Pump 4	Pump 8	Drain at Pump 4	Molinate	Thiobencarb
11-June	ND	17.2	ND	ND	NS	NS
15-June	NS	NS	NS	NS	0.28	0.30
18-June	1.84	0.89	ND	ND	NS	NS

Concentrations are reported in ug/L (parts per billion)
NS = Not Sampled

ND = Not Detected above laboratory reporting limits

For 2003, 2004 and 2005, staff from the CVRWQCB and DPR collaborated with the CRC to develop program recommendations for thiobencarb use. These recommendations were adopted as conditions of approval in CVRWQCB Resolution

No. R5-2005-0051. In 2005, the water-holding requirements remained the same with some changes to the permit conditions that include:

- Prior to making thiobencarb applications, the permittee or his/her authorized representative shall attend a 2005 Thiobencarb Stewardship meeting sponsored by the California Rice Commission.
- Use of Bolero® 10 G formulation is prohibited in the Sacramento Valley rice growing counties of Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Tehama, Yolo and Yuba.
- All counties within 1/2 mile of the Sacramento and Feather Rivers: Aerial applications shall occur only when the wind speed is seven miles per hour or less and wind direction is away from the river.
- In the Sacramento and Yolo Counties only, no aerial applications shall be made within 1/4 mile of the Sacramento River unless:
 1. Ground applications are allowed within the buffer zone; OR
 2. All applications are made under the direct supervision of the commissioner's representative; OR
 3. No more than 33 percent of the total average applied (from the 2002 daily average) in Sacramento and Yolo Counties within the buffer zone.
- Formation of a Storm Event Work Group.
- The CRC contracting with the CACs to increase off-duty inspections.
- DPR provides the CRC with use reporting data and enforcement data for inclusion in the CRC's annual report.

Highlights of the 2005 rice-growing season:

- Planted acreage decreased 94,000 acres from 2004.
- Herbicide resistance continues to be a problem with a limited number of herbicides registered in California and an even more limited selection due to similar modes of action.
- Surveillance and seepage inspections continue to increase.
- Late spring storms and cool weather were responsible for late plantings and decreases in yields.
- Authorization of eight emergency releases with no MCL or performance goal exceedances.
- Implementation of the Storm Event Work Group communications plan in June.
- Sampling for two storm events took place in the Natomas Basin.

The CRC will continue to work collaboratively with staff from the CVRWQCB and DPR to ensure a successful future for the Rice Pesticides Program. Over the years, program success can also be attributed to the continual relationships with the DFG, Rice Research Board (RRB), Rice Experiment Station (RES), University of California Cooperative Extension (UCCE), University of California Davis (UCD) researchers, CACs, pesticide registrants and rice growers. At this time, the CRC does not propose any changes to the Rice Pesticides Program for 2006.

Time did not allow for completion of the 2006 recommendations prior to the due date for this report of January 1, 2006. The CRC will consult with the CVRWQCB and DPR, to suggest continuance of the 2005 recommendations with minor modifications for 2006. A meeting with the CVRWQCB, DPR and CRC will be held in January 2006 to concur on recommendations for the 2006 rice pesticides program.