



Propanil-Resistant Smallflower Umbrella Sedge

Luis Espino, UCCE Colusa County

Research conducted by Albert Fischer and James Eckert, Department of Plant Sciences, UC Davis, has confirmed that some populations of smallflower umbrella sedge from rice fields in the Sacramento Valley have become resistant to propanil. Following is a summary of their findings.

Smallflower umbrella sedge seed from eight fields where resistance was suspected was collected and germinated in the greenhouse. Plants were grown in pots and, at the 2-3 or 4-5 leaf stage they were sprayed with SuperWham, UltraStam or RiceShot at half field rate, recommended field rate, and twice field rate. Both spray timings produced similar results, but the earlier application produced the most striking results.

Table 1. Percent control of smallflower umbrella sedge with 3 formulations of propanil applied at 6 lbs a.i./a

Field	SuperWham	UltraStam	RiceShot
1	90	68	91
2	100	99	100
3	62	63	74
4	29	13	20
5	100	100	100
6	23	8	45
7	100	96	100
8	6	31	27

Table 1 shows the percent control of smallflower umbrella sedge when sprayed with 3 formulations of propanil. For simplicity, I'm showing only the results of the application with 6 lbs a.i./a. Percent control of smallflower umbrella sedge from fields 4, 6 and 8 was very poor, between 6 and 45%. Control of smallflower umbrella sedge from field 3 was mediocre, between 62 and 74%. And control of smallflower umbrella sedge from fields 1, 2, 5 and 7 was very good, between 68 and 100%.

Smallflower umbrella sedge from fields 1, 2, 5 and 7 can be considered susceptible to the formulations of propanil applied. They were tested because control failure had been observed in the field. Results from the greenhouse tests suggest that something went wrong with the field application. For example, the application could have been made too late, coverage may have not been appropriate, there could have been incompatibility in the tank mix, wrong application rates might have been used, etc. Populations from fields 3, 4, 6 and 8 can be considered resistant. This prompts the question, what are the options to control these populations?

To answer this question, another set of greenhouse tests were conducted to evaluate herbicide options for propanil-resistant smallflower umbrella sedge. Results (Table 2) show that propanil-resistant smallflower umbrella sedge was also resistant to Londax, resistant or partially resistant to Granite SC and Sandea, and susceptible to Shark H2O when applied as a foliar.

Table 2. Percent control of smallflower umbrella sedge with alternative herbicides.

Field	Londax (1 ² / ₃ oz/a)	Granite SC (2 fl oz/a)	Shark H2O (8 dry oz/a)	Sandea (0.75 dry oz/a)
3	0	79	100	16
4	0	78	100	46
6	46	85	100	88
8	64	86	100	97

Results suggest that in fields with propanil-resistant smallflower umbrella sedge, Shark H2O could be used to achieve control. In fields where resistance is not a problem yet, the best approach is to alternate modes of action whenever possible. If you suspect you have propanil-resistant smallflower umbrella sedge, collect seeds at the end of the season and take them to the Weed Science project at the Rice Experiment Station in Biggs for screening.



Armyworms in Rice

Luis Espino, UCCE Colusa County

Armyworms are common in rice fields from mid-July to August. Two species can infest rice, the armyworm and the western yellowstriped armyworm. These insects build up their populations in alfalfa, other grains and grasses, and invade rice late in the season. The adults are moths that lay their eggs either on rice leaves or on broadleaf weeds within rice fields. After the eggs hatch, the small larvae begin feeding on rice foliage and/or panicles. Young larvae are hard to see, they can be less than a quarter of an inch long and their color mimics older rice foliage. Larvae go through a series of molts, growing to 1.5 to 2 inches. When they are ready to pupate, they drop to the ground in search for a good pupation site in the soil. In rice, they usually drown. I have seen armyworms pupate in the leaf sheath of older leaves at the base of plants at the water level, but this is uncommon.

Foliage feeding does not affect yield unless the armyworms consume 25% or more of the crop's foliage. It's not uncommon to walk a rice field and find areas where feeding is noticeable. In those areas, open the canopy and look near the water level. You might find armyworms resting there during the day. At night or when it's cooler, they will climb up the plant and continue their feeding. Take notice of the size of armyworms you see – if most of them are small, they will continue their feeding and a treatment might be needed. If you can't find any armyworms, they probably have already completed their cycle and there is no need to do a treatment.

Armyworm damage can be more problematic during heading. Typical panicle injury consists of blank panicle branches, although sometimes the whole panicle can be blank. What happens is that the armyworm bites the rachis of the branch and the grains in that branch don't fill. Sometimes, armyworm injury can be confused with cold temperature blanking. However, if you look closely at the blank panicle or branches, you will see a chewing mark where the blank area begins. Inspect your fields as the panicles come out of the boot – I believe this is when most of the armyworm damage occurs. If after inspecting your field you find that 10% or more panicles are affected, and you can still find armyworms, a treatment might be needed.

For the most part, armyworms are not a major problem in California rice. Some growers experienced severe infestations last year; heavy infestations seem to be cyclical and return every few years. Luckily, armyworms have several natural enemies in rice fields that are very good at keeping their populations down. Birds are important armyworm predators and can function as a warning system for their presence in the field.



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CENTENNIAL CELEBRATION-RICE EXPERIMENT STATION WEDNESDAY, AUGUST 29TH, 2012



FIELD TOURS WITH CANOPIED TRUCKS



**LUNCH WITH VARIOUS RICE DISHES
(AND A LITTLE ENTERTAINMENT)**



RESEARCH DEMONSTRATIONS



POSTERS AND DISPLAYS

Preliminary Program

Registration-7:15 am

Sessions- 8:00 -10:00 am (begin on the hour)

Field Nursery Tour- Breeding Nursery

Medium- V.C. Andaya

Short Grain- S.O. Samonte

Long Grain- F. Jodari

Pathology- J. Oster

Weed Control Nursery (Headquarters)

Rice Presentations UC and USDA-Warehouse

International Research- J.E. Hill

Rice Weed Control- A.J. Fischer

Rice Genetics- T. Tai

Research Demonstrations, Posters,

Equipment and Walking Tours

General Meeting -11:00 am

CCRRF Business Meeting

Guest Speaker- Edward B. Knipling

Administrator USDA-ARS

RES Centennial Presentation-K.S. McKenzie

Lunch-Noon