

UC Cooperative Extension Programs in Delta Rice

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Rice production in the Sacramento-San Joaquin Delta region has been steadily increasing in recent years. While Delta acreage is only a fraction of that in the Sacramento Valley, Delta yields are consistent with statewide averages. Production practices differ between the two regions because of the unique climate and soil conditions in the Delta. In the Delta, cool temperatures limit variety selection to only very-early and early maturing varieties. Also, while growers in the Sacramento Valley practice water-seeding, all Delta acreage is drill-seeded.

Variety Trial

UC Cooperative Extension collaborates with the California Rice Experiment Station to evaluate commercial varieties and advanced breeding lines. The San Joaquin County Delta location was one of seven locations in the 2022 statewide trial. The Delta is a test site for very-early maturing varieties because it has cooler growing conditions than other rice growing regions of the state. Among the entries, M-206 is the most commonly planted variety in the Delta and across the state. It has good agronomic characteristics and consistent quality across different harvest moistures. Some Delta growers also plant M-105, which is a very-early variety that has yielded well in Delta trials but may be slightly more susceptible to rice blast disease than M-206. Among the newer varieties, M-210 is early maturing, blast resistant, and may be a good option for the Delta. Variety M-211 is not well-adapted to cooler environments, and quality appears to decrease below 18 percent harvest moisture. For the 2022 trial results, see the San Joaquin County Field Notes newsletter, February 2023 edition.

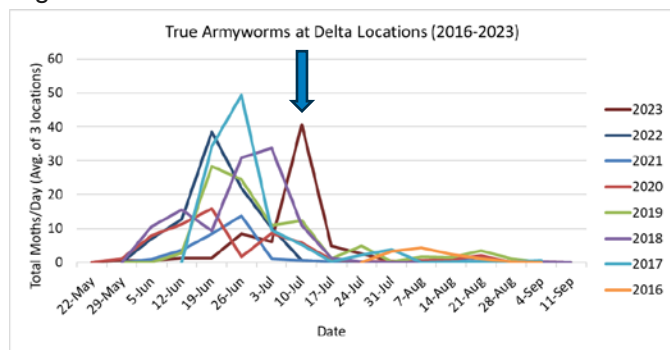
Herbicide Trials

Over the last several years, we have conducted trials to evaluate the efficacy of a new herbicide product, Loyant (florpyrauxifen-benzyl; Corteva Agriscience), on grasses and sedges in the Delta drill-seeded system. Loyant is now registered and was available for the 2023 season. Over the last two years, we have been evaluating Loyant for efficacy on cattails because in the drill-seeded system, cattails may emerge ahead of the rice crop and outcompete the rice. In both years, we found that the label rate of Loyant had efficacy on cattails that were less than three feet tall. When treated by that size, we were later able to pull up desiccated plants, including the rhizomes. Growers will need to be cautious of drift issues, however, because pistachio and grape are highly-susceptible to drift damage by Loyant, with almond, walnut, and peach being minorly damaged.



Armyworm Monitoring

UCCE has been monitoring armyworm populations in the Delta since 2016. Monitoring involves scouting for damage and deployment of pheromone bucket traps that catch the moths. We can use trap counts and Growing Degree Day modelling (i.e. a temperature measure of time) to determine whether and when to treat fields. In 2023, the peak flight occurred weeks later than what we had previously observed, likely due to the cool, wet spring and later planting season. Also in 2023, Methoxyfenozide (Intrepid 2F) was available for use under full registration.



Cover Cropping

With funding from the CDFA Healthy Soils Program and CA Rice Research Board, we are evaluating winter cover crops to learn whether cover cropping improves soil carbon and nitrogen dynamics in the rice system. Since rice may be grown over multiple seasons without rotation, cover crops may provide an opportunity to introduce plant diversity, including nitrogen-fixing legumes. Trials will occur from 2022-2025, and the Delta site is one of three (also in Butte and Colusa counties). Typical winter management in the Delta system is to winter flood. Fields are drained in late January or early February, with ground preparation occurring in February and March. Planting begins in April and can run into early May. Cover crop management needs to fit into this timeline because delays could compromise rice production. In the trial, cover cropping is done in place of winter flooding and is compared to a flooded untreated control.

The 2022-2023 winter season presented a number of challenges for cover cropping. At the Delta location, seasonal rainfall exceeded 25 inches, and in the ten days after planting, the site received nearly 3.5 inches of rain. In addition to saturated soils, bird predation was severe. In future years, the aim is to plant earlier in the fall, if conditions allow. However, challenges like weather, predation, cost, and timing of operations make cover cropping challenging to incorporate and could hinder long-term adoption.

Other Observations

On-farm consultations are a service provided by UCCE. We can help identify pests and provide management guidelines. We have identified diseases like stem rot and rice blast on some Delta farms. It is important to scout for these diseases at late-tillering and early-heading because treatment timing is critical for management. Fungicide treatments are most effective when applied at early-heading. We should continue to keep weedy rice on our radars because we have seen it in the Delta in the past. We have observed that keen management – including in-season rogueing, post-harvest management that includes straw chopping but **not** incorporation, and winter flooding – can reduce, if not eliminate the pest. The organic herbicide Suppress is registered for spot spraying. Also, consider leaf tissue sampling for potassium. When rice straw is baled, approximately 28 lb K/ac for every ton of straw is removed from the system, and K can be limiting in some Delta soils. Between tillering and panicle initiation, the Y-leaf should have a K concentration of at least 1.5%. At heading, the flag leaf should have a K concentration of at least 1.2%. Please contact me if you would like to schedule a consultation.

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