Modeling Weed Growth in California Rice: Opportunities for Management.

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Due to the development of herbicide resistance in major weed species of rice in California, including *Cyperus difformis* L. (smallflower umbrella sedge) and *Echinochloa phyllopogon* (Stapf) Koss (late watergrass), it is has become necessary to use integrated pest management (IPM) techniques. IPM in rice includes cultural controls such as alternative tillage and irrigation methods, as well as stewardship of our remaining herbicides.

Predicting the emergence and growth patterns of major weed species under a variety of tillage and irrigation methods will enable us to effectively suppress weeds using these methods. Likewise, to prevent the evolution of resistance to the remaining herbicides, it is important to utilize these herbicides at the appropriate growth stage of each weed. We have been developing a model that will utilize soil temperature and moisture to accurately predict the emergence and growth of late watergrass and smallflower umbrella sedge. The model will be an effective tool for growers to utilize in the management and prevention of herbicide resistant weeds.