California Weed Science Society, 73rd Annual Conference, 2021

Efficacy of Florpyrauxifen-benzyl in California Water Seeded Rice

Deniz Inci*, Kassim Al-Khatib

Department of Plant Sciences, University of California, Davis, CA, USA
*Corresponding author: inci@ucdavis.edu

Introduction

- Florpyrauxifen-benzyl (FB) is a new synthetic auxin rice herbicide to control broadleaf weeds, grasses, and sedges.
- FB is anticipated to be widely used by rice growers as it is near to be registrated in California.
- With wide spread of herbicide resistant weeds in CA rice fields, FB can be effective tool to manage herbicide resistant weeds.

Objective

- This study was conducted to evaluate the effects of FB on the weed control, crop safety, and yield in CA rice.

Experimental Design

- Three rice fields (Arbuckle, Biggs, and Willows) were seeded in early May, and herbicides were applied in June 2020 when the rice was at a 4-5 leaf growth stage.
- Herbicide treatments were FB alone at 0.5, 1, and 2 pt/A; and FB (1 pt/A) tank mix of propanil (PP) at 3 and 6 qt/A; penoxsulam (PX) at 2.3 and 2.8 fl oz/A; and bispyribac-sodium (BS) at 0.4 and 0.67 oz/A.
- The studies were a RCBD with four replicates.
- All three fields were evaluated for weed control and crop injury ratings at 7, 14, 21, 28, and 60 days after treatment (DAT).
- Weeds were counted at 28 DAT within two randomly selected areas in each treatment plot, and rice yield measured at the harvest.

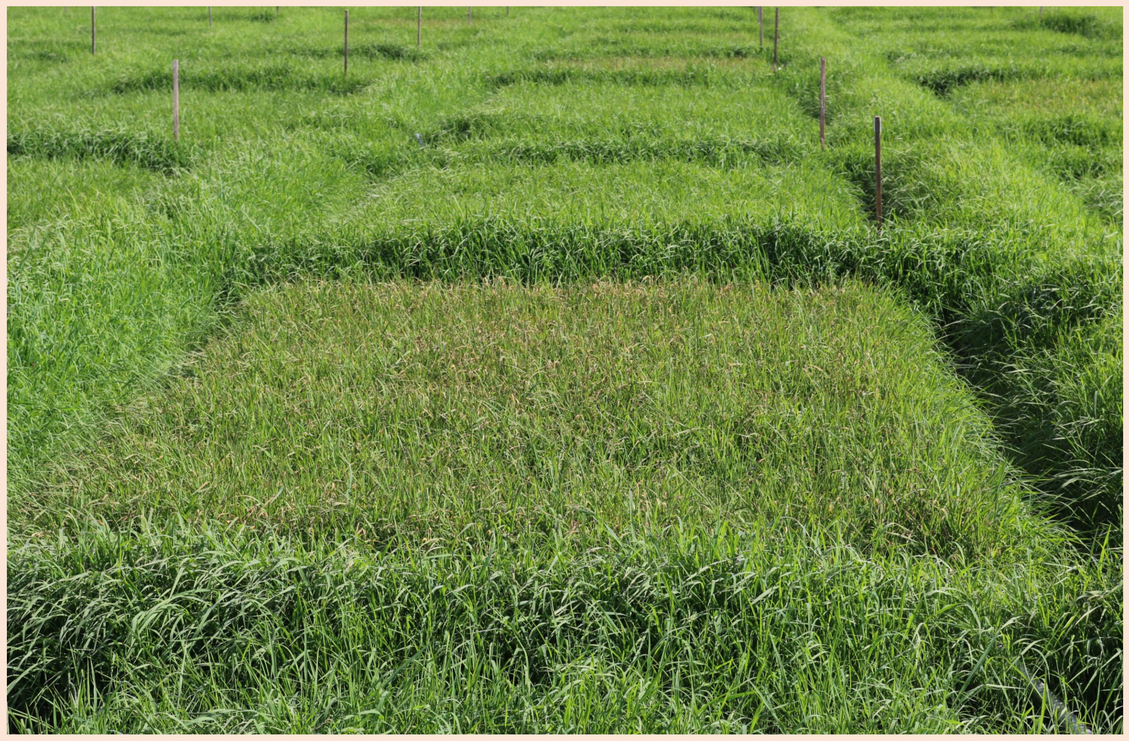

Figure 1. Herbicide treatments were conducted at 10X20 ft plots, each plot as an experimental unit.

- Yield were determined at 14% rice moisture.
- Data analyzed using R software, and LS means at (α=0.05).

Results

- Arbuckle: 99% control of watergrass and sprangletop, and 97% control of bulrush and smallflower umbrella sedge with FB and BS treatment at 1 pt/A and 0.67 oz/A at 28 DAT.
- Biggs: 93% watergrass and 99% control of sprangletop with FB and BS treatment at 1 pt/A and 0.67 oz/A, 94% control of bulrush and smallflower umbrella sedge with FB and PP at 1 pt/A and 6 qt/A.
- Willows: 99% watergrass and sprangletop control, and 97% bulrush and smallflower umbrella sedge control were observed with FB and BS applied at 1 pt/A and 0.67 oz/A at 28 DAT.
- All herbicide treatments gave superior broadleaf weed control.

Table 1. Rice yield of different rates and tank mix combinations of FB in CA rice.

Herbicide Treatments*	Arbuckle	Biggs	Willows
		lb/A	
FB 0.5 pt/A	6600.08 ab	1538.99 cd	1487.10 ab
FB 1 pt/A	6565.15 ab	2668.24 abc	1833.67 ab
FB 2 pt/A	7650.12 ab	4128.40 a	1920.11 ab
FB 1 pt/A + PP 3 qt/A	6574.54 ab	490.90 d	2965.95 a
FB 1 pt/A + PP 6 qt/A	8358.54 a	171.66 d	2226.52 ab
FB 1 pt/A + PX 2.3 fl oz/A	7020.23 ab	3527.35 ab	2112.75 ab
FB 1 pt/A + PX 2.8 fl oz /A	7609.19 ab	3929.91 a	2296.68 ab
FB 1 pt/A + BS 0.4 oz/A	7931.88 ab	1586.15 cd	1657.98 ab
FB 1 pt/A + BS 0.67 oz/A	8212.97 ab	1826.64 bcd	1972.09 ab
Untreated Control	6099.22 b	0.00 d	851.86 b

*Abbreviations: FB, Florpyrauxifen-benzyl; PP, propanil; PX, penoxsulam; BS, bispyribac-sodium.

- FB and PP tank mix at 1 pt/A and 6 qt/A caused the most bleaching, chlorosis, and necrosis injury; PX at 2.8 fl oz/A and BS at 0.67 oz/A caused the most stunting and stand reduction injury at 14 DAT.
- The highest yield, 8,358 lb/A in Arbuckle was observed with FB plus PP applied at 1 pt/A plus 6 qt/A, respectively. In Biggs, the highest yield, was with FB applied at 2 pt/A. In Willows, the highest yield was with at FB 1 pt/A plus PP 6 qt/A, respectively.

Conclusions

- The use of florpyrauxifen-benzyl in tank mixes provided more weed control and higher rice yield compare to FB applied alone.

Acknowledgments

- Special thanks to CA rice growers George Tibbitts and Thad Rodgers
- Al-Khatib lab members and UC Weed Science program
- California Rice Research Board