

Effects of Simulated Rice Herbicide Drift Rates on Walnuts.

Mariano F Galla*, Kassim Al-Khatib and Bradley D Hanson. Plant Sciences Department, University of California, Davis, CA, USA. *Corresponding author mfgalla@ucdavis.edu

English walnut is one of the top commodities grown in California and its importance has been increasing in the last decade. Often walnut trees are fairly close to rice fields; thus herbicides used on rice may contact walnut trees by either drift or accidental direct application. There are many complains about yellow spotting observed on young walnut leaves that are alleged to be related to rice herbicide drifting following aerial application. In the walnut growing Sacramento Valley counties, the majority of the rice herbicides are sprayed between the end of May and early July. This timing coincides with a period of rapid growth for walnuts and flower bud initiation. Two field experiments were conducted at the UC Davis experimental station to evaluate simulated drift rates of selected rice herbicide on two years old chandler walnuts. On June 24, 2015, bispyribac sodium, bensulfuron and propanil were applied at four rates representing 0.5%, 1%, 3% and 10% of the use rate in rice. The use rate was 44.8, 70.2, and 6725.1 g ai/ha for bispyribac sodium, bensulfuron and propanil, respectively. All herbicides caused significant damage and delayed growth of the young walnut leaves and shoots. The severity of symptoms peaked 21 days after treatment then plants started to recover from injury symptoms. At the end of the growing season, however, herbicide symptoms were still evident. The effects of multiple bispyribac sodium exposure were evaluated in a separate study. Two years old walnut trees were treated with four sequential applications of two rates (0.5% and 3% of the rice use rate) of bispyribac sodium on a weekly interval, starting on June 11, 2015. Bispyribac sodium, at both rates caused significant damage to walnuts leaves and growth. Symptoms were still apparent four months after the last bispyribac sodium treatment.