

Efficacy of a Natural Product on Some Common Vineyard and Orchard Weeds

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Black walnut (*Juglans nigra*) is known to have allelopathic effects on other plants. If extracts from black walnut could be commercially formulated as a bioherbicide, they may become an important weed management tool. NatureCur[®] is a commercial extract of black walnut currently being sold as a root health promoter in turfgrass. Toxicity of this product was noticed on some weed species in 2006. Therefore, field studies were conducted in 2007 and 2008 to test the toxicity of several concentrations of a NatureCur[®] on seeds and seedlings of several weed species in the laboratory, greenhouse, and in an orchard and vineyard. Petri dish experiments showed that the LD₅₀ of the NatureCur[®] solution for horseweed (*Conyza canadensis*) and hairy fleabane (*Conyza bonariensis*) seeds was 16.8 and 14.4 ml/L water (v/v), respectively. However, the LD₅₀ for common purslane (*Portulaca oleraceae*) and tall annual morningglory (*Ipomoea purpurea*) seeds was 25.8 and 25.4 ml/L water (v/v), respectively. Weed seedlings grown in pots in the greenhouse were inhibited when 15 ml of the solution with a concentration of 50 ml/L water (v/v) was applied as a soil-drench. Micro-plot experiments in the orchard showed that application of 1 L of the solution with a concentration of 75 ml/L water (v/v) killed 100% of the natural population of horseweed seedlings when applied as a soil-drench. Similarly, the same concentration of NatureCur[®] applied as a soil drench provided season-long control of horseweed and hairy fleabane but was less effective against grasses. This formulation of NatureCur[®] has potential as a pre- and post-emergent broadleaf herbicide. The product, however, has not yet been registered as a pesticide and efficient methods of applying the material in the field need to be developed for commercial acceptance of this product as an herbicide.