

**FLUROXYPYR EFFICACY AS AFFECTED BY RELATIVE HUMIDITY AND SOIL MOISTURE.**  
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Efficacy of postemergence herbicides is often influenced by environmental conditions. Fluroxypyr currently is registered for postemergence use in small cereal grains. It effectively controls several annual broadleaf weed species commonly found in grain sorghum. Because environmental factors may influence the effectiveness of fluroxypyr, a study was conducted to determine the effects of relative humidity and soil moisture on fluroxypyr phytotoxicity to two weed species. Kochia and Palmer amaranth were planted in pots and placed in growth chambers with a constant relative humidity of 35 or 90%. Within each relative humidity, plants were watered at a soil moisture regime of either -20 or -40 kPa. Soil moisture was maintained throughout the study by weighing and watering pots daily. When plants were 10 cm tall, fluroxypyr was applied at 0, 26, 53, 79, or 105 g ae ha<sup>-1</sup>. Visual control was determined 7, 14, and 21 DAT. At 21 DAT, both species were controlled more when grown at 90% RH compared to 35% RH, regardless of soil moisture. Kochia control differed between -20 and -40 kPa only when grown at 35% RH, with more control at -20 kPa. In contrast, Palmer amaranth control differed between -20 and -40 kPa only when grown at 90% RH, with more control at -20 kPa. Fluroxypyr applied at 26 g ae ha<sup>-1</sup> controlled kochia more than Palmer amaranth; however fluroxypyr applied at 79 and 105 g ae ha<sup>-1</sup> controlled Palmer amaranth more than kochia.