

SUGARBEET ROTATIONAL CROP SENSITIVITY TO FLUMIOXAZIN AS A DRY BEAN DESICCANT

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The registration of flumioxazin as a dry bean desiccant and the recent changes to shorten the rotational restrictions of flumioxazin to sugarbeet has caused concerns about crop safety. Therefore, a field study was conducted for 2 years to determine the crop safety of sugarbeet after a desiccation application of flumioxazin. Flumioxazin at 71 g ha⁻¹ (typical desiccation rate) and 107 g ha⁻¹, glyphosate (0.84 kg ae ha⁻¹), and paraquat (0.56 kg ha⁻¹) were the four desiccation treatments examined. These treatments were applied in mid-September of 2008 and 2010. Sugarbeet were planted in no-till and conventional tillage plots in the spring. Intervals between desiccant applications and sugarbeet planting were 7 month and 16 d in 2009 and 7 month and 5 d in 2011. There was not a significant year by treatment interaction, so sugarbeet data are combined over the two years. In both conventional tillage and no-tillage sugarbeet flumioxazin applied at the 71 and 107 g ha⁻¹ caused significant injury and reduced stand compared with either the glyphosate or paraquat treatments. Differences in injury and sugarbeet stand between the treatments were greatest in the no-till sugarbeet plots, with the higher rate of flumioxazin causing as much as 86% stand loss. In the conventional tillage plots sugarbeet stand at harvest was 25 and 50% lower when flumioxazin was applied at the 71 and 107 g ha⁻¹ rates, respectively, compared with either glyphosate or paraquat. In no-till sugarbeet, recoverable white sucrose per hectare (RWSH) was lower at both rates of flumioxazin compared with glyphosate and paraquat. The current rotation restrictions for no-till sugarbeet are 8 and 10 months for the 71 and 107 g ha⁻¹ rates, respectively. In our research sugarbeet were planted earlier than both of these restrictions. Differences in RWSH were not as apparent in the conventional tillage system and RWSH was only different between flumioxazin at the higher rate of 107 g ha⁻¹ compared with glyphosate. Currently the flumioxazin rotation restrictions for sugarbeet that are tilled prior to planting are 4 and 5 months for the 71 and 107 g ha⁻¹ rates, respectively. While the crop rotation restrictions were met for both of these rates, we did observe significant injury and sugarbeet stand loss