MSU Weed Science

December 2013

Harvest aid effects on black bean desiccation and yield

Amanda Goffnett and Christy L. Sprague

The use of preharvest herbicides to assist with desiccation of black beans is a common harvest practice used by Michigan growers to achieve uniform maturity. Herbicide choice and application timing can effect the desiccation and yield of black beans. Field trials were conducted at the Saginaw Valley Research and Extension Center near Richville, MI in 2013 to evaluate the effects of preharvest herbicide applications on black bean desiccation and yield at two application timings. Type II black bean varieties: 'Zorro', 'Eclipse', and 'B10244' were planted at two different dates, June 13 and June 26, for diverse growing conditions. Three desiccation treatments: 1) paraquat (0.56 kg ha^{-1}) + non-ionic surfactant (0.25% v/v), 2) glyphosate (0.84 kg a.e. ha^{-1}) + ammonium sulfate (2% w/w), 3) saflufenacil (0.05 kg ha^{-1}) + methylated seed oil (1% v/v) + ammonium sulfate (2% w/w) were compared to an untreated control for each variety. Desiccation treatments were applied at two different timings for each planting date: a) 50% of pods were yellow (early) and b) 80% of pods were yellow (normal). The early timing was to evaluate differences in desiccation treatments and many times there are areas in a field that may be at this stage when a desiccation treatment is made. Black bean desiccation was assessed at 3, 7, and 14 days after treatment (DAT) and yield direct harvested. Differences in black bean desiccation between herbicides were greatest at the early application timing for both planting dates. At 3 DAT, desiccation was greatest with paraquat for the early planting and with saflufenacil for the later planting. For the later application timing, black bean desiccation was similar for all herbicide treatments, except with 'Zorro' where glyphosate was lower at both planting dates and paraquat was lower at the later planting date than saflufenacil. By 7 DAT, black bean desiccation was over 95% for both application timings for the early planting and for the later planting. Differences in yield were mostly attributed to variety and planting date. Yield was only reduced by desiccation treatment for the earlier planted beans when saflufenacil was applied early to 'Zorro' and 'B10244' or when paraquat was applied early to 'B01244'. The quick desiccation of these treatments stopped continued development of these beans. Overall desiccation was effective by all herbicide treatments. The speed of desiccation and effect on overall yield were affected by application timing and planting date.