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Postemergence weed control in sugarbeets with DPX-66037 in Michigan.

ABSTRACT

Field studies were conducted in 1992 to determine sugarbeet tolerance and weed response to postemergence applications of DPX-66037 alone or tank-mixed with other herbicides at a Michigan Sugar Company and a Michigan State University location in 1992. The Michigan Sugar Company location had ACH 197 planted on May 4 with no preemergence herbicide. The Michigan State University location had HMI E4 planted on May 8 with diethatyl ethyl (Antor) applied preemergence.

Postemergence application timing was either an early split (cotyledon stage beets) followed by a second application to two to four-leaf sugarbeets or a single postemergence application at the second split timing. Application dates for the early and second splits were May 15 and May 26 (frost occurred on May 24) at the Michigan Sugar location and May 19 and June 2 for the Michigan State location. Sugarbeet tolerance and weed response were visually evaluated 7, 14, 21, and 28 days after the last postemergence application. Beet stands were also determined.

Each experiment was a randomized complete block with three replications. The non-ionic surfactant applied at the Michigan Sugar location was Sylgard 309 (a silicon-based adjuvant) and at the Michigan State location the non-ionic surfactant was X-77. Herbicides were applied at 22 gpa and 30 psi after 5 p.m. at both locations.

Common lambsquarters and velvetleaf were present at both locations. Common lambsquarters were at the cotyledon to two leaf stage at the Michigan Sugar location for the early split timing and had reached the eight-leaf stage for the second timing. At the Michigan State location, common lambsquarters were at the cotyledon stage at the early split and the four to six-leaf stage at the later split. Velvetleaf was at the cotyledon to first-true leaf stage at both locations at the early split timing (cotyledon beet stage) and one to three leaf stage at the second timing.

A single application of DPX-66037 at 0.031 lb ai/A plus a non-ionic surfactant was more injurious to sugar beets than split applications at the Michigan Sugar location only.Tank mixtures of DPX-66037 with desmedipham plus phenmedipham (Betamix) in either split applications or a single late postemergence application did not increase beet injury compared to either herbicide alone. Loss of sugarbeet stand did not occur from any herbicide application.

Common lambsquarters control was acceptable (average 73%) with DPX-66037 alone or tank-mixed with desmedipham plus phenmedipham at the Michigan Sugar location only. At the Michigan State location, DPX-66037 alone did not provide satisfactory control of common lambsquarters, regardless of application rate or timing. Desmedipham plus phenmedipham alone or tank-mixed with DPX-66037 provided

excellent control (>94%) of common lambsquarters at the Michigan State location.

Velvetleaf control was similar (average 79%) for all DPX-66037 treatments at the Michigan Sugar location. Control of velvetleaf was not reduced when desmedipham plus phenmedipham was tank-mixed with DPX-66037 without non-ionic surfactant. At the Michigan State location velvetleaf control (83%) was greatest from split applications of DPX-66037 plus a non-ionic surfactant.