

WEED SEEDLING EMERGENCE PATTERNS IN NORTH DAKOTA ROW CROPS. George O. Kegode and Mark G. Ciernia, Assistant Professor and Research Specialist, Dept. of Plant Sciences North Dakota State Univ., Fargo, 58105.

Understanding weed seedling emergence patterns aids in developing weed management tools that exploit vulnerable stages in weeds. Research was conducted at Fargo and Prosper, ND from 2001 to 2003 to study weed emergence patterns in chickpea, corn, dry edible bean, field pea, potato, soybean, and sunflower. A further objective was to study the emergence pattern of new invasive/aggressive weeds: biennial wormwood (*Artemisia biennis*), Canada thistle (*Cirsium arvense*), and lanceleaf sage (*Salvia reflexa*). This study was conducted using untreated plots within experiments designated for weed control studies. Upon seeding of crops, four permanent quadrats, each 0.1 m<sup>2</sup>, were placed within untreated plots and weed emergence was monitored and recorded twice weekly until late July or canopy closure. Redroot pigweed (*Amaranthus retroflexus*) was the dominant weed in all crops except dry edible bean in 2003 and accounted for 40 to 77% of total emerged weeds, followed by green and yellow foxtails (*Setaria viridis* and *S. pumila*) which accounted for 17 and 51% of total emerged weeds. In general, emergence patterns for redroot pigweed and the foxtails were similar with emergence ceasing in early July. Lanceleaf sage emergence pattern among crops was similar to redroot pigweed and foxtail and generally ceased by early July. Biennial wormwood and Canada thistle emergence was relatively slower compared to other weeds and appeared to cease in late July. Our research suggests that lanceleaf sage will probably be easier to control within crops than biennial wormwood and Canada thistle because its emergence pattern is similar to known established weeds such as redroot pigweed and foxtail, whereas biennial wormwood and Canada thistle have prolonged emergence periods. A better understanding of emergence of biennial wormwood and Canada thistle in the field will improve our ability to manage these species.