FECUNDITY OF ANNUAL WEEDS BY COHORT EMERGENCE TIMES IN CORN. Kathrin Schirmacher* and J. Anita Dille, Graduate Research Assistant and Assistant Professor, Agronomy Department, Kansas State University, Manhattan, KS 66506.

Few studies have quantified seed production associated with different cohorts (seedlings that emerge at nearly the same time). Cohort emergence time relative to the crop and inherent fecundity are critical in quantifying weed interference, as well as for understanding weed productivity and future seedbank dynamics. Therefore, the objective of this research was to evaluate the effect of weed emergence at different corn growth stages on the fecundity of four cohorts of eight annual weeds. Field experiment conducted near Manhattan in 2001 determined seed production of individual plants of common lambsquarters, common sunflower, Palmer amaranth, velvetleaf, fall panicum, giant foxtail, large crabgrass, and shattercane competing with corn. Each experimental whole-plot included the eight species grouped by cohort, with cohort identified at a given corn growth stage (0, VE, V1, and V3). Across weed species, cohorts planted earlier had better plant establishment and generated a greater number of seeds on a per plant basis. Common lambsquarters, common sunflower, and Palmer amaranth planted at V3 produced no seeds; giant foxtail, fall panicum, large crabgrass, and velvetleaf yielded one seed-producing plant from the six replicates, and shattercane only produced four reproductive plants. Poor emergence of common lambsquarters and poor establishment of fall panicum provide limited information on seed production. Emergence, establishment, and seed production of giant foxtail, shattercane, and velvetleaf were less variable within a cohort when compared to other species. Seed production followed a gradual decline across cohorts with giant foxtail producing 10106, shattercane 2478, and velvetleaf 1059 seed plant^{-1}, at the first cohort planting (0). In summary, plants of earlier cohorts were more successful at completing their reproductive life cycles and generated more potential offspring than cohorts planted at a later corn growth stage. Given the relationship between emergence and seed production, the control of early emerging plants or those that escape chemical control is necessary to reduce impact on future seedbank size.

2002 North Central Weed Science Society Abstracts 57:131.