THE SPATIAL RELATIONS BETWEEN WEED POPULATIONS AND GROUND BEETLE POPULATIONS IN THE FIRST YEAR OF A TRANSITION TO ORGANIC PRODUCTION. Lindsay Reinhart, John Masiunas, Undergraduate Hughes Fellow and Associate Professor, University of Illinois, Urbana, IL 61801, Jon Lundgren, Graduate Research Assistant, Illinois Natural History Survey, Champaign, IL 61820, and Marty Williams, Research Agronomist, USDA-ARS, Urbana, IL 61801.

The process of shifting from cropping systems that rely on synthetic fertilizers and pesticides to cropping systems following organic practices can be difficult for farmers. It is generally believed that weed populations and the difficulty of control increase as a field moves through transition. Once the field is through the transition process and becomes a stable organic system, it is thought that weed problems decrease. Research is needed to confirm these observations and to understand the underlying processes. The objectives of our research were to determine the distribution of weed and ground beetle populations in a field transitioning to organic; evaluate the impact of transition approach on those populations, and determine if initial ground beetle and weed populations were correlated. The three transition systems were: a low input pasture system with perennial grasses and legumes; a medium intensity agronomic system with cash grains; and a high intensity system with vegetable crops. The dominant weed species differed depending on the transition systems. The high intensity system with tomatoes largely had volunteer wheat due to the wheat straw used as a mulch between the crop rows being contaminated with seed. Common lambsquarters and velvetleaf were the two dominate species in the low and medium intensity systems. The medium intensity system with soybeans had the fewest weeds due to between-row cultivation and the competitiveness of the crop. The weeds were aggregated in the field and herbaceous ground beetle populations were correlated with the weed populations.

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