

TEMPORAL SEED RAIN AND DORMANCY OF FIELD PENNYCRESS AND COMMON CHICKWEED. Erin C. Taylor, Karen A. Renner, and Christy L. Sprague, Research Associate, Professor, Associate Professor, Department of Crop and Soil Sciences, Michigan State University, East Lansing, MI 48824.

Understanding the biology of winter annual weeds is essential for improved management strategies. Winter annual weeds are not always viewed as a priority for control because of their out-of-season presence; however winter annual weeds can be difficult to manage in the spring and some species are alternate hosts for a variety of crop pests and diseases. Over the past several years we have studied the temporal seed dispersal and subsequent dormancy of naturally occurring populations of the winter annual weeds field pennycress (*Thlaspi arvense*) and common chickweed (*Stellaria media*). When examining dispersal by growing degree days (GDD) (base 0C, starting January 1), field pennycress reached peak seed dispersal between 2251 and 2750 GDD in all four years. Common chickweed seed dispersal was less consistent with peaks being reached between 1001 and 2000 GDD. The initial dormancy of field pennycress seed varied between years. In 2006 and 2008 seeds that dispersed initially showed greater dormancy compared with seeds dispersed later, whereas in 2007 dormancy was fairly low overall with an average of 44% of fresh seed germinating at any given dispersal time. In 2009 almost no seed germinated at the time of dispersal. The initial dormancy of freshly dispersed common chickweed seeds was high (>90%) for all dispersal dates in all years except for the later collection dates in 2007 at which time 11-20% of the seed readily germinated at the time of dispersal. Field pennycress seed dormancy significantly decreased after two months of storage outside for seeds dispersed after 2751 GDD. A maximum germination rate of 85% was observed two months after dispersal for field pennycress seeds dispersed between 3501 and 3750 GDD. There was no pattern of dormancy release for common chickweed; a maximum germination rate of 70% was observed four months after seed dispersal between 2751 and 3000 GDD. Growing degree days are a good predictor of peak seed dispersal and dormancy release for field pennycress, but not for common chickweed. Other factors such as prolonged emergence patterns and predispersal seed predation may influence seed responses of common chickweed.