

MARTIN, SUSAN S.¹, and ANDREW W. LENSSEN², ¹USDA, Agricultural Research Service, 1701 Center Ave., Fort Collins CO 80526, and ²Dept. of Entomology, Montana State University, Bozeman MT 59717. Glucosinolate content through development of trap crops for the sugarbeet cyst nematode, *Heterodera schachtii*.

Although some cultivars of oil radish (*Raphanus sativus* L.) and yellow mustard (*Sinapis alba* L.) are good hosts and allow full reproduction of the sugarbeet cyst nematode (SBCN), others have been selected that continue to allow the early steps of nematode colonization, but disrupt SBCN reproduction. The latter are said to "trap" SBCN, inducing cyst hatching and attracting juveniles to the root, but allowing production of few or no new cysts. We followed qualitative and quantitative content of glucosinolates (GSLs), a class of toxic chemicals produced by plants in the mustard family, through development of uninfested susceptible and trapping ("resistant") oil radish and yellow mustard cultivars. Plants were greenhouse grown and harvested at one of five defined growth stages: (1) 5 leaves; (2) 15 cm stem extension; (3) flower buds; (4) initial anthesis; and (5) first pods with full-size seeds. At harvest, fibrous roots, hypocotyl (radish only), and shoots (all above-ground portions) were washed and lyophilized, then ground and subsampled for analysis of GSLs by HPLC. Radish and mustard have different GSL profiles, so results were analyzed separately for each species. For both plants, concentrations of most individual GSLs and of total GSLs (per unit dry wt) differed with growth stage, but the cultivar X stage interaction was mostly nonsignificant. Concentrations of some GSLs differed among cultivars, but the differences were not consistent in direction and did not appear to correlate with known nematode response to those cultivars. Thus, our results do not support a direct role for preformed GSLs in non-infested trap crops in conferring resistance to SBCN.