MARTIN, SUSAN S.* and JOHNNY M. THOMAS II, USDA-ARS Crops Research Laboratory, 1701 Center Avenue, Fort Collins CO 80526. **Glucosinolate composition of trap crop mustard is influenced by nutrient availability and photoperiod.**

Some cultivars of white mustard, *Sinapis alba* L., function as "trap crops" for the sugarbeet cyst nematode [SBCN], *Heterodera schachtii* Schm., because they stimulate cyst hatching but do not allow the nematode to reproduce normally. We have shown that cultivars of white mustard known to be "susceptible" (i.e., allow nematode reproduction) or "resistant" to SBCN do not differ greatly in glucosinolate [GSL] composition. To test whether nutrient deficiency might differentially affect GSL composition of resistant [R] or susceptible [S] cultivars, we grew one S and 2 R cultivars in nutrient solution to the 4- to 6-leaf stage. We then assigned plants from each cultivar to one of five treatments: (1) no change in nutrient regime (control); (2, 3, 4) similar medium except modified to be severely deficient in S, N, or P, respectively; or (5) distilled water with no supplied nutrients. After 7d roots were harvested and analyzed for GSLs by HPLC. N, S, or P deficiency differentially affected root GSL composition of the four *S. alba* cultivars. Total root GSLs were greatly diminished in resistant cvs. after 7d of N or S deprivation, but only slightly reduced in the susceptible cv. A new minor glucosinolate, epiprogoitrin, was identified as a component of trap crop mustard. Two new compounds were observed in extracts of nutrient deficient plants; these were isolated and identified as benzoic acid and goitrin (5-vinyl-2-oxazolidinethione), decomposition products of GSLs. We also examined the effect of photoperiod on white mustard cultivars (1 S and 2 R) and again found differential effects on GSL composition. However, differences did not appear to be sufficient in magnitude or consistency to appear related to the cultivars' relative resistance or susceptibility to SBCN.