HOEFERT, L. L.*, AND S. S. MARTIN. USDA, Agricultural Research Service, 1636 E. Alisal St., Salinas, CA 93905 and Agricultural Research Service, 1701 Center Ave., Fort Collins CO 80523. - Trap crops for the sugarbeet cyst nematode (*Heterodera schachtii*). I. Structure.

Nematodes are attracted to some members of the Brassicaceae, notably species of Radish, and *Sinapis*. These plants have been widely planted in Europe as cover crops to aid in the attraction and removal of nematodes from sugarbeet fields. The techniques have met with considerable success abroad. Our approach has been to look at the seeds and seedlings of the trap crops to see if any structural anomalies may exist that could explain the attraction of nematodes to the cover crops. We have begun the investigation into the distribution of specialized cells in seedlings and dry seeds during hydration. Quantitative data have been collected that indicate higher numbers of specialized cells occur in non-trap crop Brassicaceae species but that the size of the specialized cells is greater in trap crop species. Electron microscopy during development shows that the specialized cells differentiate in a manner similar to laticifers in latex-bearing plants, but that the cell content differs. In the specialized cells, glucosinolates or their precursors accumulate via endoplasmic reticulum cisternae that fuse with the central vacuole to produce a cell lumen filled with the glucosinolate materials.

MARTIN, SUSAN S. USDA, Agricultural Research Service, 1701 Center Ave., Fort Collins CO 80526. - Trap crops for the sugarbeet cyst nematode (*Heterodera schachtii*). II. Biochemistry.

Root exudates of plants of the Brassicaceae are uniquely effective in attracting the sugarbeet cyst nematode. Members of this plant family also produce a unique group of biologically active chemicals, the glucosinolates (abbreviated GSL), which might be involved in the effect. I analyzed the GSLs in radish (*Raphanus sativus*) and mustard (*Sinapis alba*) trap crop cultivars, and determined their concentrations in seeds, developing seedlings, and leaves and roots of mature plants. Samples were extracted in boiling 75% methanol (8 min.), evaporated to remove methanol, made to known volume with distilled water, filtered (0.2μ), and analyzed by HPLC (C_{18}-column; gradient elution with 0.1 M (aq.) ammonium acetate and acetonitrile mixtures; diode array UV detection; electronic integration). All samples of *S. alba* contained one predominant GSL, 4-hydroxybenzylglucosinolate (glucosinalbin); three others were present in trace amounts. Glucosinalbin increased rapidly in early development, and was greater in the epicotyl than in the hypocotyl. Seed of *R. sativus* 'Maxi' contained 4-methylsulfinylbut-3-enylglucosinolate (glucoraphenin) as its predominant GSL, but germinating seedlings (including both hypocotyls and epicotyls) rapidly synthesized the unoxidized analog, glucoraphasatin (4-methylthiobut-3-enylglucosinolate), its content equalling or exceeding that of glucoraphenin by 72-96 hr. Small amounts of glucosinalbin and 4-hydroxy-3-indolylmethylglucosinolate also occurred in *R. sativus*. Roots and tops of mature radish plants differed in GSLs.