EFFECT OF HAIRY VETCH (VICIA VILLOSA) RESIDUE ON WEED SPECIES COMPOSITION IN PICKLING CUCUMBER. Erin C. Hill and Mathieu Ngouajio, Student and Assistant Professor, Department of Horticulture, Michigan State University, MI 48824-1325.

Hairy vetch (*Vicia villosa* Roth) is a legume cover crop used in diverse cropping systems for its ability to fix nitrogen and improve soil quality. Hairy vetch (HV) has been shown to control weeds by the release of allelochemicals from its residues. However, if the cash crop is planted too soon after the incorporation of HV, it can be injured by these allelochemicals, leading to reduced yields. In the summer of 2003, a split plot experiment with four replications was conducted at the Horticulture Teaching and Research Center at Michigan State University, East Lansing, MI, to (1) study the potential of HV to suppress weeds and (2) determine if the timing of cucumber planting after HV incorporation affects cucumber growth and development. The main plot factor was cover crop with two levels (HV and bare ground) and the subplot factor was cucumber planting date with six levels. Cucumbers 'Vlaspik' were planted at 0, 1, 2, 3, 4, 5, and 6 weeks after HV incorporation (WAI). Weed counts and dry biomass were measured at 3 and 6 weeks after cucumber planting (WAP). The main weed species found on both dates were redroot pigweed (*Amaranthus retroflexus* L.), yellow rocket (*Barbarea vulgaris* R. Br.), shepherd's purse (*Capsella bursa-pastoris* L.), common lambsquarters (*Chenopodium album* L.), quackgrass (*Elytrigia repens* L.), henbit (*Lamium amplexicaule* L.), common purslane (*Portulaca oleracea* L.), and common chickweed (*Stellaria media* L.) Of these weeds, only quackgrass density was significantly reduced by the HV cover crop. Quackgrass densities were 71 plants m^{-2} and 20 plants m^{-2} at 3 WAP in the bare ground control and HV plots, respectively. At 6 WAP, quackgrass densities were 68 plants m^{-2} and 8 plants m^{-2} for bare ground and HV, respectively. Total weed biomass was not affected by HV residues. It is likely that the density of other weed species and the total weed biomass were not affected due to leaching of allelochemicals by heavy rains that occurred during the experiment. Cucumber stand, vine weight at harvest, and fruit yield were lowest when planted immediately after HV incorporation. This study indicates that HV may be used in cropping systems to improve control of quackgrass, a troublesome perennial weed in many crops. However, growers should avoid planting of cucumber immediately after HV incorporation.

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