COVER CROP SPECIES AND PLANTING METHOD EFFECT ON WEEDS AT A MAIZE MONOCULTURE FIELD

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The use of legume cover crops to replace fallow during the winter intercrop period of maize monoculture allows to reduce nitrogen fertilizer without yield penalties. Cover crops can also affect the weed flora because of its competitive effect and/or allelopathic effects. We studied the effect of the species and seed rate of legume cover crops (CC) and the planting method on the weed density of the subsequent maize crop. Three CC crop species (winter peas, common vetch and hairy vetch) at two seeding rates (normal and reduced by 25%) and a control (without cover crop) were tested using two planting methods (conventional with tillage and no tillage). The experiment was started in October 2018 after a maize crop. Maize was grown during the experiment with conventional practices (tillage and herbicides). Weed density was measured on September of 2019, before the harvest of maize. Weed density was also measured after the following CC season on May 2020 in early stages of the maize crop in a part of the field where no pre-emergence herbicide was applied. Main weeds at maize harvest were *Diplotaxis erucoides*, *Poa annua*, *Sonchus oleraceus* and *Stellaria media*. Common vetch increased the density of *S. oleraceus*. No tillage planting of CC decreased the density of *D. erucoides and P. annua* to a third compared to conventional planting, and *S. media* was almost suppressed, but duplicated the density of *Cynodon dactylon*. Main weeds at the early stage of the following maize crop season were *Abutilon teophrasti*, *Chenopodium album*, *C. dactilon*, *Cyperus rotundus*, *S. oleraceus* and *Xanthium strumarium*. No effect of the CC species on weed density was found. Compared to conventional planting of CC, no tillage planting suppressed *A. teophrasti*, decreased to a third the density of, *C. album* and *C. rotundus*, and to 17% the density of *X. strumarium*, but increased the density of *C. dactylon* six times. In both measurement dates, the total density of dicot and monocot weeds was reduced when the CC were planted without tillage. The effect of the CC species and seeding rate on weed density was minor but the experiment just started and will continue during two more years.

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