

Winter cover crops for ecological weed management in vegetable production

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RESUMO

Conservation Agriculture (CA) reduces the environment impact, improve soil health and suppress weeds. So, this research aimed study cover crops species for ecological control of weeds. The experiment was set up in Ribeirão Preto, SP, Brazil in a Oxisoil with clay texture in tropical condition. Black oat (*Avena strigosa* Schreb), forage turnip (*Raphanus sativus* L.), triticale (\times *Triticosecale* Wittmack) and white lupin (*Lupinus albus*) composed the experimental treatments. The treatments were arranged in randomized block with four replications in each year 2021 and 2022 for growing broccoli and tomato, respectively, on the straw of cover crops. At the end of the cycle, around 70 days after sowing, cover crops were killed mechanically with roller crimper for after vegetable growing. It was evaluated the weed establishment and vegetable performance. The cover crops yielded average 3.6 Mg ha⁻¹ of aboveground dry biomass, with no difference statistic among them. Black oat, triticale and white lupin were more efficient to weed suppress than forage turnip in both broccoli and tomato growing. Broccoli grew better on black oat straw followed by triticale and white lupin, however broccoli marketable yield was similar among cover crops. The aboveground growth of tomato was similar among cover crops, however tomato yield was better on white lupin straw but without differ of the straw of forage turnip. Concluding, the strategy for weed control with cover crops killed mechanically by roller crimper is highly hopeful for vegetable organic growing under CA technology.

KEYWORDS: *Solanum lycopersicum*, *Brassica oleraceae* L. var *italica*, no tillage, roller crimper, straw

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