

Evaluation of Annual Warm-Season Cover Crops for Weed Management in Organic Citrus

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Abstract

Cover crops (CC) can suppress weeds in the row middles of citrus groves. However, prior to this study no information was available regarding the effectiveness of annual CC in suppressing weeds in organic citrus production systems. A one-hectare bloc was planted with "Navel" orange varieties at a Certified Organic Research Site at the University of Florida in Citra, Florida. A total of 7–10 different summer CC were evaluated between 2002 and 2005, along with different CC mixes in 2004 and 2005. In order to quantify the effectiveness of summer CC in suppressing weed growth, we developed a cover crop/weed index, which expresses the ratio of CC biomass dry weight production relative to weed dry weight. Overall, dry matter and weed suppression in a newly established organic citrus orchard varied by cover crop species. In general, sunnhemp was the most prolific biomass producer, with sunnhemp > hairy indigo > cowpea > alyceclover in total cover. Although pigeon pea had consistent biomass yields, its weed suppression capacity was not always consistent. Throughout the course of the study, use of selected CC provided excellent weed control, which was superior to other methods, including tillage, thus showing the potential of CC for successful weed suppression in organic citrus groves. The cover crop/weed index proved to be an effective tool for quantifying CC performance in terms of weed suppression.

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