

FELL Victor (2016): Amélioration de la structure et de la fertilité du sol par d'un couvert végétal : Cas du sorgho du Soudan en arboriculture fruitière

Abstract

Conventional orchard management requires regular traffic, occurring sometimes when the soil is wet. Alley is usually sown with a mixture of grasses and row is chemically weeded. The combination of these factors can create, depending on soil texture, a compaction with low rate of organic carbon. The aim of this work is to evaluate the opportunity to correct these weakness between two fruit crops, with sorghum---sudangrass.

At the scale of a season, sorghum allowed a significant increase in plasma and structural porosity for a depth from 0 to 20 cm, associated with a significant elevation of the organic carbon content. The root system participated in the extension of the pore volume for pore radius <150 μm . Results suggest that soil biology plays a role in the improvement of the structure. Physical measurements are consistent with the visual diagnosis of the VESS method (Visual Evaluation of Soil Structure), with a score of 4 (poor structure) before cover crop, vs a score of 2 (good structure) after cover crop.

This work emphasizes, at the scale of a season, a strong potential for improving soil structure in an orchard system with sorghum---sudangrass, and suggests the benefits of an alternative associate ground cover management in orchards on the long term.