

2.8 MASSIMO ZAVANELLA, ALESSANDRO VACCHI, ADRIANO FABBRI, GIOVANNI BETTINI

BETA, Via Conca 75, I – 44123 Ferrara

EXPERIMENTAL QUANTIFICATION OF MACHINE TRAMPLING DAMAGE IN SUGAR BEET CULTIVATION IN ITALY

**Quantification expérimentale du compactage occasionné par des machines
agricoles dans la culture de betteraves sucrières en Italie /**

**Experimentelle Quantifizierung maschinell verursachter Verdichtung im
Zuckerrübenanbau in Italien**

ABSTRACT

Soil compaction is one of the most important causes of the reduced productivity in Italian sugar beet farms. In Italy this problem, in some years, appears to be the major cause of low productivity after that genetics has mitigated the damage caused by nematodes. This phenomenon interferes with water and nutritional supply of the plant and mechanically influences the growth capacity of the root. In experimental trials carried out in 2010, Beta has quantified the damage; it can reach 7% of the Gross Income, although the most extreme conditions of compaction can lead to more damage. In the sugar beet exploitations, many issues such as weed control, summer stress syndrome and polarization drop, are accentuated by compaction of soils, in which case the total damage up to 40% of the Gross Income. The soil compaction can occur during the preparation of the soil (tillage), if these are made when the soil is wet, but also it can be caused for the repeated passages of the equipment on the field without the use of the necessary precautions (transit zones of the equipment). In experimental trials carried out in 2013, Beta has quantify the economic damage caused by repeated passages of equipment (sowing machine, fertilizer spreader, weeder, sprayer) considering different levels of trampling. The indications that emerge contribute the use of methods for limiting this type of damage.
