Sociedad Española de Agroingeniería

III CONGRESO INTERNACIONAL DE AGROINGENIERÍA

Libro de Resúmenes

21 al 24 de Septiembre de 2005
León, ESPAÑA

Universidad de León
Escuela Superior y Técnica de Ingeniería Agraria

Soil Conservation in Mechanized Olive Orchards in the Portuguese Trás-os-Montes Region

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Abstract

Traditional practices for tillage in portuguese olive orchards can affect negatively environment, soil quality in particular.

Alternative practices will be tested to avoid the negative impacts, reducing soil erosion, improving soil quality and increasing harvesting machinery trafficability.

Field trials will take place in a olive orchard in the north of Portugal (Trás-os-Montes region).

Palabras clave

Olive orchards; soil conservation; mechanical harvesting equipment trafficability
Olivar; conservacion del suelo; traficabilidade del equipo de cosecha mecânica.

Contenido del trabajo

The aim of this paper is to present a project that will take place in the next two years, in a mechanized olive orchard in Trás-os-Montes Portuguese region, the second olive producer in this country (the first is Alentejo) with the average of 92 000 tons of olives produced per year in an area of 70 000 ha.

In the Portuguese olive orchards soil tillage using tine cultivators or disk harrows is usual for weed control. These practices leave the soil without protection for large periods of time including the rainfall season.

These practices benefit water soil erosion, evaporation, run-off, particularly in the olive orchards planted on slopes, witch is common. In winter, the soil capacity for a good mechanical harvesting equipment trafficability is seriously reduced; time and costs for harvesting increase, jeopardizing olive income.

Traditional tillage can be replaced by alternative practices, like natural grass being used as a crop between the rows, contributing for soil conservation, increasing water in the profile, reducing production costs and improving agricultural machinery trafficability.

In this project three different soil management practices will be tested: (1) the traditional practice without soil coverage all over the year; (2) two conservation pratices: one with herbicide along the tree rows and mechanical control of vegetation between rows; the other with herbicide along and between the rows.

The objectives are: assessing and showing, in a comparative way, the effects of the different practices in erosion processes, soil quality and in mechanical harvesting work rates. Costs will be studied too.

Field trials will take place in Terra Quente (Trás-os-Montes – Portugal). Nine plots will be selected in an olive orchard (three for each practice). Devices to measure erosion will be installed. Machine work rates will be also measured.

A field day for farmers and technicians will be organized in order to disseminate results, together with actions such as publishing technical papers to be presented in meetings and congresses.

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