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# Intensification of citrus production and soil loss in Eastern Spain

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After land abandonment for five decades (Arnáez et al., 2010; Belmonte Serrato et al., 1999) as a widespread process in Spain, agriculture intensification is taken place. This is changing the nature of the soil erosion processes as they were known (Cerdà, 1997; Cammeraat and Imeson, 1999; Ruiz Sinoga et al., 2010; Zavala et al., 2010).
Citrus production are being reallocated on slopes due to the new irrigation systems (drip-irrigation), the thermic inversion on the bottom of the valley and then the frost affecting the plantations, the high prices of the bottom valley lands and the investment in agriculture from other economic sectors such as tourism and industry. Those new plantations are based on intense pesticides and herbicides use, and erosion processes are triggered due to the sloping surface developed (Cerdà et al., 2010).
Five study sites were selected in the Montesa Municipality research zone, where an increase in the orange and clementines plantations were found during the last 20 years. Measurements were perfomed by a simple method, which consist in measuring the surface characteristics: stoniness, crust, herbs, bare soil, sheet flow, rills and gullies. One thousand meters were monitored at each of the study sites and measurements were done in January and August with a precision of 1 cm.
The results show that the erosion rates are controlled by the sheet erosion (78,4 %), although rill and gullies exist (< 1 %) and they are active and contribute to high erosion rates. Stones and vegetation cover was found to by low.
The infiltration rates of the soils were measured by means of rainfall simulation experiments and cylinder infiltrometer. The results show that the new citrus plantations results in low infiltration rates, and high erosion rates. This is contributing to a non-sustainable agriculture production due to the high erosion rates. And also a lack in soil services as the surface runoff and then the soil erosion is enhanced; and soil infiltration reduce.
The economical value of the land and water lost is making this new intense chemically managed new citrus plantation non sustainable.
The intensification of agriculture is triggering new soil erosion processes to be added to the traditional ones (García Ruiz and López Bermúdez, 2009).
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