



Implementation and monitoring of soil and water conservation measures in the Guadalentin (Spain)

In close collaboration with stakeholders during a series of two workshops in 2008, a selection was made of the most appropriate and feasible soil and water conservation measures to be implemented and monitored in DESIRE. Here we present the first implementation and monitoring results.

Directly following the DESIRE WB3 stakeholder workshops in 2008, the design, implementation and monitoring of the soil and water conservation measures selected by the stakeholders present at the workshops was started. In total 5 measures were selected that were all implemented on the land of the DESIRE experimental farm 'Los Alhagüeces'. Three field sites were selected with either almonds or cereals production (see Figure 1). The conservation measures are monitored according to ecologic-, economic-, and social criteria. Here we present



The first field demonstration day will take place the 30th of october 2009 from 10-13h at the experimental farm

the main implementation and monitoring activities, including some preliminary results.

Figure 1: Location of the study sites within the Torrealvilla catchment.

Meteorological station 'Los Alhagüeces

Since August 2008 a meteorological station was installed near the field sites to monitor rainfall, temperature, wind direction and speed at a 5 minute interval. Figure 2 presents the mean monthly temperature and rainfall for the period of measurement.

The total annual rainfall of 340 mm is equal to the long term average. A maximum 5 minute rainfall intensity (I_{s} max) of 108 mm/h was registered in may 2009.

Figure 2: Overview of the mean monthly rainfall and temperature at the meteorological station 'Los Alhagüeces', 2008-2009.

Field Site A



Green manure (a mixture of cereals and Vicia sativa) was seeded under the almond trees in october 2008. After mowing, the residue was ploughed into the soil in spring. Green manure



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Precipitación y temperatura media mensual

'Los Alhagüeces'

Precipitación total 12 meses: 340 mm

Precipitación

Temperatura

Runoff and erosion plots

The reduced tillage field is

ploughed twice a year with a

cultivator or disc-plough, as

compared to the 3-5 times of

conventional ploughing in the

study area.

In each of the production schemes, 3 replica erosion and runoff plots were installed to measure soil- and water loss. Soil moisture content is monitored at two depths (0-20cm and 30-35cm).

Reading out moisture data



The highest harvest

was found in the green

Almond harvest Kg/tree

and almonds

manure field.

Green manure Reduced tillage

Control

Control Mulch - acolchado

Water harvest - boquera



DESIRE experimental farm 'Los Alhagüeces'

Collectingrunoff, sediment



'Los Alhagüeces'

Register now!

September 2009

Installing Gerlach plots

Field site A is an ecological almond field where green manure and reduced tillage are compared with traditional almond production.

Field Site B



Straw mulch under almonds

Field site B consists of a series of almond terraces where the effectiveness of reduced water loss through an organic mulch is compared with the additional supply of water by water harvesting through a traditional Boquera-Acequia system.

Noticias

del campo 1

nuevo nos ponemos en contacto mediante estas Noticias el Campo del proyecto DESIRE. Pedimos disculpos por nuestr

ande los participantes decidieron las medidas de conservació ás adecuadas para ser implementadas de forma experiment emos estado ocupados con las preperaciones e istalaciones d

impo en la finca de "Los Alhagüeces". Aunque aún es pronto ara hablar de resultados, con este folleto queremos inform

unión en el campo el día 30 de actubre 2009 para que pod

timas noticias y actividade el proyecto DESIRE. Resum

el pasado año a escala Glob

nas web con más infor

Soilmoisturecontentismonitored at two depths (0-20cm and 30-35cm) in a field with a mulch, a field with additional inflow from the boquera and a control field. The 2009 harvest showed a distinct higher production per tree in the Boquera field as compared to the other two.

Installing soil moisture sensor



Boquera entrance with sensor

Water height at the inlet of the 'boquera field' is continuously registered in a section. Between august and september 2009 five events with water inflow were recorded.

Almond harvest Kg/tree Boquera Mulch Control



Water entering through the Boquera



Registered events of water inflow in the Boquera



Dissemination activities to inform and involve stakeholders:

- *Farmer logbook* where all activities and related costs are registered by the farmer.
- *Photo-logbook* on the HIS with illustrations of the installations and monitoring in the field (http://alturl.com/uppn).
- Newsletter series (Noticias del Campo) with site-specific and global DESIRE project information.

Field Site C



Field site C is a cereal field where conventional mouldboard tillage is compared to reduced tillage with a disc-plough. Under both tillage regimes 3 replica erosion



- Organisation of a *field demonstration day* of the experiments for all interested stakeholders (30th October 2009).
- Site-visit with stakeholders and the regional ministry of agriculture to a farm that receives subsidies for installation of vegetated strips.



Water flow through the Acequia system

Construction of runoff storage tanks



and erosion plots under Runoff cereal

and runoff plots were installed to measure soil- and water loss. A fallow year follows harvest in both schemes. Last August the plots were seriously threatened by forest fire, but not affected.



Installing runoff and erosion plots under cereal

www.desire-project.eu

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