

Inżynieria hydrauliczna

Irrigation of orchards in Spain - Rainwater collection basin

Agriculture

- **Project name(s)**
Rainwater collection basins in Teruel & Lleida, Spain
- **Client**
Ecobalsas S. L., Lleida, Spain
- **Products**
Carbofol® 406 1.5 mm s/s 7.50 m
Secutex® HT 5





Fig. 1: Installation Naue Carbofol® on top of Secutex® nonwoven



Fig. 2: Top view on irrigation pond

Save water, secure the harvest!

Efficient water storage is essential for agriculture, particularly in regions where water resources are scarce. In Spain, farmers increasingly struggle with seasonal rainfall fluctuations and prolonged droughts, making sustainable irrigation solutions crucial. To secure the water supply for their orchards, large-scale rainwater collection basins were constructed in Teruel and Lleida. These reservoirs enable efficient irrigation, ensuring optimal growing conditions despite climatic challenges.

The use of high-quality geosynthetics plays a vital role in this process. They provide long-term waterproofing, reduce water loss, and lower operational costs. This innovative approach not only enhances farm profitability but also supports sustainable farming.

Project details at a glance:

To meet the rising irrigation demand in Spain's dry regions, modern water storage systems were developed. Large-scale irrigation ponds ensure a stable water supply throughout the growing season.

LOCATIONS: Teruel & Lleida, Spain - Regions with insufficient natural precipitation for orchard irrigation.

OBJECTIVE: Minimise water loss and ensure sustainable irrigation through long-term rainwater storage.

TECHNICAL SOLUTION: Naue Carbofol® geomembranes provide an impermeable seal, while Secutex® geotextiles protect the sealing system from mechanical damage and enhance reservoir stability.

RESULT: A reliable, cost-efficient water supply that reduces dependence on external sources and stabilises agricultural production.

From preparation to perfect sealing - the installation process

The installation process is key to ensuring the longevity and efficiency of the rainwater collection basins. It begins with soil preparation, where the subsoil is compacted and sharp materials removed to prevent damage to the geomembrane. Next, a Naue Secutex® nonwoven geotextile is placed over the prepared ground. This protective layer prevents punctures and dust contamination before the Carbofol® geomembrane is installed. The membrane is joined using a double-welding method, creating an intermediate air channel for precise leak testing via air pressure. To maintain stability during installation, sandbags or other securing methods prevent wind uplift, ensuring the geomembrane remains in place until final covering layers are applied. This structured approach guarantees the long-term functionality of the reservoirs.

Benefits of geosynthetics in water storage

Maximum waterproofing: Carbofol® geomembranes prevent leaks and ensure long-term water retention.

Robust protection: Secutex® geotextiles stabilise the substrate and protect the seal from mechanical damage.

Durability: High UV resistance, chemical stability, and mechanical strength ensure long-lasting performance.

Cost efficiency: Reduced water losses and lower maintenance costs help cut operational expenses.

Sustainable agriculture: Efficient irrigation supports environmental protection and promotes long-term viability.

A strong example of modern geosynthetics in agriculture!

With innovative irrigation solutions, geosynthetics play a crucial role in efficient water management. Rainwater collection basins with advanced sealing systems enable long-term crop yields. Thanks to modern technology, farmers benefit from a secure irrigation supply and increased resilience to climate variability. The geosynthetics used also advance the United Nations Sustainable Development Goals (SDG), particularly SDG 6 (Clean Water and Sanitation) and SDG 12 (Responsible Consumption and Production), by offering a durable, eco-friendly water storage solution.