

# BIODIVERSITY: Key to successful aphid control in watermelon



## The Farm

**Region:** Níjar (Almería, Spain)  
**Crop:** Organic watermelon in an 'Almeria-type' greenhouse  
**Area:** Total farm: 3 Ha. Demo: 1 ha  
**Planting:** 3 February 2021  
**Harvest:** 11 June 2021  
**Member of a cooperative**



## The strategy for pest management in water melon

- Before plantation of the crop: Prepare banker plants with specific aphids that do not live on watermelon, but serve as alternative prey for aphid natural enemies;
- Along the edges and the paths, place plant species with abundant flowering. Nectar and pollen are important extra food sources for beneficial fauna;
- After transplantation: initial releases of predatory mite *Amblyseius swirskii*, which is a natural enemy of other important pests: thrips and whitefly;
- Weekly monitoring of pests; complement with natural enemy releases when necessary

## Results

All pests that were detected were rapidly controlled by natural enemies;

**3 treatments against fungal diseases:**

Sulphur (x2)

*Bacillus amyloliquefaciens* (x1)

**One treatment with a (biological) insecticide:** *Bacillus thuringiensis*

**No treatments against aphids.** Other growers treat, on average, 4x against aphids, and 8x against other pests.

**Excellent harvest: 7 Kg/m<sup>2</sup>.** The average harvest in Almería is 6.2 Kg/m<sup>2</sup>.



## Cost-efficiency

**Work Load:** Management of beneficial plants takes Esther 1-2 hour per week per Ha.

**Costs:** The entire system, incl. the acquisition of extra plants and biocontrol agents has a cost which is the same as for control with pesticides in former years.

**Benefits:** The effect of biological control is far better than the effect of pesticide treatments. The biological balance prevents aphids from causing damage.

**Future:** Esther foresees that in forthcoming years she can spend a lot less on biocontrol agents, because she can maintain populations in the reservoir plants.

“This biological control system is not only profitable for organic growers, but also for all conventional growers. Within a few years, all growers will be experts in recognizing ‘bugs’ and managing biodiversity”, Ester Moreno, farmer