



Natural Olive Protection

A practical guide for Emporda olive growers



Centenary olive tree in the Emporda.

What you will find in this guide: Practical, low-cost strategies to protect your olive trees from the main pests and diseases of the Emporda, using plants from your territory. Recipes, application calendar, and the systemic logic that turns the grove into a self-protecting ecosystem.

Crop: Olive grove | **Region:** Emporda | **Scale:** 0.5 - 15 ha | **Cost:** 330 - 605 EUR/ha/season

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1. Know your enemy: the 3 main threats

Before preparing any remedy, understand what you face. The Emporda has a specific phytosanitary profile shaped by its Mediterranean climate, calcareous soils, and the Tramontana wind. The latter is a free ally: its natural ventilation significantly reduces fungal pressure compared to more sheltered zones.

Threat	What it does	When to watch
Olive fly (<i>Bactrocera oleae</i>)	Lays eggs inside the olive. Larva eats the pulp, causes premature drop and degrades oil quality.	June - November. Peak risk: Sept-Oct when T drops below 30 C.
Peacock spot (<i>Spilocaea oleagina</i>)	Fungus causing circular leaf spots and premature defoliation.	Autumn - spring. Humidity + mild temperatures (10-20 C).
Olive moth (<i>Prays oleae</i>)	Three annual generations: leaves, flowers, then fruit.	Year-round, main economic damage at flowering (April-May).

Key principle: Observation first, intervention second. Every decision must be based on direct field observation and trap monitoring, never on a fixed calendar.

2. Your zero-cost toolkit

The following preparations use wild plants from the Emporda. Zero cost. Only investment: your time.



Plant ferment preparation workspace.

Rotate applications every 2-3 weeks. Diversity is your best insurance.

Horsetail decoction (*Equisetum arvense*)

Preventive antifungal. Rich in silica, strengthens cell walls against peacock spot.

Ingredients: 100 g dried horsetail (or 1 kg fresh) + 10 L water

1. Boil in 10 L water for 30 min (decoction, not infusion).
2. Cool, strain through fine mesh.
3. Dilute 1:5 before spraying.
4. Apply every 2-3 weeks as preventive foliar spray.
5. Use within 48 hours.

Cost: Free. Grows along streams and wetlands.

Nettle fermented extract (*Urtica dioica*)

Plant immunity stimulant + foliar nitrogen. Repels aphids and mites.

Ingredients: 1 kg fresh nettle (before flowering) + 10 L water + non-metallic container

1. Submerge cut nettle in 10 L water (plastic or wood).
2. Ferment 10-14 days, stirring daily. Ready when foaming stops.
3. Strain: 1:10 foliar, 1:5 soil drench.
4. Storage: 2-3 months sealed in dark container.

Cost: Free. Ubiquitous in shaded areas.

2. Your zero-cost toolkit (continued)

Garlic-chili maceration

Broad-spectrum insect repellent. Garlic sulphur compounds = mild antifungal.

Ingredients: 100 g garlic + 50 g hot chili + 10 L water + 1 tbsp Castile soap

1. Crush garlic and chili.
2. Macerate 48h in 10 L water.
3. Strain finely. Add soap as wetting agent.
4. Spray undiluted.
5. Reapply every 10-14 days and after rain.

Cost: Practically free. Kitchen ingredients.

Olivarda fermented extract (*Dittrichia viscosa*)

KEY SPECIES. Antifungal + insecticidal. The most systemically valuable plant in this guide.

Ingredients: 1 kg fresh leaves and stems + 10 L water

1. Chop coarsely, submerge in 10 L water.
2. Ferment at 30-35 C for 10 days, stirring daily.
3. Filter carefully, store in refrigerator.
4. Spray at 2:50 (extract:water).
5. Reapply every 10-12 days.

Cost: Free. Olivarda grows everywhere: roadsides, margins, stone walls.

Why olivarda deserves special attention: It works on three levels: biopreparation (antifungal + insecticidal), habitat for olive fly biocontrol (wasp *Eupelmus urozonus*), and late-season pollinator resource (August-November). Preserve or actively plant it near your groves.

3. Mineral and biological protection

Plant ferments are the preventive base. For strong pressure, complement with authorised biological tools.

Kaolin clay (barrier strategy)

White particle film on fruit preventing the fly from recognising the olive. Widely used by organic producers in Catalonia.

Application	2-3 applications/season, June-September
Dose	30-50 kg/ha/season
Cost	3-5 EUR/kg. Approx. 100-200 EUR/ha
Note	Reapply after heavy rain. White residue washes off.

Bacillus thuringiensis (Bt)

Selective biological insecticide against moth larvae. No impact on beneficials. 2-3 apps/season. Cost: 60-100 EUR/ha. Apply at dusk.

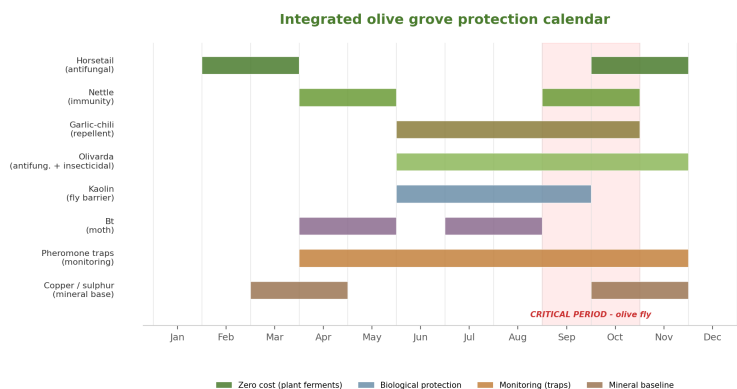
Pheromone traps

The intelligence layer. 2-4 traps/ha. Cost: 20-40 EUR/ha. The most cost-effective investment.

4. Integrated calendar and costs

Adapt to your farm. Every olive grove is unique.

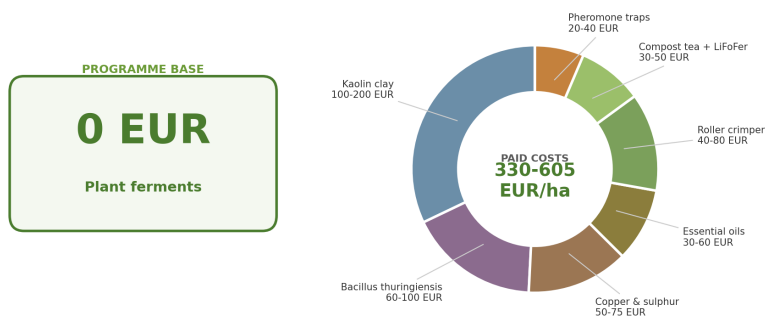
Period	Action	Objective
Feb - Mar	Horsetail (1st preventive application). Visual inspection.	Fungal prevention.
Apr - May	Nettle foliar. Bt if traps confirm. Install traps.	Strengthen pre-flowering.
Jun - Jul	1st kaolin. Garlic-chili /10-14d. Olivarda (start).	Fly barrier. Repellent.
Aug - Sep	2nd-3rd kaolin. Olivarda /10-12d. Intensive trap monitoring.	Critical fly period.
Oct - Nov	Horsetail post-harvest. Compost tea soil.	Winter fungal prevention.
Dec - Jan	Rest. Plan next season. Sanitary pruning.	Prepare season.



Estimated annual costs per hectare

Category	Products	EUR/ha
Plant ferments	Horsetail, nettle, garlic-chili, olivarda	0 EUR
Essential oils	Orange, thyme, rosemary, neem	30 - 60 EUR
Kaolin clay	Physical barrier (2-3 apps)	100 - 200 EUR
Bacillus thuringiensis	Moth larvae (2-3 apps)	60 - 100 EUR
Copper & sulphur	Mineral baseline (reduced doses)	50 - 75 EUR
Compost tea + LiFoFer	Compost tea + LiFoFer soil/foliar	30 - 50 EUR
Pheromone traps	Olive fly, moth	20 - 40 EUR
Roller crimper	Cover crop management (1-2 passes)	40 - 80 EUR
TOTAL		330 - 605 EUR

Annual cost distribution per hectare



The programme base (plant ferments) is entirely free.

Comparison with conventional and certified organic

	Conventional	Certified organic	AGECO natural
Crop protection	140-270 EUR (synthetic pesticides)	250-450 EUR (kaolin, Bt, copper)	290-525 EUR (ferments + bio + minerals)
Herbicides / cover	80-150 EUR (glyphosate)	100-150 EUR (mechanical mowing)	40-80 EUR (roller crimper)
Fertilisation	200-400 EUR (synthetic NPK)	150-300 EUR (organic fertilisers)	30-50 EUR (compost tea + LiFoFer)
TOTAL/ha/year	420-820 EUR	500-900 EUR	330-605 EUR
5-year trend	Stable/increasing	Stable	-30 to -50%

The key point: The AGECO programme costs less than both conventional and certified organic. And **costs decrease every year** as the system matures.

5. Beyond recipes: the systemic logic

This guide gives immediate tools. Real protection comes from designing the whole system.



Systemic vision: regenerative olive grove with aromatic understory, olivarda hedgerow, grazing and swale.

An olive grove where aromatics simultaneously produce essential oils, honey, culinary herbs and fire-resistant cover... is an ecosystem that generates its own inputs.

The olive grove as a productive ecosystem

Design element	Protective function	Other functions
Aromatic understory (thyme, rosemary, lavender)	Antifungal, repellent EOs	Herbs, honey, fire cover, income
Olivarda hedgerows (Dittrichia viscosa)	Antifungal extract + biocontrol habitat	Late pollination, erosion control
Companion trees (almond, carob, fig)	Diversification breaks pest cycles	Income, biodiversity, climate
Integrated grazing (sheep or goats)	Fuel + pest reservoir reduction	Natural fertilisation, fire prevention
Hydrological management (keyline, swales)	Hydrated soil = resistant plants	Less irrigation, resilience

"We don't design utopias; we design functional, rational ecosystems."

Want to go further?

This guide is a starting point. Every farm is unique.

AGECO supports landowners in the Emporda and Garrotxa transitioning to more resilient, autonomous, and profitable systems.

Step	What happens	Investment
1. Conversation	30 min to understand your situation.	Free
2. Site visit	2-3h: landscape reading, risks, ideas.	80 EUR/h
3. Ongoing support	Monthly guidance, plans, soils, subsidies.	From 150 EUR/month

Beyond olive groves: AGECO works in vitiforestry with international experience (France, Canada, Switzerland). The same principles apply to any Mediterranean perennial crop.

Other resources:

- **Fire-Resilient Agroforestry Guide** (Emporda / Garrotxa)

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*AGECO designs functional ecosystems, not utopias.
Every farm is unique and deserves a tailored response.*

Note: This guide is for informational and educational purposes. For certified organic crops, verify product compliance with your certifying body. AGECO, March 2026.