



Restoring soil fertility through minimum tillage

From Compaction to Soil Structure

Terre di Vallebona

Pasquale De Vita

Italy · Casalnuovo Monterotaro, Puglia

FARM AREA

Total: 59 ha
Regenerative: 100%

FARMING APPROACH

Extensive; organic conversion 2024–26

REGENERATIVE SINCE

2010

PRODUCTION

Cereals, legumes, olives, sheep

FEATURED PRACTICE

Minimum tillage and organic matter return

More organic matter, easier and cheaper soil work.

CASE STUDY IT01



Value the resources under our eyes that we too often leave unused.

Pasquale De Vita, owner



Co-funded by
the European Union



Meet the farmer and the farm

Farm factsheet

Information	Farm details
Farm name	Terre di Vallevona
Type of production	Arable, olives and sheep
Country	Italy
Region / location	Casalnuovo Monterotaro, Monti Dauni area, Puglia
Altitude / climate	150 m a.s.l.; rainy and dry spells
Average annual rainfall	550–650 mm/year (average)
Soil type / texture	Mainly clay; medium-textured
Total farm area	59 ha
Area under regenerative practices	59 ha (100% of total)
Featured practice area	Min. tillage on c. 50%, rotated
Farming approach	Extensive; certified organic: cereals 2024–25, olives 2024–26
Regenerative practices from	2010
Crops / livestock / products	Cereals incl. barley; chickpeas, other legumes; coriander; olives (extra virgin oil); sheep
Other relevant data	Hosts migratory beekeepers since 2014; their hives forage on the farm's coriander.
Farm website	Terredivallevona.it
Social media links	Facebook: Terre di Vallevona Instagram: terredivallevona
Farmer or farm contact	info@terredivallevona.it



Pasquale De Vita, owner

Farmer profile

Pasquale De Vita owns Terre di Vallevona and farms it with his family, the fourth generation on this land. They combine tradition with innovation and their professional skills: they planted a new traditional olive grove to keep the countryside alive, and they bottle their own single-variety extra virgin olive oil on the farm.

Case focus

How returning crop residues, olive prunings, green manure and manure to the soil, together with minimum tillage, rebuilt organic matter and made the farm easier, cheaper and more resilient to drought.

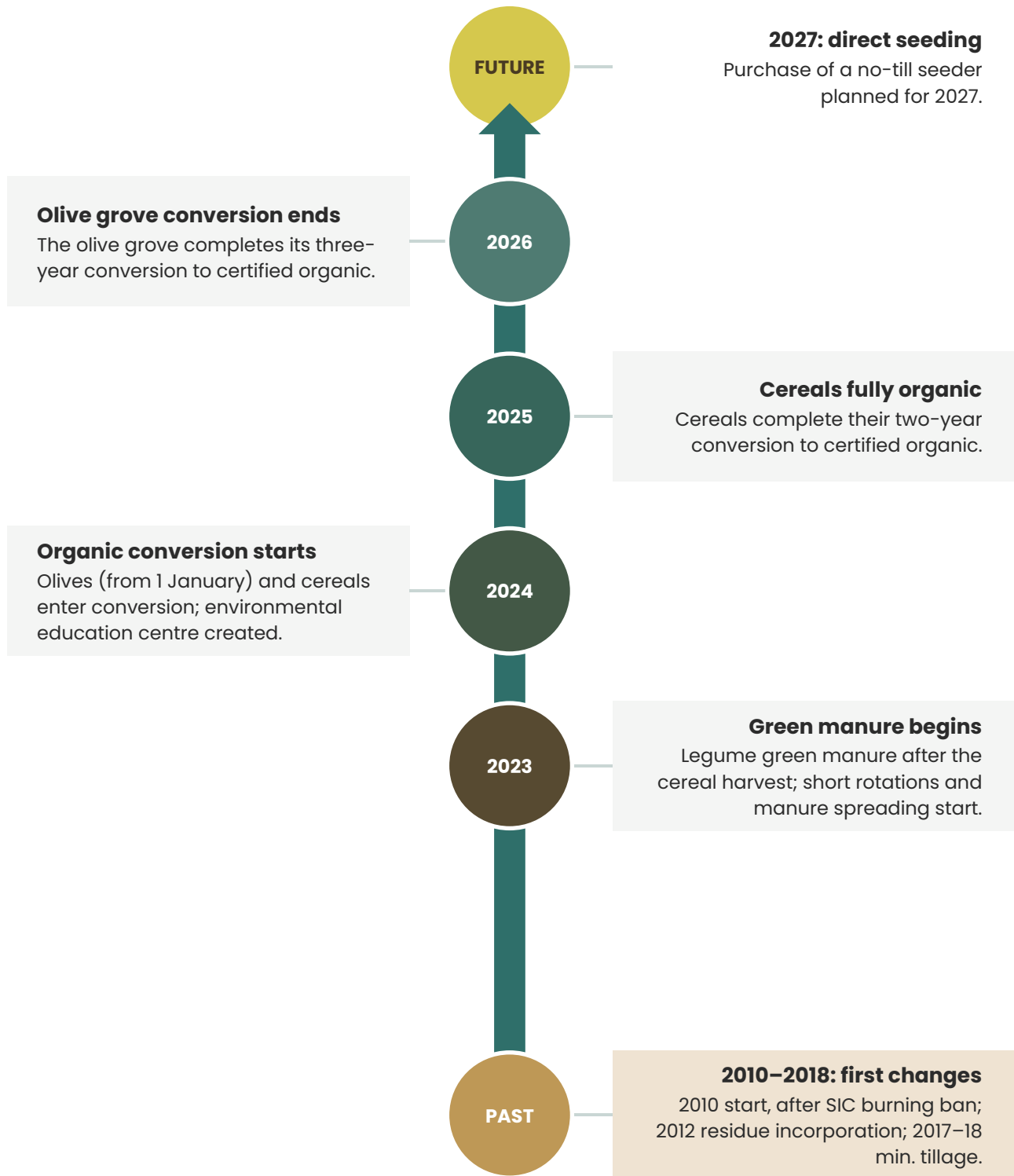
The farm and local context

Vallevona, the "good valley", lies near Casalnuovo Monterotaro in the Monti Dauni, where the Apennines give way to the rolling hills of Puglia. Over the generations the land shifted from woodland and livestock to cereals and olives. A soil fertility problem then started a gradual move away from conventional farming.

Regenerative transition timeline

Why and how the farm changed

The farm moved from conventional cropping to soil-restoring management through the milestones below.



From challenge to regenerative practice

Starting challenge

Soil analyses showed low organic matter, alkaline-leaning pH and poor phosphorus availability; the soil coped badly with water stress.

Why the farm changed

A ban on stubble burning and the soil analyses forced change. Aim: more organic matter, workability and drought resilience.

Featured regenerative practice or system

Minimum tillage on rotating plots, supported by returning residues, prunings and manure. Chosen as immediately applicable, using organic material from the farm and the market.

Supporting components

Straw/stubble incorporation • Shredded olive prunings • Manure, organic fertilisers • Post-harvest faba bean

First steps and sequence

Gradual: residue incorporation first, then minimum tillage, later legumes, short rotations and manure use.

Tools, labour and timing

Straw and prunings are shredded before incorporation; a contractor spreads manure.

Support and learning

RDP 2014–2020 Measure 10.1.2 on 21 ha; agronomic advice and monitoring via OP Oliveti Dauni / Confagricoltura.

Implementation difficulties and responses

Unshredded straw did not decompose well; the farmer began shredding it and adding urea to boost microbial breakdown.

Practice transformation

The main management changes, by theme.

Previous approach	Regenerative practice or system
Routine practices relying on former pasture fertility	Soil analyses and monitoring guide decisions
Frequent ploughing and intensive soil disturbance	Minimum tillage instead of ploughing
Stubble burning; little residue returned to the soil	Straw, stubble and shredded olive prunings incorporated
Mineral fertilisers without systematic soil analysis	Organic fertilisers and manure replace mineral inputs
Little attention to organic matter and soil life	Focus on organic matter, water retention, ecological balance



Shredding windrowed olive prunings



Flail shredder mulching olive rows

Results and economic implications



Measured results

–60–70%

Input costs

Tillage and fertiliser costs

Source: farmer estimate

+12–25%

Yield

≤40 (best years) → 45–50 q/ha

Source: farmer estimate

Evidence and observed change



Indicator / evidence	Before	After / change	Source and status
Soil workability and compaction; qualitative	More compact soil	Easier to work; less compact when wet or trampled	Farmer observation
Water retention; qualitative	Less able to hold moisture	Retains more water; withstands dry periods better	Farmer observation

Investment, costs and viability



Values are the farmer's estimates or observations unless stated otherwise.

Economic aspect	Before / previous	After / change	Source / status
Input and operating costs (fertilisers, pesticides, herbicides, fuel, water)	Mineral fertiliser, tillage-based	Organic inputs, fewer passes	Farmer estimate
Labour or machinery needs	7–8 field operations	About 2–3 operations	Farmer estimate
Yield or production stability	Lower output in stress years	Stable despite lower rainfall	Farmer estimate
Product quality or market value		Higher specific weight and protein	Farmer observation
Investment needed for the practice	Existing machinery at the start	Ploughs, shredding; seeder ≥ EUR 40,000	Interview
New market opportunity or direct sales		Sustainable output may meet consumer demand	Farmer interview (expectation)
Farmer assessment of economic viability		Viable: lower costs, more resilience	Farmer interview

Lessons and adoption



Who can apply this?

Farms with extensive arable crops, where restoring soil organic matter can bring both environmental and economic benefits; elements can be adapted to olive groves and vineyards.

Conditions and adaptations

Tailor the approach to each farm: analyse soil data, farm context, machinery, crop choices and local climate before choosing practices.

Remaining limitations

Tillage still needs to be reduced further, and weed management in the olive grove needs improving.



Practical adoption

First step: test the soil, then let regular analyses, not routine, guide decisions.

- 1 Start early: fertility loss and climate change already affect production.
- 2 Plan a gradual transition and allow 2–3 years to see meaningful results.
- 3 Reuse crop residues and plant by-products; do not remove or burn them.
- 4 Cut field operations and move step by step to less soil disturbance.

Next phase

Move from minimum tillage to direct seeding, the next step in reducing soil disturbance.

Observed benefits, trade-offs and photographs

Ongoing trade-offs or limitations

Post-harvest legumes do not always establish when rain is short; manual work may increase under organic management.

Observed benefits and what worked

Higher cereal yields since green manure, shredding and organic matter return; more efficient use of inputs (farmer observation).

Further information

Our mission is to promote the “**culture of Apulian extra virgin olive oil quality**” by safeguarding the biodiversity and identity of our region, on a journey of discovery along the paths of knowledge and awareness. We aim to guide you along a journey that begins in a rural landscape rich in and preserved for its biodiversity, and ends at your dining tables, taking in the key stages of tradition and good agricultural and food practices. The environmental context, sustainable agricultural practices, and our direct commitment to overseeing every stage – from olive grove cultivation to the bottling of the oil – are the cornerstones of our products’ quality, an expression of our passion and love for our Puglia. By celebrating biodiversity, extra virgin olive oil must take centre stage on our tables, thanks to its health-promoting properties and its nuanced flavours, which enhance the tastes of dishes, diversifying them and making them unique.

Additional case insight

Terre di Vallevona • Sourcing organic matter on a mixed farm

Using the farm's own organic matter first

Crop residues, shredded olive prunings and manure from the small sheep flock provide the farm's own organic matter. The flock covers only about 20% of the manure needed; external manure and commercial organic fertilisers supply the rest.



Shredded olive prunings left on the soil as mulch



Supporting evidence and sources

Farmer interview; manure share confirmed by the farm (October 2026).

The farm in pictures





Credits



Warm thanks to Pasquale De Vita and Terre di Vallevona for sharing time, experience and practical knowledge to help other farmers consider what could work on their own farms. We thank the European Union for co-funding REGE-FARMS through Erasmus+, enabling farmers to share knowledge and learn across Europe.

To support practical learning, REGE-FARMS case studies use an **adapted PICO model—Problem, Innovation, Comparison and Opportunity**—to connect each farm’s challenges and practices with observed changes and lessons for other farmers.

REGE-FARMS helps farmers across Europe transition to regenerative agriculture through practical knowledge and tools, digital training, case studies and hands-on field days. It supports soil health, biodiversity and carbon sequestration, strengthening climate resilience and the long-term sustainability of farming systems.

Prepared by Meridaunia with farmer’s input • Case IT01

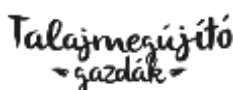
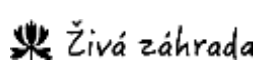
Authors: Alessandro d’Alsazia, Pasquale De Vita

Explore more resources at rege-farms.eu: [Case studies](#) • [Infographics](#) • [Field day guide](#)

Co-Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Slovak Academic Association for International Cooperation (SAAIC). Neither the European Union nor the granting authority can be held responsible for them.

Published as an Open Educational Resource. This work is licensed under a Creative Commons Attribution 4.0 International Licence (CC BY 4.0). You may download, share and adapt it, including for commercial purposes, provided you credit REGE-FARMS and any named authors, include a link to this licence and indicate any changes made.

Erasmus+ project number: 2025-1-SK01-KA220-VET-000362255



Map: Created with mapchart.net