AdvisoryNetPEST

Holistic approach

The practices identified in this project are called 'Novel Approaches' and abbreviated as 'NA'

Farmer's name
/

Contact
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Name of the farm
/

Country
The Netherlands

Description of the farm context

The farm operates across two sites in 's-Hertogenbosch and Veghel, covering approximately 50 hectares of open fields and 3 hectares of greenhouses. It is located in a temperate maritime climate with mild temperatures and moderate rainfall, and the soils are predominantly sandy, The farm applies a diverse crop rotation system, including leek, astilbe, strawberry, and peonies, to support soil health. Astilbe is produced for a niche, high-quality market, while strawberry production combines greenhouse cultivation of mother plants with open-field propagation across multiple varieties.

Partner Organization

ZLTO

AdvisoryNetPEST

The **AdvisoryNetPEST** project aims to create a **network** and **upgrade advisory services** across the EU to increase the sharing of knowledge and the **adoption of innovative solutions to reduce the use and risks of pesticides** (RURP) in all **EU Member States**, enabling the agricultural sector to achieve the targets proposed by the Farm to Fork Strategy.

AdvisoryNetPEST www.advisorynetpest.eu

THE TECHNIQUE

Short Description:

Improving soil structure to foster plant resilience is the approach taken for this NA.

Crop Sector:

Horticulture, all crop sectors

Targeted pest and diseases:

Large panel of pests & diseases targeted

Objective of the NA:

By restoring nature in terms of the carbon cycle (humus formation and mineral availability), interaction of soil with plants via the rhizosphere and thus uptake of minerals based on the plant's needs in exchange for exudates secreted by the plant root, the system becomes complete again. It is now essential to make this process sustainable through the necessary cultivation measures and to reduce the use of pesticides.

Level of practice adoption across the country:

1 2 3 4

Funded by the European Union

UK Research and Innovation

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Expectations regarding RURP

*RURP : Reduction of Use and Risks of Pesticides

This approach focuses on enhancing the plant's growing environment, with the expectation that healthier, more robust plants will be better able to resist pests and diseases.

Key success factors

Successful adoption requires willingness to try the approach, sufficient application of organic fertilizer, and the use of high-quality compost for weed control.

Methods/strategy of application in the farm

Integrated strategy focused on improving soil health by using minimal artificial fertilizer and adding compost from green waste, and grape pomace. This contributes to higher organic matter, improves cation exchange and soil water retention. Additionally ploughing is kept to a minimum to reduce soil disturbance. Green manures are also added to the rotation including Japanese oats which improve soil structure and microbial diversity, they also help to suppress nematodes.

Figure 1: Grape Pomace Compost

Improvements of the NA

The farmer is testing replacing Japanese oats with phacelia to improve nematode suppression, while marigold was found unsuitable due to nematode attraction and poor winter survival. Future adjustments aim to balance effective nematode control with ease of management and compatibility with crop rotation.

Figure 2: Phacelia as a green manure for nematode suppression

Resources and skills needed to adopt the NA

Access to technical knowledge, advisory services & training, specific inputs, and market and certification is necessary to support implementation and adaptation to local conditions.eco

Figure 3: Advisors visting farm

Advice from the Advisor

Science is still catching up with nature, so it takes time to scientifically validate many of the processes behind this approach. As a result, it relies on trust, experimentation, and patience. In practice, this means farmers must actively observe and adjust how they manage soil biology, pests, and crop-specific responses.

Farmers Testimony

Be willing to experiment avoid applying too little organic fertilizer, use high-quality compost, which helps suppress weeds while improving soil health. Most importantly, commit to the process and have confidence in it; without that belief, it's better not to begin at all"

Policies and Regulatory Support

Subsidies for specialized machinery, restrictions on broad-spectrum pesticides, nitrogen limits, and mandatory cover crops promote sustainable pest and nutrient management, soil health, and biodiversity. Financial incentives and technical guidance help farmers adopt these practices, though higher labor and management requirements can limit uptake.

Social and Cultural Acceptance

The practice aligns with local traditions, particularly through the use of familiar organic fertilizers, making sustainable measures like cover cropping and biological pest control more culturally acceptable. Resistance is usually practical rather than ideological, influenced by societal pressures to reduce chemical use, consumer expectations for flawless produce, and limited farmer awareness of soil or pest issues, which can slow adoption.

To go further on NA replication:

Successful implementation requires alignment across the value chain, access to technical knowledge and inputs like green manures as organic fertilizers . Iterative management, training, and adaptation to local conditions are key for scaling and effectiveness.

BENEFITS

Crops grow more consistently and compactly. Pest pressure is reduced, lowering chemical use, while treatments like hot water, CATT, and autumn soil steaming control nematodes, mites, and soil-borne diseases. Overall, these practices improve crop quality, increase productivity, and support a more sustainable, low-input approach.

BOUNDARIES

Adoption depends on supportive regulations, market acceptance of produce with minor pest signs, and suitable local conditions such as climate, soil, and pest pressures.

Systemic Feasibility Analysis: Expert insights from Literature and Field Data

CRITERIUM	INDICATOR	INDICATOR SCORE	EVALUATION
Pesticide use reduction level	Reduction of the applied volume of pesticides	**high reduction (>25%)** moderate reduction (10-25%) low reduction (<10%) no reduction	
Effectiveness of controlling the target pest/diseases/weed	Percentage reduction of the target pest/weed infestation or of the damage caused by the target disease	**high reduction (>60%)** moderate reduction (30-60%) low reduction (<30%) no reduction	
Soil quality	Impact on soil infiltration	-- / - / 0 / **+** / ++	
	Impact on soil compaction	-- / - / 0 / **+** / ++	
	Impact on soil organic matter	-- / - / 0 / **+** / ++	
	Impact on soil acid-base status	-- / - / 0 / **+** / ++	
Biodiversity	Impact on aquatic organisms	-- / - / 0 / **+** / ++	
	Impact on earthworms	-- / - / 0 / **+** / ++	
	Impact on non-target soil micro-organisms	-- / - / 0 / + / **++**	
Water quality	Impact on nutrient losses	-- / - / 0 / **+** / ++	
Working conditions	Knowledge requirements	high training level **moderate training level** low training level no training	
	Impact on working-time	**no impact**	
Costs	Required level of investment	> EUR 100.000 EUR 50.000 - 100.000 EUR 10.000 - 50.000 **< EUR 10.000**	
Outputs	Impact on crop quality	-- / - / 0 / **+** / ++	

Impact Highlights

The novel approach focuses on improving soil structure to enhance plant resilience across horticulture and other crop sectors. By restoring natural soil processes, it fosters sustainable nutrient uptake and soil biodiversity.

Systemic feasibility analysis shows this method effectively reduces pesticide use while maintaining crop health and quality, with positive impacts on soil properties and biodiversity, especially non-target soil microorganisms.

However, moderate variability exists, and successful implementation requires moderate training due to its technical complexity. Overall, the approach is cost-effective, adaptable to various crops, and supports long-term sustainability.

Evaluation: