AdvisoryNetPEST

Regenerative agricultural system

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

Farmer's name
/

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Name of the farm
/

Country
Latvia, region of Bauska

Description of the farm context

Farm no.1. - Integrated farming system with 25 ha of apples. Mostly clay-sand soil with ph around 6.
Farm no.2. – Organic farming system with 20 ha of blackberries. Mostly clay – sand soil with ph up to 6.5.

Partner Organization

LATVIJAS LAUKU KONSULTĀCIJU UN IZGLĪTĪBAS CENTRS

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:

Combination of mulch to prevent weed development, pest nests and pruning to fight against diseases, pests and weeds.

Crop Sector:

Apple orchard
Blackberry orchard

Targeted pest and diseases:

Mildew, rust, all kind of weeds, pests

Objective of the NA:

Regenerative agricultural system focuses on actively restoring and enhancing ecosystems, particularly soil health, while also improving food production and mitigating climate change. The management practices are based on many elements of the cropping system, such as implementing a diversified crop rotation, direct sowing and microbial plant protection products. Practices are tailored to specific farming situations, requiring a nuanced approach to selecting and integrating different techniques.

Level of practice adoption across the country:

1 2 3 4

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Expectations regarding RURP

*RURP : Reduction of Use and Risks of Pesticides

The combination of technics reduces pesticide use through the use of alternative technics.

Key success factors

There's no one-size-fits-all solution; rather, the optimalcombination of practices depends on factors likeclimate, soil type, farm enterprise mix, andindividual farmer preferences. The aim is, through ahealthy soil, enabling plants to be less prone topests and diseases. These practices also preservenatural enemies like predators, parasitoids, andpathogens in case of pests/disease attack(biological control). Do more regular soil analysis (especially for tracking Nitrogen).

Methods/strategy of application in the farm

Using crucferous family between the rows and bushes – natural fumigant, reduce weeds, reduce soil erosion.
Using compost as natural fertilizer and improve microbiological activitie in soil.
Using mulch for deiferent kind of weeds in orchards – less herbicide used.
Cutting branches more often - to reduce disease agents

Improvements of the NA

Mouse and rats' presence in the mulch (since the soil is not worked) mention as an issue in France context. Natural predators are possibly hunting them (birds, foxes). In the Latvian context the water vole is damaging the roots. To consider as a possibility to encounter and eventually avoid/manage (maybe with cover crops that are repellent – Thymus sp./till the soil).

Resources and skills needed to adopt the NA

There are no specific resource limitations (water, labor, equipment) that (could) affect(s) the implementation of this practice. Advisory service (LLKC in Latvia) supporting the application of those practices.





Advice from the Advisor

"Start experimenting step by step, share your practices with other farmers and be open to the advice given by professionals. Do not be afraid of making some mistakes: they can easily turn into successes!"

Farmers Testimony

"Just do it. Start experimenting even with few practice and in a little plot. You will learn by doing."

Policies and Regulatory Support

In Latvia there are no specific subsidies from Government, but farmer and advisor together can frame the needs into a project to be able to obtain a dedicated funding (there are dedicated EU funding that advisors have to identify and direct for the farmer needs). The farmer must invest at least to cover part of it. Similar in France, Denmark, Poland (here the feeling is that a lot of options are available) and Austria. In Austria cooperative purchase is also a possibility, as well as in Netherlands. Here organic farmers receive annual funding to compensate the transition.

Social and Cultural Acceptance

Possible resistance or reluctance from farmers or the local community can be due to being afraid of new methods, not easy and perfect replacement for chemicals, lack of knowledge and experience. Regenerative agriculture is a novel approach and to implement this on a wider scale needs a shift in perspective. It includes also an informative campaign for society. Change takes time and can happen gradually only starting with a change in mindset.

To go further on NA replication:

The integration of agronomic and biological practices was identified as a key approach to reducing pesticide use, with effectiveness strongly influenced by local agro-ecological conditions such as climate, soil properties and farm management. Improving soil health was emphasized as a foundation for enhancing crop resilience to pests and diseases, alongside the conservation of natural enemies within an IPM framework. Practical experiences highlighted the use of compost and mulching to stimulate soil biological activity, suppress weeds and limit erosion; however, compost mulch layers of around 20 cm may still allow later weed emergence, requiring an additional mulch layer (e.g. grass mulch). The timing of mulch application is critical and should be adjusted to soil temperature, while black Mypex mulch is commonly used during early crop establishment. Although nutrient inputs via compost (e.g. potassium and phosphorus) are discussed in some countries, their impacts are not yet systematically assessed in Latvia, underlining the importance of advisory support for effective NA replication.

BENEFITS

Main benefits observed since adopting this practice are stable yield, improve soil quality, sustainability improved. Moderate to high reduction of pesticide use. Increased scores of indicators for the soil quality (e.g. compaction, erosion, organic matter). Better working conditions. More clean product delivered to the food chain as well as for their own family.

BOUNDARIES

No negative impact was mentioned, except that this is an experimental stage. As a take into account message: a relatively low required level of investment is needed (<10.000 euro). The soil sustainability and fertility develop over a long term (payback period 2-5 years).

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 erosion	--/-/0/**+**/++	😊
	Impact on soil organic matter	--/-/0/**+**/++	😊
	Impact on soil acid-base status	--/-/0/**+**/++	😊
Biodiversity	Impact on non-target soil micro-organisms	--/-/0/**+**/++	😊
Water quality	Impact on nutrient losses	--/-/**0**/+/++	😊
Water conservation	Impact on pesticide emissions	--/-/0/**+**/++	😊
Energy use	Impact on total energy consumption	--/-/0/+/**++**	😐
	Impact on the use of renewable energy sources	--/-/**0**/+/++	😐
Working conditions	Knowledge requirements	high training level **moderate training level** low training level no training	😐
	Impact on work peaks	--/-/0/**+**/++	😐
	Impact on human health	high risk moderate risk **low risk** no risk	😊
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/+/**++**	😊
Profitability	Payback period	**2 – 5 years**	😐

Impact Highlights

The systemic feasibility analysis of the novel regenerative approach in apple and black currant orchards reveals both strengths and limitations. By combining mulching, compost use, green manure, and pruning, this system moderately reduces pesticide use and enhances soil quality in a reliable manner across key indicators.

However, pest and disease control remains variable, with an estimated effectiveness of only 30–60%. Crop quality may improve, though results are inconsistent. Energy consumption is higher due to increased machinery use, and nutrient loss remains unaffected.

Overall, while the approach shows promise, particularly in soil health, its performance in pest management still needs improvements.

Evaluation: