



Regenerative agricultural system



Farmer's name

Aivars Pugulis



Contact

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Name of the farm

ZS «Kalves»



Country

Latvia, Dienvidkurzeme region, Cīravas parish



Description of the farm context

Conventional cereal farm is growing wheat, barley, oilseedrape peas and corn. Production area 307 ha. Main equipment: direct seeder, sprayer, disc shreader. PPP's in use variouse herbicide, beneficial bacterias, fungicide.

Partner Organization



LATVIJAS LAUKU
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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.



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www.advisorynetpest.eu

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

THE TECHNIQUE

Short Description:

Regenerative agricultural builds on preserving the soil health, enabling a healthier plant.

Crop Sector:

Arable crop

Targeted pest and diseases:

Wide range of pest and diseases

Objective of the NA:

Regerenaritive agricultural systems are based on many elements of the cropping system, such as implementing a diversified crop rotation, direct sowing and microbial plant protection products. The aim is, through a healthy soil, enabling plants to be less prone to pests and diseases. These practices also preserve natural predators in case of pest attacks.

Level of practice adoption across the country:

1 2 3 4





Expectations regarding RURP

* RURP : Reduction of Use and Risks of Pesticides

The change of system to a regenerative agriculture is expected to reduce the use of pesticides through:

- Substitution of pesticides with microbial plant protection products for example
- A more robust plant, which is less subject to pest and disease.



Key success factors

Start with pilot programs to identify key barriers and necessary adjustments. Provide training and support for local adoption. Consider local environmental, social, and economic conditions when planning replication



Methods/strategy of application in the farm

Preparation before direct seeding requires herbicide application to knock out weeds and previous crop regrowth. On previous crop residue is applied bacteria for rapid decay. Before seeding the surface is smoothed by soil disking. Spring herbicides are combined with nutritional supplements, microelements and aminoacids to improve soil vigoricity, stress reduction and for optimal health. Crop is monitored for fungal usage in a critical times. No insecticides.



Improvements of the NA

By following up the plant nutrition and microelement demand with leaf sap analyses is possible to supply only needed elements. In result the plant is more stress and pest resistant, the insecticide usage avoided and fungicide usage reduced to a minimum.



Resources and skills needed to adopt the NA

1. Start with soil sample and correct the soil fertility with to optimum levels and ratios amongst the elements
2. 2. Soil minimal disturbance following the right timings
3. 3. Leaf sap test analyse interpretation for precise spraying
4. 4. Crop monitoring throughout the season for disease pressure.





Advice from the Advisor

Seed treatment with biostimulants and microelements is a good strategy for stronger and more rapid germination start.



Farmers Testimony

Farmer used to plow fields and was using plant protection programmes, but now he is more relaxed by saving a time, diesel for tractor and feels more safer to work on a field knowing that PPP's effect on a health is reduced.



Social and Cultural Acceptance

New experience leads to similar farmer meetups and effective information exchange. Good practice is shared with advisors and experts and is evaluated from different perspectives.



Policies and Regulatory Support

Certified product usage followed by good farmers' practice. Participation in soil health seminars, theory and practice exchange. New strategy creation based on previous experience. Collaboration with various product suppliers and follow-ups to a markets. Opened for more experiments such biofertilizer brewing ect.



BENEFITS

Safer products delivered to a food chain. Beginning of soil fertility increase and more sustainable ways of farming. Time saving practice with visible financial results. International knowledge exchange.



BOUNDARIES

Implementation of the new novel approach should be evaluated and used to increase the right future decisions. Continues monitoring of soil quality and plant health should be checked including the crop rotation, cover crop and cathcrop implementation

To go further on NA replication:

Soil condition is the key point of starting practicing the new techniques. To ensure the correct strategy choise in existing farming system is highly recommended the help from advisors.

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 infiltratief	-- / - / 0 / + / ++	😊
	Impact on soil compaction	-- / - / 0 / + / ++	😊
	Impact on soil erosion	-- / - / 0 / + / ++	😊
	Impact on soil organic matter	-- / - / 0 / + / ++	😊
Biodiversity	Impact on earthworms	-- / - / 0 / + / ++	😊
Energy use	Impact on total energy consumption	-- / - / 0 / + / ++	😊
Working conditions	Knowledge requirements	high training level moderate training level low training level no training	😞
	Impact on working-time	increase	😐
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	Impact on profit margin	slightly positive	😐

Impact Highlights

This novel approach applies regenerative agriculture in arable crops in Latvia, focusing on direct sowing and microbial plant protection, thereby preserving soil health.

The main strengths of this system include improved soil quality, reduced susceptibility to diseases, and lower pesticide use, supported by enhanced crop health and natural pest control. Environmental indicators of this novel approach are highly positive, mainly related to improved soil quality.

The need of training and the possible need of machinery investment could difficult the adoption of this NA. However, results are still variable, and adoption may be limited by the need for training, changes in management practices, and potential machinery investment.

Evaluation:


Not Satisfying


Not Satisfying


Moderately Satisfying


Satisfying


Very Satisfying