

# AGRIFUTURE: INNOVATIVE CROP STRATEGIES FOR SEED POTATO CULTIVATION



## Summary

The **AgriFuture** project at Kollumerwaard focuses on seed potato cultivation as a key element within a future-proof crop rotation system. Seed potatoes come with specific demands regarding soil quality, crop rotation, and disease management, making them a relevant case in the transition toward more sustainable arable farming.

The aim is to explore how seed potato cultivation aligns with the core principles of AgriFuture, such as:

- Reducing the use of chemical crop protection products
- Preserving and improving soil health
- Utilizing circular (organic) fertilizers
- Contributing to biodiversity and climate goals

## The need

Dutch arable farming — like livestock farming — is facing a major and complex challenge. The agricultural system is being shaped by a wide range of developments that call for an integrated approach and a clear vision for the future.

Key themes include:

- Climate change
- Limited availability of crop protection products
- Salinization of farmland
- Requirements from the Water Framework Directive
- The shift toward circular agriculture
- The protein and oil crop transition
- Use and availability of animal manure
- Growing societal expectations around biodiversity and landscape quality

These developments lead to one central question:

**What will the arable farming of the future look like and how do today's decisions help us get there?**



## The benefits

### Future-proof seed potato cultivation

Meeting stricter requirements for crop protection, fertilization, and environmental impact — without compromising on quality or yield.

### Soil health as a foundation

Focused attention on soil life and structure ensures a strong crop start and reduces the risk of disease.

### Less dependent on chemicals

Mechanical weed control, resilient varieties, and precision technology help significantly reduce chemical inputs.

### Ready for stricter regulations

Proactively responding to upcoming legislation on fertilizers, crop protection, and water quality.

### Boosting biodiversity

Flower strips, strip cropping, and other measures support pollinators and natural pest control.

### More resilient to extreme weather

A robust crop rotation and healthy soil increase resilience to drought, excess rainfall, and temperature extremes.

### Innovation driving improvement

Precision farming and robotics enable more efficient use of labor and resources.

### An inspiration for fellow farmers

A regional example farm that inspires and supports others in transitioning toward circular agriculture.



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## trans4num solution

AgriFuture aims to develop an arable farming system that meets ambitious future requirements for climate, environmental impact, and biodiversity. The approach is based on knowledge and technologies that are already available today, with room for further refinement through innovations such as robotics and precision farming.

Specific targets compared to current average arable farming practices:

- 30% reduction in mineral input
- 90% reduction in crop protection product use
- 90% reduction in chemical weed control
- 30% reduction in direct and indirect energy input
- 200% increase in above-ground biodiversity
- 100% increase in soil biodiversity
- 90% of mineral input sourced from regional nutrient cycles
- 1,500 kg CO<sub>2</sub>/ha/year additional carbon sequestration

### What were the challenges / limitations in the implementation process?

- It's challenging to make future-oriented decisions while relying on current knowledge, technology, and regulations.
- Innovations must be bold, but still applicable and workable for real farms in the region.
- Farmers, advisors, and experts often have different priorities, aligning them requires continuous dialogue and coordination.
- Shifting policies, market demands, and climate conditions create unpredictability, making long-term planning complex.

### What kind of resources do you need to implement the proposed solution?

- Knowledge of the latest techniques and innovations
- Crop expertise within a renewed, future-oriented crop rotation system
- Active collaboration with various partners to expand knowledge and share experiences

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## More information

- [SPNA website for AgriFuture](#)
- [Dutch paper on Integral control of PVY 9 in seed potatoes](#)
- [Dutch article on applying straw to reduce aphid pressure on seed potatoes](#)
- [Video: Cover crops in a potato based crop rotation](#)
- [trans4num Dutch NBS site](#)

