

ZAHRADNICTVÍ BÍLÝ JEDNOROŽEC

Good Practice Collection



Introduction

The uniquely named farm Zahradnictví Bílý Jednorozec, which translates to “Garden center White Unicorn”, is located in Roblín, in the Praha-západ district of the Central Bohemian Region. The farm engages in mixed farming, with both crop cultivation and various kinds of animals, taking advantage of the diverse landscape. The multifunctional activities include the management of pastures, orchards, and cropland. Additionally, the farm has implemented several innovative measures to improve sustainability, as the farm faces inadequate hydrological conditions, historically resulting in the need of transporting water in water trucks. However, through commitment to regenerative practices, the farm was able to overcome the issues despite local limitations.

The Farm

The farm was established in Roblín in 2004. It currently employs three workers who manage various farming activities, with horticulture being the most dominant of the mix. The farm itself spans an area of 40 hectares. The farm engages in community farming, meaning you may visit the farm to help out and learn about farm work or just stay for a chat. You may also find organic eggs for sale which are laid by hens enjoying a free-range life at the farm. And, during both summer and winter, community harvests are held, where the community can harvest their own produce at the farm.

The Location

Roblín, where the farm is located, is part of the Praha-západ district in the Central Bohemian Region, just beyond the confines of the capital city of Prague. The region is characterized by a relatively dry, flat, and mildly warm climate with an average annual precipitation of 530 mm.

Agricultural regeneration objectives

The location of the farm has suffered long-term of low rainfall, making conventional water supply methods very expensive and unsustainable in the long run. Water was transported across the farm in water trucks, which was time consuming, ineffective and expensive, especially because of the high fuel consumption of the transport vehicles.



Best Practice Focus

The farm has assessed this inadequacy and implemented a solution, which not only saves costs on fuel and equipment maintenance, but is also a good example of regenerative water management. The core component of their solution is the installation of a wind powered water pump to provide water for grazing animals. The water pump draws water from an old well, which has been restored and deepened. Afterwards, it stores water in an above-ground fiberglass tank and supplies it to the animals through gravity-fed float-activated water troughs. To enhance the ability of the soil to retain water, permanent grasslands and trees have been planted, so that they supply nutrients to the soil and make the it healthier and thus more absorbent.

This, however, comes with the challenge of reliance on wind – during longer periods without wind, it can pose a major problem, as water isn't pumped without. The solution was creating various auxiliary pumping methods, which substitute the wind when necessary.

The implementation of the wind-powered water pump and improved hydrological conditions has led to significant economic and environmental benefits. The farm has reduced its dependency on transported water, leading to lower fuel costs and labor time. The system's simplicity and minimal maintenance requirements have proven advantageous. Environmentally, the use of renewable energy from the wind pump aligns with sustainable farming practices. The innovative approach has enhanced the farm's resilience to water scarcity and improved the overall sustainability of its operations.





Financial aspects of regenerative measure implementation – challenges faced

The implementation process began with a thorough assessment of the site, identifying the old well's location and potential for restoration. A survey was conducted, followed by the excavation of a 4-meter-deep pit using a digger. The well was then lined with concrete rings and covered with a cap. A wind-powered pump was installed, and the well was filled with washed gravel. Two layers of geotextile were applied around the rings, and the top was sealed with compacted clay.

The materials used included a digger, concrete rings and cap, clamps, wind pump, washed gravel, and clay. The total cost, excluding labor, was approximately 70,000 CZK. The project's success hinged on the technical and informational support from Pavel Floriš, the wind pump supplier, along with the farmer's extensive experience.

Daily maintenance involves checking the cleanliness and functionality of the water troughs. Basic knowledge of machine operation was necessary for the project's implementation. The farm now benefits from a sustainable and cost-effective water supply system, reducing the need for transportation and associated expenses.

Categorisation, keywords

This case study presents an example of regenerative water management, specifically a wind-powered water pump combined with gravity-fed watering systems.

Wind-powered water pump, gravity-fed watering systems, water management, water retention, regenerative water use, renewable energy, wind power, hydrology, water transportation

Advantages and disadvantages of a wind-powered water pump and feeding the water to livestock through gravity-fed watering systems

Advantages	Cost effective solution for water transportation across the farm
	Ecologically friendly – uses renewable energy
	Simple maintenance and operation, relatively low implementation costs
Disadvantages	Dependence on wind – requires additional auxiliary solutions
	Makes use of an existing water well – substantially more expensive when necessary to dig a new one
	Requires specific knowledge for installation – external expertise was necessary

Learning points

Knowledge	How to build the water pump and water feeding system.
	How to develop an auxiliary system to compensate for low wind periods.
	Knowing well local conditions – primarily wind and underground water sources.
Skills	Maintenance of the water pump, well and feeding system.
	Fixing possible mechanical failures of the wind pump.
	Integrating the water feeding system into existing infrastructure.

References/ Bibliography

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