

ROTATIONAL CATTLE GRAZING IN TRADITIONAL ORCHARDS

Diversification of production for smallholder farms in Central Eastern Europe



THE WHAT AND WHY

Traditional organic orchard with cattle grazing

Traditional orchards are valuable elements of rural landscapes and sources of income for smallholders. Almost 3000 local apples varieties still exist in Central Europe alone. They are naturally resistant to frost, diseases, pests and each provides a unique taste and healthy values. Value-added income can be improved by integrating livestock grazing activities. Grazing can contribute to the diversification of production and extending the timing of cash flows. Although sheep are preferred to cattle in most fruit production systems

because they cannot browse as high, under certain market and cultural conditions, sheep/lamb meat, milk or wool production might be not profitable. For example, in Poland there is a long tradition of grazing cattle and high demand for beef in the domestic market means farmers prefer cattle instead of sheep. Furthermore, the first successful trials dealing with grazing in orchards by using electric fences to facilitate rotating animals between paddocks, showed that trees have not been affected by cattle browsing.



Cattle resting in old traditional apple orchard. The grazing realizes the productive potential of environmentally valuable areas.

Andrzej Majerski



High electric fencing prevents browsing trees. Simmental-Limousine hybrid cattle can provide high-quality beef as an additional income for smallholders.

Andrzej Majerski

HOW IS THE CHALLENGE ADDRESSED

Controlled cattle grazing in the management of traditional orchards

Before planting a traditional orchard, site factors and local varieties should be carefully considered and a supply of good quality trees is crucial. A traditional apple orchard of different varieties is grown on a spacing pattern 7-10m x 5-8m, depending on soil texture, plot location and needs. A north-south row orientation is preferred due to uniform distribution of sunlight to tree crowns. Controlled grazing with a 1.4m high electric fencing allows intensive grazing of a portion of orchard without tree damage. Paddock

rotation and paddock size varies, depending on weather, season or sward cover. Water access should be provided. A mowing-grazing regime is considered as the best, with grazing practiced until the harvest of fruits. A holding open-air area is needed for animals when they are removed from the orchard. The trees are fertilized each year with liquid manure approx. 25-50 l/tree. The system is very flexible and requires the farmer to have systematic control and good knowledge of the sward productivity and cattle herd needs.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727872.

Keywords: Organic farming, beef cattle, traditional orchard, orchard grazing, silvopasture, smallholder farms

eurafagroforestry.eu/afinet



HIGHLIGHTS

- Combined production of traditional apple varieties and feed grass can be an additional income for smallholder farms.
- Grazed orchards provide shade for animals, reduce mowing needs, enhance nutrient cycling and biodiversity.
- Traditional fruit varieties and beef expand the culinary product portfolio of the region.
- Silvopastoral traditional orchards help to save the cultural identity of the region and countryside heritage.



Each traditional apple variety has different taste, aroma and use. This offers a great many possibilities for creating unique combinations of fruit products depending on customer preferences.

Andrzej Majerski

FURTHER INFORMATION

More information in English on management of traditional orchards:

<https://www.agricology.co.uk/resources/traditional-orchards-wildlife>

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.showFile&rep=file&fil=LIFE07_NAT_D_000236_LAYMAN.pdf

<http://publications.naturalengland.org.uk/publication/19007>

In other languages:

<https://www.esto-project.eu/index.php-id=87.html>

ADVANTAGES AND DISADVANTAGES

Increase management effectiveness and enhance biodiversity

The size of many farms in Central-Eastern Europe does not allow them to enjoy equal access to the market. The fragmented agrarian structure of lands characterized by distance from other parcels forces smallholders to look for ways to intensify and diversify production. Controlled cattle grazing in traditional orchards is one of the methods for significantly increasing income, however usually this does not enable them to be self-sufficient. Manufacturing and sale of high-quality apple juice from their own traditional orchard, encompassing different local varieties (expected average yield 20–50 t ha⁻¹) is considered as a profitable farm operation. Additional production of grass feed in an orchard can provide animal gains similar to those from open pastures and finally raise the production of increasingly sought products (i.e. beef) that improves farm cash flows. Grass yield in well managed young and old thinned orchard does not differ significantly from the yield harvested in traditional open pastures. In other habitats, plant viability and grazing usage might be decreased. Grazed orchards offer shade and shelter for animals, limit fuel use by reducing the need to mow, and enhance nutrient cycling and soil fertility. Traditional orchards provide mosaics of different habitats for beneficial invertebrates, rare birds (European pied flycatcher or Icterine warbler), bats and lichens. Grazing prevents dispersion of pests and diseases from fallen leaves and fruits and reduces mole activity. Last, but not least, cultivation of several traditional fruit trees varieties contributes to a rich landscape and restoration of cultural heritage. The region of Łącko is famous for traditional fruit products but subject strongly to emigration of the rural population. In the circular economy approach, combined and nature-based farming systems including silvopastoral orchards are needed to develop sustainable bioeconomy models on peripheral rural areas featuring complex land use structures. However, it is not an easy process, but it is one of the few opportunities to save the cultural identity of the region and the touristic values of the landscape.

ROBERT BOREK

Institute of Soil Science and Plant Cultivation – State Research Institute,
Czartoryskich Str. 8, 24–100 Puławy, Poland.

rborek@iung.pulawy.pl

Content editor: Maria Rosa Mosquera-Losada (USC)

JULY 2019

This leaflet is produced as part of the AFINET project. Whilst the author has worked on the best information available, neither the author nor the EU shall in any event be liable for any loss, damage or injury incurred directly or indirectly in relation to the report.