Own constructed aerator for grasslands located on the peat-muck soils characterised by low porosity

MILK

Mariusz Duda

1 Description of the innovation

In order to ensure optimal conditions for the growth and development of valuable meadow plants, especially humidity-air relations in organic meadow soil characterised by low porosity, an own constructed plate aerator was applied after the harvest of each regrowth. As a result, it is possible to produce larger amounts of grass-based feeds for dairy cows, to improve the botanical composition and to increase the efficiency of fertilizer application. The aerator is built on a construction of a cultivator and it has a 3 meters working area. The working elements are cutting plates adapted from another machine and they are installed one next to another within 20 cm gaps. The plates are cutting the sod to a depth of 10-15 cm. The depth is regulated by adding some extra weight to the machine.

Added value:
Grassland production or yield
Grassland quality (species composition, feeding value)
Livestock production quantity
Environment quality (soil)

Farmer's strategy

The permanent grasslands of the farm are located on organic soils that are sensitive to compaction due to the use of agricultural machinery and its natural tendency for compactness. Aeration ensures the insertion of air to the sod layer, which has a positive effect on the vegetation of the valuable meadow plants. It causes also a better use of nutrients from fertilizers and prevents the sward from the degradation process. As a result, yields of meadow sward and their quality have increased. The organic type of meadow soils forces still some adjustment of the aerator in order to increase the efficiency of its work.

2 Farm description

ENVIRONMENT

Soil types:

Sandy, Peat

Climate:

Warm-summer humid continental

Altitude:

86 m a.s.l.

Slope:

0%

GRASSLAND MANAGEMENT

All of the grasslands are exclusively mowed.

The sward is conserved by making haylage.

STRUCTURE

Annual Work Unit: 3

Agricultural Area: 120 ha UAA

Main forage area: 95 ha

Arable land area: 95 ha

Permanent grassland area: 25 ha

Temporary grassland area: 20 ha

Other forage area (silage maize): 50 ha

Average stocking rates:

- agriculture area 1.9 LU/ha
- main forage area 2.4 LU/ha
- grassland area 5.1 LU/ha

ANIMAL PERFORMANCE

Dairy cows: 160

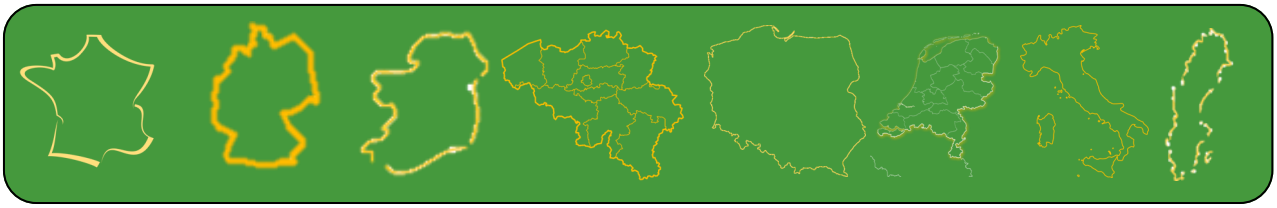
Total livestock units: 227.5 LU

Milk production per head: 10800 (l/year)

WHY IT IS WORKING

The aerator inserts air into the sod layer, allows better use of nutrients from fertilizers, which increases the grassland productivity and maintains for a longer period of use stable botanical composition of the sward, especially after the renovation of the meadows.

Country shapes



Domains of innovation

- Machinery, tools
- Forage mixture
- Forage conservation technique
- Grazing management system
- Legume management
- Animal feeding management
- Animal type (breed)
- Product processing
- Marketing
- Farm system
- Landscape

Main types of animal