



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



1 Description of the innovation

Permanent grasslands located on some organic soils can be sensitive to compaction due to the use of agricultural machinery and their natural tendency for compactness.

In order to ensure optimal conditions for the growth and development of valuable meadow plants, especially humidity-air relations in meadow soil characterized by low porosity, an own constructed plate aerator is applied after the harvest of each regrowth.

The prototype-aerator is built on the construction of a cultivator and it has a 3 meters working area. The working elements are cutting plates adapted from another machine (potato harvester) 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.



The treatment with the aerator is depended on the weather conditions, especially humidity of the soil. The constructors have some ideas how to improve it and build another model. The new construction will give the possibility to work with higher speed and at the same time will not damage the sward. Those adjustments can decrease the time necessary to aerate all of the meadows what can lower the cost of a single treatment and give the possibility to save labor costs.



Meadow's sod after aeration

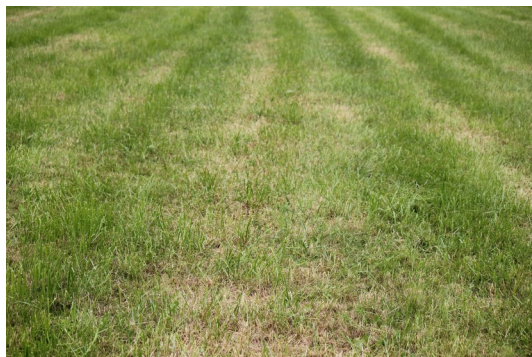




Technical leaflet



2 Results obtained with the adoption of innovation



Grassland before aeration



Grassland after aeration

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 applied fertilizers and prevents the sward from the degradation process. As a result, it is possible to produce larger amounts of grass-based feeds for dairy cows, improve the botanical composition of the sward and increase the efficiency of fertilizer application, especially after the renovation of the meadows.



Advantages

- improvement of plant growth conditions
- increase share of valuable plants in the botanical composition
- better quality and yield of the obtained sward
- increase of the fertilizers efficiency



Disadvantages

- additional cost of an extra treatment in sward management
- the construction of aerator needs some more improvements to increase its efficiency

More information

www.encyclopediapratisensis.eu— case study section/Mariusz Duda Farm

<https://www.topagrar.pl/articles/aktualnosci-branzowe-uprawa/napowietrzenie-zwieksza-produktywnosc-darni-uz/>