



Holistic approach: high quality seed propagation and groundwater protection



1 Description of the innovation



Holistic approach to include temporary grassland into the crop rotation in combination with seed propagation achieving outstanding germination capabilities and degrees of purity in a plowless strip-till system and undersown grasses in silage maize. Part of the undersown grasses in silage maize are used to graze sheep. Additionally the farmer conducts his own field trials to gain site specific knowledge to optimize the management. The undersown grasses in silage maize are used successfully to minimize wind erosion and nitrate leaching.

Remaining nitrogen in the soil is monitored at the beginning of every leaching period, as the farmer works in a water protection area. Thus the reduction of N_{\min} in autumn is quantified.



**Environment quality and product quality
(seed propagation)**



Field-trial with under sown grasses in silage maize

Processing products and environment protection

For seed propagation small grain cereals as previous crop are preferable to maize; for perennial ryegrass on the sandy soils the use of a roller was essential to establish the grass satisfactory. The plowless cultivation reduced wind erosion. The combination of undersown grasses in silage maize with a plowless system was tested on the farm itself, as well as different strategies to establish the undersown grasses. The seeds for the grass were applied via fertilizer spreader short before closure of rows. High germination capacity of the seeds is vital for successful undersown grasses

2 Farm description

ENVIRONMENT

Soil types: mainly sandy soils

Climate: temperate oceanic climate

Altitude: 12 m a.s.l. ; no slope

GRASSLAND MANAGEMENT

Mainly temporary grassland embedded into the crop rotation and under sown grasses in silage maize; seed propagation

Grazing : Yes, for cattle rearing

Rotational stocking

STRUCTURE

Annual Work Unit: 4.5

Agricultural Area : 200 ha UAA

Including 40 ha silage maize with under sown grasses, 20 ha seed propagation, 20 ha permanent grassland; the other area is used for temporary grassland , red clover and small grain cereals (mainly rye) ; the precise area varies according to the crop rotation

Stocking rate: 1.6 LU /ha UAA

ANIMAL PERFORMANCE

8500 l milk /year/cow

WHY IT IS WORKING

The farmer works in close contact with advisors and technicians for seed production and to get good contracts; The close contact with the technicians is necessary to ensure high quality harvest technique and optimized storage and processing of the seeds. The soil has to be well kept to achieve the high degrees of purity. The farmer has to be able to plan the use of his agricultural area ahead at least for three years, especially to ensure a successful combination with under sown grass in silage maize. Still he has to adopt these plans flexibly.

HOLISTIC APPROACH: HIGH QUALITY SEED PROPAGATION AND GROUNDWATER PROTECTION