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Resowing grassland under cover crop

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On the light sandy soil of De Marke, each 6 or 7 years permanent pasture needs renewing, despite precise management. To limit mineral losses, resowing has to take place in the spring. The start of newly sown grass is often mediocre in the spring. Weed rapidly prevails and we easily miss one and a half cut of grass. De Marke now uses their long-standing experience from the crop rotation systems with sowing of grass after a crop period with resowing permanent pasture. The results are good and the working method is applicable on practical farms.

Resowing grassland in ley farming

On the greater part of the acreage of De Marke, ley farming is applied. After a stage of three years, a crop period of three years follows. The aim of this system is to utilise the minerals well and to keep the organic matter content on arable land sufficient. A difficult moment is the change from crop to pasture. When should grass be sown: immediately after harvesting the maize or in the spring? At sowing grass immediately after harvesting the maize, the swards actually develop too slowly to sufficiently limit nitrate leaching. That is why we first sow a catch crop under the maize that develops more strongly than grass and we sow the new sward in the spring.

Sowing grass in the spring on light sandy soil often creates problems. There is a great chance of a slow start of the grass, due to which the weed gets room, which makes weed control necessary. This in turn results in open sward again and restrains grass growth, which eventually costs one or two cuts. The worst start of the grassland period and the resulting 'damage' cannot be improved that easily. This is the reason for De Marke to look for a different system to improve the start of the pasture stage.



In one year summer barley in July



And grass in August on the same plot

Barley as last crop and also cover crop for grass

In the last year of the crop phase, the (maize) land is ploughed mid-March, animal manure is applied and the land is made level as much as possible. Then summer barley is sown together with grass and clover. By the rapid emergence and starting growth of the barley, weed cannot develop, but grass and clover can sprout easily. Barley offers shelter for the young grass and clover plants and prevents the weed from prevailing.

Barley can be harvested as complete plant silage or be threshed, where the kernel and the straw are harvested separately. Threshing occurs in the dough stage. After grinding and adding propionic acid, the kernel is ensilaged. By adding this to the base ration of dairy cattle, we save concentrates. The straw serves as feed or as litter for deep litter house and calving barn. If barley development is

too slow and the kernel yield and quality are less sufficient, we mow the crop halftime the dough stage and make complete plant silage. Also when roughage stock is limited, we make plant silage.

Immediately after harvesting the barley, animal manure is applied with the slurry applicator. The sward is firm and the soil has subsided well, which saves artificial fertiliser. The first cut is mown pretty soon to remove small weeds and remains of straw. This is put in the silage as feed for yearlings. In the fall there is a second cut of good quality. The year after that (first year of pasture) the grassland is good enough to drive and graze on and immediately realises an adequate yield. All in all, this system combines a safe start of the pasture (without chemical weed control) with a satisfying feed production in the rotation year. Crucial factors in this system are 1) that the grass and clover seed should take off well in the spring, and 2) the weather conditions after the barley harvest. Because on De Marke the grass has to only grow with the help of animal manure, there is a great dependency on the weather. Therefore, the success of the system is in one year better than in another one.

Experience with applying barley as cover crop in permanent pasture

On De Marke there is also permanent pasture. On the light sandy soil of De Marke this permanent grassland must be renewed each 6 or 7 years. Also here resowing takes places in the spring. The problems with this resowing are the same as resowing in the spring after a crop. That is why also grass sowing under a cover crop on permanent pasture is applied (summer barley). The experiences are again similar to sowing in the crop rotation system. The 'gap year' provides a good basis for a new period of permanent pasture. The disadvantage of this system is however that Elytrigia control cannot be done well and that the pasture in this gap year is registered as arable land. This must, however, be possible within the derogation.

Other cover crops

To solve this problem, it is also possible to grow barley purely as a cover crop instead of a main crop. A small amount of seed is then sufficient and the first cut is light and is mown and ensilaged early together with the barley. Besides barley, also other crops can function as cover crops. The crop must sprout strongly and cover the soil quickly without keeping down the grass. This year, De Marke tried Japanese oat and Westerwold Ryegrass last year.



Newly sprouted grass, Japanese oat as cover crop.

Also developments in maize improvement can offer solutions. There are new maize breeds that are already harvested before mid-September: the so-called KKM-breeds (brief growth season, Concentrates, Maize). An early harvest offers the possibility of sowing earlier in the fall, due to which the chance of success and mineral uptake are becoming higher. The maize yield may be somewhat smaller, but in turn there is uncomplicated grass sowing or a successful catch crop. This year De Marke is using a KKM-breed for the first time. With this we provide a basis for three years of pasture mid-September.

Importance for practice

Resowing under cover crops increases the chance of adequate sward forming, of saving on weed control and realising an adequate utilisation of nitrogen. The experiments on De Marke with resowing permanent pasture under cover crops are promising and will certainly be followed up. Also on practical farms on light sandy soil, this system is applicable and worth trying.

Please read more on the project 'Cows & Opportunities': www.koeienenkansen.nl
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