

Oral presentation

Intercropping as solution for organic grass seed production?

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Introduction

In Denmark 3.5 per cent of the arable land is converted to organic production and 2.7 per cent is under conversion. The majority of the organic farms are specialised in milk-production and at those farms an adequate supply of animal manure is normally available. Milk-production is predominant in Western Denmark, whereas the majority of farms in Eastern Denmark, at the richer soils, rely on arable production. Recently, an increasing proportion of those are converting to organic farming. The majority of the organic, arable farms have no access to animal manure, and therefore one of the main obstacles for organic grass seed production here, is nitrogen supply.

Besides the nitrogen amount, seed crops are also very sensitive to the timing of nitrogen application. Correct timing will stimulate reproductive development whereas excessive and poorly timed nitrogen application will be in favour of vegetative growth. If a nitrogen-fixating pre-crop provides nutrients, the grass seed crop will take up nitrogen as soon as it is mineralised which will most likely lead to excessive vegetative growth. Mixed cropping of a grass seed and a green manure crop provides an option on timing nitrogen release and excessive vegetative growth can be utilised as forage.

Methods

Perennial ryegrass seed crops were established in a spring barley cover crop, at wide row spacing, 24 cm to allow for a companion crop of green manure. Seven green manure crops were tested and evaluated, against perennial ryegrass established without green manure crops at four nitrogen application rates. Nitrogen application, degassed slurry, was performed in the seed production year at the onset of spring growth of perennial ryegrass. The green manure crops were cut (approximately 1 cm below ground level) to eliminate competition against the seed crop and to stimulate nitrogen release.

Results and discussion

Seed yields of perennial ryegrass showed no difference between 25 kg N ha⁻¹ + mixed cropping with persian clover, bird's foot trefoil or black medick and 100 kg N ha⁻¹ to perennial ryegrass grown in pure stand. Results from 2000 are shown in figure 1.

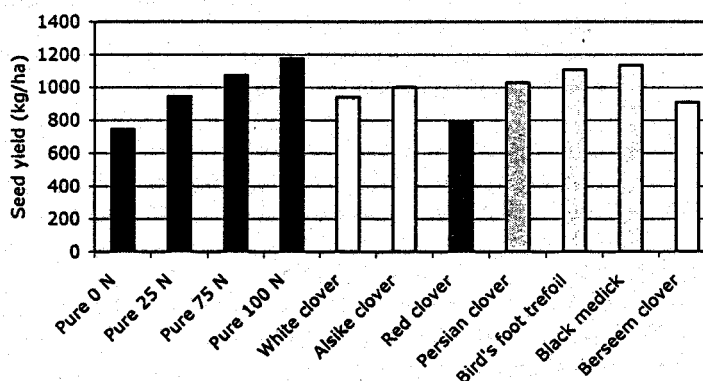


Figure 1. The effect of green manure crops in perennial ryegrass for organic seed production compared to establishment in a pure stand with different Nitrogen application levels.

In 2001 trial-site was infected with grass weeds, but the trial is replicated in 2002 and 2003. The preliminary conclusion is, that intercropping of perennial ryegrass and green manure crops might be an solution for organic grass seed production especially on arable farms without access to animal manure but the trial also indicates interesting results with regards to the utilisation of excessive vegetative growth as forage.

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