

Rapeseed in Denmark

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The following is a short outline of the rape seed situation in Denmark.

After a tremendous increase in the acreage during the late seventies and the first years of the eighties the acreage with rape seed in Denmark has now settled around 200.000 hectares, with around 170.000 hectares spring rape seed and the rest with winter rape seed.

As a consequence of a huge international breeding effort, combined with a political wish in the EEC to increase the production of plant protein, almost 100 % of the spring rape seed in Denmark is of double-low varieties. New improved varieties are put on the variety list every year, with the consequence, that the yield potential of the old types has been surpassed, and the yield increase seems to continue. On good soils the high yielding spring rape seed varieties often yield from 3.0 to 3.5 tonnes per hectare.

The winter rape seed varieties grown are of the single low types, and the trial results show that the yield of double-low varieties are 5-10 % under the single low varieties. However, in this year official trials, with one single exception, only double-low varieties are being tested.

Most of the production, around 300.000 tonnes is exported, mainly to Germany. In 1984 60.000 tonnes of double-low rape seed is processed in Denmark for the special purpose to introduce double-low rape seed meal into pig feeding. One seed manufacturer has started this program, but we will probably find more and more outlets of quality rape seed meal in the future.

Breeding of rape seed is now performed at 4 different private plant breeding institutes in Denmark. They are : Plant Breeding Station MARIBO, A/S L. Dæhnfeldt, Pajbjergfonden and Danish Plant Breeding Ltd.

There is no breeding at state institutes, but basic research is carried out at different places. Agronomical research is carried out at the Roskilde

Research Centre, chemical research at the Agricultural University, here also in relation to insect problems, and plant disease research is carried out at the Plant Protection Centre at Lyngby.

At the Chemical Institute of the Agricultural University, Copenhagen, Dr. Hilmer Sørensen has worked now for many years on analyses of glucosinolates. He is one of the strongest supporters of procedures analysing glucosinolates per se and strongly argues for the introduction of HPLC methods as the recommended procedure. More information about this can be found in a lot of published papers from Dr. Hilmer Sørensen.

At the Plant Protection Centre in Lyngby, a new group has been established, which, among other things, will work with cell- and tissue culture in relation to rape seed diseases.

They will work with haploidy, single cell- and protoplast culture.

The haploid technique in rape seed has been introduced in most of the Danish rape seed breeding companies.

At Danish Plant Breeding Ltd. we have been working with this technique for now 3 years. After some problems we have now a system, which works quite satisfactory. We think that breeding via di-haploids offers additional opportunities to traditional breeding methods, for example quick and accurate fixation of segregating characters in F₁ and fixation of superior genotypes from good populations.

The homozygous genotypes are excellent for quantitative and qualitative selection and can be used as such as new varieties or, if wanting to introduce heterosis, one might be able to create synthetics more efficient, working with pure lines.

We think that the haploid technique is a useful breeding tool and want to emphasize the need for basic research in areas, which in the future could give breeders opportunities to reach breeding objectives more efficiently.