FLAX BREEDING AND FLAX VARIETIES IN THE NETHERLANDS

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1. INTRODUCTION
Modern flax breeding dates from the beginning of this century. Precursors in the past century were, among others, G. JENSMIA, a Frisian farmer at Ternaard, who obtained the Frisian white flowering flax in 1816 by collecting white-flowered plants occurring in the originally blue flowering Russian flax.
The varieties of fibre flax grown at present in the Netherlands are obtained through pedigree selection. L. BROEKEMA at Wageningen was the first in this country to use pedigree selection in flax. Around 1900 he selected and multiplied individual plants.
After a period of single-line selection in endemic varieties, flax breeding in the Netherlands has developed to the phase of artificial crossing of a leading variety with a variety that excels in a certain character. The Dutch breeders often chose the variety Concurrent as one of the parents.
It is natural, that after the disappearance of locally grown populations and the distribution of improved varieties, the breeders look more and more for new types, which are distinguished by certain characters, in the hope of combining these properties with the good ones of the most popular varieties.

2. COLLECTION OF VARIETIES
The breeders must have at their disposal parental varieties, ,,genitors”. In the Netherlands the Foundation for Plant Breeding at Wageningen maintains a collection of varieties which is completed regularly through the addition of new types. Dutch breeders are supplied with material in order that they may profit from the existing varieties and their crosses.

3. POPULATIONS
In order to start beginning breeders and also to help established breeders, the Foundation for Plant Breeding places likewise at the disposal of Dutch plant breeders interesting populations issued from crosses and gives advice about the breeding work.

4. OBJECTIVES
Instead of selecting for length of straw the flax breeder has become increasingly aware of the fact that length is no decisive virtue if good standing and other properties are not combined with it.
The breeding of scorch and rust resistant varieties is also very urgent. The general conviction is that susceptibility to scorch or rust will impede the propagation of a variety.

By sowing the populations issued from a cross on a soil infested by scorch one can perform a preliminary selection; the susceptible types disappear!
Nitrogen and thin seeding promote rust. This gives the breeder a means of selecting for resistance.
During a flax breeders' congress a good application of this method was demonstrated on the selection fields at Engelum, near Leeuwarden, in the province Friesland. At the borders of the collection consisting of populations issued from crosses and of preliminarily selected material, a perpendicular, richly fertilized strip was made at one side of the plot and at the other extremity of the plot was sown on a strip where conditions were favourable to the appearance of scorch. Such a simple experiment furnishes the breeder interesting data concerning merits and defects of his selections.

In the last few years artificial rust infection is used in order to promote better and speedier selection. Selection for quantity and quality of fibre remains urgently important. In some cases the breeder himself judges his selection but more and more he calls the specialist to his assistance.

The fibre analysis of the flax strains of the selection field at Engelum, where the varieties Concurrent and Rembrandt were developed and are maintained, is done f.i. by Mr A. Wijffels of the warm water rettery ,,De Vogel” at St-Anna Parochie (Friesland) according to three procedures (warm water, cold water and dew retting).

The Dutch Flax Institute carries out the research on fibre content and quality of the new selections. Every Dutch breeder can avail himself of the services of the Institute for a moderate fee.

Dutch breeders concentrate on the breeding of fibre flax, without, however, neglecting the yield of seed. J. C. Dorst succeeded to a certain extent in breeding a good fibre flax with a good yield of seed (Concurrent). The new variety Wiera, developed by J. P. Wiersema, even surpasses Concurrent in yield of seed.

Breedling of linseed has only started. At present breeders try also to obtain, by crossing fibre flax and seed flax, varieties combining a high yield of fibre with a high yield of seed.

5. SCIENTIFIC RESEARCH

At all times it will remain true that scientific research renders great services. Agricultural research in its many aspects, the botanical investigation of the flax plant, the fibre analysis, the chemical analysis, genetic research, the study of diseases and pests (thrips) must be stimulated by all available means and the drawing in of as many workers as possible. This is the more important as the varietal range is always in a state of movement.

In the Netherlands the Dutch Flax Institute (Director: Ir J. I. C. Butler) at Wageningen is a centre of flax research.

6. EXPERIMENTAL FIELDS

Trial fields, to arrive at a correct evaluation of the varieties of flax, must be further developed. The creation of special trial fields, for instance for research on scorch resistance, is desirable.

Since 1950 the results of the comparative flax variety trials are published annually by the Government Institute for Research on Varieties of Field Crops (in cooperation with the Agricultural Advisory Service and the Netherlands Flax Institute) in the series ,,Notes on the choice of varieties”.

7. DESCRIPTIVE LIST OF VARIETIES

The annual Descriptive List of Varieties of Field Crops based upon data of experimental fields and practical experience draws attention to the recommended flax varieties. The annual varietal statistics figuring in the Dutch Descriptive List of Varieties of Field Crops gives the following survey of the spread of the varieties: