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EXPERIMENTS WITH A MOSAIC OF SHALLOTS

Met een samenvatting: Proeven over een mozaiekziekte in sjalotten

BY

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„Soft shallots" have been known in Denmark for more than 30 years; before inspection of propagating material was established by the horticultural organizations, plots with more than 50 per cent of diseased plants were not rare.

The plants attacked by mosaic are small, the leaves flattened and corrugated, distorted, flaccid, and as a rule with yellow stripes (a coloured plate is to be found in GRAM & WEBER: Plantesygdomme, plate 9).

Experiments by H. RØNDE KRISTENSEN on the heat stability of the virus indicate that *Cucumis virus 1* cannot be the pathogen of this mosaic, which is probably caused by *Allium virus 1*. Treatment of the bulbs with dry heat, 24 hours at 40 °C or 8 hours at 45 °C, did not cure the disease.

In 1948 the „Onion Section of Jutland" inspected the shallots of about 225 growers who had planted 35000 kg of shallots for propagation; one third of the lots were entirely free from mosaic. Any lot which showed more than one half per cent of mosaic plants as a total of percentages found at first and second inspection, was rejected.

In some plots of shallots grown for experiments on the control of *Peronospora destructor* (BERK.) CASP. about 5 per cent of the plants were attacked by mosaic in 1945. On the 2nd July a series was lifted consisting of the first, second and third

plants away from mosaic-infected plants. On July 9th and 17th corresponding series were lifted. These bulbs (totalling about 1800) were planted in a greenhouse in October and kept under observation until the experiment was terminated 40 days after planting. The results are given in table 1.

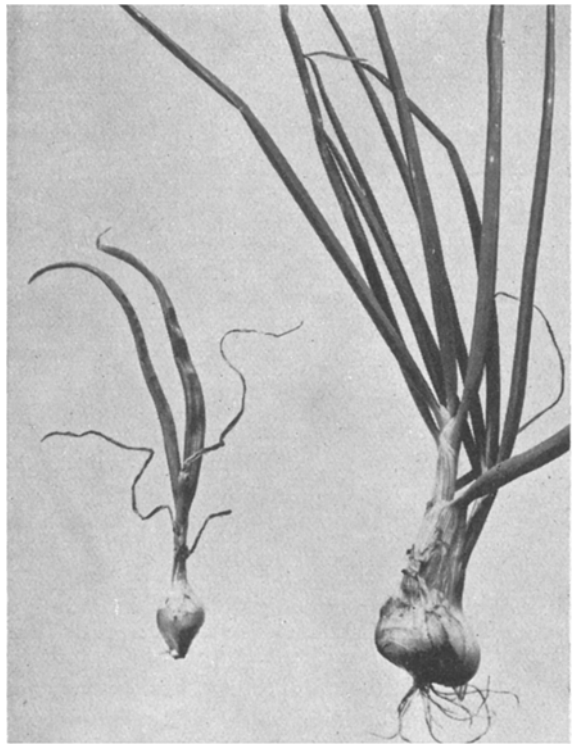
TABLE 1

Lifting date and per cent plants with mosaic

	Lifting date			
	July 2nd	July 9th	July 17th	Average
first neighbour	25	24	41	30
second „	11	12	19	14
third „	7	10	12	10
average	14	15	24	–

The evidence points to increasing infection when distance from the source decreases and when lifting is delayed.

In 1946 an experiment was initiated with two lots of shallots: A. grown in Jutland in 1945, where 3.4 per cent mosaic plants were removed during growth and B. grown in Lyngby in 1945, where about 5 percent of the plants were attacked by mosaic but not removed. In 1946 each of the two lots were planted in 3 plots separated by belts 2,5 metres broad sown with carrots; the distance between the two lots was about 60 metres. During the period from the 14th to the 24th May all suspected plants were removed from plot 1 as soon as symptoms were visible; it appears from the records and from later observations that the suspected plants removed included a few nonmosaic plants. In plot 2 the removal of mosaic infected plants was begun 14 days later than in plot 1. In plot 3 the diseased plants were not removed.



Shallot plant attacked by mosaic (left), healthy plant (right)

Plant aangetast door mozaiek (links), gezonde plant (rechts)

The result of the removal of the diseased plants in

1946 was determined by planting the remaining bulbs in 1947, see table 2.

TABLE 2 *Early removal and per cent plants with mosaic*

Treatment 1946	A (1,3 per cent 1946) per cent 1947	B (14,7 per cent 1946) per cent 1947
1. removal immediately	0,8	7,8
2. „ delayed	1,0	16,4
3. „ omitted	5,0	38,6

The effect of removal of the mosaic-infected plants as soon as symptoms are visible is evident.

SUMMARY

Mosaic in shallot plants may be demonstrated by a few weeks culture under glass in autumn. In the open, infection from one plant to its neighbours is important; this rapidly decreases with distance. Early removal of diseased plants and early lifting of material for propagating will reduce infection markedly.

SAMENVATTING

Mozaiek (fig. 1) in sjalotten, vermoedelijk veroorzaakt door *Allium-virus 1* kan aangetoond worden door de planten in de herfst enige weken onder glas op te kweken. Op het veld gaat de infectie gemakkelijk van een zieke plant op zijn buurplanten over, maar de kans op besmetting neemt snel af met de afstand (tabel 1). Vroeg verwijderen van zieke planten en vroeg rooien van voor pootgoed bestemd materiaal vermindert in belangrijke mate het percentage aangetaste planten in de nateelt (tabel 2).

ENKELE NIEUWE GEZICHTSPUNTEN BETREFFENDE HET VIRUS VAN HET TOMATEN-MOZAIEK

With a summary: Some new aspects regarding the tomato mosaic virus

DOOR

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Het onderzoek van de virusziekten van de tomaat werd in 1936 te Wageningen op het Laboratorium voor Mycologie en Aardappelonderzoek aangevangen. Ik was daar in de gelegenheid mij ten volle aan dit probleem te wijden. De resultaten van het onderzoek zijn vastgelegd in Mededeling no 10 van de Tuinbouwvoorlichtingsdienst. Bij mijn komst in Naaldwijk te midden van de Tuinbouw-practijk stormden zoveel nieuwe vraagstukken op mij af, dat het virusonderzoek enigszins op de achtergrond werd gedrongen. De interesse voor het virusprobleem was echter door Prof. QUANJER bij me gewekt en in de practijk van de tuinbouw stootte ik steeds opnieuw op verschijnselen, die door de gangbare opvattingen betreffende het tomaten-mozaiek niet verklaard konden worden. Feitelijk was dit