

WŁADYSŁAW CHAŁUPKA, MACIEJ GIERTYCH

Seed years in *Picea abies* (L.) Karst.¹

In Fig. 1 a summary is presented of information available from literature on the seed years in Norway spruce. Since various authors present their data in various units (seed weight, cone volume, estimates of flowering etc.) all the information had been classified into five categories, ranging from no cones to a full crop, and presented in Fig. 1 as spots of various sizes. Absence of a spot indicates that no data is available for the particular place and year. The places where the data was collected are arranged latitudinally along the ordinate.

A close examination of Fig. 1 permits the formulation of certain conclusions concerning the occurrence of seed years in Norway spruce. Perhaps the most striking observation to be made is that there is so much agreement between the various parts of the range. It appears that some years, in particular 1954, but also 1921, 1924, 1928, and 1931 were almost universally good seed years throughout the range. This indicates that whatever is the climatic factor responsible for inducing a seed crop it has to be one that acts similarly throughout the range and therefore is unlikely to be related to minor weather fluctuations.

In some adjacent years, notably 1941 and 1942, there appears to be a good seed crop but not for both the years in the same place. This would indicate that in the species as a whole there was an internal readiness for a crop but that the weather conditions were satisfactory for it at some localities in the first year while at others in the second.

In no instance are there two full cone crops reported for the same locality in two adjacent years, and good or medium crops follow each other very rarely indeed. It seems to be a very consistent rule that it takes at least 3 years for a Norway spruce stand to recuperate from one significant cone crop before it can produce another. Thus internal readiness of trees for fructification will no doubt represent a certain prerequisite condition before any climatic factor will be able to actually induce a cone crop.

It has been suggested by S a r v a s (1957) that crop years are possibly

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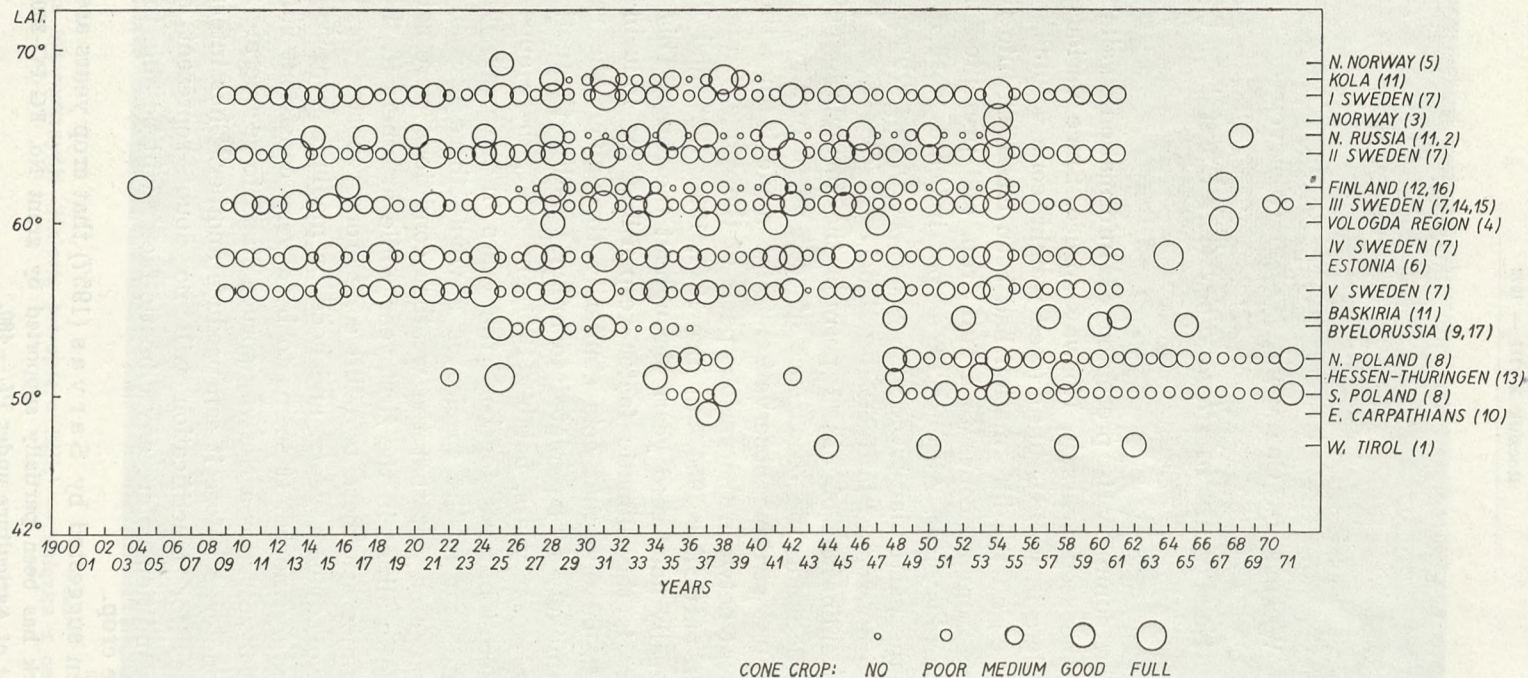


Fig. 1. Estimate of cone crop in various localities and years

Numbers in brackets correspond to literature references. The years refer to time of flowering and seed maturation as opposed to seed fall and cone drop

related to sun spot intensities, since he felt that the frequency of the crop years was of the order of 11 years. This may appear true locally on the basis of some of the Scandinavian records but it certainly does not hold for the whole range of Norway spruce.

There is a slight suggestion from the data presented here that seed years are less frequent in the extreme north and in the extreme south than at latitudes between 55° and 65°N.

Also it appears that in the 20's and 30's the seed years were more frequent than they are now. Possibly the degree of atmospheric pollution plays a role here. On the other hand the published data for the 60's is rather limited and the impression may be exaggerated by the results obtained for Poland by the Forest Research Institute.

Finally we wish to appeal to all those who have in hand data on seed years in Norway spruce which they have not published yet, or which we missed in our search in the literature, that they would draw our attention to it so that we could further improve on the picture presented in this paper.

SUMMARY

Data on seed years in Norway spruce has been summarized from literature and presented comparatively. Some years were good seed years throughout the range. Usually at least 3 years are needed between two good crops in one locality. Crop years are less frequent now than they were before the II World War.

Institute of Dendrology and Kórnik Arboretum
Kórnik nr. Poznań

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Lata nasienne u świerka pospolitego (Picea abies (L.) Karst.)

Streszczenie

Dane z literatury dotyczące lat urodzaju u świerka pospolitego zestawiono w sposób porównawczy. W niektórych latach urodzaj występował na obszarze całego zasięgu. Między dwoma kolejnymi dobrymi urodzajami na tym samym terenie upływają zwykle co najmniej 3 lata. Obecnie lata urodzaju występują rzadziej niż przed drugą wojną światową.