

## SILVER FIR PROVENANCES

**Wolf, H. (ed.): Weißtanne-Herkünfte. Neue Resultate zur Provenienzforschung bei *Abies alba* Mill.** Contributiones Biologiae Arborum 5. Ecomed Verlagsgesellschaft. Landsberg a. L., 150 pages, price 68 DEM, ISBN 3-609-65820-X,

The main attempts of research to understand the silver fir dieback is recently paid to intrapopulation variation studies. Partial research results have recently been published in different periodicals and access to the synthetic results has usually been only limited to specialists. This is why it is to welcome the xx of the editor to present to the broader xix the complex review of the present knowledge of these actual topics.

J. B. Larsen tries to explain the problems linked with the silviculture of silver fir in Central Europe based on the recent genecological information. For the main cause of the silver fir dieback, the low ecological amplitude of this species caused by insufficient genetic variation and consequent lack of adaptability is considered.

G. Aas, F. Kirchner and J. Maier consider the variation of morphological characters of needles of populations from Southern Europe as the result of the introgression with *A. cephalonica*, and they discuss the possibilities of the introgression of *A. alba* and *A. nebrodensis* in Calabria. The highest number of contributions (4) is aimed at the most progressive methods of variation studies using gene markers.

D. Treutler and W. F. Ruetz tried to characterize *Abies* species and provenances based on phenol compounds. They found that differentiation of *Abies* species based on phenolic compounds is possible, but that of *Abies alba* provenances is not possible.

H. Wolf investigated foliar monoterpene composition in 155 silver fir provenances from the entire natural range of this species. He differentiated 5 groups of provenances, and between them he found different monoterpene spectra. The populations from the western, central and eastern part of the natural range have a rather small variation from the populations from the southern and southeastern part of the natural range.

In the following two papers the isozyme gene markers were used to investigate the pattern of genetic variation. M. Konnert investigated the genetic diversity and differentiation between 27 populations from southwestern Germany based

on 10 isozyme loci. Although working in a rather small geographic range, she has differentiated four different groups using cluster analysis. Her results are to be considered for the xix for identification of seed samples and to determine the provenance regions.

F. Bergmann compared the genetic structure of silver fir populations from central and southern Europe. He found that the progenies showed higher and parent stands lower heterozygosities than expected. Only in the Calabrian population was the inbred effect rather low.

The last three papers deal with the evaluation of provenance experiments. The first two evaluate the juvenile material from the IUFRO provenance experiment established in 1982–1983. H. Wolf, W. F. Ruetz and A. Franke are referring to the first results of the provenance experiment established in Southwestern Germany, and R. B. Stephan and A. Padró from the provenance experiment established in the Spanish Pyrenees. Finally, L. Paule and V. Hynek tried to complex evaluate the results of provenance experiments established in Czechoslovakia.

Although the experimental material used in the presented 9 papers is from case to case different, the results of all published papers are unified at least in the following aspects:

- a rather high intrapopulation diversity and intraspecific differentiation of silver fir was found;
- populations from western, central and eastern Europe have substantially lower variation than the populations from the southern and southeastern part of the natural range;
- regions of silver fir dieback correspond with regions with decreased genetic variation.

The reviewed publication represents valuable theoretical contribution to the knowledge of the significant forest management problem of silver fir dieback.

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