

FOREST ECONOMICS DEPARTMENT

NEWSLETTER

Editors: Michael Jones and David Cope

No. 10 Finnish Forest Research Institute Helsinki 21.9.1970

Research Personnel: Prof. Lauri Heikinheimo, Head of Department. Prof. N.A. Osara, International Forest Economics. Prof. Lorenzo Runeberg, Plastics and Wood. Heikki Kunnas, Forestry in National Accounting. Esko Salo, Removal Measurement. Dr. Matti Palo, Forecasting and Optimization Models. Matti Heikinheimo - Aarne Reunala, Standard of Living of Forest Workers. Terho Huttunen, Wood Consumption. Jouko Hämäläinen, Economics of Thinning. Michael Jones, Land Tenure. Veli-Pekka Järveläinen, Sociology in Forestry. Kari Keipi, Fertilization Economics. Pentti Kuokkanen, Nursery Economics. Pertti Mikkola, Wastewood Studies. Sampsa Sivonen, Plantation Economics. Hannu Vehviläinen, Power-saw Costs. David Cope, Land-use Economics. B. Chandra Jha, Finnish Scholarship.
Departmental Secretary: Marja Harmanen

Colloquia

The first colloquium of the autumn was held on Tuesday, 15th September, when Professor W.R. Mead (Department of Geography, University College London) gave an account of the complexities of organization and financing of research in Britain.

The programme for the remainder of 1970 is as follows:

- 5th Oct. P.M.A. Tigerstedt "The gains of tree breeding for Finland's Forestry"
26th Oct. David Cope and Aarne Reunala will discuss their research plans for 1970-71
16th Nov. Matti Palo "Reflections on a years research in the U.S.A."
7th Dec.(tentative) Alexander Vostrikov "Forestry in the U.S.S.R."

The colloquium will meet at 2.30 p.m. in the conference room, Forest Economics Department, Finnish Forest Research Institute, Kaisaniemenkatu 1.

English summary from *Silva Fennica*, 4:2, 1970 (P.M.A. Tigerstedt & Eero Malmivaara "Metsänjalostuksen mahdollisuudet. 1. Pluspuiden valintaero ja siemenviljelysten valintahyöty"):

THE POSSIBILITIES IN FOREST TREE BREEDING: SELECTION DIFFERENTIAL OF PLUS TREES AND GENETIC GAIN IN SEED ORCHARDS

An attempt is made to estimate critically the genetic gain in clonal seed orchards of *Pinus silvestris* (L.) in Finland. The selection differential of Scots pine and Norway spruce is calculated on the basis of filed information on selected plus trees

which has been kept by the genetic register at the Finnish Forest Research Institute. The differential is estimated in a non-statistical way as there is no information on the phenotypic variability of stands that incorporates the measured plus-trees. The differentials are computed as realized differences in height between plus-trees and normal silviculturally treated stand characteristics on respective site class and as a function of age. For example at an age of 80 years, the selection differential of total tree height is 3.8 meters in a silviculturally treated Scots pine stands on sites of Vaccinium type. The selection differential in Norway spruce stands at the same age but on Myrtillus type is 7.6 meters. Differentials are also computed for D.B.H. measurements and they are 4.5 and 13.6 cm respectively. However D.B.H. differentials have not been used in computations of volume growth as there is not information on the heritability of diameter increment. The selection differential for tree volume was computed on the basis of differentials in total tree height assuming a constant stem form.

Narrow sense heritability of height growth in Scots pine has been estimated by TIGERSTEDT (AFF, 1969) on the basis of covariance of half- and fullsib families. The estimations have been made during the first two growth periods and subsequently they are quite unreliable. However no better information is available at the present time and comparisons with heritability studies carried out elsewhere indicate that present estimations must be rather accurate. Different cross designs have given different heritability values but it was concluded that an average of all estimates may give the most realistic value at present. This heritability value is 0.18 or 18 %.

The genetic gain in height growth of *Pinus silvestris* (L.) has been computed on the basis of information on selection differential and heritability. This genetic gain is between 2.6-4.4 % provided there is no pollen contamination from unknown sources outside the seed orchard. On the basis of the genetic gain in height growth genetic gain in volume growth has been estimated. This is definitely a very crude estimate but there is no other alternative at present. Provided there is no pollen contamination in the seed orchards this genetic gain of volume growth in Scots pine is about 7-15 %. However investigations have revealed that there is invariably some pollen contamination in seed orchards of this kind. During the first 10-15 years Scots pine seed orchards tend to produce almost exclusively female strobili, thus pollination will be entirely due to sources outside the orchard. As orchards grow and start to produce endemic pollen, contamination may fall to 30-50 %. Thus the genetic gain of 7-15 % sets an upper limit to progress through breeding. If pollination is entirely due to foreign pollen sources it can be shown mathematically that genetic gain will be halved. Thus 3.5-7.5 % is a lower limit for the genetic gain in this case.

Some aspects on breeding Norway spruce in the same way are discussed and it is concluded that the greater selection differential in spruce stands must partly depend on the growth habit of this tree species. A larger phenotypic variability in total

height in a spruce stand may be due to variations in tree age. There are no heritability observations available for height growth in Norway spruce but it is stressed that identical traits often show identical heritability values even in different species. No estimation of genetic gain for Norway spruce is attempted however.

It is emphasized that future improvements of breeding methods depend on advances in basic forest genetics. Research should be concentrated on the computation of genetic correlations between different traits. The economic impact of different traits should be carefully analyzed. Heritability studies should be made particularly on adaptive characters.

Recent Publications

- Heikinheimo, L.: Metsäpolitiikan tavoitteet ja keinot (Aims and means of forest policy). Suomen Puunjalostusteollisuuden Keskusliiton metsäpoliittinen päivä Aavarannassa 26.8.1970, Liite 7. (Mimeographed)
- Heikinheimo, L.etal. Muistio työvoimatutkimuksen kehittämistä. (Memorandum on the development of manpower research). TP Muistio, Tilastollinen Päätösmisto, 1970:5. (Mimeographed).
- Heikinheimo, L.: Turvemaan ojitusta vaiko kangasmaan lannoitusta. (Peatland drainage or heathland fertilization). Metsä ja Puu, no. 8, 1970.
- Jones, Michael and David Cope: Economics research in the Finnish Forest Research Institute, 1969-1974. FF 87, 1970.
- Keipi, Kari and Otto Kekkonen: Calculations concerning the profitability of forest fertilization. Finnish summary: Laskelmia metsän lannoituksen edullisuudesta. FF 84, 1970
- Osara, N.A.: Forestry and forest industries development, Turkey. Reorganization of forestry administration. FAO, Rome, 1970.
- Osara, N.A.: Särdrag i nordisk skogsnäring. (Characteristics of Nordic forestry). Skogsbruket, 40:7-8, 1970.
- Palo, Matti: Regression models for estimating the solid wood content of roundwood lots. FF 66, 1969.
- Veckman, Pertti: Metsäalan toimihenkilöiden koulutustarve 1970-luvulla. English summary: Educational requirements of professional forestry staff in the 1970s. FF 86, 1970.
- Veckman, Pertti: Metsänhoitajien lähivuosien koulutustarve. (Educational requirements of forestry-degree holders in future years). Metsänhoitaja, 20:7, 1970.

Personnel

Taimi Heinonen retired on 12.8.1970 after working in the department since 1939.

Veli-Pekka Järveläinen has transferred to the Faculty of Agriculture and Forestry at the University of Helsinki, although he will continue to be associated with the department through his investigation of silvicultural behaviour of farm-forest owners. He completed his licentiate degree this summer.

Jouko Virta has left with his wife Eeva for the U.S.A., where he will be studying for a year at Berkeley, University of California, on a Kellogg fellow-ship.

The international character of the department was widened with the arrival in May of B. Chandra Jha, who is studying for Master's degree in forestry at Helsinki University on a Finnish Government scholarship. He has previously worked for the Bihar Forest Service and Indian Forest Service.

Marja Harmanen received well-deserved promotion when her appointment as departmental secretary in place of Paavo Kajander was finally confirmed from 1st August, 1970.

Marja's place as professor Osara's secretary has been taken from 1st September by Marja Immonen, who trained at the English Secretarial College in Helsinki.

Raili Ivanoff has been working in the department since 1st June and will be here until Christmas. The work is part of her training at the Secretarial College of Helsinki, where she is specializing in public administration, and has one more year of study to do.

Aune Kankkunen, who is a student of forest economics at Helsinki University, began work in August as an assistant to Aarne Reunala in his study of changes in forest-ownership structure.

Pirjo Saramäki, also a forestry student, has been in the department since April, working as an assistant for Esko Salo and Terho Huttunen.

Antero Liimatainen began in August as an assistant to Pentti Kuokkanen, and is in the progress of completing his MH (Bachelor of forestry) degree.

International visits

A delegation of 4 Soviet foresters is visiting Finland as guests of the Forest Research Institute from 14th - 25th September. This is a reciprocal visit to the one made by members of the institute to the Soviet Union in 1968 as guests of the Soviet Ministry of Forestry.

Kari Keipi is at the Forest Economics Institute of the Norwegian College of Agriculture in Vollebekk from 7th - 30th September collecting more information for his study of the economics of forest fertilization.

English exam

The special sitting for the ASLA/Fulbright English exam will be held in the conference room at 2.30 p.m. on Friday, 2nd October, by Mr. J. Johnson. Fee 10:-. Please bring some sort of identification. The exam will consist of two question-and-answer papers (choice of alternative answers), one easier and one harder, and a short essay paper, plus an oral test. The exam is valid for two years for ASLA/Fulbright and for Kellogg Foundation fellowship applications.

English conversation groups

Timetable starting 28th Sept. for regular groups (Each group will alternate between Dave and Mike).

	MONDAY	TUESDAY	WEDNESDAY	FRIDAY
9-10	Aune Kankkunen Brita Sjöstrand, Pirjo Saramäki and Marja Immonen (Fortnightly)	Hannu Vehviläinen Helena Päivinen and Raili Ivanoff	Hannu Vehviläinen	Matti Palo, Kari Keipi and Lasse Ho.
10-11		Matti Ho and Jouko Hämläinen	Pertti Mikkola and Esko Salo	

Excursion groups (periodic outings and other activities):
Aaren Reunala, Terho Huttunen, Sampsa Sivonen, Marja Harmanen,
Maija Kuusijärvi, Rakel Seppälä.

Helsinki International Trade Fair: British Week

Dave and Mike are arranging an English conversation outing to the fair on Friday, 25th Sept., leaving at 1 p.m. Please let us know if you would like to join the group.

Family news

Congratulations to Pentti Kuokkanen on his marriage in May to Liisa Vainionkulma.

Rumors from our unofficial agent in Paris were confirmed this week when Paavo Kajander was spotted in a Helsinki street and admitted: "I am now a happily married man". He was married in Finland this month and has now flown back to Paris, where he is enjoying his work with Soci  t   Copap (18 bis, Rue d'Anjou, Paris 8^e). He sends greetings to Ho and his "family".

Sporting news

Terho Huttunen clocked up a total of 4,500 km cycling for this year after cycling to Koivula and back on 31st August (80 km) with Matti Palo. The rest of the department were less energetic and travelled by car. Lasse and Mrs. Heikinheimo provided a royal reception for the Cope family, on holiday in Scandinavia from the U.S.A. and visiting Dave at the same time. Sporting events during the afternoon included fishing (7 trout), swimming (after sauna), eating and drinking, and frisbee throwing.

Dave and Terho continue their marathon chess series. Dave finally beat Terho (once).

The volley-ball competition between the state offices began on 7th September. Our team started the season off by losing, but avoided elimination by winning the second game on 16th.

Walking in the woods and mushroom hunting were added to the department's activities when we made our autumn visit to the Forest Tree Breeding Station at Haapastensyrj   on Thursday, 17th September. We were shown round the nurseries, provided with lunch and had a really hot sauna.

Dish-washing

Please note the rota list for washing up coffee cups - everyone from professors to calculators is included. If anyone is unable to take their turn, please make arrangements with someone else to take over.

Advert

Raili is offering her services as a washer-up at the special cheap cut-price rate of ONLY 1:- a time. Take advantage of this special offer now (Tel. 267) !!!

Economic growth?

Pepe has grown a beard during the summer, in case anyone is wondering who the "new" researcher wandering around the department is. Even Lasse's sideburns have been inching down!

Tomorrows news

H.R.H. Prince Philip, who was due to arrive in Finland today in connection with the British trade campaign, unexpectedly landed instead in Cairo. Palace officials were unavailable for comment, but unofficial reports suggest that the change of plans was only made known to the prince after he had left London. It is believed that he hopes to visit Finland later.

No comment

"... mental disease, suicide and rightist political extremism are gaining more ground in this country". (Kansan Uutiset, 16/9/1970).