

The Estimation of Heart Rot in Standing Crops : a Note

N. O CARROLL AND N. Ó MUIRGHEASA

THE presence of heart rot in a standing crop is often a major consideration in deciding when the crop should be clear-felled. The great problem here is to estimate the proportion of trees affected and the degree to which they are affected. Two of the criteria sometimes used as aids to the solution of this problem are the amount of abnormal swelling in the butts of the standing trees and the proportion of affected trees found in recent thinnings. In the course of a current investigation into the estimation of timber loss through heart rot some data were obtained which are of interest in relation to these criteria.

About an acre and a half of 56 year old Sitka spruce in Avondale forest, Co. Wicklow, carrying 168 trees and believed to be heavily affected by *Fomes annosus* heart rot was scheduled for clear felling. Thirty-six of these trees, forming a random sample of the whole, were investigated in detail.

Buttswell.

This was defined as the ratio of the sectional area at 2 feet above ground level to the basal area, and this ratio was determined for each tree. On felling it was found that eighteen of the thirty-six trees were rotten to some degree, and among the measurements taken for each of the trees with rot were the area of the rot (all stages discernible by eye) at 2 feet above ground level, the total volume of the rot (estimated by Huber's formula in 4 ft. lengths), and total volume of timber containing rot (estimated as for rot volume). This last was termed waste volume. Linear and quadratic regressions of buttswell on each of these three variables, and on the ratio rot area at 2 feet/sectional area at 2 feet, were investigated but no significant relationship was detected. The mean buttswell values for trees with and without rot were then compared and were found not to differ significantly.

Thinnings.

The volume of each tree to 3 inches top diameter was estimated by Huber's formula. The mean volume of the trees without rot was 62.0 Hoppus feet while that of the trees with rot was 39.8 H.ft. (Standard errors were 5.61 and 6.53 H. ft. giving "t" value with probability less than 2%). Since thinnings invariably consist mainly of the smaller trees an estimate of the proportion of affected trees in the crop based on the proportion of thinnings affected would almost certainly be biased upwards.