

LETTER TO THE EDITOR

STATISTICS

Sir,

I read Mr I. L. Barton's letter to you in the Volume 13 No. 3 (1983) issue of the New Zealand Journal of Forestry Science. Perhaps some comments from a consulting statistician would be informative to Mr Barton and clarify your policy on the use of statistics.

Your journal publishes contributions to science, as indicated by the title. Contributions to the scientific literature must meet rigid requirements according to the definition of science and many authors who have written on the scientific method.

Scientific knowledge can be generated either through inductive inference (statistical analysis) or deductive inference (mathematical logic). In the paper in question we are talking about inductive inference because the results were based on a small sample of trees. Thus, statistical analysis is necessary in order to accept the results of Mr Barton's study as science and to add it to the scientific literature.

In defence of Mr Barton's position. A small sample doesn't invalidate his contribution to science. The fact that his results are practical makes them more directly useful to practitioners. The fact that the trees are consistent may make the results of statistical analysis obvious before performing them. But, what about those studies where the results of statistical analysis aren't obvious either due to extraneous variation or the complexity of the design? Statistical analysis is a way of structuring the scientific method regardless of subject matter or the practicality of the results. It provides a way of logically making sense out of data. It is universally accepted by the scientific community as the way to do research.

I've assumed Mr Barton's data is from a well designed study. This implies specific objectives with stated scope of inference and methodology which will produce results which will answer these objectives. If he doesn't meet these conditions then he is not dealing with science (by definition) and should consider another journal which deals with hypothesis generation and case history (descriptive) types of contributions.

John W. Hazard,
Station Statistician,
Portland Forestry Sciences Laboratory,
P.O. Box 3890,
Portland, Oregon 97208,
United States of America.