

- The affordable degree of specialized education required of the University of Canterbury School of Forestry.
- The location of the School of Forestry which truly gives the largest possible teaching resource and integration with the industry it services.
- The role of the School of Forestry, Forestry Training Centre and Institute in servicing the needs of continuing education.

It is this forester's opinion that the time has come to address these questions frankly and with good kiwi ingenuity. I believe that much of our passion for such specialized training as logging engineering and marketing is far better satisfied by internal industry and short-term overseas training followed by some form of Institute recognition of achievement.

Finally as one who has somewhat neglected the Institute, I would gladly help the Institute survey members to determine the need for continuing education, and in what subject areas.

I have travelled enough to appreciate that New Zealand's plantation forest management is the best in the world. We've gotten there by being innovative through both our management and research. This lead will be maintained only if we recognize the need to apply some of this inspiration to our own education system's urgent needs.

D. New,
Chief Forester,
Tasman Forestry Limited

Birds and National Forest Survey

Sir,

May I add a little to Priestley Thomson's letter?

About 1950 — halfway through the ten years of National Forest Survey — some field party leaders began to regularly record birds seen or heard on or about sample plots, and this was later done by all leaders during the Ecological Survey of North Island forests, 1956-67.

As a result, there are altogether several thousand sites where birds present on single short occasions over a 17-year period were noted. There was no methodology in this and the observers were not experts, but a wide range of species was recognized, with reasonable degree of certainty. Never a blue-wattled crow, though Bill Gimblett probably did once spot an orange-wattled one, in North Westland.

As Priestley Thomson remarks, it is for ornithologists to decide whether this information is worth the effort of searching the records. Some of them are aware it exists.
John Nicholls,
Rotorua

New Format

Sir,

Congratulations on the format of New Zealand Forestry. A joy to read Volume 31,

No. 4. I have in the past resisted dropping the old style journal with its emphasis on technical excellence. You and your team in NZ Forestry have convinced me that was a wrong stance. Forestry and the Institute will be more relevant to a wider audience with the readability of the new format.

Colin McKenzie,
Past President,
NZIF

Pine Pygmies?

Sir,

The interesting paper by M.J. Carson on improving log and wood quality (Vol. 31 (4): 26-30) has one curious feature: in Fig. 1, if $L = 2.2m$ and $S = 0.5m$, the foresters up each tree are precisely 1.1m tall. Does FRI employ pygmies? Are they "a special-purpose radiata breed" of lightweight tree climbers? Or is this just a result of staff cuts?

John E. C. Flux

Breeding Eucalypts

Sir,

I was interested to read Mike Carson's article on the *Pinus radiata* breeding programme (Vol. 31/4) and the emphasis he placed on selection for a range of traits, including wood properties. I believe a greater emphasis is needed in the Eucalypt breeding programme.

Scientists from the Tree Improvement Section of FRI have established trial areas over both Islands to sort out the "best" provenances of eucalypts for milling. The species are limited to those of most promise. But what is "best"? There will obviously be assessments for stem straightness, branch size and the ability to shed branches early, but most emphasis appears to be on height growth and diameter. In other words, volume.

As these trials are to sort out the eucalypts to produce timber, surely high emphasis should be on the outturn of good grades of No. 1 class sawn timber, rather than overall volume. Having sawn timber out of home-grown eucalypts for some 30 years, I have found that timber from certain species mills better than others. This indicates that good timber outturn is heritable; there can be no argument about that. Furthermore, one is very aware of great variations in sawing quality within species. South African growers have been aware of this for many years, and Marsh, whom I corresponded with some 30 years ago, put *E. grandis* through a series of trials over four generations (*E. grandis* appears to seed at around seven years), eliminating seed of all young trees which end-checked badly at each trial. Eventually he told me

his trees were noted and readily accepted at sawmills for "straight boards out of the seasoning stacks" (Pers. Comm.). Australian loggers are very aware that sometimes localized stands of trees within a species are "springy". ("Put 'em down the shute, Blue!") Our own experience suggests the Bartlett strain of *E. saligna* is superior to some other strains planted in this country. There are within this Auckland Bartletts stand two different grain types, one being highly figured and "wavy-grained". Thulin (pers.comm.) contended that such grain was heritable. The second strain is one (included in the trials as FRI 119) that is fairly straight-grained but interlocked on the circumference. This produces very good cutting timber from F1 plantings. Both strains are notable for their good "wide board" cutting logs. I have, as a challenge, cut a number of 300 mm x 25 mm boards from 25-year trees of the F1 Bartletts-119 home-grown trees, e.g. Smith (Marton) and Jim Barr (Whakatane) would produce young trees of much more stable timber than the faster-growing provenances from Athenree and perhaps from Kangaroo Valley, NSW.

I would therefore contend quite strongly that inheritance plays by far the most important part in the "mill-ability" of eucalypt trees. Should we not then be saving seed or clonal material from the best of our sawing trees as we cut them?

I would like to suggest that when those trials of *E. saligna-botryoides* are being thinned to final spacings, some larger stems be allowed to dry out and the end shakes be evaluated. I would give 45 marks out of 100 for stability rather than volume. The ash group eucalypts are different in that internal checking is a problem, a different pattern of sawing and seasoning is needed, but I would think that a combination of selection for density of timber and interlocking of grain would be a good base to start from. In my experience not all ash group species have problems. For instance, good strains of *E. obliqua* of New Zealand provenances have milled very well with no problems. Logs of *E. fraxinoides* I have cut have turned out stable dimensionally and in straightness. *E. nitens* shows early promise. But I feel we should also be sorting *E. delegatensis* and *E. regnans* out genetically.

N.A. Barr

Decision making

Sir,

A recent correspondent (Mr I.L. Barton, 31(3):13-14) alluded to and somewhat casually criticized a paper written by us. Since Mr Barton did not name the paper to which he was referring, we shall — it was: "Economic analysis of selected special-purpose species regimes" by R.Y. Cavana

and B.P. Glass, published in the *New Zealand Journal of Forestry Science* 15(2):180-194 (1985). An earlier version of this paper was presented at an NZIF conference (Christchurch, 1984).

The choice of journal in which the paper was published (*New Zealand Journal of Forestry Science* rather than *New Zealand Journal of Forestry*) reflected our concern that the results not become the sole basis for accepting or dismissing special-purpose species as plantation/woodlot investments. Indeed, we go to some lengths to mention other mitigating factors which might influence such decisions — including not only aesthetic values, soil and water protection and shelter, as Mr Barton notes, but also the possible consequences and interactions of three different scenarios (Refer to the Sensitivity Analysis Section). Rather than providing the decision-making panacea Mr Barton seems to seek, a primary interest of ours lay in the methodology by which such investment decisions might be made and how these decisions might be improved. Here arise the assumptions to which Mr Barton apparently objects.

Economics is concerned with developing rational approaches to problems of choice — choice in production in this case — by comparison of alternatives in terms of a common denominator. Unfortunately, the complexity of real world problems of choice quickly leads to information overload. Frank Knight (in "Risk, uncertainty and profit" (1921) A.M. Kelly, New York) was perhaps one of the first to recognize this. He pointed out that assumptions allow abstraction of essential elements from the complex reality of choice problems so that "finite human intelligence" (pp. 205-8) can then deal with those problems. Thus the number and nature of the assumptions used in an analysis can be very revealing. As far as our paper is concerned they illustrate just how imperfect our knowledge of special-purpose species is, even when the best available data is examined and in spite of many work-years of effort (to which Mr Barton himself has contributed). Perhaps the best an analyst can hope to achieve, whether forester, economist or some other specialist, is to consciously make the analytical assumptions used explicit. We believe we approached, if not achieved, this standard in our paper.

So our paper pointed out how little we know about special-purpose species. But we contend that our analysis is not devoid of decision-making content, as Mr Barton seeks to imply. For example, with little extra effort further sensitivity analyses can be conducted to determine where further research, analytic and management efforts might pay off most handsomely. Extra or redirected attention and resources can then be allocated accordingly. Such ramifications should be of interest and concern to Mr Barton in his capacity as a Forestry and

Environmental Consultant, if only for the reason that he must advise his clients on how to make their plantation forestry investments most efficiently and with due regard to the uncertainties imposed by available knowledge.

Like Mr Barton, we don't relish the reality of a plantation forestry industry based solely on radiata pine, but we like even less the prospect of plantation forestry investments being made without any form of economic evaluation. If, on face value, economic evaluations provide ambiguous outcomes — as our paper arguably did — then surely this simply shifts emphasis to other complementary and rational means of achieving desired goals. The Special Purpose Species Policy once provided this strategic thrust. Whether this policy can be successfully resuscitated or satisfactory alternatives devised will require, in our opinion, the co-operation of foresters and economists (amongst others) rather than their continuing and apparently expanding alienation.

B.P. Glass and R.Y. Cavana

Editor's Comment: Mr Barton's original letter was abridged and in particular his comments on the paper written by these correspondents were summarized.

User pays and FRI research

Sir,

FRI Directors were disappointed that your editorial in the February issue took such a negative stance when looking at the implications of the Government's "user pays" policy in relation to the activities of FRI. What began as opposition to the change in Government policy became instead implied criticism of how FRI is tackling its new funding environment.

An element of user-pays in Government-funded research is a reality. This year FRI is faced with a budget reduced by almost 25%. This figure will progressively increase to 38% in 1990/91. Government expects its research establishments to respond by either reducing expenditure or earning revenue from other sources, or both.

FRI has responded in both ways. There has already been a reduction in staff numbers of close to 10% through attrition and early retirement. However, the FRI is recognized both here and internationally as a highly productive research institute partly because it has a broad-base of skills relevant to all aspects of forestry. We are actively pursuing earning opportunities in order to maintain the strength which comes from the interaction of our diversely trained and highly motivated staff.

We have virtually achieved our targets in 1986/87, the first of five years of progressive reduction in net funding from Government. The Institute has found the rate of change difficult to adjust to and we do not underestimate the increasing

difficulties that lie ahead. However, the scientific staff have responded very positively to the challenge. Some changes in our relationships with the people in the sector we are here to support are inevitable. Now they must pay for some things that were free before, and some information must be confidential to individual clients.

As you said, there are some dangers in the user-pays principle. We intend to avoid those dangers. Highly trained scientific staff at FRI will be spending their time and energy doing research rather than pursuing sponsorship. The pursuit of 38% of FRI's budget will not dictate the direction of the other 62%. The user-pays principle will not lead to a drop in scientific standards with less scrutiny of work before publication. Contract work will be referred, but in this case it is the client who will set the requirements and assess the real value of work done in that way.

We believe that there is now even closer participation of the Forestry sector in the research process. There are opportunities for advice and scientific scrutiny which otherwise would not occur. Research co-operatives, for example, can actually increase accountability in terms of evaluating the scientific worth of research. The five research co-operatives which have been formed so far at FRI draw together all those interested in applying the results of a special project or programme. Co-op members, along with research staff, set goals and objectives, design a programme and interpret results. This does not preclude scientific peer review and publication of scientific papers. It is important to note that peer review for publication traditionally takes place after the experiments have been completed and the data have been interpreted. Co-operatives provide the opportunity for constructive input into why and how the research is being done. Co-operative research is often very good research because it is well focussed, planned, co-ordinated, executed, and efficiently applied.

Scientific scrutiny of computer-based models can be a problem with or without the user-pays principle. FRI has addressed this by setting up refereeing panels to scrutinize the major model systems produced, and to ensure that the empirical relationships used are valid. Our software manager has the responsibility of ensuring that software is fully referred before release or substantial use by outside clients.

Our future objective is to maintain the strong, long-term research programmes on which the Institute's past success was based whilst pursuing necessary levels of revenue-earning activity.

J.A. Kininmonth,
Regional Director of Research,
Forest Research Institute,
Rotorua.