

Radiata pine plantings – independent audits essential

Robin Trewin

Introduction

Dr Sutton is to be thanked for his letter in the February 2017 issue of the *Journal of Forestry* (61(1): 39–40) promoting the use of quality assurance indicator plots (QA plots) for the control of planting operations. The importance of the industry adopting QA plots as the standard post-establishment check for bare-rooted and container plantings is also stressed in the current and past editions of the *NZIF Forestry Handbook* (Section 5.14 Establishment).

The use of QA plots is not new. When we began planting forests in New Zealand, the large tropical plantings like rubber and tea with thousands of workers had been using QA plots for years. Bad planting could bankrupt a company, so they had developed a foolproof quality assurance system. Their supervisors followed close behind the planters, putting in QA plots and recalling bad planters for immediate re-work. Superimposed on this system were independent industry auditors who would visit at a day's notice for random planting quality checks. These auditors would also check growth in (GPS) recorded two, three and four-year-old QA plots to spot weaknesses.

One establishment forester using QA plots reported that:

When actual operational establishment of radiata pine was compared side-by-side with ideal implementation of our prescribed techniques for lifting, dispatch and planting, it was found that first year growth of seedlings fell short of potential. Loss of potential growth amounted to 2.8 mm diameter (21% of potential) and 15 cm of height (16% of potential). Survival was also down to 92% of potential.

It is important to note that these plots showed survival alone was not a good indication of establishment quality. Recent forest establishment QA plot checks (in areas passed by gang bosses, company supervisors and later audits by company employed quality assessors) revealed that over 50% of trees were not planted to specification. Unfortunately, gang bosses are occupied full-time teaching new workers how to plant and ensuring that prescribed in row and between row spacings are correct.

Company supervisors also have little time to supervise plantings as most of their time is occupied calculating, ordering and distributing tree stocks. Finally, establishment checks some time after planting by company assessors are ineffective as they do not stop large areas of bad planting which are impossible to remedy later. At the start of the planting season a field day should be held to acquaint all nursery and field establishment personnel with up-to date quality control procedures, which should include assessments and prescription plantings in QA plots.

Plantation establishment workshops

In 2008, concerns over high instances of toppling and uneven growth in young plantings of bare-rooted and containerised stock led to the formation of a Silviculture Special Interest Group (SSIG). At an inaugural field day in April 2008, the need to update forest managers on R&D led to an agreement to hold such meetings annually. Further, it was felt that responsibility for the meeting agenda should not rest on an individual but should be part of the Future Forest Research (FFR) programme. Unfortunately, no SSIG meetings have since been organised by FFR.

General

Mistakes made at establishment prove costly unless immediately detected and corrected. They affect growth and, in extreme cases of poor management, cause loss. Unlike most nationally important production systems there is no independent assessment of forest establishment, and less than optimum site preparation and plantings go unchecked and are impossible to remedy. This situation is made worse by the winter seasonal recruitment of large numbers of mostly untrained (and poorly supervised) temporary nursery and field workers who, to earn a reasonable wage, must process thousands of trees each day.

Of most concern is that over the past decade there has been little research on the effects of poor nursery harvesting and field plantings so as to keep practitioners up-to-date on best practice. For example, to facilitate planting Levin Sawmakers of Levin manufacture a 40 cm long blade spade specially designed for good deep cultivation and root placement. Timberlands Ltd, who plant over 5,000 ha per year, insist on its exclusive use.

Concluding remark

We need to establish QA plots and have independent forest industry audits for efficient and effective control of all planting operations. Otherwise we will waste investment in tree breeding and establishment.

Acknowledgements

Mr Dean Witehira, Tree Crop Operations Manager, Timberlands Ltd, is thanked for his assistance in testing the efficacy of planting QA plots. A special thanks also to Mark Collet, forester, for suggested improvements and editorial help.

Robin Trewin pursues excellence in plantation establishment. Now retired, he joined the New Zealand Forest Research Institute in 1974 where he developed and introduced improved tree stock handling and planting techniques now used throughout the country. Email: robin.trewin@clear.net.nz.