Forestry stakeholders' priorities for sustainable forest management research

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Abstract

This article reports the research needs and priorities for sustainable forest management stated by participants in a survey of 74 forestry stakeholders in New Zealand. A telephone survey using an open-ended question allowed respondents to list the research needs as they saw them. Results show that four research needs were identified as clear priorities: 'after harvest', 'the environment', 'not radiata' and 'indigenous'. These high priority needs focus on broad topics and do not centre on plantation forestry with Pinus radiata. The results reflect quite diverse thinking about research needs for sustainable forest management and suggest that New Zealand forestry needs research which will help it move towards a more diverse multi-species national forest resource, managed in ways that emphasise all aspects of sustainability.

Introduction

Plantation forestry in New Zealand has seen many changes in recent years, with international drivers such as the Montreal Process and forest certification requiring new understanding of the practice of forestry. Accordingly, research directions at Forest Research and collaborating research organisations have responded to these new requirements on the growing of trees for production purposes. For example, there is now more emphasis on researching the environmental issues/effects of forestry and the sustainability of multiple rotations. Nevertheless, it is important to also take a structured approach to eliciting the views on research needs of New Zealand forestry stakeholders. A survey of key stakeholders in New Zealand was conducted to identify and describe perceptions of research needs and priorities in the area of sustainable forest management. This short article reports the results of research on this topic conducted jointly by Forest Research and the AERU at Lincoln University.

Telephone Survey of Stakeholders

Contact information of forestry stakeholders from a number of groups was obtained from internet listings and a Forest Research list of forestry corporations and contacts. A sample from each list was interviewed by telephone in September 2002. Table 1 shows the main stakeholder groups included in the survey, the size of each group (N) and the size of the sample (n) interviewed. Simple random sampling was used to select the stakeholders from the lists for the local authorities, farm forestry and the forestry professionals. For the government ministries, environment groups and local authorities, the interviewer asked to speak to the person within the organisation who was knowledgeable about, or who had responsibilities for, forestry matters. The number of Maori stakeholders is low as a more detailed programme on Maori values of forestry was being planned to separately and more comprehensively address this area.

The sample of 74 is 32 per cent of the population studied. This is a high proportion of the population – most studies use significantly lower proportions – and it should give a good indication of research priorities among the different groups included. Admittedly, this survey was by telephone so only limited amounts of information could be obtained but for the purposes of this research, which was to identify and describe research needs, the approach is quite adequate. It was not our intention to do detailed analysis of the survey data but to describe the general patterns in a straightforward way. This would allow us to indicate what research needs are considered important. At this general level of analysis we are confident that views expressed by this sample would match those obtained from a census of all stakeholders.

The questionnaire design was simple and used one open-ended question that asked respondents to list the research needs as they saw them. The survey was presented to respondents as research on sustainable forest management research priorities. No definition of sustainable forest management was provided, although the interviewers had more information available should anyone have asked. The question asked was: "On what topics or issues would you like to see more government research effort?" The answers were recorded verbatim and then each respondent identified their top three needs in order of importance.

Most of the people contacted responded to the questions. Environmental groups proved very difficult to contact or to find someone willing to suggest research issues. For the local authorities there was some difficulty in locating a person within the council who was responsible for, or

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Table 1: Stakeholders Included in Survey

Stakeholder Type	Selection Policy or Groups Included	N	n
Forestry corporates		20	16
Farm Forestry Association	Branch association presidents	30	15
Local and regional governments	Selected mainly rural councils, spoke to economic development officer	86	11
Government ministries	Doc, MfE, MAF, MED	4	4
Environmental groups	Forest and Bird Greenpeace NZ Native Forest Action NZ Native Forest Restoration Trust.	4	4
Maori	Ngati Porou Ngai Tahu	4	2 2
Forestry professionals	List of registered consultants	87	20
Total		**233**	**74**

knowledgeable about, forestry. Some councils appeared not to have personnel who were responsible for forestry. For example, a representative of one council said: "Don't know - its up to forest owners." A representative of another council said: "Don't know anything about forests - our values are dictated by legislation."

Analysis of Responses

The respondents identified 53 different research needs. These needs were merged into categories in order to collate the diverse responses into tighter groupings. Fourteen categories were used and their component research priorities are described below. The overall frequency of the categories was investigated, as well as the frequency of categories as a first, second or third priority. Finally, the frequencies of the categories for each stakeholder group were graphed.

Results: Four Main Research Needs

Fig. 1 shows the frequencies of the research needs that respondents indicated as their first, second or third priority. The figure shows that the top two research needs were 'after harvest' and 'the environment' in each case chosen by 18 respondents. 'After harvest' includes research needs that related to the 'non growing' features of forestry, i.e., marketing, milling, adding value to logs, transport and improving processing capacity. Of note is that stakeholders see the sustainability of forestry as including the issues affecting the wood produced. This is aligned with the approach taken in the Montreal Process where the total effects of forestry within and on a country are considered important. 'The environment' includes landscape dimensions of plantations, impacts of forestry on species dynamics, comparison of forestry with other land uses, management of indigenous remnants in production landscapes and impacts of forestry on streams or water quality.

The next most frequent research needs were 'not radiata' and 'indigenous'. 'Not radiata' includes alternative species, how to manage endangered species in production landscape, improved strains of alternatives, silvicultural timing and public education about the benefits of alternatives species. 'Indigenous' includes preservation of these species, pest control methods in indigenous forests, the management of game animals, harvesting potential of natives, general management issues, harvesting on a sustainable yield basis, growth rates and measurement of conservation gains.

The top four research needs account for 64 out of the total of 119 responses, and they can be considered to be the top priority research needs as judged by their frequency of selection. They are followed by an intermediate group of less frequently chosen research needs. These include 'soil quality', 'pest control', 'certification', 'sustainability' and 'Kyoto'. 'Soil quality' included soil erosion, soil quality and effects of logging. 'Pest control' includes only the issue of pest control alternatives. 'Certification' includes the need for New Zealand standards, study of benefits, public attitudes towards FSC, research into stewardship certification, and the issue of applying FSC to small and large growers. 'Sustainability' includes its definition and application to land, forests or communities, and studies of long-term site productivity. 'Kyoto' includes how to pursue public education, carbon tax impacts on the economy and how to address the imbalance of benefactors.

The remaining research needs were chosen 15 times in total and include 'legislative impediments', 'society and forestry', 'radiata', 'biosecurity threats' and 'other'. These can be considered to be of minor importance.

Another approach to viewing the results was investigated. Some respondents stated more

Fig. 1: Stakeholder research priorities - by priority level.

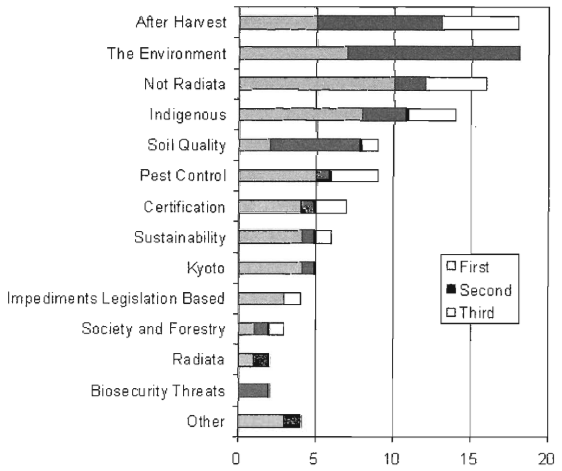
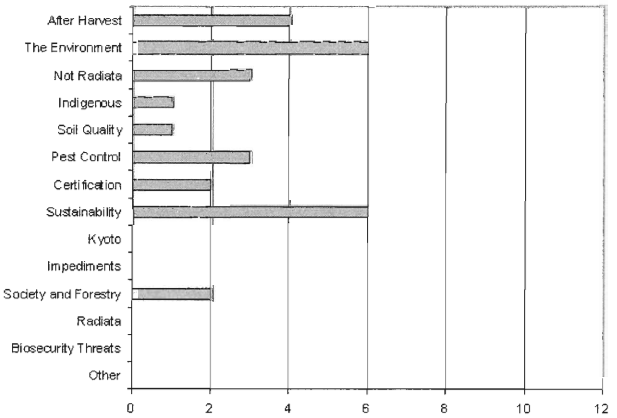


Fig. 2: Corporate Research Priorities



research needs than those for which they indicated priorities. If all research needs (143 responses) are listed in order of most to least frequent, regardless of priority, and put into the same broad categories, the order is unchanged from that in Fig. 1 (119 responses) except for two minor modifications. The categories 'biosecurity' and 'pest control' move to more frequent positions, i.e., they were commonly mentioned but were not necessarily selected among the top three priorities of the respondents.

Among the four top research needs the levels of support in terms of first, second or third priority differed slightly. The category 'not radiata' was the most frequently selected (10) as the top priority for research, while 'the environment' was the next most frequently selected (7) and 'after harvest' was least frequently selected (5). 'The environment' has no third priority ratings and this suggests that as well as being a very important research need it has some added significance by virtue of the first or second priority ratings. Overall then, the highest priorities reflect concern about after harvest issues and the environment, with 'not radiata' and 'indigenous' also important research needs.

Research needs by stakeholder group

Figs. 2 to 5 show the research priorities for the four stakeholder groups with the largest numbers interviewed (corporate, farm forestry, council and consultant). Each graph is sorted according to the order of categories in Fig. 1, and all graphs use the same scale for ease of comparison between

Fig. 3: Farm Forestry Research Priorities

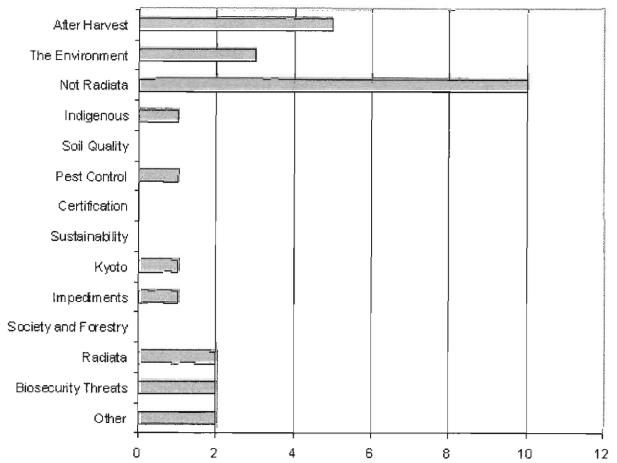


Fig. 4: Council Research Priorities

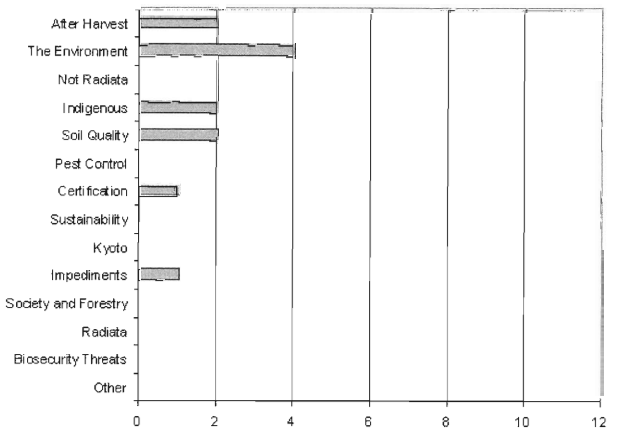
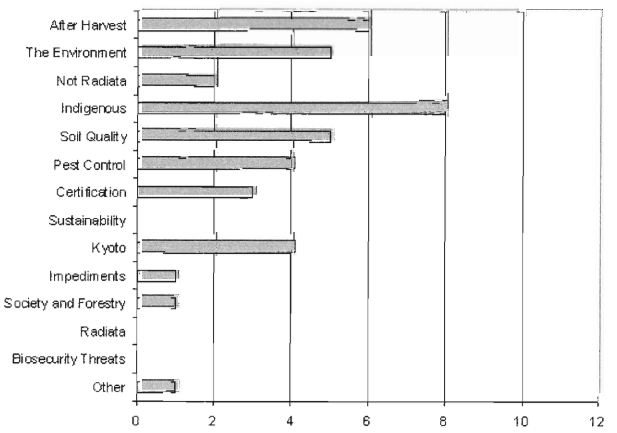


Fig. 5: Consultant Research Priorities



the stakeholder groups. Individuals in each stakeholder group raised different numbers of research needs, with the councils raising the least per respondent and the forestry consultants raising the most. The data are suggestive only of differences between groups because the numbers are small.

There are some differences in the priorities identified by the different stakeholder groups with each having its distinctive top priority. For example, for corporates it was 'the environment' and 'sustainability', for farm forestry it was 'not radiata', for councils it was 'the environment' only and for consultants it was 'indigenous'. For all stakeholders 'after harvest' was the second priority. Only the corporates identified 'sustainability', and only consultants gave attention to 'Kyoto'. Both corporates and consultants specified a broad range of research needs. However, corporates were the only stakeholders to mention sustainability and this included, as noted earlier, its definition and application to land, forests or communities, and studies of long-term site productivity.

The numbers interviewed for Maori, government and environmental stakeholder groups are small and it is less obvious that these responses fully represent the perceptions of research needs of these groups. For completeness, the key responses of each of these groups are indicated.

The highest research priorities for Maori were for research on forestry and society, and on alternatives to radiata, in particular indigenous species. Other topics such as biosecurity, certification and after harvest research were also indicated.

The highest concern of the government stakeholder group was the need for research on legislation-based impediments. Investigating the specific responses in this category, it was found that particular emphasis was placed on the requirement for research into a potential bias towards agriculture under local government planning. This need was followed by research requirements for certification, environmental impacts and definitions of sustainability. Lastly, biosecurity and alternatives to radiata were mentioned.

Environmental groups indicated that their highest need was for research into alternatives to radiata and into methods for controlling pests. Next on their list was biosecurity research. Other research needs raised were definitions of sustainability, environmental impacts, soil quality, radiata pine, and after harvest issues.

Discussion and Conclusion

The diverse stakeholder groups included in the survey meant that a wide canvas of research needs was recorded. In summary, the results show that four research needs were identified as clear priorities and these were 'after harvest', 'the environment', 'not radiata' and 'indigenous'. The emphasis on 'after-harvest' (outside the forest) issues reflects holistic thinking about the nature of sustainable forestry, indicating the importance of not only growing trees sustainably, but also of the need for a sustainable approach to dealing with the wood harvested from them. In keeping with this breadth the other topics also reflect a broad scope of topics.

The most frequently identified research needs for corporates were 'the environment' and 'sustainability'. The emphasis on the latter may reflect their exposure to, and adoption of, forestry certification. For farm forestry the emphasis was 'not radiata' and this is consistent with farm foresters interest in alternative species. Perhaps consultants' emphasis on 'indigenous' is because of their work with native forests.

The results reflect quite diverse thinking about research needs for sustainable forest management. The high priority needs focus on broad topics and do not centre on plantation forestry with Pinus radiata. Perhaps this thinking shows the direction of future forestry in New Zealand with greater emphasis on non-traditional topics. What is unresolved by these data is the issue of the sustainability of plantation forestry. There is only the vaguest suggestion that, by its omission, it may not be seen as sustainable as it is currently practised, and more realistic is the implication that forestry stakeholders believe they know how plantation forestry can be managed sustainably and did not raise research needs on that topic. On a more positive note, the results show that forestry stakeholders think broadly about sustainable forestry.

Overall, the survey indicated a lively interest into research on forestry, the direction it needs to be heading in, and the definitive need for some issues to be investigated. The results suggest that New Zealand forestry needs research which will help it move towards a more diverse multi-species national forest resource, managed in ways that emphasise all aspects of sustainability.

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