NEW ZEALAND
FOREST OWNERS' ASSOCIATION INC.

New Zealand Forest Owners Association Response to the "PAN-UK Review of FSC Pesticide Indicators and Thresholds: FSC initial response"

Introduction

1. The NZ Forest Owners Association (NZFOA) has developed this submission to convey our concerns on the "PAN-UK Review of FSC Pesticide Indicators and Thresholds: FSC initial response".
2. The New Zealand (NZ) forest industry has considerable experience with intensively managed plantations. With over one third of plantations by area FSC certified we believe we can offer valuable input into FSC policy affecting plantation management.
3. Members of the NZFOA own or manage more than 80% of NZ's plantation forests. As such it is the industry's most representative forest growers' organisation. Established 70 years ago, the NZFOA is dedicated to the promotion and strategic positioning of commercial plantation forestry and in particular, of NZ radiata pine. NZFOA is a member of the North Economic Chamber of FSC and is actively participating in the Plantation Review.
4. The main issues addressed in our submission are summarised as follows:
    - Without agrichemicals NZ plantation forestry would not be feasible, relinquishing all the positive benefits of this land use.
    - NZ has an advanced regulatory control regime governing the use of hazardous substances including pesticides.
    - Changing the list of prohibited chemicals actively changes the nature and commercial impacts of the agreement certified managers entered with the FSC.
    - NZ certified plantation forest owners do not accept the existing or proposed thresholds for pesticides.
    - Threshold values should only be used where there is robust science that determines the threshold.
    - Threshold values should relate to the risk inherent in the target area, i.e. where there is no risk to food then food thresholds should not be used.
    - We propose the use of robust integrated pest and weed management strategies that utilise best practice techniques and aim to minimise chemical use through a variety of mechanisms.

- We propose bans (with derogation options) are applied only to chemicals prohibited by WHO, intergovernmental agreement and through national standards
- If chemicals such as terbuthyazine and hexazinone are prohibited NZ plantation certificate holders may have no option but to terminate their certificates

The Importance of NZ Plantation Forestry

5. NZ has 1.81 million hectares of plantation forest, which equates to around 7% of total land area. Of this over 600,000 hectares is FSC certified.
6. Plantation forests in NZ are recognised for their important contribution to the socio-economic well being of Maori (NZ's indigenous people who directly own over 10% and have economic interests in many others) and many environmental services such as water and soil protection, flood abatement, carbon sequestration, biodiversity, landscape enhancement and recreation.
7. Significantly the availability of plantation wood has removed the pressure for wood production from NZ's natural forests and enabled NZ to comply with the spirit of FSC Principle 10. Plantations have lead to less than 1% of NZ's forest harvest coming from natural forest. This has contributed to over 30% of NZ's land area (including alpine areas) under management by the Government for conservation and preservation purposes.

Chemical Use in NZ Plantation Forests

8. NZ has many introduced pest and weed species which require control for effective plantation management.
9. Note that NZ's natural forest evolved in isolation for 80 million years. Many indigenous species have proved very vulnerable to introduced, browsing animals such as possums, goats, pigs and deer or introduced predators such as the mustelids. Introduced species lack natural predators with the result that pesticides are a necessity for effective pest control. As a result the NZ Government's conservation body the Department of Conservation use pesticides such as 1080 with ENGO support (e.g. the NZ Forest and Bird Protection Society).
10. Similarly, NZ ecosystems remain relatively vulnerable to many introduced pest plant species that have adapted well and spread aggressively within terrestrial niches in which there are few natural competitors.
11. As a result of the many introduced pests and weeds the appropriate and safe use of chemicals is essential for economic management of plantation forests, and in the NZ context is often required for optimal environmental outcomes. By comparison with other commercial land uses, including agriculture, horticulture, parks and gardens, NZ plantation forestry has a much lower use of chemicals per hectare.
12. The chemicals used in NZ plantation forests need to have been approved for that use by the NZ Environmental Risk Management Authority, which provides a public and rigorous means of assessing the risk and suitability of any chemical for use in a forest situation.

13. Chemical application often provides the most effective, as well as the only economically viable option to control pests and weeds. An absolute goal of eliminating chemical use or certain chemicals is not viable in NZ plantation management.

14. **FACT: without agrichemicals NZ plantation forestry would not be feasible, relinquishing all the positive benefits of this land use. The alternative economic land use is to convert plantations to agriculture, with a very significant increase in artificial and natural (animal excreta) chemical loading.**

15. NZ's FSC certified plantation forest owners are committed to the FSC Principles and Criteria including those relating to pesticides (criteria 6.6 and 10.7). They recognise that well designed integrated pest and vegetation management systems are essential to implementing pesticide reduction policies.

16. NZ's Plantation forest owners have accepted the philosophy that chemical use should not include banned substances and should seek to reduce or eliminate unnecessary use over time as part of a "continuous improvement" process. The current direction of the proposed review fails to properly reflect the latter process and bases proposed bans on the basis of residual effects without the associated context. In the New Zealand context,

    1. There has been and continues to be a general and demonstrable reduction in the active ingredient concentration /hectare of chemical usage.
    2. There has been and continues to be a demonstrable transition to increasingly benign formulations (all the currently used herbicides are regarded as very low risk when compared to the agrichemicals applied by our competing land uses) or those used historically in the earlier years of the industry.
    3. There is and continues to be strong incentives to reduce chemical hazards due to both cost and environmental regulation.
    4. the chemicals subject to potential ban under the existing review, have only been so identified on the basis of persistence. Such persistence levels have not been assessed on the basis of contextual risk to bioaccumulation in lands that <u>are not</u> used for food gathering or food production and are subject to treatment <u>once every 25-30 or more years.</u>
    5. Chemical usage has facilitated the abandonment or limitation of higher impact land preparation techniques such as burning or mechanical manipulation which involved higher and longer-term impacts upon soils, nutrients and stream quality / soil stability.

17. NZFOA recognise that reducing pesticide use makes good sense from environmental, social and economic perspectives, providing it occurs as a result of a well managed and structured approach. In NZ considerable progress has been made in achieving pesticide reduction and in the development of alternative treatment practices. For example:

    - Many managers use land applied spot versus aerial application reduces chemical use by up to 80% when releasing.

- Treestock development has resulted in fast growth traits that requires less weed control and therefore less chemicals are used.
- NZ forest managers undertake precision aerial spray application using aircraft GPS and variable flow meters which enables lower chemical rates to be used with confidence and helps to eliminate any possible chemical wastage.
- Chemical applications are aimed to coincide with optimal plant uptake and therefore require lower chemical rates.
- Mechanical land preparation reduces the requirement for and the amount of release spray applications.
- The planting season has been extended through greater use of container treestocks which in some cases has lead to one rather than two release applications.
- Application rates are often targeted at below the manufacturers label rates.

Comment of the PAN-UK Review

18. FSC-POL30-601 "Chemical Pesticides in Certified Forests: Interpretation of the FSC Principles & Criteria 2002" makes the following pertinent points on page 6:

    "FSC recognises that realistic timetables for eliminating chemical pesticides will depend on the development of alternative methods of pest control." And:

    "Managers shall aim to use pest control measures that have been demonstrated to have least effect on the environment and people. Eliminating chemical pesticides and developing reliable and effective alternatives for all situations, may take many years."

19. These statements made by the FSC represent a positive and realistic approach to implementation of the FSC Principles and Criteria. They recognise that pesticide reduction relies on the development of alternative measures and is a long-term process. NZ certified plantation forest owners proactively undertake to minimise chemical pesticide use but their total elimination in the short term is unlikely to be achieved.

20. The criticisms levelled against the FSC by Australian scientist Dr Barry Tomkins all relate to the legitimacy of the science behind the prohibited pesticides list and the thresholds used. We understand that Dr Tomkins criticisms are to some extent directly responsible for the current review carried out by PAN-UK.

21. The NZFOA's greatest concern on FSC's approach to pesticide use revolves around the prohibited pesticides mechanism and the setting of thresholds. This is a deficient mechanism and very blunt tool that will not produce results consistent with the FSC Principles and Criteria.

NZFOA Submission on the PAN-UK review and the resulting FSC discussion paper (FSC-DIS-01-003)

22. The NZFOA support the Australian submission entitled "Australia's Response to Review of FSC Pesticides Policy".

Prohibition Process

23. The prohibition of pesticides as recommended by the PAN-UK review is an unsuitable mechanism for pursuing pesticide reduction within certified forests. The mechanism does not allow certificate holders adequate time to source viable alternatives. Once a pesticide is placed on the prohibited list it is immediately unavailable. This is at odds with the FSC interpretation of policy that provides for realistic timeframes and development of alternatives (see FSC statements above).

24. The prohibited pesticides approach should only be used for those pesticides that are scientifically proven to cause environmental or human health problems (i.e. those listed in the WHO tables 1A and 2B). It should be a definitive and defendable list of the known harmful pesticide products and should not include anything that is considered marginal.

25. The current and proposed thresholds place, without reasoned justification, too many marginal pesticides eg: terbuthlazine, hexazinone and haloxyfop on the prohibited list. Under the existing FSC policies for marginal products certificate holders are required to minimise their use and investigate viable alternatives. Significant progress has been made by the NZ forest industry to reduce the quantities of these pesticides used and to improve the accuracy of the application methods that minimise environmental risk.

26. The establishment and reviewing of thresholds and prohibited pesticides should be carried out by independent scientific organisations and be subject to full peer review. The approach used by the FSC to date has not been rigorous and has not been subject to full peer review.

27. The science behind pesticide research and development is complex and research results can be divergent or conflicting. Thus the reasons for establishing threshold values must be clear and soundly based. The decision to add any pesticide to the prohibited list must be made using clear repeatable independent research results.

28. The proposed thresholds and list of prohibited pesticides do not meet these criteria and we request that the FSC seek independent scientific peer review of the PAN-UK report before adopting any of its recommendations.

NZ's Regulatory Approach

29. New Zealand like Australia has advanced regulatory control mechanisms governing the use of hazardous substances including pesticides. The Environmental Risk Management Authority (ERMA) is empowered under the Hazardous Substances and New Organisms (HSNO) legislation to control the importation, manufacture and use of all hazardous substances. We urge FSC to view the ERMA website at www.ermanz.govt.nz.

30. Most of the pesticides used in NZ plantation forestry require anyone purchasing, transporting, storing or applying them to be trained and certified as an approved handler. Pesticides with particular hazards are required by ERMA to be tracked from manufacture to application. All hazardous substances are classified for: explosiveness, flammability, capacity to oxidise, toxicity, corrosiveness and ecotoxicity.

31. NZ plantation forest managers obtain from the ERMA classification which attributes of a pesticide pose the greatest risks and how to minimise these risks. We know which pesticides to target as priorities for reduced use and development of alternative treatments.

32. The application, storage and transport of chemicals are governed the NZ Standard 8409:2004 Management of Agrichemicals which provides robust standards depending on toxicity and target area. The table of contents and appendices of the NZ Standard 8409:2004 Management of Agrichemicals is attached as appendix one. A full copy of the standard can be provided on request.

33. NZ's Resource Management Act also regulates how chemicals can be applied in respect of their potential to harm the environment. In particular the prevention of application or drift to sensitive non-target sites such as waterways is widely prohibited.

34. NZFOA request that chemicals permitted through a robust regulatory process such as applied by the NZ Government are also considered acceptable for use in that country by FSC.

Best Practices Approach

35. The FSC in its 2002 report "*Chemical Pesticides in Certified Forests: Interpretation of the FSC Principles and Criteria*" on pages 14 and 15 section 6.2 looks at the "Next Steps". These include the reviewing of thresholds but they also include positive steps such as preparation of guidance to National Initiatives, Best Practices Guidelines and Decision Support Systems. The last paragraph on page 15 quotes "*Review the entire pesticides policy. Consider revising the P&C, removing the simple prohibitions and complex exemptions, and adopting Decision Support Systems*".

36. NZFOA supports this approach as a possible way forward. Such a system could be audited during FSC annual audits and would form the basis for a positive pesticide reduction program instead of a restrictive prohibited pesticides list.

Commercial Implications

37. The Australian submission point 4 states: "*Changing the list of prohibited activities changes the nature and commercial impacts of the agreement certified managers entered with the FSC*". NZFOA agrees that the changes proposed do change the nature and commercial impacts of FSC certification. Each certified forest owner will need to evaluate these commercial impacts and make their own choices regarding ongoing certification. If chemicals such as terbuthyazine and hexazinone are prohibited it is highly probable that NZ plantation certificate holders may have no option but to terminate their certificates.

Consultation Process

38. The 2002 "*Chemical Pesticides in Certified Forests: Interpretation of the FSC Principles and Criteria" document produced by FSC clearly states on page 14 under 6.1 that FSC may at any time make revisions and add new chemicals and formulations to Annex 1 (the prohibited list) once satisfied that they reach or exceed the set thresholds"*. It goes on to state "*Other changes, such as changes to the thresholds, may be made after necessary consultation*". The NZFOA do not consider

that the amount of consultation has been adequate. Were it not for warnings put out by Dr Barry Tomkins we may not have known this process was underway.

39. We trust the other FSC certified forest owners worldwide have been made aware of this process. Placing reports on the FSC web site and giving a set period for response is not sufficient consultation. Consider in contrast the considerable public meeting process that certification applicants and holders must undertake.

40. At the very least those managing this review process should have sent written notification to all certificate holders advising what was happening and that reports were available on the web site for submissions.

41. We request that FSC extend the submission date and distribute notification to all certificate holders prior to proceeding any further.

42. NZFOA views this submission as a first round of consultation and are keen to be involved in further technical debate through an appropriately structured mechanism where the issues can be transparently addressed with a fully independent peer review.

Proposed Thresholds

43. The NZ certified plantation forest owners do not accept the existing or proposed thresholds for pesticides. They do not appear to have been well considered or based on sound science.

44. The PAN-UK report page 6 recommendation D states: *"The FSC should transparently acknowledge that the setting of thresholds depends on a judgement that is inevitably based, in part, on the value given to the level chosen; this is contentious and open to criticism"*. NZFOA would like FSC to consider two of examples where the "judgement" that has been made is incorrect.

Example 1: Persistence

The FSC threshold for persistence is a half-life in soil or water of greater than 100 days. However, half-life is normally a range and there is no guidance on whether to use soil or water half-life which have different ranges. Neither is there any guidance on whether to use the aerobic or anaerobic figures.

We also question the relevance of half-life in forest application situations. Most of the pesticides where half-life is considered an issue are the residual tree release herbicides such as atrazine, terbuthylazine and hexazinone. In many cases FSC certified forest managers have moved away from broadcast applications and application is now often applied as spot release treatments from the ground directly over each tree. When broadcast methods are undertaken best practices techniques ensure chemicals are applied only to the target site and drift is prevented. In both spot and broadcast application riparian buffers are maintained to prevent direct application to, or leaching into waterways.

These herbicides are primarily used for establishment tree releasing and as such usually one or two applications are required per crop rotation (25 to 35 years). Persistence is a minor issue when considering one or two applications in a 25 to 35 year rotation.

In comparison atrazine is used in corn crops in the US where it is boom sprayed sometimes as many as 3 times per year, year after year. The US EPA has cleared it for this use and yet it is close to being on the prohibited list under FSC certified forests. Is it any wonder we question the judgement made in setting and applying this threshold?

Example 2: Chronic toxicity to mammals

The FSC chronic toxicity to mammals threshold is a reference dose (RfD) or acceptable daily intake (ADI) of less than 0.01mg/kg/day. This is measured by feeding the pesticide to test animals and quantifying how much can be fed per day to determine the "No Observable Adverse Effect Level" (NOAEL). The NOAEL figure then has an uncertainty factor of 100 applied to it to account for inter- and intra-species variability.

In the US EPA RED report for terbuthylazine 1995, page 13 they state they applied an additional uncertainty factor of 10 to compensate for lack of non-rodent chronic toxicity data and reproductive toxicity data. The NOAEL figure for terbuthylazine was 0.35 mg/kg/day and this transferred to an RfD of 0.00035 mg/kg/day. The same report clearly states: "*A reference dose is used in assessing the risk from food treated with a pesticide registered with the Agency*".

Based on reference dose terbuthylazine is a prohibited pesticide for use in FSC certified forests. A reference dose that is used in assessing the risk from food treated with a pesticide is irrelevant when it is applied to a non-food tree crop particularly when there is no danger to non-target areas containing food crops. Terbuthylazine as is used as a seedling releasing herbicide usually applied from the ground to a spot treatment directly over the tree, or broadcast in tightly controlled and buffered operations. Where there is no risk of it ending up on a food crop the reference dose is irrelevant and should not be used as a threshold value. Or if a threshold value is set it should recognise these conditions.

45. The examples given show that using judgement to set thresholds is one thing but equally judgement and rational thinking must be used when testing pesticides against the thresholds. If a threshold test is not relevant to the task a pesticide is being used to perform then the threshold test should not apply and should not be used to place the pesticide on the prohibited list.
46. The examples show further evidence that a prohibited pesticide list is a deficient mechanism. The setting and application of threshold values is too subjective.
47. A robust chemical Decision Support System would require the user to determine if there is a risk to other values (such as terbuthylazine to food). Where the risk is significant an alternative method or chemical should be utilised.

NZFOA Preferred Approach

1. Management

The use of robust integrated pest and weed management strategies or decision support systems that utilise best practice techniques and aim to minimise chemical use through a variety of mechanisms. These could be applicable nationally or by individual forest manager

2. Prohibition

Bans (with derogation options) are applied only to chemicals prohibited by WHO (Table 1 Class 1a and Table 2 Class 1b). The WHO provides a robust internationally recognised mechanism that prohibits the use of eco-toxic or persistent chemicals. Chemicals not prohibited in the WHO tables could also be banned through intergovernmental agreement or local initiatives such as agreements set out in a National Standard.

Threshold values should only be used where there is robust science that determines the threshold. Threshold values should relate to the risk inherent in the target area, i.e. where there is no risk to food then food thresholds should not be used.

3. NZFOA Work with FSC

NZFOA could work with the FSC to determine an appropriate mechanism to regulate chemical use rather than fight against it through the review or derogation process.

Appendix 1: Table of contents and appendices from NZS8409:2004 Management of Agrichemicals (194 pages).

Main chapters are

2. Management of agrichemicals
3. Land transport of agrichemicals
4. Storage & supply of agrichemicals
5. Use of agrichemicals
6. Disposal of agrichemicals & Containers
7. Emergence preparedness & Management

Appendices: