



## Priorities for weeds research: a summary of conversations with growers

**Summary:** *A series of conversations with forest growers and managers across New Zealand in spring 2015 identified licence to operate as the highest priority with respect to management of weeds. The continued availability of low cost, effective herbicides to manage weeds efficiently and in a timely way remains essential for the economic establishment of commercial forests. Research into currently used and alternative herbicides, methods to minimise inputs of herbicides into the environment and profiling of the environmental fate of all herbicides is therefore a priority for growers. It was noted that evidence-based assessment of the environmental impacts can be used to inform auditors, regulators and policy makers that current methods of weed management have low environmental impact and can continue to be used.*

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### Key priorities for research

*Forest growers and managers highlighted weed management priorities at a series of meetings held in spring 2015. These are summarised below.*

#### Licence to operate

Certification with the Forest Stewardship Council (FSC) remains key to market access. As such, minimising herbicide use and finding suitable alternative herbicides to those that are prohibited remains a high priority for growers, as does the fate of herbicides in the environment.

Data on the fate of herbicides in the New Zealand forest environment *underpins the environmental credentials of weed management in the forest industry, and benchmarks the environmental risks and impacts of current best management practices.*

A desire to move away from persistent active ingredients and also to minimise inputs of active ingredients into the environment drives continued interest into alternative herbicides. The dynamic FSC list of Highly Hazardous Pesticides (HHP) also means that the industry needs to proactively research alternatives ensuring continued availability of chemical tools for weed management.

#### Wildings

In accordance with FSC principles, as well as the proposed National Environmental Standard for Plantation Forestry, forest companies will increasingly need to play a role in managing wilding conifers on all non-afforested land that falls within the FSC certified resource. This will include managing (and reducing) potential risk of spread from any new

afforestation activities, particularly that involving high risk species such as Douglas-fir. For some forest companies, mitigation of this risk to licence to operate is a high priority.

#### Priority weeds

High priority weeds noted by managers included wild ginger and gorse (Northland); pampas, woolly nightshade, Darwin's barberry (central North Island); gorse and Scotch broom, regenerating pine seedlings and wildings (Southland).

#### Efficacy and application systems

Existing weed control systems are generally optimised for cost and efficacy. However, there is a need for ongoing education to increase awareness about best practices, new tools as they became available and their impact on drift reduction.

There is also scope to minimise herbicide use through improved understanding of the impact of timing of application and dose on residual efficacy. Improving efficiency of spot application technology and aerial spraying models for application in complex terrain would also be valuable.

#### Precision weed control and the use of new technology

The potential for remote sensing platforms (satellite imagery and use of unmanned aerial vehicles, UAVs) to provide cost-effective solutions for weed management has yet to be realised. There is much interest in possibilities such as checking on weed competition in establishing stands, spot control by UAV and targeted spray programmes calibrated to deliver herbicide according to level of weed infestation.



# Weeds programme TECHNICAL NOTE

30 June 2016

## Non-chemical weed control

Non-chemical weed control is not cost-efficient but methods that can reduce the long-term inputs of herbicides into the environment support the forest industry's licence to operate. The success of the buddleia leaf weevil for controlling buddleia in the central North Island suggests that biocontrol may be an effective longer term strategy that could be applied to pampas and other weeds.

The use of oversowing with grass to control weeds remains of interest to growers and may be able to play a role in preventing the germination of pine seeds from cones left on site after harvesting. This could reduce numbers of seedlings that regenerate during stand establishment.

## A "Weed Management App"

A weed management app with information on control of priority weeds, herbicides and alternatives, application and impacts on the environment would be a valuable decision support field tool for forest managers.

## Where to from here

Forest growers want low cost, effective herbicides to manage weeds efficiently and in a timely way. And they want effective herbicides to be continuously available. As a result, research into alternative herbicides to those currently used (especially those on the FSC HHP list), methods to minimise inputs of herbicides into the environment and profiling the environmental fate of all herbicides used in forest management in New Zealand remains a priority for growers.

Other notable priorities include:

- the development of methods that reduce the spread risk of Douglas-fir onto neighbouring land to ensure this species remains a viable alternative commercial species for forest growers,
- models that can better characterise the potential for spray drift in complex terrain, and;
- understanding the potential of remote sensing platforms, including use of UAVs and

associated technology, to improve efficiency of weed control systems during tree establishment.

The relative weighting of these priorities will need to be considered by forest owners and used to drive a programme of research that reflects growers' needs and available budget.



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