PREVENT THE SPREAD

National Wilding Conifer Control Programme

WORKSHOP SUMMARY

Good Practice for Aerial Wanding (Basal Bark Application) of Wilding Conifers

30 May 2017, Christchurch

Introduction

The National Programme for Wilding Conifer Control hosted a consultation workshop ‘Good Practice for Aerial Wanding (Basal Bark Aoplication) of Wilding Conifers’. The objective was to obtain the views of the industry and other agencies about the practice of controlling wilding conifers through the use of wand spray delivered from helicopters.

On 30th May 2017 over fifty industry representatives met to consider good practice in Aerial Basal Bark Application (ABBA) of wilding conifers. Over the day the invited representatives considered and discussed good practice using the following topic areas.

1. Operational planning
2. ABBA operations
3. Health and Safety
4. Data capture – responsibility and use
5. Chemicals /mix in use
6. Post event monitoring

The workshop developed these topic areas further by recording industry comments on current practice used by industry players. Key good practice themes in the topics areas were identified as well as areas for improvement.

It is worth noting that the mobilisation of resources and the ABBA industry is occurring on a scale not practiced in New Zealand in the past.

The following pages summarise the key observations on current practice as well as the improvement areas or where further research is considered helpful.

Operational Planning

Themes coming from workshop were around significant areas of cooperation and decision making

- Need for clarity around the roles and responsibilities between project manager and the helicopter pilot.
- There is variance as to who does what, but should be clear in each operation where each role fits.
- Content to be covered by the parties (project manager and helicopter pilots)
    - What is to be wanded as opposed to other methods [spray boom, ground control]?
    - Essential communication with landowners – those with common and adjacent boundaries, and also impacted land.
    - Decision of helicopter choice rests with operations manager - key criteria is safety
    - Tools – shapefile good tool but more could be added to provide aircrew with greater knowledge, suggestions include;
        - Shapefile of the overall plan, stratification depends upon complexity of the plan- altitude, topography, weather [check], target density
        - Landownership boundaries
        - Target density and possible outliers
        - Wanding plan boundary separating wanding from boom spray and ground operations
- ‘Soft skills’ and good communications and behaviours also important between - project and operations, ground air, landowners and others in the area (community)
- Which trees to target?
    - Require support for decision making in the air about coning or species type to target with wand OR record by GPS and follow up with ground treatment
    - Identify and target key seeding trees *[check is this visual assessment based on dispersal view gained from helicopter?]*

ABBA Operations

- Main activities are known and covered by CAA rules and regulations, and other conditions such as RMA consents or notifications
- Clear that pilot is in charge and the decision maker. Flight safety is the paramount consideration.
- Pre-flight planning is important and necessary 1) review of shapefiles 2) activation oft data recording 3) discuss ABBA/wanding technique
- The desirability of doing the aerial work prior to ground work – that is, aerial completed where the method was considered efficient and then shape files for ground work identified.
- Other main themes are
    - Importance of the relationship between pilot and project manager - communication and roles
    - Necessity of using technologies - such as VAL metre; GPS
    - Sound data handling and usage - importance of daily review to guide next day and deliver better results
    - Wanding equipment still developing, as are CAA views on its suitability
    - Training for operators
        - Grow Safe certification desired as a minimum standard
        - Grow Safe (technical training governance) chemical operator certification is different from the competence in helicopter crewing.
        - Impact of CAA limits on number of persons in machine (agricultural training) with regard to training for aerial wanding

- Operations conscious of the best techniques to ensure spray reaches right areas. There are questions around determining these prior to flight, versus strong need for planned techniques to be modified depending on what is seen during flight

Health and Safety

- Respondents identified their own safety procedures and standard operating procedures as appropriate (although noting the need to meet requirements under CAA and ACCOP)
    - Site Specific Safety Plan
    - Tool Box Talk
    - Pre Flight briefings
    - Hazard and risk assessments both for the chemical mix and for air operations
- Very clear as to role of pilot as to being the single person in charge
- Behaviours seen as very important
    - Constant communication between wand operator and pilot
    - Clear roles in the air
    - Importance of competent wand operator is vital of safe operations -how to train when only two persons to be in aircraft in agricultural operations
- Some difference of approach regarding land owner communications. Some cases operations were the point of contact with land owners, others responsibility with the project manager.

Areas for improvement

- Removal of any perceived boundary grey areas between WorkSafe, and CAA
- Training of wand operators
    - Desirability of CAA certification of wand operators
    - Wand technology/ is not subject to CAA approval (although approved as a modification)
    - Some just trained on the job
    - More formal industry certification such as Grow Safe.
- Audit activities could be streamlined recognising the close nature of the operations and their environment

Data Capture

Task	How
Where did we go?	Tracks
What did we spray?	Way Points
How much spray did we use?	Spray diary – formulation used, volume sprayed (On species – estimate only/estimate coning)

Technology

- Currently the VAL's internal GPS not always that reliable, failure or loss of coverage – what to do when it fails, back up expensive/ who pays?
- 'Track Map' is another tool used by helicopter operators. But this has limited user-friendly features….
- Often variation in maps provided by DOC, councils to the operator (but may improve with the new LINZ system)

Use of data

- Technology challenge of download and integration into data repository (new LINZ system may resolve this)
- Aerial Operations crew and helicopter company gain value by reviewing the days operations. How can the data be best made available given the primary user of data is not in the field?
- The daily data to go from the project manager to new LINZ system.
- There was interest in then who utilises that data -there is value in further analysis of target -age, species, coning – who would use it? Need to have a look at the cost-benefit ratios.

Chemicals/Herbicides

- Much discussion about chemical/herbicide mixes – there are a number of parameters considered relevant to selection. For example, species, tree size, density, weather/humidity, topography

- Strong evidence that mixes are successful judging by feedback from 2016/17 performance data. But what kind of impact do the herbicide mixtures have on human and environmental health? Need more information and/or research.

- Industry looking for further guidance and common approaches:
  - Who decides the product to use; landowner, project manager, operator- all are known?
  - What are implications if product less effective than others?

- Simple products do seem to work, but
  - Where is the cost-benefit analysis?
  - Who has done testing and studies to confirm?

- Xtree product has its supporters a popular choice among operators. Product of choice for major landowner (DOC)
  - But adheres to helicopter bubble – improved application methods/techniques can address this issue
  - New formulation promoted to address some concerns – reduced odour, and also opportunity to apply to wet or damp trees

- Application rates for different species and maturity of trees, some variation and would benefit from further work or study?

- Some industry practice should be shared or validated by DOC / MPI.

Post-control monitoring

- This area does not have consensus as to the current practice actions. This is new ground for industry as methodologies are not scientific/best guess kill rates/ fail to recognise minimum/maximum size of wilding conifers visible from helicopter
- Some contract examples have 95% or a 98% kill performance clause.
- Good quality control reliant on gang supervisor or contract manager vigilance
- Assessment achieved through reports from a fly by, kill rate best determined some three years after operation or time suitable to programme manager (testing underway).
- Themes coming from this area are:
    - Opportunities for technology solutions to capture kill rates and misses – eg. remote sensing/sampling/ drones
    - Contractual implications of kill rates and misses- consistency is desired (contractual)
    - Misses have multiple causes some outside control of operator – species variation/age variation and delays in effect of spray/performance of chemical
    - Rework – liability, timing and value (expensive to fly over barren areas). Noting that good record keeping limits return/rework.
- Need to look at where effort is best placed to maximise kill rates. Not enough to focus on after event activity as too late. Hotspot areas to focus on are:
    - Internal quality controls need to be developed agreed and monitored
    - Short term monitoring of spray areas [check does this mean where spray has been put?]
    - Long term assessment of impact of spray. Consensus that three- year period is about right.
- Above supported by agreed monitoring methodology. Independent monitoring activity [*check* independent of all parties of just helicopter operators]

Next Steps

In the immediate next steps to this work, the ABBA Good Practice project team (MPI and DOC) will

- share the summary of the workshop proceedings with the participants in the workshop and others interested in its outcomes (such as the programme's operational and technical advisory groups, wilding conifer trust groups among others)
- review all the information arising from the workshop to agree on the short, medium and longer term 'good practice' priorities arising from the 6 main themes discussed
- work with researchers to see what matters could be picked up for further investigation
- keep industry members and other interested parties informed (and involved, if relevant) as the Good Practice work develops in the next few months.

CONTACT:
Sherman Smith
Programme Manager
National Wilding Conifer Control Programme
sherman.smith@mpi.govt.nz
Ph: 04 894 0831