



Fertiliser Decision Support System

Summary

The underlying science and calculation methodology underpinning a Fertiliser Decision Support tool were first developed in the 1990s. Unfortunately the prototype tool has not been enhanced to an industrial strength application. FFR is currently applying for a PSAF grant to undertake the work outlined above. This technical note provides an overview of the Fertiliser Decision Support Tool.

The Problem

Foresters have traditionally resorted to “rules of thumb”, “experience” and foliar samples to determine the stands that will receive remedial fertilizing. This approach is valid where there are staff with appropriate knowledge of the resource and a good database of fertiliser response to fertiliser applications. In recent years, in particular, staff turnover and loss of institutional knowledge has resulted in fertilising decisions being with inadequate knowledge of the resource, resulting in incorrect stand selection and flow on impacts on wood flow and wood quality.

A Solution

In the absence of experience or lack of knowledge, a system that allows the user to undertake the following analysis will support a systematic approach to determining stand fertilising:

- predict the response from fertilizing;
- determine the associated costs and benefits of applying fertiliser;
- develop an operational plan and associated budget.

Underpinning this system will be the requirement to measure fertiliser response so that companies can quantify improvement in yield on their forests.

The Technology Platform to Underpin the Solution

The system that we are proposing is a GIS-based system that links to the following modules:

1. Foliar Sampling Planning:
 - selection of stands to sample
 - budget

2. Fertiliser Application Planning:
 - use foliar data to predict responses
 - cost benefit analysis
 - fertiliser plan and budget
3. Nutritional Atlas:
 - trends in space and time, by element
4. System GIS based (Arc/View) links to:
 - spreadsheets
 - costing operations
 - volume response prediction
 - cost benefit analysis

The framework for a monitoring system would use soil types as an integrator of information and stand based measures of foliar nutrition.

It would produce means by soil type and map the probability of deficiency, relating the information to optimum levels and showing changes in time via regular snapshots.

The Proposal

The main driver behind this proposal is to collate a number of disparate systems into a cohesive framework. To that end FFR is currently developing a PSAF (Pre Seed Accelerator Fund) application to support this work. The fund is administered by Scion

The Benefits

There are a number of potential benefits that will be evaluated while developing the proposal. They include:

- Cost savings from implementing the process;
- More precise targeting of the fertilizers;
- Improved ROI on investment in fertilizing;
- Potential to monitor responses over time.