

Notes on applying the ROI field sheets

The ROI field sheets are primarily designed for use on fire origin stands, where the disturbance occurred within the last 5 years. They are intended for use as a “coarse filter” approach to screening for regeneration investment suitability. They will help to identify the obvious cases where investment either definitely is or definitely is not warranted. Other cases will require further investigation with more complex decision aids.

Basic Application

Inputs required for the ROI field sheets include the current dominant species, the site index for that species, and a prediction of the well spaced stocking at the time of the free growing assessment. Using this information:

1. Select the appropriate chart based on the current most prevalent species
2. Locate the appropriate position on the chart based on the site index and your best estimate of what stocking will be present at the end of the free growing assessment window.
3. Interpolate between the closest isolines to determine the maximum investment value.

The value determined from the charts represents the maximum amount of money that can be spent to achieve a free growing stand with target stocking (or close to it) while still maintaining a 2% return on investment. At the very best this tool should be considered precise to +/- 10%, but under average conditions this is more likely to be at least +/- 25%.

Key Assumptions, Limitations and Caveats

A financial analysis tool in the form as presented in the ROI field sheets is, by necessity, a gross simplification. Several assumptions were made in the construction of these field sheets that affect their applicability:

- 1. The currently most prevalent species was assumed to be that used for further regeneration treatments.**

Caveat 1. Where a species shift is planned (a different species will be planted that what is currently the most prevalent species), an additional margin of uncertainty is required. Maximum expenditure values should be interpreted with at least a +/- 40% margin of error.

Caveat 2. Where a species shift is planned and where a fully stocked stand of the new species will have a significantly greater cMAI than a fully stocked stand of the original species, the field sheets will underestimate the maximum allowable expenditure. The magnitude of this underestimation is highly variable based on several factors such as the current stocking and the relative magnitude of the productivity differences.

- 2. Lodgepole pine grown at low densities is assumed to generate lower \$/m³ values than other species, due primarily to poor fibre quality. This factor is reflected in the higher allowable expenditure evident on the lodgepole pine chart as compared to that for other species.**

Caveat 3. Where the lodgepole pine chart is used but there is a considerable component of other species, the maximum allowable expenditure will be overestimated.

Caveat 4. Where the spruce and Douglas-fir charts are employed but there is a considerable component of lodgepole pine, the maximum allowable expenditure will be underestimated.

- 3. No “genetic worth” assumptions were included for planted stock.**

Caveat 5. If genetically improved seed is utilized for the additional regeneration, the field cards will underestimate maximum allowable expenditure.

- 4. The minimum stocking level covered by the charts is 300 w.s trees/ha.**

Workaround: Isolines can be reasonably extrapolated from 300 well spaced trees/ha down to zero.