



Forest Research

The Research Agency of the Forestry Commission

Economics of planting improved Sitka spruce - Seed Orchard and VP

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Introduction

- The last published figures were from ‘Super Sitka for the 90s’
- Found that VP was cost-effective at WHC 1, 2, 3 - marginal in WHC 5 and not suitable for WHC 6
- Costing done at 5% and 6% using 1990/91 price size curve
- Assumed increase of one YC
- No account taken for quality

Background

- Different sources of improved SS are now available - SO, half-sib VP and full-sib VP
- We have been getting some figures from progeny trials on likely gains for volume and stem straightness
- Unimproved QCI is hardly planted at all now;
- There is a cost differential between SO and full-sib material;
- Does the increase in quality justify the extra cost?

The Brief

- To investigate the economics of planting improved Sitka spruce under different planting scenarios
- In particular, given the extra cost of planting VP material, under what circumstances is it justified relative to VP material



ECONOMICS OF USING GENETICALLY IMPROVED SS PLANTING STOCK

Assumptions about the Cost of Plants			
Planting Stock	Cost of Plants		Relative to QCI Plants
	£/1000 Plants	£ / ha	
QCI	140	350	
Seed Orchard	180	450	+100
Veg Prop	240	600	+250
Assumes 2,500 plants used per hectare			

Source: Christie Elite 2006.

Note: Mike Harvey of Maelor trees told me these look top side prices for VP. A medium size customer can expect to pay around £220/k equivalent to +£200 relative to QCI, or +£100 relative to Seed Orchard. Obviously this part of the equation is up to the negotiating skills of the forest manager as it might mean a saving in Year 0 of £50



- **Discount rates** 3.5 % and 5%.
- **Unimproved growth rates:** YC12 YC14 YC16
- **Improved growth rates:** YC14 YC16 YC18
 - It was assumed that a SO and VP material will grow at least 1 YC better than QCI on the same site. Figures have been published stating an increase of 25% volume at close to rotation which is greater than 1 YC. The model has the facility of increasing the volume by 25% (or any other %) if required.
- **Rotation lengths** 35 years 40 years 45 years
- **Green logs** QCI = datum SO = 30% extra VP = 60% extra
- **Green:Red ratio** 40:60 60:40 80:20
- **Red v Green Price differential:** £5 £10 variable
- [Age](#)
- [Height](#)



Conclusions to date

- SO material cost effective under all scenarios at 3.5% and 5% interest rates;
- VP of full-sibs cost effective under most scenarios at 3%;
- Need to negotiate hard or assume higher red/green £ differential for VP at 5%;
- Need to work on model in area of diameter distribution;
- Need to work on model in area of benefits of more uniform stand and effects of wind.