

Thinning a Timber Crop

Case Study

Introduction

The farm near Abernethy, Perthshire measures 359ha and comprises cattle, sheep and arable. In 2017 the owners purchased neighbouring ground to add more good quality land to the farm, and in doing so became proud owners of the 151ha commercial conifer forest which was included in the sale.

The owner wanted to know if there was anything he should do to manage the timber crop and engaged a forestry agent to advise him. This case study looks at the management undertaken.

By the end of the job a total volume of 3,500t had been thinned from 42ha, generating £98,000 profit from timber sales, which is not subject to income tax.

Site Description

The forest was planted in 1993, with both timber production and sporting in mind. The main species is Sitka spruce (58ha) with hybrid larch, Scots pine, Norway spruce and designed open ground making up the remainder of the area.

The forest lies at an altitude of 200 to 233m above sea level, with a variable topography including a conical hill, gentle slopes, plateau and gully. The soils are freely draining brown earths.

The forest also includes a Site of Special Scientific Interest (SSSI), two public footpaths and a high pressure gas pipe.

Why Thin?

The main reason for thinning is to improve the volume and quality of the final crop at clear-fell, and also provides income from the sale of timber from around half way through the life of the crop (known as the rotation).

Thinning provides more light around the crown of each tree, allowing trees to put on more girth before competing for light again. This increases the range and value of products in future thins and final fell. Thinning provides a higher volume of timber over the whole rotation than an un-thinned crop.

Normally three thinnings are undertaken, typically starting around age 20 to 25 and five years apart, with the final thinning being around 10 years before clear fell. The first thinning is a line thinning, where a harvesting machine will take out one row in every five (the harvested row called a rack), thereby creating access for future thinnings (ideally a minor amount of selective thinning is carried out between racks to remove about 30% of the trees in total). Second and third thinnings will concentrate on removing poorly formed and small trees.

Species	Area ha	%
Sitka spruce	58.13	38.4
Norway spruce	0.46	0.3
Larch	6.46	4.3
Scots pine	1.88	1.2
Mixed broadleaves	3.95	2.6
Open ground	80.49	53.2
Total	151.37	100

Thinning

The agent assessed the crop as having a Yield Class of 24, meaning that 84m³/ha could be removed in the first thinning without harming the long term productivity of the forest. The agent prepared an estimate of income and the owner confirmed that the sale of the timber be put out to tender. At the same time the agent completed and submitted a felling licence application to the Forestry Commission.

Eight tenderers were invited with the winning offer being over £28/t. Prices are net of harvesting and timber haulage costs, and all profit from timber sales is exempt from income tax.

Product break out was as follows:

Product	%
Green log	17
Shaver bars/pallet	44
Chipwood	39

Whilst access for timber lorries was good there were no stacking areas. The owner arranged the construction of three stacking/turning areas using a local plant company and locally won stone.

Given the location of footpaths along the route which would be used by timber lorries, the agent contacted Perth and Kinross Council to arrange a footpath diversion.

The agent drew up a timber sale contract between the owners and the timber buyer. This set out terms and conditions such as completion dates for harvesting and removal of all timber, responsibilities, payment terms and site-specific information.

A pre-commencement meeting was held between the agent and the timber buyer to discuss timings, working methods, access, stacking areas, hazards and responsibilities. Of crucial importance was the under-ground gas pipe which had to be crossed by harvesting machinery. This was the responsibility of the timber buyer to contact the gas infrastructure company and arrange safe working methods for crossing it with harvesting machinery. In this case it emerged that the trees had been planted over the gas pipe. The timber buyer and gas company worked together to identify and mark a machinery exclusion zone to protect the pipe and designated crossing points with added brash protection.

Some of the timber stacking areas are on the side of the forest road, and required the forwarder to cross the road. It is essential that forwarders only run on roads on tyres, and not with band tracks; the latter destroy roads and make access for timber lorries extremely difficult. Also important is that timber lorries stay off unsealed forest roads during thawing, to avoid disintegration of the road.



At 25 years old, the forest was still within the thinning window.



Thinning commenced in November 2018, completing in March 2019.



Key facts

42ha Sitka spruce thinned

3,500t timber produced

£98,000 profit tax-free