Summary
This practice note illustrates a micro kilning enterprise. Points raised include the location, aims and development of the enterprise along with a detailed break down of costs and a description of lessons learnt following several years of operation.

Specific case study
A small firm of joiners run by Richard and Robert Jones, and situated close to a market town in Cumbria, decided to have a go at providing their existing wood working business with a more satisfactory supply of timber by buying round timber from a neighboring estate, outsourcing conversion and then drying the timber themselves.

Site description
The partners occupied a workshop approximately six hundred and twenty five feet square, with a similar sized store attached which was suitable for the installation of a kiln, leaving adequate room for storage of the dried timber. Adjacent to the workshop is a concrete yard with space to allow some air-drying to be done before putting the timber into the kiln.

Firm’s history
The firm was started to give an occupation for a retired man and to provide an alternative source of income for another who worked for a firm where there were constant rumours of redundancy. Whilst larger kilns were available the unit chosen offered a compromise between capital costs and the requirements of the business and potential markets.

Initial market survey
Although there were insufficient funds available for anything approaching a proper market survey, soundings were taken locally. The hobbyists supplied were delighted at a source of timber, which they could inspect before buying, and a local chain of builder’s merchants expressed an interest in a regular supply of dried hardwood.

Timber supplies
Timber was bought locally at roadside and arrangements made with a timber haulier to transport it to a local mill for initial breakdown, and then to the yard. Later a local farmer bought a bandsaw mill for his own use and agreed to plank the butts by arrangement, but the transport of larger logs remained a major problem, and conversion at the yard would have been more cost effective.

Carriage
At first a local carrier who was prepared to wrap bundles of timber in polythene before loading and to charge by weight was used - the only carrier prepared to collect at any time and to charge reasonable rates. The carrier is part of a consortium and when it decided to charge by the pallet, four feet square, the sending of small consignments of timber averaging eight feet in length became uneconomic, carriage costs became greater than the cost of the timber. Sales were therefore feasible only when the purchaser could collect.
Equipment

A twenty-foot by eight-foot by eight-foot de-humidifying kiln was constructed of four-foot by eight-foot insulated panels with an Arrowsmiths dehydrator, eight auxiliary fans and temperature and humidity control panel. The total capacity of the kiln amounted to two hundred and fifty cubic feet (6.8m3) of one-inch plank. On average it takes approximately ten weeks to complete the drying process for one-inch boards, thicker timber results in an extended drying period, and it was therefore necessary to set a maximum of two-inch boards to ensure a relatively continual supply of dried material.

Advertising

Due to unforeseen circumstances, potential larger orders fell through and it was decided to advertise in a monthly national hobbyist magazine to test the market. The cost of the smallest, very plain advert giving only a bald announcement of availability, price and contact number, was still great for such a small enterprise and resulted in sales below the cost of placing the advertisement. Whilst further advertisements and the production of a web page were considered, personal circumstances resulted in cessation of the business during 2001.

Employment

Kilning timber calls for two or three men to load the kiln, one or two to unload, and one person part-time to measure the moisture extracted, log the temperatures and make running adjustments as necessary. Income from kiln drying alone did not produce sufficient wages to employ two people, however through value adding in the woodworking shop it was possible to maintain a level of income suited to the proprietors.

Hand moisture meters are essential but are of restricted use during kilning and a system of moisture measurement of the kiln from outside is highly desirable. Hand loading a kiln is very labour intensive. A tracked trolley into an outdoor kiln would be preferable but would obviously incur additional capital costs.

What changes would be made in the light of experience?

By sawing the timber at the roadside with a chain saw mill there is a greater loss in conversion than in a bandsaw mill, but the timber immediately becomes man manageable, making the transport problem much simpler.

Costs and returns

Capital costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drier equipment and kiln</td>
<td>£3000.00</td>
</tr>
<tr>
<td>Hand held moisture meter</td>
<td>£250.00</td>
</tr>
</tbody>
</table>

Variable costs per run

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase of timber (360cu ft / 10.2m3)</td>
<td>£1,950.00</td>
</tr>
<tr>
<td>Milling and transportation (250cu ft / 7.1m3 after conversion)</td>
<td>£1,050.00</td>
</tr>
<tr>
<td>Loading and unloading of kiln (48 hours)</td>
<td>£480.00</td>
</tr>
<tr>
<td>Monitoring etc. (12 hours)</td>
<td>£120.00</td>
</tr>
<tr>
<td>Electricity</td>
<td>£170.00</td>
</tr>
</tbody>
</table>

Total cost (for 200 cu ft / 5.7m3 saleable timber) * £3,770.00

* Note losses due to warping cracking, re-saw etc

Sale value per run £5,500.00

Profit per run before depreciation and overheads £1,730.00

Conclusion

Kilning to ones own requirements leads to a more efficient supply of better timber and is perfectly feasible for a small operator, but selling it on is fraught with more problems than were at first foreseen. Carriage and advertising costs can be out of proportion to the size of the operation, and a kiln of this size can barely sustain employment for one individual. It can however bring additional income as a sideline to an existing business where production of kiln dried timber is beyond the requirements of the business. In addition there are benefits to be derived from the sale of locally grown timber, particularly small parcels, that are of no interest to larger commercial organisations as well as the promotion of locally based craftsmen.

Finest Quality
Lake District
Oak

Kiln dried 8-10%
Square edged plank
1” to 1.5”

Prices from £25 per cu.ft
£2.08 per 1” board foot

Robert Jones
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