Benefits of woodfuel

Economic
- Woodfuel generates and retains income in the local economy
- Woodfuel creates more local jobs than any other renewable alternative
- Farm and Forestry businesses can benefit from a diversified income through woodfuel production
- Woodfuel is a low cost fuel
- Locally produced woodfuel is a secure source of energy and reduces our reliance on imported fuels

Environmental
- Wood is a renewable resource
- Woodfuel is clean and safe to store
- Woodfuel production promotes sustainable woodland management

Social benefits
- Woodfuel production provides rural employment
- Communities can manage and produce their own energy requirements
- Woodfuel can alleviate fuel poverty
- Woodfuel is most efficient and economic when produced and used on a local basis

Woodfuel can be used as a sustainable solution for heating
- Industrial heating, including grain or hay drying and livestock sheds
- Workshops, warehouses and storage facilities
- Households and offices

Information and guidance available

The Forestry Commission publishes reports providing ideas and guidance for harvesting and extracting timber from your woodlands:

- Small roundwood – pilot drying trials IPIN 09/06
- Small scale chippers - standards review IPIN 02/08
- Large chippers IPIN 199/06
- A Comparison between a hand-fed and a mechanically fed equipment IPIN 08/05
- An evaluation of small scale forwarding methods in a woodland IN 12/02
- An investigation into softwood harvesting and extracting timber from your woodlands: Timber once the harvesting and extraction has taken place:
- These reports provide guidance about adding value to your timber
- Harvesting and forwarding
- Processing

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Use woodfuel website (www.usewoodfuel.co.uk).
A regional Biomass Advice Network can help provide the support you need to bring together the elements of a successful woodfuel development. Whether you are looking to manage your woodlands for woodfuel or looking for help to install a woodfuel heating system, contact your local Woodfuel Advisor. Find out more to ensure you can get the Fuel-Good Factor!
Managed woodlands are valuable woodlands. Like any piece of land, good management will increase its value; good management also provides immediate benefits through the sale of wood products derived from timber harvesting. These products can be used on the farm or sold. The chart below illustrates many of the benefits well managed woodlands provide:

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Illustration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural employment</td>
<td></td>
</tr>
<tr>
<td>Increased land value</td>
<td></td>
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<tr>
<td>Shelter for stock</td>
<td></td>
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<tr>
<td>Improved timber quality</td>
<td></td>
</tr>
<tr>
<td>Woodfuel</td>
<td></td>
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<tr>
<td>Timber products sold or used on the farm</td>
<td></td>
</tr>
<tr>
<td>Use on the farm in woodfuel boiler</td>
<td></td>
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<tr>
<td>Process and market your own woodfuel heating solution</td>
<td></td>
</tr>
<tr>
<td>Reduced energy costs</td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td></td>
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</tbody>
</table>

How much woodland do I need?

To supply the simplest high efficiency woodfuel system (a modern log boiler) to heat a typical 4 bedroom traditional farmhouse will require approximately 15 tonnes seasoned firewood per year. A forester trained in woodland management will help you this amount of timber, providing a sustainable fuel supply for all your heating requirements.

What savings are delivered?

Woodfuel heating is cheaper than traditional alternatives when used in a modern high efficiency boiler. Annual estimated fuel costs for a traditional 3 or 4 bedroom traditional farmhouse will be approximately £750 (see chart below). A three hectare woodland containing 500 trees will provide around 15 tonnes of seasoned firewood per year. To supply the simplest high efficiency woodfuel system (a modern log boiler) to heat a typical 3 or 4 bedroom traditional farmhouse will require approximately 15 tonnes seasoned firewood per year.

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Approximate Fuel Cost per Year</th>
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<tbody>
<tr>
<td>Logs</td>
<td>£625</td>
</tr>
<tr>
<td>Pellets</td>
<td>£650</td>
</tr>
<tr>
<td>Chips</td>
<td>£750</td>
</tr>
<tr>
<td>Wood Pellets</td>
<td>£800</td>
</tr>
</tbody>
</table>

These figures demonstrate the cost savings delivered by using woodfuel. Firewood logs are not burned until they have been conditioned for around 12 months, typically requiring only one or two firings a week. For the cleanest combustion and highest efficiency firewood logs should be burnt when the moisture content is around 20% moisture content which can take 12 to 18 months of conditioning to achieve. Firewood pellets provide the greatest opportunity to supply your own heating requirements from trees felled on the farm or estate and can provide an additional diversified income for the business if marketed.

What financial support is available?

The Scotland Rural Development Programme provides funding to create, maintain and improve Scotland’s woodlands. Financial assistance is available to support the costs of developing your woodland resource and the purchase of woodland management services for more information contact your local Forestry Commission Scotland office or contact your local Forestry Commission Scotland office (see below).

Woodfuel and Boilers

Woodfuel boiler systems, especially the fuel store, should always be designed with the available fuel and its delivery mechanism acting as the major design consideration.

Lags

The simplest to produce and cheapest of the three main types of woodfuel, logs are often used in traditional fires and stoves, but can also be used in modern high efficiency boilers to provide heating and domestic hot water. It is not possible fuel can be delivered to above ground stores. The bulky nature of wood chip requires a larger fuel store than used with wood pellets, and requires vehicular access direct to the fuel store. Fuel should be delivered to a below ground fuel store allowing tipped deliveries, where this is not practically possible fuel can be delivered to a below ground fuel store allowing tipped deliveries. The fuel store, makes the ongoing cost of using a below ground fuel store more affordable throughout the lifespan of the system.

Chips

Woodchips are the most common type of fuel used in modern boilers, produced by chippers specifically designed to create woodfuels ensuring uniform chip quality. The maximum affordable woodchipping moisture content of smaller "dry wood" systems is 30-35%, larger commercial and industrial sized "wet wood" heating boilers are able to burn wood up to 55-60% moisture content. It takes between 6-12 months to condition wood to 35% moisture content. The bulky nature of woodchipping requires a larger fuel store than used with wood pellets, and requires vehicular direct access to the fuel store. Fuel should be delivered to a below ground fuel store allowing tipped deliveries, where this is not practically possible fuel can be delivered to a below ground fuel store allowing tipped deliveries. The fuel store, makes the ongoing cost of using a below ground fuel store more affordable throughout the lifespan of the system.

Pellets

Wood pellets are produced from wood processed into sawdust and woodchips, passed through a dry processor, with an additional adhesive they are 100% wood fibre. Ideally suited to installations with limited fuel storage capacity, the increased density of the fuel and its uniform nature, allow fuel stores of around 1/2 the volume of wood chip to hold the equivalent amount of energy. Wood pellets typically have a moisture content of 8-12%. The range and variety of boiler technology produced for use with pellets makes this fuel very versatile, offering some of the most cost effective solutions for domestic use.

Carbon sequestration

Employment

Improved land value

Rural landscape

Suoer

Access

When a woodland is established the next step to consider is whether the woodland can be thinned, when should this start and how the next generation of trees are to be established.

In many cases, thinning a woodland will be the best option to bring it into management. The overall forest and the individual trees in the thinning will vary. However, the benefit to the owner and the woodland will usually increase with each thinning.

Forestry Commission Scotland give impartial advice and guidance on woodland management systems. To find out more, the management agent is recommended you contact forestry management agent. Contact details of local Forestry Commission Scotland offices are on the next of this brochure.

MANAGEMENT

WOODLAND

Visually attractive landscape and increased amenity value

Carbon sequestration

Amenity value

Use on the farm in woodfuel boiler

Income

Reduced energy costs

How do I get from under-managed to productive?

Through good management it is possible to start to improve the value of any woodland. There are a few simple factors that must be considered before the management of a woodland begins:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Illustration</th>
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</thead>
<tbody>
<tr>
<td>Age of the trees</td>
<td></td>
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<tr>
<td>Standing density</td>
<td></td>
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<tr>
<td>Site Suitability</td>
<td></td>
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<tr>
<td>Access</td>
<td></td>
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