WOOD FUEL
ENERGY VALUE

CALU FACTSHEET
December 2008
Ref: 050108

FARMING connect
cyswllt FFERMIO

INTRODUCTION

The purpose of this leaflet is to provide a means of comparing the cost of heat energy derived from woodfuel with other energy sources. Knowing the energy content of wood provides producers and fire wood suppliers with a means of benchmarking their costs against other fuels.

Unfortunately the calculations are not straight forward because:

1. There can be large and variable amounts of moisture - between 20 and 50% by weight - present in wood. Not only does this add to the weight but significantly reduces the useable energy because up to 20% is used to evaporate the water.
2. Softwoods are significantly lighter than hardwoods.
3. The amount of heat given out by different heating appliances varies enormously (as low as 35% for a poor open fire and up to 85% for a good boiler).

HOW TO USE THE CHART

If you are supplying loose load:

1. Estimate the volume of the load in cubic meters.
2. Is the wood from hardwood or softwood species? Light wood from broadleaved species (e.g. poplar) should be valued as softwood.
3. Try to determine the moisture content – 20%, 35% or 50%.
4. On the chart, above 'Firewood price, £ per cubic metre' select the appropriate timber species column, then the moisture content column (50% = green, 35% = yellow, 20% = red)
5. Locate the price you currently charge per cubic metre and move horizontally to the right to the blue column to find how much this equates to per tonne.
6. Continue to the right to the appropriate red, yellow or green moisture content column and read off the cost of energy using a log stove at 70% efficiency (or 35% for an old open fire – in brackets)

Example: From the chart, hardwood logs at 35% moisture content, being sold at £40 per cubic metre are equivalent to £95 per tonne and 4.3 pence/kilowatt hour in an efficient stove, over 8 pence in an open fire.

If you are selling logs by the tonne:

1. Locate the price in the blue £/tonne column.
2. Move to the right horizontally to the red, yellow or green moisture content column and read off the cost of energy using a log stove at 70% efficiency (or 35% for an old open fire – in brackets)

CONCLUSION

Firewood can be a sustainable, low-carbon fuel and you can't beat a cosy log fire. However, the heat may not be particularly cheap. For comparison, at the time of writing, domestic electricity costs around 12p per kW hour, and heating oil costing 40p/litre in an 85% efficient boiler will cost 4.6p/kWhour (see www.coedcymru.org.uk/calculator.htm).

To ensure repeat business and customer satisfaction it is important your fuel wood is realistically priced. Always ensure the wood is properly seasoned before sale, or make it abundantly clear that your customers will need to season the wood. Avoid mixing hard and soft woods in the same load. If your customers are using open fires, it might be worth pointing out to them how much of their heat they are actually sending up the chimney!

The European Agricultural Fund for Rural Development: Europe Investing in Rural Areas
calu
Llywodraeth Cynulliad Cymru Welsh Assembly Government