WOOD PRODUCTS

UNIT 4.

SUSTAINABLE RURAL DEVELOPMENT – FOCUS ON CULTURE AND NATURE

Lifelong Learning Programme

Green Village

Exploring Sustainable Aspects of Village Life in Europe

Introduction

The module 'Wood Products' was created within the 'Leonardo da Vinci – Development of Innovation' project 'Green Village'. It is vocational module and we consider it to be IVT (Initial Vocational Training).

In Green Village, the Dübener Heide Naturpark (Germany), CNR-IVALSA (Italy), Hylates /Kato Drys Village Council (Cyprus) and Grampus Heritage (UK), worked together to deliver four community interactive wood products actions, which tested ideas and training models. The work of Green Village resulted in this module, which has four alternative elements. Learners select one of these three depending on the nature of their college/University course topic or personal training plan. Also the country they are mobilised to. The four alternative elements are….

i) WOOD TAR/ PITCH PRODUCTION

ii) VILLAGE CHARCOAL

iii) FENCING WITHOUT WIRE

iv) MOBILE SAWMILLING

This module booklet describes each element and lists learning outcomes. Learning resources are to be found on the Green Village web-site. http://www.greenvillage-europe.com




i) WOOD TAR/ PITCH PRODUCTION

Introduction

This version of the module was specifically developed in Germany; with preparation it can be delivered within all eight 'Green Village' partner countries. The module requires 40 learner hours (5 days) and follows a pre-determined structure.

Pre-requisites

This module has a target audience of learners who study forestry, land use, environmental management and rural development; learners are expected to have a basic understanding of wood as a material.

The module also targets older learners and even teachers / trainers completing continuous professional development (CPD). In the case of the latter, a more complex and professional result might be expected.

Level

The Green Village partnership try to marry the National Qualification Frameworks (NQF) of their respective countries with the European Quality Framework (EQF) This module targets technical and vocational students at level 4 to 5 of the EQF. They may be completing a college diploma, foundation degree or in years 1 or 2 of a technical honours degree. For the higher level and CPD learner, Level 6 and 7 of the EQF may be applicable

Module Structure

DAY ONE

Meet with members of the village community who are wood tar / pitch producers in the Dübener Heide Naturpark (or other pre-prepared location) and discuss the week ahead. The meeting is to get to know the villagers who will be mentors and trainers. After the meeting, attend a lecture about wood tar production, the market for the product – now and in the past

Afternoon tour of the Dübener Heide Naturpark, with its pine forests and heathlands.

DAY TWO

Today, the learners gather raw materials for wood tar production, in the birch, beech and pine forests. Those learners with a recognised chainsaw certificate can cross-cut – tar comes from the resin of trees damaged by storms, drought, fungal infection, etc., also from roots

The day also includes a visit to a historical tar production site.

DAY THREE

This is a 'production day' – there are three methods practiced traditionally in this area – steel kiln, clay pot and steel table.

Lunch is a picnic at the production site. The process requires teamwork.

DAY FOUR

A second production day, to be certain all three methods are learned.

DAY FIVE

Visit to a local cosmetics company using wood tar. The day focuses on economics and marketing of this local product.

In the afternoon – feedback and assessment, the village teachers are involved.

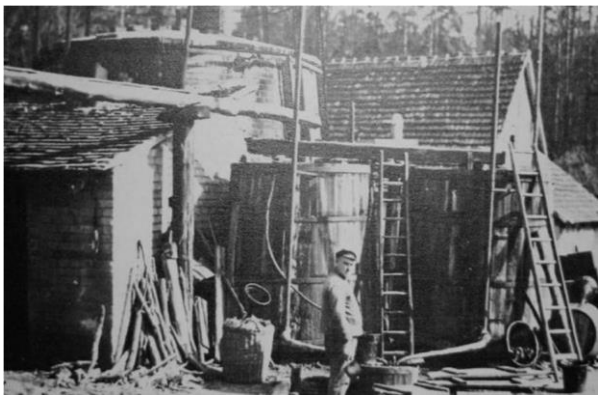
An evening sauna uses fragrant tar – it is a decongestant and gives a 'woody' aroma to the experience.

<u>Learning outcomes</u>

On completion of this module, the learner will be able to:

- Understand the sustainable nature of locally produced wood tar / pitch using wood / bark as the raw material
- Source & identify different timber/ bark variants in relation to their resin content (for wood tar/pitch production process)
- Cut with hand tools, extract & deliver a charge of wood/ bark raw material for processing
- Assist in the loading of the selected vessel (pot/steel kiln/steel table – all three are planned
- Seal the selected vessel with clay & straw
- Understand and demonstrate the safety venting methods
- Use selected tools & equipment accordingly
- Unload the selected vessel in a safe & proficient manner
- Cool the wood tar/ pitch
- Safely store the processed & unprocessed product
- Describe to a third party the low impact, low carbon nature of the traditional wood tar / pitch production process
- Describe the traditional uses of wood tar / pitch
- Describe the contemporary uses – demonstrating one of these

Historical tar production and students restoring an old tar kiln.



ii) VILLAGE CHARCOAL

Introduction

This version of the module was specifically developed in Cyprus, the United Kingdom and Germany; with preparation it can be delivered within all eight 'Green Village' partner countries. The module requires 40 learner hours (5 days) and follows a pre-determined structure.

Pre-requisites

This module has a target audience of learners who study forestry, woodland management, land use, environmental management and rural development; learners are expected to have a basic understanding of wood as a material. This version of the module fits well to the 'Rural Energy' module, spanning the two disciplines

The module also targets older learners and even teachers / trainers completing continuous professional development (CPD). In the case of the latter, a more complex and professional result might be expected.

Level

The Green Village partnership try to marry the National Qualification Frameworks (NQF) of their respective countries with the European Quality Framework (EQF) This module targets technical and vocational students at level 4 to 5 of the EQF. They may be completing a college diploma, foundation degree or in years 1 or 2 of a technical honours degree. For the higher level and CPD learner, Level 6 and 7 of the EQF may be applicable

Module Structure

DAY ONE

Meet with members of the village community who are charcoal producers in Cumbria (UK), Kato Drys (Cyprus) and the Dübener Heide Naturpark (Germany) - or other pre-prepared location, and discuss the week ahead. The meeting is to get to know the villagers who will be mentors and trainers. After the meeting, attend a lecture about charcoal production, the market for the product – now and in the past

Afternoon tour of the Dübener Heide Naturpark / Cumbria / mountain region of Larnaca District, each with its woodland/ forest resource.

DAY TWO

Today, the learners gather raw materials for charcoal production. Those learners with a recognised chainsaw certificate can cross-cut – we are wanting to show how poorer form, dimension and quality wood can go into a charcoal kiln; we will also point out unsuitable species

The day also includes a visit to a historical charcoal production site, with a historian / archaeologist – this links in to the history of the product that the learners heard about yesterday.

DAY THREE

This is a 'production day' – there are two methods practiced traditionally in this area – steel ring kiln and steel barrel.

Lunch is a picnic at the production site. The process requires teamwork.

DAY FOUR

A second production day, to be certain both methods are learned.

DAY FIVE

Visit to a local user of lumpwood charcoal. The day focuses on economics and marketing of this local product.

In the afternoon – feedback and assessment, the village teachers are involved.

An evening barbecue using the charcoal produced.

Learning outcomes

- Understand the sustainable nature of locally produced lumpwood charcoal using selected wood as the raw material
- Source & identify different wood variants in relation to their density, calorific value and carbonisation properties (for charcoal production process)
- Cut with hand tools, extract & deliver a charge of wood material for processing
- Assist in the loading of the selected ring and barrel type steel kilns - both are planned
- Seal the kiln with clay and adjust vents
- Conduct a 'burn' for the prescribed duration – observing flue emissions to determine stage in the carbonization process
- Use selected tools & equipment accordingly
- Unload the kiln in a safe & proficient manner after the prescribed cooling period
- Grade and pack the product
- Safely store the processed & unprocessed product
- Describe to a third party the low impact, low carbon nature of the traditional lumpwood charcoal production process
- Describe the traditional uses of lumpwood charcoal – with no further processing and after grinding and steam activation
- Describe the contemporary uses – demonstrating one of these

iii) FENCING WITHOUT WIRE

Introduction.

The unit was conceived, designed and delivered in the Romanian village of Girboviţa. Transfer and delivery was also achieved in Threapland (UK), Ipel' Skỳ Sokolec (SK), Pano Lefkara (CY) and Kremolin (BG). With support the unit is deliverable in all European states. The module requires 40 learner hours (5 days) and follows a pre-determined structure.

Pre-requisites

This module has a target audience of learners who study agriculture, horticulture, forestry, woodland management, land use, environmental management and rural development; learners are expected to have a basic understanding of wood as a material.

The module also targets older learners and even teachers / trainers completing continuous professional development (CPD). In the case of the latter, a more complex and professional result might be expected.

Level

The Green Village partnership try to marry the National Qualification Frameworks (NQF) of their respective countries with the European Quality Framework (EQF) This module targets technical and vocational students at level 4 to 5 of the EQF. They may be completing a college diploma, foundation degree or in years 1 or 2 of a technical honours degree. For the higher level and CPD learner, Level 6 and 7 of the EQF may be applicable

Module Structure

DAY ONE

Meet with members of the village community who are engaged in constructing fences without wire in Girboviţa (Romania), Threapland (United Kingdom), Ipel' Skỳ Sokolec (Slovakia), Pano Lefkara (Cyprus) - or other pre-prepared location, and discuss the week ahead. The meeting is to get to know the villagers who will be mentors and trainers. After the meeting, attend a presentation about fencing without wire, the market/ use for the product – now and in the past

Afternoon tour of the region, each with its woodland/ forest resource.

DAY TWO

Today, the learners gather raw materials for building a fence without wire. Those learners with a recognised chainsaw certificate can fell to ground small roundwood (withies) – we are wanting to show how poorer form, dimension and quality wood be used for fence construction; we will also point out unsuitable species, which have insufficient durability or flexion and tension properties. We gather material from the forest but also pollarded trees and willow beds, etc.

In the afternoon, upright fencing posts are also gathered – they are bigger, peeled and pointed and of a durable species (oak, robinea, larix, etc.). We also show the 'living fence post' method, using fresh-cut, unpeeled willow or poplar.

DAY THREE

This is a 'production day' – the first task is the laying out of the fence-line; the process requires teamwork.

Lunch is a picnic at the production site.

DAY FOUR

A second production day, the aim is to create a minimum of 30 metres length.

Learners calculate the production cost per metre, based on the prevailing local rate of pay.

DAY FIVE

Visit to a local forester / warden, who has a role in wildlife management. The fence that has been built may have the purpose of keeping out wild pigs, or even deer. The learners hear about local wildlife management.

A second visit is to look at alternative fencing methods – it is to a farm or agricultural merchant – steel wire fence is priced up and compared to the cost of a fence without wire.

In the afternoon – feedback and assessment, the village teachers are involved.

An evening farewell meal together with the villagers.

Learning outcomes

At the end of this module, learners will be able to:

- Understand the sustainable nature of locally created fencing without wire, using selected roundwood as the raw material
- Source & identify different wood variants in relation to their flexion and tension properties (for the fencing without wire process)
- Cut with hand tools, extract & deliver the woody material for fence construction Assist in the laying out of the fence-line with correctly spaced uprights
- Pre-locate entrance/exit points
- Construct a fence without wire, weaving fresh-cut roundwood material in the manner demonstrated by local trainers
- Use selected tools & equipment accordingly
- Describe to a third party the low impact, low carbon nature of the traditional fence without wire construction process
- Describe the traditional uses of fences without wire
- Describe the contemporary uses.

iv) MOBILE SAWMILLING

Introduction.

This version of the module was conceived, designed and delivered in the UK villages of Threapland and Bothel. To deliver the module, it is necessary to have the specified sawmilling equipment; discussions with manufacturers and distributors indicate that such equipment and competent operators are available for selected delivery locations, on a demonstration basis where learners can assist; sample one-day demonstration/familiarization periods were offered.

Pre-requisites

This module has a target audience of learners who study forestry, woodland management, land use, environmental management and rural development; learners are expected to have a basic understanding of wood as a material.

For chainsaw milling, the operative on the 'trigger end' must have a basic chainsaw certificate.

The module also targets older learners and even teachers / trainers completing continuous professional development (CPD). In the case of the latter, a more complex and professional result might be expected.

Level

The Green Village partnership try to marry the National Qualification Frameworks (NQF) of their respective countries with the European Quality Framework (EQF) This module targets technical and vocational students at level 4 to 5 of the EQF. They may be completing a college diploma, foundation degree or in years 1 or 2 of a technical honours degree. For the higher level and CPD learner, Level 6 and 7 of the EQF may be applicable

Module Structure

DAY ONE

Meet with members of the village community who are engaged in mobile sawmilling in Threapland (United Kingdom) - or other pre-prepared location, and discuss the week ahead. The meeting is to get to know the villagers who will be mentors and trainers. After the meeting, attend a presentation about value adding to local roundwood logs through mobile sawmilling.

Afternoon tour of the region, each with its woodland/ forest resource.

DAY TWO

Today, the learners visit the forest to see felled roundwood logs, both conifer (softwood) and deciduous (hardwood) logs. They discuss the local value of such timber, as standing trees, felled, delivered, milled.

They visit a local company using milled logs and learn about further value adding through making furniture, fencing, decking, etc. To a degree, we are wanting to show how poorer form, dimension and quality wood can be used.

DAY THREE

This is a 'production day' – the first task is the setting of the sawmill – both a chainsaw mill and a mobile band mill will be used.

Lunch is a picnic at the production site.

DAY FOUR

A second production day, the aim is to create a minimum of 2 cubic metres of sawn wood.

DAY FIVE

Learners calculate the production cost per cubic metre, based on the prevailing local rate of pay and machine running costs and the written down value of the machinery. The sawdust, as a useable residue, is also considered.

In the afternoon – feedback and assessment, the village teachers are involved.

An evening farewell meal together with the villagers.

Learning outcomes

At the end of this unit, learners will be able to:

- Understand the sustainable nature of locally sawn timber, using selected roundwood as the raw Material
- Source & identify different roundwood logs in relation to their durability characteristics, grain/figure and end-use
- Assist in the daily maintenance and set-up of both a chainsaw mill and mobile band sawmill
- Carry out safe and efficient mobile sawmilling in the manner demonstrated by local trainers
- Use selected tools & equipment accordingly
- Describe to a third party the low impact, low carbon nature of the mobile sawmilling of locally-sourced roundwood
- Describe the traditional uses of locally sawn, non-planed timber
- Describe the contemporary uses
- Describe the potential for further processing and value-adding

SUPPORTING INFORMATION

Mobile Sawmilling in the United Kingdom

The 'Wood Products' action of 'Green Village', under Work Package 2 (Exchange of Skills and Knowledge) was planned for delivery in Ireland and was to have been about local sawmilling. Do to circumstances it was delivered in England in October 2012 and was 'fine-tuned' in the early spring of 2013.

The idea behind mobile sawmilling is that the process supports and encourages local value adding to timber for relatively small investments and for small quantities of raw material (roundwood logs). Grampus Heritage purchased their mobile chainsaw mill in 2008 with support from the EU's EAGGF grant; it being recognized that the equipment represented a good capital investment for small wood sector businesses.

I remember that our first 'job' was to plank up 4 oak trees that had blown over in a storm. At the time we were constructing a 'Viking Age watermill' and we needed oak boards for the floor. We set the chainsaw mill to cut 6 cm thick boards. Over a two-day period we cut 20 heavy boards from the full length of the fallen trees, the longest being 5.5 metres. At the time the labour and fuel costs amounted to £250 - £25 per board; we had received a price from a static sawmill near Carlisle of £90 per board, so we were very happy! The fallen trees belonged to Brampton Parish Council and they were pleased to have the trees removed because they perceived them as untidy and a hazard to visitors to their woodland. Around the same – in fact from the same winter storm occurrence, a large pear tree was blown over in

Plumbland village. It was a significantly ‘curved’ tree – quite unsuitable for regular planks. We ‘slabbed-up’ the trunk to produce 10 gently curving 3cm thick boards

On another occasion the Forestry Commission were cutting hazardous trees from around their car park at Dodd Wood in the Lake District National Park and we were invited to process 5 trees and ‘tidy them away’ – they were cherry and sycamore – the cherry logs we saved and cut them as part of the ‘Green Village’ activity.

Grampus Heritage teamed up with ‘Danny Frost Timber’ in the nearby village of Bothel, in order to


offer sample training on a mobile chainsaw mill and a ‘Wood Mizer’ mobile band mill.


Local furniture making and house building from wood processed by a mobile sawmill.