TWIRLS Newsletter

(*T*reating *W*aste for *R*estoring *L*and *S*ustainability)

Issue 1
November 2005

Introduction

If you've received this then you will probably already have had something to do with the TWIRLS project! We've decided to put out a quarterly newsletter to keep everyone interested in our work informed, especially those of you who have helped us set up our composting and trial sites this year (see our thanks on p3). In this issue you can read about our aims, trial sites and find out what those strange green sausages are!

TWIRLS trial site in Parnitha, Greece

Background

The TWIRLS project team is based at the University of Wales, Bangor. We are; Dr Julie Williamson, Jon Holmberg, Dr Mark Nason, Rhidian Jones and Dr Susan Tandy. Our 3 year project is funded by the European Union and our industry partners are Alfred McAlpine Slate, UPM-Kymmene (Shotton Paper), the Welsh Development Agency and Nagref – The Soil Science Institute of Athens. We currently have composting and land restoration trial sites at Shotton, Blaenau Ffestiniog and in the Parnitha National Park near Athens, Greece.

TWIRLS trial site at Blaenau Ffestiniog

Aims

The TWIRLS project aims to demonstrate that wastes created by households and industry can be put to good use rather than sent to landfill. To do this we are researching how different wastes can be mixed and composted together to make soil forming media suitable for restoring bare industrial sites to places for biodiversity conservation, recreation or economic regeneration. We are also studying how pollutants are destroyed or rendered inert during composting, making sure that the compost is safe to use.

Project website: www.bangor.ac.uk/ies/TWIRLS/TWIRLS_home.htm

TWIRLS project composting sites

The TWIRLS project has set up composting sites outside Shotton Paper (on the Deeside Industrial Estate) and within Oakeley Quarry at Blaenau Ffestiniog. The Environment Agency has granted research exemptions to Waste Management Licensing, allowing us to compost up to 1000 m^3 of organic wastes at each site.

TWIRLS in-vessel composting site at Shotton

At both sites we are using EcoPOD® in-vessel composters – the green sausages. Wastes, including green waste, de-inking paper pulp (a by-product of paper recycling at Shotton) and slate fines are mixed using a cattle feed mixer wagon before being loaded into the EcoPODs.

Each EcoPOD® is about 60 m long with a perforated pipe running through it. These pipes are connected to fans which blow air through the wastes. This helps to keep the composting 'aerobic' (requiring oxygen), otherwise methane would be produced as it is when wastes rot in landfill sites.

Loading the EcoPODs at Blaenau Ffestiniog

A 1 m long probe records temperature at the surface and centre of the EcoPOD®

Monitoring the composting process

The composting process takes between 8 and 12 weeks depending on the quality of feedstock materials. During this time we monitor the temperature of the compost using temperature probes (**left**). So much energy is produced as the wastes rot down that the temperature inside the EcoPODs can reach 70 ^oC! This is why on cold mornings the sites may look shrouded in mist, which is actually steam coming from the air vents.

The finished compost

The finished compost will be spread to land close to the composting sites. At Shotton we will then seed an area of land with a wildflower grassland mixture containing local species. At Blaenau, the compost will be used to restore a completely bare and disused slate waste tip to heathland.

Project website: www.bangor.ac.uk/ies/TWIRLS/TWIRLS_home.htm

TWIRLS project staff

Dr Julie Williamson – Julie gained her first degree and PhD. at Bangor University. She is a soil microbial ecologist with 20 odd years experience in land reclamation, including 5 years with Landcare Research New Zealand.

Dr Mark Nason – Mark also did his first degree and PhD. in Bangor. Recent projects have focused on slate quarry restoration and the effect of fungicides on crop plants.

Mark Nason, Julie Williamson and Rhidian Jones

Dr Susan Tandy – Sue gained her first degree in Cardiff and PhD. at ETH in Zurich, Switzerland. She has worked in both the water industry and in research. Recent projects have focused on metal pollution in soil, its affects and ways to ameliorate it.

Mr Rhidian Jones – Rhidian gained his first degree and an MSc. in Environmental Rehabilitation at Aberystwyth University. Rhidian is a keen mountain biker and likes heavy plant.

Jon Holmberg – Jon studied at Kansas State University, has worked for the US Fish and Wildlife Service and more recently for the Ecology Company, implementing the restoration project at Penrhyn Quarry.

Jon Holmberg

Thankyou!

We owe a big thankyou to all the people who have helped us this year to establish our trial sites and get our experiments started (especially as we may bother you again in the near future!). The TWIRLS team would like to thank the following, along with many others…

Pete Walmsley, Terry Moore and John Sanderson at UPM-Kymmene, Geraint Roberts, Chris Law, Arfon Griffiths and Dafydd Williams at Alfred McAlpine Slate, Terry Rendell and Tony Heaney of The Ecology Company, Iona Hughes, Sian Davies and Tony Roberts at the EA, Andy MacBeth at Flintshire CC, Tony Sykes and Mike Hogan at Conwy CC, Dafydd Williams and Marion at Blaenau Ffestiniog, Roy Thomas and his lads, David Brayne and Nicola at United Utilities and Nina Jones and Fausto Algieri at Dwr Cymru, David Wynn and everyone at ORM, Richard Brown and all at Emorsgate Wild Seeds, Mike Prosser and Hilary Wallace of Ecological Surveys, Jan Sherry and Paul Day at CCW, Stuart Jones at Laserchrom HPLC.

Further information

We hope this newsletter was of interest to you, if you would like to know more about the project or get in touch with project staff you can visit the project website (address below) or contact Julie Williamson on (01248) 382769.

Project website: www.bangor.ac.uk/ies/TWIRLS/TWIRLS_home.htm