

WILLOW for WALES – HELYG I GYMRU

Economics of Short Rotation Coppice – Economeg Coedlan Cylchdro Byr

The effect of varying price and yield on average gross margin of SRC Willow over 16 years

INTRODUCTION

Decent economic returns from SRC willow will only be realised if the relatively high establishment costs can be offset against several harvests. However there is considerable scope to reduce variable costs once the acreage of SRC in Wales increases and growers can benefit from some economy of scale. Currently, without any planting grant available, growers in Wales need to realise a return of at least £45/oven dried tonne (ex farm) for woodchip so that the crop can compete with other land uses.

SRC Willow Variable Costs to first harvest

Ground preparation ¹	£133 / ha
Planting ²	£1068 / ha
Pre-emergence spraying ³	£107 / ha
Year 1 management costs ⁴	£112 / ha
TOTAL	£1420 / ha
Harvesting	£ 300 /ha
Delivery	£6 /ODT

Note: 1: herbicides, labour, ploughing and power harrowing
2: 15,000 cuttings, hire of planter and team
3: herbicide and labour
4: cut back, herbicides, labour

Yields

- Yields of 8 ODT /ha /yr in the first rotation and 10-12 ODT /ha /yr in rotations 2-5 should be achievable from growing the right mix of the newer but currently available rust-resistant varieties and using good growing practices
- Yields of 10 ODT /ha /yr in rotation 2-5 represents the potential of varieties from breeding programmes in UK and Sweden and using optimum growing practices

Prices

- £30/ ODT represents a low price
- £45-60/ ODT is more realistic in terms of the developing market
- £90 is a high value potential based on inherent energy value, high competition for the resource or other mechanisms that factor in climate change mitigation
- Note that the price at £90/ ODT it still only costs 1. 8 per kWh (or 2p per kWh based on £100 estimated value to end-users) compared to gas and oil at 3p+ per kWh

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Contact: Chris Duller (chris.duller@bbsrc.ac.uk), Huw Powell (huw.powell@bbsrc.ac.uk), John Valentine (john.valentine@bbsrc.ac.uk), IGER, Plas Gogerddan, Aberystwyth, SY23 3EB. Tel: 01970 823000

Effect of varying price and yield on average *gross margin* of SRC Willow over 16 years

a) ex-farm prices, including £1000/ ha planting grant

Yield ODT / rotation	Price £ / ODT				
	30	45	60	75	90
	Gross Margin £/ ha				
8 in rot ⁿ 1 10 in rot ^{ns} 2-5	164	299	434	569	704

b) including £1000/ ha planting grant and delivery at £6/ ODT

Yield ODT / rotation	Price £ / ODT				
	30	45	60	75	90
	Gross Margin £/ ha				
8 in rot ⁿ 1 10 in rot ^{ns} 2-5	110	245	380	515	650

c) delivery costed at £6/ ODT but no planting grant

Yield ODT / rotation	Price £ / ODT				
	30	45	60	75	90
	Gross Margin £/ ha				
8 in rot ⁿ 1 10 in rot ^{ns} 2-5	48	183	318	453	588

A price of £30/ ODT is uneconomic.

- Gross margins above the threshold of £250/ ha can be achieved at a price of £45/ t ex-farm in the presence of a planting grant, but if farmers have to pay for delivery, higher yields or a better price will be necessary.
- In the absence of planting grants, even £45/ ODT provides inadequate returns at current realistic yields.
- SRC would become economic even without a planting grant at £60/tonne.
- Major increases in yield are likely to be passed on as improvements in the economics of the biomass supply chain and be shared between those at different stages of the supply chain including the consumer in the form of cheaper energy.
- In the absence of a planting grant, it takes four to seven years to breakeven in mid-yield mid price scenarios.
- Fair transparent contracts are needed in order to justify investments
- Some mechanism of bridging the period to breakeven is required. The Single Farm Payment can be viewed as providing investment on new enterprises such as growing SRC Willow