**Miscanthus as a bedding source: a Welsh case study.**

J.P. McCalmont, J.R.T. Davies, J. Clifton-Brown, A.J. Holder and M.D. Fraser

IBERS, Gogerddan, Aberystwyth, SY23 3EB, UK

---

**Advantages:**

* Low inputs - no fertilizer, and herbicide needed only during the establishment years (1 to 3).

* Single cultivation – fast growing perennial crop with a 15 year crop lifetime. Mature yields from year 3.

* Converts more soil water to biomass than any other conventional crop.

* Carbon storage benefits and reductions in emissions from transporting straw.

* Less productive areas of farm land used.

---

### Comparison with cereal straw usage in Wales

6 ha of land is producing enough Miscanthus straw for 60% of commercial partner’s flock (total 1700 breeding ewes). (82 tonnes out of 142 tonnes used in total)

Therefore…

6ha = 1020 ewes
1 ha = 1020/6 = 170 ewes
1 ha = 8 tonnes Miscanthus DM = 170 ewes
1 tonne Miscanthus DM = 170/8 = 21.25 ewes = ~20 ewes

**Assuming Miscanthus to replace half its weight in straw (anecdotal experience)**

Therefore…

1 tonne of cereal straw = 40 ewes
1/40 tonnes cereal straw = 1 ewe

Breeding ewes in Welsh flock = 4,418,721*, estimate about 40% lambed indoors = 1,767,488 ewes needing bedding

1/40 x 1,769,022  = 44,187.21 tonnes of straw imported into Wales

This would be about 1841 lorry trips at 24 tonnes per lorry and would cost £3.3m at £75/tonne delivered (2016 price)

### Breeding Challenges:

* Clonal (rhizome) propagation - can be financially and energetically expensive.

* Optimising stem length - tall stems can be susceptible to lodging in high winds.

* Earlier senescence - spring harvests can conflict with sheep farming systems (lambing).

* Improving establishment and survival rates.

* Reducing moisture content at harvest, particularly following mild winters.

---

*Welsh Agricultural Statistics 2014