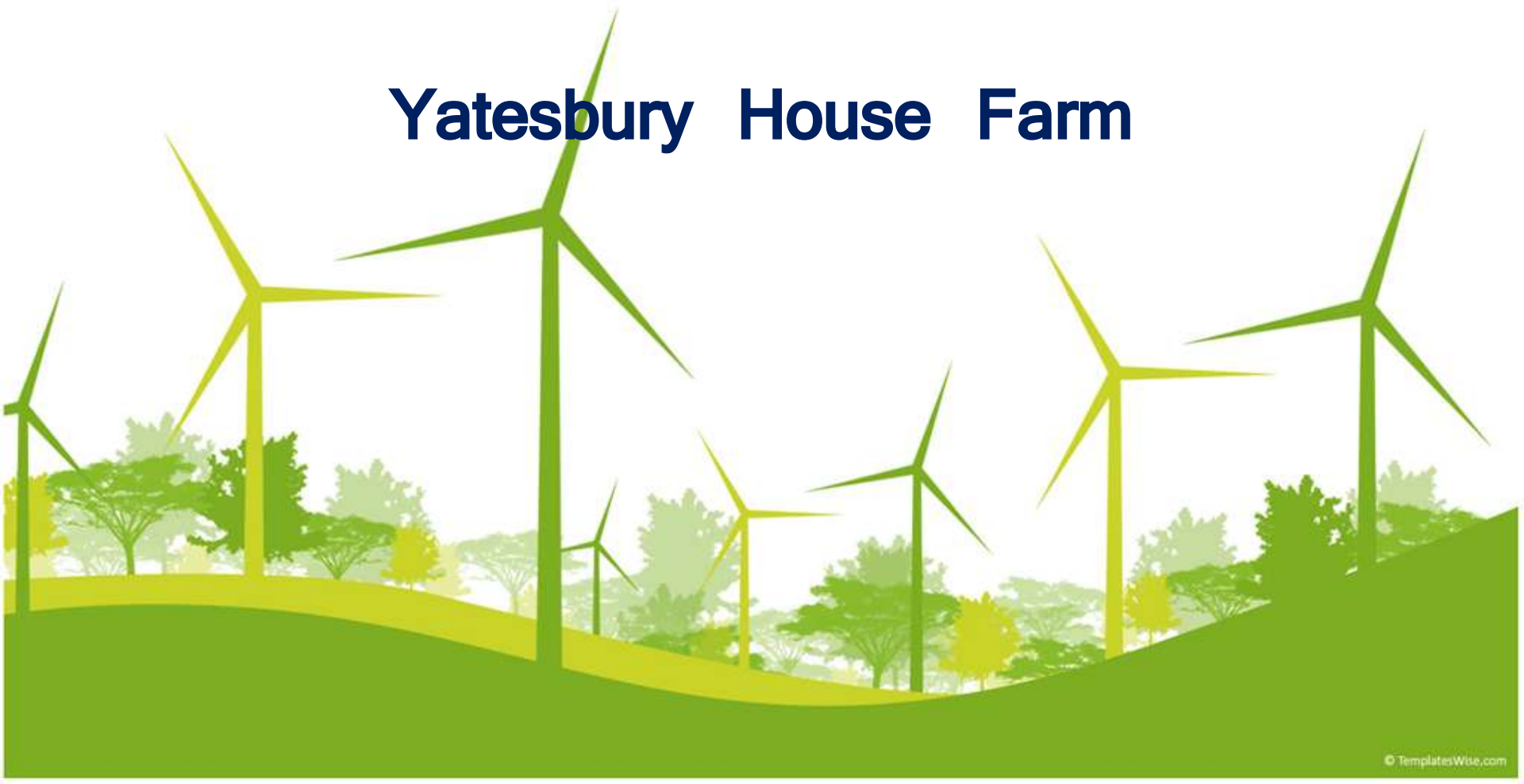


REDUCED TILLAGE and ENERGY USE

Richard Gantlett

Yatesbury House Farm



Reducing energy consumption

- **Reducing machinery cultivations**
- **Increasing bio cultivations**
- Grain drying and harvesting
- Cattle summer feed
- Pasture management
- Cattle winter feed
- Cattle bedding
- Product transport
- Changing to Renewable energy
- Simplicity

Yatesbury House Farm

Our soil type:

Silty clay loam over lower chalk

**Rain fall: 27-32
inches rain pa.**

**Here it is in
good shape.**

**There is plenty
of opportunity for slumping of soils or baking solid of wet soils.**



Reducing machinery cultivations

What are cultivations trying to achieve:

- 1. Weeding and Pasture destruction**
- 2. Improve soil structure**
- 3. Create Seedbed for next crop**
- 4. Sow seeds**

Reducing machinery cultivations

Weeding and Pasture destruction

Kill growing seedlings and grass	<i>Very good</i>	<i>Good</i>
Encourage weed germination	<i>No</i>	<i>Very Good</i>
Kill perennial weeds	<i>Very Bad</i>	<i>Good</i>
	<i>Ploughing</i>	<i>Cultivating</i>

Our weeder 1990s



Now



Reducing machinery cultivations

Improving soil structure:

- a) Adding air back to soil for biology to live
- b) Repairing drainage to allow excess water to pass
- c) Repairing water holding capacity
- d) Make nutrients available



Reducing machinery cultivations

Create Seedbed for next crop and Sow seeds

- a) Ensure Moist and warm environment for germination
- b) Allow Root access to soil
- c) Multitasking where possible



Reducing machinery cultivations

Fuel use (at 50p/litre):

ploughing + seeding = £14/ha (28 l/ha)

+seedbed cultivation = £17/ha (34 l/ha)

3 cultivations + seeding/weeding = £14/ha (28 l/ha)

2.4-5ha/hr depending on conditions

Ripping = £12/ha (23 l/ha)

We find cultivations more timely, more idiot proof, more soil friendly

HUMUS

let nature help **Increasing bio cultivations**



20 or more varieties/species of herbs, legumes and grasses

Increasing bio cultivations

- Use plants to cultivate through varied root structures in pastures, stable for longer than ripping/sub soiling
 - 1. Weeding**

By having a lively soil weed seeds do not tend to dormancy allowing problems to be dealt with immediately
 - 2. Create Seedbed for next crop**

A soil full of living humus and other organic matter is more friable needing less cultivation,
is darker and therefore warms more quickly
and also retains moisture far better than a purely mineral soil
 - 3. Improving soil structure:**

Roots of plants such as chicory and red clover will penerate hard soils and stabilise soil structure, when they die the roots will slowly degrade allowing water and soil bugs to travel.



**Bio cultivating:
Sowing into the pasture directly?**



Sowing wheat into Trefoil + White clover mix





Lodging of wheat caused by yellow trefoil



Wheat undersown into clovers harvested over 2t/ha
and about 300kg/ha of clover seed



More recent experience?

- Into pure white clover
 - with great plains drill
 - followed by sheep grazing
 - Failure- no wheat
- Conclusion need to destroy at least 50% of the clover

Bicropping Wheat and Beans



Sow half rate of each,
harvest over half yield of each
very clean compared to just beans
harvest together
Separate in cleaner
opportunity to sow more wheat on farm



REDUCED TILLAGE and ENERGY USE

Richard Gantlett Yatesbury House Farm

Conclusion:

- The Farmer will drive the chosen system,
- So if you are not interested to make it work don't try

•Need more research

•Experiment and share the outcomes

•It is all work in progress

LIVING
AGRICULTURE