

Non inversion tillage with the Eco-Dyn cultivator



The Organic Research Centre



Economic performance

- Establishment costs
 - fuel usage
 - work rate



Crop Performance

- yields
- profit margin



Weeds

- problems experienced
- problems anticipated



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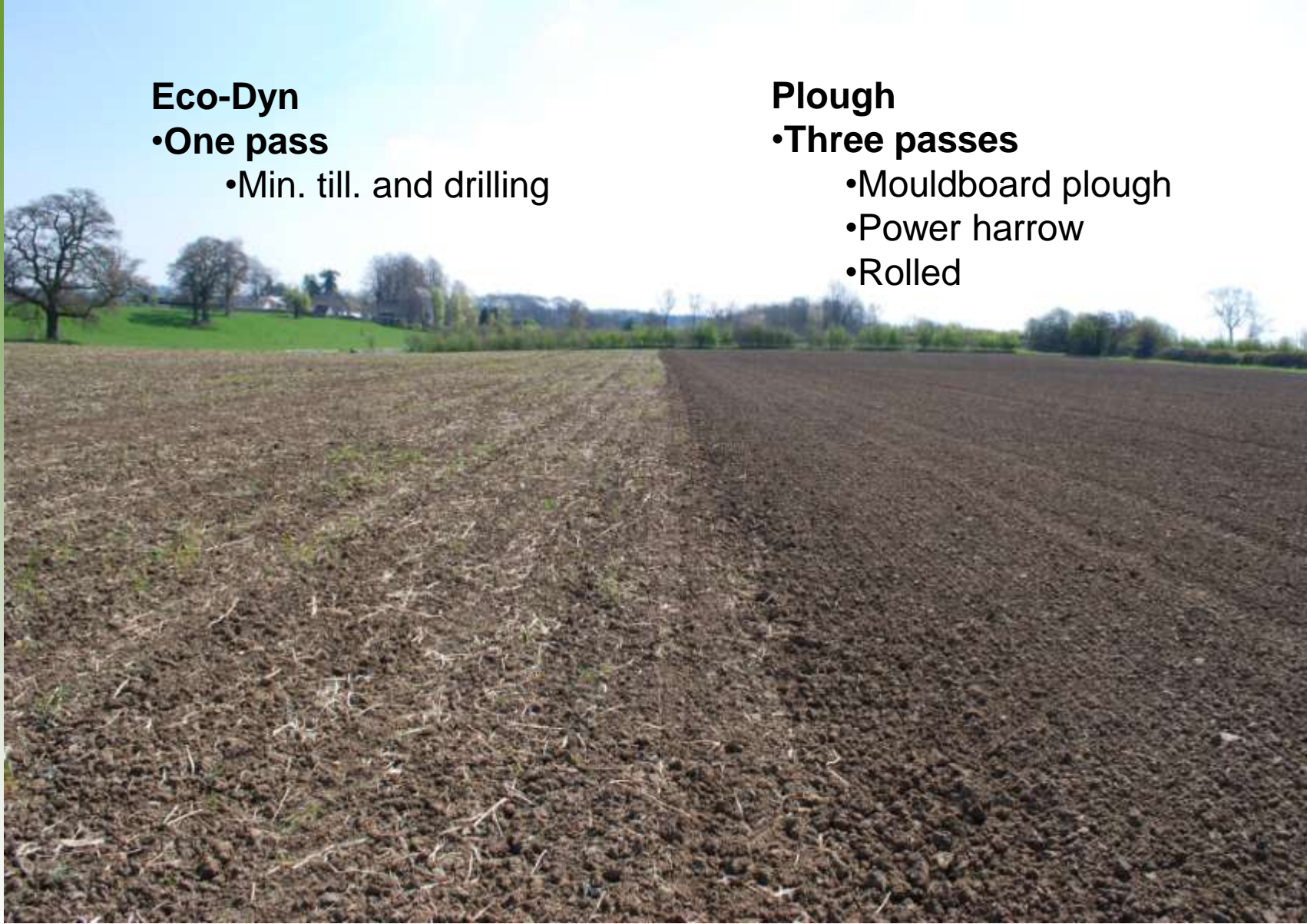


Eco-Dyn

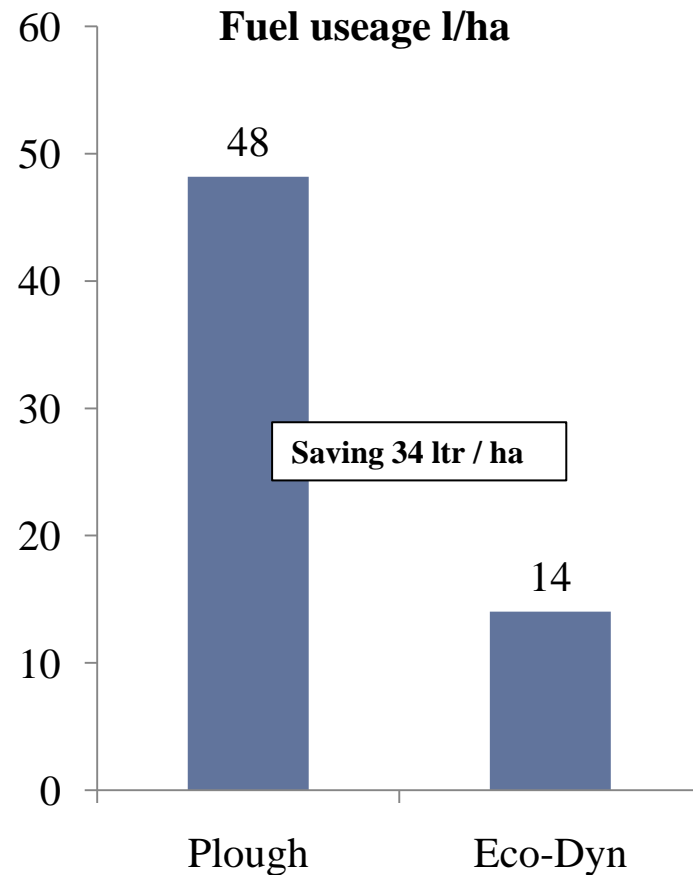
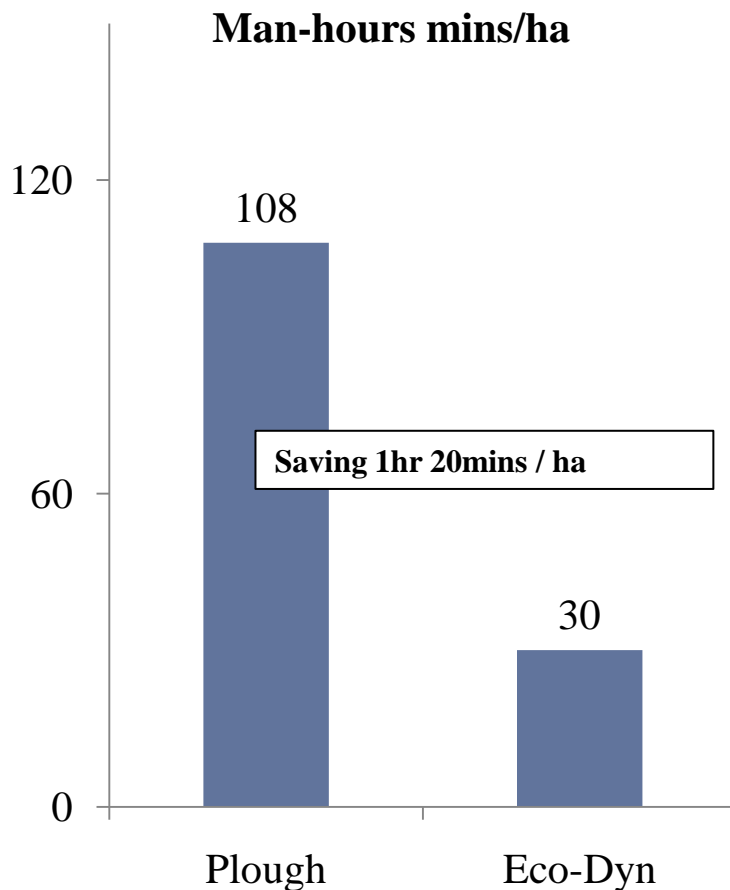
- One pass
- Min. till. and drilling

Plough

- Three passes
- Mouldboard plough
- Power harrow
- Rolled



Production costs

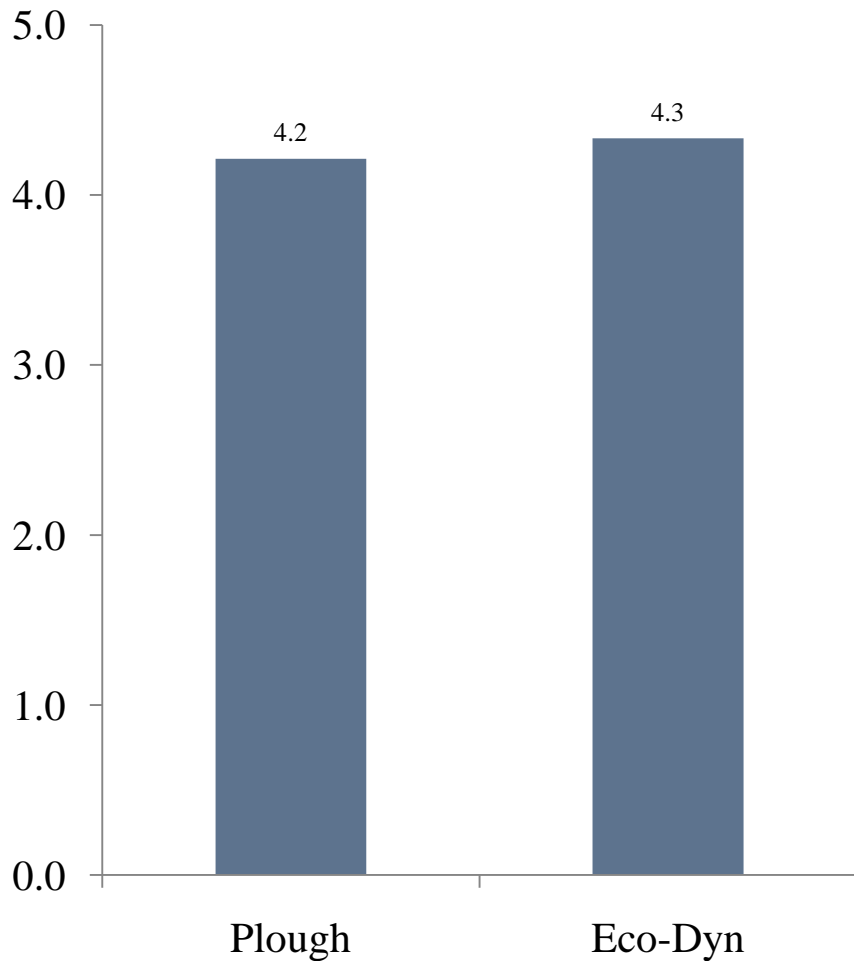


Oat establishment cost (£/ha)

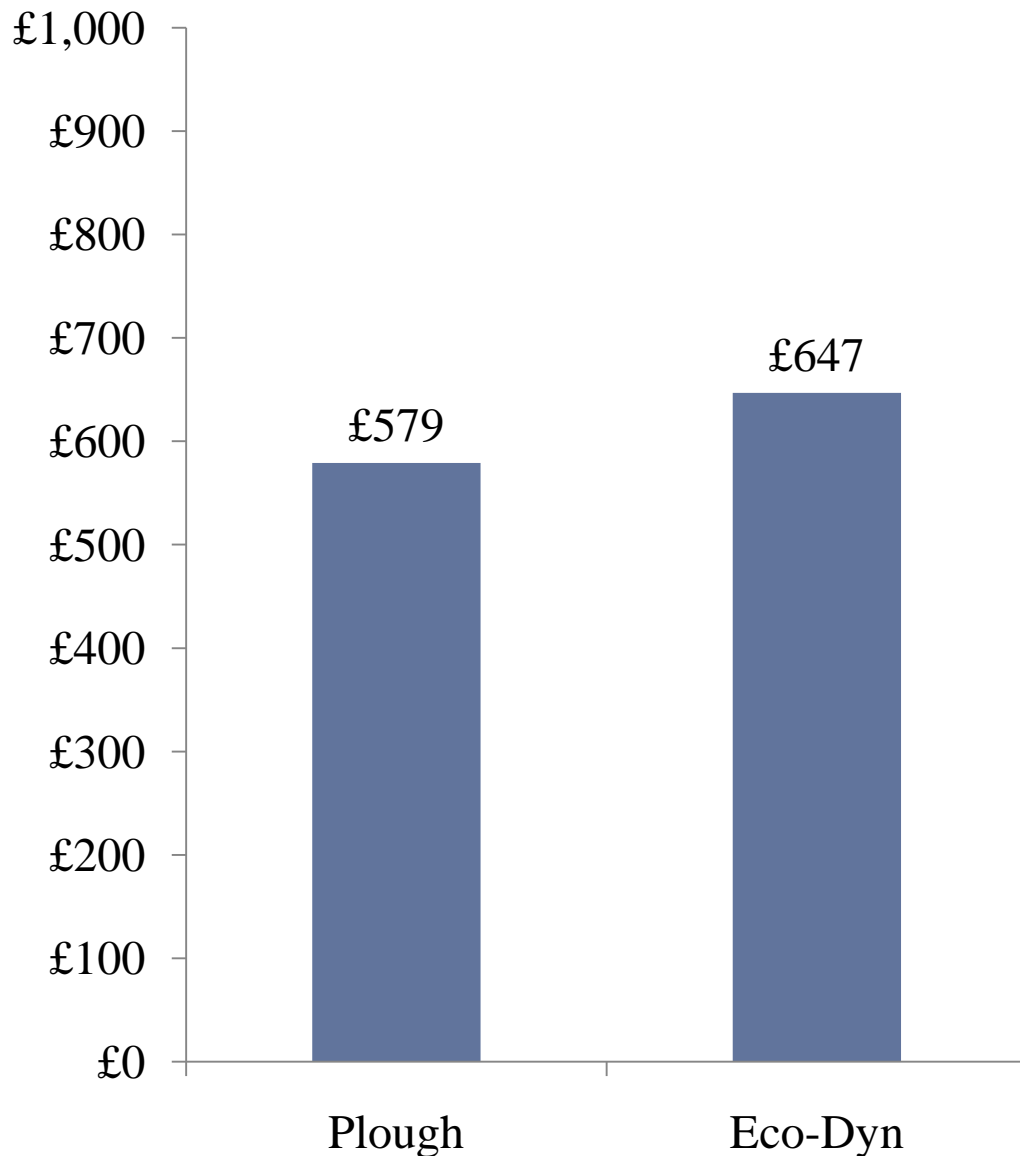
Tillage system	Spring oats 2010 (£/ha)
Plough	£60.54
Eco-Dyn	£17.05

**Saving
£43.49 / ha**

Spring Oat Yield t/ha (15%mc)



Spring Oat Margin £/ha

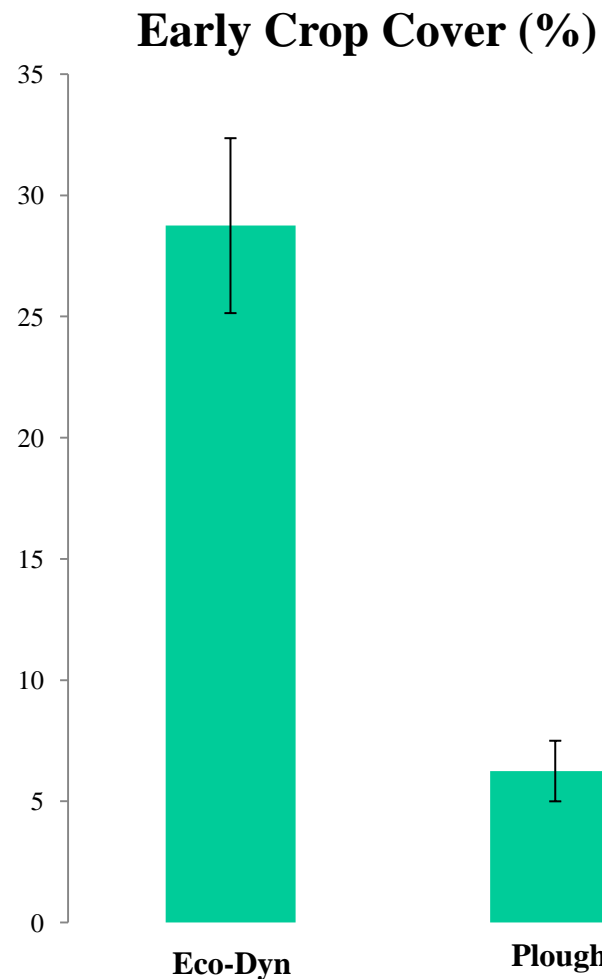


The Eco-Dyn

- Less fuel used
- Faster work rate
- Increased oat margin by £68/ha

Establishment

- **The Eco-Dyn produced a much thicker crop with more plants per area. The ploughed side was much thinner and slower to establish.**
- **The crop was sown late in particularly dry weather. One explanation for better establishment is that under NIT soil moisture is better conserved.**

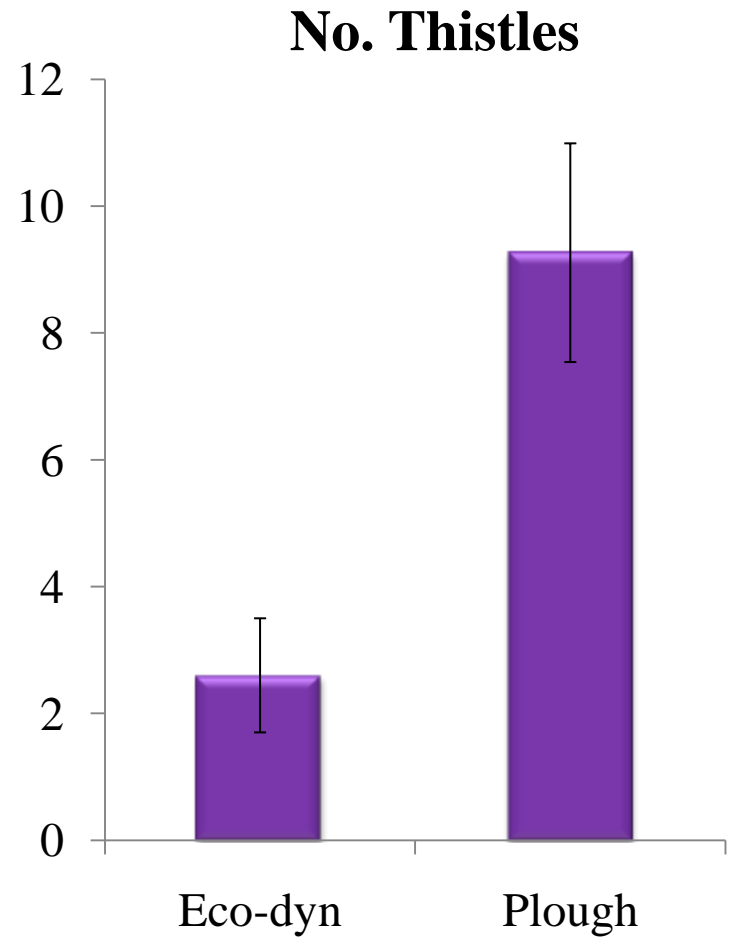
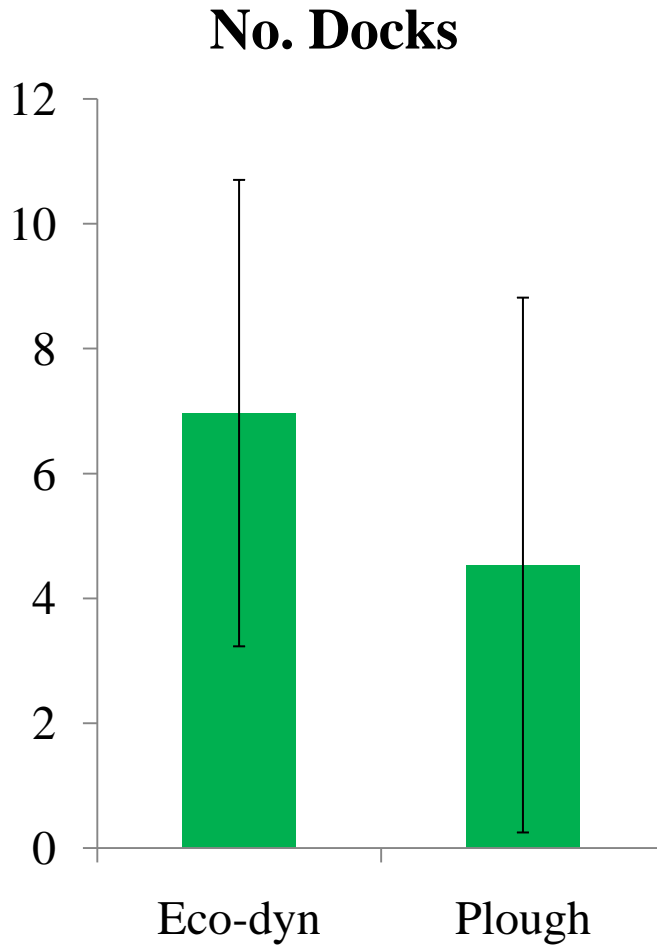


Weeds

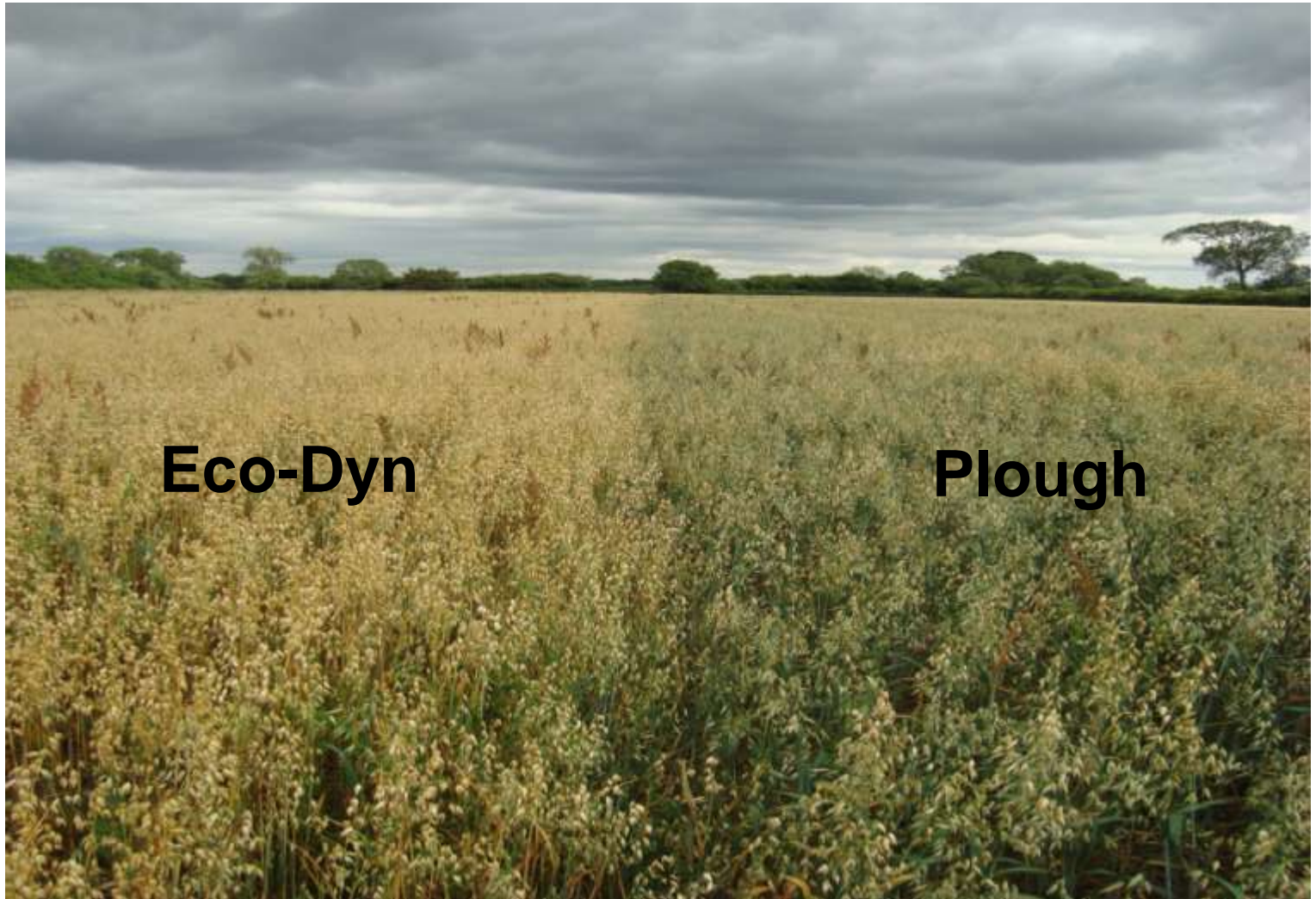
- Weeds are the main issue so far preventing organic farming using Minimum Tillage.
- Biggest concern is grass weeds.
- Most significant weed burden in the trial was Docks and Creeping Thistle.



Results



The Eco-Dyn remained ahead of the plough from establishment through to harvest



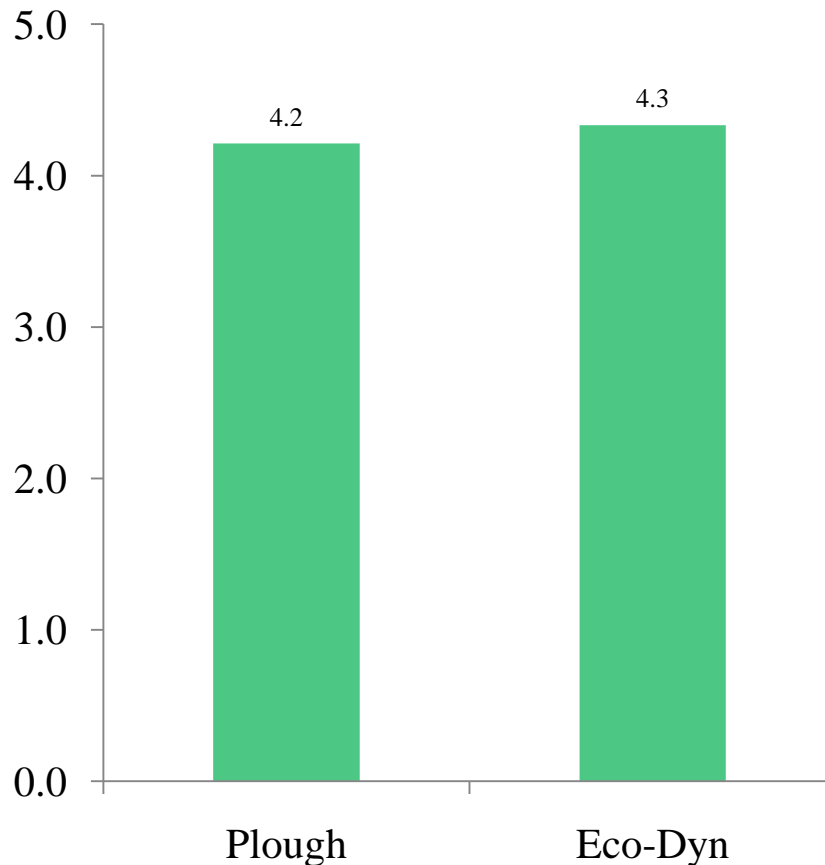
Yields

The weed burden did not produce lower yields.

Oats are highly competitive, which is a possible explanation.

Many farmers have experienced a slight yield decrease in year 1.

Average yield t/ha 15%mc



John Landers Pre- Conditions

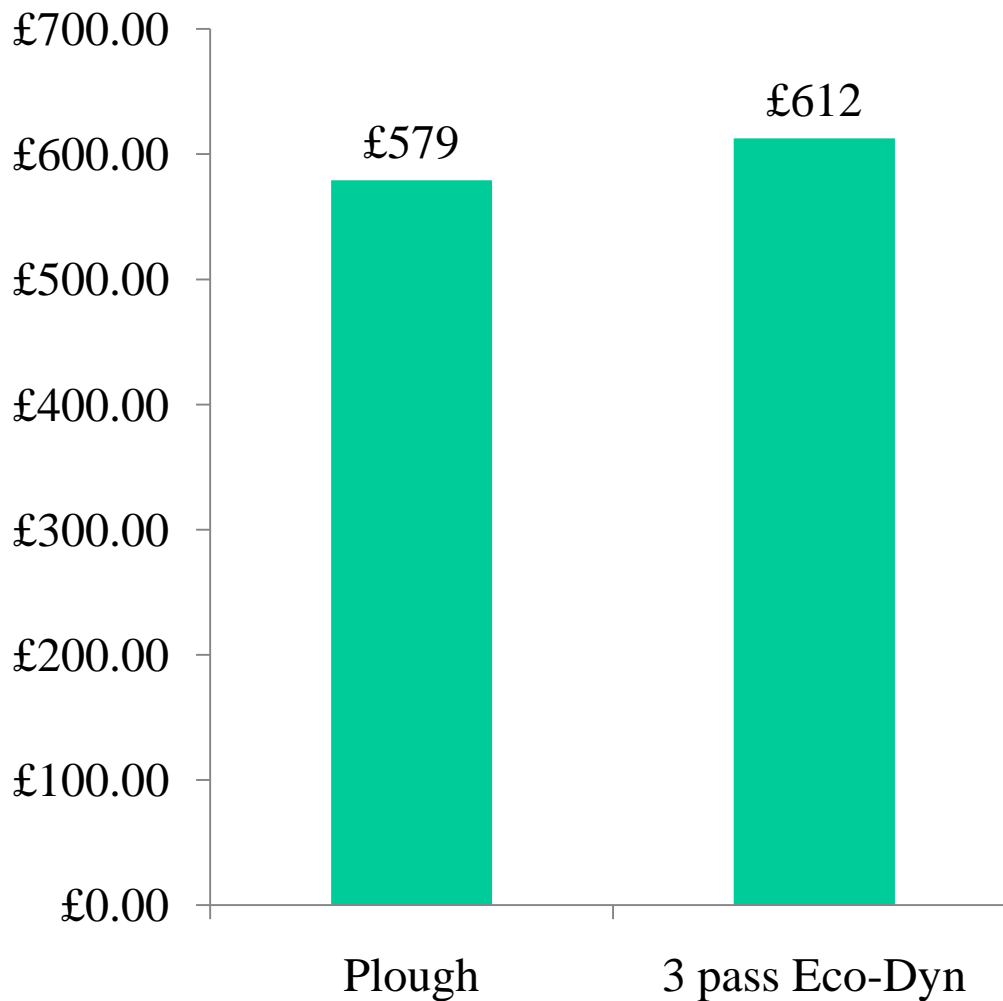
- **Farmers need training.**
- **Correct soil, physical and chemical.**
- **Gradual planned adoption (start with 10% of the farm).**
- **Choose most favourable fields first.**
- **Choose a proper drill designed for NIT.**
- **Avoid areas with perennial weeds.**
- **Have technical assistance at hand to help.**

The Future for the Eco-Dyn at Duchy Home Farm

- **David Wilson is most concerned with grass weeds and volunteers remain a problem.**
- **The most favourable solution is to use more than one pass with the Eco-Dyn.**
- **Another would be to plough every couple of years?**
- **Stale seedbeds could also be used.**
- **The use of competitive break crops.**
- **Volunteers were a particular problem within the Rye crop last year.**

Tackling the weeds with more passes

Oat Margin £/ha



•3 passes with the Eco-dyn

•Eco-dyn margin £34 higher than plough