

Cotswolds LEADER Case Study – Direct drills

Farm businesses across the Cotswolds have been supported with direct and minimal tillage drills to help them move away from conventional ploughing. This has proven economic benefits; direct drilling significantly reduces crop establishment costs, achieved through a reduction in fuel costs, labour and costs associated with machinery repairs and the general depreciation of the current machinery.

Sam Phillips, Cotswold Organic Growers comments: *“The LEADER grant towards our System Cameleon drill has provided many positive outcomes: new techniques such as inter-row hoeing & sowing; a saving on fuel & labour due to increased efficiencies and productivity; and lastly, the potential to increase our overall yields through mechanical weeding and better establishment of fertility building leys.”*



Establishment of winter oats near Eastleach, Oct 2018



Drilling into crop stubble, west Oxon, Sep 2018. Photo Credit J Woolcock

Conventional ploughing turns over the soil and destroys the structure, as well as micro-organisms and earthworms. Therefore, the results of using a direct drill will be seen within the soils structure. Decreasing the disruption to the ground and the associated organisms, helps to reduce soil erosion. The soil structure will be able to retain its porosity, which will allow good root development. This in turn will also reduce the amount of herbicide needed as the stronger establishment will mean that the crop will out-compete any weeds.



Sky Easy Drill. Photo Credit A Maddan



Winter barley drilled into old pea crop near Chipping Campden, Oct 2019

Problems associated with capping, leaching and compacting will be reduced and the top soil structure will be improved due to an increase in organic soil matter. As the soil moisture will be better conserved this will allow better germination for small grain crops in dry conditions. As the seeds will germinate quicker and become stronger, this will also reduce the need to use pesticides. Fuel savings also reduce emissions. Stable soils are also much better at carbon capture; locking the organic matter into the soils.

The environmental benefits can be broadly summarised as:

- Improving soil structure, building soil fertility and organic matter.
- Improving water quality by reducing loss of sediment, nutrients and pesticides.
- Improving weed and pest management.

Alexander Maddan, Worton Grounds Farm, notes: *“The Sky Easydrill has performed very well in varying conditions. It allows minimal soil disturbance which is a great benefit in the campaign to control blackgrass. It also allows a three to four mixture cover crop to be sown, something that has improved our tougher soils enormously. Lastly, the very positive action of the rear press wheel enables excellent seed to soil contact. Without the Leader grant, the drill felt unaffordable, but after its successful introduction, we would not be without it.”*

The Programme has supported 12 farm businesses with direct and minimal tillage drills. Two of the drills were purchased by farm partnerships, in order to spread the capital investment across the two parent farm businesses. The drills will therefore be operated on a minimum of 14 farms across the Cotswolds. The total landholding for these farms is 7,514 hectares (18,567 acres). A number of the farm businesses plan to use the drills for local contracting, thereby increasing the environmental benefits across a wider land area.



Weaving GD drill. Photo Credit T Hatherell



OS Rape drilled directly into crop stubble, Wotton Under Edge, Nov 2019

The investment in direct drilling machinery under the Cotswolds LEADER Programme has also presented a significant opportunity for improving the management of archaeological sites in cultivation. This is particularly important because the Cotswolds is an area where the risk of plough damage is amongst the highest nationally. An assessment of the archaeology within 2km of each of the supported farm businesses shows a good range of typical Cotswolds archaeology, including prehistoric barrows and enclosures, Roman farms and the odd villa and medieval remains of villages and field systems.

For more information on the Cotswolds LEADER Programme visit:

www.cotswoldsaonb.org.uk/looking-after/cotswolds-leader/



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