Dorset dairy herd drives better soils and crop yields

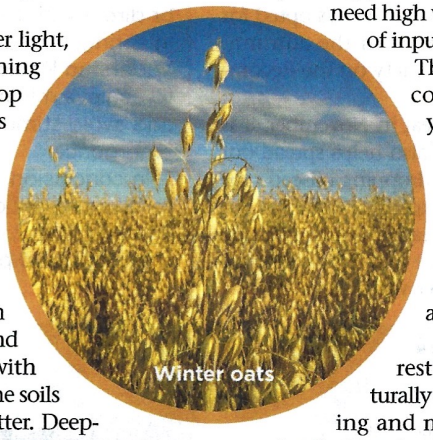
Healthier soils and impressive arable crop yields have followed the introduction of a dairy herd on one light-land farm. **David Jones** reports

Dairy cows grazing outside for 12 months of the year have helped kickstart an improvement in soils and arable crop yields on Sophie Alexander's south Dorset organic farm, helping to offset the current sharp decline in direct farm subsidies.

Winter oat yields on her light, chalky soils are approaching 6t/ha, and a spring bicrop of wheat and beans sees the first hitting a valuable organic milling premium, while the protein-rich second crop helps to feed the cows.

Crop profit margins are higher now than when the farm was all arable and conventionally farmed with fertiliser and sprays, and the soils look darker and smell better. Deep-rooted herbal leys for cattle grazing are also better able to survive a summer drought on her free-draining, loamy chalk soils.

"The cows are my fertiliser and they carry on producing fertiliser while also giving a wholesale product – milk," she tells *Farmers Weekly*.


Winter oats

Financial factors

The switch to organic farming was prompted by purely financial consideration, as yields on the all-arable conventional farming system had stagnated. Mrs Alexander says the organic way is simply more profitable and did not need high working capital in terms of inputs.

The farm's rotation now consists of four to five years of a herbal ley to build fertility and soil health, which then helps feed three years of arable cropping of a spring wheat-spring bean mix, winter oats and then spring barley.

"The arable fields are rested and the soils structurally restored, while the grazing and manures help build up the fertility for the next arable crops," she says.

Mrs Alexander returned to the family farm in 2011 from a career in art and theatre production in London to take over 460ha of free-draining soils at Hemsworth Farm, Witchampton, between Wimborne and Blandford


Sophie Alexander with her youngstock

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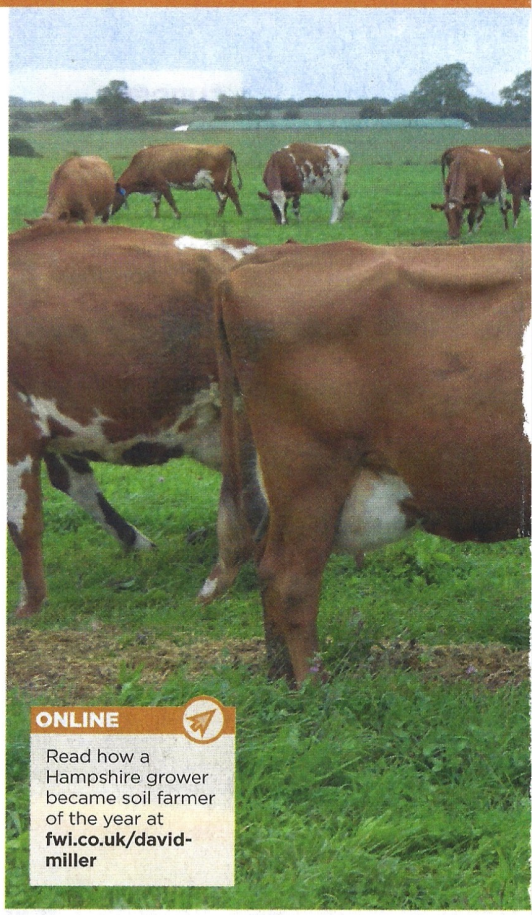

ONLINE

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Forum, from an arable farm tenant who had already started to turn the farm partly organic.

In the next three years, she observed that the organic crops gave a better margin than the conventionally farmed ones, while the money saved on expensive inputs could be used to invest in infrastructure such as roads, fences and buildings.

Rebuild soil fertility

There was no preconceived idea to go organic, but once the financials corroborated that decision, she became more interested in organic methods. Realising her light land, exhausted by continuous arable cropping, needed livestock to rebuild soil fertility, Mrs Alexander embarked on a path to become fully organic by 2017.

"These thin, chalky soils need livestock to improve their health and help with fertility building," she says.

Sheep were brought in from a neighbour to graze cover crops, but the biggest turning point was bringing in young heifers from a local dairy farm, as this brought a noticeable improvement in soil health and biology.

White clover-ryegrass leys were first used for grazing, but they looked to be doing little for the soil, so were quickly replaced by a 17-species herbal ley mix with deep-rooting chicory, plantain and red clover as key ingredients. One of the big differences was that these leys grew better through the dry summers.

Mrs Alexander soon realised that what the farm really needed was its own livestock


The milking herd is fed a silage mix outside throughout the winter months

enterprise to improve the soil and make the farm financially secure as the Basic Payment Scheme (BPS) of direct subsidies drains away from £233.30/ha in 2020 to zero by 2028.

"There is resilience in having two main enterprises – arable and dairy cows – to help with cashflow and plug the hole left by the disappearance of BPS," she says.

VikingReds arrive

The result was the buying in of bulling heifers to start the farm's own dairy herd of VikingReds in early 2020, with New Zealand herd manager Andrew Batty joining in September.

The spring-calving, 250-strong dairy herd started producing milk in 2021 while, crucially for soil health, grazing for 12 months of the year.

Preparation for the first year of arable cropping after the herbal leys were made in late 2021, with old herbal leys grazed hard by youngstock and dry cows through the winter, and a spring crop was then planned to benefit from the soil enhancement and fertility building.

Although an autumn-drilled crop would potentially have yielded more, Mrs Alexander's light soils tend to retain more nutrients with an overwintering herbal ley followed by a spring crop, while the winter grazing is very valuable for the non-milking animals such as youngstock and dry cows.

Through to the spring of 2022, some 30ha of herbal ley was ploughed, cultivated, drilled and rolled using a mix of the spring milling wheat variety Mulika and spring bean variety Victus. All the arable work was done by a contractor, who drilled the bean first at 50-75mm depth and then the wheat following in the same drill lines at 25mm.

The advantage of this mix is that the wheat helps suppress weeds, while the beans appear to help improve the protein content of the wheat. Mrs Alexander is planning to grow more than 30ha next spring. "We were encouraged by the wheat-bean mix, and it is the only way to grow beans organically," she says.

Organic yields

Yield on the first wheat-bean mix was 3.5t/ha for organic wheat, selling at £380/t, and 1t/ha of beans valued at £600/t, and fed to the dairy herd. There was little septoria in the wheat, and a small amount of chocolate spot disease in the beans. "We are convinced we are getting a bigger margin than farming conventionally, and with BPS going, margin is king – not yield," she says.

The second year of the arable rotation is Mascani winter oats following a similar arable preparation of plough-cultivate-drill-roll. It has shown average yields of 4.3-4.5t/ha. However, in a good year, the oat crop has yielded up to 5.6t/ha and is sold for £300/t to a local miller.

This is the most profitable arable crop on the organic farm and gives good weed suppression. In the spring, cover crop seed is broadcast into the growing oat crop. The mix used includes forage rye, vetches and clovers.

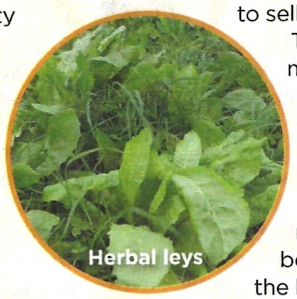
Mrs Alexander admits it has been a challenge to establish these cover crops but, when successful, they give good winter grazing for youngstock and dry cows.

The third arable crop is spring barley, which is undersown with a herbal ley mix and cut as wholecrop silage. This gives an early harvest and allows more time for the herbal ley to establish and provide valuable grazing in the autumn.

OPTING FOR VIKINGREDS

The Scandinavian cattle breed VikingReds were chosen for their high health status and ability to graze for 12 months of the year with no winter housing and, therefore, no complex slurry systems.

The breed has its origins in three Nordic dairy breeds – Swedish Red, Danish Red and Finnish Ayrshire – and Sophie Alexander's cows came from Sweden, which is free of TB and a number of other key cattle diseases. The breed produces good beef calves, which are not a problem to sell.


Herbal leys

The spring-calving, parlour-milked dairy herd is in its second lactation and set for milk production of 4,200 litres a cow a year at 4.2% butterfat and 3.6% protein. After being milked twice a day at the beginning of the lactation, the herd was moved to once-a-day milking by September, with the organic milk supplied to Arla.

The herd is moved twice a day across the herbal leys so any poaching and soil compaction is not severe, and a silage mix is fed to the cow in the fields through the winter months.

"We were looking for cows with high health traits and low maintenance that are good graziers, and are not too big an animal, with good feet," she says.

The contract manager for the dairy is Oliver Chedgey, who runs the Roaming Dairy. He has been milking cows in his mobile parlour on the Kingsclere Estate in Hampshire since 2017, and also produces organic milk for Arla.