Lowland organic dairy
Rachel and Joe Horler, Maundrils Farm, Somerset

Farm facts

Maundrils Farm totals 81ha, 60% of which is temporary rotational leys and the remainder is permanent pasture including some SSSI. Soil type ranges from clay to sandy loams and rainfall is low (averaged 830mm in 2011-2015). The 85 organic cows include Holstein Friesians and Jerseys, a third of which calve in early spring and the remainder in June to November. Milk yields average 7600 litres, of which the amount coming from forage has increased from 3500 litres to 4800 over the last 4 years. They graze from March to November and now feed around 1.6t/cow of concentrates. Project activities included adding chicory to white clover grazing leys and undersowing clover and multispecies leys.

Chicory in white clover leys

To tackle the problem of the persistency of grazing leys during dry summers whilst maintaining protein content of the ley, chicory was included in a white clover ley. Good rotational grazing management was key to optimum utilisation of the chicory ley.

Seeds mixture

4.75 kg (o) Diploid Intermediate Perennial Ryegrass (AberDart)
5.0 kg (o) Tetraploid Late Perennial Ryegrass (AberBite)
1.5/2.25 kg Diploid Late Perennial Ryegrass (AberAvon)
2.0 kg Diploid Intermediate Ryegrass (AberMagic)
1.0 kg White Clover (AberDairy: - 0.5 AberHerald
0.25 AberConcord
0.25 AberDai)
(+/-) 0.75 kg Chicory (Puna II)
(o)= organic seed at 65% of the mixture
Sown in September at 45kg/ha with a grass harrow & seed box

In the drier months of the year the white clover ley with chicory yielded up to 20% higher than the ley without chicory.

Rachel said, ‘Trying chicory in the grazing leys meant we saw the real benefit of deep rooting plants and this gave us the confidence to try multi species leys. We were pleased with their ability to stay green, fix nitrogen and produce quality forage in very dry weather’.

The multi species leys, used predominantly for grazing, included legumes; red clover, birdsfoot trefoil and alsike clover, with high sugar ryegrasses and other grasses. These leys improved performance on the more difficult fields and reduced the need for supplementation of young stock at grass.
Establishing leys in rotation: to undersow or not to undersow?

Wholecrop barley is an important component of winter forage and is grown in a crop rotation at Maundrils. It usually follows a red clover ley and after harvest a white clover grazing ley is sown. Fields were undersown to organic barley (cv Westminster) to provide a ley ready to graze after the cereal silage cut and a ‘cover’ for the undersown ley. The cereal seed rate was reduced from 55kg/acre, after the first year to 50kg/acre in subsequent years to improve the establishment of the leys. Arable silage yields were around 10% lower than the wholecrop but the benefits included slightly higher crude protein, reduced the level of weeds in both the cereal and in the established ley and availability of aftermath grazing. The undersown leys were grazed in mid-August by calves while autumn re-seed were not available for grazing until February. Cultivation costs were reduced by 55% in the undersowing system which is now being used routinely to establish leys at Maundrils.

### Economics of protein forages at Maundrils

<table>
<thead>
<tr>
<th></th>
<th>Chicory / WC ley</th>
<th>WC ley</th>
<th>Multi-species ley</th>
<th>Organic old ley</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Crop lifetime</strong></td>
<td>Years</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td><strong>Establishment costs</strong></td>
<td>£/ha</td>
<td>573</td>
<td>543</td>
<td>597</td>
</tr>
<tr>
<td><strong>Average yield</strong></td>
<td>t DM/ha</td>
<td>10.4</td>
<td>10.0</td>
<td>10.5</td>
</tr>
<tr>
<td><strong>Average CP</strong></td>
<td>%</td>
<td>22.2</td>
<td>21.0</td>
<td>20.2</td>
</tr>
<tr>
<td><strong>Average ME</strong></td>
<td>MJ/kg DM</td>
<td>11.9</td>
<td>12.0</td>
<td>11.5</td>
</tr>
<tr>
<td><strong>Relative Feed Value</strong></td>
<td>p/kg DM</td>
<td>15.2</td>
<td>14.9</td>
<td>14.3</td>
</tr>
<tr>
<td><strong>Average cost</strong></td>
<td>p/kg DM</td>
<td>1.6</td>
<td>1.6</td>
<td>1.7</td>
</tr>
<tr>
<td><strong>Net forage value</strong></td>
<td>£/ha</td>
<td>1410</td>
<td>1325</td>
<td>1326</td>
</tr>
<tr>
<td><strong>Extra protein as 18% CP feed</strong></td>
<td>25kg bags</td>
<td>340</td>
<td>294</td>
<td>298</td>
</tr>
</tbody>
</table>

*AHDB Dairy RFV - barley @ £135/t, rapeseed meal @ £216/t

### Rachel’s tips for success

Include a low cereal seed rate and shallow sowing by broadcasting followed by rolling to enable white clover to establish.