**Conversion strategies for stockless organic farming**

**Choosing conversion strategies**

Field trials followed changes in soil physical properties and the fate of N, P and K for seven conversion strategies over two years (Table 1). In the third year, organic winter wheat was grown across the whole trial area. Yields of third year organic wheat crops were significantly higher with ‘fertility building’ strategies than with the more exploitative ones, e.g. compare strategies A and E (Figure 1).

Wheat grown on sandy loam produced a higher yield than on clay loam. There was a strong interaction between soil type and conversion strategy. The performance of strategies E and F was much worse on the clay loam than the sandy loam, compared to other strategies. Yields largely mirrored plant population differences, caused mainly by slug grazing. Slugs were far more common on the clay loam. Conversion strategy affected soil structure leading to variations in slug numbers.

<table>
<thead>
<tr>
<th>Code</th>
<th>Year 1 crop</th>
<th>Year 2 crop</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Red clover/rye grass green manure</td>
<td>Red clover/rye grass green manure</td>
<td>N input over 2 years through nitrogen fixation by clover; low management need; no income without subsidy.</td>
</tr>
<tr>
<td>B</td>
<td>Vetch green manure</td>
<td>Vetch/rye green manure</td>
<td>Nitrogen fixation in vetch for comparison with clover; low management need; no income without subsidy.</td>
</tr>
<tr>
<td>C</td>
<td>Red clover seed</td>
<td>Red clover green manure</td>
<td>Year 1 clover seed crop provides income without subsidy, but some N lost in seed; no mowing in first year reduces biomass and N return to soil.</td>
</tr>
<tr>
<td>D</td>
<td>Spring wheat undersown red clover</td>
<td>Red clover green manure</td>
<td>Year 1 wheat crop provides income, but N lost in grain; undersowing wheat with clover extends duration of N fixation and may transfer N to crop.</td>
</tr>
<tr>
<td>E</td>
<td>Spring wheat Winter beans</td>
<td>W inter beans</td>
<td>Two crops provide income; only one year fertility building, by beans, and some fixed N lost in grain; higher management.</td>
</tr>
<tr>
<td>F</td>
<td>Spring oats</td>
<td>Winter beans</td>
<td>Two crops provide income; oats may need less N than wheat so higher residual soil N; higher management.</td>
</tr>
<tr>
<td>G</td>
<td>Spring wheat undersown red clover</td>
<td>Spring barley/pea intercrop</td>
<td>Three crops provide income but little N return to soil; intercropping can increase overall productivity and reduce lodging; high management.</td>
</tr>
</tbody>
</table>

**NB:** Strategies E, F and G are unlikely to be acceptable to certification bodies, but were included for experimental purposes.

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**Action:**

- Check that your chosen conversion strategy is acceptable to the certification body you are registered with.
- Choose clover/ryegrass mixture for a low-risk, reliable conversion strategy.
- Consider a conversion strategy including clover seed production; first be sure to secure a market for seed.
- Contact the Defra-funded Organic Conversion Information Service (Tel: 01179 227707) for advice on conversion and two free visits.

If you are unsure about any of the suggested actions, or want them interpreted for your local conditions, consult a professional agronomist.
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Summary

HGCA recently funded a three-year project for all-arable organic farmers at the University of Nottingham. This assessed seven conversion strategies to maintain income and soil fertility.

The clover/ryegrass mixture provided a low-risk, reliable conversion strategy. Growing clover for seed provided a larger gross margin, but depended on securing a seed contract.

Further information:
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Information from other work on stockless organic rotations can be found at:
www.stocklessorganic.co.uk
www.co-opfarmcare.com
www.efrc.com

Gross margin and profitability

Table 2 shows gross margins averaged over three years. Strategy C produced the largest gross margin, followed by A.

Following strategy A, for example, the very friable soil created a good seedbed with little slug grazing. In adjacent plots after strategy E, a cloddy seedbed resulted in severe slug grazing.

Yields following vetch were poorer than those following clover, particularly on the clay loam, which may have been due to the differences in timing of N release from residues of the two crops.

The impact of different conversion strategies is expected to extend beyond the first organic crop, and is currently being investigated.