White Clover

How does white clover contribute?

- Teagasc research over the past 15 years is proving that white clover will contribute to increased profitability on almost all grassland farms.
- Annual Milk solids production and sward production has been shown to increase with the addition of clover.
- Clover converts atmospheric Nitrogen into a plant usable form (100 to 200kg of N/ha/year).
- High clover swards produce high quality feed with increased protein and digestibility compared to pure grass swards.
- Improvement in quality is greatest in the summer months when clover content increases and grass plants have increased stem growth.

Establishing White Clover in the sward

Full reseed

- Overall reseeding is the most successful method as there is more reliability and less dependence on the subsequent weather conditions, also the new clover plants are not asked to compete with already well established grass plants.
- When carrying out reseeding use a mixture with 1-2kg of white clover per acre.

Overseeding

- Overseed 1.5 - 2kg per acre of white clover into existing swards.
- Overseeding can work well providing the correct method is used as described below and there is not an excessive dry period after sowing.
- White clover establishes best when sown from April to July. September sowing is risky.

Sward and Animal benefit of clover addition to the grazing sward observed in Teagasc, Clonakilty and Moorepark

<table>
<thead>
<tr>
<th>Sward Performance</th>
<th>Grass only</th>
<th>Grass+clover</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry matter production (t DM/ha)</td>
<td>15.4</td>
<td>16.5</td>
<td>+7%</td>
</tr>
<tr>
<td>Clover Content (%)</td>
<td>27</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Animal Performance</th>
<th>Grass only</th>
<th>Grass+clover</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk Yield (kg/cow)</td>
<td>5316</td>
<td>5862</td>
<td>+9%</td>
</tr>
<tr>
<td>Fat (%)</td>
<td>4.6</td>
<td>4.6</td>
<td>-</td>
</tr>
<tr>
<td>Protein (%)</td>
<td>3.7</td>
<td>3.7</td>
<td>-</td>
</tr>
<tr>
<td>Milk solids (kg/cow)</td>
<td>434</td>
<td>478</td>
<td>+9%</td>
</tr>
<tr>
<td>Milk Solids yield (Kg/ha)</td>
<td>1190</td>
<td>1314</td>
<td>+9%</td>
</tr>
</tbody>
</table>

Overseeding White Clover into Permanent Pasture.

- Suitable on well managed grassland – not suitable on old ‘butty’ swards of poor botanical composition.
- Ensure that the field is correctly fertilised - P, K and pH values are correct.
- Harvest a heavy crop of first cut silage – or graze tightly in late May or early June.
- Ideally create soil disturbance with a tine harrow.
- Spread 2 kg/acre Clover Max™ pelleted clover seed with a bag 0-7-30.
- Mix seed and fertilizer in the field and spread criss cross.
- Role to increase seed to soil contact.
- Apply slurry as required – ideally around 1500 gals/acre of watery slurry.

White Clover

– the next step for Irish swards

- High clover pastures are suitable on Dairy, Beef and Sheep farms, for grazing and silage.
Management of White Clover

- Graze every three weeks – pre-grazing covers of between 1200 and 1400 kg DM/ha
- Avoid shading during the first winter and spring
- Best to only graze newly established swards during the first full year in production
- Graze as normal in spring to stimulate spring growth
- Avoid taking heavy crops of silage from clover paddocks as this can lead to excessive clover content

Why does clover not persist on my farm

- Clover cannot compete in butty swards that do not allow light to the base of the sward
- Frequent tight grazing (3.5-4.5cm above ground level) of grass-clover swards will encourage clover persistence
- Clover is more sensitive to soil pH and soil P and K concentrations – soil test frequently
- Clover suffers more from low temperatures – needs to be well established before the winter
- Clover will not tolerate excessive poaching
- Clover has been shown to be more persistent in dry soil types
- High levels of applied Nitrogen will not kill clover! However, applied nitrogen will make grass a more aggressive competitor. The farmer can control this competition with intensive grazing management
- Many Herbicides will kill clover

Challenges to White Clover

Bloat

Bloat is the excessive build-up of gas in the rumen resulting in distress and possible death due to the exertion of pressure on the animal’s vital organs. Clover rich pastures can increase the risk of bloat due to the rapid breakdown of protein in the rumen. It is important to put management procedures in place to minimise or eliminate the risks of bloat in livestock grazing clover rich swards.

- Introduce stock slowly to clover swards.
- Avoid daily changes in quality and quantity of feed available
- Feed a high dry matter forage as a buffer feed in spring and autumn
- Extra care needed on cold, wet mornings
- Feed an anti-bloat feed additive in risk situations/use bloat oil in water
- Swards with greater than 50% clover content should be intensively grazed to increase grass content
- Do not allow hungry animals free access to large amounts of clover

Spring Feed Supply

- Swards with a high clover content will have reduced over winter growth
- Do not delay grazing these sward in spring as grazing will stimulate growth
- Extra supplement will be required in spring to fill the feed deficit
- Clover sward are more open, care is needing when grazing in difficult conditions

Why use Coated seed

- During a full reseed, there is no independent research to verify the benefit of any seed coating
- Coated seed is beneficial when over seeding as :-
  - Increased bulk will allow for more accurate application
  - Increased seed weight will allow seed to spread better when broadcasting
  - Less separation of seed from 0-7-30 in spreader

Clover Max™

Ireland’s best pelleted clover mixture for overseeding white clover into permanent Pasture.

A specially formulated mixture of pelleted white clover varieties designed to give maximum performance and persistence on Irish farms.
White Clover Varieties

CRUSADER WHITE CLOVER (Bred in New Zealand)
- High total sward yield and clover yield for a relatively small leaf variety. It does its job of supplying nitrogen to the grass in the pasture and will not take over the sward in summer
- One of the best varieties for Spring Growth on the AFBI(NI) Recommended List
- Crusader has excellent persistence scores making it an ideal grazing clover. It will tolerate close grazing from cattle or sheep

CHIEFTAIN WHITE CLOVER (Bred by TEAGASC Oak Park)
- Medium leaf size variety with very good total yield
- It has the best spread of Seasonal Clover Yields on the AFBI(NI) RL
- It is an ideal variety choice for grazing mixtures and dual purpose mixtures

BARBLANCA WHITE CLOVER (Bred in New Zealand)
- Large Leaf variety with very high total yield
- It has very good Spring and Autumn yields
- Its grazing persistence scores are a typically high for such a large leaved variety
- Barblanca is the perfect silage variety

Irish Recommended White Clover Varieties 2017

<table>
<thead>
<tr>
<th>Variety Name</th>
<th>Total Yield</th>
<th>Leaf Size*</th>
<th>Av Clover %</th>
<th>Year 1st Listed</th>
<th>Breeder</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control Mean t DM/ha</td>
<td>9.8</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Barblanca</td>
<td>105</td>
<td>L (0.78)</td>
<td>50</td>
<td>2009</td>
<td>Barenbrug</td>
<td>NL</td>
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<tr>
<td>Alice</td>
<td>99</td>
<td>L (0.76)</td>
<td>50</td>
<td>1995</td>
<td>IBERS</td>
<td>UK</td>
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<tr>
<td>Chieftain</td>
<td>98</td>
<td>M (0.68)</td>
<td>47</td>
<td>2005</td>
<td>Teagasc</td>
<td>IRL</td>
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<tr>
<td>Buddy</td>
<td>100</td>
<td>M (0.63)</td>
<td>45</td>
<td>2015</td>
<td>Teagasc</td>
<td>IRL</td>
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<tr>
<td>Avoca</td>
<td>103</td>
<td>M (0.61)</td>
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<td>1995</td>
<td>Teagasc</td>
<td>IRL</td>
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<tr>
<td>Iona</td>
<td>94</td>
<td>M (0.59)</td>
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<td>2014</td>
<td>Teagasc</td>
<td>IRL</td>
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<tr>
<td>Aberherald</td>
<td>98</td>
<td>M (0.55)</td>
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<td>2003</td>
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<td>UK</td>
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<tr>
<td>Crusader</td>
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<td>M (0.54)</td>
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<td>NL</td>
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<tr>
<td>Coolfin</td>
<td>104</td>
<td>M (0.51)</td>
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<td>2017</td>
<td>Teagasc</td>
<td>IRL</td>
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<tr>
<td>Aberace</td>
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<td>S (0.38)</td>
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<td>UK</td>
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<tr>
<td>Galway</td>
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<td>S (0.25)</td>
<td>38</td>
<td>2017</td>
<td>Teagasc</td>
<td>IRL</td>
</tr>
</tbody>
</table>

Varieties Highlighted in Blue are Goldcrop Varieties

In the table above varieties are listed in order of decreasing leaf size.*Values in brackets indicate leaf size compared to the variety Aran (i.e. Aran = 1.00) based on data from UK D.U.S. tests.