

More manageable and persistent clover varieties are on the way

# Should you be 'in clover'?

Clover is progressing – both in terms of its persistency and nitrogen fixing ability. And attitudes are changing too, particularly to white clover, as varieties are coming through that are easier to manage. Read on and, if clover isn't already in use on your unit, see if the legume deserves another look.

text **Rachael Porter**

**W**hite clover is growing away from its 'difficult' reputation and, in an on-going survey being conducted by British Seed Houses, a large number of producers now consider white clover to be either a crucial or an important part of their swards. "This shows a significant shift in attitudes in favour of the legume, and there's no doubt that the ability to fix nitrogen is a significant reason for this," says the company's Paul Billings.

However, as he points out, producers need to have confidence in their ability to manage white clover in order for it to become a routine inclusion in leys, and this has not always been the case.

"Maintained at the optimum level in the sward, which should be an average across the season of 30% of the total forage dry matter, white clover has the potential to contribute around 150kgN/ha/year," he says. "The key, however, is managing the sward to maintain this optimum level."

## Past difficulties

"Recent advances in breeding and a better understanding – and application – of varying leaf sizes are making many of the past difficulties avoidable," says Mr Billings.

Much of the white clover breeding work referred to by Mr Billings is on-going at IBERS Aberystwyth University, where the goals have been to achieve a more balanced contribution to the sward and enhanced persistency.

The work has included aspects such

as tolerance to grazing pressure, winter hardiness, increasing even seasonal growth, pest and disease resistance, and

compatibility with companion grasses. "New varieties are selected against a full range of attributes under field conditions, and then initially evaluated under cutting. The better varieties are then put through grazing trials," he explains. "The very best that emerge from the programme are then put forward for independent Recommended List trials, so producers can be confident that any new varieties that come onto these lists offer a significant step forward.

"However, it's then important to select the right leaf size variety for the purpose. So for swards primarily used for grazing, medium-leaf varieties like AberConcord



Paul Billings: "Select the right leaf size variety for your purpose"

or AberHerald are well suited. For leys that will be cut and grazed it will be better to include large-leaf varieties, while for pure cutting leys, new very large leaf white clovers are now an option."

White clover breeding work continues at IBERS, with hybrids that have the potential to offer significant steps forward in terms of grazing and drought tolerance likely to be the next major breakthrough. With the promise of 150kgN/ha/year cut from the fertiliser bill, why wouldn't white clover be a routine inclusion in new leys or a worthwhile over-seeding option? Once mainly of interest only to organic farmers, red clover has also emerged in recent years as a popular inclusion in cutting leys for a wider spectrum of producers who are seeking a cost effective source of home-grown protein. One of red clover's shortcomings, however, has been its relatively short persistence. It typically remains in the sward for just two to three years, but a longer productive life would make it more compatible with medium-term leys.

Now, following the re-introduction of red clover to the legume breeding programme at IBERS Aberystwyth University in 1998, the first of a new range of more persistent varieties are on the horizon.

"Red clover is unlike white clover in that individual plants are dependent for survival on a single crown at the top of a tap root," explains IBERS clover breeder Athole Marshall. "Any deterioration of the crown, either naturally or through physical damage caused by grazing pressure or machinery, will limit the life of the red clover plant."

There is natural variation in crown deterioration in red clover populations, as well as variation in other life determining factors such as pest and disease resistance, so it has been possible to select for greater longevity.

## Greater longevity

Overall, the breeding programme includes a range of objectives, most of which ultimately result in greater longevity. Tolerance to grazing – possible as varieties are tested under grazing pressure – is an important area, as are resistance to the more important diseases, such as clover rot, and pests including stem nematode.

Long-term trial plots are now showing the results, with fourth year data revealing new varieties that are still producing in the region of 14tDM/ha.

"Perhaps more significant is the fact that during the four years, the new material is totalling around 60tDM/ha compared with between 40 and 45tDM/ha from the controls," adds Mr Marshall. "So there is no short fall in performance in the earlier years, and yields are being maintained into the fourth year and beyond."

New varieties from the breeding programme are AberClaret and AberChianti. Both offer significant fourth year yields and are currently under review for the latest Recommended Lists. Announcements on their status are to be made this spring.

Other on-going work at IBERS is focusing on the impact of increased polyphenol oxidase (PPO) in red clover, an attribute that has the potential to reduce protein degradation and the resulting nitrogenous pollution. Another area relates to enhanced PUFA (poly unsaturated fatty acid) content of red clover, as this is an attribute that has potential benefits for meat quality. So watch this space. |

