



NUTRIENT WISE DEMOS 2012

PRESENTED BY CREEDY ASSOCIATES



ESTABLISHING WHITE CLOVER IN GRASS SWARDS TO SAVE ON NITROGEN FERTILISER

This demonstration aims to show different methods of establishing white clover in an existing grass swards and compares the costs of each method.

NITROGEN PRODUCTION OF CLOVER

- Bacteria on the root nodules of the clover root convert nitrogen from the air into a form that can be utilised by the plant in a process called nitrogen fixation.
- 10% clover content within a sward will provide approximately 50kgN/ha/yr.
- Target clover content is commonly 30% clover as at this level clover provides half the annual nitrogen requirement of the sward (150kgN/ha/yr).
- The clover plant really becomes active in summer. In the June - September period (120 days) in the region of 1.25kgN/ha/day is released. Such levels provide enough nitrogen for summer grass growth.
- Clover content of a sward will vary through the growing season. From a low level in early spring, the proportion of clover can increase to 30-40% of the sward by late summer/autumn

ASSESSING CLOVER CONTENT

- As a rough guide in the main growing season 16 plants/m² is equivalent to approximately 20% of the content of the sward.
- Even in swards appearing to be predominantly clover the actual content is rarely more than 50%



FERTILISING CLOVER / GRASS SWARDS

- **Fertilising grazing swards:** Generally little nitrogen is needed on swards with an appreciable clover content (approx 30%). However some nitrogen may need to be applied to encourage early spring or late autumn growth. Typically apply up to 50kgN/ha in mid February - early March if early grass growth is required and up to 50kgN/ha in late August - early September if autumn grass is required. (RB209 8th Edition 2010 DEFRA)
- **Fertilising cutting swards:** Do not apply any nitrogen after a silage crop is taken from a grass/clover sward if the clover content needs to be maintained. There is no need to apply any nitrogen to red clover or lucerne leys used for silage production however P₂O₅ and K₂O are required as in a pure grass sward.

ESTABLISHING CLOVER IN AN EXISTING SWARD (OVER-SOWING)

- Small leaved clover varieties are suited to hard continuous sheep grazing, medium leaved varieties suit frequent cutting and rotational grazing and large leaved varieties suit cutting and rotational cattle grazing systems.
- Sow the seed early in spring or mid season (after a silage cut) to minimise grass competition.
- Control weeds adequately before sowing.
- Reduce grass competition immediately prior to sowing by heavy grazing or cutting for silage.
- Place seed on or near soil surface in close contact with the soil.
- Stock heavily after sowing for short periods of time to control the grass during establishment.

FIELD DEMONSTRATIONS

- Four plots were set up at the main demonstration site near Crediton in the summer of 2009 using 4 different methods. All plots were subsequently managed in the same way.

HOW THE PLOTS WERE ESTABLISHED

- Soil was analysed showing pH = 5.7, P = Index 3, K = Index 1.
- Field sprayed with Doxstar to remove broadleaf weeds and clover in May 2009
- 3t/ha of basic slag and 80kgP/ha (applied as Muriate of potash) were applied in July 2009
- Field grazed with dry cows to 1800kgDM/ha for 1st establishment and 1500kgDM/ha for 2nd establishment.
- Medium leaved white clover (varieties Aberdai, Riesling and Aberherald) established by 4 methods at a seed rate of 7.5kg/ha on 10th July 2009. The clover emerged well but failed after a couple of weeks.
- Clover was re sown (using a treated seed of the same variety) on 11th August 2009.
- 10 days post establishment field grazed with dry stock to 1500kgDM/ha to limit competition by grass.

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