

Dairy Bulletin

MAY 2007

MANAGEMENT TIPS

- Aim to make high quality silage. Harvest early, provided there is at least seven weeks from applications of slurry and fertiliser. Rapid wilt if possible to 25-30%DM. Consolidate silage and seal quickly.
- Slurry should be applied immediately after first cut. Apply 6 –7.5 bags per hectare (2.5 –3 bags per acre) of high N and K compound fertiliser. Do not apply P unless you can show a need from soil analysis results. Choose a compound containing sulphur for second cut, with at least 7% SO₃.
- The Nitrates Directive is now operational. Use an inverted splashplate on the slurry tanker for spreading slurry. Alternatively look at trailing shoe, band spreading or injection as a more “nutrient efficient” method of applying slurry. A sludgator for spreading slurry or dirty water is banned.
- Use a 16-18% protein concentrate at grass. Buffer feed with silage if weather is inclement. Monitor grass quality and quantity, offer quality grass to the highest yielders and plan the rotation to suit. Consider taking out paddocks for big bale silage if grass covers getting ahead of cows. Act early as the sward must recover for the next grazing rotation.
- Heat detection can be difficult at grass and essential to check cows between milkings. Consider aids such as tailpaint, teaser bull or heat detection back strips.



HIGH QUALITY FIRST CUT SILAGE

With the rising price of concentrates, making high quality first cut silage should be given high priority. It will be a major influence on controlling the cost of milk production next winter.

Cutting Date

The most important factor in determining silage quality is the maturity of the grass at cutting. The leafier the grass, the higher the feeding value of the silage and the less supplementation required over the winter. Swards containing mid-season and late perennial ryegrasses should be cut from the middle of May. When harvesting is delayed into June, grass becomes stemmy and silage quality is reduced. Each week delay after target cutting date will increase meal feeding by 2.2 kg / cow / day for the same level of milk production.



Wilting

When grass is wilted to 25-30% dry matter within 12-24 hours of mowing and then ensiled, not only is silage effluent reduced but the intake of silage will be increased. The weather forecast should be closely monitored and the grass cut when conditions are favourable, that is, dry and sunny weather. Grass cut with a mower-conditioner will wilt up to 20% faster than an unconditioned crop. Spreading the sward immediately after cutting doubles the rate of wilting compared to leaving the grass in a row.

Fermentation

Provided there has been good growing conditions and the total nitrogen application from slurry and fertiliser did not exceed 110kgs/hectare (88 units/acre), then an interval of 7 weeks from the date of sowing to cutting should be adequate. Grass samples can be analysed by AFBI Hillsborough to determine the suitability of the crop for ensilage. The cost of this service is £12 + VAT.

Silage Additives

These are only justified if they improve animal performance or reduce losses during ensilage or when feeding silage. Research studies from AFBI Hillsborough have shown that effective bacterial inoculant additives will produce an economic response in animal performance under a wide range of conditions. However, not all inoculant additives are equally effective and only those with well proven results from independent research trials, with UKASTA accreditation, should be used.

Clamp Management

Attention to detail when ensiling grass is critical in order to produce high quality silage with minimal losses. Silos should be filled quickly with the grass being well consolidated during filling. If silage cutting is disrupted due to wet weather, clamps should be sheeted temporarily. Waste on top of the silo can be virtually eliminated by covering the grass with two sheets of polythene which are well weighed down.

FERTILISER FOR SECOND CUT SILAGE

Plan ahead to decide which fertilisers to apply for the second cut. Soil fertility and the availability of slurry are major factors influencing this choice. Legislation requires the demonstration of crop need and it is

necessary to have soil analysis results within the past 4 years, otherwise the application of inorganic phosphate fertiliser is not permitted.

Soil Fertility

A recent nutrient management project carried out by the Agri-Food and Biosciences Institute on 67 Northern Ireland dairy farms has highlighted that the majority of silage fields have adequate reserves of phosphate in the soil. However, potassium and sulphur deficiency was common, leading to a loss in grass production for second cut silage. Therefore purchased fertilizer selection is important.

Slurry

An application of diluted cattle slurry at the rate of 17,000 litres/hectare (1500 gallons/acre) can provide 10kg/hectare (8 units/acre) of nitrogen, 20kg/hectare (16 units/acre) of phosphate and 55kg/hectare (44 units/acre) of potash. If a slurry tanker is being used, slurry should be spread immediately after the first cut to avoid contamination of the grass regrowth. However, when application is by trailing shoe then the timing is less critical as slurry is deposited directly on the ground.

Fertiliser Recommendation

Silage fields with a typical soil analysis of index 2 for phosphate and index 1 for potash require 25kg phosphate/hectare and 100kg potash/hectare for second cut silage. In addition, the recommended dressing of nitrogen for second cut silage is 90kgs/hectare (72 units/acre). Slurry applied at 17,000 litres/hectare will supply all the phosphate requirement and reduce the nitrogen requirement to 80kgs/hectare (64 units/acre) and the potash requirement to 45kgs/hectare (36 units/acre). A high nitrogen and high potash fertiliser with no phosphate but containing sulphur should be applied at 6-7 1/2 bags/hectare (2 1/2-3 bags/acre).

Since the introduction of the Nitrates and Phosphates Regulations (detailed below), nutrient management has become increasingly important on dairy farms. Training is available through CAFRE. Contact your local Dairying Development Adviser for details.

N AND P REGULATIONS

The Nitrates Action Programme and Phosphorus Regulations came into operation on 1 January 2007 and apply to all farmers. Farmers should have received a Guidance Booklet and CAFRE invited all dairy producers to meetings in March to explain and clarify the requirements of the regulations.

The Regulations include the following:

Minimum storage capacity

Farmers must ensure a minimum of 22 or 26 weeks storage capacity for livestock manures depending on livestock type and scale of enterprise. The Farm Nutrient Management Scheme offered grant aid to achieve improved storage on farms. It is important to note that the minimum storage requirements must be in place by 31 December 2008 regardless of whether or not grant aided.

Out-wintering of stock, use of straw bedding, slurry separation or renting additional tanks may reduce the amount of storage required on farm. Farmyard manure (FYM) and poultry litter may both be stored in the field subject to restrictions to prevent contamination of groundwater and the risk of pollution. Poultry manure must be covered by an impermeable membrane (for example, polythene cover) within 24 hours of being placed in the field.

Closed Periods

For chemical fertiliser on grassland the closed period is 15 Sept – 31 January. For livestock manure the closed period is 15 October – 31 January. There are no closed periods for spreading FYM or dirty water.



Application Limits

A limit to the rate of organic nitrogen applied to land in effect represents a limit on the stocking capacity of any individual farm business and so reduces the pollution risk associated with the land spreading of manures. This “N loading” figure is a measure of the total organic nitrogen excreted by livestock on the farm (adjusted for any that is imported or exported) spread over the total land farmed. Standard nitrogen production figures are available for all classes of livestock. An online calculator is available at www.ruralni.gov.uk.

The regulation sets a limit of 170 kgN/ha. It is very important that producers establish their N loading. If at or above the limit, as about 50% of dairy farms are estimated to be, then options need to be considered. These include taking more land, reducing stock numbers or exporting slurry.

A Derogation to apply up to 250 kgN/ha/yr by individual farmers in specific circumstances may be an option subject to EU approval for such a measure. This is actively being sought by government.

At any single application there is a limit of 50 cubic metres or 50 tonnes per hectare (approx 4500 gallons or 20 tonnes per acre)

There is also a limit to the amount of chemical fertiliser that can be applied. On grassland the limit is dependant on the type of livestock contributing the major proportion of the total livestock organic nitrogen output. Where more than 50% of the annual total livestock nitrogen is from dairy stock (cows and heifers) then a higher limit applies, typically 289 kgN/ha. This equates to an average of 8.5 bags/acre of 27% N fertiliser across all the grassland area of the farm.

Spreading Methods and Conditions

The conditions that used to be recommended as part of the Code of Good Agricultural Practice relating to the spreading of all fertilisers and manures are now mandatory. Spreading, outside of the closed period, should only take place when soil and climatic conditions are appropriate. These conditions also apply to the spreading of FYM and dirty water for which there are no closed periods. The use of upward facing splash plates and sludgigator type spreaders is no longer permissible for either slurry or dirty water spreading.

Chemical Phosphorus Fertilisers

Fertilisers containing phosphate must not be applied unless there is a requirement. This will require determination of the soil status through soil sampling, crop requirement by reference to the recognised standards (RB209), and the phosphorus supplied in any organic manures applied.

Record Keeping

Records of land farmed, livestock numbers, fertiliser applied, and slurry/manure storage capacities are required. Slurry imports/exports need to be recorded if taking place. Existing records such as SFP, Aphis and farm maps will be useful. Basic fertiliser records may be the only additional information needing recorded.

Talk to your local CAFRE Dairy Development Adviser for guidance in relation to your own dairy business.

DAIRY HERD FERTILITY AT GRASS

Spring/early summer is generally seen as a period of reduced dairy cow fertility with lower conception rates. This is probably due to rapid nutritional change with reduced levels of concentrate feeding and high levels of protein in the fresh young grass. Fertility performance is closely linked to nutritional status, so it is important to maximise energy intake and minimise body condition score loss, particularly in high yielding dairy cows. This can be controlled by:

Minimising the impact of turnout on fertility - the transition to grass must be gradual, starting with 2-3 hours grazing, building up to half days over 7-10 days. Concentrate changes should also be made gradually. For example:

- Allow summer and winter concentrates to mix in the storage bin if possible;
- If phasing out diet feeding or out-of-parlour feeders, this should be started before turnout while increasing the amount fed through the parlour at the same time.

Concentrate protein content - high yielding dairy cows require a total dietary protein content of 17-18% in the dry matter. To maintain 17% protein in the total diet, concentrate protein level should be reduced to

16-18% as fed depending on milk yield, level of concentrate feeding and grass intake. Excess protein intake can have an effect on the developing embryo and increases the risk of embryo death.

Concentrate feed level - under ideal grazing conditions in May, grazed grass can support up to 25-27 litres of milk. For cows yielding more than this, concentrates should be fed using the guideline figures below. These levels should be reviewed if grass intakes are compromised by poor weather conditions, etc., especially prior to service and the 6-8 weeks post service.

Guideline concentrate feeding levels for high yielding cows under ideal conditions in May.

| Milk yield (litres) | Concentrate feeding level (kg) |
|---------------------|--------------------------------|
| 30 | 3 |
| 35 | 6 |
| 40 | 9 |

Buffer feeding - in wet weather when grazing conditions are difficult, buffer feeding with grass silage or alternative forages will help maintain daily dry matter intakes in high yielding cows. Maize or wholecrop silages are ideal buffer feeds due to their high dry matter, low protein, high starch and high digestible fibre content. Production responses will vary according to the silage quality and grass availability.

Heat detection - for herds using AI, heat detection is perceived to be more difficult when cows are at grass. This is because cows are generally observed less after turnout and are only seen at milking. Heat detection is still important - the best time being in the evening between 8 and 10pm. Heat detection aids such as tailpainting, teaser bulls and kamar strips can be very successful.

Synchronisation of late calving cows is also an option to minimise the number of cows not in calf at the end of the breeding season.

Contact your local CAFRE Dairy Development Adviser to discuss dairy herd fertility.

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