July 2004

INTRODUCTION

The implications of the Mid Term Review of the Common Agricultural Policy have been a key area of interest to dairy farmers in recent months. Forthcoming EU Directives will provide a significant challenge to the intensive dairy, pig and poultry sectors. However intensive farmers in other EU countries have adapted to the legislation and Northern Ireland farmers are capable of meeting the new standards.

It is important that each farm business considers how the proposed legislation will affect their individual circumstances. For some this will prove challenging, for others opportunities may arise.

This issue of the Dairy Bulletin aims is to provide information on the proposed Nitrates Directive, how to calculate the farms slurry production, options for meeting the slurry storage and spreading requirements on farm and looking at the costs of various methods of slurry storage.

Benchmarking the dairy business is an essential tool to assess the financial implications of any planned capital work on the farm. It is imperative that any investment is made in a carefully planned way.

Any changes in your dairy business should be discussed with the local dairying development adviser. The local adviser will be available to offer help in a variety of different ways. Remember, you are not the only dairy farmer facing change.

CONTENTS:

The Nitrates Directive

The EU Nitrates Directive was first adopted by all Member States in 1991. The Directive aims to reduce water pollution caused by nitrates from agricultural sources and prevent further such pollution through the management of manures and other fertilisers. In Northern Ireland seven Nitrate Vulnerable Zones (NVZ's) have been designated to date, accounting for 0.11% of the land area.

However in 2000 the European Court of Justice ruled that the Directive should apply to eutrophic, or nutrient enriched, freshwaters. Eutrophication arises mainly from excess inputs of nitrogen and phosphorus from sources such as farming, sewage and industry. In Northern Ireland approximately 85% of our water is eutrophic or likely to become eutrophic. In these circumstances. Member States are required to designate such areas as NVZ's. Currently the industry is being consulted on designating the whole of Northern Ireland under the Directive.

The Directive states that within the designated areas an Action Programme to reduce and prevent pollution must be implemented, together with the development and promotion of a Code of Good Agricultural Practice.

PROPOSED MEASURES TO BE INCLUDED IN ACTION PROGRAMME

(These measures will be subject to further public consultation later in 2004)

Closed Periods

A proposed closed period of 15th October to 15th February for spreading of organic manures (with the exception of farm yard manure, dirty yard water and parlour washings).
A proposed closed period of 1st September to 15th February for chemical fertiliser (with arable exceptions related to demonstrable crop requirement).

Storage Requirements

At least 1 month greater than the closed period ie 5 months storage under current proposals of a 4-month spreading ban.

Fertiliser Limits

Organic Nitrogen must be limited to 170kg N/ha.
Chemical nitrogen fertiliser must be applied according to crop requirements**.**
Because of the eutrophication problem, measures will be required in relation to phosphorus.

Spreading and ground conditions

Must not apply slurry when soil conditions are waterlogged, frozen or snow covered.
Must not apply when heavy rain is forecast within 48 hours.
Must not apply on steeply sloping ground where there is a risk of run-off.
Must not apply within 10 metres of a watercourse and 50 metres of a well.
Must apply slurry close to the ground.

Record keeping
Required to demonstrate compliance with the Action Programme.

Calculate the farms slurry production

One of the current proposals under the Nitrates Directive is that all livestock farmers will require sufficient capacity to collect and store slurry for one month more than the closed period.

It is advisable that all farmers now take account of their own situation by working out how much slurry capacity is required for their farm at present and to calculate the storage capacity of all existing slurry stores. Having worked out this information, it should be easier to make an informed decision on slurry storage requirements.
Consider the following scenario; a dairy farmer milking 80 cows and bull, keeping his own heifer replacements wants to know if he will have to increase his slurry storage capacity if the requirement for five months slurry storage comes into effect. All silos are covered and no livestock have access to open yards throughout the winter period. Table 1. below shows the amount of slurry capacity that will be required on the farm to store slurry for five months.

Table 1:

Type of Livestock Housed		**Slurry produced per animal (m^3/ month)**		**No. of Livestock**		**Volume of Slurry produced per month**
Cattle		**V**	***x***	**N**	**=**	*Answer = **V** x **N***
Dairy cow	650kg	1.93	***x***		**=**	
Dairy cow	550kg	1.61	***x***	80	**=**	128.8
Dairy cow	450kg	1.28	***x***		**=**	
Suckler Cow	500kg	0.98	***x***		**=**	
Cattle > 2 years	500kg	0.98	***x***	1	**=**	0.98
Cattle 1 – 2 years	400kg	0.79	***x***	25	**=**	19.75
Cattle 0.5 – 1 years	180kg	0.40	***x***	14	**=**	5.60
Calf	100kg	0.21	***x***	12	**=**	2.52
Parlour washings		0.55	***x***	70	**=**	38.50
Total slurry produced per month					**=**	**196.15 m^3**
Total slurry produced during proposed 5 month minimum storage period (196.15 m^3x 5)					**=**	**980.75 m^3**

Having calculated the required capacity for the farm, the next stage is to determine the storage capacity of the existing slurry stores. On the case study farm there are three slatted slurry stores constructed below ground. By multiplying the length by width by depth of each of these tanks, the total existing slurry storage capacity can be worked out.

Table 2.

	Length (m)	**Width (m)**	**Depth (m)**	**Capacity (m^3)**
Cow House Tank	29	10.7	2.44	757
Heifer Shed Tank	24	3.35	2.13	171
Collecting Yard Tank	9.45	6.10	2.13	123
Total Capacity				1051

It can be seen from the above example that the farm has sufficient slurry storage capacity for a five-month period at the given stocking levels. This farm example assumes that there are no open yards on this farm however if there is run-off from dirty yards it will have to be collected and stored. In this scenario storage capacity would then not be sufficient.

Freeboard has not been taken into account in the worked example. Freeboard is the unfilled depth of the top of a slurry or effluent tank. Freeboard allowances are 750mm for earth bank lagoons and 300mm for above and below ground tanks. Freeboard is not a legal requirement for SSAFO "exempt" structures ie structures completed before 1st December 2003. However it is considered best management practice to adhere to freeboard requirements in all structures. When freeboard allowance is included in the example tank capacity is reduced to 916 **m^3** .

If you require assistance to calculate slurry production and storage capacity contact your local Dairying Development Adviser. It is important to remember that the figures used in the calculation may change depending on the final draft of the Nitrates Directive.

Options to consider on farm

The following options may be considered by dairy farmers in light of the proposed Nitrates Directive:

1. Separate clean/dirty water (not contaminated with cow manure)
   Clean water can be diverted to storm water. Dirty water must be collected and can be spread in accordance with the Code Of Good Agricultural Practice for the Prevention of Pollution (COGAP) within the closed period if it is not contaminated with cow manure.

2. Separate parlour and dairy washings. If parlour and dairy washings are collected and stored separately they can be spread within the closed period, again in accordance with COGAP.

3. Straw bedded systems producing farmyard manure which can be spread within the closed period may be considered on some farms.

4. Utilise extensive grazing systems

5. Reduce herd size to meet current storage capacity.

6. If the farm has not enough slurry storage after considering the above options then it will be necessary to construct extra slurry storage capacity. Refer to the next section on costs of storage.

7. Consider methods of slurry separation in conjunction with either existing or new slurry storage capacity.

A scientific working group has recently confirmed that separated slurry can be treated as FYM and spread at all times.

Costs of Slurry Storage Options

Lack of storage is the main reason for spreading slurry when conditions are unsuitable. Impending legislation will require periods and conditions when slurry cannot be applied to the land.

SSAFO Regulations

The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations (Northern Ireland) 2003 (SSAFO regulations), which came into effect in July 2003, specify criteria that dictate the volume of storage required and state the construction standards of new effluent/slurry tanks. This legislation includes some of the following requirements:

A suitably qualified engineer must certify the design specifications of all stores.

No part of the storage facility should be sited within 10 metres of any waterway or field drain.

Storage facilities must have freeboard (a specified distance with no slurry or liquid) at the top of the tank. The type of structure used to store the slurry determines the depth of the freeboard as shown below:

- Below ground concrete tanks and above ground stores 300mm
- Earth banked lagoons (lined or non lined) 750mm

A farmer intending to build a new slurry storage structure or substantially alter an existing structure should consult the Agricultural Regulations Team,Water Management Unit, Environment and Heritage Service(DOE NI),Belfast.Telephone 028 9025 4754.

Storage options to consider are:

Below ground tank

Approximate Cost/m^3	**£65**

Advantages

All of the structure below ground and not in public view.
A solid cover could provide a storage area provided the cover is designed to carry any loading that would be imposed on it.
If inside an existing house the tank below the house requires no extra land
If covered with slats, it requires less labour input, for example, slurry scraping reduced.

Disadvantages

Expensive to construct.
Difficult to detect possible leakages.
Difficult to construct inside existing houses.
If constructed in an existing house, livestock must be removed before mixing.
Rainwater will be collected if not fitted with a solid cover.

Above ground store

Approximate Cost/m^3	**£45**

Advantages
Can be sited away from existing housing to allow for planned developments.
Large capacity for a small “footprint”.
The store can be mixed without the removal of animals from farm buildings.

Disadvantages
To comply with SSAFO regulations when not roofed or covered a depth of 0.95m is not available for the storage of slurry as free board must be available.

Rainwater is collected which must be subsequently spread in a specific time period.
Regular mixing required to assist in the management of the store.

Earth banked lined lagoons

Approximate Cost/m^3	**£35**

Advantages
Low cost system.
Quick and relatively simple to construct.
The store can be mixed without the removal of animals from farm buildings.

Disadvantages
Large surface area that will collect a lot of rainfall, which must be subsequently spread in a specific time period.
A substantial volume of the structure not available for slurry storage due to freeboard and rainfall – a depth of 1.4m.
Large amounts of excess spoil to be disposed of in an environmentally friendly manner.

Benchmark the dairy business

Farmers who are planning for a future in dairying need to be competitive, and to do so need to review performance against farms who have adopted a similar production system. Sustainable profits are the key to business strength and in turn provide the basis for investment and long term growth. Benchmarking allows a progression in development where the overall goal of a strong farm business is achieved through a series of smaller decisions.

Nearly 300 dairy farmers in Northern Ireland (10% of the milk pool) have been using the Greenmount Benchmarking System each year for the past 4 years. The farmers on the system agree that it is essential to know the herd performance compared to other dairy farmers, identify areas for improvement in the area for improvement recognising this is a key step to ensuring the viability of their farm post the Mid Term Review. If farmers intend remaining in dairy farming they need to establish current strengths and weaknesses and use this as a basis for forward planning.

Comparisons

The comparisons with other herds are confidential but cover many aspects of the business including all the key financial and physical parameters on Northern Ireland Farms. Financial results are comprehensively itemised and presented in terms of per litre, per cow and per hectare. Physical results cover all aspects of variable inputs and overheads for the farm and help to identify the reasons behind the financial performance. Comparison of feeding systems, calving pattern and using own machinery or contractors can all be considered.

Replacement Heifers

Benchmarking has focused on the performance of the dairy herd itself which did include the replacement cost of the herd but didn't quantify the specific costs, returns and profit of rearing the dairy heifers. Benchmarking for the 2003/04 milk quota year is now taking place and this year for the first time it will be possible to benchmark the dairy heifer enterprise alongside the dairy herd. What does it actually cost to rear each replacement heifer that comes into your dairy herd? How much per litre of total milk production are replacements costing you?

Greenmount Dairy Benchmarking can address these questions for your dairy herd providing answers in your own individual farm situation. Dairy benchmarking is an integral part of the Business Challenge which is designed to help farmers interpret the results from benchmarking. This involves groups meeting in local venues throughout Northern Ireland. To benchmark both your dairy herd and your replacement enterprise contact your local dairying development adviser.

From farm-gate to supermarket – Supply Chain Awareness Programme

The DARD Supply Chain Awareness Programme for dairy farmers was developed to increase producers' knowledge of the dairy supply chain. It aims to improve communication and co-operation between all partners involved in producing, processing and retailing Northern Ireland milk and dairy products.

Groups of milk producers take part in a programme specific to the dairy industry. The interactive programme gives milk producers an opportunity to:
gain a greater understanding of relationships between producers, processors and retailers.
learn about the various markets for NI dairy products and how they affect milk prices
find out about costs and margins involved from milk leaving the farm until it reaches the consumer
discuss how the Northern Ireland dairy industry can become more competitive in face of increasing competition.
examine how producers can increase their influence in the supply chain and gain better returns
Milk producers can enrol either individually or as a group. All those participating in the first two programmes commented positively and have welcomed the opportunity to gain an insight into how others in the supply chain operate.

The programme will be run at various venues to suit and there is no charge for participation. Lunch and refreshments will be provided on each day.

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For further details and to enrol, phone 028 9052 4793 or e-mail michelle.bell@dardni.gov.uk.

External WTSC visit to Campina, Holland

DARD's Supply Chain Development Branch organised a visit by a group of dairy farmers, representatives of the processing industry and the Ulster Farmers' Union to examine the dairy supply chain in the Netherlands. The trip, part of the Supply Chain Awareness Programme, was facilitated by Campina BV, and the itinerary started with visits to two farms and a highly automated cheese production plant. This was followed by a discussion on co-operative structures and supply chain mechanisms at Campina headquarters in Zaltbommel, and concluded with visits to two retail outlets in Amsterdam. The trip provided an insight into the funding and involvement of producers in the activities of one of Holland's largest dairy co-operatives and underlined the importance of investment in efficient processing and product development in securing viable markets

Brucellosis – risk to the farm family

Introduction

To many people brucellosis is a disease that affects only cattle but there is also a serious risk of it spreading to those coming in contact with infected animals. This article explains how the disease can spread to humans and how the risks can be minimised.

Human Cases in Northern Ireland

In recent years the total number of cases of human brucellosis in Northern Ireland has risen sharply. Since 1998 there have been 90 reported cases, yet in the period 1986 – 1997 there were none. The recent upsurge in human cases has been directly linked to the increased level of infection in Northern Ireland's cattle as illustrated in Fig 1 below. Whilst the downward trend in the percentage of positive herds is encouraging, and is an indication that control measures are having an effect, it is still too soon to relax. It is therefore vital that everyone continues to play their part in the eradication of the brucellosis in Northern Ireland.

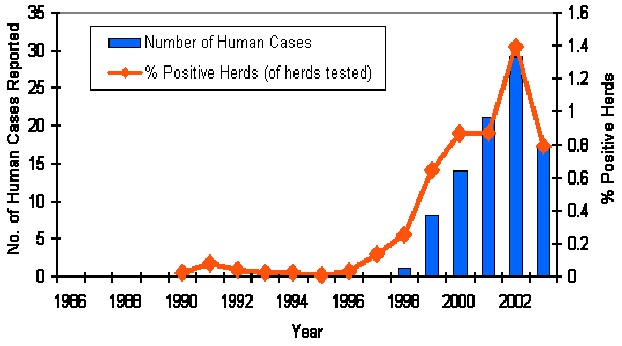

Fig. 1 Human and Bovine Brucellosis in Northern Ireland, 1986 - 2003

The nature of the risk

The disease is occupational in nature, being contracted primarily by direct contact with infected breeding cattle or by drinking infected raw milk. It is caused by the bacterium Brucella abortus which is present, in vast numbers, in the birth products and milk of infected animals. It enters the body through breaks in the skin, by being swallowed or inhaled, or from splashes to the face. It is destroyed by pasteurisation and cooking.

The potential risk is greatest then, for those who assist at calving, tend animals with retained placenta, handle aborted foetuses or have any contact with the birth products. This places farmers directly in the front line but others may be at risk as well, namely those

Helping at calvings
Drinking unpasturised milk

Testing animals
Treating animals
In the vicinity of infected animals

With a swish of its tail an infected animal can send a droplet of infected material through the air. If this lands in someone's eye or on their skin they may become infected.
Of the 81 cases, where the occupational details of the infected people are known, 72 involve people living and working on the farm.

Symptoms of the disease

The symptoms of brucellosis may be intermittent and are very similar to those of flu. They include headaches, fatigue, fever/sweating/chills, pains in joints, general aches and pains, depression and weight loss. If you are suspicious consult your doctor immediately.

Reducing the risk

Do not drink raw unpasteurised milk
Keep children away from recently calved or aborted animals
Keep to a minimum those who assist or are present at calving.
Cover all cuts and abrasions with waterproof dressings – brucella enters the body through uncovered wounds.
Wear protective gloves to cover hands, forearms and arms to ensure there is no skin contact with animal fluids, tissue, after-birth material etc.
Wash hands, forearms and arms thoroughly AFTER work and BEFORE eating, drinking or smoking.
Wear a visor if there is a risk of body fluids or tissue etc being splashed on your face, lips or eyes.
Wear a PP3 respirator to prevent the organism being inhaled.
Be aware of the early symptoms and seek medical advice if you have any concerns.
Farm employees should immediately notify their employer if they have symptoms.

Take all appropriate measures to ensure that you do not bring infection home to others on your clothing, boots etc.

Your responsibilities

By law you have a responsibility to take all reasonable precautions to protect yourself, your family and anyone else who may have contact with your animals.

If your doctor confirms that you have contracted brucellosis as the result of contact with infected animals you should report this to the Health and Safety Executive for Northern Ireland (Tel: 0800 0320 121). Employers are also required to report if an employee becomes infected. If you are self-employed and you contract the infection, you should also make a report.

Seek veterinary advice early if you have concerns about animal health.

Reporting of Abortions

Herd owners are legally required to notify abortions in their herd to their local Divisional Veterinary Office. Prompt reporting of abortions is key to the eradication of the disease in cattle and thus to the prevention of infection in humans.

More Information

For further information, including leaflets about the disease, contact your local Divisional Veterinary Office or The Health and Safety Executive for Northern Ireland on 0800 0320 121

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