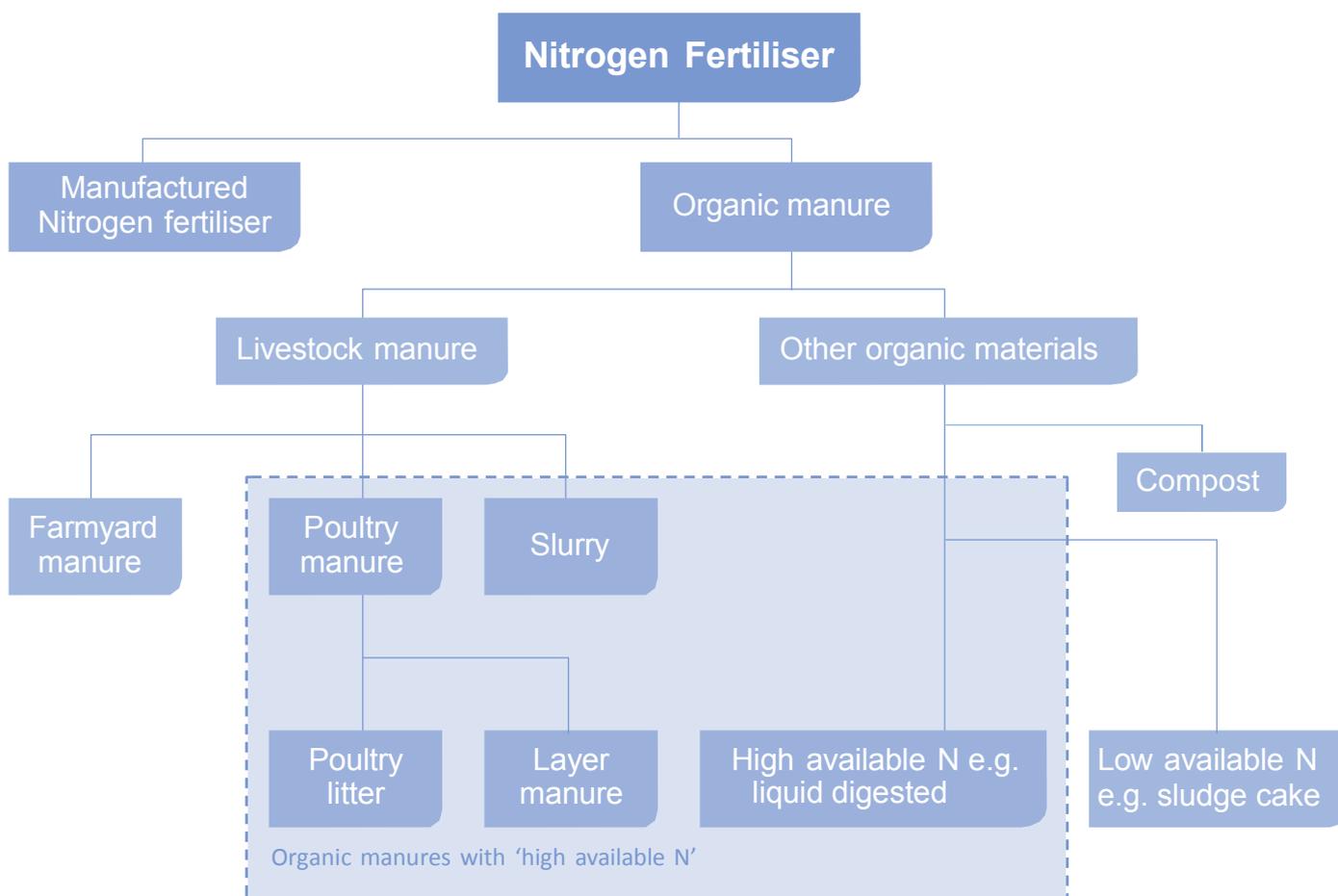




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FIELD APPLICATION OF NITROGEN FERTILISER

Figure 1: Nitrogen fertiliser types



Definition of Slurry

Slurry is defined as excreta produced by livestock while in a yard or building, including mixtures with bedding, rainwater and washings that have a consistency that allows them to be pumped or discharged by gravity.

This includes liquids from the following sources, all of which are rich in nitrogen:

- weeping-wall stores;
- strainer boxes;
- slurry separators;
- silage effluent.

For the purposes of the NVZ rules dirty water is not classed as slurry. Dirty water is defined as lightly contaminated run-off from fouled concrete yards or parlour wash water that is collected separately from slurry.

What does this booklet cover?

This booklet explains the rules that you must follow when applying any type of nitrogen fertiliser. The rules are explained in three parts:

- Part-1** explains the rules relating to the application of all nitrogen containing fertilisers;
- Part-2** deals with the specific rules relating to the application of organic manures;
- Part-3** deals with the specific rules relating to the application of manufactured (chemical) nitrogen fertilisers.

Part-1: Rules relating to the application of all nitrogen containing fertilisers

1. You **must** complete the Nmax calculation for a particular crop type (including grass), before applying any nitrogen fertiliser to any area growing that crop. For further information on calculating Nmax you should refer to Booklet 6 'Calculating Nmax for Arable Crops and Grassland'.
2. Applications of nitrogen fertiliser **must not** exceed the Nmax calculation for a particular crop type. This means that the total nitrogen applied as manufactured fertiliser **plus** the crop available nitrogen from organic manure applications must not exceed the Nmax.
3. You **must** keep a record of any application of nitrogen fertiliser, stating the quantity and type applied to each crop or field and the date of application.
4. All nitrogen fertilisers must be applied to land in as accurate a manner as is possible. This means that application equipment must be suitable for the type of nitrogen fertiliser being spread and that it must be calibrated for use with that fertiliser type.
5. Nitrogen fertiliser must not be applied to any land if:
 - l the soil is waterlogged;
 - l the land is flooded; or
 - l the soil has been frozen for 12 hours or longer in the preceding 24 hours.
6. You must not apply nitrogen fertiliser if there is a significant risk of nitrogen getting into any surface water. This means that you must make an assessment of the risk before applying any nitrogen fertiliser. In making this assessment, you have to take the following factors into account:
 - l the slope of the land, particularly if it is greater than 12 degrees;
 - l the ground cover;
 - l the proximity of any surface water;
 - l weather conditions; and
 - l the type of fertiliser being applied.

You do not have to record this assessment, but it is in your interest to do so as RPID will take these conditions into consideration when assessing any breach if pollution has occurred as a result of an application.

Part-2: Rules relating to the application of Organic Manures

Before applying any organic manures you must have completed your Risk Assessment Plan (see Booklet 4 Manure Planning Part 1)

Organic manures include:

- l livestock manures; and
- l all other nitrogen fertilisers derived from organic matter, including sewage sludge, compost and other organic wastes.

2.1 Organic Manures with a high available nitrogen content

Some organic manures have a high available nitrogen content. This means that more than 30 percent of the total nitrogen content will be released in the year in which it is spread on land. Manure types that fall into this category include:

- l cattle and pig slurry;
- l poultry manures (excluding duck manure);
- l liquid digested sewage sludge.

There is a significant risk of nitrogen being lost to the environment if these manure types are applied at times of the year when there is little crop uptake of the available nitrogen. There are therefore **specific rules** relating to these manure types.

Closed periods: these manure types **must not** be spread during the closed periods identified below, which also take account of the risks associated with different soil types and land use.

Soil Type	Grassland	Other Land
Shallow or Sandy Soils	1st September to 31st December	1st August to 31st December ^{a,b}
All Other Soil Types	15th October to 31st January	1st October to 31st January

^a applications allowed up until 15th September if a winter cereal crop is sown by that date

^b applications allowed up until 30th September if a WOSR crop, catch crop or cover crop sown by that date

Quantitative Restrictions: In order to prevent excessive applications either side of the closed period, the quantity of these manure types that can be applied to land is restricted as follows:

The restricted quantities are:

- l poultry manure – 5 tonnes/ha;
- l all other organic manures with high available N – 30m³/ha.

The restricted period is:

- l four weeks prior to the start of the relevant closed period;
- l from the end of the relevant closed period until 14th February inclusive.

Applications on bare or stubble ground: You **must not** apply these manure types on bare fields or stubble ground during the period 1st July to 30th September **unless** you:

- l sow a crop within 6 weeks of the first application; and
- l comply with all other aspects of the closed period.

2.2 Specific rule relating to all types of livestock manure

You must leave a period of 3 weeks between each application of livestock manure. This means that you cannot make a repeat application of livestock manure to the same area of land within 3 weeks of a previous application.

2.3 Specific rules relating to all organic manures

Field application limit for organic nitrogen: The total nitrogen content of organic manures, other than compost, spread on an individual field must not exceed 250 kg N/ha in any 12 month period. This limit is calculated on the basis of the available spreading area of the field and excludes grazing deposition.

Compost should not be applied to any field where the application would result in the total nitrogen contained in organic manure (including compost) applied to any field exceeding a rate of 500 kg N/ha in any 24 month period. This limit is calculated on the basis of the available spreading area of the field and excludes grazing deposition.

For further information on this rule see Booklet 4 – Manure Planning (Part 1).

No-spread zones: Organic manures must not be applied to land in the following areas:

- within 10 metres of any surface water; or
- within 50 metres of any well borehole or similar work that is used as a water supply.

2.4 Spreading equipment for slurry

Slurry must not be applied using a high trajectory splash-plate. The only exception to this is for applications to growing arable crops. This exception has been included to accommodate certain application systems which have a relatively high trajectory in order to achieve a uniform spread pattern across tramline widths.

Although it is not a legal requirement of the NVZ Action Programme, you should consider improved techniques for applying slurry, such as band spreaders, trailing hoses and injectors. These methods will improve the uniformity of spread and reduce ammonia and odour emissions while increasing the amount of nitrogen taken up by crops.

Part 3 – Manufactured (Chemical) Nitrogen Fertiliser

Closed periods: Manufactured nitrogen fertiliser must not be applied to crops and grassland during the periods identified in the table below. Recent trials work, funded by the Scottish Government, has confirmed that there is no statistically significant response to autumn nitrogen applications on winter barley crops, even on sandy soils. Any manufactured nitrogen applied to winter barley and other winter sown cereals during this time will be poorly utilised by the crop. Any nitrogen that is not taken up by the crop poses a significant risk of being lost to the water environment.

There are 2 exceptions to this rule:

- Autumn nitrogen can be applied to winter oilseed rape in accordance with the Nmax tables in Booklet 6
– Planning Nitrogen Use – Calculating Nmax for Arable Crops and Grassland.
- Up to 100 kg/ha can be applied to other high N demanding field brassica crops.

Name of NVZ	Grassland	Other Land
Moray, Aberdeenshire, Banff & Buchan NVZ	15th September to 20th February	1st September to 20th February
All other NVZ areas	15th September to 15th February	1st September to 15th February

No-spread zones: You must not apply manufactured nitrogen fertiliser within 2m of surface water. This is a requirement of the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended). This should be regarded as a minimum distance to protect surface water from pollution. Greater distances may be required depending on slope and the risk of causing pollution.

Notes

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