

## 605.01 WHY COMPOST FARMYARD MANURE?

When FYM is stored, there are changes in its chemical composition as the result of leaching and gaseous losses. When applying fresh FYM, nutrient losses reduce its fertiliser value at spreading and may pollute the environment. Effective composting does not mean leaving the pile to 'rot', but providing conditions that promote the breakdown of organic matter.

The advantages of effective composting over fresh spreading FYM to land include:

- Can kill weed seeds.
- Reduces the volume of FYM by up to 50%.
- Reduces pathogens and odours.
- Easier and cheaper to spread and incorporate into sward.
- Less danger of crop contamination.
- Good soil conditioner: more effective than FYM.
- Source of OM and nutrients.
- Reduces risk of pollution to water courses.
- More nutrient rich.

Composting is a part of recycling nutrients on the farm; key to organic farming but can be used to good effect on conventional livestock farms.

### What is Composting?

Microbes feed on organic matter and it decomposes giving off heat, carbon dioxide and water. This changes the original plant and animal material to a stable humus with reduced volume, a reduced Carbon to Nitrogen (C:N) ratio and it becomes an ideal soil conditioner.

### How to Compost

For the composting microbes to work well, it is essential to have a constant supply of air and moisture and nutrients from manures and other bulk materials like straw.

Turn regularly to achieve the optimum temperature (70°C) and add water if heap becomes dry.

Cover the heap from rain to reduce run off and nutrient losses.

If stored in field, use windrow shaped heaps to improve surface area to volume ratio for effective composting and to allow water to run off the heap.

Some materials are easier to compost than others. Those with high carbon (C) like woody materials can inhibit fermentation and 'lock up' the nitrogen (N) both in the manure and when applied to soils. Farmyard manure from cattle is the easiest to compost because of its C:N ratio, porosity, moisture content and nutrient value.

### Siting the Compost Heap

If the manure is not composted in the livestock shed, check the codes of soil and water and cross compliance rules to ensure that run off from the heap will not enter watercourses - remember run off from muck heaps contain valuable nutrients.

Compost varies depending on the type of livestock, and type and amount of bedding.

#### Manure Analyses:

	DM(%)	N kg/t	production L/day	C:N ratio
Cow slurry	6	3	53	20
Cow FYM	25	25	63	25
Sheep	60	10	n/a	20
Sow	6	7	7	16
Poultry (1000)	30	16	115	0.1

#### Bedding Materials:

	N%	C:N ratio	
Straw	0.7	80	*All bedding materials have a higher C:N ratio than manures.
Sawdust	0.24	442	* Soil C:N is 10 to 12.1. Microbes need both; C for energy, N for protein & reproduction
Hay	1.3	32	* High C:N --> N is locked up
FYM	3.5	25	* Low C:N --> N is lost as ammonia and nitrous oxide
Tree bark	0.14	500	

#### Value of Compost

The value of compost lies not only in the nutrients like N, P and K, but in raising the humus content of soil organic matter. There are few 'standard values' so laboratory analyses of compost can give a useful guide to the nutrients applied to the land from compost.

Fertiliser values from Welsh organic demonstration farms with different composted beddings:

	Bracken	Rushes	Std Straw (cattle)
pH	9.2	8.9	25
DM%	24	20.7	25
Total N	3.86	4.10	5.9
Total P	1.5	1.8	3.1
Total K	8.1	4.9	6.6
Total Mg	1.1	1.1	1.6
Total S	0.69	0.54	2.3

#### Composted or Fresh Manure?

Consider:-

**Use** - compost with a lower C:N ratio than soil will be less detrimental to soil life and be higher in stable humus BUT fresh manure will have more available nutrients, will add more organic matter but may well create an N deficit where soil N is low, it will be 40% greater in volume and cost more to move and spread

**Soil type** - soils with low organic matter levels or light texture (sandy) will benefit from well composted manures.

**Site** - ensure that there is a suitable site for storage and composting; if not then spreading straight from the shed is the only option

**Housing** - if manure is too wet, or is in the form of slurry composting is not an option

#### FURTHER INFORMATION

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#### Other Factsheets

604.01 - The Nutrient Content of Slurry and Manure

Soil and Nutrient Management on Organic Farms (ADAS/IGER/HDRA)

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