

How much manure and slurry is produced over the housed period?

After completing this section you **will know the amount of slurry and manure¹ generated by your housed livestock.**

Nutrient values in slurry and manures have been shown to differ from farm to farm, so it is recommended that slurry and manure samples are tested (as spread) in an approved laboratory which will give a more accurate nutrient value.

Calculating slurry produced by housed livestock

Using Tables 2 and 3, calculate the volume of excreta (slurry) produced by housed livestock:

- Put the livestock type and number of housed livestock that produce the slurry into the first two columns in Table 3.
- Multiply this by the typical quantity (volume) of slurry produced by that type of animal per week (using typical values from Table 2).
- Multiply by the number of weeks each type of livestock is housed.

This will give the slurry produced in the housed period in m³. An example is included in the first line of Table 3 based on a 26 weeks (6 months) housed period.

The total volume of slurry (m³) in Table 3 gives an approximation of the amount of slurry produced and added to your store.

For example:

Production from 100 housed dairy cattle during October would be:

- Average weekly production from each cow (0.45 m³ taken from Table 2), multiplied by the number of cows in the herd (100) = **45 m³ weekly.**
- Monthly production is the daily production from the herd (45 m³), multiplied by the number of weeks in October (4 weeks) = **180 m³.**

Over the housed period:

- Housed period of 26 weeks (45 m³ weekly x 26 weeks) = **1,170 m³.**



¹ values in this section refer to animal excreta only and do not take into account any additional water.

Table 2. Typical values of excreta produced by housed livestock per week (adapted from NVZ Action Programme Guidelines)².

Livestock type	Volume of excreta (slurry) produced per livestock type per week (m ³)	Volume of excreta (manure) produced per livestock type per week (m ³)
1 Dairy cow (over 9000 litre milk yield)	0.45	0.45
1 Dairy cow (6000 and 9000 litre milk yield)	0.37	0.37
1 Dairy cow (up to 6000 litre milk yield)	0.29	0.29
1 Dairy heifer replacement (13 months to first calf)	0.28	0.28
1 Dairy heifer replacement (3 to 13 months)	0.14	0.14
1 Beef suckler cow (over 500kg)	0.32	0.32
1 Beef suckler cow (up to 500kg)	0.22	0.22
1 Steer/heifer (over 25 months)	0.22	0.22
1 Steer/heifer (13 to 25 months)	0.18	0.18
1 Steer/heifer (3 to 13 months)	0.14	0.14
1 Bull beef (3 months and over)	0.18	0.18
1 Bull for breeding (over 25 months)	0.18	0.18
1 Bull for breeding (3 to 25 months)	0.18	0.18
1 Calf (up to 3 months)	0.05	0.05
1 Lamb (6 to 9 months)	-	0.01
1 Lamb/Hogg (form 9 months to first lambing, tuppung or slaughter)	-	0.01
1 Breeding ewe (to 60kg inc lamb to 6 months where applicable)	-	0.02
1 Breeding ewe (over 60kg inc lamb to 6 months where applicable)	-	0.04
1 Goat	-	0.02
1 Breeding deer	-	0.04
1 Deer (other)	-	0.02
1 Horse	-	0.17

Table 3. Volume of slurry produced over the housed period.

1	2	3	4	5
Type of livestock	Number of livestock	Volume (m ³) of slurry produced per week (from Table 2)	Number of weeks housed	Volume of Slurry produced in housed period (m ³)
<i>Example - Dairy cows (over 9000l milk yield per year)</i>	<i>100</i>	<i>x 0.45</i>	<i>x 26</i>	<i>= 1,170</i>
		x	x	=
		x	x	=
		x	x	=
		x	x	=
		x	x	=
Total volume of slurry (m³)				=

² Information on pigs and poultry is contained in Appendix 6.

Calculating manure produced by housed livestock

Use the same method to calculate the potential amount of manure produced in m³ from housed livestock using Table 4 and the reference data from Table 2.

A 'straw addition factor' (1.3 for dairy cattle or 1.15 for all other types of livestock) has been included along with a correction factor (0.70) to allow for the density of manures.

- Write the livestock type and number of housed livestock that produce the manure into the first two columns in Table 4.
- Multiply this by the typical quantity (volume) of manure produced by that type of animal per week (using values from Table 2).
- Then multiply by the number of weeks each type of livestock is housed and multiply by the straw addition factor. Divide then by the manure density value which is 0.70.

This will give the manure produced over the housed period in m³.

An example is included in the first line of Table 4 based on a 26 weeks (6 months) housing period using beef suckler cows over 500 kg, which will be multiplied by a straw addition factor of 1.15.

Table 4. Volume of manure produced over the housed period.

1	2	3	4	5	6	7
Type of livestock	Number of housed livestock	Volume (m ³) of manure produced per week (from Table 2)	Number of weeks housed	Straw addition factor (1.3 for dairy; 1.15 all other livestock)	Manure density value (divide by 0.70)	Volume of manure produced over the housed period (m ³)
<i>Beef suckler cow (over 500kg)</i>	50	x 0.32	x 26	x 1.15	/ 0.70	= 683.43
		x	x	x	/	=
		x	x	x	/	=
		x	x	x	/	=
		x	x	x	/	=
		x	x	x	/	=
		x	x	x	/	=
Total volume of manure (m³)						=

The total volume of manure in Table 4 gives an approximation of the amount of manure produced over the housed period and added to your store.

For example:

Manure production from 50 housed beef suckler cows (over 500 kg) during October (4 weeks) would be:

- Average weekly production from each cow (0.32 m³ taken from Table 2), multiplied by the number of cows in the herd (50) = **16 m³ weekly**.
- Before the straw addition factor and manure addition factors are applied, the monthly production is the daily production from the herd (16 m³), multiplied by the number of weeks in October (4 weeks) = **64 m³ in October**.

- The October production (64 m³) is then multiplied by the straw addition factor of 1.15 which is for all other livestock (non-dairy) = **73.6 m³**.
- The total manure volume produced over October with the straw addition factor considered (73.6 m³) is then divided by the manure density factor (0.70) = **105.14 m³**.

You can use these methods to calculate how much slurry and/or manure from your housed livestock is added to storage systems on a month by month basis or across the full housed period.

Further information

More ideas to reduce diffuse pollution risk and benefit the farm business are at www.farmingandwaterscotland.org

Scotland's Farm Advisory Service (FAS) also hold a range of information and run a free helpline - visit www.fas.scot for more information.



*This information is updated and abridged from The 4 Point Plan (2003). Version as of 01/04/20.
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