Manures - **Non-Commercial**

This is information about non-commercial manure products, such as those obtained from a farmer or road-side stand.

IMPORTANT: All animal manures may contain pathogens dangerous to humans, such as salmonella and certain strains of E. coli. These are especially dangerous if fresh manures are applied to vegetables grown in or close to the soil and to be eaten raw. **All fresh manures must be aged or composted (at temperatures 55-60C (130-149F) for longer than 2 weeks to kill pathogens[1]) prior to application, or fresh manures must be applied more than 4 months (120 days) before harvest.[2]**

The **information provided in the table below is unreliable** as the data sources may not be credible sources and their information could not be verified in peer-reviewed scientific sources.

Manure type	N[3]	P[3]	K[3]	Comments	Reference
Alpaca/llama manure	1.5 0.4	0.2 0.3	1.1 0.8[1]	Apparently the pellets won't burn plants. Must be composted at 60C (140F) for several weeks to kill listeria/salmonella and other pathogens if applied to food crops. Apparently, if using fresh or aged alpaca/llama manure, it is recommended to apply it to leafy crops and root crops at least 120 days before harvest or at least 90 days in advance of harvesting crops that don't make soil contact, such as staked or caged tomatoes. (BEWARE: This information is NOT from a scientific source and could not be scientifically verified!)	4
Chicken/poultry manures	1.1	1.4	0.6	Compost before use. Chicken, duck, pigeon & turkey droppings are considered 'hot' (high in N) and can easily burn plants if not composted first. Small amounts of dried manure could be mixed into the soil. Be aware that high amounts of antibiotics may have been used in raising the chickens. Chicken manure is likely to be weed-free[1].	5
Goat Manure	0.7	0.3	0.9	Compost before use.	5
Horse Manure	0.7 0.5	0.3 0.3	0.6 0.4[1]	Compost before use. Horse manure is rich in organic matter and may contain a larger number of weed seeds which may not be killed by composting unless temperatures are high. Horse manures may contain de-worming agents (e.g. ivermectin) which will kill earthworms, red-wigglers and damage other soil insects and larvae. These agents are degraded to low concentrations by composting at greater than 40C for ~24 days. [6]	5
Pig Manure	0.5	0.3	0.5	Compost well before use. Fresh manure is noxious[1]. Best to mix it with other manures or vegetable matter when composting. Manure from commercial operations may be high in copper.[1]	5
Rabbit Manure	2.4 2.0	1.4 1.4	0.6 0.6[1]	Compost before use. Rabbit manure is the 'hottest' of animal manures, so compost or use small amounts mixed into soil (for non-food crops). It could contain some pathogens (considered rare).	5
Sheep Manure	0.7 0.4	0.3 0.3	0.9 0.8[1]	Compost first. Sheep manure will heat up a compost pile faster than other manures as the pellets are drier.	5

Salts from animal manures can accumulate in soil and be a problem in poorly drained soil[1] (such as heavy clays). On Vancouver Island in well drained soils, salts will likely be washed away by our winter rains.
Antibiotics in farm manures: Veterinary antibiotics are degraded during animal manure composting at a rates of 64-90% depending on the antibiotic. As these antibiotics are not completely degraded, potential for soil contamination remains.[7] Studies of (raw) manure-applied vegetables showed some uptake of antibiotics[8]. Uptake was via water transport and passive absorption, and concentrations were greater in leaves than stems than roots[9].

[1] https://www.westcoastseeds.com/blogs/garden-wisdom/poop-manure
[2] https://extension.wsu.edu/animalag/content/manure-on-your-farm-asset-or-liability/
[3] Nitrogen–Phosphorus-Potassium values are not reliable and may vary depending on the product.
[4] https://homeguides.sfgate.com/fertilizing-alpaca-manure-86093.html
[5] http://www.marijuanafertilizers.com/manures.html
[6] http://cwmi.css.cornell.edu/ivermectin.pdf
[7] https://www.ncbi.nlm.nih.gov/pubmed/30308823
[8] https://pubs.acs.org/doi/abs/10.1021/jf404045m
[9] https://www.sciencedirect.com/science/article/pii/S0269749110002149

(Info-sheet compiled by M.Finvers for VMGA, Feb 2020)