KINGMAN IS GROWING!

By Charlee Ware, Kingman Area Master Gardener

On his farm, your neighbor has. . .

a horse and some cows and sheep and chickens and a whole lot of …manure. Either you learn to love it or it stinks. It can be one of the best resources for our desert home gardens. According to an Oregon State University report, more than half of plant nutrients fed to farm animals end up in manure—a wealth of organic matter to texture our desert soils, as well as a nutritionally complete diet for our plants.

News reports, attributing an E.coli bacteria contamination of fresh spinach to beef cattle manure from adjacent pastures, has home gardeners questioning the use of fresh animal manure on or near fresh vegetable gardens.

Not all manure is contaminated, and we as home gardeners will not take the opportunity to find out. Lab testing procedures are extensive and expensive, so they really aren’t in the picture for our home gardens. However, taking precautions are.

Master Gardeners and the University Extension Services across the U.S. still recommend plant based compost and well-composted and matured animal manure as soil amendments for home flower and vegetable gardens.

Why do we even need this stuff? which are best? what are the basics needed to make compost? how do I make well composted animal manure? how to incorporate this black gold? and when to use it? are there dos and don'ts? These are very good questions to ask before spreading it around or digging it in.

Why do we even need this stuff?
If you are growing native desert plants, you do not. Desert plants have adapted. They like our desert soils just the way they are. However, if you want to grow decent non-native flowers or vegetables, they expect to have their roots in organic soils. Humus breaks up the “toughness” of the soil, increases its moisture holding capacity, provides aeration, and adds nutrients.

**Which are best?**

If you are in business, it might matter. However, in a home garden what ever you have available is best. To complicate things further, in addition to compost, there are both “animal manures” and “green manures.” Remember the horse and cows and sheep and chickens at the beginning of this article --- they make the animal manure. Friends with corrals generally are willing to donate to your garden, if you are willing to help shovel and to give them ripe tomatoes now and then.

Green manures are cover crops planted during an off-season, then tilled into the soil. Some are leguminous to add nitrogen; some add long roots to help break up our hard clay soils; and all add organic matter to improve water retention and aeration. In your home garden, you may till them directly into the soil or cut and use to make compost.

Compost is something the home gardener makes. It can include weeds (preferably before they seed), kitchen vegetable scraps, coffee and tea grounds, pruned plant materials (non-diseased), leaves, and animal manure (not dog or cat).

**What are the basics to making compost?**

First, you will need a space of approximately 3-5-feet square, within distance of a watering source. Most small gardeners like to hide their compost pile behind a fence or wall. It can be an elaborate 3-bin box, a purchased drum, a black or clear plastic garbage bag or can, or just a pile. Mine is made of stacked cement blocks with leftover plywood for a gate. You can also do what the old-timers did — bury plant materials directly into the soil. In fact, a test done four or five years ago at the University of Nevada Las Vegas Master Gardener Demonstration Orchard showed this to be the quickest method to reduce plant material into humus.
The second basic item is the plant materials. It is best to chop into small pieces, and layer varied types, especially leafy green and brown wood, along with animal manures, and a shovel or 2 of soil. If animal manure is not available, and most of your plant materials are brown, you may need to add a commercial type of “hot” nitrogen fertilizer, such as ammonium sulfate or a commercial urea, labeled for example 20-0-0.

Third, you need to add water. In our desert climate, the plant or manure breakdown process must be encouraged with dampness. Wet it thoroughly as you are building the layers, and then every couple of days water along the dry outside 4-5 inches.

The fourth basic is time. If you want to “hurry things up”, turn the pile once a week, and ensure everything is damp, but not dripping. If you are in no hurry, let it set, keep adding plant matter to the top, and water it now and then. In a few months, check underneath, and you will find nice dark earth.

**How can I make well-composted animal manure?**

Ideally, compost containing animal manure should be contained in a 3-4 foot bin, 3-4 feet high. It should be damp, and should attain a temperature, in the center of the pile, of 130-140 degrees F. Once the center begins cooling down, it should be turned, to mix in the dryer, cooler edges with the center, and again watered and allowed to reach these high center temperatures. The warming up process takes 2-3 days, and the high temperatures last 4-5 days, hence the instruction to turn the pile once a week.

For home vegetable gardens, the University Cooperative Extension recommends all animal manures first be composted at these high temperatures to kill most pathogens. After which, the composted manure should be “cured” for 2 to 4 months for beneficial soil microbes to kill most of the remaining pathogens. The end product will be the *well-composted* animal manure.

**How do I incorporate this black gold? and when should I use it?**

Spread about 4 inches of compost over the planting area and dig or rototill it in to a depth of 6-8 inches, rake smooth, and then water the soil. The best time to dig compost into your garden is about one month before you plant seeds or small nursery plants. When planting gallon size or larger plants, you can mix it in with the planting soil.
Perennial herbaceous plants, shrubs, and trees will appreciate a twice-yearly dose of compost, raked into the top few inches of soil within their watering area. Apply the first dose in early spring at leaf break; the second in late August to encourage fall root growth.

**Are there dos and don'ts?**

Yes. Do use plant-only based compost, without the high heat process, in your vegetable garden.

Do use organic matter to improve the workability of your soil and the quality of your plants.

Do, as part of safe food handling, thoroughly wash vegetables and scrub or peel root crops.

Don’t incorporate meat or fat products into your compost or soil.

Don’t waste plant materials --- compost.

Don’t use fresh manure on your vegetable garden.

**Now you know the answers to the questions. The best advice I can now give is “spread it around and dig it in.”**

For more information on manure or other gardening subjects contact The University of Arizona Mohave County Cooperative Extension, 101 E. Beale Street, Kingman AZ 86401-5808 or telephone (928) 753-3788.