## MANURE MANAGEMENT II: COMPOSTING By Lark Burnham, PhD, Animal nutrition

he first installment in this series outlined some of the positive and negative aspects of alpaca manure and its management. Like most livestock waste, it Composting basics is a valuable resource; however, utilization must take into account the a pile until it is a minimum of four natural alpaca aversion to forage contaminated with fresh feces. Probably the most economical and efficient method of "processing alpaca manure is by composting it prior to re-application."

## Alpaca manure, a quick review

- Pastures can be fertilized either organically (manure) or inorganically (with a mixture of minerals, including nitrogen, phosphorus, and potassium)
- Livestock manure contains more than minerals. The bodies of billions of microorganisms and undigested feed provide organic matter (OM) that can improve soil quality.
- Alpacas leave most of their manure in convenient piles scattered around the pasture that can be collected, preferably on a daily basis to encourage re-use of that area for elimination, and added to manure piles.
- Alpacas will avoid plants that grow adjacent to such piles and their run-off, which leads to uneven growth and weeds.
- Alpacas should be kept off pastures that have been fertilized with fresh or partially com-

posted manure until it has had a chance to be broken down by the weather.

Manure and bedding are added to feet high. The microorganisms that breakdown this material are aerobic. the incorporation of air will facilitate this process and speed the conversion to soil. Aeration is accomplished by simply turning the compost pile, which can be done either by hand or with tractor attachments. Frequency of turning will depend on farm size, available equipment, and manpower.

Turned piles heat up or 'cook', and can reach temperatures of 150 F. This temperature is adequate to kill most parasites and their eggs with the exception of whipworms and Ascaris. Piles that are higher than five feet may actually burst into flames. The compost process slows down during dry periods, but periodic watering can promote cooking.

The transition to soil can take as little as a few months if piles are turned frequently, but most producers leave them a minimum of a year before re-application. Unturned piles will eventually decay and then the resulting soil can be used safely.

Aged manure can be applied to pastures, crops, lawns, and flower and vegetable gardens. It is high in ni-



trogen, but will not burn or damage desirable plants. It has a fresh, earthy smell and rich color and texture. Alpaca beans are no longer visible, there is no detectable manure odor, and is ready for re-application to pasture grazed by alpacas or any other species.

Small farms may take a long time to accumulate enough manure to make an effective pile, and they may find other valuable uses for their fresh poop. Large farms may already have the equipment and manpower needed to efficiently utilize their animals' output.

About the author:

Lark Burnham received a B.S. in Animal Science (1979), from Kansas State University and a M.S. in nonruminant nutrition (1995) from Kansas State Universtity, Manhattan, and a Ph.D. Doctorate in ruminant nutrition (2004) from Texas Tech University, Lubbock. Her special interests are comparative nutrition, the role of the micro flora in all mammals, fiber digestion, and probiotics. Lark currently works for Natur's Way. Inc., Horton, KS, which produces MSE probiotics.



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