

Well-planned barns and pastures, and innovative use of high- and low-tech gadgets can make life on the farm much easier. If you have any helpful "husbandry hints," *Alpacas Magazine* would like to hear from you.



Bill & Sherri Duey

Husbandry Hints

Parasite Detection

Alpaca parasite detection and control is one of the most important aspects of alpaca health management. Alpaca owners should work closely with their veterinarian in monitoring and treating their alpaca herd for parasites. Some alpaca breeders may choose to take an active role in routinely monitoring each alpaca for internal parasites. In this column, we will explain what equipment is needed for collecting, preparing, and examining fecal samples. We will also describe how to prepare the sample and identify common alpaca internal parasites.

Collecting and Preparing the Sample

It is important that you collect a sample from a specific animal and keep the sample identified throughout the process. The presence of parasites in alpacas is verified by identifying parasitic eggs. Because the level of parasites in alpacas is generally very low, special procedures are needed to float the eggs to the top of the test tube sample while separating other material to the bottom of the test tube. The following procedure is an accepted method of floating alpaca parasite eggs.



Dr. Greg Mobley, DVM, reviews parasite detection procedures with a client. Work closely with your veterinarian to develop an alpaca parasite detection program. Your veterinarian should also be actively involved in any parasite treatment programs for your alpaca herd.

Equipment

Here is a list of the equipment you will need to conduct your own parasite monitoring program.

Equipment	Estimated Cost
Exam gloves	\$ 6 per 100
Plastic bags, sandwich size, self closing, writable label	\$ 3 per 25
Plastic beakers, 100ml	\$ 5 per 10
Flotation solution OR granulated sugar solution (two and one-fourth cups sugar in one and three-fourths cups tap water, heated and mixed until very clear, then allow to cool before using) This solution has a specific gravity of 1.27 and will cause the parasite eggs to "float" and the debris to sink when added to the sample	50 cents per quart
Tea strainer	\$ 3 ea.
Test tubes, tapered bottom, fifteen cc size; with caps; with test tube tray	\$ 9 per six tubes
Centrifuge, table top model, variable speed capable of 1,500 rpm setting for parasite work, 4 to 8 test tube holders, sized for 15 cc test tubes	\$ 250 ea.
Glass microscope cover slips	\$ 9 per 160
Glass microscope slides, 25 x 75 mm	\$ 7 per 72
Microscope, 100 power, metal frame, DIN optical glass lenses, metal focus mechanism, ball bearings in moving parts, mechanical stage, fluorescent light, coarse AND fine focus, metal focus gear construction	\$ 300 ea.
Alpaca field manual or veterinary parasitology book	\$ 85 ea.

1. Thoroughly clean all alpaca pellets from a pen area so only new pellets will be collected.
2. The easiest time to collect a sample is at first daylight. When the alpaca first gets up and approaches the bean pile, use exam gloves to collect about eight FRESH pellets from an individual alpaca's fresh dropping pile. Place the pellets in a clean plastic bag and label the bag with the alpaca's name.
3. Keep the sample refrigerated at 40°F (4°C) if not prepared and evaluated immediately.
4. Place two ounces of pellets (about eight pellets) in a 100 ml beaker.
5. Add 20 cc of flotation solution.
6. Use a spoon to thoroughly break up the pellets and stir until it is a well-mixed solution.



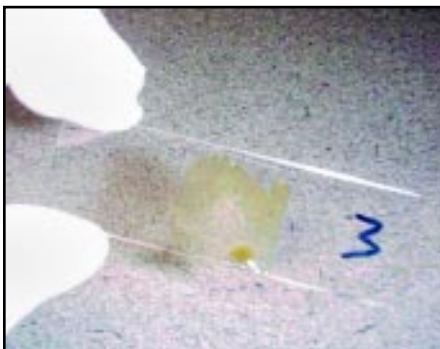
Place eight alpaca pellets and 20 cc of flotation solution in a 100 ml beaker. Thoroughly break up the pellets and form a well mixed solution.



Pour the mixture through a tea strainer and into another 100 ml beaker.



Place a glass cover slip over the tube (avoiding air bubbles) and allow to stand for five minutes.



Remove the cover slip with a careful, yet deliberate, upward movement. Liquid material should be clinging to the underside of the cover slip. Place the cover slip, wet side down, on to a glass slide.



Equipment needed for parasite detection includes glass microscope slides, cover slips, tapered 15 cc test tubes, test tube tray, 100 ml plastic beakers, tea strainer, laboratory spoon, and flotation solution.



The centrifuge should be capable of spinning at 1,500 rpm and accommodate several 15 cc test tubes. Balance the load by placing test tubes in opposite openings in the centrifuge.

- 7 Pour the solution through a tea strainer and into a second 100 ml beaker.
8. Pour the contents from the second beaker into a 15 cc tapered bottom test tube, fill the tube with **flotation solution** to the top. Discard material from the tea strainer.
9. If you are using a fixed trunion centrifuge, cap the test tube.
10. Centrifuge the test tube at 1,500 rpm for 10 minutes. Balance the load by placing test tubes in opposite openings in the centrifuge.
11. Carefully remove the tube from the centrifuge, set the tube in a test tube tray and remove the cap.
12. Now add **flotation solution** to the test tube, allowing the fluid level to rise just above the top of the tube (you need a very, very slight overfill of the tube).
13. Place a glass cover slip over the tube (be sure to avoid air bubbles) and allow to stand for five minutes.
14. Remove the cover slip with a careful, yet deliberate, upward move-



A good quality microscope is a very important tool for monitoring alpaca herd health. The microscope should have a metal frame, DIN optical glass lenses, mechanical stage, coarse and fine focus adjustment, metal gears, ball bearing moving parts, and magnification from 40 to 200 times.

ment. Liquid material should be clinging to the underside of the cover slip.

15. Place the cover slip, wet side down, on to a glass slide.
16. View slide under microscope at 100 power magnification or higher
Note: slides should be viewed within six hours of preparation OR refrigerated at 40°F for viewing the next day.

Identification of Parasites

Most parasites in alpacas are in the 28 micrometers to 200 micrometer size range. Select a microscope magnification of 100 power magnification to begin with. Follow the procedures as outlined with your microscope to calibrate the scope for each magnification setting. It is important to be able to measure the size and dimensions of the parasites under the scope to aid in identification. An alpaca field manual or veterinary parasitology book is a great reference for identifying parasites.

Common Parasites

Nematodirus sp. (thin-necked intestinal worm), 200 micro m x 90 micro m, clear oval shape with solid mass appearing as balls inside.

Trichuris sp. (whipworm), 64 micro m x 32 micro m, oblong shape with caps or plugs at each end. *continued*

Moniezia sp. (tapeworm), 50 micro m x 60 micro m, often appears as rectangle but can be round or triangular, thick edges, clear or semi-transparent mass in center.

Trichostrongyles sp. (brown stomach worm), 77 micro m x 45 micro m, oval with almost solid mass of balls inside from edge to edge.

Eimeria sp. (coccidia), 38 micro m x 28 micro m, relative clear elongated circle with some solid material in about two thirds of the mass.

Reference Books

Alpaca Field Manual; C. Norman Evans, DVM; Able Publishing and Ag Press, Inc.; 2003

Veterinary Parasitology Reference Manual (5th Edition); Dr. William J. Foreyt; Iowa State Press; 2001

Menigeal worms are not detected in fecal samples and should be prevented per your veterinarian's recommendation.

Alpaca parasite detection and control is one of the most important aspects of alpaca health management. By using the tools and procedures in this article, alpaca owners can take an active role in working with their veterinarian to monitor and treat their alpaca herd for parasites.

Author's Note: *We want to extend special thanks to Dr. Greg Mobley, DVM of Albia, Iowa, and to Dr. C. Norman Evans, DVM of Madisonville, Kentucky, for reviewing this article.*

Bill and Sherri Duey operate Southern Iowa Alpacas, located in the hills 60 miles southeast of Des Moines. They have incorporated innovative features into their alpaca ranch and conduct seminars on business planning, animal selection and ranch setup. You may view their website at www.southerniowaalpacas.com or contact them directly at alpacas@southerniowaalpacas.com.