West Virginia University

News Ewe Can Use

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Year 1 LMAAP Applications Now Available

The sign-up period for the direct payment portion for Year 1 of the Lamb Meat Adjustment Assistance Program (LMAAP) began June 19, 2000 and ends October 13, 2000. LMAAP is part of the federal government's three-year program of trade relief that includes both a tariff-rate quota program that applies increased tariffs to imports of lamb meat exceeding set quotas, and a $100 million industry assistance package aimed at helping the domestic lamb industry adjust to import competition. The assistance package has four key components - productivity improvements, market promotion, animal health, and federal purchases of excess lamb meat. LMAAP is part of the productivity improvements funding area.

The USDA-designed LMAAP program has a target of $10 million in direct payments to producers for each of the three years. The payments are to encourage productivity improvements and are *not* income support payments. Payments to sheep and lamb producers are intended to help the U.S. lamb industry achieve sustained competitiveness, while respecting international trade obligations. The interim rule for LMAAP was published in the Federal Register on June 21, 2000 with a 30-day comment period.

The rule states that Year 1 payments will be available to sheep and lamb operations that between July 22, 1999 through September 30, 2000: 1) purchased 90 day-old or older rams intended for breeding purposes which the operation held for at least 90 days continuously thereafter and continue to hold or use for breeding purposes when the payments are to be made; 2) made lamb or feedlot facility improvements; or 3) enrolled sheep in an eligible sheep improvement program. (See related articles pages 3 & 4). The rule also makes provision for limiting payments for rams to the extent that such purchases would produce a ratio of rams to ewes of less than 1 to 15.

Eligible sheep and lamb operations in Year 1 can receive up to $100 per eligible ram purchased, not to exceed $2500 per operation; $.50 per head of eligible sheep enrolled in a sheep improvement program, not to exceed $500 per operation; and 20 percent of the sheep and lamb operation's eligible facility improvement costs, not to exceed $2500 per operation. The maximum payments to any operation during Year 1 will be limited to $5500 for the three parts of the Year 1 program. In addition, eligible lamb producers must have in 1999 gross annual revenue of $2.5 million or less.

A copy of the interim rule is available at www.fsa.usda.gov/dafp/psd/. Comments on the LMAAP program should be mailed to Grady Bilberry, Director, Price Support Division, Farm Service Agency, USDA, STOP 0512, 1400 Independence Avenue SW, Washington, DC, 20250-0512; tel: (202)720-7901; e-mail: danielle_cook@wdc.fsa.usda.gov. For more information contact your county FSA office or visit the USDA's 201 website: www.ams.usda.gov/lsg/201lamb/201.htm or the American Sheep Industry's website: www.sheepusa.org or call the toll-free ASI 201 information line at 1-877-884-5262. Year 1 LMAAP applications are available at your county FSA office or via the web.

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FROM THE FEED TROUGH ...

by Woody Lane, Ph.D. © 1999

LET'S TAKE A WALK

Come ... join me for a pasture walk.

I know that you've already walked through lots of pastures, many times, but a pasture walk is different. We won't just cross fields to watch animals or chase them, instead we'll walk slowly and focus on the forages, not the livestock. We'll look at the pasture from a grazier's perspective. Let's consider that our real crop is sunlight; that our forages are the photosynthetic machinery that harvests the sunlight; and that our animals are the sunlight products we sell in the market. You won't be bored. If you've never done a real pasture walk, there's quite a lot to see. And it won't take long. I'll get you back in time for the next page. Oh yes, grab yourself a pair of high boots; it may be wet out there.

Let's start with this grazed field behind the barn. It's about 10 acres, with a border of trees and a stream at the far end. Notice that there are no cross-fences. The owner told me that he pulled his animals off 14 days ago, so we are looking at two weeks of regrowth. Hmm. Not very much, even though we've had good weather lately with some rain. Let's come back to this item in a few minutes.

Look at the color of the grass. It's a bright, light green. Looks nice, eh? To some folks that would be beautiful, but not to me. What does that color really tell us? Also, as you look around the field, you'll see lots of patches of darker green with taller growth. Look carefully at those patches — their forage is deep green and very dense. It's obvious that each square inch in these patches contains far more leaf area than the surrounding ground. Leaf area means more captured sunlight and more feed for our animals. Well, those deep green patches are manure or urine patches, and they tell me that the field is low in nitrogen and/or phosphorus. Manure contains nitrogen and phosphorus; urine contains nitrogen in the form of urea. Those taller plants are getting enough nutrients to support a fast regrowth, while the surrounding plants are not. In practicall terms, a slow regrowth translates to a longer waiting period before stock can go back into the field.

Before we started, the farmer told me that he has spread manure on this field for

years, and that last fall he had also applied 60 pounds of urea fertilizer. That's 60 pounds of fertilizer per acre. Urea is only 46% nitrogen (the bag lists "46-0-0-0"). Therefore, those 60 pounds of fertilizer really equate to only 28 pounds of nitrogen per acre. That's not very much nitrogen. Also, urea is quite soluble, and in this region, this form of nitrogen is only effective for approximately 60 days. That's why the grass was light green — in spite of the manure applications, it is still starved for nitrogen.

A story: last year on a different farm, as we stood in a field that looked just like this one — light green with very little growth — I noticed a large, deep-green area about thirty yards away. It really stood out; its grass was at least six inches higher than the surrounding area. But the patch was a full six feet across, much too wide for a manure patch. I joked with the farmer, "did a ewe die there?" He didn't know, so we all walked over and looked at that forage. And found the bones. Yes, I suppose this does add a new dimension to the term "fertile ewe," but I wouldn't recommend it as a routine fertilizer practice.

Let's come back to our paddock here. Notice that the total pasture mass is still quite low. I'd say that it's only around 1,000 pounds (of dry matter) per acre. This is after 14 days of recovery. There is a problem here. Normally, I would remove animals from a pasture before they grazed the residual down to 1,000 pounds. This pasture is telling me that the animals had been left in too long during the last grazing period. They had probably grazed it down to 700 pounds or less. That's well into Phase I growth. Plants in this part of their growth curve require a long recovery period until they have enough leaf area to capture enough sunlight for higher rates of growth. And this is early summer — we should be seeing an incredible surge of growth — yet this forage is hardly growing. Fourteen days of regrowth has resulted in only 300 pounds of dry matter, which is a growth rate of only 21 pounds/day. I would expect that forage like this, if it was in Phase II growth, at this time of year with good weather and fertility, could grow at a rate of more than 100 pounds/day. This field, however, is being forced to struggle back from Phase I without good fertility.

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In This Issue...

201 Sheep Improvement Payment

Producers whose flocks are enrolled in the National Sheep Improvement Program (NSIP) during Year 1 of the Lamb Meat Adjustment Assistance Program (LMAAP) can qualify for Sheep Improvement Payment benefits. The payment rate for the Sheep Improvement Payment is $.50 per enrolled sheep with a maximum payment of $500 per operation.

NSIP is a computerized performance-based program for genetic selection. NSIP is designed to help purebred sheep producers identify the best genetics in their flocks. NSIP also gives purebred breeders reliable information that can be used when advertising and selling breeding stock. The program applies scientifically-proven technology to measure genetic performance. This technology has been used extensively in the dairy, beef cattle, and swine industries for many years, and is now being applied in the sheep industry.

The program calculates **E**xpected **P**rogeny **D**ifferences (EPDs). An EPD is an estimate of the genetic merit of an animal and its offspring for a specific trait. EPDs allow the breeder to rank all animals in a flock by genetic value so that high-producing replacements can be identified and poor-producing animals culled. NSIP works through the breed associations to deliver across-flock EPDs. It is important to note that an EPD from one breed cannot be compared to an EPD from another breed. Across-flock EPDs are calculated *only* on purebred animals and *only* within a breed.

Commercial producers do not join NSIP directly. Commercial producers can however, benefit from NSIP because they can purchase rams (and ewes) from NSIP purebred flocks that excel in the traits needed to improve their commercial flocks. Because EPDs are provided on a trait-by-trait basis, commercial producers can decide what traits they need for their operation and then use NSIP to find rams and ewes that excel in those specific traits.

NSIP currently evaluates maternal, growth, and wool traits, and is developing evaluations for carcass traits and traits important to accelerated lambing systems. Maternal traits include number of lambs born per ewe lambing, maternal milk, and milk+growth. Growth traits include weaning weight, postweaning weight, and yearling weight. Wool traits include grease fleece weight, fiber diameter, and fiber length. Carcass trait evaluations being developed are for fat thickness, ribeye area, and an index trait called the "Carcass Value Trait," which will be calculated from the age of the lamb, ribeye area, and fat depth between the 12th and 13th ribs. Trait evaluations being developed for accelerated lambing systems are date of first lambing and lambing interval.

NSIP currently provides genetic evaluations for the Suffolk, Targhee, and Polypay breeds. Information on other breeds, including Dorset, Hampshire, and Columbia will become available as sufficient records are evaluated to build a comprehensive analysis on these breeds.

NSIP enrollment costs are $50 per flock and $1.25 per breeding animal. To enroll, contact NSIP by phone at (303) 771-5717 or by e-mail at info@nsip.org. Additional information and enrollment forms are also available on the NSIP website at www.nsip.org.

LET'S TAKE A WALK

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Think of all the sunlight not captured. There are, however, more efficient alternatives. During periods of high growth rates, some good graziers routinely expect to rotate animals through their paddocks every 17-21 days. But those graziers maintain high soil fertility, and they leave a lot more residual forage in their paddocks, which gives plants a running start for their next growth cycle. Those graziers can't afford the lag period from Phase I plants. Look at this field here — after 14 days it's just beginning to add enough leaf area to support good growth. It will be another 20 days before this farmer can put stock back on it.

One last thing — look over there, near the stream. See those large areas of tall grasses that resemble bamboo? That's reed canarygrass (*Phalaris arundinacea*). It likes to grow in wet areas. Reed canarygrass may be an invasive volunteer species that farmers hate, but it's clearly growing in its niche on this place. Since no one planted it, it must be one of the older, less palatable varieties. Those plants are tall because the animals didn't want to graze them. That tells me that the stocking density was too low in this paddock. The animals refused the reed canarygrass because they had the luxury of alternative feeds. There was no cross-fencing, so the stock could avoid these areas even as they contentedly overgrazed other parts of the field. I know that most folks curse reed canarygrass, but look at that growth! Maybe the reed canarygrass is telling us something. Maybe that area shouldn't be treated like the rest of the field. If this were my place, I would probably fence that area so that my animals would have no choice of feeds, and I'd move stock in and out as often as necessary to keep the plants low and nutritious. Otherwise, all that incredible growth of reed canarygrass simply means that a lot of photosynthesis is going to waste.

Well, it's time to go. Please close the gate on your way out. Let's do this again soon — we'll walk through a different paddock. And next time, I'll make sure that the electric fence is off.

Woody Lane is a nutritionist in Roseburg, Oregon. He teaches Nutrition, Sheep, and Forage courses at Umpqua Community College, and operates an independent consulting business "Lane Livestock Services." His email address is wlane@rosenet.net.

Reprinted from "The Shepherd"-July '99

Facility 201/Psychology 101

Facility Improvement 201

When considering the 201 Facility Improvement Payment opportunity, take a look a at your handling facilities - or lack thereof. It is not unusual for farm flock producers to feel that small flocks do not warrant investment in handling facilities. Yet, many small farm flock operations could benefit from improved handling facilities.

Proper handling can play an important role in overall sheep management. Proper handling facilities and techniques minimize stress on both the sheep and the shepherd. ***Proper handling facilities allow the shepherd to work the sheep rather than the sheep working the shepherd!*** Poor handling facilities may lead to the neglect or delay of routine management practices important to the sheep's health and productivity such as deworming, vaccinating, and hoof care. Handling stress can lower conception rates, cause early embryonic losses, and lower disease resistance. Poor handling facilities can also limit the utilization of some management tools such as some out-of-season breeding and estrus synchronization programs, ultrasound pregnancy diagnosis, and participation in genetic evaluation programs such NSIP which requires that weight information be collected on growing lambs.

Well-designed facilities will minimize the need for the use of prods when working sheep. This results in more humane treatment of the animals and helps ensure quality consumer products. Jabbing and prodding when sorting market lambs can cause bruising of the meat and damage to the pelt. Bruised meat must be trimmed at slaughter and there are few outlets for damaged pelts, reducing both the quality and the value of the lamb.

Handling facilities do not need to be fancy to be functional and they don't need to be expensive to be efficient. Understanding a few of the basics of sheep behavior can help you design or modify a set of facilities that will make handling easier and less stressful for both the sheep and the shepherd.

Sheep Psychology 101

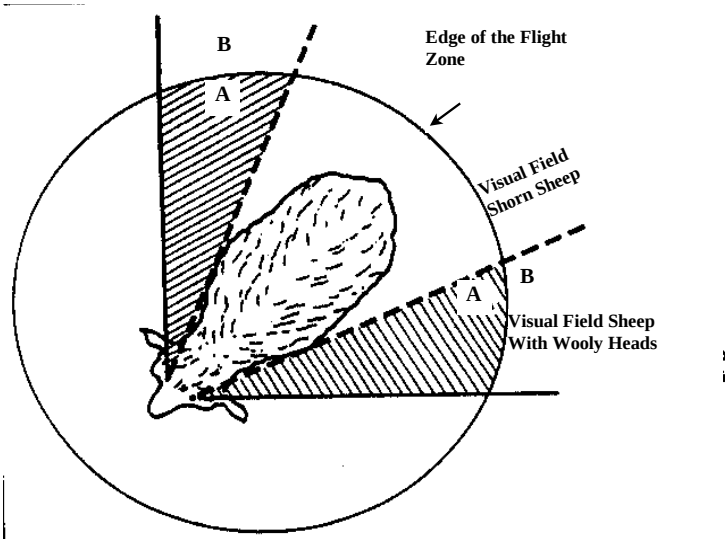
Sheep have wide-angle vision that allows them to see behind themselves without turning their heads. A sheep's visual field varies from 270 to 320 degrees depending on the amount of wool on the head. Sheep rely heavily on their vision, and lighting conditions in a handling facility can either improve or impede sheep movement.

Sheep have a tendency to move toward light. However, bright glaring lights or lights that cast shadows will cause sheep to balk. Balking may be due to poor depth perception. Sheep can perceive depth while they are standing still with their heads down, but have difficulty seeing depth when they are moving with their heads up. ***Sheep balk at shadows because they have to stop and put their heads down to determine the difference between a shadow and a hole in the ground***. Solid sides on chutes, crowd pens, and loading ramps will minimize shadows and reduce balking.

When designing a working facility, think in terms of ***controlled escape***. Sheep will balk if the chute appears to dead end. Chute gates should be constructed so that sheep can see through them as a pathway of escape. Sheep have a strong instinct to follow the leader and should be able to see other sheep moving down the chute in front of them. Sheep move more readily uphill than down. When possible, it is best to orient sorting and working alleys uphill and to head the alley back toward the pasture where the sheep were gathered.

Flight zone also needs to be considered when handling sheep. The flight zone is the sheep's personal space. Sheep will move away (flight) when the handler enters this space. The shepherd should work on the edge of the flight zone. In the diagram below, moving from the edge of the flight zone to position A will cause the sheep to move forward. However, if the handler moves too far forward, exiting the shaded area, the sheep will back up. Moving from the edge of the flight zone to position B will cause the sheep to stop. The size of the flight zone varies depending on the tameness of the animal and the size of the enclosure. The smaller the enclosure, the smaller the flight zone. A gently curving chute is recommended over a straight chute because it takes advantage of this natural tendency for sheep to move away from the handler, and because it prevents the sheep from seeing the activity ahead.

Sheep remember bad experiences for up to 12 months. Handling problems only increase with time if poor handling facilities and improper handling techniques create an unpleasant and stressful situation for the sheep. With the 201 Facility Improvement Payment, now is a good time to consider upgrading your handling facilities.



Source: American Sheep Industry SID Sheep Production Hand book

Roundworms

Parasites are a major cause of both production and economic loss to the sheep operation. Signs of parasitism may include ill thrift, weight loss or poor gains, diarrhea, coughing, anemia, bottle jaw, wool loss, and death. The gastrointestinal nematodes, or roundworms, are considered the most economically important parasites of sheep. No single method of controlling these parasites is right for every farm. However, a basic understanding of the lifecycle of the roundworms and of their survival in the environment, can help you develop a more effective parasite control strategy for your individual operation.

Susceptibility - Sheep, as a species, tend to be very susceptible to parasites. Certain behavioral patterns serve to increase the parasite exposure of sheep. 1) The flocking instinct encourages sheep to graze close together. 2) Sheep have the tendency to graze plants very close to the ground where larval numbers are greater. 3) Sheep have little aversion to grazing areas high in fecal contamination. 4) The small fecal pellets of sheep disintegrate easily, readily releasing eggs and larvae onto pastures.

Lifecycle - Most roundworms have the same basic lifecycle. A typical cycle consists of a host phase and a free-living phase. Eggs are passed in the feces of the host. Under favorable conditions, the eggs hatch, releasing non-infective larva. These non-infective larva feed on bacteria in the feces and must undergo a series of changes before becoming infective. The infective larva leave the manure only when the manure is wet. Larvae are transported onto pasture plants via moisture such as dew or splashes of rain. As sheep graze contaminated pastures, infective larvae are consumed with the forage and infect/re-infect the host. Once ingested, it takes about three weeks for the larvae to mature into egg-laying adults. Eggs are again passed in the feces, and the cycle repeats itself. The length of time required for the eggs in the environment to hatch and develop into infective larvae is dependent upon weather conditions. Under warm moist conditions, this process can take as little as seven to ten days. Under cool conditions the rate of development slows. There is a mistaken impression that infective larvae are killed by the "first hard freeze". Cold does not kill the larvae, and many survive on pasture ensheathed in a protective cuticle underneath the snow.

Survival - A second means of roundworm survival and transmission from one year to the next, is through a mechanism known as "hypobiosis" (hypo = less than normal + biosis = vitality or life). Thus, during hypobiosis, the infective larva living inside the sheep become dormant and development is "put on hold" until conditions in the outside environment are more conducive to the survival of the free-living stages. In cold climates, hypobiosis occurs during the winter months. Drying is the greatest environmental threat to the survival

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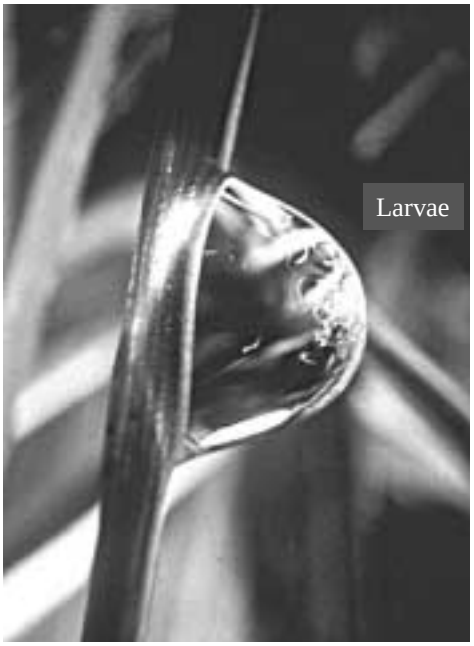
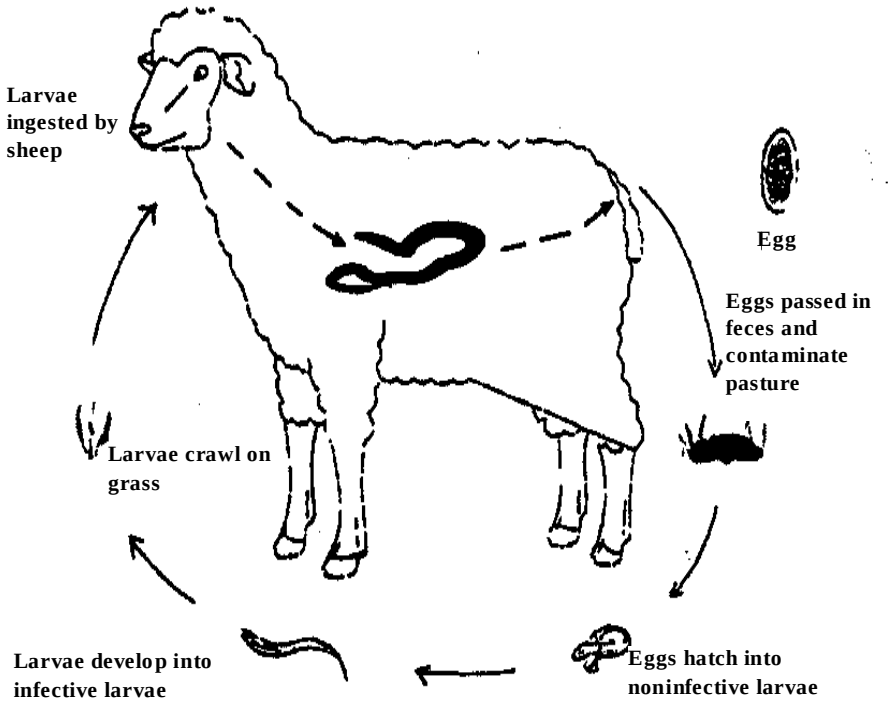


There can be hundreds of infective larvae in a single drop of dew on a single blade of grass.



Typical roundworm lifcycle.

Roundworms

Continued from page 5

of the free-living stages of the roundworms, and hypobiosis can also occur during extended periods of hot, dry conditions.

Immunity - Some breeds of sheep and some individuals within breeds that exhibit a greater degree of parasite resistance than do others - "natural immunity". In addition, most sheep will develop a level of immunity as result of parasite exposure - "acquired immunity". Both natural and acquired immunity help protect the sheep against the effects of parasites. Young lambs and sheep coming into an area that have not been previously exposed to the resident parasite population, are generally more susceptible to parasite infection than are older native sheep.

Depressed Immunity - Beginning about two weeks prior to lambing and continuing into the early lactation period, the immune system of the ewe becomes depressed. This period of depressed immunity not only makes the ewe more susceptible to parasite infection, but also allows increased egg production by the adult female worms already living in the host. The combined effect is known as the "periparturient rise" (peri = around + parturient = the time of birth) and the result is often increased pasture contamination.

Anthelmintic Resistance - Anthelmintic resistance (resistance to dewormers) in sheep has become an area of great concern. Resistance occurs when the response of a population of parasites to a particular drug decreases with the successive use of that drug. There is a direct relationship between the frequency of deworming and the rate at which parasites become resistant. If a dewormer is not 100% effective, the worms that survive have only other survivors to mate with. Since resistance is genetically controlled, once developed, it will be inherited by subsequent generations of parasites. *Haemonchus contortus*, the barberpole worm, is one of the more common specie of roundworms. Consider that the adult female *Haemonchus* can produce over 5,000 eggs per day, and it is not difficult to understand how quickly a resistant population can be propagated.

Roundworm eggs from fecal sample magnified 100X.

Deworming Guidelines:

- First make sure that the deworming product you are currently using is actually working. Have a fecal egg count done before deworming the sheep, then repeat the count on the same sheep 7-10 days later.
- Do not under dose. Sort sheep by size and dose based on the weight of the heaviest animal in the group not the average weight for the group. Underdosing will speed up resistance.
- Rotate the dewormer on an annual basis or use a particular product until it is no longer effective. More frequent rotation can result in a parasite population resistant to all drugs in the rotation.
- Deworm sheep during the hypobiotic period (late fall/winter).
- Deworm ewes 2 to 4 weeks prior to lambing to reduce the periparturent rise.
- Deworm and move to a safe pasture. Safe pastures include pastures not grazed by sheep the previous year, annual forages, crop aftermath, and regrowth of forages harvested for hay.
- Treat all purchased animals before mixing them with the rest of the flock.
- Remember that healthy animals are less susceptible to a parasite challenge and that stress can increase susceptibility.
- Remember that lambs are more susceptible to a parasite challenge than mature sheep.

Good Dirt...

...Collecting a Soil Sample

Do you know the value of good dirt? No, not idle gossip about your neighbors - soil quality. *Good Dirt!*

Just as genetically superior animals cannot achieve their genetic potential without proper nutrition, neither can pastures reach their potential without proper nutrition. To determine which nutrients are deficient in your sheep's diet, a fecal, blood, or liver sample must be collected and submitted to a laboratory for analysis. To determine which nutrients are deficient in your pasture's diet, a soil sample must be taken and submitted to a laboratory for analysis. After receiving the results of the fecal, blood, or liver analysis, we can then determine which nutrients need to be supplemented to improve the health and growth of the sheep. The same is true for the pasture. Soil test results will provide such information as pH and phosphorus, potassium, calcium, and magnesium levels in the soil. These elements are necessary for optimal forage health and growth.

Soil samples collected in late summer and fall are better than those collected during the winter or early spring as they provide a better representation of the nutrient status of the soil as it affects pastures and crops. Do not collect samples immediately after applying lime or fertilizer as the results will be misleading. Do not collect samples when the soil is wet or frozen as proper mixing becomes difficult.

Collecting a soil sample requires an auger, shovel, or spade and a clean plastic pail or container. Sample the soil layer in which the pasture plant roots are growing or crop roots will be growing. Recommended depths are given in the table below. A minimum of 15-20 randomly selected soil borings should be included in the composite sample submitted to the laboratory. If the field is large, it should be subdivided into 10-acre sections with at least 30 borings taken per ten acres. No single sample should represent an area larger than 10 acres. Exclude or take separate samples from areas that are uncharacteristic such as wet spots, eroded areas, bare spots, back furrows, and field edges. Fields or pastures containing different soil types or crop/pasture conditions should have a separate sample for each.

Once you have collected small uniform cores or thin slices from the soil surface at the recommended depth, gently crush the soil and mix thoroughly, discarding roots and stones. Air-dry wet soil in a shady spot on a clean surface (do not heat the sample). Prepare at least ½ pound of the dry soil for shipment to the laboratory. Soil sampling frequency is determined by what you grow. Meadows and areas planted to row crops should be sampled every 1- 2 years or whenever crops are rotated. Permanent pastures require sampling every 3-4 years.

Soil test kits are available from your WVU County Extension Office (or write the WVU Soil Testing Lab, Morgantown, WV, 26506-6108). The kit includes complete instructions, a special plastic bag for shipping the soil sample, a soil test mailer, and a soil test information sheet to be filled out. When the laboratory has completed the soil analysis (about three weeks) you will receive a copy of the analysis along with recommendations for fertilizer application.

Land Use	*Recommended Soil Sampling Depth
PERMANENT PASTURES	Top 2 inches.
MEADOWS	Top 4-6 inches.
ROW CROPS	Sample the soil to the depth of tillage.
VEGETABLE GARDENS & PLANTING BEDS	Sample the soil to the depth of tillage.
NO-TILL CROPS	Sample at two depths: 1) top inch; 2) from 1-6 inches.
LAWNS & TURF	Top 2 inches in established lawns and turf, and top 4-6 inches in soil in which a lawn or turf is to be established.
* Remove the organic debris from the soil surface before sampling.	

Slip on your boots, grab your hat and join us for a Pasture Walk With Dr. Woody Lane Saturday, July 29, 2000