Many Answers about Goats and Sheep in eXtension
By: Jodi Pennington

If you want to know about goats, sheep, or other animals, agronomic topics, or factors relating to your personal finance or health, the answers can be found in eXtension, a web-based arm of your local University Cooperative Extension service. With eXtension, you get an interactive, learning tool delivering researched-based knowledge from land-grant universities across America. The name is pronounced e-extension and is the web-based portion of extension. The web site is www.extension.org. Essentially, eXtension connects people with questions to knowledgeable providers, experts who know their subject matter, through the web site.

Subject matter in eXtension is organized around resource areas. Although topics related to farming are often thought as the traditional charge of extension, eXtension and your local extension office provides information on a wide range of topics. The resource areas within eXtension include alerts for financial crisis, community for everything from master gardeners to planning and zoning, disaster issues for floods and agro-security, energy, family issues from child care to personal finance, farm including sheep and goats, pest management, and youth. Unlike some other search engines or information-based websites, the information on eXtension is reviewed for accuracy. All of the articles are unbiased and research-based so that you can have confidence that the information is reliable. It's a web location where university content-providers produce new educational and information resources on a wide-range of topics.

Most land-grant universities participate with eXtension and over 3,000 local offices of the Cooperative Extension Service are available to serve you across the U.S. For example, Lincoln University oversees the goat industry section within the farm resource area. You may send in a question about goats or sheep and personnel from Lincoln University or another land grant institution will answer your question. In some cases, they may refer you to your local extension office since almost all counties have a local office.

Many resource areas within eXtension have a section of frequently asked questions (FAQs), a calendar of activities, and news of events in the area. If you have a question, you may search the web site for eXtension to see if the answer is there. If the answer to your question cannot be found on the web site, then you can ask one of the experts and get an answer usually within a couple of days. You may also “search” the eXtension web site for any topic you have interest in. For example, a search for “goats” will yield information ranging from the nutritional values of diets for goats to marketing of goats or breeds of goats; thus, it may be beneficial to enter a more restricted topic such as goat nutrition.

Questions on the eXtension web-site range from “how to grow blueberries” to “how to market a home child-care business”. There also will many fact sheets outlining proper feeding for animals and video clips of some of the more routine management techniques. For more information on eXtension, go to www.extension.org or visit your local county extension office.

Upcoming Sheep and Goat Meetings: Saturday, February 8—Missouri 4-H Meat and Dairy Goat Camp, Springfield. Registration is $15 per person, call 417-327-6611 or 417-637-2112. Saturday, February 8, Small Ruminant Section, Missouri Organic Association Annual Conference, Springfield. For information see http://www.moaconference.org/moa-conference-registration.

Tuesday, February 25, SW Missouri Spring Forage Conference, The cost is $35 per person in advance or $45 at the door. To pre-register (by Feb. 18) or to get more information, contact the Greene County Soil and Water Conservation District at (417) 831-5246, ext. 3. Information is also at http://springforageconference.com. Saturday, March 22 (tentative)—SW Missouri Sheep and Goat Conference, McDonald County Fairgrounds, Anderson. Cost is $10 in advance or $15 at the door. Call 417-455-9500 to register.
Heart Disease and Stroke: Counties in the Southern States have the Greatest Risk Overall
By: Lynda Kaume
Heart Disease is the leading cause of death in the US and a primary cause of disability. Nearly 1 in 3 deaths in the US each year is caused by heart disease and stroke, approximately 800,000 Americans dying each year. Let us carefully examine the national vital statistics graph and county maps below and consider what we as individuals, families and communities could do to change these alarming numbers in this year!

The Centers for Disease Control and Prevention report shows that counties in the Southern states including Missouri have the greatest risk for heart disease and stroke overall. Question is, what can we do about it? Fortunately for us most of the major risk factors can be managed or prevented. Learn the major risk factors and solutions recommended by the CDC at: http://www.cdc.gov/vitalsigns/heartdisease-stroke.

- **High blood pressure**: Have your numbers checked and aim at controlling
- **High cholesterol**: Work with your doctor on a treatment plan to manage cholesterol levels. Also swap animal based proteins (high in cholesterol) with plant based proteins (low in cholesterol) this will keep your levels in check.
- **Diabetes**: Work with your doctor on a treatment plan
- **Tobacco use**: Get help on how to quit smoking if you are a smoker and do not start to smoke if you are a non-smoker
- **Unhealthy diet**: Eat a healthy diet, low in sodium, trans fat, and high in high fiber (whole grains), and fruits and vegetables.
- **Physical activity**: Engage in moderate intensity exercise for 30-45 minutes weekly. Farmers can achieve this goal by taking three ten (10) minute breaks to take a walk, bike etc. learn how to determine whether you are exercising at a moderate-intensity level at: http://www.cdc.gov/physicalactivity/everyone/measuring/heartrate.html
- **Obesity**: Make an effort to maintain a healthy weight by planning and making gradual but meaningful changes to your lifestyle that includes long-term changes in daily eating and exercise habits.

Challenge yourself and loved ones- start reducing your risk today!

Organizing Important Papers
By: Janet LaFon
When you need an important paper, can you find it right away? Is it filed where you can find it, or do you frantically start sorting through piles or emptying drawers on the floor? If you became ill, could a family member or friend easily find the papers needed to take care of your personal financial affairs? Last month, I briefly mentioned the importance of setting up a home filing system. Since tax time is here, thoughts are quickly turning to finding certain information. While gathering tax-related documents, why not go ahead and organize all of your important household papers? In the long run, you’ll find that this can save you time, money and frustration.

Generally, important papers serve one of three functions: provide evidence of some significant event in your life such as birth, death or marriage; provide proof of ownership in cases of loss, such as fire or theft; and provide a record of activities such as those related to financial and personal matters.

Here are some suggestions for getting started:
1. Develop a directory containing the names, addresses and telephone numbers of close family members and friends, as well as professionals such as your doctor, dentist, minister, lawyer, insurance agent and accountant.
2. Make a list of all banks, credit unions, investment brokerages, etc. where you do business. Include account numbers. Keep all certificates of deposit, stocks, bonds, etc. together in a safe location, such as a safe deposit box.
3. Keep all birth, death and/or marriage certificates; vehicle titles and property deeds in a safe location, such as a safe deposit box. Having a list at home of the contents of your box can be useful.
4. List all credit cards, including account numbers and who to contact if your cards are lost or stolen.
5. Gather information pertaining to employment, retirement benefits, Social Security and/or Medicare/Medicaid and keep in one location.
6. Keep all use and care manuals for appliances and equipment in an easily accessible location. It can be helpful to include information about purchase dates, costs and even receipts in case you have a loss or need repairs that would be covered by a warranty.
7. Prepare an inventory, listing all of your valuable possessions. This can be used if you suffer a loss.
The Importance of Lime
By: Jill Scheidt

Lime is one of the most important additives a producer can apply to a field or pasture. Lime is a soil conditioner that allows other nutrients to become more available through optimizing the soil pH. Taking a representative soil sample is imperative to receiving accurate soil test results and that is the first step in correcting soil pH.

Soil samples should be taken every 3-5 years. At least 10-20, 6 inch deep cores should be collected from every field. Producers should avoid sampling soon after fertilizing, liming or applying manure. Nutrient availability in soil can fluctuate with soil moisture. Sampling at the same time of year will provide more consistent soil test results. In pastures, avoid sampling within 150 feet of shade areas, watering points and field edges, where livestock may congregate and crop fields end.

Lime is graded according to the effective neutralizing material (ENM). Most lime companies in southwest Missouri have an ENM ranging from 400-450. The finer the lime is ground, the higher the ENM; finer grinding of limestone improves breakdown and speeds reaction with the soil to change pH levels. Limestone is more effective when incorporated in soil because it is not very water soluble, therefore reacts slowly with soil.

Priority on a limited fertilizer budget should go to correcting soil pH through liming. Lime increases the efficiency of fertilizers like phosphorus and many micronutrients, by increasing their availability to the plant (see illustration). Soil structure, microbial activity, activity of soil incorporated herbicide applications and legume persistence are all improved with a proper soil pH. The illustration demonstrates nutrient availability to the plant according to pH level of the soil. The ideal pH range for cool-season grasses is 5.5-7.0; for legumes 6.0-7.5; for row crops 6.0-6.5.

Many common fertilizers acidify the soil but the impact on soil pH is relatively small. For example, nitrogen fertilizers have long been known to acidify the soil. According to John Lory, MU Plant Sciences, it takes about 180 pounds of calcium carbonate to neutralize 100 pounds of nitrogen added as anhydrous ammonia. At this rate, less than 1 ton/acre of pure lime is needed every 5 years, to offset an application of 200 pounds/acre/year of nitrogen. If producers have a corn-soybean rotation, only 1 ton/acre of lime is needed every 10 years to offset that same nitrogen application. Nitrogen fertilizers vary in their ability to acidify the soil. Ammonium sulfate is the most acidifying nitrogen fertilizer; the impact of urea will be similar to anhydrous ammonia.

Given the slow effects of fertilizers such as nitrogen on soil pH the best way to manage acidification by fertilizers is to monitor soil pH using soil testing. Sampling fields every three to five years will allow you to monitor trends in soil such as soil pH and identify fields where soil pH is close to dropping below optimum.
Renovating Pastures? Try Frost Seeding

By: John Hobbs

The benefits of establishing clover in grass pasture are well-known. They can include increased forage yield, improved forage quality, reduced nitrogen fertilizer costs, dilution of toxic fescue, and good livestock performance. The practice of frost seeding has long been used by forage producers as an effective means to improve pasture yields or change forage species composition. Frost seeding is a relatively low-cost practice that, when implemented at the correct time and managed properly, can yield successful results.

Steps for Successful Frost Seedings

1. **Site Selection** Frost seeding can be used at any geographical location but is particularly effective where tillage can create potential erosion problems. Sites where maximum seed-to-soil contact can be achieved are essential. Thinning grass stands have been a preferred site to use frost seeding. A bunch-type grass, such as fescue, offers a more favorable environment for frost seedings than does a sod-forming species, such as bluegrass. Regardless of the current grass species present, the site should be closely grazed in the fall or winter to open the stand and expose soil. A chain drag or light disking can also be used to help open the stand. This will increase the opportunity for seed-to-soil contact.

2. **Soil Fertility** Proper soil pH and fertility are essential for efficient forage production. Soil tests should be taken every 3 to 5 years to determine nutrient status. Tests should be taken at least six months prior to seeding to allow for corrective measures. For optimum production, soil pH should be maintained above 6.0. Regardless of the seeding method used, corrective applications of phosphorus and potassium should be applied prior to seeding. If you are frost seeding a legume, applications of nitrogen should not be made the year of the seeding because of the potential for increased competition from grasses. Frost seeding should not be considered as a substitute for poor fertility management. If a poor pasture is the result of low fertility, frost seeding will not remedy this situation.

**Minimum Fertility Recommendations**

<table>
<thead>
<tr>
<th>Forage</th>
<th>pH</th>
<th>Phosphorus soil test Pounds per acre</th>
<th>Potassium soil test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfalfa</td>
<td>6.5</td>
<td>40</td>
<td>300</td>
</tr>
<tr>
<td>Red Clover</td>
<td>6.0</td>
<td>25</td>
<td>250</td>
</tr>
<tr>
<td>White Clover</td>
<td>5.5</td>
<td>25</td>
<td>250</td>
</tr>
<tr>
<td>Birdsfoot trefoil</td>
<td>5.5</td>
<td>20</td>
<td>250</td>
</tr>
<tr>
<td>Lespedeza</td>
<td>5.0</td>
<td>20</td>
<td>200</td>
</tr>
</tbody>
</table>

3. **Species Selection** Historically, most frost seedings have been made to introduce or increase a forage legume species into an established grass stand. The producer needs to select the legume best suited to the soil conditions and intended use. Forage quality is improved when legumes are added to grass stands. Quality improvement is seen in increased palatability, intake, digestibility, and nutrient content. Research has proven that legumes will improve animal growth rates, milk production, and reproductive efficiency. Red clover has widely been accepted as the legume of choice for frost seeding. Red clover has high seedling vigor and is somewhat tolerant of a wide range of conditions relating to pH and fertility, drainage, and drought. While work is being done to improve the persistence of red clover varieties, it must be treated as a biennial and will probably require reseeding every two years. Red clover has proven highly effective as a means to improve the productivity of fescue stands. Fescue is recognized for its vigorous seedlings, responsive growth with adequate fertility, and as a superior species for use in stockpiling programs. However, fescue is also associated with complications arising from infections of the endophyte fungus, poor palatability, and low production in the summer months. Research has shown the benefits of introducing red clover to grass stands. Research conducted at the University of Kentucky (Taylor et al, 1978) compared renovating a fescue pasture using red clover at 6 lbs/acre compared to fertilizing the grass with 90 or 180 lbs/acre of nitrogen. Red clover growth with fescue produced higher yields than fescue fertilized with nitrogen at either level. Other legumes can be added to grasses through frost seeding. Birdsfoot trefoil is difficult to establish but is bloat-free and when established, does well in a wide range of conditions. Ladino clover will last somewhat longer than red clover, but is less tolerant of low fertility, drought, and overgrazing. The high cost of alfalfa seed, makes it a less desirable option for frost seeding and is not compatible to the rocky, shallow Ozark soils.

Regardless of the species, all seedings should be made with high quality seed. While frost seeded is an economical practice, there is no justification to use low quality seed. The economics will be in favor of high quality seed when you consider the entire lifetime of a stand. There is less experience with trying to establish cool-season grasses through frost seeding. It does appear that grasses do not establish with the same level of success as do legumes. Broadcasting grass seed can present some problems when mixed with legume seed, as the grass seed will not spread as far. Therefore, it is recommended that grasses be seeded separately from legumes when using a broadcast seeder. Minimal work or success rates have been reported with attempts to add grasses to established grass stands through frost seeding. Work done at the University of Wisconsin (West and Undersander, 1997) compared frost seeding establishment of several cool-season grasses into older established alfalfa stands. Results from this two year trial showed that perennial ryegrass and orchardgrass exhibited the best establishment success, while reed canarygrass and timothy had the least success.

Continued on Page 5....
4. **Seeding Rates**

<table>
<thead>
<tr>
<th>Forage Species</th>
<th>Seeding Rate (lb/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Clover</td>
<td>8</td>
</tr>
<tr>
<td>Birdsfoot Trefoil</td>
<td>6</td>
</tr>
<tr>
<td>Ladino Clover</td>
<td>1 to 2</td>
</tr>
<tr>
<td>Alsike Clover</td>
<td>3 to 4</td>
</tr>
<tr>
<td>Alfalfa</td>
<td>10</td>
</tr>
<tr>
<td>Annual Lespedeza</td>
<td>20</td>
</tr>
<tr>
<td>Orchardgrass</td>
<td>2 to 5</td>
</tr>
<tr>
<td>Perennial Ryegrass</td>
<td>3 to 5</td>
</tr>
</tbody>
</table>

These stated seeding rates are based on traditional establishment methods. Frost seeding may require higher seeding rates depending on the given location and desired level of production.

5. **Seeding Time and Method**
The basic principal behind frost seeding is the "honey-combing" action that is created by alternating freezing and thawing cycles in late winter. This activity helps to incorporate broadcast seed into the soil surface. To take advantage of these environmental changes, frost seeding should occur in late winter in southwest Missouri. The trampling effect of high livestock densities can also be effective to ensure seed-soil contact. Use caution when frost seeding on top of snow as rapid meltdown of snow may result in the runoff of seed. Frost seeding can be accomplished with any broadcast type seeder. Tractor 3-point hitch mounted seeders have been typically used. In recent years, seeders mounted onto all-terrain vehicles (ATVs) such as four-wheelers have become a popular choice for seeding.

6. **Seed Treatments**
Seed treatments containing nitrogen-fixing rhizobia bacteria are widely available for most common legumes. Rhizobia do survive in soil, so if the legume of interest is present in low amounts in the field to be seeded, rhizobia coating is usually not required. If the legume is not present in the pasture, then a rhizobia seed coating is recommended.

Frost seeding can be an effective, economical means of introducing a new forage species to an existing forage stand or to maintain the current composition of a stand. This practice has been very useful for helping farmers reduce the effects of endophyte-infected fescue. Frost seeding is frequently implemented where tillage is not a viable option because of erosion concerns. Desired results can be obtained when attention is paid to site selection, fertility, species selection, seeding rates, seeding times and method.