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Selecting Winter Annuals for Fall and Winter Pasture

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The drought effects will be felt long after any normal rainfall arrives. Producers needing to provide quick grazing will soon be planting winter annual forages such as annual ryegrass, wheat and cereal rye. Variety selection is important. A cheap variety becomes very expensive if it winterkills or produces very little forage growth.

Ryegrass

For north Arkansas, cold tolerance is important. Annual ryegrass varieties fall into two broad genetic categories: **diploid** varieties and **tetraploid** varieties. **Diploid varieties tend to be more cold tolerant.** Marshall ryegrass is an example of diploid ryegrass and is well known for its cold tolerance. Tetraploid varieties have broad leaves and good disease resistance but usually are much less cold tolerant than diploid varieties. In general terms, diploid varieties should be selected for northern Arkansas. Some variation in cold tolerance exists among types, so not all diploid varieties are cold tolerant and not all tetraploid varieties

have the same cold sensitivity. For example, **Gulf annual ryegrass is a diploid type and is not cold tolerant.** Gulf ryegrass and VNS (variety not stated) ryegrass are not recommended for these northern areas since winterkill has been reported in previous winters. Below is a noninclusive list of annual ryegrass varieties of both diploid and tetraploid varieties that are being marketed.

Wheat

Most wheat varieties are selected for grain production, but an increasing number of livestock producers plant wheat for grazing purposes. Few variety trials measure forage yield, but some general observations have noted that earlier-maturing wheat varieties produce more vegetative growth in fall and late winter. Some wheat varieties noted for better fall vegetative growth and good grazing potential include:

- AGS 2000
- AGS 2060
- HBK 3266
- Syngenta/Coker 9553
- Syngenta Magnolia
- Syngenta Arcadia

Annual Ryegrass Varieties*

| Diploid Varieties | Company | Tetraploid Varieties | Company |
|-------------------|-------------------|----------------------|---------------------|
| Bruiser** | Ampac Seed | Angus I | DLF International |
| Marshall** | The Wax Co. | Attain | Smith Seed Services |
| Paserrel Plus** | Pennington Seed | Big Boss | Smith Seed Services |
| Surrey II | DLF International | Big Daddy | FFR/Sou. St. |
| Tam 90 | Tex. Ag Exp Sta. | Chuckwagon | DLF International |
| Winter Hawk** | Oregro Seeds | Jumbo | Barenbrug USA |
| | | Nelson | The Wax Co. |
| | | Prine | East Texas Seed Co. |
| | | Striker | Seed Research of OR |

*Non-inclusive list of annual ryegrass varieties

**Very good cold tolerance



DIVISION OF AGRICULTURE
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The following wheat varieties are commonly grown for grain but should be avoided for grazing because they produce very little fall vegetative growth:

- Ranger
- Roane
- Pat
- Pioneer 26R10
- Pioneer 26R20
- Pioneer 26R22
- Terral 8861
- Terral 8848
- Syngenta Beretta
- Syngenta Oakes
- Armor Ricochet
- Progeny 870
- Dixie McAlister

Rye

Rye provides more fall grazing and earlier spring grazing than wheat. It grows very rapidly in March, so producers must be prepared to handle the fast growth either by grazing, as hay or as baleage. Dr. Beck's work showed that to manage spring rye growth, half the field can be managed for graze-out and the other half can be harvested as baleage to improve forage utilization and to reduce waste. Some typical rye varieties are:

- Wintergrazer 70
- Maton
- Elbon

A variety named Rhymin rye from Minnesota was sold in Arkansas last fall. Producers who grew it reported good grazing and forage production. River City Seed in North Little Rock (501-374-0302) is a distributor for Rhymin rye this year.

Two distributors who sell a good selection of wheat varieties and some triticale are:

- **Stratton Seed** in Stuttgart – Call Scooter Hodges at 870-674-4100
- **Seeds Inc.** in Memphis, Tenn. – Call Jeff Fletcher at 1-800-238-6440

Seeding rate for small grains (rye, wheat and triticale) is 90-120 pounds per acre. For a longer spring grazing season, ryegrass can be added. Seeding rates for this mixture of

100 pounds of small grain and 20 pounds of ryegrass have been successful.

Forage Brassica

Forage brassicas include turnips, kale, rape, swede (rutabaga) and radishes. Many of these were developed for improved forage production. Last fall Steve Jones and Kenny Simon planted demonstration fields of forage turnips and ryegrass using different planting methods. They found that for desirable production, some soil disturbance (light disking) is required for turnips. No-till and broadcast planting onto undisturbed sod yielded very poor establishment and growth. The best growth resulted on a demonstration with a prepared tilled seedbed. The seeding rate for full stands of turnip is 5 pounds per acre. For mixtures with small grain or ryegrass, the rate should be 2-3 pounds per acre turnip with 20 pounds ryegrass or 90-100 pounds wheat or rye. The turnips grow very rapidly in fall. The 2011 projects were planted the last week of August and yield was measured in early November. Demonstration sites that did not receive fertilizer achieved dry matter yields ranging from 1,400 to 1,600 pounds per acre for turnips and the ryegrass was too short to measure yield. On a demonstration site where fertilizer was applied at planting, dry matter yield for turnips was >3,000 pounds per acre and ryegrass yield was 1,200 pounds per acre dry matter. Turnip varieties used in these projects were Pasja and Appin, both distributed by Ampac Seed, and Seven-Top turnip. Marshall ryegrass was used as the comparison. Forage yield ranking was highest for Appin and lowest for Seven-Top. The forage turnip varieties also produced faster regrowth than the Seven-Top, which increases the possibility of multiple grazings. Other varieties are available; however, they have not been tested in Arkansas.

Two distributors that sell Ampac seed are:

- The **Hogan Company** in Nashville, Tenn. – Call Stephen Callis at 615-384-1231
- **Missouri Southern** in Rolla, Mo. – 1-800-844-1336

Fall Armyworms

Kelly Loftin, Associate Professor

In South Arkansas, fall armyworms (FAW) appeared around July 15, and populations were at or above treatment thresholds. Now that rainfall is increasing, FAWs are taking off in central and northern Arkansas. Currently, bermudagrass that has greened up and is growing is most at risk, but very soon winter annuals will be at risk of FAW attack. With the drought in Arkansas, it is more critical than ever to save as much forage as possible. The best advice is to scout any green field for armyworms to identify infestations before valuable grass is lost.

FAWs do not overwinter in Arkansas. Instead, adult moths catch wind currents and gradually move into the state from the south and lay eggs. FAW damage seems to appear overnight. Infestations can be easily overlooked when the caterpillars are small and eating very little. Once caterpillars grow large and consume more grass, damage becomes apparent. The fifth and sixth larval



instars (caterpillar stages) are when most of the damage occurs. Of the total foliage consumed, greater than 80 to 85 percent will be consumed by these stages. FAW infestations can be expected from now through the end of September.

Characteristics of Fall Armyworm Larvae

Scouting is best achieved by examining grass blades, stems and organic debris at plant base and the soil surface in a 1-square-foot area. It is best to take at least 10 random 1-square-foot samples across the field. Female FAW moths

prefer to lay eggs in areas of abundant growth, so be sure to include a few of these areas in your 10 samples. Also, make note of the armyworm sizes. Knowledge of their size will help make sound management decisions. A 1-square-foot sampling device made of stiff wire or PVC pipe will make the sampling process much easier. Remember, armyworm outbreaks often occur in waves about 30 days apart, indicating the need for routine scouting.

There are a few tips to remember about FAWs. First, do not treat when armyworms are tiny; however, get prepared.



Device used to sample fall armyworm (size: 1 square foot constructed from ½ inch PVC pipe).



Fall armyworms in thatch.

Several natural enemies such as parasites, predators and pathogens occur and can possibly eliminate or reduce populations in a short period of time. Basically, do not get overanxious and treat before necessary. Secondly, do not wait until they become too large, because at this stage they are difficult to kill and consume much more grass. Harvesting an infested hay meadow is an option if the hay is mature. Most of the recommended products will work well on medium-sized larvae. Consider using the higher recommended rate when treating large larvae or heavy infestations.

The treatment threshold for FAWs is three or more worms per square foot. MP144, *2012 Insecticide Recommendations for Arkansas*, lists insecticides labeled for FAWs in pastures (http://www.uaex.edu/Other_Areas/publications/PDF/MP144/C_Forages.pdf). Fortunately, several insecticides with few or no grazing and harvest restrictions are labeled for use against FAWs. Insecticide choice often depends on local availability; however, harvest restriction and residual activity are other considerations. In general, insect growth regulators (Intrepid) and ryanodine receptor modulators (Prevathon) provide longer residual activity than pyrethroids (Mustang Max, Baythroid, Karate or generics), which could make the difference between having to spray once or twice versus two or three times to make a hay crop. When considering treatment cost, always figure the cost per acre and not the price per gallon of product. Closely follow application methods and grazing/harvest restrictions. For additional information on FAW control in pastures, see FSA7083, *Managing Armyworms in Pastures and Hayfields*, (http://www.uaex.edu/Other_Areas/publications/PDF/FSA-7083.pdf).

A 2 (ee) recommendation was recently released for Prevathon (5% chlorantraniliprole), one of the newest products labeled for use against FAWs in pastures and hay meadows. This 2 (ee) recommendation recommends an application rate of 10-13 ounces of product per acre, which is considerably lower than the rate initially listed on the label. Research trials have shown these lower rates are effective.

New Animal Science Blog

Tom Troxel, Professor

The University of Arkansas Division of Agriculture's Animal Science Department has developed a new blog in an effort to distribute information in a timely and efficient manner to the livestock producers in the state. The blog provides constant news updates and articles relating to current events affecting Arkansas livestock producers as well as links to videos, fact sheets and other items that will prove beneficial. 300 days grazing, 4-H horse and livestock information and calendars of events for various programs throughout the state are also featured. Please visit and join the Animal Science blog: www.arkansas-livestock.com or www.arkansas-forages.com.

Dairy Youth Activities in 2012

Steve Jones, Associate Professor

Youth involved in the Arkansas Dairy Youth Program learn many important life skills as they increase their knowledge of dairy farming and the dairy industry. They participate in various educational activities including dairy cattle judging, dairy quiz bowl contests, dairy skillathons, demonstrations, competitive speaking contests and dairy camps. Also, let's not forget the traditional junior dairy cattle shows and showmanship contests at the county, district and state fairs plus regional and national shows.

Arkansas Dairy Ambassador Program

In 2012, a Junior Dairy Ambassador Program was established for Arkansas. Organizers included Arkansas Farm Bureau, University of Arkansas Cooperative Extension and representatives from the Arkansas dairy industry.

The Ambassador program selection consists of an application and three qualifying criteria. The first criterion is dairy promotion activities. Each contestant must participate in at least two (2) promotion activities to include a 2012 Farm Bureau-sponsored dairy recipe contest. Each participant is expected to enter their county Farm Bureau dairy recipe contest. If no contest is held in their county in 2012, participants are expected to enter a dairy recipe directly to the Arkansas Farm Bureau Recipe Contest. The second promotion activity will be the choice of the contestant and will be judged on type of activity, number of people reached and creativity.

The second criterion of the Ambassador program is the interview. Participants will be interviewed individually by a panel of judges. Contestants should have knowledge about dairy production, the Arkansas dairy industry, National Dairy Promotion Check-off program, dairy cooperatives in Arkansas and other Arkansas dairy facts, such as production and processing.

The third and final criterion of the Ambassador program is the speaking contest. Contestants will develop and present a speech on an assigned dairy topic.

Applications for 2012 were taken through May, with interviews and speaking event conducted during Youth Dairy Camp. The first Arkansas Dairy Ambassador is Jessica Crawley from Benton County. Jessica will serve through June 2013 and will represent the dairy industry at events such as 1) Dairy Proclamation signing with the Governor; 2) present awards during the 2012 Arkansas State Fair Dairy Show; 3) present awards during the 2012 Dairy Days Dairy Show and 4) help shape the Arkansas Dairy Ambassador Program for future candidates. Her reign will conclude at the 2013 Dairy Days.

Arkansas Youth Dairy Camp

The Arkansas 4-H Youth Dairy Camp was conducted June 14-15, 2012, at the Benton County Fairgrounds. Forty-one youth and adult chaperones participated in the two-day camp. The emphasis was on dairy cattle grooming and showmanship. Additional educational classes were conducted on dairy cattle selection and evaluation, dairy cattle nutrition and health and dairy knowledge activities. Guest clinician was Rich Townsend of Elkland, Mo. Participants washed, clipped and groomed their heifers under the guidance of Townsend. Camp concluded with a mock showmanship class.

Four-States Invitational Dairy Days Show

At the conclusion of the Arkansas 4-H Dairy Camp at noon on the 15th, participants continued their dairy experiences by competing in activities associated with the Four-States Invitational Dairy Days. Starting at noon, youth competed in a dairy skillathon, dairy quiz bowl and dairy judging. Following an ice cream social in the late afternoon, the Dairy Olympics were conducted.

On Saturday, June 16, over 70 youth with approximately 150 head of cattle competed in showmanship and their respective dairy classes. At the end of the day, all involved concluded that the 23rd Four-States Invitational Dairy Days Show was a huge success.

National 4-H Dairy Event Participants

The Dairy Days judging contest was the official qualifying contest for Arkansas 4-H. The high-placing Arkansas team was from Faulkner County. Team members are Jansen Riddle, Christina Monday, Travis Clark and Emily Clark. This team will represent Arkansas at the National 4-H Dairy Judging Contest. The national contest will be conducted at the World Dairy Expo in Madison, Wis.

Earlier in the year, Taylor McKinney, also from Faulkner County, was selected to participate in the 58th National 4-H Dairy Conference. The National 4-H Dairy Conference will be held concurrently with the World Dairy Expo and National 4-H Dairy Cattle Judging Contest in Madison, Wis. Since its beginning in 1955, approximately 10,000 young people have attended the National 4-H Dairy Conference. This year the tradition continues as 4-H youth from 25 states and provinces meet for educational tours and seminars as well as networking opportunities with national leaders in the dairy industry and with youth from around the U.S.A. and Canada who share similar interests.

Arkansas State Fair

In 2011, the Arkansas State Fair offered a Commercial Dairy Heifer class to provide additional show opportunities for youth. In 2012, the State Fair is rewarding youth exhibitors with scholarships for selected champions. The 2012 Commercial Dairy Heifer Champion will receive a \$750 scholarship, sponsored by Southwest Dairy Museum.

Balancing Rations for Dairy Cattle

Shane Gadberry, Associate Professor

When balancing rations for dairy cattle, several input variables are important for predicting the nutrient requirements and the predicted outcome of the diet. Minimal factors necessary to predict the nutrient requirements of the cows being milked include:

- Stage of production and average days in milk
- Body weight
- Milk yield

The intake of dairy cows is primarily predicted from body weight; however, actual intake should be used when available.

Once nutrient requirements are established, those values are balanced against the nutrient composition of available feedstuffs. Many dairies rely on hay, silage and byproduct feedstuffs for meeting nutritional requirements. For many, this is where the greatest error occurs in feed formulation and management. Forages are quite variable in nutrient composition. Corn silage in Arkansas has a normal range (mean \pm 1 standard deviation) of 57 to 72 percent total digestible nutrients, and this normal range makes up 68 percent of the samples analyzed. Book values can lead to overestimation of energy, resulting in cattle not performing as expected, or underestimation of energy, creating inadequate levels of dietary fiber. Too often, dairy producers want to blame the mixed feed portion of the diet and the feed mill for poor milk production, but they themselves haven't taken the time to have their forages analyzed for nutrient composition.

With the drought of 2012, some dairies may look to alternative roughage sources, such as crop residues. Crop residues will often be lower in protein and energy compared to average quality Arkansas hay. Use of these residues will be limited to avoid negatively affecting milk production. The limited inclusion rate may result in these alternative roughage sources being difficult to store and blend. More importantly, crops are treated with pesticides, and some pesticides state on the label "do not feed to livestock" or something similar. Other labels may have a time restriction between application and haying or grazing. It is important to visit with the farmer offering the crop residue to find out chemical applications and use restrictions.

Another important aspect in diet management is moisture analysis of feeds, especially high-moisture feeds such as silage and wet brewer's or distiller's grains. Error in moisture results

in formulation error. If the silage is actually drier than the formulated dry matter content, energy may be less than predicted and fiber greater than predicted; however, if silage is wetter, reduced fiber and higher energy may result. Wet feeds need to be sampled and stored in a manner that minimizes evaporative moisture losses between sampling and lab analysis. Arkansas corn silage dry matter content has a normal range of 26 to 49 percent with an average of 38 percent. By comparison, the Dairy One database for corn silage averages 34 percent dry matter with a normal range of 24 to 44 percent.

Forage and silage samples can be analyzed through the University of Arkansas Agricultural Diagnostics Laboratory. Samples are submitted through the local county Extension office. The lab is also capable of testing grains for feed value. For other feedstuff and diet analysis such as byproduct feeds, oil seeds or total mixed ration analysis, commercial labs such as Dairy One, Dairyland or SDK are better options.

Today's ration evaluation software programs go beyond balancing nutrient inputs against the requirements for the cow. By including milk price and feed costs, these programs calculate feed cost per unit of milk and income over feed costs. This tool is helpful at examining different ingredients and their costs to target least-cost milk production. Software programs also calculate fecal and urinary output of nitrogen and phosphorus for nutrient management considerations.

In addition to formulating for protein, energy, mineral and vitamin requirements, rations may also be fortified with specialized fats, ionophores, buffers, yeasts and other rumen environment modifiers and anionic salts for milk fever management. The best information pertaining to these products will be based on unbiased university research. If an additive doesn't result in significant improvements in reproductive rates, milk production or feed conversion, there is likely no economic benefit.

While it is common for feed companies to provide consulting nutrition work, the University of Arkansas Animal Science Department can also assist with diet evaluation. The Spartan Dairy 3 program is currently being used by Dr. Shane Gadberry, Animal Science Extension, to assist with dairy diet evaluation. Contact your local county Extension office if you need assistance in this area or need recommendations on feedstuff testing and test results interpretation.

Screen Ingredients for Mycotoxins

Shane Gadberry, Associate Professor

Ingredient quality is very important in dairy herd nutrition as it affects milk quality. Aflatoxin is one of several mycotoxins that can develop from fungal molds on grains and it, in particular, is regulated in terms of legal limits in milk and legal limits in feedstuffs for all classes of livestock. Once aflatoxin is detected in milk, it can take as long as 96 hours after switching to a “clean” diet before aflatoxin is no longer present in milk. During drought, concerns arise with mycotoxins in feedstuffs. While aflatoxin is usually a problem that is associated with corn produced in the South, at the writing of this article, aflatoxin is being reported in some of the northern corn crop due to the nationwide drought.

When using corn or cottonseed products, purchase ingredients from companies with good quality assurance programs in place. If purchasing ingredients directly from farms, harvesting grains on-farm or if problems have developed with mycotoxins in the past, consider incorporating an on-farm testing program before ingredients enter the diet. Prices and packages vary by company. SDK labs (www.sdklabs.com) in Hutchinson, Kansas, offers aflatoxin testing for \$25. Dairyland labs (www.dairylandlabs.com) offers aflatoxin for \$30 (ELISA method) and \$46 (TLC method). Dairyone (www.dairyone.com) offers a “panel approach” analyzing for five different mycotoxins for \$65. Additional labs that offer mycotoxin testing include A&A laboratory in Springdale, A&L lab in Memphis and Woodson-Tenent lab in North Little Rock. Packaging, pricing and turnaround time vary by lab.

Some labs may not be testing in-house, so visiting with the lab about procedures and turnaround time is important.

For possible on-farm screening, Neogen company has a qualitative kit (Reveal for Aflatoxin). This test is a positive or negative reaction for 20 ppb or more aflatoxin (B1, B2, G1, G2). The kit contains 25 test strips and sample prep materials. Sample extraction requires a grinder, scales, methanol, graduated cylinder, pipette and filter paper that can be purchased separately from Neogen or assembled from separate resources. For example, a good coffee grinder and scales from Harbor Freight may be a cheaper option to get started. The 25-test strip kit is approximately \$181. The additional materials and supplies for set-up will be between \$100 and \$600, depending on sample prep equipment.

While corn and cottonseed products are going to be the most likely source of mycotoxins, mycotoxins can be present in other feedstuffs as well. Due to the demand for distiller’s grains in dairy diets, ethanol plants screen for and avoid aflatoxin-contaminated corn. In the past couple of years, vomitoxin, another mycotoxin that also goes by the name DON or deoxynivalenol, has shown up in distiller’s grains. In Arkansas, loads were being marketed that contained 15 ppm DON and these were being marketed to beef production systems.

Although not regulated like aflatoxin, fumonisin and zearalenone can also be produced by certain types of molds and may affect cattle performance, including reproduction.