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Washington Animal Agriculture Team
WSU Livestock Round-Up

In this issue:

Managing for Profit in an Era of High Feed Prices

Livestock producers' profitability is being adversely affected by rising feed prices. This is forcing producers to re-examine all their management strategies. Figure 1 shows the dramatically increasing price trend in corn, barley and alfalfa prices with all three feed products having prices well above their 2001 to 2005 five year average price. Futures market corn prices are increasing above 2006 levels which in-turn is fueling escalating growth in all feedstuff prices.

Interestingly, the current feedstuff price surge is not driven by poor growing conditions or other supply constraints, typical of the past. Prices are high due to unprecedented demand. The world needs more corn because of the expansion in U.S. bio-fuel policy with its goal to almost triple ethanol production over the next few years. Alternatives to corn for ethanol production hold some promise for the future, but currently corn is the primary ethanol input in the United States. High corn prices will continue unless we see record growth in world corn supply, substantial declines in feed grain demand, a sustained decline in crude oil prices, or a change in the U.S. bio-fuels policy. Market adjustments to increased corn demand extend well beyond the corn sector to the supply and demand of other crops, and these adjustments are adversely affecting livestock prices. If U.S. ethanol production demand for corn continues as anticipated, the world has entered an era of sustained high feed grain prices. As a result, livestock producers need more than a short-term feed ration management change. Producers need to develop longer term comprehensive management strategies to adjust to industry wide changes in feedstuff and livestock prices.

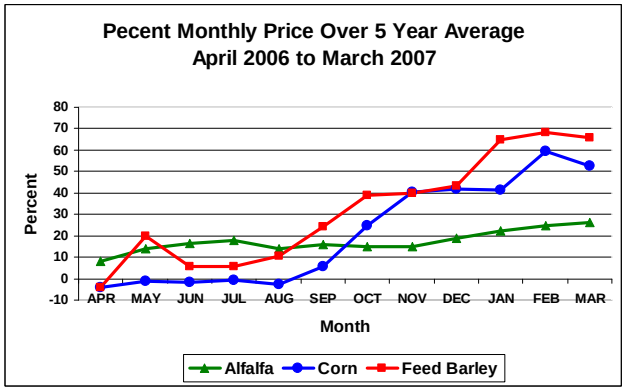


Figure 1. Percent monthly feedstuff price trend over its five year average.

Considering the revenue side of the profit equation, profitability could be maintained if sale prices increase to offset the increased feed cost. Unfortunately, this is not anticipated for calf prices. High feed costs are depressing the demand for feeder livestock. Figure 2 shows the 2007 Washington weekly 500-600 pound steer calf prices running above the 2001-05 five year average, but below 2006 prices. It is unlikely in the near

term that livestock producers' profitability will be rescued by higher prices. This is forcing producers to examine cost management options such as least cost rations to address profitability concerns.

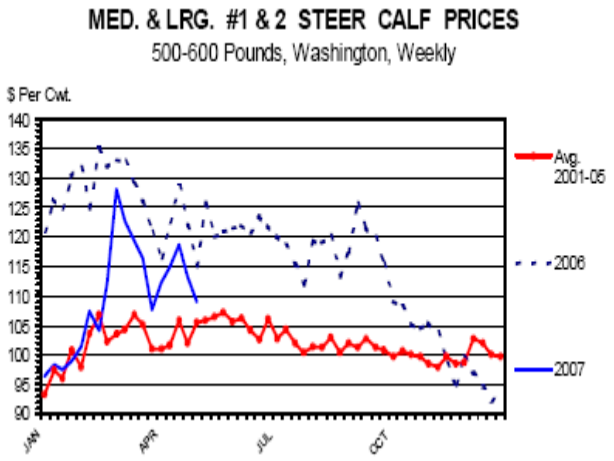


Figure 2. Washington weekly steer calf prices, Source: (Hudson T., E-Newsletter for Washington's Livestock Industry, 6-01-07).

Decisions to modify ration formulation depend on economics, the producer's forage resource base, potential animal health consequences, alternative feedstuff price, quality and availability, and on-farm storage and handling capability. Some gain may be made in reformulating rations toward lower cost inputs, but if all substitute feedstuff costs are high, the economic effectiveness of the least cost ration strategy is diminished. When substitute feedstuffs prices have increased, such as in the current market, it decreases the economic gain of the least cost ration formulation strategy. For example, there are some instances in which wheat at $5.50/bu and above was used in a least cost ration formulation, because wheat was less costly than barley.

A second management response could be to adjust herd size relative to the resources found on the farm. A common approach is reducing breeding inventory levels by culling unproductive animals from the herd. Increased culling is reflective in the national cattle herd (Figure 3). Cow slaughter year-to-year percentage changes have been positive since spring 2006 and were above 20% in the late summer months of 2006 and are currently about 15% higher in spring 2007. High cow slaughter numbers typically decreases the future supply of calves, providing a positive stimulus on future calf prices. For some producers a completely inverse strategy to increase herd size may be appropriate. This allows producers to take advantage of counter cyclic price trends and to make more efficient use of resources by expanding breeding stock inventory with an expectation of future price increases.

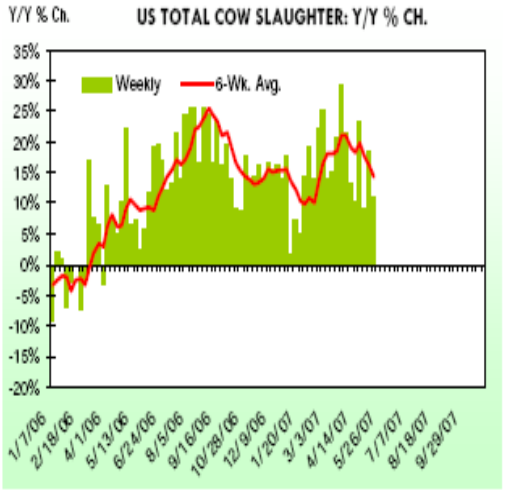


Figure 3. Source: Daily Livestock Report, May 30, 2007 http://www.dailylivestockreport.com/

A higher culling strategy may allow some producers to take better advantage of increasing feeder gains on forage. One forage use opportunity is for stocker operators to graze their cattle to heavier weights than they would normally. This strategy is effective if they have adequate forage availability and weight gain efficiency. Increasing corn and alternative feedstuff prices increases the cattle's cost of gain in the feedlot and leads to placing feeder cattle in feedlots at heavier in-weights and feeding them for shorter periods. This means that cattle can spend more time grazing to heavier weights prior to entering the feedlot because their cost of gain is cheaper on grass. Because there is little that can be done to individually affect prices, livestock producers must rely on management response to address profitability. The critical management information needed to evaluate and implement alternative production

practices is to determine the operation's break-even price. This is the price required on produced livestock to cover the costs of feeding and raising the livestock. Enterprise budgeting is the accounting tool needed to calculate a break-even price. Knowing the break-even price allows the manager to negotiate marketing agreements with confidence that profitability is attained, or to know the marginal change in profit from implementing production changes.

For additional information on expected corn price and use: North Carolina State University, Swine News
http://mark.asci.ncsu.edu/Swine_News/2007/sn_v3002%20(March).htm
For information on enterprise budgeting and break-even prices see,
http://agalternatives.aers.psu.edu/farmmanagement/enterprise/enterprise_budget_analysis.pdf

www.agecon.ksu.edu/rdjones/Ag_Update/current.PDF
-Dr. Shannon Neibergs, WSU School of Economic Sciences

Pre-breeding Management of Sheep

Which comes first, the sheep or the egg? Actually, good pre-breeding management comes first.

General Health and Condition

Reproduction is a luxury; organisms do not cycle or reproduce if they are not in good health and body condition. Pre-breeding management ensures that essential health-related matters have been addressed before rams are turned in with ewes.

An excellent time to decide which animals to keep and which to cull is during a pre-breeding flock assessment. Also, during lambing season, good managers will identify some ewes to be culled. Although culling criteria will vary from farm to farm, individuals may earn the "to-be-culled" designation by showing poor mothering instincts, having a singleton, getting severe mastitis, producing poor-performing offspring and so on. Pre-breeding examinations of individuals and their records can reveal other concerns such as dental problems, chronic feet and leg problems, poor reproductive performance, mammary problems, etc. With high feed costs contributing to slim profit margins, it makes sense to replace problem animals instead of trying to re-breed, feed and winter them another year.

Ewes' and rams' body condition should be assessed long before breeding season begins. Groups can be created to be fed and managed differently based on body condition score (BCS).

Producers may choose the pre-breeding season to test and/or cull animals based on disease status. Caseous lymphadenitis (abscesses), foot rot and ovine progressive pneumonia (OPP) are just three diseases flock managers may choose to address through pre-breeding culling.

To deworm or not deworm, that is the question. In the past, many producers routinely dewormed their entire flock before breeding. With growing concern about development of drug-resistant parasites, more and more experts are recommending treatment of individual animals on an as-needed basis only.

For sanitary reasons and to help prevent disease transmission, some producers "crutch", "tag" or shear the wool around ewes' tails and hindquarters before breeding.

Ram Breeding Soundness Evaluation

Ewes are only half of the reproductive picture of a flock. Before breeding starts, each ram should have a thorough physical examination. Pay particular attention to body condition, feet, legs, eyes and external reproductive tract anatomy. Some of the references listed at the end of this article describe how to examine a ram's reproductive anatomy.

Libido or sexual drive is a key aspect of a ram's reproductive performance. A mature ram with normal libido can service at least three to five ewes a day. One ram per 30 to 50 ewes is often recommended for a three-cycle breeding period (about 50 days). More

Paying attention to pre-breeding issues will help producers see more twins and triplets.

rams are needed if ewes have been synchronized to come into heat together. Yearling rams should only be counted on to breed about half as many females as mature rams can.

Ideally, each ram's breeding soundness evaluation should also include a semen evaluation. Samples are usually collected and examined by a veterinarian. Semen is evaluated for its sperm quality, quantity and motility as well as evidence of other problems.

Genetic Selection

Livestock species and breeds benefit when managers make purposeful and selective breeding decisions. Only breeding the healthiest and most productive animals under a certain management system will be extremely beneficial for that system in the long run.

It is now possible to perform genetic testing on sheep for both the Spider gene and genetic resistance or susceptibility to Scrapie. Some breeding stock producers have this genetic testing performed routinely and advertise their flock's status as a selling point to prospective buyers.

Nutrition

Nutritional flushing of ewes has been shown to increase ovulation and conception rates, embryo implantation and lamb crop percentages. Flushing is achieved by increasing the nutritional value of the ration from two to three weeks before breeding until two to four weeks after breeding. Most producers who flush usually increase the flock's energy intake by providing grain, but a positive effect can also be seen when the ration's protein level is increased--especially in flocks on a low-protein ration.

Flushing is not advantageous for flocks already on a high-quality diet and/or already in excellent body condition, such as those with a BCS of 4 or more on a 5-point scale. Ewes with a BCS of 3 or below should benefit significantly by flushing. Optimal BCS at breeding is 3 to 4. For more information about flushing, refer to the fact sheet listed as a resource at the end of this article.

Don't forget rams—they work very hard during breeding season and will often drop one or more BCS points. They need a ration that is nutritionally dense to provide them with the nutrients they need during the brief times they stop to eat. Transition them onto this diet gradually and make sure they are in good nutritional status before breeding season starts. The process of producing and transporting healthy sperm takes several weeks, so rams' nutritional status should be assessed about two months before breeding begins. Be sure to address the protein, energy and mineral composition of rams' pre-breeding rations. Excellent diets are especially important for young breeding rams that are also still growing.

In selenium-deficient areas such as the Pacific Northwest, flock reproductive performance will often benefit from selenium supplementation. In addition to trace mineral salt, some producers administer injectable selenium/Vitamin E to both ewes and rams before breeding season begins. Discuss the need for this supplementation with your veterinarian.

Vaccinations

Pre-breeding vaccinations will depend on a flock's history, disease status and veterinarian's recommendations. Such vaccinations may include Vibriosis (Campylobacteriosis), Enzootic Abortion of Ewes (E.A.E. or Chlamydiosis) or other diseases. If pre-breeding is the only time you give vaccinations, booster ewes and rams with *Clostridium perfringens* types C and D and

tetanus (CD & T). However, it is wiser to give CD & T about two weeks before lambing so lambs can benefit from the antibodies ewes will produce and deposit in colostrum

When to Breed

Ultimately, the decision about when to breed depends on when a producer wants to lamb. Labor, weather, feed availability, predator behavior, off-farm responsibilities and other factors all figure into this decision. Select a preferred lambing start date and calculate backwards by 147 days; this is the day to start breeding. Plan to leave rams in with ewes for two or three estrous cycles (each cycle lasts 16 to 17 days) because not all ewes will conceive on the first breeding.

Other Breeding Management Tools

To concentrate labor requirements, some producers opt to synchronize their flock's estrous cycles so most ewes conceive and (hopefully) lamb on or about the same day. Artificial insemination is yet another tool producers can use; it can help flocks make rapid genetic progress.

For More Information

http://animalag.wsu.edu/small%20ruminants/NutritionalFlushingSmallRuminantsKerr1003-2006.pdf

www.sheep101.info/201/ramrepro.html

http://ansci.wisc.edu/Extension-New%20copy/sheep/ETN_01/nov/scrapiegenetics.doc

www.dlab.colostate.edu/webdocs/ext_vet/cleon13.html

http://extension.usu.edu/files/agpubs/sheep13.pdf

www.pipevet.com/articles/Breeding_Soundness_Exam_Rams.htm

www.agric.nsw.gov.au/reader/sheep-management/fertility-test-rams.pdf?MIvalObj=18577&doctype=document&MItypeObj=application/pdf&name=/fertility-test-rams.pdf

http://extension.usu.edu/files/agpubs/sheep04.pdf

http://oregonstate.edu/dept/animal-sciences/bcs.htm

www.sweetlix.com/user_files/File/articles/Goat_003.pdf

-Dr. Susan Kerr, WSU Klickitat County Extension

Pasture Grass Varieties for Livestock

Things to consider when choosing a pasture grass or a mixture of pasture grasses include annual rainfall, available water rights, soil types, and weed pressure. There are also management questions that need to be addressed such as the ability to rotate animals, mow, and spray the pasture. It is also important to consider the type of livestock that will utilize the pasture now and in the future.

There are advantages and disadvantages of different cool season grasses that need to match up with available resources and management style. The grasses reviewed in this article are Kentucky bluegrass, orchardgrass, smooth brome, perennial ryegrass, tall fescue, hard fescues, and wheatgrasses. This information can be used when property owners are making decisions on establishing or renovating their pastures.

Kentucky bluegrass *(Poa pratensis L.)*

Advantages:

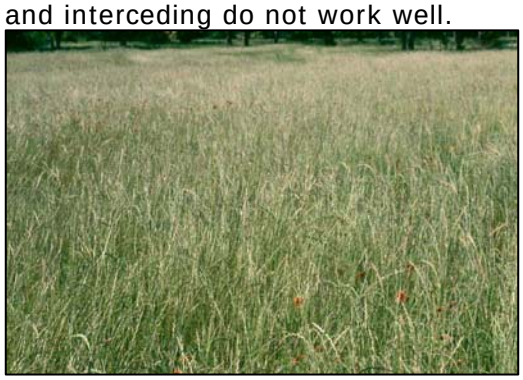
- Good forage quality
- Withstands traffic
- Tolerates close grazing (1 to 2 inches)

Disadvantages:

- Low yield ~ 2 T/acre
- Moisture requirement (minimum of 20" annually)

Kentucky bluegrass *(Poa pratensis L.)* is a cool-season, sod-forming grass which can handle low stocking rates. Productivity is greatest in spring and fall. It goes dormant in the hottest, dry part of the summer. Mixing with a short legume such as clover, works well. Kentucky bluegrass is not usually grown for hay because of its low productivity and

short stature. It can be slow to establish. Common seeding methods are conventional or no-till seeding into a killed sod. Frost seeding and interceding do not work well.



Ryegrass - Annual (*Lolium multiflorum L.)* and Perennial *(L. perenne L.)*

Advantages:

- Good forage quality
- Easy to establish
- Tolerates close grazing
- Good yield ~ 6 T/acre

Disadvantages:

- Moisture requirement (minimum of 30" annually)
- Poor shade tolerance
- Needs well-drained soil

Ryegrass [Annual (*Lolium multiflorum L.)* and Perennial *(L. perenne L.)*] are cool-season, bunch-type grasses. They establish easily and have high forage quality. However, they are not overly tolerant to drought, heat, and winter cold. They can be interseeded into existing pasture by no-till or frost seeding. Ryegrass may be grazed closely early and then rested until 8 inches tall. Grazing lower than 4 inches may damage the plant. Purchase seed that is endophyte-free and resistant to crown rust. For perennial ryegrass, make sure you select forage varieties, not turf varieties.

Smooth Brome *(Bromus inermis Leyss.)*

Advantages:

- High forage quality
- Good yield ~ 5 T/acre

Disadvantages:

- Aggressive
- Moisture requirement (minimum of 18" annually)

Smooth brome *(Bromus inermis Leyss.)* is a cool season grass that forms a dense sod by spreading rhizomes. It is winter hardy, drought and heat tolerant. It can be slow to establish. Common methods are conventional seeding or no-till seeding into a killed sod. Neither frost seeding nor interseeding works well. Brome is sensitive to grazing while stems are elongating so graze when plants are less than 6 inches or after they reach 10 inches. Grazing lower than 4 inches may damage the plant.

Wheatgrasses, Crested (*Agropyron cristatum) and* Tall (*Agropyron elongatum) and* Intermediate *(Thinopyrum intermedium)*

Advantages:

- Drought tolerant (requires a minimum of 8-12" annually)
- Tolerates salty/alkali soils (tall wheat grass)

Disadvantages:

- Poor palatability at maturity
- Low yield < 2 T/acre
- Doesn't tolerate close grazing

Crested wheatgrass, *Agropyron cristatum*, is a very drought-tolerant, medium height bunch grass. It is cold-hardy, shade-tolerant, and performs well at high elevations. This grass only requires 8 inches of annual moisture, and established stands can persist up to 30 years. Crested wheatgrass is a slow developer,

taking up to 2 years to fully establish.

Tall wheatgrass, *Agropyron elongatum* (Host.) Beauv., is a tall, vigorous bunch grass that is well adapted to saline and alkaline soil conditions. It is late maturing but has good longevity and hardiness. Tall wheatgrass does best with 14 inches or more of annual moisture. Being a non-aggressive grass, it should be used in seed mixes with only one or two other species. It has poor palatability at later maturity.

Intermediate Wheatgrass *(Thinopyrum intermedium)* is a cool-season, sod-forming grass that is drought tolerant.

Orchardgrass *(Dactylis glomerata)*

Advantages:

- Good forage quality
- Easy to establish
- Good yield ~ 6 T/acre

Disadvantages:

- Doesn't tolerate close grazing
- Moisture requirement (minimum of 20" annually; Paiute requires 16")

Orchardgrass *(Dactylis glomerata)* is a cool-season bunch-type grass that works well with a range of soils as long as there is adequate moisture. Management can be intense for either grazing or cutting hay. Its drawbacks are that it is not overly tolerant to drought, heat, winter cold and it may thin out over time. It is fairly easy to establish and can be interseeded into existing pasture by no-till or frost seeding. Orchardgrass matures early. It should be grazed frequently to maintain adequate quality (regrow 10" before regrazing). After seed head removal, regrowth occurs mainly in the leaves. Orchardgrass is very aggressive however grazing lower than 4 inches may damage the plant. Under extremely hot conditions, orchardgrass will have a bigger production slump than meadow brome.

Tall Fescue (Festuca arundinacea Schreb.)

Advantages:

- Good forage quality
- Easy to establish
- Good yield ~ 5+ T/acre
- Withstands traffic

Disadvantages:

- Must be endophyte-free
- Moisture requirement (minimum of 14" annually)
- Older varieties have lower palatability

Tall fescue (*Festuca arundinacea* Schreb.) is a cool-season bunch-type grass that spreads from short rhizomes. It is more shade tolerant that other grasses. It is tolerant to drought and flooding but not winter hardy. It is easily established by interseeding into existing pasture by no-till or frost seeding. Tall fescue is sensitive to grazing while stems are elongating so graze when plants are less than 6 inches or after they reach 10 inches. Grazing lower than 4 inches may damage the plant. It will continue to grow through the summer more than other cool-season grasses. Tall fescue can be stockpiled. Low palatability can sometimes be a problem. Older varieties have lower palatability. Select endophyte-free and low-alkaloid varieties.

Hard Fescues *(Festuca longifolia)*
Advantages:

- Drought tolerant (requires a minimum of 10" annually)
- Withstands traffic
- Tolerates close grazing

Disadvantages:

- Poor forage quality
- Low yield < 2 T/acre

Hard fescues *(Festuca longifolia)* are cool-season bunch grasses that are drought tolerant and have some shade tolerance. They grow in clump formations and are salt tolerant. They do well on low fertility sites and in shaded areas. Hard fescue tolerates medium acid soils, making it more adapted to forest and foothill regions rather than open prairies. Hard fescue will not tolerate "wet feet", saline, or alkaline soils. Although this species has very good seedling vigor, it is slow to develop. The fine leaves of the seedlings are unable to emerge through much of a crust on the soil surface. Sheep fescue, *Festuca ovina* var. *sulcata* (L.) Koch, is a short, spreading native bunch grass and is the most drought tolerant species of this group. It is slow to develop, but forms a tough, persistent cover once it is established.

Selection of the proper species or mix is an important step in establishing a pasture that meets the needs of your animals and works for your property. Allowing adequate time for establishment, providing enough moisture, and managing weeds will give your pasture the start it needs.

For more information:
http://www.attra.org/attra-pub/PDF/sustpast.pdf
Pasture: sustainable management
www.tarleton.edu/~range/Home/home.htm
Tarleton State University (Texas A&M)
-Debbie Moberg, WSU Walla Walla County Extension

Livestock mortality composting

There are a number of good reasons to consider composting mortalities. Composting can prevent flies, scavengers, rodents, and odors associated with burial or the drag-and-drop method. There is reduced risk to ground and surface water quality as well as increased on-farm biosecurity. It is advantageous to recycle the nutrients from mortalities; composting can lower operational costs. Composting is a more manageable approach to process large volumes of mortality material, such as in the event of a winter storm/ice event or toxicity problem during which multiple animals die.

Regulations

Cattle and horse owners are exempt from solid waste permitting requirements when distributing mortality compost off-site provided the total of pre-compost material, partially composted material, and unused finished compost onsite is not more than 1000 cubic yards. These guidelines then apply:

- Carcasses must not have a prion-related disease, spore-forming disease, or other disease of concern identified by the state veterinarian.
- The owner/operator must use his own animals and may not accept animals from other sources.
- The end user must be notified that the compost includes animal mortalities.
- The compost cannot be applied to ag lands that will have a root crop in the next three years.
- Compost application must prevent direct contact with any crop part used for direct human consumption.

Additional requirements vary depending on local regulations, the volume of compost produced, the type of livestock operation, and use of the final product. For more information, contact your local Health Department or go to www.mortcompost.info.

How-to

Location is important. Avoid sites with poor drainage as well as any location within 300 feet of surface water and drinking water wells. A site with 2-6% slope and no rocks is optimal.

Ingredients

- Dead animal(s)
- Bulking material such as chopped straw, sawdust, chopped hay, etc.
- Skid-steer for building and turning piles or rows
- Probe thermometer with 36" stem
- Logbook for recording start dates, temperatures, types of material, turning dates, etc.

Composting occurs most rapidly and effectively at a moisture level of 50-60%. This is moist but not so wet that water is easily squeezed from a handful of material. The carbon to nitrogen (C:N) ratio should be 25:1 to 40:1. Too much nitrogen will result in release of ammonia or water-soluble nitrates that smell and can leach to groundwater or runoff with precipitation to surface water. Too much carbon results in inadequate microbial growth and slow composting.

A pile will typically be 6-8 feet tall with a base of 1.5-2 times the height. Begin with bulking material at 2-3 feet deep. Place carcass so that all parts are at least 24 inches from any edge. Lance the rumen to speed up decomposition. Bury the carcass completely with bulking material again so that all carcass parts are >24 inches from the edge.

Record temperatures and observations on a weekly basis. To kill bacteria and other pathogens, the internal temperature of the pile must reach 131°F for 3 consecutive days. After several months, turn and mix the pile – only large bones and some hair should be identifiable by now. After turning, the internal temperature should rise again to at least 131°F for 3 days. Finished compost should not smell or have any visible trace of animal tissues. Large bones will be brittle and can be put into the next compost pile.

For more detail, visit the WSU BioAg website www.mortcompost.info or read the Department of Ecology online publication "On-Farm Composting of Livestock Mortalities" at www.ecy.wa.gov/biblio/0507034.html.
--Adapted from www.mortcompost.info
-Tip Hudson, WSU Kittitas County Extension.

Bessie, What Have You *Dung* for Me Lately?

The lowly dung pat; a piece of nature that we'd rather avoid stepping in are what numerous beetles, flies, and mites call "Home Sweet Home." The dung that cattle produce and humans consider waste is actually a wondrous ecosystem, replete with complex interrelationships among the insects feeding on dung, fungi growing in the dung and those arthropods that feed on those insects (Figure 4).

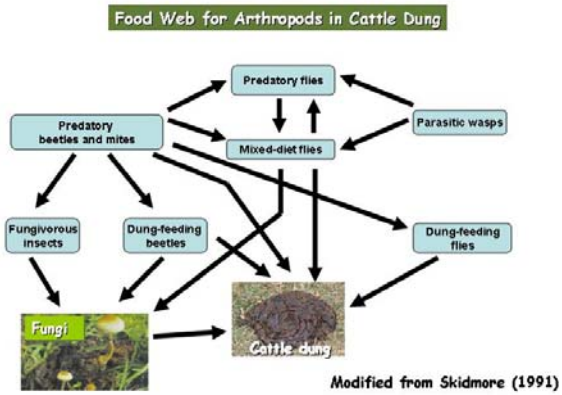


Figure 4. Food-web

Over the past two years, we have been conducting a statewide survey of beetles and flies associated with beef cattle in Washington State. Using a variety of sampling methods, we've surveyed within herds in Skagit County on the West side to Whitman County on the East side. We expected to find lots of pest flies such as face flies and black flies in our traps but were not prepared for the diversity of insects and other invertebrates that we have found in the dung. To be brief, I will limit my discussion to dung-feeding and dung-breeding flies and dung-feeding beetles, which are usually the most obvious insects in the dung pat and are also the most relevant to

cattle herd health.

The flies that feed on dung include the larvae of face flies, horn flies, and stable flies. Face flies and horn flies are considered to be the major fly pests of pastured and rangeland cattle. Adults of both of these flies lay eggs on freshly deposited dung. Stable flies, which are also pests of cattle, prefer to lay eggs on decaying plant matter but will oviposit in cattle manure as well. Other fly larvae, such as those of house flies and yellow dung flies also feed on cattle dung, but these are not considered pests of cattle. House flies oviposit on fresh manure, but usually not cattle dung. They are most likely to be found associated with your cattle if the neighbors have hogs, poultry, or horses. Yellow dung fly adults actually feed on smaller flies and other smaller insects in the dung.

The remainder of this article will focus on the beetles in the dung pat ecosystem. Have you noticed the beetles that crawl in and out of the dung pats? Several different kinds of beetles reside in the dung pat, many of which are performing valuable services. Some dung-inhabiting beetles are predators of fly eggs and larvae (families Hydrophilidae and Staphylinidae). Other beetles, often collectively called dung beetles, are involved in dung degradation. Breakdown of the dung pats is critical to the maintenance of pasture health and productivity. When an animal drops a dung pat, the grass is smothered in that spot and cattle do not graze around the area. The sooner the dung pat is degraded, the sooner the grass is uncovered and the sooner the area around the dung pat is freed up for grazing again. Beetles in the family Scarabaeidae are well known for their dung degradation capabilities. Scientists have grouped these beetles into three nest-building types: dwellers, tunnelers, and rollers. Dwellers feed and lay eggs in the dung or in the soil near the surface but do not bury dung. Tunnelers feed on the dung but tunnel through the dung and into the soil to bury extra dung and brood balls which are dung spheres containing eggs. Rollers are the champion dung brood ball makers, and they will break up the dung pat into separate balls that are rolled away from the pat and buried elsewhere. Though all three of these types are important for dung degradation, tunnelers and rollers can degrade the dung pats much more rapidly (within hours to days) than dwellers (within several weeks). The dung-reducing activities of these beetles not only clean up the pasture, but they add nutrients to the soil and contribute to soil aeration much like earthworms, which in turn, allows better water penetration. Reduction in dung means reduction of both external pests such as horn flies and face flies and internal parasites, the eggs of which are passed in the dung.

Figure 5. *Onthophagus nuchicornis* on sticky trap

Figure 6. *Aphodius fossor* collected in Skagit County

Figure 7. Picking beetles out of a beetle float.

During the summers of 2006 and 2007, we collected lots of beetles associated with cattle dung, using dung-baited pitfall traps in the ground and by sorting through aged dung with the "beetle float" method which involves floating the dung pat in water to force the beetles out (Figure 5). The beetle float proved to be the quickest collection technique and yielded the most beetles of all the sampling methods tested. So far we have found an abundance of dwellers such as *Aphodius fimetarius* and *A. fossor*. We have also found limited numbers of tunnelers, namely *Onthophagus nuchicornis*. No rollers have been found, but we are still looking. I plan to give a full report on both the flies and the beetles we collect in a future newsletter article.

So next time you are strolling in your pasture to check on your cattle certainly be careful not to step in it, but take a moment to consider the lowly dung pat. It's a little world of its own, a marvelous food source for many organisms and home to those industrious beetles whose handiwork is critical to the important process of dung degradation.

What's in YOUR dung pat?

References:
Fort Dodge Animal Health. 2005. A Guide to Dung Beetles. FDP# L0256B.
Skidmore, P. 1991. Insects of the British cow dung community. Field Studies Council. Occas. Publ. 21. 166 pp.
-*Dr. Holly Ferguson*, WSU-Prosser

How Much Hay Do You Need?

With hay in short supply this year and prices already skyrocketing, it is time to start thinking about your winter hay needs.

If you have storage, now is the best time to purchase your hay. But how much will you need? If you don't have much storage, then you will need to do some arranging for your hay to "wait for you" until you are ready to feed it. If you have storage, some simple estimates and calculations can determine how much you need. Even if your hay is going to wait for you to pick it up, it is usually cheaper to "lock" it up now, so you don't run short and have to buy when the price is out of sight in the spring.

First you need to determine how much each animal will eat per day. A 1000 lb. dry, bred beef cow will eat a minimum of 15 to 18 pounds of hay per day. A 150 pound dry bred ewe will eat a minimum of 3 to 5 pounds of hay per day. An 1100 pound mature horse not working will eat a minimum of 13 pounds of hay per day. You will want to add some for a safety net. I usually figure on a half ton per month per horse, about three quarters of a ton per month per cow and 150 pounds per month per ewe.

Next you need to determine how long your feeding period will be. Location is the key to this determination. You may need to begin feeding as early as October. But then again maybe you will have grazing into December. The tendency in the spring is to begin grazing too early. This has consequences that can be very detrimental to the health of your pastures and can have lasting effects. Some early grazing may begin as early as March, but for most locations this is too early for the grass. Later in April or even into May could be better. Let the grass get to at least 8 inches before you end your feeding period and begin grazing.

With the above information it is an easy calculation to determine your hay needs. Multiply the feeding period days by the hay per day and then multiply times the number of animals. Divide by 2000 to convert to tons. Multiply the number of tons by the price per ton to get the amount of money you will have to borrow and don't have a heart attack.
-*John Fouts*, WSU Walla Walla County Extension

Champion Market Gilts Don't Necessarily Make Good Breeding Gilts

Again this year, I saw individuals purchasing market gilts back through 4-H/FFA livestock fair auctions and the "turn pen" for breeding purposes. There are many reasons why individuals interested in purchasing breeding

gilts should not purchase gilts that have been raised and exhibited as market animals at fairs and shows around the area.

Just because the gilt may have placed well at the fair does not mean she will be great or even good breeding gilt. Selecting for both carcass and reproductive traits are difficult because they work against each other. Breeding gilts need more fat than most show pigs because cholesterol is needed to synthesize some important reproductive hormones that cause the gilt to cycle. In addition, market swine are not evaluated in fair and junior market show classes for their reproductive traits such as, underline (udder) soundness, breeding soundness, number born alive, number weaned or 21 day litter weight. You can have the greatest looking market gilt, but if she cannot breed, deliver or care for a litter of piglets she has no use as a breeding animal and will cost you significantly.

Another concern with selecting a gilt from the fair market pen is that these gilts have been fed and conditioned to be market animals not breeding animals. The feed additive Paylean® used to enhance the amount of lean muscle is not approved for use in breeding swine. It is not completely understood how Paylean® will impact a gilt's ability to breed, produce and care for a litter of pigs. In addition, because exhibitors are feeding market swine to a specific date, sometimes they must limit feed or hold an animal. Holding a gilt at a certain weight for an extended period of time may have long-term negative effects on her reproductive potential.

Most importantly, show pigs can bring many disease organisms home to your farm and spread them to other animals. Animals that are farrowed at one location and not exposed to other swine are typically healthier than animals exposed to other pigs and animals at a fair. When buying breeding gilts, it is best to buy them directly from one farm of origin that has a successful herd health program. Because fair pigs are from multiple farms and co-mingled they have probably been exposed to many disease-causing organisms.

It can be educational and exciting for both youth and the whole family to experience raising a breeding swine project. If you are committed to investing in a breeding project, it is wise to go the extra step and invest in a breeding gilt that comes from a reputable breeder who has selected, fed, and raised the gilt to be a breeding animal. In addition, not bringing home gilts from the fair/show will help protect other swine operations located nearby from potentially devastating disease outbreaks.

-*Sarah Smith*, WSU Grant / Adams County Extension

Upcoming Events

Meat Goat Program Day

September 29, 2007, 9:00 am to 3:00 pm, Walla Walla Airport, Community Room, RSVP due by September 14, 2007 **Cost**: $15 for Individuals, free for 4-H youth, pizza/pop available for purchase at lunchtime, brown bags welcome.

Please send registration in by September 14 to the WSU Walla Walla County Extension Office, 328 W. Poplar, Walla Walla WA 99362 or call 509-524-2685 or email dmoberg@wsu.edu.

Beef 300

3-day, hands-on workshop to teach how to produce and market quality cattle and beef products. October 3-5, 2007 at Washington State University, Pullman. Limited to 32 participants, $150 registration, deadline is September 12. For more information contact: Jan Busboom, (509)335-2880 or busboom@wsu.edu; or Sarah M. Smith, (509)754-2011, Ext 413 or smithsm@wsu.edu

Editor: Norman Suverly

Please contact individual authors if you have questions on the topics covered in this newsletter. Washington Animal Agriculture Team members' contact information and publications can be found at http://animalag.wsu.edu