

# Grazing Gazette



PENNSYLVANIA  
College of Agricultural Sciences  
in cooperation with USDA/ARS

## YEAR-AROUND FORAGE PROGRAMS FOR BEEF CATTLE AND SHEEP

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The labor, equipment, and lifestyle advantages of allowing livestock to harvest forage directly through grazing versus the usual harvest and feed routine has caused many producers to ask just how far we can push the grazing season toward a year-around practice.

With this in mind, as I look out the window on this January day, I'm reminded of the old line, "When you're up to your armpits in alligators, it's hard to remember that your original intention was to drain the swamp." Or in this case, "When you're up to your armpits in snow, it's hard to remember that your original intention was to graze pasture!"

Like many areas of Pennsylvania, we have received more than 75 inches of snow already. In many pastures you can't see a fence, let alone any grass, at least until the recent thaw.

Skeptics of expanding the use of pasture would point out that these conditions prove the futility of counting on pasture for more than five or six months of feed. What it really proves is the need to stay flexible and have several con-

tingency plans ready for changing conditions. It's really no different than other farming or feeding systems. Those who planned last spring for plentiful corn supplies this winter at \$2 per bushel have no doubt had to adjust their plans to cope with the current situation of nearly \$4 per bushel!

While it's obvious that we can never count on avoiding the use of harvested feed for the entire year, especially during harsh winters, our goal can be to maximize grazing within the limits of our available pasture and the existing weather conditions. Fortunately for cow-calf and brood ewe operations, calving and lambing season can be planned so that animal requirements are at a low point when pasture is usually unavailable. The same principal is at work in the "seasonal dairy" approach where essentially all the cows are dried off at once, typically during the harshest winter months.

### The Concept of Extending the Grazing Season

Crude calculations may be used to illustrate the concept of extending the grazing season. Using average forage yield, seasonal distribution of yield, and quality values, one may calculate the carrying capacity of several pastures for lactating beef cows:

FORAGE: Rotationally Grazed Perennial Ryegrass  
ANIMALS: Lactating Beef Cows Requiring 10 lbs TDN/Day  
MAY STOCKING RATE:  
YIELD: 5400 X .38 X 72 = 1477  
lbs DM/Season May Avail Forage TDN % May lb TDN/A  
COWS REQUIRE: 10 X 31 = 310  
STOCKING RATE: lb TDN/DAY DAYS lb TDN/MO/HD = 4.8 COWS/ACRE  
Using similar calculations for July:  
JULY (Same Ryegrass Pasture) = 1.3 cows/acre

Herein lies the problem inherent with traditional forage species. The July carrying capacity is less than one-third of what it was during the lush growth of May. Obviously one must a) set the stocking rate for the low period and harvest spring growth as hay

or silage; b) bring in supplemental feed; c) sell animals; d) utilize another forage species which is productive in July; or e) utilize forage grown previously. Using the same calculations for a spring seeded brassica crop carrying capacity is as follows:

JULY (Spring Seeded Brassica) = 8.5 cows/acre  
If we examine another "slump" period, late fall/early winter:  
OCTOBER (Same Ryegrass Pasture) = 2.3 cows/acre  
(NO NOV/DEC FORAGE)  
OCTOBER (Stockpiled Tall Fescue) = 3.3 cows/acre  
(PLUS NOV/DEC FORAGE)

Clearly complimentary forage species and methods of management can "even out" the normal hills and valleys of pasture supply.

### Matching Forage and Animal Management

Just as the seasonal distribution of forage growth varies widely among species, animal nutrient requirements also fluctuate markedly depending on the production system employed on a given farm. Using beef cattle as example, requirements can be broadly classified into five phases (typical length in days of each phase is listed in parentheses): calving and early lactation (60), breeding season (60), post-breeding to weaning (85), post-weaning to late pregnancy (100), and late pregnancy (60).

A spring calving system tends to match conventional forage production to a greater degree than fall calving. If, however, one were committed to a fall calving sys-

tem, one strategy of dealing with the relatively high animal requirements in early winter would be the use of summer-seeded brassica. July-August seedings of several brassica crops like rape, turnip, kale and others have provided three or more tons of dry matter per acre for November-December grazing in Pennsylvania trials. As a species, the brassica forages are quite versatile, with mid-May seedings providing high yields of forage in July and August. Those preferring a perennial grass could consider stockpiled tall fescue. In Penn State trials we accumulated over a ton of dry matter per acre by allowing fescue to stockpile between mid-August and mid-October. The cool growing conditions of late summer-early Fall also help produce a low fiber high quality forage that maintains its quality well into late fall-early winter.

### Sheep Example

Readers may be familiar with the work of Hogue and coworkers at Cornell University in the development of the "STAR" accelerated lambing program. This production scheme emphasizes "out-of-season lambing" and the goal of five lambings per ewe in a three-year period. The system is often criticized as being facility, feed, and labor intensive, basically requiring a high level of animal confinement. Yet if we compare a conventional (January lambing) and STAR lambing scenario it's obvious that at least three of the five lambings on the STAR system could employ grazed high quality forage.

### Lambing and Pasture Options For Conventional and Accelerated (STAR) Lambing Programs

| Year | Conventional Lambing |                      | STAR (Accelerated Lambing) |                          |
|------|----------------------|----------------------|----------------------------|--------------------------|
|      | Lambing Month        | High Quality Pasture | Lambing Month              | High Quality Pasture     |
| 1    | Jan                  | No                   | Jan<br>Aug                 | No<br>AG, WSG<br>L, SpSB |
| 2    | Jan                  | No                   | Mar<br>Oct                 | Unlikely<br>SF, SuSB     |
| 3    | Jan                  | No                   | May                        | Many Options             |

AG = annual grasses, WSG = warm season grasses, L = legumes, SpSB = spring seeded brassicas, SF = stockpiled fescue, SuSB = summer-seed brassicas.

### Perennial Grass Systems

The discussion above has emphasized the use of annuals to supplement periods of low native pasture availability. Many producers resist the annual tillage required to utilize these species and prefer the use of perennials only. Moving from a conventional

to an extended growing system need not required the introduction of new or exotic plant species. Often all that is required is a change in management scheme.

Work in Ohio has shown that native perennial grasses can come close to providing year-around grazing for a beef cow herd when carefully planned:

| Use                                      | Forage Type            | Acres/Cow |
|--|------------------------|-----------|
| Summer Pasture                           | Orchardgrass           | 0.6       |
|  | Bluegrass              | 0.6       |
| Winter Pasture                           | Stockpiled Tall Fescue | 0.7       |
| Emergency Stored Feed (Aftermath Grazed) | Orchardgrass           | 0.1       |
| TOTAL                                    |                        | 2.0       |

Each farm must realistically assess the productivity of its pasture land to determine the total per cow acreage required.

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