Grazing time is the time animals spend grabbing a bite, masticating (chewing) and searching for food. Depending on several factors, 70-90% of grazing activity occurs during daylight hours. It appears that the start of grazing periods is influenced by social facilitation (one or two animals start, the rest follow) while the end of meals appears to be regulated by physiological controls (independent for each animal). Also, ruminants in small groups spend less time grazing each day than those in large groups. It has been suggested that this response may be an ancestral behavior correlated with the level of perceived danger of predation. An individual in a small group faces a greater risk of predation than one that forms part of a large group. Cattle grazing pure grass have also shown to have greater daily grazing times than when grazing pure clover. Therefore, day length, social interactions and pasture species all appear to influence time spent grazing within a day.

Research has also shown that grazing ruminants take their largest meals at sunrise and sunset. Between 60% and 80% of total daily intake is consumed during these two main meals. This behavior may be a strategy used by the animal to take advantage of the increased photosynthetic products (sugars) and greater dry matter in pasture late in the day. Longer meals in the afternoon (evening) may also be an attempt by the animal to increase rumen fill (feel full) to ensure adequate food is available to ruminate during the night when little grazing occurs.

With all these considerations in mind, two experiments were conducted: 1) using supplementation as a strategy to affect grazing time; 2) using spatially separated pastures to allow cattle to express preference between grass and clovers.

In this article we discuss part of the data (Table 1) collected in three consecutive years (average of 105 days of grazing per year) on the effect of supplementing steers (initial weight of 506 lbs.) with corn gluten feed at 0.7% body weight (i.e., 506 x 0.007 = 3.5 lbs./day/steer) at different time of the day (8 a.m., 12 noon, 4 p.m.) while grazing ryegrass. (Continued on Page 2)
Some relevant issues to consider:

1) Animals receiving no supplement performed similarly to others that did receive supplement. This means that when the stocking rate (number of animals per acre) is correctly determined (in this case approximately two 500-lb. steers per acre) for the amount of grass available, supplementation may not be necessary. Supplementation is supposed to “supplement” the diet; we are adding some nutrients (energy, protein, calcium, phosphorus, etc.) that the main diet is lacking. It should have an additive effect; sometimes it can be on performance (the supplemented animal gained significantly more pounds than the one that is not supplemented) or on intake (usually protein supplementation increases the intake of low-quality hay, and this may improve performance). With supplementation you can also increase the stocking rate for that pasture, therefore managing more cattle per acre. In this particular experiment, the small amount of supplement fed pursued the objective of affecting grazing behavior, not an improvement of performance or any other variable.

2) Supplementing in the morning hours reduced ryegrass intake and increased animal gains. Even though those supplemented in the a.m. spent a similar amount of time grazing, 73% of that time is in the evening hours; while for those supplemented at noon or in the afternoon, the evening meal represented an average of 59% of the time grazing during the day.

3) Afternoon-supplemented cattle may have benefited from a complementary effect between ryegrass and corn gluten feed (highly digestible, high sugar content). This factor decreases grazing time and bite rate, hence the greater ryegrass intake was due to a greater bite mass (pounds of ryegrass/bite).

---

Table 1. Effect of time of supplementation on performance and behavior of stocker steers

<table>
<thead>
<tr>
<th></th>
<th>No supplement</th>
<th>8 a.m. supplement</th>
<th>12 noon supplement</th>
<th>4 p.m. supplement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryegrass intake, lbs./day</td>
<td>13.3</td>
<td>11.0</td>
<td>17.2</td>
<td>16.5</td>
</tr>
<tr>
<td>Final weight, lbs.</td>
<td>785</td>
<td>816</td>
<td>768</td>
<td>794</td>
</tr>
<tr>
<td>Average daily gain, lbs.</td>
<td>2.64</td>
<td>2.95</td>
<td>2.51</td>
<td>2.72</td>
</tr>
<tr>
<td>Grazing, minutes/day</td>
<td>140</td>
<td>137</td>
<td>136</td>
<td>130</td>
</tr>
<tr>
<td>Bite rate, bites/min</td>
<td>65</td>
<td>61</td>
<td>60</td>
<td>57</td>
</tr>
<tr>
<td>Walking, minutes</td>
<td>6.1</td>
<td>6.4</td>
<td>5.6</td>
<td>6.6</td>
</tr>
<tr>
<td>Lying, minutes/day</td>
<td>76</td>
<td>71</td>
<td>76</td>
<td>80</td>
</tr>
<tr>
<td>Beef produced, lbs./acre</td>
<td>785</td>
<td>845</td>
<td>738</td>
<td>800</td>
</tr>
</tbody>
</table>

(Continued from Page 1)
When planning a supplementation program, we need to consider not only the effects on grazing behavior and forage utilization but also the cost of the practice. At this stocking rate and level of supplementation, morning supplementation improve animal performance, reduced ryegrass intake and positively affected grazing behavior. But when all expenses are included (supplement, labor), it was not cost-effective.

Dr. Guillermo Scaglia

gscaglia@agcenter.lsu.edu

Group of steers that have just consumed the supplement

Stocker production on ryegrass pastures is a good alternative for south Louisiana.
ACADIANA BEEF CATTLE PRODUCERS FIELD DAY

DATE: SATURDAY MARCH 9, 2013
TIME: 8:30 A.M. – 1:00 P.M.
PLACE: IBERIA RESEARCH STATION, JEANERETTE

REGISTRATION STARTS AT 8:00 AM

"ADDING VALUE TO YOUR CALF CROP"

INDOOR PROGRAM

♦ Calf Management Until Weaning - Dr. Karl Harborth
♦ Principles of Deworming - Dr. Christine Navarre
♦ Cattle ID: All You Need to Know - LDAF representative

OUTDOOR PROGRAM

♦ Handling calves at birth: A Field Demonstration – How to castrate, vaccinate, tag a calf among other activities
♦ Getting your pastures and hayfields off to a good start – Dr. Ed Twidwell
♦ The effect of stocking rate and supplementation on heifers grazing ryegrass - Dr. Guillermo Scaglia
♦ Cow-calf systems – Dr. Guillermo Scaglia

LUNCH PROVIDED

CONTACTS: LCA District VIII Vice President—James Leleux (337-893-8334); LCA Board-Member-at-Large—Joe Hidalgo (337-945-2640); Iberia—Blair Hebert (337-369-4441); Iberia Research Station—Guillermo Scaglia (337-276-5527); St. Landry-Vincent Deshotel (337-948-0561); Lafayette, West St. Mary, and St. Martin—Stan Dutile (337-291-7090); St. Mary—Jimmy Flanagan (337-828-4100 ext. 300); and Vermilion and Acadia—Andrew Granger (337-898-4335); Louisiana Forage and Grassland Council-Ed Twidwell (225-578-4564)
The LSU AgCenter received its largest grant ever, a $17.2 million award from the U.S. Department of Agriculture’s National Institute of Food and Agriculture, for a project to investigate energy cane and sweet sorghum for the production of biofuels and chemicals. The broad mission of the sweet sorghum research group is to “evaluate sweet sorghum hybrids for agronomic performance, inclusive of their ability to maintain juice quality into the fall season, produce commercial yields on marginal soil, respond to low-input sustainable production practices and deliver quantities of feedstock on a schedule that sustains the viability of the bio-refinery”.

While it is broad in scope and involves multiple disciplines and research stations, personnel at the Iberia Research Station are responsible for investigating and demonstrating the logistics of feedstock delivery. The test location was the Sugar Research Station because of its lab facilities and close proximity to the Audubon Sugar Institute, where plant samples were sent for fiber and sugar analyses.

Hybrids of varying maturity were planted in early April, mid-May and early June, and harvesting with a John Deere combine was initiated when grain reached the hard-dough stage of development. The test was designed to provide a sustained feedstock supply from the initiation of harvest in July to mid-November, which is typically the time for the occurrence of the first frost. Harvesting commenced with the early-maturity hybrids in late July and continued until the June planting of the late-maturity hybrids were combine harvested on October 11.

Expectation that the late-maturity hybrids would reach hard-dough in approximately 150 days was not realized. This earlier than expected maturity, therefore, created an overlap in maturity between the mid- and late-maturity hybrids. Averaged over the three planting dates, the early-, mid- and late-maturity hybrids required 98, 123 and 130 days, respectively, to reach maturity. The ranking of fermentable sugar yields was consistent for each planting date, with the medium-maturity hybrids producing the most for each planting.

Averaged over planting dates, the early-, medium- and late-maturing hybrids yielded 1.70, 3.08 and 2.44 tons per acre of fermentable sugar, respectively. The hybrids in the first planting were adversely affected by dry soil conditions and for the last planting by Hurricane Isaac. Greatest yields were achieved with the May planting – 2.79 tons of fermentable sugar per acre.

Yields measured in this study suggest that a 1,000-metric-ton-per-day biorefinery would require approximately 6,000 acres to operate from July 15 to October 15. (Continued on Page 6)
Biorefinery viability based on sweet sorghum is particularly feasible in south Louisiana when included in a model with energy cane, as sweet sorghum and energy cane can be grown in sequence to sustain feedstock availability.

Sorghum’s competitive advantage in Louisiana is that it can be grown on fallow land of the energy cane production cycle and can be harvested and transported with existing sugarcane equipment.

Dr. H. P “Sonny” Viator
sviator@agcenter.lsu.edu
A Comparison of Brangus and Bonsmara cow herd Performances

Brangus is an American breed of cattle that is 3/8 Brahman and 5/8 Angus. As mentioned in the last newsletter, the research that led to the development of the Brangus breed was conducted at the Iberia Research Station several decades ago. During the time of that research, there was also research conducted that examined the crossing of Angus cows with Afrikaner bulls. Afrikaner cattle are a South African beef breed that is tropically adapted and produces purportedly tender beef. Whereas Brahman cattle are *Bos indicus* species, the Afrikaner is a *Bos taurus* species that is presumably more closely related to other *Bos taurus* breeds (Angus, Hereford, etc.) than to Brahman cattle. Bonsmara is a breed of cattle developed by a Dr. Jan Bonsma in South Africa and are 5/8 Afrikaner and 3/8 Hereford and/or Shorthorn. The Bonsmara breed is a popular breed in South Africa and South America. While our interest in the Bonsmara breed focused principally on meat tenderness, it is important to examine all aspects of beef production (cow-calf, stocker, carcass, meat quality, heifer development, etc.) to characterize the breed for Gulf Coast beef producers.

Bonsmara cows were loaned to the Iberia Research Station by Mr. George Chapman (Bonsmara Natural Beef Co., LLC, Amarillo, Texas) to form herds that might be compared to similarly aged Brangus cows available at the station. Brangus and Bonsmara cows used in the study were born in 2005, 2006 and 2007. Approximately 30 Brangus and 30 Bonsmara cows were used in a study to examine cow herd performances. Each breed was split into two herds to accommodate a statistical analysis of the data. Bonsmara cows and heifers were exposed to Bonsmara bulls in the spring of 2009 and 2010. Similarly, Brangus cows and heifers were exposed to Brangus bulls in the spring of 2009 and 2010. Herd data for the 2010 and 2011 calf crops form the basis of comparison.

Brangus and Bonsmara cows were very similar in terms of body weight at weaning time (see table inset). Both breeds weighed approximately 1,200 lbs. at a body condition score between 5.5 and 6.0. They were in good flesh. Cows used in the study averaged approximately five years of age. Brangus and Bonsmara cows were also very similar in terms of the percent live calves weaned, which was approximately 80%.

Calf birth weights (see table inset) were affected by breed type. Bonsmara calves were 7 lbs. heavier at birth than Brangus calves, and 10 of the 12 calves that were heavier than 90 lbs. at birth were Bonsmara. Only one of those Bonsmara cows, with a calf having a greater than 90 lbs. birth weight, required assistance, and she subsequently lost the calf. Still, it is something to be aware of as the breed is developed in the United States. Calf preweaning ADG was greater for Bonsmara calves than for Brangus calves. Consequently, Bonsmara calves weighed 15 lbs. more at weaning than did Brangus calves. Calf age at weaning was approximately 210 days. (Continued on Page 8)
A measure of individual cow “efficiency” is the ratio of calf weight to cow weight at weaning. While we would prefer to see higher ratios (approaching 0.50), Brangus and Bonsmara were identical in the weaning weight ratio (see table inset). A more useful measure of efficiency is herd efficiency. This calculated statistic is basically “pounds of calf weaned per pounds of cow exposed.” Similar to the cow:calf weaning weight ratio, herd efficiency calculations did not differ between breed types.

Based upon this very limited study, Bonsmara cows performed as well as the Brangus cows in the station herd. They weaned heavier calves, but they were no more efficient in doing so than were the Brangus cows. Clearly, Bonsmara cattle possess the potential to be a viable cattle breed for the Gulf Coast region of the U.S.

Dr. Wayne Wyatt
WWyatt@agcenter.lsu.edu
Visit our Website at:

The LSU Agricultural Center is a statewide campus of the LSU System and provides equal opportunities in programs and employment.