ADSA Southern Section Symposium: Dairy Cattle Grazing in the Southern USA

231 Why dairy producers are choosing to graze (again) in southeastern United States. M. E. Sowerby*, *University of Florida*, *Gainesville*.

Grazing dairy cows between milkings was the norm, not the exception, in southeastern United States until herd sizes began out-growing available pasture and environmental rules forced cows to be confined to ensure soil nutrient loads were managed. Free stall barns and total mixed rations increased cow comfort, milk production and cost of production. The current trend to intensive rotational grazing of cows in the Southeast is an adapted version of the New Zealand model, with low requirements for machinery (tractor and bush hog, minimally) and buildings (milking center only). Southeastern dairy producers like their rotational grazing systems because of: 1) low labor needs, 2) less machinery and buildings to purchase or build and maintain, 3) greater cow longevity, 4) less herd health problems, 5) flexibility to add more feed (and consequently more production) when feed and milk prices are favorable, 6) more free time for owners, and 7) greater return on assets. Challenges noted by rotational graziers include: 1) optimizing grass growth and quality, 2) mud, 3) cow comfort in hot, cold and inclement weather, and 4) cash flow, especially with seasonal milk production. With lower start up costs, however, more new dairies are grazing dairies in the Southeast.

Key Words: rotational, grazing, dairy

232 Nutritional and management strategies for lactating dairy cows housed on pasture-based systems in the southeastern US. C. R. Staples*[1], L. E. Sollenberger[1], J. H. Fike[2], B. Macoon[3], and R. S. Fontaneli[4], [1]*University of Florida*, *Gainesville*, [2]*Virginia Tech University*, *Blacksburg*, [3]*Mississippi State University*, *Raymond*, [4]*Embrasa Brasileira de Pesquisa Agropecuaria*, *Brazil*.

Well-managed grazing systems for lactating dairy cows in southern climes offers several advantages including 1) year-around grazing, 2) forages of comparable or better quality than those mechanically harvested, and 3) substantially reduced farm costs (feed and overhead) compared with barn housing. During 2 summers of study, lactating Holstein cows (n = 106; 116 DIM) were assigned to treatments in 3 periods examining 2 forage species, 2 rotational stocking rates, and 2 supplementation rates. Bermudagrass (BG; *Cynodon* spp. Cv. 'Tifton 85') supported less milk (16.2 vs. 17.3 kg/d) per cow but more milk per ha (118 vs. 87 kg/d) than the legume *Arachis glabrata*. Lower production per cow grazing BG was likely due to lower quality of BG (58.8 vs. 71.2% IVOMD) and lower forage intake (7.6 vs. 11.3 kg/d). Greater production per land area was due to a greater mean pregraze herbage mass (7270 vs. 4650 kg of DM/ha), herbage allowance (1.9 vs. 1.5 kg of DM/kg of body weight), and optimal stocking rate (10 vs. 5 cows/ha) on BG pastures. Supplementing concentrate at 0.5 vs. 0.33 kg per kg of milk increased milk production by 2.1 kg/d, with the increased response being more efficient for cows grazing BG vs. legume (0.87 vs. 0.43 kg of milk per d) due to less substitution of forage with concentrate (0.18 vs. 0.51 kg per kg). In winter, concentrate-supplemented Holstein cows rotationally grazing rye-ryegrass (*Secale cereale* L. and *Lolium multiflorum* Lam.) pastures produced more milk (23.5 vs. 20.5 kg/d) at 2.5 vs. 5.0 cows/ha stocking rate. In a 276-d study, Holstein cows housed in cooled free stalls and fed a TMR produced more milk (29.8 kg/d) than concentrate-supplemented cows managed on pastures of rye plus ryegrass in winter and BG in summer (25.0 kg/d) or on rye-ryegrass plus clovers in winter and pearl millet (*Pennisetum glaucum*) in summer (25.2 kg/d).

Key Words: grazing, dairy, nutrition

233 Nutrient management considerations for grazing dairies. S. R. Hill*, *Department of Animal and Dairy Science*, *Mississippi State University, Mississippi State*.

Waste and nutrient management concerns have grown in recent years as people demand a safe food product, but also clean and environmentally friendly methods of producing food. Grass based or grazing dairies do not seem to fit the typical description of a Concentrated Animal Feeding Operation (CAFO). In a true grazing system, cows are not confined for more than 45 d of the year and, by definition alone, grazing dairies sustain forage growth for the majority of the year. According to the Clean Water Act, these are 2 requirements to be considered an Animal Feeding Operation and to be called a CAFO the farm must meet certain size requirements (>700–1000 head). However, State governments have the ability to restrict these regulations and in some areas farms as small as 70 to 100 cows could be considered a CAFO and be required to hold an NPDES permit. This means that despite not fitting the image of a CAFO, grass based grazing dairies must also make waste and nutrient management a top priority. A case study done in the Netherlands showed that using more homegrown feeds such as pasture and reducing inputs from purchased feeds and organic fertilizers decreased the total amounts of N and P surplus at the whole farm level. Certain practices common on grazing dairies (i.e., irrigation, rotational grazing, watering methods) may increase the potential for surface water contamination. Some grazing dairies also face issues not common to confinement dairies, such as protecting wetlands and conserving wildlife areas, where waste regulations are concerned. Some nutrient budgets for grazing animals have been established, but more research is needed to determine the effect grazing practices have on waste and nutrient management, at the whole farm level.

Key Words: nutrient management, grazing

234 Reproduction and genetic programs for seasonal pasture-based dairy production systems. S. P. Washburn*, *North Carolina State University*, *Raleigh*.

The objective is to discuss concepts and challenges associated with reproductive management in seasonal breeding and calving in pasture-based dairy production systems. Seasonal breeding and calving as part of a pasture-based dairy system is an attractive option for some dairy producers for reasons of lifestyle as well as for matching cattle nutritional requirements to forage quality and availability. In hotter climates, seasonal systems also allow producers to avoid breeding or calving at times of the year when heat stress would have a more negative impact. Herd fertility needs to be high enough to consistently achieve more than 80% of cows and heifers conceiving within breeding seasons of 8 to 12 weeks. Such success requires greater than 80% of cows to be cyclic at the start of breeding with conception rates at first insemination typically above 50%. This corresponds with 21-d pregnancy rates that exceed 40%, well above rates achieved in confinement systems. Breed differences in fertility are evident but improved fertility within breed can likely be achieved over time by placing more emphasis on daughter pregnancy rates in selecting sires to use. Use of crossbreeding is very common in

pasture-based dairy herds and data from crossbreeding studies have documented heterosis for reproduction among crossbred cows. Dairy producers with interests in seasonal breeding and calving may either choose to use a selection index that places more weighting on fertility or choose to avoid use of sires with negative fertility evaluations for their daughters. On commercial pasture-based dairy herds, the use of short periods of AI followed by use of bulls with natural service is common. As with any dairy production system, differing strategies will likely be optimal for producers with differing resources and goals. Although milk production per cow is often less, lower facility and equipment costs, lower feed costs, improved animal health, and the ability to expand the herd internally by improved reproductive efficiencies provide the opportunity for well-managed seasonal pasture-based dairy systems to be economically competitive.

Key Words: reproduction, seasonal, pasture-based

235 Comparisons of the economics and costs of producing milk on conventional versus grass-based "New Zealand style" dairies in Mississippi. C. W. Herndon*, *Mississippi State University*, *Mississippi State*.

Enterprise budgets were employed to estimate the costs of producing milk and income over various costs categories for conventional dairies and compared these costs to grass-based "New Zealand style" dairies in Mississippi. Conventional dairies in Mississippi utilize a corn silage, protein concentrate feed ration along with some pasture grazing to supplement nutrient requirements during limited period of the year. Grass-based dairies rely on intensively managed pasture grazing to provide the vast majority of dairy cow nutrient requirements while feeding very limited amounts of feed concentrate throughout the year. Economic analyses were conducted in 2009 which estimated the costs of producing milk on a dollar per kilogram (kg) basis on a 500-cow conventional dairy and a 1,200-cow grass-based dairy. Findings indicate for the 500-cow conventional dairy using a 10,435 kg rolling herd average that the cost of feed concentrates alone constituted almost 50% of total direct costs, or 15.4 cents per kg. Including corn silage, hay, and pasture management, these costs increased to 64% of total direct costs, or 20.1 cents per kg compared with total direct costs of 31.3 cents per kg. Comparing similar cost categories on a 1,200-cow grass based dairy with a 5,445 kg rolling herd average found that feed concentrates accounted for only 25% of total direct cost, or 6.6 cent per kg. When adding costs for hay, silage and pasture management, costs increased to 9.0 cents per kg, or 33% of the 27.1 cents per kg total direct cost. Total direct costs were not the same between the 2 types of Mississippi dairies because the grass-based dairy included salaries of $145,000 for a farm manager, herdsman, and additional staff. These costs clearly show when feed costs escalate, as has been the case since 2006, conventional dairies face greater risks of suffering economic losses which threaten the continued survival of this style of dairy operation. However, a grass-based dairy operation could survive when feed cost increase dramatically due to less reliance on feed concentrates for cow nutrient requirements.

Key Words: dairy cost of production, grass based dairy