animal industries while utilizing national curriculum developed to address nutrition in the context of nutrient management. The curriculum has been developed using a 101 and 201 level approach.

Key Words: Extension, Nutritient Management, Environmental

387 Use of a dairy whole farm phosphorus balance education tool (dairy WFPBET) to teach dairy producers and their advisers nutrient management concepts at the whole-farm level. J. H. Harrison*[1], T. Nennich[1], and A. Rotz[2], [1]*Washington State University, Puyallup,* [2]*USDA/ARS, University Park, PA.*

All dairy farms in the state of Washington are now required by law to have a certified nutrient management plan. These plans are nitrogen based; however, in early 2003, EPA released new CAFO guidelines to require that nutrient management plans consider phosphorus (P) as well. The objective is to encourage producers to actively use their nutrient management plans as a part of their overall farm management. To better prepare producers for this change, a spreadsheet based education tool was developed in Excel to demonstrate whole farm concepts related to nutrient balance with a focus on P. The goals in developing the tool were: 1) to use a simple interface viewed on a single page (worksheet), 2) to use input information readily available on most dairy farms, and 3) to use terminology and calculations consistent with a program developed by NRCS that is used in writing nutrient management plans for Washington dairy farms. The inputs required to determine a farm balance are herd milk production, number of milking cows, dry cows, and heifers, DMI of lactating cows, P content of lactating cow rations, fertilizer import, land in forage crops, yield and P content of forage crops, and estimated availability of P in manure. Output of the analysis includes the manure P available to crops and the whole farm balance of P. This educational tool is used to demonstrate the effects of management changes such as reduction in diet P, level of milk production, custom raising of heifers, forage yield and type, and the use of winter cover crops.

Key Words: Nutrient Management, Environment, Phosphorus

388 The feeding of dietary phosphorus on dairy farms in the Lake Champlain Basin. K. W. Cotanch*[1], C. S. Ballard[1], W. C. Emerich[1], C. J. Sniffen[2], and E. D. Thomas[1], [1]*W.H. Miner Agricultural Research Institute, Chazy, NY,* [2]*Fencrest LLC, Holderness, NH.*

Nutrient balance on dairy farms is critical in efforts to maintain and improve water quality in the Lake Champlain Basin. Reducing dietary phosphorus (P) levels to dairy cattle will reduce phosphorus loading of cropland from manure application. A survey of feed consultants operating in Vermont showed recommended P levels for cows producing 30 kg/d varied: 0.48 to 0.55% from five feed company consultants; 0.44% from an independent consultant; and 0.37% from the University of Vermont nutritionist. At current feeding rates, P is being fed in excess of requirements (0.32 to 0.38%). The objective of the study was to obtain baseline information about current P feeding practices on farms; farmers understanding of the nutritional requirements for P; and their attitudes about the economic and environmental importance of P reduction on dairy farms in the region. Thirty farms located in the Champlain Basin were randomly selected with weight given to farm size and facility design. Farms varied in size (100-1000 cows), facility structures and management styles from both New York and Vermont (15 per state). A 10 question survey indicated that farmers were agreeable to reducing dietary phosphorus levels, but not fully aware of the new NRC 2001 P recommendations. Only 50% of the producers claimed to know the level of P they were currently feeding. Nutritionists dietary P formulations were compared with wet chemistry analyses of diets. Only 21% of diets formulated for lactating cows were balanced for <0.40% P with ranges from 0.36-0.50%. Analyzed TMRs found that 38% of rations were <0.40% P, ranging from 0.28-0.57%. The wide variation between P levels balanced for and that actually being fed may be attributed to imprecise measurements of P in forages on the farm and feeds sold to the farm. Grain components used to manufacture feeds vary greatly in P levels and may not be accurately accounted for in ration formulation. Farm size was a critical factor in the frequency of forage testing and overall nutrient management. Larger farms had forages analyzed more than twice as often as smaller farms and were more positive to the economic savings of reducing dietary P levels.

Key Words: Phosphorus, Nutrient Management, Dairy Cattle

Forages and Pastures: Forages in Dairy Production

389 Grazing behavior of late lactating dairy cows under continuous stocking. H. Z. H. Taweel*, B. M. Tas, J. Dijkstra, and S. Tamminga, *Department of Animal Sciences, Animal Nutrition Group, Wageningen University, Wageningen, The Netherlands.*

This experiment aimed at studying the behavioral strategies grazing dairy cows employ to satisfy their nutritional needs as the day progresses. For this purpose the day was divided into three main periods (6:00 to 12:00 h, 12:00 to 18:00 h and 18:00 to 24:00 h) where the three main grazing bouts (dawn, afternoon and dusk) of dairy cows usually occur. Four late lactating rumen-cannulated dairy cows were used in a repeated measures design, with the grazing bout as the within subjects factor. The cows had access to a 1-ha grass sward under a continuous stocking system, which assured ad libitum herbage allowance. To estimate dry matter intake (DMI), bite rate, bite mass (BM) and intake rate at the three bouts, cows were rumen-evacuated at 6:00, 12:00, 18:00 and 24:00 h and jaw recorders were fitted to the cows between these time points. Time spent eating by dairy cows at the dusk grazing bout was much longer ($P < 0.05$) than that at the other two grazing bouts and made about 40 % of the daily total eating time. Total grazing jaw movements (TGJM) rate was constant during the day at around 75/min. Bite rate increased ($P < 0.05$) from 54 to 61/min, but chewing rate decreased ($P < 0.05$) from 20 to 16/min as the day progressed. BM (mg DM/bite) increased ($P < 0.05$) from 400 to 563 as the day progressed, but that was not due to increased bite dimensions, rather it was due to increased DM content of the grass at dusk time, which increased from 19 to 25%. Consequently, both intake rate and DMI increased ($P < 0.05$) from 22 to 34 (g DM/min) and from 3 to 7 (kg/bout) during the dawn and dusk grazing bouts, respectively. Therefore, it could be concluded that the main behavioral strategies dairy cows employ to satisfy their nutritional needs under continuous stocking include manipulating their eating time, biting rate and chewing rate, with little control over TGJM rate and BM.

Key Words: Grazing Behavior, Intake Rate, Bite Mass

390 Modeling pasture-based split-calving dairy systems using a whole farm model. P. C. Beukes*[1], B. S. Thorrold[1], M. E. Wastney[1], C. C. Palliser[1], J. A. S. Lancaster[1], C. F. Folkers[1], G. L. Levy[1], M. Neal[2,1], and M. J. Auldist[3], [1]*Dexcel Ltd., Hamilton, New Zealand,* [2]*University of Sydney, Sydney, Australia,* [3]*Department of Primary Industries, Ellinbank, Australia.*

Traditional New Zealand dairy systems are based on spring calving with drying off in autumn to match cow demand with pasture growth. Split-calving involves a proportion of the herd calving out-of-season (e.g. in autumn) with the aims of coping better with dry summers, reducing wastage in cows which fail to get in calf on a 12-month cycle and to benefit from a winter milk premium. A farm systems modeling approach was used to investigate feed flow and economic impacts of split calving. The first step was to calibrate the predicted lactation curves of a computer model (the Whole Farm Model; WFM) against observed data from a trial where different herds were calved in winter, spring, summer and autumn over a three-year period. Introducing a photoperiod effect on lactation hormone levels into the cow component of the model (known as "Molly"), significantly ($P < 0.01$) reduced the average prediction error for milk yields (before adjustment = 4.52, SD 1.598 kg; after adjustment = 2.77, SD 0.749 kg). The WFM was then used to compare milk fat and protein (milksolids; MS) production, silage conservation and feeding and economics (in NZ$) between a spring-calving (July) system and a 50:50 spring-autumn (May) split-calving system over five different climate years (1998–2002). At a similar stocking rate the split-calving herd produced 9.4 kg MS/cow and 28.8 kg MS/ha more ($P < 0.001$) than the spring-calving herd, but with no significant difference in silage

costs ($146/ha, SD $43 vs $144/ha, SD $35). The winter milk premium of $180/ha (@ $0.8/kg MS) for the split-calving herd contributed to a significantly (P < 0.001) higher economic farm surplus ($2602/ha, SD $253) compared to the spring-calving herd ($2370/ha, SD $236).

Key Words: Model, Farm Systems, Economics

391 Effects of feeding legume silage with differing tannin levels on lactating dairy cattle. U. C. Hymes-Fecht*, G. A. Broderick, R. E. Muck, and J. D. Graber, *U.S Dairy Forage Research Center, Madison, WI.*

Silages made from Birdsfoot trefoil (BFT) containing three different levels of condensed tannins (CT) were compared to alfalfa (ALF) and red clover (RC) silages as forage sources. Twenty-five lactating Holstein cows (5 fitted with ruminal cannulae) were randomly assigned to incomplete 5X5 Latin squares to assess the effects on milk production and N utilization. Diets contained (DM basis) 50% of ALF, RC or one the 3 BFT that contained low (LTBFT), normal (NTBFT) or high (HTBFT) concentrations of CT. There were differences in CP among silages: ALF and LTBFT were highest, NTBFT and HTBFT intermediate, and RC lowest. The levels of NDF were higher in RC and ALF than in the BFT silages. There were no differences in DM intake or in milk composition due to silage source. However, yield of milk and FCM was higher on NTBFT and HTBFT than LTBFT, which was higher than that on ALF and RC. Fat yield was 0.19 kg/d higher on NTBFT than on ALF, with the other 3 diets being intermediate. Protein yield on all 3 BFT diets, regardless of CT level, was higher than on ALF and RC, despite the fact that the BFT diets contained about 1% less CP. MUN was lower on NTBFT and HTBFT than on LTBFT, ALF and RC. Differences in milk yield may have been confounded by the BFT diets being lower in fiber (27% NDF) then the ALF and RC diets (29% NDF). However, these results suggest CT concentration was directly related to improved utilization of CP in BFT silages.

Item	ALF	RC	LTBFT	NTBFT	HTBFT	SE	P value
Forage NDF, % of DM	35.3^{b}	42.7^{a}	32.4^{c}	32.4^{c}	32.2^{c}	0.4	<0.01
Forage CP, % of DM	22.0^{a}	18.1^{c}	21.7^{a}	20.4^{b}	20.1^{b}	0.3	<0.01
DMI, kg/d	24.4	25.6	25.2	23.3	24.5	0.7	0.41
Milk, kg/d	30.2^{c}	31.1^{c}	32.9^{b}	34.6^{a}	34.3^{a}	0.5	<0.01
3.5% FCM, kg/d	31.4^{d}	32.6^{cd}	33.8^{bc}	36.3^{a}	35.3^{ab}	0.6	<0.01
Fat, kg/d	1.13^{c}	1.17^{bc}	1.20^{bc}	1.32^{a}	1.24^{ab}	0.03	<0.01
Protein, kg/d	0.94^{b}	0.96^{b}	1.04^{a}	1.09^{a}	1.07^{a}	0.02	<0.01
MUN, mg/dl	10.8^{a}	11.0^{a}	10.8^{a}	9.3^{b}	9.2^{b}	0.3	<0.01

^{a,b,c} Means within a row with unlike superscripts differ (P<0.05)

Key Words: Condensed Tannins, Birdsfoot Trefoil, Red Clover

392 Protective coatings for the edible covering of bunker silos. L. L. Berger* and J. R. Sewell, *University of Illinois, Urbana.*

The objective of this research was to develop a protective coating for the edible starch/salt matrix (SSM) covering for silage. Since the SSM is semi permeable to moisture, an external coating is needed to prevent erosion. A control (6-mil polyethylene plastic covering) was evaluated against three test coatings, sprayable paraffin wax emulsion (SW), molten paraffin wax (MW) and a wax paper (WP; Georgia-Pacific Paper Company, Clatskanie, OR). Eight 2.14 X 7.32 m bunker silos with a packed limestone base and plywood walls were used. Approximately 9695 kg of chopped whole corn plant (39.1% DM) was packed into each silo. The silos were sealed on September 11, 2003 and opened after 117 d of ensiling. Upon opening, the SSM was removed from the surface of the silage and was fed at 2.5% of a corncorn silage diet for growing steers without refusal. Samples of ensiled forage were collected from depths of 0-15.24, 15.25-30.48 and 30.48-45.72 cm and analyzed for percent sodium content. As seen in previous trials the sodium levels help preserve the silage immediately under the covering. Data were analyzed with proc GLM model in SAS. The percent sodium for the three depths under the control treatment yielded values of 0.02, 0.01, and 0.01%. The sodium values for the SSM with SW, MW, and WP covering were 1.18, 0.80, and 0.44%; 2.18, 1.36, and 0.46%; 0.77, 0.51, and 0.29% at each depth, respectively. The concentration of sodium for the SW, MW, and WP were significantly different than the control (P< .05). The salt aids in the preservation of the silage under the covering, but external coating over the SSM improves preservation. The DM fed for the control, SW, MW and WP treatments were 2497, 1990, 2664, and 2497 kg/silo, respectively. Less DM was fed from control silos than from MW silos (P< .05). Less DM was fed from the SW than WP silos (P<. 05).

Key Words: Corn Silage, Edible Covering, Salt/Starch Matrix

393 Effect of corn cutting height on digestibility and nutrient composition of silage-only and dual-purpose corn hybrids. K. W. Cotanch*[1], E. D. Thomas[1], H. M. Wolford[1], C. S. Ballard[1], R. J. Grant[1], P. Mandebvu[1], M. Suekawa[2], T. Sato[2], and Y. Yabuuchi[2], [1]*W.H. Miner Agricultural Research Institute, Chazy, NY,* [2]*Zen-Noh National Federation of Agricultural Co-operative Associations, Tokyo, Japan.*

Previous research has found that when cutting height was increased from 15 to 45 cm, milk yield per tonne increased by 9.8% and milk yield per hectare increased by 3.3% (MILK2000 spreadsheet). The objective of this study was to evaluate the effect of corn cutting height on forage quality parameters of silage-only and dual purpose hybrids. Two 95-d relative maturity corn hybrids were selected and planted in a replicated 4-row strip trial: Pioneer 38T27, a dual-purpose hybrid and Mycogen TMF 2450, a silage-only hybrid containing the leafy and Bt genes. Within five field plots, ten plants per plot were selected randomly and harvested 15 cm above the ground. Within plots, each plant had two 15-cm sections of the stalk cut and pooled by stalk section. Samples were chopped to a particle length of 6 to 8 cm and dried at 60°C. Nutrient composition and digestibility were determined and MILK2000 was used to estimate milk yield. Corn silage harvested at 30 and 45 cm had significantly higher milk production potential at the expense of milk production per hectare. The silage-only hybrid gained the most potential milk yield from increasing cutting height from 15 to 45 cm (1777, 1841 kg/tonne) compared with the dual-purpose hybrid (1812, 1851 kg/tonne).

Parameter	15 cm	30 cm	45 cm	SE
Dry Matter, %	36.8^{c}	37.8^{b}	38.5^{a}	<0.1
Yield DM, kg/10a	17,770^{a}	17,291^{b}	16,760^{c}	9
NDF, % of DM	41.4^{a}	40.4^{b}	39.1^{c}	<0.1
48-h IVNDFd, %	57.2^{c}	57.8^{b}	58.3^{a}	<0.1
Lignin, % of DM	3.2^{c}	3.1^{b}	2.9^{a}	<0.1
Ash, % of DM	2.9^{a}	2.8^{b}	2.7^{c}	<0.1
Starch, % of DM	36.6^{c}	37.6^{b}	38.8^{a}	<0.1
Sugar, % of DM	5.3	5.2	5.2	<0.1
Milk/Tonne, kg	1795^{c}	1819^{b}	1846^{a}	1
Milk/10a, kg	32,160^{a}	31,721^{b}	31,201^{c}	22

^{abc}Means within a row differ (P <0.05)

Key Words: Cutting Height, Corn Silage, Digestibility

394 Effect of harvest date and brown midrib gene on in situ disappearance of sorghum x Sudangrass hybrids. P. A. Beck*[1], J. M. Phillips[1], S. Hutchison[2], T. Losi[3], C. B. Stewart[1], P. K. Capps[1], and S. A. Gunter[1], [1]*Southwest Research & Extension Center, University of Arkansas, Center Hope,* [2]*Dept. of Animal Science, University of Arkansas, Fayetteville,* [3]*Universidade Estadual Paulista Faculdada de Medicina Veterinaria e Zootecnia, Botucatu, SP, Brazil.*

Three sorghum x sudangrass hybrids were planted in 12 - 0.2 ha plots to test the effect of date of harvest and the presence of the Brown Midrib (BMR) gene on in situ DM and fiber disappearance. Sweet Sunny Sue, a non-BMR hybrid, and the BMR hybrids Nutri + Plus BMR and MS505DS were planted at 22.4 kg/ha using a no-till drill. Plants in ten 0.5 m^2 quadrants per plot were hand-clipped to 2.5 cm height at weekly intervals beginning 34 d after planting. Samples were dried at 50° C, ground to pass a 2 mm screen, and samples from d 34, 48 and 63 were composited within plot for determination of N, NDF, ADF, and in situ disappearance of DM, NDF, and ADF. The in situ disappearance study was conducted using three ruminally cannulated steers (BW = 584 kg ± 10.4) in a 3 x 3 Latin-square design. Samples from each harvest date were incubated for 6, 12, 24, 36, 48, 72, 96, and 120 h in a single steer during each period of the Latin square. Disappearance

kinetics were analyzed using PROC NLIN in SAS the resulting data was analyzed as a Latin-square design using PROC MIXED in SAS. Forage quality was analyzed as a completely random design using PROC GLM in SAS. The BMR varieties were lower ($P < 0.01$) in ADF and NDF at all harvest dates, while N concentrations were not affected ($P > 0.41$) by variety. The A fraction of DM and NDF was higher ($P < 0.01$) and the C fraction of DM, NDF, and ADF was lower ($P < 0.01$) for BMR than non-BMR. The B fraction of DM was not affected ($P = 0.15$) by variety, while the B fraction of ADF was higher ($P < 0.01$) in BMR than non-BMR. The B fraction of NDF was not different ($P = 0.28$) on d 34, but was higher ($P < 0.01$) on d 48 and 63 for BMR than non-BMR. The A fraction of DM and ADF was higher ($P < 0.01$) and B fraction of ADF was lower ($P < 0.01$) for MS505 DS compared to Nutri + Plus BMR. Rates of DM and NDF dissappearance were higher for BMR than non-BMR for all harvest dates ($P < 0.01$). Dissappearance of ADF was faster ($P < 0.01$) with BMR than non-BMR on d 48 and 63. Effective degradability of DM, NDF, and ADF was higher ($P < 0.02$) for BMR than non-BMR at all harvest dates.

Key Words: Sorghum x Sudangrass Hybrids, Forage, In Situ Disappearance

395 Effect of genotype and maturity on ensiling characteristics and chemical composition of millet forage. F. Hassanat*, A. Mustafa, and P. Seguin, *McGill University, Ste-Anne-de-Bellevue, QC, Canada*.

A study was conducted to determine the effects of genotype and stage of maturity at harvest on ensiling characteristics, microbial population, and chemical composition of forage millet. Regular (RM) and brown midrib (BM) millet were harvested at vegetative (VS) or heading stage (HS), then ensiled in mini-silos for 0, 2, 4, 8, 16, and 45d in triplicates. Both millet types were well ensiled and had a pH less than 4.2 after 45d of ensiling. Both RM and BM millet harvested at HS had more (P<0.05) water soluble carbohydrates (16.08 and 17.82%) than when harvested at VS (11.13 and 12.25% respictively). This was reflected in lower pH in BM silage harvested at HS compared with those harvested at VS (P<0.05) at any day of ensiling. Most proteolysis occurred between 0d and 8d of ensiling, where 40-50% of true protein (TP) was lost to non-protein nitrogen (NPN) for the two millet types at any stage of maturity. Changes in the microbial population during ensiling were similar for the four treatments. There was an increase in the lactic acid bacteria population in the first 2d of ensiling. Enterobacteria population decreased as ensiling progressed and were not detected after d 8 of ensiling. Yeast and mold populations followed the same trend, but stayed at detectable level up to d45 post-ensiling. Silage made from millet harvested at VS had more yeast at d45 (2.9 log cfu/g) than that harvested at HS (< 2.0 log cfu/g). Silage (45d) made from BM contained less NDF, (55.0 vs 59.2%), ADF (29.1 vs. 31.3%), ADL (1.1 vs. 1.6%) and more CP (8.5% vs. 7.2%) than silage made from RM (P<0.05). For the two millet genotypes, silages harvested at HS contained more ADF and ADL and less CP than silages harvested at VS (P<0.05). It was concluded that silages produced from RM and BM millet at VS and HS of maturity were well preserved as indicated by low pH. Genotype and stage of maturity had significant effects on the chemical composition of forage millet silage. It is concluded that brown midrib millet provides better quality forage than regular millet.

Key Words: Forage Millet, Brown Midrib, Chemical Composition

396 Effect of inoculation on ensiling characteristics and chemical composition of regular and brown midrib millet. F. Hassanat*, A. Mustafa, and P. Seguin, *McGill University, Ste-Anne-de-Bellevue, QC, Canada*.

A study was conducted to determine the effects of inoculation and genotype on ensiling characteristics and chemical composition of two millet types in a 2x2 factorial design. Regular (RM) and brown midrib (BM) millet were treated with commercial inoculum (PIONEER ® 1129) or left untreated. Forages were ensiled in mini silos for d 0, 2, 4, 8, 16, and 45 in triplicates. For the two millet types, pH at d 2, 4 and 8 was lower (P<0.05) for inoculated than untreated ensiled forages. Lactic acid concentration was higher (P<0.05) in inoculated silage compared to the untreated one at any day of ensiling. At d 45, inoculated BM millet silage had a lower (P<0.05) pH (3.5) than untreated BM (3.7). However, pH of RM silage at 45d was not affected by inoculation. Level of non protein nitrogen at each ensiling time was similar for inoculated and untreated ensiled forage, suggesting minimal effect of inoculation on proteolysis. Inoculation had no effect on the chemical composition of the d 45 silage made from any millet type, except in RM TP% level which was higher (P<0.05) in inoculated (42.42%)than the untreated silage (39.70%). Levels of NPN% and TP% were similar between inoculated treated and untreated BM silage. The RM silage contained lower NPN (54.5 vs. 57.3% CP) and higher true protein (41.1 vs. 38.4 %CP), acid detergent fiber (30.8 vs. 27.8%), and acid detergent lignin (2.1 vs. 1.0%) than BM silage (P<0.05). Both silages had similar CP%. We concluded that inoculation produced a rapid decline in pH and an increase in lactic acid of ensiled forage millet. The d 45 silages were not affected by inoculation, and were all well preserved. Inoculation had minimal effect on chemical composition RM and BM silages.

Key Words: Millet, Brown Midrib, Inoculation

397 Lignin concentration of whole plants and stems of Bt corn hybrids. H. G. Jung*[1,2] and C. C. Sheaffer[2], [1]*USDA - Agricultural Research Service,* [2]*University of Minnesota, St. Paul*.

There have been inconsistent reports regarding whether corn (*Zea mays*) hybrids with the *Bacillus thuringiensis* (Bt) *cry1 Ab* transgene contain more lignin than non-Bt hybrids of similar genetic background. Our objective was to evaluate the potential impact of the *cry1 Ab* transgene on lignin concentration (using three different assays), yield, and forage quality traits of corn silage. Replicated trials were conducted at four locations in Minnesota with 12 commercial hybrids (three MON810 and three Bt11 *cry1 Ab* transgene event hybrids, and respective near-isogenic controls). Whole plants and the fourth elongated, above-ground internodes were harvested at silage maturity. Samples were analyzed for crude protein, starch, neutral detergent fiber (NDF), acid detergent fiber, 24- and 96-h in vitro ruminal NDF digestibility, and lignin (acid detergent, Klason, and acetyl bromide). European corn borers (*Ostrinia nubilalis*) were not controlled and plant damage from this source was limited to the non-Bt hybrids, averaging 1.5 internodes per plant with tunnels. Growth environment impacted all measures of corn hybrid performance and quality, as evidenced by significant location effects. Comparisons of non-Bt/Bt hybrid pairs, for both whole plants and internodes, found no consistent differences in yield, nutrient content, in vitro ruminal NDF digestibility, or lignin concentration. Differences in lignin concentration (for all three analysis methods) were infrequent, small in magnitude, and limited to a few non-Bt/Bt hybrid pairs at individual locations. Bt hybrids were both higher and lower in lignin concentration than their non-Bt counterparts. Two non-Bt/Bt hybrid pairs did not differ in lignin concentration at any location. Contrary to some earlier reports, presence of the *cry1 Ab* transgene did not alter lignin concentration or other forage quality traits of corn stover in commercial maize hybrids.

Key Words: Corn Hybrids, Lignin, Fiber Digestibility

ASAS Growth and Development I

398 Muscle fiber characterisitics are important in the relationship between birth weight and carcass quality in pigs. C. Rehfeldt*, G. Kuhn, I. Fiedler, and K. Ender, *Dept Muscle Biology and Growth, Research Institute for the Biology of Farm Animals, Dummerstorf, Germany*.

It is commonly recognized that low birth weight in piglets correlates with decreased survival and lower postnatal growth rates. The aim of this study was to investigate the relationships between birth weight, carcass quality and skeletal muscle fiber characteristics. At birth, three piglets (lightest, but > 800 g; middle-weight; heaviest) were selected from each of 16 litters. The lightest piglets exhibited the smallest percentages of