Table 1 (abstract T172). Performance results of 50 test sets with the 3 k-nearest neighbors (KNN) methods

	KNNs			KNNw			KNNf		
Criterion	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max
RMSE	2.14	15.22	42.29	1.37	12.88	40.24	0.86	12.03	36.90
RAE	0.36%	2.96%	11.49%	0.27%	2.50%	9.84%	0.13%	2.35%	7.75%
Min error	−213	−37	4	−180	−31	3	−131	−25	7
Max error	−8	29	132	−7	26	129	−5	27	157

T173 Sources of variation in feed conversion in commercial dairy farms of Argentina. R. A. Palladino*[1], C. Magliola[1], E. Giugge[2], C. Chiavassa[2], J. L. Monge[3], M. P. Turiello[4], and F. Bargo[1], [1]*Universidad Buenos Aires, Buenos Aires, Argentina,* [2]*Grupo Chiavassa, Carlos Pellegrini, Santa Fe, Argentina,* [3]*Universidad Nacional de Villa María, Villa María, Córdoba, Argentina,* [4]*Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina.*

Feed conversion (FC) is key to understand income over feed costs in dairy farms; however, FC is highly variable in commercial farms due to the multiple management factors involved. A 5-year (2012 to 2016) data set from 4 pens (early and mid-lactation multiparous cows, early and mid-lactation primiparous cows; n = 7300) from a commercial dairy farm (Chiavassa Dairy Farm, Argentina; −32° 02′ 60″ S, −61° 47′ 59″ W) was used to investigate which performance and feed management variables affect FC variability. Variables were recorded daily and included: milk yield (MY, kg/d), dry matter intake (DMI, kg/d), FC (kg milk/kg DM), and TMR DM content (%TMRDM). For the complete set of 5-year, coefficient of variation (CV) between days (i.e., from previous to current day or −1 d vs. 0 d) was then estimated for each of those variables. Individual MY was recorded by ALPROTM (DeLaval) and averaged by pen. DMI was estimated by difference between feed offered and refused, divided by the number of cows per pen. Offered TMR and orts DM content was determined in a forced-air oven for 2 h at 135°C. Holstein cows were milked 3x/d and fed 2x/d with a TMR (corn silage, alfalfa silage, alfalfa hay, corn grain, soybean meal, mineral premix; 49.8 ± 1.1% DM, 15.8 ± 0.9% CP, 29.9 ± 5.3% NDF, 3.9 ± 0.3% ether extract, and 2.89 ± 0.15 Mcal ME/kg DM; mean ± SD). Partial correlations (r; calculated using the MANOVA / PRINTE commands of PROC GLM of SAS version 9.3, SAS Institute Inc., Cary, NC) evaluated association between CV of FC and the other variables. The model included year, month, and pen. Coefficient of variation of FC was highly and positively correlated ($P < 0.01$) with CV of DMI (r = 0.90) and CV of MY (r = 0.34). It was also positively correlated ($P < 0.01$) but to a lesser extent with FC (r = 0.25), CV of %TMRDM (r = 0.08), and %TMRDM (r = 0.04). On the other hand, CV of FC was negatively correlated ($P < 0.01$) with DMI (r = - 0.24) and MY (r = - 0.07). Our data show that FC variability could be reduced by reducing daily variation in DMI and increasing DMI.

Key Words: feed conversion, variability, feed bunk management

T174 Effect of stocking rate on feeding strategies and individual milk production of autumn calving grazing dairy cows. D. Custodio[1], G. Ortega[1], Y. Lopezyesi[1], T. Nuñez[1], R. Mello[1], and P. Chilibroste*[2], [1]*Agronomy Faculty, Animal Science Department, CRS, Progreso, Canelones, Uruguay,* [2]*Agronomy Faculty, Animal Science Department, Grass Production and Utilization on Grazing Systems, EEMAC, Paysandú, Paysandú, Uruguay.*

A farmlet study was conducted to determine the effect of stocking rate on feeding strategies and individual milk production of autumn calving grazing dairy cows. Four farmlets (2 per treatment) representing a pasture based dairy system in Uruguay, which combines annual with perennial pastures under a 4-yr rotation, were grazed either with 1.5 (MSR) or 2.0 (HSR) milking cows per hectare from June to December 2016. Ninety-six cows were randomized to the farmlets based on parity (3.3+ 1.3), BW (500 ± 91) and BCS (2.95 ± 0.87). Every week, the number of daily grazing sessions (0, 1, or 2), the amount of roughage offered, the amount of concentrate feed in the milking parlor and the individual milk production and composition were recorded. Grazing rules were the same for the 4 farmlets, as well as the amount of concentrate feed to each individual cow. The amount of roughage offered and the addition or not of soybean hull as a diet corrector, were defined for each farmlet based on sward allowance and the number of grazing sessions. The data were analyzed with a mixed model that included stocking rate and month as fixed effects and farmlet as a random effect. The repeated measurement was week and an autoregressive covariance structure (order 1) was selected for all responsive variables. Differences were declared significant when $P < 0.05$. Individual milk production was not different between treatments (24.4 ± 0.6) though HSR cows ate more silage (2.7 vs 2.1 kgDM/d), hay (1.2 vs 0.8 kgDM/d) and soybean hull (1.2 vs 0.83kgDM/d) than MSR cows. Mean concentrate intake was 5.5 ± 0.09 kgDM/d. MSR cows had higher herbage allowance (15.4 vs 13.4 kgDM/d) than HSR cows. Besides, MSR cows were able to graze a larger proportion (0.72 vs 0.65) and were forced to stay in the fed pad a shorter proportion (0.28 vs 0.35) of the total eating time. We concluded that under well-managed pastures, increasing stocking rate will affect diet composition and feeding strategy, which ultimately might have more negative side effects on long-term dairy system performance.

Key Words: stocking rate, milking cows, feeding strategies

T175 Effect of stocking rate at system level on produced and harvested forage. G. Ortega[1], Y. Lopez[1], T. Nuñez[1], D. Custodio[1], R. Mello[1], and P. Chilibroste*[2], [1]*Agronomy Faculty, Animal Science Department CRS, Progreso, Canelones, Uruguay,* [2]*Agronomy Faculty, Animal Science Department, Grass Production and Utilization on Grazing Systems, EEMAC, Paysandú, Paysandú, Uruguay.*

A farmlet study was being conducted to determine the effect of stocking rate on feeding strategies and individual milk production of autumn calving grazing dairy cows. Four farmlets (2 per treatment) representing a pasture based dairy system in Uruguay, which combines annual with perennial pastures under a 4-yr rotation, were grazed either with 1.5 (MSR) or 2.0 (HSR) milking cows per hectare from June to December 2016. Ninety-six cows were randomized to the farmlets based on parity (3.3+ 1.3), BW (500 ± 91) and BCS (2.95 ± 0.87). Every week, the sward mass of each individual plot in each farmlet was assessed through the double sample technique (Haydock and Shaw, 1975). Based on these observations, mean growth rate (GR, kgDM/ha/day) for each paddock and the whole farmlet was estimated. The grazing area was adjusted weekly based on the GR registered for each treatment. Cows grazed a daily strip with a mean herbage allowance of 15.4 and 13.4 kgDM/d over 6 cm for MSR and HSR, respectively. Before and after grazing,