

## FEEDING AND MANAGEMENT 7

- P171 Effect of diet fiber level and forage source on intake and milk production of Holstein cows in early or late lactation. M. S. Allen\*, and D. R. Mertens. U. S. Dairy Forage Research Center, USDA-ARS, Madison, WI.

Three ration NDF levels were offered to nine high producing Holstein cows (mean > 9000 kg milk/lactation) allocated to one of three forage sources: 2" chopped alfalfa hay (AH), alfalfa silage (AS), corn silage (CS), in a replicated 3X3 Latin Square (28 day periods) at two stages of lactation. A covariate period was used to allocate cows to forage and for adjustment of dependent variables. Total mixed rations of forage, high moisture corn and protein supplement at 25, 30 or 35% NDF in early lactation (EL) or 30, 35 or 40% NDF in late lactation (LL) were offered once a day at a 10% refusal. Rations were balanced for protein and minerals. Mean milk production (MLK) was 30.9 kg for EL and 18.6 kg for LL. Forage source had no effect on milk fat amount (MFKG) or FCM at either stage, however in EL, MLK and DMI as %BW were higher and milk fat % (MF%) was lower for AH than either silage. NDF level was significantly ( $p < .01$ ) related to FCM, MF%, and MFKG for EL only. MLK was less affected ( $p < .08$ ) and DMI as %BW was not affected by NDF level for either stage. Optimum NDF% for FCM was 32.8 in EL and 37.8 in LL. These values were similar for DMI as %BW. Optimum NDF% in each stage was 2% lower for MLK and 1% higher for MFKG than values for FCM.

- P172 Influence of drinking salt water on fiber digestion in the rumen of dairy cows. R.C. Wanderley\*, A. Al-Dehneh, T.N. Wegner, J.C. Teixeira<sup>2</sup> and J.T. Huber, University of Arizona, Tucson.

Two lactating and two dry Holstein cows were used in a reversal design. Cows were fed a normal dairy ration consisting of alfalfa hay and concentrate (50:50) and received two treatments: Fresh water control (C) with less than 500 ppm TDS or Salt water (S) with 4500 ppm TDS. Waters were offered ad libitum to cows during the entire day. Chromium oxide (12 g) was administered at feeding as a digesta marker. Each experimental period lasted 21 d and collection of samples was 4 times/d during the last 4 days. Drinking salt water had no effect on feed intake or water consumption. As expected, feed intake and water consumption were greater ( $P < .01$ ) for the lactating than the dry cows (19.0 vs. 9.4 kg/d and 88 vs. 49 l/d). Water consumption was greater ( $P < .01$ ) during the day than night (57 vs. 43%) for all cows. Ruminant fiber digestion was slightly less for the lactating than the dry cows (ADF = 40 vs. 45%; cellulose = 49 vs. 60%) and tended to be reduced by the ingestion of salt water (ADF = 38 vs. 48%; cellulose = 50 vs. 58%). These data support previous results which showed decreased fiber digestion in cows fed water containing 4500 ppm TDS. 1) Fellow of O.A.S., 2) Fellow of CNPq.

- P173G Effects of heifer diet, age at breeding, and lactation diet on milk production. K.D. Murphy\*, D.G. Johnson, R.D. Appleman, and D.E Otterby, University of Minnesota, St. Paul.

A two phase trial was conducted involving 78 Holstein heifers. The growth phase (I) consisted of two heifer diets, restricted (NRC) vs ad libitum corn silage + urea (CS), and two breeding groups, 13 months (EARLY) vs 16 months (LATE). The lactation phase (II) compared the above treatments plus two cow diets, concentrate fed individually (CONC) vs a total mixed ration (TMR). Phase II began approximately 14 days prepartum and lasted 550 consecutive days including the first and part of the second lactation. Heifer diet, cow diet and breeding age did not significantly affect ( $p > .05$ ) kg milk, fat or fat corrected milk. Milk fat % and kg dry matter consumed were affected ( $p < .05$ ) by heifer diet.

	Heifer diet		Breeding group		Cow diet	
	NRC	CS	EARLY	LATE	CONC	TMR
	----- 550 days -----					
Milk production, kg	10008	9625	9868	9765	10093	9540
Fat production, kg	363	364	358	369	368	359
Milk fat, %	3.63	3.81	3.64	3.79	3.65	3.79
Dry matter consumed, kg	8520	7781	8009	8040	8133	7916