



Mikaela Patel,  
SLU,  
Dept. of Animal Nutrition and  
Management



Eva Spörndly,  
SLU,  
Dept. of Animal Nutrition and  
Management

# Mixed ration or separate feeding in automatic milking systems – does it matter in free cow traffic?

## CONCLUSIONS

This study showed increased feed intake and increased milking frequency when dairy cows were fed a nutrient dense mixed ration in a free cow traffic system compared with cows fed the same proportion of silage and concentrates separately. Nevertheless, no difference in milk yield was shown between the treatments.

## RESULTS

Feed intake (kg dry matter; DM) per cow and day in dairy cows fed either grass/clover silage and concentrate separate (SR) or mixed (MIX). Figures presented as Least square means and standard error of mean (SEM)

	<b>SR</b>	<b>MIX</b>	SEM	Sign. <sup>1</sup>
Silage	13.9	15.5	0.47	*
Concentrate, milking unit	2.9	3.4	0.13	**
Total concentrate	10.1	11.3	0.31	**
Total intake	24.0	26.8	0.74	**

<sup>1</sup>Sign., level of significance: \* = P < 0.05, \*\* = P < 0.01, \*\*\* = P < 0.001

Average daily milk production in dairy cows fed either grass/clover silage and concentrate separate (SR) or mixed (MIX). Figures presented as Least square means and standard error of the means (SEM)

	<b>SR</b>	<b>MIX</b>	SEM	Sign. <sup>1</sup>
Milk, kg	35.7	34.6	1.37	NS
ECM, kg	35.4	35.0	1.24	NS
Fat, kg	1.39	1.39	0.06	NS
Protein, kg	1.20	1.17	0.04	NS
Lactose, kg	1.68	1.66	0.07	NS
Fat, %	4.05	4.12	0.10	NS
Protein, %	3.47	3.44	0.05	NS
Lactose, %	4.78	4.82	0.21	NS
SCC, ×10 <sup>3</sup> /ml	31.28	50.43	0.09	NS
Milkings	2.3	2.6	0.09	*

<sup>1</sup>Sign., level of significance: NS = P > 0.05, \* = P < 0.05



Cows waiting to enter the milking unit in a free cow traffic system (Photo: Malin Alm)

## METHODS

Thirty-eight cows of the Swedish Red and Holstein breeds with an average of 70±30 days in lactation were randomly allotted to either a mix of grass/clover silage with crushed concentrates (MIX; 12.1 MJ ME, 159 g CP/kg DM) or a ration of the same silage (11.4 MJ ME, 138 g CP/kg DM) and pelleted concentrates (SR) but fed separately. Concentrates in the SR group were given in relation to silage intake to obtain the same proportions between silage and concentrates as in the mix treatment. The cows were housed in a barn with free cow traffic and automatic milking. Measurements lasted 6 weeks after 4 weeks adaptation. The experimental feeds and rations followed the rules of organic production. The feeds originated from the same silos/batches and the mix and silage were fed *ad libitum*.

The statistical model included treatment, parity, breed and days in milk using a mixed model with repeated measurements and 'cow' as random variable.



Cows in the feeding area eating either mix or silage (Photo: Malin Alm)

The experiment was funded by EkoForsk, SLU