

# The impact of autumn grazing management on animal and pasture productivity

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## Summary

- Increasing pasture supply via increased pre-grazing herbage yields resulted in increased pasture removal and similar animal performance during autumn.
- The combination of reduced post-grazing residuals and increased concentrate supplementation of higher SR grazing systems can increase both pasture utilisation and individual animal performance during autumn.

## Introduction

Increasing stocking rates (SR) on Irish dairy farms place added pressure on available feed resources and can result in increased feed supplementation and a shortening of the grazing season. Grazing practices must be adapted to allow higher SR farms to continue to harness the benefits of a predominantly pasture-based diet.

## The Pasture Supply Study

The objective of this study was to evaluate the impact of three autumn pasture supply (PS) strategies and two farm system intensities on the performance of spring calving dairy cows during autumn. In 2017, 144 spring-calving dairy cows were randomly allocated to one of the three PS treatments which included a Low Pasture Supply (LPS; 400 kg DM/ha available at winter housing), a Medium Pasture Supply (MPS; 600 kg DM/ha available at winter housing) and a High Pasture Supply (HPS; 800 kg DM/ha available at winter housing) treatment. The three PS treatments were established by extending rotation length from late summer to achieve peak autumn average farm pasture covers of 900, 1,150 and 1,400 kg DM/ha for LPS, MPS and HPS, respectively. The two whole farm system (FS) intensities were a Medium Intensity (MI; 2.75 cows/ha plus 90% pasture diet) and a High Intensity (HI; 3.25 cows/ha and 80% pasture diet). The HI groups also received an additional 2 kg of concentrate/cow daily to compensate for the increased stocking rate and reduced availability of pasture.

## Results

Before grazing, mean paddock pre-grazing herbage yield and sward density were significantly higher with increased PS (Table 1). Mean paddock residency time significantly increased with increased PS averaging 2.3, 2.5 and 3.1 days for LPS, MPS and HPS, respectively. There was no difference in daily herbage allowance between the 3 PS treatments (15.1 kg DM/cow per day). After grazing, mean post-grazing height and herbage removed increased with increasing PS. Grazing efficiency was higher for LPS compared to both MPS and HPS while higher PS treatments achieved increased herbage removal per hectare. The HI FS had a lower herbage allowance and post-grazing height and increased grazing efficiency and herbage removal compared with MI FS.

**Table 1. The effect of pasture supply and farm system on pasture characteristics during autumn**

	Pasture supply			Farm system	
	LPS	MPS	HPS	MI	HI
<b>Pre-grazing</b>					
Herbage yield (kg DM/ha)	1,616	1,793	2,338	1,862	1,970
Sward density (kg DM/cm)	237	254	271	250	258
Herbage offered (kg DM/cow/d)	14.3	15.1	15.8	15.8	14.3
<b>Post-grazing</b>					
Residual height (cm)	3.5	3.7	3.9	3.8	3.6
Grazing efficiency (%)	102	98	96	97	100
Herbage removed (kg DM/ha)	1,613	1,743	2,216	1,776	1,938

Despite the significant effect of PS treatment on pre-grazing herbage yield, no significant effect on milk production variables was evident. There was also no significant effect of FS on daily milk yield, fat, protein and lactose composition during autumn although the HI FS achieved a higher daily MS yield.

**Table 2. The effect of pasture supply and farm system on animal performance during autumn**

	Pasture supply			Farm system	
	LPS	MPS	HPS	MI	HI
Milk yield (kg/cow/d)	15.6	15.1	15.2	15.1	15.5
Fat content (%)	5.59	5.75	5.60	5.63	5.66
Protein content (%)	4.00	4.10	4.06	4.06	4.05
Lactose content (%)	4.69	4.66	4.68	4.68	4.67
Fat + protein yield (kg/cow/d)	1.46	1.45	1.43	1.42	1.47

These results highlight the potential for intensive grazing systems to maintain an extended grazing season with MI and HI FS by increasing PS during autumn without detriment to individual animal performance.

### Conclusions

Increasing pasture supply via increased pre-grazing herbage yields resulted in increased pasture removal and similar animal performance during autumn. Equally the combination of reduced post-grazing residuals and increased concentrate supplementation of higher SR grazing systems can increase both pasture utilisation and individual animal performance during autumn.