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MEGMILK SNOW BRAND

# Direct Economic Effects of Grassland Vegetation Improvement on Dairy Farming Management

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## Introduction

The annual rate of pasture renovation in Hokkaido, which is primarily comprised of grassland dairying farms, has fallen below 3%. Weeds now account for between 40 and 50% of grassland. The number of dairy farmers actively engaged in vegetation improvement remains low, because of insufficient information on the financial effects of vegetation improvement on dairy farming management.

## Aim

The goal is to demonstrate the direct economic effects and contribution of grassland vegetation improvement on dairy farming management.

## Methods

Currently in our fifth and final year, we have drawn from a selection of dairy farmers and are providing technical support in such wide-ranging areas as soil management, vegetation improvement, silage making, and feed management. At the same time, we are analyzing the production costs of self-supplying feed as well as overall management on a monthly basis. These initiatives are being conducted on a joint basis by a number of organizations including the MEGMILK SNOW BRAND Group, Rakuno Gakuen University, local agricultural cooperatives, and agricultural extension centers.



Vegetation survey by the survey research team



Silage quality survey  
Survey for aspects such as ingredient quality, fermentative quality and silage density



Survey research team

A periodic observation survey will be held once a month. The survey will check the body condition score, locomotion score, milk production, and birth conditions for the dairy cows. Depending on the period, the team will conduct other surveys such as a pasture survey, feed intake amount survey, measuring height and weight of heifers, silage quality survey and analysis of farm operation.



Grassland vegetation improvement by over-seeding of perennial ryegrass for the timothy grassland.

Period	Area	Seeding rate
2011 Spring	1ha	Perennial ryegrass 20kg/ha
2011 Summer	9ha	"
2012 Spring	10ha	"
Total 20ha/56ha (35.7%)		



Perennial ryegrass 3 years after over-seeding

Additionally, farm managers are independently conducting pasture renovation

Period	Area
2009 Autumn	2.5ha
2010 Summer	5.4ha
2011 Summer	9.4ha
2012 Autumn	2.3ha
Total 19.6ha/56ha(35.0%)	



Review meeting

Held once every 6 months. Farm managers and the research team review issues such as assessment of activities, problems and analysis of farm operation. Future reform policies are decided.

## Results

Studies have confirmed that vegetation improvements primarily through over-seeding of perennial ryegrass have resulted in such benefits as (1) improvements in the quality of silage (2) increases in dry matter intake; (3) positive adjustments in the body condition score of delivered cows; and (4) an increase of management level milk. At the same time, steps have been taken to improve rearing programs with growth surpassing targets across virtually all monthly ages.

The direct economic effects of vegetation improvements are currently under analysis.

### Overview of Results

sampleNo	1	2	3	4	5	6
Inspection day	2012/9/24	2012/9/24	2012/9/24	2012/9/24	2012/9/24	2012/9/24
Part sampled	Lower right	Lower center	Lower left	Upper right	Upper center	Upper left
Water (%)	72.00	69.68	72.69	70.08	71.89	70.40
TDN (%)	63.95	63.08	63.6	60.5	63.54	61.56
CP (%)	8.17	7.61	9.39	7.88	7.98	8.05
NDF (%)	66.06	65.50	62.25	69.37	67.47	68.59
NFC (%)	18.77	19.94	20.61	15.97	18.22	16.28
Density (kg/m <sup>3</sup> )	180	165	185	130	140	130
V-score	98.40	93.98	97.00	95.92	94.79	97.12

Table 1. Analysis results for first cutting silage

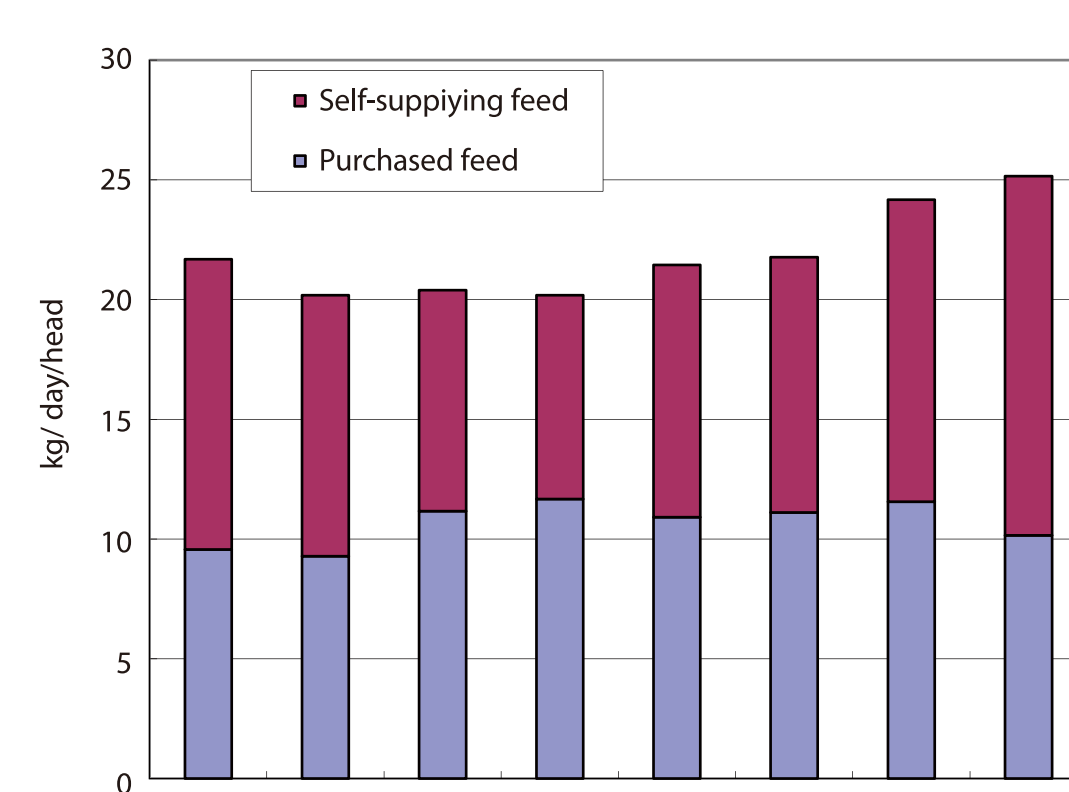


Figure 1. Changes in dry matter intake

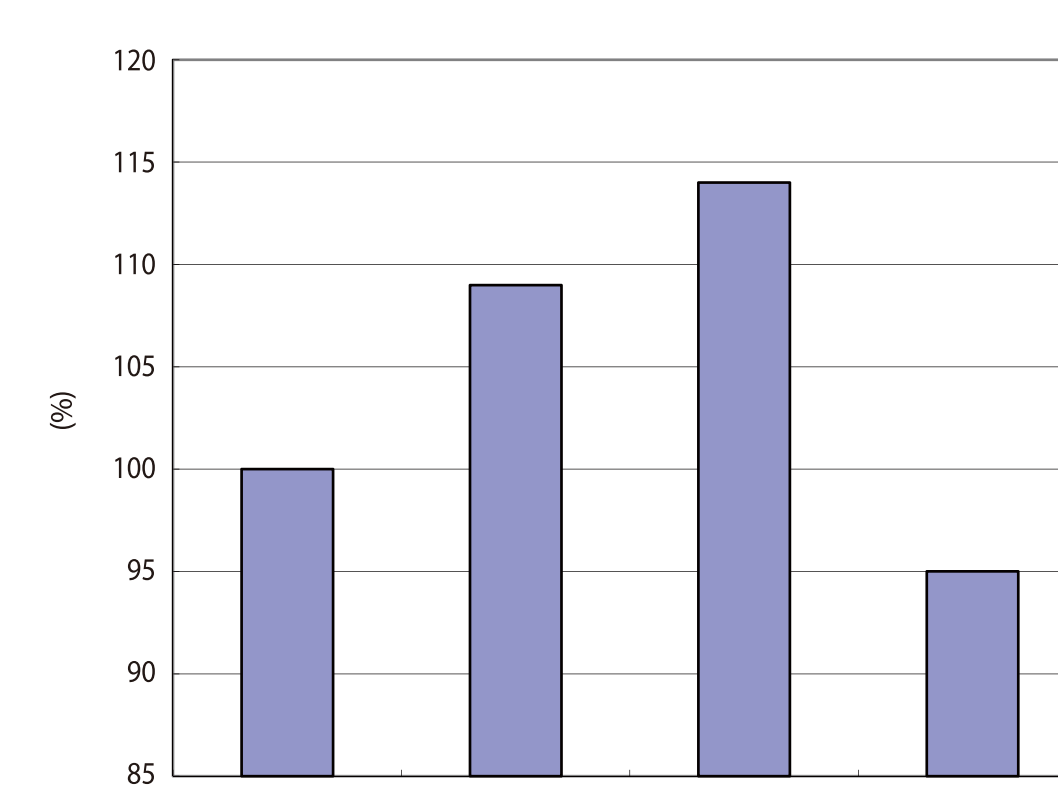


Figure 2. Changes in annual feeding amount of purchased feed per one milking cow  
Note) 2009=100%



Figure 3. Changes in management level milk  
Note1) Jan.2009=100%  
Note2) The yellow portion of the graph represents the supply period (Nov. 2011 to June 2012) for silage including perennial ryegrass

## Conclusion

It is anticipated through these activities that ① robust promotion of grassland vegetation improvement and ② consolidation of the dairy farming platform in Japan.