

## 7. Dairy Cattle Research

### (1) A Survey on Satisfaction Measurement of Automatic Milking System in Domestic Dairy Farm

The present survey was conducted to provide basic information on automatic milking system(AMS) in relation to purchase motive, milk yield, quality, customer satisfaction, difficulties of operation and customer suggestions, etc. Purchase motives of AMS were insufficient labor (44%), planning of dairy experience farm (25%), better performance of high yield cows (19%) and others (6%), respectively. Average cow performance after using AMS was 30.9l/d for milk yield, 3.9% for milk fat, 9,100/ml for bacterial counts. Sixty-eight percentage of respondents were very positive in response to AMS use for their successors but 18% were negative. The AMS operators were owner (44%), successor (44%), wife (6%) and company worker (6%), respectively. The most difficulty (31%) in using AMS was operating the system and complicated program manual. The rate of response to system error and breakdown was 25%. The reasons for culling cow after using AMS were mastitis (28%), reproduction failure (19%), incorrect teat placement (12%), metabolic disease (7%) and others (14%), respectively. Fifty-six percentages of the respondents made AMS maintenance contract and 44% did not. Average annual cost of the maintenance contract was 6,580,000 won. Average score for AMS satisfaction measurement (1 to 5 range) was 3.2 with decrease of labor cost 3.7, company A/S 3.6, increase of milk yield 3.2 and decrease of somatic cell count 2.8, respectively. Suggestions for the higher efficiency in using AMS were selecting cows with correct udder shape and teat placement, proper environment, capital and land, and attitude for continuous observation. Systematic consulting was highly required for AMS companies followed by low cost for AMS setup and systematization of A/S.

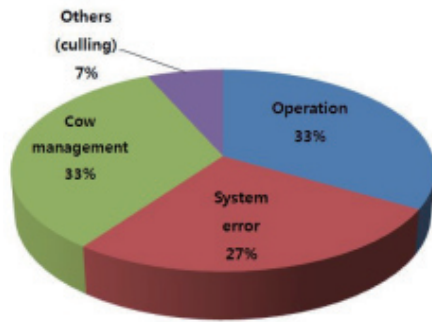


Fig. 7-1. Difficultise in using AMS

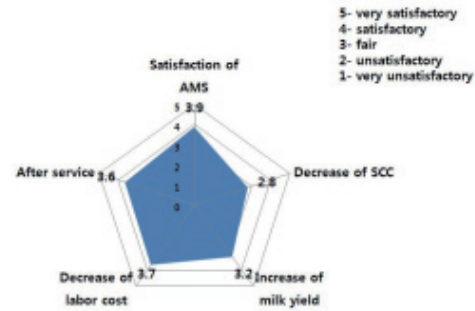


Fig. 7-2. Customer satisfaction measurement

## (2) Effects of Agricultural by-product on Growth Performance and Carcass Characteristics of TMR in Holstein Steer

This study was carried out to investigate the effects of feeding TMR made from agricultural by-product on growth performance and carcass characteristics of Holstein steers. A total of forty Holstein steers were allocated to five feeding groups, each assigned to one of five dietary treatments (eight heads/treatment). Feeding trial was undertaken for 460 days from seven to 22 months of age. : control (commercial concentrate), T1 (TMR containing 15% brewer's grains), T2 (TMR containing 30% brewer's grains), T3 (TMR containing 15% bean-curd dregs), T4 (TMR containing 30% bean-curd dregs). The results obtained are summarized as follows. ADG of T2 group was higher than that of T1 by about 4.8%. Average income levels estimated from T2 or T4 groups were higher by about 14~15% that from control group. According to the results, it may be concluded that TMR feeding containing 30% brewer's grains or bean-curd dregs would be more profitable for market beef cattle producers than conventional feeding.

Table 7-1. Economic analysis by treatments

Item	Economic analysis by treatments(unit : 1,000won)				
	Con.	T1	T2	T3	T4
○ Gross profit	4,816	4,876	4,917	4,839	4,989
- Carcass price ↓	4,156	4,231	4,272	4,193	4,335
- By-products ↗	660	645	645	646	654
○ Operating costs	2,783	2,577	2,579	2,647	2,637
- Live weight price1)	445	445	445	445	445
- Feed cost ♪	1,951	1,745	1,714	1,815	1,805
- Other cost2)	387	387	387	387	387
○ Income(1,000won/herd)	2,033	2,299	2,338	2,192	2,352
- Monthly income	135	153	155	146	156
- Index(%)	100	113	114	108	115

↓ Carcass price('10, Korea Institute for animal products quality evaluation),

♪ By-products(Korea cold storage Co., Ltd.)

♫ feed cost : Con.( grower : 384, fattener 1 : 392, fattener 2 : 394),rice straw(160won/kg), T1~T4(T1 and T3 200won/kg, T2 and T4 190won/kg,).

1) National Agricultural Cooperative Federation(Materials on price, supply & demand of livestock products, 09.12)

2) Livestock Production Cost('09, Korea National Statistical Office).

### (3) Built of non-human estrous detection system

This non-human estrous detection system was built and applied to increase the reproduction rate and its competitiveness of dairy in milk-cows breeding reproduction part. According to the main results increased conception rate was 10%, estrous detection rate was 60% in without strong estrous symptoms and also in midnight and dawn was 90% in this non-human estrous detection system.



Fig. 7-5. Non-human estrous detection system



#### (4) The Evaluation on the prevention and treatment of herbal medicine against calf diarrhea

For the prevention and treatment of calf diarrhea, 70% ethanol extract of 9 various herbal medicine substances and concentrations of the formulation was fed to calves. As a result, bacterial diarrhea (80% treatment effect, two days fed, 85% treatment effect, three days fed), viral diarrhea (63.6%, two days fed, and 72.7%, three days fed), and dietary diarrhea (84.6%, two days fed, 92.3%, three days fed) increased effective in the treatment. Diarrhea prevention experiment, the incidence of diarrhea up to 45 days of age increased no-treatment group (38.2%) than in the fed group (16.1%). The results showed that herbal medicine have an excellent antibiotic activity. Thus it would be used as the therapeutic agent for the diseased dairy cows.