Money Hidden in the Dairy Farm

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Finding our lost assets: Increasing the efficiency of the dairy farm is all about management. However, it may require some changes in management philosophy to facilitate modern management techniques. Unfortunately, there is no universal truth and what may be correct in one herd may be wrong in another. Since the basis of every herd is the individual cow, we need to start looking at each and every animal in the herd and to maximize the efficiency of the basic production unit. Improving dairy farm efficiency brings us back to the basics. Reducing losses caused by udder disease, optimizing lactation intervals and minimizing involuntary culling. A cow, whether bought or raised in the herd, starts showing profits somewhere in mid-second lactation. The longer we keep high yielding cows in the herd, the more profitable they will be. To enable all of the above, we need to establish a comprehensive yet trustworthy database of animal performance and events. We have to identify and treat sick cows, to minimize the time between inseminations and to make our operation more efficient. But in today's' dairy environment of increasing herd size, scarce and expensive skilled labor and the market demand for purer, high nutritional milk, is attending to individual animals feasible?

Why we need automation: Automated systems require investment. But medium and large sized dairies are very hard to manage without them.Automated systems are comprised of an array of sensors that collect data into a management system allowing PC based software to analyze the performance of each cow and alert for deviations requiring attention. Milk measurement, milk conductivity, cow activity and body weight are a few such examples that allow the system to track cow performance. Automatic collection and analysis of data is, in fact, the only practical way to identify individual cows needing attention in larger scale dairies. Afimilk was the first automated system introduced to the dairy world. When launched, more than 25 years ago it was a basic system that dealt with three basic aspects of dairy farming - following up milk production, identifying udder disease by means of milk yield and conductivity, and automatic detection of heat using leg pedometers. Years ago, Afimilk coined the phrase "Management by exception" in relation to managing large herds. This phrase embraces a way of thinking; "Management by exception" means that the farm manager is not required to examine each animal in the herd on a daily basis. Afimilk pinpoints at animals that need attention. By doing this, Afimilk enables management of individual cows in large herds.

Milk weight and udder disease: The need to follow-up daily milk weight and identifying cows that "do not pay the rent" (Low producers causing losses for the entire operation) seems obvious. But if you combine milk weights and milk conductivity you suddenly get so much more. The capability to detect a large percentage of mastitis cases 1-3 days prior to its clinical stage, as well as to monitor the post partum milk yield and alert for deviations from the norm becomes a real moneymaker in a dairy farm. Table 1 shows the results of a study in an AfiMilk farm where half the cows were under a mastitis control program (early detection by the system and immediate treatment) compared to a control

group (mastitis detection of the system was blocked). This study showed significantly higher milk production for cows in the mastitis control program.

	AfiMilk Group (191 Cows)	Control Group (193 Cows)	Significance
Milk Yield (Kg/305 lactation)	10690	10317	P<0.05
Avg. Loss in Milk Per Infection (Kg)	44.8	65.1	P<0.05
Prevented Milk Loss/Cow/Lactation	383	--	--

Table 1. Early detection of Mastitis. Gelb, 1996.

Breeding: Breeding programs vary from farm to farm according to local management techniques. Automatic heat detection allows the breeder to decide on the timing for cow insemination in a very efficient way. Automatic heat detection by means of pedometers has been used in commercial dairy farms for more than 20 years. The effectiveness of this method was proven in the nineties through large scale studies performed in Europe. These studies calculated the reduction of open days in 78 farms (in Israel, Italy and Holland) after initiating the use of Afimilk heat detection. The results showed an outstanding reduction of 15-29 open days during the first year of use. However, good automation systems are more than just good detectors of heat, working 24/7 and that never ask for a pay rise. Afimilk follows up on the 21 day heat cycle and alerts for returning heats earlier than scheduled pregnancy checks; it alerts for cases of anestrous and detects abortions early enough in lactation to save the cow.

Analysis and operational tools: The continuous research and development efforts of the AfiMilk team over the years has brought many new tools to the dairy farm. The comprehensive database integrated in today's Afimilk system facilitates identification of cows at risk for ketosis, monitoring and analysis of milking procedures and parlor performance without use of cameras, and incorporates a herd management program. Nevertheless, one of its most powerful tools is related to supporting automatic procedures. Once a set of operational thresholds has been defined, AfiMilk creates "To do lists" that include cows to be bred, cows to treat, periodic checks vet lists and more. Cows may then be automatically separated into treatment areas. This is a valuable management tool for reducing labor and expertise required for identifying cows for treatment.

The Future: The AfiMilk team believes in the future of dairy farming. For this reason we continue to invest greatly in developing new concepts, technologies and tools that will lead us to a new era. On-line milk component analysis, monitoring cow welfare and improving operation efficiency of the milking parlor are all technologies at our doorstep. We envisage a future system that will analyze the performance of each animal as well as of the entire operation of the dairy farm; that plots operation and corrective act recommendations. We foresee the grading farm results against regional targets which will thus provide tools to maximize the profitability of the dairy farm. The AfiMilk team sees the dairy farm as a business that needs to run at maximum efficiency and productivity.