

## ***Technology letter***

### **Farmers' follies – Is it a lack of knowledge or poor advice?**

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#### **Abstract**

The thought “farmers’ follies” came to mind recently while evaluating some dairy farms as part of a national herd evaluation process. The Oxford Dictionary describes a folly as a “foolish act, idea or practice, unwise conduct, lack of good sense”. It is surprising that some management actions used by dairy farmers borders on these descriptions. Is this because of a lack of knowledge of the science of dairy farming or is it because of poor advice? The result of this is that many farmers suffer financially because of incorrect advice, a lack in trust in the correct advice and a poor flow of knowledge between research institutions, research and extension officers to farmers.

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#### **Introduction**

Visiting a dairy farm provides an opportunity to observe the results of the farmer’s management decisions and actions. One gets an indication of the farmer’s level of scientific knowledge, his way of thinking about the business, and invariably, one notes the follies (unwise actions) being applied in the running of the dairy herd. Usually in such a situation, you, the visitor, compares what you see and hear on the farm regarding cows, facilities, and production performance, to expected norms and standards presented in numerous publications such as dairy manuals, fact sheets and other sources of information. Also, somewhere hidden in the background of the management of the dairy herd, is the influence of a consultant or a number of advisors. They come in different types, such as feed or semen representatives. It may even be the person delivering milking parlour washing detergents or someone at the local Co-operative.

It is a well-known fact that farmers regard their neighbours’ knowledge above that of extension officers, researchers and even university lecturers who all are supposed to have a higher level of theoretical or “book” knowledge than the neighbour. Unfortunately, this may explain the many follies and misconceptions of farmers. In other instances it could be that farmers do not observe the follies of their actions because they are so involved in every-day farming that overall management is lacking. It could also be because of not being able to see the bigger picture or the inability of comparing alternative possibilities.

#### **Dairy farmers are self-made entrepreneurs**

The dairy industry has a number of strong dairy farmers, and personalities to go with that. This would be expected as dairy farming is a high-cost operation requiring a large initial capital outlay and a large, continuous and daily investment in terms of time, money and emotional energy. Dairy farmers often stand out as leaders in the industry and in their communities. Most of them are very knowledgeable about their farming system, knowledge which they have acquired through practical experience, observation and self-study making use of the vast amount of scientific and popular knowledge that is available at a click. However, some farmers, having strong personalities, often develop an attitude of “knowing” all farming systems, even those different to their own system.

It is much like in the story of Tevey, the milk man in Fiddler on the Roof, who was wishing to be a rich man as that would make him a highly respected person in his community with a seemingly vast amount of knowledge. People in the community would come to him for guidance and advice. This seems to be the case for some South African dairy farmers as they are often used as experts doing presentations while also advising other farmers.

While it has to be acknowledged that many farmers have keen observations skills, observations do not necessarily give the correct answers. To draw conclusions, observations have to be compared to an

alternative system or a control. For this reason the following expression is often used: your observation may be correct, but your conclusion could be wrong. Research involves comparing a specific defined system to a control. This is followed by a statistical analysis to determine whether the differences between treatments are due to chance or because of the treatment effect. Research results based on observations alone will not be accepted for publication in scientific journals. However, many farmers draw conclusions from their observations without considering the scientific implications. These observations are then often broadcasted as facts.

### **Sire selection or culling of cows?**

An example of one farmer using the expertise of a neighbour was observed during a discussion with regards to the traits used for the selection of sires to be used for artificial insemination (AI) in the herd. For this farmer, the most important trait was the walking ability of the cows in the herd. The reason is obvious as cows have to walk long distances to the pastures and back to the milking parlour. From a scientific point of view this is rather complicated as the progeny testing of bulls for AI do not include the walking ability of their daughters. What most probably happens is that cows are culled from the herd when they develop hoof problems or leg injuries because of walking large distances. There is nothing wrong in culling such cows but it is an entirely different action to the selection of sires to breed cows that can walk well. The genetic improvement of any trait is through sire selection, while culling of cows would have a minor effect on the improvement of the genetic merit of specific traits in cows in the herd.

In this case, both the advisor and farmer; do not seem to understand the difference in response when using the selection of sires or culling of cows as a way of genetic improvement. Sire selection is aimed at the future herd while culling involves the present herd. However, admittedly, as some farmers have very keen observation capabilities, it would not be entirely impossible to use some indirect conformation trait such as feet and legs as an indication of the walking ability in cows. However, what about other traits such as production and fertility? These traits should not be ignored as cows are not bred to walk around the farm but to produce milk and heifers for the future herd. The expectation is that cows that produce well under these circumstances would have the ability to walk to and from the pastures. Maybe selecting for milk yield would've been a better trait rather than the walking ability of cows? The best option would probably be a selection index which includes a number of traits suitable for the production system.

### **Incorrect design of feed troughs**

On another farm the amount of wasted concentrate pellets lying on the floor in the post-parlour concentrate feeding barn was easy to observe. The reason for the wastage was due to outdated incorrectly designed feed troughs. Such very expensive concentrate pellets should either be in the feed bin, in the feed trough or in the cows' rumen, but not on the floor contaminated with manure and urine. Wastages of roughages were also observed at outside feeding troughs and hay racks. In some cases the wastages of roughages could be more than 25%. During discussions with the farmer, the prices of feeds, especially concentrates and bought-in roughages, were noted as problems. The amount of feed wasted was never mentioned.

Even a small wastage of 5% may add more than R175 000 per year to the concentrate feeding cost of a 250-cow dairy herd being fed 8 kg concentrates per day at R4.80 per kg. Feed wastage is an additional cost because cows did not consume the feed although it was paid for.

The wastage of feed, specifically roughages, seems to be regarded as normal as this is observed on many farms. The design of most feed troughs and hay racks is incorrect resulting in large amounts of feed wastage. Farmers do not seem to know that feed wastages are caused by incorrectly designed feed troughs. Maybe, because of cash flow problems, farmers do not have funds readily available to install properly designed facilities. However, once installed, the payback time is quickly especially when the wastage was high. Well designed troughs last for many years which mean the benefit remains in the herd. This makes one wonder whether the wastage of feeds is ever considered as a possible reason for financial difficulties; or is just easier to blame the feed company for the high cost of concentrates and to disregard the incorrect design of feed troughs and hay racks?

### **Consultants**

The role of consultants in the decision making process of dairy farmers is difficult to determine. Because many farmers do not make the effort of stepping away from their farming system, they often do not see their follies acting out in the herd. Many actions are also masked by time such as the results from sire selection which are only observed in four to six years from the day that sires were selected. The response can also only be evaluated through milk recording and genetic analyses. Other actions, such as increasing or decreasing concentrate levels in the diet, have a more immediate effect. Presently, a number of large dairy farms actually employ consultants to compile some information from the herds' records to help in the overall management of the herd. While giving the farmer the opportunity to observe the response of some of his management actions through the eyes of an emotionally unattached advisor, what are the consequences when the recommendations presented to farmers on a monthly basis are irrelevant indicators? For instance, the reproductive performance of a dairy herd could be described by as few as five to 10 indicators. Although impressive, an overload of reproductive information could also be provided although not helping much towards better herd fertility management. How would the farmer know this, especially as the consultant may be regarded as an expert of some kind?

In many cases there is a lack of trust in research results, especially when the results do not confirm (or proof) specific pre-conceived perceptions. Often, farmers feed high levels of concentrates in diets to increase the milk yield of cows. The well-known law of diminishing returns shown in research do not seem to be considered here. This law shows that the response in milk yield decreases with each additional kg of concentrate fed once past a minimum concentrate feeding level. This especially applies for cows on pasture. Feeding consultants usually counter this by stressing that feeding higher concentrate levels increases the carrying capacity of the farm. However, feeding more concentrates also increases the feeding costs of cows requiring a higher milk yield to reach the break-even point of production. To determine the effect of increasing concentrate feeding levels on the carrying capacity of the farm would require a sophisticated research project never attempted before in this country through a lack of facilities or will. Farmers in other countries using pasture-based systems as a rule do not generally feed concentrates at high levels. Much of their research is based on determining the optimum stocking rates of cows on pastures. Such research is also not considered to be important here.

With regards to breeding advice, the situation is also poor. Often, in the past, retired teachers or farmers became semen consultants. Sometimes the semen of sires is marketed at special (reduced) prices without considering their genetic merit. Higher milk yields are not pursued because of perceived positive and negative correlated responses. In many cases the scientific knowledge of semen consultants consists of some genetic half-truths and farmer-popular beliefs. The problem for farmers is that the response in the advice given by semen consultants is only observed four to 10 years into the future.

Irrespective of the fact that more than 90% of a dairy herd's income is derived from milk sales, sire selection objectives as described by farmers; as well as breed societies, do not necessarily include the genetic merit for milk, fat or protein yield as primary selection traits. The description of selection objectives is often vague. Body conformation traits such as feet and legs, udder traits and body size are mostly included in the list of selected traits. High pin bones get a lot of attention as it is easy to observe while farmers believe that it is related to fertility. Breed society journals mention traits like medium framed cows (indicating size), well-developed rumps and loins, well-placed legs and hip bones and well-attached udders which are high above the hocks. This seem to indicate selection objectives improving body conformation traits in dairy cows, while milk yield parameters, which determine the main source of farm income, seem to be of less importance.

This anomaly is demonstrated when observing the semen sales of an AI company supplying semen to Western Cape dairy farmers. For a specific year, nine Holstein bulls, representing 75% of all semen sales, had an average estimated breeding value (EBV) for milk of 559 kg. However, the average EBV for milk yield of five bulls with the highest number of straws sold was 389 kg. By using other selection objectives such as highest Net Merit (an index comprising 12 different traits), highest milk income or lowest semen price, the average EBV for milk yield for five bulls selected in each group was 1114, 1196 and 659 kg, respectively. The monetary value of bulls as indicated by EBV for milk yield per Rand paid for semen of bulls selected as indicated above in comparison to the five bulls bought by farmers was 4.7, 6.2 and 6.9 vs. 3.4 kg/Rand, respectively. This means that the bulls bought by farmers had the lowest genetic merit for milk yield and the least genetic value in terms of money spend. Even buying the lowest priced bull semen, the

genetic merit for milk yield of those bulls would have been higher. This seems to indicate that bulls were bought for other reasons than for the milk yield potential of their daughters.

### **Closing remarks**

Many farmers suffer financially because of incorrect advice or a lack of trust in the correct advice. In many cases farmers also suffer from a lack of knowledge with regards to basic principles presented in numerous manuals, fact sheets and other sources of information. In most dairying countries there seems to be a problem in the flow of knowledge between research institutions, research and extension scientists to farmers. Dairy farmers do not readily access scientific journals and congress proceedings while in many cases popular magazines aimed at dairy farming are also not consulted. There is also a lack of co-operation between different sections of the industry. Feed companies may advise farmers to feed more concentrates while disregarding the law of diminishing margins. Semen representatives may sell bulls for AI based on farmer-popular traits.

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