

# DAIRY MANAGEMENT

## COLOPHON:

Veepro Dairy Management is a supplement to the Veepro Magazine. It contains articles, tips and advice aimed at the management of dairy farms worldwide.

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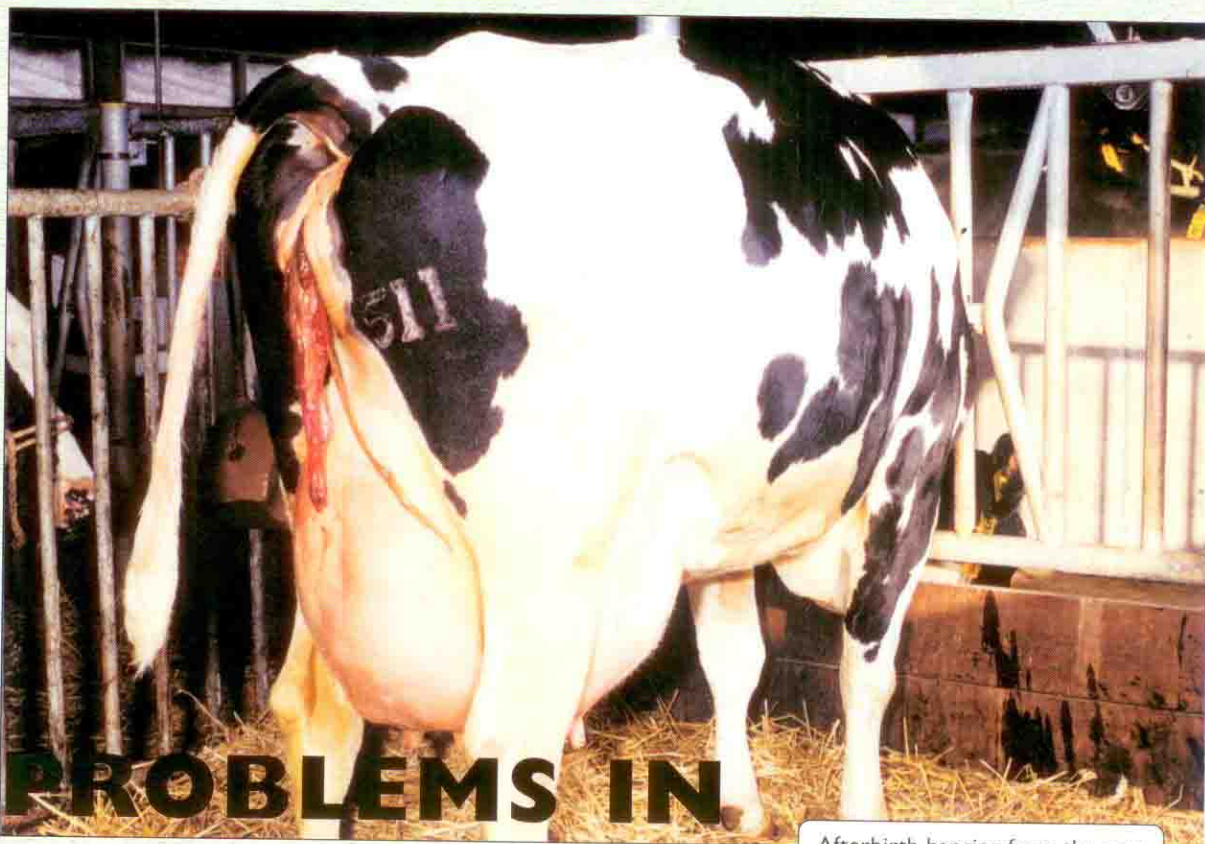
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Afterbirth hanging from the cow

## PROBLEMS IN THE CALVING PERIOD

*Various problems may occur in the calving period. The most important of them will be discussed in this management annexure, such as afterbirth problems, uterine infection, but also post-partum fertility problems.*

Many of these problems can be traced back to an improperly balanced ration. When the daily milk yield is increased, the situation only becomes worse. Different dangers threaten the cow's health. The genetic potential to produce much larger quantities of milk is further developed, however, this higher production potential is not balanced by an increase in the feed-intake capacity.

### Energy balance

A negative energy balance is the

main problem source. If the feed intake is too low, the cow will be facing energy deficiencies, which is disastrous. She will start mobilizing energy from her body reserves. Fatty liver syndrome in the dry period and ketosis after calving may be the result, which in turn can lead to uterine infection en fertility problems.

### The art of balancing a ration

It is an art to feed cows the right way. Maximum feed intake

should always be the farmer's goal. This requires a management that constantly improves itself. The farmer should try to find the right balance between feeding and milk production.

### Production goal

Organize your management in such a way that your cows take in the maximum amount of feed from a well-balanced ration. This can only be achieved with healthy cows, good quality feed, the right body condition, and proper housing. If these criteria are met, the problems will remain limited and the results satisfactory. The production goal should always be in proportion to the level of management that is available.

### Fertility

Whether or not a cow has good fertility depends largely on how she gives birth. In fact the fertility is determined even earlier, during sire selection. Try to avoid sires that are known to give difficult calvings.

The damages to the reproductive tract resulting from a heavy calving process, significantly increase the risks of infections. You should optimize the cow's body condition (a score of 3 to 3.5), and also see to it that she is healthy and free from stress. Especially (sub-clinical) milking fever will delay the calving process.

### Afterbirth problems

When the cow is healthy and calves smoothly, the afterbirth will come free after about 6 hours. If this does not happen, something is wrong. The main cause of this problem is to be found in a negative energy balance. However, milk fever, mineral insufficiency, abnormal births, and stress can also play a part. Energy deficit (negative energy balance). If an energy deficiency arises in the final weeks of the pregnancy, there is a great chance of fatty liver syndrome occurring, especially in the case of fat cows. These animals stand a greater risk of retained placentas. An energy deficiency occurs more often in the case of a heavy calf and in that case of a pregnancy with twins. The following happens in the case of an energy deficit:

1. Before calving, the dry-matter intake goes down, especially in the case of animals that are too fat.
2. The energy requirement increases, the calf is growing fast and the udder starts to swell.
3. The cow falls back on her body reserves (fat). Body fat is mobilized and converted by the liver into glucose, which serves as an energy source.
4. Fatty liver syndrome develops. As the degree of fat mobilization increases, the situation worsens. If too much fat is mobilized, the fat-to-glucose conversion in the liver cannot keep up and the fat will start building up in the liver, with subsequent fatty liver syndrome.
5. As a result, metabolic disorders (feeding disorders) will occur such as ketosis, displaced abomasums, and the cow's resistance will diminish. This in turn may lead to increased susceptibility to mastitis and uteritis.

- Mineral supply. Especially two-year-olds may suffer from Selenium (Se), and Copper (Cu) deficits. Much depends on the ration that is fed during the last couple of months prior to calving. In certain parts of the world we see that farmers feed a 100% roughage ration only, which will lead to mineral deficits. Problems may surface if the animals feed is not properly supplemented with minerals. Blood tests are a good indication of any deficits. In the case of a deficit, immediate measures are required to prevent new problems.

Milk fever, which is caused by a Calcium deficit, also plays a part. In many cases the afterbirth is already loose in the uterus but will not come off due to weak uterine contractions.

- In many cases the afterbirth will come off after a solution of Ca/Mg has been administered.
- Abnormal calvings (heavy or premature). In the case of a premature birth, there is usually something wrong with the cow's or the calf's health (autopsy!). These cows often also suffer from fatty liver syndrome due to a lower feed intake. An infection can also be the cause of premature birth. Of course, in that case the chances of a retained placenta are substantial.
- Stress is often caused by group changes, animal movements, separation, or abrupt ration changes. If stress occurs shortly before calving (for instance when the animal has been in the maternity pen too long), feed intake will go down. The energy deficit increases which again accelerates fat mobilization.

### Treatment

In the case of a partially or completely retained placenta, the farmer should not hesitate to start treating the cow. Pulling parts of the afterbirth that have come out, is absolutely forbidden. This may lead to severe damage as the afterbirth is still attached to the cow. It is generally recommended though to cut off loose parts. The animals suffer visibly when they retain their placenta, especially because they are



Never peel off free-hanging parts of the afterbirth. An afterbirth capsule should be administered within 24 hours after calving, otherwise the cervix will close again

in the most vulnerable period of the production cycle.

Moreover, the animal is still suffering from the same problem that caused her to retain the placenta in the first place. In this situation the cow is very susceptible to possible other problems. Spontaneous healing is no option, since this will take too long. The initial treatment consists of inserting an afterbirth capsule in the uterus. Be sure to treat the cow under the best sanitary conditions. The farmer should keep a close eye on the patient. Additional treatment is required if the cow develops a fever. In some countries, the use of an afterbirth capsule is under discussion. There, they prefer to steer clear of the cow's vulva and, when she develops a fever, they

Functional ovaries.  
On the right ovary a new follicle is developing.



administer antibiotics by intramuscular injection instead. One should be aware that the cows will eat less, which will have its effect on the energy balance. These cows do need special attention.

### Uterine infection

Some degree of uterine infection is rather common among cows. This should not pose any problems, unless the infection becomes serious. However, it is difficult to tell when it starts to become serious. Some secreted mucus from an otherwise healthy cow is not bad. A healthy cow will solve this problem herself, especially once she comes into heat. However, when a cow starts secreting large amounts of mucus and is not feeling well, she should be



Roughage intake should increase as the daily yield increases. Warm, sultry roughage lowers feed intake capacity

treated. The cow should be well again after 4 to 6 weeks.

A serious uterine infection can be the result of:

- **A retained placenta.** It goes without saying that there is a greater chance of uterine infection in the case of a retained placenta (see also "Afterbirth problems"). This is even more so if adequate treatment was omitted.

- **Hygiene.** Bad sanitary conditions during the calving process can lead to infections. It is important to wash and disinfect your hands and, any auxiliary tools, and if necessary the backside of the cow.

- **The cow's resistance level.** When a cow's resistance diminishes, the self-cleaning process of the uterus will be less effective. A negative energy balance that was built up during the dry period, often is the cause. After calving this deficit often worsens and can eventually even lead to milk fever. The reasons for this negative energy balance can be very diverse. It is highly important that you get to the bottom of the problem to prevent it from happening again. A careful analysis of management practices during the close-up period is necessary. For instance, lameness during the dry period often leads to a lower feed intake. This causes an energy deficit, which in turn leads to fat mobilization, followed by fatty liver syndrome, which again may lead to a retained placenta, and eventually to fertility problems. In this case, lameness is the primary cause, and all other problems are a result of this lameness.

- **Interaction with other disorders.**

There are a number of disorders, for example lameness or metabolic disorders, that lead to lower resistance and interfere with the cleansing of the uterus.

### Treatment

A healthy cow can easily cope with a light case of uterine infection. If the cow comes



After calving the cow needs time to cleanse herself. Once heat mucus has encapsulated any remaining contaminations, the cow is getting better

in heat strongly and quickly, the heat itself will speed up the cleansing of the uterus. The cervix is open and in addition there will be a higher mucus production. If the uterine infection lasts too long or is too serious, the cow should be treated. It is important to know whether or not a cow has been in heat. If she has not been in heat, treatment often consists of inducing the heat.

This is a very good approach if the problems are not too serious. In fact, the treatment will solve two problems at the same time: The cow cleanses herself and the reproductive cycle is started again. If this treatment does not solve the problem, however, the uterus should be flushed. This can even be done one day after an insemination. If, during insemination, it appears that a cow is not clean, her uterus can still be cleaned out afterwards, which need not stand in the way of a pregnancy. Of course it should be preferred to monitor the cows in such a way that earlier treatment is possible.

There will always be a few case of uterine infection in a herd. If too many cows require treatment (more than 5 to 10%), the

farmer will have to start finding the primary reason(s). If the dairy farmer succeeds in eliminating that primary cause, he will solve more problems than one, as the primary cause often leads to other problems.

### TEN TIPS

The following ten tips may help to prevent problems with retained placentas and uterine infections:

1. Make sure the cows enter the dry period in the right body condition (a score of 3 to 3.5.)
2. Balance the ration to maintain or slightly increase the body condition (max increase of 0.5; the score should never exceed 3.5).
3. Feed a ration that is low on Ca.
4. Take adequate measures to prevent claw problems; trim hoofs when they enter the dry period and walk also the dry cows through foot baths, if necessary.
5. Compensate the drop in dry matter intake before calving by improving the ration. Start feeding concentrates two to three weeks before calving and increase up to 2 to 3 kg on the day the cow calves.
6. Prevent stress caused by, for example, separation or group changes shortly before calving.
7. Exercise the cows, if possible, to prevent fatty liver syndrome. Exercise makes the cow burn fat, which will relieve the liver.
8. Administer propylene glycol if you suspect fatty liver problems, and milk the cow prior to calving. Through milking, any excess fat in the liver will be excreted via the milk, thus relieving the liver.
9. Take good care of the cow during and after calving. Offer her lukewarm water right after calving will stimulate her to start drinking and taking up feed!
10. After calving, balance the ration as closely as possible to the post-partum feeding guidelines, in order to prevent the energy deficiency from deteriorating.



Mucus released during heat is the best cleaning agent for the uterus. Therefore it is recommended not to resort to medicines too quickly.

# FERTILIZATION

It seems to become more and more difficult to get cows in-calf in time. Which raises the question of when a cow should be back in-calf again. In areas with seasonal production, a cow has to calve again in one year's time. If seasonal calving is not an issue, it is often more sensible to wait a bit before a cow is rebred. When the energy balance of a cow is improved, the chances of a pregnancy are much better. Which is more sensible than using all kinds of tricks to get the cow in-calf again as quickly as possible. One condition is, however, that the cows have a good milk yield and, in particular, that they continue to produce well (persistence). In not very persistent herds, an extended calving interval can lead to too much body condition at dry-off, and a lower daily production average.

## Good quality

A successful insemination can be moved up if a number of conditions are met. Of course, the reproductive organs should be clean and have completely recovered. Moreover, a good quality egg should be available. In practice this often appears to be rather difficult. The cow's energy balance strongly influences the quality of the egg. Approximately eight weeks before they are released, the follicles start growing. A follicle is a bubble full of moisture, holding the egg cell. When this bubble cracks, the egg cell is released and goes on its way to one of the millions of semen cells from the male animal, with which it will fuse together.

When a cow is suffering from a negative energy balance during the time when the follicle is growing, the quality of her egg cell will not be as good. If the energy balance is particularly negative in the last phase of the follicle's development, first the protective layers around the egg cell will be damaged and then the egg cell itself. It is therefore important to make sure that the cow has a good energy balance during the highly productive period, by properly balancing the ration as much as possible, according to the norm. This is often easier said than done, however.

- Make sure that cows are well taken care of in their dry period and are fed a well-balanced ration (see above).
- Cows should not peak too quickly, preferably at 50 days after calving.
- Maximize the intake of good quality roughage.
- Supplement with plenty of concentrates and keep an eye on the fiber level.

Good indicators for the energy balance are, in particular, the loss of condition (1 point at most after calving), and a too ample fat-to-protein ratio. This ratio is too ample if the difference between fat and protein content is more than 1.5%. Should the cow indeed lose too much condition, you might consider postponing the first insemination.



Only 17% of cows that are too fat get in-calf after first service

Degradable protein (OEB) can also be an influencing factor. The protein that is not converted in the rumen leaves the rumen as ammonia (NH<sub>3</sub>).

This NH<sub>3</sub> is then absorbed into the uterus via the blood. Higher concentrations of NH<sub>3</sub> reduce the chances of survival of egg cells and semen.

Finally, also the minerals should not be forgotten. In rations with premixed concentrates, mineral shortages will not easily occur. One should pay extra attention, however, to rations with a great many of single ingredients, or with low concentrate levels.

## Summary

The feeding regime exerts a strong influence on the cow fertility. On the one hand, because of uterine problems occurring after calving due to an energy deficit in the dry period. This energy deficit will lead to fatty livers in the dry period.

On the other hand, because cows with a continuously increasing production level are more often facing energy deficits. This has a negative impact on the quality of the egg cells.

All in all, there is reason enough to optimize the ration for dry and high-producing cows, keeping the fertility in mind. Otherwise a lot of cows may get in-calf too late. Problem animals often have lower persistence and excessive body condition at dry-off, providing plenty of ground for the problems to repeat themselves. It goes without saying that fertility problems lead to higher costs and premature culling.

When a cow drinks lukewarm water right after calving, the risk of a displaced abomasum decreases

