


## WHY eProCheck ?

.....the use is manifold!

Applied correctly, the progesterone test carried out with  eProCheck serves to identify the period of heat (oestrus), respectively to discover an aborning dysfunction of fertility. As indicated in the brand name itself, with this device the level of progesterone is measured in the milk. Progesterone is the hormone which either is responsible for the dioestrus (intermediate days 8-16 of heat) or the maintenance of gestation. Out of this reason it is also called the protective hormone of oestrus.

### Regular Cycle of Heat

A bovine cycle of heat usually lasts 21 days ( 18 to 23 days ). During an oestrus cycle the ovary develops a follicle and after that the corpus luteum. Whenever the cow is in heat, the ovary has produced a follicle ( illustration 1 ) containing an ovum. At the same time this follicle produces the hormone oestrogen setting off the heat. After ovulation the CL (corpus luteum) is formed in the ovary producing progesterone (illustration 2). As long as the CL delivers sufficient progesterone ( a minimum of about 3 ng), the status of heat is being blocked. In case of a high level of progesterone together with symptoms of heat, it is a matter of false heat (false oestrus). The ovum (egg cell) dies off quickly and insemination is no longer possible. Whenever the cow is not pregnant, the CL begins to regress from day 18 onwards. The level of progesterone decreases continuously. As soon as the CL has fully regressed and therefore no more progesterone is produced, a new follicle containing a new ovum will develop and ovulation occurs. The cow is in heat.

## Summary:

- During heat there is no active CL (corpus luteum). Therefore the level of progesterone is low to zero (■).
- On the intermediate days between two periods of heat, or equally well, the cow being pregnant, we will find the CL on the ovary producing progesterone. Therefore the level of progesterone will be high. (■■■■■■■■).
- Without progesterone there is no pregnancy. Exceptions from this fact indicate fertility disturbances, such as cysts.

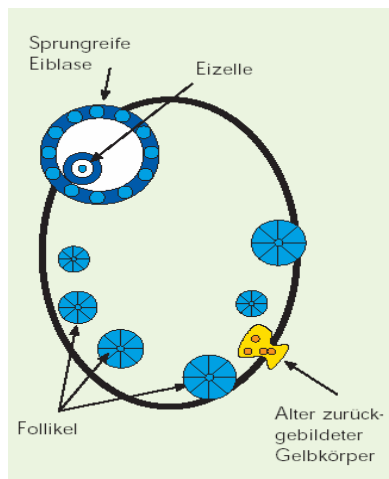


Abb. 1: Ovary of a cow in heat

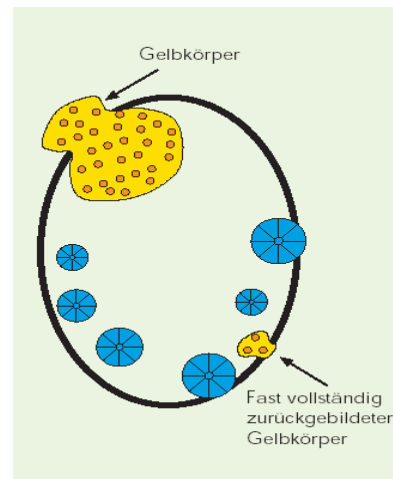
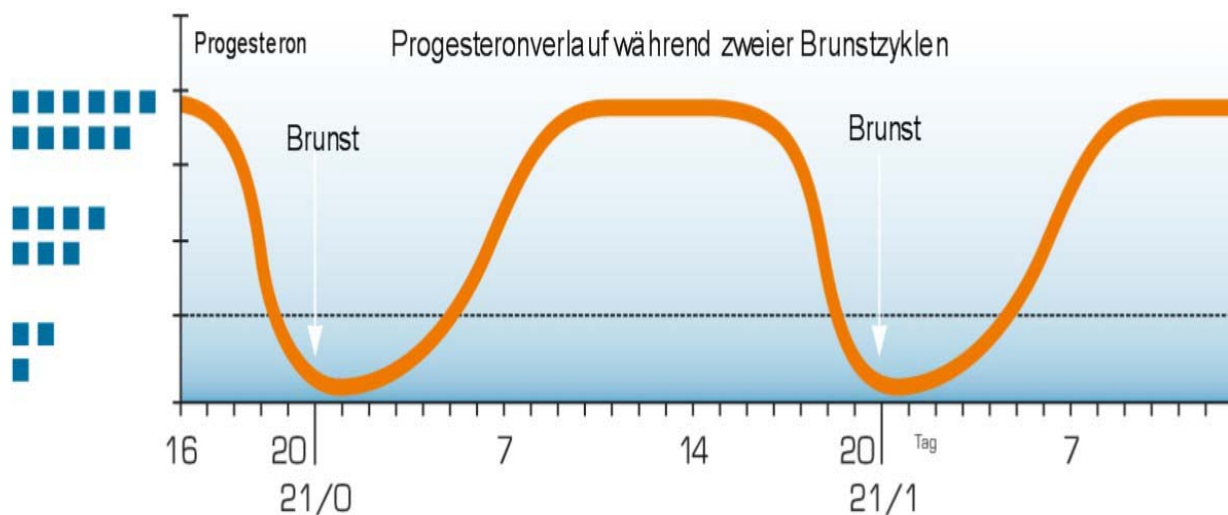


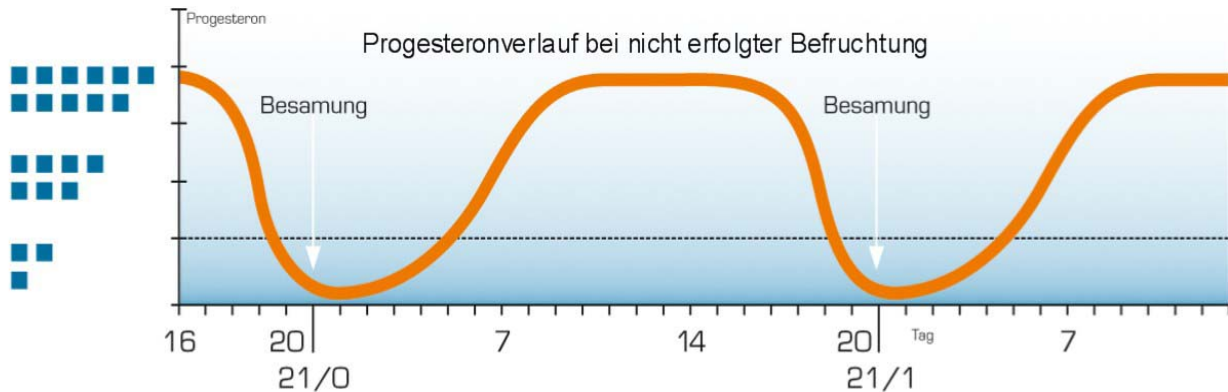
Abb. 2: Same ovary 8 -10 days later



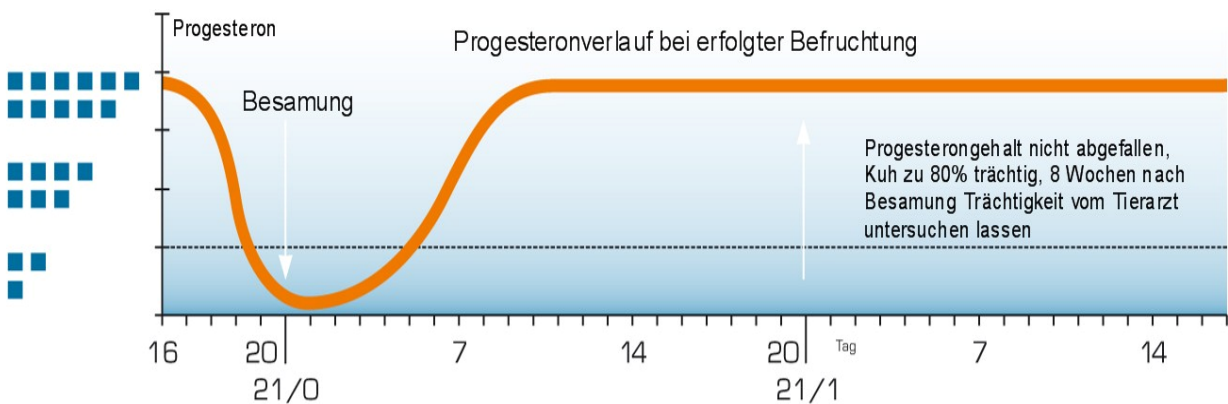
## Useful Applications for the eProCheck progesterone test

### Case 1: Testing whether the cow is open or pregnant

After insemination we want to know whether the cow is pregnant or not. In the case of a healthy cow being pregnant, the corpus luteum regresses on day 18 after the oestrus, i.e. the progesterone level drops to almost zero.



III. 3:+ 4 Possible levels of progesterone in the milk sample on day 19 and/or 20 after oestrus.



The  eProCheck test on day 19 or 20 can show either:

a) a **low** progesterone level ---► The cow is not pregnant.

b) a **middle** progesterone level ---► It is decisive whether the hormone level drops under the value of 5 ng or not. Another test on the following day is necessary. If the progesterone level has gone down further, the cow is in heat.


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c) a **high** progesterone level ---► The CL is active, i.e. the cow is pregnant except for cases of dysfunctions ( $\approx 20\%$  of cases).


- Ovulation has been delayed, i.e. the productive cycle lasts longer. In this case a wrong diagnosis is avoided by taking a test on day 24.
- Premature death of the embryo: **At the time of the test the cow is pregnant, somewhat later the embryo dies off.**
- Existence of a luteal cyst (a persist CL): Whenever the CL neither regresses (on day 18 - 20), nor the cow is pregnant. This fact indicates an abnormal mutation of the uterus simulating a gestation.

### Case 2: Testing the state of oestrus

Taking the  **eProCheck** test on day 0 (cow in heat):

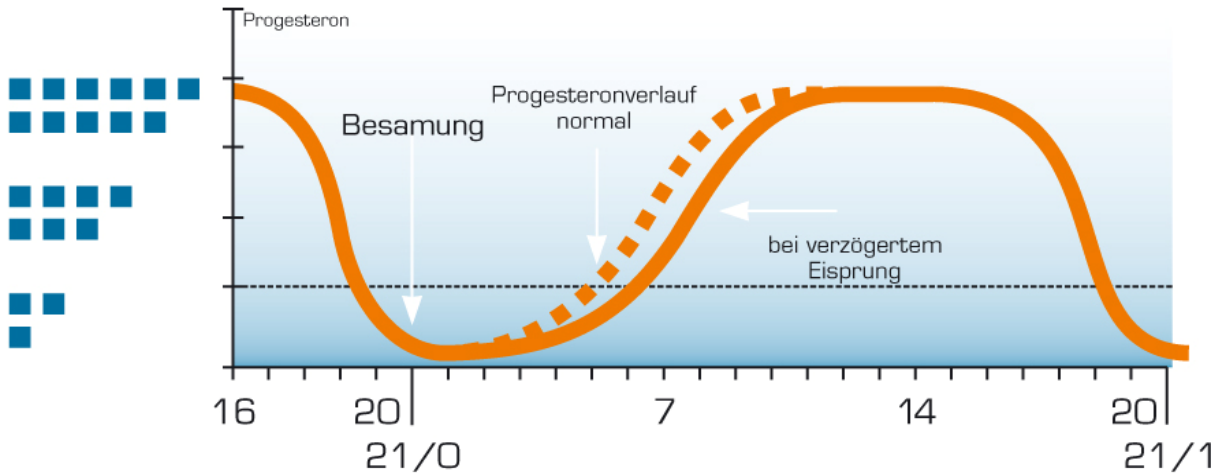
- If the progesterone level is lower than 3 ng, there is a very good chance of successful insemination.
- If the progesterone level is high in spite of symptoms of heat, and the cow is not open, it is a matter of false oestrus. The cow has to be watched closely to notice the next heat. The  **eProCheck** has to be repeated.

### Case 3 : Controlling the reproductive cycle

If the cow after six or more weeks past calving does not show symptoms of being in heat, it must be examined by a veterinary. In such a case additional tests with  **eProCheck** support the individual diagnosis. Those 2 to 3 tests are taken in an interval of 7 days starting off any day. You might find out a low activity of oestrus behaviour, and thus determine more accurately the actual day of heat. Or the tests confirm a constantly low level of progesterone, indicating pathological follicle cysts, i.e. cysts in the ovary. In case the tests show constantly high levels of progesterone, the diagnose indicates a persist CL (see last point of case 1). In all of those cases you must consult a veterinary!

### Case 4: Ovulation in due time ?

By taking two tests, one on day 0 and the next on day 7, you can secure whether the ovulation has taken place or not. Shortly after ovulation the level of progesterone rises strongly, with ovulation delayed the progesterone level, too, rises with delay. (Ill. 5).

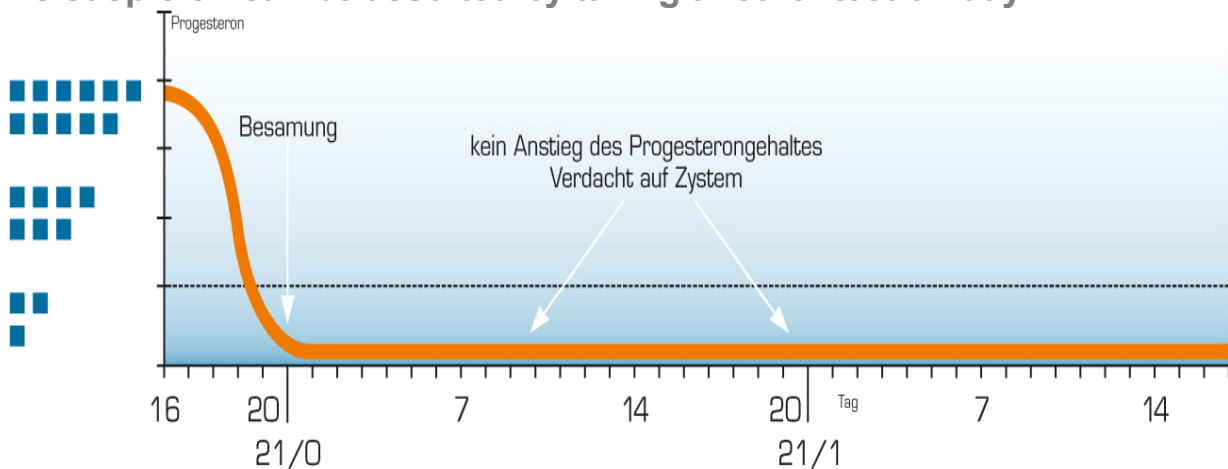


III. 5: Test samples taken on day 0 and day 7 after oestrus

Attention: The next heat is also in delay!

### Case 5 : Development of cysts?

The progesterone level being low on day 7 (after heat) the ovulation has failed to take place, the reason being the development of a follicle cyst. This suspicion can be asserted by taking another test on day 14.



III. 6: Test samples taken on day 0 (=heat), on day 7, and on day 14 after heat or insemination



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Outline of the manifold use of  eProCheck !

Purpose	Day of test taken on *
State of oestrus	Day 0 (day of insemination)
Gestation or oestrus	Day 20 / 0
Gestation	Day 19 oder 20
Status of productive cycle	Day x / 7 / 14
ovulation	Day 0 / 7
cysts	Day 0 / 7 / 14

- \* day 7, 14, 19, 20 ---► day after heat  
day x ---► day after first test

For further information please refer to:



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