

## VALUE OF METHODS OF EARLY RECOGNITION OF PUERPERAL

AND FERTILITY DISORDERS IN THE SOW

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The question of how far the diagnosis of infections in the urinary tract can be evaluated as an early recognition of MMA in predisposed sows, was followed up.

An investigation should be made as to how the examination of the urine can be used, with the help of simple and practicable methods, under the conditions in the piglet production farms.

Besides this, clarification is necessary to show what weight and importance can be placed on the infection of the urinary tract during illnesses of the puerperium, and what influence it has on the breeding performance of the sows.

In three piglet producing farms, regular development tests were made over a period of one year of observation. Urine samples were taken from each sow several times during the last stages of pregnancy and lactation. These were tested organoleptically, bacteriologically and clinically-chemically with the help of laboratory methods as well as with easy to handle screening tests, such as test strips and dip-slides.

Data about the health of the sows and the piglets as well as the breeding performance of the sows involved in the 346 litters which were observed, were noted in the statistical evaluation.

The most important parameters in the test proved to be the number of germs, given as a total figure, and the total content of albumen in the urine.

Almost all sows which had positive results in the urine tests before they gave birth, contracted the disease p.p. as defined in the MMA-complex, and showed the main symptoms of a high temperature and a heavy discharge.

Those sows which showed no significant bacteriuria a.p. but which underwent urine tests a short time before the birth of the litter, with results showing  $10^6$  germs/ml urine or even more, suffered to 72% from puerperal disturbances. For all that, another quarter of the sows contracted feverish illnesses, although significant bacteriuria was not shown at any time while taking samples.

Those sows which discharged a large number of germs both before giving birth and also after the birth of a litter, were ones which either did not become pregnant again afterwards or which only became pregnant after several periods on heat. This was highly significantly more often in comparison to sows with a negative result in the urine test in all the cases. The low fertility rate of these animals may also be the main reason for a high number of miscarriages. The higher the number of sows with infections of the urinary tract, the greater was the annual rate of illness in this stock. The frequency of the occurrence of illnesses in the animals in the post natal stage also increased, although these animals were tested before giving birth and the results of the urine test were negative. This percentage of sows affected by bacteriuria in one farm or the prevalence of infections of the urinary tract can therefore be classified as indicators of "hospitalization" or "fatigue", and this reflects the pressure of infection in the stock.

If the sows are classified into four groups according to their average total discharge of albumen before giving birth, it can be seen that puerperal disorders, in a highly significant nature, occur more frequently among sows in the group with a high discharge of albumen.

Those animals with a high total content of albumen in their urine a.p. were, in a highly significant manner, in heat more often one or more times than those sows which showed no clear proteinuria at this time. It is often these sows which must be removed from the farms due to illnesses or bad breeding performance. Statistical differences between the different groups of sows can also be seen in the data on performance. The number of piglets per year is less, also due to the frequently prolonged time between litters due to the frequency of the periods on heat. If one considers the group of sows with constant bacteriuria, the illnesses of the sows in puerperium are main reason for the bad results in the number of piglets

reared, the number of losses of piglets and the 28 day weight of the litter. When comparing the groups, significant differences of the mean value of the data on rearing could be found, especially between the two extreme groups.

There are also negative relationships between unphysiologically higher proteinuria during the pregnancy and breeding performance of the sow. (see table and diagram)

We have therefore seen that there are relationships between the parameters measured - the total number of germs and the total content of albumen and pathological procedures, as well as the breeding performance data of the sow.

What importance do these two parameters, which are given as examples, and their methods of determination have for the process of a precautionary examination for the MMA-complex? How well can those sows whose health is "very much endangered" be separated from those which are "not endangered", especially if there are no clear, outwardly recognizable symptoms in the animal. Some figures are given, taking the test-strip tests as an example.

The question is, how certain or probable it is that a sow can be recognized as being "MMA-endangered", if a positive result is shown three weeks before the calculated birth, or if a result is negative, whether it is possible to recognize the sow as being "not MMA-endangered". In a bacteriological test, it was shown that the diagnosis of a positive test is 90% certain, whereas a negative result is not very satisfactory as it is only 53% certain. This means that 47% of the animals fell ill, although the test a.p. was negative. The uncertainty factor in an albumen test is around 30%. However, if both tests are combined, there is a possibility to raise the selectivity between "endangered" and "not endangered animals", as is shown in the diagram. If both the bacteria test and the protein test are positive, the probability that the animal a.p. is recognized correctly as being "MMA-endangered" is 97% certain. If both tests are negative, it is 74% certain that an illness in the puerperium can be excluded.

#### Conclusion

With the help of urine tests it is possible to ascertain a "pre-infection syndrom" of the MMA-complex. The bacteriuria as a lead symptom and also the proteinuria as an accompanying symptom could therefore be diagnosed before the birth of the piglets in animals which outwardly had no obvious infection of the urinary tract. By carrying out urine tests, the farmer is taking a step which can help to save his stock if the profitability is low and his livelihood is threatened. Besides this, the urine tests should be an integrated part of the precautionary measures taken to prevent illnesses among the stock.

As an integrated element and a base for sanitation programmes, these screening tests provide immediate information which introduces short-term environmental improvement, metaphylactic, therapeutic and selection measure or extended diagnosis.

Besides this, periodic information is available, which can lead to the fixing of hygiene plans on a long-term basis.

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