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number of returns to oestrus was larger with R2, whereas more abortions were observed with R1, especially during the 3rd and 4th cycles.

It may be concluded that none of the two restricted energy levels can be considered as satisfactory for pregnant sow feeding.

VI. — PATHOLOGY

Biochemical and haematological profiles in reproductive sows influence of the physiological stage and of the reproductive cycle order

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In an experimental herd of breeding sows subjected to an intensive management system (2.5 cycles per sow and per year) and in satisfactory sanitary conditions, blood samplings were made regularly for one year in sows in mid-gestation or in late lactation.

A total of 11 biochemical parameters (sodium, potassium, calcium, magnesium, phosphorus, urea, cholesterol, glucose, total protein, albumin, globulin) and haematological parameters (erythrocytes and leukocytes, haemoglobin and haematocrit) were studied in the serum and total blood of 185 sows.

The influence of gestation was characterized by significantly higher calcium, potassium and albumin contents, but lower glucose, magnesium, urea and cholesterol contents as compared with late lactation.

The influence of the reproductive cycle order was marked on several blood criteria: in young sows inorganic phosphorus, erythrocyte, leukocyte and lymphocyte contents were significantly higher than in sows having achieved 5 or more reproductive cycles.

In multiparous sows however, it was noticed that blood variations were accompanied by a progressive weight decrease corresponding to lower gestation net gains, more litters and larger weight losses during lactation.

Pathological consequences of a deficient adjustment of feed supplies to breeding sow requirements

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An ecopathological study was carried out in several sow herds exhibiting non specific pathological manifestations. This study revealed the consequences of feed deficiency on the health and performance of these herds. Although there may be differences between herds the main

symptoms were: delay in the onset of oestrus, low conception rates, abortion without any clinical signs, as well as possible repercussions on the health of the piglets. In the herds studied, the programme established to improve the performance was mainly based on a increase in the level of feed intake. Application of this programme led to disappearance of the various disturbances and to an improvement of the performance. These results show that the feeding level has to be adjusted to the requirements of each animal in each herd. Occurrence of severe disorders may be prevented by a steady control of some important parameters in the breeding sow.

Vitamin D deficiency in the pig

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Consequences of vitamine D deficiency on calcaemia, phosphataemia, 25 hydroxycholecalciferol (25-OH-D³) parathyroid hormone (PTH), calcitonin (CT), phosphatasemia, urinary hydroxyproline, intestinal calcium binding proteins (CaBP), bone mineral content (BMC) and histological bone findings were studied in 50 growing pigs. In the first experiment, plasma Ca, P, PTH and CT kinetics were followed during one month. At slaughter, intestinal CaBP and plasma 25-OH-D³ were measured either in vitamin D-deficient pigs or in healthy ones. In a second experiment, the effects on bone and plasma criteria of vitamin D³ and vitamin D³ sulfoconjugate (SD³) were compared over a 50-day D-deficiency period. In a third experiment, bilateral nephrectomy was done in 5 pigs to observe the effect of a lack of 1.25 dihydroxycholecalciferol (1.25 DHCC) synthesis on plasma PTH.

Bone criteria such as density, cortical thickness, X-ray pictures were better D-deficiency indicators than BMC or plasma mineral levels. Plasma analysis never reflected accurately D-deficiency intensity, even if hypocalcaemia, hypophosphataemia, increased PTH and decreased CT concentrations in the plasma appeared in some, but not all cases. A 3-month D-deficiency caused a very large decrement of 25-OH-D³ and correlatively a decrease in intestinal CaBP. Vitamin D³ as SD³ (100 IU/day) restored the plasma 25-OH-D³ to normal levels, but did not change plasma PTH, Ca, P, or phosphatase concentrations or urinary hydroxyproline. Vitamin D³ was more effective on bone than SD³.

In binephrectomized pigs, hyperparathyroidism appeared after 2 days, but not concomitantly with hypocalcaemia which became apparent 1 day later.

The relative interest of plasma and bone parameters is discussed in relation to D-deficiency search for suitable indicators, and determination of the parameters used to determine vitamin-D requirement. Hormonal regulation of plasma Ca pigs is examined with special emphasis on PTH-1.25 DHCC interaction. Poor PTH reactions in relation to more sensitive variations of CT and occasional hypomagnasemia are mentioned.

Rectal prolapse in sows. Influence of pelvis conformation determined by goniometry

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In five pig herds, sows of the same origin suffered from rectal prolapse at farrowing. These sows were characterized by a particular pelvic conformation shown by measuring different angles of the pelvis. The measure of the angle between the coccygeae vertebrae and the pelvis appeared to be the best means to reveal the predisposition of sows to rectal prolapse: the larger the angle