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Dehydrated Alfalfa Meal for Brood Sows Kept Continuously on Concrete

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Confinement feeding of growing-finishing pigs has been increasing at a rapid rate during the past few years. Results of this method of feeding have indicated that pigs grow faster and require only slightly more feed than when fed on pasture. It is only natural then that the question has been asked as to whether brood sows too can be kept in confinement on concrete dry lot during their entire gestation and lactation periods.

Improved reproductive performance of sows has been reported when alfalfa meal was included in gestation rations that were not fortified with B vitamins. However, a lack of research exists on the value of dehydrated alfalfa in present day rations that are fortified with minerals, vitamins and antibiotics. The experiment reported here was designed as a long-term study in which the value of dehydrated alfalfa meal is being studied continuously from weaning through reproduction and lactation with swine that are confined to concrete dry lot.

Experimental Procedure

The forty-four gilts used in this trial had been fed rations containing four different levels of dehydrated alfalfa meal for weaning to market weight on concrete dry lot. As each gilt reached a weight of approximately 200 pounds she was placed on this experiment in the lot which received the same alfalfa level as she had been fed previously. The four levels of alfalfa were 0, 2.5, 5.0 and 10.0 per cent. The gestation rations shown in table 1 were hand fed at approximately 5 to 6 pounds per day. These rations contained approximately 15.5 per cent protein and were also fed during the pre-gestation period. Breeding was started in early November when the gilts were about 8 months of age. Gilts that did not conceive or did not come into heat after a two month breeding period were sacrificed and their reproductive tracts examined for abnormalities.

Approximately 5 days before the gilts were due to farrow they were brought to the farrowing house and placed in individual pens. They remained in these pens until the pigs were weaned at six weeks of age and the sows were returned to the gestation lots. The lactation ration shown in table 2 was hand fed twice daily at a level that the gilts received all the feed they would clean up.

During gestation each lot of gilts had access to an inside pen 14 by 20 feet with an adjoining outside lot 14 by 20 feet. The individual pens used during lactation were 8 by 8 feet. Floors were concrete in both gestation and lactation pens.

Table 1. Composition of gestation rations

| Lot                           | 1    | 2    | 3    | 4    |
|-------------------------------|------|------|------|------|
| Alfalfa level, per cent       | 0    | 2.5  | 5.0  | 10.0 |
| Ground yellow corn            | 42.5 | 41.5 | 40.5 | 38.4 |
| Ground oats                   | 42.5 | 41.5 | 40.5 | 38.4 |
| Soybean meal                  | 9.9  | 9.6  | 9.3  | 8.7  |
| Tankage                       | 3.3  | 3.2  | 3.1  | 2.9  |
| Dehydrated alfalfa meal       | --   | 2.5  | 5.0  | 10.0 |
| Dicalcium phosphate           | 0.6  | 0.6  | 0.7  | 0.7  |
| Limestone                     | 0.4  | 0.4  | 0.3  | 0.2  |
| Trace mineral salt            | 0.5  | 0.5  | 0.5  | 0.5  |
| Vitamin-antibiotic supplement | 0.3  | 0.3  | 0.3  | 0.3  |

Table 2. Composition of lactation rations

| Lot                           | 1     | 2    | 3    | 4    |
|-------------------------------|-------|------|------|------|
| Alfalfa level, per cent       | 0     | 2.5  | 5.0  | 10.0 |
| Ground yellow corn            | 67.0  | 65.2 | 63.6 | 60.4 |
| Ground oats                   | 16.75 | 16.3 | 15.9 | 15.1 |
| Soybean meal                  | 5.75  | 5.65 | 5.45 | 5.0  |
| Tankage                       | 5.75  | 5.65 | 5.45 | 5.0  |
| Linseed oil meal              | 3.0   | 3.0  | 3.0  | 3.0  |
| Dehydrated alfalfa meal       | --    | 2.5  | 5.0  | 10.0 |
| Dicalcium phosphate           | 1.0   | 0.95 | 0.85 | 0.75 |
| Trace mineral salt            | 0.5   | 0.5  | 0.5  | 0.5  |
| Vitamin-antibiotic supplement | 0.25  | 0.25 | 0.25 | 0.25 |

## Results

A summary of the results is shown in table 3. A marked difference in the number of gilts farrowing was observed. In Lot 1 four gilts did not conceive. Two gilts were never observed in heat. Examination of the ovaries of these two gilts indicated one to be non-functional while the other appeared normal. The other two gilts were both bred but did not conceive. One of these gilts was observed in heat and was slaughtered but the other gilt was never observed in heat and was retained in the experiment.

Only one of the gilts in Lot 2 did not come into heat. Her ovaries were cystic at time of slaughter. Three other gilts in this lot appeared to conceive with the first service but when they did not farrow they were slaughtered. All of these gilts exhibited ovary abnormalities which were probably the reason these gilts did not show heat periods.

All of the gilts in Lot 3 and 10 of the gilts in Lot 4 settled to the first service. One gilt in Lot 4 did not come into heat and her ovaries appeared non-functional at the time of examination.

Although the number of animals is small and definite conclusions cannot be drawn from one farrowing performance the following observations may be made:

1. Of the gilts allotted for breeding only 63.6% farrowed that were fed 0 and 2.5% of alfalfa while 100 and 90.9% of the gilts farrowed that were fed 5 and 10% of alfalfa respectively.
2. Number of pigs farrowed, live pigs farrowed, and number of pigs weaned were higher in the lot fed 10% alfalfa.
3. Individual weaning weights of pigs were higher from sows fed 0 and 2.5 per cent alfalfa. However, average litter weaning weights of sows fed 10% alfalfa was approximately equal to the average litter weights of those fed 0 and 2.5% alfalfa because of the difference in the number of pigs weaned.

Table 3. Dehydrated Alfalfa Meal for Brood Sows in Confinement

| Lot                                     | 1    | 2    | 3    | 4    |
|---|------|------|------|------|
| Alfalfa level, per cent                 | 0    | 2.5  | 5.0  | 10.0 |
| No. of gilts                            | 11   | 11   | 11   | 11   |
| Av. pre-breeding wt., lb. <sup>a</sup>  | 272  | 273  | 270  | 268  |
| Av. pre-farrowing wt., lb. <sup>b</sup> | 442  | 431  | 419  | 435  |
| Av. wt. at weaning, lb. <sup>c</sup>    | 419  | 410  | 405  | 389  |
| No. of gilts farrowing                  | 7    | 7    | 11   | 10   |
| Av. no. live pigs farrowed              | 7.7  | 7.0  | 7.8  | 9.6  |
| Av. no. stillborn pigs                  | 0.6  | 0.4  | 1.0  | 0.3  |
| Av. birth wt., pigs, lb.                | 2.91 | 3.02 | 2.93 | 2.84 |
| Av. litter size, 42 days                | 6.7  | 6.0  | 6.0  | 7.5  |
| Av. wt. of pigs, 42 days, lb.           | 22.4 | 22.6 | 19.1 | 19.7 |

<sup>a</sup> One week prior to the start of the breeding season.

<sup>b</sup> Approximately 5 days before farrowing.

<sup>c</sup> At end of 42 day lactation period.