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DDVP (Shell Dichlorvos) for pregnant sows

Abstract

Recent laboratory and research station reports have indicated that 2,2-dichlorovinyl dimethyl phosphate (DDVP) (Shell Dichlorvos) fed to pregnant sows late in gestation may have a favorable effect on the newborn pigs. This study was designed to attempt to measure that effect in terms of increased production or improved efficiency in a commercial herd. The commercial swine herd of Arnold and Bob Rose (Cawker City, Kansas) was used in this study which was financed by the Shell Chemical Company. The Rose herd is one of the larger outstanding commercial pork producing units in Kansas. For all practical purposes it is an S.P.F. herd although S.P.F. certification has not been maintained.; Swine Day, Manhattan, KS, September 26, 1968

Keywords

Swine day, 1968; Swine; DDVP (Shell Dichlorvos); Pregnant sows

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DDVP (Shell Dichlorvos) for Pregnant Sows

B. A. Koch, R. H. Hines, and G. L. Cowman

Recent laboratory and research station reports have indicated that 2,2-dichlorovinyl dimethyl phosphate (DDVP) (Shell Dichlorvos) fed to pregnant sows late in gestation may have a favorable effect on the newborn pigs. This study was designed to attempt to measure that effect in terms of increased production or improved efficiency in a commercial herd. The commercial swine herd of Arnold and Bob Rose (Cawker City, Kansas) was used in this study which was financed by the Shell Chemical Company. The Rose herd is one of the larger outstanding commercial pork producing units in Kansas. For all practical purposes it is an S.P.F. herd although S.P.F certification has not been maintained.

Procedure

The Roses' farrow primarily gilts in their operation. Gilts, marked as baby pigs, were taken from the growing-finishing lots and put into groups of approximately 100 and continued on a sorghum grain-soybean meal ration (fortified) which contained about 14% crude protein. They were fed between seven and eight pounds each per day until breeding time. Feed was scattered on a cement slab for each group by an auger system. No gilts were bred until they were past eight months of age.

At breeding time the gilts were divided into groups of approximately 15 head each. A boar was put with each group for 4 weeks. During that period the gilts and the boar had access to a self feeder for approximately eight hours every third day if they could pass through a gateway exactly 12 inches wide. Those that could not get through the opening were hand fed a small amount of feed. The system kept the gilts from getting too fat. It also kept the boar in breeding condition.

At the end of the four week breeding period the gilts were again gathered into large groups and fed at the rate of 5 pounds per gilt per day. They were continued on that feeding level in dry lot through the first half of gestation.

During the last half of gestation the pregnant gilts were divided into groups of 10 and placed in eight by sixteen foot pens in a confinement house. Four feet of floor at the back side of each pen was slatted. Feeding was continued at the 5 pounds per day level on the floor until the gilts were moved to individual crates in the farrowing house.

Starting 21 days before the first gilt in a group was to farrow, the gilts in every other pen in the gestation house received DDVP in their feed until they farrowed. The DDVP was fed at the rate of 800 mg. per gilt per day. Treated feed was mixed in the Grain Science and Industry Department under Dr. Pfost's direction. Each day ten pounds of treated feed (1 pound per gilt in the pen) was mixed into the feed for the gilts in a treated pen.

Between December 10, 1967, and February 22, 1968, the data listed below were collected on 244 litters (119 control and 125 treated gilts).

1. Individual pig identification (ear notch)
2. No. of pigs live-born per litter
3. No. of pigs still-born per litter
4. Deformities or abnormalities
5. Birth weight per litter
6. Litter weight when moved from farrowing house to nursery pen (also age).
7. No. of pigs per litter moved to nursery
8. Sow performance.

In an additional 76 litters all of the above data except weight was collected.

Six hundred seventy-five barrows from these litters were identified at slaughter in order to determine age at slaughter. All pigs in the study were sold to Cudahay Packing Company at Wichita at an average weight of approximately 230 pounds. Gilts were eliminated from the slaughter study because many were retained at the farm as herd replacements.

Results and Discussion

Data collected at birth and in the early phases of the life of the baby pigs are summarized in table 1. The data were entered on I.B.M. cards and submitted to statistical analysis. In no case was a significant difference between treated and untreated litters found.

Slaughter data are summarized in table 2. The 675 barrows represent animals from 121 control litters and 135 treated litters. No difference in slaughter age was found between barrows from treated and untreated litters. Slaughter age was considered as a legitimate measure of performance since all pigs went to market at approximately the same weight. Slaughter weight could also be obtained without interfering with the cooperator's operations at the farm.

Summary

Feeding low levels of DDVP to pregnant gilts for approximately the last 21 days of pregnancy did not have any apparent effects on pigs farrowed in this well-managed commercial herd.

Pigs from treated dams took as long to reach market weight as pigs from untreated dams. (669 litters were farrowed in this farrowing house between November 24, 1967 and May 31, 1968.)

Table 1. Data collected in the Rose farrowing house between December 10, 1967 and February 22, 1968

| Treatment Group | Untreated | Treated |
|--|-----------|---------|
| Total No. of litters | 119 | 125 |
| Pigs farrowed per litter | 9.1 | 9.0 |
| No. dead at farrowing | 0.26 | 0.17 |
| No. transferred out ¹ | 1.25 | 1.18 |
| No. transferred in ¹ | 1.33 | 1.34 |
| Av. birth wt., lb. | 3.04 | 3.01 |
| Av. age at turnout, days ² | 10.7 | 10.8 |
| Av. litter size at turnout, No. ³ | 8.3 | 8.5 |
| Av. pig weight at turnout, lb. ⁴ | 6.95 | 6.82 |

¹ In this particular operation pigs are transferred quite freely both to equalize litter size and size of pigs in individual litters.

² Turnout refers to age at which litter was moved from the farrowing house to the nursery house.

³ Includes pigs transferred into the litter.

⁴ Includes only pigs farrowed by that particular dam.

Table 2. Slaughter data collected on barrows from Rose herd.

| TREATMENT GROUP | Untreated | Treated |
|--|-----------|---------|
| Litters represented, No. | 121 | 135 |
| Pigs represented, No. ¹ | 316 | 359 |
| Av. slaughter age, Days ^{2,3} | 203.6 | 203.7 |
| Min. slaughter age, Days | 168 | 162 |
| Max. slaughter age, Days | 251 | 253 |

¹ Average slaughter weight was approximately 230 pounds.

² All barrows listed were slaughtered between June 20, 1968 and August 22, 1968.

³ Analysis of Variance

| | D.F. | S.S. |
|------------------|------|------------|
| TOTAL | 674 | 104,692.65 |
| TREATMENT | 1 | 1.27 |
| WITHIN TREATMENT | 673 | 104,691.38 |

NO SIGNIFICANT DIFFERENCE IN AGE