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Nearly everyone raising pigs is aware of the high mortality rate of baby pigs during the first few days of life. It is estimated that 25 to 30 percent of all live pigs die before reaching market weight. Most of these die in early life. Approximately 75 percent of all baby pig deaths were due to three general causes: (1) small and weak pigs, (2) chilling, and (3) overlaying by the sow.

The economic loss due to the death of these pigs is overwhelming. If each good pig is worth five dollars and roughly 20 to 30 million newborn pigs are lost each year in the United States, the loss is probably greater than 100 million dollars a year. New farrowing barns with modern farrowing stalls and slotted floors have been the trend in recent years, but the national average number of pigs marketed has been slightly over seven pigs per litter consistently for a period of years. This does not mean that some equipment has not helped reduce baby pig losses, but it does point out that the over-all effect on the number of pigs raised per litter has been generally less than anticipated. Therefore, the problem of losing good pigs shortly after birth is far from solved.

Two years ago a program was initiated to study the effects of temperature and milk injection into the stomach of the newborn pig on the survival of pigs. The early results of this program are reported herein.

Experimental Procedure

A total of 128 litters (1049 pigs) have been used to date. Sixty-four litters were tested at 70° F. temperature and 64 litters were tested at 80° F. temperature in the farrowing crate. The minimum room temperature was 60° F. and heat bulbs were adjusted to keep the temperature in the resting area at the proper temperature.

After the pigs were born, they were permitted to stay with the sow and nurse the colostrum milk. Pigs were ear notched, weighed and the needle teeth were removed before the treatment was started. All even numbered pigs were treated with the milk mixture. Pigs were given two doses of 15 cc. per dose on the first day and one dose of 20 cc. on the second day and one 20 cc. dose on the third day.

A 20 cc. syringe with an attached 1/16 inch diameter rubber hose was used to feed the milk. Pigs were held vertically by their head and their jaws were forced open with fingers and thumb. The rubber tube was directed down the esophagus to the stomach. After the tube was in place, the milk was put into the stomach by pressing the plunger on the syringe.

The milk mixture contained one quart of milk, one-half pint of half and half (a product made with 1/2 milk and 1/2 cream) and one egg. This mixture is similar to sow's milk in water, protein and fat content. The milk mixture was stored in a refrigerator and then the proper quantity of milk was warmed to body temperature prior to feeding.

Results

A summary of the data is shown in table 1. The 80° F. temperature appeared to be only slightly better than the 70° F. temperature for baby pig survival. The pigs appeared comfortable in both treatment groups, so the difference in temperature was probably too small to measure a difference in survival.

The milk feeding had an important effect on pigs weighing less than 2.5 pounds. A higher percent of these pigs survived in both temperature groups. Milk treatment did not improve survival of heavier, stronger pigs, but it was thought that some larger, weak pigs benefited from the milk. Based on the survival values, these pigs probably would have survived without the treatment, but they had a better start with the treatment. There was a relationship between survival and the strength of the pigs. A strength score was not used on each pig, but the stronger pigs, regardless of size, had a better survival rate. The milk treatment saved some pigs, but some died too, so more research is needed on this treatment.

Table 1. Effect of Temperature and Milk Injection on Survival

Birth weight lb.	70° F.		80° F.	
	Non-injected %	Injected %	Non-injected %	Injected %
0.7	0	0	0	1
1.0 - 1.4	10	20	12	27
1.5 - 1.9	23	28	23	36
2.0 - 2.4	47	65	43	71
2.5 - 2.9	65	70	69	74
3.0 - 3.4	80	81	80	85
3.5 - 3.9	85	83	88	92
4.0 or more	92	88	90	92

Discussion

Every newborn pig has a different background. The major differences, such as dead or alive, are easily observed, but there are many small and unrecognizable differences, too. Recognizing the condition of the pig and then providing the correct care and treatment for the pig is the key to saving pigs.

The loss of body heat and the lack of energy are two important stresses on many pigs after birth. When either stress becomes too great, the pigs start chilling and may never attempt to nurse again. A chilling pig is in a spiral toward death, thus quick treatment is needed to warm the pig and give him some

energy. Body heat loss is rapid at birth because the pig is wet and he is put in a cooler environment. Drying the pig and placing him in a warm area helps conserve his heat and energy. If he has sufficient energy he will nurse and drink the colostrum milk. However, if he misses a feeding on the first, second or third day of life, he may start chilling and eventually die. The task to prevent this lack of energy is to put energy into the pig. Putting energy into a newborn pig is a task and the solution is not simple. The use of artificial nipples and placing high energy solutions in the pig's mouth have not been successful for the average person. Injection of glucose into the body cavity of the pig has been used with some success. The technique used in this experiment appears to be an excellent way of putting milk or other ingredients into the stomach of newborn pigs. It is fast, simple and does not appear to harm the pig. The danger of getting milk into the lungs is minimized by placing the end of the tube near the entrance of the stomach. This method is probably less harmful than trying to force-feed a liquid by some other technique. The flexible rubber tubing is easily inserted into the mouth, throat and esophagus.

The technique does require some time for the entire procedure. However, most of the time is used to heat the milk and catch the pig. One person can give the milk to the pig. We place the syringe in a clamp on an appropriate stand. The tube is placed into the milk and the proper dosage is drawn into the syringe. The tube should be full of milk at the time of insertion into the mouth.

The pigs saved are not necessarily the runt-type pigs. They generally grow as fast as any other pig. Research at the Oregon Experiment Station showed that smaller pigs may take more time to reach market weight, but their daily gains are satisfactory and their efficiency of feed utilization is about equal to other pigs.

We are not completely satisfied with results in this trial and we think more pigs will be saved in the future. More research is needed on the number of feedings and quantity to feed. Stimulants with the milk may be beneficial in some cases. Also, the experimental design did prevent treatment in certain cases. Some previously treated pigs were observed chilling and may have benefited by a milk treatment, but another treatment was not permitted because of the experimental plan.