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Much interest has been shown in the possibility of rearing newborn pigs using an automatic feeding device. Pig brooders have been developed in the past few years that will feed a dry milk product and water on a scheduled time basis.

It has been claimed that pigs can be removed from the sow at an early age and reared in a pig brooder. This would allow removing pigs from small litters, extra pigs from large litters, or pigs from sows that may not milk or become sick. Therefore, it would seem possible to save more pigs and reduce mortality as there would be no overlaying or starvation loss with pigs reared in this way.

The experiment reported herein was conducted to study the problems involved in rearing pigs in an automatic feeding pig brooder and to study the effect of age of the pig at the time of removal from the sow on survival and growth in the pig brooder.

Experimental Procedure

Two experiments have been conducted using a 36 unit Mini-Mor pig brooder as the experimental unit. Each pig receives a specific amount of commercial milk replacer and water every 90 minutes. The milk replacer and water were fed together for three days and then the dry milk and water were fed in separate feeder cups until the pigs were removed from the machine at 3 weeks of age. A dry pig starter diet was fed by hand in a third feeder cup after the pigs were 7 days of age.

Thirty-two pigs, eight from each of four litters, were used in trial 1. Pigs were removed from the sow at birth and after eight pigs had been farrowed they were put with the sow to nurse. Two pigs from each litter were removed at 0, 6, 12 and 18 hours after receiving colostrum and placed in the pig brooder. It should be noted that 0 hour pigs were allowed to nurse approximately 20 minutes. The 18% protein pig starter diet used in this trial is shown in table 1.

Trial 2 was conducted with another 32 pigs from four litters. In this trial pigs were removed from the sow at 6, 12, 24 and 48 hours. A 20% protein starter diet was used in this trial. Other feeding and management conditions were similar to trial 1.

Results

Trial 1

Survival rate varied according to the age of pigs at the time they were removed from their dams and placed in the pig brooder. Only 37.5% (3 of 8 pigs) of the pigs that received colostrum for one nursing survived to 21 days of age. Fifty percent of these pigs had died by 7 days of age. Pigs removed after six hours on the sow had a survival rate of 62.5% and those removed at 12 and 18 hours had 87.5% survival (7 of 8 pigs).

The average weights of pigs at various time intervals from birth to 21 days are shown in table 2. There was no great difference in weight of pigs between treatments. However, all pigs were considerably lighter in weight, averaging only 5.3 lb., than the average weight of pigs nursing their dams for 21 days.

Trial 2

Survival rate again varied according to the age of pigs at the time they were placed in the pig brooder. Those pigs receiving colostrum for six hours had a survival rate of 21 days or 75% (6 of 8 pigs). Pigs removed at 12 or 24 hours had a survival rate of 87.5% (7 of 8 pigs). However, pigs put in the pig brooder after being allowed to nurse 48 hours had a survival rate of only 62.5% (5 of 8 pigs). No explanation can be offered for the greater death loss of the other pigs. In all lots all death losses occurred before 7 days of age.

The 21 day weights, as in trial 1, did not vary significantly between treatments. Twenty-one day weights were slightly better than in trial 1, but the average weight of 5.7 lb. is much too light for 21-day-old pigs.

It was also noted in trial 1 that pigs needed to be changed from liquid milk replacer to dry milk replacer at 3 days of age to prevent major scouring problems. In addition, drafts of any kind will cause a greatly increased incidence of scouring and deaths. This is particularly true of pigs on the lower deck of the machine. These pigs are closer to the floor and become susceptible to drafts caused by simply opening a door. They are also subjected to greater temperature variation at this lower level which creates another stress. Therefore, the survival rate of only 68.7% and light 21-day weights reflect the problems mentioned above. Presumably, with removal of these drafts and temperature variations, the survival rate and weights at 21 days might be improved.

Other problems that were noted included an apparent need for the availability of more water and a self-fed source of the prestarter diet. Genetics may also play a role in the ability of the pigs to survive on the machine. Pigs from different litters appeared to show a difference in their ability to adapt to the machine.

Health and sanitation can play a major role in the success of the pig brooder. Pigs coming from litters that are beginning to scour at an early age can pass the problem on to every pig in the brooder. Traffic in and out of the brooder area can also increase disease problems and needs to be kept to a minimum. Strict sanitation should be maintained from the start with each group of pigs raised in the brooder. Wet, dirty facilities can harbor diseases or cause the start of serious scouring problems.

Summary

Sixty-four pigs were used in two trials to study the rearing of young pigs in an automatic feeding pig brooder. Even though the numbers are limited, preliminary results would tend to indicate that young pigs have the best chance of survival if placed on the machine at 12 to 24 hours after first receiving colostrum. Survival rate for pigs placed in the brooder between 12 and 24 hours was 87.5%. The major problem now appears to be in getting the pigs to a heavier 21-day weight and as a result an earlier age at 200 to 240 lb.

Table 1. Composition of Starter Diets (Percent)

Ingredients	Diets	
	18%	20%
Ground yellow corn	72.0	34.0
Soybean meal, 48.5%	24.0	22.0
Oats, rolled	--	25.0
Skim milk, dried	--	10.0
Sugar	--	5.0
Dicalcium phosphate	1.9	1.4
Limestone	0.5	0.7
T.M. salt, 1% zinc	0.5	0.5
Vitamin premix[a]	+	+

[a] Provided per lb. of diet: 1700 I.U. vitamin A, 178 I.U. vitamin D, 1.25 mg. riboflavin, 5 mg. calcium pantothenate, 10 mg. niacin, 50 mg. choline, 7.5 mcg. vitamin B_{12} and 125 mg. of ASP 250.

Table 2. Average Weights of Surviving Pigs at Various Time Intervals (Trial 1)

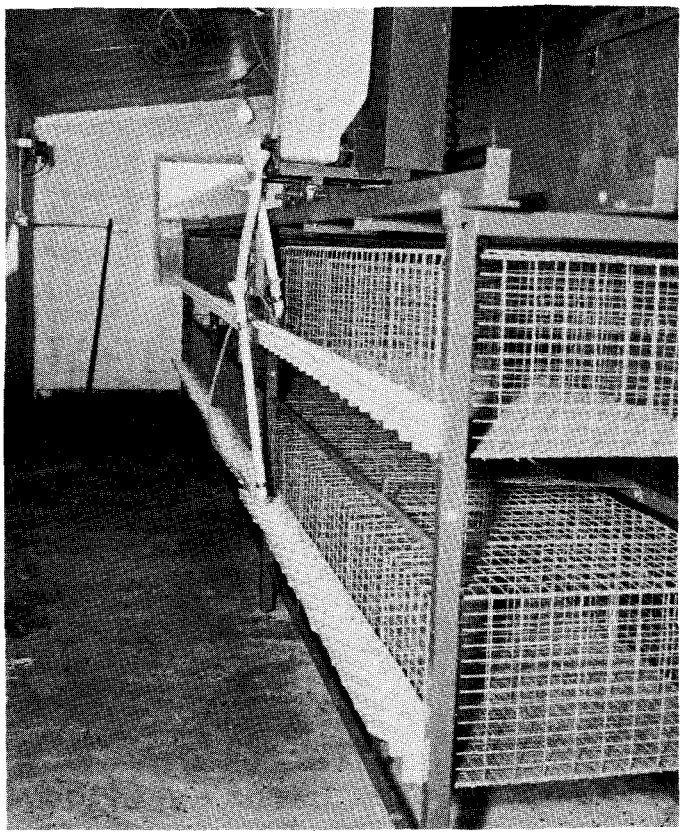
	Age (hours) when removed from sow			
	0	6	12	18
Birth weight, g.	1226 (8)[a]	1216 (8)	1261 (8)	1267 (8)
Weight, 2 days	1228 (7)	1249 (6)	1331 (8)	1349 (8)
Weight, 7 days	1702 (4)	1730 (5)	1497 (7)	1584 (7)
Weight, 14 days	1899 (4)	2228 (5)	1920 (7)	1965 (7)
Weight, 21 days	2453 (3)	2608 (5)	2282 (7)	2314 (7)

[a] Number in parenthesis denotes number of pigs surviving at time various weights were taken.

Table 3. Average Weights of Surviving Pigs at Various Time Intervals (Trial 2)

	Age (hours) when removed from sow			
	6	12	24	48
Birth weight, g.	1324 (8)[a]	1359 (8)	1391 (8)	1366 (8)
Weight, 7 days	1580 (6)	1607 (7)	1611 (7)	1670 (5)
Weight, 14 days	1993 (6)	2029 (7)	1922 (7)	2019 (5)
Weight, 21 days	2562 (6)	2721 (7)	2575 (7)	2615 (5)

[a] Number in parenthesis denotes number of pigs surviving at time various weights were taken.



Artificial pig rearing unit as described in this article.

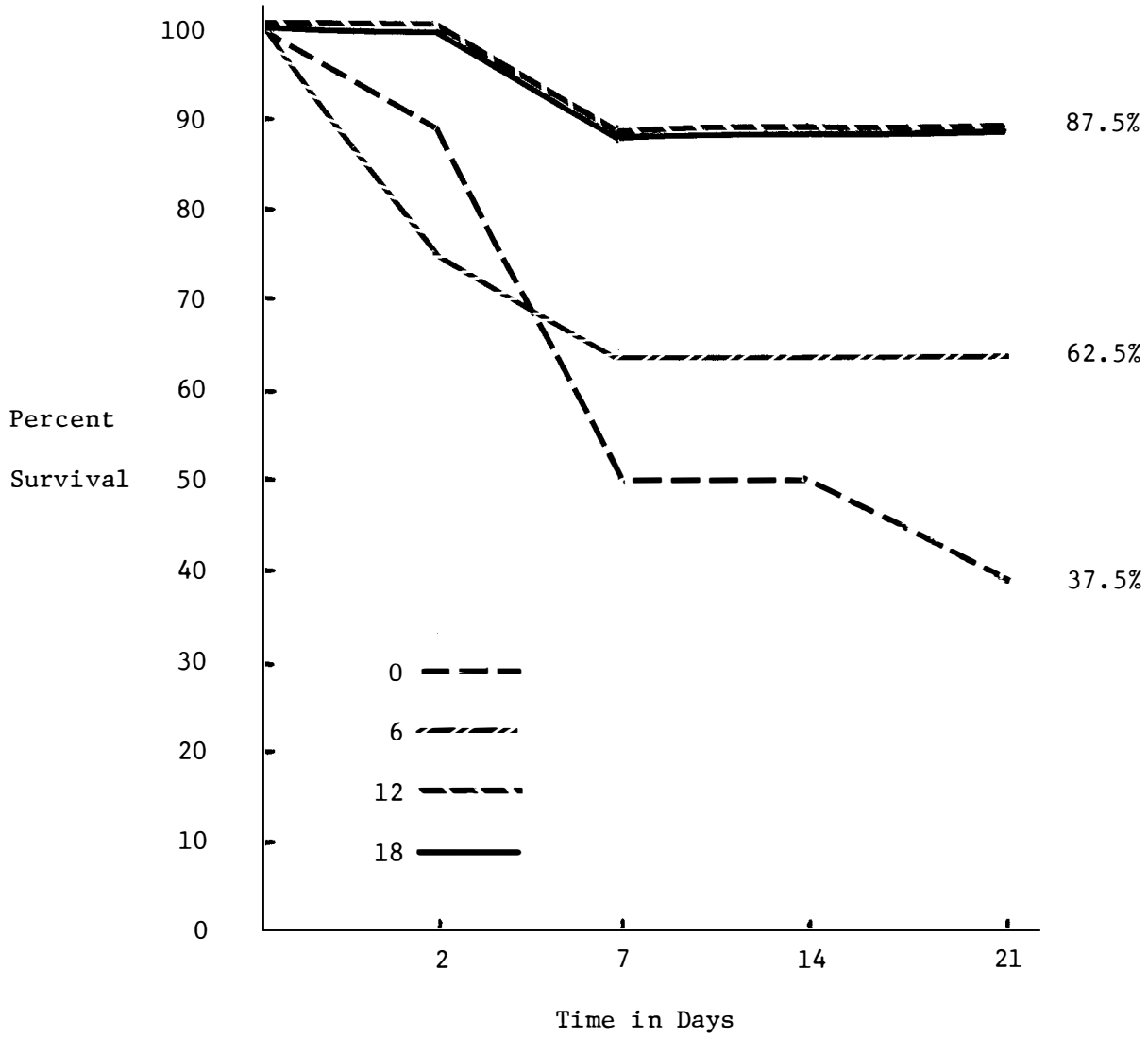


Figure 1. Percent survival at various time intervals.