

Piglet pre-weaning mortality (PWM) is a critical factor affecting herd productivity in the swine industry. Understanding the elements that influence PWM is vital for enhancing animal welfare, minimizing production losses and boosting profits in commercial herds.

This article focuses on non-infectious factors contributing to PWM and provides practical strategies for farmers to reduce piglet mortality.

What are key factors influencing piglet pre-weaning mortality?

1. Piglet

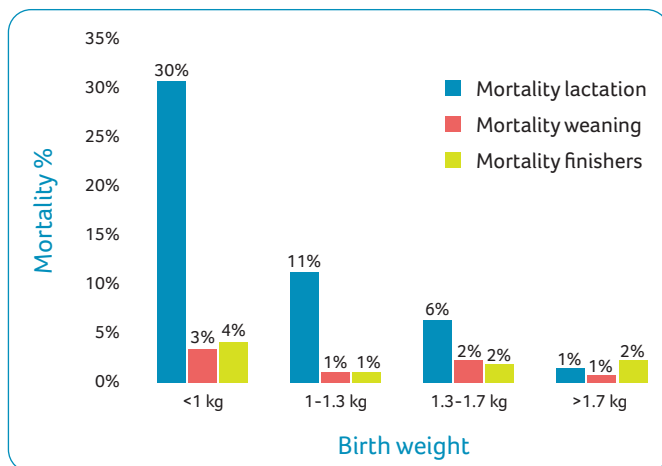
Birth Weight:

Birth weight is crucial for piglet survival, directly affecting their ability to regulate temperature and growth. As litter sizes increase, birth weights often decrease, leading to a higher percentage of piglets weighing less than 1 kg. These smaller piglets are more prone to diseases and starvation due to insufficient colostrum intake.

Vitality and Growth:

Piglet vitality at birth correlates with survival and growth during farrowing and later life (see fig 1). Male piglets are generally more susceptible to mortality factors than females.

Figure 1:



SOURCE: PIG333

2. Sow

Body Condition and Environment:

A sow should have a good body condition at the end of gestation, adequate nutrition, hydration and a low-stress environment to produce high-quality colostrum. Newborn piglets are highly dependent on colostrum because they will be born without immunity. The placenta of a sow does not allow the passage of immune cells to the piglet(s) inside the uterus.

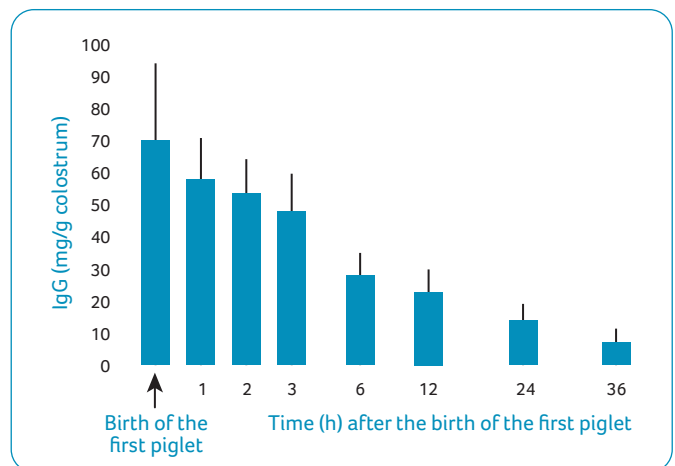
Colostrum Intake:

The two major roles of colostrum are to provide the piglet with energy for their thermoregulation, metabolism and growth and with passive immunity to prevent infections. The first suckling of a piglet usually occurs around 20 min after birth. Piglets must consume about 160 grams of colostrum per kg of birth weight to survive. Factors like birth weight, birth order and litter size influence colostrum intake. Heavy piglets at birth are more competitive at the udder than lighter piglets. The firstborn piglets will drink the best colostrum. Most losses (50-70%) of piglets occur in the first 48 hours after birth. There are many studies that show that a lack of a regular and adequate intake of colostrum is likely to be the underlying cause. (Dycks and Swierstra, 1987; De Passillé and Rushen, 1989; Edwards, 2002; Damm et al., 2005)

Colostrum to Milk Transition:

The first 24-36 hours after birth, the quality and quantity of colostrum decrease and change to milk. Compared to milk, colostrum has more dry matter, protein, bioactive components (Ig G and Ig A) and less fat and lactose. (See fig 2). At the same time is the resorption of immunoglobulins IgG and Ig A through the intestines limited to 6-12 hours after birth. The resorption of Ig G happens the first 6 to 8 hours after birth. That is the reason to support new-born piglets with their colostrum intake as soon as possible and if needed. This can be done using different management tools (i.e. partial suckling; removing the biggest piglets to a foster sow; separating heavy from the smaller piglets in the same litter for 1 hour, etc.)

Figure 2:



MMA Prevention:

Prevention of MMA in sows is crucial to decreasing pre-weaning mortality. The use of a painkiller in combination with an antimicrobial will decrease the fever of the sow. The sow will become more active and provide better colostrum and later milk to the piglets. Piglets with a good colostrum intake are less susceptible to diseases and perform better later in life (see fig. 1). The sow herself is the main factor accounting for variability in colostrum production. Young sows' colostrum quality and/or

quantity can be different from older sows. This can be a reason that piglets of a gilt are more susceptible to, for example, diarrhea or other diseases than piglets of older sows. The sow's comfort is important for reducing maternal stress. Around farrowing, stress might have a negative impact on the offspring's development and increase the risk of crushing. Place the sow at least 5 days before the expected farrowing date from the gestation to the farrowing house. The sow needs time to adapt to the new situation (e.g., feed changes, different environment, hormonal changes). Sows at the beginning of the movement to the farrowing house may stop eating due to the hormonal changes inside their body and the stress. To minimize this, create a convenient environment with enough water and adapted feed before the birth process starts. The sow must be calm and in good body condition before the birth process. The sow's nutrition during gestation will influence fetal development and piglet birth weight and this is crucial to ensure proper colostrum/milk production.

3. Environment

The ambient temperature has an important impact on piglet survival because piglets are extremely sensitive to temperature fluctuations. The housing system used in the farrowing room can influence the incidence of crushing. Newborn piglets must have the possibility to lay far from the mother in a separate nest where the temperature is different from where the mother lies. Using separate fans before the sow can help to increase the feed intake of the sow. Feed intake before and during the farrowing period is particularly important for good milk production later. Different management strategies to deal with PWM are usually performed around farrowing.



Fostering Piglets: Best Practices

Timing:

The ideal time to foster a piglet is as soon as it is born or within six hours. This procedure is often adopted to even up numbers across litters and birth weights when sows are farrowing at the same time. If piglets are moved within this period to another

sow that is at a similar stage, there should be no problems with incompatibility or colostrum intake. The second period is when surplus piglets are being collected to make a fresh litter. The piglets should not be moved from the sow until at least 6 to 8 hours after farrowing, when they have had a minimum of four 40-minute periods of uninhibited access to the teat. This ensures they have had maximum colostrum intake because the fostered pigs are going to be moved to a sow that will be suckling a litter approximately 4 to 5 days of age, and there will be no colostrum anymore. The age factor of 4-5 days is important to have successful fostering. It is also essential that only the biggest pigs are fostered forward to make up a fresh litter.



Procedures:

1. Mix the sow's own litter and the foster one in the creep and hold them there for approximately 30 minutes.
2. Move the sow's 5-day-old litter forward to a sow suckling a litter of 10 days of age and repeat the mixing process. This acclimatization is a necessary technique because the piglets are allowed to intermingle and make the foster litter much more acceptable to the sow.
3. The 10-day-old litter is moved to a sow suckling at 15-17 days of age and repeat step 2.
4. The 15-17-day-old litter is weaned early and there is no loss in non-productive days or increase in lactation length.
5. For disease control purposes, it is best to use isolated farrowing pens.
6. It is best to give the piglets a long-acting antibiotic at the time of movement because they are disadvantaged and susceptible to infections.

Sow Selection and Management:

The success of fostering depends on the number of days the foster sow has been suckling. Keep the age disparity between the foster litter and the sow's own litter within 4 to 6 days. Always select a sow with a good teat profile. Gilts or second parity animals are the best.

The Sow's Udder:

Carefully check the foster sow's udder and the quality of the piglets that are suckling. If there are twelve good pigs suckling, then that sow will receive twelve foster pigs.

Water Availability:

Whenever a litter is fostered, always make sure there is clean, fresh water available for the piglets. Sometimes, the sow may be reluctant and slow to accept the fostered litter and piglets quickly become dehydrated.

Movement and Disease Control:

Wherever possible, always foster within the farrowing houses or into a farrowing house with older pigs. Moving the piglets back into younger age groups is bad due to the risk of spreading disease.

Culled Sows:

Sows due for culling can be used for extra suckling. By removing these sows out of the mainstream of the farrowing houses, they do not interfere with the important all-in-all-out procedures.

Conclusion

Reducing pre-weaning mortality is essential for maintaining a productive and profitable herd. By focusing on proper management of piglet and sow factors and ensuring a suitable environment, farmers can significantly decrease PWM rates. Implement the strategies discussed in this article to enhance the welfare and performance of your piglets.

For further questions or to share your experiences, feel free to reach out.



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