



## TAKE HOME MESSAGES:

1. As the industry selects for larger litter sizes, the incidence of stillbirths and mummified piglets increases due to uterine crowding and prolonged farrowing duration.
2. Proper management and oversight of the sow before, during, and after farrowing can reduce the risk of loss from stillborn piglets.

## What has caused an increase in stillbirth rates?

As the industry genetically selects high prolificacy in sow reproductive performance, an increase in stillbirths has occurred. This effect is due to a longer farrowing duration, lower birth weights, increased cases of uterine inertia, farrowing stress, and a variety of other factors. Current farrowing environments do not allow for sows to root and nest as a method to decrease their cortisol levels and increase oxytocin secretion for an efficient farrowing process. Spikes in cortisol levels can also be due to heat stress in the farrowing house. Studies have also shown that the farrowing duration of anemic sows (below 10 g/dL HbC) is twice as long as nonanemic sows, thus increasing the incidence of stillborn piglets (McClellan et al., 2024). It is important to identify factors that can reduce farrowing interval to minimize stillbirths and protect sow reproductive health.

## Identification of stillbirths and mummies

There are several ways to identify stillborn piglets and mummies, as well as what caused the impairment. Stillbirths are classified as piglets that die during or after the farrowing process. This typically is caused by asphyxiation due to their blood supply from the placenta being cut off by uterine contractions. The color of stillborn piglets can also offer insight into the timing of death. Discolored piglets likely died during farrowing when uterine contractions fractured the fluid filled sac that surrounds the fetus and contains fetal waste (Figure 1).

Mummies are considered fetuses that die between days 40-100 of pregnancy. They have a mummified appearance because they were partially decomposed and absorbed in the sow after they died, and before cartilaginous tissue was formed (Flowers, 2017). If mummified fetuses are similarly sized, it can be assumed that it was caused by an acute stressor such as fighting sows and heat stress. However,

if there is variation in sizes, this can be caused by chronic stressors including Porcine Parvovirus (PPV). Mummification can also be caused by a large, crowded litter which restricts the space needed for a fetus to develop (Foetal death and the mummified pig, 2018).

Mummies and stillbirths are also caused by various bacterial and viral infections such as Porcine Parvovirus (PPV), Pseudorabies, and Porcine Reproductive and Respiratory Syndrome (PRRSV).

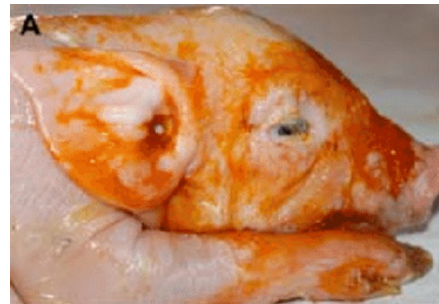


Figure 1. Piglet born through severe meconium-stained amniotic fluid (Martinez-Burnes et al., 2019)

## Farrowing best management practices to reduce stillbirths

### *Pre-farrowing*

1. Sows that have had stillbirths in previous farrowings are more likely to have stillbirths again in the future. Flag and closely monitor these sows before and during the farrowing process.
2. To reduce risk of constipation during farrowing, consider feeding a laxative 3-7 days before farrowing
3. Handle the sows gently during the loading and movement process
4. To reduce heat stress, consider sprinkling water on sows during high temperatures. The ambient temperature in the farrowing house should be around 70° F (21-22°C).

### During Farrowing

1. Observe the sow and her behavior once farrowing commences and record the time, number of liveborn and stillbirths, and times the sow was checked on
2. Typically, the sow should be able to complete the process on her own in the early stages, if she is not showing signs of discomfort or difficulties
3. After 6-7 piglets have been born, allow for 20 minutes after the last piglet (or a stillborn) has been expelled before assistance is given
4. Utilize good hygiene practices when assisting during farrowing. Use warm water and a mild antiseptic, as well as OB arm sleeves with obstetric gel for lubrication.
5. Pull the piglets carefully, making sure not to cause any uterine or cervical tears. When the fetuses are expelled, remove fetal membranes and place under a heat lamp.
6. If a sow was assisted during farrowing, consult your veterinarian about the need to administer a long-acting antibiotic and closely monitor the sow after farrowing is completed.

### Post-farrowing

1. Make sure the sows are getting up to eat at least twice each day after farrowing.
2. Assess if the sow is at risk or suffering from disease by observing lethargy, vaginal discharge, loss of appetite, or fever. At risk sows include sows that were assisted in labor, obese, had multiple stillbirths, experienced acute stressors, or had a prolonged farrowing duration.
3. In the case of uterine inertia, piglets may be retained in the sow, causing a risk for infection, so treatment with antibiotics may be necessary.
4. The placenta should be expelled within 4 hours after farrowing is finished. In the case of a retained placenta, oxytocin and an antibiotic may be given to stimulate contractions in order to expel the placenta and fight infection.

## Nutrition to optimize sow reproductive health

Proper nutrition can have a large effect on the reproductive health of the sow and the farrowing process. It is important to properly feed the sow during gestation to provide enough energy for maintenance and embryotic growth while also keeping appropriate body condition. Obesity can increase the length of farrowing (Figure 2) by storing hormones that slow the release of oxytocin, thus delaying

uterine contractions. Conversely, a sow with a low BCS and a severe energy deficit can result in low birth weights and weak piglets. Additionally, constipation can negatively impact farrowing time. Constipation can obstruct the pathway of the fetus, create an inflammatory response, or cause pain and discomfort which leads to inhibitory hormone secretions.

Another key factor of nutrition is the calcium level of the sow. Maintaining calcium homeostasis is critical for parturition because it partners with oxytocin in the smooth muscle of the uterus to help it contract. Additionally, it is vital for colostrum supply closely following parturition interval to minimize stillbirths and protect sow reproductive health.

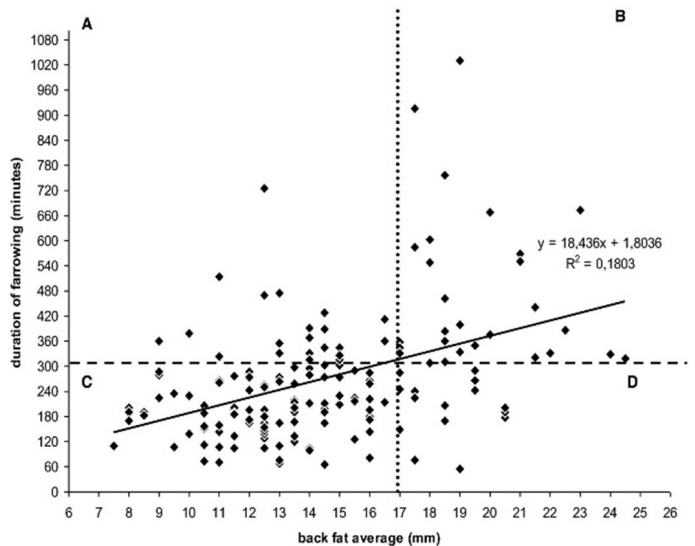


Figure 2. Individual sows plotted according to back-fat average and the duration of farrowing. The horizontal dashed line distinguishes prolonged farrowings (>300 min; areas a and b) (Langendijk & Soede, 2023).

## Conclusion

Minimizing mummified and stillborn piglets is important to the overall productivity of an operation. Decreasing stillborn piglets in the farrowing house by just 1% could save producers \$0.40 per weaned pig, equating to \$12.00 per sow annually (How to Improve Pre-Wean Survivability, 2024). There are many management strategies to maximize sow health and liveborn piglets, so it is important to choose methods that best suit the specific operation. Regardless of the procedure, keeping the environment stress-free and staying observant while farrowing is critical to ensure sow and piglet well-being.

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