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Popular Article

Indication of low viable piglets and check point for their management

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Introduction

Pre-weaning mortality rates in piglets range from 12 to 25%, primarily due to crushing and starvation. There is a general agreement that crushing is the principal cause of piglet pre-weaning death, with chilling and starvation as underlying causes. Infectious causes of death are mainly occurred due to respiratory and diarrheal problems. On average, 50–80% of piglet's deaths occur during the first week after birth, with the most critical period being the first 72 hours of life. Piglets delivered alive with low birth weight, limited viability, or poor postnatal survival prospects can be the result of intrauterine competition for nutrition. The factors related to maternal effects may be kinds of posture alterations or ways of sitting down for suckling of piglets results to its crushing of piglets. Raising piglets with low viability is a highly challenging problem for pig producers. Large litter sizes, within-litter weight variation, low birth weight, longer birth duration, birth late in the birth order, decreased colostrum intake, inappropriate thermoregulation during the winter, health, and sow behavior are all directly and indirectly linked to lower survivability.

Before and during farrowing

Genetic selection techniques to improve a piglet's natural viability include increasing the litter size, birth weight, neonatal vigor, and thermoregulatory capacity. These traits lead to larger litter sizes and lower piglet mortality. An inadequate feed supply in the period prior to farrowing will lower the birth weight, number of mammary cells, and potential for milk production. Pre-farrowing nutrition determines milk output during the first week of lactation;

4161



after this point, reduced feed availability during lactation can alter milk output. For the 2 weeks before the anticipated date of mating, all gilts should be given feed 3-0 kg/day in an attempt to maximize the ovulation rate and subsequent litter size. Extra care provided to weak piglets right after birth can lower postnatal mortality. Supervision during parturition and interventions in cases of prolonged inter-birth intervals can significantly lower the incidence of stillbirths. The provision of suitable thermal microclimates to prevent hypothermia, the presence of stockpersons during farrowing to enable early and adequate ingestion of colostrum by all piglets, and skilful cross-fostering to ensure the early establishment of litters of appropriate size and uniformity are all essential factors for low mortality of piglets.

Restrictive farrowing environments and increased litter size (sows giving birth to more than 16 piglets) are associated with sow's fatigue, stress, prolonged farrowing (> 300 min), and a high inter-piglet birth interval (> 20 min). Very small piglets and "giant" piglets are equally vulnerable in such a condition, even though the heavier piglets are frequently more hypoxic than small piglets due to farrowing complications. Asphyxia, which occurs in piglets born later in the farrowing process, lowers their colostrum consumption and further vitality.

Intake of colostrum based on weight gain in piglets in the first twenty-four hours of life is crucial. Piglets typically consume 250–300 g of colostrum per day in the first 24 hours after birth. Intake varies greatly, from 0 to more than 700 g/day. When piglets consumed more than 200 g/day of colostrum, the mortality rate was as low as 6 to 8%; however, when they consumed less than 200 g/day, the rate rose to 35-50%. During the first 24 hours following birth, colostrum consumption increases with the body weight gain of piglets. An average weight gain of 50 g/day can be achieved with 250 g/day of colostrum consumed. Nevertheless, the energy supplied was insufficient to support piglet weight gain when intake was less than 140–150 g. Since the number of working teats of sow often decreases the size of the litter, management strategies such as split nursing to guarantee colostrum intake to suckle extra piglets, **assisted and direct colostrum intake** with a syringe without a needle in two to three doses of 15-20 ml during the first hours after delivery are highly desirable.

Inability to access the most productive teats causes piglets to grow slowly and may starve as they consume less milk and unable to establish teat fidelity. Because of these competitive effects, low-birth-weight piglets, despite their natural vigor, run the risk of starvation unless litters are managed well (e.g., by cross-fostering). Pigs are especially susceptible to chilling because of their high surface-to-volume ratio, which causes rapid loss of body heat. Drafts in the farrowing unit can quickly cause hypothermia in them because they



are born wet. Furthermore, brown fat responsible for maintains body temperature in animals during cold environment, is absent in pigs.

Environment

Using an infrared lamp, ensure that the room temperature of the new-born piglets is 32–35 °C and is located 45 cm above the ground. The lower critical temperature for piglets is 34°C. The baby pigs are on their feet within minutes after birth. Each piglet should be rubbed carefully, dried with a cloth, and put for suckling. The environment influences these heat loss processes in addition to behavioural and physical factors. Piglets that were in contact with a concrete floor lost 40% more heat than those that were insulated by bedding material, such as straw buried 2.5 cm deep. Low birth weight, along with increased air velocity and low ambient air pressure, increases relative evaporative losses because of a higher relative body surface area. When a new-born piglet is trying to establish itself at the udder, competition from siblings can be fierce, especially in very large litters. During the competitive scrambling for teats at milk let-down, piglets may get wounds from their siblings' teeth or from the rough floor. Piglets with low birth weights, even with their natural energy, run the risk of starvation. Thus, as a predictor of survival, within-litter variation in birth weight may be more significant than individual birth weight.

Health

The skin lesions in piglets are probably a result of contact with the concrete floor and repeated rubbing of the limb on the floor during suckling. The high prevalence of skin lesions in suckling piglets is due to extremely soft tissue. Most of the farmers use concrete flooring in farrowing pens. As a result, skin lesions as well as sole and soft heel erosions are commonly seen among suckling piglets. The newly born pig has a small amount of reserve iron in their body (50 mg in the liver) as well as a low or poor source of iron from mother milk, which is unable to provide 5–10 mg/daily of iron. Iron is essential for haemoglobin production. This factor, along with the high growth rate of piglets, lead to a decrease in haemoglobin and the degeneration of liver. The piglet becomes dull-inactive, lacks vigor, has dyspnoea, depression, a rough coat, thin skin over the neck and mucous membrane are pale, wrinkles are found over the legs, diarrhoea, and dies suddenly. Prevention of this condition in piglets can be done by following the following practices:

1. Add small amount of Fe and Cu in pig diet at the rate of 25mg of Fe, 5mg of Cu/day/pig.
2. FeSO₄ 3.6 ounces (1 ounce 30 ml) & Water 5 quarts (1 quart 40 ml). Feed 1 gm daily.



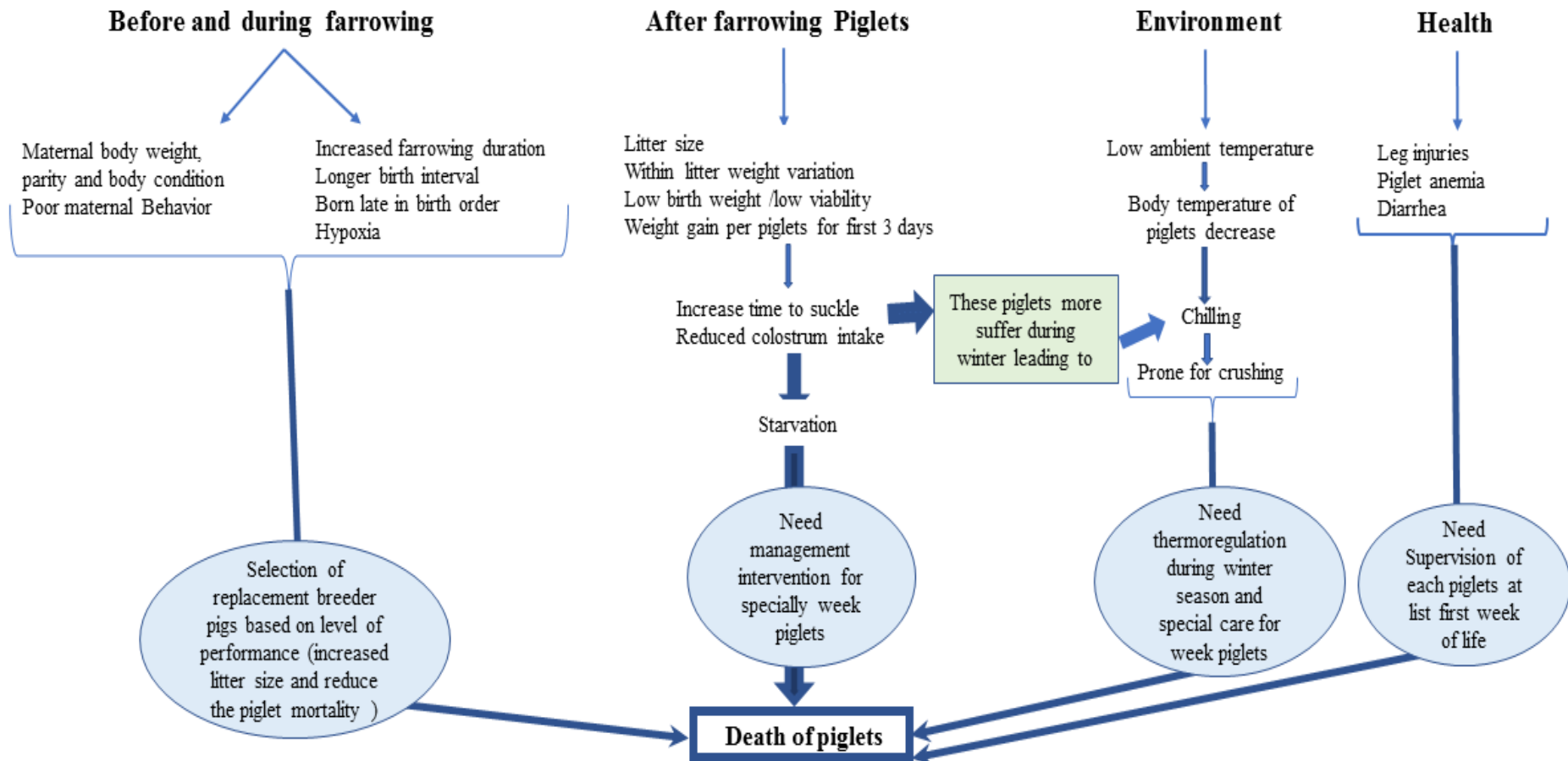


Figure: Flow chart of low viability piglets and check point for their management



3. Paint the udder of the sow daily with following mixtures of FeSO₄ - 500gm, CuSO₄ - 70gm, Sugar - 500gm and Water - 10 litres.
4. Allow piglets to free access runs with fresh soil.
5. Iron injection of Dextran (Deep I/M) – 4th & 14th day

Piglet diarrhoea, also known as "scour," can occur frequently in both the post-weaning and neonatal phases. It is a frequent cause of death and is frequently linked to inadequate feeding practices, stressful environments, poor hygiene, and inappropriate husbandry practices. Coccidiosis has an incubation period of 6 days and is usually involved in diarrhoea complexes from 7 to 14 days of age. The most frequent cause of acute diarrhoea in infants under five days of age is *E. coli*, where the lower levels of immunity are passed on.

Conclusion

The management of low viable piglets is necessary in the long run to reduce piglet mortality and achieve societal and economic goals. Low viable piglets are a complex problem with many underlying causes. Early life consequences are influenced by risk variables such as the environment, sow behavior and birth conditions.

