



## **Season 5, Episode 3: Mineral Requirements for Gestating and Lactating Sows**

**Dr. Jordan Gebhardt**, Assistant Professor, Kansas State University and **Larissa Becker**, Graduate Student, Kansas State University, discuss diagnostic insights into investigating bone mineralization in gestating and lactating sows.

### ***Background***

Sow livability is a currently a large concern in the swine industry with two major contributing factors, prolapsing and lameness. Both factors are correlated to calcium and phosphorus metabolism and utilization. Ms. Becker explains that she dug into the research conducted back in 1974 that defined the requirements for calcium and phosphorus in sows using either the factorial method or empirical method. When looking further into the research, Ms. Becker found that the research only compared two levels of treatments, when four or five level treatments would have been more beneficial. She also explained that there is a lack of data when it comes to finding the calcium and phosphorus requirements for sows.

### ***Research Challenges***

Ms. Becker explains that one of biggest challenges in bone mineralization research in sows is the availability to get bones from sows. When researching bone mineralization, sows must be euthanized in order for the researchers to analyze how much mineral is in the bone. This presents a challenge to the research community because they need bones to evaluate the mineral content accurately.

### ***Importance of Mineralization***

Bone mineralization in sows is an important measure because it helps the researchers know the calcium and phosphorus requirements that the sow needs to be successful in the herd. Dr. Jordan Gebhardt explains that during gestation, the sow needs to build up those mineral requirements because those minerals will be used in milk production. If the sow is not meeting mineral requirements, the sow will mobilize those minerals from her bones to meet the needs for the milk production. Research is unsure if the sow replenishes that mineral when she goes back into gestation or if the lack of minerals has any long-term effects on that animal.

### ***Mineral Requirements***

In gestation, sows need phosphorus for maternal gain, maintenance requirements, fetal growth, and placental growth. For the first 45 days of gestation, the phosphorus requirement is relatively low because there is little embryo development. When the sow reaches late gestation, the phosphorus requirement is significantly increased due to fetal growth. Currently one level of phosphorus is fed during gestation creating more phosphorus than what is required during early gestation and having just the right amount of phosphorus during late gestation. It has been suggested that phosphorus has been overfed to gestating and lactating sows.

### ***Key Takeaways***

There is much more research to be done around mineralization requirements for gestating and lactating sows. It is important to have robust data and conduct research with the new genetics that are used in today's swine industry.

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