

## Pork Prose

by  
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### HOGS AND LACTATION

Lactation is one of those items in hog production that we sometimes take for granted.

Not that it isn't important. It's just that under normal conditions, the natural behavior and physiology of the sow and litter usually ensure satisfactory milk production.

A recent review by B. Algers from the Swedish University of Agricultural Sciences leads me to believe that the fascinating phenomenon of nursing is something that we can stand to know a lot more about.

Acknowledging the subtle communication between newborn pigs and the nursing sow may, at first, sound a bit silly. But the more we learn about lactation and nursing behavior, the more we can use that knowledge to our advantage.

#### The Nursing Process

During the last half of pregnancy, the sow's mammary glands develop in preparation for milk

production. Each mammary gland contains many lobes (small spherical sacs) which are subdivided into lobules. The lobules are divided further into alveoli which contain the milk.

The milk is actually produced by special cells in the alveoli called epithelial cells, which are controlled by a number of hormones, especially prolactin. If you could imagine the inside skin of a basketball lined with these epithelial cells, then you can also understand that as the cells secrete milk, it will collect in the center of the ball.

Surrounding our ball is a thin layer of smooth muscle, which responds to oxytocin. During nursing, oxytocin is released from the pituitary gland, causing the muscle layer to contract, which in turn squeezes the milk out of the ball (alveolus). This is called milk let-down. From here, it simply makes its way to the teat end through a system of plumbing.

This process occurs in any mammal following parturition. But there are a number of things that make the pig unique.

#### Sows Are Not Cows

Because she gives birth to a litter, the sow's challenge is to provide milk to everyone at the same time.

That seems simple, but remember the farrowing process lasts several hours. So the first-born have free access to the udder without competition. After farrowing, the sow settles into a nursing schedule that occurs every hour or so, but milk let down lasts for only 30 seconds per nursing.

#### The Newborn Pig

First-born pigs sample the entire udder shortly after birth, so they have an advantage over those born later.

Research shows that the high levels of oxytocin present during farrowing allow pigs to consume colostrum effortlessly during the first hour or so. Toward the end of farrowing, oxytocin release is more sporadic. Pigs born later in the litter have fewer opportunities for easy meals of this milk high in immune globulins that are so precious to survival. In fact, immunoglobulin (IgG) levels in the blood are increased in first-born pigs.

As pigs gain strength in the hours following birth, fighting for teats commences. Dr. Tom Hartsock, extension swine specialist at the University of Maryland, was among the first researchers to document this competition. The presence of needle teeth, of course, intensifies the fights. These instruments of destruction make it easier for the strongest to survive, and

they obviously create problems for the weaker, less aggressive piglets.

Because our goal is to keep the whole bunch alive, we try to even the playing field by clipping the teeth soon after birth. But as Hartsock so clearly showed almost 20 years ago, the biggest pigs and the first born pigs still end up getting most of the groceries.

#### Nursing As A Group

The classic sow initiates nursing by grunting and lying on her side to expose her udder. The pigs then begin their routine of massaging the udder which may last several minutes.

The fewer the pigs, the longer

the message. Compare this, again, to the cow in which milk let-down can be triggered by the sound of a vacuum pump, and no massage at all.

As oxytocin is released into the blood stream, the sow's grunting intensifies, and about 20 seconds later, milk let down occurs which stimulates a vivid behavioral change in the baby pigs. The massaging stops, the fighting and movement comes to a halt, and for about a half a minute, the pigs drink milk as though their life depends on it. And it does. If they miss only 5 seconds of the milk let down, research shows that they've missed 25-50 percent of their

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## Irwins On Goodwill Tour

(Continued from Page A32) present they have no association to accomplish this interchange.

The Irwins were able to take a day trip to visit the Benuel Lapp family from Lancaster County, who have set up a sample dairy farm through Christian Aid Ministries. The Ministries project is in place to show the local people what can be done to supply food for their people. Lapp places special emphasis on sanitation, and Jay said all the people in his party had a glass of milk from Lapp's bulk tank.

"A lot of work needs to be done, and we only touched the surface in the short time we were there," Jay said. "We have suggested that follow-up volunteers continue to

work in this area to encourage the people to make changes. But at least we gave the people something to think about. It was a very rewarding experience."

And the people responded warmly too. They gave the Irwins antiques and treasures that were from their hearts and homes. "Everybody in the village knows and loves you," the village mayor said. "You are the first Americans that came to meet with our people and not the government. Please come back in two years, and you will see that the seeds you have planted will be growing," he said.

"They were hungry for information, and we are grateful if we in some way helped them," Jay concluded.

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