

## *Sow Gestation Feeding Management*

The following suggested feeding pattern is based on scientific knowledge about the interaction of nutrition and reproductive physiology:

### **1. Prior to Breeding - Flushing**

High energy intake increases the number of eggs that are released (both sows and gilts). However, this increased ovulation rate has been shown to lead to larger litter sizes in gilts only. Presumably, this is due to the fact that litter size in mature sows is limited by uterine size, or some other factor, and not by the number of ova released.

### **2. From Breeding to Implantation - Risk of Embryo Mortality**

High levels of energy intake immediately post-breeding can lead to increased embryo mortality and reduced litter size. Classic work by Dick and Strain showed improved embryo survival rates (86%) when sows were fed 3.3 lb/day for the first ten days after mating, as opposed to only a 76% embryo survival rate when sows were fed 5.5 lb/day. Therefore, sows should be fed at near maintenance levels for the first 10 to 14 days after mating in order to maximize embryo survival and litter size. This critical time period closely corresponds to the time in which embryo implantation occurs.

### **3. Second Month of Gestation - Greatest Efficiency of Gain & Positive Impact of Energy Intake on Protein Deposition**

The most efficient phase for the regeneration of body nutrient stores occurs from approximately 26 to 50 days post-breeding. Dourmad and coworkers demonstrated that during this time the rate of body protein deposition is maximized. They also found that the rate of protein gain is dependent on the level of energy supplied to the sow. That is, protein deposition increased with higher levels of energy intake. Therefore, the second month of gestation is the best time to attempt to regain body nutrient stores without adversely impacting litter size or potential milk production of the sow.

### **4. Day 50 to 90 - Key Mammary Development Phase**

Some studies have indicated that high levels of energy intake from day 50 to 90 of gestation may lead to increased fat deposition in developing mammary tissues and decreased growth of milk-producing cells. Therefore, if possible, it is desirable to regain body nutrient stores prior to this time so that gestation feeding levels can be returned to near maintenance levels.

### **5. Day 90 to 112 - Increased Fetal Energy Demand**

Up until about the final month of gestation the energy demands of fetuses and developing maternal tissues are remarkably low. However, higher feeding levels become justified as the sow's farrowing date approaches. Yet, even with the increased mass of developing piglets, placenta and mammary tissue in late gestation, the increase in maternal energy needs does not exceed the amount of energy supplied by one pound per day of a corn-soy diet. Furthermore, due to negative impacts of high gestation feeding levels on subsequent lactation voluntary feed intake, feeding levels should be limited to no more than 6 to 7 lb/day.

### **6. Immediately Pre-Farrowing**

For the last two to three days pre-farrowing it is preferable to again decrease feeding levels in an effort to stimulate the sow's appetite. It is hoped that this will lead to sustained and rapid increases in feed intake immediately after farrowing.

### **Lactation Feeding Management**

Every effort should be made to maximize sow feed intake during lactation. High levels of lactation feed consumption minimize the mobilization of sow body nutrient stores to fuel milk production. Furthermore, if sow body condition can be maintained at reasonable levels during lactation, the management of the gestation feeding program will be much simpler because wide fluctuations in feeding levels to regain lost body nutrient stores will not be necessary.



Figure 1. Sow Reproductive Time Line and Recommended Gestation Feeding Program

