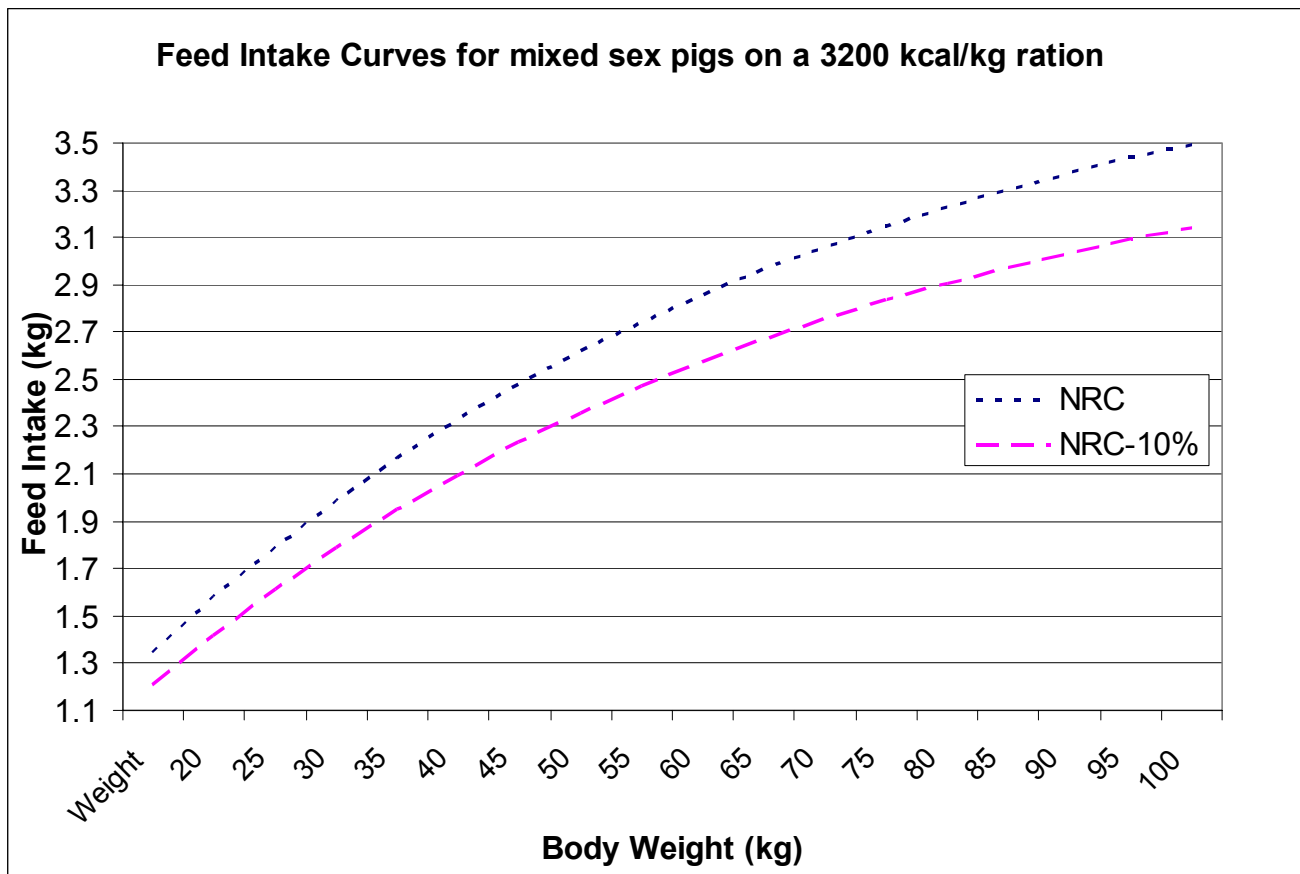


Feed intake (FI) varies significantly from farm to farm and from animal to animal within a farm. Many factors play a role in determining feed intake, making it a challenge to measure on farm. Knowing your FI is key to developing diets that meet the needs of your pigs, achieving target growth rates and improving the efficiency of your barn.

Typical commercial lines have been intensively selected for leanness and high feed efficiencies. A side effect of this selection pressure has ultimately led to pigs with reduced voluntary feed intakes. Reduced feed intake is now a major factor limiting production in many commercial hog operations. Additionally, stress negatively impacts intake. Recognizing potential stressors and minimizing their effects, will also help you to maximize your feed intakes.

Determining daily feed intake on your farm will provide you with key information for determining required nutrient levels. This will allow you to work with your vet and your nutritionist to minimize feed costs while maintaining performance.



This curve shows NRC target daily feed intakes. Intakes 10% lower than NRC are quite common (shown as NRC-10% on graph), so don't be surprised if your intake curve looks more like that line. . How does your intake compare? If you aren't achieving maximal intake, you are slowing your rate of gain and increasing your days to market.....all of which cost you dollars!!

Many factors influence FI in pigs. This fact sheet examines some of the factors influence FI and how management practices can affect FI in your barn.

Environmental Factors

Temperature

The comfort zone for grow/finish (G/F) pigs is 12 – 23°C. Above this temperature pigs will reduce their feed intake; the reduction increases with bodyweight. A 20 kg pig will experience a 1% drop in FI for each degree above the comfort zone, while a 100 kg pig will experience a 2.5% decrease in intake. Studies at the Prairie Swine Centre in Saskatchewan indicate that it is possible to improve FI and ADG by 6% during summer months, by lowering the temperature set point (desired temperature) in a barn by 6°C. This allows the producer to make use of the cooler evening air to decrease the barn temperatures, which helps to increase evening feeding activity to compensate for the decreased intake during the hotter hours of the day.

Cold stress can cause a reduction in performance. Cold pigs eat more but have lower average daily gains (ADG). Cold stress may also cause decreased protein deposition and increased fat deposition, which leading to lower indexes at marketing.

Humidity and Ventilation Rates

Humidity limits the pigs' ability to dissipate heat through evaporation. Thus, the negative effects of high humidity on FI, ADG and FE are more evident during periods of high temperature, than periods of low temperature. Effective temperature is the temperature that the pigs actually feel. By increasing airspeed during times of high humidity, it is possible to lower the effective temperature and ultimately increase FI. A relative humidity of 60% is a good target for the barn all year.

Social Factors

Space Allocation

Restricting space allowances for pigs negatively impacts FI and ADG. Studies indicate that limiting space for pigs, causes a chronic stress that eventually reduces the efficiency of feed utilization. Additionally, space restriction can cause behavioural changes, including increased aggression, which further decreases feed efficiency.

Space Guidelines for Grow-Finish Pigs

Average Pen Live Weight (kg)	Full slats (area required/pig in square feet)	Partial Slats (area required/pig in square feet)	Straw (area required/pig in square feet)
22	1.7	1.9	2.2
44	2.8	3.1	3.5
110	5.2	5.7	6.6
165	6.7	7.5	8.6
198	7.5	8.4	9.7
220	8.2	9.1	10.4
242	8.7	9.7	11.1

Recommended code of practice for the care and handling of farm animals: Pigs, 1993

Group Dynamics

Mixing pigs reduces FI and ADG. Mixing is considered a temporary stressor that pigs will overcome with time. This implies that mixing pigs within 2 weeks of marketing is not an efficient management practice, even if does appear to improve pen utilization. Group size, providing that space allocation is adequate, has shown mixed effects on FI and ADG. In reality, the most likely cause of decreased performance sometimes seen with larger group sizes can be attributed to

increased social interaction and the extra effort required to access feed. Research is being focused on the implications of larger group sizes on performance in the pig barn. Group size will depend on pen set-up and design; research to date has not shown an optimal group size.

Health

Obviously, health status plays a major role in influencing overall performance. Activation of the immune system – in response to a disease challenge – is a physiological stress. **Pigs, in response to this stress, experience physiological and behavioural changes that limit production of some metabolic hormones, which can decrease FI, ADG and FE between 5 to 24%.** Sick animals partition nutrients differently than healthy animals. Sick animals use more energy and nutrients to support the immune system than healthy animals, leaving fewer nutrients available for growth. This metabolic change leads to fewer of the consumed nutrients being used for tissue deposition (i.e weight gain).

Genetics

Potential for gain varies from genetic line to genetic line. While FI tends to vary from breed to breed, with Duroc demonstrating the highest voluntary intakes, FI within a breed can vary to almost the same extent. **Selection for pigs with high potential for lean growth potential has inadvertently resulted in selection for animals with lower voluntary feed intakes, meaning achieving maximal feed intake can be a problem with these new leaner genotypes.** Thus, as a producer, it is important for you to know what the feed intake curve for your farm looks like so you can work to maximize intake for your barn.

Feed Factors

Pigs will generally consume feed to meet their nutrient requirements. It is largely accepted that animals will eat to meet their energy needs first, thus energy content is a key factor for determining intake. Pigs do have the ability to adjust FI to compensate for low density diets, however, other factors such as gut fill or passage rate may also inhibit FI. Protein content and amino acid balance are also important factors affecting FI; if a diet is low in protein or deficient in essential amino acids the pig will increase FI to try and meet these nutrient requirements.

Physical presentation of the feed is another important influencing factor for FI. **Pelleted feed improves FI over mash diets by 3 – 12%. Wet feeding increases FI by 6% over dry feeding during the grow/finish period.**

Feeders need to be clean (not plugged) and full at all times. If at any point during a day, access is restricted because the feeder is empty or plugged, intake will suffer. Feeder design and pen layout can also significantly affect FI. Pigs should be comfortable at the feeder and have unlimited access, i.e enough feeder spaces for the pen size and feeder placed in the pen so that it does not interfere with other activities like drinking, resting, etc. **Feeder design has been shown to affect intake by as much as 15 – 20 %.**

Water

Often referred to as the “forgotten nutrient”, water is critical to performance. Pigs must have access to adequate amounts of clean water daily. Pigs require at least two times as much water as they consume feed by weight. In the G/F barn, one nipple per 12 pigs is required with a flow rate of 750 – 1500 ml/minute. Check nipples during daily pen checks to ensure they are working. You may also find it useful to measure flow rates periodically. An inadequate water supply causes reduced feed intakes and may also cause increase aggression and restlessness in the pigs; all of which reduce efficiency in the barn. Water quality can impact performance. Microbial contaminations of the water supply can result in pathogen transmission to the animal, which in turn can affect performance. While other water quality issues (e.g. mineral content, total dissolved solids, etc) may cause some diarrhea, research to date has shown no impact on performance.

Monitoring FI can help you to:

- Decrease days to market
- Better match of nutrients with the growth requirements of the pigs
- Less wasted nutrients (either through excretion or use of protein for fat deposition)
- Recognize problem areas within your barn generally, or with a particular batch of pigs, while they are in your barn
- Adjust management practices to best suit your barn and your pigs

All of these factors work toward making your operation as profitable as possible. Without accurate tracking of the data it is very difficult to pinpoint areas of concern and to measure the impact that changes make on the situation. While recording this data may seem like a time consuming process, when compared to losses that the information can help to prevent, there is no question that it is a valuable practice.

Collecting FI data twice a year should be sufficient as a general checkup on how you are doing; remember that the data should be collected during different times of the year to minimize seasonal affects. Initially when establishing intake curves for your herd, you may wish to collect data on several batches of pigs through out the entire year.

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