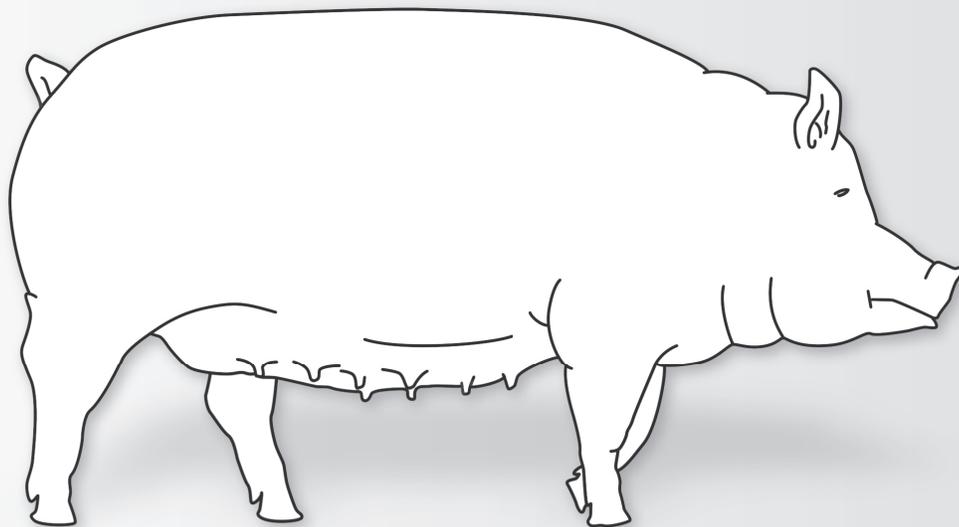


4-H Swine Manual



Ministry of
Agriculture



Publication #1330

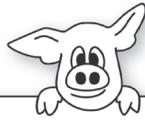
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Introduction



How to Use this Manual

This manual is for new 4-H swine members to learn about how to care for and raise their projects. The table of contents will guide you to the different sections. All sections will be beneficial to a swine member; however, there are some sections with more detail that will correspond with certain units. Ask your leader which section would be most relevant to your project. For a complete list of units consult the swine regulations, BC 4-H Publication #1308.

If you find that there are **bold** words that you are unfamiliar with there is a glossary located at the back of this manual. There may be some words that you do not know that are not in the back of this manual – a good dictionary should help you out in this case!

This manual provides good basic information. You will find that there are some situations and skills that are not covered. You will have to find out more about swine from other sources – such as the BC Hog Marketing Commission, books, the internet (including www.infobasket.gov.bc.ca), members of the community, senior 4-H members, and your 4-H Leader.

The 4-H Swine Project

Learning about swine can be fun and rewarding. This is not just a project about taking care of an animal. You will be in control of this project and you will be making all of the important decisions. The success of your project depends on you.

There are several advantages to choosing swine for your 4-H project:

1. Pigs are economical producers of meat. This means that you do not have to feed them as much as some other animals to produce the meat that you need.
2. Sows can farrow twice a year.
3. Hogs can reach market weight within 7 months.
4. Some farm by-products such as skim milk and low grade grains can be used as feed.

The 4-H swine project is organized to provide experience for young people in the selection, feeding, husbandry, and exhibiting of hogs. There are many unit options for members with varying abilities and experience.



There are two basic kinds of 4-H swine projects:

1. Fed or market swine – feeder pigs are raised to market weight.
2. Breeding swine – raising a gilt from breeding to farrowing, and the management of sows and their litters (not recommended for beginning 4-H members).

More information about project types and the requirements for a swine club member are outlined in the Swine Project Regulations, BC 4-H Publication #1308. If possible, members are encouraged to continue their work with the same animal from year to year. For instance, a Unit II Breeding Gilt project could be continued in a Unit III Yearling Sow project.

The animal must be the property of you the member, your parent or if by other arrangement, using the 4-H Livestock Lease, BC 4-H Publication #140(E).

Remember your club leader is a good source of advice when considering a project. Other members of the community are usually quick to help a 4-H member with questions they may have. These are great sources of information when you are trying to select your project animal. Perhaps in the years to come, other new members will be coming to you for help with choosing their animal.



Record Keeping

Record keeping is a very important part of the training in 4-H club work. Records should be kept accurately, neatly, and continuously. Record keeping disciplines a person and provides valuable information for anyone to take pride in his or her efforts.

Record books are available from the BC 4-H Publications Order Form. Ask your leader about obtaining a copy each year for each project. If properly completed, your Record Book will tell the complete story of your project, from the time it was born or purchased until the end of the project. A completed record book is necessary for 4-H Achievement.

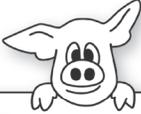
Livestock Care

4-H members are responsible for providing the highest quality of care for their 4-H livestock project(s). This can be achieved by ensuring that the “Five Freedoms” of farm animal care are being provided.

Five Freedoms

1. *Freedom from Hunger and Thirst* – provide access to fresh water and adequate feed.
2. *Freedom from Discomfort* – providing appropriate shelter from the elements and a comfortable resting area.
3. *Freedom from Pain, Injury or Disease* – take steps to prevent accidents and disease, monitor health, and provide rapid treatment when disease or injury is detected.
4. *Freedom to Express Normal Behaviour* – provide sufficient space and company of the animal’s own kind.
5. *Freedom from Fear and Distress* – ensure conditions and treatment which do not alarm the animal.





History and Project Selection



History

Most of the swine **breeds** most likely descended from the Eurasian Wild Boar (**Sus scrofa**) – similar to the wild pig of today. Some people believe that pigs were the earliest animal to be domesticated. Paintings and carvings of pigs over 25,000 years ago have been found. Evidence for widespread domestication, as long ago as 9000 B.C., can be found in the Middle East and China. Being difficult to herd, the pig was mostly associated with settled farmers rather than nomads. The domesticated pig of today that we use for farming has similarities to the Eurasian Wild Boar, but it has been adapted for swine production.

Before the 1950's, pigs were raised for both meat and fat. This fat was rendered into **lard**, and was used in cooking before the popularity of vegetable oils. Today, the main driver of the swine industry is meat production. This has led to a shift in breeding to leaner **hogs** for maximizing meat production with very little body fat.

The British Columbia Swine Industry

In the mid 1970's the BC pork industry began to grow from a relatively small industry producing 70,000 market hogs in 1978 to producing 247,000 in 2003. Most pork production in the province takes place in the South Coastal Region (Fraser Valley), with some production on Vancouver Island, in the Okanagan and in the Peace River areas. Today, pork production in BC is a 30 million dollar industry.

Breeds of Swine

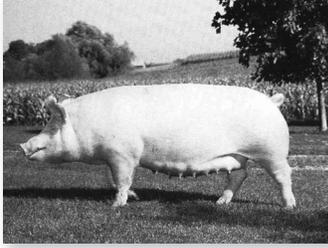
One of the first things that a member has to do when they decide to do a 4-H swine project is to select an animal to work with. Like people, pigs vary in shapes and sizes. Some pigs are short and chubby; others are long and lean. Deciding the breed or breeds to be used is the first step.

You should learn about the various types of swine in your area so you can decide which one best suits your needs. To help you to decide you should also look at the regulations (BC 4-H publication #1308) and choose an animal based on the project you wish to do. There are more breeds than those listed here. You may want to do some additional research to find a breed that works for you and is available in your area.



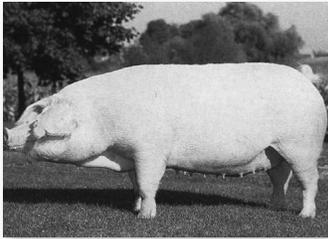
Common Breeds of Swine in British Columbia

Yorkshire



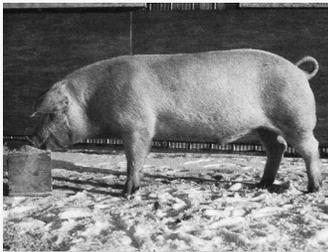
Originally from England, and also known as the Large White. Yorkshires are the most popular breed in Canada. They are white in colour, lean and growthy with good feed **conversion**. The males are **virile** and aggressive breeders. The females are very productive, with excellent milking ability and **farrowing** large **litters** of strong **piglets**. Yorkshires are used very successfully in **crossbreeding programs** to produce excellent commercial females. Approximately 80% of world pork production is based on this breed. With its high carcass quality, it is renowned internationally as an excellent bacon producer.

Landrace



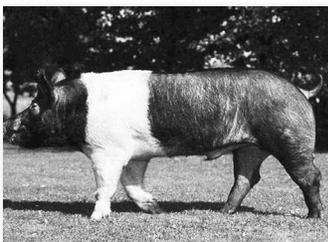
Originated in Sweden, Norway, and Great Britain. The females have a quality temperament, exhibiting excellent mothering ability, and produce big litters of large piglets. The Landrace crosses very well with other breeds to produce strong commercial females. This breed produces a high percentage of ham and bacon. The Landrace is also popular because they are docile and easy to handle. **Sows** do well in the confinement systems used during farrowing. The young animals are noted for their rapid growth and development. These pigs have well-muscled long bodies with flat sides, droopy ears and are white in colour.

Lacombe



Developed in Lacombe, Alberta by Agriculture Canada in 1947. Originally this breed was 46% Danish Landrace, 26% Berkshire, 17% Chester White. This meat-type, well-muscled pig has been developed to provide quality **carcass** muscling and when used in a crossbreeding program there is evidence of superior carcass quality in the offspring. These pigs are medium in size, white, have large drooping ears and long bodies with short legs. The breeding program has concentrated on producing animals which are docile, have a large litter size, are **weaned** at heavier weights, make efficient use of feed, and are physically sound to reduce the occurrence of injury. Sows are highly fertile and breed easily. They also do well in confinement systems. This breed has been exported throughout the world and is a good example of Canada's contribution to the swine industry.

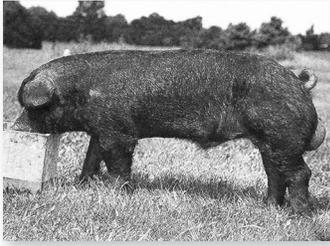
Hampshire



Originated in the United States. This breed is known for small litters, poor mothers, and passive breeders. However, the good carcass merit of the breed makes it better for crossbreeding. Hampshire pigs are black in colour with a white belt circling its body at the shoulders, including the front legs. The quality of the carcass has encouraged the use of this breed in **sire lines**. The meat is lean and known for high-quality pork loin.

Photos courtesy of the Canadian Swine Breeders Association.

Duroc



Originated in the United States. Enhanced reproduction performance over the Hampshire, but not as good as the Landrace, Lacombe, or Yorkshire. Superior growth and feed efficiency makes for effective crossbreeding. The Duroc, a solid red, meat-type animal is noted for its carcass characteristics and feed efficiency. The Duroc is also noted for large litters, a characteristic retained even when used in a crossbreeding program. Durocs are commonly used as a **terminal sire** in crossbreeding programs as well as the third breed in **rotational breeding programs**. One theory states that the red pigs from the Guinea Coast of Africa may be involved. This pig's colour and short floppy ears make it an easy breed to identify.

These are examples of common swine breeds. Other breeds are available and you may want to research more, as one may interest you for your project.

Breeding Systems

Purebred Breeding Systems

When both of a pig's parents are registered members of the same breed, the outcome is a **purebred** animal. A registered pig is a purebred pig whose name, herd and registration numbers, date of birth, **pedigree** and name of the owner are recorded with a breed registry association. When a registered animal is bought or sold, the seller must send the registration certificate back to the breed association so ownership can be transferred to the new owner. Breeding purebred animals allows the genetics of that certain breed to be carried on.

There are different methods for purebred breeding systems:

1. **Inbreeding** – Mating of closely related animals
2. **Linebreeding** – Using a succession of related sires that are not more than 25% related
3. **Out Crossing** – Mating two unrelated animals within the same breed

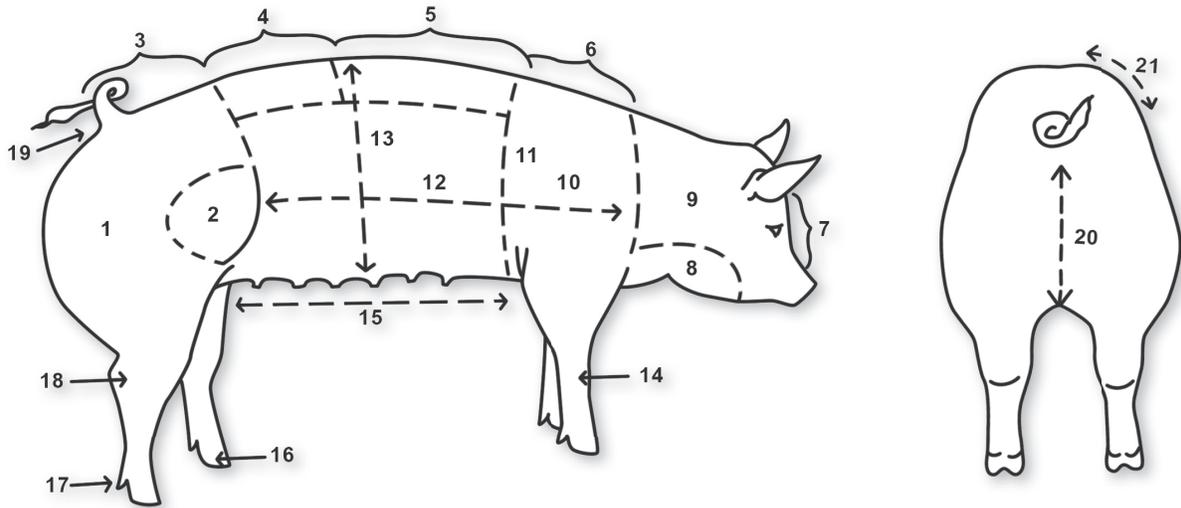
Crossbred Breeding Systems

Crossbreeding occurs when two different breeds are mated. This allows for strengths in each of the breeds to be combined for improvements in certain traits. Crossbreeding is a common practice for commercial swine producers because of hybrid vigour, a genetic result of improvement over the average purebred parent in a certain trait. **Hybrid vigour** affects reproductive traits (increased milk production, more vigorous piglets) more than growth and carcass traits.



Know Your Swine Parts

Conformation is the key to selecting project animals and how they will perform. Before knowing what to look for, it is important to know your pig parts.



- | | | |
|-------------------------|--------------------|-----------------------------|
| 1. Ham | 8. Jowl | 15. Underline |
| 2. Stifle Region of Ham | 9. Neck | 16. Pastern |
| 3. Rump | 10. Shoulder Blade | 17. Dew Claw |
| 4. Loin | 11. Heart Girth | 18. Hock |
| 5. Back | 12. Length of Side | 19. Tail Setting |
| 6. Shoulders | 13. Depth of Side | 20. Depth of Seam or Crotch |
| 7. Face | 14. Knee | 21. Turn Over Loin Edge |



Project Selection

Once you know the basics, you can start looking for your project animal. If possible, you should select your young swine while it is still nursing, to compare all of the pigs in the litter. You can also look at the litter as a whole to compare factors such as:

- Uniformity of the litter
- The number of runts (runts are not desirable)
- Presence of any **ruptured** or **ridgeling** pigs
- The general health of the entire litter
- Relatives of the litter so you can see how the pig will age
- See if you can get information on the carcasses of related animals as well as feed consumption and growth rates

You will need to make your final selection at the time of weaning, or a short time later. You may wait a few months after weaning if you are raising breeding stock. The more you see the animal, and the more information you obtain, the better decision you will make on your final selection. The body type, or **conformation**, that you want will essentially be the same for both market and breeding classes. Consult the BC 4-H Livestock Judging Manual (Publication #427) for a more detailed explanation on what to look for when choosing a swine project.

When selecting a project animal you will also want to consider these factors:

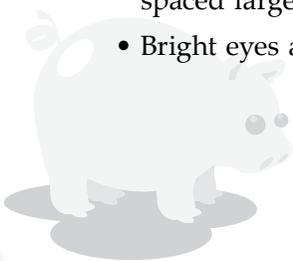
- The type of swine most suitable for the unit(s) you plan to enroll in
- The temperament of the swine
- The breeding qualities, in case you decide to keep it for future breeding projects
- If you are buying a purebred hog, consult the breed standards and determine if the hog is registered or able to be registered

Selection of Market Pigs

You can choose either a **gilt** or a **barrow** for a market class animal. Although barrows tend to reach market weight earlier and are generally a little larger, they do tend to carry more **backfat** than gilts. When choosing your market pig select it from the larger ones in the litter.

If you are able to get information on the lineage of the swine, look for:

- Low **backfat probe**
- Visibly free of genetic defects
- Physical soundness – straight legs, pastern slightly sloping forward and evenly spaced large toes
- Bright eyes and broad snout with large nostrils



Selection of Breeding Stock

When choosing a breeding gilt you should examine the animal when it is approximately half way to market weight, then make your final selection when it has reached market weight and you have the results of the backfat test. Again you should make sure that you are able to view the piglet before weaning, so you can see the interaction with the mother.

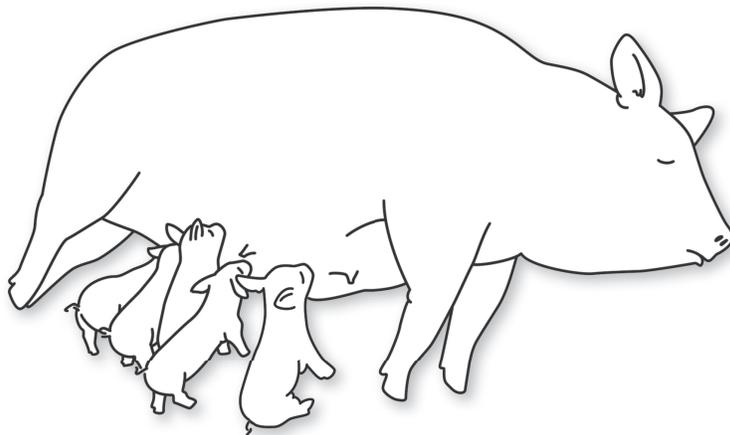
You should look for:

- Gilts from sows who are consistent with farrowing and weaning large litters
- Minimum time to reach market weight
- Low backfat probe
- Visibly free of genetic defects
- Well developed mammary system
- Physical soundness – straight legs, pastern slightly sloping forward and evenly spaced large toes
- Bright eyes and broad snout with large nostrils

Perhaps the hardest item on the list to judge is the well developed mammary system. When examining the mammary system you should see at least 12 well-spaced developed teats, or 14 in a Lacombe variety.

The sow is considered a heavy milker if she weans a large, healthy litter and loses flesh during the nursing period. A sow is considered a poor milker if her litter is constantly hungry. Never choose a gilt from a sow that is a poor milker, or has abnormalities in the litter such as a rapture, a ridgeling, or **hermaphrodites**. These are **hereditary** traits, and would be passed on to any offspring. These types of hereditary traits may be passed along from the **boar**, so the sire's lineage should be taken into consideration as well.

The breeding gilt should be chosen from a litter where the sow has a quiet disposition. Nervous or wild animals are harder to handle and may harm their litters by overlaying and crushing. If you want to raise a purebred animal then be sure to examine coloration, markings and ear placement angles as they are distinctive in each breed.

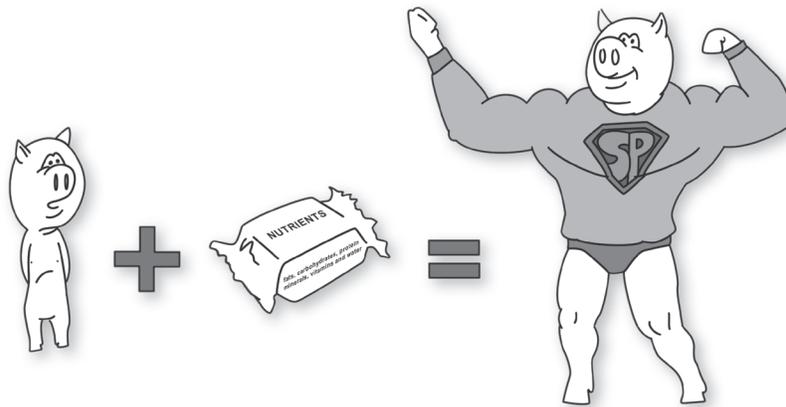




Feeding and Nutrition

Food and Its Use

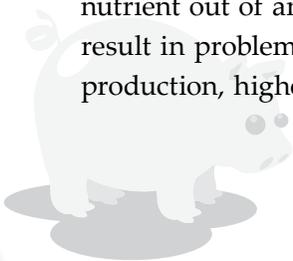
Swine (and all other living things) need nutrients from food in order to produce energy to live and function. Proper nutrition is very important for all swine, but particularly for young growing piglets. Swine owners must care for their animals and feed them properly to give them a chance to grow well, maintain good health, produce quality meat, and reproduce and give birth to healthy offspring that will develop to their full potential.



Animals require food for three main purposes:

1. *Maintenance*: to give heat and energy to the body. If fed below maintenance needs, the animal will use up body reserves of fat and other nutrients.
2. *Growth*: to provide essentials for building various body tissues as the bones, muscles, and organs increase in size.
3. *Work*: includes reproduction and milk production. The pregnant gilt or sow requires additional nutrients for the growth of the **fetus**. The lactating sow requires nutrients for producing milk for her piglets.

It is important to know the nutritional requirements for the kind of animal being raised. This means knowing what and how much of each nutrient is needed by that animal to be able to live and grow. A nutrient is like an ingredient in a recipe. If we leave a required nutrient out of an animal's diet, it will cause some type of **deficiency** (a shortage). This will result in problems such as slow growth, disease, stillbirths, reproductive failure, low milk production, higher mortality rates, or poor carcass quality.



Although the majority of operations now rely on purchased complete feeds, it is important to know what is in the food you are feeding your animals and why. This section will also help you to spot any deficiencies your animal might be experiencing. The primary food nutrients required by all animals are classified as carbohydrates, fats, and proteins. Secondary food nutrient classes consist of minerals and vitamins. Another nutrient of importance is water; however, it is obtained primarily from sources other than foods.

What's in Feed?

Nutrient	Use	Where it Comes From
Protein	<ul style="list-style-type: none"> » Growth » Development of glands, muscle, hide and hair » Repairing body tissues » Milk production » Reproduction 	Soybean Meal, Canola Meal, Skim Milk, Field Peas, Meat Meal
Carbohydrate	<ul style="list-style-type: none"> » Energy for body maintenance » Growth » Milk production » Reproduction 	Grains (Oats, Barley, Wheat, Corn)
Fats	<ul style="list-style-type: none"> » Energy (2.25 times more energy than from starch) » Body maintenance, growth, milk production, reproduction 	Tallow, Vegetable Oils, Small quantities in grains, Flax seed, Soybean seed, Commercial inert fat products
Vitamins	<ul style="list-style-type: none"> » Good health, production, reproduction, other body processes 	Yellow Corn, Fish Oils, and Colostrum, Commercial Supplement
Minerals	<ul style="list-style-type: none"> » Structural functions in some tissues (bone and teeth) » Regulatory functions (essential parts of enzymes & hormones) » Milk production » Reproduction » Stimulating appetite 	Trace mineralized salt, Dicalcium phosphate, bone meal. Phosphorus in grains and oil meals. Commercial supplement
Water	Vital to all processes, including digestion and regulation of body temperature	Clean, fresh source must be supplied at all times

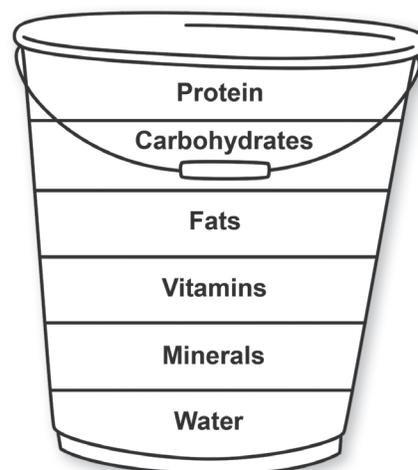


Notes about Water

Water is the most essential nutrient to any animal, but unfortunately it is usually the most neglected. Water is used in swine, as in humans, to transport nutrients from one place in the body to another. Without water, all areas of a pig's normal functions are affected, including milk production and rate of gain.

It is important to ensure that your water supply is clean, and within acceptable concentration levels or free of such contaminants as algae, nitrates, sulphates, high mineral levels, salinity and bacteria. The largest problem with water is not having enough – access through bowls and ensuring properly operating water nipples is most critical.

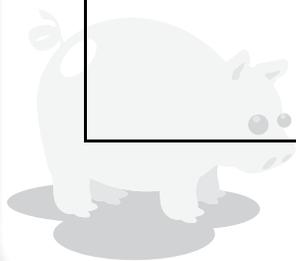
Algae growth in ponds can make water smell and taste bad; it can even make it toxic. You should also monitor your water for the presence of nitrates and sulphates. Nitrates often indicate the presence of bacteria that may be harmful to your swine. Large amounts of sulphates may create health problems affecting performance of your swine.



More Information about Vitamins

Although swine are able to produce some vitamins, other essential vitamins are needed and supplemented in the diet by purchasing a commercially prepared feed. The table below provides more detail of vitamins and their uses for you to make sure your pig is getting the proper amounts.

Vitamin	Essential For	Deficiency
Vitamin A <i>The Growth Vitamin</i>	<ul style="list-style-type: none"> » Vision » Development of strong reproductive system » Healthy condition of the linings of the intestinal tract and respiratory system » Proper functioning nervous system 	<ul style="list-style-type: none"> » Skin in poor condition » Various eye abnormalities » May also fail to breed due to sterility
	<ul style="list-style-type: none"> » Adult swine can store large amounts of vitamin A in their bodies Sources: leafy green vegetables, corn, and fish oils. » Vitamin A and Carotene (pigs can make vitamin A out of it) are broken down easily by sunlight and heat so sometimes it is difficult to provide it through natural means. » A vitamin supplement may have to be added to your ration. Newborn pigs have very little Vitamin A stored and rely on their mother's milk as a source. 	



Vitamin	Essential For	Deficiency
Vitamin D <i>The Sun Vitamin</i>	<ul style="list-style-type: none"> » Formation of proper skeletal structure » Absorption of calcium and phosphorus 	<ul style="list-style-type: none"> » May develop rickets » Loss of appetite » Stiffness & enlargement of the joints
	<ul style="list-style-type: none"> » Sources: sunshine, but confined indoor space does not allow for this. » Supplementation to feed if it has not already been added. » Newborn swine should receive enough Vitamin D from their mother's milk. 	
Vitamin E	<ul style="list-style-type: none"> » Normal reproduction & growth » Vitamin E & selenium: involved in maintaining cell structure & immune function 	May result in the onset of mulberry heart disease, hepatitis dietetica & muscular dystrophy
	Both Vitamin E and Selenium may have to be supplemented in the diet.	
B-Vitamins (B ₂ , Niacin, Pantothenic Acid, and B ₁₂)	<ul style="list-style-type: none"> » General health and upkeep of the entire body 	<ul style="list-style-type: none"> » Skin condition » Poor conception rates » Bloody waste » Mouth ulcers » Reduced growth rate » Anemia
	Unlike ruminants, swine are not able to produce B vitamins on their own. Without a vitamin supplement, a deficiency in the B vitamins would be common.	
Vitamin K	<ul style="list-style-type: none"> » Blood clotting 	Excessive bleeding that takes a long time to stop or does not seem to stop
	Deficiency is a common problem with swine raised in confinement and can be corrected with supplementation.	
Choline	<ul style="list-style-type: none"> » Increased conception rates » Number of live piglets born & weaned » Higher birth weights 	<ul style="list-style-type: none"> » Reduced weight gain » Rough hair coats » Unbalanced and staggering gaits
	Choline is added by most feed companies. It may also help prevent straddle legs in newborn pigs; however there are other factors that may affect this. Swine can produce choline in their own bodies, but should have additional supplementation	
Biotin and Folic Acid	<ul style="list-style-type: none"> » Reproductive performance » Maintaining condition of skin and hair coat » Hoof hardness 	May be connected to foot lesions & toe cracks in sows
	<p>It is currently under debate whether adding biotin to a feed is necessary. It is recommended to add it just in case.</p> <p>The addition of folic acid to the diet appears to help increase the survival of embryos. Research suggests that the addition of folic acid will increase the number of pigs born alive.</p>	

More Information about Minerals

Commercially prepared feeds should have the appropriate supply of all minerals needed by your swine. With confinement rearing of pigs that do not have access to soil or forage, this increases the importance of meeting dietary mineral requirements through supplemental feeds. Specific minerals to pay attention to are detailed in the table below.

Mineral	Essential For	Deficiency
Calcium and Phosphorus	<ul style="list-style-type: none"> » Forming the skeletal system » Blood clotting » Other physiological processes 	Rickets: <ul style="list-style-type: none"> » Stiffness » Poor growth » Swollen & painful joints
	Growing animals: <ul style="list-style-type: none"> » Abnormal bone growth (twisted, bent, or broken) 	
<ul style="list-style-type: none"> » Lactating sows will have a greater need for calcium while feeding their young; otherwise the sow's body will take calcium from her own bones. Make sure that you are giving your lactating sow an appropriate feed. » Correct balance of calcium & phosphorus important for absorption & interaction with each other. 		
Sodium and Chlorine (Salt)	<ul style="list-style-type: none"> » Chlorine & hydrogen make up the acid in the stomach » Sodium: nerve stimulation & transportation of materials across cell membranes 	<ul style="list-style-type: none"> » Loss of weight and appetite
	<ul style="list-style-type: none"> » The kidneys will remove excess salt and pass it out of the body. » It is still possible to poison your swine with too much salt, but that would require a large amount of salt and a lack of fresh water. Salt poisoning is very rare. 	
Iron	<ul style="list-style-type: none"> » Transport of oxygen throughout the body 	<ul style="list-style-type: none"> » Newborns do not get enough iron from their mother's milk, which can lead to anemia
	<ul style="list-style-type: none"> » Commercial rations usually contain enough iron for mature pigs; however, newborn pigs need an additional source of iron (see Piglet Management section for more details). » Pigs that have fresh sod to root in often do not require additional iron as they can find it in the soil. 	



Mineral	Essential For	Deficiency
Zinc	<ul style="list-style-type: none"> » Metabolism » Reproductive functions 	Parakeratosis: <ul style="list-style-type: none"> » Slow growth » Severely reduced appetite » Skin condition resembling mange (skin will redden & eruptions occur which secrete a dark watery substance, upon which scabs will develop) » Usually occurs shortly after weaning, but may occur before.
	» It may be corrected by the addition of zinc to the feed.	
Iodine	<ul style="list-style-type: none"> » Growth » Reproduction » Controlling metabolism 	» Thyroid gland will swell (goiter)
	<ul style="list-style-type: none"> » Most important in very young pigs and pregnant females. » When a female is pregnant but lacking enough iodine she will still farrow, however her offspring will be hairless and will most likely die quickly. 	
Copper	<ul style="list-style-type: none"> » Metabolism » Iron transport » Building connective tissue 	<ul style="list-style-type: none"> » Poor growth » Bone disorders » Aortic rupture



Feeding Methods

The method of feeding hogs has changed markedly in the last few years. Many years ago most hogs were hand fed. This was followed by a gradual changeover to **self-feeders**. There does not appear to be any consistent difference between hand and self-feeding in the rate of gain, cost of feed or the feed efficiency. The self-feeder should be large enough to allow one quarter of the pigs in the pen to eat at one time. Pigs fed in the same pen should be as uniform in size as possible.



a) Self-feeding

In most situations, full feeding involves a self-feeder which is always present in the pen. Self-feeding minimizes labor use, makes feeding management somewhat simpler, and pigs that are fed all they can eat maximize their growth rate. This, in turn, can increase barn throughput (number of pigs marketed per year). However, there can be certain disadvantages. If pigs tend to fatten at a lighter weight, then carcass grades can be reduced by self-feeding. As well, maximum intake can be hampered if the feed goes stale, the trough space is inadequate, or if there is competition (stress) for the food at the feeder.

b) Restricted Feeding

This method of feeding involves feeding less than full appetite, usually a set amount daily such as 2.5 kg or 3 kg per day. For the most part, restricted feeding is not used, except with breeding stock or by chance in hand-fed situations.

c) Liquid Feeding

This involves mixing feed with water either before delivery to the pens or in the trough by various methods. In some situations it appears to allow regulation of feed intake, improve rate of gain and certainly cuts down on dust. In other cases, problems are experienced with over and under feeding, with possible waste and spoilage of feeds. Mixing water with dry feed for sows, especially nursing sows, appears to result in lower wastage and is widely practiced.

Feeding methods used by members should be individualistic. **Rations** and methods of feeding found satisfactory at one operation may not be satisfactory at another operation. The use of mechanical feeders and other equipment may not be the lowest cost method of doing the work. This particularly applies to the small operation. In such cases hand feeding may be more practical.



Types of Swine Diets

There are different commercially prepared feeds depending on the growth-production stage of your swine. These include: Prestarter (or baby pig), Starter, Grower, Finisher, Gestation, Lactation, Farrowing, and Gilt developer. The following table helps outline the different categories and how feeding relates to each stage.

	Suckling Pig	Weaning to 50 kg	50 kg to Market	Boars and Pregnant Sows	Nursing (Lactating) Sows
Average daily feed consumption	0.3 kg in creep 0.5 kg at weaning	2.5 kg	3.5 kg	2-2.5 kg	6-7 kg with peak intake at 9 kg during days 14 to 21.
Other guides for the amount of feed & method of feeding	Self feed in a creep feeder (renewed daily)	Feeding methods used by members should be individualistic. Do not feed a thin slop as the pigs may not consume sufficient bulk for optimum growth.		Hand feed. Reduce feed before farrowing. Increase feed for breeding boars.	Relate feeding level to the milk production curve of the sow.
Grains	Prepared commercial pig starter, whole or cracked wheat, oatmeal or oat groats.	Maximum of 85% barley.		Maximum of 80% barley.	Maximum of 80% barley.
Crude Protein Required %	18 – 20%	16%	14%	14%	14%
Protein Supplement	Commercial pig starter or skim milk. NOT BOTH!	16% of ration to be a commercial 42% protein supplement.			
Mineral Supplement	Iron to prevent anemia.	As included in a complete commercial supplement or commercial mineral supplement of 1% of ration to be a mixture of equal parts of iodized salt and ground limestone. The minerals may be self-fed. For animals on pasture, 1/3 of mineral mix to be bone meal or dicalcium phosphate. For young pigs 1% of mineral mix may be zinc oxide; however this type of mix should only be fed for a short time, or zinc contamination of fields will occur.			
Vitamin Supplement	As included in a complete commercial supplement in addition to any access to green grass and sunshine.				
Antibiotic Supplement	As supplied in a complete commercial supplement or a commercial antibiotic supplement. Normally this is only fed to pigs less than 25 kg body weight, and not in grower and finisher feeds unless disease issues exist.			None	None
Water	Access to fresh, quality water at all times. Antibiotics, worming compounds and some feed additives may be added to water when necessary.				

Feed Additives

In Canada, federal regulations do not allow the use of growth hormones in swine diets. However, current regulations do allow the addition of a select list of approved medications in commercially prepared feeds. All medicated feeds must be properly tagged on feed bags. The label must include the type of animal and the withdrawal period.

Weaning rations may contain low levels of **antibiotics** to help the pigs from getting sick. Antibiotics in the nursery help the piglets adjust from sow's milk to solid feed.

However, there are medicated and non-medicated starter feeds. What you choose to feed depends on circumstances such as health of the animals and the veterinarian's advice. Decisions about feeding medicated feed should be discussed with your veterinarian and any deviations from the tag must be prescribed by a veterinarian.

The Use of Sulfa Drugs

Sulfa drugs are used to prevent and treat diseases in swine, but should only be used if prescribed by a veterinarian. Unfortunately, sulfa drugs can also leave a residue in the swine. This residue will prevent the meat from being marketable. If a residue is detected in meat destined for export, the importing country could place an immediate ban on all future exports. Many people have allergies to sulfa drugs and even a small amount of contamination is enough to cause an allergic reaction. Sulfa drugs have also been known to act as a carcinogen in some humans.

In order to prevent sulfa drug residue ensure that you:

- Develop a medication plan based on the Certified Quality Assurance (CQA) manual.
- Eliminate the use of sulfa drugs about 80 days prior to slaughter.
- Flush all feed handling equipment with a non-medicated feed to eliminate residue.
- Clean pens or move swine to another pen 48 hours after medication has ceased.
- Never use a common storage bin for medicated and non-medicated feed.
- Have all medications and medicated feed properly labeled.

Cooking for Your Swine

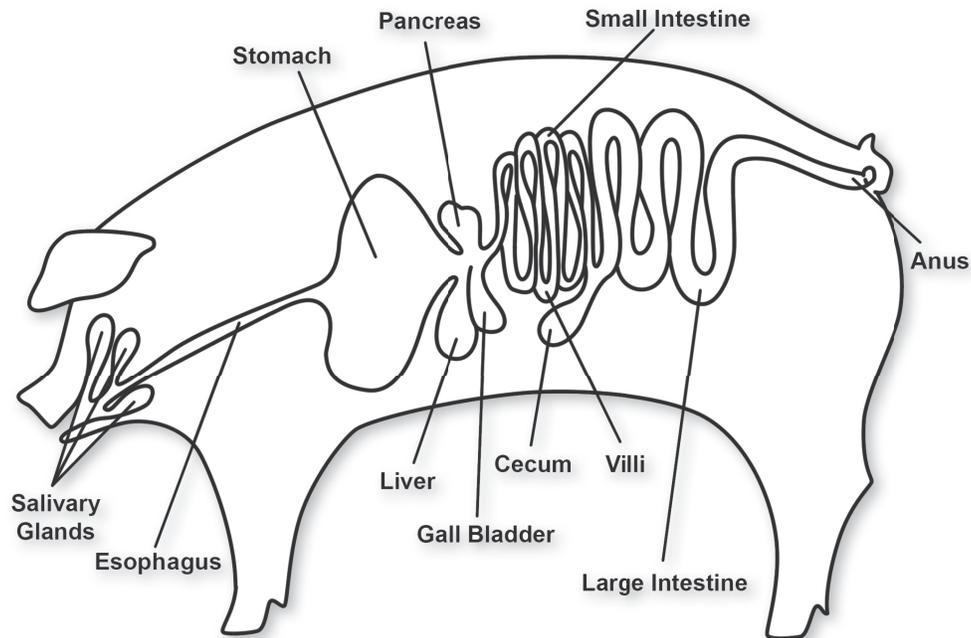
Cooking feeds for hogs is not recommended, although cooked grains are slightly more palatable, but less digestible than uncooked grains. Cooking increases the feeding value of potatoes. The labour involved and the cost of cooking do not make it an economical practice for large swine operations.



Digestive System of the Swine

Unlike many animals that are found on the traditional farm, pigs are not ruminants, but rather monogastrics. This means that a pig only has one stomach, which is similar to a human.

The digestive system of swine can be divided up as follows:



Mouth: The digestive tract of the swine starts here. In the mouth, the teeth break down the food into smaller pieces through mechanical digestion. Breaking the food into smaller pieces allows enzymes throughout the digestive system to break the food down into basic parts more easily. This process starts in the mouth with the saliva, and is called chemical digestion.

Esophagus: The esophagus is the muscular tube going from the mouth to the stomach. It moves the food toward the stomach through a series of muscular contractions, called peristalsis, similar to circular waves moving in the direction of the stomach.

Stomach: The main function of the stomach is to continue the chemical digestion process started in the mouth. Stomach acid breaks down food even further, digesting fats, proteins and carbohydrates. The stomach is also the first part of the digestive system where nutrients are absorbed through the wall of the organ and into the bloodstream.



Small Intestine: The small intestine has three different parts to it: the duodenum, the jejunum, and the ileum. In the first section, the duodenum, further digestion happens. Enzymes from the liver and gallbladder are added to break down fats. The pancreas secretes enzymes that break down fats, carbohydrates, and proteins.

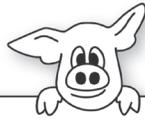
The second and third parts of the small intestine, the jejunum and the ileum, absorb the nutrients in the food. This is done by many tiny finger-like projections, called villi. The villi line the walls of these parts of the small intestine allowing them to transfer nutrients from inside the small intestine into the bloodstream.

Cecum: The cecum is located at the beginning of the large intestine. There is little to no function for the cecum in the swine. It has more of a function in animals like horses and rabbits where it aids in the digestion of fibrous foods.

Large Intestine: While some digestion is still taking place by the time the food has reached the large intestine, the major function of the large intestine is the absorption of water. Here mucous is added to the material that still remains in the digestive tract, the waste, to ease the passing out of the body.

Anus: The opening at the end of the digestive system where waste is expelled from the body.





Facilities



Before Your Project Arrives!

You should make sure that the pen is thoroughly cleaned and disinfected before any animals arrive. There are many disinfectants that you can buy, so be sure to carefully follow the instructions of any product you purchase. Only by following the instructions that come with the product can you ensure your pig's new home is clean and ready to go.

But What Does it Look Like?

To maintain good health, your animal needs a clean, comfortable environment in which to live. An environment is made up of all of the things that surround and affect the animal. Sanitation is very important in a swine project. It can be described as the cleaning up of the premises and keeping them clean. By using good sanitation practices, most diseases and internal **parasites** can be avoided.

In the swine industry, the type of facilities will change depending on the type and size of the operation. To have a successful operation there must be a warm dry bed, fresh air, and sufficient food, no matter how big or small the operation is. In Canada we usually keep swine in a controlled environment. This means that people are responsible for making sure the pen is clean, the correct temperature and that they have access to food and clean water.

Plan your space in advance. Your animal needs adequate space to live and grow. It is recommended that you allow at least 1m² (11 sq. ft.) for a 110 kg pig so you should plan your pen accordingly. In addition to space allowance, temperature is an important factor for swine facilities. Refer to the following table for the different age categories and the recommended temperature ranges.

Thermal Comfort Zones for Pigs of various ages

Stage of Growth	Weight of Pig (kg)	Range of Zone
Piglet	Birth to 6 kg	34° C – 24° C
Weaner	6 – 25	32° C – 18° C
Grower	25 – 50	25° C – 15° C
Finisher	50 – 100	25° C – 15° C
Breeding Stock	Greater than 100	21° C – 10° C

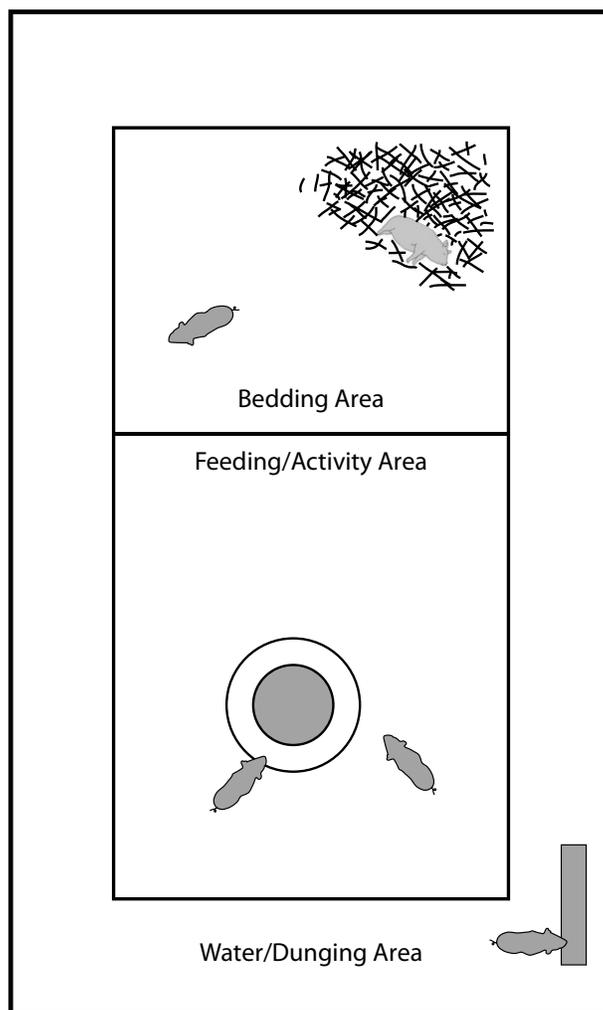
Source: Recommend Code of Practice for the Care and Handling of Farm Animals: Pigs (1993)

For more information on proper animal welfare and care, you may want to get a copy of the National Farm Animal Care Council's Codes for Swine. These include:

- Recommended Code of Practice for the Care and Handling of Farm Animals: Pigs
- Recommended Code of Practice for the Care and Handling of Farm Animals: Early Weaned Pigs
- Recommended Code of Practice for the Care and Handling of Farm Animals: Transportation

Keeping Pigs Comfortable

Swine are very smart animals, and your pen design should take note of that. They will usually assign different functions to different areas of their space. They prefer separate areas for sleeping, eating, and dunging. An ideal pen would be longer than it is wide (a rectangle) as swine 'toilet train' easier in a rectangle pen.



Example pen design diagram



Bedding Area

The bedding area of your pen should be clean and dry. This area is typically the most comfortable, so there should be straw, sawdust, or sand for the animals to lie in. As with the rest of the pen you should make sure there is ventilation without making your pen drafty.

Feeding/Activity Area

The feeding area should be kept separate from the dunging and sleeping areas. Again it should be well ventilated, but free from drafts. Take into consideration the number of pigs at one feeder, as well as the dimensions of the feeder (width, height and depth). All of the pigs in the pen should be able to access the feeder. Make note if some pigs are losing body condition, as they may be at the bottom of the pecking order and may be getting bullied out of feed. Aside from feeding space, there should be space for the hogs to carry out activities. One activity may be playing, and to allow for this interaction include pig-friendly toys such as old footballs, basketballs, rope, rubber hose or commercial pig balls.

Water/Dunging Area

Swine will usually dung in a damp area. There are two ways to 'toilet train' your swine. The first is to dampen the area where you want them to dung. Since they prefer to deposit moisture in a damp area they will dung there. The other way is to keep newly purchased pigs confined in the area you want them to dung in for the first few hours they are in the pen. This is a good area to put your clean water source as well. Situate your water source so that there is no contamination.



Barn Ventilation

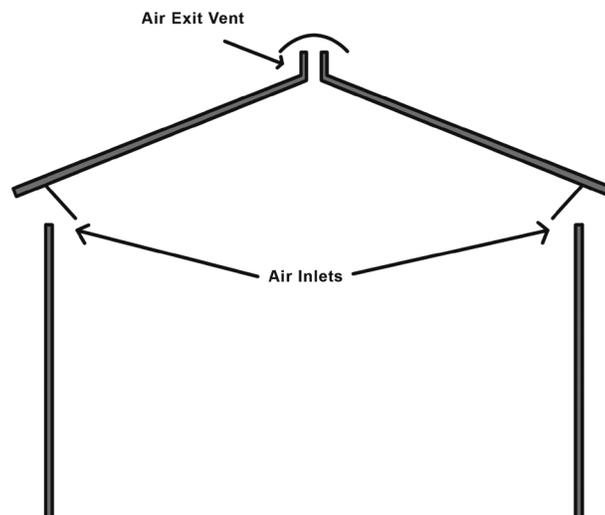
Fresh air is necessary for good health. Proper ventilation is one of the main components of a healthy barn environment. Fresh air prevents the build-up of odours and high humidity in the air, which can cause many serious health problems.

A barn with warm, humid air will provide the ideal conditions for growing harmful bacteria. Also, stale air contains carbon dioxide and ammonia. Carbon dioxide is produced when all animals exhale. Ammonia is contained in the urine of animals. At some time, most of us have smelled ammonia odours in a barn – this is the sharp odour that can make it difficult to breathe. Proper ventilation will remove odours, stale air and moisture, and replace these with fresh air.

Ventilation is a tricky business. When air is moved in and out of a building, it can cause drafts that can chill animals and cause health problems. A suitable ventilation system brings air into and out of the building in a controlled way. It should also enter and exit at a level above the animals rather than at floor level.

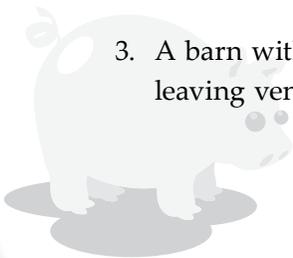
These are some of the ways to provide fresh air while avoiding drafts:

1. The use of windows that are hinged at the bottom so that they open outwards at the top.
2. The use of ventilation inlets at the top of the walls (such as between the roof trusses). Air can exit at the top of the roof through a covered ventilation outlet.

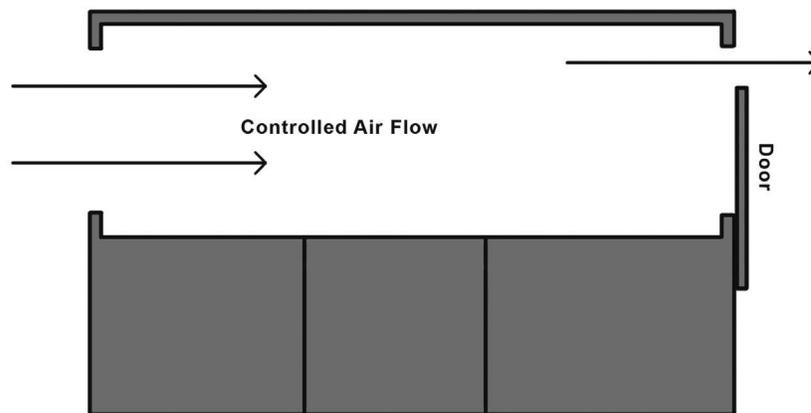


Barn ventilation inlets and outlets

3. A barn with a single pitch roof (sloped in only one direction) can be ventilated by leaving ventilation inlets and outlets at the top of the walls between trusses.



4. If you are using windows or doors to ventilate a building, try not to create a “wind tunnel”. This happens when a large amount of air flows directly into and out of a building through large openings. For example, this diagram shows a barn with a large door on each end of the central aisle. If these doors are left wide open, a very strong wind will blow through the barn. This will blow along the barn floor, pick up dust and chaff, and blow it into the pen. Dust and chaff can cause eye and respiratory irritations. In addition, a strong wind could also chill animals if the weather is cool.



Ventilation of barn with controlled air flow

A better way to ventilate this barn would be to leave one of the doors partly opened, and to open a side window instead. Or, you could close the door on the leeward side (the side away from the wind) most of the way so that it will limit the air that can flow out of the barn. This will limit the air that flows into the barn as well.



Weaner Management

Piglets are weaned between 3 and 5 weeks of age. Once they are weaned, they should be housed in clean, dry, well-heated and draft-free facilities.

The temperatures should be kept at 27 – 32°C for the first week after weaning, then gradually decrease to 24°C. To help with temperatures, heat lamps, covers or bedding may be used. Feeders and waterers should be at a manageable height and size for the size of the piglets.

Grower-Finisher Management

Grower-finisher housing are for pigs from 8 to 9 weeks of age and approximately 22 kg. If these swine are kept outside with variable conditions, it is important to make sure that they have shelter access protecting them from rain and direct sunlight. Clean and ample bedding should be available for a resting area in the summer and a warm, dry environment in the winter. Access to food and water should not be limited, and housing should accommodate for this.

Gestation, Farrowing and Nursery Housing

Please refer to the Reproduction section for more information about these breeding stages for swine.

Shelters for Dry Sows

Dry sows can be kept indoors in individual or group pens or outdoors with shelters. If dry sows are kept outside, they should be supplied with ample dry bedding and freedom from drafts in their facilities. No matter what the facility, space allowance should be more than adequate. Avoid overcrowding to reduce the possibility of injury.

When dry sows are housed in stalls, the temperature should be maintained between 12°C to 18°C. Sows housed in groups can withstand lower air temperatures and when bedding is provided the critical temperature is even further reduced. When sow stalls are used, floor slats are recommended to insure a dry area for the sow and to reduce cleaning time. The edges of the slats should be rounded to avoid damage to feet.



Environmental Concerns

Every year there is increasing concern over agriculture activities and the environment. Properly handled farm waste can be of great benefit, but poorly managed waste can end up in places where it is not wanted, polluting the land, air and water.

Two important documents you should make yourself aware of:

- “Environmental Farm Planning Guide”
(through the BC Agriculture Council, <http://www.bcac.bc.ca/>)
- “Farm Practices Protection (Right to Farm) Act”
(through the Provincial Agricultural Land Commission, <http://www.alc.gov.bc.ca/alr/fppa.htm>)

These two documents will help you to understand the effects that agriculture can have and how to properly manage your operation to avoid polluting the environment around you.

Environmental Checklist

I'm already doing	I want to improve	Care
		Manure is properly stored and covered to prevent leaching and runoff and any runoff is directed away from water sources.
		Manure pile is located far (15 m from water, 30 m from water to be consumed) from water sources (wells, creeks) and neighbours to prevent contamination.
		If manure is used as a fertilizer, it is applied in the appropriate quantities and at the appropriate times.
		Pollution of concern to neighbours is minimized, such as constant or loud noise, strong gas emissions or odours, or dusty air.
		Paddocks and other high density enclosures are located far (at least 30 m or 100 ft) from water sources (wells, creeks) to prevent contamination.
		Chemical (pesticides, herbicides, fertilizers) and fuels are properly stored to prevent spills and properly disposed of when outdated.
		Agricultural wastes (straw, wood) are being composted and located away from water sources.
		Dead stock is disposed of in an approved and timely manner (varies by cause of death but may include incineration or burial).



Biosecurity Measures – Today’s Reality¹

In recent years, people have become much more aware and concerned about **biosecurity** issues. Everyone wants to prevent the spread of animal disease as much as possible, and no one likes the possibility of animal diseases contaminating our food supply or affecting our health.

The simplest biosecurity measures are aimed at the possible transmission of animal diseases or pests from one farm to the next. Here are some possible sources of transmission:

- People who travel from one farm to another (for family visits, or for work), unintentionally carrying disease agents on their vehicle, shoes, or clothing.
- Equipment that is moved from farm to farm, carrying dirt, seeds, or micro-organisms.
- Animals from one farm that come into contact with animals from other farms during transport, or during participation at events such as shows, sales, or fairs.
- Farm animals that come into direct contact with infected wild animals, such as rats, mice, raccoons, or others.
- Farm animals that come into contact with airborne disease-causing agents or with fecal matter from infected birds flying overhead.
- Water from streams or irrigation ditches that may have become contaminated upstream from your animals.

Consider the routes of transmission that could affect biosecurity on your farm. Here are some of the general measures currently being recommended for farms concerned with biosecurity:

- Restrict human access to the farm property (with signs, fences, and gates) so that farm visitors enter at a single spot.
- Provide disinfectant footbaths or disposable plastic booties for visitors to wear while walking around your farm.
- Provide a graveled or paved parking area for farm visitors (to reduce the carrying of mud from one farm to another).
- Keep containers of disinfectant on hand if equipment, vehicle tires or undercarriages need to be washed off.
- Encourage the use of disposable overalls if visitors will come into direct contact with the animals.

¹ Taken from “A Health and Safety Guide for Handling Farm Animals and Poultry,” FARSHA, 2006



For general purposes, the appropriate concentrations for disinfectant are:

- 10% bleach solution
- 1 to 2% Virkon solution
- 15 ml/litre Chemprocide

The best disinfectant method for hands is vigorous and thorough hand-washing with lots of soap and hot water. If this is not possible, anti-microbial waterless cleansers may be used as a temporary measure, but these cleansers **must** be rubbed in thoroughly, including under the nails. As soon as hot water is available, hands should be re-washed.

If visitors will be in direct contact with animals or hard surfaces on your farm, encourage them to vigorously wash their hands at the start and end of the visit. The visitors should be happy to help and understand the importance of preventing the spread of animal disease. Biosecurity is an important issue to avoid animals getting sick and to make sure our food supply is safe.





Husbandry and Health

The term Animal Husbandry refers to the management and care of animals. In addition to proper nutrition and health care, there are several practices that are important in the care and management of swine. In order to better care for project animals it is important to understand their behaviour.

Animal's Senses¹

To understand an animal's reaction, always consider the situation from the perspective of its senses rather than your own.

Strain to hear what it may be hearing. Is there thunder in the distance, or is something rustling strangely? Look around and imagine the view as it appears to your animal. Is it seeing a moving shadow, a glaring light, or something flapping? Watch as it sniffs the air. Could it have picked up an unfamiliar or frightening scent?

Farm animals have the same senses as humans – smell, touch, hearing, sight – but often in very different proportions from our own. Remember this when considering situations from the animal's perspective.

Almost all animals have a much better sense of smell than humans do. A horse, for instance, may surprise you with its reaction if it picks up the scent of a bear or cougar.

The position of our eyes gives us very good depth perception, good distance vision, although not a very wide angle of view to the sides. Most animals, on the other hand, have a very wide angle of view, as their eyes are positioned on the sides of the head. Cattle, for example, are able to see almost 360° with just a little turn of the head!

Unfortunately, though, most animals have very poor depth perception, and do not focus well on objects directly in front of their heads.

- You have probably noticed that horses and cattle must move their heads down to closely examine objects on the ground.
- Livestock may hesitate at the edge of water, simply because they have no way of knowing the depth of what they're stepping into.
- Animals tend to move from poorly-lit to more light areas, but do not react well to bright glaring light. In fact, animals that have been in shade or indoors may balk at moving into areas of very bright contrasting light, until their vision has adjusted to the change in light level.

¹ *Animal Senses, Tips about Behaviour, and Good Practices Around Hogs*, are taken from "A Health and Safety Guide for Handling Farm Animals and Poultry," FARSHA, 2006

Tips About Swine Behaviour

Hogs are sensitive and frighten easily. They have poor eyesight and depth perception, and do not see well over distance. They do, however, have a very wide circle of vision that extends almost 310° to everywhere except directly behind their head.

Hogs can seem small, because they are generally low to the ground. Do not be misled by this. These animals are very strong, have a lot of body weight behind them when they move, and can move very fast when frightened, challenged, or on the offensive. Note also that hog behaviour varies, depending on their age and sex. Boars and older sows are considered to be more dangerous. Boars that have not been de-tusked can inflict serious injury, and have been involved in a number of handler deaths in Canada over the years.

Signs of distress in hogs include lying down, refusal to move, and panting. If this is the case, leave the animals alone. Sows may bite at fences, walls, or people after farrowing; their voice may lower, and they may become more edgy.

Of special note is the sound made by hogs. The squeal of a hog does not necessarily mean that it is in distress – hogs will make this noise for no apparent reason at all. Hog squeals, though, are loud and high pitched enough to cause serious hearing damage to a person. When working around hogs, always use hearing protection. Keep a clean set of ear muffs hanging by the entrance to the hog barn – it will encourage everyone to use them regularly.

For more detailed information on hog-raising health and safety, refer to the Farm and Ranch Safety and Health Association's (FARSHA) booklet, The BC Pork Producers' Safety Guide.

Good Practices Around Hogs

Always wear sturdy footwear with steel toes – hog hooves are sharp. You may also find it helpful to wear hockey-type shin pads to protect your lower legs when working around hogs. Move quietly among the hogs, and do not startle them or awaken them suddenly. Aggressive handling (sudden awakening, throwing cold water, and so on) can cause heart attacks in hogs.

Use caution when mixing pigs or introducing a new hog into the pen. Hogs that are mixed quickly or are overcrowded can become very territorial and aggressive, and may injure each other.

A particular hazard is that if you are injured and fall, or are knocked down, the hog may lie on you or continue the attack by biting. If you are ever injured in a confined area with a hog you must get out immediately, especially if you are bleeding.



Moving Hogs²

Hogs can be difficult to move. Use a quiet, firm, confident, patient approach. This is not a “timed event.”

Never allow anyone on your farm to kick at hogs to move them. Their immediate reaction may be to turn and strike out at the perceived threat, and their longer-term reaction may be to become stressed and more unpredictable with other handlers.

Make and use “hog panels,” plywood boards with hand-holds cut out; these can be cut to fit the alleyways on your farm. Don’t use the board to chase the hogs, but allow the animals sufficient space and time to find their own way.

Plastic shakers or slappers can be used to create a small noise so the hogs can be steered forward. Never strike a hog directly with one of these tools.

Hogs can be encouraged to move backwards by placing a bucket, box or covering over their head. They will immediately try to “back out of” the covering object and steered into the desired location.

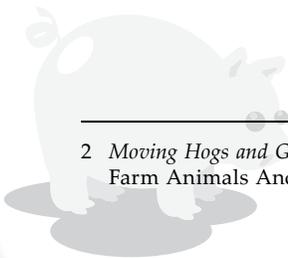
Good Design of Working Areas

When designing or modifying hog barns or pens, consider these facts:

- Hogs can jump as high as three feet, so sturdy enclosures must be at least this high.
- Lighting is particularly important to hogs, as they can be very sensitive to abrupt changes in light levels and may balk at being moved into brightly-lit areas.
- Hogs are sensitive to abrupt changes of temperature, and may also balk or move slowly if they perceive a change from hot to cold or vice versa.
- If possible, keep the flooring consistent wherever the hogs will be moved, because these animals can detect changes in the “feel” of the surface and may resist being moved.
- Do not try to force hogs to step up or down; instead, build ramps wherever needed.

Pigs Like to be With Their Friends!

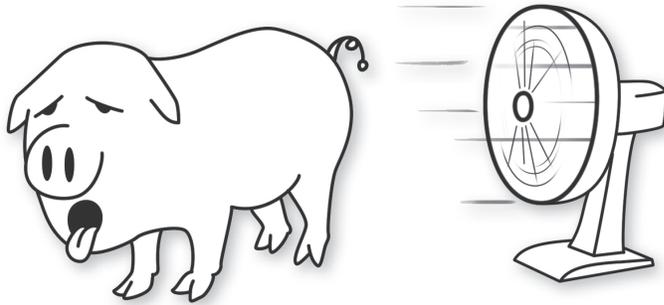
An important point to remember is that pigs are social animals. They do not like to be overcrowded, but they like to be able to interact with each other. If possible they should be penned together, or in such a way that they can touch snouts with pigs in another pen.



² *Moving Hogs and Good Design of Working Areas*, are taken from “A Health and Safety Guide For Handling Farm Animals And Poultry.”

Oil Scurfy Skins

Unthrifty pigs often develop scurfy skins. The cause may be mange, mites or lice in which case pigs should be treated with a recommended medication. Often, however, if the pigs are outside, their skins become rough because they are chapped or sunburned. A thorough application of mineral oil is a practical treatment. This may be applied with a broom, sprayer or an oil soaked cloth wrapped around a post which the pigs rub against. Do not use oil from a diesel engine.



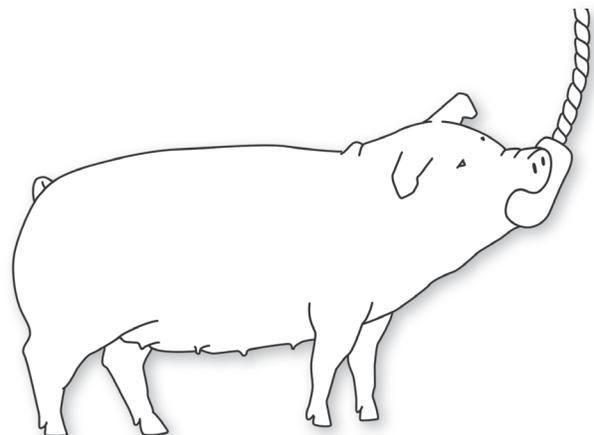
Swine Do Not Sweat

It is important for you to remember that pigs do not sweat. When pigs are kept outside quite often they will roll in the mud in order to keep cool. Inside they are not able to do this, so it is important for you to make sure that the housing keeps your pig cool in the summer and warm in the winter.

Boars get Bored!

In fact all swine get bored because they are really smart. A bored animal is trouble. This can lead to behaviors such as fighting and tail biting, which is why most tails are docked in Canada. The United Kingdom now requires pig producers to supply their animals with material to root in, such as straw, sawdust, or peat.

Some studies have also shown that producers can suspend toys above the floor in the pen to alleviate boredom. It has also been shown that pigs are easier to handle when they have been raised with toys. It is very important if you put toys in the pen for your project to play with that they be suspended above the floor. The reason for this is that if the toys get any manure on them, the pigs will no longer play with them. Toys are most attractive when made of a soft flexible material, such as rubber or rope. You may have to do a little bit of research to find out which toys available in your area will work best.



Animal Identification

Animal identification is essential to keeping records and to allow **traceability** of an animal. For swine production, the most common methods of identification are tattooing, ear notching and ear tagging. What method you choose will depend on your area and what the 4-H club requires.

Tattooing: common with purebred animals and pedigreed stock, as it is mandatory for animal registration.

Ear Notching: done when the piglets are only a few days old, to lessen the effect on the pigs. There is a certain way the notches are done to identify piglets individually or by litter with the month and day of birth. Ear notching is not as common as it used to be, and is not recommended for 4-H members who are showing their animals.

Ear Tagging: used in breeding herds, and will most likely be the recommendation for a traceability system. The tag used fastens through the center of the ear, allowing the pig to be identified from the front and back of the ear. In a breeding system, the tags may be colour coded to help with breeding records.

Health and Disease

Just like you, pigs have to be healthy and disease-free in order to grow properly. It is important that you take measures to prevent any illness in your animal. Pigs can get sick easily and preventing an illness can be a lot easier and more economical than dealing with an illness. Healthy animals should be the goal of every 4-H swine member. The following points should be considered to help prevent disease:

1. Keep Clean

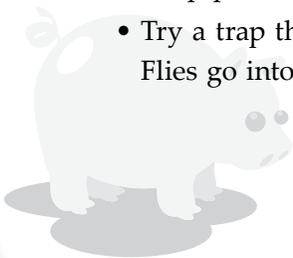
As was mentioned in the facilities section, cleanliness of the living space, feeders and waterers helps prevent a lot of diseases. Air should be fresh and not too humid. This can prevent the growth of bacteria that cause disease.

2. Keep Flies Under Control

Flies can spread diseases by walking on one surface and then walking on another.

ACTIONS

- Locate the manure pile well away from the barn or pasture.
- Put screens on all windows and air vents in barn.
- Hang up flystickers from the barn ceiling.
- Keep pens clean – especially during fly season.
- Try a trap that uses a fly attractant mixed with water to attract and kill flies. Flies go into the trap and are drowned without the use of pesticides.



3. Proper Feeding and Watering

Improper feeding and watering causes many diseases. “Improper” can mean poor quality feed and sudden changes in quantity or type of food.

ACTIONS

- Select a regular feeding method and make all feed changes gradually.
- NEVER feed moldy or dirty feed. Moldy feed should always be discarded.
- Supply clean, fresh, quality water at all times. Avoid stagnate pools and streams or wells that are contaminated with seepage from the barnyard as sources of drinking water. Periodic water testing is advisable. Consider water treatment systems if certain quality issues exist, such as bacteria.

4. Proper Ventilation and Lighting

Adequate lighting should eliminate shadows that may scare pigs during movement. As well, proper lighting intensity makes for a more pleasant and safer environment for animal handlers. Ventilation is important in the control of humidity and odours that can cause undue stress and health problems for both animals and handlers.

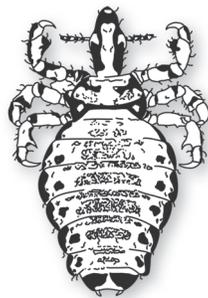
ACTIONS

Use the expertise of your veterinarian along with a swine facility specialist to assess both air quality (ventilation) and lighting in your facility, and make the appropriate changes.

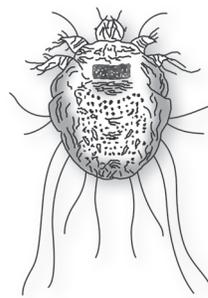
5. Control Parasites

External parasites such as lice or mange like to bite the pig’s skin. This can be very uncomfortable for the animal – just like when you are bitten by many mosquitoes. They can reduce the effectiveness of the immune system and lead to other problems. Avoid purchasing pigs from farms that have lice or mange – most farms are now free of these parasites.

Internal parasites live in the pig’s body in areas such as the digestive system and the lungs. Almost all parasites feed on the swine’s body and drain away nutrients. In large enough numbers, most parasites can kill the host (the animal that they live on).



Louse parasite



Mite parasite

ACTIONS

- The first step to effective parasite control is proper sanitation. Keep animals away from the contaminated area, and weaned pigs away from the older breeding stock.
- Reduce excess moisture in the area as dryness will kill the eggs of parasites. Keep in mind that the eggs may last several years before infecting a host.
- Pasture raised swine have a much greater chance of infection than swine raised in confinement.
- Confinement systems with dirty solid concrete floors are no better than pastures.
- Before they farrow, treat females for external parasites so that the piglets are not exposed.
- Using certain types of worm medications controls internal parasites. Before deworming, it is best to collect droppings from your swine and have these analyzed to find out which worms are causing problems. Your veterinarian can then help you choose the best medication to do the job properly.

6. Control Rodents

Rodents such as rats and mice can cause major economic damage to a hog operation, and they can spread disease. Losses include damage to wiring that may result in fires, malfunctioning equipment and alarms, and damage to buildings and doors. Rodents can also get into feed supplies, destroying or contaminating the feed.

ACTIONS

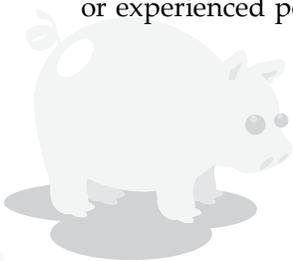
- Keep the outsides of buildings tidy and free of debris.
- Rodent-proof your facility by fixing holes or other entry points into buildings.
- Use proper feed and grain storage with containers that are sealed to prevent rodents getting in.
- Talk to your veterinarian and farm supply store about rodent control solutions (e.g. rodenticides, traps and baits) that will work for your farm.

7. Vaccinate to Prevent Diseases

The threat of some diseases can be partly eliminated by vaccinating. Ask your local veterinarian or swine producers what diseases you should be keeping an eye out for and vaccinate against them.

ACTIONS

Talk to your veterinarian about recommended vaccinations. If you only have a few animals, you might have your veterinarian vaccinate them. If you have several animals, you might want to learn how to give vaccinations yourself (make sure you learn from a veterinarian or experienced person).



8. Prevent Exposure to Disease

Many diseases of animals are spread by contact with other animals.

ACTIONS

- Learn to recognize the most common diseases of swine. Learn how these diseases are spread and how to prevent their spread.
- Have a biosecurity plan in place that is practical yet effective in dealing with both animals as well as human and vehicle traffic to and from the facilities.
- When purchasing swine from another farm, make sure that it has an effective biosecurity plan in place and review the health status and vaccination protocols of that farm.
- Buy animals from as few sources as possible.
- Isolate all new swine from other farms for at least two weeks. Observe frequently and watch closely for any signs of disease. Prepare new swine for introduction to the herd by vaccinating and exposing new pigs to barn organisms with manure.
- Do not put new animals into your herd until you are quite sure that they are healthy.
- When treating sick swine, keep them separate from the rest of the herd. At chore time, handle the sick animals last.

9. Prevent Stress

Be sure that stress levels are kept to a minimum. Many diseases stay dormant (inactive), but become active when animals are under abnormal stress.

ACTIONS

- Do not overcrowd pens.
- Provide adequate lighting and ventilation.
- Use proper handling and animal movement practices.
- Isolate a very aggressive hog from the rest of the herd so that it cannot cause trouble and injury.
- Keep insects (flies & mosquitoes) away from the animals.

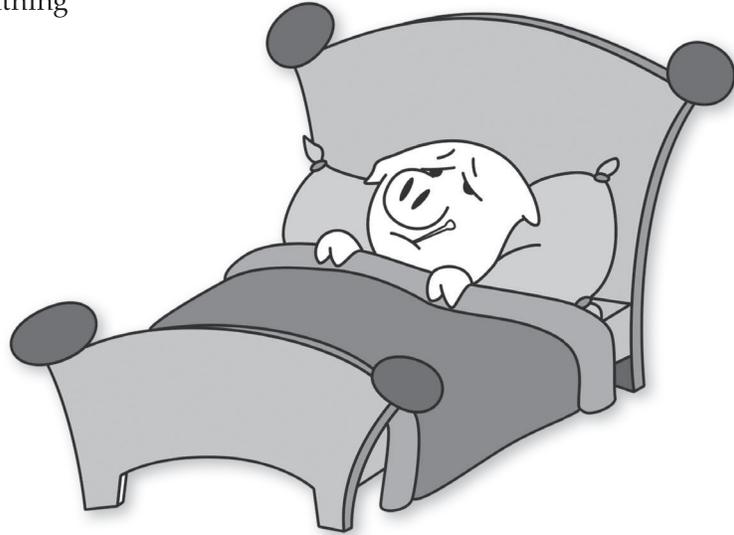


Swine Health Signs

A lot of effort is put into disease prevention, but animals can still become ill. It is important to learn health signs and the common diseases that affect your animal.

Signs of a Sick Pig:

- May be off alone, in a corner
- When it does stand, it may have its head and ears more drooped than normal
- Extended neck or trouble breathing
- Diarrhea or constipation
- Altered stance
- May just look “different”



Normal Ranges for Pigs	
Rectal Temperature	39.2°C (102.5°F)
Heart Rate	70 – 120 beats per minute
Resting Respiration Rate	32 – 58 breaths per minute

Source: Merck Veterinary Manual <http://www.merckvetmanual.com/mvm/index.jsp>

Protection from Disease

In British Columbia, some of the **zoonotic diseases** that can be transmitted from hogs to people are:

- Acariasis
- Campylobacter
- Influenza Type A
- Erysipelas
- Listeriosis
- Salmonella
- Streptococcus
- Leptospirosis



Common Swine Diseases

This chart only contains some common swine diseases. Consult a producer or veterinarian in your area for a more detailed list.

Name	Cause	Symptoms	Treatment	Prevention
Enteritis of the Newborn (Baby Pig Scours)	Escherichia coli (E.coli) infection	<ul style="list-style-type: none"> » Loss of weight » Severe diarrhea » Weakness & depression » Sunken eyes » Dehydration 	<ul style="list-style-type: none"> » Antibiotic treatment » Treat all animals in pen as though infected 	<ol style="list-style-type: none"> 1. Strict sanitation in the farrowing area 2. Environment for piglets that is warm, dry and free from drafts 3. Immunity through colostrum of mother's first milk
Transmissible Gastroenteritis (TGE)	Virus	<ul style="list-style-type: none"> » Diarrhea » Vomiting » Reduced feed consumption 	No effective treatment due to virus, consult veterinarian	<ul style="list-style-type: none"> » Good management practices » Buy animals from TGE-free herds » Disinfect all transportation vehicles
Pneumonia	Bacterial or Viral infection	<ul style="list-style-type: none"> » Increased & shallow breathing » Shivering » Coughing 	<ul style="list-style-type: none"> » Treatment will depend on type of pneumonia » Consult veterinarian 	Keep pen clean, dry, and draft free
Porcine Circovirus Type 2 (PCV2)	circovirus	<ul style="list-style-type: none"> » Unthrifty pigs in the nursery or grower stage 	<ul style="list-style-type: none"> » Treatment of secondary symptoms with antibiotics, vitamins and fluids » Consult veterinarian 	<ul style="list-style-type: none"> » Vaccination program » Biosecurity measures
Porcine Reproductive and Respiratory Syndrome (PRRS)	Virus	<ul style="list-style-type: none"> » Pneumonia and undermines the immune system (occasional outbreaks) » Abortion & stillborn pigs in pregnant female (never previously exposed) 	<ul style="list-style-type: none"> » No effective treatment as it is a virus, consult veterinarian 	<ul style="list-style-type: none"> » Biosecurity measures » Sometimes vaccination (may not always work)

Name	Cause	Symptoms	Treatment	Prevention
Streptococcus meningitis	Streptococcus suis, or other streptococci	<ul style="list-style-type: none"> » Incoordination initially followed by lying on side and paddling » Unusual stances » Convulsions 	Antibiotic treatment Consult veterinarian	<ul style="list-style-type: none"> » Vaccination program » Biosecurity measures
Glasser's disease (Haemophilus parasuis)	Bacteria - Haemophilus parasuis	High fever 0 Severe Coughing 1 Lesions 2 Pneumonia 3 Sudden deaths	Antibiotic treatment Consult veterinarian	» Vaccination
Ileitis (Lawsonia intracellularis)	Bacteria - Lawsonia intracellularis	<ul style="list-style-type: none"> » Diarrhea in grower pigs » Sudden bloody diarrhea & deaths in young breeding stock 	Antibiotic	» Vaccination

Less Common Swine Diseases

This chart contains swine diseases that were more common in the past and are now rarely seen. They are included as a guideline and the chances of these diseases occurring in your swine is low.

Name	Cause	Symptoms	Treatment	Prevention
Salmonellosis (rarely seen now)	Bacteria	» Scours (mustard like appearance)	Antibiotic	<ul style="list-style-type: none"> » Quarantine new animals » Vaccinate
Coccidiosis (rarely seen now)	Protozoan parasite that multiplies in the cells lining the small intestine	<ul style="list-style-type: none"> » Diarrhea that changes colour from yellow to gray-green » Dehydration » Piglets unable to gain weight » Sows will not show symptoms as they are carriers 	Consult veterinarian for proper treatment	Proper sanitation: <ul style="list-style-type: none"> » In particular with concrete or slat floors and farrowing crates » Avoid having wet floor surfaces » Avoid creep feeding on floor » Keep fly population down
Swine Dysentery (rarely seen now)	Bacteria – Serpulina hydroenteriae	» Watery mucousy feces, sometimes bloody	Isolation & herd medication practices	Maintain a closed herd & quarantine all incoming animals
Leptospirosis (rarely seen now)	Bacteria	<ul style="list-style-type: none"> » Still births » Weak or dying pigs at birth 	Routine vaccination of breeding herd	Proper sanitation and vaccination

Administration of Medications

Keep in mind that it takes a lot of time and experience to be able to recognize and correctly diagnose diseases. Do not hesitate to seek the help of an expert such as an experienced hog producer or veterinarian if you suspect your pigs are ill, especially when purchasing and administering medications. The wrong type or dosage of medication can do a lot of harm so always be sure to double check. Develop a treatment plan for the various clinical signs that you may see in your pigs. There are four ways to administer medications:

Orally – given in water, feed or as a drench

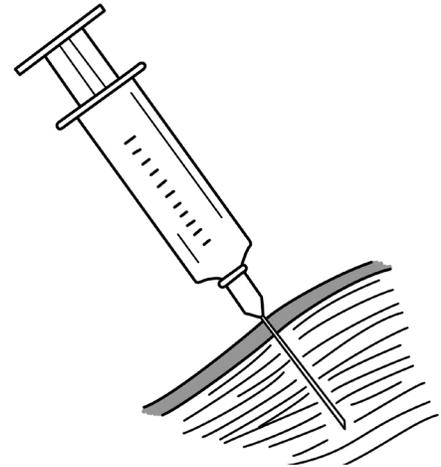
Inhaled – sprayed in the mouth or nose

Topical – salves, cream or ointments

Injection – There are three types of injections:

1. Intramuscular (IM) – in the muscle

- IM injections should be given in the neck muscle, in the area just behind the base of the ear and in front of the shoulder. The needle should be inserted into the muscle with a quick thrust. Care should be taken to make sure the needle is inserted in the muscle, not just under the skin. You should pull back on the plunger to make sure the needle has not been inserted into a blood vessel, as evidenced by blood appearing in the syringe. The medication should be slowly injected into the muscle. A ½ to ¾ inch needle is recommended for IM injections on younger, smaller pigs (baby pigs; nursery pigs); however, a 1.5 inch needle is recommended for finisher pigs and breeding stock.



Intramuscular injection

Recommended needle sizes and lengths:

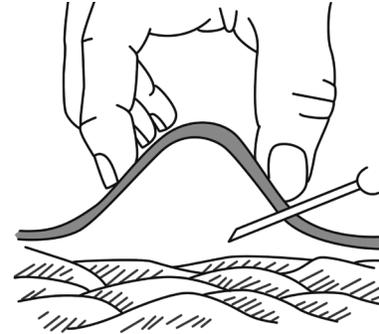
Intramuscular Injection		
	Gauge	Length
Baby pigs	20	5/8" or 1/2"
Weaners	18	3/4" or 5/8"
Grower/Finisher	16	1
Breeding stock	16	1½"

2. Intravenous (IV) – in the vein

- Sometimes IV injections are necessary to get medicine directly into the bloodstream for a quick response. These are given in the jugular vein. Most producers rely on veterinarians for this type of injection.

3. Subcutaneous (SQ, Sub-Q) – under the skin

- SQ injections should be given in the neck in front of the shoulder. In small pigs, the loose skin of the flank may also be used. A SQ injection is given by making a “tent” with the skin and injecting the solution under the fold of the skin, parallel with the muscle. The medicine should be slowly injected. A 3/4 or 1 inch needle should be used.



Forming tent with skin for a subcutaneous injection

Recommended needle sizes and lengths:

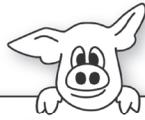
Subcutaneous Injection		
	Gauge	Length
Nursery	16 or 18	1/2"
Finisher	16	3/4"
Breeding stock	14 or 16	1"

Source: National USA 4-H

Use the smallest gauge needle possible when giving injections. Thin solutions will need a smaller gauge than thicker ones. A clean needle should be used (each time) when drawing medications or vaccines from a bottle. Use only **detectable needles** in your pigs. A detectable needle contains more iron than a normal stainless steel needle, allowing it to be detected by metal detectors at the processing plant. This type of needle is mandatory under the Canadian Quality Assurance (CQA) program, and many processing plants require that they be used.

No more than 10cc for an adult sow or boar and 2cc in baby pigs should be injected at any one site. Do not inject into the ham, as this will create scar tissue or bruising in this area, making the meat less desirable. Each time you administer any form of medication you should keep a record of it. Recommended label withdrawal times must be strictly adhered to. Additional safety precautions when administering medication would be wearing a mask and/or gloves.





Swine Reproduction and Breeding



You may start off with just one 4-H swine as a project, and this could be the beginning of your swine herd. If you have chosen your 4-H project wisely, you may already have an animal with desirable traits for breeding stock.

You should use **boar testing information**, **sow productivity indexes** and **carcass quality data** for the selection of breeding stock. You should select animals that are physically sound, of good health status, and with desirable genetics for feed efficiency, growth rate and carcass quality on the sire side. Hybrid vigour causes a significant increase in litter size, survival rate of the pigs, and pre-weaning growth rate. These reproductive characteristics, as well as lifetime pigs weaned, are important traits for herd females.

Puberty and Gilts

A pig is able to breed once the reproductive organs become functional at **puberty**. The rate at which this occurs will vary between breeds, among different production and management systems, and even between litter mates.

Many factors can contribute to the onset of puberty in gilts:

- Genetics – Different breeds reach puberty at different rates.
- Nutrition – Underfeeding and improper nutrition can delay the onset of puberty.
- Season – Warm and humid days in the summer contribute to gilts taking longer to reach puberty.
- Light – 18 hours of light a day is ideal to avoid a longer time to reach puberty.
- Housing – Keeping gilts indoors and alone delays puberty.
- Stress – Such as transport or introduction to a new environment can stimulate gilts to come into heat.
- Boars – Several studies have shown that a mature boar can stimulate gilts to come into heat. Direct nose to nose exposure (15 minutes twice a day starting at approximately 90 to 100 kg) significantly reduces the time to reach puberty.

Males usually reach puberty between 5 and 6 months, but should not be used for breeding until 7 to 8 months of age. It usually takes about 6 to 8 months for a gilt to reach puberty; however, a gilt can reach puberty in as little as 145 days, but should not be bred until her second **estrus cycle**. Current targets within the industry are to breed modern hybrid gilts at 200 days of age and at 125 kg body weight.



Small, stunted gilts should never be bred, as they will usually have small litters, weak pigs, and have more trouble at farrowing time. The **gestation** time of the sow is usually 112 to 114 days and may vary from 110 to 118 days, with the average on most farms today being 115 days. The usual estimate for swine is 3 months, 3 weeks and 3 days. The breeding date of the sow should be recorded so that preparations can be made for farrowing.

Estrous cycle

(also known as the heat cycle)

Approximately every 21 days a female's ovary will release ova to travel down the fallopian tube to be fertilized. The estrous cycle can be separated into four stages: **Proestrus**, **Estrus**, **Metaestrus**, and **Diestrus**.

1. *Proestrus* – three or four days before the onset of estrus. Increased production of **hormones** that initiate the estrus cycle.

During this stage you may notice:

- An increase in the attention paid to disturbances and nearby boars
- Increased restlessness
- Mounting of other females
- Reduced feed consumption
- Grunting in a rhythmic fashion (known as honking or clucking)

2. *Estrus* – two or three day period where the female is receptive to fertilization. The signs of heat displayed during proestrus will increase.

In order to ensure that you have the most eggs available for fertilization as possible, you should try to fertilize between 30 and 36 hours after the first signs of estrus. You will be able to tell the best time for this when the female responds to the riding test. When a slight pressure is applied to her back and her sides she will remain still with her legs rigid, back arched and ears held very close to the head. As many 4-H pigs are already docile, this should not be the only sign you look for, keep an eye out for other indicators.

The vulva of the female will appear enlarged and red with a sticky mucoïd discharge. During the latter half of the estrus period, the mucous will turn clearer and the vulva will decrease in size.

3. *Metaestrus* – Within six to eight days following ovulation the female secretes another hormone that either acts to support embryo development, or preparation for the next cycle. A female will no longer stand still to the riding test and will return to normal behaviour. Caution: Do not breed during this period as vaginal infections can occur.
4. *Diestrus* – This is a preparation stage for the next cycle.



Reproductive Characteristics of Sows	
Age at Puberty	6-8 months; to be bred when gilt reaches 200 days of age and a body weight of approximately 125 kg
Length of Estrus (Heat) Cycle	Approximately 21 days
Duration of Estrus (Heat)	2-3 days (40-60 hours)
Timing of Ovulation (best breeding time)	Approximately 38-42 hours after the onset of estrus
Gestation	110-118 days (3 months + 3 weeks + 3 days)
Lactation	10-28 days
Weaning to Estrus	3-5 days

Breeding Times

If breeding takes place during the hot time of the summer, the conception rate and the litter size will decline. Normal practice today is that breeding occurs year-round; however, conception rate does decrease during the hotter months of summer. This has to do with both the boar and the female. The quality of the boar's semen is affected by temperatures over 32°C and the effects can last for weeks afterwards. The females, on the other hand, may lose a lot of embryos during the implantation stage (12 to 18 days after breeding).

Increase Feed Before Breeding

If a brood sow is in a run-down condition, she should be fed so she is gaining weight at breeding time. The practice, which is called **flushing**, generally results in larger litters.

Reduce Feed After Breeding

The ration used in flushing should be cut back a little after the sow has been mated and settled in. Otherwise the sow will get too overweight. A sow should gain from 35 to 45 kg while she is pregnant. You will have to use your own judgment as to whether your sow is becoming too overweight. Remember that she should be in fairly good flesh condition at farrowing time. Most survey data and research reports show distinct advantages in feed costs from individually penning pregnant sows. These reports also show no reduction in the reproductive performance of pregnant sows kept under close confinement and fed 2 kg of a balanced ration per day.

Current industry practice will include a feeding program that generally maximizes feeding from weaning to breeding (often sows do not eat much), then restricts feed for the two or three days at breeding, followed by feeding to condition. Fat sows get about 2 kg, thin ones 3 kg or even more feed. Approximately halfway through gestation, they are re-assessed and feed levels are adjusted according to condition. For the last 2 weeks before farrowing, increase feed levels to all sows by 1 kg.



Mating Females: Natural Breeding and Artificial Insemination

Natural Breeding

Be aware of any safety issues that may be present with natural breeding. If you are handling a boar, make sure there is an experienced adult present and assisting you. There are two basic natural breeding methods:

1. *Hand-mating*

This will give you an accurate breeding date for the female, and let you keep track of boar lineage. This system will also let you detect boar and sow fertility problems at an earlier time. It is important that you make sure that the time you choose to mate your female is correct. You should bring your boar to your female about 12 to 16 hours after the female has shown a response to the riding test. The male and female will go through a sort of mating ritual. Mating should last approximately 10 to 20 minutes. It is difficult sometimes to identify exactly when you should have a female serviced by the male, so you should again take her to the male 6 to 24 hours later to be serviced again.

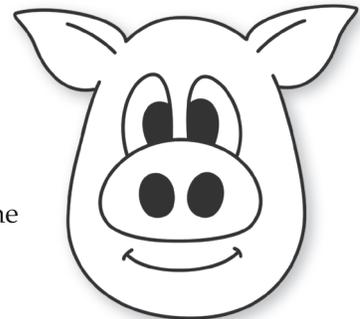
Advantages to this method:

- You know the approximate farrowing date
- There is less of a chance of overextending the boars
- You can ensure the mating pair
- You can ensure the mating was completed
- This may allow younger animals to mate successfully

Unfortunately this method does require more labour than pen-mating, and you do need to have multiple pens.

2. *Pen-mating*

Although this system is less labour intensive, it is rarely if at all used because litter size and conception rates are so variable. The procedure involves placing a boar in with the females for a 24 hour period, at which time the boar is replaced with another boar, and the process is repeated. This method is flawed; however, as it does not allow you to keep track of which male mated with which female.



Artificial Insemination (AI)

Swine artificial insemination (AI) is a simple technique that can be mastered quickly. Some companies distributing boar semen offer one day training programs. Some producers collect and extend semen and inseminate sows on their own farms.

There are a number of benefits to AI:

- Although AI may be done without a boar present, industry practice indicates that having a boar present during AI results in better conception rates.
- Can increase rate of genetic improvement.
- Permits the breeding of more than one female in the same day.
- Reduces the risk of transfer of disease and parasites.
- Makes it easier for record keeping.
- Reduces labour and risk to animal handlers.

AI can have some disadvantages:

- Requires a higher degree of management at breeding time
- Cost of the boar semen may be high
- Heat detection is critical for success

Gestation

Gestation is the period from conception until birth, which is approximately 114 – 116 days (3 months, 3 weeks, and 3 days). During this time the fertilized egg will implant itself in the uterus, grow into an embryo and develop into a fetus.

During the first part of gestation, the implantation stage, the greatest amount of fertilized eggs are lost. Often if there are less than four fertilized eggs implanted, the female will return to heat.

The fertilized egg will develop into an embryo during the third, fourth and fifth weeks. The placentas of embryos are formed during this period. If something goes wrong and the litter dies any later than day 18, the female's system will continue to act as if she were still pregnant. Animals that experience this will show a delay in a return to heat.

From about day 36 to the time that they are born, the piglets are called fetuses. This is the stage where the skeleton forms, the gender is clear, and the immune system starts to work. If a fetus dies during this stage, it will mummify in the uterus and be born a dark brown or black colour. A piglet that is not living when it is born is referred to as **stillborn**.

A sow should be able to farrow 10 to 12 live piglets. On many farms, the average born is approximately 12.5 with liveborns of 11.5.



Factors that you should be aware of during Gestation

1. *Temperature:* This is mostly a concern when trying to breed your swine. High temperatures result in poor quality semen from the boar. You should also be aware that high temperatures during implantation can lead to a higher embryo loss, and high temperatures during farrowing may result in a larger number of stillborn piglets. You can help to eliminate the effect of temperature on your pig with the use of sprinklers and ensure there is proper ventilation. Remember pigs do not have sweat glands!
2. *Stress:* At the beginning and the end of gestation, avoid putting your pregnant pig in any situations that might be considered stressful. This includes fighting with other pigs, overcrowding, heat stress and transportation. In particular, avoid moving sows between 4 and 28 days after breeding (with the most critical period being 7 to 14 days), as this can cause reduction in litter size due to increased embryo mortality.
3. *Housing:* Prior to farrowing allow your pig to enjoy a pen all to herself. Provide some nest building material, such as straw, otherwise she may show signs of distress.
4. *Feed Intake:* Do not overfeed your female before farrowing. This can lead to a decrease in feed intake during lactation.
5. *Parasites:* Be sure to check for parasites and apply prevention techniques two weeks before farrowing. The best control is to use a larvacidal dewormer (such as Safeguard or Atgard C) 4 days before moving into the farrowing area. In addition, wash sows to remove eggs attached to the skin. This will allow your piglets to come into the world parasite free!

Preparation for Farrowing

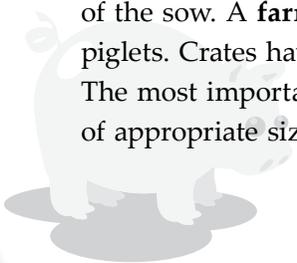
Farrowing Gear

When your pig is getting ready to farrow make sure you have these items on hand for the piglets' arrival:

- Clean Towels
- Iodine
- A small heated area that is not accessible to the mother
- A pitchfork (or something similar to keep the farrowing area clean)

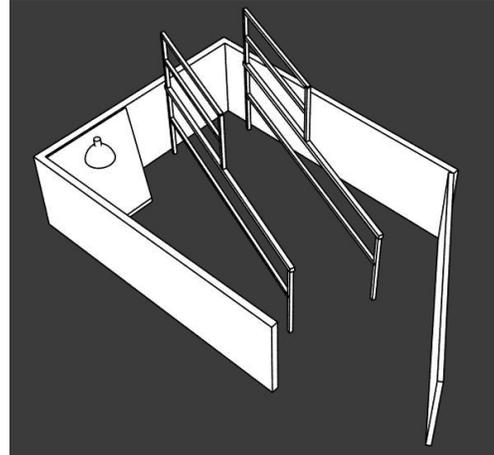
Farrowing Pen

There are a few ways to set up your farrowing area and system to keep your piglets safe. Whatever system you choose, it should provide effective protection for the piglets and comfort of the sow. A **farrowing crate** restricts sow movement to help minimize crushing of the piglets. Crates have different designs using adjustable rails, solid panels or other methods. The most important consideration if you decide to get a farrowing crate is to make sure it is of appropriate size in relation to the size of your sow.



Farrowing pens allow the sows more freedom than a crate. They measure approximately 2.4 meters by 2.4 meters and can be square, rectangular or circular in shape. Rails or wall cutouts provide a space for the piglets to get away from the sow and an area to **creep feed** the piglets.

This is a description of a simple system that may be the easiest to set up. Your farrowing pen should be a clean pen with straw that your animal can use for nesting. Keep a small area with bedding at about 34°C for the new piglets, but make sure the sow cannot get to this area. If farrowing stalls or crates are not being used the sow pen should be fitted with a guardrail around the walls, except where the feed trough is located. These rails, which may be two-by-four lumber or tubular pipes, should be placed approximately 20 cm from the floor and project out 20 cm from the wall.



Example of a farrowing pen setup

The rails allow the small pigs to seek protection when the sow lies down, and are a worthwhile means of avoiding losses by crushing. Piglets also need an escape to a place for warmth. They need a warmer temperature than their mother as they have not yet developed fat reserves to keep warm.

The farrowing quarters should be thoroughly cleaned and disinfected before being occupied by the sow. There are many disinfectants available, so be sure to follow the instructions of the disinfectant you choose to purchase. If bedding is used in the farrowing quarters, shavings or cut straw are most suitable. Young pigs are likely to become tangled or buried in long straw.

The Farrowing Process

Before Farrowing

Before being placed in the farrowing quarters, the sow should be thoroughly washed with warm soapy water in order to remove any worm eggs or disease-causing organisms that might be present. You may also want to place your gilt or sow in her farrowing pen a few days before she is due to give her some time to adjust to the new environment.

When the sow is confined to a pen a few days before farrowing, her feed should be reduced by 50%. However, it is highly recommended that the sow's intake be increased gradually throughout lactation. The day the sow farrows, give her only a light feed and make sure she receives all of the water she wants.



When your gilt or sow is getting ready to farrow you will notice some changes:

- Exhibits restlessness and nest building
- Respiratory rate increases
- Rectal temperature rises
- Udder fills out
- Milk may be dripping

Once the mother actually starts giving birth, reassure her by quietly talking to the sow. If you feel foolish conversing with a pig, give her a small portion of laxative bran meal to relax her.

Parturition – the process of giving birth – occurs mostly in the early hours of the day lasting from one to five hours. Most of the piglets will be born front feet first, if they are born hind feet first they are more prone to being stillborn.

As each new piglet is born, dry them with the clean towels and disinfect the broken navel cord with iodine solution. Place the piglet into the heated area and wait for the next one. Keep a record of the times when the piglets are born.

Most pigs farrow without any problem, however if your sow is pushing hard for 15 minutes with no result you should contact your veterinarian. Once all of the piglets are born and you have disposed of the afterbirth, make sure each newcomer gets the chance to nurse and obtain some of its mother's colostrum. This first milk is high in nutrients, vitamins, minerals and antibodies. Finally, clean out the soiled bedding and make sure that both the new mother and her piglets are comfortable.

Problems at Farrowing

The amount of time it takes to farrow and the time between piglets varies among sows. An entire litter can be farrowed in an hour or two, while others can take up to five hours. If more than an hour passes between piglets, consider helping the sow. Problems that may occur include a piglet getting stuck in the birth canal. If this happens, it is best to consult a veterinarian.

Lactation

Sow's milk provides high value nutrition for the piglets. Starting a day or two after the sow farrows, gradually increase her feed until she is on full feed within ten days or two weeks. During this time the ration should have an increased amount of **crude protein**. The system of feeding lactating sows should relate feeding level to the milk production curve of the sow. Milk yield increases gradually from farrowing up to a maximum at the third week of lactation. It remains relatively constant during the third, fourth and fifth weeks, after which it declines.



Piglet Management

Piglet death can be a huge problem and can result from:

- a. Improper nutrition of the sow during pregnancy, leading to weak piglets or death.
- b. Becoming chilled and inactive resulting in reduced circulation of the blood and often die from exposure within a few hours after birth.
- c. The sow crushing her piglets.

Most of the deaths may be avoided by:

- Feeding a balanced ration to the sow during her pregnancy.
- The owner being present if feasible when the sow is farrowing, or having the sow farrow in a farrowing stall where there is much less danger of the piglets being crushed.
- Keeping part of the pen much warmer than the rest so as to encourage the little pigs to keep away from the sow.
- Additional heat for the young pigs must be provided, making them more active and comfortable; 250 watt heat bulbs may be placed in a partitioned-off area or creep. Floor heating of the creep area is an alternative method of providing heat to the young pigs.

Redistribution of Litters

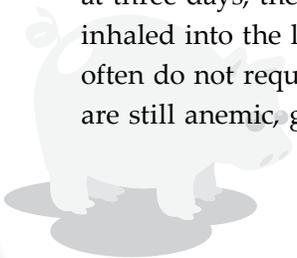
When sows and gilts farrow in batches, it is possible to equalize litters and adjust litter size to the number of functioning teats or nursing ability of the sow. To be successful when transferring piglets from sow to sow, current industry recommendation is to do it within 24 to 48 hours of farrowing, and preferably less than 24 hours if pigs are Porcine Reproductive and Respiratory Syndrome (PRRS) virus positive. If you are redistributing litters, tattoo the piglets before placing them with the new sow. This will help you keep track of which sire and dam produced the best piglets.

Piglet Management Practices

New Pigs Need Iron

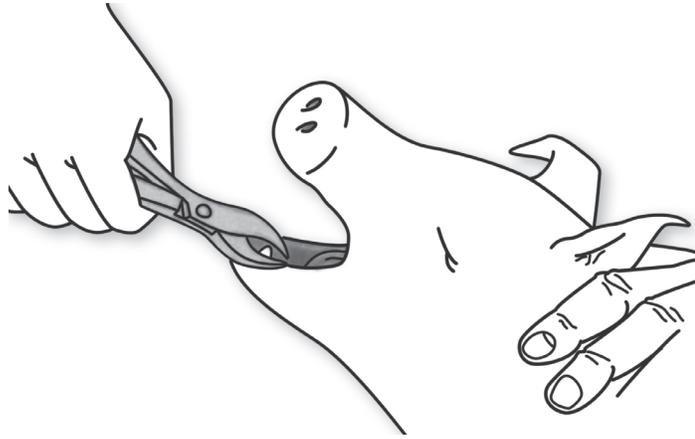
Newborns do not get enough iron from their mother's milk. If they do not get an additional amount, they will become anemic. There are a few options available for this, the most common of which is injection. The newborn piglets are given an intramuscular injection of an iron compound at three days and then a second dose if they do not start to eat creep feed.

Another way to get iron into the baby piglet is to use reduced iron, or iron filings. This should be given orally, with just enough filings to cover a 10 cent coin. The first dose should be given at three days, then weekly for three weeks. In order to prevent the iron filings from being inhaled into the lungs, they should be coated with fish oil. Pigs that have fresh sod to root in often do not require additional iron, as they can find it in the soil. Most piglets given oral iron are still anemic, grow slower but will survive.



Remove Needle Teeth

Young pigs are born with four pairs of temporary tusks called **needle teeth**, eyeteeth or black teeth. These teeth are very sharp and often cut the sow's teats or the knees and cheeks of other pigs if they fight. Therefore, it is advisable to remove the needle teeth shortly after birth with a pair of teeth clippers. It is not recommended to use wire cutters or pliers because these tools



Removal of needle teeth

can crack the teeth, which can lead to strep infections, arthritis and meningitis. Be careful not to leave jagged edges or to clip the teeth too closely, and avoid damage to tongue or gums. An experienced person or veterinarian should help you with this procedure. Many farms no longer clip teeth but often treat skin abrasions with zinc cream when they occur.

Tail Trimming

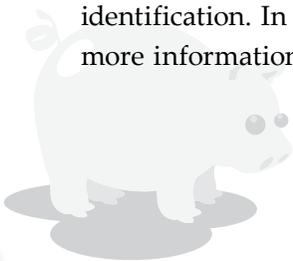
Tail trimming helps reduce the risk of tail biting. Try to avoid this practice, but if it is needed it should be done within the first 24 hours after farrowing. If clipping tails, the norm is to cut the thickness of an index finger from the anus. Longer tails are left on females to be used as breeding stock but otherwise, half-length tails are no more effective at avoiding tail biting than leaving the tails on. If pigs are raised outside, tail clipping is unnecessary in general.

Castrate When Young

The growth of boars to market weight is generally more efficient and rapid than that of castrated males or gilts. However, until such time as boars can be marketed for meat production, **castration** is necessary. It is recommended that castration should be performed before the pigs are three weeks old. This allows for an easier operation and shorter time for the wounds to heal. Also, it is easier to hold a younger pig and there is far less shock or setback to the pig. Pigs to be castrated should be housed in clean, dry quarters. A veterinarian should be able to help you with this procedure if you are inexperienced.

Identification

Where more than one sow is kept, identify the young pigs when they are only a few days old. There are different methods of identification, including ear tattooing, ear tagging, or ear notching. See the Husbandry and Health section of this manual for more information on identification. In addition, there is a national strategy being put in place for traceability and more information on this can be found in the Marketing section of this manual.



Creep Feeding Pays

Sow's milk is an ideal food for young pigs, but milk yield tends to decrease at the fourth to fifth week of lactation. To get maximum weaning weights in a litter and to reduce post-weaning checks in growth, it is recommended that creep feed be available to pigs from 10 days of age.

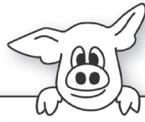
The young pig will start to eat creep feed earlier if the initial feed is placed in flat pans on the floor. Commercial creep feeds should be fed initially and not a commercial pig starter. This is because many pig starters cannot be digested by young pigs due to containing cereal grains along with supplemental protein, minerals and vitamins. Remember to read all commercial feed labels carefully and know exactly what you are feeding your animal.

Creep feeding helps the piglets make an easier transition from the sow's milk to regular feed. Creep fed piglets can result in being 2 to 5 kg heavier at weaning than those not having access to a creep ration. The heavier the pigs are at weaning, the sooner they will go to market. Since the extra weight put on during the creep feeding period is relatively cheap in terms of the cost of the feed consumed, it is certainly advantageous to follow a creep feeding program. Remember a well-started pig is usually an efficient producer.

Weaning

Most pigs are weaned at four to five weeks of age or over five kilograms in weight. Unless a producer makes use of early weaning to get more litters from his/her sows, it offers no advantage over normal weaning. There are two ways to wean. The first is to remove the sow and let the piglets stay in the creep area they are accustomed to. The second is to move the piglets to a special nursery area. Whatever method is chosen, make sure that the piglets have a safe, clean, warm and comfortable environment. Fresh feed and water should be available at all times. It is essential to use a palatable nutritious prestarter ration. This ration should contain approximately 20 to 22% crude protein and have easily digested ingredients.





Fitting and Showing



Preparing for the Show

Pigs are fairly easy animals to fit and train for show. All that is required is a lot of patience and a little time. After your animal is properly trained, you will be able to direct it anywhere in the barnyard, in an open field, or even down main street. Achievement Day is extremely impressive to spectators when pigs are paraded in a show ring. Many people do not believe that all of the club's pigs may be exhibited together in a ring without confusion or fighting. Why not demonstrate to them at your next Achievement Day? Your show can be as glamorous as that of any other livestock project. The prime necessity is that all of the animals in the club must be well trained.

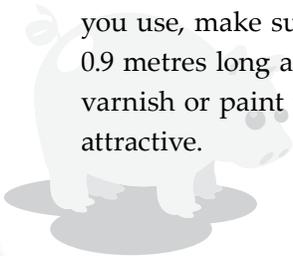
Show Pens Should Be Attractive

The holding pens should be close to the ring. These pens can be made of portable panels or be in a permanent building. In many clubs, each member makes a few portable panels each approximately 1.8 metres long and 0.9 metres high. These may be transported from one place to another each year and used in conjunction with a permanent fence or the side of the building. Generally the panels are painted the same color and stored in a central location between shows. The judging of pigs in small pens surrounded by high solid sideboards should be avoided, as it is impossible for either the judge or the public to see the animals properly. In addition, the member does not have an opportunity to demonstrate the training he or she has given to the animal.

Equipment Used for Training

An ordinary old broom is one of the better devices to use on a pig during the initial training period. A touch with the bristles on the body does not hurt the pig. In addition, the pig can easily see the brush when placed on either side of the face or in front of the snout.

All members of a swine club should agree to the same type of showstick. For members parading their animals in a large ring, canes are preferred to whips. Conventional stockmen's canes may be used, but if these are not readily available, homemade showsticks are quite satisfactory. One example is to use a simple wooden walking cane with the rubber stopper cut off. Another example is an old hockey stick cut to the right length. Whatever material you use, make sure there are no sharp or jagged ends. A showstick should be approximately 0.9 metres long and about 1.9 cm square or 1.7 cm in diameter. If all members of a club varnish or paint their showsticks the same colour, the Achievement Day will be more attractive.



Another useful piece of equipment helpful in the early training of a pig is a hog panel. A panel should be used when moving the pig, especially if the pig is not used to people. When using this, do not force the pig to move, instead use the panel to guide the pig in the direction you would like it to go. The size of a hog panel may be from 77 to 92 cm long and 46 to 61 cm high, with a handle on the top. It should be made of slats of 1.3 cm material or from a solid piece of 0.6 cm plywood with hand-holds cut out, so that it is light and convenient to handle.

Training: Gain the Trust of Your Pig

The member must first gain the trust of his or her pig by brushing and scratching its back, ears and other body parts. However, this should not be carried so far as to make a pet out of the pig, because pets do not show to advantage in the ring. It should be trained to walk and to stand when directed by the herder.

If using a cane with a curve at the end, you may use the hooked end towards the pig at the early stages of training; however, once the animal is trained the curved part should be held by the handler with the straight end towards the pig. This is especially important while in the show ring.

The early training is best done in a pen or alleyway, but later the pig should be taken out into the open yard. A few minutes spent training your pig every day is much better than a longer period once a week. When the pig may be driven to any part of the farmyard and will walk, stop and stand when directed to do so without fuss or bother, it will be trained sufficiently for the show. Considerable handling and patience are necessary. Most pigs quickly respond to training when handled gently and patiently. Younger pigs, under five months, are more playful and more inclined to run away. They will require more training, but they can be trained just as well as older animals.

Giving Directions to your Pig

A light tap on the hocks with the cane should be the signal to move while the cane laid across its nose should be an indication to stop. A touch of the cane on one side of the head should cause the pig to turn in the opposite direction.

Here are some cues to teach your pig so that you can direct it in the show ring:

- *Move forward:* gently tap pig on the hocks with your cane
- *Turn left:* gently apply pressure on right side of pig's head
- *Turn right:* gently apply pressure on left side of pig's head
- *Stop or slow down:* cane in front of pig's snout



Grooming

1. Trim Feet for Attractiveness

Pigs' hooves may get out of shape and may need to be trimmed before the show. Long hooves tend to increase the slope of the pasterns and make them appear weak. Therefore, the ends of the hooves should be trimmed as short as possible without causing bleeding. Excess growth should be cut from the bottom of the hooves. Material between the toes should be removed so that the toes stand close together. The dewclaws should be shortened and neatly trimmed as short dewclaws make the pasterns appear shorter.

Small pigs can be laid on their sides and held while the hooves are trimmed, but larger animals are best placed in a shipping crate that has the bottom sideboards removed. If the hoof to be trimmed is placed on a piece of plank, it will be easier to use the rasp, nippers or knife. The last trimming on the feet should be done ten days before the show, so that the feet made tender by trimming will have a chance to get back to normal by show time. It is best to get an experienced person or veterinarian to help you with this until you become comfortable with the procedure. Hard, dry or cracked feet should be treated. Shortly before going into the show ring, the feet should be washed, the hooves smoothed with a piece of sandpaper and polished with a little oil or wax.

2. Oil a Month Before Showing

Oiling the pig in the early parts of the fitting period is a good practice, as it tends to soften the skin, loosen the scurf and give the coat a good bloom. Only clear oils should be used as others may cause stains that are hard to remove. Light mineral oil, olive oil or light lubricating oil diluted with one quarter rubbing alcohol is quite suitable. Oiling should be discontinued a week before the show and only powder used as a coat dressing.

3. Wash Several Times



One to several washings may be necessary to prepare a pig for the show. The first wash should be approximately ten days prior to the show. To help with washing, it is beneficial to have a portable wash crate to keep your animal contained while moving it to the wash area and also while you are washing it. Give the pig a thorough scrubbing using lukewarm water and a good soap and completely rinse. A little bluing in the rinse water will help to remove the stains. After washing, keep the pig in a clean, well-bedded pen. However, in spite of one's best efforts, a pig sometimes gets dirty the night before the show or in transit to the fair and must be washed again before it can be shown. Shortly before going into the ring, white pigs may be sprinkled with talcum powder and given a light brushing to spread it evenly. Too much powder should be avoided as it may give the pig an unnatural chalky or anemic appearance.

4. Trim Hair on Ears and Tail

This point applies more to older animals, as market animals will not have as much hair. About two weeks before the show, trim hair on the ears and tail. Using livestock clippers or a small pair of scissors, clip the long hair on the inside and outside of the ears. A smooth job will greatly add to the appearance of the pig. Clip the hair on the upper part of the tail, leaving a large bush on the end.

Note About Grooming Supplies

Some districts and regions require the exact same brand of shampoo and baby powder to be used on all animals coming to the show. This may reduce the number of fights between pigs because they will all smell the same. This also applies to any alcohol wipes or extra supplies used. If your area does not do this and has many pig fights, you may want to suggest trying this out.

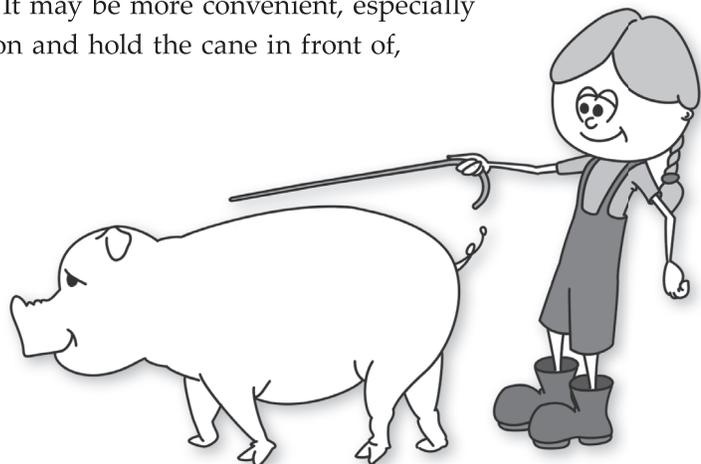
Showmanship

General Tips to Remember:

- Always try to keep the hog between the judge and yourself.
- Use the showstick or cane as a guide for the pig.
- When standing the pig, position yourself just in front of the pig's left shoulder.
- Always keep your eye on the judge.

Showing in the Ring

You should have your pigs prepared well in advance of show time and be prompt to enter the ring when your class is called. You should drive the pig slowly into the ring and around in a circle in a clockwise direction or line up as directed by the judge. While moving, walk on the left side of the pig with the cane in your right hand over the back of the pig but not touching the animal. A touch with the cane on the side of the face, a tap on the hocks or a brush under the jaw should be all the signals necessary to make the pig turn, walk or stop. When standing the pig, turn around and face the animal, positioning yourself in front of, but slightly off the pig's left shoulder. It may be more convenient, especially if you are tall, to adopt a kneeling position and hold the cane in front of, but not touching, the pig's face.



Do not put your hand on the pig's back. Do not bring a large brush into the ring. A small rub rag may be carried in the pocket and used to wipe any spot that might get dirty. Watch your pig the whole time that you are in the show ring, while keeping one eye on the judge as well. Keep the pig between yourself and the judge as much as possible so that the judge may view the animal at any time. Be prompt to move when directed to do so. Do not obstruct the judge's view of other animals in the ring; be courteous and give the other fellow showpeople room to show their animals.

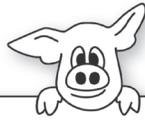
Personal Neatness

The club member should give some thought to his or her own personal appearance before entering the show ring and have the pig in the best possible condition. A club uniform is very appropriate for this occasion. At the larger exhibitions and swine shows, one frequently sees the showman wearing an all white uniform. Regardless of the kind of clothes worn, be sure that they are neat and clean. Avoid such things as sloppy rubber boots, ragged overalls or cowboy boots that are out of place when showing pigs. A club that arranges to have all its members dressed alike and uses the same kind of cane or showstick, makes a good impression at the Achievement Day. Be a good sport as well as a high-quality showperson. Work for a personal best, win with modesty and lose with grace.

The following chart is an example of the division of points for showmanship. Covering all sections will help you excel in the show ring.

General Showmanship Score Card

<p>Fitting</p> <ul style="list-style-type: none"> » Condition » Cleanliness » Grooming and clipping » Condition of hooves 	30
<p>Training and Showmanship</p> <ul style="list-style-type: none"> » Evidence of previous training » Handling of the project » Posing of the project » Project response to exhibitor's movements » Indication of good knowledge of animal's faults and habits 	50
<p>Ring Manner and Appearance</p> <ul style="list-style-type: none"> » Clothes neat, clean and suitable to occasion » Full attention given to the job at hand » Is on time, alert and aware of the judge, responds to judges requests » Courteous and polite to other exhibitors and judge » Knowledge of project pedigree, care and management program 	20
<p>Total</p>	100



Marketing



Due to its versatile nature, pork is the top selling meat in the world. Production practices are being continually improved to make sure it is the meat that consumers want to buy. Through improved swine diets and breeding practices, pork is 47% leaner than it was 10 years ago.

In addition to meat products, pigs contribute to other types of products. Pig products are used in medical supplies including insulin for diabetics, skin for grafting human burns, and heart valves for transplants in humans. Hog byproducts are also used for everyday items such as paint brush bristles, cosmetics, crayons, insulation, adhesives, insecticides and herbicides.

The selection, breeding, feeding and management programs that have been discussed in this manual are designed to put a high quality hog on the market. If growers do not produce the kind of pork consumers will buy, the consumers will look to other meat products to fill their demand for red meat.

Marketing of Swine in BC

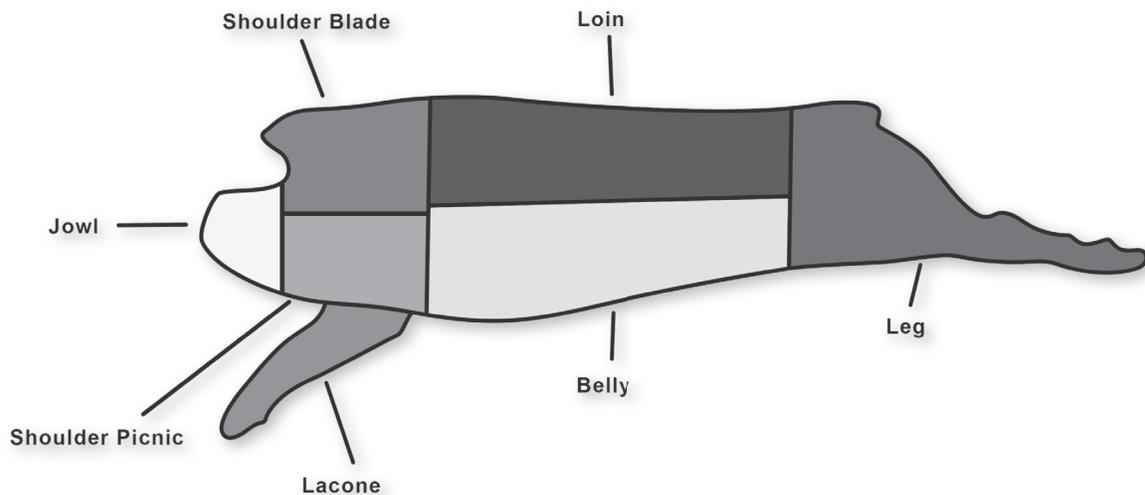
The BC pork industry is governed by two boards: the BC Pork Producers Association (BCPPA) and the BC Hog Marketing Commission (BCHMC). The BC Pork Producers Association wants to help consumers “put pork on your fork” by helping the industry in areas of food quality, animal care, environment, consumer education and research. The BC Hog Marketing Commission markets hogs at fair prices for BC producers and operates on a levy per hog to cover expenses related to marketing BC Pork.

Swine marketing is the process of moving live hogs and pork from the producer to the consumer. To learn more about this process, go to the market when your hogs are sold and learn all you can about pork marketing. Follow hogs through processing and examine your hog carcasses hanging in the meat coolers. Official meat graders will evaluate your pork carcasses and explain the differences in carcass quality. Arrangements need to be made in advance for this.



Meat Cuts

Knowing the various cuts of pork will help you learn what to look for in a hog and what is important when feeding and conditioning. Pork comes from these main primal areas of the hog: the shoulder blade (or butt), shoulder picnic, belly, loin and leg. The Canadian style of cutting is different from the United States, so make sure that you do not get confused by this. It will also help to look at the meat cuts diagram below.



Primal meat cuts diagram

In addition to these **primal cuts**, Canadian pork is also processed into cooked and cured products. These value-added products consist of bacon, ham and sausage products. In addition, there are specialty pork products for ethnic markets. These products are based on what we eat in Canada; however, processing can vary depending on what market the producer is trying to cater to if they are marketing internationally.

Quality Assurance

In Canada, pork is under high standards of food safety and quality. This is to make sure that consumers are getting a safe and high quality product. Programs are in place for the pork industry for on-farm production practices, animal feed manufacturers, and processing of the finished product. If you want to learn more about on-farm food safety, look for the **Canadian Quality Assurance (CQA)** program. Also refer to other sections in this manual for proper feeding and medication practices so that you can make sure you are taking the appropriate actions with your project animal.

While withdrawal times for antibiotics are important to keep track of, there is more you can do to make sure that your hog brings quality meat to the market. The way that live pigs are handled affects their meat quality. Bruised meat lowers the value of the meat, as it must be cut off the carcass. Ways to avoid bruising include taking care when loading, transporting, and unloading animals. Other good husbandry practices are not to hit your pig with a hard or solid object, and to make sure there is nothing in your pig's pen that will injure it.

Meat Inspection

In September 2004, the Province of British Columbia enacted a new Meat Inspection Regulation under the Food Safety Act. Under the new regulations, all BC abattoirs that produce meat for human consumption will have to be either provincially or federally licensed. Only meat from livestock slaughtered in a licensed abattoir can be sold for food. All animals processed in licensed abattoirs will be inspected both before and after slaughter.

To help with this meat industry transition, the BC Food Processors Association along with government and the meat industry developed the Meat Industry Enhancement Strategy (MIES). The MIES addresses issues raised by the industry, including concerns about slaughter and processing regulations, waste disposal, food safety and market access. Its primary goal is to enhance BC's slaughter and meat processing capacity.

In addition to provincially inspected plants, there are federally inspected ones. The Canadian Food Inspection Agency (CFIA) is responsible for federal inspection, which includes veterinarians and inspectors. A Canada stamp will identify meat products processed in federally inspected plants. Federal inspection is not always necessary for a local market, but is important when the meat is exported.

Traceability

What is Traceability?

A *swine traceability system* is a pig identification system that allows for the tracing back and forth of live animals and their products.

There are three important parts to traceability:

1. Identification of farms
2. Identification of animals
3. Tracking movement of animals and meat

The Canadian Pork Council has started to develop a system for on farm traceability.

Why is this Important?

Traceability is important in proving to consumers that pork is a safe product, which is produced under controlled conditions and carefully monitored.



Is there a hog traceability system currently in place?

The hog industry has several measures in place to facilitate the tracing of animals. All hogs are identified with a shoulder slap tattoo before going to slaughter. This tattoo is the means of identification for payment, and also a level of traceability. However, to have a complete system that includes full 'trace back and forward' capabilities, the industry must be able to identify where hogs are kept, assembled or disposed of, and identify all farm to farm movements. This is an ongoing process that will put the livestock sector in a position to identify all premises in Canada where animals are raised, quarantined, auctioned and slaughtered.

What would the Canadian Hog ID and Traceability Program look like?

- A livestock premises registry and database
- A national tattoo numbering registry for hogs going to slaughter
- A regional swine slaughter and marketing board database
- A national hog identification and movement reporting system and database

Who will do what?

Producers:

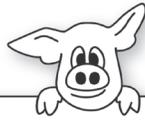
- Producers and industry operators (i.e. auctions, abattoirs, assembly yards) will be responsible for recording and reporting all hog movement information to the national traceability movement database.
- For optimal traceability producers will be required to individually identify their hogs with a visual ear tag with a unique identification number.
- Producers will be responsible to shoulder slap tattoo all hogs going to slaughter.

Provincial pork industry organizations (or designate agent) will:

- Assure that all producers are registered and tattoo numbers are properly allocated within their province.
- Collect, provincially or regionally, traceability data for hogs raised.
- Help verify traceability data provided by producers either regionally, provincially, or nationally, depending on the system as ultimately agreed to.

The implementation of the National Hog ID and Traceability system is a multi-year plan. A phased-in approach over time is proposed with the key components of the system in place well in advance of any requirement for full compliance.





References



General Resources

BC Ministry of Agriculture and Lands

Hog Fact Sheets and Publications <http://www.agf.gov.bc.ca/hog/factsheets.htm>

Canadian Swine Breeders Association

www.canswine.ca

BC Pork Producers Association and BC Hog Marketing Commission

2010 Abbotsford Way, Abbotsford, BC V2S 6X8

www.bcpork.ca

Canadian Pork Council

1101-75 Albert Street, Ottawa, ON K1P 5E7

www.cpc-ccp.com

Farm and Ranch Safety and Health Association (FARSHA)

A Health and Safety Guide for Handling Farm Animals and Poultry (2006)

BC Pork Producers' Safety Guide (2005)

Suite #311, 9440 - 202 Street, Langley, BC V1M 4A6

www.farsha.bc.ca

Livestock: Pigs

Alberta Agriculture, Food and Rural Development

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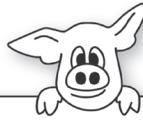
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Glossary



A

ANTIBIOTIC: Substance that prevents or controls bacterial infection.

B

BACKFAT: Amount of fat over a pig's back; used as an indicator of the overall fat content of the animal. Measured as the depth of the subcutaneous fat layers over the loin at either the 10th or last rib. Used in selecting breeding stock and in grading and pricing carcasses.

BACKFAT PROBE: Device used to measure the backfat thickness in market hogs.

BALANCED RATION: A ration which supplies all nutritional requirements of an animal including protein, carbohydrates, fat, minerals, vitamins and water in proper amounts.

BARROW: Castrated male pig.

BC HOG MARKETING COMMISSION (BCHMC): Markets hogs at fair prices for BC producers and operates on a levy per hog to cover expenses related to marketing BC Pork.

BC PORK PRODUCERS ASSOCIATION (BCPPA): Helps the pork industry in areas of food quality, animal care, environment, consumer education and research.

BIOSECURITY: Measures aimed at reducing and eliminating the possible transmission of animal diseases or pests from one farm to the next.

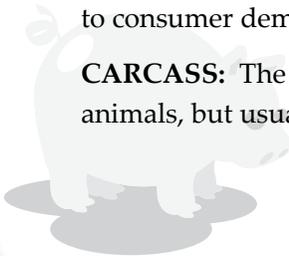
BOAR: A male, uncastrated, intact pig.

BOAR TESTING INFORMATION: A report detailing the estimated breeding values on the offspring of a boar including estimates on backfat thickness and days to 90 kg.

C

CANADIAN QUALITY ASSURANCE PROGRAM (CQA): A national initiative developed and maintained by the Canadian Pork Council for on-farm food safety; was created in response to consumer demand for assurance about food safety practices on farms.

CARCASS: The major portion of a meat animal remaining after slaughter. Varies among animals, but usually the head and internal organs have been removed.



CARCASS QUALITY DATA: Desirability of a carcass relative to quantity of muscle, fat, bone, and quality of lean tissue. Many packers estimate carcass merit by measuring backfat and one or more other indicator traits such as carcass weight.

CASTRATION: Removal of the testicles of the male animal.

COLOSTRUM: The first milk, rich in nutrients, vitamins, minerals and immune factors secreted by the mammary gland a few days before and after the birth of their young.

CONFORMATION: The body type, or physical characteristics of the pig.

CONTROLLED ENVIRONMENT: A closed system where all conditions (temperature, air quality, humidity) are monitored and maintained at optimum conditions.

CREEP FEED: A supplemental feeder designed for free access for the piglets but inaccessible to the sow. Feed is high in protein and is highly palatable to a piglet in addition to the sow's milk.

CROSSBREEDING PROGRAM: Producing crossbred offspring by mating two different breeds.

CRUDE PROTEIN: Commonly used to designate all the nitrogenous substances in feeding stuffs or nitrogenous compounds.

D.....

DAM: The mother of an offspring.

DEFICIENCY: A shortage, typically pertaining to food and a lack of nutrients, vitamins or minerals. Result in problems such as slow growth or disease.

DETECTABLE NEEDLE: contains more iron than a normal stainless steel needle, allowing it to be detected by metal detectors at the processing plant. This type of needle is mandatory under the Canadian Quality Assurance program, and many processing plants require that they be used.

DIESTRUS: The preparation stage for the next estrus cycle.

Es.....

ESTRUS: Two or three day period where the female is receptive to fertilization.

ESTRUS CYCLE: The reoccurring 21 day reproductive cycle of the gilt/sow from the time she is ready to be bred until she will be bred again if conception does not occur.



F.....

FARROW: To give birth to piglets.

FARROWING CRATE: Restricts sow movement to help minimize crushing of the piglets.

FARROWING PEN: Allow the sows more freedom than a crate and contain a guardrail or creep area for the piglets to escape to, to minimize piglet crushing.

FEED CONVERSION: The rate at which an animal converts feed to meat. Calculated as the amount of feed used divided by the total weight gained (If an animal consumes 25 lb of feed and gains 9 lb, it is said to have a 2.78 feed conversion ratio).

FETUS: The young pig in the womb in the later stages of development when the body structures are recognizable as a hog.

FLUSHING: Increasing feed intake prior to breeding to promote the release of ova to be fertilized.

G.....

GESTATION: In a female, the time from conception (date of breeding) until farrowing; approximately 114 days (3 months, 3 weeks, 3 days).

GILT: A female pig that has not given birth.

H.....

HEREDITARY: The transmission of genetic or physical traits of the parents to their offspring.

HERMAPHRODITE: An animal where organs of both sexes are present.

HOG: Pig approaching market weight (54 to 100-105 kg).

HORMONE: A chemical messenger sent from one part of the body to another; Proteins produced by organs of the body that trigger activity in other locations.

HYBRID VIGOUR: The improvement in production observed or measured in crossbred animals compared with the average of their purebred parents.

I.....

INBREEDING: Mating of closely related animals and includes closebreeding.



L.....

LACTATION: The period of time from which a sow is giving milk until she is dried off prior to farrowing again.

LARD: Rendered pig fat.

LINEBREEDING: Using a succession of related sires that are not more than 25% related.

LITTER: The multiple offspring born during the same farrowing, normally 8 to 12 pigs.

M.....

MARKET WEIGHT: The weight that a hog is ready to be sold (100-105 kg).

METAESTRUS: Within six to eight days following ovulation, the female secretes another hormone that either acts to support embryo development, or preparation for the next cycle. A female will no longer stand still to the riding test and will return to normal behaviour.

N.....

NEEDLE TEETH: Also known as eyeteeth or black teeth. Young pigs are born with four pairs of temporary tusks. These teeth are very sharp and often cut the sow's teats or the knees and cheeks of other piglets if they fight. It is advisable to remove these shortly after birth.

NUTRIENTS: Applied to any food constituent or group of constituents of the same chemical composition that aid in the support of animal life.

O.....

OUT CROSSING: Mating two unrelated animals within the same breed.

P.....

PARASITE: Internal or external organism that lives in and on the host animal at whose expense it obtains food and shelter.

PARTURITION: The process of giving birth, occurs mostly in the early hours of the day and can last from one to five hours.

PEDIGREE: A record of the male and female ancestors showing name, date of birth and production figures.

PIGLET: A young pig of either sex.



PRIMAL CUTS: Main areas of meat from a hog, including the shoulder blade (or butt), shoulder picnic, belly, loin and leg.

PROESTRUS: The three or four days before the onset of estrus; increased production of hormones that initiate the estrus cycle.

PROTEIN SUPPLEMENT: Feeds high in protein, mixed with grains to provide a balanced ration.

May be commercially prepared.

PUBERTY: The stage of life where a swine becomes physiologically capable of sexual reproduction.

PUREBRED: An animal produced by consistent generations of breeding within a recognized breed of swine.

R

RATION: Amount of feed given to an animal over a 24 hour period.

RIDGELING: A male pig with one testicle retained in the body cavity.

ROTATIONAL BREEDING PROGRAM: System of crossing two or more breeds wherein the crossbred females are bred to males of the breed contributing the least genes to that female's genotype. Rotation systems maintain relatively high levels of heterosis and produce replacements from within the system. Opportunity to select replacement gilts is greater for rotation systems than for other crossbreeding systems.

RUPTURE: The abnormal protrusion of part of an organ or tissue through the structures that normally contain it. This usually occurs during farrowing and is also called a hernia.

S

SCOURS: Disease of young piglets in the digestive system due mainly to overfeeding and infectious organisms.

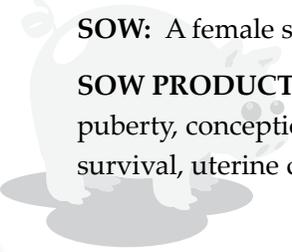
SELF-FEEDER: A feeding trough that is built so that the quantity of feed can be placed in it and the pigs can eat whenever they wish.

SIRE: The father of the offspring, also called a stud (boar).

SIRE LINES: A breed of males and females in a hybrid breeding program that exclusively contributes to the sires of the slaughter generation.

SOW: A female swine that shows evidence of having given birth.

SOW PRODUCTIVITY INDEXES: A report that may include information on the age at puberty, conception rate, litter size born alive, litter size weaned, ovulation rate, embryo survival, uterine capacity, weaning to service interval, birth weight and weaning weight.



STILLBORN: A piglet that is not living when it is born, will be born a dark brown or black colour.

SUS SCROFA: Scientific name for domestic swine.

T

TERMINAL SIRE: Sires used in a crossbreeding system in which all of their progeny, both male and female, are marketed.

TRACEABILITY: Pig identification system that allows for the tracing back and forth of live animals and their products. It is important for ensuring food safety and consumer confidence.

V

VIRILE: Pertaining to males. Indicates excellent breeding capability.

W

WEAN: To separate young pigs from the sow. Happens at approximately four to five weeks of age or over five kilograms in weight.

WEANER: Nursery pig after weaning; up to 50 pounds (25 kg) body weight.

Z

ZOONOTIC DISEASE: Any disease that is spread from animals to people.



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