

SWINE FEEDING SUGGESTIONS

by

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VANCOUVER

For Students in Animal Husbandry.

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FOREWORD

For thirteen years the University of British Columbia has been conducting experimental work with swine. The plan of this circular is to present for student and general use such results of the work as will be of value in the study or practice of swine feeding.

This circular is not a complete resume of swine nutrition, but contains the essential principles which should guide students and swine feeders along the profitable road.

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Few farms in British Columbia are organized for the production of hogs only. Hogs are generally kept as a side line to some other main type of farming. Hogs are produced largely from feeds that would otherwise command a comparatively low price at market. They are recognized as by-product animals in that they provide revenue from by-products of other farm enterprises. So handsomely do they repay in increase of weight for this low cost feed that they are the most universally produced farm animals.

British Columbia has not appreciated fully her natural resources as a swine producing province. The chief of these advantages are: the availability of good breeding stock, abundant pastures, excellent climate and superior markets. The keen demand for our breeding stock by foreign countries is an indication of the high class of hogs bred by British Columbia swine breeders. Alfalfa is recognized as the premier swine pasture. The central section of British Columbia produces a crop abundantly. The valley lands not suited for grain have been found to be very rich with grains,

well adapted to other pastures that approach alfalfa very closely in feed value. Climatic conditions, though varied from section to section, are excellent for swine production. The winters, where not mild, are sunny and the mild sections lend themselves very readily to the two litter each year programme. The British Columbia hog markets are superior to other Western Canada markets in that the province is an importing area and will with its increasing urban population continue to be so. British Columbia hog prices tend to be represented by Alberta prices plus freight. This generally provides a premium of from one-half cent to one and a half cents per pound live weight above Alberta prices.

One of the main reasons for the slow increase in the number of hogs in British Columbia is that many farmers have considered that the food, care and management problems are simple and have not given these points sufficient attention. Because some of Nature's laws have been violated, continued success with swine has not been secured by all farm operators.

Much has been learned during the past two years with regard to the nutrition of animals. These new findings have affected feeding methods with swine more than any other class of livestock. This is due to the particularly rapid gain in weight made by hogs, the early maturity of the pig and the fact that they have been found to be able to utilize a large amount of grain. It has been found that they will utilize a large amount of grain.

rapid multiplication and that cereals form a large part of the ration. This new knowledge when applied to swine nutrition does not tend to make the feeding of this class of livestock more difficult but does assist in explaining why success has not always been achieved.

Hogs are not difficult to manage successfully yet one must have a good foundation knowledge of their nutrition and management before the greatest continued success can be assured. In swine nutrition attention must be given to the following considerations:

The Protein requirements,

The Mineral requirements,

The Vitamin requirements.

Protein Requirements

Due to the rapid growth of pigs they need a more abundant supply of protein in their rations than other growing and fattening livestock. Protein furnishes the building material for the rapidly developing muscular tissues and the internal organs as well. The table here presented outlines the digestible protein requirement of rations supplied to pigs at different ages:

Newly weaned pigs	20% - 24%	digestible protein	
Pigs weighing 50-125 lbs.	14% - 18%	"	"
Pigs weighing over 125 lbs.	12% - 14%	"	"
Mature breeding stock	10%	"	"
Fursing sows	16%	"	"

In that few of our cereal grains have a protein content above nine per cent., it is clear that protein supplements of some kind must be provided or the feeder does not secure the greatest possible return from the rations used. The carbohydrate supplied in the ration cannot do the muscle building work of protein. Thus a protein deficient ration can produce growth only to the extent of the protein content. Much valuable carbohydrate may thus be wasted as no chain is stronger than its weakest link and a protein deficient ration certainly has a weak link. The excess carbohydrates of a low protein ration are voided from the body in an undigested condition and wasted as far as gain in pig weight is concerned.

The proteins are made up of a number of amino acids. Some proteins, particularly those of cereal seed origin, are lacking in some of these amino acids. These proteins then are not complete or do not supply all of the amino acids necessary for most rapid animal growth. For this reason the kind and source of protein becomes important. It has been found that by providing green pasture or alfalfa hay with grains,

completeness of the proteins is provided and normal rapid growth results. Protein of an animal origin such as is provided in skim milk, fish-meal and digester tankege also completes the amino acid deficiency of the cereal ration.

Mineral Requirements

Swine frequently suffer from mineral deficiencies. This is because the ration is made up largely of cereals most of which do not supply sufficient minerals. This applies to young and growing animals particularly. Swine require several different minerals, but fortunately most of them are supplied in sufficient quantity in ordinary rations. Those that most frequently need to be added to the regular rations are common salt, calcium, phosphorus and iodine.

Common salt whets the appetite and aids digestion generally and should be included as a part of any ration. It may be fed in a trough separately or mixed with the meal. The source of the meal affects the amount of salt necessary in a ration, but when mixing it may be safely fed at the rate of one pound common salt to one hundred pounds of meal. When feeding in boxes, self feeder style, the boxes should be kept replenished as pigs may take too much if kept from salt for a period and then allowed access to it.

Well balanced rations will ordinarily contain plenty

of calcium and phosphorus. Most of the cereals, however, are deficient in these minerals for swine feeding. The addition of good alfalfa hay to the ration or the inclusion of pasture as a part of the feeding practice will generally adjust calcium and phosphorus deficiencies. With growing pigs and nursing sows the addition of steamed bone meal or spent bone black at the rate of one to two pounds per hundred pounds of meal is a safe practice.

Sows may give birth to hairless or goitrous pigs. Hairless pigs are usually born dead or die in a short time. Goitre is more prevalent in some districts than in others. This trouble can be overcome by the feeding of iodine to the pregnant sows. It becomes apparent then that this mineral may be deficient in some swine rations. Recent investigations point to the possibility of iodine having some effect on the general health of animals and even where no goitre has occurred, experimental work would indicate that it is good practice to place iodine in swine rations regularly. Iodine deficient rations may be corrected by several methods. Two simple remedies are here presented.

(1.) Five drops of ordinary tincture of iodine placed on the meal of each sow twice each week. This would give a total of ten drops per week per sow.

(2.) Dissolve one ounce of potassium iodide in a gallon

of water. Of the stock solution feed each sow one tablespoonful on the meal ration twice per week. This would make a weekly dose of two tablespoonsful.

Vitamin Requirements

The symptoms of vitamin deficiencies in the swine ration are most frequently expressed by a rickety condition in the pigs. Mature animals and animals on pasture very seldom show such symptoms. The growing animals fed on vitamin deficient rations, however, may develop stiffness, may become stunted and are more subject to pneumonia and other diseases. Correct vitamins for swine rations are supplied by green feeds such as pasture and legume hays, especially the leaves. Sunshine is also a very potent source of one of the vitamins. This explains the difficulty of securing the characteristic curl in the pig's tail during the cloudy months of winter. Cereals with the exception of yellow corn are generally deficient in vitamins. Young animals are most subject to vitamin deficiency troubles.

Grinding

All the cereals such as barley, oats and wheat should be ground for swine feeding. In case grinding is impossible, soaking for twelve hours is recommended. In soaking, do not add more water than will be absorbed by the grain. Coarser

grains such as corn and peas may be fed whole particularly to young animals.

The most commonly used swine feeds in British Columbia are listed below along with their digestible nutrient constituents. (Analyses as from "Feeds and Feeding", Henry & Morrison, 18th Edition.)

	Total Dry Matter in 100 Pounds	Digestible Nutrients in 100 Pounds			
		Crude Prot- ein	Carbo- hy- drates	Fat	Total
Low Protein Concentrates					
Barley	90.7	9.0	66.8	1.6	79.4
Corn, dent No. 2	85.2	7.1	64.6	4.4	81.7
Oats	90.8	9.7	52.1	3.8	70.4
Wheat	89.8	9.2	67.5	1.5	80.1
Rye	90.6	9.9	68.4	1.2	81.0
Wheat Screenings	89.8	9.6	47.3	3.6	65.0
Rice Meal	90.5	7.3	48.1	10.6	79.2
Medium Protein Concentrates					
Wheat Bran	89.9	12.5	41.6	3.0	60.9
Wheat Shorts	89.5	13.4	46.2	4.3	69.3
Wheat Middlings	89.3	15.7	52.8	4.3	78.2
Field Pea	90.8	19.0	55.8	0.6	76.2
High Protein Concentrates					
50%-60% Protein Digester Tankage	91.0	48.1	-----	10.2	71.0
* Pilchard Fish Meal	92.9	48.8	-----	11.6	74.9
Linseed Oil Meal	90.9	30.2	32.6	6.7	77.9

* Dominion Chemical Laboratory, Ottawa.

	Total Dry Matter in 100 Pounds	Digestible Nutrients in 100 Pounds			
		Crude Prot- ein	Carbo- hy- drates	Fat	Total
Dry Roughages					
Alfalfa Hay	91.4	10.6	39.0	0.9	51.6
Alfalfa Leaves	93.4	17.3	35.9	3.0	60.0
Red Clover Hay	87.1	7.6	39.3	1.8	50.9
Green Cut Roughages					
Alfalfa	25.3	3.3	10.4	0.4	14.6
Red Clover	26.2	2.7	13.0	0.6	17.1
Peas and Oats	22.6	2.4	10.6	0.6	14.4
Rape	16.7	2.6	10.0	0.3	13.3
Roots and Tubers					
Potatoes	21.2	1.1	15.8	0.1	17.1
Mangels	9.4	0.8	6.4	0.1	7.4
Turnips	9.5	1.0	6.0	0.2	7.4
Dairy By-Products					
Skim Milk	9.9	3.6	5.1	0.2	9.1
Buttermilk	9.4	3.4	4.9	0.1	8.4

LOW PROTEIN CONCENTRATES

Barley. This is an excellent feed. It is very palatable when ground and tends to be of fattening nature. It is best suited for shotes and fattening hogs.

Corn. As a feed, corn closely resembles barley. It is frequently too high in price to be used very extensively in S.C.

Oats. When ground finely, oats are especially good for young weanling pigs and can be mixed with other heavier foods to advantage for growing animals.

Wheat. This feed is usually too high in price for swine feeding. When ground and fed alone, it tends to be too pasty in nature and thus should be mixed with coarser meals.

Rye. When ground, this feed closely resembles wheat except that it is not so palatable and should be mixed with more palatable feeds.

Recleaned Wheat Screenings. Besides shrunken kernels of wheat this feed generally contains wild buckwheat and some light oats and when ground, makes a good feed. The presence of mustard seed may make it slightly unpalatable, especially those of worm seed mustard which has a very bitter taste. This food when palatable can be safely fed alone or in combination with oats and barley.

Rice Meal. This is recognized as a fat forming feed. It may produce scours and so should not form more than one-third of the ration.

MEDIUM PROTEIN CONCENTRATES

Wheat Bran. An excellent laxative feed for sows at farrowing time. It is very palatable but too bulky and light

Wheat Shorts. A very satisfactory food for all hogs. It is light in nature and for growing and fattening hogs it should be mixed with barley or oats or both.

Wheat Middlings. Often called red dog flour. It is too pasty in nature to be fed alone and should be mixed with barley or oats.

Field Peas. A splendid source of protein for the swine feeder. It should not form more than half the ration. It produces a good flavour in the pork. Its high price ordinarily prohibits its use.

HIGH PROTEIN SUPPLEMENTS

Note: The high protein feeds supplement the lower protein feeds and serve to increase and complete the protein content of the ration.

Pilchard Fish Meal. This meal is prepared from the whole pilchard. It varies in colour from golden brown to brown. The lighter coloured meals are looked upon more favourably as colour seems to be an indication of quality. Like digester tankage, it balances and completes the proteins of cereal grains for swine feeding. Experimental results at the University of British Columbia and elsewhere show that this meal is superior to digester tankage as a source of protein when fed along with cereal grains. This may be due to the greater amount of vitamins

and iodine contained therein.

Digester Tankage. This food is a by-product of the slaughter houses and contains sterilized meat scraps and some bone. The product is ground and appears on the market as a dark brown coarse powder with a characteristic odour. The protein being of animal origin, balances and completes the proteins of cereal grains and for this reason is a particularly valuable supplement to grain foods.

Linseed Oil Meal. This food is not so high in protein content as the digester tankage or pilchard fish meal. It has a laxative effect on swine. The proteins will not complete the proteins of the cereals in animal feeding. Linseed oil meal for this reason should be fed in combination with digester tankage, pilchard fish meal, skim milk, buttermilk or to animals on pasture.

DRY ROUGHAGES

Alfalfa Hay. When well cured and leafy, this is a splendid source of vitamins and minerals for swine in the dry feed lot. If coarse or weathered, it may be fed in a rack in the pen.

Alfalfa Leaves. This material is finely ground and sold commercially as poultry greens or alfalfa leaves and blossoms. It may be mixed with the meal ration. This is an

excellent source of minerals, vitamins and other nutrients for pigs in the dry feed lot.

Red Clover Hay. This hay when fine and well cured is about equal to alfalfa hay and serves the same purposes.

GREEN CUT ROUGHAGES

The composition of the green cut roughages is shown in the table on digestible nutrients. It is doubtful if soiling of these crops is generally profitable. These crops are most economically used as pasture.

ROOTS

Mangels and turnips are approximately of equal value in swine feeding. These feeds serve their best purpose when fed as a part of the boars' or dry sows' ration.

POTATOES

This feed when boiled is very useful for swine of all ages. In boiling add only enough water to provide moisture. The free liquid should be drained off and thrown away as it is poisonous to hogs. Under ordinary conditions four hundred and fifty pounds of potatoes are equal to one hundred pounds of mixed meal for growing and fattening hogs.

DAIRY BY-PRODUCTS

Skim milk and buttermilk are approximately of equal

value in swine feeding. As they are of animal origin, they balance and complete the proteins of cereals. These two feeds are the best sources of proteins for swine rations that have been tested at the University of British Columbia.

BRIEF RULES FOR SWINE FEEDING:

- (1.) Feed the higher protein rations to the younger pigs.
- (2.) For growing and fattening pigs allow daily one pound of meal or its equivalent for each month of age of the pig.
- (3.) Allow no more at each feed than they will clean up in fifteen minutes.

As a convenience to swine feeders, several rations are suggested below. With the exception of fattening hogs during the finishing period, it is assumed that the swine have access to pasture. Additional requirements of the suggested rations for pigs from the weanling age to one hundred and twenty-five to one hundred and fifty pounds in weight and also for the breeding animals are given as follows:

- (1) Alfalfa or clover hay -- all they will eat or alfalfa leaves or poultry greens at the rate of 25 to 50 pounds mixed with each 1,000 pounds of meal.
- (2) Common salt -- 10 pounds for each 1,000 pounds of

meal mixture.

(3) Safety precautions should be taken by adding minerals to each of the rations as follows: Steamed bone meal or spent bone black, 10 to 20 pounds for each 1,000 pounds of meal.

(4) (For sows). Tincture of iodine or potassium iodide solution as directed under mineral requirements.

NOTE: In the proscribed rations skim milk, buttermilk, pilchard fish meal or digester tankage are suggested as the protein supplements. When available, the skim milk and buttermilk are best but the pilchard fish meal and digester tankage, in the order named, are excellent protein supplements to the meal rations set forth. Skim milk or buttermilk is not essential to successful swine production. When substituting pilchard fish meal or digester tankage for milk, one pound of either of the former should be used in place of fifteen pounds of milk.

<u>Ration No. 1</u>	<u>23% Digestible Protein</u>	<u>For weanling pigs</u>
	Ground Oats	400 pounds
	Wheat middlings	300 "
	Pilchard Fish Meal or Digester Tankage	300 "
or	5 pounds of Skim Milk to each pound of meal mixture.	
<u>Ration No. 2</u>	<u>23% Digestible Protein</u>	<u>For weanling pigs</u>
	Ground Oats	500 pounds
	Wheat Middlings	500 "
	3 pounds of Skim Milk for each pound of meal.	

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<u>Ration No. 1</u>	<u>23% Digestible Protein</u>	<u>For weanling pigs</u>
	Ground Oats	400 pounds
	Wheat middlings	300 "
	Pilchard Fish Meal or Digester Tankage	300 "
or	5 pounds of Skim Milk to each pound of meal mixture.	
<u>Ration No. 2</u>	<u>25% Digestible Protein</u>	<u>For weanling pigs</u>
	Ground Oats	500 pounds
	Wheat Middlings	500 "
	3 pounds of Skim Milk for each pound of meal.	

<u>Ration No. 3</u>	<u>22% Digestible Protein</u>	<u>For weanling pigs</u>
Ground Oats	400 pounds	
Wheat Middlings	600 "	
2½ pounds of Skim Milk for each pound of meal.		
<u>Ration No. 4</u>	<u>21% Digestible Protein</u>	<u>For weanling pigs</u>
Ground Reclaimed Wheat Screenings	600 pounds	
Linseed Oil Meal	200 "	
Pilchard Fish Meal or Digester Tankage	200 "	
or 3 pounds of Skim Milk for each pound of meal.		
<u>Ration No. 5</u>	<u>21% Digestible Protein</u>	<u>For weanling pigs</u>
Ground Oats	300 pounds	
Ground Barley	200 "	
Pea Meal	200 "	
Linseed Oil Meal	100 "	
Pilchard Fish Meal or Digester Tankage	200 "	
or 3 pounds of Skim Milk for each pound of meal.		
<u>Ration No. 6</u>	<u>20% Digestible Protein</u>	<u>For weanling pigs</u>
Ground Corn	100 pounds	
Ground Barley	100 "	
Ground Oats	200 "	
Wheat Middlings	250 "	
Linseed Oil Meal	100 "	
Pilchard Fish Meal or Digester Tankage	250 "	
or 5 pounds Skim Milk for each pound of meal.		
<u>Ration No. 7</u>	<u>16% Digestible Protein</u>	<u>Pigs 50 to 100 lbs. and nursing sows.</u>
Ground Reclaimed Wheat Screenings	200 pounds	
Ground Barley	200 "	
Ground Oats	200 "	
Wheat Middlings	200 "	
Pilchard Fish Meal or Digester Tankage	200 "	
or 3 pounds of Skim Milk for each pound of meal.		

<u>Ration No. 8</u>	<u>18% Digestible Protein</u>	<u>Pigs 50 to 100 lbs.</u> <u>and nursing sows.</u>
	Ground Oats	250 pounds
	Ground Barley	250 "
	Wheat Shorts	300 "
	Pilchard Fish Meal or Digester Tankage	200 "
or	3 pounds of Skim Milk for each pound of meal.	
<u>Ration No. 9</u>	<u>17% Digestible Protein</u>	<u>Pigs 60 to 125 lbs.</u> <u>and nursing sows.</u>
	Ground Barley	600 pounds
	Wheat Shorts	200 "
	Pilchard Fish Meal or Digester Tankage	200 "
or	3 pounds of skim milk for each pound of meal.	
<u>Ration No. 10</u>	<u>17% Digestible Protein</u>	<u>Pigs 60 to 125 lbs.</u> <u>and nursing sows.</u>
	Ground Oats	300 pounds
	Ground Barley	300 "
	Pea Meal	200 "
	Linseed Oil Meal	100 "
	Pilchard Fish Meal or Digester Tankage	100 "
or	1½ pounds of Skim Milk for Each pound of meal.	
<u>Ration No. 11</u>	<u>17% Digestible Protein</u>	<u>Pigs 60 to 125 lbs.</u> <u>and nursing sows.</u>
	Ground Oats	450 pounds
	Ground Rye	350 "
	Pilchard Fish Meal or Digester Tankage	200 "
or	3 pounds of Skim Milk for each pound of meal.	

<u>Ration No. 12</u>	<u>17% Digestible Protein</u>	<u>Pigs 60 to 125 lbs. and nursing sows.</u>
	Ground Recleaned Wheat Screenings	800 pounds
	Pilchard Fish Meal or Digester Tankage	200 "
or	3 pounds of Skim Milk for each pound of meal.	
<u>Ration No. 13</u>	<u>15% Digestible Protein</u>	<u>Pigs 75 to 150 lbs. and nursing sows.</u>
	Ground Oats	400 pounds
	Ground Barley	300 "
	Poa Meal	200 "
	Pilchard Fish Meal or Digester Tankage	100 "
or	1½ pounds of Skim Milk for each pound of meal.	
<u>Ration No. 14</u>	<u>15% Digestible Protein</u>	<u>Pigs 75 to 150 lbs. and nursing sows.</u>
	Wheat Shorts	450 pounds
	Ground Barley	450 "
	Pilchard Fish Meal or Digester Tankage	100 "
or	1½ pounds of Skim Milk for each pound of meal.	
<u>Ration No. 15</u>	<u>15% Digestible Protein</u>	<u>Pigs 75 to 150 lbs. and nursing sows.</u>
	Ground Barley	300 pounds
	Wheat Shorts	600 "
	Pilchard Fish Meal or Digester Tankage	100 "
or	1½ pounds of Skim Milk for each pound of meal.	

<u>Ration No. 16</u>	<u>14% Digestible Protein</u>	<u>Pigs 75 to 150 lbs.</u>
	Ground Barley	300 pounds
	Ground Oats	300 "
	Wheat Shorts	300 "
	Pilchard Fish Meal or Digester Tankage	100 "
or	1½ pounds of Skim Milk for each pound of meal.	
<u>Ration No. 17</u>	<u>14% Digestible Protein</u>	<u>Pigs 75 to 150 lbs.</u>
	Ground Recleaned Wheat Screenings	700 pounds
	Pea Meal	250 "
	Pilchard Fish Meal or Digester Tankage	50 "
or	1 pound of Skim Milk for each pound of meal.	
<u>Ration No. 18</u>	<u>13% Digestible Protein</u>	<u>Fattening pigs over 125 pounds.</u>
	Ground Recleaned Wheat Screenings	900 pounds
	Pilchard Fish Meal or Digester Tankage	100 "
or	1½ pounds of Skim Milk for each pound of meal.	
<u>Ration No. 19</u>	<u>13% Digestible Protein</u>	<u>Fattening pigs over 125 pounds.</u>
	Ground Barley	550 pounds
	Wheat Shorts	400 "
	Pilchard Fish Meal or Digester Tankage	50 "
or	1 pound of Skim Milk for each pound of meal.	
<u>Ration No. 20</u>	<u>13% Digestible Protein</u>	<u>Fattening pigs over 125 pounds.</u>
	Ground Oats	200 pounds
	Ground Barley	500 "
	Rice Meal	200 "
	Pilchard Fish Meal or Digester Tankage	100 "
or	1½ pounds of Skim Milk for each pound of meal.	

<u>Ration No. 21</u>	<u>12% Digestible Protein</u>	<u>Fattening pigs over 125 pounds.</u>
	Ground Barley	350 pounds
	Pea Meal	100 "
	Ground Oats	500 "
	Pilchard Fish Meal or Digester Tankage	50 "
or	1 pound of Skim Milk for each pound of meal.	
<u>Ration No. 22</u>	<u>11% Digestible Protein</u>	<u>Mature boars and dry sows.</u>
	Ground Oats	300 pounds
	Ground Barley	200 "
	Wheat Shorts	500 "
<u>Ration No. 23</u>	<u>11% Digestible Protein</u>	<u>Mature Boars and dry sows.</u>
	Ground Recleaned Wheat Screenings	500 pounds
	Ground Oats	450 "
	Pilchard Fish Meal or Digester Tankage	50 "
or	1 pound of Skim Milk for each pound of meal.	
<u>Ration No. 24</u>	<u>11% Digestible Protein</u>	<u>Mature boars and dry sows.</u>
	Ground Recleaned Wheat Screenings	950 pounds
	Pilchard Fish Meal or Digester Tankage	50 "
or	1 pound of Skim Milk for each pound of meal.	
<u>Ration No. 25</u>	<u>11% Digestible Protein</u>	<u>Mature boars and dry brood sows</u>
	Ground Oats	500 pounds
	Ground Barley	450 "
	Pilchard Fish Meal or Digester Tankage	50 "
or	1 pound of Skim Milk for each pound of meal.	

<u>Ration No. 26</u>	<u>10% Digestible Protein</u>	<u>Mature boars and dry sows</u>
Ground Barley		600 pounds
Ground Oats		100 "
Wheat Shorts		300 "
<u>Ration No. 27</u>	<u>10% Digestible Protein</u>	<u>Mature boars and dry sows.</u>
Ground Oats		400 pounds
Ground Barley		400 "
Wheat Shorts		200 "
<u>Ration No. 28</u>	<u>10% Digestible Protein</u>	<u>Mature boars and dry sows.</u>
Ground Oats		600 pounds
Ground Barley		300 "
Wheat Shorts		100 "
<u>Ration No. 29</u>	<u>10% Digestible Protein</u>	<u>Mature boars and dry sows.</u>
Ground Barley		800 pounds
Wheat Bran		200 "

PARASITES

Good rations and feeding methods may largely be wasted if proper sanitation of swine is not given detailed consideration. Worms and lice are present in practically all herds and much food may be lost if these parasites are not controlled.

WORMS

There are several kinds of worms that infest swine. The species which causes greatest concern in British Columbia

is the round worm. The small pigs are most seriously affected, often becoming stunted and unthrifty. Frequently there is much coughing. Pigs that approach maturity appear to be able to withstand worm infestation without visible signs in general condition. A young pig which has become infested may require from 2 to 3 months extra feeding over the normal pig period before reaching market weight.

Sanitation is particularly important. The pens and trough should be kept clean. The yards should be well drained and rotated with some cultivated crop. The McLean County system of control is generally recommended. This control is one of sanitation entirely, the details of which may be secured on application to the Animal Husbandry Department of the University of British Columbia at Vancouver.

LICE

This parasite may be controlled by applications of crude petroleum oil or crank case oil on the infested animals. This may be done with a cloth or brush if only a few animals are to be treated. Spraying or sprinkling the crude petroleum or crank case oil on the backs of a group of pigs in a closely confined pen is very satisfactory. They should be kept closely confined until by rubbing together each hog is thoroughly oiled.

Since oil does not destroy the eggs of the lice, it

is advisable to repeat the above remedy in from 7 to 10 days.

NOTE:

Do not expose freshly treated hogs to the hot sun or blistering may occur.

When treating hogs for ^{lice} ~~worms~~, it is best practice to burn all bedding from the pens and sprinkle the floors with the oil.

Any system of sanitation in swine production when faithfully practised is sure to pay handsome dividends.