

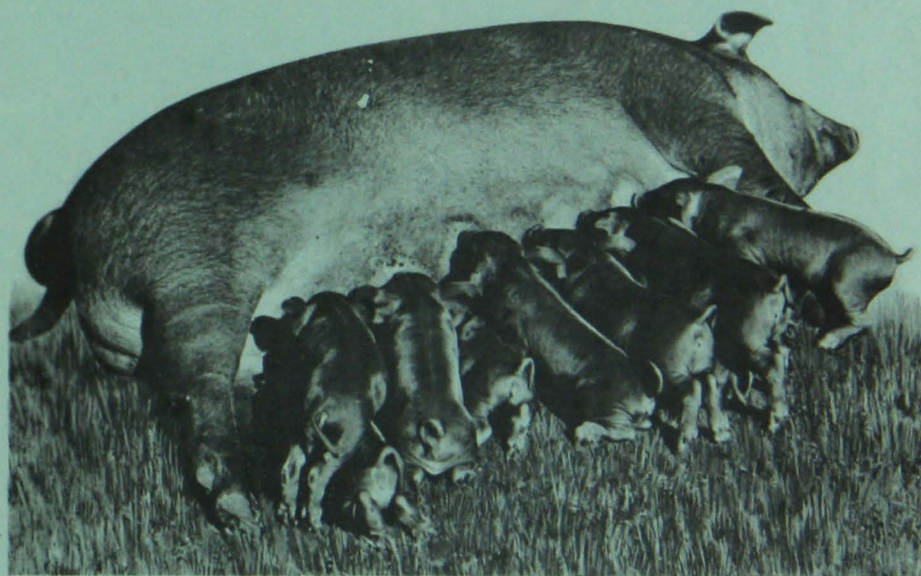
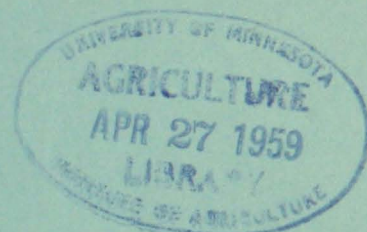
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# Minnesota Swine Improvement Program



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U.S. Department of Agriculture

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## MINNESOTA - "ON THE FARM" SWINE IMPROVEMENT PROGRAM

Minnesota swine producers can make progress in producing meatier hogs. They must select meatier boars and gilts that will produce meaty market hogs. This program is designed to help both the commercial producer and the purebred breeder locate more desirable breeding animals.

On-the-farm testing of Minnesota swine herds has several advantages. The hogs are selected under farm conditions where advantage is gained of any tendency for the hogs to adapt to the environment. The entire herd, or a large portion of it, can be tested and advantage taken of the opportunity to cull more rigidly. All hogs can be fed a ration which promotes maximum rate of gain.

Boars and gilts selected to produce meaty market hogs must be fed a fattening type of ration until they weigh 200 pounds. This practice permits these potential herd replacements to display their inherent tendency to be meaty, or to become overfat. Any practice of limited feeding, or the feeding of a bulky ration, will give a false indication of the true meat characteristics of the herd. Producers who purchase "allegedly" meatier boars produced in this manner will often be displeased with their offspring. Seed stock producers should avoid such practices.

The principle characteristics which are a part of this program are:

1. Productivity -- litter size at birth and at weaning.
2. Weight for age and rate of gain -- 180-day weight.
3. Backfat thickness, as measured by probe of live hog weighing approximately 200 pounds.

Efficient hog production can not be realized without good litter size. Hence, replacement animals should only be selected from large litters. Rapidly growing swine which reach 200 pounds at five to six months of age are often efficient in their utilization of feed. For this reason some measure of the pigs' ability to gain rapidly must be incorporated into a testing program. Backfat thickness is closely associated with meatiness of the hog. Use of the backfat probe of live hogs represents the best measurement which is presently available for estimating the leanness of the live animal. It is obvious that the animal must remain alive after being checked if it is to be useful and use of the backfat probe affords this advantage.

The general plans for carrying out this swine improvement program are outlined below. This program is designed to be useful to the commercial producer as well as the breeder of purebreds. Purebred breeders are cautioned to follow the recommendations of their breed association in those instances where they are following the Meat-Type Certification program. Commercial producers are urged to follow as many phases of the program as can be reasonably fitted into their program.

### PLAN I -- For the Commercial Producer

1. Ear notch and weigh all litters at birth.

2. Weigh all pigs individually at, or near, 56 days of age.
3. Weigh and probe possible herd replacement gilts when average weight will be approximately 200 pounds.
4. When possible, obtain probe and carcass information on representative groups of market hogs.
5. When possible, obtain feed requirement data on a representative group, or groups, of hogs.
6. Make final selection of herd replacement gilts on basis of litter size, weight for age and backfat thickness.

PLAN II -- For the Seed Stock Producer

1. Follow breed association Production Registry program.
2. Follow breed association Meat-Type Certification program.
3. Weigh and probe all boars and herd or sale gilts at approximately 200 pounds.
4. Select replacement breeding stock using all information available on litter size, growth rate, backfat thickness and efficiency of gains.
5. Obtain feed requirement data on:
  - a. Separate litters.
  - b. Sire progeny groups.

It is essential in any program for swine improvement, that accurate records be kept for all litters of pigs farrowed, and for individual pigs within each litter. The Litter Record sheet which is included as a part of this program outline will serve as a guide to swine producers. Information on systems for ear notching pigs is shown on Animal Husbandry Fact Sheet Number 2, a copy of which can be obtained from County Extension Agents or Vocational Agriculture instructors.

The backfat probes on the live hog should be taken at the three sites shown in the drawing on page 6. All measurements should be made 2 to 3 inches from the midline of the pig's back, depending on its size. The only essentials for making the probes on the live hog are a snare to catch the hog, a sharp knife to make the incision in the skin, and a metal ruler measured in tenths of inches with which to make the measurements.





TABLE 2. --WEIGHT CONVERSION TABLE. USE TO CONVERT WEIGHT TO 180-DAY AGE BASIS

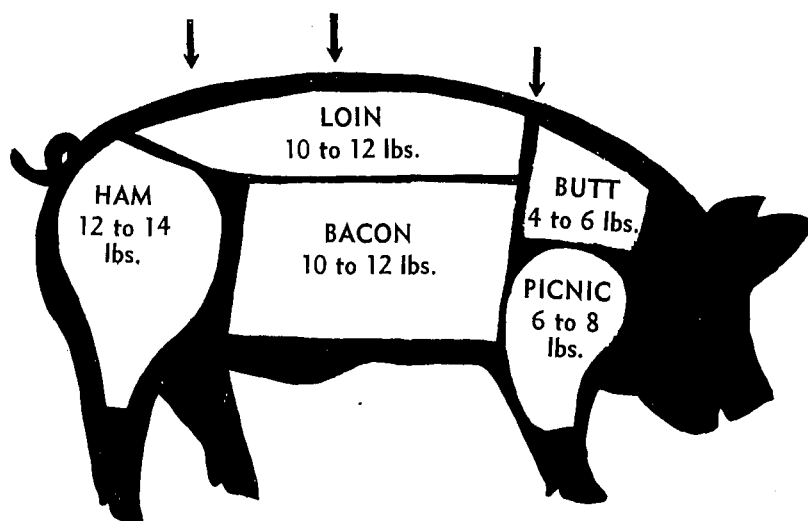
Age in Days	If weight is:																												
	150	152	154	156	158	160	162	164	166	168	170	172	174	176	178	180	182	184	186	188	190	192	194	196	198	200			
160	180	182	185	187	190	192	194	197	199	202	204	206	209	211	214	216	218	221	223	226	228	230	233	235					
161	178	181	183	185	188	190	192	195	197	200	202	204	207	209	211	214	216	219	221	223	226	228	230	233	235				
162	176	179	181	183	186	188	190	193	195	198	200	202	205	207	209	212	214	216	219	221	223	226	228	230	233	235			
163	175	177	179	182	184	186	189	191	193	196	198	200	203	205	207	210	212	214	217	219	221	224	226	228	231	233			
164	173	175	178	180	182	185	187	189	192	194	196	198	201	203	205	207	210	212	214	217	219	221	224	226	228	231			
165		174	176	178	181	183	185	187	190	192	194	197	199	201	203	206	208	210	213	215	217	219	222	224	226	228			
166			174	177	179	181	183	186	188	190	192	195	197	199	201	204	206	208	211	213	215	217	220	222	224	226			
167				175	177	179	182	184	186	188	191	193	195	197	200	202	204	206	209	211	213	215	217	220	222	224			
168					176	178	180	182	184	187	189	191	193	196	198	200	202	204	207	209	211	213	216	218	220	222			
169						176	178	181	183	185	187	189	192	194	196	198	200	203	205	207	209	211	214	216	218	220			
170							175	177	179	181	183	185	188	190	192	194	196	199	201	203	205	207	209	212	214	216			
171								173	175	177	179	182	184	186	188	190	192	195	197	199	201	203	205	208	210	212	214		
172									174	176	178	180	182	184	186	188	191	193	195	197	199	201	203	206	208	210	212		
173										174	176	178	181	183	185	187	189	191	193	195	198	200	202	204	206	208	210		
174											175	177	179	181	183	185	187	190	192	194	196	198	200	202	204	206	208		
175												175	177	179	181	184	186	188	190	192	194	196	198	200	202	204	207		
176													176	178	180	182	184	186	188	190	192	194	196	199	201	203	205		
177														176	179	181	183	185	187	189	191	193	195	197	199	201	203		
178															177	179	181	183	185	187	189	191	193	195	197	199	201		
179																177	179	181	183	185	187	190	192	194	196	198	200		
180																													
181																179	181	183	185	186	188	190	192	194	196	198			
182																	179	181	183	185	187	189	191	193	195	197			
183																		180	182	184	186	187	189	191	193	195			
184																			180	182	184	186	188	190	191	193			
185																				180	182	184	186	188	190	192			
186																					181	183	185	187	188	190			
187																						180	181	183	185	187	189		
188																							180	182	184	186	188		
189																								180	182	184	186		
190																									181	183	185		
191																										180	181	183	
192																											180	182	
193																												179	180
194																													179

TABLE 2. -- WEIGHT CONVERSION TABLE (Continued)

Age in Days	If weight is:																											
	202	204	206	208	210	212	214	216	218	220	222	224	226	228	230	232	234	236	238	240	242	244	246	248	250	252	254	
160																												
161																												
162																												
163	235																											
164	233	235																										
165	231	233	235																									
166	229	231	233	235																								
167	226	229	231	233	235																							
168	224	227	229	231	233	236																						
169	222	225	227	229	231	233	235																					
170	220	223	225	227	229	231	233	235																				
171	218	221	223	225	227	229	231	233	236																			
172	216	218	221	223	225	227	229	231	233	236																		
173	215	217	219	222	223	225	227	229	231	234	236																	
174	213	215	217	219	221	223	225	227	230	232	234	236																
175	211	213	215	217	219	221	223	225	227	229	232	234	236															
176	209	211	213	215	217	219	221	223	225	227	230	232	234	236														
177	207	209	211	213	215	218	220	222	224	226	228	230	232	234	236													
178	205	207	210	212	214	216	218	220	222	224	226	228	230	232	234	236												
179	204	206	208	210	212	214	216	218	220	222	224	226	228	230	232	234	236											
180																												
181	200	202	204	206	208	210	212	214	216	218	220	222	224	226	228	230	232	234	236									
182	199	201	203	205	207	209	211	214	215	216	218	220	222	224	226	228	230	232	234	236								
183	197	199	201	203	205	207	209	211	213	215	217	219	221	223	224	226	228	230	232	234								
184	195	197	199	201	203	205	207	209	211	213	215	217	219	220	222	224	226	228	230	232	234							
185	194	196	198	200	202	204	205	207	209	211	213	215	217	219	221	223	225	227	228	230	232	234						
186	192	194	196	198	200	202	204	206	208	209	211	214	215	217	219	221	223	225	227	228	230	232	234					
187	191	193	195	197	198	200	202	204	206	208	210	212	214	216	217	219	221	223	225	227	229	231	232	234				
188	190	191	193	195	197	199	201	203	205	207	208	210	212	214	216	218	219	221	223	225	227	229	231	233	235			
189	188	190	192	193	195	197	199	201	203	205	206	208	210	212	214	216	218	220	221	223	225	227	229	231	233	234		
190	186	188	190	192	194	196	198	199	201	203	205	207	209	210	212	214	216	218	220	222	223	225	227	229	231	233	234	
191	185	187	189	190	192	194	196	198	200	202	204	205	207	209	211	213	215	217	218	220	222	224	225	227	229	231	233	
192	184	185	187	189	191	193	195	196	198	200	202	204	205	207	209	211	213	215	216	218	220	222	224	225	227	229	231	
193	182	184	186	188	189	191	193	195	197	198	200	202	204	206	207	209	211	213	215	216	219	220	222	224	226	227	229	
194	181	183	185	186	188	190	192	194	195	197	199	201	202	204	206	208	210	211	213	215	217	219	220	222	224	226	228	

## HOW TO USE A BACKFAT PROBE

Points at which probes should be taken



The above is an all-purpose hog -- from a prolific sow (8 or more weaned), fast-growing (200 lbs. or more in 180 days), and a well-balanced, meaty carcass with just enough fat to provide firmness and tempting flavor.

The three measurements are totaled and adjustment figures in table 1\* are used to determine the equivalent backfat thickness for the pig at a weight of 200 pounds. For example, if a pig weighs 220 pounds, shows a total of 46 (tenths of inches) the equivalent total for this pig at 200 pounds is 42. Dividing the 42 by 3 gives 14 tenths of inches, or an average backfat thickness of 1.4 inches.

It is necessary to compare all pigs at a common age to determine their relative abilities to gain weight. Since pigs which gain rapidly and efficiently under farm conditions should weigh 200 pounds or more at 6 months of age, a practice of adjusting all pig weights to a 180-days-of-age basis is recommended. Table 2 represents a weight conversion table from which the 180-day weight of a pig can be predicted. For example, if a pig weighed 200 pounds at 162 days of age, its 180-day adjusted weight would be 235 pounds.

Seed stock producers who wish to fully evaluate their herds and to supply their customers with additional worthwhile information may wish to determine the efficiency with which some litters of pigs, or groups of pigs from different sires, convert their feed to gain. First of all it is necessary that the animals tested be representative of the litters or of the offspring of sires, depending

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\* Tables 1 and 2 are used through the courtesy of Iowa State College.



upon testing procedure desired. Secondly, pigs tested in this manner must be full-fed a fattening ration from the time that they are placed on test, shortly after weaning, until they weigh 200 pounds. Elaborate equipment is not necessary. Like numbers of pigs should have the same type of housing and exercise space whether housing be permanent or temporary. If tests are conducted on pasture, groups of pigs of the same size should have the same area of pasture. Self-feeders and waterers of the same make should be used for each group of pigs.

Producers of purebred hogs who are following breed association Lean Meat Certification Programs will obtain some data on the carcass merit of their herd. These producers and other seed stock producers should obtain as much information as possible on the carcass merit of their respective herds. This provides more assurance that they are producing meatier boars, and helps them to assure their customers of the possible benefits to be realized through the use of boars which have met testing requirements. Commercial producers should determine how their market hogs are grading and should also determine the progress that they are making in producing a higher percentage of No. 1 hogs through the use of better boars. This can be done by following a representative group of market hogs to see how they are graded by the packer-buyer. Or it can be done by finding out what percentage of a representative group of market hogs yields No. 1 carcasses, as determined after slaughter.

Producers are urged to adopt as much of either of the outlined programs as can be fitted into their operation. County Extension Agents and local Vocational Agriculture instructors can help in setting up individual programs. When possible, Extension Specialists and Agricultural Experiment Station personnel will give assistance, particularly with the more detailed programs.

The following are recommended standards to keep in mind when selecting breeding animals:

Litter size -- at least 10 farrowed, 8 or more weaned.

180-day weight -- gilts, at least 200 pounds; boars, at least 220 pounds.

200-pound backfat -- gilts, 1.5 inches or less; boars, 1.3 inches or less.





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