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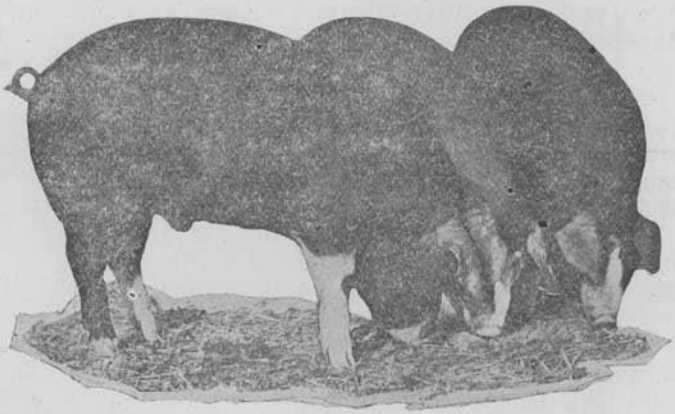

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Type in Market Swine and Its Influence on Quality of Pork

J. E. NORDBY*

A constantly growing demand for smaller and leaner cuts has been developing ever since refrigeration facilities made it possible to satisfactorily deliver fresh pork products to the consuming centers. A much higher quality of cured pork products has been made available through increased efficiency in pork processing methods. The consuming public has become discriminating to the point of demanding cuts that are not only smaller but which are lean. Consumers prefer only a moderate amount of outside fat as an assurance of tenderness, best possible flavor, and least waste. Such cuts must come from comparatively small and young market hogs.

Reasonably satisfactory cuts may be made from small but fat and young hogs that may differ very materially in type. In localities where demands have not been very exacting, the buyer has not paid so much attention to type in the market hog so long as it was fat and within the weight limits. Even buyers for some of the larger packing plants have followed this practice. They have estimated values in the live market hog on the basis of finish and weight; on finish as a customary assurance of a high dressing percentage and firm pork cuts, and on weight to conform with the consumer's demand for small cuts. Such methods of appraisal have served reasonably well in a general way as a means for arriving at values. It is very likely, however, that the importance of a high dressing percentage, as influenced by the degree of finish in the market hog, has been overemphasized to the extent that the very important factor of the percentage of lean and fat in the carcass has been in a large measure overlooked.

The introduction of various vegetable oil substitutes for lard has, within the last twenty years, forced the price of lard to comparatively low levels. Recently the wholesale price of rendered lard has, in some instances, been lower than the price of live hogs. On the Intermountain and Coast markets quotations now favor market hogs weighing 200 pounds with a fifty cent spread over hogs of similar finish weighing 225 pounds. Heavier penalties are imposed for increased weights. This price difference, very likely, is not based entirely on the consumer's demand for a small size in pork cuts but it is very probable that the price difference in these weight classifications is based on the processors' inability to dispose of the surplus lard to advantage as well as to the consumers' increasing dislike for too fat cuts.

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There is an appreciable variation in type in the general run of market hogs. On some markets it is common occurrence to find that the 200-pound short, thick, chuffy hog sells for the same price or for even more than the longer, more moderately thick hog of a similar weight. When the price is the same on hogs differing materially in type, probably not enough recognition is made of the possibility that there may be some difference in the acceptability and value of the carcass produced by these different types.

Purpose

Slaughter tests discussed in this bulletin were made to determine what effect type in the market hog might have on the yield of lard, leanness of cuts, and general quality of pork. Experiment stations in other states have done work on this problem and have concluded that "the intermediate type of lard hog is the one best suited for the present day pork producer of the corn-belt, not because of any superiority in rate and economy of gains, but because the meat from this type more nearly meets the requirements of the present-day pork trade and consequently demands a higher price."

Types of Market Swine Used in the Test

Five hogs of the sort generally classified among swine breeders in the West as large type, were used in Group I, (Fig. 1). This description should not be confused with the "rangy type," which is not so much in evidence in the Pacific Northwest. From Fig. 1 it will be noticed that these barrows were moderately long, wide and deep. Their backs were well supported and their underlines neatly carried. They were produced on the University farm at Moscow.

The pigs in Group II (Fig. 2) were characteristic of the short, thick, low set "chuffy" type that generally take on a finish at a very early age in contrast to those in Group I, which tend to grow more in the early months and perhaps require a little closer attention during the finishing period. These chuffy hogs were produced under farm conditions, were well finished and of comparable quality with the hogs in Group I.

Result of Slaughter Test

The hogs in both lots were off feed for 24 hours before they were slaughtered, but had free access to water. They were slaughtered in the Hagan and Cushing Company plant, through whose courteous cooperation the details of the test were made possible.

Dressing Per Cent

The dressing per cent in Group I was a little higher than

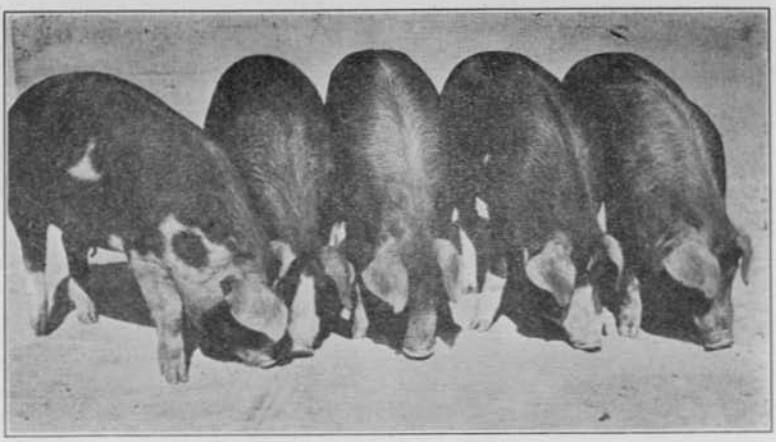

Fig. 1.—Five barrows described in Group I.

in Group II (Table 1). It is very likely that this came about by the additional body length and neatness of middle that characterized the hogs in Group I. Neatness of middle and length of body, as well as finish, are important factors in determining the dressing percentage.

TABLE I

Weight and Dressing Percentage Description of the Two Groups and Incidental Products Secured in the Dressing Procedure

	Weight				Percentage on basis of live w'gt.	
	Group I		Group II			
	lbs.	oz.	lbs.	oz.	Group I	Group II
Average live weight	205		184			
Dressed weight (head removed)	155	4	138	14		
Average weight out of cooler	151		135	4		
Average loss in cooler	4	4	3	10		
Dressing per cent, warm					75.6	75.5
Dressing per cent, cold					73.6	73.5
Tongue		9		8	.28	.27
Fat trim from head	3	13	3	9	1.85	1.95
Lean trim from head	1	12	1	4	.85	.68
Bones of head	6	2	4	1	2.98	2.20
Intestinal fat	3	14	4	4	1.88	2.31
Giblet	0	6	0	6	.18	.20
Heart	0	12	0	11	.36	.37
Liver	3	14	3	10	1.59	1.97
Total					9.97	9.95

It appears from Table I that there is no significant difference in the yield in percentage of the various by-products secured in the slaughter process. The total percentage of these for Group I is 9.97 and for Group II is 9.95.

Results of the Cutting Test

Both sides of the carcasses were cut into the regular wholesale cuts by a cutter of several years' experience with large packing plants. For the respective groups the cutting percentage of the various cuts was calculated on the live weight basis.

TABLE II

Pork Loin and Belly Dimensions

Description of dimensions studied	Dimensions in inches		Diff. in size of cuts in inches in favor of	
	Group I	Group II	Group I	Group II
Length of pork loins	24.	23.	1.	
Length of bellies	20.	18.	2.	
Width of bellies—front	9.	8.4	.6	
Width of bellies—rear	8.5	8.2	.3	
Thickness of Bellies—				
fore flank	1.5	1.6		.1
rear flank	1.5	1.5		
bottom middle	1.5	1.5		
top	1.6	1.8		.2

Fig. 2.—Five "chuffy" barrows described in Group II.

Pork Loin and Belly Measurements

In Table II, it will be noticed, the pork loins of Group I average one inch longer and the bellies two inches longer than in Group II. The width of the bellies (regular) was somewhat in favor of Group I and this was made possible by the neat full flanked underline of the hogs in Group I. The underlines of the hogs in Group II were more flabby which made more trimming necessary and accounts for a slightly higher percentage of lean trimmings from the sides in this group. In Group II the bellies were thicker at the top than they were in Group I. Other differences were not significant.

When a comparatively small number of individuals are used for a test conclusions should be drawn with considerable care. However, the data in Tables III and IV seem to point to a higher percentage of lean in the carcasses of Group I and a higher percentage of fat in Group II. Group I produced 2.22 per cent more skinned ham, 1.38 per cent more picnic

TABLE III

Description of Various Cuts Made From the Rough Shoulders, Hams and Sides in Pounds, and in Percentage on Basis of Live Weight

Name of Cut	Weight				% of Body Weight	
	Group I lbs.	oz.	Group II lbs.	oz.	Group I	Group II
Shoulder						
Picnic butts*	15	12	11	10	7.68	6.30
Boston butts*	10	11	8	3	5.22	4.45
Fat trimmings	6	14	8	8	3.36	4.62
Lean trimmings	3	0	2	6	1.46	1.29
Jowl butts*	3	2	3	7	1.52	1.87
Neck bones	2	5	1	12	1.12	.95
Fore feet	1	13	1	10	.88	.88
Hams						
Skinned hams	29	10	22	8	14.45	12.23
Fat trimmings	7	4	8	2	3.53	4.43
Lean trimmings	0	10	0	9	.31	.29
Rear feet	2	10	1	12	1.28	.95
Sides						
Bellies*	19	3	17	3	9.36	9.34
Pork loins*	14	3	11	4	6.92	6.11
Tenderloins*	1	3	0	14	.58	.47
Fat trimmings	15	8	19	15	7.56	10.83
Leaf fat	3	8	4	3	1.70	2.27
Lean trimmings	4	1	3	12	1.98	2.03
Kidneys	0	11	0	10	.33	.34
Back bone	3	15	3	2	1.91	1.75
Spare ribs	5	2	3	12	2.49	2.04

*For the weight of each picnic butt, Boston butt, and other cuts marked with asterisk, divide the figures given for Group I and Group II by two.

TABLE IV

Summary of Fresh Cuts Produced from the Two Groups Expressed in in Percentage and the Difference in Yield Credited to the Groups

Name of Cut	Percentage of body weight		Percentage in favor of	
	Group I	Group II	Group I	Group II
Fat (trimmings, leaf, intestinal unrendered)	19.88	26.41		6.53
Hams (skinned)	14.45	12.23	2.22	
Bellies (square cut--seedless)	9.36	9.34	.02	
Picnic butts	7.68	6.30	1.38	
Pork loins	6.92	6.11	.81	
Boston butts	5.22	4.45	.77	
Lean trimmings (total)	4.50	4.29	.21	
Spare ribs	2.49	2.04	.45	
Jowl butts	1.52	1.87		.35
Tenderloins	.58	.47	.11	
Liver	1.59	1.97		.38
Heart	.36	.37		.01
Kidneys	.33	.34		.01
Giblet	.18	.20		.02
Tongue	.28	.27	.01	
Bones (neck, back, skull, and feet)	8.17	6.77	1.40	

butts, .77 per cent more Boston butts, and .81 per cent more pork loins than Group II. On the basis of a 200-pound hog this would represent a total of 10.36 pounds of ham, butts and pork loins. The carcasses in Group I produced 6.53 per cent less fat trimmings, including leaf and intestinal fat, which on the basis of a 200-pound hog would be 13.12 pounds less unrendered fat than was produced by the chuffy hogs in Group II. It appears that this difference in yield of wholesale cuts and unrendered fat is the striking difference in favor of the hogs in Group I.

Quality of Wholesale Cuts

The increasing unwillingness of the public to eat fat has made it necessary for the processors to remove more fat from the pork cuts each year before offering these cuts to the public. Fat, therefore, becomes more of a factor in determining quality in pork cuts than it was some years ago (Fig. 3). In Fig. 3 the difference in thickness of fat in the hams, shoulders and bellies is very noticeable. The hams (a-2) of the chuffy hogs were too fat for "regulars." The hams (a-1) from Group I were of excellent finish. The bellies (b-2) from the chuffy hogs were too fat. It was also apparent that the streaks of lean were very small or entirely missing toward the top or thick side of the belly. Contrasted to this the

bellies from Group I were uniformly streaked with a high percentage of lean that carried consistently to the thick side of the bellies. All of the bellies were graded as very satisfactory in firmness.

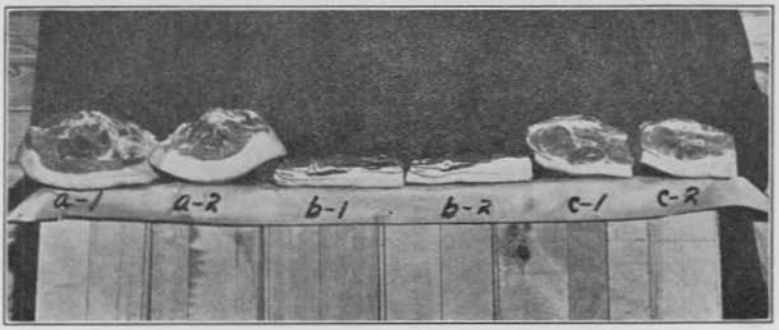

Fig. 3.—Wholesale cuts from the two groups showing differences in proportion of lean to fat.

Group I	Group II
Ham (a-1)	Ham (a-2)
Belly (b-1)	Belly (b-2)
Picnic butt (c-1)	Picnic butt (c-2)

The picnic butts (c-2) of the chuffy hogs were also too fat. They were, however, excellent in shape and firmness. The contrast in the external layer of fat in Group I and Group II may be noticed in Fig. 3, c-1 and c-2 respectively.

Summary

Chuffy hogs produce a higher percentage of fat than hogs of a little more stretch, and with a more moderate thickness.

The excessive amount of fat in chuffy hogs lowers the quality of the wholesale cuts, especially of the bellies, from which the excessive fat cannot be trimmed unless the bellies are skinned.

When lard sells for less than the wholesale cuts, the type of hog which yields the highest percentage of lean cuts, and the smallest percentage of lard should be the most profitable slaughter hog.

Slight differences in finish and dressing percentage are often of less significance to the processor of meat than is the quality of the product produced.