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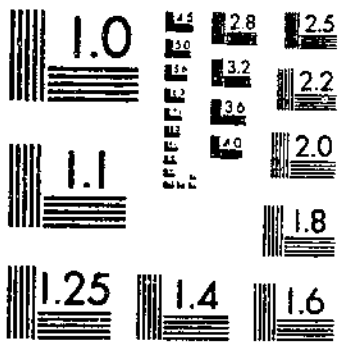

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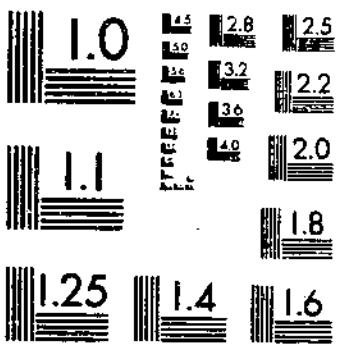

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SHRINKAGE AND DRESSING YIELDS OF HOGS[1]

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CONTENTS

INTRODUCTION

Live hogs, while on the way from the farm to market or slaughterhouse, usually lose weight. This loss of weight, commonly called shrinkage or drift, is an important factor affecting dressing yield. Probable dressing yield is one of the most important factors taken into consideration by packers when buying hogs for slaughter. Hogs that dress out a large proportion of carcass in relation to purchased live weight are in greatest demand and command higher prices than do those of similar quality that yield a low proportion of carcass.

Shrinkage may result from excretions or from loss in tissue weight. Loss of weight in transit through excretion does not affect the carcass weight and consequently does not affect the dressing percentage of the hogs. Loss in weight resulting from tissue shrinkage represents an actual reduction in carcass weight and also reduces the dressing percentage based on purchased weight.

Hog producers, marketing agencies, transportation agencies, and slaughterers are keenly interested in ascertaining how much hogs of different weights will shrink while in transit. They also want information on dressing yields of hogs of different weights and on the relationship between dressing yields and shrinkage.

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[2] Grateful acknowledgments are made to each of the packing concerns that cooperated in furnishing data for this study, to C. A. Burmeister, senior agricultural economist, for suggestions in planning and prosecuting the study, and to E. O. Swedberg, associate marketing specialist, who assembled most of the statistical data at plants of cooperating packers.

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Considerable difference of opinion exists as to the proportion of total shrinkage in transit that is represented by loss in tissue weight and the proportion represented by excretions.

Heretofore, studies of shrinkage have been concerned only with the total loss in weight during the period in transit. The data available for this study were such that it was possible to segregate shrinkage into excretory and tissue shrinkage with results that appear to be reasonably reliable.

The rapid increase in direct marketing of hogs during recent years has stimulated interest in comparisons between shrinkage in transit and dressing yield of hogs bought direct and hogs bought at public markets.

The purposes of this bulletin are to answer, as completely as possible, questions with regard to shrinkage rates of hogs of different weights while in transit by rail for different lengths of time, the proportions of total shrinkage accounted for by excretions and by loss in tissue weight, the dressing yields of hogs of different weights that have been in transit different periods of time, and the shrinkage in transit as related to dressing yield of hogs purchased direct and at public markets.

METHOD OF CONDUCTING STUDY AND NATURE OF DATA

National, regional, and local packers located in the East and Middle West who buy hogs both direct and at public markets, cooperated in making data available for this study. Data for most plants were taken from records of cooperating packers by representatives of the Bureau of Agricultural Economics. In a few instances the packers assembled the information from their records according to instructions supplied by the Bureau. Data were obtained on individual lots, usually representing one or two cardecks of hogs, although some lots represented less than one deck and others more than two decks. Information on each lot included date of delivery, place of origin, number of hogs, loading weight, delivered weight, dressed weight, the number of dead hogs, and the number of condemned hogs. In lots that contained dead and condemned hogs adjustments of live and dressed weights were made before shrinkage and dressing yields were determined.

Nineteen packing plants cooperated in furnishing information for computing shrinkage in transit and 14 plants the information for computing dressing yields. Data on shrinkage were furnished for hogs obtained at 34 public markets and 365 concentration yards and country points. Data on dressing yields were furnished on hogs obtained at 31 public markets and 292 concentration yards and country points. The study is based primarily on data for 1929 and 1930. For a few plants at which records were incomplete for these years, similar data were obtained for the first 2 or 3 months of 1931.

Data on shrinkage were available for 6,355,931 hogs, comprising 2,119,921 hogs bought direct, and 4,236,010 bought at public markets. Data on dressing yields were available for 6,103,574 hogs, of which 1,872,287 were bought direct and 4,231,287 at public markets.

All packers do not use the same method of computing dressing yield. Dressed weight, as used by some of them, represents the weight of the complete carcass; as used by others it excludes one or more of the following parts: Head, kidneys, leaf fat, and ham facings. Some packers use the warm weight of the dressed carcass in making their com-

putations; others use the chilled weight which is obtained by making certain percentage deductions from the warm weight, but there is no uniformity in the percentage deducted. Before the data for the different plants were combined, adjustments were made so that dressed weights at all plants would be on the warm basis, with head, kidneys, leaf fat, and ham facings included.

Dressing yields in this bulletin are computed on both purchased weights and delivered weights. "Purchased weight" dressing yield represents the percentage which the weight of carcasses is of the weight of hogs at the place of purchase; and "delivered weight" yield represents the percentage which the weight of carcasses is of the weight of hogs delivered at the plant.

Shrinkage in transit of hogs obtained direct represents loss in weight between the local shipping point or concentration yard where they were bought by packers and the plant to which they were shipped for slaughter. For hogs bought at public markets it represents loss in weight between the particular market where they were purchased and the plant to which they were shipped.

Hogs were classified into weight groups with 20-pound spreads, based on the average weight of each lot. The normal length of time in transit was classified into 6-hour periods. Data were also classified into four seasons, each comprising 3 months.

METHOD OF SEGREGATING TISSUE AND EXCRETORY SHRINKAGE

In segregating shrinkage into the parts represented by excretions and loss in tissue weight, only data for hogs weighing between 160 and 279 pounds were used. Hogs of these weights tend to be more uniform in quality, and the number of animals was larger for these weights than for either lighter or heavier groups. Data for the different seasons of the year were combined, but seasonal variations were taken into consideration in the analysis.

The difference between the carcass weights of hogs in transit a given number of hours and that of hogs of similar live weight purchased and slaughtered locally without being transported is assumed to represent tissue shrinkage. The difference between the tissue shrinkage and the total shrinkage for hogs is assumed to be excretory shrinkage.

RELATIONSHIP BETWEEN HOURS IN TRANSIT AND MILES EN ROUTE

Shrinkage in transit and dressing yield computed on the basis of purchased weights were determined for hogs classified according to the number of hours in transit. The results would not have been greatly different if shrinkage and yield had been determined in relation to number of miles en route.

Packers' records did not contain information on the number of hours each shipment was in transit, but the normal number of hours required to move hogs from each shipping point or market to the slaughtering plant were obtained from packers and from railroad officials.

The relationship between the number of hours in transit and the number of miles en route is shown separately for hogs purchased direct and at public markets in figure 1. The speed per hour in transit was less for trains transporting hogs purchased direct than for those moving hogs purchased at public markets (table 1). Most

public livestock markets are located in cities and towns that have good railroad service, whereas hogs purchased direct originate at a larger number of different points, many of which have poor railroad service.

TABLE 1.—*Relationship between distance hogs were transported and time in transit, classified by sources of purchase*

Distance in transit (miles)	Normal time in transit for hogs purchased—		Average speed per hour for hogs purchased—	
	Direct	At public markets	Direct	At public markets
	Hours	*Hours*	*Miles*	*Miles*
300	29.6	20.2	10.1	14.9
600	50.9	39.1	11.8	15.3
900	67.1	57.8	13.4	15.6
1,200	78.6	72.9	15.3	16.5
1,560	85.8	82.6	17.5	18.2

SHRINKAGE

SHRINKAGE IN RELATION TO TIME IN TRANSIT

Shrinkage increases as time in transit increases. This was found to be true even when the animals were given feed and water en route. Shrinkage occurs at a more rapid rate during the early part of the transit period than for the same number of hours after the hogs have been on the road a longer time. The average rate of shrinkage for hogs averaging 180 to 199 pounds for different transit periods by seasons is shown in figure 2.

SHRINKAGE IN RELATION TO WEIGHT

Lightweight hogs lose weight at a higher rate during transit than do hogs of heavier weight. Lightweight hogs have a greater capacity for feed and water in relation to their weight than heavier hogs. Consequently, the shrinkage caused by elimination of fill tends to be proportionately greater for hogs of lighter weight. Lightweight hogs also shrink in tissue at higher rates than heavier and older hogs because their tissue is less firm, contains a higher proportion of moisture, and has less fat. The rates of shrinkage for hogs of different weights ranging from 120 pounds to more than 400 pounds, all of which were in transit from 7 to 12 hours, are shown in figure 3.

SHRINKAGE IN RELATION TO THE SEASON

Shrinkage in transit tends to be greatest during the summer and smallest during the winter. This seasonal difference is probably influenced both by the temperature and by the kind of feed composing the ration during the growing and fattening period of the hogs. Animals in transit undergo more discomfort from the higher summer temperatures than during other seasons of the year, and this probably increases tissue shrinkage. The feed consumed during the summer includes a larger proportion of pasture crops and relatively less dry feeds than are consumed during the winter. Succulent feed tends to produce tissue that is less firm than tissue produced by dry feed, and the softer tissue shrinks at a more rapid rate than the firmer tissue.

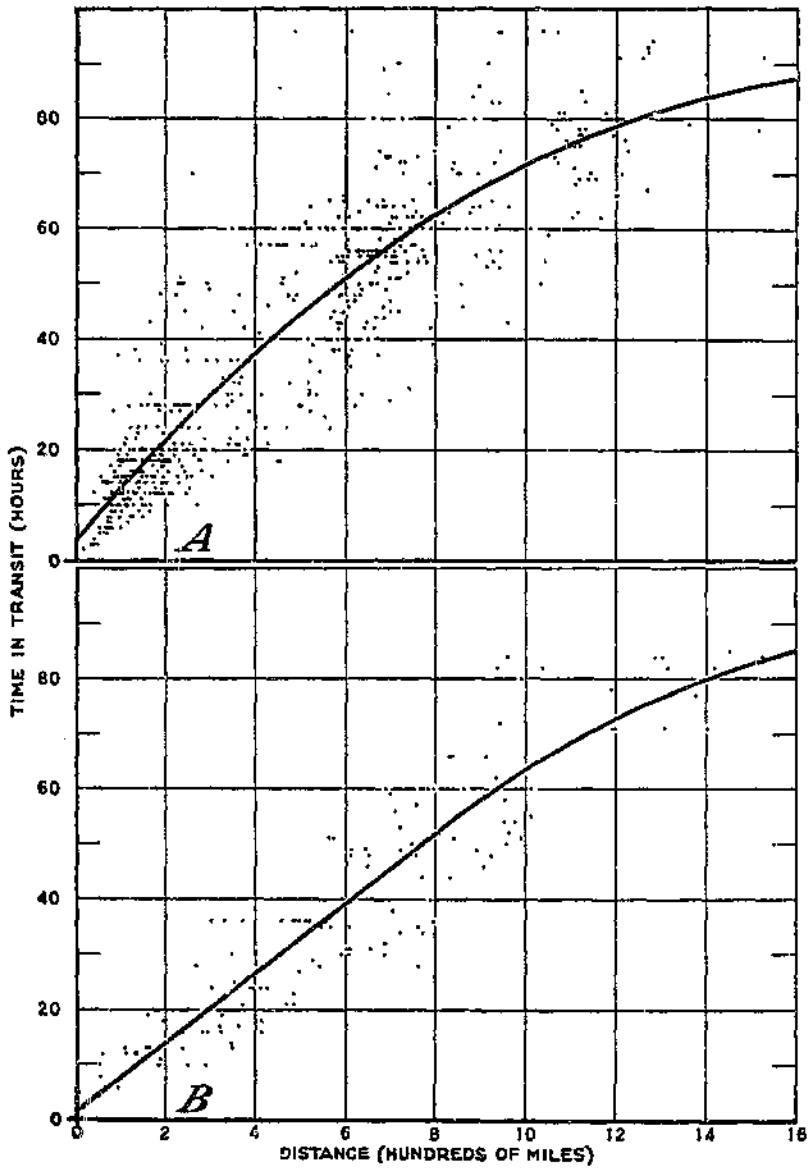

FIGURE 1.—RELATIONSHIP BETWEEN NUMBER OF HOURS IN TRANSIT AND NUMBER OF MILES EN ROUTE FOR HOGS PURCHASED DIRECT (*A*) AND AT PUBLIC MARKETS (*B*).

The average speed per hour in transit from the point of purchase to the slaughtering plant was greater for trains transporting hogs obtained by packers at public markets than for those obtained direct, and it was greater for shipments en route long distances than for those moving short distances.

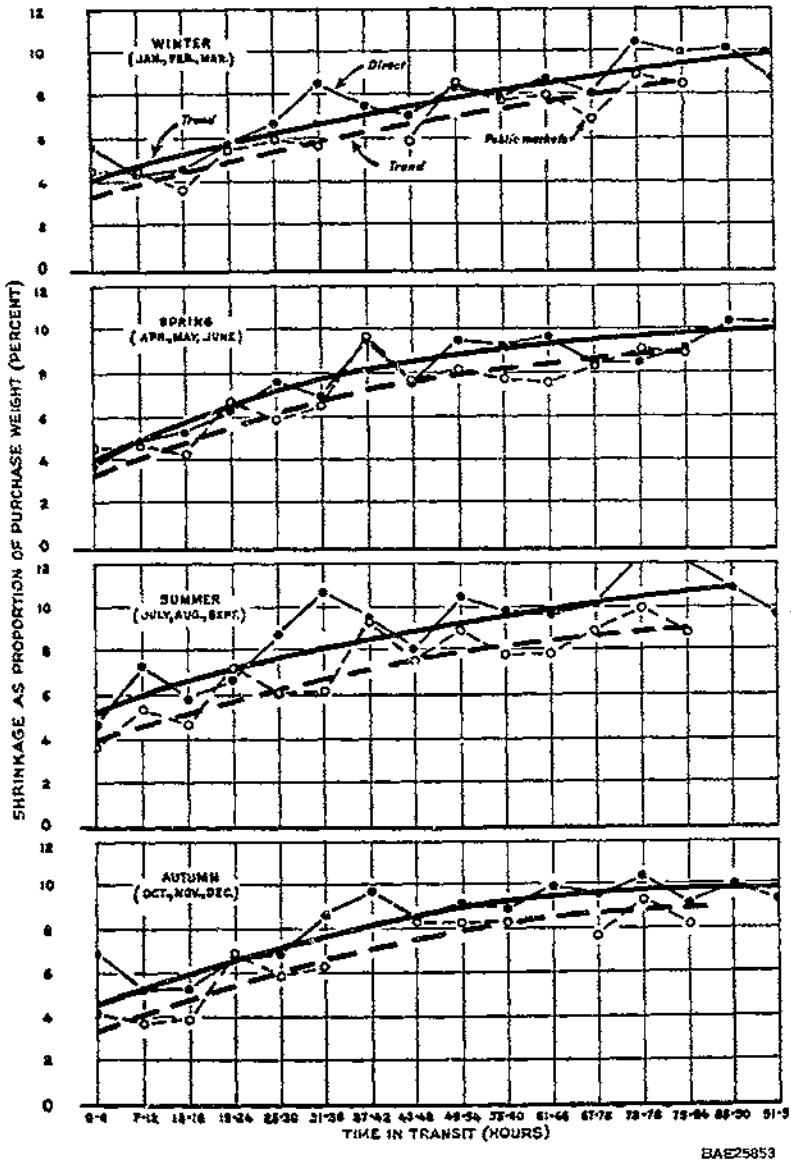

FIGURE 2.—SHRINKAGE OF HOGS AVERAGING 180 TO 199 POUNDS, CLASSIFIED ACCORDING TO TIME IN TRANSIT, SOURCE OF PURCHASE, AND SEASON.

The rate of shrinkage is directly related to the period in transit. Shrinkage is greater for a given number of hours en route during the early part of the transit period than when hogs have been en route a longer time. The average shrinkage for hogs bought by packers direct is greater than for those bought at public markets. Shrinkage is lowest in the winter and highest in the summer seasons.

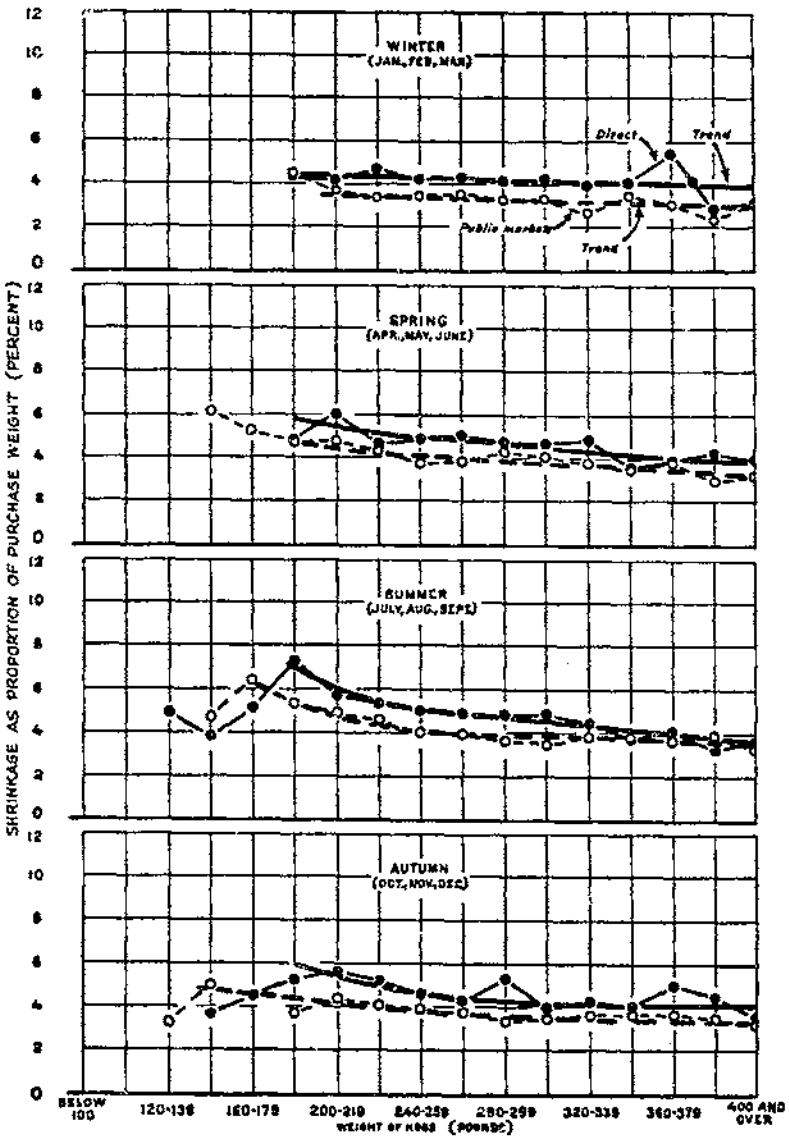

FIGURE 3.—SHRINKAGE OF HOGS IN TRANSIT 7 TO 12 HOURS, CLASSIFIED ACCORDING TO WEIGHT OF HOGS, SOURCE OF PURCHASE, AND SEASON.

The rate of shrinkage varies inversely with the weight of hogs. Hogs bought by packers direct shrink on the average more than those bought at public markets. Shrinkage is lowest for the winter and highest for the summer seasons.

SHRINKAGE IN RELATION TO SOURCE OF PURCHASE

Hogs purchased direct were found to shrink more in transit than hogs purchased at public markets. The difference in the rates of shrinkage between hogs purchased direct and at public markets was greater for lightweight hogs than for heavyweight hogs. The rate of shrinkage was about 1 percent more for hogs averaging 200 pounds purchased direct than for similar hogs purchased at public markets. For hogs weighing 300 pounds the difference was approximately 0.7 percent, and for hogs of 400 pounds and over about 0.5 percent.

On the average, hogs purchased direct tend to have more fill when sold than those purchased at public markets. It usually takes longer to move hogs from the farm to the public market than from the farm direct to the packing plant when hogs are sold direct. More time also intervenes between delivery and sale of hogs at public markets than when they are marketed direct. Thus more of the fill that is given to hogs on the farm tends to be retained at the time of sale and weighing when the hogs are marketed direct than when they are sold at public markets. Hogs sold at public markets are usually given dry corn and water after arrival at the market before they are offered for sale, but this feed does not ordinarily produce excessive fill. Some hogs become more or less disturbed in transit and are not likely to feed well, and others are sold and weighed before they have had a chance to take the usual fill. In addition, hogs may be moved about or otherwise disturbed in the public yard after they have been feed, or they may not be sold until several hours after they have received feed. In these cases much fill has been eliminated by the time they are weighed.

TISSUE SHRINKAGE

Tissue shrinkage apparently begins early in the period of transit and continues until hogs reach the packing plant. Tissue shrinkage takes place at a fairly constant rate during the early part of the transit period, but tends to continue at a lower rate as the time in transit is prolonged (fig. 4). In the case of direct purchases, the rate of tissue shrinkage tends to be greatest for hogs of light weight and to decrease as the weights increase. In the case of hogs bought at public stockyards, the rate of tissue shrinkage is practically the same for all weight groups.

Why hogs of different weights "shrunk tissue" at different rates in the case of those bought direct and did not in the case of those bought at public markets is not clear from the available evidence. It may possibly be accounted for by the differences in the way hogs are handled before they are purchased.

The rate of tissue shrinkage for lightweight hogs was relatively high during the earlier part of the transit period, but continued at a lower rate after the shipment had been en route a longer time. This would indicate that lightweight hogs tend to adjust themselves, in part at least, to disturbances in transit in less time than do hogs of heavier weight, thereby reducing the rate of loss in tissue weight as the shipment progresses toward the market. Since the period between leaving the farm and being purchased by packers is usually longer when hogs are sold through public markets, the rate of tissue shrinkage of lightweight hogs shipped to such markets may be reduced enough to cause their shrinkage to be about the same as that for heavier hogs sold at these markets.

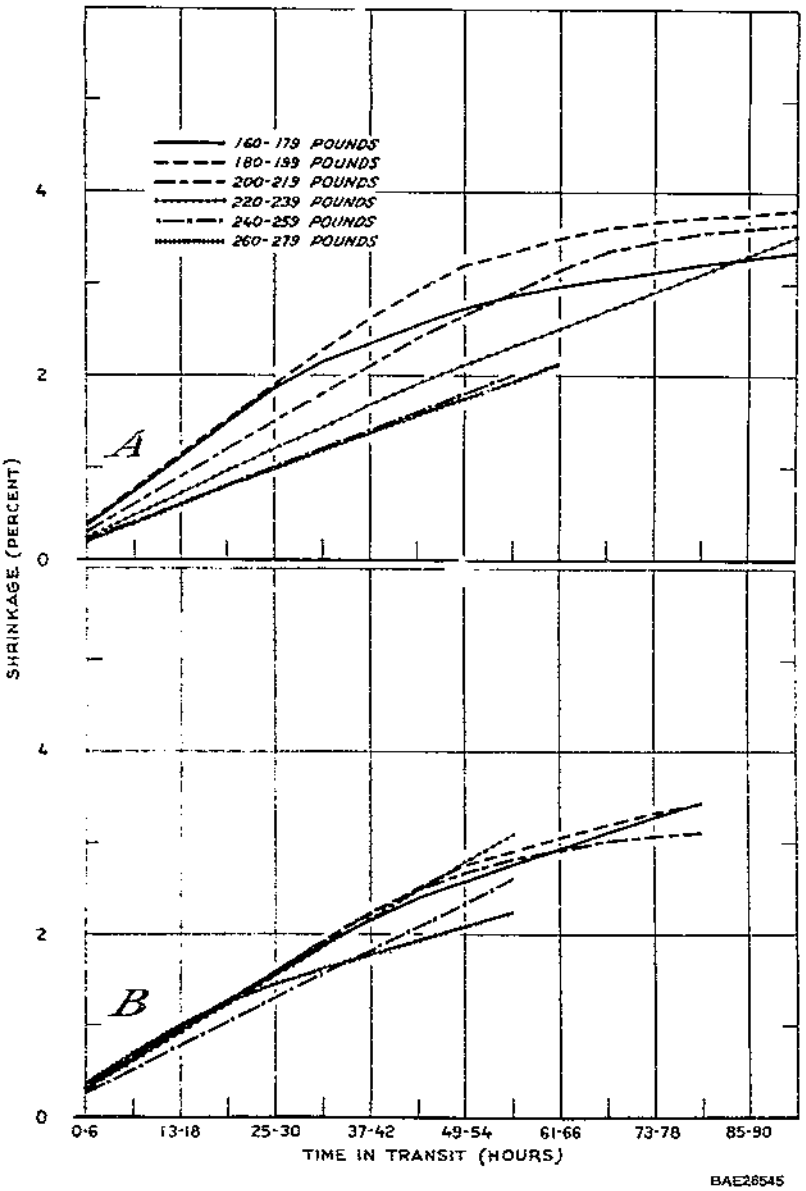

FIGURE 4.—TISSUE SHRINKAGE IN TRANSIT FOR DIFFERENT PERIODS OF TIME IN RELATION TO LIVE WEIGHT IN POUNDS FOR HOGS PURCHASED DIRECT (*A*) AND AT PUBLIC MARKETS (*B*).

Tissue shrinkage for hogs purchased direct tends to be greater for those of light weight than for those of heavier weight. The rate of shrinkage for hogs purchased at public markets is not greatly different for hogs of different weights.

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Loss in tissue weight is presumably caused by disturbing conditions to which hogs are subjected while being handled and transported to market. The loading and unloading, the jostling about when transported by motor truck or rail, handling by strangers some of whom may be careless, and the continual change from one environment to another, produce nervous disturbances in the animals.

The conclusion that tissue shrinkage of hogs takes place, that such loss in weight begins quite early in the transit period, and probably continues until the hogs reach the packing plant, is important to producers, dealers, transportation agencies, slaughterers, and processors. It seems reasonable to suppose that the edible portion of the carcass will shrink at a greater rate than the inedible portion (bone, viscera, hair, skin, etc.) which means that the shrinkage affects the more valuable parts of the animal. It is to the interest of the producer, therefore, to have his hogs marketed in the shortest possible time.

The question as to whether the occurrence of tissue shrinkage affects the character of the meat derived from the carcass is important. Three subquestions may be raised in considering it:

(1) Will the shrinkage in the cooler or refrigerating room of the packer of carcasses from hogs which undergo relatively high tissue shrinkage in transit be different from that of carcasses which undergo little or no shrinkage in transit?

(2) Will the amount of tissue shrinkage in transit of live hogs affect the quality of meat?

(3) Will the amount of tissue shrinkage in live hogs affect curing qualities of the meat from such hogs?

Research work on such questions is primarily within the sphere of meat processing and meat merchandising rather than livestock marketing. But research work in the two fields should be closely coordinated because the final results concern both livestock producers and meat processors.

EXCRETORY SHRINKAGE

Excretory shrinkage takes place at a rapid rate during the early part of the transit period, increases at a decreasing rate as time-in-transit increases, and reaches its maximum after hogs have been en route about 30 to 36 hours (fig. 5). This maximum presumably represents the approximate fill of the hogs when loaded for shipment. Excretory shrinkage is greater for hogs purchased direct than for those of corresponding weights purchased at public markets. But this difference tends to be less for hogs of heavier weights than for those of lighter weights. The greater amount of excretory shrinkage for hogs bought direct appears to be accounted for by the greater fill such hogs have at the time of purchase.

The rate of excretory shrinkage is less for hogs of heavy weights than for hogs of lighter weights, since the amount of the fill is a smaller proportion of the total weight.

VARIATION IN SHRINKAGE AMONG LOTS OF HOGS

For hogs of the same weight, shrinkage varies more among lots in transit a comparatively long time than among lots in transit a short time. For hogs in transit the same period, variation in shrinkage was greater among lightweight than among heavyweight hogs. The rate of shrinkage for hogs weighing 280 pounds and over, however, varied more than for hogs of lighter weight, except for those of very light

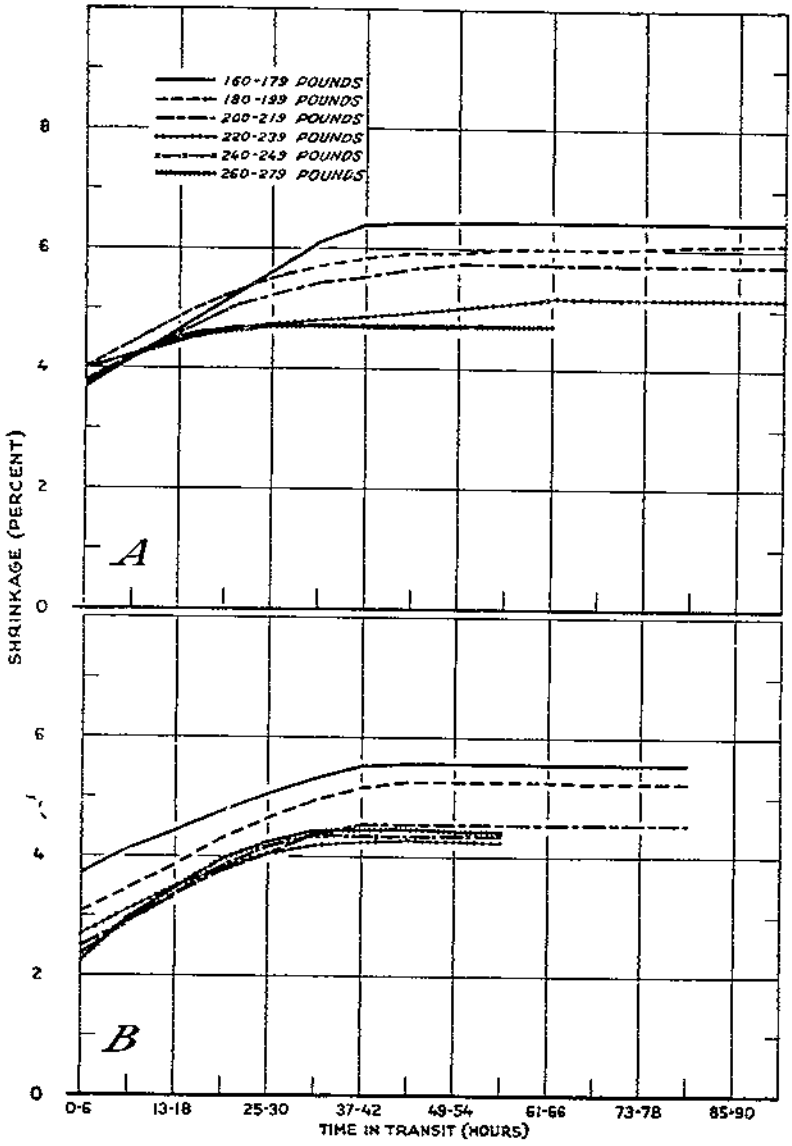

FIGURE 5.—EXCRETORY SHRINKAGE IN TRANSIT FOR DIFFERENT PERIODS OF TIME IN RELATION TO LIVE WEIGHT IN POUNDS FOR HOGS PURCHASED DIRECT (*A*) AND AT PUBLIC MARKETS (*B*).

Excretory shrinkage takes place at a rapid rate during the early part of the period in transit and tends to reach its maximum after hogs have been en route about 30 to 36 hours. Excretory shrinkage for hogs purchased direct is greater than for those of the same weight purchased at public markets.

weight. This is probably explained by the fact that heavier hogs are less uniform in quality than lighter hogs of the butcher class.

For hogs of the same weight, in transit the same number of hours, shrinkage varied more among the different lots of hogs purchased direct than for those purchased at public markets. This is probably accounted for, at least in part, by the difference in the degree to which the hogs were filled at the time of loading. Hogs bought at public markets are usually fed before they are sold and are generally given the same kind of feed. Consequently, the degree of fill tends to be more uniform.

The rates of shrinkage of hogs bought by different packers are often different. This may be because of the difference in quality of hogs demanded by different packers. Some packers, because of more specialized outlets, or for other reasons, exercise greater care in selecting animals that are more uniform in quality than do other packers. Such hogs are not likely to have wide variations in shrinkage.

Rates of shrinkage also vary among the different markets. Hogs from some markets tend to have relatively high shrinkage and those from other markets relatively low shrinkage. This may be because of the difference in quality of hogs produced in the various areas that supply the market. This difference in quality may in turn be the result of the breeding of the animals, the kind of feed used in production and fattening, and the method of handling the hogs just before marketing.

DRESSING YIELDS

DRESSING YIELDS IN RELATION TO TIME IN TRANSIT

Dressing yield of hogs computed on purchased weight decreases as the length of time in transit increases. The rate of decrease is less for heavyweight animals than for those of lighter weight. Dressing yield computed on delivered weight is about the same for all hogs of a given weight irrespective of the length of time they have been in transit.

Hogs weighing 180 to 199 pounds which were in transit about 12 hours during the winter had an average yield (based on purchased weight) of 78 percent. Similar hogs which had been in transit 84 hours had an average dressing yield of 74.5 percent (fig. 6). The reduction in yield of 3.5 percent of the purchased weight for the additional 72 hours in transit is apparently the result of loss in tissue weight. During the summer, the yield of hogs of the same weight transported 84 hours was 4 percent less than for those transported 12 hours.

Dressing yield computed on a basis of purchased weight tends to be higher for hogs bought at public stockyards than for those obtained direct. This is accounted for by the greater fill that hogs have when purchased direct. Dressing yield computed on a basis of weights delivered at the plant was found to be about the same for hogs purchased direct as for those purchased at public markets.

DRESSING YIELDS IN RELATION TO WEIGHT

Dressing yield, whether computed on purchased or delivered weights, varies directly with the weight of the hogs. Yields per 100 pounds of live weight are greater for heavy hogs than for those of lighter weight (fig. 7). The difference between heavy and lightweight hogs was greater for animals transported long distances than for those transported short distances.

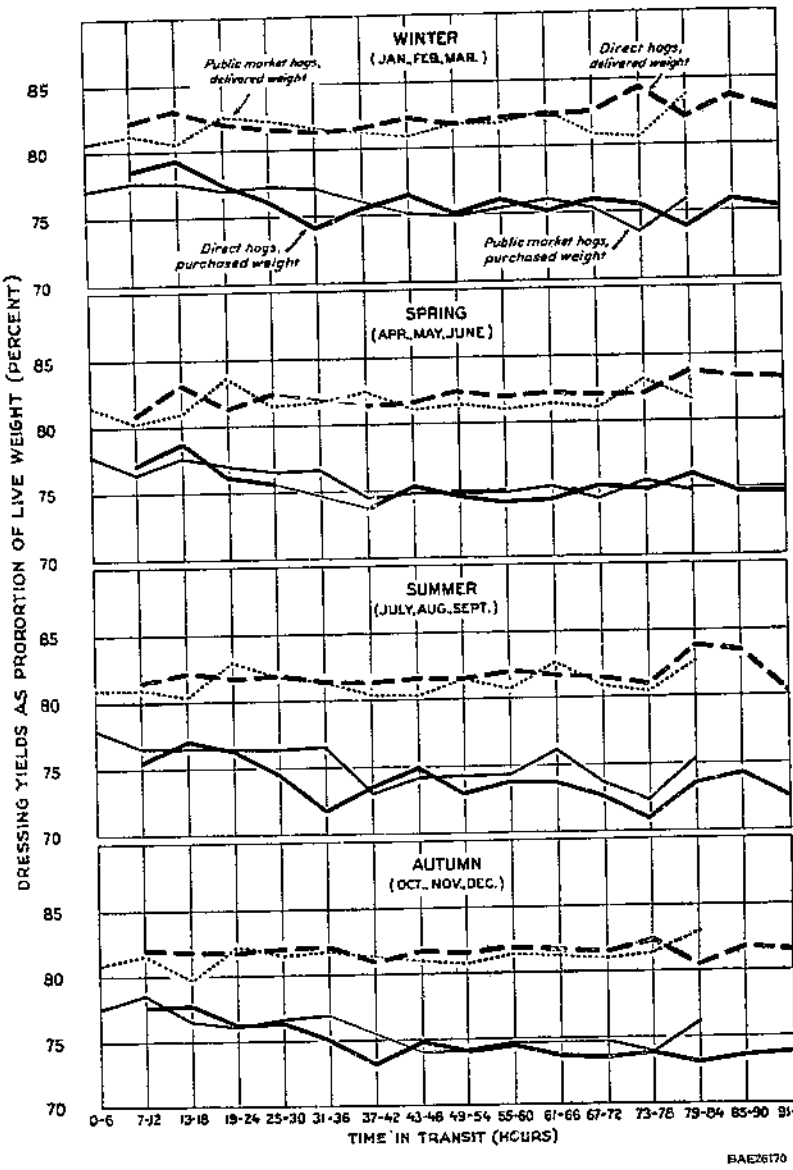

FIGURE 6.—DRESSING YIELDS OF HOGS AVERAGING 180 TO 199 POUNDS, CLASSIFIED ACCORDING TO TIME IN TRANSIT, SOURCE OF PURCHASE, AND SEASON.

Dressing yield computed on purchased weights decreases as time in transit increases. Yield computed on delivered weights is about the same regardless of the length of time hogs have been in transit. Yield computed on purchase weights tends to be greater for hogs purchased at public markets than for hogs purchased direct. Yield computed on delivered weights was found to be about the same for hogs purchased direct as for those bought at public markets.

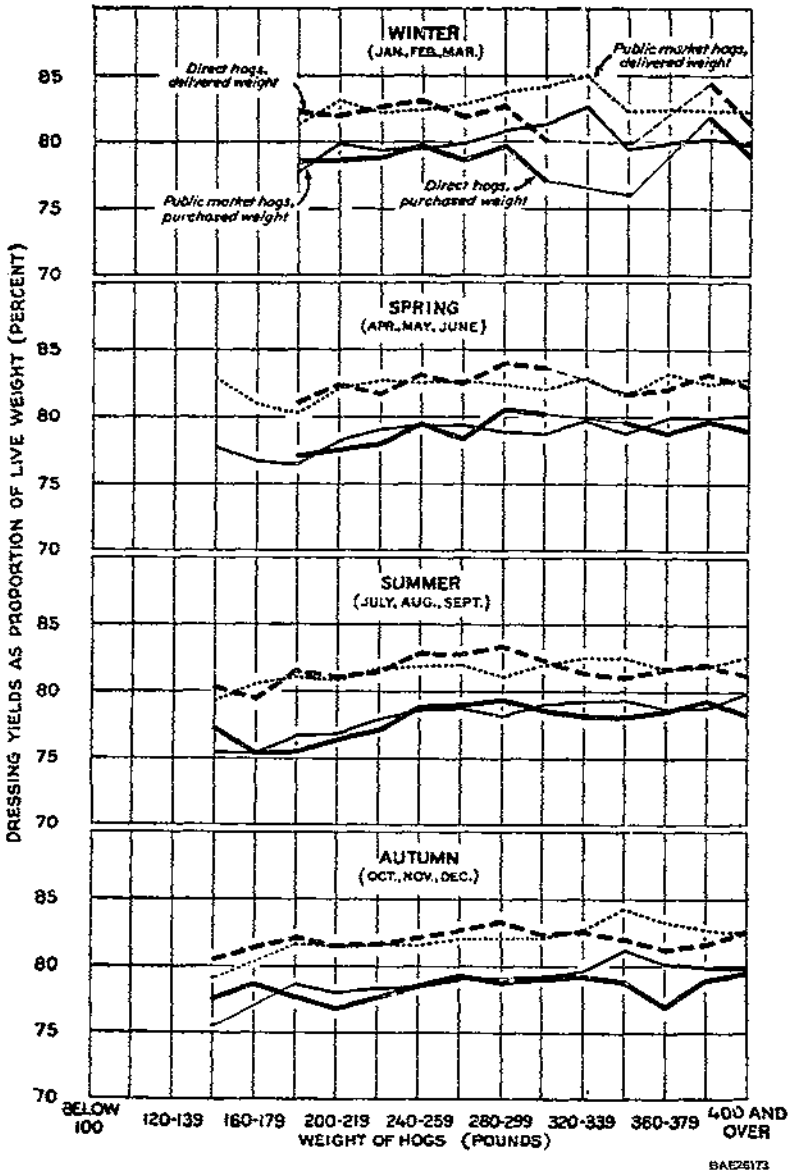

FIGURE 7.—DRESSING YIELDS OF HOGS IN TRANSIT 7 TO 12 HOURS, CLASSIFIED ACCORDING TO SEASON, WEIGHT OF HOGS, AND SOURCE OF PURCHASE.

Dressing yields vary directly with weight of hogs. Increase in yields between light and heavy hogs are slightly greater when computed on purchased than on delivered weights. Yield computed on purchased weights was slightly higher for hogs from public markets than for those bought direct. On delivered weights yield was about the same, regardless of source.

DRESSING YIELDS IN RELATION TO THE SEASON

Dressing yield computed on a basis of purchased weights tends to be greater during the winter than during the summer. Dressing yield computed on a basis of delivered weights is approximately the same for hogs of the same weight during the different seasons. These variations appear to be primarily accounted for by the differences in shrinkage in transit.

VARIATION IN DRESSING YIELDS AMONG LOTS OF HOGS

There was no appreciable difference in the degree of variation in dressing yields for hogs of different weights, except that some groups of lightweight and also of heavy hogs tended to vary more than those of weights in between. The wider variation in dressing yield of lightweight hogs is probably accounted for by the fact that animals in some lots were young but in good condition, whereas those in other lots were older but were thin and unfinished. The wider variation in dressing yields among lots of heavy hogs was probably the result of the inclusion of sows, stags, and other rough animals in some lots, whereas other lots were composed of smooth, well-finished butcher hogs. Dressing yields vary the least among individual lots during the winter and the most during the summer.

SUMMARY

Shrinkage of hogs in transit may result from excretions or from loss in weight of tissue. Loss of tissue weight causes the dressed yield of hogs to decrease.

Tissue shrinkage begins early in the period in transit and continues until hogs reach the plant where they are slaughtered. It occurs even though feed and water are given en route. It is more rapid in lightweight hogs than in hogs of heavier weight. Tissue shrinkage is probably caused by nervous disturbances of hogs.

Excretory shrinkage takes place at a rapid rate during the early part of the transit period, increases at a slower rate as time-in-transit increases, and reaches its maximum after hogs have been en route about 30 to 36 hours. The rate of excretory shrinkage is less for heavy than for lightweight hogs.

The percentage dressing yields from heavy hogs are greater than from hogs of lighter weight. Dressing yield computed on "purchased weights" decreases as the period in transit increases. This is accounted for by tissue shrinkage. Yield computed on "delivered weights" is about the same for hogs of the same weight regardless of the length of time hogs have been in transit, or the season of the year. Shrinkage tends to be smaller, and dressing yield computed on purchased weights larger, during the winter than during the summer.

APPENDIX

TABLE 2.—*Data on hogs used to determine shrinkage in weight during transit, and dressing yields, classified by weights of hogs and sources of purchase*

USED TO DETERMINE SHRINKAGE IN WEIGHT DURING TRANSIT

Weight of hogs (pounds)	Lots bought			Hogs bought		
	Direct	At public markets	Total	Direct	At public markets	Total
	Number	*Number*	*Number*	*Number*	*Number*	*Number*
Below 100		12	12		3,151	3,151
100–110	3	74	77	823	17,731	18,554
120–130	13	747	760	3,090	167,309	170,489
140–150	75	915	990	13,027	220,950	233,977
160–170	461	1,384	1,845	71,144	329,534	400,678
180–190	2,086	1,335	3,421	315,227	430,680	745,907
200–210	2,213	2,875	5,088	425,047	1,302,725	1,727,772
220–230	2,635	1,636	4,271	403,261	760,568	1,253,829
240–250	2,322	828	3,150	397,883	453,202	851,085
260–270	1,455	364	1,819	208,410	130,325	338,735
280–290	770	302	1,072	103,807	82,423	186,230
300–310	497	257	754	48,981	46,931	98,912
320–330	214	275	489	17,044	43,762	61,406
340–350	122	248	370	8,456	30,757	45,213
360–370	65	231	296	3,046	30,653	33,709
380–390	44	313	357	2,048	40,500	42,557
400 and over	140	1,149	1,298	7,427	130,300	143,727
Total	13,121	12,945	26,066	2,119,921	4,236,010	6,355,931

USED TO DETERMINE DRESSING YIELDS

Below 100	12	24	36	194	1,047	1,241
100–110	3	52	55	823	7,232	8,055
120–130	12	553	565	2,858	120,397	123,255
140–150	71	985	1,056	12,276	207,084	219,360
160–179	400	1,722	2,122	61,828	351,482	413,110
180–199	2,104	1,785	3,889	382,339	571,024	953,463
200–219	2,173	2,810	4,983	629,968	1,298,316	1,928,284
220–239	1,283	1,674	2,957	356,378	748,244	1,104,622
240–259	668	867	1,535	210,960	435,740	656,700
260–279	355	364	719	92,827	115,905	208,732
280–299	228	207	435	51,536	68,446	119,982
300–319	140	233	382	26,729	37,335	64,064
320–339	137	276	413	10,416	39,263	49,679
340–359	135	262	397	7,233	31,224	38,457
360–379	118	269	387	5,456	29,257	34,713
380–399	105	327	432	4,500	39,571	44,071
400 and over	234	1,188	1,422	10,160	131,560	141,720
Total	8,187	13,658	21,845	1,872,287	4,231,287	6,103,57

TABLE 3.—*Shrinkage in weight, during transit, of hogs weighing 180 to 199 pounds, classified by seasons, time in transit, and sources of purchase*

WINTER

Time in transit (hours)	Bought direct				Bought at public markets			
	Lots	Hogs	Rate of shrinkage	Standard deviation	Lots	Hogs	Rate of shrinkage	Standard deviation
	Number	*Number*	*Percent*	*Percent*	*Number*	*Number*	*Percent*	*Percent*
6 and less	7	1,034	5.66		7	1,313	4.51	
7–12	20	3,508	4.36	1.26	2	247	4.48	
13–18	22	2,767	4.59	1.15	40	12,457	3.02	1.20
19–24	19	2,030	5.75	1.17	28	6,945	5.42	1.31
25–30	32	3,248	6.67	1.68	43	21,486	5.97	1.18
31–36	2	280	8.52		31	12,422	5.68	1.35
37–42	15	1,854	7.47	.93				
43–48	20	2,874	7.02	1.32	33	9,044	5.85	1.13
49–54	20	2,712	8.33	2.36	16	4,410	8.56	1.17
55–60	58	11,052	7.88	1.61	32	9,040	7.78	1.00
61–66	15	2,138	8.74	1.90	1	132	7.92	
67–72	24	3,597	8.60	1.13	16	4,426	8.91	.94
73–78	5	731	10.40		6	1,736	8.84	
79–84	1	244	9.97		48	21,092	8.41	1.45
85–90	3	398	10.17					
91–96	6	877	8.77					
Total	245	40,250			306	104,750		

TABLE 3.—*Shrinkage in weight, during transit, of hogs weighing 180 to 199 pounds, classified by seasons, time in transit, and sources of purchase*—Continued

SPRING

Time in transit (hours)	Bought direct				Bought at public markets			
	Lots	Hogs	Rate of shrinkage	Standard deviation	Lots	Hogs	Rate of shrinkage	Standard deviation
	Number	*Number*	*Percent*	*Percent*	*Number*	*Number*	*Percent*	*Percent*
6 and less	1	127	3.72		13	1,029	4.57	1.49
7–12	26	3,904	4.83	0.88	16	3,598	4.74	1.68
13–18	13	2,368	5.54	1.09	41	15,475	4.25	.75
19–24	22	3,948	6.33	1.44	16	3,842	6.70	.99
25–30	25	3,419	7.65	2.07	24	6,568	5.78	.86
31–36	2	249	6.06		65	24,379	6.48	1.04
37–42	55	8,390	9.49	1.61	2	563	9.07	
43–48	107	18,687	7.49	1.86	22	4,332	7.64	1.23
49–54	56	7,349	9.49	1.74	21	5,328	8.19	1.10
55–60	82	11,120	9.20	1.76	24	6,258	7.73	1.88
61–66	46	6,871	9.63	1.62	1	125	7.50	
67–72	10	2,463	8.46	1.17	7	2,087	8.32	
73–78	2	268	8.58		15	3,816	9.68	.80
79–84	2	287	9.08		15	4,395	8.90	.98
85–90	11	1,627	10.23	.84				
91–96	13	1,850	10.19	1.19				
Total	479	72,870			282	84,620		

SUMMER

6 and less	2	164	4.76		11	2,035	3.72	1.35
7–12	35	5,979	7.33	2.01	16	2,073	5.39	1.90
13–18	19	2,380	5.89	1.09	67	24,769	4.74	1.44
19–24	31	5,195	6.78	1.48	15	3,771	7.29	1.06
25–30	11	1,393	8.74	2.83	35	11,324	6.16	.96
31–36	8	1,070	10.74		115	35,092	6.17	1.16
37–42	51	8,823	9.00	1.40	1	133	9.25	
43–48	140	21,532	8.02	1.98	23	5,680	7.48	1.59
49–54	51	7,138	10.49	1.80	16	3,209	8.87	1.17
55–60	82	10,926	9.83	2.14	36	9,425	7.82	2.39
61–66	47	6,556	9.71	1.65	2	247	7.80	
67–72	31	4,203	10.14	1.81	12	3,835	8.86	.95
73–78	2	294	12.51		5	1,413	0.99	
79–84	2	422	12.13		21	6,299	8.82	
85–90	7	1,133	10.93					
91–96	7	1,032	9.74					
Total	526	77,238			375	100,271		

AUTUMN

6 and less	6	2,020	6.88		5	1,007	4.12	
7–12	41	6,520	5.29	1.08	9	1,302	3.75	
13–18	39	4,040	5.30	1.70	51	28,437	3.79	0.00
19–24	33	5,396	6.09	1.01	20	7,052	6.07	1.30
25–30	58	8,184	6.80	1.62	60	20,181	5.82	.93
31–36	4	1,036	8.65		75	26,332	6.24	1.19
37–42	44	5,057	9.66	1.61				
43–48	185	28,798	8.45	1.89	22	6,720	8.28	1.40
49–54	92	13,350	9.10	1.78	12	2,900	8.20	1.03
55–60	141	22,948	8.01	1.82	76	19,421	8.20	1.53
61–66	64	10,527	9.83	1.85				
67–72	55	9,531	9.53	1.48	9	3,098	7.72	
73–78	7	908	10.23		4	1,000	9.38	
79–84	6	858	9.13		20	9,090	8.16	1.46
85–90	6	880	9.96					
91–96	25	4,150	0.33	1.37				
Total	816	124,860			372	132,639		

TABLE 4.—*Shrinkage in weight of hogs in transit 7 to 12 hours, classified by season, weight of hogs, and source of purchase*

WINTER

Weight of hogs (pounds)	Bought direct				Bought at public markets			
	Lots	Hogs	Rate of shrinkage	Standard deviation	Lots	Hogs	Rate of shrinkage	Standard deviation
	Number	*Number*	*Percent*	*Percent*	*Number*	*Number*	*Percent*	*Percent*
180–199	26	3,508	4.36	1.26	2	247	4.48	
200–219	113	22,987	4.15	1.14	31	9,771	3.78	0.65
220–239	168	32,050	4.06	1.28	65	20,060	3.39	.75
240–259	114	18,891	4.19	1.08	54	19,140	3.44	.95
260–279	50	6,495	4.33	1.16	20	10,829	3.55	.90
280–299	35	4,976	4.08	1.05	12	4,592	3.28	.03
300–319	10	902	4.24	1.36	6	1,407	3.34	
320–339	4	211	3.98		3	211	2.71	
340–359	2	128	4.04		4	254	3.43	
360–379	1	36	5.42		6	638	3.04	
380–399	6	257	2.81		11	954	2.30	.90
400 and over	11	801	3.13	.79	92	6,335	3.08	.75
Total	540	91,272			315	80,438		

SPRING

140–159					3	221	6.11	
160–179					3	312	5.25	
180–199	26	3,904	4.83	0.88	16	3,593	4.74	1.68
200–219	91	30,850	6.49	1.10	62	10,006	4.75	1.30
220–239	104	21,311	4.68	1.08	87	27,442	4.30	.91
240–259	103	14,630	4.87	1.09	24	8,653	3.75	.69
260–279	67	7,163	5.09	1.18	23	8,998	3.84	.77
280–299	39	4,798	4.74	1.03	7	2,415	4.26	
300–319	16	1,546	4.04	.94	5	831	4.05	
320–339	9	546	4.84		8	468	3.75	
340–359	7	342	3.46		14	1,274	3.53	1.22
360–379	11	523	3.96	2.80	22	1,848	3.88	1.01
380–399	6	205	4.20		33	2,589	2.97	.84
400 and over	12	459	3.98	1.36	144	10,736	3.26	1.00
Total	491	86,283			451	85,391		

SUMMER

120–139	1	232	4.04					
140–159	1	171	3.89		10	727	4.78	0.46
160–179	6	913	5.19		7	336	6.44	
180–199	35	6,979	7.33	2.01	16	2,073	5.39	1.90
200–219	65	15,726	5.74	1.59	28	5,372	4.97	1.77
220–239	65	19,631	5.31	1.42	20	3,772	4.61	1.71
240–259	53	8,927	5.06	1.24	21	3,737	4.00	.89
260–279	54	6,396	4.85	1.15	11	2,253	3.98	1.09
280–299	38	4,441	4.86	1.24	7	666	3.63	
300–319	37	4,125	4.85	1.17	6	457	3.52	
320–339	35	2,300	4.49	1.32	15	1,136	3.86	1.05
340–359	17	1,102	3.78	.77	29	2,699	3.81	.79
360–379	14	853	4.09	1.42	38	4,251	3.63	.89
380–399	12	539	3.25	1.07	32	3,519	3.86	.99
400 and over	9	491	3.67		69	10,014	3.24	.86
Total	442	72,526			310	41,012		

AUTUMN

120–139					1	532	3.20	
140–159	2	134	3.71		3	242	5.01	
160–179	4	216	4.50					
180–199	41	6,820	5.29	1.08	9	1,392	3.75	
200–219	180	36,313	5.70	1.62	53	14,702	4.35	0.79
220–239	205	37,823	5.20	1.58	50	13,771	4.10	.96
240–259	105	15,672	4.63	1.42	23	7,707	3.95	.76
260–279	35	3,907	4.37	1.55	11	2,712	3.77	.71
280–299	12	1,329	5.33	1.88	2	172	3.38	
300–319	10	3,309	3.99	1.02	1	339	3.47	
320–339	9	976	4.27		5	755	3.67	
340–359	4	210	4.02		7	822	3.71	
360–379	6	319	5.00		18	1,519	3.73	.83
380–399	6	406	4.46		25	2,128	3.45	.53
400 and over	44	2,051	3.55	1.25	134	11,822	3.21	.79
Total	663	109,485			342	58,615		

TABLE 5.—*Dressing yields of hogs weighing 180 to 199 pounds, classified by seasons, time in transit, source of purchase, and methods of computing yields*

WINTER

Time in transit (hours)	Bought direct						Bought at public markets					
			Dressing yield		Standard deviation				Dressing yield		Standard deviation	
	Lots	Hogs	Purchased weight	Delivered weight	Purchased weight	Delivered weight	Lots	Hogs	Purchased weight	Delivered weight	Purchased weight	Delivered weight
	Number	*Number*	*Percent*	*Percent*	*Percent*	*Percent*	*Number*	*Number*	*Percent*	*Percent*	*Percent*	*Percent*
Local	73	16,319	78.22	.....	2.23	.....	193	41,215	78.85	.....	1.71	.....
6 and less							7	1,313	77.01	80.66	.....	.....
7–12	25	3,416	78.49	82.18	1.59	1.50	2	247	77.65	81.29	.....	.....
13–18	19	2,518	79.30	83.03	2.18	2.45	40	12,457	77.60	80.51	1.50	1.45
19–24	12	1,906	77.41	82.08	1.60	2.50	10	1,878	77.03	82.59	1.28	1.33
25–30	20	3,002	76.15	81.64	2.06	1.31	25	11,854	77.32	82.25	1.56	2.31
31–36	1	147	74.09	81.31	.....	.....	23	9,703	77.15	81.74	1.20	1.88
37–42	15	1,854	75.48	81.58	1.03	1.34	.....	.....	.....	.....	.....	.....
43–48	17	2,331	76.50	82.29	1.31	1.09	12	2,371	75.12	80.98	1.53	1.44
49–54	20	2,712	75.00	81.81	1.60	2.26	19	4,410	74.91	81.93	1.04	1.28
55–60	30	7,219	76.09	82.21	1.57	1.98	21	6,955	75.43	81.81	.99	1.22
61–66	15	2,138	75.17	82.37	1.63	1.70	1	132	76.12	82.67	.....	.....
67–72	7	1,187	76.10	82.88	.....	.....	16	4,426	75.35	80.95	1.25	1.57
73–78	5	731	75.48	84.30	.....	.....	6	1,736	73.52	80.66	.....	.....
79–84	1	244	73.89	82.11	.....	.....	15	5,182	75.86	83.70	.98	1.51
85–90	3	398	75.96	83.57	.....	.....	.....	.....	.....	.....	.....	.....
91–96	6	877	75.31	82.50	.....	.....	.....	.....	.....	.....	.....	.....
Total	269	46,999	.....	.....	.....	.....	390	103,879	.....	.....	.....	.....

SPRING

Local	70	22,176	78.59	.....	1.59	.....	175	48,751	78.41	.....	1.57	.....
6 and less							13	1,929	77.80	81.53	1.14	1.66
7–12	25	3,821	77.05	80.95	1.38	1.32	16	3,598	76.43	80.24	1.48	2.00
13–18	10	1,739	78.77	83.13	1.67	1.87	41	15,475	77.60	81.01	1.21	1.10
19–24	10	1,680	76.18	81.33	1.10	1.25	3	793	77.05	83.69	.....	.....
25–30	18	2,489	75.66	82.43	2.49	1.65	6	1,661	76.66	81.58	.....	.....
31–36							36	15,118	76.72	81.87	1.25	.90
37–42	54	8,248	73.64	81.47	1.83	1.76	2	563	74.51	82.50	.....	.....
43–48	86	13,596	75.22	81.73	1.45	1.75	20	4,251	74.89	81.16	.77	1.40
49–54	50	7,349	74.54	82.38	1.39	1.91	21	5,328	74.84	81.62	1.40	1.95
55–60	51	7,698	74.05	81.92	1.92	1.97	22	5,862	74.88	81.09	.98	2.03
61–66	40	6,871	74.27	82.21	1.18	1.48	1	125	75.25	81.43	.....	.....
67–72	7	1,225	75.29	82.00	.....	.....	7	2,687	74.38	81.14	.....	.....
73–78	2	266	74.98	82.08	.....	.....	15	3,816	75.62	83.18	1.00	1.25
79–84	2	287	76.08	83.71	.....	.....	9	2,741	74.83	81.71	.....	.....
85–90	11	1,627	74.78	83.31	1.05	.96	.....	.....	.....	.....	.....	.....
91–96	13	1,859	74.64	83.11	1.86	1.89	.....	.....	.....	.....	.....	.....
Total	470	80,931	.....	.....	.....	.....	387	112,098	.....	.....	.....	.....

SUMMER

Local	82	24,644	77.92	.....	2.37	.....	158	57,414	77.39	.....	1.72	.....
6 and less							11	2,035	77.94	80.95	1.68	1.53
7–12	33	6,796	75.46	81.44	2.20	2.81	16	2,073	78.71	81.08	4.01	4.46
13–18	10	1,496	77.09	82.18	2.04	2.82	67	24,709	76.52	80.34	.94	1.45
19–24	16	3,261	76.31	81.68	1.99	2.17	6	1,759	76.55	83.03	.....	.....
25–30	9	1,153	74.47	81.92	.....	.....	18	5,126	76.43	81.85	1.57	1.30
31–36	6	801	71.72	81.40	.....	.....	68	19,298	76.60	81.48	1.59	1.53
37–42	51	6,823	73.52	81.35	1.72	1.83	1	133	72.95	80.39	.....	.....
43–48	128	19,438	74.92	81.58	2.13	2.18	22	5,319	74.18	80.23	1.45	2.28
49–54	51	7,136	72.96	81.56	1.63	1.82	16	3,269	74.31	81.56	1.57	1.93
55–60	56	7,300	73.81	82.09	2.18	2.02	36	9,425	74.32	80.70	.99	1.98
61–66	47	6,556	73.76	81.73	1.88	1.99	2	247	76.29	82.74	.....	.....
67–72	20	2,621	72.63	81.52	2.24	1.66	12	3,835	73.70	80.90	.94	.64
73–78	2	294	70.94	81.08	.....	.....	5	1,413	72.38	80.41	.....	.....
79–84	2	422	73.69	83.86	.....	.....	20	5,909	75.39	82.73	1.82	1.76
85–90	7	1,133	74.27	83.41	.....	.....	.....	.....	.....	.....	.....	.....
91–96	7	1,032	72.43	80.26	.....	.....	.....	.....	.....	.....	.....	.....
Total	527	90,906	.....	.....	.....	.....	458	142,024	.....	.....	.....	.....

TABLE 5.—*Dressing yields of hogs weighing 180 to 199 pounds, classified by seasons, time in transit, source of purchase, and methods of computing yields*—Contd.

AUTUMN

Time in transit (hours)	Bought direct						Bought at public markets					
	Lots	Hogs	Dressing yield		Standard deviation		Lots	Hogs	Dressing yield		Standard deviation	
			Purchased weight	Delivered weight	Purchased weight	Delivered weight			Purchased weight	Delivered weight	Purchased weight	Delivered weight
	Number	*Number*	*Percent*	*Percent*	*Percent*	*Percent*	*Number*	*Number*	*Percent*	*Percent*	*Percent*	*Percent*
Local	123	52, 272	77. 30	------	1. 95	------	217	94, 385	77. 69	------	1. 69	------
6 and less	------	------	------	------	------	------	5	1, 007	77. 59	80. 02	------	------
7–12	30	5, 807	77. 61	82. 08	2. 46	2. 56	9	1, 392	78. 57	81. 63	------	------
13–18	16	1, 616	77. 80	81. 66	2. 50	2. 60	51	28, 437	76. 69	79. 70	1. 07	1. 13
19–24	31	5, 434	76. 25	81. 70	2. 23	2. 24	23	5, 322	76. 21	82. 26	1. 28	1. 40
25–30	45	8, 702	76. 48	82. 07	1. 78	1. 25	51	21, 478	76. 76	81. 55	1. 25	. 87
31–36	4	510	75. 01	82. 11	------	------	56	20, 147	76. 93	81. 84	1. 65	1. 52
37–42	44	5, 657	75. 16	81. 00	1. 52	1. 34	------	------	------	------	------	------
43–48	185	28, 798	74. 85	81. 77	1. 87	1. 75	20	5. 877	74. 02	81. 00	1. 02	1. 34
49–54	92	13, 350	74. 11	81. 55	1. 06	1. 58	12	2, 900	74. 09	80. 77	1. 12	1. 50
55–60	113	18, 821	74. 54	81. 95	1. 93	1. 68	73	18, 990	74. 70	81. 48	1. 59	1. 40
61–66	64	10, 527	73. 86	81. 72	1. 49	1. 52	------	------	------	------	------	------
67–72	47	7, 045	73. 49	81. 49	1. 82	1. 75	9	3, 098	74. 80	81. 08	------	------
73–78	7	1, 000	73. 85	82. 32	------	------	4	1, 000	73. 84	81. 48	------	------
79–84	6	858	73. 08	80. 43	------	------	20	9, 090	76. 23	83. 01	1. 47	1. 38
85–90	6	860	73. 59	81. 74	------	------	------	------	------	------	------	------
91–96	25	4, 150	73. 84	81. 57	1. 60	1. 71	------	------	------	------	------	------
Total	838	163, 503	------	------	------	------	550	213, 123	------	------	------	------

TABLE 6.—*Dressing yields of hogs in transit 7 to 12 hours, classified by seasons, weight of hogs, source of purchase, and method of computing yields*

WINTER

Weights of hogs (pounds)	Bought direct						Bought at public markets					
	Lots	Hogs	Dressing yield		Standard deviation		Lots	Hogs	Dressing yield		Standard deviation	
			Purchased weight	Delivered weight	Purchased weight	Delivered weight			Purchased weight	Delivered weight	Purchased weight	Delivered weight
	Number	*Number*	*Percent*	*Percent*	*Percent*	*Percent*	*Number*	*Number*	*Percent*	*Percent*	*Percent*	*Percent*
180–199	25	3, 410	78. 49	82. 18	1. 50	1. 50	2	247	77. 65	81. 29	------	------
200–219	90	20, 908	78. 51	81. 90	1. 78	2. 11	31	9, 771	79. 87	83. 00	2. 30	2. 43
220–239	84	24, 382	78. 70	82. 60	1. 03	1. 88	65	26, 060	79. 34	82. 13	2. 10	2. 14
240–259	31	10, 308	79. 67	83. 01	2. 18	2. 14	54	19, 140	79. 50	82. 34	2. 12	2. 07
260–279	6	1, 408	78. 58	81. 80	------	------	29	10, 829	79. 85	82. 79	1. 88	2. 22
280–299	7	2, 010	79. 60	82. 53	------	------	12	4, 592	80. 88	83. 02	2. 05	2. 75
300–319	3	220	77. 08	80. 11	------	------	6	1, 407	81. 30	84. 11	------	------
320–339	------	------	------	------	------	------	3	211	82. 66	84. 97	------	------
340–359	1	74	75. 98	79. 84	------	------	4	254	79. 40	82. 22	------	------
360–379	------	------	------	------	------	------	6	638	79. 87	82. 37	------	------
380–399	7	293	81. 72	84. 38	------	------	11	954	80. 28	82. 23	1. 72	1. 77
400 and over	11	801	78. 77	81. 32	2. 54	2. 62	92	6, 335	79. 75	82. 28	2. 72	2. 77
Total	265	63, 820	------	------	------	------	315	80, 438	------	------	------	------

TABLE 6.—*Dressing yields in hogs in transit 7 to 12 hours, classified by seasons, weight of hogs, source of purchase, and method of computing yields*—Contd.

SPRING

Weights of hogs (pounds)	Bought direct						Bought at public markets					
	Lots	Hogs	Dressing yield		Standard deviation		Lots	Hogs	Dressing yield		Standard deviation	
			Purchased weight	Delivered weight	Purchased weight	Delivered weight			Purchased weight	Delivered weight	Purchased weight	Delivered weight
	Number	*Number*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Number*	*Number*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
140–159							3	221	77.76	82.82		
160–179							3	312	76.68	80.92		
180–199	25	3,821	77.05	80.95	1.56	1.32	10	3,598	76.43	80.24	1.48	2.00
200–219	77	29,615	77.53	82.33	1.63	1.80	62	16,006	76.17	82.05	1.06	2.11
220–239	94	17,599	77.90	81.68	2.09	2.34	87	27,442	79.09	82.64	1.83	1.73
240–259	20	6,947	79.48	83.07	2.48	3.04	24	8,653	79.38	82.47	1.68	1.70
260–279	9	2,552	78.24	82.36			23	8,398	79.39	82.56	1.63	1.45
280–299	7	2,032	80.45	83.93			7	2,115	78.85	82.37		
300–319	3	712	80.22	83.00			5	831	78.66	81.90		
320–339							8	468	79.70	82.81		
340–359	5	232	79.50	81.68			14	1,274	78.65	81.52	1.54	1.12
360–379	11	523	78.75	82.00	3.08	2.19	22	1,848	78.95	83.18	2.20	1.58
380–399	6	205	79.66	83.16			33	2,589	79.95	82.40	2.40	1.76
400 and over	12	459	78.94	82.23	2.53	2.50	144	10,736	80.18	82.89	1.91	1.94
Total	248	64,197					451	85,391				

SUMMER

140–159	1	171	77.23	80.35			10	727	75.48	79.27	2.97	2.80
160–179	5	836	75.35	79.48			7	339	75.36	80.54		
180–199	33	6,796	75.46	81.44	2.20	2.81	16	2,073	76.71	81.08	4.01	4.46
200–219	67	14,973	76.35	81.05	2.42	2.52	28	5,372	76.79	80.82	2.72	2.32
220–239	38	16,709	77.03	81.34	2.40	2.41	20	3,772	77.89	81.65	1.76	1.80
240–259	20	5,876	78.70	82.76	1.73	1.90	21	3,737	78.56	81.83	1.95	2.17
260–279	13	2,882	78.95	82.73	1.75	2.02	11	2,253	78.70	81.96	1.30	1.41
280–299	8	2,013	79.31	83.31			7	660	78.11	81.05		
300–319	8	2,236	78.53	82.33			6	457	79.00	81.89		
320–339	17	1,289	78.14	81.33	1.88	1.64	15	1,130	79.27	82.48	2.00	2.41
340–359	11	805	78.94	81.02	2.23	1.97	20	2,009	79.32	82.46	1.80	1.84
360–379	10	655	78.49	81.62	1.22	1.94	30	4,251	78.68	81.95	1.87	1.90
380–399	12	839	79.28	81.94	2.25	1.67	32	3,519	78.74	81.82	1.48	1.75
400 and over	9	491	78.26	81.24			68	9,938	79.91	82.59	2.03	1.93
Total	212	56,251					360	40,036				

AUTUMN

140–159	2	134	77.49	80.49			2	216	75.53	79.10		
160–179	3	128	78.55	81.36								
180–199	30	5,897	77.61	82.08	2.46	2.56	9	1,392	78.57	81.03		
200–219	117	30,492	76.77	81.49	2.19	2.11	53	14,702	77.91	81.46	1.93	2.11
220–239	130	28,603	77.50	81.60	1.90	2.10	50	13,771	78.24	81.59	2.35	1.84
240–259	53	10,968	78.41	82.04	2.17	2.42	23	7,707	78.33	81.55	1.44	1.72
260–279	19	2,767	79.22	82.57	2.46	1.73	11	2,712	78.93	82.03	2.06	2.00
280–299	6	955	78.65	83.27								
300–319	6	3,051	70.02	82.29			1	339	79.17	82.03		
320–339	4	713	79.12	82.44			5	755	79.54	82.57		
340–359	3	168	78.74	81.97			7	822	81.10	84.23		
360–379	5	270	76.90	81.18			16	1,510	80.17	83.28	2.56	2.59
380–399	5	372	78.82	81.58			25	2,128	79.82	82.68	1.98	2.00
400 and over	41	1,000	79.50	82.40	2.44	2.70	133	11,671	79.74	82.39	2.23	2.28
Total	424	86,478					337	57,734				

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