VARIATIONS IN EDIBLE MEAT BETWEEN PUREBRED AND CROSSBRED ROASTING CHICKENS

Thesis for the Degree of M. S.

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THESIS

VARIATIONS IN EDIBLE MEAT

BETWEEN PUREBRED AND CROSSBRED ROASTING CHICKENS

by

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A THESIS

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I. INTRODUCTION

Quality specifications for the "ideal" market type bird, live or dressed, as expressed in the "Tentative Specifications for United States Standards and Grades", indicate that the bird must be young, meaty, full-fleshed, uniform color, well-bled, and free from deformities, torn skin, pin feathers, bruises or other dressing defects.

Meaty and full-fleshed, from a market man's view point, pertains to the amount of fattening finish present in a bird with reference to the age. The breast, thighs, and the drumstick are given special attention and must be full and meaty. There should be very little indication of excessive amount of bone present. A market man thinks in terms of "cut-out" values when handling birds. He is interested in low dressing and eviscerating percentages, and in obtaining a high percentage of edible meat. A high percentage of "edible meat or choice cuts" adds "eye appeal" to the dressed carcass, and also market demand. Possible variations in the dressing, eviscerating and bone percentages between breeds are of great interest to market men and certain breeds may be preferred over others. The terms "broad breast", "plumpness", and "fleshing" are used in the practice of grading. Actually, there is little difference in body type, after the feathers are removed, between most breeds of approximately the same weight. It is difficult to be specific in pointing out extreme differences in type between the Mediterranean and Asiatic Classes of chickens and Cornish breeds.

The Mediterranean Classes are normally more "rangy" in type than the Asiatics. The birds are inclined to be long legged in pro-

portion to body size. The breast of the Leghorn is not broad and meaty and the shoulder and back are narrow in width. The standard weight of the Cornish breed is greater than the Langshan, but lighter than the other Asiatic Classes. In general type both the Cornish and the Asiatic Class have deep and broad breasts.

Experiments are few in which tangible measures of differences in market characteristics between breeds have been made. "Market grade" is the common practical measure, but the yield of "choice cuts" is probably more precise. The term "choice cuts" refers to those which have the least percentage of bone, or the greatest proportion of edible meat to bone. The cuts that are normally considered choice are the breast, thigh and drumstick. The principal loss in determining the percentage of edible meat in a carcass is that of the bones.

II. REVIEW OF LITERATURE

Variations between breeds in the percentage of bone of the total weight have been reported by Jull and Maw (1923). The variations were not great. The heavier breeds had more total edible meat in proportion to bone than the lighter breeds. Mitchell, Card and Hamilton (1926) found the greatest percentage of bone in young chicks. As the birds approached maturity, the percentage of bone decreased.

Larger choice cuts are obtained from the larger sized breeds, and for this reason large breeds are preferred to small ones. Jaap and Penquite (1938) in comparing different breeds, found that birds having a broad, well-fleshed breast had a better "market type" than narrow breasted and angular ones.

A comparison of crossbred and purebred chickens, Maw (1933) found that Cornish x Barred Plymouth Rock and Leghorn x White Plymouth Rock were heavier than the Barred Plymouth Rock, Rhode Island Red, Wyandotte and White Leghorn purebreds at 10 weeks of age. As roasters at 4 pounds weight, there was very little difference between the purebreds and the crossbreds in age. However, the Leghorn x White Plymouth Rock crosses reached the 4 pound weight two weeks earlier than the Reds or the Barred Plymouth Rock purebreds. Greater differences in age at 5 pounds were noted between breeds. The Reds and Barred Plymouth Rocks attained the weight earlier than the other breeds.

III. PURPOSE OF INVESTIGATION

The objects of the experimental procedure reported herewith were to determine variations in the percentage of edible meat and proportions of "choice cuts" between purebred and crossbred roasting chickens, and to establish tangible measures of body type with relation to market grade, and to determine the possibility of salvaging food nutrients from raw chicken bones.

IV. METHODS AND MATERIAL

Tests were made of male progeny of five different matings. The matings were Rhode Island Reds, White Leghorns, Dark Cornish x White Leghorn, White Cornish x Barred Plymouth Rock, and Barred Plymouth Rock. The birds were hatched June 13, wing-banded and reared on the college poultry experimental grounds. The pullets were separated from the cockerels at eight weeks of age. One-half of the males were caponized at this age.

The birds were fed a growing mash ration* and were reared in batteries the first 6 weeks and then allowed on the range. Weighings were taken at regular intervals during the growth period. In the fall the birds were put into pens and confined.

In February, at 10 months of age, for 5 successive days, 10 birds, 5 capons and 5 cockerels, one from each mating, were fasted for 24 hours. The birds were allowed water during the first 12 hours only.

1. Photographic Procedure, Body Measurements and Grading

During the fasting period, the birds were photographed against a white grid back board. The grid was divided into one-inch squares. Black-and-white and Kodachrome photographs were taken at a distance of 7 feet from the back board with the birds standing approximately 8 inches from the background.**

*Used by Michigan State College

Starter Ration

White fish	100#	Wheat bran	400#
Meat scraps	100	Yellow corn	640
Dried skim milk	100	Oyster flour	20
Soybean oil meal	100	Steam bone meal	10
Alfalfa meal	100	85 D cod liver oil	20
Ground oat groats	400	Salt	10

Growing Ration

Cracked corn and wheat fed in hoppers and whole corn after birds were older.

Ground corn	600#	Alfalfa meal	100#
Ground oats	460	Soybean oil meal	80
Wheat bran	400	Salt (iodized)	20
Meat scraps	100	Ground oyster shell flour	30
Whitefish meal	100		
Dried skim milk	100		

**The photography results will be reported elsewhere.

Equipment used for photographing the birds was a Leica camera, an Argus C-3 camera, a tripod for the camera using the colored film, two "fotoflood" lamps with reflectors, a Weston light meter, Type A Kodachrome and black-and-white panatomic film.

Measurements were taken of 9 parts of each bird with calipers as follows: length of back, the width of hips, width of breast, depth of front, depth of rear, length of breast, length of shank, drumstick length, and the drumstick diameter. These measurements were supplemented by market grades. The live birds were graded by from three to five individuals. Body conformation, amount of fleshing and the quality of finish were taken into consideration. The dressed carcasses were graded by the same individuals.

After the birds were photographed, measured, graded, and fasted the required amount of time, they were weighed alive, stuck, bled, and debrained. The blood was caught in cups and weighed. The birds were dry-picked, except the first 10 individual birds, which were "soft scalded" and weighed again to determine losses. This loss included the total blood and feather loss. The carcasses were chilled for 24 hours at 35° F. and photographed.

Photographing was done by placing the carcass upon its side on the grid which was placed flat on the floor. The photographs were taken by the camera operator standing on a ladder above the birds, holding the camera at a distance of 7 feet from the grid. Both a black-and-white and a Kodachrome photograph were taken of each bird. Later the dressed carcass will be super-imposed upon the photograph of the live bird. After the side views were taken, the birds were hung on a chilling rack. A black-and-white and Kodachrome photograph

was taken of each class of birds together, showing the breast view. While the birds remained on the rack they were graded. The dressed birds were eviscerated by splitting the back with a meat saw and removing the viscera. Then the carcass was split the rest of the way so that one-half of it could be used for cutting into parts and the other half saved for a cooking test.*

2. Eviscerating Procedure

The eviscerating procedure was as follows: First the shanks were removed by cutting them at the hocks. The head was removed by an incision with a cleaver at a point on the neck one inch from the base of the skull. Next the crop was removed by making an incision in the skin. After removing the crop, the esophagus and the larynx, an incision was made in the abdominal region and around the vent. The vent was loosened, the back was split lengthwise with a meat saw, and the viscera was lifted out and separated into various parts.

The edible viscera, the offal and the inedibles were each weighed separately, namely, the head, shanks, liver, gizzard, heart and the inedibles. The left half of the birds was chilled another 12 hours while the right half was cut into 8 parts, the neck, wing, drumstick, thigh, wishbone section of the breast, the breast, rear quarter of the torso or the back, and the front quarter.

3. Method of Cutting

The method used for cutting the halves of the birds into the

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*The cooking results will be reported elsewhere.

various parts was as illustrated in Figure 1. Extension Bulletin No. 223*. Each cut was weighed separately on a balance calibrated in 5 gram units.

The amount of work required for killing birds five days in succession, made it necessary to preserve the parts by quick freezing.

The frozen parts were thawed when convenient. The bones were removed from each part and weighed to find the percentages of bone in each. The "boning" was done without cooking the samples to determine how advantageous it may be to "bone" certain uncooked parts for marketing purposes.

4. Boning Procedure

In the experimental procedure, only the bone was weighed. Loss or gain in weight due to moisture and a small amount of meat present on the bones was not considered significant because weights were recorded from a balance calibrated in 5-gram intervals.

After the bones were removed from the cuts, the boneless parts of each individual bird were wrapped together in locker paper and quick-frozen again to be used for a fat determination in each respective cut.**

The bones from each bird were saved and then were cooked to determine how much food value could be salvaged. The cooking was done by boiling the bones. After the bits of meat were cooked to a stage when they were falling off the bones, the bones were removed from the broth, and the broth allowed to cool slightly. Owing to experimental error and difficulty in obtaining satisfactory results in the methods used, the experiment was not completed. It was thought that measurements of the density of the fat content of the broth might reflect the

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* Preservation of Meats and Poultry in Frozen Food Lockers. Mich. Ext. Bul. 223.

** Fat determinations will be reported elsewhere.

loss in cooking the bones. The difficulty encountered was that the stock was viscous and gelatinous so that successive hydrometer readings on the same sample were not identical.

5. Discussion of Results

The results are presented in tabular form for convenient summarization and to conserve space. Data presented in all cases are on the average of five birds. In the case of the Leghorn capons, the average is on three birds only.

Dressing and eviscerating losses of the capons are given in Table 1. The blood and feather losses were computed in percentages of the live bird weight. The head, shank, edible viscera and inedible viscera weight were computed in percentages of the dressed carcass weight.

Analysis of the live weights (Table 1) of the capons indicates that there are some notable differences. The White Cornish x Plymouth Rock cross was the heaviest of the group. The purebred Plymouth Rocks were next and the Rhode Island Reds were third. These were followed closely by the Dark Cornish x White Leghorn, and the White Leghorn purebreds respectively.

There were no great differences in dressing and eviscerating losses between breeds or each class except the White Leghorns. The Leghorns in each class had a high blood, feather and head loss in comparison with the other breeds. They had the highest percentage of edible giblets also.

In comparing the dressing losses of the cockerels, Table 2, the losses were approximately the same for all breeds except the Leg-

Table 1. WEIGHTS OF VARIOUS PARTS OF CHICKENS OF DIFFERENT BREEDING (CAPONS)

Parts	Plymouth Rock	White Cornish x Plymouth Rock	Rhode Island Red	White Leghorn	Dark Cornish x Leghorn (White)
Live weight (gr.)	3268.8	3532.1	2851.1	1928.8	2724
Dressed weight (gr.)	2914.6	3354.2	2624.1	1979.4	2869.2
Eviscerated weight (gr.)	2310	2595	2059	1223.3	1963
Blood loss (%)*	2.558	3.199	2.946	4.821	3.744
Feather loss (%) *	10.833	8.483	7.962	10.984	6.915
Head loss (%)**	3.808	3.954	4.078	8.559	4.890
Shanks loss (%) **	4.495	4.306	4.131	4.863	4.143
Inedibles loss, (%)**	7.719	6.756	8.231	8.422	7.634
Liver loss (%)**	.995	.971	.876	1.614	1.153
Heart loss (%)**	.460	.606	.701	.778	.756
Gizzard loss (%) **	3.431	2.425	3.125	3.209	2.616

* Based on live weight
** Based on the dressed weight

Table 2. WEIGHTS OF VARIOUS PARTS OF CHICKENS OF DIFFERENT BREEDING (COCKERELS)

Parts	Plymouth Rock	White Cornish x Plymouth Rock	Rhode Island Red	White Leghorn	Dark Cornish x Leghorn (White)
Live weight (gr.)	2941.9	3350.5	2960	1979.4	2869.2
Dressed weight (gr.)	2633.3	3078.1	2724	1370.6	2586.8
Eviscerated weight (gr.)	2046	2488.6	2157	1331	2067
Blood loss (%)*	4.113	2.298	3.851	4.951	4.007
Feather loss (%)*	10.494	8.130	7.975	10.551	8.413
Head loss (%)**	5.180	4.288	4.956	7.681	4.639
Shanks loss (%)**	4.481	4.191	3.928	3.958	3.866
Inedibles loss, (%)**	8.499	6.835	8.003	8.415	7.345
Livers loss (%)**	1.276	.877	1.057	1.355	1.198
Heart loss (%)**	.706	.702	.698	.779	.773
Gizzard loss (%)**	2.560	2.014	2.298	2.429	2.319

* Based on live weight
** Based on dressed weight

horns. Because of large combs of the Leghorns, the average head loss was high. The blood losses and the percentage of edible viscera were the highest in the Leghorns. Comparing the live, dressed and eviscerated weights between the purebred and crossbred chickens in each class, the crossbreds were heavier in all cases. In live weight, the White Cornish x Plymouth Rock crossbreds were 263.3 grams heavier than the Plymouth Rock purebreds. There was a difference of 317.8 and 285 grams in the dressed and eviscerated weights respectively.

In the Dark Cornish x Leghorn cross, the crossbreds were heavier in live, dressed and eviscerated weight (795.2, 801.5 and 739.7 grams respectively) than the Leghorn purebreds.

Considering weights of the cuts in the capons, it is indicated in Table 3 that there is not a great difference between cuts of different breeds. However, the breast weight of the Rhode Island Reds was lower, and the weight of the back was greater than the corresponding cuts of the other breeds. In the Leghorns, the wings were heavier, and the back was lighter than that of the other breeds.

The breast weight of the Rhode Island Red cockerels, Table 4, was lower, and the weight of the back was greater than the corresponding parts of the other breeds of cockerels. The Leghorn cockerels did not show any great variations in weights by parts in comparison with the other breeds.

The average percentage of bone found in each cut of the capons is shown in Table 5. The percentage of bone present in each "choice cut" of the Leghorns was higher than that of the other breeds. The Rhode Island Reds had the lowest percentage of bone in the breast and also in the back than that of the other breeds.

Table 3. WEIGHTS OF VARIOUS PARTS OF CAPONS OF DIFFERENT BREEDING

Parts	Plymouth Rock	White Cornish x Plymouth Rock	Rhode Island Red	White Leghorn	Dark Cornish x Leghorn (White)
Eviscerated weight (gr.)	2310	2595	2059	1223.3	1963
Wish Bone (%)	7.599	7.635	7.441	7.003	8.057
Breast (%)	15.755	14.699	12.759	15.472	14.741
Thigh (%)	16.190	16.374	16.162	16.830	17.591
Drumstick (%)	16.068	16.457	15.756	16.287	16.074
Neck (%)	5.521	5.437	6.548	7.600	6.099
Wing (%)	11.025	10.812	11.132	12.269	10.969
Back (%)	15.825	16.673	17.740	12.486	13.368
Front (%)	12.016	11.414	12.461	12.052	13.101

Table 4. WEIGHTS OF VARIOUS PARTS OF COCKERELS OF DIFFERENT BREEDING

Parts	Plymouth Rock	White Cornish x Plymouth Rock	Rhode Island Red	White Leghorn	Dark Cornish x Leghorn (White)
Eviscerated weight (gr.)	2046	2488.6	2157	1331	2067
Wish Bone (%)	7.248	7.138	6.976	7.611	7.541
Breast (%)	12.560	14.242	11.607	14.237	15.413
Thigh (%)	18.151	18.940	17.595	18.176	18.122
Drumstick (%)	17.971	17.935	17.053	16.266	17.030
Neck (%)	6.909	5.382	6.540	6.641	6.002
Wing (%)	11.522	11.077	12.014	11.162	11.282
Back (%)	12.680	14.473	16.006	13.580	12.412
Front (%)	12.959	10.813	12.208	12.327	12.198

Table 5. PER CENT OF BONE BY WEIGHT IN THE CUT-UP PARTS OF CAPONS

Parts	Plymouth Rock	White Cornish x Plymouth Rock	Rhode Island Red	White Leghorn	Dark Cornish x Leghorn (White)
Eviscerated weight (gr.)	2310	2595	2059	1223.3	1963
Wishbone (%)	3.890	3.434	3.667	6.977	3.817
Breast (%)	15.784	16.159	13.997	21.755	16.168
Thighs (%)	15.575	13.985	13.352	16.774	13.840
Drumstick (%)	23.377	21.462	21.411	27.000	23.119
Neck (%)	36.693	32.482	29.318	36.071	31.092
Wings (%)	35.489	33.381	32.531	38.053	32.009
Back (%)	28.242	23.404	24.609	34.783	34.126
Front (%)	36.614	30.946	29.658	40.991	33.333
Total % bone	23.86	21.33	21.18	27.76	23.18

Table 6. PER CENT OF BONE BY WEIGHT IN THE CUT-UP PARTS OF COCKERELS

Parts	Plymouth Rock	White Cornish x Plymouth Rock	Rhode Island Red	White Leghorn	Dark Cornish x Leghorn (White)
Eviscerated weight (gr.)	2046	2488.6	2157	1331	2067
Wish Bone (%)	4.408	3.695	4.167	5.490	3.876
Breast (%)	17.488	13.195	18.865	18.763	13.654
Thighs (%)	14.301	12.881	15.969	15.107	13.118
Drumstick (%)	21.667	20.037	22.614	22.569	20.824
Neck (%)	31.647	33.997	32.148	37.978	33.604
Wings (%)	34.316	34.226	30.323	37.433	31.952
Back (%)	32.126	30.068	28.935	33.187	27.002
Front (%)	33.282	37.652	34.286	37.288	30.990
Total % Bone	23.53	22.22	23.70	25.30	21.07

In the cockerels, Table 6, the results are approximately the same as in Table 5. However, the breast of the Rhode Island Reds contains more bone than that of the other breeds, but the back has a lower percentage of bone.

Variations in the live and dressed grades of the birds used for the comparisons are shown in Table 7. The grades were computed by giving a numerical value to the letter grades as AA equals 1, A equals 2, B equals 3, C equals 4, C- equals 5. The average of each group is indicated. The Leghorns produced the poorest carcass by grade as a group. The Plymouth Rocks and the Rhode Island Reds did not receive grades up so high as the crosses which had the Cornish blood.

Table 7 - LIVE AND DRESSED GRADE OF PUREBRED AND CROSSBRED ROASTING CHICKEN 1/

Breed	Plymouth Rock	White Cornish x Plymouth Rock	Rhode Island Reds	White Leghorn	Dark Cornish x Leghorn (White)
			Cockerels		
Live grade	3.2	2.6	3.3	4.3	2.7
Dressed grade	2.3	1.5	2.5	4.1	1.4
Dressing and* eviscerating loss, %	32.967	25.742	28.713	35.556	28.270
Total % bone	23.86	21.33	21.18	27.76	23.18
			Capons		
Live grade	3.8	2.6	3.4	4.0	1.8
Dressed grade	2.9	1.5	2.4	3.7	1.4
Dressing and* eviscerating loss, %	29.413	26.698	27.348	37.649	27.326
Total % bone	23.53	22.22	23.70	25.30	21.07

1/ Grades were calculated on the basis of numerical values given to the five grades used. AA grade = 1; A = 2; B = 3; C = 4; C- = 5.

* Dressing and eviscerating losses include blood, feathers, head, shanks, and the inedible viscera.

Table 8. LIVE WEIGHTS IN GRAMS OF COCKERELS AND CAPONS USED IN THE EXPERIMENT

Breed	Plymouth Rock	White Cornish x Plymouth Rock	Rhode Island Reds	White Leghorn	Dark Cornish x Leghorn (White)
Cockerels	2727	3454	2182	2227	2818
	3045	3182	2909	2000	2954
	2591	3318	3091	1909	2772
	3318	3772	3318	1818	3045
	3045	3045	2318	1954	2772
Average Wt.	2941.9	3350.5	2960.0	1979.4	2869.2
Capons	3272	3500	2863	1591	2636
	3363	3545	2727	2045	2591
	3272	4454	3409	2227	2636
	3136	3045	2863	1954*	2909
	3318	3136	2409	1954*	2863
Average Wt.	3268.8	3532.1	2851.1	1928.8	2724

* Three Leghorn capons survived

Table 9. ANALYSIS OF VARIANCE PERTAINING TO WEIGHTS OF COCKERELS IN GRAMS FOR FIVE BREEDS.

Source	D. F.	S. S.	Variance	F
Total	24	6,541,531.8		
Kinds	4	5,136,243.0	1,284,060.8*	
Within	20	1,405,288.8	70,264.4	265.07

*Highly significant. Difference between means to be significant is 348 grams at the 5 percent level and 475 grams at the 1 percent level.

AVERAGES OF THE MEANS IN THE COCKERELS

Plymouth Rock	White Cornish x Plymouth Rock	Rhode Island Reds	Leghorns	Dark Cornish x Leghorns
2941.9	3350.5	2960.0	1979.4	2869.2

The mean pertaining to Leghorns is significantly less than the other means. The mean pertaining to the White Cornish Plymouth Rock Cross is significantly greater than the other means.

Table 10. ANALYSIS OF VARIANCE PERTAINING TO THE AVERAGE WEIGHTS IN GRAMS FOR COMPARING THE COCKERELS WITH THE CAPONS OF THE SAME BREED.

Breeds	Average Weight		Difference
	Capons	Cockerels	
Plymouth Rock	3268.8	2941.9	326.9*
White Cornish x Plymouth Rock	3532.1	3350.5	181.6
Rhode Island Red	2851.1	2960.0	108.9
White Leghorn	1928.8	1979.4	50.6
Dark Cornish x Leghorn	2724.0	2869.2	145.2

*Significantly different

ANALYSIS OF VARIANCE

Dr. Baten made the following comment: "The material in Table 8 was tested by Bartlett's[1] test of heterogeneity to determine whether or not the data could be analyzed by one Analysis of Variance table. The test showed evidence of heterogeneity between the variances of the breeds within the classes; hence, the sums of squares cannot be pooled to form an experimental error. This test was applied to the data pertaining to cockerels and it showed no evidence of heterogeneity among breed variances. An analysis of variance was carried out for the cockerel data and is given in Table 9. There are significant differences between the breed means."

"Bartlett's test was applied to the capon data. It showed evidence of heterogeneity between breed variations".

"Analysis of Variance, Table 10, of differences between the classes of the same breed shows that there was a significant difference only between the Plymouth Rock cockerels, and Capons."

Variations in the percentage of edible meat and the proportions of "choice cuts" within and between breeds do exist. These individual differences make it difficult to draw conclusions on small groups of birds.

Averages of the five birds in the breeds used did not show great significant differences between classes of each respective breed. It must be taken into consideration that these birds were 10 months old and

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(1) M. S. Bartlett, "Properties of Sufficiency and Statistical Tests", Proceedings of the Royal Society of London Series A, Vol. 160, 1937 pp. 273.

Rider, P. R. 1934, An Introduction to Modern Statistical Methods. John Wiley & Sons, Inc., pp. 102. (This was used in above).

the cockerels were a bit "staggy". This evidence is brought out in Table 7 where the average live and dressed grades are compared. The crossbreds in both classes graded higher than did the purebreds, but neither graded very much above the other. There was a tendency on the part of the judges to grade the live birds lower than the dressed carcasses.

Approximately 55 per cent of the eviscerated carcass is composed of "choice cuts" and 45 percent of the less "choice cuts". The "choice cuts" on the average contain less than 20 percent bone.

It was found that bone was approximately 5 percent of the wish bone section of the breast, 18 percent of the breast, 15 percent of the thighs, and 22 percent of the drumstick.

The results indicate that the removal of the bones would be a feasible practice. Approximately 18 minutes time is required to remove the bones from an entire bird by parts. The breast, thighs, and drumstick require approximately 6 minutes time for removal of bones. Removing the bones from "cheaper cuts" may not be advisable. A possible use for the stock from the cooked bones is suggested if satisfactory cooking methods of the raw bones are developed.

The carcasses with greater percentages of edible meat were associated with the higher market grades and contained a lower percentage of bone.*

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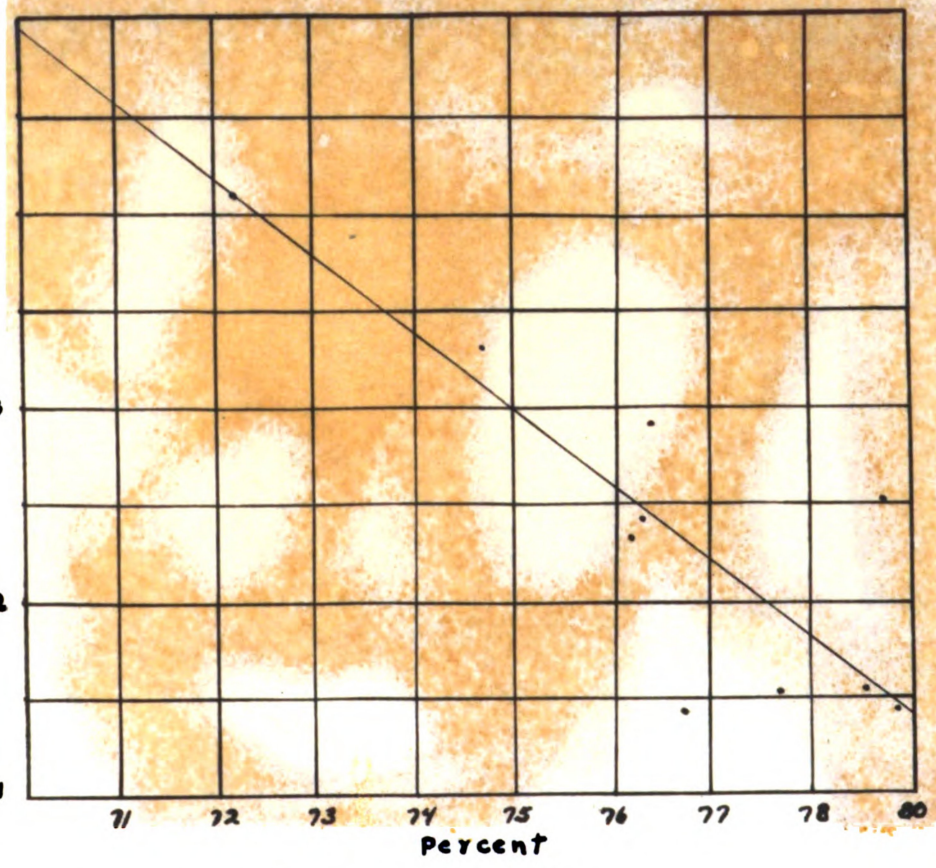
*Figure page 23.

Fig. 1. Percentage of Total Edible Meat in Relation to Dressed Market Grade 1/



1/ Does not include giblets

Illustration 1, showing a White Leghorn capon (slip). The dressed carcass, grade C, is shown in Illustration 3, page 26.

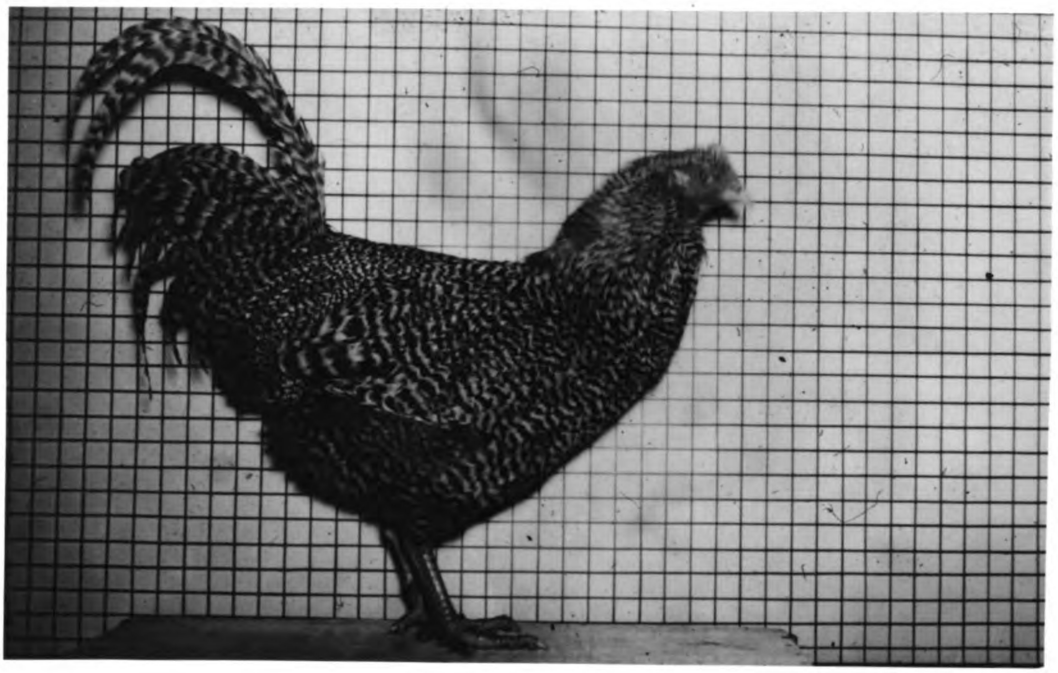


Illustration 2, showing a Barred Plymouth Rock Capon. The dressed carcass, grade A, is shown in illustration 3, page 26.

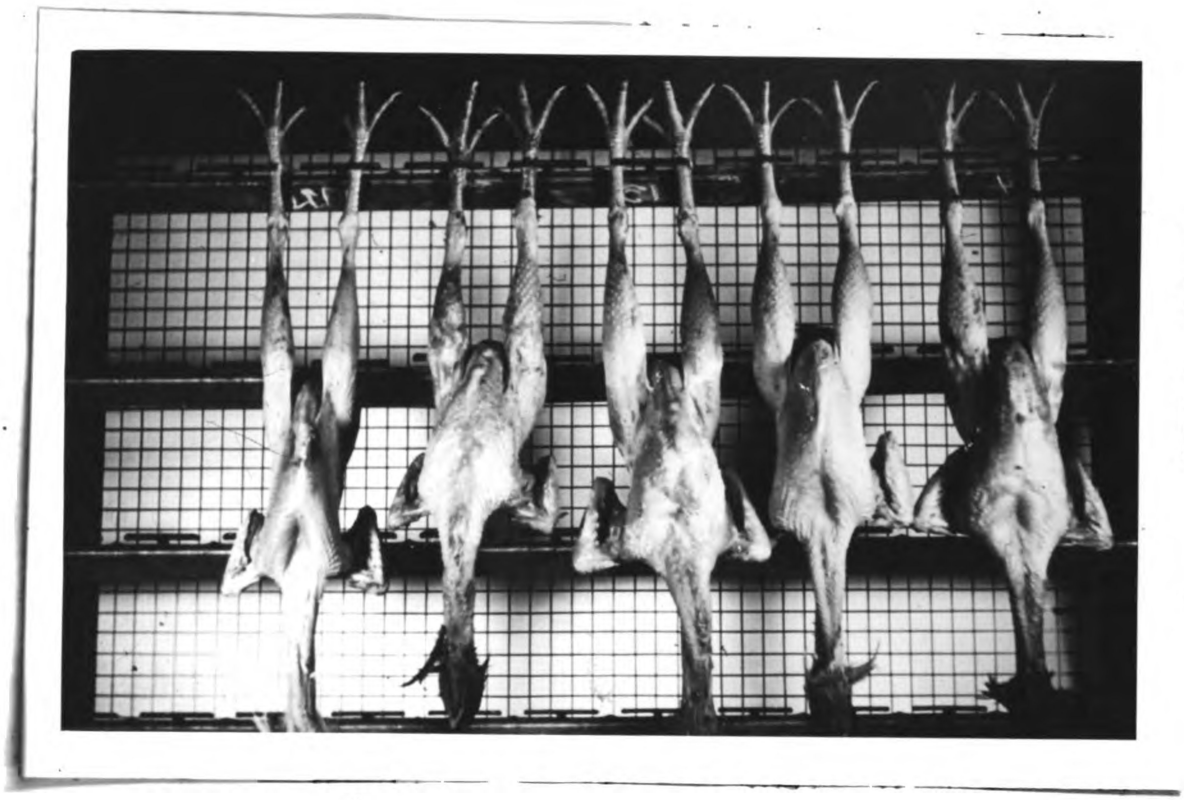


Illustration 3, showing dressed capon carcasses. From left to right - White Leghorn, Dark Cornish x White Leghorn cross, Barred Plymouth Rock, Rhode Island Red, and White Cornish x Barred Plymouth Rock cross.

V. SUMMARY

The variations in percentage of edible meat and yield of choice cuts and market grade among capon and cockerel purebred and crossbred progeny from five different matings of poultry was determined by weighing the parts and removing the meat from the bones.

The progeny were Barred Plymouth Rock, White Cornish x Barred Plymouth Rock cross, Rhode Island Red, White Leghorn, and Dark Cornish x White Leghorn cross.

By the criterion of percentage of edible meat the means of the cockerels were as follows: Rhode Island Red 78.82, White Cornish x Plymouth Rock cross 78.67, Dark Cornish x White Leghorn cross 76.82, Plymouth Rock 76.14, and White Leghorns 72.24. In the capons the means of total edible meat were as follows: Dark Cornish x White Leghorn cross 78.92, White Cornish x Plymouth Rock cross 77.78, Plymouth Rock 76.47, Rhode Island Red 76.30, and White Leghorns 74.70.

With respect to yields of "choice cuts" the values in percentages by weight of the cockerels were as follows: White Cornish x Plymouth cross 58.2, Dark Cornish x White Leghorn cross 58.1, White Leghorn 56.2, Plymouth Rock 55.92, and Rhode Island Red 53.21. In the capons the values in percentages by weight of "choice cuts" were as follows: Dark Cornish x White Leghorns cross 56.4, Light Cornish x Plymouth Rock cross 55.6, Plymouth Rock 55.5, White Leghorns 55.5 and Rhode Island Red 52.1.

Dressed market grade was associated with percentage of edible meat.

The live weight of the cockerel progeny exceeded that of the capon progeny in each mating except in the case of the Plymouth Rock and the Leghorns.

Measurements of nine parts of the anatomy were made together with photographs of the live birds and dressed carcasses for possible future correlation.

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