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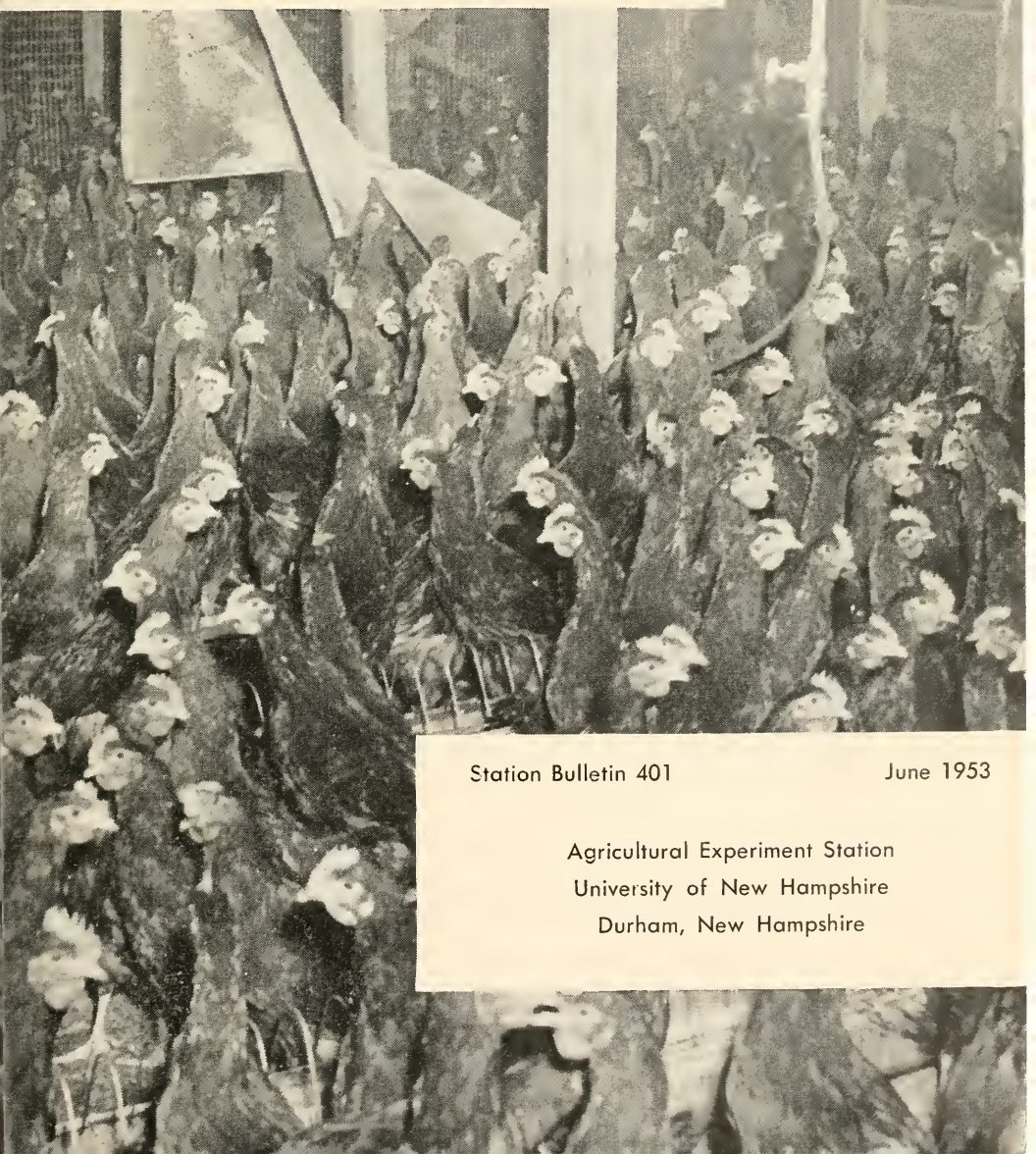

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Growth and Feed Standards for New Hampshires

Lawrence M. Potter and R. C. Ringrose*

Introduction

As a result of continuous progress in breeding, feeding, and management of broiler flocks in a highly specialized poultry industry, there is need for up-to-date standard figures for weight, growth, and feed consumption for various ages of broilers. With such figures available the broiler grower will be better able to determine how his flock compares to a standard flock as to growth and feed consumption at any age. Using this information as a reference he may make certain calculations on his flock to determine when to sell in order to take advantage of greater profits.

Tremendous changes have taken place in the last 20 years in the rate of growth of New Hampshires for broilers. For example, in 1934 it took 20 weeks to raise a flock of chickens of mixed sexes to average five pounds. Now, it takes only 14 to 15 weeks. In the Maine Production and Broiler Test the average weight of all chickens raised in 1951 was one pound heavier than the chickens raised in 1947, an increase from 3.96 pounds at 14 weeks to 4.95 pounds at the same age.

The days of easy profits in the broiler business during the years immediately following World War II are apparently over. The broiler producers are now more nearly supplying the demand. Reasonable income for labor and management in the broiler business is realized only by the more keen operators who make best use of their breeding, feeding, and management abilities.

The standards presented in this bulletin are to be used as a goal to attain or surpass. They are not absolute values for all broiler flocks. A large number of factors may influence the rate of growth of broilers. There are variations among breeds, strains within a breed, feeds, feeding systems, seasons of the year, management factors, environmental conditions, disease outbreaks, as well as many other factors. The standards presented here are a little better than the average in the broiler industry. However, if a broiler grower is to realize a reasonable income for his labor and management in order to improve his financial position, he must obtain a larger chicken on less feed and in less time than the average broiler grower.

Procedure

Data for the first ten weeks of growth were taken from five pens of 300 straight-run New Hampshires in the First New Hampshire Broiler Test.

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Table 1. Growth and feed standards for New Hampshires — bird weight, feed consumption, and feed efficiency for males, females, and mixed sexes to stated ages.

Age Weeks	MALES			FEMALES			MIXED SEXES		
	Weight in Pounds	Pounds Feed Consumed	Pounds Feed Per Pound Weight	Weight in Pounds	Pounds Feed Consumed	Pounds Feed Per Pound Weight	Weight in Pounds	Pounds Feed Consumed	Pounds Feed Per Pound Weight
Initial	.096			.094			.095		
2	.377	.474	1.26	.364	.458	1.26	.370	.466	1.26
4	.965	1.71	1.77	.857	1.60	1.87	.911	1.65	1.81
6	1.62	3.55	2.19	1.40	3.21	2.29	1.51	3.38	2.24
8	2.58	6.10	2.36	2.13	5.33	2.50	2.35	5.71	2.43
10	3.64	9.43	2.59	2.88	7.97	2.77	3.26	8.70	2.67
11	4.04	11.10	2.75	3.16	9.20	2.91	3.60	10.15	2.82
12	4.49	12.90	2.87	3.50	10.63	3.04	3.99	11.76	2.95
13	5.10	15.42	3.02	3.84	12.36	3.22	4.47	13.89	3.11
14	5.63	17.94	3.19	4.17	14.43	3.46	4.90	16.18	3.30
15	6.22	21.08	3.39	4.56	16.68	3.66	5.39	18.89	3.50
16	6.64	24.22	3.65	4.84	18.69	3.86	5.74	21.46	3.74
17	6.95	27.16	3.91	5.03	20.76	4.13	5.99	23.96	4.00
18	7.26	30.01	4.13	5.24	22.71	4.33	6.25	26.36	4.22
19	7.44	32.53	4.37	5.41	24.38	4.51	6.42	28.45	4.43
20	7.44	35.04	4.71	5.69	26.48	4.66	6.56	30.76	4.69

These data consisted of average weights for each sex and average feed consumption for the mixed sexes. Through recent experiments at this Station, the feed consumption for the mixed sexes was recalculated and tabulated by sexes by two-week periods from one-day-old to ten weeks of age. In September of 1951, a sample of 20 ten-week old males and a sample of 20 ten-week old females were selected at random from each of these five pens of New Hampshires. Thus a pen of 100 males and a pen of 100 females were obtained for further study, each pen representing five different strains of New Hampshires. By this procedure stock was obtained which would more nearly represent the average for the breed.

From 10 to 20 weeks of age, body weights and feed consumption data were collected by sexes at weekly intervals because of the great economic importance of such information. The body weights and feed consumption for the two sexes were averaged to obtain figures representing mixed sexes.

The chickens were fed a high efficiency type ration which was supplemented with pellets after two weeks and also with scratch grain after 13 weeks of age.

Results

THE RESULTS OF the weekly weighing of the chickens and accumulative feed consumption are presented in Table 1. These growth standards are also presented in the graph in Figure 2. The results show that both the males and the females consumed more feed progressively each week until the 15th week. At this time consumption dropped off slightly for the rest of the experiment except for the 20th week when the pullets started to lay. The feed consumed was utilized by the chickens at a continually poorer rate as the chicken grew older.

Figures collected from broiler growers indicate that this growth standard is better than the growth obtained on many commercial farms in that it results in a larger chicken on less feed at any given time. However, some commercial flocks grow equally well. A typical mixed sex growth curve for New Hampshires raised on commercial broiler farms is shown in Figure 1. This growth curve is a composite of data obtained from more than 60 different flocks raised in 1951. In comparing this curve with the standard curve, it is apparent that more feed is required to reach a given weight for the commercial broiler. This points to the improvement broiler growers can make in the growth and feed efficiency of broilers which in turn results in greater return over cost.

Feed Efficiency

THERE ARE MANY factors which influence the profit from raising broilers. Among these are the cost of feed, chicks, hired labor, fuel, litter, and like items; the final feed efficiency of the chickens or the number of pounds of feed to produce each pound of live weight; disease and mortality; and the price received per pound when sold. To realize the most profit for labor and management the broiler grower must know which factors have the most effect on profit and how to make these factors operate in his favor.

The cost of a ton of feed cannot be influenced by a broiler grower, except as he buys for cash or credit. However, he can influence his over-all

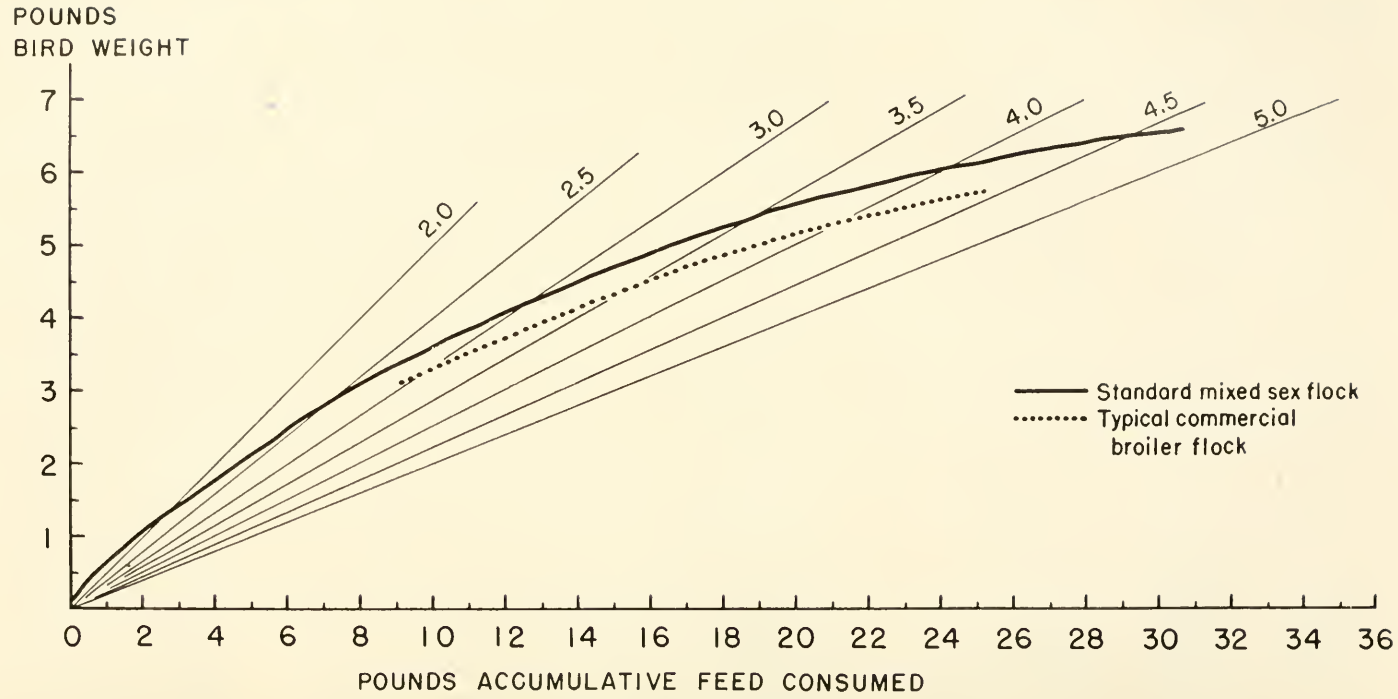


Figure 1. This chart shows bird weight plotted against feed consumption for the standard mixed sex flock and for a flock of New Hampshires on a commercial broiler farm. Any point on the straight lines indicates the stated feed efficiency.

cost in producing a pound of broiler by obtaining better feed efficiency. There is a large range in feed efficiencies obtained. For example, in the First New Hampshire Broiler Test, there was a feed efficiency difference of 2.49 and 2.77 for two strains of chickens when they reached a 3.00 pound average weight. The importance of this feed efficiency difference may be expressed in the following calculations. Comparing two flocks with feed efficiencies of 2.49 and 2.77, respectively, a difference of 0.28 pounds of feed is used to produce a pound of broiler. If a broiler grower has 10,000 chickens which average three pounds and feed costs five cents a pound, this difference of 0.28 in feed efficiency results in a decreased feed cost of about $420 for the more efficient flock. This is an out-of-pocket saving of about $40 per week.

Among the factors which affect feed efficiency are the age of the chickens, the breed, the strain within a breed, the feed, the ability of the operator to prevent feed wastage, and the season of the year. If the broiler grower is to profit from better feed efficiency, he must understand how these factors affect feed efficiency and he must capitalize on their favorable aspects.

Cost of Chicks — Males vs. Females

THE COST OF CHICKS is the second largest cost in producing broilers. In Table 1, it will be noted that the male chickens have a better feed efficiency and are considerably larger at any age than the females. It may also be pointed out that at times male chicks are available at a lower price than female or straight-run chicks. These facts point to greater profit in raising all male chickens. Due to the fact that male chickens have a better feed efficiency and growth rate than female chickens, a 10,000 flock of 12-week old males would net about $500 more than would a straight-run flock of the same number at the same age. This is calculated under 1952 conditions and assumes male chicks and straight-run chicks were purchased for the same price. This would indicate that the broiler grower could afford to pay up to five cents more for male chicks than for straight-run, provided the chicks were all from the same strain.

On the other hand, if pullets are raised to more than a four and one-half pound average, many times during the year a higher price per pound may be obtained for females than for males. At least three cents more per pound must be received for four and one-half pound pullets than for four and one-half pound straight-run flocks in order to make raising pullets for meat as profitable as straight-run flocks under 1952 conditions.

Prices Received for Broilers

THE PRICE RECEIVED for broilers is perhaps the largest variable affecting broiler profits. Assume a broiler grower has 10,000 chickens which average three pounds. An increase of one cent in price received would amount to about $300 additional income. This is an increase of about $30 per week. A few cents difference in the price received for broilers often determines the profit or loss to the broiler grower.

Figure 3 indicates the price received on New Hampshire farms for chickens at various weights by weekly intervals for 1951. The important point to be noted is that a large price spread between weights prevails at some periods while a small price spread exists at other periods. This chart

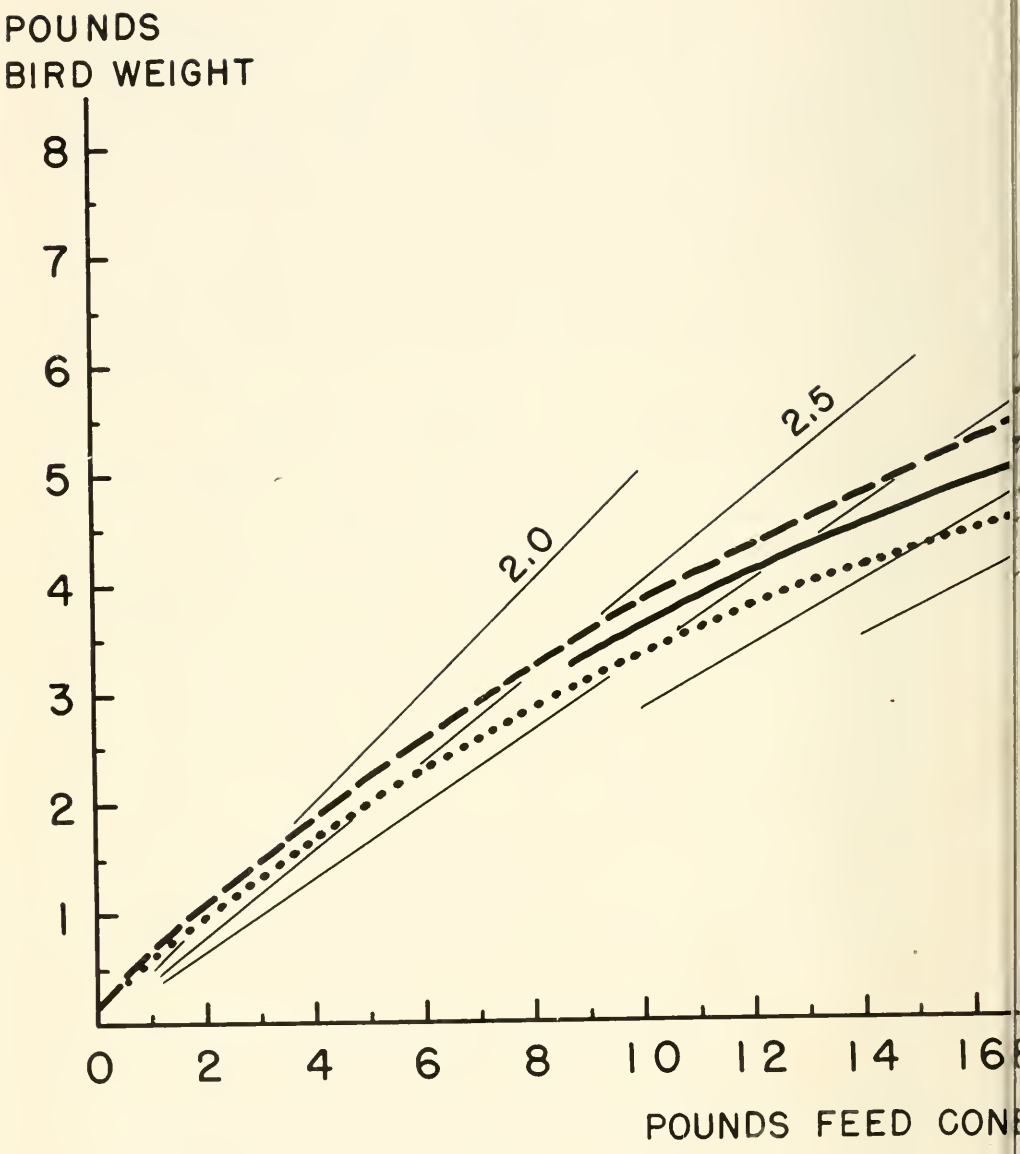
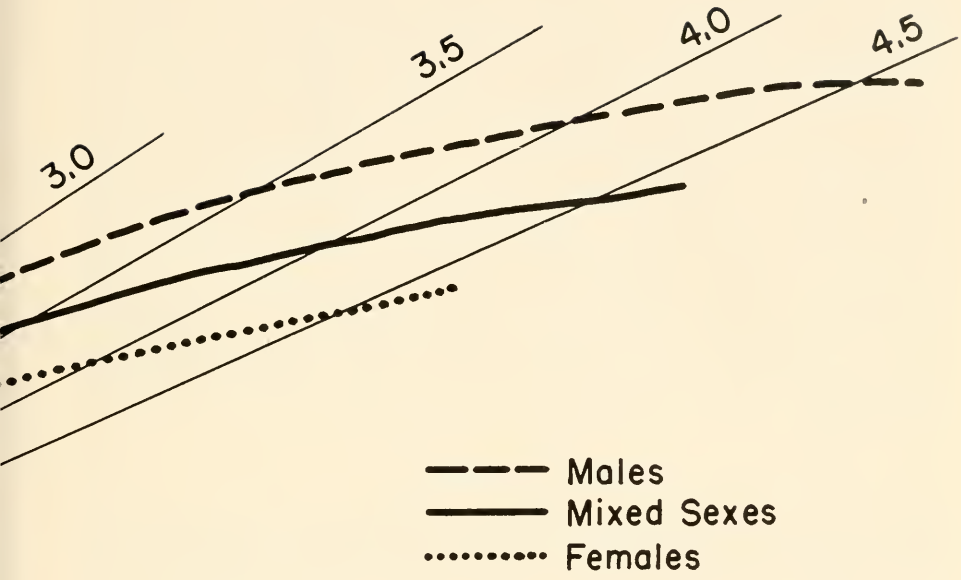
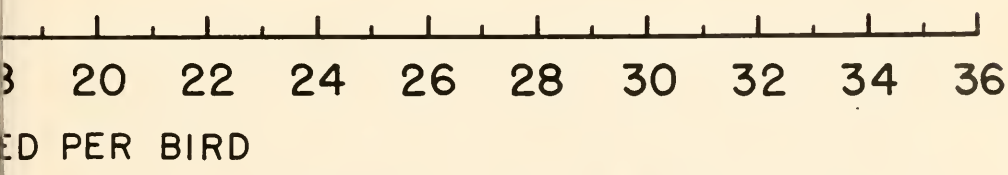


Figure 2. In this chart bird weight has been plotted against feed consumption for males, mixed sexes, averaging 5.4 lbs. per chicken which consumed 19 lbs. of





ales. Any point on the straight lines indicates the stated feed efficiency. Example: Assume a mixed sex flock
feed efficiency will be 3.5 as indicated by the straight line.