

OREGON STATE AGRICULTURAL COLLEGE

AGRICULTURAL EXPERIMENT STATION

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Corvallis, Oregon

September, 1935

Circular of Information No. 124

copy!

FINISHING TURKEYS FOR MARKET

by

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The adoption of modern methods of artificial incubation and brooding; rearing in semi-confinement; disease control and continuous feeding has made mass production of turkeys a common farm practice.

The present-day trend of turkey expansion indicates a strong possibility that within a few years its numbers will be increased more rapidly than the per capita rate of consumption will readily absorb at good prices.

Turkey farming is a highly competitive business. The markets are each year becoming more exacting in their demands for quality birds in order that they may better serve a more exacting consumer public. A liberal supply of turkeys promotes a market trend for top quality and a disposition to widen the price spread for birds of lower quality.

In the present era of popular trend toward expansion of turkey numbers, producers in order to meet competition and stay in business must work less along the line of numbers raised and more along the line of what it actually costs them to produce a pound of market turkey meat.

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The use of the term "fattening turkeys" does not carry the same significance today with turkeys fed scientifically from the time they are hatched until they are killed as it did a few years ago when turkeys rustled their subsistence on the range. The range turkey when fattened a few weeks before killing took on patches of unevenly distributed fat. The well-fed turkey of today, aside from the pin feathers during its growing period, is usually in fine condition for killing at any age. It is therefore more logical under present practices of turkey culture to discard the term "fattening" and substitute the word "finishing".

Growers everywhere are desirous of having their turkeys reach a finished market maturity at an early age. Such ambitions are only realized when a well-defined breeding program goes hand in hand with a well-balanced feeding program. Too much is often expected of feeds and methods of feeding them. Important as feeds are they cannot overcome factors of inheritance.

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1933-1934 FINISHING TRIALS

The Umatilla Field Station, Hermiston, Oregon, during the marketing seasons of 1933 and 1934, experimented with various feeds and methods of feeding for finishing turkeys of each sex for market. Practices followed by the industry show such a wide variation in methods and costs that the need for more basic information becomes more apparent each year.

The poults each of the two years were brooded artificially and confined for eight weeks to the brooder house and an outside wire porch of the same dimensions.

All poults were raised to October 1 on a relatively high protein mash self-fed in hoppers; they had access to fresh skim milk at all times; and scratch grain was hand-fed twice daily. Chopped green alfalfa was fed twice daily during the brooding period, following which they were ranged in growing alfalfa under semi-confinement yarding.

The trials conducted each of the two years were fundamentally the same, except that in 1933 a wider range of trials was conducted to furnish information to be used comparatively in checking the major trials of the two years' work.

To avoid the confusion of too much data, only the detailed results of 1934 trials are tabulated separately. The 1933 trials and results are given in the last table herein for a comparison with 1934 results.

1934 FINISHING TRIALS

Trial #1

Time: October 1 to November 17 and December 14; age at beginning of test approximately 5 months.  
 Stock: Young toms; pullets; yarded separately.  
 Feeds: Relatively high protein dry mash, hopper-fed from hatching to market. During the finishing period a scratch grain consisting of corn 50 lbs., wheat 40 lbs., and oats 10 lbs., was hand-fed in hoppers twice daily. The one mash used during the life of the birds was:

15 lbs. wheat bran
30 lbs. ground wheat
10 lbs. ground whole oats
20 lbs. ground corn
5 lbs. meat scraps
10 lbs. fish meal
5 lbs. alfalfa meal
2 lbs. bone meal
2 lbs. calcium carbonate
1 lb. salt
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100 lbs. plus skim milk ad libitum

Grit, oyster shell, alfalfa hay, and water were available at all times.  
 Object: To show the effects of a relatively high protein feed on market maturity, and costs.

## Trial #2

Time: October 1 to November 17 and December 14; age at beginning of test approximately 5 months.  
 Stock: Young toms; pullets; yarded separately.  
 Feeds: Relatively low animal protein dry mash, hopper-fed during the finishing period. The scratch feed and method of feeding it was the same as in trial Number 1. The mash used during the finishing period was:

40 lbs. ground yellow corn
30 lbs. ground wheat
10 lbs. middlings
12 lbs. ground whole oats
5 lbs. meat scraps
2 lbs. linseed oil meal
1 lb. salt
<hr/> 100 lbs.

Grit, oyster shell, and alfalfa hay were available at all times.  
 Object: To show the effect of a relatively low protein feed on maturity and costs.

## Trial #3

Time: October 1 to November 17 and December 14; age at beginning of test approximately 5 months.  
 Stock: Young toms; pullets; yarded separately.  
 Feeds: No mash of any kind was used. A scratch grain consisting of 60 lbs. wheat and 40 lbs. cracked yellow corn was hand-fed twice daily and supplemented with skim milk ad libitum as the only sources of animal protein. Turkeys had access to grit, oyster shell, alfalfa hay, and water at all times.  
 Object: To show the effect and costs of using liquid milk as the exclusive animal protein supplement of a scratch grain finishing diet.

## Trial #4

Time: October 1 to November 17 and December 14; age at beginning of test approximately 5 months.  
 Stock: Young toms; pullets; yarded separately.  
 Feeds: No mash of any kind was used. No milk or other animal concentrates were fed. The scratch grain was hand-fed in hoppers twice daily and consisted of 60 parts wheat and 40 parts cracked yellow corn. Turkeys had access to alfalfa hay, grit, oyster shell, and water.  
 Object: To show the effects and costs of a finishing diet consisting of grain without animal protein supplement.

Table No. 1. SUMMARY OF NUMBERS, FEEDS, LIVE WEIGHTS,  
NUMBERS KILLED NOVEMBER AND DECEMBER, AND GAINS. 1934 TRIALS.

Trial	No. & Sec	Method of Feeding			Weights		Killed Nov. 17			Not Killed		Killed Dec. 14			Total Gain	
		Mash	Grain	Milk	Oct. 1	Nov. 17	No.	Weight	%	No.	Weight	No.	Weight	%	Lbs.	%
1	15 T	Hi-Prot	WCO*	Yes	218	321	7	152	47	8	169	8	193	53	127	58.3
	20 H	Hi-Prot	WCO*	Yes	205	261	12	155	60	8	106	8	116	40	66	32.2
2	15 T	Lo-Prot	WCO*	No	209	294	7	138	47	8	156	8	180	53	109	52.2
	20 H	Lo-Prot	WCO*	No	201	239	7	85	35	13	154	13	183	65	67	33.3
3	15 T	No	WC#	Yes	227	296	6	124	40	9	172	9	201	60	98	43.2
	20 H	No	WC#	Yes	206	265	11	147	55	9	118	9	129	45	70	34.0
4	15 T	No	WC#	No	232	268	1	18	7	14	250	14	288	93	74	32.0
	20 H	No	WC#	No	205	251	7	96	35	13	155	13	171	65	62	30.2

Note: \*WCO = Wheat 50; Corn 40; Oats 10

Note: #WC = Wheat 60; Corn 40

Table No. 2. FINISHING PERIOD OCTOBER 1 TO DECEMBER 14, 1934  
 AVERAGE LIVE WEIGHT PER BIRD, GAINS AND FEED CONSUMED PER BIRD, AND FEED PER POUND GAIN

Lot	Sex	Average Live Weights per Bird				*Feed Consumed Per Bird*			Total Grain	Feed per Lb. Gain		
		Oct.1	Killed		Total Gain	Grain	Mash	Milk		Grain	Mash	Milk
			Nov.17	Dec.14								
1 1 Ave.	Toms	14.5	21.7	24.1	8.47	38.0	26.3	16.2	127	4.49	3.11	1.91
	Hens	10.2	13.0	14.5	3.30	20.0	14.7	15.3	66	6.06	4.47	4.64
						29.0	20.5	15.7	193	5.03	3.58	2.84
2 2 Ave.	Toms	13.9	19.7	22.6	7.27	20.0	32.7	-	109	2.75	4.50	-
	Hens	10.0	12.1	14.1	3.35	21.0	20.5	-	67	5.37	5.97	-
						20.5	26.6	-	176	3.75	5.06	-
3 3 Ave.	Toms	15.1	20.7	22.3	6.53	43.7	-	16.7	98	6.68	-	2.55
	Hens	10.3	13.4	14.3	3.50	30.0	-	15.6	70	8.59	-	4.47
						36.8	-	16.1	164	7.65	-	3.43
4 4 Ave.	Toms	15.5	18.0	20.6	4.93	45.6	-	-	74	9.26	-	-
	Hens	10.2	13.7	13.2	3.10	28.7	-	-	62	9.27	-	-
						37.1	-	-	136	9.26	-	-

NOTE: \*Total required per bird for whole finishing period, with part of the birds killed November 17 and the others December 14.

Table No. 3

## FEED COST PER POUND GAIN BY SEXES

Lot	Sex	Grain	Mash	Milk	Total
		¢	¢	¢	¢
1	Toms	8.26	5.66	.48	14.40
1	Hens	11.15	8.09	1.16	20.40
Ave.		9.71	6.88	.82	17.40
2	Toms	5.03	8.91	-	13.94
2	Hens	9.88	11.40	-	21.28
Ave.		7.46	10.16	-	17.61
3	Toms	12.29	-	.64	12.93
3	Hens	15.80	-	1.12	16.92
Ave.		14.05	-	.88	14.93
4	Toms	17.04	-	-	17.04
4	Hens	17.06	-	-	17.06
Ave.		17.05	-	-	17.05

The average prices per 100 lbs. of feed follow:

High Protein mash ..... \$1.82  
 Low Protein mash ..... 1.94\*  
 Grain ..... 1.84  
 Milk ..... .25

\*Note: The low protein mash had a higher corn content than the high, so with existing prices of corn cost more than the high protein mash.

Table No. 4

## U. S. GRADES OF TURKEYS PRODUCED 1934

Lot	T O M S						H E N S					
	Prime		Choice		Commercial		Prime		Choice		Commercial	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	14	93	1	7	0	0	18	90	2	10	0	0
2	12	80	1	7	2	13	18	90	2	10	0	0
3	13	87	2	13	0	0	19	95	1	5	0	0
4	13	87	2	13	0	0	20	100	0	0	0	0
Ave.	52	87	6	10	2	3	75	94	5	6	0	0

## Turkeys not Grading Prime (9.3%)

- Lot 1: 1 choice tom - hump-back  
2 choice hens - 1 bruised; 1 crooked breast
- Lot 2: 1 choice tom - hump-back  
2 choice hens - 1 hump; 1 pinny  
2 commercial toms - 1 hump; 1 crooked breast
- Lot 3: 2 choice toms - 1 hump; one pinny and thin  
1 choice hen - hump-backed
- Lot 4: 2 choice toms - pinny

Table No. 5. COMPARISON OF VARIOUS FINISHING TRIALS

Trial	No. & Sex	Mash	Grain	Milk	Weight Oct. 1	Live Wt. Killed	Lbs. Gain Per Bird	% Gain	No. Killed November	% Killed November	No. Killed December	% Killed December
1-'33	25T	Hi-Prot	WCO	Yes	410	598	7.52	46	10	40	15	60
9-'33	22T	Hi-Prot	WCO	Yes	337	475	6.28	41	12	55	10	45
1-'34	15T	Hi-Prot	WCO	Yes	218	345	8.47	58	7	47	8	53
9-'33	18H	Hi-Prot	WCO	Yes	195	249	3.00	26	8	44	10	56
1-'34	20H	Hi-Prot	WCO	Yes	205	271	3.30	32	12	60	8	40
2-'33	24T	Lo-Prot	WCO	No	370	557	7.79	51	9	38	15	62
2-'34	15T	Lo-Prot	WCO	No	209	318	7.27	52	7	47	8	53
2-'34	20H	Lo-Prot	WCO	No	201	268	3.35	33	7	35	13	65
3-'33	12T	None	Wheat	Yes	167	242	6.25	45	2	17	10	83
3-'34	15T	None	WC	Yes	227	325	6.53	43	6	40	9	60
3-'33	13H	None	Wheat	Yes	137	172	2.70	26	6	46	7	54
4-'33	24H	None	Corn	Yes	255	343	3.67	34	10	42	14	58
3-'34	20H	None	WC	Yes	206	276	3.50	34	11	55	9	45
5-'33	12T	None	Wheat	No	190	246	4.67	29	0	0	12	100
4-'34	15T	None	Wheat	No	232	306	4.93	32	1	7	14	93
6-'33	25H	None	Corn	No	278	340	2.48	22	12	48	13	52
4-'34	20H	None	WC	No	205	267	3.10	30	7	35	13	65
7-'33	12T	Wet (A)	WBO	Yes	180	255	6.25	42	6	50	6	50
7-'33	13H	Wet (A)	WBO	Yes	145	184	3.00	27	5	38	8	62
8-'33	12T	Hi-Prot(1)	WCO(1)	Yes	189	281	7.66	49	7	58	5	42
8-'33	13H	Hi-Prot(1)	WCO(1)	Yes	144	182	2.92	26	8	61	5	39

(A) Indicates turkeys were changed to a home-grown grain ration consisting of 60 lbs. wheat, 25 lbs. rolled barley, and 15 lbs. whole oats until 2-3 weeks prior to killing. They were then fed a fattening wet mash consisting of 5 lbs. bran, 50 lbs. ground yellow corn, 25 lbs. ground wheat, 15 lbs. ground oats, and 5 lbs. meat scraps. The mash was mixed to porridge consistency so that it would pour out of the bucket. It was fed 3 times daily until during the last 10 days they got all they would eat each time in 30 minutes. No water or milk was given in addition to the moisture in the mash.

(1) Indicates that grain, mash, and milk were left before them at all times, cafeteria style.

### CONCLUSIONS

The percentage of toms; fed a high protein mash, grain and skim milk; ready for the November 1934 market was equal to those fed the low protein mash and grain. (Table 1).

The percentage of toms, fed grain plus skim milk, ready for the November 1934 market was much higher than those finished on grain alone.

A higher percentage of toms fed either the high or low protein mash matured earlier than those fed grain plus milk or those finished on grain alone.

The highest total percentage of gain over October 1 weights was made by the toms on the high protein; those on low protein; grain and milk; and grain alone, following in the order named.

The weight of the toms fed the high protein combination was heaviest. Those finished on the low protein mash and grain were practically equal to the toms fed milk and grain. The weight of the toms finished on grain alone was the lightest.

The percentage of gain made by the young hens was not materially influenced by any of the various feed combinations. The rations fed did show a material difference in the percentage of hens ready for the early market.

The percentage of hens fed the high protein mash, milk and grain, was about equal to those fed milk and grain for the November kill; but higher than those ready on either the grain alone or low protein combinations.

The heaviest hens were marketed from the grain and milk fed lot; those fed the high protein were a close second; with the grain alone and low protein groups following in order.

When milk was fed with high protein mash and grain, more grain was consumed than mash. The ratio of grain consumed was greater the nearer the birds reached maturity.

When no milk was fed with the low protein mash and grain, the turkeys consumed more mash than grain (Table 2).

The amounts of grain consumed in each trial by birds not receiving any mash were equal, even though the birds in one trial had access to milk. However, it will be recalled that the milk materially hastened and produced heavier birds at a low feed cost.

The feed cost per pound of gain was higher for hens than for toms in all instances except on grain alone where the cost per pound was the same for each sex (Table 3).

The flock average feed cost was practically equal whether the birds received the high or low protein mash ration. The cheapest ration was grain and milk. The grain alone cost was much higher than grain plus milk.

The feed consumed per bird is incorporated in Table 2 for the purpose of enabling the grower to better estimate his feed requirements for finishing his turkeys.

The percentage of birds which met the U. S. prime grade was high in all lots and it appears doubtful that feeds had any great effect on grade (Table 4).

Trial 8, 1933 (Table 5), indicates that turkeys having access, cafeteria style, to their mash and grains, made satisfactory gains and early market maturity when compared to all other lots for both years in which the grain was hand fed.

Trial 7, 1933 (Table 5), in which only a crate fattening wet mash was used for the final 2-3 weeks of the finishing period was not satisfactory from the view points of gain and labor involved.

Turkeys of either sex apparently have an inherited maturity which they must attain before they will take on the fine finish the market demands. Hens attain this maturity earlier than toms. The rate of gain is greater for toms. Animal protein is needed in the diet of both sexes while they are still growing. The toms use the higher protein more efficiently than do the hens.

Young turkeys that are still growing should have access to a reasonable protein content mash, or liquid milk in addition to grain during the major part of the finishing period.

Economics in feeding and in flock management can be easily effected in commercial turkey farming by a separation of sexes during the finishing period.

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