

1-1-1968

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John C. Thorne

James L. Stallings

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WEST VIRGINIA UNIVERSITY
AGRICULTURAL EXPERIMENT STATION
BULLETIN 566

JUNE 1966



W. J. LAMAR
AGRICULTURAL ECONOMIST

EGG PRODUCTION AND MARKETING IN WEST VIRGINIA

The Authors

John C. Thorne was a Graduate Research Assistant, Agricultural Economics, at the time of this study. He is now Chief of the Poultry Section, West Virginia Department of Agriculture. James L. Stallings, who was Assistant Agricultural Economist at the time of this study, is now Assistant Professor of Agricultural Economics, Tanzania Agricultural College, Morogoro, East Africa.

Acknowledgment

This bulletin is published as a contribution to Northeast Regional Marketing Research Project (NEM - 21), "Market Structures and Alternative Pricing Mechanisms for Eggs." Research upon which this bulletin is based was supported by both State and Federal funds and the results are mostly contained in an M.S. thesis by John C. Thorne.

WEST VIRGINIA UNIVERSITY
AGRICULTURAL EXPERIMENT STATION
COLLEGE OF AGRICULTURE AND FORESTRY
A. H. VANLANDINGHAM, DIRECTOR
MORGANTOWN

SUMMARY AND CONCLUSIONS

The objectives of this study were: (1) to determine changes which have taken place in the size of producing units and the relative importance of various sizes of flocks in terms of egg production and number of birds; (2) to determine changes which have taken place in West Virginia egg marketing structure; (3) to derive an estimate of West Virginia per-capita egg consumption and determine the location of surplus and deficit areas of egg production in West Virginia during 1964; and (4) to determine past trends and predict future trends in some selected factors which are associated with the profitability of the West Virginia egg industry.

A mail survey of all known egg producers and egg handlers in 49 of West Virginia's 55 counties was conducted. Of the 1,114 questionnaires mailed, 488 or 43.8 per cent were returned. Data were obtained for the year 1964, regarding flock size, volume of eggs handled, functions performed, sources of eggs, and disposition of eggs.

Respondents to the mail survey reported a total of 579,258 laying hens, or 37.2 per cent of the average number of laying hens in West Virginia during 1964. These birds produced a total of 9,597,027 dozens of eggs during 1964, or 35.2 per cent of the estimated production in West Virginia during 1964. About two-thirds of the laying hens in West Virginia during 1964 were in flocks of over 5,000 birds. In contrast, in 1944, 69 per cent of the laying hens in four West Virginia counties were in flocks of less than 100 birds, indicating that the size of West Virginia flocks has increased dramatically since 1944. In 1964, 66.4 per cent of West Virginia producers sold 14.5 per cent of all eggs direct to consumers. In 1948, 34.9 per cent of West Virginia producers sold 21.9 per cent of all eggs direct to consumers. During 1964 West Virginia egg producers sold 27.3 per cent of all eggs produced to retail stores compared to 40.5 per cent in 1948.

West Virginia producers reported that 41.0 per cent of their eggs were sold to wholesale firms in 1964. The corresponding percentage in 1948 was 17.7, and in 1944, 10.6 per cent of West Virginia eggs were sold to wholesale firms.

Outlets used by producers varied by size of flock. A large share, 53.4 per cent, of the eggs from flocks of less than 1,000

birds were sold direct to consumers, but only 3.1 per cent of the eggs from this group of flocks were sold to wholesale firms. On the other hand, only 2.5 per cent of the eggs from flocks of 10,000 birds and over were sold direct to consumers, while 59.8 per cent were sold to wholesale firms in 1964. These data seem to indicate that producers with small flocks, many of whom are undoubtedly underemployed, have a low opportunity cost of labor for delivering eggs directly to consumers and can therefore take advantage of the higher-priced retail market. A producer with a flock of 10,000 or more hens would in most cases be fully employed and in order to take advantage of the higher-priced retail market would need to hire someone nearly full time to deliver eggs or relieve the producer from the tasks associated with egg production. A flock of 10,000 birds laying at 70 per cent production produces 583 dozens of eggs per day. Assuming an average sale of two dozens per stop, or about 290 delivery stops per day, one can easily recognize that house-to-house delivery of eggs from a large flock would be a full-time job.

Estimates of West Virginia per-capita egg consumption were made for the period 1955 to 1964. The West Virginia per-capita egg consumption estimate was 383 in 1955 with a decline to 334 eggs per-capita in 1964. These estimates were based upon the 1955 United States Department of Agriculture Household Consumer Survey, the proportion of rural and urban people in the population, and the relative decline in rural population. It was determined that only 19 counties in West Virginia had an egg-production surplus in 1964. In six counties egg production approximately equaled consumption and the remaining 30 counties had an egg-production deficit in 1964.

Secondary data were analyzed in order to determine past trends and predict future trends in the West Virginia egg industry. Comparisons were also made with corresponding United States data. The results of the trend analysis are summarized as follows:

1. The average number of layers on farms in West Virginia declined by 33.5 per cent while the average number of layers on United States farms declined by 6.4 per cent between 1954 and 1964. Projections suggest that this relative decline will continue through 1969. The sharp decline in number of layers seems to suggest that egg production is not a remunerative enterprise;

however, when some other aspects of the egg industry are examined, the situation does not appear as bleak as the declining number of layers on farms suggests.

2. Egg production per layer in West Virginia, although still below the United States average, increased by 23.4 per cent while the United States average egg production per layer increased by 14.8 per cent between 1954 and 1964. A linear trend indicates that West Virginia's egg production per layer should be nearly equal to the United States average by 1969.

3. Even with the increase in egg production per layer, total egg production in West Virginia decreased by more than 18 per cent while egg production in the United States increased by 9 per cent between 1954 and 1964. Total egg production in West Virginia is projected to continue to decline through 1969.

4. Gross income from eggs in West Virginia decreased by 25.7 per cent and United States gross income from eggs declined by only 9.9 per cent between 1954 and 1964. Projections suggest that gross income from egg production will continue to decline at a somewhat more rapid pace in West Virginia than in the United States.

5. The farm price of eggs has been consistently higher in West Virginia than in the United States and projections indicate that a substantial differential will continue to exist through 1969.

6. The price of laying mash in West Virginia has been above the United States average price each year since 1954. Extensions of the fitted trend curves suggest that the differential, however, is projected to very gradually narrow through 1969.

7. The West Virginia egg-feed price ratio is projected to remain well above the average for the United States. The differential, however, is projected to very gradually narrow through 1969.

Income from the egg industry has been an important source of income to West Virginia farmers. Egg production has undergone many technological changes, and as a result, the egg marketing system has had to adapt to these changes.

It was concluded from the analysis of secondary data that egg producers in West Virginia appear to have some advantages in the production of eggs when compared with egg producers in

the United States as a whole. Probably the most important advantage which West Virginia producers have over producers in other areas is the high average price of eggs. From 1960 to 1964, West Virginia producers received an average of 5.6 cents per dozen more than the United States average price and projections of past trends indicate that this price differential will continue in the future. The egg-feed price ratio has averaged about 10 per cent above the United States ratio since 1954, and extrapolation of trends indicates that this differential will continue to exist. Although egg production per layer in West Virginia is slightly less than the United States average, trends indicate that the gap is closing and projections suggest that production per layer should nearly equal the United States average by 1969. Another factor which might be considered an advantage for West Virginia producers is that West Virginia is a deficit egg producing state; that is West Virginia produces fewer eggs than are consumed in the State. During 1964, only about 54.5 per cent of the eggs consumed in West Virginia were produced in the State. West Virginia enjoys a location advantage in transporting eggs to the large consuming market areas when compared with some other egg producing areas. Many of the eggs which are consumed in the heavily populated Northeast are at the present time being produced in the Midwest, and West Virginia enjoys a considerable transportation advantage in egg hauling over that area.

While the higher farm price of eggs, relative to the United States average, offsets the higher price of feed, the cost of feed does represent a problem for West Virginia egg producers. Trends and projections indicate that West Virginia egg producers have paid, and will continue to pay, a higher price for laying mash than the average United States producer. Feed price per hundred pounds in West Virginia averaged 22 cents above the United States average, but this higher feed cost is more than offset by the higher price of eggs. Another problem area for West Virginia egg producers is a lack of concentration of production and the resulting lack of egg marketing facilities.

EGG PRODUCTION AND MARKETING IN WEST VIRGINIA

JOHN C. THORNE AND JAMES L. STALLINGS

Over the last twenty years income from the sale of eggs has accounted for approximately 11 per cent of the total cash income of West Virginia farmers. During this same period, production techniques and methods have changed drastically from a situation with a few eggs being produced on virtually every farm in the State to the present situation in which the majority of eggs are produced by large commercial laying operations with up to 40,000 birds. This is not to say that small flocks do not exist today, but their importance is becoming less in terms of total egg production.

The changes in egg production practices have been accompanied by changes in the structure of egg marketing in West Virginia. These changes have occurred because of attempts by egg producers to obtain better prices for their product, advancing technology in the handling of eggs, competition from surplus egg areas, and other reasons. There is concern among farmers, poultry specialists, and other people about the future of the West Virginia egg industry, whose chief competitors are large-scale laying operations in surplus production areas outside West Virginia.

The study, on which this publication is based, was intended to supply knowledge of the situation of the West Virginia egg industry. Also, information about the egg industry was needed by extension personnel, researchers, the general public, and others to appraise current research, guide further research, and decide upon alternative courses of action.

Specific objectives of this study were: (1) to determine changes which have taken place in the size of producing units and the relative importance of various sizes of flocks in terms of egg production and number of birds; (2) to determine what changes have taken place in the West Virginia egg marketing structure; (3) to derive an estimate of West Virginia per-capita egg consumption and determine the location of surplus and deficit areas of egg production in West Virginia during 1964; and (4)

to determine past trends and predict future trends in some selected factors which are associated with the profitability of the West Virginia egg industry.

EGG PRODUCTION AND MARKETING

In order to obtain background information, a mail survey was taken of egg producers and handlers in 49 of West Virginia's 55 counties. Gilmer, Hardy, Kanawha, Lewis, McDowell, and Wetzel counties were not included; however, unpublished data given in Appendix B indicate these counties contained an average of only 174,000 hens in 1964. Lists of names of egg producers and handlers were obtained from county extension agents and the West Virginia Department of Agriculture. The first mailing was made on May 12, 1965. A follow-up mailing was made on June 11, 1965 to the non-respondents. Information was obtained for the year 1964 regarding flock size, volume of eggs handled, functions performed, sources of eggs, and disposition of eggs.

Of the 1,114 questionnaires mailed, 488 or 43.8 per cent were returned. Many of the respondents were no longer in business; therefore, only 276 usable questionnaires were obtained. Some of the respondents failed to answer all questions on the questionnaires. As a result, the totals in some of the tables do not include data from all questionnaires.

When county lists were being compiled, many county agents estimated the size of flock of each producer, and a question regarding size of flock was included on the questionnaires. In 204 cases, estimates of county agents and actual figures of the producer were obtained. County agents' estimates of the number of hens in these 204 flocks were 382,618. The producers reported an actual 387,797 birds, 5,179 birds or 1.3 per cent over the county agents' estimates. The flocks containing 4,000 or more birds contained a total of 249,355 birds, compared with county agents' estimates of 235,200, a difference of 14,155 birds or 5.8 per cent. Flocks containing less than 4,000 hens contained a total of 138,442 hens compared with the county agents' estimates of 147,418 birds, a difference of 8,976 birds or 6.2 per cent. These data indicate that possibly between the time county agents estimated flock sizes and the period for which producers reported, flocks of over 4,000 birds became larger while smaller flocks grew smaller. Another possible explanation for this divergence in estimates is that county agents

TABLE 1
Distribution of Flock Size, West Virginia, 1964

Flock Size	Cumulative Number of Birds	Cumulative Per Cent of Flocks	Cumulative Per Cent of Birds
Over 20,000	95,000	1.3	16.4
Over 15,000	167,000	3.0	28.8
Over 10,000	263,800	6.4	45.5
Over 1,000	391,755	13.2	67.6
Over 5,000	531,868	36.3	91.8
Over 500	553,897	48.7	95.6
Over 100	576,772	84.6	99.6
Over 0	579,258	100.0	100.0

TABLE 2
**Distribution of Flock Size and Eggs Produced,
West Virginia, 1964**

Flock Size	Cumulative Number of Eggs Produced	Cumulative Per Cent of Eggs Produced
Over 20,000	23,808,576	22.7
Over 15,000	35,644,776	34.1
Over 10,000	49,778,292	47.6
Over 5,000	70,531,068	67.1
Over 1,000	96,959,748	92.6
Over 500	100,235,112	95.8
Over 100	104,347,800	99.7
Over 0	104,669,460	100.0

tended to underestimate large flocks and overestimate small flocks.

Two hundred thirty-four respondents replied to the question regarding flock size. These 234 flocks contained a total of 579,258 hens, 37.3 per cent of the average number of laying hens reported for West Virginia by the Federal-State Cooperative Crop Reporting Service. The major portion, over two-thirds, of the laying hens in West Virginia during 1964 were in flocks which contained more than 5,000 birds (Table 1). Only 0.4 per cent of the laying hens were in the 15.4 per cent of the flocks which contained 100 hens or less, and only 4.4 per cent of the hens were in the 52.3 per cent of the flocks made up of 500 hens or less. This is in contrast to 1944 data which indicate that only 18 per cent of the laying hens in West Virginia were in flocks of over 250 birds, and 48 per cent of the birds were in flocks which contained less than 100 birds.

Data in Table 2 indicate that flocks of over 10,000 birds are

¹M. A. Abrahamsen, *Egg and Poultry Marketing Practices in West Virginia*, p. 12

slightly more important in terms of egg production than in terms of the proportion of the birds they contain; this indicates that egg production per layer is higher in large flocks than in small flocks. Flocks of over 10,000 birds contained 45.4 per cent of the laying hens in the sample; however, this group accounted for 47.6 per cent of the eggs.

A total of 11,044 627 dozens of eggs was produced in 1964 by respondents to the mail survey. These eggs represented 40.5 per cent of the eggs produced in West Virginia during 1964 as reported by the Federal-State Cooperative Crop Reporting Service. West Virginia egg handlers reported the receipt of 4,022,682 dozens of eggs from out of state. These handlers further reported that 3,088,561 dozens of eggs were shipped out of state. Therefore, a total of 11,978,748 dozens of eggs which were handled by West Virginia firms during 1964 and which were disposed of in the State were reported by the mail survey respondents.

Difficulty was encountered in obtaining names and addresses of out-of-state people and firms who ship eggs into West Virginia, and of those who received the questionnaire, only 7 per cent responded. For this reason, the data in this chapter are largely limited to information gained from West Virginia egg producers and handlers.

Data presented in Table 3 indicate that size of flock has a bearing upon whether or not the specified marketing functions are performed by flockowners. About half of the flockowners who had under 200 hens reported that they washed eggs but the proportion of producers washing eggs increased as flock size increased up to 2,499 hens. For flocks of over 2,499 hens, the proportion of producers washing eggs did not follow a consistent pattern. No flockowner who had less than 2,500 birds reported that he oiled eggs, but as flocks increased a larger proportion of the respondents reported that they oiled eggs and half of the owners of flocks having 10,000 or more birds reported that they oiled eggs. The proportion of flockowners who candled and sized eggs during 1964 increased as size of flock increased up to 9,999 but again followed no consistent pattern for flocks of 10,000 or more hens. For flocks up to 999 birds an increasing proportion of the flockowners reported that they cartoned eggs during 1964. The proportion of flockowners who delivered eggs door to door during 1964 increased as flock size increased to 999. For flocks of 1,000 or more hens, the proportion of flockowners delivering eggs door to

door did not follow a consistent pattern. In general, the proportion of flockowners who delivered eggs to retail stores increased as flock size increased to 9,999.

The sources of eggs handled by West Virginia egg handling firms vary from one type of firm to another (Table 4). The eggs handled by West Virginia producers come predominately from the producers' own flocks—88 per cent. However, producers also received some eggs from the following sources: from other producers, 8 per cent; from packers and processors, 3 per cent; from wholesalers, less than 1 per cent; and from other sources, 1 per cent. The largest portion (43 per cent) of the eggs handled by wholesalers were obtained from packers and processors; however, nearly as many (36 per cent) came from other wholesalers. Much smaller volumes came from producers (15 per cent) while the wholesalers' own flocks supplied 4 per cent and other sources supplied 3 per cent. Producers were the only source of eggs for packers and processors. Farmers' markets reported that all eggs handled by them came from producers. West Virginia farmers' markets serve for some producers as a type of dumping ground for surplus eggs; however, a total of six producers reported that farmers' markets served as a primary outlet for their eggs.

Figure 1 indicates the relative importance of the various outlets used by West Virginia egg producers during 1964. It shows that about 21 per cent of the eggs produced by farmers in West Virginia were sold to packers and processors, about 20 per cent to wholesalers, about 15 per cent direct to consumers, about 27 per cent to all retail stores, about 5 per cent to institutions, about 10 per cent through farmers' markets, and less than 2 per cent were sold through other outlets. This is in contrast to the distribution of sales by West Virginia egg producers in 1948: 28.9 per cent to wholesale firms, 21.9 per cent to consumers, 40.5 per cent to retail stores, 2.8 per cent to institutions, and 5.9 per cent to other outlets.²

Although Figure 1 and Table 5 are not directly comparable because all the respondents who answered the question regarding outlets used did not indicate the size of their flock, Table 5 indicates that the proportion of eggs sold to various outlets varies with the size of flock. Only 2.5 per cent of the total eggs produced by flocks with over 10,000 birds were sold directly to consumers

²O. C. Hester. *Egg Marketing Channels and Methods Used by Northeastern Producers*, p. 13.

TABLE 3
Per Cent of West Virginia Egg Producers Performing Various Marketing Functions

Flock Size	Functions Performed						
	Wash Eggs	Oil Eggs	Candle Eggs	Size Eggs	Carton Eggs	Deliver Door to Door	Deliver to Retail Stores
Over 20,000	75	50	75	75	50	0	50
10,000 to 19,999	38	50	38	38	38	13	25
5,000 to 9,999	95	11	95	90	79	58	74
2,500 to 4,999	85	5	80	90	80	40	60
1,000 to 2,499	96	0	67	89	78	59	63
500 to 999	89	0	62	77	81	81	54
200 to 499	74	0	28	51	69	51	46
Under 200	51	0	15	26	42	46	47
All Producers	72	4	46	57	62	49	56

TABLE 4
Egg Sources By Type of Market Agency in West Virginia, 1964

Major Business	Source of Eggs (Per Cent)					Total
	Own Birds	Other Producers	Wholesalers	Packers or Processors	Other Sources	
Producers	87.7	8.5	0.2	2.5	1.1	100.0
Wholesalers	3.9	15.0	35.7	42.7	2.7	100.0
Packers or Processors	0.0	99.5	0.0	0.5	0.0	100.0
Farmers' Markets	0.0	100.0	0.0	0.0	0.0	100.0
Total	51.4	24.9	9.6	12.8	1.3	100.0

and only 3.6 per cent of their total production was sold through farmers' markets. Larger shares were sold to retail stores, 20 per cent; wholesalers, 16.3 per cent; and institutions, 14.1 per cent. Nearly half the eggs produced by flocks with 10,000 or more birds (43.5 per cent) were sold to packers and processors. Of the eggs produced by flocks with 5,000 to 9,999 birds, 19.4 per cent were sold directly to consumers. Retail stores received 37.8 per cent of the eggs from these flocks, while wholesalers received 11.2 per cent and institutions 22.2 per cent. Packers and processors purchased only 1.5 per cent of the eggs produced by flocks with 5,000 to 9,999 birds, while 7.9 per cent of the eggs from these flocks were sold through farmers' markets. Of the eggs produced by flocks containing 2,500 to 4,999 hens, the sales were as follows: 28.3 per cent directly to consumers; 27.5 per cent to retail stores; 25.3 per cent to wholesalers; 5.1 per cent to institutions; 3.1 per cent through farmers' markets; and 10.7 per cent through other outlets. Over three-fourths of the eggs produced by flocks of 1,000 to 2,499 hens were sold directly to consumers, 42.8 per cent, and retail stores, 35.6 per cent. No other outlet received as much as 8 per cent of the eggs produced by this group of flocks. Nearly 55 per cent of the eggs produced by flocks with 500 to 999 hens were

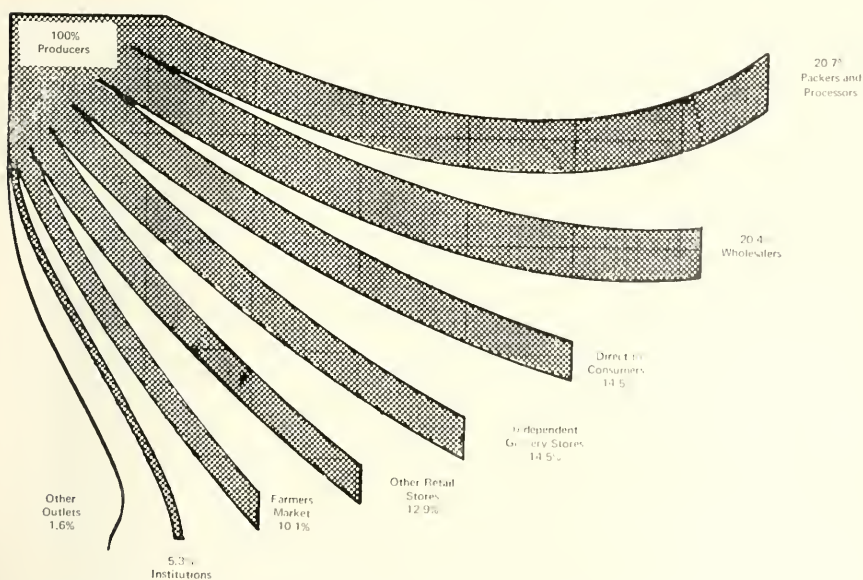


Figure 1. Disposition of eggs by West Virginia producers and marketing outlets for eggs produced in the State, 1964.

TABLE 5
Volume and Per Cent of Eggs Marketed by West Virginia Egg Producers,
by Marketing Agency and by Size of Flock, 1964

Flock Size (Range)	Direct to Consumers	Retail Stores	Whole- salers	Insti- tutions	Packers or Processors	Farmers' Markets	Other Outlets	Total	<i>Decens/Per Cent</i>	
Over 10,000	121,750 2.5	986,400 20.0	805,293 16.3	692,648 14.1	2,144,500 43.5	178,480 3.6	0 0.0	4,929,971 100.0		
5,000 to 9,999	445,748 19.4	867,792 37.8	257,950 11.2	506,388 22.2	33,250 1.5	181,820 7.9	0 0.0	2,292,948 100.0		
2,500 to 4,999	309,922 28.3	301,104 27.5	277,552 25.3	56,171 5.1	0 0.0	34,290 3.1	117,238 10.7	1,096,177 100.0		
1,000 to 2,499	264,656 42.8	220,686 35.6	47,286 7.6	44,075 7.1	0 0.0	15,500 2.5	27,100 4.4	619,303 100.0		
500 to 999	134,072 54.9	55,403 22.7	14,090 5.8	13,430 3.5	0 0.0	25,209 10.3	2,120 .8	244,321 100.0		
200 to 499	102,122 55.1	52,591 28.4	1,900 1.0	12,152 6.5	0 0.0	300 .10	16,633 8.9	185,398 100.0		
Under 200	41,002 45.7	25,398 28.5	0 0.0	4,980 5.6	1,754 1.9	5,700 6.4	10,660 11.9	89,694 100.0		
All Flocks	1,419,272 15.0	2,509,474 26.5	1,404,471 14.8	1,329,844 14.1	2,179,504 23.1	440,999 4.7	173,751 1.8	9,456,915 100.0		

sold directly to consumers and 22.7 per cent were sold to retail stores. Of the eggs produced by these flocks, 10.3 per cent were sold through farmers' markets. No other outlet received as much as 6 per cent of the eggs produced by flocks of 500 to 999 birds. The eggs produced by flocks with 200 to 499 hens were sold as follows: 55.1 per cent directly to consumers, 28.4 per cent to retail stores, 8.9 per cent through other outlets, 6.5 per cent to institutions, and 1 per cent or less to wholesalers and farmers' markets. Eggs from flocks with under 200 birds were sold to the following outlets: 45.7 per cent directly to consumers, 28.5 per cent to retail stores, 5.6 per cent to institutions, 1.9 per cent to packers or processors, 6.4 per cent through farmers' markets, and 11.9 per cent through other outlets.

Of West Virginia egg producers, 55.5 per cent sold eggs directly to homes in 1964; however, only 38.3 per cent of the producers used this sales channel as their primary outlet, and only 12.7 per cent of producers' egg sales were made directly to homes (Table 6). Tables 5 and 6 are not directly comparable since all respondents failed to answer some questions. Independent grocery stores were used as an egg marketing outlet by 45.9 per cent of West Virginia egg producers in 1964, but only 22.0 per cent of the producers

TABLE 6
Marketing Outlets For Eggs Produced
in West Virginia, 1964

Outlet	Producers Using*	Producers Using as a Primary Outlet	Eggs Sold
		<i>Per Cent</i>	
Direct to Homes	55.5	38.3	12.7
Sold to Consumers at Farm	25.5	5.3	1.8
Producers' Stores	5.5	1.9	1.0
National Chain Stores	0.9	0.0	2.1
Regional Chain Stores	2.3	0.0	0.5
Local Chain Stores	8.6	2.1	8.9
Independent Grocery Stores	45.9	22.0	11.5
Wholesalers or Jobbers	10.5	8.1	20.1
Institutions	21.8	6.7	5.1
Packers or Processors	2.7	2.1	20.7
Hatcheries	5.9	1.8	0.1
Farmers' Markets	7.7	2.9	10.1
Other Outlets	1.5	2.9	1.2
Total	—	100.0	100.0

*Adds to more than 100 per cent because some producers used more than one outlet.

used this outlet as a primary outlet, and only 14.5 per cent of the total volume of eggs were sold to independent grocery stores. Other outlets which were used by a sizable proportion of producers were: institutions, 21.8 per cent, and sales to consumers at the farm, 25.5 per cent. These outlets were relatively unimportant in terms of volume of eggs sold through each, 5.4 per cent and 1.8 per cent, respectively. Only 2.7 per cent of the producers in the sample sold eggs to packers or processors, with 2.4 per cent using this as a primary outlet; but 20.7 per cent of the total egg sales were made to these firms. Of the total volume of eggs produced, 20.4 per cent were sold to wholesale firms, but only 10.5 per cent of the producers reported sales to wholesalers, and only 8.1 per cent reported using wholesale firms as a primary outlet for their eggs. Seven and seven-tenths per cent of West Virginia producers reported the sale of 10.1 per cent of the total volume of eggs to farmers' markets.

Of the eggs handled by West Virginia wholesalers in 1964, 31.4 per cent were sold to independent grocery stores, 43.3 per cent to other retail stores, and lesser volumes to institutions, other wholesalers, direct to consumers, and packers or processors (Table

TABLE 7
Disposition of Eggs of West Virginia Egg Handlers
by Major Business and Type of Outlet,
West Virginia, 1964

Type of Outlet	Major Business			
	Producers	Wholesalers	Packers or Processors	Farmers' Markets
	<i>Per Cent</i>			
Direct to Consumers	15.1	1.0	0.0	2.0
Independent Grocery Stores	15.4	31.4	41.3	12.0
Other Retail Stores	13.7	43.3	0.0	0.0
Institutions	5.6	12.3	15.2	6.1
Farmers' Markets	5.0	0.0	0.0	0.0
Wholesalers	21.7	10.1	39.0	77.9
Packers or Processors	21.9	1.9	0.0	2.0
Other Outlets	1.3	0.0	4.5	0.0
Total	100.0	100.0	100.0	100.0

7). Of the eggs handled by packers and processors, 41.3 per cent were sold to independent grocery stores, 39.0 per cent were sold to wholesalers, 15.2 per cent were sold to institutions, and a very small amount were sold to other outlets. The major portion, 77.9 per cent, of the eggs handled by farmers' markets were sold to wholesalers, with smaller portions being sold direct to consumers, to independent grocery stores, to institutions, and to packers or processors.

Figure 2 is based upon information and evidence gained from the mail survey, secondary information, and conversations with various people including retail store managers, wholesalers, agricultural extension specialists, and West Virginia Department of Agriculture personnel. In one sense it is a "hypothesized" flow chart based on the information available, but without figures. It should serve as an aid in further egg marketing research in that it indicates channels of the egg market which might be studied. There are undoubtedly other egg marketing channels used by West Virginia egg handlers, but these are probably insignificant in terms of the volume of eggs routed through each.

Figure 3 shows the best estimates available regarding the flow of eggs to West Virginia consumers. Estimates of volumes of eggs flowing through each channel were derived from data obtained by the mail survey. Data obtained in the mail survey were expanded to equal total West Virginia production in 1964. Figure 3

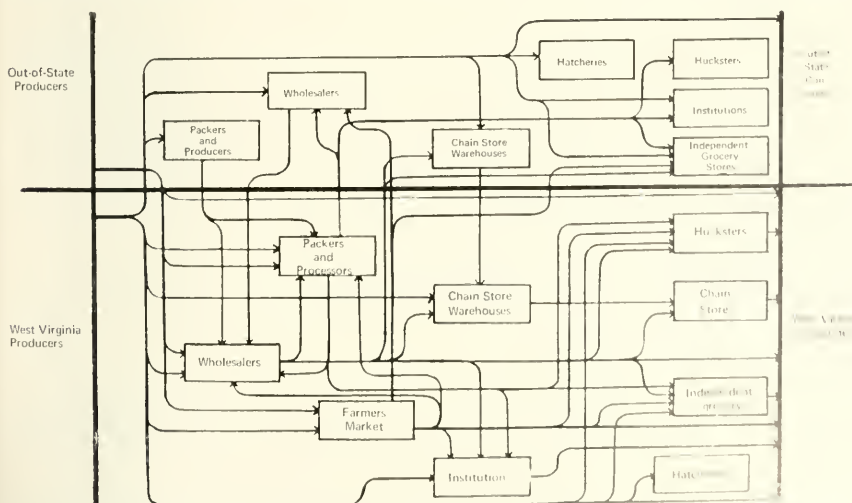


Figure 2. Hypothetical flow chart for West Virginia eggs

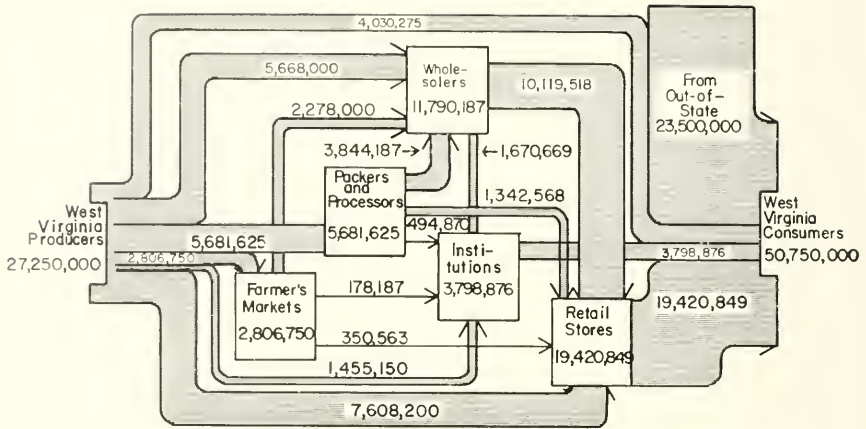


Figure 3. Major channels of egg movement in West Virginia, 1964. (All figures represent dozens of eggs.)

is not as detailed as Figure 2 because of limitations imposed by the available data. Only major channels of egg marketing are given in Figure 3, but there are many other channels which were used during 1964. These other channels, however, were of very minor importance in terms of the number of eggs flowing through each. Total consumption is based upon the derived per-capita consumption for West Virginia and the United States Department of Commerce provisional estimate of West Virginia population as of July 1, 1964. Limited data were obtained concerning the movement of eggs into West Virginia by out-of-state handlers. As a result, no attempt was made to allocate out-of-state eggs to any intermediate handlers; however, conversations with chain-store personnel indicated that the major part of the eggs coming into West Virginia from out of state are being shipped in by chain food stores, especially national and regional chain stores which buy very few West Virginia eggs.

AN ESTIMATE OF PER-CAPITA EGG CONSUMPTION

Egg consumption data are not available for individual states on any continuous basis. Estimates of egg production, storage, and net exports, however, provide data from which the United States Department of Agriculture estimates per-capita consumption for the United States. These per-capita consumption estimates since

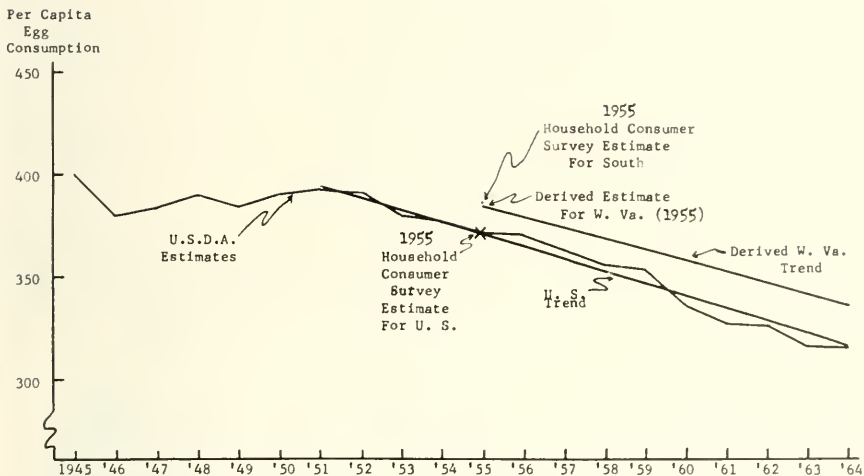


Figure 4. United States per capita egg consumption and estimated West Virginia per capita consumption. (Compiled from The Poultry and Egg Situation, USDA-ERS Bull. PES-239, Nov. 1963 and derived estimate for W. Va.)

1945 are plotted in Figure 4 and are given in Appendix C. They indicate that the United States per-capita consumption since 1951 can be represented reasonably well by a straight line trend which declines by about 5.6 eggs per year.

It is unlikely that per-capita consumption for any particular state or region would exactly equal the average for the United States. Therefore, an estimate of West Virginia per-capita egg consumption was derived. The procedure for this estimate is given in Appendix D.

West Virginia pre-capita consumption was estimated to be 334 eggs in 1964, or 6.4 per cent above the United States average of 314.

From the estimated per-capita consumption and 1964 population estimates³ by counties, the total consumption by counties was estimated. These egg consumption estimates by counties are shown in Figure 5. Unpublished data supplied by the Federal-State Cooperative Crop Reporting Service were used to plot 1964 egg production by counties in Figure 6. These unpublished data are given in Appendix D. The difference between consumption and production gives the deficit or surplus by counties. The location of surplus and deficit counties is shown in Figure 7. Only 13 counties in West Virginia had an egg production surplus during

³Leonard M. Sizer, *Provisional Estimates of the Population of West Virginia Counties*, July 1, 1964. West Virginia University Agricultural Experiment Station Current Report 44, September, 1965.

1964, while in eight counties production approximately equaled consumption and the remaining 34 counties had an egg production deficit. In general, the most heavily populated counties in the State had the largest egg production deficits. At the same time, the counties where production nearly equaled consumption or where there was an egg production surplus, were counties which were predominantly rural.

In Kanawha County, an additional 364,000 laying hens would have been needed to meet the estimated demand for eggs in 1964. For the entire State, an additional 1,328,571 hens would have been required to meet the estimated demand for eggs in 1964.

THE COMPETITIVE POSITION OF THE WEST VIRGINIA EGG INDUSTRY AS INDICATED BY TRENDS & PROJECTIONS OF SELECTED FACTORS

In order to show the past trends and to predict future trends, data concerning various aspects of the West Virginia egg industry were collected and analyzed. Comparisons were made with corresponding United States data. These data are given in Appendix D. Techniques used in fitting trend and projection lines to these data were $Y = a + bX$ (linear regression), $Y = a + bX + cX^2 + dX^3$ (curvilinear regression), and $Y = aX^b$ (exponential regression). In all cases, trend and projection lines were based on eleven years data, 1954 through 1964; however, in some cases where three-year cycles appeared evident, trends and projections were based upon three-year moving averages of the actual data and 13 years data were used. The period 1954 through 1964 was chosen because (1) egg production and the number of layers on West Virginia farms peaked and started to decline during the early 1950's and (2) because of the limited availability of some data prior to 1954.

The reader is cautioned about the predicted or projected levels of the various factors. These results were based on past data and a least squares trend analysis. Many factors can and may cause these projections to be completely false.

LAYERS ON FARMS

The average number of layers on West Virginia farms has declined sharply in recent years while the number of layers on all

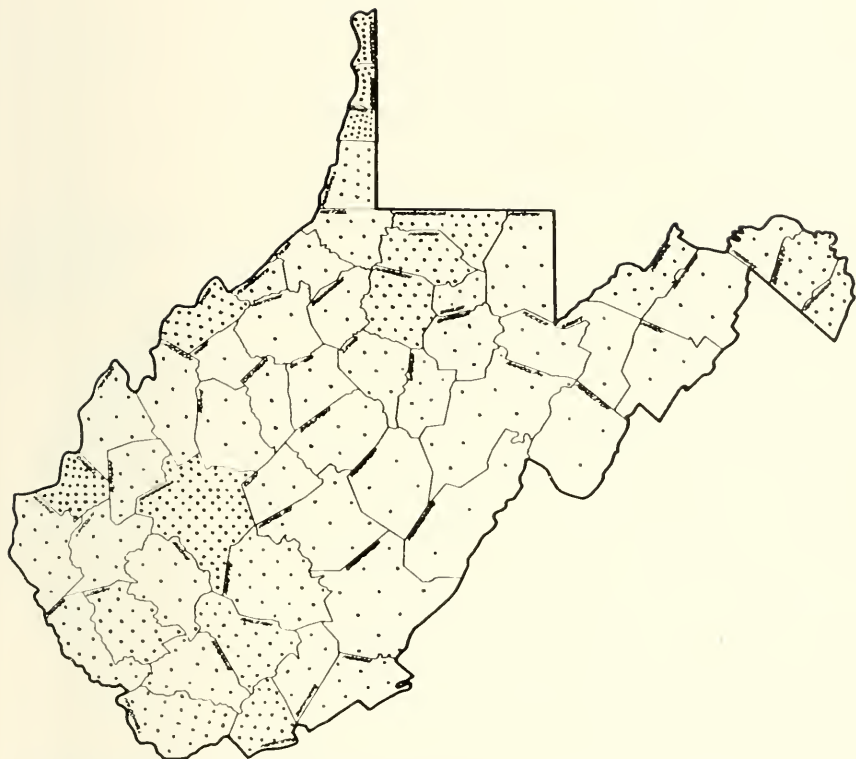


Figure 5. West Virginia egg consumption, 1964. One dot represents 1,000,000 eggs — total consumption for 1964 equals 609,000,000. (Compiled from provisional estimates of population by counties and derived West Virginia per capita egg consumption.)

United States farms has decreased only slightly (Figure 8). The number of layers on West Virginia farms decreased by 33.5 per cent between 1954 and 1964 while the corresponding decline for the United States was only 6.4 per cent. Extrapolation of linear trends indicates that the number of layers on West Virginia farms will decline from 2,330,000 in 1954 to 1,158,000 by 1969 and layers on United States farms will decline from 312 260,000 in 1954 to 283,973,000 in 1969. The 9.0 per cent confidence interval for the number of layers on West Virginia farms in 1969 is $\pm 188,074$ layers or 16.2 of the projected 1969 total. The 90 per cent confidence interval for the number of layers on United States farms is $\pm 6,157,296$ or 2.2 per cent of the projected 1969 total. Linear projections indicate that if the past trends continue, the number of layers in West Virginia will have decreased by more than 50 per

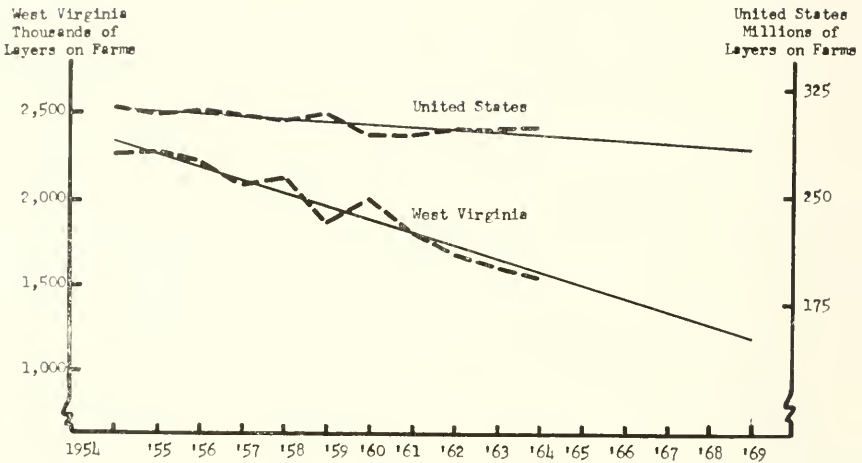


Figure 8. Layers on farms, West Virginia and United States, 1954-64 with trends and projections, 1954-69. (Compiled from West Virginia Agricultural Statistics 1962 and 1964, C. R. Bull. Nos. 4 and 6, data supplied by W. Va. Dept. of Agr., Egg and Poultry Statistics Through Mid-1961, USDA-ERS Statistical Bull. No. 305 and Crop Production, USDA-SRS, CrPr 2-2, monthly 1961-64.)

would be at 209 eggs per bird in 1969, rather than the estimated number of 230.

EGG PRODUCTION

Total United States egg production is projected to increase to 66.5 billion eggs in 1969 from 59.3 billion eggs in 1954, an increase of over 8 per cent (Figure 10). At the same time, a linear projection of egg production in West Virginia suggests a decline to 292 million eggs in 1969 from 397 million eggs in 1954, a decrease of over 26 per cent. The 90 per cent confidence interval for United States egg production is $\pm 1,336,801,023$ eggs or 2.0 per cent of the estimated 1969 total. The 90 per cent confidence interval for West Virginia egg production in 1969 is $\pm 4,979,768$ eggs or 1.7 per cent of the estimated total.

Egg production decreased by 18.6 per cent in West Virginia between 1954 and 1964 while egg production in the United States increased by 8.1 per cent. If the estimates are realized, West Virginia's egg production will have declined by over 26 per cent while egg production in the United States will have increased by over 12 per cent between 1954 and 1969. If West Virginia egg production

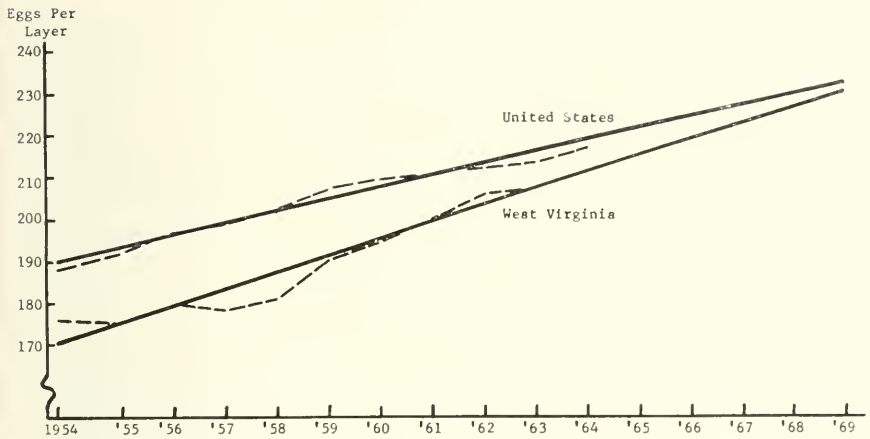


Figure 9. Eggs per layer. West Virginia and United States, 1954-64 with trends and projections, 1954-69. (Compiled from West Virginia Poultry Statistics, Federal-State Crop Reporting Service, C. R. Bull. No. 2, 1959, Crop Production, USDA-SRS, CrPr 2-2, monthly, 1959-64, and Egg and Poultry Statistics Through Mid-1961, USDA-ERS, Statistical Bull. No. 305.)

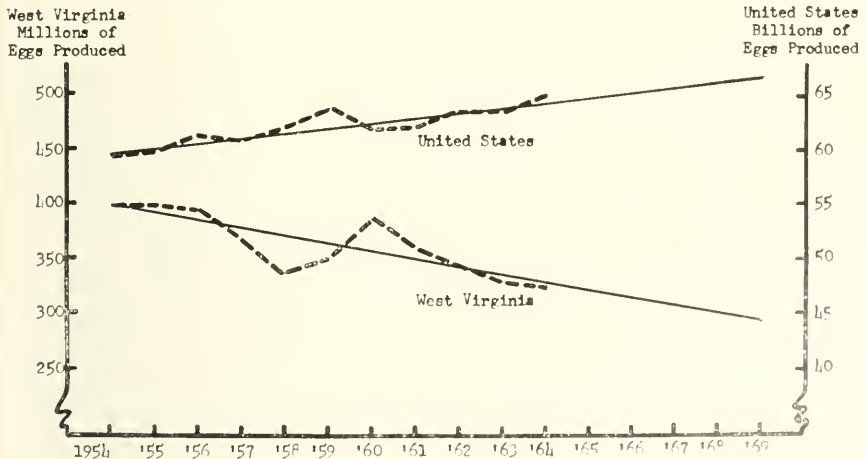


Figure 10. Egg production, West Virginia and United States, 1954-64 with trends and projections, 1954-69. (Compiled from West Virginia Poultry Statistics, Federal-State Crop Reporting Service, C. R. Bull. No. 2, 1959, Egg and Poultry Statistics Through Mid-1961, USDA-ERS, Statistical Bull. No. 305, and Crop Production, monthly, 1959-64.)

had changed at the United States rate between 1954 and 1964, egg production in 1964 would have been 429 million instead of 327 million.

GROSS INCOME FROM EGGS

Gross income from eggs has had a downward trend since 1954 in both West Virginia and the United States; however, West Virginia gross income from eggs during this period decreased by 25.7 per cent while United States gross income from eggs decreased by only 9.9 per cent (Figure 11). Projections based on three-year moving averages of gross income suggest that the downward trend in gross income from eggs will continue and, in 1969, West Virginia gross income from eggs will have declined to an estimated level of \$8.7 million from \$14.2 million in 1954, while United States gross income will have declined to an estimated level of \$1.7 billion from \$2.0 billion in 1954. Ninety per cent confidence intervals for the 1969 projections are \pm \$1,085,092 for West Virginia, or 12.4 per cent of the estimated total, and \pm \$25,635,117 for the United States, or 1.5 per cent of the estimated total.

If West Virginia gross income from eggs had declined at the United States rate between 1954 and 1964, gross income in 1964 would have been \$12.8 million rather than \$10.5 million.

FARM PRICE OF EGGS

The farm price of eggs in West Virginia has been consistently above the United States average farm price (Figure 12). During the period 1960-1964, West Virginia's farm price of eggs averaged 5.6 cents per dozen above the United States average. From 1954 to 1964 the farm price of eggs in West Virginia declined by about 13 per cent while United States price declined by about 18 per cent. Projections indicate that the past downward trends will continue through 1969. Projections based on three-year moving averages indicate that egg prices will be 35.6 cents per dozen in West Virginia and 28.8 cents per dozen in the United States during 1969.

If West Virginia's egg price had declined at the United States rate between 1954 and 1964, West Virginia's average price in 1964 would have been 36.5 cents per dozen instead of the computed 38.5 per dozen.

LAYING MASH PRICE

Linear projections based on data for the last eleven years appear unreasonable both in terms of the projected level of feed prices in 1969 and the spread between the projected United States price and the projected West Virginia price (Figure 13-A). Third

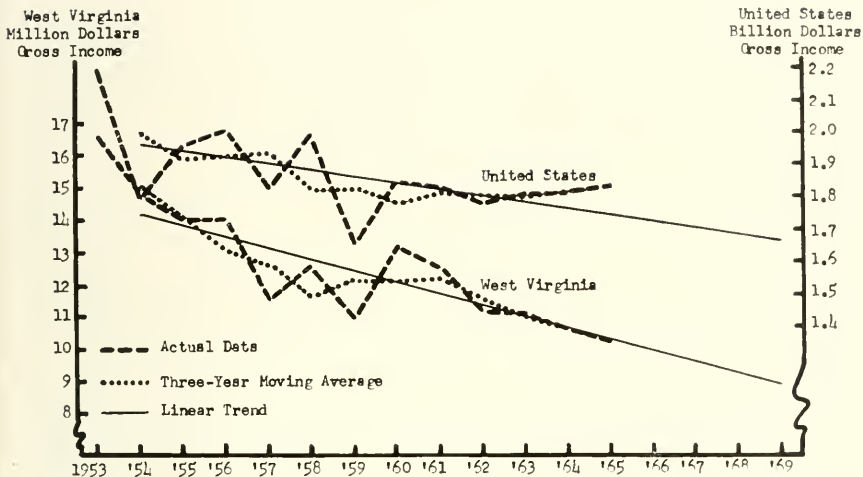


Figure 11. Gross income from eggs, West Virginia and United States, 1953-64 with trends and projections, 1954-69. (Compiled from Chickens and Eggs, Farm Production Disposition, Cash Receipts, and Gross Income, USDA-SRS Bull. Pou 2-3, June 1956, June 1961, April 1962, April 1964, and April 1965.)

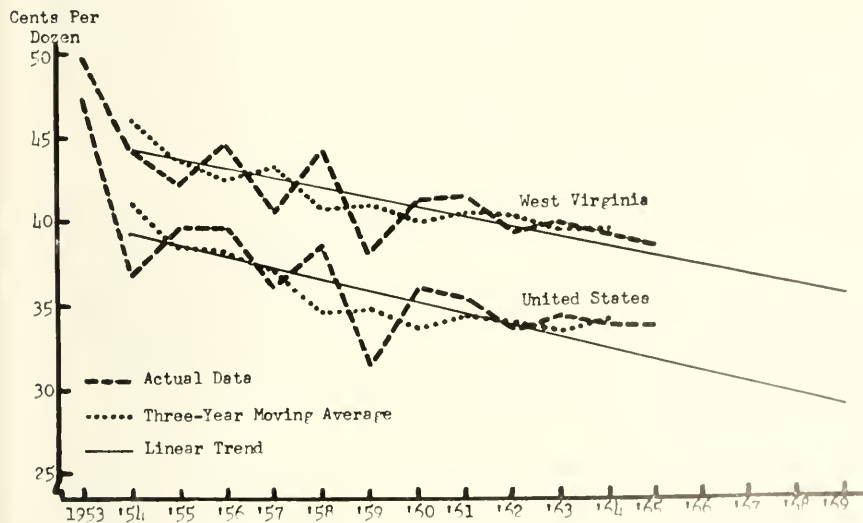


Figure 12. Farm Price of Eggs, West Virginia and United States, 1953-64 with trends and projections, 1954-69. (Compiled from Egg and Poultry Statistics Through Mid-1961, USDA-ERS Bull. No. 305, West Virginia Agricultural Statistics 1964, West Virginia Department of Agriculture Bull. C. R. No. 4 and Agricultural Prices, USDA-SRS Bull. Pr. 1, monthly, 1961-64.)

degree polynomial projections also appeared unreasonable in terms of projected levels of prices and the spread between projected United States and West Virginia prices in 1969 (Figure 13-B.) Other levels of polynomial equations gave even more unreasonable results for projection purposes. Because of the apparent unreasonableness of other projects, an exponential function was fitted to laying mash price data. This function gave projection results which were thought to be more nearly what could be expected to occur (Figure 13-C). The actual price of all laying mash in West Virginia averaged \$.22 per hundredweight above the United States average during the period 1954-1964. Projections indicate that West Virginia egg producers will face this higher average through 1969. Laying mash prices have trended downward since 1954 in both West Virginia and the United States, but exponential trend lines indicate that United States laying mash prices have declined at a more rapid rate than have West Virginia prices. Between 1954 and 1964, laying mash prices in West Virginia decreased by slightly over 5 per cent while laying mash prices in the United States decreased by almost 8 per cent. Exponential estimates indicate that the price of laying mash will be \$4.57 per hundredweight in West Virginia during 1969. Ninety per cent confidence intervals are \pm \$.37 or 8.1 per cent of the estimated price of West Virginia and \pm \$.42 or 9.8 per cent of the estimated price for the United States.

EGG-FEED PRICE RATIO

The egg-feed price ratio,* an indicator of the profitability of producing eggs, has averaged nearly 0.8 of a point, or more than 9 per cent higher, for West Virginia over the period 1954-1964 than for the United States (Figure 14). Projections, based on three-year moving averages of West Virginia and United States egg-feed price ratios, indicate that West Virginia will continue to hold a decided advantage over the United States in the egg-feed price ratio for the next five-year period. The egg-feed price ratio is projected to be 7.86 in West Virginia and 7.15 in the United States in 1969. Ninety per cent confidence intervals for the 1969 estimates are \pm 0.28 for West Virginia and \pm 0.25 for the United States.

West Virginia's egg-feed price ratio has declined at a slightly slower rate since 1954 than has the United States egg-feed price

*See Appendix A for glossary of terms.

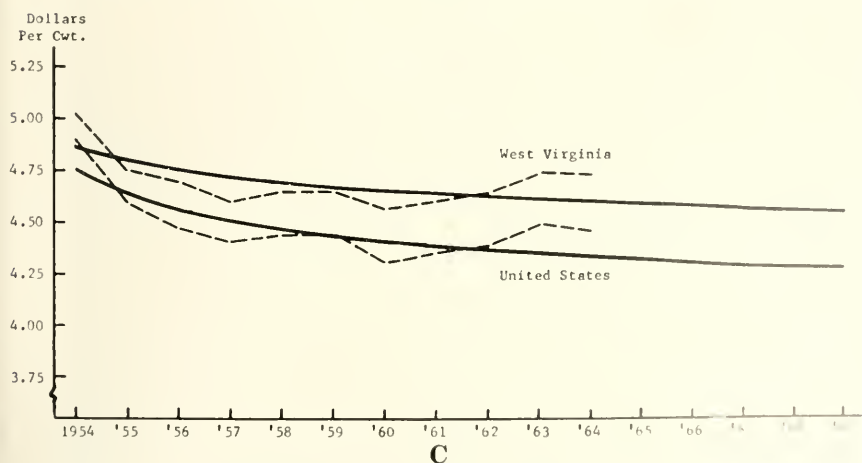
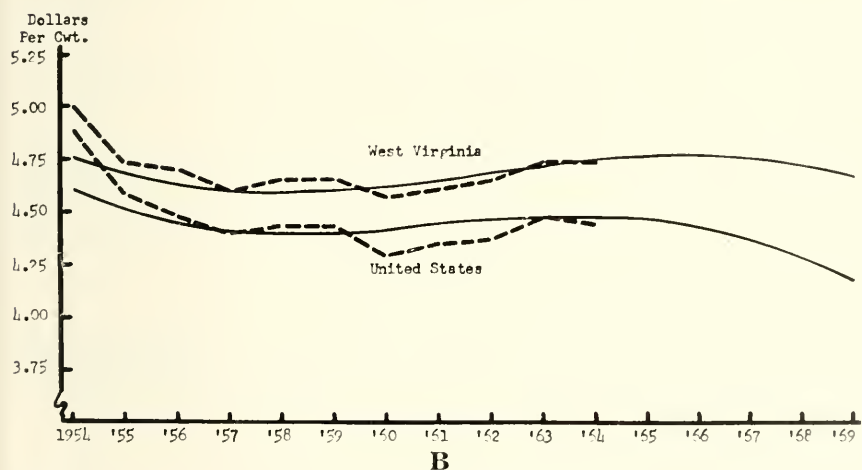
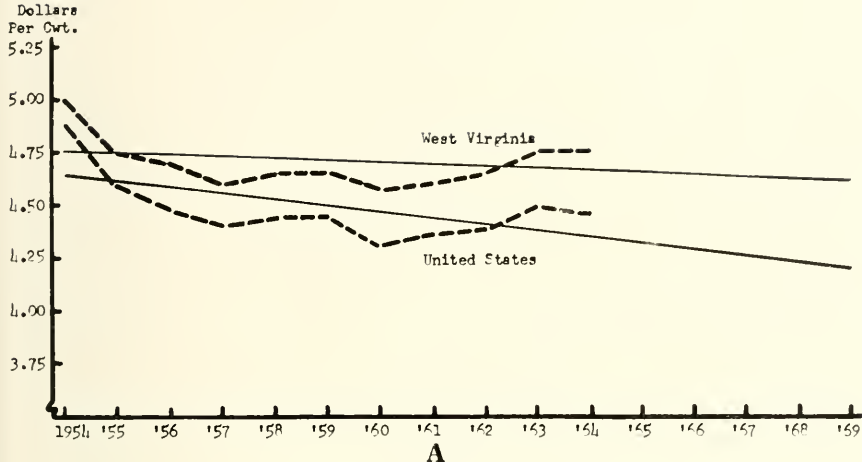


Figure 13. Laying mash price per cwt., West Virginia and United States, 1954-64, with trends and projections, 1954-69. (Compiled from Egg and Poultry Statistics Through Mid-1961, USDA-ERS Bull. No. 305, West Virginia Poultry Statistics, West Virginia Federal-State Crop Reporting Service, Bull. No. 2, and Agricultural Prices, USDA-SRS Bull. Pr. 1, monthly.)

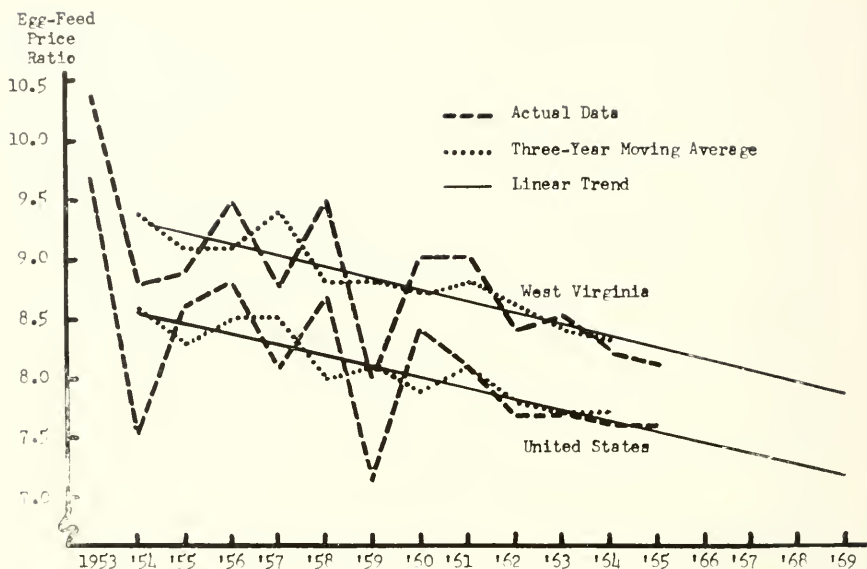


Figure 14. Egg-feed price ratio, West Virginia and United States, 1953-64 with trends and projections, 1954-69. (Calculated by dividing the farm price of eggs by feed cost per pound.)

ratio. During the 1954 through 1964 period, West Virginia's egg-feed price ratio declined by slightly over 10 per cent while the United States egg-feed price ratio declined by over 11 per cent.

APPENDIX

APPENDIX A

GLOSSARY OF TERMS

Confidence Interval: The area within which a predicted point will lie with a predetermined level of risk.

Egg-Feed Price Ratio: The farm price of eggs per dozen divided by the cost of feed per pound.

Egg Producer: An individual or firm who keeps laying hens for the primary purpose of producing eggs.

Farmers' Market: A market which is supported and supervised by the West Virginia Department of Agriculture.

Flock: All birds of laying age on a farm.

Institutions: Includes hotels, restaurants, state prisons, and state hospitals.

Primary Outlet: The principal agency to which a producer sells his eggs.

Retail Store: A firm that sells eggs to consumers in small lots.

Wholesaler: An individual or firm that assembles eggs, primarily from producers, and sells eggs to retail stores. A wholesaler may or may not perform some processing functions.

APPENDIX B

APPENDIX TABLE 1

Number of Layers on Farms, Eggs per Layer, and Egg Production by Counties, West Virginia, 1964*

County	Number of Hens and Pullets Of Laying Age**	Eggs Per Layer	Total Egg Production
Barbour	12,800	201	2,570,000
Berkeley	36,700	188	6,900,000
Boone	2,600	204	530,000
Braxton	19,200	209	4,020,000
Brooke	4,800	190	910,000
Cabell	27,600	216	5,950,000
Calhoun	12,600	198	2,490,000
Clay	22,900	205	4,690,000
Doddridge	11,200	223	2,500,000
Fayette	39,000	208	8,100,000
Gilmer ¹	8,600	195	1,680,000
Grant	12,300	187	2,300,000
Greenbrier	111,400	238	26,460,000
Hampshire	30,100	210	6,310,000
Hancock	4,100	193	790,000
Hardy ¹	103,100	223	23,010,000
Harrison	66,000	230	15,180,000
Jackson	61,800	214	13,200,000
Jefferson	45,300	176	7,966,000
Kanawha ¹	35,000	213	7,440,000
Lewis ¹	18,800	194	3,650,000
Lincoln	19,400	176	3,410,000
Logan	4,400	211	930,000
McDowell ¹	5,700	181	1,030,000
Marion	16,300	211	3,440,000
Marshall	19,000	222	4,220,000
Mason	60,800	199	12,070,000
Mercer	41,200	208	8,550,000
Mineral	49,900	205	10,210,000
Mingo	3,900	195	760,000
Monongalia	41,600	228	9,490,000
Monroe	47,400	209	9,890,000
Morgan	12,300	202	2,480,000
Nicholas	27,800	223	6,190,000
Ohio	9,900	191	1,890,000
Pendleton	43,300	189	8,190,000
Pleasants	3,000	183	550,000
Pocahontas	17,700	185	3,270,000
Preston	52,500	212	11,130,000
Putnam	58,100	214	12,410,000
Raleigh	58,800	234	13,740,000
Randolph	17,700	212	3,750,000
Ritchie	9,300	194	1,800,000
Roane	30,700	226	6,930,000
Summers	30,100	180	5,410,000
Taylor	14,000	214	3,000,000
Tucker	8,700	211	1,860,000
Tyler	7,600	207	1,570,000
Upshur	39,200	213	8,350,000
Wayne	22,700	196	4,460,000
Webster	13,700	185	2,510,000
Wetzel ¹	7,300	214	1,560,000
Wirt	8,500	211	1,790,000
Wood	67,600	213	14,400,000
Wyoming	19,000	177	3,360,000
Total	1,555,000	210	327,650,000

*Source: Unpublished data supplied by Federal-State Cooperative Disease Control Service.

**Average number on farm during the year.

¹Denotes counties not in the mail survey sample.

APPENDIX C

APPENDIX TABLE 2

United States Per-Capita Egg Consumption 1945-1964*

Year	Per-Capita Consumption	Year	Per-Capita Consumption
1945	403	1955	371
1946	379	1956	369
1947	383	1957	362
1948	389	1958	354
1949	383	1959	352
1950	389	1960	334
1951	393	1961	326
1952	390	1962	323
1953	379	1963	315
1954	376	1964	314

*Source: *The Poultry and Egg Situation*, USDA, Economic Research Service Bulletin PES-239, November, 1963.

APPENDIX D

Procedure for An Estimate of West Virginia Per Capita Egg Consumption

The 1955 Household Food Consumption Survey¹ conducted by the United States Department of Agriculture included information on egg consumption. For the Southern Region, in which West Virginia was included, the Northeast, and the United States, the weekly average family egg consumption reported by this survey was divided by the number of persons per family and converted to an annual basis. This gave per-capita egg consumption estimates of 385 in the South, 362 in the Northeast, and 371 in the United States. The United States estimate of 371 eggs per-capita exactly coincides with the United States Department of Agriculture estimates in 1955.

The 1955 Household Consumer Survey included egg consumption data for rural and urban people. Calculations revealed that rural people consume eggs at a much higher rate than do urban people. This is probably due to the maintenance of farm flocks by many rural families and the consequent availability of eggs in rural homes. Since a larger proportion of West Virginia's population is classified rural in comparison with the South, the North-

¹ United States Department of Agriculture, *Household Food Consumption Survey*, Washington, D. C., 1956, Reports 1, 2, and 4.

east, and the United States, an adjustment was made to take this factor into account. The more rapid rate of decline in rural population in the United States as compared to West Virginia was also considered.

The 1955 Household Consumer Survey included egg consumption data by level of family and per-capita income; however, differences in per-capita consumption were slight among the various income levels. Also, per-capita egg consumption in the United States has been declining since 1951 while per-capita incomes have been rising; therefore, it seemed illogical to base a trend in per-capita consumption on changing income.

Estimates of rural population are not available except for census years, but estimates for 1955 were derived by assuming that the proportion of rural population in the total population decreased by the same amount each year between 1950 and 1960. Estimates of the proportion of rural people in the total population in 1955 were: the Northeast, 20.2 per cent; the United States, 33.0 per cent; the South, 46.5 per cent; and West Virginia, 63.4 per cent.

The 1955 Household Consumer Survey indicated that rural people in the Northeast consumed an average of 383 eggs per-capita while urban people consumed an average of 357 eggs per-capita, and all people in the Northeast consumed 362 eggs per-capita. In the South the per-capita egg consumption figures were 407 for rural people, 366 for urban people, and 385 for all people. The United States average per-capita figures were 406 for rural people, 354 for urban people, and 371 for all people. The assumption was made that the average of the South's and Northeast's rate of egg consumption for rural people would approximate West Virginia's per-capita egg consumption for rural people. The same assumption was made regarding the urban sector. This led to an estimate of 395 eggs per-capita for rural West Virginians and 362 eggs per-capita for urban West Virginians in 1955. Multiplying these figures by the proportion of West Virginia's population in the rural and urban categories gave an estimate of 383 eggs per-capita for West Virginia in 1955 (Figure 4).

Census data indicate that West Virginia's rural population has not declined as rapidly as the United States rural population. Between 1950 and 1960, West Virginia rural population as a per cent of total population declined from 65.4 per cent to 61.8 per cent, while the United States rural population declined from

36.0 per cent to 30.1 per cent. Because of this slower rural population decline in West Virginia, the assumption was made that the per-capita egg consumption decline in the United States has occurred at a somewhat more rapid rate than in West Virginia. On the assumption that the 1950 to 1960 rate of rural population decline held constant through 1964 in West Virginia, it was estimated that in 1964 60.4 per cent of the State's population was rural. With an already low proportion of rural population in 1960, the United States rural population decline problem slowed after 1960 so that in 1964 it was estimated that rural people made up about 29.5 per cent of the total population.

United States per-capita egg consumption dropped from 371 in 1955 to 314 in 1964 while the proportion of rural residents in the population dropped by 3.5 per cent. By proportions, it was estimated that with a 3.0 per cent decline in the proportion of rural people in West Virginia, per-capita egg consumption in West Virginia declined by about 49 eggs, from 383 eggs per-capita in 1955 to 334 eggs per-capita in 1964. This estimate is 6.4 per cent above the United States average.

Several other methods of estimating West Virginia per-capita egg consumption were attempted. Multiple linear regression appeared to be a feasible method of predicting egg consumption for the United States. However, an estimate of per-capita consumption for West Virginia could not be obtained due to the lack of data for such variables as the price and consumption of bacon, the price and consumption of cereal products, and the consumer price index. All of these variables appeared promising as indicators of per-capita egg consumption.

APPENDIX E

APPENDIX TABLE 3

Number of Layers on Farms, United States and West Virginia, 1954-1964*

Year	United States	West Virginia
1954	314,153,000	2,260,000
1955	309,297,000	2,269,000
1956	310,672,000	2,203,000
1957	306,676,000	2,073,000
1958	304,441,000	2,107,000
1959	305,720,000	1,841,000
1960	294,168,000	1,987,000
1961	293,786,000	1,802,000
1962	297,773,000	1,661,000
1963	297,008,000	1,591,000
1964	297,447,000	1,555,000

*Source: *West Virginia Agricultural Statistics*, 1962 and 1964, West Virginia Department of Agriculture; unpublished data supplied by West Virginia Department of Agriculture; *Egg and Poultry Statistics Through Mid-1961*, USDA-Economic Research Service; *Crop Production*, USDA-Economic Research Service.

APPENDIX E

APPENDIX TABLE 4

Egg Production Per Layer United States and West Virginia, 1954-1964*

Year	United States	West Virginia
1954	188	176
1955	192	175
1956	196	179
1957	198	178
1958	202	181
1959	207	190
1960	209	194
1961	211	199
1962	212	206
1963	213	207
1964	217	210

*Source: *West Virginia Poultry Statistics*, USDA, Statistical Reporting Service, and *Egg and Poultry Statistics Through Mid-1961*.

APPENDIX E
APPENDIX TABLE 5
Egg Production
United States and West Virginia, 1954-1964*

Year	United States	West Virginia
1954	58,933,000,000	398,000,000
1955	59,196,000,000	398,000,000
1956	60,877,000,000	394,000,000
1957	60,448,000,000	368,000,000
1958	61,607,000,000	337,000,000
1959	63,335,000,000	349,000,000
1960	61,377,000,000	385,000,000
1961	61,828,000,000	359,000,000
1962	63,144,000,000	342,000,000
1963	63,210,000,000	329,000,000
1964	64,609,000,000	327,000,000

*Source: *West Virginia Poultry Statistics*, USDA, Statistical Reporting Service, and *Egg and Poultry Statistics Through Mid-1961*.

APPENDIX E
APPENDIX TABLE 6
Gross Income From Eggs
United States and West Virginia
Actual and Three-Year Moving Average, 1953-1965*

Year	United States		West Virginia	
	Actual	Three-Year Moving Average	Actual	Three-Year Moving Average
1953	\$2,289,000,000	---	\$16,556,000	---
1954	1,795,348,000	\$2,013,031,333	14,656,000	\$15,057,000
1955	1,954,746,000	1,917,668,333	13,959,000	14,184,000
1956	2,002,911,000	1,928,033,333	13,937,000	13,108,667
1957	1,826,413,000	1,935,802,000	11,430,000	12,593,333
1958	1,978,052,000	1,820,078,333	12,413,000	11,541,333
1959	1,655,740,000	1,825,122,333	10,790,000	12,118,333
1960	1,811,575,000	1,773,463,333	13,152,000	12,109,000
1961	1,823,075,000	1,811,414,000	12,385,000	12,226,667
1962	1,769,592,000	1,809,880,333	11,143,000	11,516,667
1963	1,809,974,000	1,798,093,000	11,022,000	10,930,667
1964	1,811,113,000	1,818,185,667	10,627,000	10,620,667
1965	1,829,870,000	---	10,213,000	---

*Source: *Chickens and Eggs, Farm Production, Disposition, Cash Receipts, and Gross Income*. USDA, Economic Research Service.

APPENDIX E

APPENDIX TABLE 7

Farm Price of Eggs, United States and West Virginia Actual and Three-Year Moving Average, 1953-1965*

Year	United States		West Virginia	
	Actual	Three-year Moving Average	Actual	Three-Year Moving Average
	<i>Cents Per Dozen</i>			
1953	47.5	—	51.7	—
1954	36.6	41.20	44.3	46.10
1955	39.5	38.47	42.3	43.73
1956	39.3	38.23	44.6	42.53
1957	35.9	37.27	40.7	43.17
1958	38.5	34.63	44.2	40.67
1959	31.4	34.67	37.1	40.80
1960	36.0	33.63	41.1	39.87
1961	35.4	34.37	41.4	40.53
1962	33.6	33.83	39.1	40.23
1963	34.4	33.30	40.2	39.43
1964	33.8	33.97	39.0	39.23
1965	33.7	—	38.5	—

*Source: *Egg and Poultry Statistics Through Mid-1961*, USDA Economic Research Service; *West Virginia Agricultural Statistics 1964*, West Virginia Department of Agriculture; and *Agricultural Prices*, USDA, Economic Research Service.

APPENDIX E

APPENDIX TABLE 8

Laying Mash Price per Cwt. United States and West Virginia, 1954-1964*

Year	United States	West Virginia
1954	\$4.90	\$5.02
1955	4.59	4.75
1956	4.48	4.70
1957	4.41	4.60
1958	4.44	4.65
1959	4.44	4.65
1960	4.34	4.57
1961	4.36	4.61
1962	4.38	4.65
1963	4.48	4.74
1964	4.46	4.73

*Source: *Egg and Poultry Statistics Through Mid-1961*, USDA Economic Research Service; *West Virginia Agricultural Statistics 1964*, West Virginia Department of Agriculture; and *Agricultural Prices*, USDA Economic Research Service.

APPENDIX E

APPENDIX TABLE 9

United States and West Virginia Actual and Three-Year Moving Average, 1953-1965*

Year	United States		West Virginia	
	Actual	Three-Year Moving Average	Actual	Three-Year Moving Average
1953	9.7	---	10.4	---
1954	7.5	8.60	8.8	9.37
1955	8.6	8.30	8.9	9.07
1956	8.8	8.50	9.5	9.07
1957	8.1	8.53	8.8	9.27
1958	8.7	7.97	9.5	8.77
1959	7.1	8.07	8.0	8.83
1960	8.4	7.87	9.0	8.67
1961	8.1	8.07	9.0	8.80
1962	7.7	7.83	8.4	8.63
1963	7.7	7.67	8.5	8.37
1964	7.6	7.63	8.2	8.27
1965	7.6	---	8.1	---

*Source: Calculated by dividing the farm price of eggs per dozen by the cost of laying mash per pound.

