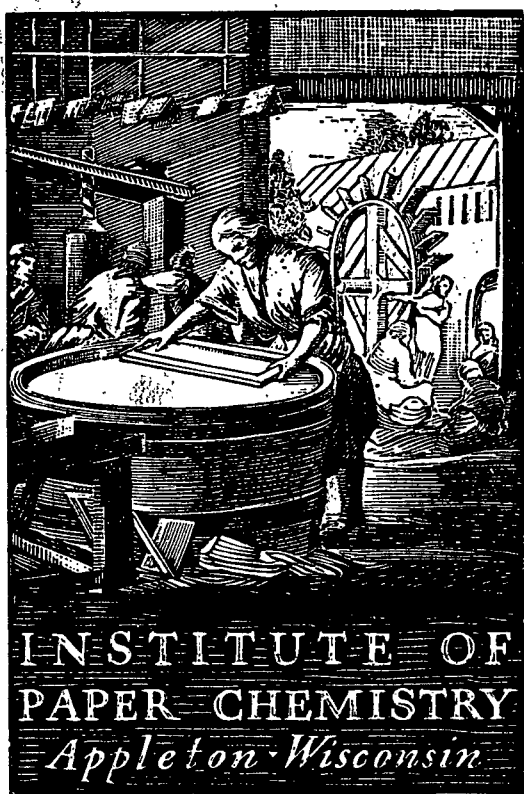


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FORTIETH PRODUCTION DATA REPORT

✓ Project 1:108-31

Report Six

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

April 1, 1968

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

FORTIETH PRODUCTION DATA REPORT

Project 1108-31

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THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

FORTIETH PRODUCTION DATA REPORT

SUMMARY

Production of fourdrinier kraft linerboard by the nineteen member companies of the Fourdrinier Kraft Board Institute, Inc. during 1967 is summarized in this report. The following data may be of interest:

1. Total production for 1967 was 7,645,277 tons and by quarters as follows:

Quarter	Tons
1st	1,887,763
2nd	1,978,041
3rd	1,831,195
4th	1,948,278

2. Comparison of total production for the years 1960 through 1967 shows that the previous high achieved during 1966 was nearly equaled during 1967 as shown below using average tons per company per year as the basis for comparison:

Year	Av. Tons/Company
1960	334,000
1961	301,000
1962	318,000
1963	331,000
1964	347,000
1965	362,000
1966	410,000
1967	402,000

3. Compared with the percentages of total production represented by the major grades during 1966, corresponding percentages of total production during 1967 changed significantly for the following major grades:

- (a) 26-lb. decreased from 6.7 to 5.3%;
- (b) 38-lb. decreased from 7.6 to 7.2%;
- (c) 42-lb. increased from 37.7 to 39.4%;
- (d) 47-lb. decreased from 1.8 to 1.4%;
- (e) 33-lb., 69-lb., 90-lb., and miscellaneous remained relatively constant

These percentage changes in total production reflect overall a change toward lower values for 26-lb., 38-lb., and 47-lb. grades, a higher value for 42-lb., and minor changes for 33-lb., 69-lb., 90-lb., and miscellaneous grades, the biggest gainer being 42-lb. and the biggest loser 26-lb.

INTRODUCTION

The first report in this series summarized the quarterly production of fourdrinier kraft linerboard during 1952 by member companies of the Fourdrinier Kraft Board Institute, Inc. In subsequent reports prepared quarterly, production data were summarized for the first quarter of 1953 through the first quarter of 1961 at which time the program was discontinued at the request of members of F.K.B.I., Inc. Early in 1963, the members of F.K.B.I., Inc. decided to resume this program but on an annual rather than quarterly basis. Implementation of this decision involved obtaining production data for the quarters that had elapsed since the last report was compiled. As noted earlier, the last report on a quarterly basis summarized production data for the first quarter of 1961. Therefore, the first step in the resumed program was concerned with obtaining quarterly data for the remaining portion of 1961 and all of 1962. Production data for this interim period were summarized in the thirty-fifth report of this series. Subsequently, production data for 1963, 1964, 1965, and 1966, were summarized in the thirty-sixth, thirty-seventh, thirty-eighth, and thirty-ninth reports, respectively, in this series; and the current report, the fortieth, summarizes the production of fourdrinier kraft linerboard during 1967.

The following companies submitted production data for inclusion in this report:

- Alton Box Board Company
- The Chesapeake Corporation of Virginia
- Container Corporation of America
- Continental Can Company, Inc.
- Crown Zellerbach Corporation
- Georgia Kraft Company
- Georgia-Pacific
- Great Southern, Div. of Great Northern
- Hoerner-Waldorf Corporation
- International Paper Company
- Olinkraft, Inc.

Owens-Illinois Inc.
St. Joe Paper Company
St. Regis Paper Company
Tennessee River Pulp and Paper Company
Union Camp Corporation
Western Kraft Corporation
West Virginia Pulp and Paper Company
Weyerhaeuser Company

It may be noted from this list that nineteen companies submitted production data for 1967, whereas eighteen companies submitted production data for 1965 and 1966. It may be recalled that sixteen companies submitted production data for 1963 and 1964 and fifteen companies submitted production data for 1962. Furthermore, prior to the second quarter of 1961, only twelve companies submitted data. This growth in the number of participating companies is emphasized so that the reader will be cautious in making comparisons of production data which may not involve the same number of companies.

PRESENTATION AND DISCUSSION OF RESULTS

Quarterly production data for individual grades, major and minor, during 1967 are shown in Table I. Supplementary to the data shown in Table I, the percentage of total production which each major and minor grade represents is given in Table II. In Table II, the percentages of total production represented by each grade of linerboard are calculated using two different references. In one case, total production with production of the miscellaneous grade included is the reference; and, in another case, total production with production of the miscellaneous grade excluded is the reference.

Graphical presentations of total quarterly production of all grades during 1967 (summarized in Table III) and quarterly production of individual major grades during 1967 (summarized in Table IV) are given in Fig. 1 through 10. For comparative purposes, data for the three preceding years are also presented in Fig. 1 through 10. As noted previously, caution should be used in interpreting these graphs because the number of participating companies has grown from 16 to 19 during the period from 1963 to 1967. To assist the reader, the number of participating companies is indicated on the graphs. The grades of linerboard for which production is presented graphically in Fig. 1 through 10 are the following:

Figure Number	Linerboard Grade
1	Total (all grades)
2	26 lb.
3	33 lb.
4	38 lb.
5	42 lb.
6	47 lb.
7	69 lb.
8	90 lb.
9	Misc.
10	All grades (comparison of percentage changes)

TABLE I
QUARTERLY PRODUCTION OF INDIVIDUAL GRADES FOR 1967

Grade, lb.	Production, tons			
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
26	87,984	107,365	101,159	111,791
27	52	--	--	--
28	2,613	5,889	3,740	4,287
30	2,130	2,794	3,530	2,237
31	309	146	276	1,689
32	970	1,092	539	506
33	142,742	154,971	141,240	144,533
35	1,238	220	514	604
36	1,563	296	1,337	2,056
38	139,331	133,474	140,428	138,826
40	166	202	104	204
41	870	--	80	339
42	741,182	767,820	727,657	775,017
44	1,330	947	988	824
45	3,398	5,544	3,034	3,471
46	500	54	429	639
47	28,625	35,285	21,537	23,688
48	--	39	85	118
49	--	--	--	114
50	91	91	91	91
51	--	--	--	120
52	1,276	1,242	1,285	1,509
54	88	281	141	360
56	46	285	187	436
57	1,261	2,058	501	860
58	459	877	694	459
62	6,112	4,659	4,527	5,238
64	4,820	5,686	8,963	5,219
65	--	--	--	720
66	--	--	--	753
67	11,775	11,212	10,529	11,396
69	284,608	301,352	260,592	283,721
73	--	165	132	--
75	278	278	278	278
76	1,636	1,956	879	1,818
78	--	78	38	20
80	1,636	1,555	515	1,807
81	5,940	5,095	7,477	3,748
82	--	43	1,530	767
86	262	256	705	358
87	1,636	1,555	515	1,807
88	18,754	19,208	17,903	12,085
90	80,637	84,042	76,870	79,952
92	5,606	1,411	929	--
93	1,636	1,555	515	1,806
96	1,635	1,554	514	1,806
Misc.	302,568	315,409	288,208	320,201

TABLE II
PERCENTAGE OF TOTAL PRODUCTION REPRESENTED BY PRODUCTION OF INDIVIDUAL GRADES FOR 1967
(Computed on quarterly basis)

Grade, lb.	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
	With ^a	Without ^b	With ^a	Without ^b	With ^a	Without ^b	With ^a	Without ^b
26	4.7	5.6	5.4	6.5	5.5	6.6	5.7	6.9
27	c	c	--	--	--	--	--	--
28	0.1	0.2	0.3	0.4	0.2	0.2	0.2	0.3
30	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1
31	c	c	c	c	c	c	0.1	0.1
32	0.1	0.1	0.1	0.1	c	c	c	c
33	7.6	9.0	7.8	9.3	7.7	9.2	7.4	8.9
35	0.1	0.1	c	c	c	c	c	c
36	0.1	0.1	c	c	0.1	0.1	0.1	0.1
38	7.4	8.8	6.7	8.0	7.7	9.1	7.1	8.5
40	c	c	c	c	c	c	c	c
41	c	0.1	--	--	c	c	c	c
42	39.3	46.8	38.8	46.2	39.7	47.2	39.8	47.6
44	0.1	0.1	c	0.1	0.1	0.1	c	0.1
45	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2
46	c	c	c	c	c	c	c	c
47	1.5	1.8	1.8	2.1	1.2	1.4	1.2	1.5
48	--	--	c	c	c	c	c	c
49	--	--	--	--	--	--	c	c
50	c	c	c	c	c	c	c	c
51	--	--	--	--	--	--	c	c
52	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
54	c	c	c	c	c	c	c	c
56	c	c	c	c	c	c	c	c
57	0.1	0.1	0.1	0.1	c	c	c	0.1

Note: Please see end of table for footnotes.

TABLE II (Continued)
PERCENTAGE OF TOTAL PRODUCTION REPRESENTED BY PRODUCTION OF INDIVIDUAL GRADES FOR 1967
(Computed on quarterly basis)

Grade, lb.	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
	With ^a	Without ^b	With ^a	Without ^b	With ^a	Without ^b	With ^a	Without ^b
58	c	c	c	0.1	c	c	c	c
62	0.3	0.4	0.2	0.3	0.2	0.3	0.3	0.3
64	0.3	0.3	0.3	0.3	0.5	0.6	0.3	0.3
65	--	--	--	--	--	--	c	c
66	--	--	--	--	--	--	c	c
67	0.6	0.7	0.6	0.7	0.6	0.7	0.6	0.7
69	15.1	18.0	15.2	18.1	14.2	16.9	14.6	17.4
73	--	--	c	c	c	c	--	--
75	c	c	c	c	c	c	c	c
76	0.1	0.1	0.1	0.1	c	0.1	0.1	0.1
78	--	--	c	c	c	c	c	c
80	0.1	0.1	0.1	0.1	c	c	0.1	0.1
81	0.3	0.4	0.3	0.3	0.4	0.5	0.2	0.2
82	--	--	c	c	0.1	0.1	c	c
86	c	c	c	c	c	c	c	c
87	0.1	0.1	0.1	0.1	c	c	0.1	0.1
88	1.0	1.2	1.0	1.2	1.0	1.2	0.6	0.7
90	4.3	5.1	4.2	5.1	4.2	5.0	4.1	4.9
92	0.3	0.4	0.1	0.1	0.1	0.1	--	--
93	0.1	0.1	0.1	0.1	c	c	0.1	0.1
96	0.1	0.1	0.1	0.1	c	c	0.1	0.1
Misc.	16.0		15.9		15.7		16.4	

^aThis percentage is based on total production with miscellaneous.

^bThis percentage is based on total production without miscellaneous.

^cLess than 0.1% after being rounded off.

TABLE III

TOTAL PRODUCTION OF FOURDRINIER KRAFT LINERBOARD FOR 1967

(Quarterly and annual bases)

Quarter	Production, tons
First	1,887,763
Second	1,978,041
Third	1,831,195
Fourth	1,948,278
Total	7,645,277

TABLE IV

QUARTERLY PRODUCTION OF MAJOR GRADES FOR 1967

Grade, lb.	<u>1st Quarter</u>		<u>2nd Quarter</u>		<u>3rd Quarter</u>		<u>4th Quarter</u>	
	Tons	% ^a	Tons	% ^a	Tons	% ^a	Tons	% ^a
26	87,984	4.7	107,365	5.4	101,159	5.5	111,791	5.7
33	142,742	7.6	154,971	7.8	141,240	7.7	144,533	7.4
38	139,331	7.4	133,474	6.7	140,428	7.7	138,826	7.1
42	741,182	39.3	767,820	38.8	727,657	39.7	775,017	39.8
47	28,625	1.5	35,285	1.8	21,537	1.2	23,688	1.2
69	284,608	15.1	301,352	15.2	260,592	14.2	283,721	14.6
90	80,637	4.3	84,042	4.2	76,870	4.2	79,952	4.1
Misc.	302,568	16.0	315,409	15.9	288,208	15.7	320,201	16.4

^aPercentage of total production, for specified quarter, represented by the production of each major grade classification.

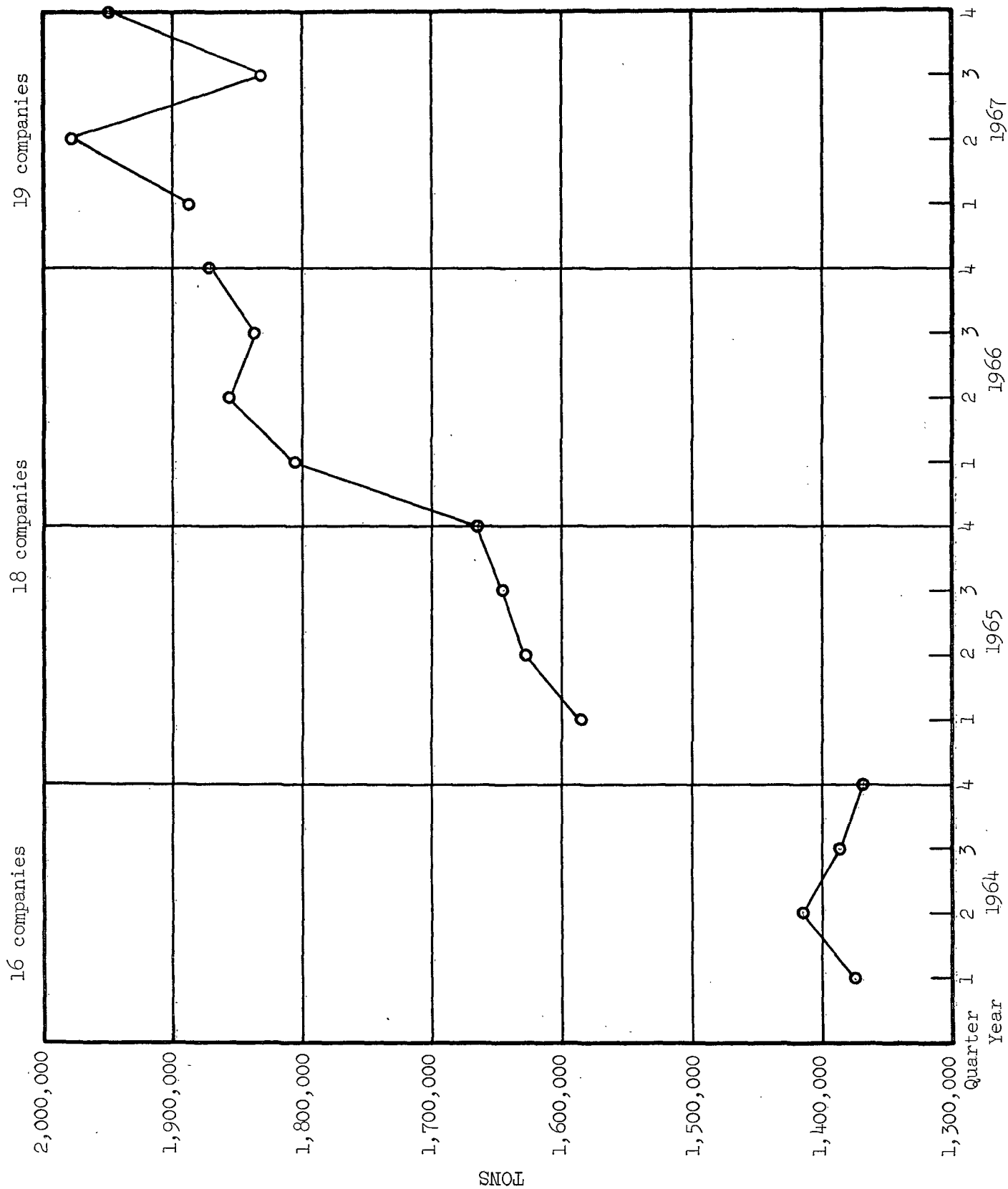


Figure 1. Total Production

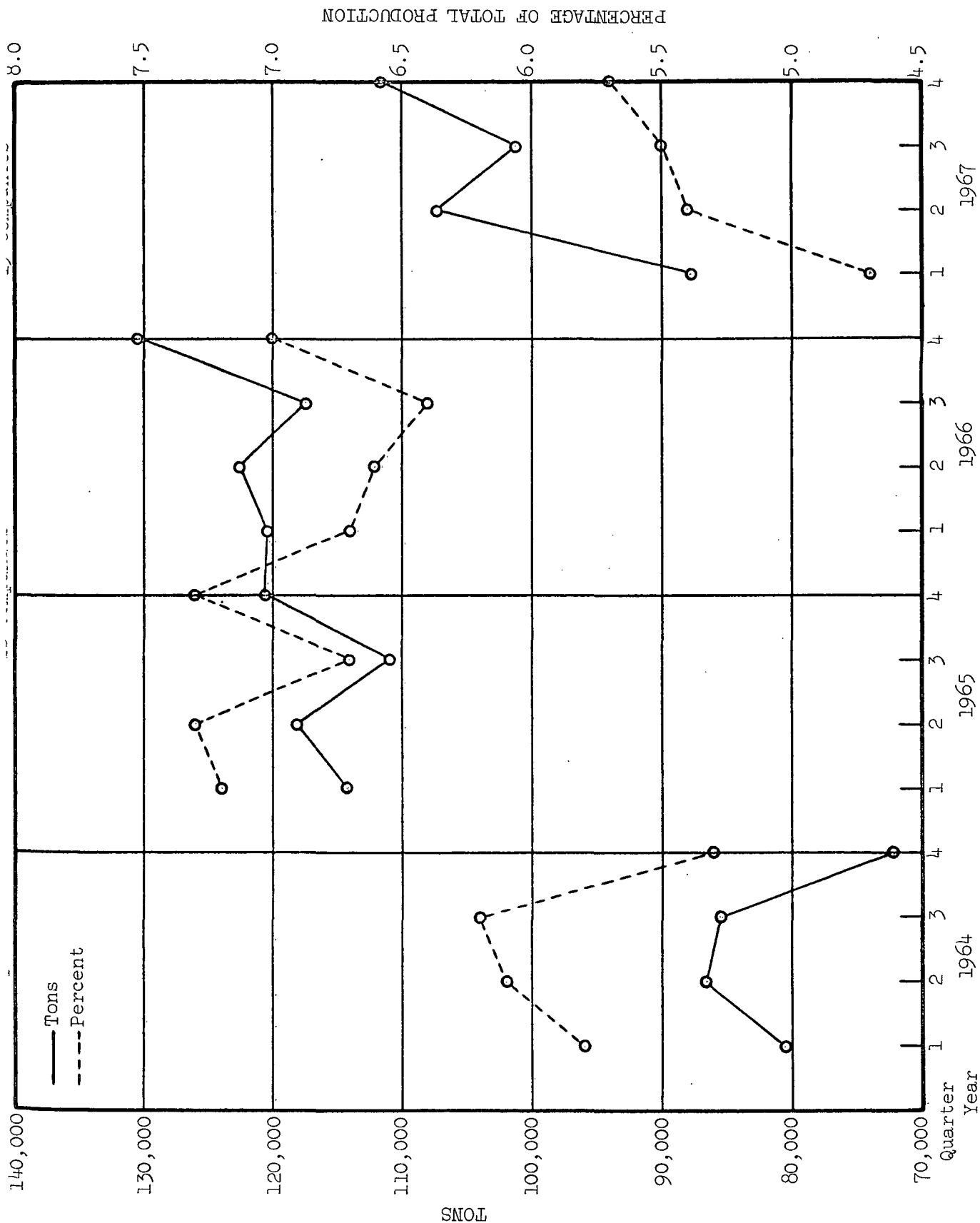


Figure 2. Production, 26-lb.

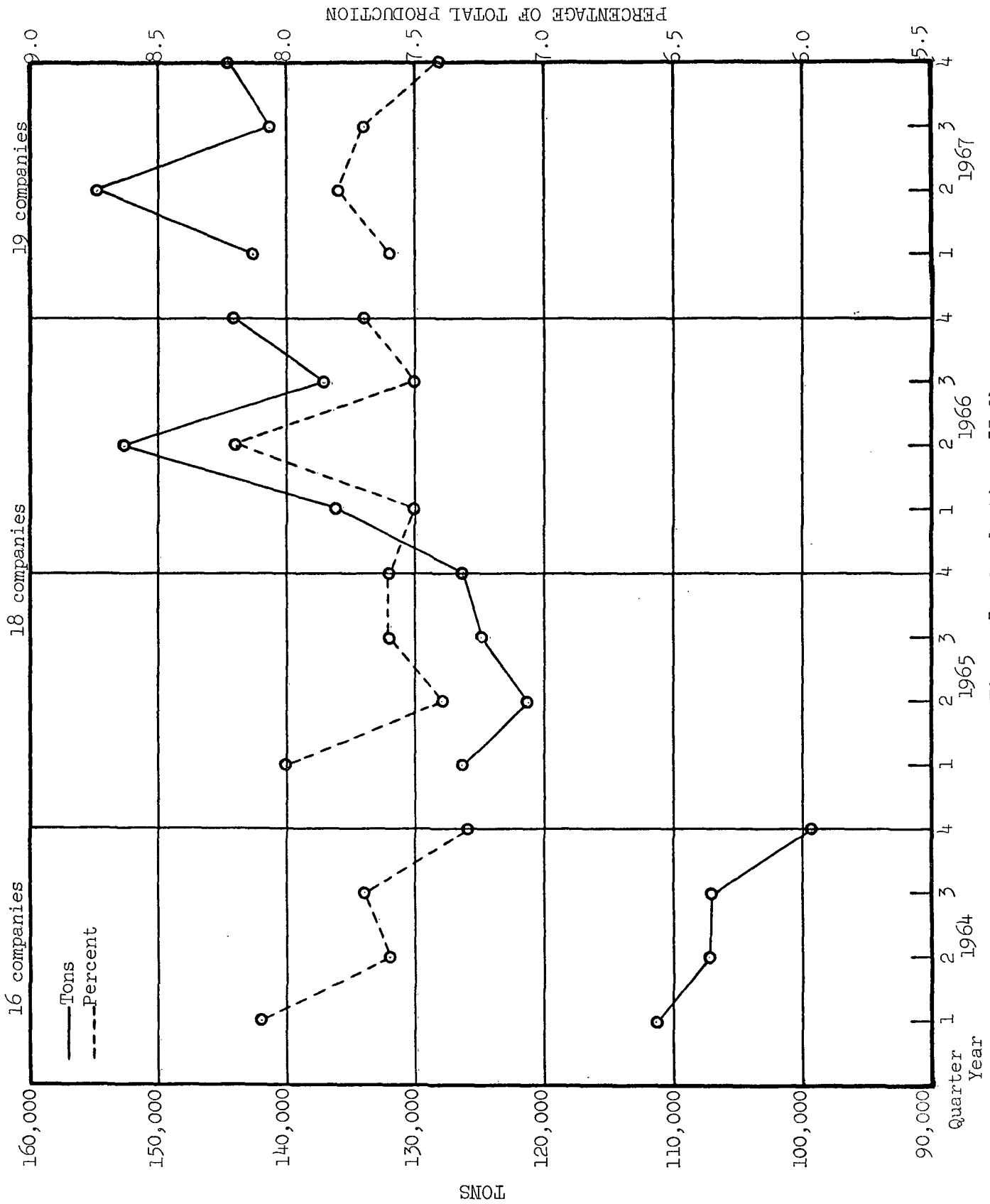


Figure 3. Production, 33-lb.

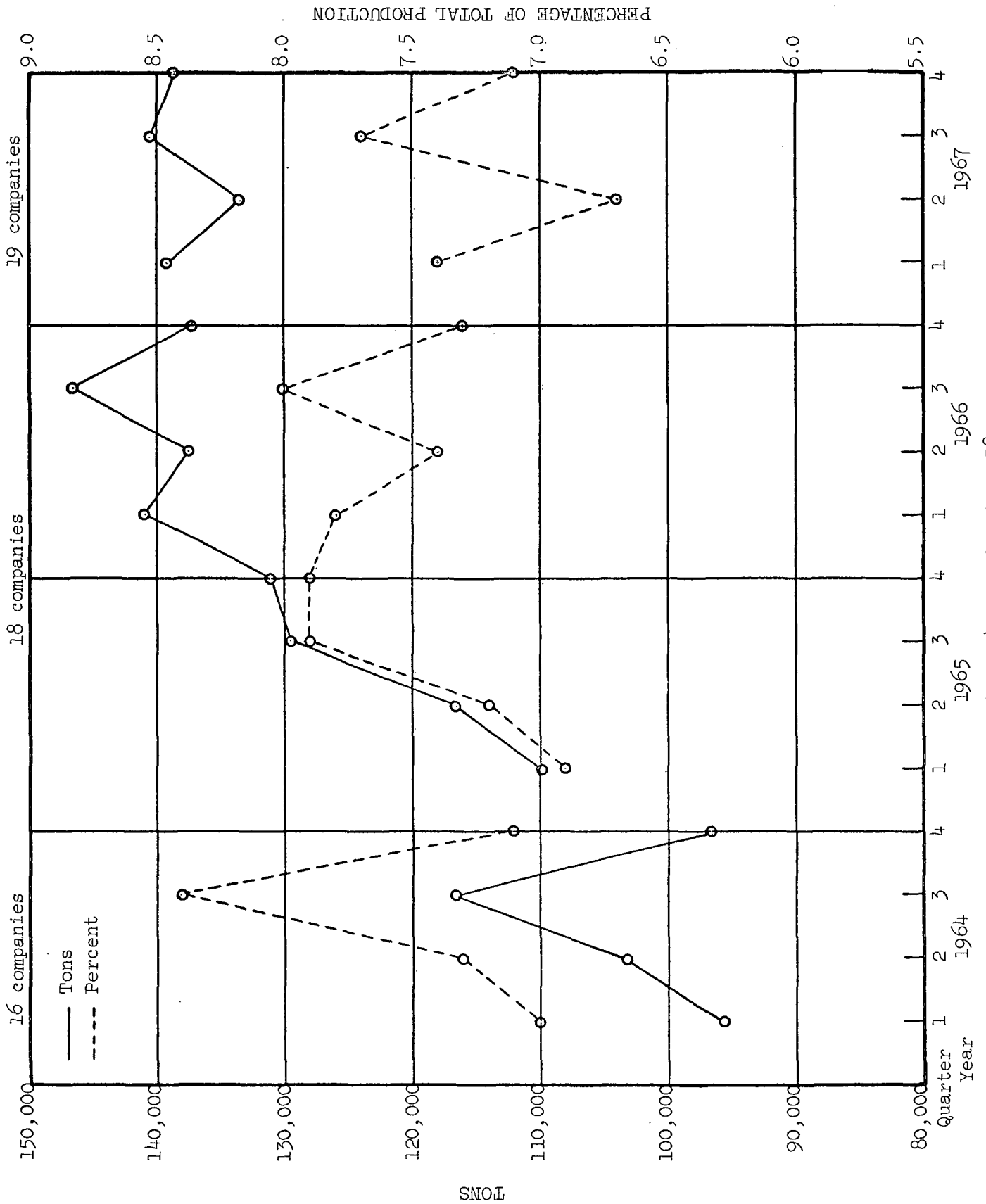


Figure 4. Production, 38-lb.

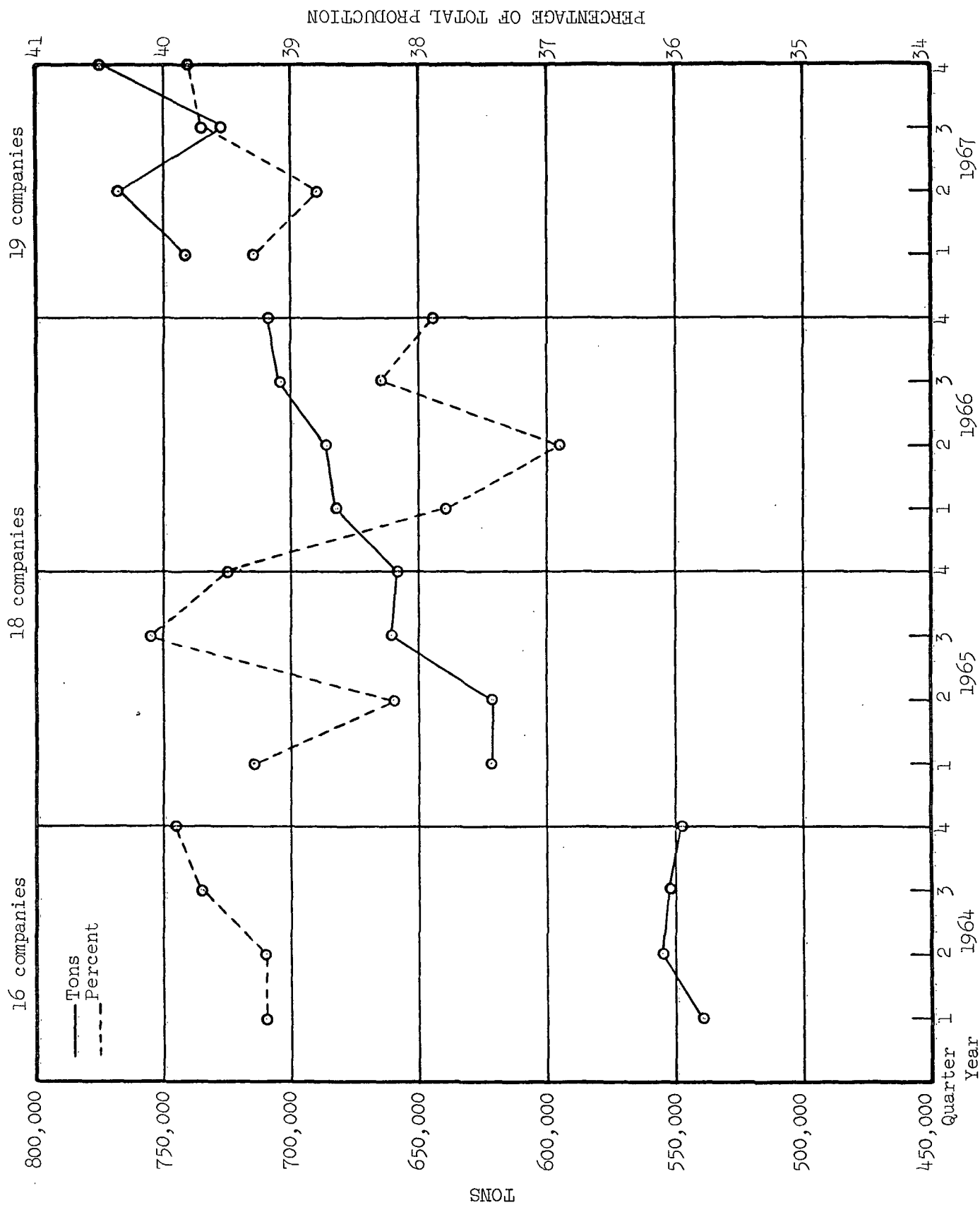


Figure 5. Production, 42-lb.

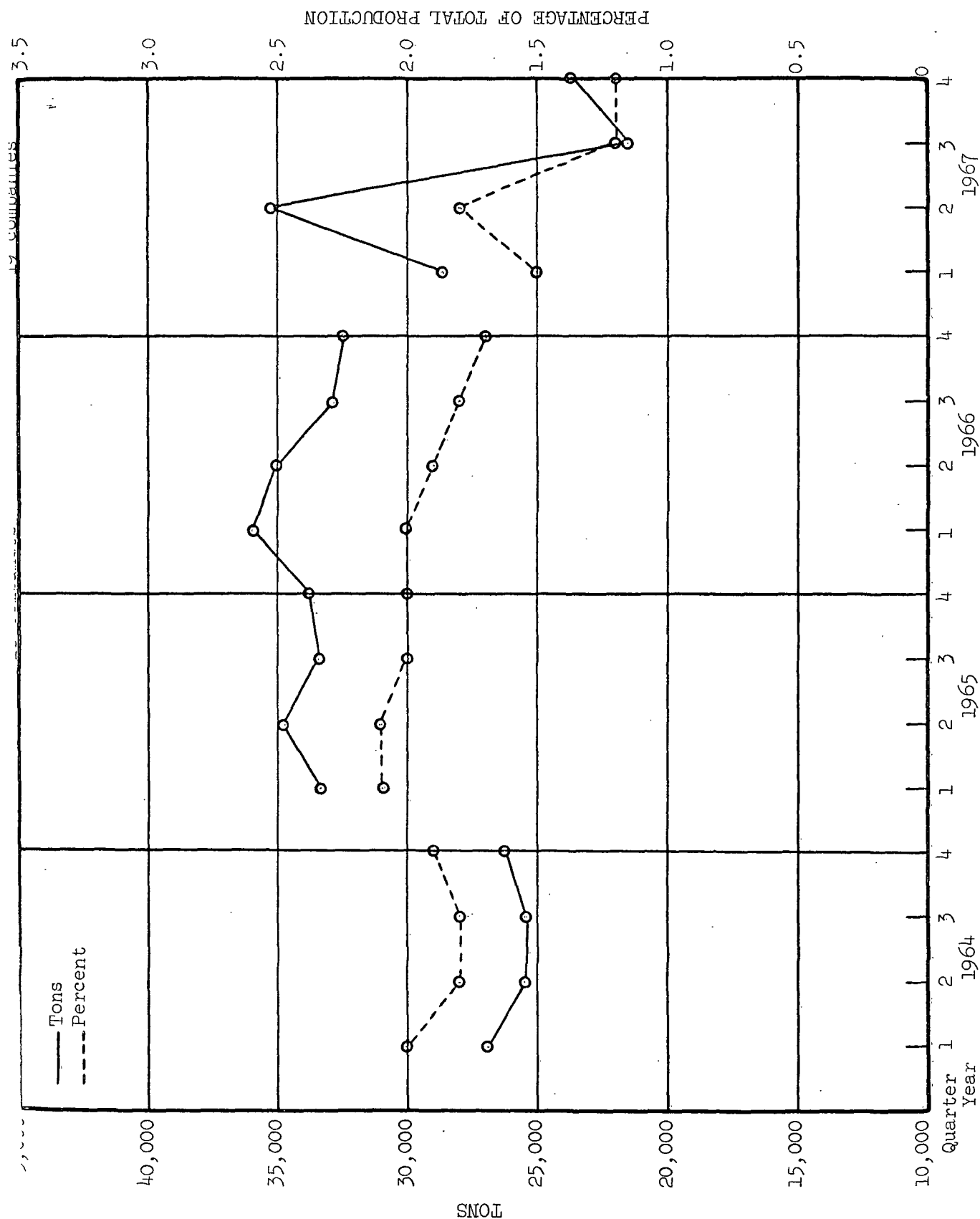


Figure 6. Production, 47-lb.

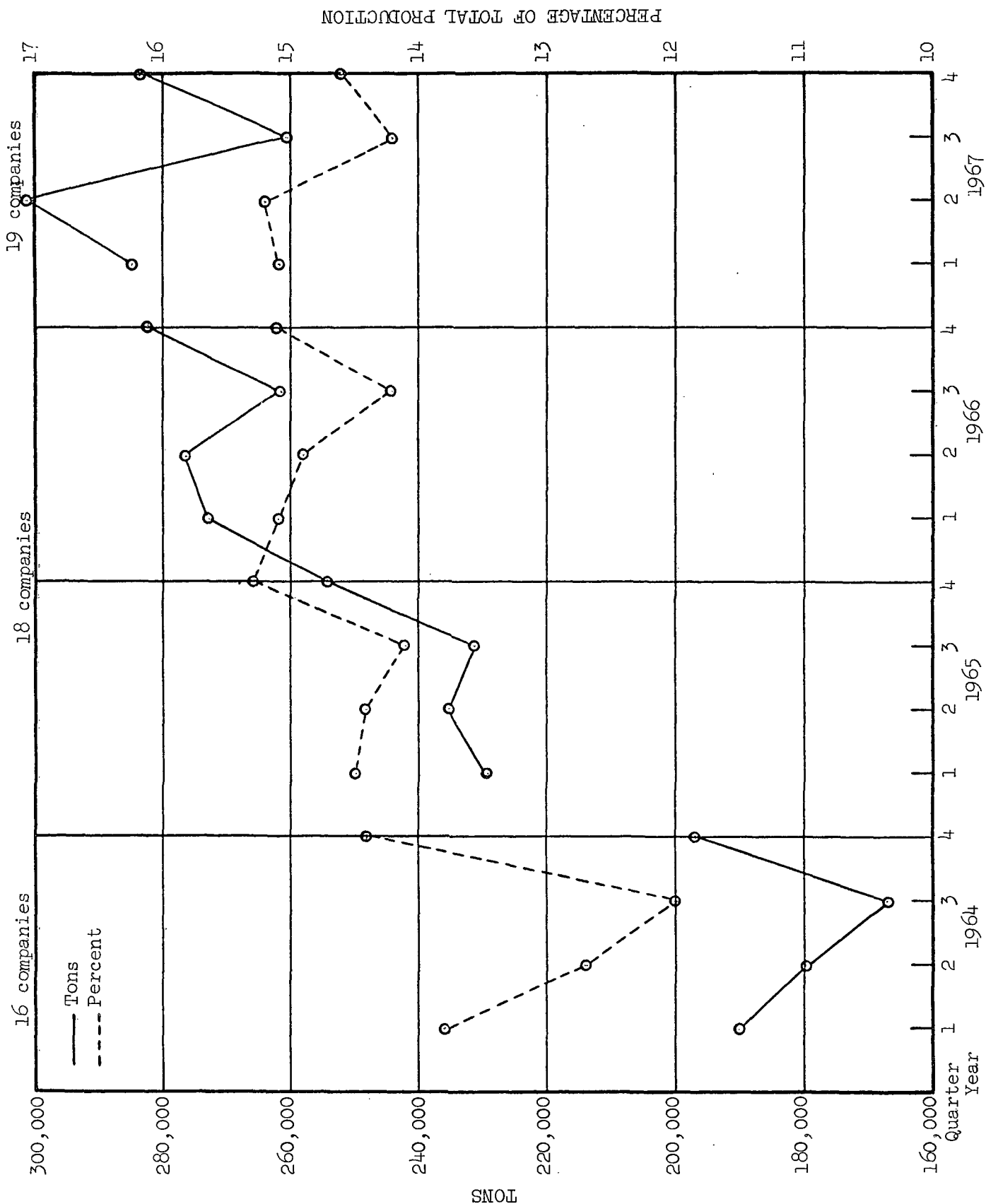


Figure 7. Production, 69-lb.

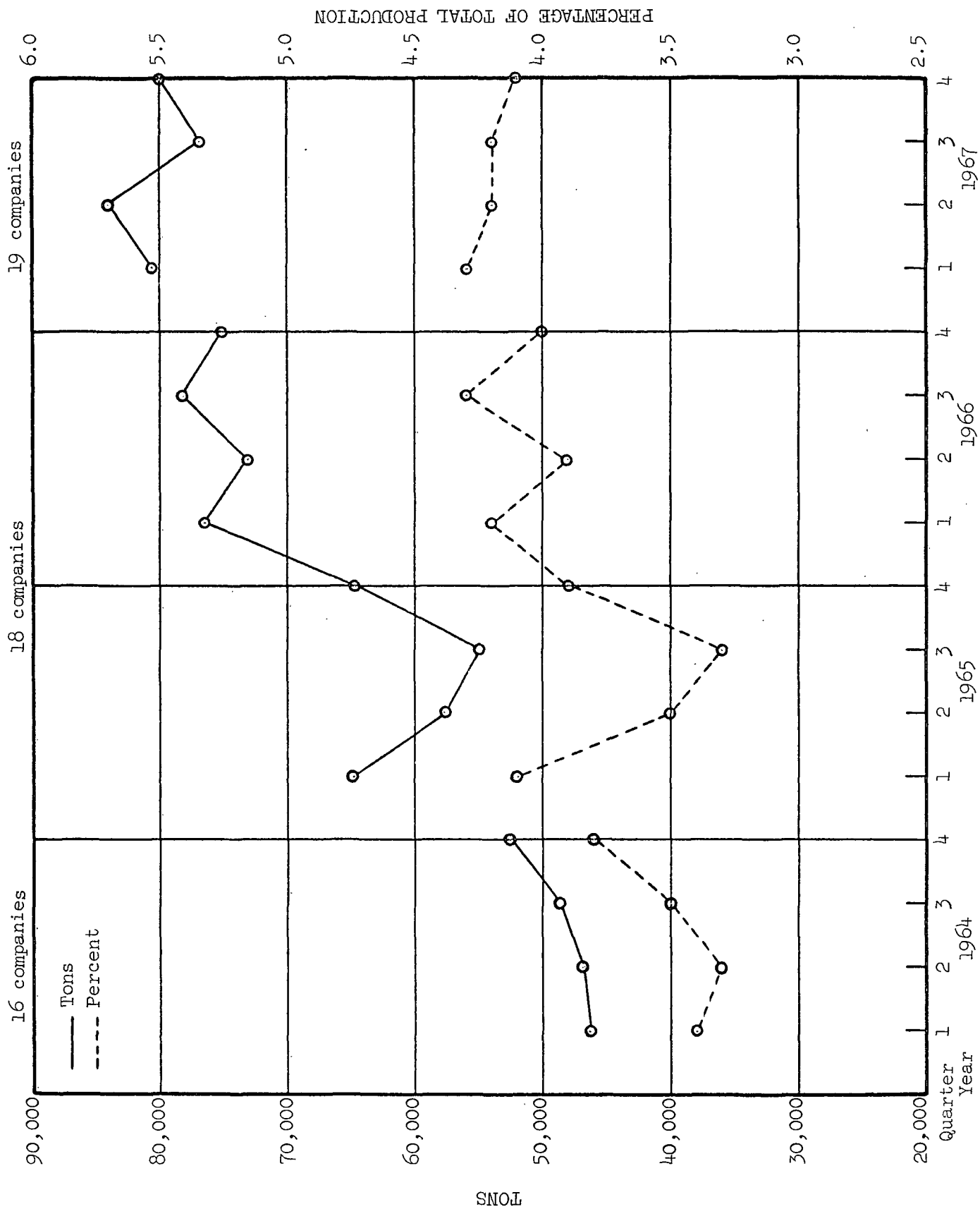


Figure 8. Production, 90-lb.

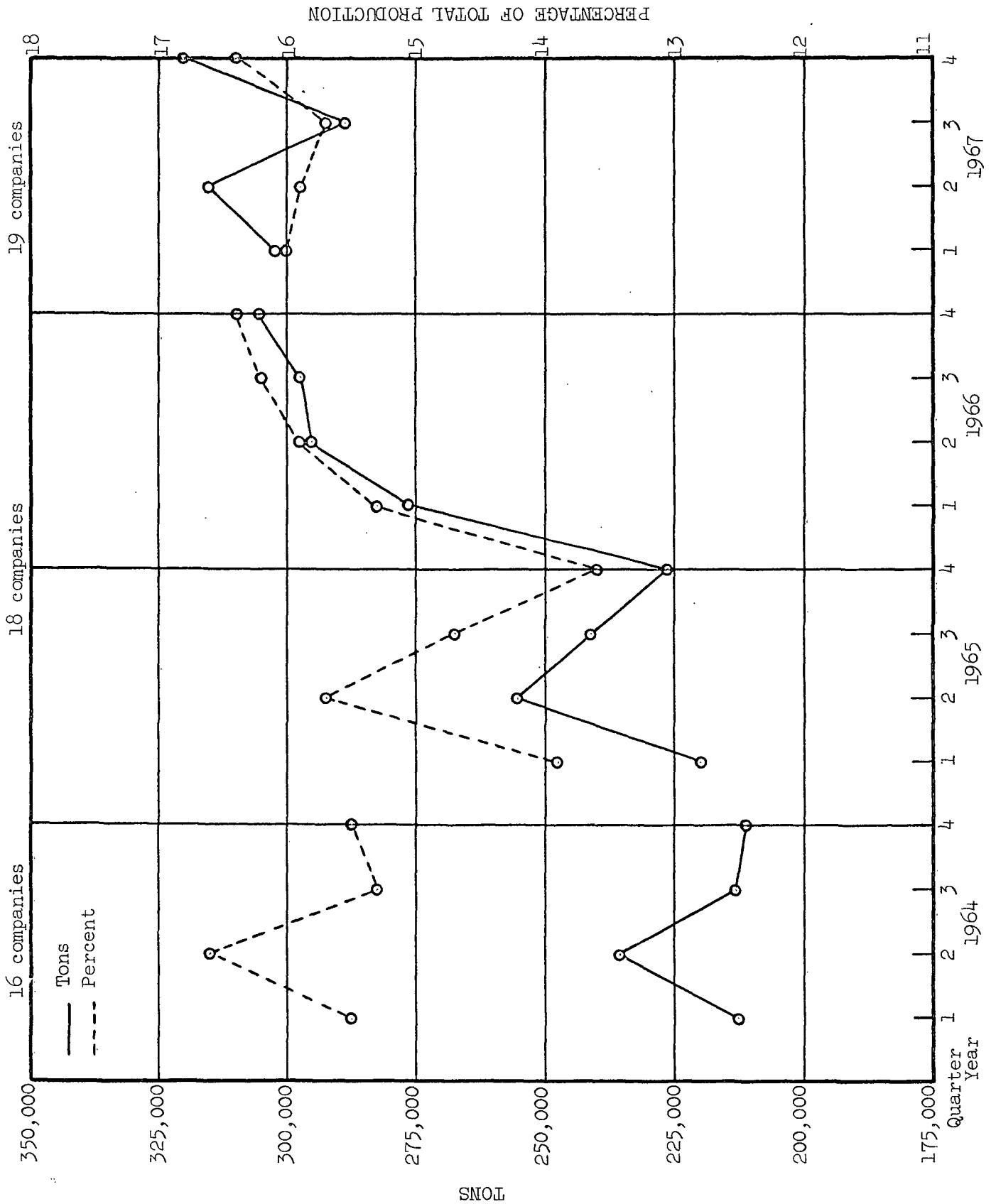


Figure 9. Production, Miscellaneous

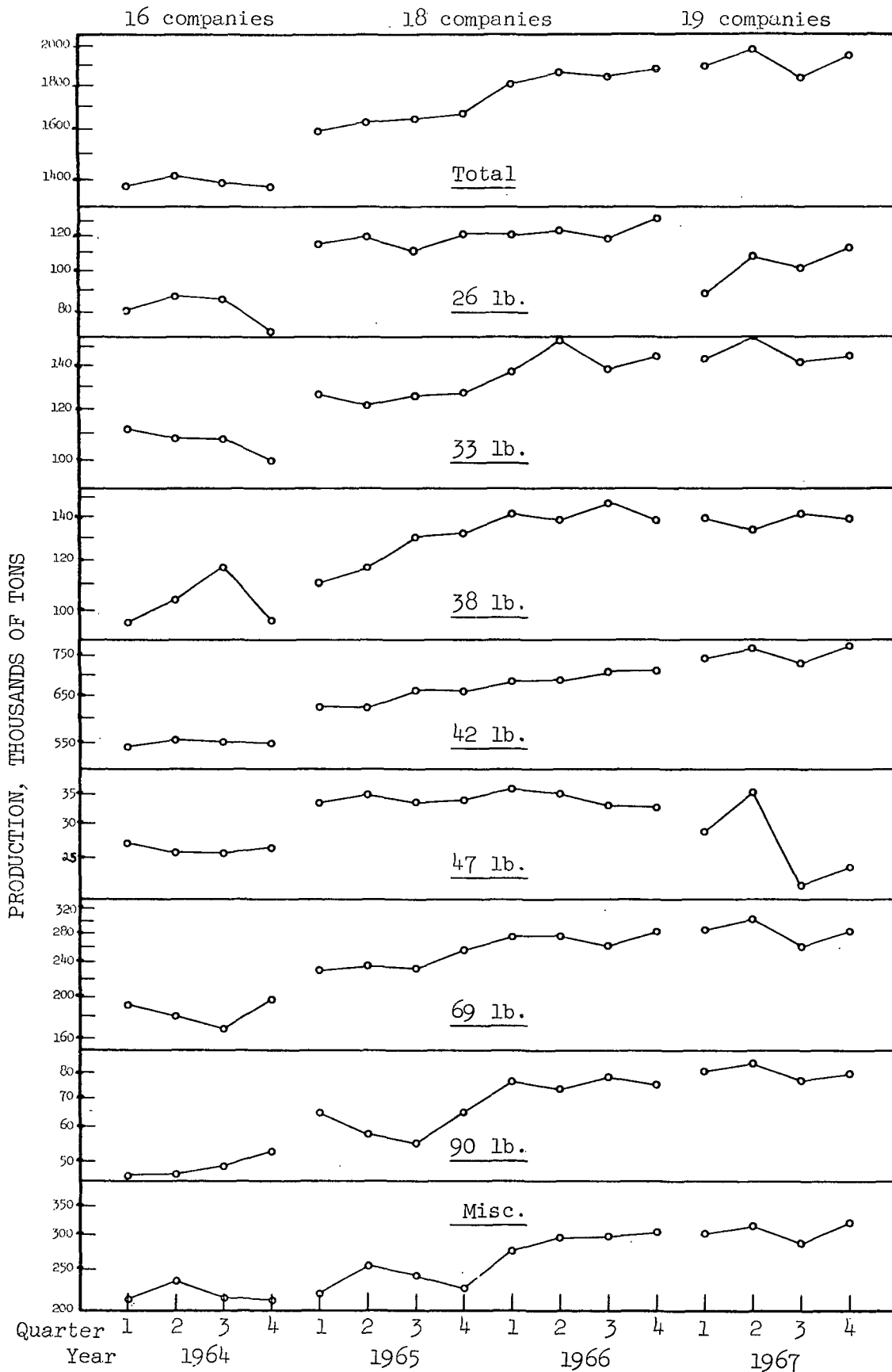


Figure 10. Comparison of Percentage Changes in Production for Major Grades

Supplementary to Fig. 1 through 9 previously listed, Fig. 10 has been prepared in which the tonnages of the various grades shown in Fig. 1 to 9 have each been replotted on a semilogarithmic scale for the purpose of comparing the change in production of these grades. A useful measure for this purpose is the "percentage change," i.e., the change in production in tons for a given quarter divided by the tonnage level for the previous quarter, which, in the case of semilog graphs, may be compared readily for various quarters even though the magnitude of the tonnage levels may be vastly different. For example, when two lines connecting any two points are parallel, i.e., their slope is the same, the "percentage change" in production represented by these two lines is also the same. Similarly, when two lines are not parallel, the percentage change associated with the line having the greater slope is higher.

In Table V a comparison is given for 1966 and 1967 of the percentages of total production represented by each major grade (quarterly and annual bases).

There are numerous comparisons which may be made from the production data presented in the various tables and graphs referred to in the preceding paragraphs. The following may be of interest:

(1) Total production of fourdrinier kraft linerboard, as seen in Fig. 1, has shown the following trends using 1960 as the reference year and average tons per company per year as the basis for comparison:

TABLE V

COMPARISON FOR 1966 AND 1967 OF PERCENTAGES OF TOTAL PRODUCTION
REPRESENTED BY EACH MAJOR GRADE

Grade, lb.	Year	Quarterly Basis, % of total				Annual Basis, % of total
		1st	2nd	3rd	4th	
26	1966	6.7	6.6	6.4	7.0	6.68
	1967	4.7	5.4	5.5	5.7	<u>5.32</u>
					Diff. ^a	-1.36
33	1966	7.5	8.2	7.5	7.7	7.72
	1967	7.6	7.8	7.7	7.4	<u>7.62</u>
					Diff. ^a	-0.10
38	1966	7.8	7.4	8.0	7.3	7.62
	1967	7.4	6.7	7.7	7.1	<u>7.22</u>
					Diff. ^a	-0.40
42	1966	37.8	36.9	38.3	37.9	37.72
	1967	39.3	38.8	39.7	39.8	<u>39.40</u>
					Diff. ^a	+ 1.68
47	1966	2.0	1.9	1.8	1.7	1.85
	1967	1.5	1.8	1.2	1.2	<u>1.42</u>
					Diff. ^a	-0.43
69	1966	15.1	14.9	14.2	15.1	14.82
	1967	15.1	15.2	14.2	14.6	<u>14.78</u>
					Diff. ^a	- 0.04
90	1966	4.2	3.9	4.3	4.0	4.10
	1967	4.3	4.2	4.2	4.1	<u>4.20</u>
					Diff. ^a	+0.10
Misc.	1966	15.3	15.9	16.2	16.4	15.95
	1967	16.0	15.9	15.7	16.4	<u>16.00</u>
					Diff. ^a	+ 0.05

^aFor each grade, the difference indicates how much its average percentage of total production for 1967 increased or decreased over the corresponding figure for 1966.


Year	Av. Tons/Company	Based on 1960	Based on Previous Year
1960	334,000	--	No change
1961	301,000	10% lower	10% lower
1962	318,000	5% lower	6% higher
1963	331,000	1% lower	4% higher
1964	347,000	4% higher	5% higher
1965	362,000	8% higher	4% higher
1966	410,000	23% higher	13% higher
1967	402,000	20% higher	2% lower

The data shown above indicate that the production level in 1967 was slightly less than in 1966, the decrease amounting to approximately 8,000 tons or 2% lower than 1966.

(2) Significant changes in the percentage of total production represented by the major grades were noted for 26-lb. which decreased from 6.7 to 5.3%, 38-lb. which decreased from 7.6 to 7.2%, 42-lb. which increased from 37.7 to 39.4%, and 47-lb. which decreased from 1.8 to 1.4%.

(3) The percentage changes in total production reflect overall a change toward lower values for 26-lb., 38-lb., and 47-lb. grades, a higher value for 42-lb. and relatively stable values for 33-lb., 69-lb., 90-lb., and miscellaneous grades, the big gainer being 42-lb. and the big loser being 26-lb.

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A handwritten signature in dark ink, appearing to read "W. N. Hubert", written over a horizontal line.

W. N. Hubert, Research Fellow

A handwritten signature in dark ink, appearing to read "R. C. McKee", written over a horizontal line.

R. C. McKee
Chairman, Container Section