THE TIMING OF WHEAT MARKETING IN WESTERN CANADA

During the fifteen successive crop years of which the latest ended in the summer of 1936, the annual wheat crops of the Prairie Provinces of Canada varied from just under 260 million bushels to nearly 545 million bushels. Of these crops, some 40–70 million bushels were used locally without passing through elevators or other shipping stations—chiefly for seed and feed, of which the latter is the smaller but more variable item. Over 90 per cent of the wheat that was marketed annually by farmers was delivered to local country elevators; and the remainder, so far as it appears in marketing records, was delivered at loading platforms of the railroads. All but about 40–50 million bushels of the wheat delivered at country points from an average crop passed sooner or later through the western terminal elevators—chiefly those of Fort William–Port Arthur and Vancouver.

CONTENTS

The marketing of the wheat crop of Western Canada involves a series of transactions, from the initial delivery of the wheat by the grower to its final delivery into consumption, largely in Europe. The timing of delivery to consumers is dependent principally on demand, but the timing of those stages of marketing that are completed within Western Canada is wholly or mainly determined by the influences affecting sales off farms. These influences are reflected most clearly in country deliveries to local elevators and railroad loading platforms. In the following analysis, attention is given to wheat marketings at each of the principal stages to and including receipt at terminal elevators, but the more detailed analysis is confined to tendencies influencing country deliveries.

An outstanding feature of country marketing in the Prairie Provinces of Canada is the rapid rate at which deliveries are made in the early autumn. With favorable weather, deliveries each week for several weeks commonly exceed 6 per cent of the total to be delivered during the season—a rate which, if continued, would permit delivery of the entire marketable supply in less than four months after the start of rapid marketing. The rate of delivery during the last fifteen seasons has never fallen as low as 3 per cent weekly, except temporarily, until 56–74 per cent of the deliveries had been completed. This period of the "main movement" is followed by a "secondary movement" at a much slower average rate and lasting until the end of January, by which time from 73 to 88 per cent of the season's deliveries have been made.

Noteworthy also is the uniformity of *percentage* rates of delivery in corresponding periods of different years. Since the tendency is to market very rapidly in the early autumn, it might be supposed that the relatively small deliveries represented by the first 50 per cent of the supply from a small crop would be completed in a shorter time than the first 50 per cent of deliveries from a bumper crop, requiring the marketing of twice as much wheat. Instead, the same percentage of the total supply tends to be delivered each week whether the total be large or small.

Variations in weather, affecting dates of harvest and rates of marketing, cause wide variations from year to year in the dates at which corresponding periods in the marketing routine are reached during the autumn months. Widespread use of the combine advanced the date of beginning of rapid marketing about 15 days and brought the normal date of completion of the first 25 per cent of deliveries nearly three weeks earlier than in previous years. Comparisons of rates of marketing during the autumn in different years

cannot be made satisfactorily on the basis of correspondence between calendar intervals, but should be made on the basis of correspondence between stages of completion of the country marketing movement.

After the end of January, the number of bushels delivered per week depends not on the total supply at the beginning of the season, but on the supply remaining for "deferred marketing," during the second half of the crop year. Calculated on this basis, percentage rates of delivery in corresponding periods during February–July vary extraordinarily little from year to year except for certain trends in the direction of longer postponement of deferred marketings in recent years.

Prices and price judgments have had relatively little influence on the timing of country deliveries over short intervals. Few farmers make much attempt to guess whether prices will be higher next week or next month than they are this week. But if prices in the late autumn are unsatisfactory, farmers may withhold for deferred marketing 15 per cent more of the season's supply than they otherwise would. Over the past fifteen years, price judgments have thus affected by six months the time of delivery of as much as 70 million bushels of wheat.

The analysis of Canadian wheat marketing here presented serves two main purposes: (1) it reveals the main tendencies influencing the rate of country marketing of wheat in recent years, and provides a basis for judging currently whether unusual influences are in operation and what relations may be expected between country deliveries and marketings at later stages; and (2) it provides concrete measures of the changes in rate of country marketing that resulted from introduction of the "combine," and of changes resulting from other developments during the past fifteen years.

A third purpose of the study is to contribute toward determining whether the characteristics of Canadian farm marketings have been such as to depress prices in the period of heavy deliveries, and thus diminish returns to the grower; and whether it is desirable that farmers should alter their marketing practices, or that measures should be taken to modify their effects. In advancement of this purpose, the present study takes only the first step—that of placing in clear perspective the main features characterizing the country marketing of Western Canadian wheat crops.[1]

Prospective 1936–37 Marketings

An appraisal of the probable course of Western Canadian wheat marketings during 1936–37 serves as a particularly useful form of summary of the main tendencies revealed in the subsequent sections of the present study. To judge probabilities for the current year, all the important marketing tendencies must be considered one by one, in relation to the particular conditions existing or likely to develop in the present season. In the process of thus applying the tendencies to an appraisal of a specific situation, the significance of the several tendencies will appear more clearly than from a mere recapitulation of tendencies observed in the record for past years.[2]

Probable total deliveries and farm carryovers.—Country deliveries of wheat in the Prairie Provinces during August–July, and during shorter intervals within this period, in any year depend directly on the total quantity to be marketed during the entire season or carried over on farms at the end of the season. The first step in appraisal of prospective deliveries is estimation of this total for the season.

The details of a calculation of the probable total for 1936–37 appear in tabular form on the next page, in million bushels. The data for supplies here used are the official estimates; the other figures are our own advance approximations, intended to be comparable with the official estimates shown in Table 1, p. 37, for previous years. The estimate for seed, it should be noted, must exclude seed

[1] An analysis of the influence of rate of marketing on prices is in progress.

[2] For the purposes of summary and illustration, the outlook might here be discussed as it could have been appraised in August before the new-crop movement started. We choose, however, to give the appraisal an added element of immediate usefulness by taking advantage of all the information available at the time of writing, in early October, 1936.

wheat that may be obtained from elevators, and can be estimated only very roughly early in the season. The forecast of the "residual" is also subject to considerable error. If the data on supplies and the estimates of disposition were complete and without bias, there should be no residual, but the record of similar calculations made for past years at the end of the season (Table 1) indicates a need for including this balancing item.

Production (September estimate)	216	
Initial farm stocks	5	
Total supplies		221
Seed	24	
Feed	10	
Unmerchantable	2	
Country milling	1	
Residual	–6	
Total country disposition		31
Remainder for delivery to elevators and loading platforms and for carryover on farms		190

Certain revisions of the figures in the foregoing tabulation will doubtless be required as the season progresses. Corresponding alterations should then be made in all figures in subsequent paragraphs which are dependent on this calculation. Some change may be expected in the official estimate of production in November and again in January. It is likely also that improvements can be made in the foregoing estimates of "country disposition."

Marketings.—Farm stocks in the Prairie Provinces on July 31, 1937, may total only 2–3 million bushels, in which case the foregoing calculation indicates probable country deliveries of about 188 million bushels during 1936–37. To estimate movement at later stages in the marketing process, allowance must be made for reduction of country elevator stocks from the 30.8 million bushels at the beginning of the season (Table 3, p. 39) to perhaps only 2 million bushels at the end—a reduction of about 29 million bushels through shipment from stocks. Total country elevator shipments may thus aggregate about 217 million bushels during 1936–37. Inspections are likely to be about 10–15 million bushels less, or perhaps 205 million bushels.[1] Terminal elevator receipts may be predicted at 93.5 per cent of inspections, less about 17 million bushels (p. 41), and consequently may be about 30 million bushels less than inspections.

Timing of country deliveries.—Assuming that total country deliveries plus carryover will be 190 million bushels, their probable distribution through the season may be set down in tabular form as follows, subject to qualifications made in the course of explanations offered in the subsequent paragraphs.

Time interval		Deliveries (million bushels)	Per cent	Per cent from August 1
Main movement	Aug. 1–Sept. 6[a]	*47.5*	25	25.0
	Sept. 2–Sept. 27[a]	*47.5*	25	50.0
	Sept. 26–Nov. 2	*42.7*	*22.5*	*72.5*
Secondary movement	Nov. 2–Jan. 31	*29.5*	*15.5*	*88.0*
Deferred movement	Feb. 1–April 30	*8.5*	*4.5*	*92.5*
	May 1–June 30	*10.1*	*5.3*	*97.8*
	July 1–July 31	*1.9*	*1.0*	*98.8*
	After July 31	*2.3*	*1.2*	*100.0*
Total		*190.0*	100.0	...

[a] Date estimated in advance; the approximately correct date, now known, is that shown as the beginning of the next interval.

In this tabulation all estimated figures are in italics. It will be noted that for the first two time intervals the tabulation shows the estimated intervals likely to be required for marketing stated percentages of the seasonal supply. For the next two periods, both intervals and percentages must be estimated. For the intervals after January, the percentages are estimated for stated intervals.

The normal date of completion of the *first 25 per cent* of the deliveries for the season, since introduction of the combine, has been September 15, but rapid marketing started this year in the week following August 7, a record early date. With this early start, completion of the first one-fourth of deliveries could be predicted for about September 6, as-

[1] See Chart 1, p. 40, bearing in mind that shipments as calculated above are equivalent to "country deliveries, adjusted" as shown in that chart.

suming normally favorable weather (Chart 4, p. 47). The 25 per cent point was actually reached about four days earlier than thus predicted, probably indicating that allowance should have been made also for the effect of a price incentive under conditions which made acceleration of deliveries easy.

The normal date of completion of the *second 25 per cent* of deliveries has been 30 days after completion of the first 25 per cent, but when the supply is small, as this year, and the price attractive, this interval may be reduced to as little as about 20 days (Charts 5 and 6). When it became apparent that the 25 per cent point in deliveries had been reached this year about September 2, the expected time of completion of the second one-fourth of deliveries might be set at some date between September 22 and October 2. In the tabulation above we have used a date at the middle of this range.

Total deliveries to January 31 must be estimated as the next stage in appraising marketing prospects for 1936–37. Deliveries to the end of January have varied in the past 15 years from 73 to 88 per cent of the seasonal total, depending chiefly on the disposition of farmers to hold for anticipated higher prices later in the season. We judge that this year farmers will have little inclination to hold and may market about 88 per cent of the supply by the end of January. If so, deliveries from the 50 per cent point to the end of January will be 38 per cent of the seasonal total.

Deliveries from the 50 per cent point (now known to have been reached about September 26) to the end of January fall into two periods: one of rapid marketing at an average rate normally about 4.4 per cent weekly; the other a period of leisurely marketing, at an average rate normally about 1.26 per cent weekly (pp. 51, 52). These two periods together will this year occupy 17 1/7 weeks (September 26–January 31). Assuming that 38 per cent of the seasonal total will be delivered during these two periods, the probable length of each period and the percentage delivered in each may be calculated by a series of computations, of which all but the first are obvious.

For the first calculation the following formula may be used, expressing the unknown length of the first of the two periods involved by x:

$$4.4x + 1.26\ (17\ 1/7 - x) = 38$$

In this formula, $4.4x$ represents the probable percentage marketed in the first period, stated as the average weekly rate (4.4) times the unknown number of weeks. The second term in the formula represents the probable percentage marketed in the second period, stated as the average weekly rate (1.26) times the number of weeks, which is necessarily the combined length of the two periods (17 1/7 weeks) less the length of the first period. The probable percentages in the two periods separately must add up to the probable total for both, which we have previously set at 38 per cent.

Proceeding from this formula we may calculate:

$$3.14x + 1.26\ (17\ 1/7) = 38$$
$$3.14x = 38 - 21.6 = 16.4$$
$$x = 5.22 \text{ weeks} = 37 \text{ days}$$

If the first period lasts 5.22 weeks at an average rate of delivery of 4.4 per cent weekly, it will end on November 2 and include 23.0 per cent of the season's deliveries. For the next period, ending January 31, it is necessary to calculate only the remaining percentage: $38 - 23 = 15$.

November 2 represents the date after which it is expected that deliveries will proceed at a rate of less than 3 per cent weekly. Since the statistics of deliveries apply to weeks ending on Friday, the last day of the final week in which deliveries exceed 3 per cent of the seasonal total may be either October 30 or November 6, if our forecast proves approximately correct. When the actual date and deliveries to that date become known, some revision may be required in the estimate of deliveries for the succeeding period ending January 31.

For *deliveries after January 31*, our estimates are based on percentages obtained by projecting the curves in Chart 10 (p. 55), and on our estimate that only 12 per cent of the seasonal total, or 22.8 million bushels, will remain to be delivered after January 31. The percentages read from Chart 10 are in terms

of the supply remaining for delivery after January 31, as follows:

Period	Per cent
Feb. 1–April 30	38
May 1–June 30	44
July 1–July 31	8
After July 31 (farm carryover)	10
	100

Before the end of January, revised estimates of production and further statistics of actual deliveries will be available, permitting a better founded estimate of the supply which will remain for delivery after January 31. The percentages in the tabulation above may then be applied to the revised estimate of this total to obtain more trustworthy forecasts than those given in the tabulation on p. 35. Price movements after January 31 often have an appreciable effect on the course of deliveries. Consequently, actual deliveries by periods after January 31 may be expected to vary somewhat from both present and subsequently revised forecasts.

Supplies and Marketings at Successive Stages

The main variations in amounts of wheat passing through the several marketing stages in Western Canada arise from variations in production. A substantial fraction of each crop is retained on farms for seed and feed; and there are additional, though minor, forms of disposition which contribute to the annual differences between production and recorded farm marketings. The quantity of wheat produced but not recorded in farm marketings for the season has varied in recent years through a range of about 40–70 million bushels, independently, for the most part, of the size of the crops.

Disposition of farm supplies.—For the six crop years from 1930–31 the Dominion Bureau of Statistics has published annually at the close of each season statistics and estimates covering the details of country disposition of the wheat crops of the Prairie Provinces, including a statement of the indicated errors in the crop estimates. The totals for the three provinces combined as thus published are reproduced in Table 1 in somewhat altered tabular form and with any later revised estimates of the production substituted for estimates used in the original tables. As noted in the table, the figures for two or three of the items of disposition in each year are indicated as subject to revision. In the absence of published revisions of any of these except the statistics of country deliveries, all the figures for disposition are here reproduced as originally published.

Seed, as shown in Table 1, for all but the first year comprises only the quantity of wheat retained on farms for this purpose, since seed obtained from elevators appears in the country

TABLE 1.—PRODUCTION AND FARM DISPOSITION OF WHEAT IN PRAIRIE PROVINCES FROM 1930–31*

(Million bushels)

Aug.–July	Production	Initial stocks	Total supply	Country deliveries	Disappearance in country						Error in crop estimate[c]	
					As difference[a]	Directly estimated						
						Total	Seed[b]	Feed	Unmerchantable	Country millings	A	B
1930–31..	397.3	4.4	401.7	307.1[d]	76.7	71.1	34.8	30.7[d]	3.8	1.8[d]	—17.2	+ 5.6
1931–32..	301.2	17.8	319.0	265.1[d]	48.1	57.1	29.9	23.1[d]	2.5	1.6[d]	—26.3	— 9.1
1932–33..	422.9	5.8	428.8	370.6[d]	47.2	59.9	31.0	25.6[d]	1.7	1.6[d]	—27.3	—12.7
1933–34..	263.0	11.0	274.0	227.0[d]	39.3	39.8	26.6	8.7[d]	2.6	1.9	—12.6	— .5
1934–35..	263.8	7.7	271.5	229.7[d]	34.4	40.1	22.7	12.4[d]	3.4	1.6	— 5.7	— 5.7
1935–36..	259.5	7.3	266.8	216.3[d]	46.0	53.6	27.9[d]	15.2	9.4	1.1[d]	— 7.6	...

* Directly or by computation from tables published at the end of each season in the August issue of *Monthly Bulletin of Agricultural Statistics*, except production, for which standing estimates are used. In this and subsequent tables, sums and differences have been computed before rounding the figures to tenths of millions, and are consequently not always identical in the last digit with sums and differences of the rounded figures.

[a] Total supply less deliveries and carryover out.

[b] From 1931–32, other than seed withdrawn from elevators, estimated, at 4.6, 2.0, 5.0, 8.2, and 4.0 million bushels respectively.

[c] Column A, as originally published; Column B, our computation from revised production estimates.

[d] Originally published as "subject to revision."

deliveries. Even with this exclusion, seed represents 49–67 per cent of the directly estimated annual totals of country disappearance of wheat. Feed use of wheat has varied in the six years from 22 to 42 per cent of the total country disappearance. The total quantity of wheat used for seed is of course not significantly related to the size of the crop from which it is drawn, but short crops are usually associated with shortage so severe in some regions that local requirements for seed must be met by purchase from elevators, with resulting reduction in the figure for seed as estimated for this table. The amount of wheat used for feed is dependent to some extent on the size of the crop, but more particularly on the price of wheat and the quantity of low-grade wheat in the crop.

Original and revised statistics of deliveries.—The statistics of country deliveries compiled and published from week to week during the course of each season necessarily form the basis of the detailed analysis in the latter part of the present study. After the close of each season, revised totals for the season are published, but the weekly statistics of country deliveries are not republished in revised form. Table 2 provides a comparison of the revised totals with corresponding totals derived from the original statistics, for the aggregate of all country deliveries and for country elevator receipts separately. The platform loadings represent wheat loaded directly on cars by the growers, sometimes to assure sale on the basis of grading under official inspection, but more commonly for convenience or economy. Only relatively minor revisions have ever been made in the statistics of platform loadings, and for simplicity the "original" statistics of total country deliveries are here shown only on the basis of inclusion of revised statistics of platform loadings.

For each of the three seasons 1921–22 and 1923–24 the revised totals for country elevator receipts exceeded the totals of the original weekly statistics by 7.4–11.6 million bushels. Comparisons with other statistics shown below suggest that the original totals for these years may be nearer the facts than the revised figures. For the next five years the revised totals were each year below the originals—by 5.4–10.8 million bushels in four of the five years. Beginning with 1929–30, the revisions have been comparatively small—sometimes increases and sometimes decreases. As will be noted below, the revised totals for country deliveries from 1924–25 accord well with other statistics of wheat movement in the Prairie Provinces.

Minor discrepancies may be noted between the totals of the original weekly statistics of country deliveries shown in Table 2 and the totals of country deliveries shown in Table 1.

TABLE 2.—ORIGINAL AND REVISED SEASONAL TOTALS OF COUNTRY ELEVATOR RECEIPTS AND PLATFORM LOADINGS OF WHEAT, PRAIRIE PROVINCES, FROM 1921–22*

(Million bushels)

Aug.-July	Country elevator receipts		Platform loadings	Total country deliveries	
	Original	Revised		Original	Revised
1921-22[a] ...	217.8	227.3	19.4	237.2	246.7
1922-23[a] ...	295.9	307.5	23.2	319.1	330.7
1923-24[b] ...	388.5	395.9	26.3	414.8	422.2
1924-25	199.9	192.5	19.5	219.4	211.9
1925-26	329.8	322.8	28.9	358.7	351.7
1926-27	310.9	310.5	28.1	339.0	338.5
1927-28	391.0	380.1	19.6	410.6	399.6
1928-29	453.4	446.4	22.1	475.5	468.4
1929-30	230.3	231.3	6.8	237.1	238.0
1930-31	295.9	299.4	11.2	307.1	310.6
1931-32	254.0	251.0	11.2	265.2	262.2
1932-33	350.8	351.7	19.8	370.7	371.5
1933-34	216.2	215.4	11.4	227.6	226.8
1934-35	216.1	215.4	12.1	228.2	227.5
1935-36	210.1	.....	6.9	217.0	.....

* Revised elevator receipts from *Reports on the Grain Trade of Canada;* platform loadings and original data for elevator receipts from Appendix Table I, for the same months covered by the statistics of elevator receipts.

[a] September–August.

[b] Eleven months, September–July.

These arise chiefly or wholly from the fact that the totals in Table 1 include country elevator receipts for 52 or 53 complete weeks, starting with the week ending on the Friday after August 2. This is in conformity with the usual Canadian official practice in compiling weekly statistics of grain handlings.[1] In our compilation of weekly statistics for Table 2,

[1] In many tables in Canadian official publications, totals so derived are inaccurately described as totals "from August 1."

on the other hand, the receipts reported for weeks beginning in one crop year and ending in the next are apportioned between the two crop years in proportion to the number of days, other than Sunday, falling in each crop year, taken to begin on August 1 (or September 1). Differences in crop-year totals obtained by these two methods of compilation are unimportant and deserve comment only to explain discrepancies that might be puzzling if unexplained.[1]

Statistics at different marketing stages.—Country elevator receipts and platform loadings reflect the primary movement in the marketing of the Western Canadian wheat crop, and comprise almost the whole of the movement of wheat off farms in the Prairie Provinces. Other official statistics, with these, afford a record of the marketing of wheat in Western Canada which is unequaled for detail and accuracy by the statistics for any other large wheat-growing country. For present purposes special interest attaches to comparisons of the statistics of country elevator receipts (by themselves or with the addition of platform loadings) with country elevator shipments and stocks, railroad handlings, official inspections, and terminal elevator receipts—all for the Western Division.

Table 3 affords a comparison of country elevator receipts and shipments by crop years. For all except the last two years the revised statistics of receipts are used in this table rather than sums from the original weekly statistics simply because the statistics of total shipments are more conveniently available in the revised form.

When country elevators have carried much larger or much smaller stocks at the end of the season than at the beginning, the change in quantity of wheat in store accounts for most of the difference between receipts and shipments. Differences between receipts and shipments attributable to other causes are best revealed by comparison of shipments with "adjusted receipts," which are the total receipts less increases in stocks on hand, or plus decreases in stocks on hand. For some reason, the reported shipments have generally been slightly in excess of the reported receipts, adjusted for change in stocks.

TABLE 3.—COUNTRY ELEVATOR RECEIPTS, SHIPMENTS, AND STOCKS OF WHEAT IN THE PRAIRIE PROVINCES, BY CROP YEARS, FROM 1921–22*

(Million bushels)

August-July	Receipts	Initial stocks	Adjusted receipts[a]	Shipments	Difference
1921-22[b] ...	227.3	1.2	225.9	227.1	−1.2
1922-23[b] ...	307.5	2.6	307.8	308.0	− .2
1923-24[c] ...	395.9	2.3	396.0	394.7	+1.3
1924-25	192.5	2.2	193.6	194.6	−1.0
1925-26	322.8	1.0	322.6	323.6	−1.0
1926-27	310.5	1.2	310.0	311.2	−1.2
1927-28	380.1	1.7	379.8	381.6	−1.9
1928-29	446.4	2.0	445.9	446.8	− .9
1929-30	231.3	2.5	224.9	225.9	−1.0
1930-31	299.4	8.8	279.0	279.7	− .7
1931-32	251.0	29.2	253.0	254.7	−1.7
1932-33	351.7	27.2	307.4	308.9	−1.5
1933-34	215.4	71.4	222.6	224.6	−2.0
1934-35	215.4	64.3	232.9	232.8	+ .1
1935-36	209.4[d]	46.7	225.2	225.1[d]	+ .1
1936-37	.....	30.8[d]	.....	.....	...

* From *Reports on the Grain Trade of Canada* (revised statistics).

[a] Receipts plus initial stocks and minus year-end stocks.
[b] September–August.
[c] Eleven months, September–July.
[d] From *Canadian Grain Statistics* (unrevised).

Statistics of quantities of wheat handled at marketing stages beyond the country elevators show fairly systematic relations with country deliveries of wheat. For comparisons of these statistics, it is desirable to use "adjusted receipts," as in the final stage of the foregoing comparisons; and platform loadings should be added to the receipts. Table 4 provides the basis for such a comparison.

Among other things, this table affords bases for judging the adequacy of the statistics of country deliveries, which are analyzed in detail in subsequent sections of the present study. The "adjusted original" deliveries recorded in Table 4 are simply the sums of the original weekly statistics of country elevator receipts and platform loadings employed in the later

[1] The differences in crop-year totals are small because deliveries in the week including August 1 have never much exceeded 1 per cent of the seasonal total. For monthly totals, however, it is very important that deliveries in weeks beginning in one month and ending in the next should be apportioned properly, as in Appendix Table I. Users of weekly statistics would be saved much inconvenience and expense by adoption of a 13-month calendar.

analysis, with receipts in weeks falling partly in each of two successive crop years apportioned between the two years, and "adjustment" made by subtracting the amount of increases in reported country elevator stocks

TABLE 4.—COUNTRY DELIVERIES AND OTHER STATISTICS OF WHEAT MOVEMENTS FROM PRAIRIE PROVINCES, BY CROP YEARS, 1921–22 TO 1935–36*

(Million bushels)

Aug.-July	"Adjusted revised" deliveries[a]	"Adjusted original" deliveries[b]	Railroad handlings	Inspections	Terminal receipts[c]
1921-22[d]	245.3	235.8	231.4	231.6	197.5
1922-23[d]	331.0	319.4	290.0	297.3	261.8
1923-24[e]	422.3	414.9	398.0	389.1	347.4
1924-25	213.1	220.5	215.8	214.4	182.6
1925-26	351.5	358.6	358.9	352.5	314.8
1926-27	338.1	338.5	335.8	336.0	295.8
1927-28	399.3	410.2	399.1	397.2	352.7
1928-29	468.0	475.0	.....	466.2	420.4
1929-30	231.7	230.8	.....	220.0	189.4
1930-31	290.2	286.7	.....	288.7	262.7
1931-32	264.2	267.2	.....	258.9	230.2
1932-33	327.2	326.4	.....	323.6	291.1
1933-34	234.0	234.8	.....	228.1	196.8
1934-35	245.0	245.8	.....	231.5	199.4
1935-36	.....	232.9	.....	218.1	193.1

* From *Reports on the Grain Trade of Canada* except as otherwise noted.

[a] Adjusted receipts, as for Table 3 plus platform loadings, from Table 2.

[b] "Original" deliveries, from Table 2, with the same adjustments for changes in elevator stocks as applied to the revised statistics of deliveries.

[c] Receipts at Fort William, Port Arthur, and Vancouver, and, from August 1926, at Victoria, Prince Rupert, and Churchill. Comparability of the statistics is not significantly affected by the change in number of points covered.

[d] September–August.

[e] Eleven months, September–July.

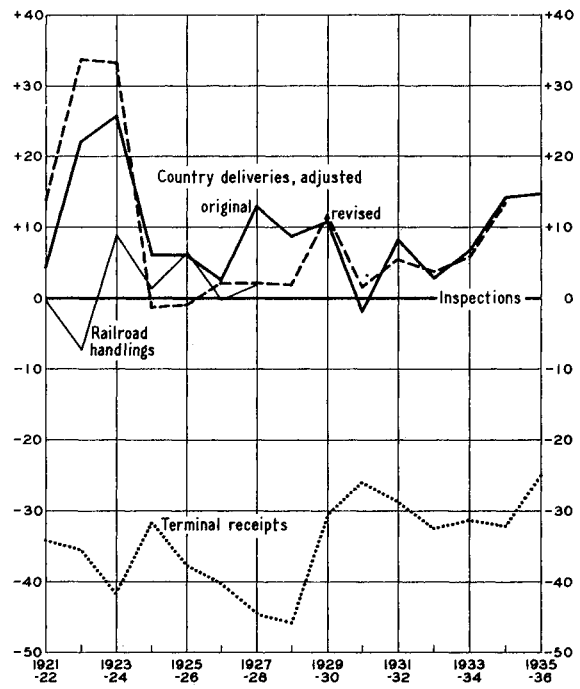
between the beginning and the end of the crop year, or adding the amount by which stocks were decreased. The adjustment is the same as that applied to the statistics of country elevator receipts in Table 3. The "adjusted revised" country deliveries may be described in corresponding terms, or as the adjusted receipts of Table 3 plus platform loadings.

Differences among the statistics of Table 4 may be exhibited graphically in convenient form by using inspections as a common basis of comparison, as in Chart 1. From 1929–30 to 1933–34, both the original and the revised statistics of country deliveries when adjusted for changes in country elevator stocks, averaged about 5 million bushels greater than inspections. For earlier years, the original and revised statistics of deliveries show greater differences between themselves, except in one year, and the adjusted original statistics of deliveries are generally closer to inspections plus 5 million bushels than are the adjusted revised statistics of deliveries.

The comparatively large excesses of deliveries (adjusted) over inspections in 1922–23 and 1923–24 call for special notice, particularly since the revised statistics of deliveries

CHART 1.—DIFFERENCES BETWEEN INSPECTIONS AND OTHER STATISTICS OF MARKETINGS BY CROP YEARS, 1921–22 TO 1935–36*

(Million bushels)



* Differences computed from data in Table 4. Most of the difference between terminal receipts and inspections reflects items of disappearance which tend to be 6.5 per cent of inspections. Reported country deliveries, adjusted for changes in country elevator stocks, exceeded inspections by more than 15 million bushels only in 1922–23 and 1923–24, when the revised statistics exceeded inspections by more than did the original weekly statistics of deliveries, adjusted.

show the larger excesses. Since railroad handlings and terminal elevator receipts in these years stand close to their usual relation to inspections, there appears to be no ground for supposing that unusual amounts of wheat were marketed in these years without being recorded in the inspections. Apparently the

statistics of country deliveries for these years, and especially the revised statistics, were affected by duplications in reporting, or are in some other respects not strictly comparable with the corresponding statistics for later years. The indicated disparities in the original statistics of deliveries for these years, however, amount to only about 5 per cent of the reported deliveries.

The differences between inspections and terminal elevator receipts reflects several items of disappearance, of which the largest is commercial utilization in Western Canada, chiefly for production of flour and mixed feeds. "Loss in transit" and a small movement out of Western Canada that does not pass through the terminal elevators contribute to the difference. Receipts at terminal elevators have usually been 15–19 million bushels less than 93.5 per cent of inspections.[1] In the four seasons 1930–31, 1931–32, 1932–33, and 1935–36, however, terminal receipts were only 7 to 12 million bushels less than 93.5 per cent of inspections. These four were seasons of unusually large retention of wheat on farms for feed, and presumably therefore of relatively high average quality of the wheat delivered and of poor demand for commercial mixed feed.

Week-to-week relations.—In the statistics of marketings week by week, changes in stocks provide an important index of the course of marketings. Total stocks in Western Canada rise rapidly when country deliveries are rapid, and slowly when country deliveries are moderate. Stocks remain unchanged when country deliveries are equal to shipments from terminals plus local withdrawals for milling and other uses; and stocks decline when country deliveries are less than shipments from terminals plus local utilization.

In the period of heavy marketing, country deliveries regularly exceed shipments from terminals plus local utilization, and total stocks accumulate rapidly. Shipments from country elevators during this period never keep up with the receipts; but shipments from country elevators normally exceed the concurrent shipments from terminals plus other disappearance, and stocks accumulate in the terminal elevators also. During the past 7 years, however, terminal storage space has been so well filled at the beginning of each season that accumulation of stocks during the period of rapid marketing has been confined largely to country elevators. Weekly statistics of stocks in country elevators and in the principal terminals during August–December of each year 1921 to 1935 are provided in Appendix Table III.

Country elevator shipments not only tend to be heavy during the part of the season when receipts are large, but also tend to vary from week to week as receipts vary. A rush of deliveries or a temporary curtailment tends to be reflected in corresponding variations in the rate of accumulation of stocks at terminal elevators as well as at country elevators. Owing to the time occupied in transit, the reflection in terminal elevator stocks appears a week or two after its appearance in country elevator stocks.

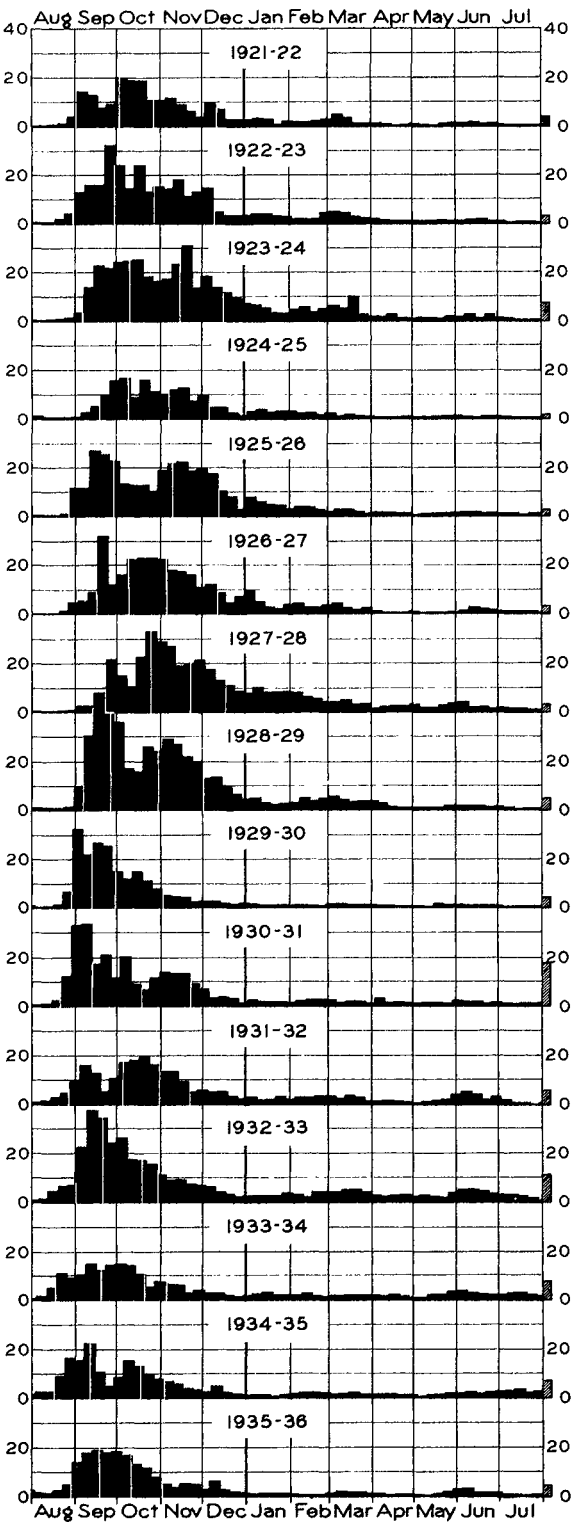
Tendencies in the "Main Movement" from Farms

An admirably complete and detailed record of the country marketing of wheat in Western Canada is available in the weekly statistics of receipts at country elevators and of platform loadings. Weekly deliveries in these two forms combined, from August 1921, are shown graphically in Chart 2 (p. 42), together with estimated farm stocks at the end of each season. A conspicuous feature of farm marketing is the rapidity with which deliveries are made during a brief period starting immediately after the harvest. The similarity among years in relative rate of this early movement appears conspicuously in Chart 3 (p. 43), where the data are shown as percentages of seasonal totals.[2]

[1] The average relation, determined from a correlation analysis and expressed in the usual mathematical form, is $y = 17 + .935x$, where y represents terminal receipts and x inspections, both in million bushels. The statement in the text reflects this average relation, less technically stated, and the range of variation from that average.

[2] There are available also daily statistics of country deliveries compiled by the Sanford Evans Statistical Service, and totals of these daily reports from the beginning of the crop year, published weekly in the *Grain Trade News* (Winnipeg). At the end of each year, the weekly totals are brought together in the annual

CHART 2. — COUNTRY DELIVERIES WEEKLY AND FARM STOCKS JULY 31, IN MILLION BUSHELS*



* Data from Appendix Table II.

The rapidity of country deliveries early in the season is a feature so prominent and important in Western Canadian wheat marketing that it deserves first attention in a study of the timing of country deliveries. For the purpose of specific designation, we identify the period of "rapid" marketing in each season as that in which weekly deliveries were

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Canadian Grain Trade Year Book published by the Sanford Evans Statistical Service. Mr. Evans has kindly provided the following description of the relations between the statistics compiled by his service and the official statistics:

"We obtain daily from the railway companies, 1: their returns by wire from all their agents of loadings, including platform loadings, at country points, and, 2: the reports made to their agents daily by all elevator agents of deliveries by farmers to elevators. The Canada Grain Act provides that elevator agents should furnish this information to the railways. From this material we issue in our service, daily, figures of receipts and shipments.

"The Dominion Bureau receives returns through the Board of Grain Commissioners from the head offices of all elevator companies, weekly. Week by week and month by month differences appear between these figures and those compiled by us, but the yearly totals in each case show no important difference. A few years ago we made several investigations into these differences of distribution throughout the year and came to the conclusion that the cause lay in the different ways in which the elevator companies made up their returns to the Board of Grain Commissioners. At that time certain companies, for example, waited until the outturn at Fort William was reported before reporting shipments and others did not, and head officers received most of their returns by mail from their country agents and the mails might be irregular. Our conclusion was that the railway figures were the more accurate with regard to current movement.

"The railway officials are very closely checked by the railway management, and there have been instances in which local officials called upon to explain by the head office why one particular railway in a certain period received only so much traffic when the Dominion Bureau showed a much larger volume of general movement have come to us in order to check over the returns. In those instances we again concluded that the railway returns were more accurate. We have not made any similar check in recent months, and, therefore, cannot say how far improvement has taken place in the system of returns by the elevator companies to the Board of Grain Commissioners." (Letter of October 20, 1936.)

In the light of this description, it appears that the conclusions of the present study may be applied to interpretation of current statistics of deliveries as compiled by the Sanford Evans Statistical Service quite as well as to interpretation of the official statistics. Mr. Evans' statistics, however, may sometimes show rapid marketing as starting a week earlier than appears from the official statistics, and will generally show the 25 per cent and the 50 per cent points to be reached a few days earlier than indicated by the official statistics.

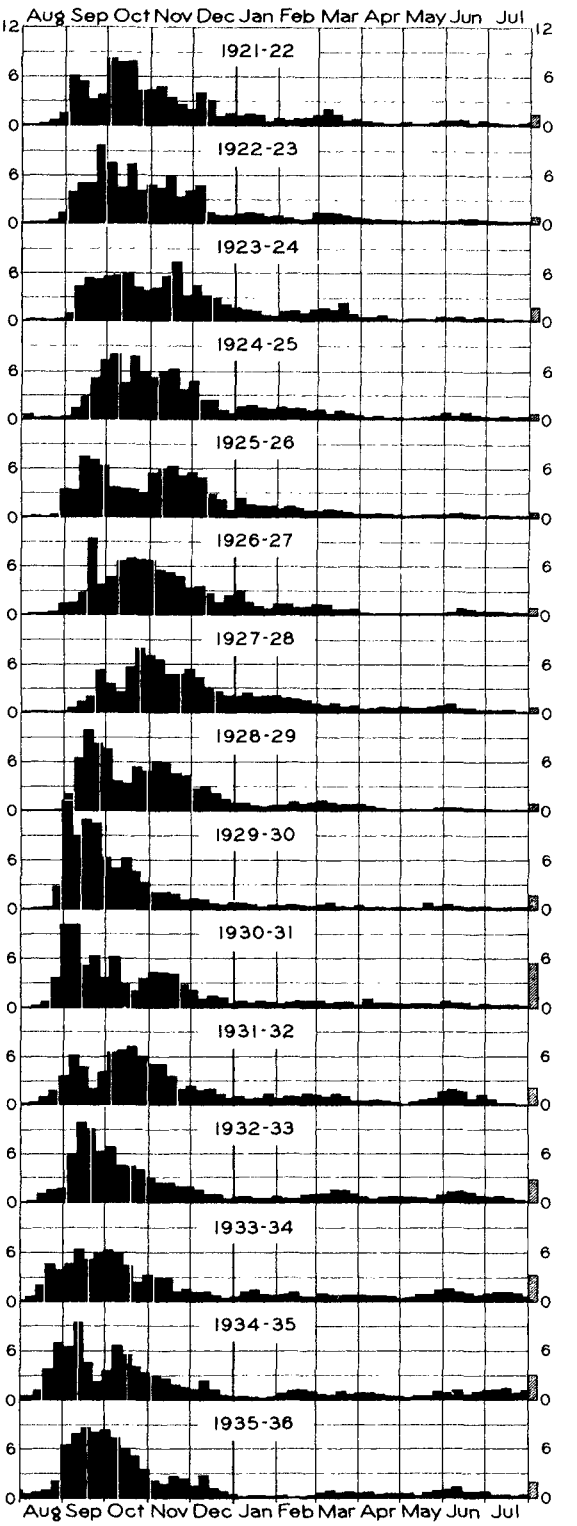
at a rate in excess of 3 per cent of the seasonal total.[1] Deliveries during this period of rapid marketing, with the addition (for convenience) of the small weekly deliveries made earlier in each season, are here designated as comprising the main movement in the country marketing of the season's supplies. The characteristics of this main movement, with respect to timing, volume of deliveries, and rate of delivery, are the subject of the present section.

Basis of comparison.—The common practice of comparing rates of marketing in different seasons in terms of bushels of wheat marketed during corresponding calendar weeks or months is of only limited usefulness. Much more significant comparisons may be made in terms of percentages of appropriate totals than in terms of bushels; and correspondence of periods to be compared, during the first half of the season, should be established in terms of intervals based on the actual course of deliveries rather than in terms of intervals based on the calender.

Perhaps the most common method of expressing deliveries relatively is as a percentage of the crop. Percentages on this basis have the serious disadvantage, however, that allowance must be made for the substantial portion of each crop not delivered into the regular marketing channels (mostly used on farms for seed and feed), and that it is inconvenient and may be misleading to deal with farm disposition in terms of percentages. The best form in which to express deliveries during the first half of the marketing season appears to be as percentages of total deliveries during the season plus farm stocks at the end.[2]

The longer periods for which we find it useful to make comparisons are those occupied by the main movement and the secondary and deferred movements (to be defined later).

CHART 3. — COUNTRY DELIVERIES WEEKLY AND FARM STOCKS JULY 31, IN PERCENTAGES*



* Computed from data in Appendix Table II.

[1] The basis for choice of this percentage is given on p. 53. A temporary decline of deliveries below 3 per cent for only one or two weeks is not taken as marking the end of the period of rapid movement.

[2] Inclusion of year-end farm stocks has a negligible effect on the percentages, but is desirable on logical grounds that will appear later, and because at the beginning of any current season it is simpler to forecast deliveries plus carryover than deliveries alone.

The period of the main movement may be divided advantageously into three subperiods: (1) the interval between the beginning of rapid marketing and the date on which the first one-fourth of the season's deliveries are completed; (2) the interval occupied by delivery of the second one-fourth of the seasonal total; and (3) the interval occupied by the remainder or "tail" of the main movement.

The wide variations during the past fifteen years in calendar dates of significant points within the main movement may be seen from Table 5. The table includes also the dates of completion of delivery of three-fourths of the seasonal total in each year—a point of some incidental interest—and the numbers of days comprised each year in the three important subperiods included within the period of the main movement.

The four more important of these dates in each year are shown graphically in Charts 2 and 3 by vertical white lines dividing the black areas into sections. The dates thus indicated are those of: (1) the beginning of rapid marketing; (2) the completion of the first one-fourth of deliveries; (3) the completion of the second one-fourth of deliveries; and (4) the termination of the main movement, when the period of rapid marketing came to an end. The first one-fourth of deliveries is the total from August 1 to the "25 per cent point" (the second white line), but for the calculation of average weekly rate of delivery in this interval, only the portion after the beginning of rapid marketing (marked by the first white line) is considered. The interval between the second and third white lines comprises the "second one-fourth" of deliveries; and that between the third and the last white line comprises the "tail" of the main movement.

Each of the significant points in the main movement has tended to come at an earlier date since 1928–29 than in previous years in consequence of widespread use of the combine. In 1927 relatively few combines were in use.

TABLE 5.—SIGNIFICANT DATES AND INTERVALS IN COUNTRY WHEAT MARKETING, 1921–22 TO 1935–36*

Crop years	Start of rapid marketing[a]	25 per cent point[b]	50 per cent point[b]	End of main movement[c]	75 per cent point[b]	Length of intervals (days)			
						To 25 per cent point[d]	Second 25 per cent	"Tail"[e]	Third 25 per cent
1921–22.....	Sept. 2	Oct. 3	Oct. 28	Dec. 9	Dec. 20	31	25	42	53
1922–23.....	Sept. 1	Sept. 29	Oct. 28	Dec. 8	Dec. 7	28	29	41	40
1923–24.....	Sept. 7	Oct. 10	Nov. 15	Dec. 14	Jan. 2	33	36	29	48
1924–25.....	Sept. 19	Oct. 9	Nov. 7	Dec. 5	Dec. 19	20	29	28	42
1925–26.....	Aug. 28	Sept. 29	Nov. 10	Dec. 11	Dec. 12	32	42	31	32
1926–27.....	Sept. 17	Oct. 9	Nov. 5	Dec. 10	Dec. 18	22	27	35	43
1927–28.....	Sept. 23	Oct. 25	Nov. 22	Dec. 16	Jan. 18	32	28	24	57
1928–29.....	Sept. 7	Sept. 26	Oct. 30	Nov. 30	Dec. 6	19	34	31	37
1929–30.....	Aug. 30	Sept. 12	Sept. 30	Nov. 1	Nov. 6	13	18	32	37
1930–31.....	Aug. 22	Sept. 12	Oct. 18	Nov. 21	Dec. 17	21	36	34	60
1931–32.....	Aug. 28	Oct. 5	Oct. 31	Nov. 20	Jan. 22	38	26	20	83
1932–33.....	Sept. 2	Sept. 20	Oct. 18	Oct. 28	Jan. 30	18	28	10	104
1933–34.....	Aug. 18	Sept. 19	Oct. 20	Nov. 3	Feb. 15	32	31	14	118
1934–35.....	Aug. 17	Sept. 11	Oct. 17	Nov. 2	Jan. 28	25	36	16	103
1935–36.....	Aug. 30	Sept. 18	Oct. 10	Nov. 1	Nov. 28	19	22	22	49
Averages									
First 7.....	Sept. 9	Oct. 7	Nov. 7	Dec. 10	Dec. 22	28.3	30.9	32.9	45.0
Last 7.....	Aug. 25	Sept. 18	Oct. 16	Nov. 6	Jan. 3	23.7	28.1	21.1	79.1

* Compiled from data in Appendix Table II. All percentages calculated on the basis of a "seasonal total" of deliveries Aug. 1–July 31 plus farm stocks at the end of the season (July 31).

[a] Taken as 7 days before the end of the first week in which deliveries exceeded 3 per cent of the seasonal total (weeks ending on Friday).

[b] Dates on which cumulated deliveries from August 1 reached the indicated percentages of the seasonal total. Calculated from weekly statistics on the assumption of equal distribution of each week's deliveries among six days, other than Sunday.

[c] End of last week in which deliveries exceeded 3 per cent of the seasonal total.

[d] Interval from start of rapid marketing to "25 per cent point" and comprising 18.8–24.4 per cent of the seasonal total, as may be calculated from data in Table 6, below.

[e] From "50 per cent point" to end of main movement.

In 1928 probably about one-tenth of the area in wheat in Western Canada was harvested with combines.[1] In 1929 there was a further large increase in number of combines in use. Thereafter the number of combines increased little, partly owing to some disappointment with the results obtained, and partly in consequence of straitened financial position of the wheat growers.

Average dates and intervals are therefore shown separately for the first seven and for the last seven of the fifteen years comprised in the table. Data for 1928–29, when introduction of the combine was at an intermediate stage, are excluded from these averages. Owing to peculiarities in the effect of weather on the first one-fourth of deliveries, the arithmetic average of intervals for the first one-fourth of deliveries is about three days longer in each 7-year period than the "normal" interval for this portion of the movement (see p. 47, below).

Average rate of delivery in different intervals. — Certain prominent differences in characteristics of country marketing during subperiods within the main movement are revealed by a simple calculation of rates of delivery per week in each subperiod, shown in Table 6.

The last two lines in this table, showing averages for the first seven and the last seven of the fifteen years covered, indicate most conveniently the outstanding tendencies in rate of delivery during the period of rapid marketing. During the seven years before the combine came into widespread use, the rate of delivery from the start of rapid marketing to the date of completion of the first 25 per cent of deliveries tended to average about the same as the rate at which the second 25 per cent of deliveries was made. Introduction of the combine accelerated the rate of delivery in the interval before the "25 per cent point," increasing the average weekly rate from 5.7 to 7.1 per cent. The averages show also an increased rate of marketing for the second 25 per cent of deliveries during the last seven years, but analysis in subsequent paragraphs indicates that this results merely from special circumstances in two of the last seven years. The average rates of delivery in the tail of the main movement stand about halfway between the averages for the second one-fourth of deliveries and the minimum rate accepted as reflecting rapid marketing (3 per cent weekly).[2]

TABLE 6. — RATES OF MARKETING DURING SUBPERIODS OF THE MAIN MOVEMENT, 1921–22 TO 1935–36*

(Per cent of seasonal total)

Crop year	Totals in			Average per week		
	Main movement[a]	Early slow marketing[b]	"Tail"[c]	To 25 per cent point[d]	Second 25 per cent	"Tail"
1921–22..	71.5	3.0	21.5	5.0	7.0	3.6
1922–23..	76.0	2.2	26.0	5.7	6.0	4.4
1923–24..	68.8	1.7	18.8	4.9	4.9	4.5
1924–25..	70.5	6.0	20.5	6.6	6.0	5.1
1925–26..	74.5	.6	24.5	5.3	4.2	5.5
1926–27..	72.2	6.2	22.2	6.0	6.5	4.4
1927–28..	64.7	4.4	14.7	4.5	6.2	4.3
1928–29..	72.8	2.8	22.8	8.2	5.2	5.2
1929–30..	73.7	3.7	23.7	11.5	9.7	5.2
1930–31..	68.1	1.2	18.1	7.9	4.9	3.7
1931–32..	62.7	3.3	12.7	4.0	6.7	4.4
1932–33..	56.3	5.1	6.3	7.7	6.2	4.4
1933–34..	55.8	2.8	5.8	4.8	5.6	2.9
1934–35..	59.3	2.2	9.3	6.4	4.9	4.1
1935–36..	66.6	4.9	16.6	7.4	8.0	5.3
Averages						
First 7..	71.2	3.4	21.2	5.7	5.8	4.5
Last 7..	63.2	3.3	13.2	7.1	6.6	4.3

* Computed from data in Table 5 and Appendix Table II.

[a] Aug. 1 to end of main movement.

[b] Aug. 1 to start of rapid marketing.

[c] From 50 per cent to end of main movement.

[d] Since the significant time interval for the first quarter of the deliveries dates from the start of rapid marketing, the rate is calculated by dividing this time interval (expressed in 7-day weeks) into the percentage delivered in the same interval, which is 25 per cent minus the percentage shown for the period of "early slow marketing."

[1] Based on estimate in J. G. Taggart, J. K. Mackenzie, and E. S. Hopkins, *Seven Years' Experience with the Combined Reaper-Thresher, 1922–1928*, Dominion Department of Agriculture Bulletin, No. 118, New Series, p. 22.

[2] The averages in Table 6 invite comparison with average lengths of intervals given in Table 5, and it is well to note at this point a technical difficulty which any such comparison will encounter. Since the average rate of delivery of the second 25 per cent of the supply during the last seven years was 6.6 per cent, it may be calculated that at this rate, 3.8 weeks, or 26.5 days, would have been occupied in delivering 25 per cent. Table 5, however, shows an average of 28.1 days. Both averages have been calculated correctly from the same data. The indicated discrepancy between the two arises from certain mathematical characteristics of averages which generally pass unnoticed. To obtain an average rate of marketing that would correspond with

First one-fourth of deliveries.—Country deliveries for a time after August 1 include only wheat from the previous crop. After deliveries from the new crop begin to arrive there may be one or two weeks during which marketings continue small because they come from only limited areas of earliest maturity. The date of commencement of deliveries of new wheat from a large area is well reflected in the date of beginning of "rapid" marketing, defined as delivery at a rate in excess of 3 per cent of the seasonal total. From this point deliveries typically increase each week to a maximum of about 10 per cent of the seasonal total in a single week shortly before completion of marketing of the first one-fourth of the season's supply—the 25 per cent point.

For the seven seasons ending with 1927–28, when few combines were in use, the average date of beginning of rapid marketing was September 9. Comparing years of early and late start of rapid marketing within this period, it appears that when rapid marketing started 10 days earlier, the 25 per cent point tended to be reached only about 5 days earlier. The average rate at which the first one-fourth of the seasonal supply was delivered tended therefore to be slower when rapid marketing started early than when it started late. This is because the conditions causing unusually early harvest and marketing in the regions where it is normally early are not ordinarily accompanied by conditions equally favorable for early harvest and marketing in regions of normally late harvest: when the Western Canadian harvest begins early it tends to be extended over a longer period.

For the seven seasons ending with 1935–36, during which combines were in widespread use, the average date of beginning of rapid marketing was August 25. Comparing seasons of early and late start of rapid marketing among these later years, there appears the same tendency as among earlier years: when rapid marketing started 10 days earlier, the 25 per cent point was reached only about 5 days earlier.

Unlike other influences affecting the date of beginning of rapid marketing, introduction of the combine shortened the interval between the start of rapid marketing and completion of the first 25 per cent of the deliveries instead of lengthening this interval. Since the combine came into widespread use, rapid marketing has started 15 days earlier, on the average, and the normal date of completion of the first 25 per cent of deliveries has been advanced about 20 days, from October 5 to September 15 (see Chart 4). The normal interval between the start of rapid marketing and completion of the first 25 per cent of deliveries has been shortened from 25 days before widespread introduction of the combine to about 21 days in recent years. The average rate of marketing during this interval has increased from 5.7 per cent weekly to 7.1 per cent weekly (Table 6).

Relations between dates of beginning of rapid marketing and dates of the 25 per cent point in deliveries are shown graphically in Chart 4. The dots indicate the actual dates in individual years, identified by the last two digits of the years to which the dates apply. The lines sloping upward and to the right among the dots indicate the relations between dates of beginning of rapid marketing and dates at which the 25 per cent point tended normally to be reached. The scatter of the dots about these lines reflects the effects of abnormal influences—chiefly weather during harvest. Unusually favorable weather does not bring the 25 per cent point much earlier than would be expected from the normal relation to the date at which rapid marketing starts; but very unfavorable weather may greatly delay the date at which the 25 per cent point is reached. (Note the dates for 1927 and 1931, the latter so far out of line that it might be

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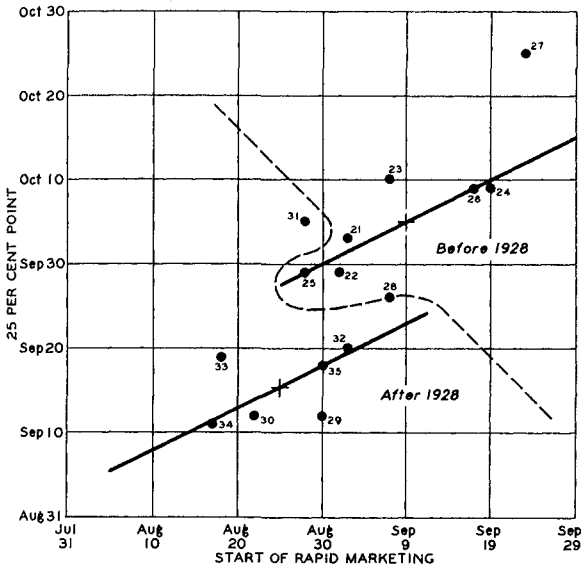
the average time interval, it would be necessary to use an arithmetic mean for one average and a harmonic mean for the other. There is no general ground for preferring the harmonic mean for averaging either the lengths of intervals or the weekly rates of marketing. Instead of resorting to the use of an unfamiliar form of average merely to obtain correspondence between the two sets of averages, we use the familiar arithmetic mean with this explanation to account for discrepancies that might otherwise prove puzzling.

Comparability of the average lengths of intervals and rates of delivery for the two other intervals in the main movement is affected also by the fact that variation in the percentage marketed in these intervals introduces an implicit weighting in the averages of rates of delivery.

taken to belong to the group for years before widespread introduction of the combine.)

Because of these differences in degree of influence from favorable and unfavorable weather, respectively, an arithmetic average of the length of intervals from the start of rapid marketing to the 25 per cent point is not representative, and the "normal" length

CHART 4.—RELATIONS BETWEEN DATES OF BEGINNING OF RAPID MARKETING AND 25 PER CENT POINT, 1921–1935*



* Data from Table 5. The dots indicate relations between the two dates in individual years, the numbers accompanying each dot being the last two digits of the calendar year. The sloping lines indicate, for a wide range of dates of start of rapid marketing, corresponding dates at which 25 per cent of deliveries would normally be completed, assuming ordinarily favorable weather. Particularly favorable weather can advance the 25 per cent point only a few days, but bad weather can delay it two weeks or more. Widespread introduction of the combine advanced the average date of beginning of rapid marketing 15 days, and the corresponding normal date of the 25 per cent point 20 days, as indicated by crosses on the lines of normal relations.

of the interval is better judged on another basis. The lines of normal relationship in Chart 4 have been drawn each through the "middle" of the related group of seven dots, in the sense that each line has three related dots on or above it, and three on or below it. The dot for 1928, when introduction of the combine was at an intermediate stage, does not belong properly to either of the two main groups, and has been neglected in locating the lines of normal relationship.[1]

The rapid rate of delivery in 1929 and the consequent abnormal earliness of the date of the 25 per cent point in that year is probably attributable to a price situation favorable to especially rapid early marketing. The grounds for this judgment will appear shortly.

Second one-fourth of deliveries. — When weather conditions have been reasonably favorable during delivery of the second one-fourth of the seasonal supply, weekly deliveries have sometimes been at a progressively declining rate during the interval; but more commonly they have been at an approximately uniform rate throughout the interval in which the second one-fourth of the supply was delivered.

The time required for delivery of the second one-fourth of the seasonal supply has varied from 18 days (1929) to 42 days (1925), chiefly in consequence of differences in suitability of weather to the requirements of threshing and hauling. The extraordinarily short intervals occupied by the second one-fourth of the deliveries in 1929 and 1935 probably resulted largely from the conjunction of prices regarded as favorable, good weather, and a small total supply which made large percentage deliveries in a short interval physically easy.

Relations between the dates of the 25 per cent point and the 50 per cent point are shown graphically in Chart 5. The line of average relationship indicates a tendency for the interval between the two dates to be about 30 days, whatever the date of the 25 per cent point.[2]

The data in Table 5 show the interval be-

[1] The character of the influence of weather on rate of marketing during the first one-fourth of the movement results in a highly skewed frequency distribution of length of interval between the start of rapid marketing and the 25 per cent point. With such a form of distribution, the median is a more truly representative average than the mean; and the normal relationship is better reflected by a line fitted to minimize aggregate deviations from it, taken without regard to sign, than by one fitted to minimize the sum of the squares of deviations. The lines of normal relationship in Chart 4 have been fitted to give an approximate minimum of the sums of absolute deviations from them.

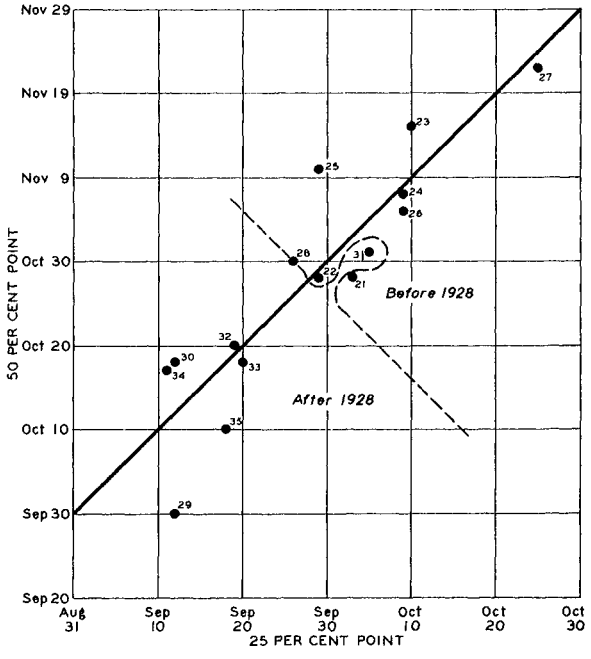
[2] A line fitted to the data by the method of least squares has the equation,

$$y = 29.8 + 1.002\,x,$$

where y is the date of the 50 per cent point, measured in days from September 30, and x is the date of the 25

tween the 25 per cent and the 50 per cent point to have averaged nearly three days shorter during the last seven years than during the first seven, suggesting a possible acceleration in rate of delivery due to introduction of the

CHART 5.—RELATIONS BETWEEN DATES OF 25 AND 50 PER CENT POINTS, 1921–1935*



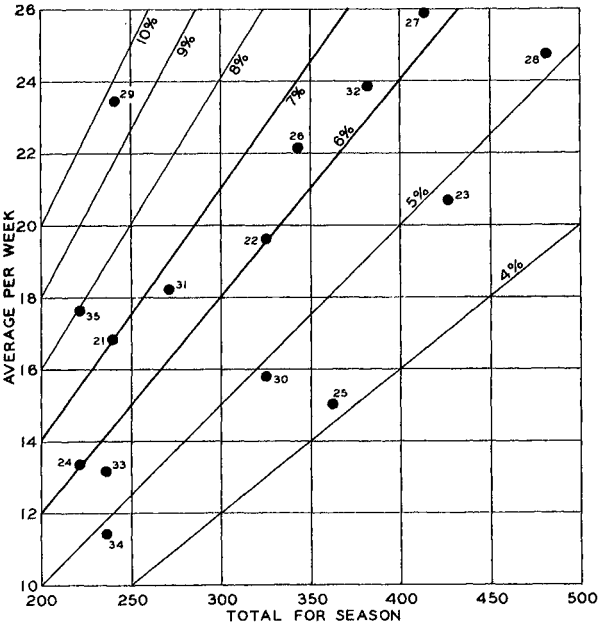
* Data from Table 5. The line of average relation between the two dates, sloping upward at an angle of 45 degrees, indicates a constant interval of 30 days between the two dates. Introduction of the combine did not alter this relation between the dates, but advanced the normal date of the 25 per cent point to about September 15; and of the 50 per cent point to about October 15. Extreme conditions (chiefly weather) may advance or retard the date of the 50 per cent point 10 days from the expected date indicated by the line of average relationship.

combine. We regard the difference in average length of the interval as due simply to the accident of occurrence in the last seven years of two seasons in which circumstances happened to favor especially rapid deliveries. The reasons for this judgment will be indicated in subsequent paragraphs.

Certain tendencies in the delivery of the second one-fourth of the seasonal supply are illuminated by studying the relation between quantity to be marketed during the season and weekly rate of delivery, the latter expressed both in million bushels and as a percentage of the seasonal total. This is made possible by Chart 6. The dots in this chart, in their relation to the scales at the bottom and the side, respectively, represent for each year the total supply delivered during the season or carried over on farms, and the average rate of marketing during delivery of the second one-fourth of the seasonal supply, in million bushels per week. The position of each dot in relation to the radiating lines indicates the average rate of marketing as a percentage of the seasonal total.

CHART 6.—RELATIONS BETWEEN TOTAL SUPPLY AND RATE OF MARKETING OF THE SECOND 25 PER CENT, 1921–1935*

(*Million bushels*)



* Data are total deliveries plus farm stocks, from Appendix Table II; and average weekly deliveries computed from these totals and from the lengths of intervals given in Table 5 (p. 44).

The normal rate of delivery is 6 to 7 per cent weekly, irrespective of the total to be delivered. Bad weather may reduce the rate to 5 or even 4 per cent. A price inducement may greatly accelerate the rate of delivery if the total supply is small.

Seven of the fifteen dots lie in the zone indicating a rate of marketing of 6 to 7 per cent weekly. These dots all represent data for years in which weather conditions were reasonably

per cent point, similarly measured. This line would diverge almost imperceptibly from the one shown in Chart 5. The approximately normal distribution of the residuals makes it appropriate to use the method of least squares in this instance.

favorable for marketing during the second one-fourth of the seasonal movement. Six dots, below and to the right of these, are in positions indicating considerably slower percentage rates of delivery, four of them representing rates of only 4 to 5 per cent. In each of these four extreme years, delivery of the second one-fourth of the supply was retarded by bad weather during two or three weeks of the interval.[1]

The two dots indicating rates of delivery in excess of 7 per cent weekly represent deliveries in 1929 (September 12–30) and 1935 (September 18–October 10). In each of these two periods the price situation was one that might well have encouraged rapid marketing. Moreover, the total supply for marketing in 1929–30 and in 1935–36 was so small that the weekly delivery of 8 to 10 per cent of the supply did not require hauling of an excessive number of bushels per week. If the total supply to be marketed in 1929–30 and 1935–36 had been very large instead of very small, the inducement to early marketing provided by the price situation would probably have yielded a much smaller response in terms of the percentage marketed weekly.

It appears, therefore, that under normal conditions the second one-fourth of the deliveries tends to be made at a rate of 6 to 7 per cent weekly, regardless of the total quantity to be marketed; that unfavorable weather conditions may reduce the average rate of delivery to 5 or even to 4 per cent, regardless of the total quantity to be marketed; and that a price incentive may greatly accelerate the percentage rate of delivery, provided the total supply to be delivered is small.

Probably similar acceleration may occur also in the first 25 per cent of deliveries under the same conditions. In 1929 such conditions were accompanied by rapid delivery of the first 25 per cent. In 1935, the price incentive for rapid marketing was lacking while the first 25 per cent of deliveries were being made, since a high price level from which decline might be feared was not attained until after the 25 per cent point had been reached. Evidence of acceleration of deliveries due to a price incentive in 1936 is given by the fact that the 25 per cent point was this year reached four days earlier than was otherwise to have been expected (see pp. 35–36).

Tail of the main movement.—Since the tail of the main movement is defined as comprising deliveries between the 50 per cent point and the end of the main movement (when deliveries fall to or below 3 per cent weekly), variations in proportion of the seasonal supply delivered in the main movement are all reflected in this final part of the main movement. The proportion of the seasonal supply comprised in deliveries in the tail of the main movement has varied from 5.8 per cent to 26.0 per cent.

The average rate of delivery in the tail of the main movement is normally about 4.4 per cent weekly. It has varied from 2.9 per cent to 5.5 per cent weekly, with little relation either to the date of beginning of this part of the movement (the 50 per cent point) or to the percentage of the supply included within it.

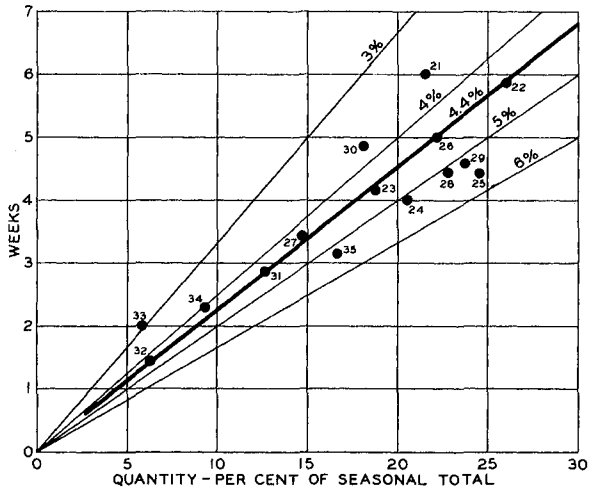
The time interval occupied by the tail of the main movement tends of course to vary inversely with the rate of delivery, and therefore to depend on weather conditions; but the chief differences in length of the interval are caused by variations in the proportion of the supply which farmers choose to deliver as part of the main movement. When farmers have marketed less than 60 per cent of the season's supply in the main movement and, therefore, less than 10 per cent in the tail of the main movement, the tail has occupied only 2 weeks or less. When about 25 per cent of the season's supply has remained to be marketed in the tail of the main movement, the tail has occupied an average interval of slightly over 5 weeks.

These characteristics of the final stage of the main movement appear most readily in the data as shown graphically in Chart 7. The heavy diagonal line shows the normal relation between the percentage in the tail of the main movement and the time required for its completion, on the assumption of deliveries at the average rate of 4.4 per cent weekly.

[1] The fact of relatively small deliveries in these weeks is readily apparent in Charts 2 and 3 (pp. 42 and 43); and records of weather conditions definitely establish the relation between retarded delivery and bad weather in these instances.

The lighter radiating lines show relations between size and time intervals corresponding to other designated weekly rates of marketing in the tail of the main movement. By reference to these lines the chart may be read in terms of average weekly rate of marketing during the tail of the main movement, as well as in terms of total percentages and time intervals.

CHART 7.—RELATIONS OF QUANTITY AND TIME IN THE TAIL OF THE MAIN MOVEMENT, 1921–1935*



* Data from Tables 5 and 6. The positions of the dots relative to the radiating lines indicating stated rates of weekly deliveries reflect rates in individual years. The heavy diagonal line indicates the average weekly rate. Total percentage in the tail of the main movement depends chiefly on farmers' disposition to hold for anticipated higher prices, but the average weekly rate of delivery depends mainly on weather conditions.

Unfavorable weather for marketing during the tail of the main movement commonly serves merely to lengthen the interval of the movement and therefore to decrease the average weekly rate of delivery. But if unfavorable weather occurs only a week or two before the main movement would normally terminate, its effect may be to curtail prematurely this final portion of the main movement, leaving the average rate of delivery slightly higher than if deliveries had declined gradually to a later date. Exceptionally favorable weather during the tail of the main movement commonly results in an average rate of delivery above normal; but if it occurs at the time when the main movement is nearing its end, the effect may be abnormally to prolong the tail of the main movement, with consequent slight reduction in the average weekly rate of delivery.

The date of completion of the main movement is of course affected not only by weather conditions during the tail of the main movement, but also by weather earlier in the season. If the harvest is late and if bad weather interferes with delivery of the first 25 per cent and the second 25 per cent of the supply, each of these influences tends to be reflected to some degree in postponement of completion of the main movement. It will be shown later, however (pp. 56–58), that delays which result from bad weather early in the period of rapid deliveries probably tend to be largely offset by acceleration of deliveries when the weather turns favorable again and consequently have little effect on the date of completion of rapid marketing. The effect of a late start on the date of ending of the main movement has not been specifically investigated; but it has been noted above that a change in the time of beginning of rapid marketing changes the date of the 25 per cent point only half as much, and it seems reasonable to assume that the date of completion of rapid marketing is affected by the same amount as the 25 per cent point.

The most important characteristic of the tail of the main movement is the variation in its size, expressed as a percentage of the total supply; but this feature is better deferred for later consideration. The variation in percentage of deliveries in the tail of the main movement is a direct reflection of variation in percentage in the main movement as a whole, and this in turn is intimately related to variations in the percentages appearing in the secondary and deferred movements. Variations in each of these closely related percentages reflect more or less clearly the influence of farmers' price judgments, discussed in the final section of this study.

THE SECONDARY AND DEFERRED MOVEMENTS

From one standpoint, all country deliveries after the termination of rapid marketing (the end of the main movement) may be regarded as "deferred" marketings, since they represent deliveries which farmers have chosen to post-

pone for one reason or another. Study of characteristics of marketing after the close of the main movement, however, reveals marked differences between marketing tendencies prior to the end of January and tendencies after the end of January. These tendencies indicate that delayed marketings up to the end of January represent deliveries postponed solely or chiefly for convenience. Marketings after January represent chiefly deliveries postponed in the hope of price advantage.

In view of these differences, we designate the deliveries from the close of the main movement to the end of January as a *secondary movement* and only the deliveries after the end of January are described as *deferred*. The secondary movement might be regarded as an attenuated extension of the tail of the main movement. The deferred movement, comprising chiefly marketings postponed, in a more positive sense, contrasts sharply with the main and secondary movements.

The secondary movement.—The main characteristics of the secondary movement are explicable only on an interpretation that regards the secondary movement as constituting a remainder or residual. On general principles it appears most natural to regard the final deferred movement rather than the intermediate secondary movement as the residual. To indicate why the secondary movement should be regarded as made up of a quantity left over, after deducting amounts in both the main movement and the subsequent deferred movement, it is necessary to anticipate conclusions for which much of the basis remains to be developed in this and the subsequent section. In the end it will appear clearly that the relations among the three principal marketing movements may be summarized as follows: Early in the marketing season farmers decide more or less consciously to hold a certain percentage of their marketable supply for delivery after the end of January. The proportion reserved for such deferred marketing has varied from about 12 to 27 per cent. Of the remaining 73 to 88 per cent, the greater part is delivered rapidly, under a good deal of pressure, and constitutes the main movement of the supply. As the task of delivering the portion not to be held for deferred marketing nears its end, however, effort is relaxed and deliveries proceed at a more leisurely pace. The secondary movement constitutes that portion of the supply which farmers do not care to hold for deferred marketing, yet are content to deliver more or less at their convenience.[1]

Four significant features of the secondary movement, as they have varied during the past 15 years, are shown in Table 7: total deliveries during the movement, expressed both in million bushels and as a percentage of the seasonal total; the time interval available for the movement; and the average rate of delivery per week as a percentage of the seasonal total. In the secondary movement, as in earlier marketing periods, the number of bushels delivered tends to vary directly in proportion to the total supply to be delivered during the season. The influence of other factors affecting deliveries during the period is best reflected in the percentage of total deliveries falling within the period.

The interval of the secondary movement is characteristically one of leisurely marketing following the rush of the main movement. Widespread use of the combine, through facilitating earlier and more rapid deliveries in the main movement, has tended to leave about three weeks more for the leisurely secondary movement than could be expected without extensive use of the combine.[2]

With 10 to 14 weeks available for the secondary movement, as in each of the past seven years, deliveries during this movement have averaged about 1.26 per cent weekly. At this rate, only 12.6 per cent of the seasonal

[1] This must be regarded as a somewhat idealized characterization of the three movements, useful for summarization, but not to be pressed too far. If numerous farmers were asked in any year to specify the successive intervals over which their own marketings were dominated by the considerations described as characterizing the three movements, it would doubtless be found that the intervals specified would rarely coincide precisely with the three movements as here determined statistically.

[2] The secondary movement has averaged 34 days longer for the seven seasons since 1928–29 than for the seven seasons before 1928–29, but about 12 days of this difference is attributable merely to the fact that the percentage of the seasonal supply delivered in the main movement happens to have averaged smaller in the last seven than in the first seven years.

supply can be delivered in 10 weeks. When the main movement has continued until late November or into December, as in all the eight years prior to 1929–30, only 7 to 9 weeks have remained for the secondary movement. With such short periods available for it, rapid marketing commonly was discontinued when the total amount remaining for delivery, less that to be held over for the deferred movement, had been reduced to about 12.6 per cent, even though this might involve delivery at a rate of 1.7 per cent weekly during the secondary movement. Special circumstances led to a still higher rate in 1927–28 (pp. 58–59).

TABLE 7.—QUANTITIES AND RATES OF MARKETING IN THE SECONDARY MOVEMENT, 1921–22 TO 1935–36*

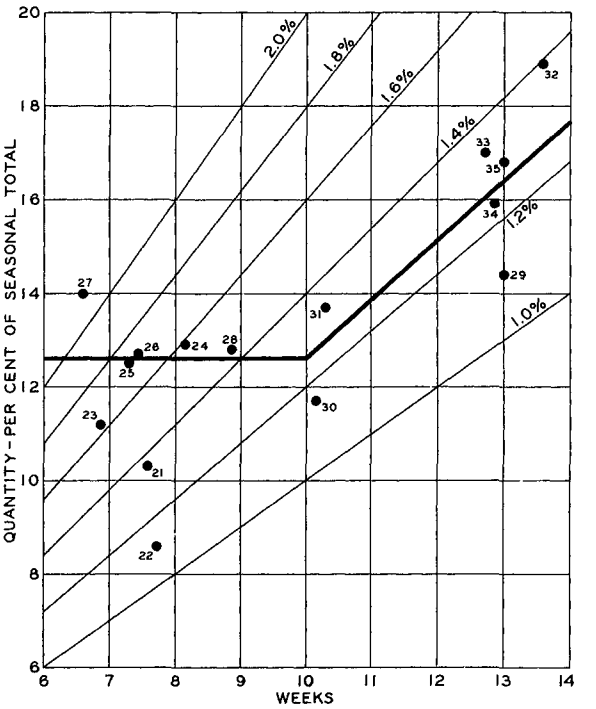
Crop year	Deliveries		Number of days	Average percentage weekly
	Million bushels	Percentage		
1921-22.....	24.8	10.3	53	1.36
1922-23.....	28.0	8.6	54	1.12
1923-24.....	47.9	11.2	48	1.64
1924-25.....	28.4	12.9	57	1.58
1925-26.....	45.1	12.5	51	1.71
1926-27.....	43.6	12.7	52	1.71
1927-28.....	57.8	14.0	46	2.13
1928-29.....	61.3	12.8	62	1.44
1929-30.....	34.9	14.4	91	1.11
1930-31.....	37.9	11.7	71	1.15
1931-32.....	37.1	13.7	72	1.33
1932-33.....	72.2	18.9	95	1.39
1933-34.....	40.1	17.0	89	1.34
1934-35.....	37.5	15.9	90	1.24
1935-36.....	37.2	16.8	91	1.29

* Deliveries (from Appendix Table II) and time interval from end of rapid marketing to January 31. Percentages in terms of total Aug.–July deliveries plus farm stocks at the end of July.

Relations between the interval available for the secondary movement and the percentage of the seasonal supply included in it are shown graphically in Chart 8. The heavy line showing the normal percentages in the secondary movement with varying lengths of the intervals, reflects the tendencies summarized above. The radiating diagonal lines permit ready interpretation of the data in terms of rates of delivery per week.

The actual percentages included in the secondary movement differ from the indicated normals by 4 to 5 per cent in two years and by about 2 per cent in several other years. These differences from normal show no important systematic relation to price or to proportion of the supply reserved for deferred marketing, and little relation to weather during the secondary movement as a whole. They seem to result chiefly from character of the weather at the time when the main movement is approaching its end. Apparently, if the weather turns unfavorable for hauling a week or two before the main movement would normally terminate, rapid marketing is discontinued then and not resumed. As much as 1.4 per cent of the seasonal supply more than normal may thus be left for more leisurely delivery in the secondary movement. On the other hand, if weather is especially favorable for hauling when the main movement would normally terminate, rapid marketing may be continued for a week or two longer, reducing the amount left for the secondary movement

CHART 8.—RELATION OF QUANTITY AND TIME IN THE SECONDARY MOVEMENT, 1921–1935*



* Data from Table 7. Prior to introduction of the combine the interval remaining for the secondary movement was always short. Rapid marketing commonly ceased when about 12.6 per cent of the seasonal supply remained for delivery in the secondary movement. With longer intervals available for this movement in later years, the amount left for the secondary movement has tended to be such as could be delivered at an average rate of 1.26 per cent per week.

to what can be delivered at an average rate of only about 1.1 per cent weekly.

The amount of the deliveries classed as falling in the secondary movement depends in some degree on the definition of "rapid" marketing as representing deliveries at a rate above 3 per cent weekly. The line of division between rapid and leisurely marketing, distinguishing the main movement from the secondary movement, might be set instead at 4 per cent or at 2 per cent weekly. The 3 per cent rate has the logical merit for the purpose of being well below the average rate for the tail of the main movement (4.4 per cent) and yet about twice the average rate of delivery in the secondary movement. On trial, 4 per cent has proved too high a rate of delivery to be used satisfactorily as the dividing line between the main and the secondary movement, and 2 per cent has proved too low.

The deferred movement. — Country deliveries during the deferred movement are the result of two variables: the varying total supply for delivery during the season; and the varying percentage of the total which farmers choose to hold for deferred marketing. The total supply for delivery during the season depends chiefly on the size of the Western Canadian crop. The percentage of the supply reserved for deferred marketing depends chiefly on farmers' opinions of the likelihood of gain from postponing sale. The percentage reserved for deferred marketing seems to be nearly or quite independent of the quantity to be marketed during the season. In 1928–29, the season of largest total deliveries during the past fifteen years, the percentage held for deferred marketing was one of the lowest recorded; and in 1933–34, when total deliveries were near the postwar minimum, the percentage reserved for deferred marketing reached its peak (Table 8, p. 54). But on the other hand, the smallest percentage reserved for deferred marketing during the past fifteen years occurred in 1929–30, when total deliveries for the season were among the smallest recorded; and one of the largest percentages reserved was in 1932–33, when total deliveries for the season were among the four largest in the fifteen years.

With deliveries during the deferred movement determined by two independent factors, their range of variation has naturally been greater than the range for either of the two factors. The maximum supply for delivery during the season has been 2.2 times the minimum during the past fifteen years; the maximum percentage in the deferred movement has been 2.3 times the minimum; and the maximum quantity in the deferred movement has been 3.2 times the minimum.[1] Variations in the two factors separately have been about equally important in causing variation in the quantity delivered in the deferred movement.

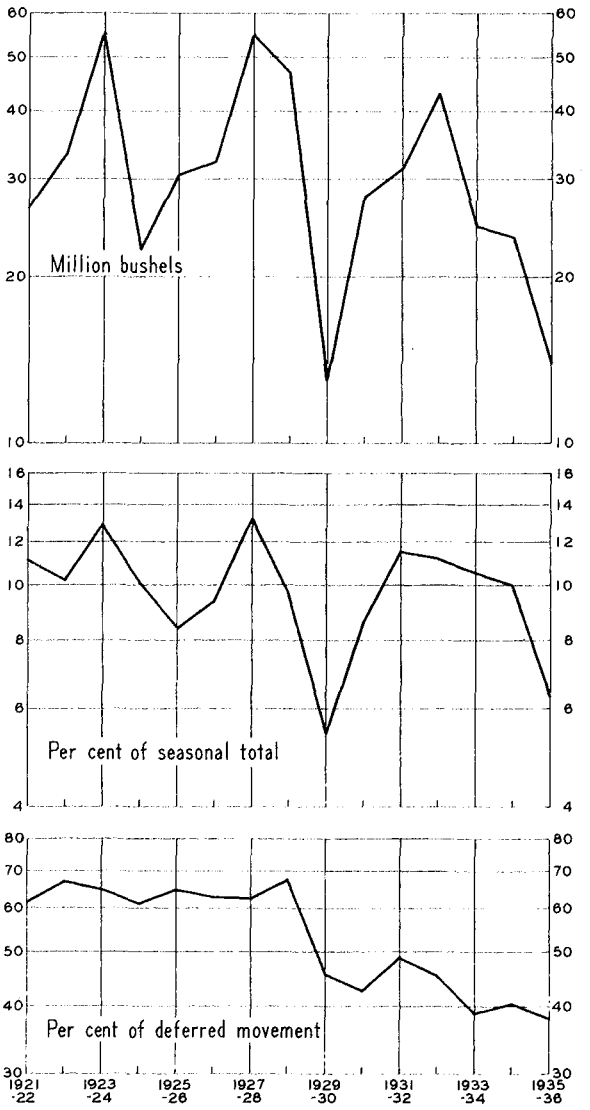
The circumstances affecting farmers' decisions in determining the proportion of the supply reserved for deferred marketing will be discussed in the next section. Here we consider the proportional distribution among various subperiods. Examination of the record of weekly deliveries (Charts 2 and 3, pp. 42 and 43) reveals two periods of special concentration during the second half of each season, one centering on March, the other on early June. It is apparent also that the relative amounts delivered in these two periods of concentration have changed substantially. For the purpose of more precise appraisal of these and other changes, deliveries in the deferred movement may be subdivided into totals for four subperiods: (1) February – April, (2) May–June, (3) July, and (4) after July. Deliveries of old-crop wheat after July are not specifically measurable from marketing statistics, but may be taken as adequately indicated by the estimated stocks on farms on July 31.

For comparison of deliveries during these four subperiods within the deferred movement, it is advantageous to express them, not as percentages of the seasonal total, but as percentages of the deferred deliveries only (Table 8). This advantage may be illustrated by comparison of different measures of deliveries

[1] Given these variations in the factors, if the percentage in the deferred movement had tended to vary in inverse proportion to the seasonal supply, the quantity in the deferred movement would have varied little, while if the percentage had tended to vary in direct proportion to the seasonal supply, the maximum quantity in the deferred movement would have been about 5 times the minimum.

during February–April, as in Chart 9. The quantity of wheat delivered during February–April, as shown by the top line in the chart, has fluctuated widely during the past fifteen years; the percentage of the seasonal total represented by February–April deliveries has varied less; and the percentage of the deferred movement represented by February–April deliveries has fluctuated little from year to year, though it shows a pronounced downward trend since 1928–29. Relative degrees of variation in terms of the three measures are most readily compared on the basis of the data for the first eight years of the period, during which the normal volume of February–April deliveries did not change significantly. The maximum quantity delivered in February–April during this period was 2.5 times the minimum quantity; the maximum percentage of the seasonal total was 1.6 times the minimum; and the maximum percentage of the deferred movement was only 1.1 times the minimum.

CHART 9.—FEBRUARY–APRIL DELIVERIES, VARIOUSLY EXPRESSED, 1921–22 TO 1935–36*



* Based on data in Table 8 and Appendix Table II. A logarithmic vertical scale is used here to insure correct representation of the relative magnitude of fluctuations among series differing widely in absolute magnitude of the figures. February–April deliveries have varied widely in quantity and as a percentage of the seasonal total. But expressed as a percentage of the deferred movement, February–April deliveries have been extraordinarly stable except for a downward trend since 1928–29. The comparative stability of the proportions delivered in various subperiods reflects the essential unity of the deferred movement as a whole (see also Chart 10).

TABLE 8. — DELIVERIES IN THE DEFERRED MOVEMENT, 1921–22 TO 1935–36*

Crop year	Million bushels		Deferred as percentage of season	Percentages of deferred movement			
	Season	Deferred movement		Feb.–April	May–June	July	After July[a]
1921–22..	240.2	43.6	18.2	61.1	23.5	6.5	8.9
1922–23..	325.1	49.9	15.3	66.7	21.3	5.8	6.2
1923–24..	426.1	84.9	19.9	64.9	20.7	5.4	9.0
1924–25..	221.1	36.9	16.7	60.8	26.3	8.1	4.8
1925–26..	361.4	47.2	13.1	64.6	21.2	8.5	5.7
1926–27..	342.5	51.6	15.1	62.6	20.9	9.6	6.9
1927–28..	413.9	88.1	21.3	62.2	27.1	6.9	3.8
1928–29..	480.4	69.1	14.4	67.2	19.3	6.3	7.2
1929–30..	241.5	28.7	11.9	45.5	28.6	10.7	15.2
1930–31..	324.9	65.7	20.2	42.4	22.2	8.3	27.1
1931–32..	271.0	64.0	23.6	48.7	37.2	5.0	9.1
1932–33..	381.7	94.6	24.8	45.2	32.0	11.1	11.7
1933–34..	235.3	64.0	27.2	38.6	32.3	17.1	12.0
1934–35..	235.5	58.4	24.8	40.3	25.6	21.6	12.5
1935–36..	221.6	36.7	16.6	37.8	38.9	10.9	12.4

* Data from Appendix Tables I and II. Total deliveries for both the season and the deferred movement (after Jan. 31) here include supplies remaining on farms on July 31.

[a] Farm stocks July 31.

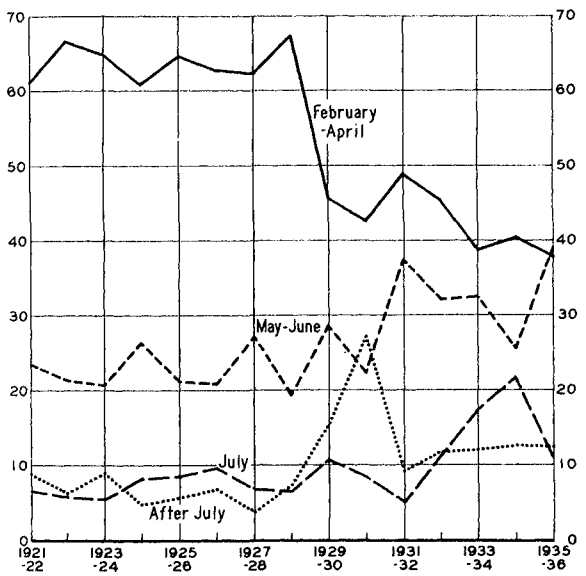
Percentages of the deferred deliveries made in other subperiods of the deferred movement are characterized likewise by comparative stability, apart from certain trends. The stability of these percentages, contrasting with the wide variations in quantities, and in percentages based on the seasonal total, reflects the essential unity of the deferred movement as a whole.

The outstanding change in characteristics

of the deferred marketing movement during the past fifteen years has been a pronounced tendency since 1928–29 toward longer postponement of such deliveries. From 1921–22 to 1928–29 nearly two-thirds of the deferred deliveries were always made in February–April. Since then, this proportion has been smaller, with a pronounced downward trend. In 1934–35 only 38 per cent of the deferred deliveries were made in February–April. With this decrease in February–April deliveries there have occurred corresponding increases distributed among all the later subperiods (Chart 10).

CHART 10.—DELIVERIES BY PERIODS WITHIN THE DEFERRED MOVEMENT, 1921–22 TO 1935–36*

(Percentage of deferred movement)



* Data from Table 8. Although the deferred movement falls wholly within the calendar year, crop-year designations are here used to avoid possible confusion in comparisons with deliveries earlier in the season. Since 1928–29, there has been a progressive tendency toward later marketing within the deferred movement. The fluctuations from year to year in proportion of the deferred deliveries made during specified months reflect mostly small shifts in timing of deliveries in response to contemporary price movements.

There appears to have been a definite increase in the normal level of farm stocks on July 31 from about 6 per cent of the total deferred movement in earlier years to about 12 per cent in recent years. Deliveries during July were relatively heavy in 1933–34 and 1934–35, but were down again in 1935–36 to the upper limit of their earlier range of 5 to 11 per cent. Deliveries in May–June have increased from about one-fourth of the deferred movement in earlier years to nearly 40 per cent of the deferred movement in 1935–36.

In addition to these relations among trends in proportions of the deferred movement falling in different subperiods, there are other relations reflected in year-to-year variations. These variations reflect shifts in timing of the deferred deliveries, apparently chiefly in response to contemporary price fluctuations. The proportion of the deferred deliveries thus shifted from one subperiod to another has rarely been large; and the shift into or out of one subperiod has usually had little effect on the percentage in any but the immediately subsequent period. Thus, when the percentage delivered in February–April has been increased or decreased, there has usually been a corresponding inverse change in the percentage delivered during May–June; and when the percentage delivered in May–June has been increased or decreased (other than to offset abnormality in February–April deliveries), there has usually been a closely corresponding inverse change in the percentage delivered during July. In 1929–30, however, the shortage in proportion of deliveries during February–April was reflected to a considerable extent in enlarged carryover on July 31; and in 1930–31 the shortage in proportion of deliveries in February–April was augmented by a slight defect in May–June deliveries, and both were reflected in a strikingly enlarged carryover at the end of July.

INFLUENCE OF PRICE JUDGMENTS

By far the most important influence of price judgments on the country marketing of wheat in Western Canada is that reflected in the variation in proportions of the supply marketed before and after January 31 respectively. The foregoing analysis of marketing tendencies in the deferred movement makes it clear that when an unusually large or an unusually small percentage of the seasonal supply is reserved for deferred marketing, the rates of delivery in all parts of the deferred movement tend to be affected equally, leaving the proportions in each part about the same, whether the deferred movement is large or small.

Variations in percentage reserved for de-

ferred marketing affect deliveries during August–January in quite a different way. Such variations have little effect on the weekly rate of delivery during any one of the intervals into which we divide the first half of the season. Instead, expansion or contraction of the percentage delivered during August–January tends to be obtained chiefly through variation in length of the interval over which rapid deliveries are made. If farmers wish to hold a large percentage of the supply for deferred marketing, they discontinue rapid marketing at an early date. If they wish to market a large percentage during August–January, they may accomplish it under certain special circumstances by increasing the average deliveries per week (p. 49), but in general they expand deliveries chiefly by marketing at about a normal rate over an extended period.

The timing of country marketing, as regards decisions to deliver a larger or a smaller proportion of the seasonal total before the end of January, is dominated by price judgments. The timing as regards variations in rate of marketing during various shorter time intervals within the season is influenced in some degree by price judgments. In the following paragraphs, attention is devoted first to establishing clearly the fact that variation in the proportion of the seasonal total delivered before the end of January is accomplished chiefly by lengthening or shortening the period during which deliveries are made rapidly rather than by materially increasing or decreasing the rate of delivery. This rather surprising fact has an important bearing on interpretations of the character and basis of the more important price judgments. Finally, an attempt is made to indicate the main influences that have affected price judgments and thus affected the course of marketings.

Variation in August–January deliveries.—The analysis in previous sections implies that when farmers choose to restrict August–January marketings, and to hold a relatively large percentage of the supply for deferred delivery, they do so generally, not by marketing less rapidly early in the season, but by discontinuing rapid marketing sooner than usual (and conversely). Nevertheless this conclusion, and the converse proposition that when farmers choose to market a large proportion of the supply early in the season they generally accomplish it chiefly by extending the period of normally rapid marketing, deserves more specific and unequivocal demonstration than the preceding analysis affords.

The validity of the conclusion is subject to a simple test. If the *rate* of delivery during the period of rapid marketing is in fact unaffected by variations in the amount of wheat which farmers wish to deliver early in the season, the *time* occupied by rapid movement must tend to vary directly with changes in the amount. (Both rate of delivery and amount delivered are to be measured, of course, in terms of percentage of the seasonal total.) To make this test, we calculate the percentage of the seasonal total delivered during the period of rapid marketing each year and the time occupied by the rapid movement, as shown in the first two columns of the following tabulation:

Crop year	Percentage[a]	Period in days[b]	Adjustments		Adjusted period	Delay due to bad weather[c]
			A	B		
1921-22..	68.5	98	−3.5	−4.5	90.0	14
1922-23..	73.8	98	−4.0	−4.5	89.5	6
1923-24..	67.1	98	−1.0	−4.5	92.5	6
1924-25..	64.5	77	+5.0	−4.5	77.5	3
1925-26..	73.9	105	−6.0	−4.5	94.5	14
1926-27..	66.0	84	+4.0	−4.5	83.5	0
1927-28..	60.3	84	+7.0	−4.5	86.5	7
1928-29..	70.0	84	+2.8	−2.0	84.8	7
1929-30..	70.0	63	+2.5	...	65.5	0
1930-31..	66.9	91	−1.5	...	89.5	14
1931-32..	59.4	84	+1.5	...	85.5	10
1932-33..	51.2	56	+4.0	...	60.0	0
1933-34..	53.0	77	−3.5	...	73.5	3
1934-35..	57.1	77	−4.0	...	73.0	10
1935-36..	61.7	63	+2.5	...	65.5	0

[a] By calculation from Table 6, p. 45.

[b] From data in Table 5, p. 44. The period is necessarily an integral number of weeks.

[c] These estimates are found to average about 1.7 times as large as they should be (p. 58).

The time occupied by the rapid movement has been affected by three extraneous factors, for two of which direct adjustment may well be made. As noted on an earlier page, the interval from the beginning of rapid marketing to the 25 per cent point tends to be about 5 days longer than otherwise when the start of rapid marketing comes 10 days earlier. The

number of days by which this interval (and therefore the entire period of rapid marketing) was presumably lengthened or shortened by influences affecting the date of beginning of rapid marketing is shown in the tabulation above as "adjustment A." Before the combine came into widespread use, the normal interval between the beginning of rapid marketing and the 25 per cent point was about 4.5 days longer than for later years. "Adjustment B" in the tabulation above makes allowance for this difference. For 1928–29, when introduction of the combine was at an intermediate stage, the requisite adjustment is estimated at two days.

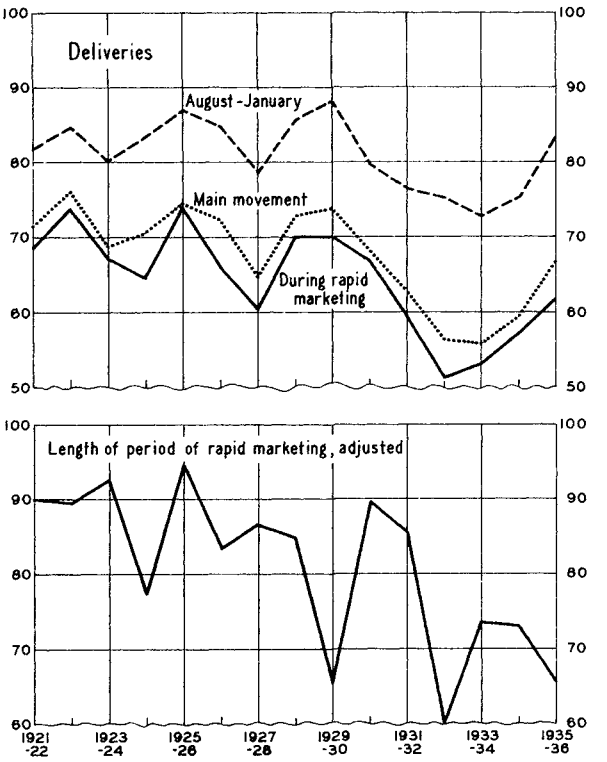
An important factor causing variation in the length of the interval of rapid marketing is weather. We have no good measure of the influence of weather, but from study of the record of weekly marketings and reports on weather conditions we have estimated roughly for each season the number of days by which the period of rapid marketing was prolonged by markedly unfavorable weather. These estimates are shown in the final column of the tabulation.[1]

The percentages of the seasonal total delivered in the periods of rapid marketing in successive years, and the lengths of time occupied by the periods, as adjusted, are shown in Chart 11. With them are included, for comparison, curves showing the percentage delivered during the entire main movement and during the six months August–January. The main movement includes deliveries made rapidly plus those made from August 1 to the date of beginning of rapid marketing. August–January deliveries include both the main and the secondary movements.

The length of the period of rapid marketing, as adjusted, tends to vary more or less in proportion to the percentage of the supply delivered during the period. The general tendency to correspondence finds its principal exceptions in 1929–30 and in 1935–36. These exceptions arise from unusually rapid marketing of the second 25 per cent of the deliveries in those years, the reasons for which have been discussed above (p. 49 and Chart 6). On calculation, it appears that, if 1929–30 and 1935–36 be left out of account, an increase in percentage delivered during rapid marketing from 50 per cent to 75 per cent—an increase of one-half—has been accompanied on the average by an increase in the length of the period of rapid marketing also by nearly one half: from 67 days to 96 days.[2]

CHART 11.—LENGTH OF PERIOD OF RAPID MARKETING AND DELIVERIES DURING VARIOUS PERIODS, 1921–22 TO 1935–36*

(Percentages of seasonal total; days)



* Data from Tables 6 and 7 and tabulation on p. 56. The percentage of total deliveries made in the period of rapid marketing is closely related to the percentage during August–January, and the length of the period of rapid marketing tends to vary directly with the percentage to be delivered during the period. The length of period of rapid marketing as here shown is adjusted for effects of date of beginning of rapid marketing and of use of combines.

[1] Owing to the limited objective basis for these estimates, they represent judgments which might easily be affected by desire to obtain a particular effect from their use. To avoid possible bias in forming the judgments, these estimates were made before the other data in the tabulation had been assembled, and have been left unchanged despite evidence in the results of the calculation that the estimates might be improved.

[2] This figure is based on the relation computed from a regression line fitted by the method of least squares, neglecting the data for 1929–30 and 1935–36.

If the estimates of effect of bad weather which are included in the foregoing tabulation could be accepted with confidence, they might be applied directly as a third adjustment to the lengths of periods of rapid marketing. The accuracy of the individual estimates of effect of weather cannot be tested, but it is easy to determine whether the estimates are about correct on the average. A test from this standpoint indicates that on the average the estimates of effect of weather are about 70 per cent too large—the actual delay averages about 59 per cent of the estimates. When the estimates are reduced accordingly and applied as adjustments to the lengths of periods of rapid marketing, it appears from the newly adjusted figures that an increase of one-half in the percentage to be delivered during the period of rapid marketing, from 50 per cent to 75 per cent, has resulted in lengthening the period of rapid marketing by slightly over one-third, from 66 days to 89 days. This suggests definitely that larger percentage deliveries are obtained partly by accelerating the rate of marketing, although chiefly by lengthening the period of rapid marketing.[1]

The effect of bad weather.—The fact that the estimates of effect of weather proved so much too large suggests a further conclusion of considerable interest. The estimates of effect of weather on the period occupied by rapid marketing rested on two assumptions: (1) that the effect of bad weather in retarding marketing might be judged by comparing deliveries during a period of bad weather with deliveries in adjacent weeks of good weather; and (2) that the effect of bad weather would not be offset by corresponding acceleration of deliveries later. The first of these assumptions cannot be seriously in error, but the second assumption may be quite unwarranted. The fact that the estimates of effect of weather prove so bad indicates that the second assumption was indeed unwarranted: that in fact bad weather during the period of rapid marketing tends to be followed by an acceleration of deliveries which may permit their completion nearly as soon as though the weather had continued good.

If our original estimates of the effect of weather can be taken as approximately correct appraisals of the temporary delay in marketing occasioned by bad weather, it follows from the foregoing results that acceleration of marketing after such delays has made up, on the average, about 40 per cent of the initial delay. Presumably delays from bad weather occurring quite early in the period of rapid movement are more fully recovered, and delays occurring late are recovered to only a slight extent. If a train on a long run is delayed near the start of its journey, it may nevertheless arrive on schedule, while if it is delayed near the end of the trip, there is little opportunity for making up time.

Bases of price judgments. — The absolute level of wheat prices is undoubtedly an important factor affecting farmers' judgments of possible gain from deferring part of their deliveries until the second half of the season. Since the percentage delivered in August–January is determined chiefly by deciding whether to discontinue rapid marketing early or late, and since rapid deliveries have never ceased before about the end of October, the price level of greatest significance in this connection is probably that of about November. Chart 12 provides a graphic comparison of the average price of No. 1 Manitoba Northern, basis Fort William–Port Arthur, in November of each year, and the percentage of the deliveries made during August–January. A substantial degree of correspondence is apparent.

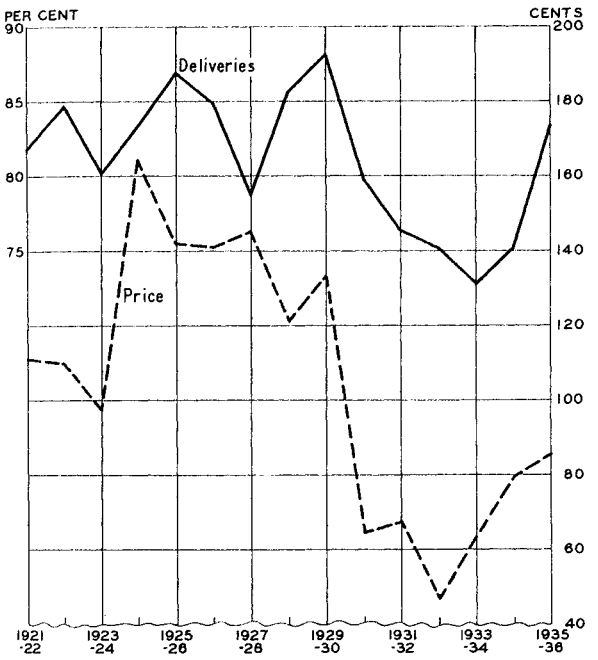
The data in Chart 12 reveal clearly, however, that the November level of prices is by no means the only factor that has affected the proportion of the available supply delivered before the end of January. With a single exception, however, the variations in percentage appear reasonably explicable on grounds of price judgments. The exception occurred in 1927–28, when the percentage of deliveries made during August–January was low despite a price situation that appears to have

[1] These conclusions are founded on the results of a multiple correlation of adjusted length of period, percentage marketed in the period, and estimated effect of weather—all from the foregoing tabulation. The multiple regression equation is $X_1 = 19.2 + .93X_2 + .59X_3$, the variables in the equation appearing in the order in which they are stated above. The coefficient of multiple correlation is .88, compared with a coefficient of simple correlation of .83 between length of period and percentage marketed in the period.

been favorable to marketing of a large percentage before the end of January. In this season, physical limitations seem to have restricted August–January marketings. The supply to be delivered was one of the three largest on record; the start of rapid marketing was delayed until September 23, the latest

CHART 12. — AUGUST–JANUARY DELIVERIES AND PRICES IN NOVEMBER, 1921–22 TO 1935–36*

(Percentages of seasonal total, and cents per bushel)



* Percentages based on data in Appendix Tables I and II; prices, November averages for No. 1 Manitoba, basis Fort William–Port Arthur, *Canadian Grain Trade Year Book*.

The percentage of the seasonal total marketed in August–January shows considerable relation to the absolute level of prices in November. Taking account of special circumstances likely to affect farmers' reactions, changes in prices seem to explain most of the variation in percentage deliveries during August–January except for the low percentage in 1927–28, which appears attributable to physical difficulties.

date during postwar years; and subsequent bad weather retarded deliveries. Deliveries did not fall below 3 per cent weekly until December 16, the latest date in the last fifteen years. These circumstances suggest that farmers may have been unable to deliver as much of their supplies as they wished during the period of rapid marketing. This inference is supported by the fact that, in the ensuing secondary movement, the rate of marketing, at 2.13 per cent weekly, was 1¼ times the maximum in any other year among the last fifteen (Table 7, p. 52).

Special circumstances affecting the percentage of the seasonal total delivered during August–January in other years appear entirely of a price character. The price in November 1921, as shown in Chart 12, appears fairly high, but by comparison with the price of $2.05 in the previous November it appeared low. The failure of the high price in the autumn of 1924–25 to induce heavy August–January deliveries is readily explicable on the ground of reactions to the extraordinarily large and prolonged price rise that had continued with little interruption since early in the previous summer. This generated hopes of continued rise and induced great numbers of amateur speculators to buy in the futures markets; and the noteworthy feature of Canadian farmers' response in the circumstances is not that they restricted deliveries as much as they did, but that they restricted them so little.

Prices in November of 1928–29 and 1929–30 were considerably below those of earlier years, and on the ground of a mere comparison of levels curtailed deliveries might have been expected. But prices in 1928–29 and 1929–30 were none the less at levels which farmers might accept as good, in view of the supply situation, and as offering little ground for hopes of improvement later in the season. The prices, though not high, may be regarded as having been favorable to the marketing of a large proportion of the supply early in the season.

The high percentage of deliveries during August–January of 1935–36, despite little advance in prices over the previous year, probably reflects a change in general attitude toward the desirability of holding. For many years Canadian wheat marketing had been influenced by a doctrine that emphasized the desirability of withholding supplies when prices were low. The years of the depression brought severe losses from the application of this policy and raised a bitter controversy around it. During the winter of 1934–35, Canadian sentiment swung strongly toward support of the doctrine that improvement of the price situation hinged on reduction of the

Canadian wheat carryover. This changed attitude toward holding had its first opportunity for conspicuous expression in farm marketings in the autumn of 1935.

Fairly heavy marketings in the autumn of 1935 were doubtless stimulated to some extent by the fact that sales by farmers to the Canadian Wheat Board were made at a price that was slightly above average market levels during November and under a contract providing for further payment if the board realized a higher average price on its sales. The relatively heavy marketings in the first half of four of the five seasons beginning with 1925–26 were perhaps favored also by the fact that in these years about half of the wheat was handled through the co-operative pools under a marketing contract that offered no opportunity for the individual farmer to profit by postponing delivery.

We interpret the statistical record to indicate that the influence of these special circumstances was slight and perhaps negligible. The point is one on which difference of opinion may well persist, until the record is available for at least one year in which prices are favorable to the marketing of a large percentage of the supply during August–January, and other special favoring circumstances are absent. Thus far in the season, conditions for 1936–37 seem to meet these requirements, and the record for this season may suffice to remove doubts on this score. Meanwhile, it is pertinent to note that many farmers commonly deliver wheat to the local elevator early in the season, and, if they expect an advance in price, postpone the actual sale until later. Having this alternative, it may be that the opportunity to sell under a price-pooling contract afforded few farmers any real inducement toward earlier delivery than in the absence of such opportunity.

Minor shifts in timing of deliveries. — Although price judgments have their main effect on the timing of wheat marketing through influencing the proportion of the supply reserved for delivery after the end of January, they have other effects also on the timing of deliveries. Such other effects are most clearly discernible in the timing of deliveries during the deferred movement, since deliveries during this period are in any event so light that they may be made about as desired, with little regard to the vagaries of weather.

In the foregoing discussion of deliveries during the deferred movement, attention has been called to certain shifts (year-to-year fluctuations) in the timing of deliveries (see p. 55), and the fact has been noted that the shifts have generally involved only small proportions of the deferred deliveries and slight changes in timing of delivery. The instances of relatively large shifts were associated with the extreme and protracted price declines after January in 1929–30 and 1930–31.

The numerous smaller shifts in timing of deliveries during the deferred movement (still excepting the trends in timing) do not warrant individual discussion. With respect to their general character and causes, it appears that they reflect attempts to take advantage of short-time price judgments. In each instance, acceleration or delay of marketing seems to be related to price changes in the few days or weeks preceding. The relation to price changes is not a simple one, however. It cannot be expressed in terms of a general statement that marketing tends to be accelerated either by rising or by declining prices. Under some conditions a price advance may accelerate deliveries; and under other conditions a price advance may induce postponement of deliveries.

In the period of rapid marketing during the autumn, influence of price on rate of delivery has seemed to us evident only under a special combination of favorable circumstances observed in 1929 and 1935, and apparently present also in the autumn of 1936 (p. 49). The favoring price situation in each instance was one not only of a price that was fairly high, but of a price level attained through a sharp price advance, followed by hesitation or a moderate decline in prices. Such a situation might well lead farmers to fear that the high prices might persist for only a short time. In each instance there were also the favoring circumstances of good weather and a small total supply to be marketed, making large percentage deliveries physically easy. We think it unlikely that similar price circumstances would induce equally high per-

centage rates of marketing from a large crop; but such a combination of circumstances has not appeared during the past fifteen years and is not likely to appear. The prospect of a large Canadian wheat crop would almost certainly prevent the development of the peculiar type of price situation that has proved favorable to especially rapid marketing of the first 50 per cent of deliveries in Western Canada.

The large variations in rates of delivery due to changes in weather during the period of rapid marketing tend to obscure any variations that may be induced by price fluctuations. It is possible that price fluctuations generally affect the timing of deliveries during the autumn in a degree similar to their minor effects on timing of deliveries in the period of deferred marketing. Presence or absence of such effects could be demonstrated, however, only if the effect of weather on deliveries were accurately measured and allowed for.

Relative influence of price judgments.—Those price judgments that bear on allocation of deliveries between the early period of rapid marketing and the later period of deferred marketing have had an important influence on the timing of deliveries. They have been the prime cause of variation in deferred deliveries from about 12 per cent to about 27 per cent of the seasonal total, and so may be regarded as affecting the time of delivery of 15 per cent of the seasonal total—equivalent to 33–72 million bushels, depending on the total quantity to be delivered. They determine whether this quantity shall be delivered in the tail of the main movement, about November, or held for delivery during the deferred movement at an average date about the middle of May.[1] These judgments therefore affect the average date of delivery by approximately six months.

The influence of such short-time price judgments as cause fluctuations in the percentage of the deferred movement delivered during any one interval (Chart 10, p. 55) is generally quite minor. They have usually involved the time of delivery of less than 1 per cent of the seasonal total, and altered the time by not more than a month or two. Unless short-period price judgments affect the timing of deliveries early in the season more than they do the timing in the deferred movement—the reverse appears more likely—such judgments must be counted a minor factor in determining the timing of farm marketing. Apparently few farmers make much attempt to accommodate their marketing to short-period price fluctuations.

[1] Based on a calculation of the weighted average date of all deliveries made during the deferred movement during the past five years, assuming that farm stocks on July 31 are delivered during August.

This study is by Holbrook Working. Statistical compilations chiefly by Adelaide M. Hobe; charts by P. Stanley King. We are indebted to Henry C. Grant of the University of Manitoba, sometime member of the Canadian Wheat Board, for advice and assistance on a number of points.

APPENDIX

TABLE I.—COUNTRY DELIVERIES OF WHEAT IN CANADIAN PRAIRIE PROVINCES, MONTHLY, AUGUST 1921–JULY 1936*

(Thousand bushels)

A. COUNTRY ELEVATOR RECEIPTS

Aug.-July	Total	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1921-22...	216,694	4,739	41,853	66,020	33,924	23,018	10,498	8,729	11,869	3,657	3,531	6,180	2,676
1922-23...	298,550	5,864	74,605	74,222	59,234	26,168	15,110	9,683	15,230	5,721	4,492	5,620	2,601
1923-24...	391,648	3,195	62,655	94,554	86,437	49,751	22,800	19,931	24,269	8,117	6,848	8,883	4,208
1924-25...	199,903	3,362	26,494	59,699	43,371	20,838	13,766	10,540	7,061	3,029	3,743	5,243	2,757
1925-26...	329,847	5,794	81,802	54,219	77,468	45,541	23,138	13,756	9,858	5,509	3,309	5,768	3,685
1926-27...	310,903	3,320	55,432	84,179	68,088	35,616	20,373	13,816	12,529	3,160	2,221	7,810	4,359
1927-28...	391,016	1,434	35,042	86,655	95,243	56,040	34,856	26,123	16,552	9,842	12,318	10,994	5,917
1928-29...	453,420	3,050	128,509	101,132	101,301	42,334	16,073	16,242	18,571	9,182	5,277	7,561	4,188
1929-30...	230,323	13,355	104,312	54,114	18,790	10,217	6,016	4,719	5,300	2,667	3,924	4,004	2,905
1930-31...	295,940	20,216	102,005	52,290	49,601	17,456	9,224	9,393	8,535	8,496	5,981	7,622	5,121
1931-32...	253,977	11,084	45,188	74,259	39,629	18,027	10,487	11,711	12,365	5,779	7,129	15,188	3,131
1932-33...	350,849	15,744	115,544	77,899	36,062	17,432	10,658	10,895	19,431	9,743	9,980	17,819	9,642
1933-34...	216,190	23,159	53,424	44,416	22,138	9,987	10,059	7,810	8,635	7,028	7,844	11,481	10,209
1934-35...	216,139	28,571	52,166	48,737	22,724	12,049	3,674	8,473	7,716	6,288	5,295	8,751	11,695
1935-36...	210,113	12,861	71,410	58,148	20,393	12,871	3,064	2,044	7,012	4,541	5,376	8,478	3,915

B. PLATFORM LOADINGS

Aug.-July	Total	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1921-22...	19,664	1,058	4,446	4,992	3,067	2,244	748	811	1,396	188	126	411	177
1922-23...	23,465	792	6,152	5,064	4,173	2,809	1,013	751	1,424	472	147	367	301
1923-24...	26,842	538	3,658	4,966	5,021	5,797	1,858	1,141	1,136	555	845	965	362
1924-25...	19,466	75	2,618	5,623	5,498	2,063	843	895	782	121	162	556	230
1925-26...	28,890	216	6,844	4,428	7,264	6,185	1,313	702	427	236	213	748	314
1926-27...	28,057	728	4,333	5,789	7,783	3,436	1,863	1,203	1,284	284	134	636	584
1927-28...	19,557	228	2,958	3,789	4,771	2,372	2,414	972	901	367	213	359	213
1928-29...	22,055	174	5,546	4,504	5,689	2,364	640	1,044	1,017	426	177	320	154
1929-30...	6,780	815	2,846	1,187	665	347	116	162	151	56	67	207	161
1930-31...	11,170	1,135	3,060	1,509	1,720	786	235	451	551	426	399	583	315
1931-32...	11,202	778	2,253	2,062	2,106	741	364	534	583	203	385	1,086	107
1932-33...	19,812	1,890	4,995	3,139	2,060	1,054	641	649	1,418	570	869	1,646	881
1933-34...	11,448	2,465	2,162	1,998	873	306	363	453	452	321	494	833	728
1934-35...	12,093	2,204	3,417	2,079	878	465	200	343	413	289	331	583	891
1935-36...	6,920	395	1,766	1,851	651	1,346	140	49	157	78	131	269	87

C. TOTAL DELIVERIES

Aug.-July	Total	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1921-22...	236,358	5,797	46,299	71,012	36,991	25,262	11,246	9,540	13,265	3,845	3,657	6,591	2,853
1922-23...	322,015	6,656	80,757	79,286	63,407	28,977	16,123	10,434	16,654	6,193	4,639	5,987	2,902
1923-24...	418,490	3,733	66,313	99,520	91,458	55,548	24,658	21,072	25,405	8,672	7,693	9,848	4,570
1924-25...	219,369	3,437	29,112	65,322	48,869	22,901	14,609	11,435	7,843	3,150	3,905	5,799	2,987
1925-26...	358,737	6,010	88,646	58,647	84,732	51,726	24,451	14,458	10,285	5,745	3,522	6,516	3,999
1926-27...	338,960	4,048	59,765	89,968	75,871	39,052	22,236	15,019	13,813	3,444	2,355	8,446	4,943
1927-28...	410,573	1,662	38,000	90,444	100,014	58,412	37,270	27,095	17,453	10,209	12,531	11,353	6,130
1928-29...	475,475	3,224	134,055	105,636	106,990	44,698	16,713	17,286	19,588	9,608	5,454	7,881	4,342
1929-30...	237,103	14,170	107,158	55,301	19,455	10,564	6,132	4,881	5,451	2,723	3,991	4,211	3,066
1930-31...	307,110	21,351	105,065	53,799	51,321	18,242	9,459	9,844	9,086	8,922	6,380	8,205	5,436
1931-32...	265,179	11,862	47,441	76,321	41,735	18,768	10,851	12,245	12,948	5,982	7,514	16,274	3,238
1932-33...	370,661	17,634	120,539	81,038	38,122	18,486	11,299	11,544	20,849	10,313	10,849	19,465	10,523
1933-34...	227,638	25,624	55,586	46,414	23,011	10,293	10,422	8,263	9,087	7,349	8,338	12,314	10,937
1934-35...	228,232	30,775	55,583	50,816	23,602	12,514	3,874	8,816	8,129	6,577	5,626	9,334	12,586
1935-36...	217,033	13,256	73,176	59,999	21,044	14,217	3,204	2,093	7,169	4,619	5,507	8,747	4,002

* Receipts compiled chiefly from data published week by week, checked against monthly totals, all from *Canadian Grain Statistics*. Platform loadings 1921–22 and 1922–23, from *Reports on the Grain Trade of Canada;* subsequently, chiefly from summary, by months, published annually about mid-August, in *Canadian Grain Statistics*. (See also footnote to Table II.) Receipts for weeks falling partly in each of two successive months are allocated between the months in proportion to the number of days, excluding Sunday, in each month. The official monthly totals before September 1926 uniformly differ from these, owing to inclusion in each month of all receipts for weeks ending within the month; from September 1926 they differ only occasionally, owing to apparently erroneous allocation of receipts in weeks not wholly within one month.

TABLE II.—COUNTRY DELIVERIES WEEKLY, AND FARM STOCKS ON JULY 31, AUGUST 1921–JULY 1936*

(Thousand bushels)

WEEK ENDING	1921-22	1922-23	1923-24	1924-25	1925-26	1926-27	1927-28	1928-29	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36
[Correction][a] ...	—1	—2	—3 (—4)[b]	+2	+1	0	—1 (—2)[b]	—3	+3	+2	+1 (0)[b]	—1	—2	—3	+3 (+2)[b]
Residual[c]	—38	—184	—189	+131	0	—23	—44	—418	+235	+103	0	—82	—131	—752	+761
Aug. 6.....	266	553	379	1,383	431	155	328	835	295	432	625	520	394	1,503	1,445
13.....	323	493	640	753	353	195	274	682	481	875	1,265	1,157	1,526	1,509	1,621
20.....	811	468	663	535	483	243	294	432	1,014	2,484	2,714	4,528	4,925	3,003	2,314
27.....	1,646	1,772	853	521	1,002	1,453	437	462	6,858	12,126	4,376	6,474	11,053	9,021	4,803
Sept. 3.....	4,183	4,139	1,388	768	12,519	4,754	560	1,224	32,339	33,267	9,324	7,010	9,240	16,491	14,172
10.....	14,744	12,676	3,656	2,991	12,403	5,508	2,514	10,049	22,281	33,424	16,191	22,410	10,520	15,574	17,741
17.....	13,270	15,899	13,881	6,246	27,076	9,108	5,539	30,527	26,738	17,051	12,737	37,487	14,949	22,565	18,803
24.....	7,689	16,052	22,846	11,296	25,344	32,284	8,109	48,063	25,509	20,820	4,809	34,593	12,044	10,771	18,048
Oct. 1.....	9,202	31,802	22,099	15,846	22,568	12,164	21,660	39,629	15,200	11,671	10,659	24,074	14,326	5,309	18,514
8.....	19,745	24,107	24,252	17,638	13,068	16,023	14,848	36,201	12,145	20,336	17,160	26,342	14,829	8,457	16,647
15.....	18,862	14,454	24,488	9,705	12,359	22,377	10,496	17,718	15,171	9,177	18,189	17,755	14,109	15,440	13,312
22.....	18,872	24,074	25,120	17,004	12,315	23,119	22,698	15,553	11,454	6,751	19,337	17,009	10,420	12,961	11,658
29.....	10,333	13,116	18,504	13,053	10,421	22,957	33,291	25,919	8,194	11,700	16,004	15,649	5,326	9,749	7,822
Nov. 5.....	10,401	15,589	16,482	11,654	19,215	22,503	28,704	24,121	5,378	14,089	13,419	10,948	7,743	8,074	4,887
12.....	11,596	14,309	17,544	13,265	21,697	18,128	26,831	29,343	5,143	13,625	13,431	9,557	6,672	6,953	3,728
19.....	8,870	18,484	23,444	13,841	22,379	17,507	19,302	27,171	4,349	13,442	9,591	9,319	6,454	6,219	5,615
26.....	6,502	11,379	31,265	8,490	18,587	15,859	20,031	22,169	2,777	9,039	5,231	7,492	2,901	4,206	5,079
Dec. 3.....	4,863	13,110	13,711	10,690	19,376	11,031	21,717	20,287	3,232	7,070	5,959	7,273	3,956	3,726	3,233
10.....	9,699	14,886	18,568	4,788	17,507	11,974	17,486	13,085	3,253	3,692	4,965	6,633	3,250	2,984	6,343
17.....	7,099	4,580	13,707	5,257	10,347	8,780	12,905	13,722	1,999	4,144	4,973	3,848	3,095	5,111	2,738
24.....	2,914	3,362	11,763	2,705	7,895	5,183	10,924	9,691	1,447	3,453	3,398	3,375	1,832	2,502	1,799
31.....	3,036	3,405	9,316	1,618	2,929	7,563	8,673	6,672	2,227	1,413	2,102	2,053	1,251	1,658	1,142
Jan. 7.....	2,980	3,592	7,458	3,450	7,702	9,768	7,455	4,747	1,737	2,671	2,818	2,483	1,493	830	451
14.....	3,311	3,990	7,122	3,904	5,925	5,328	10,032	4,857	1,238	1,933	1,780	2,594	2,370	1,070	819
21.....	3,109	3,892	5,743	3,289	5,244	3,182	8,009	3,339	976	2,237	2,164	2,382	3,374	851	683
28.....	1,174	3,351	3,670	2,867	4,658	2,557	8,355	2,686	1,107	1,958	3,436	2,412	2,119	510	718
Feb. 4.....	2,475	3,101	3,427	3,594	3,277	4,176	8,372	3,164	1,304	1,575	2,041	3,439	1,870	1,038	572
11.....	2,103	2,280	5,085	2,890	4,273	4,632	8,001	3,542	1,480	2,340	2,942	2,110	2,081	1,745	335
18.....	2,222	1,865	6,026	3,014	3,877	3,154	6,488	5,102	1,249	2,677	2,763	1,896	2,824	2,306	352
25.....	2,443	2,065	3,916	2,107	3,157	3,216	5,779	3,957	848	3,058	3,527	3,820	1,707	2,584	623
Mar. 4.....	3,191	4,472	5,474	2,559	2,140	3,720	4,398	4,872	1,389	2,828	3,417	3,987	1,571	2,385	1,286
11.....	4,978	4,737	6,425	1,368	2,922	4,526	4,036	6,069	1,892	1,733	2,698	4,191	2,227	1,667	2,122
18.....	3,416	4,369	5,435	2,120	3,060	2,583	4,832	4,633	1,037	2,338	3,765	5,509	2,053	1,723	1,594
25.....	1,516	3,189	9,808	1,556	1,725	2,036	3,305	3,613	812	2,016	3,072	5,150	1,982	2,308	1,746
Apr. 1.....	1,603	2,517	3,035	1,257	1,092	2,506	3,538	3,841	910	1,124	1,522	4,105	1,999	1,762	1,206
8.....	1,528	2,289	2,269	647	1,626	1,008	1,723	3,862	729	3,576	1,588	2,556	2,173	1,786	1,297
15.....	915	1,748	1,955	582	1,316	650	2,366	2,944	638	1,791	1,796	2,043	1,734	1,756	786
22.....	540	1,066	3,071	503	1,313	587	2,691	1,708	375	1,886	1,515	2,648	1,982	1,592	1,075
29.....	711	1,130	1,385	942	1,119	618	2,490	1,158	582	1,373	751	2,750	1,536	1,072	1,064
May 6.....	934	982	1,041	472	508	768	3,378	1,138	474	1,354	628	2,128	846	1,251	1,040
13.....	668	772	1,740	717	620	476	2,144	902	313	1,524	856	2,443	1,072	686	702
20.....	486	991	1,543	970	793	496	2,116	1,095	1,798	1,621	1,638	2,282	1,968	1,079	1,230
27.....	759	1,252	1,250	1,332	1,166	405	2,923	994	987	1,279	2,165	1,752	1,818	1,079	1,974
June 3.....	1,509	1,145	2,500	1,654	1,478	713	3,706	1,897	1,421	2,502	4,377	3,696	3,427	2,200	2,407
10.....	1,449	1,226	2,047	1,013	1,719	1,440	4,326	1,978	997	1,990	5,155	5,012	3,714	2,038	2,551
17.....	2,066	1,559	2,986	1,699	1,770	2,987	2,242	1,966	796	2,244	4,236	5,275	2,933	2,701	1,663
24.....	1,069	1,907	1,689	1,201	1,393	2,344	2,388	2,173	927	1,074	1,914	4,566	2,651	1,704	1,655
July 1.....	1,457	936	2,994	989	886	1,553	1,491	1,468	930	1,579	3,461	3,477	2,139	2,470	1,752
8.....	724	1,111	1,421	757	989	1,341	1,833	1,657	595	1,267	1,827	3,091	2,260	2,732	874
15.....	654	493	1,594	576	887	1,066	1,527	1,139	666	1,170	455	2,968	2,885	2,978	849
22.....	589	682	616	505	653	1,067	1,594	564	606	1,140	421	2,712	2,937	3,499	483
29.....	701	598	718	657	1,153	1,166	1,049	785	668	1,070	—90	1,622	2,451	1,942	901
Aug. 5.....	....	....	785	....	....	....	....	706	....	....	....	....	....	2,617	....
Residual[c]	+184	+189	—131	0	+23	+44	+418	—235	—103	0	+82	+131	+752	—761	0
Farm stocks July 31.....	3,867[d]	3,061[d]	7,643[d]	1,776	2,668	3,542	3,328	4,969	4,365	17,804	5,829	11,026	7,671	7,314	4,550
Total	240,219	325,082	426,120	221,145	361,406	342,500	413,910	480,427	241,462	324,916	271,008	381,689	235,306	235,548	221,585

* Data chiefly as follows: 1924–25, from *Canadian Grain Statistics;* otherwise, 1921–22 to 1929–30, from special tabulation provided by Dominion Bureau of Statistics, and 1930–31 to 1935–36, from *Monthly Review of the Wheat Situation.* As originally compiled, minor discrepancies appeared between the data in this and the preceding table, compiled from different sources. Investigation of the source of all discrepancies permitted satisfactory adjustment, bringing the two tables into complete agreement except for a few wholly negligible differences. The dates apply strictly only to the receipts. With the receipts are combined platform loadings reported for roughly corresponding periods ending on the 7th, 14th, 21st, and last of each month. Since there are only 48 such periods in each year instead of 52 or 53, there are four or five calendar weeks in each year for which there is no corresponding platform loading "week," and for these calendar weeks the figures above include only elevator receipts. Occasionally the figure published for receipts in one week is actual receipts plus or minus a substantial adjustment for errors in reports of previous weeks.

[a] The dates on which weeks end (Fridays), as shown in the first column, apply in 1926–27 and from March 4 in 1931–32. Otherwise, dates are those in the first column plus or minus correction values in this line.

[b] Correction for dates after February 28.

[c] Adjustment to place deliveries on Aug. 1–July 31 basis.

[d] Official estimate of farm stocks August 31, plus our estimate of country deliveries of old-crop wheat during August, at 2.1, 2.6, and 3.4 million bushels in successive years from 1922.

TABLE III.—STOCKS OF WHEAT IN COUNTRY ELEVATORS AND IN TERMINALS, WEEKLY, AUGUST–DECEMBER, 1921–1935*

(*Thousand bushels*)

DATE	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
[Correction][a] ...	−1	−2	−3	+2	+1	0	−1	−3	+3	+2	+1	−1	−2	−3	+3
	A. COUNTRY ELEVATORS														
Aug. 6	1,324	3,173	2,592	3,977	1,110	1,089	1,511	1,828	2,511	11,260	28,685	27,066	71,962	63,462	46,060
13	1,276	3,024	2,415	3,490	1,055	1,027	1,366	1,780	2,708	11,063	28,779	25,283	70,926	63,539	45,563
20	1,312	2,813	2,196	3,240	994	1,023	1,325	1,699	2,988	9,624	29,437	24,426	70,508	64,154	43,302
27	1,567	3,342	2,149	2,840	1,333	1,442	1,353	1,744	7,130	14,925	30,642	22,680	73,327	66,586	43,987
Sept. 3	4,340	4,657	2,377	2,385	10,339	3,284	1,484	2,257	19,024	28,059	35,432	23,563	75,164	72,906	48,698
10	9,587	9,690	3,690	3,309	14,185	4,535	2,823	7,791	29,624	40,330	44,570	35,046	77,397	77,426	56,008
17	9,917	13,684	9,987	5,953	23,264	7,384	4,748	18,935	42,556	41,167	48,657	50,499	82,415	84,837	63,803
24	9,431	18,884	18,206	9,879	29,613	15,365	8,288	40,132	52,922	44,578	49,439	60,369	86,449	85,202	70,280
Oct. 1	12,670	29,282	22,430	15,655	34,660	17,289	16,896	57,341	59,673	46,628	55,322	68,756	92,484	85,640	76,760
8	20,309	35,759	28,329	18,332	34,341	19,373	16,976	73,651	65,009	55,589	64,424	78,354	96,687	88,205	80,257
15	23,530	38,125	32,369	18,370	33,113	23,418	16,754	74,744	70,665	57,225	71,596	84,089	100,538	94,204	82,863
22	26,998	42,525	37,574	21,827	33,213	25,771	25,530	69,344	72,282	59,570	78,616	91,567	102,321	96,944	85,923
29	26,000	41,995	40,466	24,188	32,981	30,991	35,535	69,069	73,313	65,099	80,771	98,872	102,297	98,153	87,171
Nov. 5	26,035	42,474	45,134	25,276	35,528	34,113	41,713	70,704	74,157	72,429	81,213	102,788	104,143	98,368	86,451
12	26,402	42,670	48,908	26,008	37,444	35,338	45,719	73,350	75,163	78,726	83,336	105,087	105,092	98,729	86,567
19	26,916	42,822	50,965	25,688	42,410	35,018	45,272	74,295	76,141	82,799	82,443	106,934	104,459	98,411	87,038
26	26,469	40,398	54,565	24,268	45,329	35,075	45,322	73,906	76,000	84,694	82,250	109,259	104,269	97,576	89,630
Dec. 3	26,818	37,635	52,729	23,258	44,559	35,403	46,241	68,918	76,370	85,516	82,721	110,903	104,594	96,792	90,334
10	26,659	32,017	49,332	23,424	41,185	35,343	47,671	70,460	77,019	85,888	83,206	111,805	105,117	97,317	92,126
17	25,747	30,439	47,868	23,278	38,202	35,567	47,664	61,942	77,340	86,471	84,519	112,914	105,903	99,543	91,865
24	24,420	29,131	47,451	23,586	35,108	36,518	47,131	61,132	77,714	86,488	84,682	113,300	106,407	100,057	91,842
31	24,078	27,985	45,351	23,179	32,282	34,822	46,779	60,081	77,917	86,158	84,565	113,570	106,498	100,300	91,338
	B. FORT WILLIAM, PORT ARTHUR, AND VANCOUVER[b]														
Aug. 6	4,202[c]	8,230[c]	4,849	12,958	7,747	11,491	21,623	26,603	51,961	41,835	52,926	55,984	70,967	66,741	71,979
13	2,950	7,085	3,709	11,537	5,488	9,703	18,977	19,617	50,076	40,972	50,465	50,058	70,535	64,616	64,608
20	2,057	5,628	2,551	10,215	4,025	7,905	17,398	14,134	49,007	40,382	47,237	48,987	69,282	61,759	60,855
27	1,414	5,104	2,154	7,618	2,975	4,579	15,077	9,039	47,923	41,494	44,502	49,033	70,427	61,651	56,617
Sept. 3	2,347	4,594	1,573	5,888	2,649	3,232	12,745	5,951	47,960	42,651	42,244	50,381	72,963	63,645	57,199
10	3,497	5,588	1,967	3,465	5,190	4,675	8,574	5,529	51,538	46,150	40,354	48,701	71,638	66,088	58,285
17	6,022	6,935	2,188	2,678	9,361	6,102	5,241	6,437	56,066	55,683	42,806	52,458	72,890	68,925	60,652
24	11,948	11,307	5,137	3,176	11,971	9,704	6,648	11,374	59,305	56,590	45,895	62,121	73,910	72,913	65,352
Oct. 1	13,001	10,627	9,578	6,473	18,499	16,571	7,435	18,648	60,317	57,737	44,508	69,010	71,405	73,350	68,921
8	14,197	16,694	13,591	12,352	22,699	21,734	12,682	26,009	58,037	55,666	42,876	73,606	73,182	71,414	70,258
15	16,094	19,451	16,896	14,639	22,681	21,664	18,674	35,207	60,496	54,387	41,959	72,850	72,699	69,365	70,095
22	18,802	24,829	20,328	14,679	21,603	24,511	16,461	44,172	62,613	54,231	45,332	72,478	76,339	69,156	69,953
29	24,111	26,883	24,149	17,288	22,274	29,989	19,781	48,798	65,224	51,686	50,903	69,457	77,568	71,634	67,508
Nov. 5	25,355	25,276	25,660	21,468	22,734	33,596	24,834	47,994	64,948	49,107	55,987	69,027	77,102	73,434	66,821
12	25,564	26,249	26,166	25,058	25,643	38,349	27,278	48,081	65,730	45,438	57,294	67,917	75,467	72,469	63,822
19	26,633	27,302	25,540	25,222	29,825	40,734	27,534	44,788	62,186	43,066	59,028	67,063	74,988	72,208	60,940
26	23,525	21,813	28,777	27,013	24,596	36,452	23,877	44,097	58,389	40,716	58,830	66,970	74,530	72,090	56,220
Dec. 3	17,824	9,593	20,628	21,493	17,450	31,658	19,439	33,786	55,598	40,333	54,650	65,968	72,158	67,998	50,347
10	13,419	11,810	16,150	16,165	17,477	28,763	19,098	33,280	56,508	44,628	55,654	66,656	73,247	67,304	51,478
17	13,654	11,051	17,851	18,919	25,252	29,806	24,164	40,932	57,043	46,900	57,923	69,553	74,151	68,025	52,556
24	18,023	14,643	28,830	20,762	33,766	32,393[c]	33,142	53,370	57,942	48,898	58,759	69,687	74,529	68,935	52,720
31	20,804	18,790	35,767	22,102	39,579	35,964[c]	39,295	59,236	58,935	50,096	59,355	71,028	74,894	69,469	53,574

* Compiled from *Canadian Grain Statistics*.

[a] The dates (Fridays) as shown in the first column apply in 1926; otherwise, dates are those in the first column plus or minus correction values in this line.

[b] Stocks in Vancouver not available for 1921 and 1922.

[c] Including a small, but unstated, quantity in Prince Rupert.