Incoming and Outgoing Payments of Iowa Farm Families

By LAWRENCE WITT

AGRICULTURAL EXPERIMENT STATION
IOWA STATE COLLEGE OF AGRICULTURE
AND MECHANIC ARTS

AGRICULTURAL ECONOMICS SUBSECTION
RURAL SOCIAL SCIENCE SECTION

AMES, IOWA
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SUMMARY

Incoming money payments of Iowa farmers in 1932 were only 38 percent of the 1929 level. By 1939, they had increased to 88 percent of 1929.

With the sharp drop in income in 1931 and 1932 farmers also reduced expenditures but since 1933 have increased them. Expenditures were reduced far more for some items than for others. Expenditures for fertilizer, machinery and buildings in 1932 were about 20 percent of those for 1929, while expenditures for taxes, gasoline, telephones and electricity had dropped only to about 75 percent of those for 1929. Tax and interest payments remained relatively high until 1931, when they dropped sharply as the full impact of the depression hit Iowa agriculture.

With higher incomes after 1933, farmers increased some expenditures but not others. In 1939 more was spent for feeder livestock, seeds, gasoline, baby chicks, electricity and family living than in 1929 even though income was 12 percent less. This was possible through smaller increases in other expenditures, particularly taxes, buildings, wages to hired labor and interest on indebtedness, all of which were less than two-thirds of 1929 levels.

In recent years the Homestead Exemption Law has reduced expenditures for taxes while foreclosures, revaluations and bankruptcies have wiped out much of the interest charges. Heavy expenditures for machinery were made in the last few years, the number of farms served by electricity more than doubled from 1929 to 1939, more gasoline was used for power and more chicks were purchased from hatcheries.

Farm-family living and rent together make up nearly half of the total expenditures of Iowa farmers. Both items showed considerable flexibility over the business cycle though not as much as income. In 1939 they were as large as in 1929 and hence were a larger part of the total income. There were, of course, more tenants in 1939.

The combination of factors as portrayed by expenditures shows sharp contrasts in 1939 compared to 1929, and with it have gone shifts in demand for various factors of production. Clearly Iowa agriculture is continually changing in character.

The estimates of income and expenditures over the 11-year period 1929 to 1939 cover almost a complete major business cycle. They include nearly all income and 80 percent or more of the expenditures. The description of the methods by which these estimates have been obtained is an important part of this bulletin.

The picture of the changes in the pattern of expenditures carrying through a major business cycle dramatically presents the vulnerable position of farmers in respect to changes in income.
Incoming and Outgoing Payments of Iowa Farm Families

BY LAWRENCE WITT

The impact of the depression phase of the business cycle upon farmers brings many complex problems to agriculture. The relative inflexibility of the prices of things the farmer buys, as compared with the prices of agricultural products, coupled with the high fixed costs in most farm enterprises, necessitates tremendous readjustments during the recession period, particularly in one as severe as the decline following 1929. Farmers are constantly striving to adjust their production plans to changes in the economic conditions facing them. When these changes are rapid and to a considerable extent unanticipated or insufficiently anticipated, the adjustment of expenditures to the sharply reduced income becomes a very difficult problem.

Not quite so threatening to the continued existence of the operating unit, but nevertheless important, are the problems involved in adjusting to the recovery following the depression. After the recovery has gotten under way, claims on the increased income involve problems of balance. How much of the income should be used to increase efficiency under the changed economic conditions, and how much should be used to pay outstanding debts? These decisions will rest in part on individual estimates of the probable duration of the recovery and future course of economic activity.

Farmers may advocate policies designed to reduce business fluctuations, but as long as they exist each farmer will have the problem of adjusting his plans and operations as best he can to the changes which occur. Of special interest is the relative change in various types of expenditures as incomes change. For some time the general nature of these adjustments has been known. Although detailed estimates of income have been made,

1Project 501 of the Iowa Agricultural Experiment Station.

This study was planned and carried forward under the general direction of Prof. T. W. Schultz. Prior to the time that the writer took over the study, Mr. Martin Maecers and Mr. Herbert Stein, as research assistants under Professor Schultz's guidance, did considerable of the preliminary statistical work. On several occasions during the early stages, Mr. C. M. Purves of the Bureau of Agricultural Economics conferred with those then working on the study. Through Mr. Purves and the Division of Historical and Statistical Research of the BAE, certain federal data were made available. During the final stages, Mr. D. Gale Johnson also assisted the writer.
no estimates have been made of the entire pattern of expenditures for a region or a state either for the farm business or for family living. The data presented here provide an overall picture of these changes for Iowa farm families. From this analysis further insight can be obtained as to which types of expenditures change most during the various phases of a business cycle and which are most resistant to change.

A corollary to the main purpose of the study is the development of new techniques for estimating cash expenditures of farmers, techniques applicable not only to Iowa but to other states as well. For a number of years estimates of farm expenses for the nation as a whole have been made (31), but most of the estimates are not very useful when applied to individual states. Since there are considerable regional differences in the incidence of a depression, state and regional studies are necessary for an adequate understanding of local conditions. Consequently, methods of obtaining state estimates are important. In this study new methods of approach were tried; some were used and others discarded. Out of the detailed techniques used and described, it is believed that a number will be found useful in making similar studies in other states and at other times.

This study has addressed itself to the question: "Is it possible to estimate farmers' expenditures on a state or regional basis?"

In carrying the project forward, data collected by various agencies have been examined and evaluated as to their usefulness for
this purpose. Hence in a very real sense the strength and weaknesses of this study are the strength and weaknesses of the existing data. By drawing attention to the weak spots in the estimates, attention is directed toward items in the farm enterprise which have received scanty attention. Research has many purposes besides providing a basis for estimating total expenditures, but fairly reliable estimates were possible for virtually every item which has had considerable study.

This study, then, aims at developing and presenting methods of estimating farm-family and farm-business expenditures which may be useful in other studies; it presents concrete data on farm-family income and expenditures during a major business cycle; it shows which expenses are more readily curtailed in a depression and which are increased in recovery, and it suggests areas in which study of ways to increase the flexibility of the farmers' budget would seem to be most fruitful in easing similar shocks upon the agricultural economy in the future.

The subject of the inquiry is the cash income and cash outgo of the 215,000 Iowa farm families, that is, payments to and by farm families for family and business purposes and not payments to and by agriculture as an industry. It covers the pecuniary relations of Iowa farm families, as one relatively homogeneous group, with all the rest of the economy. In this way it is possible to gain insight into the ways in which the individual farmer meets the impingement of the business cycle upon his operations.

In most empirical studies encompassing a large segment of the economic system, the statistical data are usually fragmentary. This study is no exception. The estimates are based on scattered data from many secondary sources, together with a limited amount of primary data. Because of inadequate data it has not been possible to include all the items entering into the farm and family budget, however, nearly all the important items have been included, as well as a number of less important ones for which data were available. Since only those transactions which were expressed in currency terms are included, house rents and contributions of the farm to farm-family living are excluded.

**GENERAL SUMMARY**

The estimates of cash business and household expenditures of Iowa farm families are shown in table 1. In table 2 the same figures are shown as a ratio of the amounts spent in 1929. In table 3 expenditures for each item are shown as a percent of incoming payments for that year.
### TABLE 1. TOTAL INCOMING AND OUTGOING PAYMENTS OF IOWA FARM FAMILIES, 1929-39 (000 omitted).*

<table>
<thead>
<tr>
<th>Item</th>
<th>1929</th>
<th>1930</th>
<th>1931</th>
<th>1932</th>
<th>1933</th>
<th>1934</th>
<th>1935</th>
<th>1936</th>
<th>1937</th>
<th>1938</th>
<th>1939</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incoming payments from</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural products</td>
<td>$744,180</td>
<td>$643,890</td>
<td>$436,460</td>
<td>$279,210</td>
<td>$310,700</td>
<td>$423,550</td>
<td>$504,260</td>
<td>$558,070</td>
<td>$556,640</td>
<td>$590,910</td>
<td>$655,280</td>
</tr>
<tr>
<td>Off-farm wages</td>
<td>9,100</td>
<td>8,800</td>
<td>8,600</td>
<td>8,300</td>
<td>9,300</td>
<td>10,900</td>
<td>11,500</td>
<td>9,700</td>
<td>10,700</td>
<td>10,700</td>
<td>10,700</td>
</tr>
<tr>
<td><strong>Total incoming</strong></td>
<td>753,000</td>
<td>655,000</td>
<td>445,000</td>
<td>288,000</td>
<td>320,000</td>
<td>434,000</td>
<td>516,000</td>
<td>595,000</td>
<td>567,000</td>
<td>602,000</td>
<td>666,000</td>
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<tr>
<td><strong>Outgoing payments for</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Rent</td>
<td>126,100</td>
<td>117,700</td>
<td>85,900</td>
<td>62,700</td>
<td>76,600</td>
<td>98,300</td>
<td>80,800</td>
<td>108,600</td>
<td>98,600</td>
<td>102,000</td>
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<td>27,410</td>
<td>18,860</td>
<td>21,840</td>
<td>24,250</td>
<td>33,490</td>
<td>27,380</td>
<td>34,190</td>
<td>45,850</td>
<td>72,000</td>
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<td>35,600</td>
<td>24,500</td>
<td>15,100</td>
<td>21,840</td>
<td>24,250</td>
<td>33,490</td>
<td>27,380</td>
<td>34,190</td>
<td>45,850</td>
<td>72,000</td>
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<tr>
<td>Seeds</td>
<td>7,410</td>
<td>4,520</td>
<td>4,230</td>
<td>2,370</td>
<td>3,820</td>
<td>7,250</td>
<td>4,220</td>
<td>7,220</td>
<td>9,090</td>
<td>8,270</td>
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<tr>
<td>Limestone and fertilizer</td>
<td>930</td>
<td>1,040</td>
<td>820</td>
<td>420</td>
<td>300</td>
<td>700</td>
<td>300</td>
<td>600</td>
<td>900</td>
<td>1,200</td>
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<tr>
<td>Twine</td>
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<td>1,700</td>
<td>1,300</td>
<td>1,000</td>
<td>400</td>
<td>250</td>
<td>700</td>
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<td>1,300</td>
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<td>Gasoline, oil and grease</td>
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<td>17,720</td>
<td>20,550</td>
<td>18,940</td>
<td>22,480</td>
<td>25,430</td>
<td>26,930</td>
<td>26,820</td>
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<tr>
<td>Baby chicks</td>
<td>2,900</td>
<td>2,800</td>
<td>2,200</td>
<td>1,800</td>
<td>2,100</td>
<td>2,700</td>
<td>3,300</td>
<td>4,200</td>
<td>4,400</td>
<td>4,500</td>
<td>4,500</td>
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<td>Machinery</td>
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<td>20,800</td>
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<td>14,000</td>
<td>20,000</td>
<td>22,000</td>
<td>23,000</td>
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<tr>
<td>Buildings and repairs</td>
<td>26,300</td>
<td>26,500</td>
<td>26,700</td>
<td>26,900</td>
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<td>27,700</td>
<td>27,900</td>
<td>28,100</td>
<td>28,300</td>
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<td>26,500</td>
<td>26,500</td>
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<td>26,500</td>
<td>26,500</td>
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<tr>
<td>Short-term interest</td>
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<td>25,500</td>
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<td>19,500</td>
<td>17,500</td>
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<tr>
<td>Long-term interest</td>
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<td>30,500</td>
<td>28,500</td>
<td>26,500</td>
<td>24,500</td>
<td>22,500</td>
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<td>2,910</td>
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<td>Farm organization</td>
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<td>420</td>
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<td>190</td>
<td>300</td>
<td>360</td>
<td>380</td>
<td>400</td>
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<tr>
<td>Consumption</td>
<td>190,000</td>
<td>186,000</td>
<td>135,000</td>
<td>96,000</td>
<td>110,000</td>
<td>123,000</td>
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<td>166,000</td>
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<tr>
<td>Total outgoing</td>
<td>590,000</td>
<td>532,000</td>
<td>492,000</td>
<td>382,000</td>
<td>320,000</td>
<td>360,000</td>
<td>394,000</td>
<td>444,000</td>
<td>477,000</td>
<td>491,000</td>
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<tr>
<td>Short term</td>
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<td>-2,000</td>
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<td>-2,000</td>
<td>-2,000</td>
<td>-2,000</td>
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<td>-2,000</td>
<td>-2,000</td>
<td>-2,000</td>
<td>-2,000</td>
</tr>
<tr>
<td>Long term</td>
<td>-21,000</td>
<td>-21,000</td>
<td>-21,000</td>
<td>-21,000</td>
<td>-21,000</td>
<td>-21,000</td>
<td>-21,000</td>
<td>-21,000</td>
<td>-21,000</td>
<td>-21,000</td>
<td>-21,000</td>
</tr>
<tr>
<td>Grand total outgoing</td>
<td>611,000</td>
<td>541,000</td>
<td>471,000</td>
<td>362,000</td>
<td>300,000</td>
<td>340,000</td>
<td>374,000</td>
<td>424,000</td>
<td>446,000</td>
<td>462,000</td>
<td>547,000</td>
</tr>
<tr>
<td>Residual</td>
<td>142,000</td>
<td>112,000</td>
<td>30,000</td>
<td>-12,000</td>
<td>27,000</td>
<td>29,000</td>
<td>86,000</td>
<td>122,000</td>
<td>86,000</td>
<td>122,000</td>
<td>119,000</td>
</tr>
</tbody>
</table>

*A number of the estimates presented here are quite reliable, while others are subject to considerable error. The extent to which the figures are rounded is a rough indication of their relative reliability. The various totals have been rounded to the same extent as the least reliable estimate contained within it.

†For details of the derivation of each estimate, consult appropriate section under Presentation of Estimates and Method of Derivation (see table of contents).

‡Plus (+) represents loans to farmers by creditors. Minus (−) represents payments by farmers to creditors.
TABLE 2. PAYMENTS MADE BY IOWA FARM FAMILIES, 1929-39, AS A RATIO OF EXPENDITURES FOR THAT ITEM IN 1929.

<table>
<thead>
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<th>Item</th>
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<th>1930</th>
<th>1931</th>
<th>1932</th>
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<th>1934</th>
<th>1935</th>
<th>1936</th>
<th>1937</th>
<th>1938</th>
<th>1939</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total incoming payments</td>
<td>100</td>
<td>87</td>
<td>59</td>
<td>38</td>
<td>42</td>
<td>57</td>
<td>68</td>
<td>79</td>
<td>75</td>
<td>79</td>
<td>88</td>
</tr>
<tr>
<td>Outgoing payments</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rent</td>
<td>100</td>
<td>93</td>
<td>68</td>
<td>50</td>
<td>61</td>
<td>78</td>
<td>64</td>
<td>86</td>
<td>78</td>
<td>81</td>
<td>99</td>
</tr>
<tr>
<td>Feeder stock</td>
<td>100</td>
<td>60</td>
<td>58</td>
<td>40</td>
<td>46</td>
<td>51</td>
<td>70</td>
<td>58</td>
<td>72</td>
<td>96</td>
<td>151</td>
</tr>
<tr>
<td>Wages</td>
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<td>63</td>
<td>39</td>
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<td>33</td>
<td>44</td>
<td>51</td>
<td>58</td>
<td>58</td>
<td>59</td>
</tr>
<tr>
<td>Seeds</td>
<td>100</td>
<td>61</td>
<td>66</td>
<td>57</td>
<td>52</td>
<td>52</td>
<td>98</td>
<td>57</td>
<td>97</td>
<td>123</td>
<td>112</td>
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<td>Limestone and fertilizer</td>
<td>100</td>
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<td>88</td>
<td>26</td>
<td>17</td>
<td>27</td>
<td>25</td>
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<td>81</td>
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<td>25</td>
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TABLE 3. PAYMENTS MADE BY IOWA FARM FAMILIES, 1929-39, AS A RATIO OF TOTAL INCOMING PAYMENTS IN THAT YEAR.

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<th>1931</th>
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<th>1933</th>
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<td>100</td>
<td>100</td>
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<td>100</td>
<td>100</td>
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</tr>
</tbody>
</table>

*Less than \( \frac{1}{2} \) of 1 percent.
†A negative percentage represents an excess of income over outgo and is subtracted.
‡Because of dropping of figures of less than \( \frac{1}{2} \) of 1 percent and because of rounding, the individual figures do not always add to 100.
PRESENTATION OF ESTIMATES AND METHOD OF DERIVATION

The detailed procedure used in developing each series of estimates is given in the following sections. While all the details cannot be shown, the important assumptions and methods of calculation are given so that another worker may reproduce or add to these figures or make a similar study at another time and place. In these sections attention is given primarily to the techniques employed, rather than to an analysis of the implications of the figures themselves.

INCOMING PAYMENTS

INCOME FROM AGRICULTURAL PRODUCTION

The United States Bureau of Agricultural Economics has made and published estimates of cash income from most important agricultural products (44, 47, 49, 50). These cover data, by months, for 33 different farm commodities which for Iowa include: Corn, wheat, oats, barley, rye, flaxseed, hay, potatoes, sweet potatoes, truck crops (21 truck crops are considered one commodity), apples, pears, strawberries, sugar beets, cattle, calves, hogs, sheep and lambs, chickens, eggs, milk, butterfat and wool. The Bureau estimates that for Iowa these items include about 92 percent of the income from crops, 99 percent of that from livestock and 98 percent of the total (47). These data provide estimates of income from the separate products during calendar years. The Bureau also has made estimates of income for marketing years for a larger number of products and of production for a still larger number. From these figures income to Iowa farmers from products omitted in the above list can be obtained.

Estimates of income from grass seeds have not been made by the Bureau for 1929-35. However, from estimates of total production (41, 43), estimates of seed used on farms where produced or sold directly to other farmers (43) and estimates of the farm price per bushel (34), it was possible to estimate income from the sale of these seeds. No data on seasonal variations in marketing of seeds were found. However, seeds produced this year must be sold for sowing in March or April of next year and must be purchased from producing farmers sometime before then. The inventory carried over probably does not vary significantly from year to year, consequently it has been assumed that the entire amount sold has been sold during the calendar year in which it was produced.

2The estimates for 1936-39 have been enlarged and cover virtually all products of any importance to Iowa farmers. Receipts from corn loans also have been included in current receipts.
Figures on receipts from forest, nursery and greenhouse products are based on the 1930 federal census (42). The 1930 agricultural census asked for receipts from these products for the calendar year 1929. Hence the figures are on a calendar-year basis and can be used without adjustment. Similarly the perishability of grapes in this latitude requires that the marketing season be entirely within the calendar year. Receipts from the sale of sorghum sirup, popcorn and soybeans are available for the marketing year (43) but not for the calendar year. Since no data could be found as to the time of marketing, it was necessary to take these items over without any adjustment for the discrepancy between calendar- and marketing-year values, under the assumption that the carry-over was about constant. The total income from the sale of agricultural products is shown in table 4.

INCOME TO FARM OPERATORS FOR LABOR PERFORMED OFF FARM

The federal censuses for 1930 and 1935 (59, 58) estimate the number of days farm operators worked off their own farms in 1929 and 1934. The greater number of days in the latter year was probably not the result of any trend, but due to (a) an increased desire to work arising out of the drouth in the state in 1934 and (b) the increased opportunities coming from AAA committee work and the business recovery. The number of days worked is assumed to be the same from 1929 to 1933; it is assumed to be the same in 1936 as in 1934, and it is assumed that one-half of the increase of 1934 over 1929 carries over into 1935 and also 1937-39 due to the respite from the crisis situation in northern Iowa.

According to the 1935 census 73 percent of the farm operators who worked off the farm worked in non-agricultural occupations. Farmers working off the farm for at least 150 days probably worked in non-agricultural pursuits; this group was assumed to be 100 percent non-agricultural. The remaining days worked off the farm (those not accounted for by operators working over 150 days) were divided between agricultural and non-agricultural pursuits in such a way that 73 percent of the total number of operators working off the farm were engaged in non-agricultural occupations, as indicated by the census. Earnings for non-agricultural work were taken as of an 8-hour day at the average hourly wages paid for common labor in road building (61). Agricultural wages were calculated on the basis of day wages without board in Iowa (31).

Income from these products has not been included in the Bureau’s monthly estimates of income for 1929-35, since seasonal or monthly variations in marketing were not known. For our purposes annual data are sufficient. For the other products mentioned in these paragraphs estimates of the Bureau are for the marketing rather than for the calendar year.
## Table 4. Income to Iowa Farmers from the Sale of Agricultural Products 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th></th>
<th>1929</th>
<th>1930</th>
<th>1931</th>
<th>1932</th>
<th>1933</th>
<th>1934</th>
<th>1935</th>
<th>1936</th>
<th>1937</th>
<th>1938</th>
<th>1939</th>
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<td>Receipts from crops</td>
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<td>$102,790</td>
<td>$44,400</td>
<td>$26,420</td>
<td>$50,570</td>
<td>$70,020</td>
<td>$38,130</td>
<td>$78,030</td>
<td>$72,620</td>
<td>$92,370</td>
<td>$132,650</td>
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<td>Receipts from livestock</td>
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<td>551,260</td>
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<td>248,970</td>
<td>251,310</td>
<td>309,080</td>
<td>402,680</td>
<td>481,610</td>
<td>459,390</td>
<td>468,820</td>
<td>453,190</td>
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<td>Timothy seed*</td>
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<td>585,070</td>
<td>556,640</td>
<td>590,910</td>
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*After 1935 included in receipts from crops.
Summaries of wages earned off the farms, as calculated, are given in table 5. Only non-agricultural wages are listed in table 1, since agricultural wages paid are an inter-farmer transaction and are deducted from total wages paid. The estimate of income made here is among the less reliable estimates. The 1930 census provides the only information as to the number of days worked and the 1935 census as to the division between farm and non-farm work. Labor income, however, is only a small proportion of the total income, hence any errors will not loom very large in the aggregate income figures.

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<td>2,982</td>
<td>10,000</td>
</tr>
<tr>
<td>1935</td>
<td>1.81</td>
<td>378</td>
<td>700</td>
<td>3.76</td>
<td>3,045</td>
<td>11,500</td>
</tr>
<tr>
<td>1936</td>
<td>1.98</td>
<td>378</td>
<td>800</td>
<td>3.12</td>
<td>3,045</td>
<td>9,700</td>
</tr>
<tr>
<td>1937</td>
<td>2.33</td>
<td>378</td>
<td>900</td>
<td>3.52</td>
<td>3,045</td>
<td>10,700</td>
</tr>
<tr>
<td>1938</td>
<td>2.26</td>
<td>378</td>
<td>900</td>
<td>3.52</td>
<td>3,045</td>
<td>10,700</td>
</tr>
<tr>
<td>1939</td>
<td>2.30</td>
<td>378</td>
<td>900</td>
<td>3.52</td>
<td>3,045</td>
<td>10,700</td>
</tr>
</tbody>
</table>

OUTGOING PAYMENTS

RENT

Farm land in Iowa is commonly rented under one of three lease types—cash, crop share or stock share. Over half of Iowa farm land is so rented (Appendix, table 1). Rent charges under each type of lease varies, especially during a period of rapid changes in farm prices and incomes; hence payments of rent within each lease category has been ascertained separately. The proportion of cash and share leases in Iowa in 1929 is given by the census (59). Estimates by Schickele and Norman for 1936 (26, 28) permit extending these figures to later years. These are shown in table 6.

In converting these percentages to acreages, additional accuracy may be obtained by allowing for the differences in the average size of farms in each of the three lease types. In 1930, farms rented for cash averaged 12 percent smaller and farms rented on shares nearly 10 percent larger than the average rented farms. The 1935 census provided no information on this point. Nor is any information available in either census on the relative size of stock- and crop-share rented farms although certain lim-
TABLE 6. PERCENTAGE OF ALL LEASES IN EACH LEASE TYPE IN IOWA, 1929-39.

<table>
<thead>
<tr>
<th>Year</th>
<th>Crop share</th>
<th>Cash rent</th>
<th>Stock share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>45</td>
<td>45</td>
<td>10</td>
</tr>
<tr>
<td>1930</td>
<td>45</td>
<td>45</td>
<td>10</td>
</tr>
<tr>
<td>1931</td>
<td>50</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>1932</td>
<td>70</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>1933</td>
<td>72</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>1934</td>
<td>72</td>
<td>18</td>
<td>10</td>
</tr>
<tr>
<td>1935</td>
<td>70</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>1936</td>
<td>70</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>1937</td>
<td>70</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>1938</td>
<td>70</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>1939</td>
<td>70</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

its to the range of variation may be established. As noted above cash-rent farms in 1930 averaged 87.7 percent and share-rent farms 109.6 percent of average rented farms. Crop-share farms are generally larger than cash-rent farms and smaller than the average share-rent farms, while stock-share farms are larger than average share-rent farms (27, 28). Hence crop-share farms in 1930 were between 87.7 and 109.6 percent of the size of average rented farms. Since crop-share farms in 1930 numbered 4.5 times as many as stock-share farms, determination of the average size of either would permit ascertaining the average acreage of the other group.

In converting these figures to an acreage basis, the state was divided into type-of-farming areas (fig. 1, page 414). Table 7 gives the census data on size for the various areas in 1930. Stock-share leases are much more important in the Northeast Dairy area than elsewhere in the state and are often associated with the dairy enterprise, which does not require particularly large farms; hence, both crop-share and stock-share farms were assumed to be the same size, i.e., 110.2 percent larger than the average rented farm. Staff members familiar with the state suggested that stock-share farms elsewhere in the state are about 30 percent larger in size than the average rented farm. Table 7 gives the relative size of farms by areas.

With the shift of cash-rent farms—averaging a smaller acreage—to crop-share farms during the period from 1930 to 1934, crop-share farms became smaller. There is no data, however, to indicate which size groups of cash-rent farms were shifted to crop-share leases, and hence, whether cash-rent farms changed their size to the range of variation may be established. As noted above cash-rent farms in 1930 averaged 87.7 percent and share-rent farms 109.6 percent of average rented farms. Crop-share farms are generally larger than cash-rent farms and smaller than the average share-rent farms, while stock-share farms are larger than average share-rent farms (27, 28). Hence crop-share farms in 1930 were between 87.7 and 109.6 percent of the size of average rented farms. Since crop-share farms in 1930 numbered 4.5 times as many as stock-share farms, determination of the average size of either would permit ascertaining the average acreage of the other group.

In converting these figures to an acreage basis, the state was divided into type-of-farming areas (fig. 1, page 414). Table 7 gives the census data on size for the various areas in 1930. Stock-share leases are much more important in the Northeast Dairy area than elsewhere in the state and are often associated with the dairy enterprise, which does not require particularly large farms; hence, both crop-share and stock-share farms were assumed to be the same size, i.e., 110.2 percent larger than the average rented farm. Staff members familiar with the state suggested that stock-share farms elsewhere in the state are about 30 percent larger in size than the average rented farm. Table 7 gives the relative size of farms by areas.

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4Thus if the crop-share farms were the same size as the cash-rent farms, i.e., 12 percent smaller than the average rented farm, the stock-share farms would have to be 108 percent larger than the average rented farm in order to maintain the average; conversely, if the crop-share farms in their size reached the other limit, i.e., 10 percent larger than the average size, it would follow that the stock-share farms would also be 10 percent larger than the average rented farms.
TABLE 7. RELATIVE SIZE OF FARM IN EACH LEASE TYPE IN IOWA, 1930.

<table>
<thead>
<tr>
<th>Area</th>
<th>Percent size farm is of average rented farm</th>
<th>Percent size share-rent farm is of average rented farm</th>
<th>Percent crop-share of average size</th>
<th>Percent stock-share of average size</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Central</td>
<td>92.8</td>
<td>108.5</td>
<td>105.0</td>
<td>131.0</td>
</tr>
<tr>
<td>Northeast</td>
<td>89.0</td>
<td>110.2</td>
<td>110.2</td>
<td>110.2</td>
</tr>
<tr>
<td>South</td>
<td>81.5</td>
<td>110.4</td>
<td>109.0</td>
<td>125.0</td>
</tr>
<tr>
<td>Central</td>
<td>80.0</td>
<td>108.6</td>
<td>107.0</td>
<td>125.0</td>
</tr>
<tr>
<td>Northwest</td>
<td>84.3</td>
<td>108.4</td>
<td>108.0</td>
<td>145.0</td>
</tr>
<tr>
<td>West</td>
<td>91.0</td>
<td>109.8</td>
<td>105.0</td>
<td>133.5</td>
</tr>
</tbody>
</table>

Note: These percentages were obtained by allocating the acreage in excess of the average of rented farms between crop-share and stock-share farms so that stock-share farms would be about 30 percent larger than the average rented farms.

The shift from cash-rent to crop-share leases went on at about the same rate in the various areas of the state, with stock-share farms representing about the same proportion of the total rented acreage throughout the period (26, 28). The percentage of rented acreage in each type by areas may now be obtained (Appendix, table 2). By applying these percentages to the acreage rented each year by areas as given in the assessor's reports (11), the amount of land rented in Iowa under each of the lease types may be estimated. These acreages are shown in table 8.

TABLE 8. ACREAGE RENTED UNDER VARIOUS LEASE CLASSES IN IOWA, 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>Crop-share</th>
<th>Cash-rent</th>
<th>Stock-share</th>
<th>Total rented</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>8,700</td>
<td>7,300</td>
<td>2,500</td>
<td>15,500</td>
</tr>
<tr>
<td>1930</td>
<td>8,800</td>
<td>7,400</td>
<td>2,600</td>
<td>15,800</td>
</tr>
<tr>
<td>1931</td>
<td>9,700</td>
<td>6,600</td>
<td>2,800</td>
<td>19,100</td>
</tr>
<tr>
<td>1932</td>
<td>11,900</td>
<td>5,100</td>
<td>2,700</td>
<td>19,700</td>
</tr>
<tr>
<td>1933</td>
<td>13,900</td>
<td>3,400</td>
<td>2,800</td>
<td>20,100</td>
</tr>
<tr>
<td>1934</td>
<td>14,400</td>
<td>3,100</td>
<td>2,800</td>
<td>20,300</td>
</tr>
<tr>
<td>1935</td>
<td>14,200</td>
<td>3,100</td>
<td>2,800</td>
<td>20,100</td>
</tr>
<tr>
<td>1936</td>
<td>14,000</td>
<td>3,500</td>
<td>2,800</td>
<td>20,300</td>
</tr>
<tr>
<td>1937</td>
<td>13,800</td>
<td>3,400</td>
<td>2,700</td>
<td>19,900</td>
</tr>
<tr>
<td>1938</td>
<td>13,500</td>
<td>3,400</td>
<td>2,700</td>
<td>19,600</td>
</tr>
<tr>
<td>1939</td>
<td>13,500</td>
<td>3,400</td>
<td>2,700</td>
<td>19,600</td>
</tr>
</tbody>
</table>

It is now possible to proceed to the determination of the amount of rent paid annually by renters under each lease type. Federal estimates of cash rent per acre in Iowa (22) were used as an index to extrapolate the census reports of cash rent per acre in Iowa in 1930 and were then multiplied by the cash rented acreage.

The crop-share rent paid cannot be determined with equal directness, since it consists of (a) rent paid for cropland in which a share of the crop is turned over to the landlord and (b) rent paid in cash for the use of hay and pasture and other crop acreages and in some cases for the use of buildings on farms.
otherwise under crop-share leases. In obtaining crop-share rent
the actual amount of the crop turned over to landowners as rent
has been calculated, that is, the number of bushels of corn, oats,
wheat, barley, rye and soybeans. These were converted into
value figures at the prices prevailing in the local areas during
the marketing season (Appendix, table 3).

Farms rented on a crop-share basis have a larger proportion
of the total farm land, as well as of cropland, in corn than is
the case on average farms (27). However, the yield per acre is
lower. A study by Wilcox and Strand (66) indicates that the
yield is sufficiently lower to adjust for the increased proportion
of land in corn so that, per farm of equal acreage, the same ag­
gregate quantity of corn is obtained whether rented on a crop­
share basis or controlled in some other manner. These studies
also indicate that the increased acreage in corn on crop-share
farms came, not at the expense of small grains, but out of the
acreage of hay and pasture land.

One-half of the corn crop and two-fifths of the other five crops
were allotted to the landlord as his share of production on crop­
share farms. These shares of crops were distributed over the
marketing season in the same proportions as all crops sold and
valued at the average farm price for the marketing season (Ap­
pendix, table 3). The landlord's share was assumed to be sold
in the 12-month period following harvesting. (In the case of
corn sealed the loan value is received even though the title still
remains with the landlord.) This income during the marketing
year—August to July—was allocated to the calendar year on
the basis of seasonal marketings (Appendix, table 4). Much of
these crops is sold to the tenant who feeds them, and hence the
portion fed does not appear in crop sales in table 4.

The next step is the estimation of cash rent paid by crop-share
tenants. Cash rent is paid for hay and pasture land, potatoes
and other crops and sometimes for the farmstead. Examination
of data gathered by Schickele (26) indicates that on the average
if the acreage in hay is multiplied by the rent per acre paid by
cash tenants for the farm as a whole and the acreage in pasture
by one-half this amount, the total will equal the cash rent paid
by share tenants for buildings, hay and pasture land. As noted
above crop-share tenants have less land in hay and pasture than

5An attempt was made to use area prices, but the recent changes in the surplus­
deficit areas and the resulting price differentiations made the task too involved, par­
ticularly in view of the fragmentary data available on the shifting price differentials.
Hence this refinement was not embodied, since it was felt that it would add little to
the ultimate accuracy of the estimates.

6While it is logical to expect the same bargaining forces to operate, there is no reason
why this exact relationship should hold. In fact, there is some evidence that cash
rents on crop-share farms are subject to more change than the general level of rents.
However, this adjustment, rough though it may be, does add additional accuracy to
the estimates.
do owner-operators. Schickele’s study (27) indicates that tenants on the average had 78 percent as much of their acreage in hay and 93 percent as much in pasture as the state average. Applying these percentages to the figures in the Iowa Yearbooks (11) provides acreages of hay and pasture land on crop-share farms from which cash rent may be calculated (Appendix, table 5). Rent on acreage devoted to other crops has been evaluated at the rent per acre of farms rented wholly for cash. All these cash-rent payments due on crop-share farms were assumed to have been paid during the calendar year, i.e., cash rents due on the 1931 production year were paid in 1931.

One other source of rent income to landlords from crop-share farms remains—a 50-percent share of government benefit payments. Total benefit payments payable on crops (43) and all benefit payments paid during the calendar year have been reported (44, 47, 49, 50). The benefit payments paid were multiplied by the ratio of payments payable on crops to total payments payable. This figure, crop benefit payments paid, times the percentage of land under crop-share lease, and divided by two to allow 50 percent to the landlord, provides an estimate of benefit payments going to crop-share landlords (Appendix, table 6). In more recent years this detailed calculation is unnecessary, since benefit payments on hogs were abolished. It is only necessary to obtain that portion applicable to crop-share farms and divide it between landlord and tenant.

Rent paid under stock-share leases—the third lease type—cannot be obtained with as great a degree of refinement. It was assumed that these farms produced the proportion of the state income from livestock, livestock products and benefit payments as is represented by the acreage involved in stock-share farms compared with the total farm acreage. Estimates of monthly receipts (44, 47, 49, 50) were employed as income figures so as to obtain data on a calendar year basis. The income thus allocated to stock-share farms was divided on a 50-50 basis between the landlord and the tenant.

A number of farmers in Iowa own two or more farms, one of which they operate themselves, the others being rented out. Examination of tenancy schedules collected by Schickele and discussion with staff members indicates that about 12.5 percent of all landlords are farmers. While there probably are differences in lease types compared with all landlords, there are no data on which to base such an adjustment. Consequently, 12.5 percent 7This probably underestimates rent payments on stock-share farms, because these farms are likely to have a more intensive livestock enterprise. Hence estimates based on proportionate acreage are somewhat low.

8Out of this gross rent estimate, operating expenses paid by stock-share landlords should be deducted. Where possible, this has been made under the individual expense items.
of the total rent paid has been allocated as an income to farmer landlords and deducted from total rent payments as an inter-farmer transaction.

Summaries of these estimates of rent are shown in table 9 (details in Appendix, tables 4-6). No attempt has been made to adjust the rent payments for delinquencies or for non-payment of rent.

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash-rent leases</th>
<th>Crop-share leases</th>
<th>Stock-share leases</th>
<th>Total</th>
<th>Rent paid to farmers</th>
<th>Total rent paid to non-farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>50,700</td>
<td>66,200</td>
<td>27,200</td>
<td>144,100</td>
<td>18,000</td>
<td>126,100</td>
</tr>
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<td>1930</td>
<td>51,100</td>
<td>59,600</td>
<td>23,800</td>
<td>134,500</td>
<td>16,800</td>
<td>117,700</td>
</tr>
<tr>
<td>1931</td>
<td>44,000</td>
<td>37,900</td>
<td>16,300</td>
<td>98,200</td>
<td>12,300</td>
<td>85,900</td>
</tr>
<tr>
<td>1932</td>
<td>28,000</td>
<td>32,800</td>
<td>10,900</td>
<td>71,700</td>
<td>9,000</td>
<td>62,700</td>
</tr>
<tr>
<td>1933</td>
<td>13,700</td>
<td>61,500</td>
<td>12,300</td>
<td>87,500</td>
<td>10,900</td>
<td>76,600</td>
</tr>
<tr>
<td>1934</td>
<td>13,300</td>
<td>81,500</td>
<td>16,900</td>
<td>112,700</td>
<td>14,000</td>
<td>98,700</td>
</tr>
<tr>
<td>1935</td>
<td>14,300</td>
<td>58,200</td>
<td>19,800</td>
<td>92,300</td>
<td>11,500</td>
<td>80,800</td>
</tr>
<tr>
<td>1936</td>
<td>17,600</td>
<td>83,800</td>
<td>22,700</td>
<td>124,100</td>
<td>15,500</td>
<td>108,600</td>
</tr>
<tr>
<td>1937</td>
<td>17,400</td>
<td>73,200</td>
<td>22,100</td>
<td>112,700</td>
<td>14,100</td>
<td>98,600</td>
</tr>
<tr>
<td>1938</td>
<td>17,700</td>
<td>75,900</td>
<td>23,000</td>
<td>116,600</td>
<td>14,600</td>
<td>102,000</td>
</tr>
<tr>
<td>1939</td>
<td>17,500</td>
<td>99,500</td>
<td>25,300</td>
<td>142,300</td>
<td>17,800</td>
<td>124,500</td>
</tr>
</tbody>
</table>

FEEDER LIVESTOCK

Livestock purchases for feeding operations include steers, heifers, calves, lambs and pigs. They may be placed conveniently into groups according to whether they are purchased (a) from organized markets or (b) direct from producing areas. While the total number purchased direct is reported (37), relatively little information is at present available on the cost or grade of this feeder stock. Livestock reporters of the Bureau of Agricultural Economics suggest that the average cost per head of stock bought direct is approximately the same as for stock purchased in organized markets. Accordingly the cost of feeder stock purchased through organized markets was estimated, and the amount expanded sufficiently to allow for feeder animals bought direct from producing areas. For the years 1937-39 costs of feeder animals have been estimated by the Agricultural Marketing Service and were used directly (37). The estimates obtained by applying the method used here to 1937 and 1938 compare closely with the estimates of the Agricultural Marketing Service.

CATTLE

Shipments of feeder cattle into Iowa from 12 leading markets (51) ordinarily account for 95 to 98 percent of all the

9One hundred head of feeder stock bought direct would be of somewhat higher quality and less subject to disease than 100 head bought through the organized markets, but the cost to the Iowa feeder would be the same.

10The 12 markets include Chicago, South St. Paul, Omaha, Kansas City, St. Joseph, East St. Louis, Denver, Indianapolis, Ft. Worth, Wichita and Oklahoma City.
cattle shipped into Iowa from the 62 organized markets (34). The seasonal variation in the number of cattle shipped into Iowa can be calculated from the shipments as reported for the 12 markets. Information available for four markets (51)—Chicago, Kansas City, Omaha and South St. Paul—provides estimates of the proportions which steers, heifers and other feeder cattle constitute of the total feeder cattle sold each month. These proportions have been taken as representative of the flow of feeder cattle shipped into Iowa.

The data on weights of steers sold as reported for the four markets were used as the average weight of all feeder steers purchased by Iowa farmers. A simple average of the monthly prices of three markets—Chicago, Kansas City and South St. Paul (51)—appears to approximate fairly closely the prices paid for feeder steers at the markets from which the bulk of the Iowa feeder cattle is purchased but for which detailed information is not reported. Members of the Animal Husbandry Department indicated that the average weight of feeder calves is about 400 pounds. The prices used were the average prices for medium and good to choice feeder calves on the Omaha and Kansas City markets (31). A similar procedure was followed for other feeder cattle, which includes heifers, cows and bulls. The whole group was taken at the weight of heifers on the assumption that the lower price paid per 100 pounds for cows and bulls offsets their heaver weights. This average weight was estimated, as above, at 400 pounds per head. The average prices of medium and good to choice feeder heifers on the Omaha and Kansas City markets were used (31). Since about three-fourths of the total expenditures on feeder cattle is in payment for steers, errors involved in estimating the value of heifers and calves are of major significance (Appendix, table 7).

**LAMBS**

For other kinds of livestock the data are less complete. Monthly movements and total shipments are reported (51), but weights and prices are at best fragmentary, especially for feeder sheep. However, since feeder sheep represent only a small fraction of the total, it will not introduce much error if the added weight of the feeder sheep is assumed to offset the lower price per pound as compared with lambs.

The means of the daily ranges of prices paid for good to choice feeder lambs in Omaha were used as representative of the prices paid for feeder lambs and sheep (31). Since 1929 to

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11 There are two reasons for using this price: 1. Omaha is an important buying point for Iowa lamb feeders, and 2. the great bulk of the feeder lambs passing through the markets to the feed lots fall into the grade of good to choice. This may be seen by taking the average monthly prices for Chicago which are available for 1929, 1930 and 1931. They compare very closely with the quotations for good to choice feeder lambs.
1931 average weekly weights for feeder lambs in Chicago are reported (51). A simple average of the proper weekly weights provides monthly weights which were used in 1929, 1930 and 1931, and averages of these three monthly weights were used for each of the months in the subsequent years (Appendix, table 8).

**PIGS**

In recent years there has been a very rapid decline in the proportion of feeder pigs purchased through central markets relative to those purchased direct; hence, the reliability of estimates based upon central markets becomes weaker through time. Total numbers shipped from central markets and shipped direct were multiplied by average weights (53, 37). The monthly averages of the means of the daily price ranges of good to choice feeder pigs on the Omaha market provided monthly prices (31) (Appendix, table 9).

The annual expenditures by farmers for feeder stock are shown in table 10.

<p>| TABLE 10. EXPENDITURES FOR FEEDER LIVESTOCK BY IOWA FARMERS, 1929-39 (000 omitted). |
|---------------------------------|-------|-------|-------|-------|</p>
<table>
<thead>
<tr>
<th>Year</th>
<th>Cattle</th>
<th>Sheep and lambs</th>
<th>Pigs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$41,350</td>
<td>$4,960</td>
<td>$1,290</td>
<td>$47,600</td>
</tr>
<tr>
<td>1930</td>
<td>25,350</td>
<td>2,400</td>
<td>750</td>
<td>28,480</td>
</tr>
<tr>
<td>1931</td>
<td>23,180</td>
<td>2,170</td>
<td>2,060</td>
<td>27,410</td>
</tr>
<tr>
<td>1932</td>
<td>17,580</td>
<td>1,000</td>
<td>280</td>
<td>13,860</td>
</tr>
<tr>
<td>1933</td>
<td>15,650</td>
<td>2,270</td>
<td>920</td>
<td>21,840</td>
</tr>
<tr>
<td>1934</td>
<td>19,270</td>
<td>4,330</td>
<td>650</td>
<td>24,250</td>
</tr>
<tr>
<td>1935</td>
<td>27,910</td>
<td>4,210</td>
<td>1,870</td>
<td>33,490</td>
</tr>
<tr>
<td>1936</td>
<td>22,810</td>
<td>3,070</td>
<td>1,500</td>
<td>27,380</td>
</tr>
<tr>
<td>1937</td>
<td>28,760</td>
<td>4,720</td>
<td>710</td>
<td>34,190</td>
</tr>
<tr>
<td>1938</td>
<td>41,350</td>
<td>4,010</td>
<td>490</td>
<td>45,850</td>
</tr>
<tr>
<td>1939</td>
<td>65,850</td>
<td>5,350</td>
<td>800</td>
<td>72,000</td>
</tr>
</tbody>
</table>

**FARM WAGES**

The United States Department of Agriculture publishes, by months, the number of farm laborers per 100 crop reporters in the North Central States (31). The same source reports the monthly wage rates for Iowa farm laborers for the months of January, April, July and October. These rates were applied to the single month preceding and following the month given; that is, June, July and August employment figures were valued at the July wage rate. Summing these monthly wage payments for a year provides an estimate of annual payments per 100 reporting farms.

After 1932, employment figures for the West North Central States are available. However, a simple average of the figures for the East and West North Central States was used as before, under the assumption that Iowa is about half-way between the two groups in seasonal fluctuations. In February, 1939, a revised series was inaugurated. Other sources, however, indicated a slight increase in expenditures in 1939 compared with 1938.
This figure for 1929 is $33,903; the census estimate (59) of cash wages paid in 1929, $36,681,000, is 1,170 times this. Were the crop reporters a representative sample of Iowa farmers, as defined by the census, the total payments of wages by all farmers would have been 2,100 times the amount paid per 100 crop reporters, since 2,100 represents the ratio of 100 to the total number of farmers in the state. However, crop reporters are full-time farmers, have larger farms than the average, are better-than-average farmers, have more livestock and hence would employ more than the average amount of labor. To adjust the estimate of wage payments per 100 reporting farms to the census estimates, 1,170 was used as a constant multiplier. The procedure assume that fluctuations (not absolute size) in labor conditions on reporting and non-reporting farms are similar.

From estimates of total wages paid out must be deducted wages paid other farmers. Estimates of total wages paid in cash to nonfarmers are given in table 11.

**TABLE 11. CASH WAGES PAID TO FARM LABOR BY IOWA FARM OPERATORS, 1929-39 (000 omitted).**

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash wages paid</th>
<th>Wages paid to other farmers</th>
<th>Wages paid to non-farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$39,700</td>
<td>$1,100</td>
<td>$38,600</td>
</tr>
<tr>
<td>1930</td>
<td>34,600</td>
<td>1,000</td>
<td>33,600</td>
</tr>
<tr>
<td>1931</td>
<td>25,200</td>
<td>700</td>
<td>24,500</td>
</tr>
<tr>
<td>1932</td>
<td>15,600</td>
<td>600</td>
<td>15,100</td>
</tr>
<tr>
<td>1933</td>
<td>11,600</td>
<td>400</td>
<td>11,200</td>
</tr>
<tr>
<td>1934</td>
<td>13,200</td>
<td>600</td>
<td>12,600</td>
</tr>
<tr>
<td>1935</td>
<td>17,500</td>
<td>700</td>
<td>16,800</td>
</tr>
<tr>
<td>1936</td>
<td>20,400</td>
<td>800</td>
<td>19,600</td>
</tr>
<tr>
<td>1937</td>
<td>23,100</td>
<td>900</td>
<td>22,200</td>
</tr>
<tr>
<td>1938</td>
<td>22,800</td>
<td>900</td>
<td>22,900</td>
</tr>
<tr>
<td>1939*</td>
<td>23,800</td>
<td>900</td>
<td>22,900</td>
</tr>
</tbody>
</table>

*Preliminary.

**SEEDS**

Farmer to farmer sales of seeds within the state need not be estimated, since such sales would appear in both the income and the expense accounts and would cancel each other. In the case of perennials but not annuals, income from sale of seeds off the farm has been included in income; hence estimates of expenditures must be made.

**ANNUAL CROPS**

Virtually all the open-pollinated seed corn and small grains sown are produced within the state and never go through the retailer's hands. Where such is not the case, the retailer's mark-up is small; hence estimates of expenditures are unnecessary.

Soybeans are sown alone and in combination with other crops. Estimates of acreages sown can be obtained from assessors' re-
ports (11). Multiplying by 80 pounds of seed when sown alone and by 8 pounds when sown with other crops,\textsuperscript{13} provides an estimate of total seed sown. Ordinarily about 20 percent of the seed is purchased from retailers (43),\textsuperscript{14} but with the sharp increase in acreage in 1934 and 1935, a larger proportion of the total probably was bought from retailers. The percentage was increased to 50 percent in 1934 and 40 percent in 1935. In 1936, 20 percent again was used, but by 1937 the production of soybeans was sufficiently widespread so that seed was saved from each year's production or purchased from neighboring farmers directly or through a seed-house, with only a small markup. Wholesale prices for soybeans in small quantities from wholesalers in St. Louis are available (34) and were used directly after comparison with catalogs of important Iowa seed companies (Appendix, table 11).

Hybrid seed corn is grown on Iowa farms, but the higher prices paid for seed by farmers usually have not been received by the producing farmers.\textsuperscript{15} Hence, estimates of expenditures are necessary. The acreage planted to hybrid corn and the bushels of seed used are reported in a recent survey (24). Retail prices were set up after consulting with J. L. Robinson of the Agronomy Department, Iowa State College, and with members of the Agricultural Economics Department. Table 12 summarizes the estimates for soybeans and hybrid seed corn.

**TABLE 12. EXPENDITURES FOR HYBRID SEED CORN AND SOYBEANS BY IOWA FARMERS, 1929-39 (000 omitted).**

<table>
<thead>
<tr>
<th>Year</th>
<th>Hybrid seed corn</th>
<th>Soybean seed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td></td>
<td>$57</td>
<td>$57</td>
</tr>
<tr>
<td>1930</td>
<td></td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>1931</td>
<td></td>
<td>69</td>
<td>69</td>
</tr>
<tr>
<td>1932</td>
<td></td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>1933</td>
<td>$63</td>
<td>55</td>
<td>118</td>
</tr>
<tr>
<td>1934</td>
<td>200</td>
<td>885</td>
<td>1,085</td>
</tr>
<tr>
<td>1935</td>
<td>352</td>
<td>996</td>
<td>1,348</td>
</tr>
<tr>
<td>1936</td>
<td>539</td>
<td>178</td>
<td>717</td>
</tr>
<tr>
<td>1937</td>
<td>1,300</td>
<td>0</td>
<td>1,300</td>
</tr>
<tr>
<td>1938</td>
<td>4,290</td>
<td>0</td>
<td>4,290</td>
</tr>
<tr>
<td>1939</td>
<td>5,500</td>
<td>0</td>
<td>5,500</td>
</tr>
</tbody>
</table>

\textsuperscript{13}These estimates and other estimates of seed sown per acre appearing in this section were adopted after consultation with Prof. H. D. Hughes and other members of the Agronomy Department who are familiar with agricultural practices in Iowa.

\textsuperscript{14}Soybeans purchased by retailers from Iowa farmers and resold to other farmers have been included in estimates of income.

\textsuperscript{15}Hybrid seed corn is grown under a contract whereby the farmer plants, cultivates and harvests the corn for a premium of about 1½ to 1½ times the December price of ordinary corn on the Chicago market. The seed company was responsible for the labor of detasseling. Obviously only a small part of the premium for hybrid corn has been received by farmers (24).
GRASS AND LEGUME SEEDS

The estimates of acreages in hay and grasses, as made by Iowa tax assessors (11), do not provide a direct estimate of acreages seeded. Fields seeded to alfalfa and timothy will appear in the estimates several years and seedings which failed, not at all. The percentages of failure for each type of hay and grass seeding were estimated for the years 1929-39,16 (Appendix, table 10).

Since red clover is a biennial and alsike clover, while a perennial is handled in the same manner, these clovers appear in the assessors' reports only once. The acreage harvested in any one year represents the acreage successfully seeded the previous year. This acreage was expanded to allow for failure of seedings and multiplied by 8 pounds of seed per acre when sown alone and 5 pounds per acre in mixture to provide an estimate of total red and alsike clover seed required.

Timothy acreage is found in the assessor's reports under three classifications: timothy hay alone, timothy and clover mixed and timothy harvested for seed. Virtually none of the timothy is sown alone. Timothy and clover are sown together. The first crop year they appear in the records as mixed clover and timothy hay and the following years as timothy alone or timothy for seed. Consequently, the acreages of mixed clover and timothy in any 1 year represent the successful seedings of the previous year. This acreage was expanded to allow for crop failure and multiplied by 8 pounds of seed per acre to obtain an estimate of total timothy seed sown.

When a heavy stand of alfalfa is obtained, the field will usually be left in alfalfa for a number of years. This was assumed to average three crop years during the period considered. Since the acreage in alfalfa has more than doubled from 1929 to 1936 and decreased thereafter, care must be taken to avoid over-estimating the acreage successfully seeded. During the 10 years previous to 1926 the change in alfalfa acreage was small so that a balance in replacement had been approximated. This means that 91,000 acres, one-third of the 273,000 acres harvested, was being replaced each year. The acreage successfully seeded in any year is the increase in the harvested acreage of the ensuing year over that of the present year plus the increase in the acreage of the second year over that of the third year preceding plus the base of 91,000 acres.17 These acreages were expanded to allow for crop failure and multiplied by an average of 15 pounds of seed per acre to provide an estimate of total seed sown.

16These estimates also were made in consultation with Prof. H. D. Hughes.
17For example, the acreage successfully seeded in 1929 is the increase in harvested acreage of 1930 over 1929 plus the increase of 1927 over 1926 plus the base acreage of 91,000 acres. The 1930 acreage is the increase of 1931 over 1930 plus the increase of 1928 over 1927 plus 91,000 acres. If one looks at this on the basis of individual farm practices the procedure can be seen more clearly.
The amount of seed used which has been grown by the farmer (38, 43) must be deducted from these estimates of seeds sown. Much of the acreage sown to sweet clover is plowed under as green manure and never reflected in assessors’ reports. However, it is possible to estimate sweet clover seed purchased by comparison with other clover seed bought. Eight Iowa seed companies, wholesale and retail, in answers to letters, stated that the sales of sweet clover seed are about 1.5 times that of red clover seed. This factor, 1.5 to 1, was applied to red clover seed purchased to obtain the amount of sweet clover seed purchased from retailers. There was a sharp increase in acres planted to red clover in 1932, a sharp decrease in 1933 and a subsequent return to old levels. Consequently a 1 to 1 ratio was used in 1932 and a 2 to 1 ratio in 1933, since there seems to be no reason why sweet clover should change in the same direction; in fact the reverse might be expected even though red and sweet clover are not directly competing crops in many areas. With the sharp increase in red clover seed production in Iowa in 1938 and 1939 and a decrease in seed bought from retailers it was necessary to estimate sweet clover seed by comparison with previous years.

Satisfactory retail prices were not available but were obtained from seed catalogs of six important Iowa seed companies. These were compared with wholesale prices at principal markets (34) and with prices received by farmers for these seeds the preceding year. The retail prices were adjusted where discrepancies occurred. In general, wholesale prices were increased by 15 percent, freight differentials considered (Appendix, table 11).

Total expenditures for grass and legume seeds are given in table 13.

**TABLE 13. EXPENDITURES FOR GRASS AND LEGUME SEEDS IN IOWA, 1929-39 (000 omitted).**

<table>
<thead>
<tr>
<th>Year</th>
<th>Timothy</th>
<th>Clover</th>
<th>Sweet clover</th>
<th>Alfalfa</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$1,060</td>
<td>$5,110</td>
<td>$1,970</td>
<td>$1,320</td>
<td>$9,460</td>
</tr>
<tr>
<td>1930</td>
<td>790</td>
<td>2,530</td>
<td>1,520</td>
<td>900</td>
<td>5,740</td>
</tr>
<tr>
<td>1931</td>
<td>850</td>
<td>2,690</td>
<td>1,640</td>
<td>1,130</td>
<td>6,310</td>
</tr>
<tr>
<td>1932</td>
<td>748</td>
<td>2,850</td>
<td>1,678</td>
<td>910</td>
<td>6,470</td>
</tr>
<tr>
<td>1933</td>
<td>280</td>
<td>1,120</td>
<td>870</td>
<td>680</td>
<td>2,060</td>
</tr>
<tr>
<td>1934</td>
<td>540</td>
<td>1,380</td>
<td>750</td>
<td>980</td>
<td>3,800</td>
</tr>
<tr>
<td>1935</td>
<td>1,560</td>
<td>2,880</td>
<td>1,850</td>
<td>1,500</td>
<td>7,760</td>
</tr>
<tr>
<td>1936</td>
<td>330</td>
<td>2,520</td>
<td>1,190</td>
<td>980</td>
<td>4,630</td>
</tr>
<tr>
<td>1937</td>
<td>210</td>
<td>3,520</td>
<td>2,500</td>
<td>1,530</td>
<td>7,760</td>
</tr>
<tr>
<td>1938</td>
<td>260</td>
<td>2,450</td>
<td>1,950</td>
<td>1,600</td>
<td>6,850</td>
</tr>
<tr>
<td>1939</td>
<td>80</td>
<td>0</td>
<td>1,500</td>
<td>2,020</td>
<td>3,600</td>
</tr>
</tbody>
</table>
A number of deductions must be made from the total expenditure for grass and legume seeds. Managers of Iowa farm business associations estimate that on tenant farms about 60 percent of this expense is paid by landlords. Tenant farms, however, have 78 percent less land (27) in hay than the average farm. An upward adjustment must be made for the one-eighth of the landlords who are active farmers (see estimates on rent, p. 426). Estimates of expenditures for seeds with these corrections included are shown in table 14.

### TABLE 14. EXPENDITURES FOR SEEDS BY IOWA FARM OPERATORS AND NON-FARMER LANDLORDS, 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>Grass and legume seeds</th>
<th>Annual seeds</th>
<th>Expenditures by farm operators for all seeds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-farmer landlords</td>
<td>Farm operators</td>
<td></td>
</tr>
<tr>
<td>1929</td>
<td>$2,110</td>
<td>$7,350</td>
<td>$80</td>
</tr>
<tr>
<td>1930</td>
<td>1,290</td>
<td>4,450</td>
<td>70</td>
</tr>
<tr>
<td>1931</td>
<td>1,420</td>
<td>4,790</td>
<td>70</td>
</tr>
<tr>
<td>1932</td>
<td>1,290</td>
<td>4,180</td>
<td>50</td>
</tr>
<tr>
<td>1933</td>
<td>710</td>
<td>2,250</td>
<td>120</td>
</tr>
<tr>
<td>1934</td>
<td>870</td>
<td>2,730</td>
<td>1,090</td>
</tr>
<tr>
<td>1935</td>
<td>1,860</td>
<td>5,900</td>
<td>1,350</td>
</tr>
<tr>
<td>1936</td>
<td>1,120</td>
<td>3,510</td>
<td>710</td>
</tr>
<tr>
<td>1937</td>
<td>1,840</td>
<td>5,220</td>
<td>1,390</td>
</tr>
<tr>
<td>1938</td>
<td>1,460</td>
<td>4,800</td>
<td>4,290</td>
</tr>
<tr>
<td>1939</td>
<td>830</td>
<td>2,770</td>
<td>5,500</td>
</tr>
</tbody>
</table>

**LIMESTONE AND FERTILIZER**

Reports of the tonnage of commercial fertilizers and fertilizer materials shipped into Iowa have been collected by the Agronomy Department of Iowa State College. The breakdown of this total tonnage into the various types of fertilizers is available for the even-numbered years. Prices of fertilizers in the United States 1929-39 (19) and a price list for all common fertilizers in Iowa during 1936 (21) furnish a basis for estimating prices during this period. Prices quoted by various companies in any 1 year are very similar; hence, these prices can be considered representative.

As the quantities of fertilizer purchased became smaller, farmers purchased a larger proportion of concentrated, expensive fertilizer. The cost of an average ton of fertilizer at 1936 prices in Iowa was estimated for the even-numbered years by weighting 1936 prices by the quantities of each type of fertilizer purchased in these years. The odd-numbered years were assumed to be the same as the preceding or succeeding even-numbered year, the choice being determined by the closeness of the tonnages sold. To reduce these figures to average prices for the particular years in Iowa, the price of all fertilizers was used as an index with 1936 as a base. This assumes that the price of
fertilizers sold in Iowa maintained a constant relationship to the price of fertilizers in the United States. Table 15 summarizes the estimates.

**TABLE 15. EXPENDITURES FOR COMMERCIAL FERTILIZER BY IOWA FARMERS, 1929-39.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Tonnage shipped</th>
<th>Index of 2-12-2 per ton, 1936=100</th>
<th>Price of &quot;av&quot; ton 1936 price</th>
<th>Price of fertilizer per ton, adjusted</th>
<th>Total expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>20,100</td>
<td>133</td>
<td>$29.30</td>
<td>$39.00</td>
<td>$784,000</td>
</tr>
<tr>
<td>1930</td>
<td>24,600</td>
<td>128</td>
<td>29.30</td>
<td>37.50</td>
<td>925,000</td>
</tr>
<tr>
<td>1931</td>
<td>22,000</td>
<td>120</td>
<td>29.30</td>
<td>35.20</td>
<td>774,000</td>
</tr>
<tr>
<td>1932</td>
<td>4,700</td>
<td>107</td>
<td>31.00</td>
<td>22.20</td>
<td>156,000</td>
</tr>
<tr>
<td>1933</td>
<td>2,600</td>
<td>91</td>
<td>32.50</td>
<td>29.60</td>
<td>77,000</td>
</tr>
<tr>
<td>1934</td>
<td>4,200</td>
<td>108</td>
<td>32.50</td>
<td>35.10</td>
<td>147,000</td>
</tr>
<tr>
<td>1935</td>
<td>5,500</td>
<td>107</td>
<td>31.70</td>
<td>35.90</td>
<td>186,000</td>
</tr>
<tr>
<td>1936</td>
<td>6,400</td>
<td>100</td>
<td>31.70</td>
<td>31.70</td>
<td>203,000</td>
</tr>
<tr>
<td>1937</td>
<td>8,500</td>
<td>106</td>
<td>31.70</td>
<td>33.60</td>
<td>286,000</td>
</tr>
<tr>
<td>1938</td>
<td>11,100</td>
<td>106</td>
<td>30.00</td>
<td>31.80</td>
<td>355,000</td>
</tr>
<tr>
<td>1939</td>
<td>13,000</td>
<td>106</td>
<td>30.00</td>
<td>31.80</td>
<td>415,000</td>
</tr>
</tbody>
</table>

Estimates of the consumption of lime and liming materials in Iowa, 1929-39, have been reported (5). The price per ton for a great many producers in Iowa for 1937 has also been reported (5). Prices in 1937 were taken at $1.10 per ton, and members of the Agronomy Department indicated that these prices had changed very little during the period since 1929. The cost of limestone is given in table 16.

The amounts paid by non-farmers for these items must be deducted from the total expenditures. Managers of Iowa farm business associations estimate that 35 percent of the cost of commercial fertilizer and 60 percent of the cost of limestone used on tenant farms is paid by landlords. It was assumed that as much limestone and fertilizer are used per acre on tenant as on owner farms. Of these landlords' expenditures it is estimated that 12.5 percent is paid by farmer landlords. The final estimates of expenditures with these corrections incorporated are shown in table 16.

**TWINE**

In estimating twine costs it was assumed that 1 pound of twine will be needed for every 450 pounds of grain harvested.\(^{18}\) In terms of individual grains, this means 1 pound of twine to 15 bushels of oats, 7.5 bushels of wheat, 9 bushels of barley and 8 bushels of rye or somewhere between 2 and 3 pounds per acre in normal years. The yields of the various grains (29) were divided by the appropriate factor and multiplied by the cost of

\(^{18}\)This corrects to a large extent the differences between the amounts of twine used during favorable and unfavorable growing seasons.
TABLE 16. EXPENDITURES FOR FERTILIZER AND LIMESTONE BY IOWA FARM OPERATORS, 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>Fertilizer</th>
<th>Limestone</th>
<th>Total expenditures for limestone and fertilizer to operators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total expenditures</td>
<td>Expenditures of operators</td>
<td>Total expenditures</td>
</tr>
<tr>
<td>1929</td>
<td>$780</td>
<td>$650</td>
<td>$390</td>
</tr>
<tr>
<td>1930</td>
<td>920</td>
<td>770</td>
<td>390</td>
</tr>
<tr>
<td>1931</td>
<td>770</td>
<td>640</td>
<td>250</td>
</tr>
<tr>
<td>1932</td>
<td>180</td>
<td>130</td>
<td>160</td>
</tr>
<tr>
<td>1933</td>
<td>80</td>
<td>70</td>
<td>150</td>
</tr>
<tr>
<td>1934</td>
<td>150</td>
<td>120</td>
<td>190</td>
</tr>
<tr>
<td>1935</td>
<td>190</td>
<td>160</td>
<td>250</td>
</tr>
<tr>
<td>1936</td>
<td>200</td>
<td>160</td>
<td>990</td>
</tr>
<tr>
<td>1937</td>
<td>290</td>
<td>240</td>
<td>480</td>
</tr>
<tr>
<td>1938</td>
<td>350</td>
<td>290</td>
<td>260</td>
</tr>
<tr>
<td>1939</td>
<td>410</td>
<td>340</td>
<td>440</td>
</tr>
</tbody>
</table>

twine which was estimated after discussion with twine dealers in Ames. No provision was made for inventory changes, since the small carry-over would be about constant. Allowance was made for grain harvested by combines based upon a 1938 survey reported in July, 1939 (31).

The corn acreage cut for silage and fodder averages somewhat over 7 percent of the total except in 1934 and 1936 (11). More acres were cut during these drouth years, but it is doubtful whether the amount of twine used was any greater. It was assumed that 7 percent of the total crop was cut with binders and that 2 pounds of twine per acre were required.

The total cost of twine is shown in table 17.

TABLE 17. EXPENDITURES FOR TWINE USED BY IOWA FARMERS, 1929-39.

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost per cwt.</th>
<th>Total expenditure (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$9.00</td>
<td>$1,600</td>
</tr>
<tr>
<td>1930</td>
<td>9.00</td>
<td>1,700</td>
</tr>
<tr>
<td>1931</td>
<td>8.00</td>
<td>1,300</td>
</tr>
<tr>
<td>1932</td>
<td>7.50</td>
<td>1,300</td>
</tr>
<tr>
<td>1933</td>
<td>7.00</td>
<td>800</td>
</tr>
<tr>
<td>1934</td>
<td>7.50</td>
<td>800</td>
</tr>
<tr>
<td>1935</td>
<td>7.50</td>
<td>400</td>
</tr>
<tr>
<td>1936</td>
<td>8.00</td>
<td>1,300</td>
</tr>
<tr>
<td>1937</td>
<td>8.50</td>
<td>1,800</td>
</tr>
<tr>
<td>1938</td>
<td>8.50</td>
<td>1,400</td>
</tr>
<tr>
<td>1939</td>
<td>8.00</td>
<td>1,000</td>
</tr>
</tbody>
</table>

GASOLINE, FUEL OIL, LUBRICATING OIL AND GREASE

It has not been possible to estimate expenditures for new automobiles and trucks. However, it is possible to estimate expenditures for fuel and lubrication in automobiles, trucks and tractors from data available. No attempt has been made to separate farm and family expenditures. Gasoline used in stationary gaso-
line engines has not been estimated, nor have items such as anti-freeze, tires and automotive repairs.

The total apparent consumption of gasoline in Iowa is reported annually (62). An indication of the proportion of this amount which is used by farmers may be obtained from the summary of the returns of a questionnaire sent out by the Bureau of Agricultural Economics (48). This survey estimates the amounts of gasoline and other fuel used by the average Iowa farm automobile, truck and tractor in 1935. Tax assessors’ reports (11) estimate the number of each of these vehicles on the farms each year. Since comparisons with the census reports indicate an underestimation by the assessors of slightly under 15 percent, the number of vehicles reported by the assessors has been adjusted upward. By multiplying the number of vehicles in 1935 by the average gasoline consumption of each, an estimate of gasoline sales to Iowa farmers in 1935 of 117,570,000 gallons is obtained.

The ratio of the consumption of gasoline by farm users to the total consumption has probably remained fairly constant from 1929 to 1939 (total consumption has increased considerably for both farmers and non-farmers); accordingly the total gasoline consumption has been allocated to farm and non-farm users in the same proportion as in 1935. In order to convert gallons of gasoline used into monetary terms, it was necessary to determine both the prices paid and the net taxes paid by farmers.

Prices were obtained by consulting weekly issues of National Petroleum News (20), which provided reports of prices of major oil companies in important cities. The Standard Oil Company (Indiana) tank-wagon prices for Red Crown and Stanolind in Des Moines were used. These prices included taxes. Tax refunds are available from reports of gasoline consumption (62). Ninety percent of these refunds were allotted to farmers.

The data on prices and net cost of gasoline are shown in table 18.

The Bureau of Agricultural Economics questionnaire estimates the average consumption of fuel oil per farm tractor in Iowa in 1935 at 360 gallons. This figure was multiplied by the number of farm tractors to obtain the total amount of fuel oil used each year. The price of fuel oil was taken at gasoline prices less 21/2 cents per gallon and taxes.

19 Stanolind was weighted twice as heavily as Red Crown and the months from April to October inclusive were weighted twice as heavily as the other five.

20 This does not necessarily assume that 360 gallons of fuel oil were used by the average farm tractor each year, but only that this amount or its equivalent in gasoline is unaccounted for in the series already derived.
Table 18. Gallons of and Expenditures for Gasoline Used by Iowa Farm Operators, 1929-39.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total gallons used</th>
<th>Gallons used by farmers</th>
<th>Tank-wagon price per gallon</th>
<th>Total expenditures</th>
<th>Refund of tax</th>
<th>Net expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(000 omitted)</td>
<td>(000 omitted)</td>
<td>(000 omitted)</td>
<td>(000 omitted)</td>
<td>(000 omitted)</td>
<td>(000 omitted)</td>
</tr>
<tr>
<td>1929</td>
<td>335,628</td>
<td>98,600</td>
<td>$0.189</td>
<td>$17,690</td>
<td>$640</td>
<td>$17,050</td>
</tr>
<tr>
<td>1930</td>
<td>385,115</td>
<td>109,600</td>
<td>$0.179</td>
<td>$19,820</td>
<td>1,090</td>
<td>18,730</td>
</tr>
<tr>
<td>1931</td>
<td>412,624</td>
<td>115,100</td>
<td>$0.135</td>
<td>$15,540</td>
<td>1,310</td>
<td>14,230</td>
</tr>
<tr>
<td>1932</td>
<td>356,445</td>
<td>99,400</td>
<td>$0.137</td>
<td>$13,820</td>
<td>1,550</td>
<td>12,270</td>
</tr>
<tr>
<td>1933</td>
<td>355,568</td>
<td>99,100</td>
<td>$0.148</td>
<td>$16,670</td>
<td>780</td>
<td>15,890</td>
</tr>
<tr>
<td>1934</td>
<td>405,803</td>
<td>112,650</td>
<td>$0.147</td>
<td>$15,550</td>
<td>950</td>
<td>14,600</td>
</tr>
<tr>
<td>1935</td>
<td>421,765</td>
<td>117,600</td>
<td>$0.131</td>
<td>$18,090</td>
<td>1,250</td>
<td>16,840</td>
</tr>
<tr>
<td>1936</td>
<td>460,298</td>
<td>128,300</td>
<td>$0.141</td>
<td>$20,830</td>
<td>1,630</td>
<td>19,200</td>
</tr>
<tr>
<td>1937</td>
<td>495,596</td>
<td>138,300</td>
<td>$0.147</td>
<td>$21,650</td>
<td>2,940</td>
<td>18,710</td>
</tr>
<tr>
<td>1938</td>
<td>524,535</td>
<td>146,300</td>
<td>$0.148</td>
<td>$21,780</td>
<td>2,220</td>
<td>19,560</td>
</tr>
<tr>
<td>1939</td>
<td>550,333</td>
<td>153,400</td>
<td>$0.142</td>
<td>$21,780</td>
<td>2,220</td>
<td>19,560</td>
</tr>
</tbody>
</table>

Farm management studies indicate that between 14 and 16 percent of the total expense for fuel, oil and grease in trucks and tractors was for oil and grease, the percentage being smaller for light trucks and tractors than for heavy trucks. Accordingly 17.5 percent of the cost of fuel has been taken to represent the cost of oil and grease, thus making the cost of oil and grease 14.9 percent of the total cost of the three items. This ratio was held constant throughout the period.

Total expenditures by Iowa farm operators for gasoline, oil and grease are given in table 19.

Table 19. Total Expenditures by Iowa Farm Operators for Fuel, Lubricating Oil and Grease, 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>Expenditures for gasoline</th>
<th>Expenditures for fuel oil</th>
<th>Total expenditures for fuel</th>
<th>Expenditures for oil and grease</th>
<th>Total expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$17,050</td>
<td>$2,660</td>
<td>$19,710</td>
<td>$3,450</td>
<td>$23,160</td>
</tr>
<tr>
<td>1930</td>
<td>18,530</td>
<td>2,610</td>
<td>21,140</td>
<td>3,700</td>
<td>24,840</td>
</tr>
<tr>
<td>1931</td>
<td>14,290</td>
<td>1,680</td>
<td>15,910</td>
<td>2,780</td>
<td>18,690</td>
</tr>
<tr>
<td>1932</td>
<td>12,070</td>
<td>1,480</td>
<td>15,550</td>
<td>2,370</td>
<td>15,920</td>
</tr>
<tr>
<td>1933</td>
<td>13,500</td>
<td>1,680</td>
<td>15,820</td>
<td>2,670</td>
<td>17,720</td>
</tr>
<tr>
<td>1934</td>
<td>14,770</td>
<td>1,720</td>
<td>17,490</td>
<td>2,860</td>
<td>20,350</td>
</tr>
<tr>
<td>1935</td>
<td>14,560</td>
<td>1,660</td>
<td>16,120</td>
<td>3,230</td>
<td>19,340</td>
</tr>
<tr>
<td>1936</td>
<td>16,840</td>
<td>2,290</td>
<td>19,130</td>
<td>3,350</td>
<td>22,480</td>
</tr>
<tr>
<td>1937</td>
<td>18,700</td>
<td>2,950</td>
<td>21,650</td>
<td>3,750</td>
<td>25,400</td>
</tr>
<tr>
<td>1938</td>
<td>19,510</td>
<td>3,310</td>
<td>22,820</td>
<td>4,010</td>
<td>26,830</td>
</tr>
<tr>
<td>1939</td>
<td>19,560</td>
<td>2,270</td>
<td>22,830</td>
<td>4,060</td>
<td>26,820</td>
</tr>
</tbody>
</table>

Baby Chicks

Total chickens raised in Iowa each year have been reported (33, 39). These were expanded by 20 percent to allow 16% percent mortality on the total number of chicks started. The percentage of chicks purchased from commercial hatcheries was estimated for each year, partly from data available (35, 39, 67) and partly in consultation with members of the Poultry Husbandry Department. The number of chicks bought from hatch-
<table>
<thead>
<tr>
<th>Year</th>
<th>Chickens raised (000 omitted)</th>
<th>Chicks started (000 omitted)</th>
<th>Chicks bought (percent)</th>
<th>Chicks bought (000 omitted)</th>
<th>Price per 100</th>
<th>Expenditures for chicks bought (000 omitted)</th>
<th>Expenditures for custom hatching (000 omitted)</th>
<th>Total expenditures (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>48,200</td>
<td>57,900</td>
<td>36</td>
<td>20,800</td>
<td>$13.10</td>
<td>$2,700</td>
<td>$170</td>
<td>$2,900</td>
</tr>
<tr>
<td>1930</td>
<td>47,200</td>
<td>56,700</td>
<td>39</td>
<td>22,100</td>
<td>12.00</td>
<td>2,600</td>
<td>170</td>
<td>2,800</td>
</tr>
<tr>
<td>1931</td>
<td>45,800</td>
<td>55,000</td>
<td>38</td>
<td>20,900</td>
<td>9.60</td>
<td>2,000</td>
<td>160</td>
<td>2,200</td>
</tr>
<tr>
<td>1932</td>
<td>44,500</td>
<td>53,300</td>
<td>38</td>
<td>20,300</td>
<td>7.00</td>
<td>1,400</td>
<td>180</td>
<td>1,600</td>
</tr>
<tr>
<td>1933</td>
<td>50,200</td>
<td>60,300</td>
<td>43</td>
<td>25,900</td>
<td>6.10</td>
<td>1,600</td>
<td>180</td>
<td>1,800</td>
</tr>
<tr>
<td>1934</td>
<td>44,200</td>
<td>53,000</td>
<td>50</td>
<td>26,500</td>
<td>7.30</td>
<td>1,900</td>
<td>160</td>
<td>2,100</td>
</tr>
<tr>
<td>1935</td>
<td>45,100</td>
<td>54,100</td>
<td>56</td>
<td>30,300</td>
<td>8.30</td>
<td>2,500</td>
<td>160</td>
<td>2,700</td>
</tr>
<tr>
<td>1936</td>
<td>50,100</td>
<td>60,200</td>
<td>58</td>
<td>34,800</td>
<td>8.60</td>
<td>3,000</td>
<td>180</td>
<td>3,200</td>
</tr>
<tr>
<td>1937</td>
<td>44,100</td>
<td>52,900</td>
<td>56</td>
<td>29,800</td>
<td>7.70</td>
<td>2,300</td>
<td>150</td>
<td>2,400</td>
</tr>
<tr>
<td>1938</td>
<td>49,400</td>
<td>59,300</td>
<td>58</td>
<td>34,400</td>
<td>8.00</td>
<td>2,700</td>
<td>180</td>
<td>2,900</td>
</tr>
<tr>
<td>1939</td>
<td>49,900</td>
<td>59,900</td>
<td>60</td>
<td>35,900</td>
<td>7.90</td>
<td>2,800</td>
<td>180</td>
<td>3,009</td>
</tr>
</tbody>
</table>
eries was then multiplied by prices (65), and a charge for custom hatching was added to the total. This amounted to $3 per hundred for about 10 percent of the chicks.

The estimates of expenditures are shown in table 20.

FARM IMPLEMENTS AND MACHINERY

According to the 1930 census, United States' farmers spent $692,548,000 for farm machinery in 1929 (59). This figure includes automobiles and trucks. The Census of Manufacture and Sale of Farm Equipment (34, 60) estimates that United States farmers spent 578 million dollars for farm implements in the same year. The latter figure includes repair parts, forks, shovels, scythes and other items which are not included in the former estimate but does not include automobiles and trucks. It is a more complete and accurate enumeration of tools and machinery, but unfortunately the data are not available by states nor are they continuous for the years 1929 to 1939. This information can, however, be used to obtain a basic figure for 1929.

The ratio of Iowa expenditures to United States expenditures, as given in the 1930 census, i.e., $51,567,000 to $692,548,000, was applied to the estimate of farm machinery, tools and equipment, i.e., 578 million dollars. This provides a base figure of 43 million dollars as the expenditures of Iowa farmers for this item in 1929. An index was constructed from the estimates of expenditures for tools and machinery as given in farm returns (31) and used to extrapolate the base figure through the period to 1939. An average of the indexes of the East and West North Central States was used on the assumption that Iowa was halfway between the two areas.

Table 21 summarizes the estimates.

<table>
<thead>
<tr>
<th>Year</th>
<th>North Central index</th>
<th>Expenditures (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>100</td>
<td>$43,000</td>
</tr>
<tr>
<td>1930</td>
<td>72</td>
<td>$31,000</td>
</tr>
<tr>
<td>1931</td>
<td>72</td>
<td>$31,000</td>
</tr>
<tr>
<td>1932</td>
<td>20</td>
<td>$8,600</td>
</tr>
<tr>
<td>1933</td>
<td>25</td>
<td>$10,800</td>
</tr>
<tr>
<td>1934</td>
<td>34</td>
<td>$14,600</td>
</tr>
<tr>
<td>1935</td>
<td>74</td>
<td>$31,800</td>
</tr>
<tr>
<td>1936</td>
<td>73</td>
<td>$31,400</td>
</tr>
<tr>
<td>1937</td>
<td>109</td>
<td>$46,900</td>
</tr>
<tr>
<td>1938</td>
<td>87</td>
<td>$37,400</td>
</tr>
<tr>
<td>1939</td>
<td>80</td>
<td>$34,400</td>
</tr>
</tbody>
</table>

21The Bureau of the Census developed these estimates of retail value by increasing the value of farm equipment sold by manufacturers for domestic use by 26 percent for retail margins. The mark-up seems to be too low, especially since it must include freight, but the basic figure includes some machinery not sold to farmers. Calculation indicates that the figure is equal to about a 35 percent mark-up on actual sales including freight so that this method is sufficiently accurate.
FARM BUILDINGS AND REPAIRS

Expenditures for farm buildings and repairs by farmers in the United States in 1929 are estimated by the Bureau of Agricultural Economics at 278 million dollars (31). After testing several hypotheses, the ratio of expenditures for farm buildings and repairs in Iowa to that of the United States in 1929 was taken as equal to the ratio of the value of farm buildings in Iowa to the value for the United States as estimated by the census (59). This procedure gives an estimate of the expenditure for farm buildings and repairs by Iowa farmers of $26,600,000.

While estimates of national expenditures are reported for later years, it was not considered sufficiently accurate to continue to use this ratio for the years following 1929, since the greater relative shrink of farm income in some sections of the country would tend to distort the relative expenditures in the different regions. Moreover, farmers in Iowa probably were in a better position to "disinvest" as far as buildings were concerned than those in other sections. This figure, $26,600,000, was extrapolated to 1939 by constructing an index from reports of expenditures in Farm Returns as given in Crops and Markets (31). An average of the East and West North Central States was used, under the assumption that Iowa is about halfway between the two areas. The index of the West North Central States alone is influenced too much by the very unfavorable conditions in Kansas, Nebraska and the Dakotas.

A study of farmers' expenditures on farm buildings in Wisconsin, Illinois and Kansas (32) showed average annual expenditures of all farmers in 1936 in four selected townships of $80 to $100 per farm including expenditures by landlords. The estimate for Iowa in 1936 is $70 per farm for farm operators. A summary of the estimates is shown in table 22.

TABLE 22. EXPENDITURES BY IOWA FARM OPERATORS FOR FARM BUILDINGS AND REPAIRS, 1929-39.

<table>
<thead>
<tr>
<th>Year</th>
<th>North Central index</th>
<th>Expenditures (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>100</td>
<td>26,600</td>
</tr>
<tr>
<td>1930</td>
<td>70</td>
<td>18,800</td>
</tr>
<tr>
<td>1931</td>
<td>32</td>
<td>10,400</td>
</tr>
<tr>
<td>1932</td>
<td>17</td>
<td>4,500</td>
</tr>
<tr>
<td>1933</td>
<td>22</td>
<td>5,900</td>
</tr>
<tr>
<td>1934</td>
<td>20</td>
<td>8,000</td>
</tr>
<tr>
<td>1935</td>
<td>50</td>
<td>12,300</td>
</tr>
<tr>
<td>1936</td>
<td>55</td>
<td>14,700</td>
</tr>
<tr>
<td>1937</td>
<td>56</td>
<td>14,900</td>
</tr>
<tr>
<td>1938</td>
<td>65</td>
<td>17,300</td>
</tr>
<tr>
<td>1939</td>
<td>57</td>
<td>15,200</td>
</tr>
</tbody>
</table>
LAND, PERSONAL PROPERTY AND POLL TAXES

From the annual reports of the Iowa Board of Assessment and Review (13) were obtained the valuations, rates and levies for farm land given in table 23. These levies must be adjusted for rented land where taxes are paid by the landlord (out of rent receipts). Deductions must also be made for delinquencies and homestead exemptions and additions made for penalties on adjustments in order to obtain an estimate of expenditures for taxes. Income taxes have not been included, while sales taxes are listed separately (see p. 454).


<table>
<thead>
<tr>
<th>Year</th>
<th>Taxable value rural land less exemptions preceding year (000 omitted)</th>
<th>Average rural millage</th>
<th>Total land tax payable (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$558,480*</td>
<td>80.42*</td>
<td>$44,910*</td>
</tr>
<tr>
<td>1930</td>
<td>$548,580*</td>
<td>86.98*</td>
<td>47,720*</td>
</tr>
<tr>
<td>1931</td>
<td>$554,620</td>
<td>85.30</td>
<td>47,309</td>
</tr>
<tr>
<td>1932</td>
<td>$523,414</td>
<td>79.37</td>
<td>41,543</td>
</tr>
<tr>
<td>1933</td>
<td>$523,871</td>
<td>72.71</td>
<td>38,091</td>
</tr>
<tr>
<td>1934</td>
<td>$1,662,472</td>
<td>19.91</td>
<td>33,100</td>
</tr>
<tr>
<td>1935</td>
<td>$1,664,405</td>
<td>18.28</td>
<td>30,425</td>
</tr>
<tr>
<td>1936</td>
<td>$1,663,662</td>
<td>22.70</td>
<td>37,766</td>
</tr>
<tr>
<td>1937</td>
<td>$1,665,052</td>
<td>23.21</td>
<td>38,646</td>
</tr>
<tr>
<td>1938</td>
<td>$1,681,335</td>
<td>23.49</td>
<td>39,425</td>
</tr>
<tr>
<td>1939</td>
<td>$1,678,129</td>
<td>23.55</td>
<td>39,520</td>
</tr>
</tbody>
</table>

*The value of rural land and the average rural millage are not segregated in the 1929 and 1930 reports. They were estimated on the basis of the relationships between rural and state figures in subsequent years. These relationships were quite stable.

The total land tax payable is levied on all farm land and must be corrected for taxes levied on non-farmer landlords. Total taxes payable were multiplied by the percentage of total acreage operated by tenants to obtain the taxes paid by landlords (11). An additional correction must be made for land owned by the 12.5 percent of all landlords who are active farmers (see p. 426). The property tax levied on farm operators is shown in table 24. For the years after 1937, homestead exemptions must be deducted. The ratio between volume of urban and rural homesteads in 1940 was applied to the total exemptions for the earlier years. Data was made available by the Iowa State Tax Commission.

Rural personal property values as given in the Annual Reports (13) were multiplied by the average millage (table 23) to obtain total personal property taxes levied. These taxes were paid entirely by farm operators except for one-half of the taxes

22The ratio of rented acreage to total acreage is assumed to equal the ratio of the corresponding assessed values.
on stock-share farms, which amount was deducted from the total. Poll taxes were taken from the reports directly, since they are levied entirely against the operator. These taxes are summarized in table 24.

### TABLE 24. RURAL PERSONAL, PROPERTY, POLL, LAND AND TOTAL TAXES LEVIED ON IOWA FARM OPERATORS, 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th>Collection year</th>
<th>Rural personal property tax</th>
<th>Poll tax</th>
<th>Land tax</th>
<th>Total tax levied</th>
<th>Homestead exemptions</th>
<th>Total tax payable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$2,930*</td>
<td>$130*</td>
<td>$23,500*</td>
<td>$26,560</td>
<td></td>
<td>$26,560</td>
</tr>
<tr>
<td>1930</td>
<td>3,160*</td>
<td>130*</td>
<td>25,000*</td>
<td>28,290</td>
<td></td>
<td>28,290</td>
</tr>
<tr>
<td>1931</td>
<td>3,370*</td>
<td>130*</td>
<td>24,610*</td>
<td>28,110</td>
<td></td>
<td>28,110</td>
</tr>
<tr>
<td>1932</td>
<td>2,630*</td>
<td>130*</td>
<td>21,410</td>
<td>24,170</td>
<td></td>
<td>24,170</td>
</tr>
<tr>
<td>1933</td>
<td>1,930</td>
<td>140</td>
<td>18,860</td>
<td>20,930</td>
<td></td>
<td>20,930</td>
</tr>
<tr>
<td>1934</td>
<td>1,690</td>
<td>130</td>
<td>16,130</td>
<td>17,950</td>
<td></td>
<td>17,950</td>
</tr>
<tr>
<td>1935</td>
<td>1,470</td>
<td>140</td>
<td>14,740</td>
<td>16,350</td>
<td></td>
<td>16,350</td>
</tr>
<tr>
<td>1936</td>
<td>1,540</td>
<td>10</td>
<td>18,470</td>
<td>20,420</td>
<td></td>
<td>20,420</td>
</tr>
<tr>
<td>1937</td>
<td>2,640</td>
<td>10</td>
<td>18,730</td>
<td>21,350</td>
<td>$4,510</td>
<td>16,870</td>
</tr>
<tr>
<td>1938</td>
<td>2,770</td>
<td>20</td>
<td>19,310</td>
<td>22,100</td>
<td>4,780</td>
<td>17,320</td>
</tr>
<tr>
<td>1939</td>
<td>2,680</td>
<td>0</td>
<td>19,770</td>
<td>22,450</td>
<td>4,870</td>
<td>17,580</td>
</tr>
</tbody>
</table>

*Only state figures were available in these years. The estimates were made on the basis of the relationship between rural and state figures in subsequent years.

Allowance must be made for taxes permitted to go delinquent, repayment of delinquencies and interest on delinquencies. Some taxes became delinquent during the collection year but were paid before the end of the year, while others were not paid until succeeding years. On all these taxes it was necessary to add penalties which must be allocated to the year paid.

From the results of a survey of tax delinquencies in seven counties (2), estimates of the rate of delinquencies may be made. The total delinquencies each year were divided by the total penalties collected to obtain a rate of penalty, which is shown in table 25.

### TABLE 25. TOTAL DELINQUENCIES, PENALTIES AND AVERAGE RATE OF PENALTY FOR SEVEN COUNTIES IN IOWA, 1929-33.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total delinquencies</th>
<th>Total penalty collected</th>
<th>Rate of penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$239,627</td>
<td>$10,333</td>
<td>4.31%</td>
</tr>
<tr>
<td>1930</td>
<td>295,188</td>
<td>11,899</td>
<td>4.03</td>
</tr>
<tr>
<td>1931</td>
<td>472,454</td>
<td>21,504</td>
<td>4.55</td>
</tr>
<tr>
<td>1932</td>
<td>736,844</td>
<td>46,420</td>
<td>6.30</td>
</tr>
<tr>
<td>1933</td>
<td>710,671</td>
<td>28,067</td>
<td>3.95</td>
</tr>
</tbody>
</table>

These seven counties are assumed to be representative of the state. The rate of penalty drops materially in 1933, probably because many penalties were waived when delinquencies were
paid. Total charges for penalties were obtained by applying these rates to the total taxes becoming delinquent (1)\textsuperscript{23} (Appendix, table 12). Sixty percent of the total penalties assessed against farm land was taken as the amount applicable to farm operators. This assumes that tax delinquency occurred slightly more frequently among farmer owners than among non-farmer owners. Summaries of these estimates are shown in table 26.

**TABLE 26. CHARGES FOR PENALTIES ON DELINQUENT TAXES OF IOWA FARM OPERATORS, 1929-39 (000 omitted).**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total delinquencies during year</th>
<th>Rate of penalty (percent)</th>
<th>Penalty charge ( ^a )</th>
<th>Charge for year indicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$5,500</td>
<td>4.31</td>
<td>$150</td>
<td>$90</td>
</tr>
<tr>
<td>1930</td>
<td>4,460</td>
<td>4.63</td>
<td>180</td>
<td>110</td>
</tr>
<tr>
<td>1931</td>
<td>7,320</td>
<td>4.55</td>
<td>330</td>
<td>200</td>
</tr>
<tr>
<td>1932</td>
<td>11,670</td>
<td>6.30</td>
<td>740</td>
<td>440</td>
</tr>
<tr>
<td>1933</td>
<td>10,370</td>
<td>3.95</td>
<td>410</td>
<td>250</td>
</tr>
<tr>
<td>1934</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1935</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1936</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1937</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1938</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1939</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( ^a \) Represents charge on that year’s delinquency whenever paid.
\( ^{f} \) Penalties on delinquencies paid within year.
\( ^{g} \) Three-fourths of charge to farmers paid in 1931, $\frac{1}{4}$ in 1932, and $\frac{3}{4}$ in 1933.
\( ^{h} \) One-half of charge to farmers paid in 1932 and $\frac{1}{4}$ in 1933.
\( ^{i} \) Three-fourths of charge to farmers paid in 1933 and $\frac{3}{4}$ in 1934.
\( ^{j} \) Estimate.

Taxes going delinquent into subsequent years and then paid by farm operators must be added to the expenditures (Appendix, table 12). Sixty percent of these delinquencies was taken as applicable to farm operators, shown in table 27.

Delinquent taxes consist of all taxes which are not paid voluntarily or by means of tax sale during the collection year. Consequently tax sales have not been part of our corrections and should be deducted from taxes paid. It is highly improbable that much of this land was sold for taxes but rather that the taxes were redeemed either by the farmer himself or by the mortgage holder. Sixty percent of the tax sales is applied to farm operators. There were virtually no tax sales on farm land subsequent to 1933. Table 28 summarizes the estimates of taxes paid.

**INTEREST AND CAPITAL ADJUSTMENTS ON SHORT-TERM LOANS**

Short-term (non-land mortgage) credit has been obtained from a variety of sources, particularly since 1933. The granting

\textsuperscript{23} Additional refinement might be attempted to allow for the counties not reporting. That the accuracy would be increased is doubtful, since it is not known whether the correct figure for these counties is zero or a sizable item.
TABLE 27. DELINQUENT TAXES ON IOWA FARM LAND AND AGAINST OPERATORS, 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th>Collection year</th>
<th>Outstanding delinquent taxes beginning of year</th>
<th>Net delinquencies during year on all farm land</th>
<th>Net delinquencies applicable to farm operators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$ 36†</td>
<td>$ 35</td>
<td>$ 20</td>
</tr>
<tr>
<td>1930</td>
<td>71</td>
<td>95</td>
<td>60</td>
</tr>
<tr>
<td>1931</td>
<td>166</td>
<td>517</td>
<td>310</td>
</tr>
<tr>
<td>1932</td>
<td>683</td>
<td>2,763</td>
<td>1,666</td>
</tr>
<tr>
<td>1933</td>
<td>5,447</td>
<td>1,360</td>
<td>1,150</td>
</tr>
<tr>
<td>1934</td>
<td>8,466</td>
<td>-3,089</td>
<td>-1,850</td>
</tr>
<tr>
<td>1935</td>
<td>2,317†</td>
<td>-796†</td>
<td>-480†</td>
</tr>
<tr>
<td>1936</td>
<td>1,521†</td>
<td>-388†</td>
<td>-220†</td>
</tr>
<tr>
<td>1937</td>
<td>1,133†</td>
<td>-360†</td>
<td>-220†</td>
</tr>
<tr>
<td>1938</td>
<td>773†</td>
<td>-378†</td>
<td>-230†</td>
</tr>
<tr>
<td>1939</td>
<td>395†</td>
<td>0†</td>
<td>0†</td>
</tr>
<tr>
<td>1940</td>
<td>395†</td>
<td>0†</td>
<td>0†</td>
</tr>
</tbody>
</table>

*Estimate.
†Estimated on basis of communication from Auditor of State stating that 16 percent of the total levy (urban and rural) was delinquent in 1933, 8 percent in 1934 and 6 percent in 1935. In 1933 delinquency in rural land was 14 percent. In 1934 rural delinquency was taken at 7 percent, in 1935 at 5 percent, in 1936 at 3 percent, in 1937 at 3 percent and in 1938 and 1939 at 1 percent of the total rural assessment (4). The data in columns two and three are net delinquencies during the year. The minus figures represent an excess of old delinquencies paid back over new delinquencies.

of the loan has been treated as a cash income and its repayment as a cash expenditure. Interest on many of these loans was paid slowly, if at all. During 1929-39, the following agencies should be considered in determining interest payments and capital transfers on short-term loans: 1. Commercial banks, 2. Regional Agricultural Credit Corporation, 3. Commodity Credit Corporation, 4. emergency crop production and seed loans, 5. Production Credit Associations, 6. drouth relief loans, 7. installment buying and open book credit from merchants, 8. livestock loan com-

TABLE 28. LAND, PERSONAL PROPERTY AND POLL TAXES PAID BY IOWA FARM OPERATORS, 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>Taxes payable by farm operators</th>
<th>Plus penalty charges to farm operators</th>
<th>Plus 60 percent of tax sales preceding year</th>
<th>Total</th>
<th>Less 60 percent net delinquencies</th>
<th>Less 60 percent of tax sales current year</th>
<th>Total taxes paid</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$26,560</td>
<td>$ 90</td>
<td>$120*</td>
<td>$26,770</td>
<td>$ 20*</td>
<td>$170‡</td>
<td>$26,580</td>
</tr>
<tr>
<td>1930</td>
<td>28,290</td>
<td>110</td>
<td>170‡</td>
<td>28,570</td>
<td>60‡</td>
<td>320‡</td>
<td>28,190</td>
</tr>
<tr>
<td>1931</td>
<td>28,110</td>
<td>150</td>
<td>320‡</td>
<td>28,350</td>
<td>310‡</td>
<td>450‡</td>
<td>27,820</td>
</tr>
<tr>
<td>1932</td>
<td>24,170</td>
<td>250</td>
<td>450‡</td>
<td>24,420</td>
<td>1,660‡</td>
<td>40‡</td>
<td>23,170</td>
</tr>
<tr>
<td>1933</td>
<td>20,530</td>
<td>430</td>
<td>40‡</td>
<td>21,400</td>
<td>1,150‡</td>
<td>50‡</td>
<td>20,170</td>
</tr>
<tr>
<td>1934</td>
<td>17,850</td>
<td>300</td>
<td>50‡</td>
<td>18,360</td>
<td>-1,350‡</td>
<td>0‡</td>
<td>17,010</td>
</tr>
<tr>
<td>1935</td>
<td>16,350</td>
<td>150‡</td>
<td>16,500</td>
<td>-450‡</td>
<td>16,950‡</td>
<td>17,140‡</td>
<td>17,580</td>
</tr>
<tr>
<td>1936</td>
<td>20,420</td>
<td>110‡</td>
<td>20,530</td>
<td>-220‡</td>
<td>20,750‡</td>
<td>17,600‡</td>
<td>17,600</td>
</tr>
</tbody>
</table>

*Estimate.‡
panies and 9. other loan companies. Sufficient data are available to permit estimating loans and interest payments for only the first six of these. The method followed generally has been rather direct. An estimate was made of the amount of loans outstanding at the end of each year on each type of loan and of the actual amount of interest paid each year. The final step was to adjust for changes in indebtedness. Cognizance also was taken of loans written off as uncollectible or settled at less than face value.

LOANS FROM COMMERCIAL BANKS

The only authoritative sources of information on short-term loans from commercial banks to Iowa farmers are studies by Norman J. Wall (63, 64, 40). These studies include only the active banks and do not include adjustments for loans held by banks that closed their doors during the early months of the depression with a considerable number of these loans in their portfolios. Wall estimates that in 1934 there was a total of $40,550,000 of personal and collateral loans outstanding by active Iowa banks to farm operators. To extend this series backward to 1929, an index constructed from "other loans" per country national bank was used. Since there were virtually no closed banks in 1928, the amount in this year $197,070,000, was used as a base for the index (Appendix, Table 13). After 1934 the pressure to contract loans was very different in active and closed banks, while the number of active banks was increased by the reopening of banks which had been closed. Hence this index was not used after 1934, but the amount of loans in closed banks was reduced by comparison with previous years.

During this period there was a reduction in loans outstanding through cash repayments, write-offs as bad debts or settlements at other than face value. The only indication of the importance of each category is the estimated value of assets of Iowa country national banks at the time they suspended operations (30). For banks closing between 1930 and 1934, 34 percent of the assets was estimated good, 59 percent as doubtful and 7 percent as worthless. The following percentages of the loan reduction were assumed to have been paid in cash:

<table>
<thead>
<tr>
<th>1929—100 percent</th>
<th>1933—40 percent</th>
<th>1937—100 percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930—100</td>
<td>1934—40</td>
<td>1938—100</td>
</tr>
<tr>
<td>1931—20</td>
<td>1935—60</td>
<td>1939—100</td>
</tr>
<tr>
<td>1932—50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1936—80

This results in about one-third of the value of short-term loans outstanding in 1929 being declared worthless. The estimates of cash payments on short-term bank credits from commercial banks are given in table 29.
TABLE 29. LOANS OUTSTANDING AND CAPITAL PAYMENTS ON SHORT-TERM LOANS OF IOWA FARMS WITH COMMERCIAL BANKS, 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>Loans outstanding</th>
<th>Change in total loans</th>
<th>Reduction written off</th>
<th>Net reduction in loans outstanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>197,000</td>
<td>+ 2,000</td>
<td>$1,500</td>
<td>+ 2,000</td>
</tr>
<tr>
<td>1930</td>
<td>199,000</td>
<td>+2,000</td>
<td>16,700</td>
<td>-14,200</td>
</tr>
<tr>
<td>1931</td>
<td>183,300</td>
<td>-15,700</td>
<td>8,300</td>
<td>-7,400</td>
</tr>
<tr>
<td>1932</td>
<td>149,800</td>
<td>-33,500</td>
<td>27,100</td>
<td>-6,400</td>
</tr>
<tr>
<td>1933</td>
<td>136,200</td>
<td>-13,500</td>
<td>2,600</td>
<td>-10,900</td>
</tr>
<tr>
<td>1934</td>
<td>96,700</td>
<td>+3,400</td>
<td></td>
<td>+3,400</td>
</tr>
<tr>
<td>1935</td>
<td>69,700</td>
<td>+16,300</td>
<td></td>
<td>+16,300</td>
</tr>
<tr>
<td>1936</td>
<td>56,600</td>
<td>+28,000</td>
<td></td>
<td>+28,000</td>
</tr>
<tr>
<td>1937</td>
<td>60,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1938</td>
<td>76,300</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1939</td>
<td>104,300</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE 30. INTEREST PAYABLE AND INTEREST ACTUALLY PAID ON SHORT-TERM LOANS OF IOWA FARMERS FROM COMMERCIAL BANKS, 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>Interest payable</th>
<th>Interest written off as bad debt</th>
<th>Interest paid at some time</th>
<th>Less delinquencies during year</th>
<th>Plus delinquencies from preceding year</th>
<th>Interest paid</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$13,800</td>
<td>$2,500</td>
<td>$13,800</td>
<td>$2,600</td>
<td>$2,600</td>
<td>$13,800</td>
</tr>
<tr>
<td>1930</td>
<td>13,900</td>
<td>10,300</td>
<td>13,900</td>
<td>3,200</td>
<td>3,200</td>
<td>13,900</td>
</tr>
<tr>
<td>1931</td>
<td>12,800</td>
<td>8,400</td>
<td>12,800</td>
<td>6,000</td>
<td>6,000</td>
<td>12,800</td>
</tr>
<tr>
<td>1932</td>
<td>10,500</td>
<td>6,600</td>
<td>10,500</td>
<td>3,300</td>
<td>3,300</td>
<td>10,500</td>
</tr>
<tr>
<td>1933</td>
<td>5,400</td>
<td>4,400</td>
<td>5,400</td>
<td>2,100</td>
<td>2,100</td>
<td>5,400</td>
</tr>
<tr>
<td>1934</td>
<td>4,200</td>
<td>4,200</td>
<td>4,200</td>
<td>1,000</td>
<td>1,000</td>
<td>4,200</td>
</tr>
<tr>
<td>1935</td>
<td>3,400</td>
<td>3,400</td>
<td>3,400</td>
<td>600</td>
<td>600</td>
<td>3,400</td>
</tr>
<tr>
<td>1936</td>
<td>3,600</td>
<td>3,600</td>
<td>3,600</td>
<td>600</td>
<td>600</td>
<td>3,600</td>
</tr>
<tr>
<td>1937</td>
<td>4,600</td>
<td>4,600</td>
<td>4,600</td>
<td>600</td>
<td>600</td>
<td>4,600</td>
</tr>
<tr>
<td>1938</td>
<td>6,300</td>
<td>6,300</td>
<td>6,300</td>
<td>600</td>
<td>600</td>
<td>6,300</td>
</tr>
</tbody>
</table>

Interest payable was calculated at 7 percent through 1932 and 6 percent thereafter. Not all of the interest payable was paid, and much of that which was paid, was paid later. No studies of interest delinquencies are available. During 1929 and 1930 and again after 1935, interest was probably paid when due. During the remaining years, 20 percent was taken as never paid either because of agreements between the two parties or because the loans became worthless. Of the remaining interest, 25 percent in 1931, 50 percent in 1932 and 1933, 33 percent in 1934 and 15 percent in 1935 was carried over into the next year as a delinquent payment.

24 On basis of private communication of Feb. 20, 1936, from the Auditor of the State of Iowa.
COMMODITY CREDIT CORPORATION LOANS

The corn loans made during the seasons of 1933-34 and 1934-35 must be allocated to the proper calendar year. During 1933, corn loans in Iowa amounted to $21,090,000 (3). A private communication of March 3, 1936, from the Commodity Credit Corporation gave the total interest paid on all loans. Dividing this figure by the percentage of all loans made in Iowa gives an estimate of the interest paid by Iowa farmers. In the same way repayments on Iowa loans may be estimated. See tables 32 and 33.

Since 1936 the Bureau of Agricultural Economics has included receipts from corn sealings in their estimates of income from farm marketings (44). Consequently receipts from sealings have not been segregated and included under the short-term capital account. Redemptions made in cash should be estimated, since it is a cash expenditure. On the basis of several tables made available by the Commodity Credit Corporation a rough estimate of redemptions was possible. These are shown in table 33.

REGIONAL AGRICULTURAL CREDIT CORPORATION AND PRODUCTION CREDIT ASSOCIATION LOANS

Since a great many of the loans provided by these agencies were made in the spring and repaid in the fall, the total amount of loans made and paid back during the year (56) has been taken into consideration in calculating interest payments. The interest rate is 5 percent plus an inspection fee not to exceed 1 percent. In a letter from the Omaha Production Credit Association of Jan. 27, 1936, the actual interest paid in 1934 and 1935 was given; 1933 was estimated at $1\frac{1}{2}$ percent on all loans outstanding in that year for an average period of 8 months while 1936-39 was estimated by taking interest accrued during each year as given in a letter of Oct. 25, 1940. The estimates are given in table 31. Repayments of or additions to principal outstanding were taken from the Annual Reports of the Farm Credit Administration (56).

EMERGENCY CROP AND SEED LOANS

The interest payments on these loans were small, but the capital adjustments were somewhat more important. Interest was estimated by assuming that Iowa farmers paid the same amount of interest in proportion to their loans as did all farmers in proportion to the total volume of farm loans in the United States. Interest in the years subsequent to 1936 has been estimated on the basis of repayments. Capital repayments can be obtained directly (56). Interest and capital changes are given in tables 32 and 33.
TABLE 31. LOANS OUTSTANDING AND INTEREST PAID ON PRODUCTION CREDIT AND REGIONAL AGRICULTURAL CREDIT LOANS BY IOWA FARMERS, 1932-39 (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>Loans outstanding at end of year</th>
<th>Change in loans outstanding</th>
<th>Interest paid</th>
</tr>
</thead>
<tbody>
<tr>
<td>1932</td>
<td>$ 705</td>
<td></td>
<td>+$ 705</td>
</tr>
<tr>
<td>1933</td>
<td>3,561</td>
<td></td>
<td>+2,855</td>
</tr>
<tr>
<td>1934</td>
<td>1,383</td>
<td>1,844</td>
<td>-2,178</td>
</tr>
<tr>
<td>1935</td>
<td>341</td>
<td>1,757</td>
<td>-1,042</td>
</tr>
<tr>
<td>1936</td>
<td>68</td>
<td>3,711</td>
<td>-273</td>
</tr>
<tr>
<td>1937</td>
<td>16</td>
<td>4,908</td>
<td>-24</td>
</tr>
<tr>
<td>1938</td>
<td>8</td>
<td>4,588</td>
<td>-11</td>
</tr>
</tbody>
</table>

DROUGHT RELIEF LOANS

These loans were made after the drouth of 1934; most of them during the winter of 1934-35. The capital transactions are taken directly from the Farm Credit Administration report (56). Interest paid was figured at 5½ percent for the time the loan was outstanding on one-half of the loans repaid. It was assumed that no interest was paid on the remainder of the loans outstanding. A letter of Oct. 30, 1940, from the Division of Agricultural Finance indicates that collections were credited first to principal and then to interest.

Summaries are given in tables 32 and 33.

TABLE 32. SHORT-TERM INTEREST PAYMENTS PAID BY IOWA FARM OPERATORS, 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>Commercial banks</th>
<th>Corn loans</th>
<th>P.C.A. and R.A.C.C.</th>
<th>Crop and Drouth</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$13,800</td>
<td></td>
<td></td>
<td>$2</td>
<td>$13,800</td>
</tr>
<tr>
<td>1930</td>
<td>13,900</td>
<td></td>
<td></td>
<td>2</td>
<td>13,900</td>
</tr>
<tr>
<td>1931</td>
<td>7,700</td>
<td></td>
<td></td>
<td>10</td>
<td>7,700</td>
</tr>
<tr>
<td>1932</td>
<td>6,800</td>
<td></td>
<td></td>
<td>$240</td>
<td>6,800</td>
</tr>
<tr>
<td>1933</td>
<td>7,500</td>
<td></td>
<td>$1,110</td>
<td>5</td>
<td>7,700</td>
</tr>
<tr>
<td>1934</td>
<td>6,200</td>
<td></td>
<td>90</td>
<td>7</td>
<td>7,400</td>
</tr>
<tr>
<td>1935</td>
<td>5,100</td>
<td>80</td>
<td>$ 3</td>
<td>$ 9</td>
<td>5,290</td>
</tr>
<tr>
<td>1936</td>
<td>4,000</td>
<td></td>
<td>3</td>
<td>10</td>
<td>4,100</td>
</tr>
<tr>
<td>1937</td>
<td>3,600</td>
<td>120</td>
<td>10</td>
<td>4</td>
<td>3,700</td>
</tr>
<tr>
<td>1938</td>
<td>4,600</td>
<td>160</td>
<td>4</td>
<td>7</td>
<td>4,800</td>
</tr>
<tr>
<td>1939</td>
<td>6,300</td>
<td>180</td>
<td>4</td>
<td>7</td>
<td>6,500</td>
</tr>
</tbody>
</table>

INTEREST AND CAPITAL ADJUSTMENTS ON LONG-TERM LOANS

Mortgages on Iowa farm land may be separated into three tenure groups: 1. Mortgages on farms entirely owned and operated by the owner, 2. mortgages on that portion of part-owner farms owned by the operator and 3. mortgages on farm land operated by tenants. Only the first two categories are of in-
TABLE 33. NET CHANGE IN PRINCIPAL OF SHORT-TERM LOANS OF IOWA FARM OPERATORS, 1929-39 (000 omitted).*

<table>
<thead>
<tr>
<th>Year</th>
<th>Commercial banks</th>
<th>Corn loans</th>
<th>P.C.A. and R.A.C.C.</th>
<th>Crop and seed</th>
<th>Drouth</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>+ 2,000</td>
<td>-</td>
<td>-</td>
<td>+ 50</td>
<td>-</td>
<td>+ 2,000</td>
</tr>
<tr>
<td>1930</td>
<td>-14,200</td>
<td>+ 2,280</td>
<td>-1,420</td>
<td>- 360</td>
<td>- 60</td>
<td>-15,900</td>
</tr>
<tr>
<td>1931</td>
<td>-16,800</td>
<td>+ 21,100</td>
<td>+ 50</td>
<td>+ 200</td>
<td>+ 400</td>
<td>-18,200</td>
</tr>
<tr>
<td>1932</td>
<td>-5,500</td>
<td>-16,100</td>
<td>-18</td>
<td>- 10</td>
<td>- 10</td>
<td>-12,600</td>
</tr>
<tr>
<td>1933</td>
<td>-18,200</td>
<td>- 4,900</td>
<td>+ 360</td>
<td>+ 600</td>
<td>- 210</td>
<td>-10,500</td>
</tr>
<tr>
<td>1934</td>
<td>-12,600</td>
<td>- 800</td>
<td>+ 270</td>
<td>- 50</td>
<td>- 60</td>
<td>-10,500</td>
</tr>
<tr>
<td>1935</td>
<td>+ 3,400</td>
<td>+ 1,030</td>
<td>+ 50</td>
<td>+ 50</td>
<td>+ 270</td>
<td>+16,300</td>
</tr>
<tr>
<td>1936</td>
<td>+ 16,300</td>
<td>+ 3,600</td>
<td>- 50</td>
<td>- 50</td>
<td>- 60</td>
<td>+28,000</td>
</tr>
<tr>
<td>1937</td>
<td>+ 28,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*In table 1 these totals have been rounded to two significant figures. They are shown here in greater detail so as to show the effect of a number of the less important sources of credit.


terest in this study. The Bureau of Agricultural Economics recently completed a study (52) of mortgage indebtedness for 1935 and 1930 and obtained the following estimates of farm mortgage indebtedness in Iowa:

<table>
<thead>
<tr>
<th>Date</th>
<th>Part owner*</th>
<th>Full owner</th>
<th>All owner operators</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 1, 1930</td>
<td>$162,398,000</td>
<td>474,718,000</td>
<td>$637,111,000</td>
</tr>
<tr>
<td>January 1, 1935</td>
<td>$113,067,000</td>
<td>359,574,000</td>
<td>$472,641,000</td>
</tr>
</tbody>
</table>

*Includes only mortgage on operator owned portion of partly owned farms.

Estimates of total mortgage indebtedness against all Iowa farm land have been made (40) and may be used for interpolation. The estimate of total mortgages in 1935 is 65.8 percent of the 1930 estimate while in the estimates of mortgages on farner-owned land, the 1935 figure is 74.2 percent of 1930. This discrepancy occurs because a relatively larger proportion of tenant-operated land was freed from debt by foreclosure or otherwise, than was true of operator-owned land. The figures in table 34 were corrected for this differential. The corrected index and total mortgage debt on operator-owned land are given in table 34.

25Three sources were used in the compilation of data: 1. The federal farm censuses of 1935 and 1930. 2. a cooperative survey in 1935 by the Bureau of the Census and Bureau of Agricultural Economics in which questionnaires were sent to every farm owner in 100 selected counties and to every fifth farmer in 400 additional counties and 3. a less extensive survey in 1930 in which the Bureau of Agricultural Economics mailed questionnaires to farm owners in 48 states. For details of the compilation see p. 3-4 of the cited reference.

26The evidence is not clear, but apparently land-purchase contracts are considered as owner-operated land by tax assessors, while the indebtedness is not included in estimates of mortgage indebtedness. If true there is an underestimation in either rent or mortgages. No accurate data on these contracts are available, but apparently they apply to only a portion of insurance company sales in recent years.
TABLE 34. TOTAL MORTGAGE DEBT ON FARMER-OWNED LAND IN IOWA, 1928-39.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total mortgage debt (000,000 omitted)</th>
<th>Index of total debt</th>
<th>Index of operators’ indebtedness</th>
<th>Total operators’ debt (000,000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1928</td>
<td>$1,253</td>
<td>104.8</td>
<td>104.8</td>
<td>$668</td>
</tr>
<tr>
<td>1929</td>
<td>1,249</td>
<td>104.4</td>
<td>104.4</td>
<td>665</td>
</tr>
<tr>
<td>1930</td>
<td>1,196</td>
<td>100.0</td>
<td>100.0</td>
<td>637</td>
</tr>
<tr>
<td>1931</td>
<td>1,143</td>
<td>95.6</td>
<td>97.4</td>
<td>620</td>
</tr>
<tr>
<td>1932</td>
<td>1,079</td>
<td>90.2</td>
<td>92.6</td>
<td>590</td>
</tr>
<tr>
<td>1933</td>
<td>982</td>
<td>82.1</td>
<td>86.5</td>
<td>551</td>
</tr>
<tr>
<td>1934</td>
<td>862</td>
<td>72.1</td>
<td>79.0</td>
<td>503</td>
</tr>
<tr>
<td>1935</td>
<td>787</td>
<td>65.8</td>
<td>74.2</td>
<td>473</td>
</tr>
<tr>
<td>1936</td>
<td>750</td>
<td>62.7</td>
<td>71.9</td>
<td>453</td>
</tr>
<tr>
<td>1937</td>
<td>722</td>
<td>60.4</td>
<td>70.1</td>
<td>447</td>
</tr>
<tr>
<td>1938</td>
<td>701</td>
<td>58.6</td>
<td>68.8</td>
<td>438</td>
</tr>
<tr>
<td>1939</td>
<td>685</td>
<td>57.3</td>
<td>67.8</td>
<td>432</td>
</tr>
</tbody>
</table>

The average interest rate on Iowa farm mortgages was also reported in the Agricultural Finance Review (40). The interest rates and mortgage charges are shown in table 35.

TABLE 35. MORTGAGE DEBT OF IOWA FARM OPERATORS, INTEREST RATES, TOTAL INTEREST CHARGES AND REDUCTION OF PRINCIPAL, 1929-39.

<table>
<thead>
<tr>
<th>Year</th>
<th>Debt of operators (000 omitted)</th>
<th>Interest rates (percent)</th>
<th>Interest payable (000 omitted)</th>
<th>Principal reduction (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$665</td>
<td>5.6</td>
<td>$37,200</td>
<td>$28,000</td>
</tr>
<tr>
<td>1930</td>
<td>687</td>
<td>5.5</td>
<td>35,000</td>
<td>17,000</td>
</tr>
<tr>
<td>1931</td>
<td>620</td>
<td>5.5</td>
<td>34,100</td>
<td>30,000</td>
</tr>
<tr>
<td>1932</td>
<td>590</td>
<td>5.5</td>
<td>32,400</td>
<td>39,000</td>
</tr>
<tr>
<td>1933</td>
<td>561</td>
<td>5.4</td>
<td>29,800</td>
<td>48,000</td>
</tr>
<tr>
<td>1934</td>
<td>508</td>
<td>5.3</td>
<td>26,700</td>
<td>30,000</td>
</tr>
<tr>
<td>1935</td>
<td>473</td>
<td>5.2</td>
<td>24,500</td>
<td>15,000</td>
</tr>
<tr>
<td>1936</td>
<td>458</td>
<td>4.8</td>
<td>22,000</td>
<td>11,000</td>
</tr>
<tr>
<td>1937</td>
<td>447</td>
<td>4.8</td>
<td>21,500</td>
<td>9,000</td>
</tr>
<tr>
<td>1938</td>
<td>438</td>
<td>4.7</td>
<td>20,600</td>
<td>6,000</td>
</tr>
<tr>
<td>1939</td>
<td>432</td>
<td>4.7</td>
<td>20,300</td>
<td>3,000*</td>
</tr>
</tbody>
</table>

*Preliminary.

Interest payable must be adjusted for interest delinquent or not paid and principal reduction for reductions through foreclosure. To make these three adjustments the amounts payable were reduced by the percentages in tables 36 and 37. These were assumed not to have been paid because of foreclosure (17), voluntary writeoffs, refinancing or other reasons. In 1938 and 1939 delinquencies paid back were assumed to equal new delinquencies.

TELEPHONES

The number of telephones on Iowa farms was obtained from the 1930 census (59) and reports of the Northwestern Bell Tele-
### TABLE 36. INTEREST PAID ON MORTGAGES AGAINST OPERATOR-OWNED FARMS, 1929-39.

<table>
<thead>
<tr>
<th>Year</th>
<th>Interest payable (000 omitted)</th>
<th>Interest not paid (percent)</th>
<th>Interest paid (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$37,200</td>
<td>10</td>
<td>$33,500</td>
</tr>
<tr>
<td>1930</td>
<td>35,000</td>
<td>10</td>
<td>31,500</td>
</tr>
<tr>
<td>1931</td>
<td>34,100</td>
<td>30</td>
<td>23,900</td>
</tr>
<tr>
<td>1932</td>
<td>32,400</td>
<td>50</td>
<td>16,200</td>
</tr>
<tr>
<td>1933</td>
<td>29,800</td>
<td>30</td>
<td>14,900</td>
</tr>
<tr>
<td>1934</td>
<td>26,700</td>
<td>20</td>
<td>13,700</td>
</tr>
<tr>
<td>1935</td>
<td>24,600</td>
<td>30</td>
<td>19,700</td>
</tr>
<tr>
<td>1936</td>
<td>22,000</td>
<td>20</td>
<td>17,600</td>
</tr>
<tr>
<td>1937</td>
<td>21,500</td>
<td>10</td>
<td>19,300</td>
</tr>
<tr>
<td>1938</td>
<td>20,600</td>
<td>0</td>
<td>20,600</td>
</tr>
<tr>
<td>1939</td>
<td>20,300</td>
<td>0</td>
<td>20,300</td>
</tr>
</tbody>
</table>

### TABLE 37. PRINCIPAL REPaid ON MORTGAGES AGAINST OPERATOR-OWNED FARMS, 1929-39.

<table>
<thead>
<tr>
<th>Year</th>
<th>Principal reduction (000 omitted)</th>
<th>Principal reduction foreclosed (percent)</th>
<th>Principal reduction foreclosed (000 omitted)</th>
<th>Principal reduction repaid (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$28,000</td>
<td>25</td>
<td>$7,000</td>
<td>$21,000</td>
</tr>
<tr>
<td>1930</td>
<td>17,000</td>
<td>35</td>
<td>5,000</td>
<td>11,000</td>
</tr>
<tr>
<td>1931</td>
<td>30,000</td>
<td>70</td>
<td>21,000</td>
<td>9,000</td>
</tr>
<tr>
<td>1932</td>
<td>39,000</td>
<td>95</td>
<td>37,000</td>
<td>2,000</td>
</tr>
<tr>
<td>1933</td>
<td>48,000</td>
<td>95</td>
<td>46,000</td>
<td>2,000</td>
</tr>
<tr>
<td>1934</td>
<td>30,000</td>
<td>80</td>
<td>24,000</td>
<td>6,000</td>
</tr>
<tr>
<td>1935</td>
<td>15,000</td>
<td>40</td>
<td>6,000</td>
<td>9,000</td>
</tr>
<tr>
<td>1936</td>
<td>11,000</td>
<td>25</td>
<td>3,000</td>
<td>8,000</td>
</tr>
<tr>
<td>1937</td>
<td>9,000</td>
<td>25</td>
<td>2,000</td>
<td>7,000</td>
</tr>
<tr>
<td>1938</td>
<td>6,000</td>
<td>10</td>
<td>1,000</td>
<td>5,000</td>
</tr>
<tr>
<td>1939*</td>
<td>5,000</td>
<td>5</td>
<td>5,000</td>
<td>5,000</td>
</tr>
</tbody>
</table>

*Preliminary.

phone Company. Average monthly charges were obtained by weighting monthly rates (1924-29) by the number of farm telephones in urban commercial companies, in farmer or rural companies and in farmers’ mutual companies in 1929 (36). This rate $17.33 per year, was used for each of the succeeding years, since there was virtually no change in rates. Total charges are shown in table 38.

### ELECTRICITY

The number of electrified farms in Iowa more than doubled from 1929 to 1939 (2, 25). Installation charges were estimated at $165 per farm by Rural Electrification Administration supervisors. Expenditures for current based on October 1933, consumption have been made for 1929, 1932 and 1936 (36). No other estimates of rates and expenditures were found except that of the 1930 census (49) which estimates expenditures at $65 per farm as compared to $128 in the more recent estimate. Total expenditures are shown in table 39.
### TABLE 38. EXPENDITURES FOR TELEPHONE SERVICE BY IOWA FARMERS, 1929-39.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of farms with telephones</th>
<th>Expenditures (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>180,900</td>
<td>$3,135</td>
</tr>
<tr>
<td>1930</td>
<td>182,700</td>
<td>3,166</td>
</tr>
<tr>
<td>1931</td>
<td>169,100</td>
<td>2,931</td>
</tr>
<tr>
<td>1932</td>
<td>147,400</td>
<td>2,554</td>
</tr>
<tr>
<td>1933</td>
<td>134,400</td>
<td>2,328</td>
</tr>
<tr>
<td>1934</td>
<td>136,200</td>
<td>2,350</td>
</tr>
<tr>
<td>1935</td>
<td>138,900</td>
<td>2,407</td>
</tr>
<tr>
<td>1936</td>
<td>140,700</td>
<td>2,438</td>
</tr>
<tr>
<td>1937</td>
<td>142,700</td>
<td>2,473</td>
</tr>
<tr>
<td>1938</td>
<td>142,900</td>
<td>2,476</td>
</tr>
<tr>
<td>1939</td>
<td>143,600</td>
<td>2,489</td>
</tr>
</tbody>
</table>

### TABLE 39. EXPENDITURES FOR ELECTRIC LIGHT, POWER AND INSTALLATION OF ELECTRICITY BY IOWA FARMERS, 1929-39.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of electrified farms</th>
<th>Expenditure per farm per year</th>
<th>Expenditure for current (000 omitted)</th>
<th>Number of electrified farms</th>
<th>Expenditure for installation (000 omitted)</th>
<th>Total expenditure (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>25,150</td>
<td>$128</td>
<td>$3,219</td>
<td>6,000</td>
<td>$990</td>
<td>$4,209</td>
</tr>
<tr>
<td>1930</td>
<td>28,290</td>
<td>129</td>
<td>3,649</td>
<td>3,140</td>
<td>518</td>
<td>4,167</td>
</tr>
<tr>
<td>1931</td>
<td>30,380</td>
<td>131</td>
<td>3,980</td>
<td>2,090</td>
<td>87</td>
<td>4,167</td>
</tr>
<tr>
<td>1932</td>
<td>30,910*</td>
<td>132</td>
<td>4,080</td>
<td>530</td>
<td>86</td>
<td>4,109</td>
</tr>
<tr>
<td>1933</td>
<td>31,420*</td>
<td>133</td>
<td>4,023</td>
<td>520</td>
<td>102</td>
<td>4,076</td>
</tr>
<tr>
<td>1934</td>
<td>32,050</td>
<td>134</td>
<td>3,974</td>
<td>870</td>
<td>102</td>
<td>4,076</td>
</tr>
<tr>
<td>1935</td>
<td>32,920</td>
<td>121</td>
<td>3,883</td>
<td>870</td>
<td>144</td>
<td>4,127</td>
</tr>
<tr>
<td>1936</td>
<td>36,410</td>
<td>118</td>
<td>4,296</td>
<td>3,490</td>
<td>575</td>
<td>4,872</td>
</tr>
<tr>
<td>1937</td>
<td>39,670</td>
<td>118</td>
<td>4,679</td>
<td>3,240</td>
<td>555</td>
<td>5,214</td>
</tr>
<tr>
<td>1938</td>
<td>46,970</td>
<td>118</td>
<td>5,542</td>
<td>7,300</td>
<td>1,208</td>
<td>6,750</td>
</tr>
<tr>
<td>1939</td>
<td>55,000*</td>
<td>118</td>
<td>6,490</td>
<td>8,030</td>
<td>1,325</td>
<td>7,815</td>
</tr>
</tbody>
</table>

*Preliminary.

### FARM ORGANIZATIONS

The dues paid to the Iowa Farm Bureau Federation (16) and the charges for membership in Corn Testing Associations (15) are shown in table 40. Dues-paying memberships of the Farmers Union and many other organizations could not be obtained. Costs of breeding associations and the higher costs of maintaining a purebred herd will be compensated for in higher prices for stock sold. Furthermore, many such transactions are inter-farmer transactions and hence outside the scope of this study.

### CONSUMPTION

In estimating expenditures for farm-family living, it was necessary to combine data from several sources which were not completely comparable. During 1936 the Bureau of Home Economics made a study of consumer purchases for five counties in Iowa (Madison, Mahaska, Marion, Marshall and Poweshiek) and
TABLE 40. MEMBERSHIP DUES IN IOWA FARM ORGANIZATIONS, 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>Farm bureau</th>
<th>Cow-testing associations</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$309</td>
<td>$104</td>
<td>$413</td>
</tr>
<tr>
<td>1930</td>
<td>317</td>
<td>101</td>
<td>418</td>
</tr>
<tr>
<td>1931</td>
<td>260</td>
<td>107</td>
<td>367</td>
</tr>
<tr>
<td>1932</td>
<td>147</td>
<td>77</td>
<td>224</td>
</tr>
<tr>
<td>1933</td>
<td>110</td>
<td>43</td>
<td>153</td>
</tr>
<tr>
<td>1934</td>
<td>130</td>
<td>55</td>
<td>165</td>
</tr>
<tr>
<td>1935</td>
<td>160</td>
<td>32</td>
<td>192</td>
</tr>
<tr>
<td>1936</td>
<td>254</td>
<td>49</td>
<td>303</td>
</tr>
<tr>
<td>1937</td>
<td>306</td>
<td>52</td>
<td>358</td>
</tr>
<tr>
<td>1938</td>
<td>354</td>
<td>57</td>
<td>381</td>
</tr>
<tr>
<td>1939</td>
<td>378</td>
<td>65</td>
<td>443</td>
</tr>
</tbody>
</table>

Four counties in Illinois (Dewitt, Logan, Macon and Piatt) (54, 55). The schedules for Iowa were taken entirely from the central portion of the state and do not seem to be representative—nor was the project developed on that basis. The counties for Illinois appear to include a group which is higher on the income scale than the Iowa counties. Such comparisons of income distributions as could be made with a study of Iowa Income Tax Reports for 1934 (23), indicate that the combined group is more representative than either group alone.

Following this assumption, the average expenditures for farm-family living in each income group were weighted by the numbers in this group in the nine Iowa and Illinois counties. The weighted average expenditure for farm-family living is $728. Since these Midwestern schedules were taken during the summer of 1936 for the 12 months immediately preceding, they approximate the period July 1, 1935 to July 1, 1936.

Three different sets of data were of use in constructing an index for extrapolating this figure over the period 1929-39. All of them represent an income group well above the average. Their use, therefore, involves the assumption that expenditures of the lower income groups changed in the same proportion as the higher income groups. Expenditures of a group of Illinois farm families who kept accounts, but not entirely the same families, are available through 1936 (7). An analysis of accounts of 56 identical families for 1930, 1931 and 1932 was compared with the analysis of the larger groups (6). The group of identical families showed a higher income but almost exactly the same percentage reduction in income and expenditures from 1930 to 1932. Living expenses of those members of Iowa farm business associations who kept household account books are also available (12). The number of families is small in the early years but follows essentially the same trend as the larger group of Illinois families. A study of family expenditures in Iowa (10)
during the period 1927 to 1929 confirms the assumption that the 1929 and 1930 figures for Illinois are not far different from those of Iowa.

The cash expenditures for family living from these Illinois farm family accounts were converted into an index with the average of 1935-36 as a base. Adjustments were made so that only comparable items were included, for example, expenditures for gasoline and oil were left out. This index was used in extrapolating the estimate, $728, obtained above from the Consumer Purchases Study of the Bureau of Home Economics. The estimate of average expenditure per family thus obtained was multiplied by the number of farm families in the state each year to provide an estimate of total expenditures. The number of farm families was obtained by extrapolating the census estimate for 1930 with an index prepared from the number of farms reported in Iowa by Iowa tax assessors (table 41). The same procedure was used for the years after 1936, except that Iowa farm-family expenditures (12) were used in extrapolation. Had the Illinois figures been used for the later period as well, the estimates would have been 8 percent higher in 1937 and 1938. The greater impact of the drought upon Iowa farmers in 1937 would explain the lower expenditure in 1937 relative to the base period, but it is doubtful whether this effect would continue into 1938.

<table>
<thead>
<tr>
<th>Year</th>
<th>Index of expenditures (1935-36=100)</th>
<th>Expenditures per Iowa farm family</th>
<th>Number of farm families in Iowa</th>
<th>Total expenditures (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>125</td>
<td>$910</td>
<td>209,340</td>
<td>$190,000</td>
</tr>
<tr>
<td>1930</td>
<td>119</td>
<td>866</td>
<td>214,930</td>
<td>186,000</td>
</tr>
<tr>
<td>1931</td>
<td>87</td>
<td>633</td>
<td>213,210</td>
<td>135,000</td>
</tr>
<tr>
<td>1932</td>
<td>62</td>
<td>451</td>
<td>213,210</td>
<td>96,000</td>
</tr>
<tr>
<td>1933</td>
<td>70</td>
<td>510</td>
<td>214,710</td>
<td>110,000</td>
</tr>
<tr>
<td>1934</td>
<td>78</td>
<td>568</td>
<td>216,000</td>
<td>123,000</td>
</tr>
<tr>
<td>1935</td>
<td>93</td>
<td>677</td>
<td>214,500</td>
<td>146,000</td>
</tr>
<tr>
<td>1936</td>
<td>107</td>
<td>779</td>
<td>213,210</td>
<td>166,000</td>
</tr>
<tr>
<td>1937</td>
<td>111</td>
<td>808</td>
<td>210,230</td>
<td>170,000</td>
</tr>
<tr>
<td>1938</td>
<td>110</td>
<td>801</td>
<td>210,230</td>
<td>168,000</td>
</tr>
<tr>
<td>1939</td>
<td>130</td>
<td>946</td>
<td>211,270</td>
<td>200,000</td>
</tr>
</tbody>
</table>

SALES TAX

Expenditures for sales taxes were obtained by multiplying the total expenditures for commodities falling under the act (14) (including two-thirds of the charges for building and repair) by the 2 percent sales tax assessed since April 1, 1934. The charges are:
RESIDUAL

Several rather important items have not been estimated. Among them are: 1. Fire insurance, 2. trucks and automobiles purchased (gasoline, oil and grease have been estimated), 3. commercial feed purchased, 4. payments on installment contracts and other forms of merchant credit (could be reflected as a delay of payments) and 5. various forms of investments including savings and checking deposits, life insurance premiums and benefits, stocks, bonds and mortgages together with gifts and inheritances. Some of these items are extremely flexible over a business cycle; some items in the last group actually may be incoming payments rather than expenditures during the depression. If savings were used to pay off indebtedness on loans or mortgages, to purchase a farm or to increase the capital asset of the farm, they are reflected in the estimates. Savings going into investments off the farm (off-farm savings) are not included in the estimates. No attempt was made to estimate cost of fire insurance, since most of the premiums are paid out to other Iowa farmers through local mutual companies. Sufficient data to permit estimating expenditures and income from the other items were not found.

The residual item also will be affected by the extent to which the individual estimates are subject to over or under estimation. A number of the estimates have been based on the 1930 census. A study made by J. A. Hopkins of the Agricultural Economics Department, Iowa State College, on differences in reports of expenditures on a sample of farm records and schedules on identical farms indicates an underestimation of 10 to 15 percent on the schedules as compared to the records. Studies made by R. J. Jessen of the Statistical Laboratory, Iowa State College, on the Iowa farm sample survey show a fairly consistent underestimation on inventories even when cross checks are part of the schedules. It is the opinion of Jessen, in which the author concurs, that omnibus questions on expenditures of the type found in the federal census may be subject to considerable underestimation. On individual items, the bias, if any, depends upon the type of question, the agency making the enumeration, the particular item considered and the enumerators themselves.

27It is possible to construct an index of insurance premiums paid, but it is difficult to include benefits paid and cash surrender values taken. Furthermore no estimate of receipts and payments of all farmers are available to use as a base for the indexes.
For these reasons estimates of wages, machinery, and buildings and repairs probably are somewhat low, since they are based on the federal census. The same criticism applies to gasoline, oil and grease, depending as it does upon the 1935 survey of farmers' expenditures, although a number of cross checks were used in the survey to increase accuracy. Similar doubts may be expressed on the consumption estimates in that they are in part based on the Consumer Purchases Study, although attempts were made to check back on doubtful schedules. Involving as it did a larger number of individual purchases, some items were almost certainly forgotten.

Prices used in estimating expenditures for fertilizer, twine, seeds, gasoline and baby chicks were obtained from trade associations or important firms in the industry. As such they reflect quoted prices by the larger firms and probably fail to take into account local price concessions which may be quite important in certain phases of the business cycle. Hence there may be some overestimation in these figures.

A third source of error is in the indexes used in extrapolation. In a number of instances farm business and farm household records were used. Such records are generally from groups of farmers with incomes above the average of all farmers. There is little work indicating whether the variation over a business cycle is greater or smaller than for farmers as a whole. Too little is known about the groups obtaining incomes around and below the average of all farmers.

A number of the estimates, however, are not subject to serious errors of the type just enumerated but are based upon fairly reliable data. Among these are rent, feeder stock, taxes, telephones and farm organizations which include 28 to 38 percent of the total expenditures. Among the less reliable estimates are income from off-farm wages and expenditures for wages, machinery, buildings and repairs, short-term interest, long-term interest actually paid (estimates of interest payable and principal charges payable are rather reliable), capital loans and repayments and family living. The errors in these items may run as high as 25 or 35 percent as compared with 5 or 10 percent for the more reliable estimates above.

It should be remembered that when individual expenditures are combined into groups or into totals the errors involved in the individual items will partly cancel so that greater reliability may be attached to the total than to many of the individual items. The residual item is made up of the residue of these errors together with those items for which no estimates were made. While there is not a great deal of data to support the viewpoint, there is some indication that if the missing items, especially off-
farm savings,\textsuperscript{28} were estimated, the discrepancy between incoming and outgoing payments would be much reduced, and the residual item would be distributed in a more random manner over the various years. During prosperous years investments were made outside of the farm business, and substantial gifts were made to individuals for education or personal pleasure. During depression years the flow was generally in the other direction. This would very much reduce the unallocated income during the first and last years of the period while adding to the cash income during the middle, depression years. Most of the other unestimated items probably would show a sharp decline in expenditures during the depression and reduce the absolute range of the residual item.

With as much as 20 percent of the expenditures in some years unallocated, an important gap in the estimates remains to be closed. This can be done by developing methods for estimating items not now included and in improving the accuracy and representativeness of the data basic to the estimates already made. In spite of these errors in individual items, the overall picture of the changes in the pattern of expenditures over a major business cycle does seem to be an accurate picture of the ways in which farmers changed their budgets.

\textbf{SUMMARY AND CONCLUSIONS}

This study has two major purposes: 1. To develop techniques for estimating the income-expenditure patterns of farm families over a period of years and 2. to apply these techniques in constructing an income-expenditure pattern for Iowa farm families during a major business cycle.

The techniques developed are not limited to Iowa alone in their scope and application but may be used quite widely among other states. A number of the sources used furnish information for Iowa alone. In some cases similar data are available from local studies made in other states, as is true of farm tenancy, fertilizer sales and taxes payable. Annual data on crop acreages such as that furnished by the Iowa tax assessors' reports are much more fragmentary in many states, while information on rural tax delinquency is often lacking. On the other hand, a number of states have excellent information on commercial feeds sold and others on car, truck and tractor sales. Most of the estimates, however, depend primarily upon federal data which are generally available for all states alike, although with varying degrees of reliability. Hence, most states probably have sufficient

\textsuperscript{28}Some indication of the trend of savings through this period may be obtained by consulting the references cited in the section on consumption expenditures.
data from federal and state sources to estimate farmer expenditures with about the same degree of coverage as the estimates made here for Iowa.

It has been possible to develop estimates for the major portion of Iowa farmers' incomes and expenditures. As was indicated in the discussion of the residual item, there are a number of gaps and a number of weak points in the estimates. To complete the picture and to strengthen the weak points, additional information is needed on farm-family living, commercial feeds and on the kind and quantity of capital transactions, especially in regard to new capital expenditures for automobiles, buildings, machinery, interest payments and savings accounts (consisting primarily of savings deposits, checking accounts, life insurance and farmer-held mortgages). Care must be taken in applying the estimates for which the statistical bases are fragmentary. The items most subject to error are wages, machinery, buildings and repairs, family living, interest payments and capital loans and repayments.

The second main purpose of this study—the application of the techniques to an analysis of Iowa farm-family expenditures—is of more limited interest. This portrayal of the attempts of farmers to cope with the problems brought on by the depression holds for other states as well, but the application becomes less reliable as other states, especially states outside the Corn Belt, are considered. Within the Corn Belt the differences are primarily in the intensity of the pressure developed and in the amount of change occurring, while in other areas different influences at work might modify the picture considerably. It should be recalled in considering the broad outline of the pattern of expenditures for Iowa farm families which follows that the estimates represent only incoming and outgoing money payments between Iowa farm families and the rest of the economy and do not consider payments between farmers nor any income of a non-monetary nature.

Goods and services with rather inflexible prices behaved in two different ways. Expenditures for those items representing only a small proportion of the farmers' income, such as telephone and electric service, did not show a very marked decrease during the depression, although the low point is 25 percent below 1929 levels. Farmers apparently are reluctant to part with this service even when their income is sharply reduced. Expenditures for capital items with inflexible prices—fertilizers, machinery and buildings—showed the greatest decrease of any group of expenditures. A considerable disinvestment in soil fertility, buildings and machinery seems to have occurred during the depression, followed by a rapid increase in investment when incomes increased.
Payments for goods and services having very flexible prices—farm labor, feeder stock and seeds—declined at about the same rate as income, in some cases faster. In the upturn, expenditures for these items showed a considerable lag. The quantities used remained much closer to the 1929 level than was the case with those major commodities having relatively inflexible prices.

Baby chicks, gasoline, oil and grease have fairly flexible prices, although not as flexible as the three above. Expenditures for these items remained close to the 1929 level throughout the entire period. An increase in the demand for these commodities is suggested by the data.

Expenditures for items whose prices are fixed by law or contract, such as taxes and interest, remained at a high level during the first stages of the depression, but, as the pressure became more acute, repudiation, foreclosures, moratoria arrangements and delinquencies were frequent, which reduced the amounts of cash payments in any one year. Partly because of the Homestead Exemptions Law and partly because of recourse to other forms of taxation, there was a lower land tax burden upon farm operators in 1939 than in 1929 and, hence, a lowering of fixed costs. Interest charges are definitely below 1929 figures; however, the data do not include probable increases in installment-purchase contracts and land-purchase contracts.

Rent, which is an annual contractual obligation, shows a considerable amount of flexibility. This is true because of a shift towards less rigid contract arrangements and through some shift in the time of payment. Cash-rent leases were rewritten as crop-share leases under which greater risks and responsibilities were borne by the landlord. In spite of the larger farm incomes of recent years there has been only a very small shift to cash-rent leases. The explanation probably lies in the greater awareness on the part of the farmer to the uncertainties involved in the economic system and a readiness to share them with the landlord and in the fact that crop-share leases are the simplest way in which the landlord may insure receiving a share of benefit payments.

Expenditures for consumption items were sharply reduced, though they did not decline as rapidly as did income. Since prices farmers paid did not decline as rapidly as expenditures for consumption, the quantities of goods obtained as well as the absolute amount expended were reduced. Consequently, there was a lowering of the plane of living during the depression period. In 1939 the estimates show virtually the same expenditure as in 1929. While there have been changes in the pattern of household expenditures from 1929 to 1939, which make comparisons difficult, the index of prices farmers paid is some 20-25 points below 1929, so that farmers probably enjoyed a higher
plane of living in 1939 than 1929. It must be remembered, however, that considerable errors may be present in this estimate.

Rent is by far the most important production expense, making up as it does 16 to 24 percent of the total expenditures. This is especially true when we consider that the whole sum is paid by only slightly more than half the total number of farmers. Since rent showed considerable flexibility, adjustment in the payment of it did take place more easily than adjustment in the payment of interest—the corresponding obligation of owner operators. Feeder stock, wages, buildings, machinery, interest, taxes, gasoline, oil and grease comprise a group of lesser but nevertheless important components of farmers' budgets.

By 1935 and 1936 considerable readjustment of fixed and contractual expenses had been consummated so that taxes, interest and other overhead expenses were not as large as in 1929. By 1939 both rent and family living were virtually the same as in 1929 and a larger proportion of total expenditures. Income and most of the expenditures were below 1929. A few items, however, such as feeder cattle, seeds (hybrid corn), gasoline and electricity are considerably above 1929 figures. The reorganization of the capital structure together with lower prices means that 1929 levels of living and production could be attained with a smaller cash income. The changes in the importance of various items emphasizes the changing character and structure of Iowa agriculture and focuses attention on its increasing mechanization and commercialization.

It is well known that a depression benefits those with fixed incomes at the expense of those whose incomes decline faster than the price level. This study illustrates the situation for a group which underwent a sharp decrease in income. It effectively portrays the drastic changes resulting from cutting in two or worse the income of an industry with high fixed costs. Nearly any action which will stabilize business activity or reduce the fluctuations of the business cycle will help protect the farmer from some of the dangers of price disparities accompanying violent changes in the price level and in farm income.
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(60) U. S. D. C. Bureau of the Census. Manufacture and sale of farm equipment. 1930.

(61) U. S. D. C. Bureau of Foreign and Domestic Commerce. 1940 supplement to survey of current business. 1940.


### APPENDIX

#### TABLE I. ACREAGE RENTED, ABSOLUTE AND RELATIVE IN IOWA, 1929-39.*

<table>
<thead>
<tr>
<th>Year</th>
<th>Acreage rented</th>
<th>Rented acreage as percent of total acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>18,650,344</td>
<td>54.4</td>
</tr>
<tr>
<td>1930</td>
<td>18,707,344</td>
<td>54.8</td>
</tr>
<tr>
<td>1931</td>
<td>18,951,634</td>
<td>55.9</td>
</tr>
<tr>
<td>1932</td>
<td>19,737,810</td>
<td>57.7</td>
</tr>
<tr>
<td>1933</td>
<td>20,089,595</td>
<td>58.6</td>
</tr>
<tr>
<td>1934</td>
<td>20,250,979</td>
<td>58.9</td>
</tr>
<tr>
<td>1935</td>
<td>20,034,124</td>
<td>58.4</td>
</tr>
<tr>
<td>1936</td>
<td>20,215,104</td>
<td>58.9</td>
</tr>
<tr>
<td>1937</td>
<td>19,992,903</td>
<td>58.0</td>
</tr>
<tr>
<td>1938</td>
<td>19,642,331</td>
<td>57.1</td>
</tr>
<tr>
<td>1939</td>
<td>19,517,146</td>
<td>56.5</td>
</tr>
</tbody>
</table>


#### TABLE II. PERCENTAGE OF RENTED ACREAGE IN EACH LEASE TYPE BY DISTRICTS, IOWA, 1929-39.*

<table>
<thead>
<tr>
<th>Area</th>
<th>1929</th>
<th>1930</th>
<th>1931</th>
<th>1932</th>
<th>1933</th>
<th>1934</th>
<th>1935</th>
<th>1936†</th>
</tr>
</thead>
<tbody>
<tr>
<td>East C.R.</td>
<td>50</td>
<td>50</td>
<td>46</td>
<td>37</td>
<td>28</td>
<td>26</td>
<td>26</td>
<td>28</td>
</tr>
<tr>
<td>Central C.S.</td>
<td>41</td>
<td>41</td>
<td>45</td>
<td>54</td>
<td>63</td>
<td>65</td>
<td>65</td>
<td>63</td>
</tr>
<tr>
<td>S.S.</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Northeast C.R.</td>
<td>43</td>
<td>43</td>
<td>38</td>
<td>28</td>
<td>18</td>
<td>16</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>C.S.</td>
<td>16</td>
<td>16</td>
<td>21</td>
<td>31</td>
<td>41</td>
<td>43</td>
<td>43</td>
<td>41</td>
</tr>
<tr>
<td>S.S.</td>
<td>41</td>
<td>41</td>
<td>41</td>
<td>41</td>
<td>41</td>
<td>41</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>South C.R.</td>
<td>30</td>
<td>30</td>
<td>25</td>
<td>17</td>
<td>9</td>
<td>7</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>C.S.</td>
<td>64</td>
<td>64</td>
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<td>85</td>
<td>87</td>
<td>87</td>
<td>85</td>
</tr>
<tr>
<td>S.S.</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Central C.R.</td>
<td>24</td>
<td>24</td>
<td>21</td>
<td>15</td>
<td>9</td>
<td>8</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>C.S.</td>
<td>68</td>
<td>68</td>
<td>71</td>
<td>77</td>
<td>83</td>
<td>84</td>
<td>84</td>
<td>83</td>
</tr>
<tr>
<td>S.S.</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Northwest C.R.</td>
<td>29</td>
<td>29</td>
<td>26</td>
<td>19</td>
<td>12</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>C.S.</td>
<td>68</td>
<td>68</td>
<td>71</td>
<td>78</td>
<td>85</td>
<td>86</td>
<td>86</td>
<td>85</td>
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<tr>
<td>S.S.</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
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<td>West C.R.</td>
<td>47</td>
<td>47</td>
<td>42</td>
<td>31</td>
<td>20</td>
<td>18</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>C.S.</td>
<td>42</td>
<td>42</td>
<td>47</td>
<td>58</td>
<td>69</td>
<td>71</td>
<td>71</td>
<td>69</td>
</tr>
</tbody>
</table>

*Estimated from 1930 census of agriculture (59) and material collected by Schickele, R. and Norman, Charles A., Farm Tenure in Iowa (28).
†1937, 1938, 1939 were taken as the same as 1936.
‡C.R.—cash rent; C.S.—crop share; S.S.—stock share.
TABLE III. PRICES USED IN ESTIMATING FARM VALUE OF CROP-SHARE CROPS DELIVERED TO LANDLORDS AS RENT, IOWA, 1929-39.

<table>
<thead>
<tr>
<th>Year</th>
<th>Corn</th>
<th>Oats</th>
<th>Wheat</th>
<th>Barley</th>
<th>Rye</th>
<th>Soybeans</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$0.73*</td>
<td>$0.36*</td>
<td>$1.02*</td>
<td>$0.52\dagger</td>
<td>$0.85\dagger</td>
<td></td>
</tr>
<tr>
<td>1930</td>
<td>$0.52*</td>
<td>$0.27*</td>
<td>$0.66*</td>
<td>$0.41\dagger</td>
<td>$0.48\dagger</td>
<td></td>
</tr>
<tr>
<td>1931</td>
<td>$0.28</td>
<td>$0.19</td>
<td>$0.40</td>
<td>$0.32</td>
<td>$0.33</td>
<td></td>
</tr>
<tr>
<td>1932</td>
<td>$0.30</td>
<td>$0.13</td>
<td>$0.38</td>
<td>$0.23</td>
<td>$0.26</td>
<td></td>
</tr>
<tr>
<td>1933</td>
<td>$0.50</td>
<td>$0.29</td>
<td>$0.78</td>
<td>$0.44</td>
<td>$0.63</td>
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<tr>
<td>1934</td>
<td>$0.79</td>
<td>$0.45</td>
<td>$0.88</td>
<td>$0.74</td>
<td>$0.73</td>
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<tr>
<td>1935</td>
<td>$0.62</td>
<td>$0.22</td>
<td>$0.85</td>
<td>$0.36</td>
<td>$0.38</td>
<td></td>
</tr>
<tr>
<td>1936</td>
<td>$1.03</td>
<td>$0.42</td>
<td>$1.05</td>
<td>$0.87</td>
<td>$0.79</td>
<td></td>
</tr>
<tr>
<td>1937</td>
<td>$0.44</td>
<td>$0.25</td>
<td>$1.02</td>
<td>$0.50</td>
<td>$0.68</td>
<td>$0.82</td>
</tr>
<tr>
<td>1938</td>
<td>$0.50</td>
<td>$0.19</td>
<td>$0.88</td>
<td>$0.34</td>
<td>$0.35</td>
<td>$0.67</td>
</tr>
<tr>
<td>1939</td>
<td>$0.54</td>
<td>$0.28</td>
<td>$0.87</td>
<td>$0.37</td>
<td>$0.37</td>
<td>$0.90</td>
</tr>
</tbody>
</table>

*Unweighted average price for marketing year.
†Average farm value Dec. 1.
Source—U. S. Department of Agriculture Yearbooks (34).

TABLE IV. RENT (INCOME) OBTAINED BY LANDOWNERS FROM THEIR SHARE OF CROPS GROWN ON IOWA FARMS, 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>Crop-share rent due in marketing season</th>
<th>Crop-share rent paid in Jan.-July</th>
<th>Crop-share rent paid in Aug.-Dec.</th>
<th>Crop-share rent due during calendar year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$52,383</td>
<td>$24,830</td>
<td>$27,553</td>
<td>$52,383</td>
</tr>
<tr>
<td>1930</td>
<td>$33,981</td>
<td>$24,830</td>
<td>$21,476</td>
<td>$46,306</td>
</tr>
<tr>
<td>1931</td>
<td>$20,627</td>
<td>$12,505</td>
<td>$11,618</td>
<td>$24,123</td>
</tr>
<tr>
<td>1932</td>
<td>$30,596</td>
<td>$8,969</td>
<td>$10,402</td>
<td>$19,311</td>
</tr>
<tr>
<td>1933</td>
<td>$40,521</td>
<td>$20,193</td>
<td>$22,322</td>
<td>$49,425</td>
</tr>
<tr>
<td>1934</td>
<td>$39,251</td>
<td>$31,290</td>
<td>$29,124</td>
<td>$60,414</td>
</tr>
<tr>
<td>1935</td>
<td>$33,354</td>
<td>$10,157</td>
<td>$23,050</td>
<td>$33,177</td>
</tr>
<tr>
<td>1936</td>
<td>$49,494</td>
<td>$35,304</td>
<td>$26,183</td>
<td>$61,487</td>
</tr>
<tr>
<td>1937</td>
<td>$59,721</td>
<td>$23,312</td>
<td>$27,472</td>
<td>$50,784</td>
</tr>
<tr>
<td>1938</td>
<td>$56,397</td>
<td>$32,249</td>
<td>$19,683</td>
<td>$51,932</td>
</tr>
<tr>
<td>1939</td>
<td>$62,369</td>
<td>$36,714</td>
<td>$21,580</td>
<td>$58,294</td>
</tr>
</tbody>
</table>

Note: Crop-share rent paid in Jan.-July, 1930, plus rent paid in Aug.-Dec., 1929, equals crop-share rent due in 1929 marketing season. Jan.-July, 1929, taken to be the same as Jan.-July, 1930, since total income nearly the same and no estimates of monthly marketings available for 1928.
<table>
<thead>
<tr>
<th>Year</th>
<th>Percent hay land is of farm land on crop-share farms</th>
<th>One-half percent pasture land is of farm land on crop-share farms</th>
<th>Total</th>
<th>Crop-share acreage (000 omitted)</th>
<th>Crop-share land + 1/2 pasture land acreage (000 omitted)</th>
<th>Cash rent per acre</th>
<th>Cash rent paid on crop-share farms (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>7.40</td>
<td>13.60</td>
<td>21.00</td>
<td>8,712</td>
<td>1,829</td>
<td>6.94</td>
<td>12,697</td>
</tr>
<tr>
<td>1930</td>
<td>6.81</td>
<td>13.40</td>
<td>20.21</td>
<td>8,778</td>
<td>1,774</td>
<td>6.93</td>
<td>12,294</td>
</tr>
<tr>
<td>1931</td>
<td>6.29</td>
<td>13.47</td>
<td>19.76</td>
<td>9,714</td>
<td>1,920</td>
<td>6.63</td>
<td>12,727</td>
</tr>
<tr>
<td>1932</td>
<td>6.43</td>
<td>13.15</td>
<td>19.58</td>
<td>9,883</td>
<td>2,327</td>
<td>5.43</td>
<td>12,604</td>
</tr>
<tr>
<td>1933</td>
<td>7.43</td>
<td>12.69</td>
<td>20.12</td>
<td>13,889</td>
<td>2,795</td>
<td>3.98</td>
<td>11,122</td>
</tr>
<tr>
<td>1934</td>
<td>7.41</td>
<td>15.25</td>
<td>22.66</td>
<td>14,363</td>
<td>3,255</td>
<td>4.45</td>
<td>14,483</td>
</tr>
<tr>
<td>1935</td>
<td>7.05</td>
<td>13.90</td>
<td>20.95</td>
<td>14,196</td>
<td>2,974</td>
<td>4.65</td>
<td>13,828</td>
</tr>
<tr>
<td>1936</td>
<td>7.23</td>
<td>14.00</td>
<td>21.23</td>
<td>13,970</td>
<td>2,966</td>
<td>5.08</td>
<td>15,086</td>
</tr>
<tr>
<td>1937</td>
<td>5.87</td>
<td>13.56</td>
<td>19.43</td>
<td>13,776</td>
<td>2,677</td>
<td>5.09</td>
<td>13,624</td>
</tr>
<tr>
<td>1938</td>
<td>6.67</td>
<td>13.88</td>
<td>20.55</td>
<td>13,520</td>
<td>2,778</td>
<td>5.24</td>
<td>14,559</td>
</tr>
<tr>
<td>1939</td>
<td>8.01</td>
<td>14.81</td>
<td>22.82</td>
<td>13,494</td>
<td>3,079</td>
<td>5.22</td>
<td>16,074</td>
</tr>
</tbody>
</table>

*Details of derivation given in text discussion of rent. See also 1930 Census of Agriculture (59) and R. Schickele, Facts on the farm tenure situation (27).*
TABLE VI. TOTAL RENT OBTAINED BY LANDLORDS LEASING FARMS UNDER CROP-SHARE LEASES, 1929-39 (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>Rent paid as share of crop</th>
<th>Cash rent paid on hay, pasture and buildings</th>
<th>Cash rent paid for other crops</th>
<th>Share of crop benefit payments</th>
<th>Total rent paid to crop-share landlords</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$52,383</td>
<td>$12,697</td>
<td>$1,089</td>
<td></td>
<td>$66,200</td>
</tr>
<tr>
<td>1930</td>
<td>46,266</td>
<td>12,294</td>
<td>990</td>
<td></td>
<td>59,600</td>
</tr>
<tr>
<td>1931</td>
<td>24,100</td>
<td>12,727</td>
<td>1,057</td>
<td></td>
<td>37,900</td>
</tr>
<tr>
<td>1932</td>
<td>19,311</td>
<td>12,634</td>
<td>830</td>
<td></td>
<td>32,800</td>
</tr>
<tr>
<td>1933</td>
<td>49,425</td>
<td>11,122</td>
<td>928</td>
<td>$62</td>
<td>61,500</td>
</tr>
<tr>
<td>1934</td>
<td>66,414</td>
<td>14,483</td>
<td>985</td>
<td>5,604</td>
<td>81,500</td>
</tr>
<tr>
<td>1935</td>
<td>53,177</td>
<td>13,828</td>
<td>2,198</td>
<td>8,976</td>
<td>53,200</td>
</tr>
<tr>
<td>1936</td>
<td>61,487</td>
<td>15,066</td>
<td>1,199</td>
<td>6,011</td>
<td>83,800</td>
</tr>
<tr>
<td>1937</td>
<td>48,784</td>
<td>13,624</td>
<td>1,021</td>
<td>8,761</td>
<td>73,200</td>
</tr>
<tr>
<td>1938</td>
<td>51,921</td>
<td>14,559</td>
<td>965</td>
<td>8,476</td>
<td>75,900</td>
</tr>
<tr>
<td>1939</td>
<td>58,294</td>
<td>16,074</td>
<td>1,129</td>
<td>24,005</td>
<td>99,600</td>
</tr>
</tbody>
</table>
# TABLE VII. NUMBER AND VALUE OF FEEDER CATTLE PURCHASED BY IOWA FARM OPERATORS, 1929-36 (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>No. feeder cattle sold through 12 markets (1)</th>
<th>Cost of steers (2)</th>
<th>Cost of calves (2)</th>
<th>Cost of other cattle (2)</th>
<th>Total cost of cattle from 12 markets (3)</th>
<th>Total cost of cattle from 62 markets (4)</th>
<th>No. feeder cattle bought direct (5)</th>
<th>Total cost including direct purchases (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>531</td>
<td>$27,054</td>
<td>$3,765</td>
<td>$2,860</td>
<td>$33,679</td>
<td>$34,116</td>
<td>114</td>
<td>$41,350</td>
</tr>
<tr>
<td>1930</td>
<td>501</td>
<td>17,637</td>
<td>3,496</td>
<td>1,856</td>
<td>22,989</td>
<td>23,219</td>
<td>46</td>
<td>25,330</td>
</tr>
<tr>
<td>1931</td>
<td>454</td>
<td>12,857</td>
<td>2,267</td>
<td>824</td>
<td>15,948</td>
<td>16,669</td>
<td>117</td>
<td>26,180</td>
</tr>
<tr>
<td>1932</td>
<td>419</td>
<td>10,261</td>
<td>1,737</td>
<td>379</td>
<td>12,377</td>
<td>12,823</td>
<td>161</td>
<td>17,680</td>
</tr>
<tr>
<td>1933</td>
<td>472</td>
<td>9,100</td>
<td>1,909</td>
<td>450</td>
<td>11,469</td>
<td>12,765</td>
<td>242</td>
<td>18,650</td>
</tr>
<tr>
<td>1934</td>
<td>480</td>
<td>9,052</td>
<td>1,653</td>
<td>518</td>
<td>11,228</td>
<td>11,492</td>
<td>353</td>
<td>19,270</td>
</tr>
<tr>
<td>1935</td>
<td>461</td>
<td>14,208</td>
<td>3,094</td>
<td>1,171</td>
<td>18,383</td>
<td>18,383</td>
<td>242</td>
<td>22,810</td>
</tr>
<tr>
<td>1936</td>
<td>377</td>
<td>9,903</td>
<td>2,377</td>
<td>949</td>
<td>14,229</td>
<td>14,229</td>
<td>241</td>
<td>22,810</td>
</tr>
</tbody>
</table>

*Data available in Farm Production and Income from Meat Animals (37), provides estimates for 1937-39.

1. Weekly summary of livestock market statistics (51).
2. Derived as discussed in the manuscript. Number of each type given in weekly summary (above) (51). Prices of steers from the same source. Prices of calves and heifers in current issues of Crops and Markets (31).
3. Column 6 expanded to include additional cattle shipped from markets other than the 12 included, as given in the U. S. Yearbook of Agriculture (34).
4. Farm production and income from meat animals, 1924-35 and same publication for 1936-37 (37).
5. Column 7 expanded to include direct purchases (53).
TABLE VIII. NUMBER AND VALUE OF FEEDER LAMBS AND SHEEP PURCHASED, IOWA, 1929-36* (000 omitted).

<table>
<thead>
<tr>
<th>Year</th>
<th>No. feeder sheep sold (1) through 12 markets</th>
<th>Cost at (2) market including direct</th>
<th>No. feeder sheep bought (3) direct</th>
<th>Total cost (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>555</td>
<td>$4,656</td>
<td>36</td>
<td>$4,960</td>
</tr>
<tr>
<td>1930</td>
<td>488</td>
<td>2,183</td>
<td>50</td>
<td>2,400</td>
</tr>
<tr>
<td>1931</td>
<td>440</td>
<td>1,411</td>
<td>236</td>
<td>2,170</td>
</tr>
<tr>
<td>1932</td>
<td>283</td>
<td>837</td>
<td>54</td>
<td>1,000</td>
</tr>
<tr>
<td>1933</td>
<td>591†</td>
<td>1,948</td>
<td>660</td>
<td>2,270</td>
</tr>
<tr>
<td>1934</td>
<td>540</td>
<td>1,707</td>
<td>475</td>
<td>4,310</td>
</tr>
<tr>
<td>1935</td>
<td>325</td>
<td>1,739</td>
<td>260</td>
<td>3,070</td>
</tr>
</tbody>
</table>

*Data available in Farm Production and Income From Meat Animals (37), provides estimates for 1937-39.
†Includes direct shipments.
1. Weekly summary of livestock market statistics (51).
2. Derived as discussed in manuscript. Prices from Crops and Markets (31).
3. Farm Production and Income From Meat Animals, 1924-36, and same publication for 1936 (37).

TABLE IX. NUMBER AND VALUE OF FEEDER PIGS PURCHASED BY IOWA FARMERS, 1929-36.*

<table>
<thead>
<tr>
<th>Year</th>
<th>Central markets (1)</th>
<th>Direct (2)</th>
<th>No. of feeder pigs (000 omitted)</th>
<th>Total weight cwt. (2) (000 omitted)</th>
<th>Price per cwt. at market (3)</th>
<th>Total cost (000 omitted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>74,690</td>
<td>52,310</td>
<td>127</td>
<td>146</td>
<td>$8.85</td>
<td>$1,290</td>
</tr>
<tr>
<td>1930</td>
<td>36,070</td>
<td>44,930</td>
<td>81</td>
<td>93</td>
<td>8.11</td>
<td>750</td>
</tr>
<tr>
<td>1931</td>
<td>11,290</td>
<td>316,710</td>
<td>328</td>
<td>377</td>
<td>5.45</td>
<td>2,080</td>
</tr>
<tr>
<td>1932</td>
<td>7,680</td>
<td>81,320</td>
<td>89</td>
<td>102</td>
<td>2.79</td>
<td>280</td>
</tr>
<tr>
<td>1933</td>
<td>10,200</td>
<td>263,080</td>
<td>273</td>
<td>315</td>
<td>2.92</td>
<td>920</td>
</tr>
<tr>
<td>1934</td>
<td>8,360</td>
<td>251,640</td>
<td>260</td>
<td>299</td>
<td>2.16</td>
<td>650</td>
</tr>
<tr>
<td>1935</td>
<td>4,480</td>
<td>171,520</td>
<td>176</td>
<td>194</td>
<td>7.07</td>
<td>1,370</td>
</tr>
<tr>
<td>1936</td>
<td>4,900</td>
<td>170,100†</td>
<td>176†</td>
<td>192†</td>
<td>7.82</td>
<td>1,500</td>
</tr>
</tbody>
</table>

*Data available in Farm Production and Income From Meat Animals (37), provides estimates for 1937-39.
†Preliminary.
2. Farm Production and Income From Meat Animals, 1924-35 (37).
**TABLE X. ESTIMATED PERCENTAGE OF FAILURE OF ALFALFA, CLOVER AND TIMOTHY SEEDINGS, IOWA, 1929-39.***

<table>
<thead>
<tr>
<th>Year</th>
<th>Alfalfa</th>
<th>Clover alone</th>
<th>Clover and timothy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>20 percent</td>
<td>33 1/3 percent</td>
<td>25 percent</td>
</tr>
<tr>
<td>1930</td>
<td>20</td>
<td>33 1/3</td>
<td>25</td>
</tr>
<tr>
<td>1931</td>
<td>25</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>1932</td>
<td>20</td>
<td>33 1/3</td>
<td>25</td>
</tr>
<tr>
<td>1933</td>
<td>20</td>
<td>33 1/3</td>
<td>25</td>
</tr>
<tr>
<td>1934</td>
<td>30</td>
<td>50</td>
<td>85</td>
</tr>
<tr>
<td>1935</td>
<td>20</td>
<td>33 1/3</td>
<td>25</td>
</tr>
<tr>
<td>1936</td>
<td>40</td>
<td>75</td>
<td>50</td>
</tr>
<tr>
<td>1937</td>
<td>20</td>
<td>35</td>
<td>70</td>
</tr>
<tr>
<td>1938</td>
<td>20</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>1939</td>
<td>30</td>
<td>35</td>
<td>80</td>
</tr>
</tbody>
</table>

*Estimated by staff members well acquainted with Iowa agriculture, particularly Hughes, H. D., Department of Agronomy.

**TABLE XI. RETAIL PRICES FOR HAY AND LEGUME SEEDS BOUGHT BY IOWA FARMERS, 1929-39 (cost per cwt.).**

<table>
<thead>
<tr>
<th>Year</th>
<th>Red clover</th>
<th>Timothy</th>
<th>Alfalfa</th>
<th>Sweet clover</th>
<th>Soybeans</th>
<th>Hybrid seed corn (per bu.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>$36.00</td>
<td>$7.50</td>
<td>$42.00</td>
<td>$9.25</td>
<td>$4.50</td>
<td>$11.00</td>
</tr>
<tr>
<td>1930</td>
<td>25.00</td>
<td>8.00</td>
<td>30.00</td>
<td>10.00</td>
<td>3.70</td>
<td>10.00</td>
</tr>
<tr>
<td>1931</td>
<td>26.00</td>
<td>9.50</td>
<td>27.00</td>
<td>19.00</td>
<td>3.10</td>
<td>8.00</td>
</tr>
<tr>
<td>1932</td>
<td>18.00</td>
<td>6.25</td>
<td>18.00</td>
<td>6.75</td>
<td>1.60</td>
<td>7.00</td>
</tr>
<tr>
<td>1933</td>
<td>14.00</td>
<td>3.90</td>
<td>17.00</td>
<td>5.50</td>
<td>1.60</td>
<td>7.00</td>
</tr>
<tr>
<td>1934</td>
<td>16.00</td>
<td>7.00</td>
<td>16.50</td>
<td>6.00</td>
<td>3.10</td>
<td>10.00</td>
</tr>
<tr>
<td>1935</td>
<td>28.00</td>
<td>23.00</td>
<td>28.00</td>
<td>10.25</td>
<td>3.10</td>
<td>8.00</td>
</tr>
<tr>
<td>1936</td>
<td>22.00</td>
<td>4.50</td>
<td>19.00</td>
<td>7.25</td>
<td>2.40</td>
<td>7.00</td>
</tr>
<tr>
<td>1937</td>
<td>40.00</td>
<td>8.00</td>
<td>34.00</td>
<td>20.00</td>
<td>7.00</td>
<td>6.00</td>
</tr>
<tr>
<td>1938</td>
<td>45.00</td>
<td>5.00</td>
<td>39.00</td>
<td>13.00</td>
<td>6.00</td>
<td>5.00</td>
</tr>
<tr>
<td>1939</td>
<td>50.00</td>
<td>5.00</td>
<td>32.00</td>
<td>10.00</td>
<td>5.00</td>
<td></td>
</tr>
</tbody>
</table>

*Estimated from seed catalogs of leading Iowa seed companies and United States yearbook of agriculture (34).
### TABLE XII. DELINQUENT FARM LAND TAX, TAX SALES AND OUTSTANDING DELINQUENT TAX AT CLOSE OF COLLECTION YEAR, IOWA, 1929-33.*

<table>
<thead>
<tr>
<th>Year of collection</th>
<th>Delinquent rural tax</th>
<th>Tax sales</th>
<th>Outstanding delinquent tax</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total taxes</td>
<td>Percent delinquent tax</td>
<td>Total tax sale at close of collection year</td>
</tr>
<tr>
<td>1929</td>
<td>$3,553,544</td>
<td>8</td>
<td>$283,414</td>
</tr>
<tr>
<td>1930</td>
<td>4,463,749</td>
<td>9</td>
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<td>87,442</td>
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*Bentley, R. C. and Himmel, John P., Tax delinquent farm land in Iowa (1).
<table>
<thead>
<tr>
<th>Year</th>
<th>All other short-term loans</th>
<th>Index 1934 = 100</th>
<th>Loans outstanding active banks (000 omitted)</th>
<th>No. licensed country national banks*</th>
<th>All other loans per national bank</th>
<th>Index 1928 = 100</th>
<th>Loans outstanding all banks (000 omitted)</th>
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<td>$197,070</td>
<td>258</td>
<td>$330,000</td>
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<td>193,020</td>
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</tr>
</tbody>
</table>

†Not used in calculation, see text.
‡Preliminary estimate.