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University of Minnesota
Department of Agriculture

and

Vocational Division
Minnesota Department of Education

Cooperating

ANNUAL REPORT

of the

FARM MANAGEMENT SERVICE for VETERANS

TAKING ON-THE-FARM TRAINING

in

NORTHEASTERN MINNESOTA

1947

Cooperator: _____

Mimeographed Report No. 169

Division of Agricultural Economics

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St. Paul 1, Minnesota

June, 1948

REPORT OF THE FARM MANAGEMENT SERVICE FOR VETERANS TAKING ON-THE-FARM
TRAINING IN NORTHEASTERN MINNESOTA, 1947

T. R. Nodland and G. A. Pond

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INTRODUCTION

In the fall of 1946, the Vocational Division of the Minnesota Department of Education asked the University of Minnesota to set up a farm management service for veterans taking on-the-farm training in the public schools throughout the state. The service was initiated on January 1, 1947. The cooperating agencies are the Division of Agricultural Economics, University of Minnesota, and the Vocational Division, Minnesota Department of Education representing the public schools.

The purpose of the project as far as the schools are concerned is (1) to give assistance to the instructors in the mechanics of keeping farm records and (2) to aid in the analysis of the farm business through the use of records as a basis for vocational guidance. Schools with an on-the-farm training program can enroll their students in the farm management service. The enrollment is on a voluntary basis insofar as the number of schools participating and the number of veterans enrolled in the service are concerned.

The analysis of the records and the preparation of the reports are handled by the Division of Agricultural Economics under the direction of G. A. Pond and T. R. Nodland. The State Department of Education was represented by Leo L. Knuti, State Supervisor of Agricultural Education until October 1, 1947. He was followed by G. R. Cochran.

This report deals with the veterans enrolled by eleven schools located in northeastern Minnesota (Type-of-Farming Areas 5 and 8)¹. The map on page 26 shows the location of the schools. The following tabulation shows by schools the number of farm records submitted in 1947:

| | | | |
|------------|---|--------------|-----------|
| Askov | 8 | Eveleth | 9 |
| Baudette | 8 | Little Falls | 14 |
| Bemidji | 5 | Mora | 19 |
| Cloquet | 1 | North Branch | 10 |
| Deer River | 8 | Proctor | 4 |
| | | Total | <u>86</u> |

The subsequent pages in this report show the data for 76 farms. Ten farms were omitted from all the averages in the tables because the records did not include a full year or they were otherwise too incomplete for a full analysis.

The records kept by the enrollees included farm inventories at the beginning and at the end of the year, cash farm receipts and expenses, feed consumed by the various classes of livestock, family living received from the farm, liabilities and assets other than the farm capital and household and personal cash expenses and receipts.

Only records from actual farm operators are included in this report. All types of tenure arrangements from full owners to partnerships in which the operator furnishes little or no capital are represented.

FARM INVENTORIES

The capital investment per farm varied from \$2422 to \$29272. The average investment for all farms included in this report and for the one-fifth high and the one-fifth low in operator's labor earnings is shown in Table 1.

Landlords or partners supplied some capital in 33 out of the 76 cases included in this report. The landlord's investment has been included in Table 1 in order to show the total amount used per farm.

FARM EARNINGS

Operator's labor earnings is a measure of the relative financial success of a farmer as compared with other farmers and represents the returns above all farm expenses and a charge for the use of farm capital. For purposes of comparison, the earnings are presented on a full-owner basis.

There are two methods of computing operator's labor earnings. Table 2 shows the earnings statement on a cash basis and table 3 shows the earnings on an enterprise or accrual basis. The principal difference in the two statements is in the method of handling the net increase or decrease in the value of farm capital. In the cash statement the net increase or decrease in farm capital is entered as one item. In the enterprise statement the net change in the inventory has been included in each enterprise in order to compute "total returns and net increases," or "total expenses and net decreases" by enterprises.

For a description of the area, see Engene, S. A. and Pond, G. A. "Agricultural Production and Types of Farming in Minnesota." Minn. Agri. Expt. Sta. Bul. 347, May, 1940

Table 1. Summary of Farm Inventories, 1947*

| Items | Your farm | | Average of 76 farms | |
|-----------------------------------|-----------|---------|---------------------|---------|
| | Jan. 1 | Dec. 31 | Jan. 1 | Dec. 31 |
| Size of farm (acres) | | | 150 | |
| Size of business (work units)** | | | 286 | |
| Dairy and dual purpose cows | | | \$944 | \$1039 |
| Other dairy & dual purpose cattle | | | 405 | 478 |
| Beef cattle | | | 2 | 14 |
| Hogs | | | 53 | 98 |
| Sheep | | | 8 | 6 |
| Poultry | | | 63 | 56 |
| Productive livestock (total) | | | 1475 | 1691 |
| Horses | | | 79 | 71 |
| Crop, seed, and feed | | | 533 | 853 |
| Power mach. (farm share) | | | 644 | 1005 |
| Crop & general mach. (farm share) | | | 479 | 579 |
| Livestock equipment & supplies | | | 122 | 162 |
| Mach. & equipment (total) | | | 1245 | 1746 |
| Misc. | | | 1 | 3 |
| Buildings, fences, etc. | | | 3167 | 3180 |
| Land | | | 2597 | 2599 |
| Total farm capital | | | 9097 | 10143 |

| Items | 15 most profitable farms | | 15 least profitable farms | |
|-----------------------------------|--------------------------|---------|---------------------------|---------|
| | Jan. 1 | Dec. 31 | Jan. 1 | Dec. 31 |
| Size of farm (acres) | 192 | | 138 | |
| Size of business (work units)** | 408 | | 244 | |
| Dairy & dual purpose cows | \$1599 | \$1562 | \$773 | \$947 |
| Other dairy & dual purpose cattle | 601 | 925 | 503 | 329 |
| Beef cattle | - | - | 12 | 25 |
| Hogs | 86 | 234 | 21 | 58 |
| Sheep | - | - | - | - |
| Poultry | 83 | 71 | 64 | 30 |
| Productive livestock (total) | 2369 | 2792 | 1373 | 1389 |
| Horses | 109 | 99 | 73 | 71 |
| Crop, seed, and feed | 803 | 1625 | 550 | 609 |
| Power mach. (farm share) | 907 | 1282 | 582 | 771 |
| Crop & general mach. | 715 | 770 | 549 | 646 |
| Livestock equipment & supplies | 166 | 188 | 97 | 126 |
| Mach. & equipment (total) | 1788 | 2240 | 1228 | 1543 |
| Misc. | - | - | - | 4 |
| Buildings, fences, etc. | 3795 | 3829 | 3372 | 3237 |
| Land | 3799 | 3799 | 2623 | 2623 |
| Total farm capital | 12663 | 14384 | 9219 | 9476 |

*For the purpose of comparison, all the data shown in this report with the exception of Tables 6 and 7 are presented on a full-owner basis. The assets, expenses and receipts of the landlord were included in the records from rented farms.

**See page 13 for an explanation of "work units."

Table 2. Summary of Farm Earnings (Cash Statement), 1947

| Items | Your farm | Average of 76 farms | 15 most profitable farms | 15 least profitable farms |
|---|-----------|---------------------|--------------------------|---------------------------|
| FARM RECEIPTS | | | | |
| Dairy and dual-purpose cows | | \$ 270 | \$ 349 | \$ 294 |
| Dairy products | | 1508 | 2298 | 1377 |
| Other dairy & dual-purpose cattle | | 230 | 308 | 275 |
| Beef cattle | | 2 | - | 11 |
| Hogs | | 141 | 360 | 26 |
| Sheep and wool | | 15 | - | - |
| Poultry | | 51 | 31 | 33 |
| Eggs | | 279 | 388 | 183 |
| Horses | | 16 | 10 | 20 |
| Potatoes and root crops | | 66 | 100 | 39 |
| Small grain | | 132 | 209 | 29 |
| Other crops | | 149 | 155 | 95 |
| Machinery & equip. sold | | 132 | 79 | 181 |
| Agricultural adjustment payments | | 33 | 40 | 21 |
| Income from work off the farm | | 92 | 21 | 78 |
| Miscellaneous | | 19 | 15 | 8 |
| (1) Total farm sales | | <u>3135</u> | <u>4363</u> | <u>2670</u> |
| (2) Increase in farm capital | | 1046 | 1721 | 257 |
| (3) Family living from the farm | | 419 | 441 | 386 |
| (4) Total farm receipts (1)+(2)+(3) | | <u>4600</u> | <u>6525</u> | <u>3313</u> |
| FARM EXPENSES | | | | |
| Dairy and dual-purpose cows bought | \$ | \$217 | \$ 74 | \$402 |
| Other dairy and dual-pur.cattle bot | | 51 | 34 | 78 |
| Hogs bought | | 26 | 44 | 26 |
| Sheep bought (incl. feeders) | | 5 | - | - |
| Poultry bought (including turkeys) | | 30 | 29 | 14 |
| Horses bought | | 19 | 11 | 30 |
| Misc. livestock expense | | 39 | 31 | 40 |
| Misc. crop expenses | | 148 | 199 | 162 |
| Feed bought | | 534 | 594 | 394 |
| Custom work hired | | 146 | 220 | 117 |
| Mech.power mach.(farm share)(new) | | 553 | 542 | 461 |
| Mech.power mach.(farm share)(upkp.) | | 117 | 137 | 129 |
| Mech.power (F.share)(gas,oil,etc.) | | 252 | 283 | 248 |
| Crop and general mach. (new) | | 183 | 153 | 235 |
| Crop and general mach. (upkeep) | | 55 | 83 | 53 |
| Livestock equipment (new) | | 61 | 37 | 46 |
| Livestock equipment (upkeep) | | 9 | 10 | 7 |
| Buildings and fencing (new) | | 209 | 215 | 251 |
| Buildings and fencing (upkeep) | | 73 | 74 | 89 |
| Hired labor | | 90 | 75 | 49 |
| Taxes | | 86 | 144 | 88 |
| General farm and insurance | | 42 | 36 | 48 |
| (5) Total farm purchases | | <u>\$2945</u> | <u>\$3025</u> | <u>\$2967</u> |
| (6) Decrease in farm capital | | - | - | - |
| (7) Interest on farm capital | | 481 | 676 | 467 |
| (8) Unpaid family labor | | 315 | 620 | 287 |
| (9) Board furnished hired labor | | 15 | 24 | 16 |
| (10) Total farm exp.(sum of (5) to (8)) | | <u>3756</u> | <u>4345</u> | <u>3737</u> |
| (11) Oper. labor earnings (4) - (10) | | <u>844</u> | <u>2180</u> | <u>-424</u> |

Table 3. Summary of Farm Earnings (Enterprise Statement) 1947*

| Items | Your farm | Average of 76 farms | 15 most profitable farms | 15 least profitable farms |
|---------------------------------------|-----------|---------------------|--------------------------|---------------------------|
| RETURNS AND NET INCREASES | | | | |
| Dairy and dual purpose cows | | \$1702 | \$2570 | \$1461 |
| Other dairy & dual pur. cattle | | 427 | 811 | 223 |
| Beef cattle | | 2 | - | 8 |
| Hogs | | 210 | 500 | 77 |
| Sheep - farm flock | | 17 | - | - |
| Chickens | | 340 | 439 | 201 |
| All productive livestock | | 2698 | 4320 | 1970 |
| Crops, seed and feed | | 13 | 531 | -294 |
| Agricultural conservation payments | | 33 | 40 | 21 |
| Income from labor off the farm | | 79 | 6 | 68 |
| Miscellaneous | | 104 | 104 | 88 |
| (1) Total returns & net increases | | \$2927 | 5001 | 1853 |
| EXPENSES AND NET DECREASES | | | | |
| Horses | | \$ 62 | \$ 85 | \$ 69 |
| Tractor | | 171 | 193 | 183 |
| Truck | | 28 | 28 | 24 |
| Auto (farm share) | | 206 | 250 | 241 |
| Gas engine and elect. exp. (f. share) | | 28 | 37 | 30 |
| Hired power | | 72 | 111 | 58 |
| Total power | | 567 | 704 | 605 |
| Crop and general machinery | | 155 | 213 | 193 |
| Livestock equipment | | 27 | 25 | 23 |
| Buildings, fencing and tiling | | 226 | 210 | 431 |
| Misc. productive livestock expense | | 35 | 31 | 32 |
| Labor | | 464 | 782 | 390 |
| Real estate taxes | | 73 | 125 | 77 |
| Personal property tax | | 13 | 19 | 11 |
| Insurance | | 21 | 21 | 19 |
| General farm | | 21 | 15 | 29 |
| Interest on farm capital | | 481 | 676 | 467 |
| (2) Total expenses & net decreases | | 2083 | 2821 | 2277 |
| (3) Oper. labor earnings (1)-(2) | | 844 | 2180 | -424 |

*Cash receipts and expenses are adjusted for changes in inventory for each enterprise and for each item of expense in order to show total receipts and net increases, and total expenses and net decreases. The operator's labor earnings are the same as those on page 4.

FAMILY LIVING FROM THE FARM

The family living from the farm is the estimated value of the farm produce used in the house and shelter furnished the farmer and his family by the farm. It is a part of the income of the farm and a part of the expenses of operating the household even though cash transactions are not involved. The omission of the farm produce used in the home results in an incomplete record of both farm income and personal expense.

The value of the family living as shown in Table 4 amounts to 9 per cent of the total farm receipts on these farms. The values assigned are a conservative market price on the farm. If these products had been purchased, the amount paid out would have been considerably higher.

The rental value of the dwelling is calculated by taking 10 per cent of the average inventory value of the dwelling.

Table 4. Family Living From the Farm, 1947

| Items | Your farm | 15 most profitable farms | | | 15 least profitable farms | | | |
|----------------------|-----------|--------------------------|-------------------|-------------------|---------------------------|------------------|-------------------|-------------------|
| | | Average 76 farms | profit-able farms | profit-able farms | Your farm | Average 76 farms | profit-able farms | profit-able farms |
| Adult equiv.- family | --- | 2.4 | 2.5 | 2.4 | --- | | | |
| - others | --- | .2 | .3 | .1 | --- | | | |
| Whole milk | --- | 757 qts. | 795 | 589 | --- | \$64.14 | \$67.13 | \$61.88 |
| Skim milk | --- | 158 qts. | 147 | 72 | --- | 3.63 | 4.89 | 1.44 |
| Cream | --- | 83 pts. | 73 | 111 | --- | 19.84 | 17.24 | 22.91 |
| Farm made butter | --- | 9 lbs. | 2 | 5 | --- | 6.21 | 1.19 | 3.70 |
| Beef | --- | 247 lbs. | 232 | 218 | --- | 34.31 | 32.32 | 35.75 |
| Hogs | --- | 210 lbs. | 149 | 164 | --- | 50.11 | 37.04 | 39.60 |
| Poultry | --- | 65 lbs. | 74 | 36 | --- | 16.14 | 16.85 | 10.83 |
| Eggs | --- | 77 doz. | 108 | 56 | --- | 31.44 | 43.18 | 22.69 |
| Potatoes | --- | 10 bu. | 11 | 6 | --- | 12.11 | 17.95 | 8.97 |
| Vegetables & fruits | --- | | | | --- | 17.62 | 21.36 | 14.00 |
| Farm fuel | --- | 10 cds. | 10 | 10 | --- | 35.90 | 48.91 | 34.27 |
| Rental vl. of house | --- | | | | --- | 127.71 | 133.16 | 130.10 |
| Misc. | --- | | | | --- | .16 | - | - |
| Total | --- | | | | --- | \$419.32 | \$441.22 | \$386.14 |

HOUSEHOLD AND PERSONAL EXPENSES AND RECEIPTS

Household and personal accounts are important if the family is to manage its financial affairs wisely. The household and personal expenses and receipts are presented in Table 5. There is relatively little difference in the level of family living between the more profitable and least profitable farms. The veterans compensation received by these farmers was nearly equal to the cash family living expenses. The compensation payments for veterans taking on-the-farm training was \$65.00 per month for unmarried men and \$90.00 per month for married men. Disabled veterans received somewhat larger amounts. The veterans compensation received as shown in Table 5 is large because many included terminal leave payments in reporting compensation received.

Table 5. Household and Personal Expenses and Receipts for Those Farmers Who Kept Complete Accounts of These Items, 1947

| Items | Your farm | Average of 67 farms | 13 most profitable farms | 13 least profitable farms |
|--|-----------|---------------------|--------------------------|---------------------------|
| Number of persons in family | _____ | 3.1 | 3.3 | 3.2 |
| Number of adult equivalents in family | _____ | 2.3 | 2.6 | 2.4 |
| Number of other adult equivalents* | _____ | .2 | .3 | .1 |
| EXPENSES | | | | |
| Food and meals bought | \$ _____ | \$451 | \$457 | \$399 |
| Operating and supplies | _____ | 97 | 93 | 100 |
| Clothing and clothing materials | _____ | 127 | 152 | 111 |
| Personal care, personal spending | _____ | 89 | 88 | 78 |
| Furnishings and equipment | _____ | 142 | 180 | 148 |
| Education; recreation and developme | _____ | 55 | 109 | 47 |
| Medical care and health insurance | _____ | 113 | 148 | 107 |
| Church, welfare, gifts | _____ | 62 | 61 | 52 |
| Personal share of auto expense | _____ | 78 | 65 | 57 |
| Household share of elect. & gas eg. exp. | _____ | 13 | 16 | 15 |
| H.H. & pers. shr. of new auto. & motors bot. | _____ | 39 | 19 | 27 |
| Total | _____ | \$1266 | \$1388 | \$1141 |
| State and federal income tax | _____ | 4 | 10 | - |
| Insurance | _____ | 33 | 39 | 38 |
| Total household and pers. cash exp. | _____ | 1303 | 1437 | 1179 |
| Food furnished by the farm | _____ | 241 | 211 | 235 |
| Fuel furnished by the farm | _____ | 43 | 51 | 82 |
| House rental | _____ | 112 | 121 | 81 |
| Total cash expenses and perquisites | _____ | 1699 | 1820 | 1577 |
| Investments | _____ | 55 | 30 | 17 |
| RECEIPTS | | | | |
| Sale of investments | _____ | 92 | 62 | 208 |
| Income from outside investments | _____ | 9 | 10 | 15 |
| Veterans compensation | _____ | 1187 | 1130 | 1219 |
| Misc. income | _____ | 21 | - | 35 |

*Hired help or others boarded

NET WORTH

A net worth statement includes a listing of all the assets and liabilities as of a given date. The difference between the farmer's total assets and his liabilities is his net worth. A net worth statement for owners, part-owners and partnerships is presented in Table 6. Both the farm and personal assets and liabilities are included.

The difference between the operator's net worth at the beginning and at the end of the year shows the gain in net worth. It represents the financial progress that has been made during the year.

Table 6. Net Worth Statement for Those Farmers Who Kept a Complete Record of All Assets and Liabilities, 1947 (Operator's Share)

| | Your farm | | 43 Owners | |
|---|-----------|---------|-----------|---------|
| | Jan. 1 | Dec. 31 | Jan. 1 | Dec. 31 |
| Total acres in farm | | | 123.6 | |
| Owned | | | 123.6 | |
| Rented | | | | |
| Total farm capital | | | \$7468 | \$8210 |
| Accounts receivable | | | 37 | 25 |
| Stocks and bonds | | | 171 | 84 |
| Life insurance | | | 214 | 274 |
| Outside real estate | | | 51 | 32 |
| Other outside investments | | | 4 | 8 |
| Total outside investments | | | 440 | 398 |
| Cash on hand and in bank | | | 301 | 228 |
| Other household & personal assets | | | 875 | 924 |
| Total cash, household & personal assets | | | 1176 | 1152 |
| TOTAL ASSETS | | | 9121 | 9785 |
| Federal Land Bank Mortgage | | | 144 | 160 |
| Other mortg. on land operated | | | 2049 | 1827 |
| Chattel mortgages | | | 550 | 569 |
| Notes payable | | | 147 | 179 |
| Accounts payable | | | 73 | 93 |
| TOTAL LIABILITIES | | | 2963 | 2828 |
| Farmer's net worth | | | 6158 | 6957 |
| Gain in net worth | | | | +799 |

| | 12 Part owners | | 6 partnerships | |
|---|----------------|---------|----------------|---------|
| | Jan. 1 | Dec. 31 | Jan. 1 | Dec. 31 |
| Total acres in farm | 149.9 | | 308.5 | |
| Owned | 94.6 | | 123.7 | |
| Partner's share or rented | 55.3 | | 184.8 | |
| Total farm capital | \$7552 | \$9182 | \$6009 | \$7139 |
| Accounts receivable | 12 | 1 | 64 | |
| Stocks and bonds | 114 | 46 | 771 | 583 |
| Life insurance | 18 | 23 | - | - |
| Outside real estate | - | - | 18 | 227 |
| Other outside investments | - | 85 | 7 | 17 |
| Total outside investments | 132 | 154 | 796 | 827 |
| Cash on hand and in bank | 145 | 146 | 385 | 385 |
| Other household and personal assets | 761 | 787 | 395 | 562 |
| Total cash, household & personal assets | 906 | 933 | 780 | 947 |
| TOTAL ASSETS | 8602 | 10270 | 7649 | 8913 |
| Federal Land Bank Mortgage | 163 | 160 | 96 | 91 |
| Other mortg. on land operated | 1600 | 1539 | 164 | 146 |
| Chattel mortgages | 123 | 547 | - | 250 |
| Notes payable | 171 | 146 | - | 414 |
| Accounts payable | 77 | 153 | 30 | 14 |
| TOTAL LIABILITIES | 2134 | 2545 | 290 | 915 |
| Farmer's net worth | 6468 | 7725 | 7359 | 7998 |
| Gain in net worth | | +1257 | | +639 |

Table 7. Summary of Farm Earnings by Tenure, 1947 (Operator's Share)

| | Your farm | 43 Owners | 12 part- owners | 6 partner- ships |
|---|--------------|--------------|--------------------|---------------------|
| FARM RECEIPTS | | | | |
| Dairy and dual purpose cows | _____ | \$ 204 | \$ 232 | \$ 183 |
| Dairy products | _____ | 1279 | 1384 | 1230 |
| Other dairy and dual purpose cattle | _____ | 199 | 252 | 140 |
| Beef cattle | _____ | - | 14 | - |
| Hogs | _____ | 104 | 303 | 103 |
| Sheep and wool | _____ | 26 | - | - |
| Poultry | _____ | 44 | 137 | 2 |
| Eggs | _____ | 269 | 488 | 65 |
| Horses | _____ | 17 | 15 | 18 |
| Potatoes and root crops | _____ | 46 | 51 | 103 |
| Small grain | _____ | 133 | 43 | 216 |
| Other crops | _____ | 85 | 87 | 118 |
| Machinery & equipment sold | _____ | 111 | 45 | 177 |
| Agricultural adjustment payments | _____ | 29 | 31 | 51 |
| Income from work off the farm | _____ | 80 | 29 | 145 |
| Misc. | _____ | 23 | 22 | 11 |
| (1) Total farm sales | _____ | 2649 | 3133 | 2562 |
| (2) Increase in farm capital | _____ | 742 | 1630 | 1130 |
| (3) Family living from the farm | _____ | 394 | 379 | 341 |
| (4) Total farm rec. (1)+(2)+(3) | _____ | 378 | 5142 | 4033 |
| FARM EXPENSES | | | | |
| Dairy and dual purpose cows bot | _____ | \$252 | \$293 | \$ 27 |
| Other dairy & dual pur. cattle bot | _____ | 38 | 26 | 29 |
| Beef cattle bot.(including feeders) | _____ | - | - | - |
| Hogs bot | _____ | 22 | 59 | 4 |
| Sheep bot (including feeders) | _____ | 5 | - | - |
| Poultry bot (including turkeys) | _____ | 31 | 48 | 9 |
| Horses bot | _____ | 25 | 22 | - |
| Misc. livestock expenses | _____ | 46 | 42 | 13 |
| Misc. crop expenses | _____ | 139 | 135 | 98 |
| Feed bot | _____ | 481 | 860 | 285 |
| Custom work hired | _____ | 144 | 145 | 96 |
| Mech. power mach.(farm share)(new) | _____ | 470 | 482 | 943 |
| Mech. power mach. (farm share)(upkeep) | _____ | 82 | 124 | 126 |
| Mech. power (farm share)(gas,oil,etc.) | _____ | 221 | 241 | 242 |
| Crop and general mach. (new) | _____ | 132 | 303 | 141 |
| Crop and general mach. (upkeep) | _____ | 42 | 60 | 74 |
| Livestock equipment (new) | _____ | 62 | 88 | 1 |
| Livestock equipment (upkeep) | _____ | 9 | 5 | 7 |
| Land, buildings & fencing (new) | _____ | 33 | 303 | 236 |
| Buildings and fencing (upkeep) | _____ | 72 | 97 | 36 |
| Hired labor | _____ | 80 | 101 | 61 |
| Taxes (real estate & pers. property) | _____ | 66 | 81 | 81 |
| General farm and insurance | _____ | 40 | 51 | 14 |
| Cash rent | _____ | - | 26 | 90 |
| Interest paid | _____ | 92 | 97 | 33 |
| (5) Total farm purchases | _____ | \$2684 | \$3689 | \$2646 |
| (6) Decrease in farm capital | _____ | - | - | - |
| (7) Interest on farm capital | _____ | 300 | 321 | 296 |
| (8) Unpaid family labor | _____ | 128 | 176 | 50 |
| (9) Board furnished hired labor | _____ | 10 | 36 | 17 |
| (10) Total farm exp.(Sum of (5)to(9)) | _____ | 3122 | 4222 | 3009 |
| (11) Operator's labor earn. (4) - (10) | _____ | 663 | 920 | 1024 |
| (12) Ret. cap.& family lab.(7)+(8)+(11) | _____ | 1091 | 1417 | 1370 |

RETURNS TO CAPITAL AND FAMILY LABOR

The return to capital and family labor represents the amount available to the operator for living expenses, payment on indebtedness, and savings. The landlord's expenses and receipts are not included.

The average return to capital and family labor for 43 owners, 12 part-owners and 6 partnerships is shown in Table 7. The partnerships represent operators who own real estate and working capital in partnership with other individuals. In all cases they are working partnerships in which two or more partners are working together. The statement includes only the veterans share of the earnings of the partnership. The earnings as shown in Table 7 are on an actual basis as compared to the full-owner basis in Tables 2 and 3.

MANAGEMENT FACTORS AND THEIR RELATION TO EARNINGS

Every study of farm earnings shows a wide variation in earnings among farmers in a given year. The average labor earnings of those farmers ranking in the upper 20 per cent of the range according to earnings was \$2180 and of those in the lower 20 per cent was -\$424. This is a range of \$2604 between the average earnings of these two groups. Some of the causes for these differences in earnings, such as weather, may be beyond the control of the individual farmer. Other factors are within his control. The more important management factors affecting earnings and their relationships with earnings are presented in the following tables. These factors vary from year to year in their relative influence on earnings.¹

Crop Yields. The measure of crop yields used is the crop yield index. It is a comparison of the yield per acre of all crops on a given farm with the average yields for all farms included in the study. High crop yields make their maximum contribution to earnings if they are the result of good crop selection, the use of adapted varieties, skill and timeliness in performing the operations.

Table 8. Relation of Crop Yields to Farm Earnings

| Index of crop yields. Range | Average | No. of farms* | Average operator's labor earnings |
|--------------------------------|---------|------------------|--------------------------------------|
| Below 80 | 66 | 19 | \$ 604 |
| 80 - 114 | 96 | 39 | 821 |
| 115 and above | 144 | 17 | 1169 |

*One farmer did not have any tillable land.

Choice of Crops. Over a period of years certain crops have a definite advantage over others. The crops are classified on page 16 as A, B, C or D crops on the basis of their average net returns per acre. The relation of choice of crops to earnings is shown in Table 9. The relationship is not marked because of the small crop acreage on most of these farms.

¹See Pcmd, G. A. "Why Farm Earnings Vary." Minn. Agri. Expt. Sta. Bul. 386, June, 1945

Table 9. Relation of Choice of Crops to Farm Earnings

| Percent of tillable land in high return crops | | No. of farms | Average operator's labor earnings |
|--|---------|--------------------|---|
| Range | Average | | |
| Below 10.0 | 4.4 | 11 | \$823 |
| 10.0 - 37.9 | 21.0 | 49 | 839 |
| 38.0 and above | 54.4 | 15 | 882 |

Return from Livestock. This is a measure of feeding efficiency. All of these farmers maintain dairy cattle. In addition to the dairy herd some farmers maintain a few hogs, chickens and sheep. Most of the crops raised and some additional purchased feed are fed to livestock. Since feed is the major item of cash in livestock production improvements in feeding efficiency results in a higher earnings.

Table 10. Relation of Returns From Productive Livestock to Farm Earnings

| Index of returns for \$100 feed consumed by productive livestock* | | No. of farms | Average operator's labor earnings |
|--|---------|--------------------|---|
| Range | Average | | |
| Below 84 | 66 | 20 | \$ 244 |
| 84.0 - 111.9 | 95 | 33 | 1001 |
| 112 and above | 137 | 23 | 1140 |

*The index is weighted by the number of animal units of each class of livestock.

Amount of Livestock. This factor measures the importance of livestock in the farm business. It is the amount of livestock units per 100 acres in the farm other than land in timber, roads, waste and farmstead. Livestock are important in this area where hay and pasture are the predominant crops. They provide employment throughout the year and aid in maintaining or building up the fertility of the land.

Table 11. Relation of Amount of Livestock to Farm Earnings

| Livestock units per 100 acres | | No. of farms | Average operator's labor earnings |
|----------------------------------|---------|--------------------|---|
| Range | Average | | |
| Below 10.0 | 7.5 | 21 | \$670 |
| 10.0 - 15.4 | 12.4 | 32 | 895 |
| 15.5 and above | 18.6 | 23 | 931 |

Size of Business. Productive man work units are a measure of size of business. The relationship of size of business to farm earnings is shown in Table 12. Average farm earnings tend to increase with an increase in size of business if size is accompanied by good management. For farmers operating their farms at a loss, the larger the volume of business, the larger will be the loss. Normally a large business has an advantage over a small business because they utilize more efficiently and to better advantage available labor, power, machinery, equipment and buildings.

Table 12. Relation of Size of Business to Farm Earnings

| Work units Range | Average | No. of farms | Average operator's labor earnings |
|---------------------|---------|-----------------|--------------------------------------|
| Below 200 | 166 | 19 | \$ 466 |
| 201 - 349 | 269 | 41 | 886 |
| 350 and above | 471 | 16 | 1183 |

Work Accomplished Per Worker. The work accomplished per worker is determined by dividing the total man work units by the number of workers on the farm during the year. An increase in the productive work accomplished per worker reduces the labor charge per unit of business. Planning of the farm work and economical use of labor-saving machinery help to increase the output of work per worker.

Table 13. Relation of Work Accomplished Per Worker to Farm Earnings

| Work units per worker Range | Average | No. of farms | Average operator's labor earnings |
|--------------------------------|---------|-----------------|--------------------------------------|
| Below 160 | 128 | 16 | \$ 360 |
| 160 - 249 | 203 | 44 | 837 |
| 250 and above | 312 | 16 | 1344 |

Control Over Expenses. The depreciation and cash cost of upkeep for power, machinery, equipment and buildings per unit of work is used as a measure of the efficiency of their use on a farm. Some farmers lack power, machinery and buildings for satisfactory operation. In case of others, an excessive investment in these items may constitute an important factor limiting earnings.

Table 14. Relation of Expenses to Farm Earnings

| Expenses per work unit Range | Average | No. of farms | Average operator's labor earnings |
|---------------------------------|---------|-----------------|--------------------------------------|
| \$4.50 and above | \$5.81 | 17 | \$ 1 |
| \$2.50 - \$4.49 | 3.33 | 43 | 1024 |
| Below \$2.50 | 1.86 | 16 | 1255 |

CUMULATIVE EFFECT OF EXCELLING IN A NUMBER OF MANAGEMENT FACTORS

The relation of several management factors to operator's labor earnings has been shown in the preceding section. Because of the large number of inter-relationships between these factors the exact relationship between one factor and earnings can not be determined. The combined or cumulative influence of the seven management factors on earnings is shown in Table 15. Insofar as these factors are within the farmer's control, he may be well paid for his efforts to improve his efficiency as measured by them.

Table 15. Relation of Operator's Labor Earnings to the Number of Factors in Which the Farmer Excels

| No. of factors in which farmer excels | No. of farms | Your farm | The length of the lines is in proportion to the average operator's labor earnings | Average operator's labor earnings |
|---------------------------------------|--------------|-----------|---|-----------------------------------|
| 0 | 2 | — | xx | \$ 168 |
| 1 | 10 | — | xxxx | 385 |
| 2 | 16 | — | xxxx | 421 |
| 3 | 17 | — | xxxxxxx | 692 |
| 4 | 16 | — | xxxxxxxx | 913 |
| 5 | 12 | — | xxxxxxxxxxxxxxxx | 1541 |
| 6 | 3 | — | xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx | 2780 |

The array in Table 15 suggests that it may be well worth while for each cooperator to study carefully his ranking on pages 14 and 15, and learn his standing in respect to each of the seven factors as indicators of elements of strength and weakness in his farm business.

EXPLANATION OF "WORK UNITS"

The total "work units" for any one farm is a measure of the size of that farm business. A work unit as used in this report is the average accomplishment of a farm worker in a ten hour day, working on crops and productive livestock at average efficiency or ten hours of work off the farm for pay. The number of work units for each class of livestock and each acre of crop are presented in Table 16.

Table 16. Number of Work Units for Each Class of Livestock and Each Acre of Crop

| Item | No. of work units | Item | No. of work units |
|-------------------------------|-------------------|-----------------|-------------------|
| Dairy and dual pur. cows | 18.0 per cow | Small grain | 1.2 per acre |
| Other dairy & du. pur. cattle | 5.5 per an. unit* | Potatoes | 4.5 per acre |
| Beef breeding herd | 4.8 per an. unit* | Corn, husked | 2.0 per acre |
| Sheep - farm flock | 2.8 per an. unit* | Corn, shredded | 3.0 per acre |
| Hogs | .5 per 100 lbs. | Corn silage | 2.0 per acre |
| Turkeys | 1.0 per 100 lbs. | Corn fodder | 1.4 per acre |
| Hens | 26.0 per 100 hens | Alfalfa hay | 1.4 per acre |
| Canning peas | 2.0 per acre | Other hay crops | .8 per acre |

*Animal unit represents one cow, one bull, one feeder steer or heifer, two head of other cattle, seven head of sheep, fourteen lambs, five hogs, ten pigs, 100 hens or 1400 pounds of turkeys produced.

Table 17. Measures of Farm Organization and Management Efficiency, 1947

| Measures used in chart on page 15 | Your farm | Average of 76 farms | 15 most profit- able farms | 15 least profit- able farms |
|---|--------------|---------------------------|-------------------------------------|--------------------------------------|
| Operator's labor earnings | \$ _____ | \$844 | \$2180 | -\$424 |
| (1) Crop yields* | _____ | 100 | 110 | 92 |
| (2) % of tillable land in high ret. crops** | _____ | 24.9 | 22.6 | 25.3 |
| (3) Ret. for \$100 feed to prod. livestock*** | _____ | 100 | 110 | 78 |
| (4) Prod. livestock units per 100 acres**** | _____ | 12.9 | 13.4 | 13.4 |
| (5) Size of business - work units. | _____ | 286 | 408 | 244 |
| (6) Work units per worker | _____ | 204 | 255 | 188 |
| (7) Pw., mach., equip., & bldg. exp. per work unit | \$ _____ | \$3.59 | \$2.88 | \$5.15 |
| Items related to some of the above measures: | | | | |
| (3) Index of return for \$100 feed from Dairy cattle (See pages 20 and 21) | _____ | 100 | 110 | 78 |
| Beef cattle - feeders | _____ | 100 | - | - |
| Hogs (See page 24) | _____ | 100 | 86 | 66 |
| Sheep - farm flock (See page 25) | _____ | 100 | - | - |
| Chickens (See page 23) | _____ | 100 | 106 | 90 |
| (4) Number of animal units | _____ | 14.3 | 20.9 | 12.5 |
| (5) Work units on crops | _____ | 75 | 117 | 58 |
| Work units on productive livestock | _____ | 198 | 290 | 175 |
| Other work units | _____ | 13 | 1 | 11 |
| (6) Number of family workers | _____ | 1.3 | 1.5 | 1.2 |
| Number of hired workers | _____ | .1 | .1 | .1 |
| Total number of workers | _____ | 1.4 | 1.6 | 1.3 |
| (7) Power expense per work unit | \$ _____ | \$2.11 | \$1.78 | \$2.59 |
| Crop machinery expense per work unit | _____ | .54 | .53 | .79 |
| Livestock equip. expense per work unit | _____ | .09 | .06 | .08 |
| Bldgs. & fencing exp. per work unit | _____ | .85 | .51 | 1.69 |

*Given as a percentage of the average.

**Crops are marked in Table 18 as (A), (B), (C), and (D). All of acres in (A) crops, one half of acres in (B) crops, and one fourth of acres in (C) crops are used in calculating per cent of tillable land in high return crops.

***An index weighted by the animal units of livestock.

****Acres in timber not pastured, roads, waste and farmstead were not included.

Thermometer Chart

Using your figures from page 14, locate your standing with respect to the various measures of farm organization and management efficiency. The averages for the 76 farms included in this summary are located between the dotted lines across the center of this page.

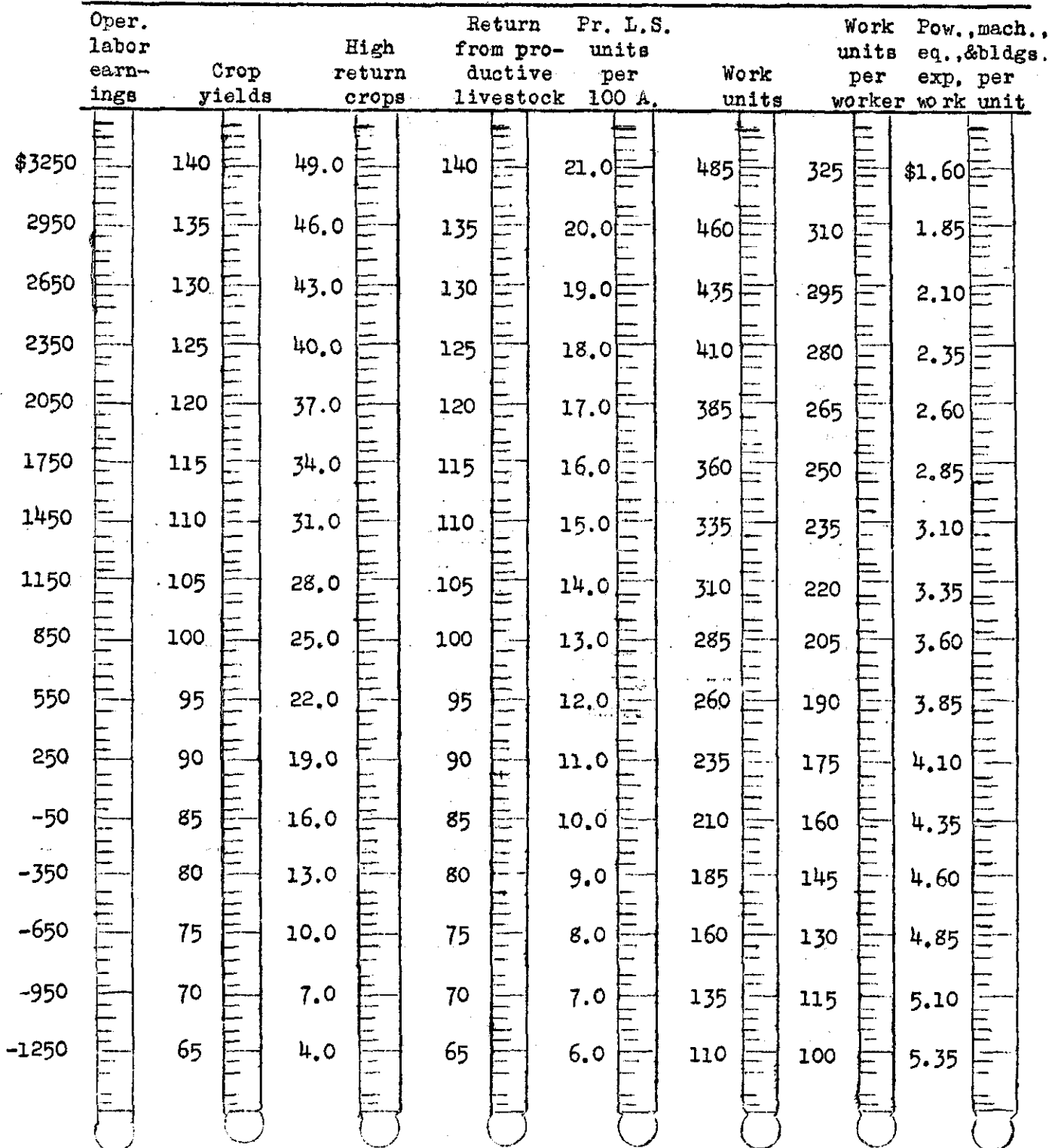


Table 18. Distribution of Acres in Farm, 1947

| Crop: (A), (B), (C) and (D) refer to ranking used in calculating % of tillable land in High Return Crops (see page 10) | No. growing this crop | Your farm | Average of 76 farms | 15 most profitable farms | 15 least profitable farms | Acres per farm growing crop |
|--|-----------------------|-----------|---------------------|--------------------------|---------------------------|-----------------------------|
| Flax (B) | 10 | _____ | 3.3 | 5.0 | 1.1 | 25.3 |
| Barley (B) | 11 | _____ | .8 | - | 1.2 | 5.7 |
| Oats (C) | 59 | _____ | 10.7 | 20.3 | 10.8 | 13.7 |
| Wheat (D) | 14 | _____ | .9 | .9 | .2 | 4.6 |
| Rye, Peas and soybeans (D) | 6 | _____ | .4 | 1.0 | .6 | 5.8 |
| Total small grain and peas | 60 | | 16.1 | 27.2 | 13.9 | 20.4 |
| Garden and truck crops (A) | 10 | _____ | .1 | - | - | .6 |
| Rutabagas (B) | 8 | _____ | .3 | .3 | .5 | 3.0 |
| Potatoes (B) | 22 | _____ | .4 | .4 | .1 | 1.2 |
| Corn silage (C) | 28 | _____ | 3.9 | 8.4 | 4.1 | 10.4 |
| Corn grain (D) | 22 | _____ | 2.6 | 6.6 | 2.1 | 8.9 |
| Corn fodder (D) | 9 | _____ | .7 | 2.4 | .8 | 7.3 |
| Total cultivated crops | 56 | | 8.0 | 18.1 | 7.6 | 10.9 |
| Alfalfa hay (A) | 16 | _____ | 5.9 | 7.0 | 9.1 | 27.8 |
| Alfalfa seed (B) | 6 | _____ | 1.3 | 4.6 | .5 | 16.7 |
| Red or alsike clover hay (B) | 12 | _____ | 1.9 | 1.3 | 2.1 | 12.0 |
| Red or alsike clover seed (B) | 5 | _____ | .6 | - | .7 | 8.9 |
| Mixed legumes & non-legumes (C) | 37 | _____ | 12.1 | 16.3 | 5.8 | 24.9 |
| Timothy and/or brome hay (D) | 18 | _____ | 5.8 | 13.9 | 3.4 | 24.7 |
| Wild hay on tillable land (D) | 10 | _____ | 1.7 | 1.8 | 1.6 | 12.8 |
| Annual hay (D) | 19 | _____ | 1.1 | 1.2 | 1.8 | 4.3 |
| Total tillable land in hay | 73 | | 30.4 | 46.1 | 25.0 | 31.7 |
| Legumes and mixtures (C) | 2 | _____ | .2 | - | - | 8.0 |
| Other tillable pasture (D) | 17 | _____ | 3.6 | 3.7 | .8 | 16.1 |
| Total tillable land in pasture | 19 | | 3.8 | 3.7 | .8 | 15.2 |
| Tillable land not cropped (D) | 13 | _____ | 1.7 | 2.2 | 2.5 | 10.1 |
| Total tillable land | 75 | | 60.0 | 97.3 | 49.8 | 60.9 |
| Wild hay (non-tillable) | 23 | _____ | 5.7 | 5.4 | 9.7 | 18.7 |
| Non-tillable pasture | 73 | _____ | 51.7 | 57.3 | 42.9 | 53.8 |
| Timber (not pastured) | 36 | _____ | 20.6 | 15.6 | 23.9 | 43.4 |
| Roads and waste | | _____ | 8.9 | 12.8 | 7.9 | |
| Farmstead | | _____ | 3.3 | 3.6 | 4.1 | |
| Total acres in farm | | | 150.2 | 192.0 | 138.3 | |
| Per cent land tillable | | | 39.9 | 50.7 | 36.0 | |
| Per cent tillable land in high ret. crops | | | 24.9 | 22.6 | 25.3 | |

Table 19. Crop Yields Per Acre, 1947

| Crop | Your farm | Average of 76 farms | 15 most profitable farms | 15 least profitable farms |
|-------------------------------------|-----------|---------------------|--------------------------|---------------------------|
| Flax, bu. | _____ | 6.0 | - | - |
| Barley, bu. | _____ | 14.2 | - | 13.1 |
| Oats, bu. | _____ | 31.2 | 38.7 | 24.6 |
| Wheat, bu. | _____ | 11.5 | 11.0 | - |
| Rutabagas, tons | _____ | 6.0 | - | - |
| Potatoes, bu. | _____ | 83.3 | 84.9 | 73.3 |
| Corn silage, tons | _____ | 5.0 | 6.6 | 4.0 |
| Corn, grain, bu. | _____ | 26.9 | 32.6 | 20.1 |
| Corn fodder, tons | _____ | 2.5 | 3.9 | .9 |
| Alfalfa hay, tons | _____ | 1.7 | 1.2 | 2.1 |
| Alfalfa seed, lbs. | _____ | 56 | - | - |
| Red or alsike clover hay, tons | _____ | 1.4 | 1.4 | 1.7 |
| Red or alsike clover seed, lbs. | _____ | 108 | - | - |
| Other leg. & leg. mix for hay, tons | _____ | 1.2 | 1.3 | 1.0 |
| Brome or timothy hay, tons | _____ | 1.3 | 1.5 | 1.4 |
| Wild hay on tillable land, tons | _____ | 1.2 | 1.6 | 1.0 |
| Annual hay, tons | _____ | 1.2 | 1.7 | 1.0 |
| Wild hay on non-tillable land, tons | _____ | .8 | .2 | .6 |

POWER AND MACHINERY EXPENSES

Power and machinery expense per crop acre is an indication of the economy with which capital is invested in these items. The crop acres per farm ranged from two to 205 with an average of 60 (Table 20). The expenses are high on the farms with a small acreage. In some cases, low expenses for labor might be offset by high power and equipment costs. The farmer is interested in operating at the lowest cost for power, machinery and labor combined.

Table 20. Power and Machinery Expenses Per Crop Acre, 1947

| Items | Your farm | Average of 76 farms | 15 most profitable farms | 15 least profitable farms |
|--------------------------------------|-----------|---------------------|--------------------------|---------------------------|
| Crop acres per farm | _____ | 60.2 | 96.9 | 56.2 |
| Tractor and horse exp. per crop acre | _____ | \$4.72 | \$3.02 | \$5.01 |
| Crop & gen. mach. exp. per crop acre | _____ | 2.91 | 2.23 | 3.64 |

The feed cost for horses is a part of the cost of power on those farms maintaining horses. The annual feed cost per horse is shown in Table 21. Twenty-four farmers did not maintain horses.

Table 21. Feed Costs For Horses, 1947

| Items | Your farm | Average of 52 farms |
|-----------------------|-----------|---------------------|
| Feed per horse, lbs.: | | |
| Grain | _____ | 138 |
| Hay | _____ | 4753 |
| Fodder and stover | _____ | 19 |
| Feed cost per horse: | | |
| Grain | _____ | \$ 4.15 |
| Roughage | _____ | 26.08 |
| Pasture | _____ | 4.17 |
| Total feed cost | _____ | \$34.40 |
| Number of work horses | _____ | 2.2 |
| Number of colts | _____ | - |

AMOUNT OF LIVESTOCK

All the farmers maintained some dairy cattle. The average number of dairy cows per farm was approximately nine head. (Table 22). One-half of the farmers kept some poultry and one-third raised a few hogs.

Table 22. Amount of Livestock, 1947

| | Your farm | Average of 76 farms | 15 most profitable farms | 15 least profitable farms |
|----------------------------------|-----------|---------------------|--------------------------|---------------------------|
| Number of milk cows | _____ | 8.7 | 12.5 | 7.9 |
| Number of other dairy cattle | _____ | 8.3 | 12.7 | 7.2 |
| Number of sheep* | _____ | 1.2 | - | - |
| Number of hens | _____ | 54 | 79 | 42 |
| Number of litters of pigs raised | _____ | .8 | 1.7 | .3 |
| Pounds of hogs produced | _____ | 810 | 1882 | 353 |
| Number of horses | _____ | 1.5 | 2.0 | 1.6 |
| Number of colts | _____ | - | - | - |

*Two lambs under six months of age considered as one head.

Although the men included in this study are beginning farmers, the average number of livestock maintained was not increased during the year (Table 23). The small number of two-year old and yearling heifers indicates that the number of cows kept is not likely to show an increase in the near future unless this increase is effected by the purchase of cows or heifers.

Table 23. Number of Livestock Per Farm On Hand at Beginning and End of Year

| | Average Number On Hand | |
|----------------------|------------------------|-------------------|
| | January 1, 1947 | December 31, 1947 |
| Milk cows | 8 | 9 |
| Two-year old heifers | 1 | 1 |
| Yearling heifers | 3 | 2 |
| Hens | 63 | 61 |
| Hogs | 1 | 2 |

TOTAL FEED COSTS AND RETURNS FROM YOUR LIVESTOCK ENTERPRISES

The total "return over feed costs" for each class of livestock is shown in Table 24. This differs from the "return over feed" shown in the enterprise statement in that it is the total for each class of livestock instead of a return "per head" "per unit" or "per 100 pounds". These data indicate the relative importance of different classes of livestock as a source of income and as a market for feed. The total return is the same as the returns and net increases shown on page 5. The value of milk consumed by calves is included in the total returns from dairy or dual purpose cows and in the total feed cost for other dairy or other dual purpose cattle. The value of milk consumed by calves is not included in either the total returns or the feed cost of "all dairy" or "all dual purpose" cattle. The return over feed is not a net return, but rather the amount available from the gross income, after paying the feed bill, to cover the outlay for hired labor, power, equipment, taxes, insurance, interest and veterinary bills and to provide a return for the use of family labor and capital.

Table 24. Total Feed Costs and Returns From Your Livestock Enterprises, 1947

| | Dairy or dual purpose cattle | | Beef | | Feeder cattle |
|------------------------|------------------------------|-------|------------|---------------|---------------|
| | Cows | Other | All | breeding herd | |
| Total returns | _____ | _____ | _____ | _____ | _____ |
| Total feed cost | _____ | _____ | _____ | _____ | _____ |
| Total return over feed | _____ | _____ | _____ | _____ | _____ |
| | | | Sheep | | |
| | | | Farm flock | Feeders | Turkeys |
| | Hogs | | | | Chickens |
| Total returns | _____ | _____ | _____ | _____ | _____ |
| Total feed cost | _____ | _____ | _____ | _____ | _____ |
| Total return over feed | _____ | _____ | _____ | _____ | _____ |

Feed is the largest single item of cost for all classes of livestock. However, the proportion of the total cost represented by feed varies considerably between classes of livestock. Feed makes up approximately 45 per cent of the total costs of maintaining dairy cattle and poultry, 50 per cent in the case of a farm flock of sheep and 75 to 90 per cent for hogs, feeder cattle and feeder lambs. Consequently, it is necessary to secure a relatively higher return over feed from dairy cattle and poultry than from the other livestock enterprises in order to be able to cover all the costs other than feed.

Table 25. Factors of Cost and Returns from Dairy Cows, 1947

| Items | Your farm | Average of 75 farms | 15 farms | 15 farms |
|--------------------------------------|-----------|---------------------|------------------------------|-----------------------------|
| | | | highest in butterfat per cow | lowest in butterfat per cow |
| Pounds of butterfat per cow | _____ | 219 | 307 | 151 |
| % butterfat in milk | _____ | 3.9 | 4.0 | 4.0 |
| Price rec. per lb. B.F. sold (cents) | _____ | 88.7 | 86.8 | 84.6 |
| As cream (cents) | _____ | 76.3 | 77.5 | 75.9 |
| Other (cents) | _____ | 91.7 | 89.1 | 90.3 |
| Feeds per cow, lbs: | | | | |
| Corn and small grain | _____ | 626 | 1165 | 358 |
| Commercial feeds | _____ | 590 | 1004 | 431 |
| Legume hay | _____ | 3180 | 3865 | 2617 |
| Other hay | _____ | 3116 | 2193 | 3190 |
| Fodder and stover | _____ | 274 | 216 | 312 |
| Total concentrates | _____ | 1216 | 2169 | 789 |
| Total dry roughage | _____ | 6570 | 6274 | 6119 |
| Silage | _____ | 2315 | 3162 | 1376 |
| Total digestible nutrients* | _____ | 4465 | 5224 | 3715 |
| T.D.N. per lb. B.F. | _____ | 20.4 | 17.0 | 24.6 |
| % T.D.N. that is protein | _____ | 13.2 | 14.8 | 12.5 |
| Feed cost per cow: | | | | |
| Concentrates | \$ _____ | \$38.85 | \$68.01 | \$25.48 |
| Roughages | _____ | 48.44 | 54.34 | 46.60 |
| Pasture | _____ | 4.06 | 3.80 | 4.14 |
| TOTAL FEED COSTS | \$ _____ | \$91.35 | \$126.15 | \$76.22 |
| Value of produce per cow: | | | | |
| B.F. sales | \$ _____ | \$171.43 | \$241.29 | \$101.89 |
| Dairy produce used in house | _____ | 15.50 | 12.58 | 25.82 |
| Milk to livestock | _____ | 11.63 | 14.49 | 15.27 |
| Net increases in value of cows | _____ | -3.33 | -3.77 | -2.78 |
| TOTAL VALUE PRODUCED | \$ _____ | \$198.23 | \$264.59 | \$140.20 |
| RETURNS ABOVE FEED COST PER COW | \$ _____ | \$106.88 | \$138.44 | \$63.98 |
| RETURNS FOR \$100 OF FEED | \$ _____ | \$238 | \$221 | \$225 |
| Feed cost per lb. B.F. (cents) | _____ | 41.7 | 41.1 | 50.5 |
| % fall freshening | _____ | 28 | 32 | 28 |
| Number of cows** | _____ | 8.8 | 8.0 | 9.0 |

* Not including nutrients received from pasture.

**All dairy cows which have at some time in the past freshened are included in the dairy herd, and affect the average number of cows used in computing this table. There is some variation in the number of months of dry period per cow; however, this variation is small for the majority of farms.

Table 26. Feed Costs and Returns from Other Dairy Cattle, 1947

| Items | Your farm | Average of 75 farms | 15 farms highest in butterfat per cow | 15 farms lowest in butterfat per cow |
|---|-----------|---------------------|---------------------------------------|--------------------------------------|
| Feeds per head, lbs.: | | | | |
| Concentrates | _____ | 156 | 262 | 121 |
| Hay and fodder | _____ | 2301 | 1837 | 3270 |
| Silage | _____ | 542 | 618 | 208 |
| Skim milk | _____ | 327 | 910 | 370 |
| Whole milk | _____ | 246 | 209 | 285 |
| TOTAL FEED COSTS PER HEAD | \$ _____ | \$33.82 | \$35.79 | \$43.13 |
| Net inc. in value of other dairy cattle | _____ | 51.98 | 56.80 | 50.62 |
| RETURNS ABOVE FEED COST PER HEAD | \$ _____ | 18.16 | 21.01 | 7.49 |
| RETURNS FOR \$100 OF FEED | \$ _____ | \$187 | \$163 | \$172 |
| Number of head of other dairy cattle | _____ | 8.5 | 8.8 | 9.7 |

Table 27. Feed Costs and Returns From All Dairy Cattle, 1947

| Items | Your farm | Average of 75 farms | 15 farms highest in butterfat per cow | 15 farms lowest in butterfat per cow |
|---|-----------|---------------------|---------------------------------------|--------------------------------------|
| Feeds per animal unit, lbs.: | | | | |
| Concentrates | _____ | 879 | 1588 | 480 |
| Hay and fodder | _____ | 5625 | 5322 | 5487 |
| Silage | _____ | 1956 | 2475 | 1449 |
| TOTAL FEED COSTS PER ANIMAL UNITS | \$ _____ | \$74.15 | \$99.55 | \$65.47 |
| Value of produce per animal unit; | | | | |
| Dairy products | \$ _____ | \$121.87 | \$162.98 | \$80.52 |
| Net increase in val. of dairy cattle | _____ | 32.03 | 38.54 | 32.37 |
| TOTAL VALUE PRODUCED | \$ _____ | \$153.90 | \$201.52 | \$112.89 |
| RETURNS ABOVE FEED PER ANIMAL UNIT | \$ _____ | \$79.75 | \$101.97 | \$47.42 |
| RETURNS PER \$100 OF FEED | \$ _____ | \$225 | \$213 | \$206 |
| Animal units of dairy cattle | _____ | 13.2 | 12.7 | 14.2 |

The return over feed cost per cow varied from -\$71.81 to \$221.99 among the 75 herds covered by this study. Some of the important factors that affected the return over feed were:

1. Rate of production (pounds butterfat per cow)
2. Price received for butterfat
3. Feeding efficiency (pounds T.D.N. fed per pound butterfat)
4. Quality of ration (percentage of protein in T.D.N.)
5. Economy of ration (feed cost per pound butterfat.)

The herds which ranked low in these factors had low returns over feed. As indicated in Table 28, the 18 herds which ranked below the average of the whole group in all or all but one of these factors showed a return over feed of \$72.28 per cow. On the other hand the five herds which ranked above the average of the whole group in each of these five factors had twice as high a return over feed per cow, \$147.65. These data suggest that dairy returns could be very materially increased by more attention to these five management factors.

Table 28. Relation of Return Over Feed per Dairy Cow to the Number of Factors in Which Farmers Excelled

| No. of factors in which farmers excelled | No. of farms | The length of the line is proportional to the average return over feed per cow. | Average return over feed |
|--|--------------|---|--------------------------|
| None or 1 | 18 | XXXXXXXXXXXX | \$ 72.28 |
| 2 | 19 | XXXXXXXXXXXXXXXXXXXX | 87.79 |
| 3 | 20 | XXXXXXXXXXXXXXXXXXXXXXXXXXXX | 122.75 |
| 4 | 13 | XXXXXXXXXXXXXXXXXXXXXXXXXXXX | 142.57 |
| 5 | 5 | XXXXXXXXXXXXXXXXXXXXXXXXXXXX | 147.65 |

Table 29. Feed Costs and Returns from Chickens, 1947

| Items | Your farm | Average of 40 farms | 13 farms highest in returns above feed | 13 farms lowest in returns above feed |
|---|-----------|---------------------|--|---------------------------------------|
| Feed per hen, lbs: | | | | |
| Grain | _____ | 60 | 52 | 71 |
| Commercial feeds | _____ | 47 | 49 | 45 |
| Total concentrates | _____ | 107 | 101 | 116 |
| Skim milk and buttermilk | _____ | 10 | 22 | 7 |
| TOTAL FEED COST PER HEN | \$ _____ | \$3.99 | \$3.91 | \$4.27 |
| Value of produce per hen: | | | | |
| Eggs sold and used in house | \$ _____ | \$4.95 | \$6.21 | \$3.72 |
| Net increase in value of chickens | _____ | .32 | .72 | .29 |
| TOTAL VALUE PRODUCED | _____ | \$5.27 | \$6.93 | \$4.01 |
| RETURNS ABOVE FEED COST PER HEN | \$ _____ | \$1.28 | \$3.02 | \$-.26 |
| RETURNS FOR \$100 OF FEED | \$ _____ | \$143 | \$199 | \$95 |
| Price rec'd per doz. eggs sold (cents) | _____ | 41.3 | 41.2 | 39.7 |
| Eggs laid per hen | _____ | 154 | 180 | 138 |
| Ave. no. of hens on farm during the yr. | _____ | 98 | 116 | 55 |
| % of hens that are pullets | _____ | 58 | 59 | 56 |
| % of death loss of hens | _____ | 15 | 13 | 16 |
| Number of chicks put on feed | _____ | 149 | 272 | 73 |
| Price paid per 100 chicks purchased | _____ | \$23.86 | \$26.42 | \$25.99 |
| Pounds of poultry produced | _____ | 344 | 711 | 155 |

Table 30. Feed Costs and Returns from Hogs, 1947

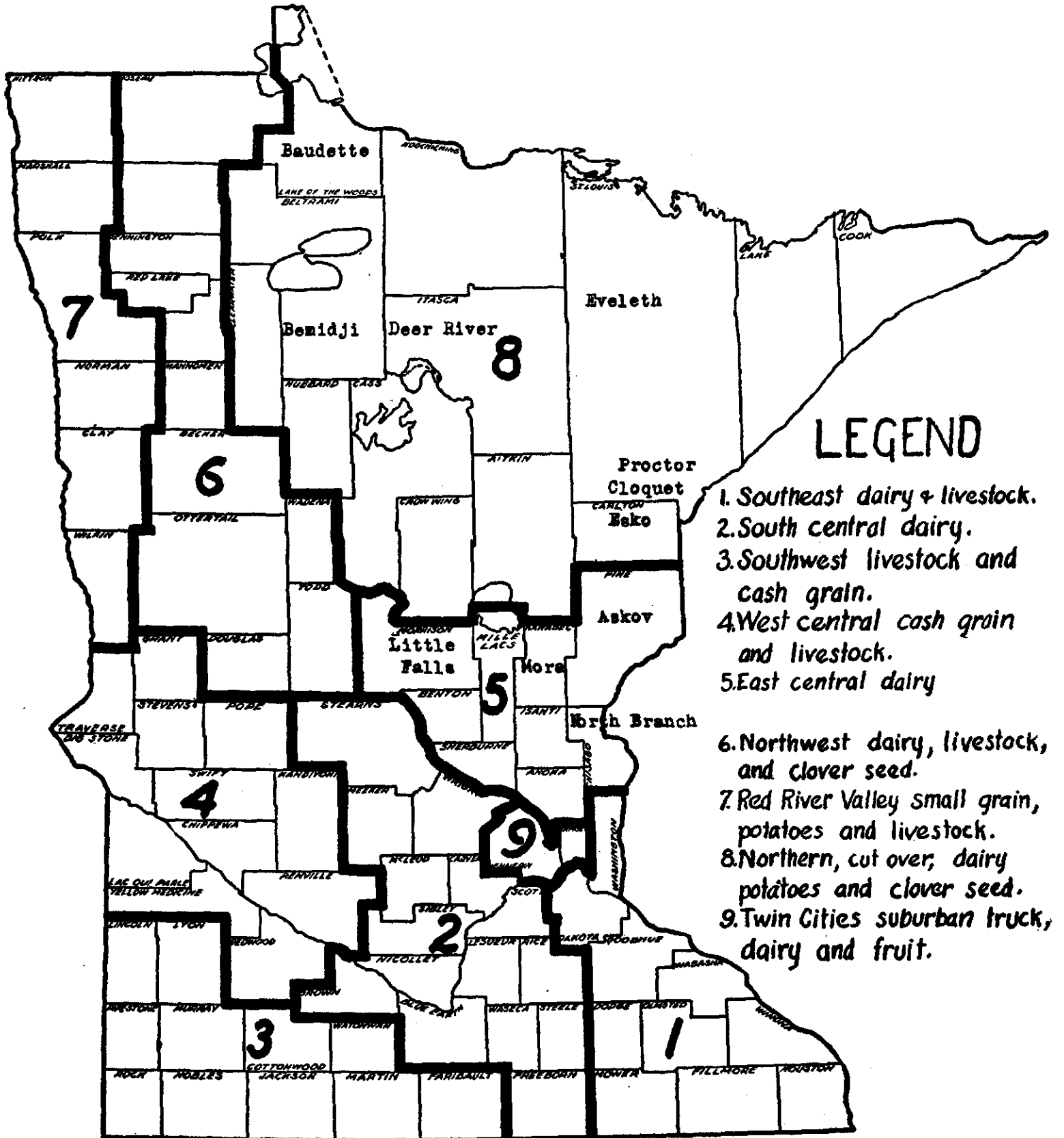
| Items | Your farm | Average of 23 farms | 11 farms highest in returns above feed | 11 farms lowest in returns above feed |
|---|-----------|---------------------|--|---------------------------------------|
| Feed per cwt. hogs produced, lbs.: | | | | |
| Corn and small grain | _____ | 414 | 273 | 570 |
| Commercial feeds | _____ | 104 | 72 | 146 |
| Total concentrates | _____ | 518 | 345 | 716 |
| Skim milk and buttermilk | _____ | 475 | 400 | 516 |
| Feed cost per cwt. hogs produced: | | | | |
| Concentrates | \$ _____ | \$14.88 | \$8.93 | \$21.55 |
| Skim milk and buttermilk | _____ | 1.19 | .71 | 1.55 |
| Pasture | _____ | .09 | .08 | .09 |
| TOTAL FEED COSTS | \$ _____ | \$16.16 | \$9.72 | \$23.19 |
| Net increase in val. per cwt. hogs prod. | \$ _____ | \$27.19 | \$27.20 | \$27.63 |
| RETURNS ABOVE FEED COST PER CWT. HOGS PROD. | \$ _____ | \$11.03 | \$17.48 | \$4.44 |
| RETURNS FOR \$100 OF FEED | \$ _____ | \$217 | \$308 | \$124 |
| Ave. weight per hog sold, lbs. | _____ | 113 | 106 | 102 |
| Price received per cwt. hogs sold | \$ _____ | \$27.75 | \$26.65 | \$29.42 |
| Nc. of spring litters raised | _____ | 2.3 | 2.4 | 2.1 |
| Nc. of fall litters raised | _____ | .4 | .4 | .5 |
| Total nc. of litters raised | _____ | 2.7 | 2.8 | 2.6 |
| Nc. of pigs born per litter | _____ | 8.2 | 7.8 | 8.8 |
| Nc. of pigs weaned per litter | _____ | 6.8 | 6.7 | 7.1 |
| Pounds of hogs produced | _____ | 2266 | 2401 | 2048 |

Table 31. Feed Costs and Returns from a Farm Flock of Sheep, 1947

| Items | Your farm | Average of 4 farms |
|----------------------------------|--------------|--------------------------|
| Feeds per head,* lbs.: | | |
| Concentrates | _____ | 8 |
| Legume hay | _____ | 272 |
| Other hay | _____ | 92 |
| Feed cost per head: | | |
| Concentrates | \$ _____ | \$.23 |
| Roughages | _____ | 2.21 |
| Pasture | _____ | .78 |
| TOTAL FEED COSTS | \$ _____ | \$3.22 |
| Value of produce per head: | | |
| Wool | _____ | \$2.03 |
| Net increase in value of sheep | _____ | 11.58 |
| TOTAL VALUE PRODUCED | \$ _____ | 13.61 |
| RETURNS ABOVE FEED COST PER HEAD | _____ | \$10.39 |
| RETURNS FOR \$100 OF FEED | \$ _____ | \$556 |
| Price per cwt. of lambs sold | \$ _____ | \$22.02 |
| Price per lb. wool sold (cts) | _____ | 37.6 |
| Pounds of wool per sheep sheared | _____ | 6.8 |
| Number of ewes kept for lambing | _____ | 15 |
| % lamb crop** | _____ | 109 |
| % death loss** | _____ | 5.9 |
| Pounds of sheep produced | _____ | 1530 |
| No. of head of sheep* | _____ | 20.4 |

*Two lambs under six months of age considered as one head.

**Lambs which die during month of birth are not included.



LEGEND

- 1. Southeast dairy & livestock.
- 2. South central dairy.
- 3. Southwest livestock and cash grain.
- 4. West central cash grain and livestock.
- 5. East central dairy
- 6. Northwest dairy, livestock, and clover seed.
- 7. Red River Valley small grain, potatoes and livestock.
- 8. Northern, cut over, dairy potatoes and clover seed.
- 9. Twin Cities suburban truck, dairy and fruit.

Fig. 1. Type-of-Farming Areas in Minnesota and Location of Schools Submitting Farm Records for this Report.