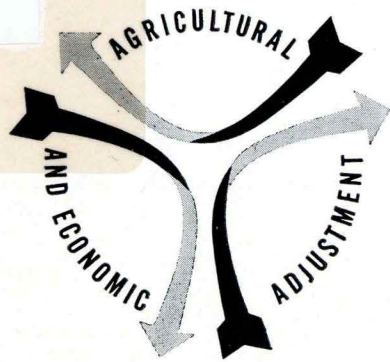


S  
61  
.R47  
No.502  
1962



# **Production, Income And Resource Changes From Farm Consolidation**

by Randall A. Hoffmann and Earl O. Heady  
Department of Economics and Sociology

Center for Agricultural and Economic Adjustment  
cooperating

---

**AGRICULTURAL AND HOME ECONOMICS EXPERIMENT STATION  
IOWA STATE UNIVERSITY of Science and Technology**

RESEARCH BULLETIN 502

FEBRUARY 1962

AMES, IOWA

IOWA STATE TRAVELING LIBRARY  
DES MOINES, IOWA

## CONTENTS

Summary .....	381
Introduction .....	383
Objectives .....	384
Method of procedure .....	384
Survey area .....	384
Identification of consolidations .....	384
Definitions .....	384
Source of data .....	385
Grouping for analysis purposes .....	385
Description of the farm consolidation process .....	385
Resource use and combination .....	385
Land resources .....	385
Labor resources .....	387
Machine resources .....	388
Fertilizer use .....	389
Total capital managed .....	390
Management and information sources .....	391
Production practices used .....	392
Resource combinations .....	393
Effects of consolidation on crop and livestock production .....	394
Crop production .....	394
Livestock production .....	396
Income aspects of farm consolidation and labor mobility .....	398
Expected income differentials .....	398
Estimated income requirements for accepting nonfarm employment .....	400
Knowledge and use of employment services .....	401
Knowledge of government employment services .....	401
Sources of employment assistance .....	401
Other related data .....	402
General characteristics of operators .....	402
Disposition of farm residences .....	403
Reasons for consolidation .....	403

## SUMMARY

The purpose of this study was to analyze the effect of farm consolidation on agricultural adjustment. The specific objectives of the study were to: (1) determine changes in resource use and combination brought about by the consolidation process, (2) analyze the effect of farm consolidation on agricultural output, (3) examine the effect of farm consolidation on the income expectations of operators whose farms were involved in consolidation, (4) analyze the economic and managerial characteristics of persons who leave farms and of operators who take over their land, (5) determine the characteristics of land and other physical resources involved in consolidation, (6) determine the income levels that would induce farm operators to accept non-farm employment and (7) examine farm operators' knowledge of government employment facilities and services.

Four counties in southwest Iowa—Fremont, Mills, Montgomery and Page—were selected as the survey area for this study. The study includes the complete population of farm consolidations within the four-county survey area. All consolidations took place following the 1956 crop year and were in effect during the 1957 crop year.

A total of 214 farm units were involved in the consolidations analyzed in this study. Ninety-nine farm units were absorbed by 115 other farm units. (Those farm units absorbed will be referred to as *merged* units; those 115 units which annexed them will be referred to as *adding* or *base* units.) After consolidation, the status of the 99 former operators was as follows: 23 had accepted nonfarm jobs outside of Iowa, 22 had shifted to nonfarm employment within Iowa, 10 had moved to farms of similar or smaller size, 19 had moved to larger farms, 20 had retired and 5 were deceased. Fifty of the adding operators owned more than half of the base farm unit, while the other 65 adding operators rented more than half of the base farm unit.

The average number of acres per farm in the survey area in 1956 was 207.7 acres. The average size of the merged units in the same year was 160.5 acres per farm, while base or adding units averaged 252.5 acres. After consolidation, the combined units averaged 390.2 acres per farm. Before consolidation, 17 percent of the 99 merged units were larger than the average farm size in the survey area, while 44.4 percent of the base units were larger than the survey area average. Following consolidation, 91.3 percent of the combined units exceeded the average farm size in the survey area.

Operators of base or adding units had used more labor, less custom work and a higher percentage of hired labor per unit than had operators of the farms which were merged. Operator labor had supplied a larger percentage of the total labor on merged units than it had on base units. Following consolidation, only 18.2 percent of the labor used on the merged units was replaced by labor added to the existing labor available on the base units. Consolidation of merged and base units resulted in a decrease of 31 percent in the total amount of labor used on the combined units following consolidation.

Operators of the farms which were merged had employed an average of \$2,930 of machine resources in 1956. The machine resources on base units had an average value of \$7,344 at that time. By July 1957, base-unit operators had made immediate changes in machine resources that represented a replacement of 38 percent of the total value of machine resources which had been used on merged units in 1956. Based only on the immediate machinery changes, the total value of machine resources used on the consolidated units in July of 1957 was 15.8 percent lower than the total value of machine resources used on merged and base units before consolidation. Base-unit operators also indicated that they planned to make future changes (within 3 years) in machine resources because of consolidation. The over-all effect of immediate and future machinery changes would replace 65.8 percent of the total value of machine resources which had been used on merged units in 1956. If the immediate and future machine changes of base-unit operators are combined, the total value of machine resources would decline by 8.6 percent following consolidation. Seventy-nine percent of the total value of immediate and planned machinery changes would result from added machinery, while 21 percent would result from replacement of existing equipment. Increased output, as indicated later, thus would be possible with fewer labor and machinery resources. The total required on the consolidated units would be less than for the separate units prior to the combination.

The average value of commercial fertilizer used in 1956 was \$208 per base unit and \$30 per merged unit. The value of commercial fertilizer used by base-unit operators on merged units increased to \$193 the first crop year following consolidation. Adding operators planned to increase commercial fertilizer use on the merged units to \$236 per unit in future years. The long-run plans of adding operators called for future fertilizer use on the consolidated units 75 percent greater than the total value of commercial fertilizer used on merged and base units before consolidation. In effect, then, fertilizer would be substituted for machinery and labor as consolidation took place, and output would be extended.

In 1956 the average value of total capital managed by operators of merged units was \$40,403, and that of adding operators was \$80,422. Following consolidation, the average total capital managed by adding operators increased to \$110,882. The total capital managed by one adding operator following consolidation was \$743,025. Operators of merged units had an average net worth of \$15,155 in 1956, while the average net worth of adding operators before consolidation was \$40,704.

The management characteristics of the operators were measured in terms of the number of farm information sources and production practices used. Larger percentages of adding operators had used the farm information sources and conducted soil tests than had the operators of merged units. Similar percentages of operators of merged and base units had sprayed for corn borers, seeded treated oats and vaccinated hogs.

The consolidation of merged and base units resulted in a 10-percent reduction in machinery investment per rotated acre. Because surplus machine capacity exists on many farms, base units were able to take over land from merged units without a proportional increase in machinery investment. Consequently, investment per acre was smaller after consolidation.

The largest change in resource combination following consolidation occurred in labor and land resources. The consolidated units used 32 percent less labor per acre than the average of merged and base units before consolidation. Since the reduction in labor was proportionally greater than the reduction in machinery investment, the machinery investment per man-hour of labor increased following consolidation.

Because drouth and hail reduced crop yields in the survey area during 1956, the reduced yields were adjusted upward to normal levels based on the previous 5 years. Adding operators expected to achieve yields 46.7 percent higher per acre than previous yields achieved on merged units by their former operators.

The value of adjusted crop production on merged units in 1956 was \$38 per acre. The value for base units was \$44 per acre. Following consolidation, the adding operators expected to increase the value of crop production on merged units to \$54 per acre. Based on the expectations of adding operators, the total value of crop production from the consolidated units would be 13.6 percent larger than the total value of adjusted crop production from merged and base units before consolidation. Hence, consolidation of farms and reduction in the total labor supply is expected to increase farm output from a given land area. This result is possible because of the practices resulting in higher yields and greater capital used by adding operators. Evidently, large changes can take place in number and size of farms and in magnitude of labor force, without causing output to decrease. In fact, because the operators remaining had higher average capital and managerial resources than those who give up farming, the process of consolidation actually tends to increase crop output under a given price level.

The average value of livestock production on merged units in 1956 was \$4,310. The average value on base units was \$10,871. Following consolidation, 69 percent of all adding operators planned to increase livestock production. It is doubtful, however, that the additional livestock production of the adding operators would be sufficient to offset the previous livestock production on the merged units. Adding operators who planned livestock increases would have to expand livestock production by 56 percent above 1956 levels to offset the previous livestock production.

The average 1956 farm income of operators whose units were merged and who were still employed following consolidation was \$1,595. Operators who had moved from farms and continued employment anticipated an average income of \$3,677 in 1957. The average anticipated income increased to \$4,212 for 1958. By 1961, all employed ex-operators expected to earn an average income of \$5,051, and they further estimated that they would have earned an average income of only \$2,639 in 1961 if they had remained to

farm their previous units. Adding operators received an average income of \$2,134 in 1956. Following consolidation they anticipated average incomes from the combined units of \$4,931 in 1957, \$5,468 in 1958 and \$6,233 in 1961. The adding operators estimated that nonfarm employment alternatives open to them would have returned average incomes of only \$3,994 in 1957 and \$4,637 in 1961.

The majority of operators who continued to farm following consolidation indicated that they would shift to nonfarm employment at some specified income level. The average income requirements for the proposed moves were from \$555 to \$4,900 larger than the average farm incomes expected by the farm operators in 1957. In addition, 29 percent of the farm operators said that they would not move, at any income level, to large cities more than 1,000 miles from the survey area. Resistance to the proposed moves was least for a move to an Iowa town of 5,000 population.

Relatives and friends were the most frequent sources of assistance used by the former operators of the merged units to obtain nonfarm employment. Seventeen percent of the operators who shifted to nonfarm employment contacted government employment offices for job assistance, but only 7 percent of them accepted jobs arranged by government employment offices.

The most frequent reasons given by operators for leaving the merged units were: (1) nonfarm jobs offered more immediate income, (2) poor health forced retirement or nonfarm employment, (3) the merged farm was too small or unproductive, and additional land could not be obtained nearby, and (4) retirement was caused by age. The most frequent reasons given by adding operators for expanding farm size through consolidation were: (1) additional land was needed to increase income, (2) additional land was needed to make more efficient use of machinery and equipment, and (3) the added land was farmed at the request of the owner.

Of all operators surveyed who had left farming, those who moved out of the state had had the largest amount of capital, used the best management practices and consulted the largest number of informational sources. In fact, this group of operators who moved to nonfarm employment at long distances were equal to or better with respect to management and knowledge than the operators who remained in farming. The better operators were motivated to quit farming and move to other locations and employment because of more favorable income expectations. Hence, it is not always the poorer managers who leave farming. Of the poorer managers who did quit farming, however, most found employment in nearby communities.

In total, however, it appears that the group of operators who remained in farming and who took over the units of those who left generally were the better managers and had more capital. From the same land area, that area operated previously plus that taken over from farmers who left, the adding operators would be expected to produce more crops than before consolidation. Hence, a reduction in number of farms and the amount of labor in agriculture is not predicted to decrease crop output in the area.

# Production, Income and Resource Changes From Farm Consolidation<sup>1</sup>

by Randall A. Hoffman and Earl O. Heady

Increasing attention has been focused upon the adjustment problem of agriculture during recent years. Although the national economy has generally expanded, farm income has declined. Evidence of agriculture's difficulties has appeared in the form of increased surpluses, lower farm prices, higher farm costs and lower farm incomes. Many solutions have been suggested for solving the "farm problem." The majority of these solutions fall within the general categories of sending more farm products abroad, eating more farm products at home, restricting farm production, finding new commercial uses for farm products and reducing the agricultural labor force through further farm consolidation or other size changes. This study examines the effect of consolidation on resource use and farm output for a particular group of Iowa farmers.

One of the major changes in farming over the past two decades has been an increase in the size of farms, accompanied by a decline in the number of farms and in the magnitude of the labor force in agriculture. As these changes give rise to consolidation of farm units and a general modification of the resource structure in agriculture, the following questions arise with respect to the magnitude of farm output and resource returns: As some operators leave agriculture and their land is taken over by remaining operators, is farm output likely to decline or increase? Given a recombination of resources following consolidation, how might the demand for and returns on particular classes of resources be affected? The analysis of this study is to provide detail relating to questions of this general type.

Farm consolidation is not a new process in Iowa. As shown in table 1, the total number of Iowa farms has declined at an increasing rate since 1940. Farm numbers declined by 2.1 percent from 1940 to 1945. The decline increased to 2.8 percent during the next 5 years and further increased to 5 percent for the period 1950 to 1954.

In the most recent period, 1955 to 1959, the decline in farm numbers reached 8 percent, based on the previous, or old, census definition of a farm unit. The definition of a farm unit was changed in 1959, and, under the new definition, the decrease would have been even larger.

The shift to fewer but larger farms in Iowa is apparent from the data in table 2. Although total farm numbers declined by 8 percent from 1955 to 1959, an increase took place in the number of farms in size groups of 260 acres and over. The size group of 220-259 acres remained almost the same—increasing by only 0.1 percent—while all size groups smaller than this group declined in farm numbers. The largest percentage change in the size groups was a 36.3-percent increase in the 500-999 acre size group. Farms of 1,000 acres and over increased by 27.3 percent from 1955 to 1959. Conversely, farms ranging in size from 70 to 139 acres declined by more than 20 percent. Although the farm numbers shown for 1959 conform to the new census definition of a farm, the major effect of the revised definition was to make the definition of farms under 10 acres more restrictive. For this reason, only farms of 10 acres and over are included in table 2.

The process of farm consolidation not only affects farm size, but also, in many instances, results in additional changes within the farm unit as well. For the United States as a whole, man-hours and commercial farm numbers declined from 1947-49 to 1955-57, but total farm output, output per man-hour and the number of tractors increased. Such changes in resource use

**Table 1. Total number of Iowa farms, 1940 to 1959.**

Year	Total Iowa farms	Percent change each 5 years
1940 (Apr.)	213,318 <sup>a</sup>	
1945 (Jan.)	208,934 <sup>a</sup>	-2.1
1950 (Apr.)	203,155 <sup>a</sup>	-2.8
1954 (Nov.)	192,933 <sup>a</sup>	-5.0
1959 (Nov.)	177,514 <sup>b</sup>	-8.0

<sup>a</sup> U.S. Bureau of Census. U.S. Census of Agriculture, 1954. Vol. 1, part 9:2, 3. 1956.

<sup>b</sup> U.S. Bureau of Census. U.S. Census of Agriculture, 1959. Preliminary. 1960.

**Table 2. Number of farms in Iowa by size grouping, 1954 to 1959.**

Size (acres)	(Nov.) 1954 <sup>a</sup>	(Nov.) 1959 <sup>b</sup>	Percent change from 1955 to 1959
10-49 acres	14,402	13,727	-4.7
50-69 acres	4,338	3,912	-9.8
70-99 acres	18,244	14,647	-20.7
100-139 acres	24,923	19,590	-21.4
140-179 acres	45,564	37,404	-17.9
180-219 acres	22,152	20,123	-9.2
220-259 acres	20,657	20,685	+0.1
260-499 acres	29,960	34,342	+14.6
500-999 acres	3,284	4,475	+36.3
1,000 acres and over	271	345	+27.3

<sup>a</sup> U.S. Bureau of Census. U.S. Census of Agriculture, 1954. Vol. 1, part 9:2, 3. 1956.

<sup>b</sup> U.S. Bureau of Census. U.S. Census of Agriculture, 1959. Preliminary. 1960.

<sup>1</sup> Project 1328 of the Iowa Agricultural and Home Economics Experiment Station.

and production are an important aspect of the role of farm consolidation in future agricultural adjustment.

## OBJECTIVES

Continuing surpluses and declining farm incomes have created an increasing interest in the adjustment problem of agriculture. The general objective of this study is to analyze the effect of farm consolidation on agricultural adjustment.

The more specific of objectives of the study are to (1) determine changes in resource use and combination brought about by the consolidation process, (2) analyze the effect of farm consolidation on agricultural output, (3) examine the effect of farm consolidation on the income expectations of operators whose farms were involved in consolidation, (4) analyze the economic and managerial characteristics of persons who leave farms and of operators who take over their land, (5) determine the characteristics of land and other physical resources involved in consolidation, (6) determine the income levels that would induce farm operators to accept nonfarm employment and (7) examine farm operators' knowledge of government employment facilities and services.

The specific objectives of the study provide a framework for examining the effect of farm consolidation on agricultural adjustment. It is hoped that this study will provide a better understanding of the role of farm consolidation in the adjustment process of agriculture.

## METHOD OF PROCEDURE

### Survey Area

The four counties of Fremont, Mills, Montgomery and Page in southwest Iowa were selected as the survey area for two reasons. First, a large decline in farm numbers since 1952 suggested a high rate of farm consolidation. Second, a major portion of the farmland in each county is represented by Marshall silt loam and associated soils. More than three-fourths of all farmland in the survey area is within the Marshall soil association. The predominance of one soil association in the survey was desired to reduce the influence of soil differences on the results of the study. The four-county survey area was the only contiguous area in Iowa that provided a predominant soil association and a high rate of decline in farm numbers.

Three of the four counties in the survey area have consistently had a high percentage decline in farm numbers. Fremont, Mills and Page counties ranked among the top 10 Iowa counties in the percentage decline in farm numbers during the 3-year period, 1952-55. The 10 Iowa counties with the highest percentage decline are shown in table 3. The decline in Mills County was the highest of all Iowa counties. Fremont County ranked fourth, and Page County ranked tenth during the same period. Although Montgomery County did not rank among the top 10 counties, the percentage decline in farm numbers was well above the average of all counties.

**Table 3. Iowa counties have the highest percentage decline in farm numbers from 1952 to 1955.<sup>a</sup>**

County	Percent decline in farm numbers	Rank among Iowa counties
Mills	10.7	1
Warren	9.9	2
Polk	9.8	3
Fremont	9.2	4
Decatur	8.8	5
Harrison	8.5	6
Ringgold	8.5	7
Linn	8.5	8
Davis	7.8	9
Page	7.6	10
All counties	2.9	

<sup>a</sup> Iowa Division of Agricultural Statistics, Iowa Assessors Annual Farm Census, 1956:9-27, 1957.

## Identification of Consolidations

The study includes the complete population of farm consolidations within the four-county survey area. All consolidations took place following the 1956 crop year and were in effect during the 1957 crop year. Identification of farm consolidations within the survey area required considerable time before initiation of the survey. A satisfactory method of identification was achieved with the assistance of township assessors and Agricultural Stabilization and Conservation committeemen. All farm units involved in the consolidations pointed out by the cooperators were recorded on individual location cards. Information recorded on each card included the county, township and section location of the farm and the name and current address of the operator. All probable consolidations suggested by the cooperations were checked for validity by personal contact with the operators involved. Further, each operator interviewed during the survey was asked to point out additional consolidations which might have been overlooked. This method of identification appeared to provide an accurate determination of consolidations within the survey area.

## Definitions

To delimit the analysis, it was necessary to establish a set of consolidation definitions. Only consolidations which fulfilled the following definitions were considered for final analysis:

(1) The "consolidation period" covered was limited to 1 year, to include consolidations which occurred following the 1956 crop year and were in effect during 1957. By thus limiting the "consolidation period" it was possible to contact all living operators of the farm units involved.

(2) A "farm consolidation" was defined as having occurred when a farm unit disappeared entirely as an independent operation because of a merger with one or more other farm units. The survey was limited to consolidations which resulted in total combined farm units of 70 acres or more following consolidation.

(3) A "realignment" was said to have occurred when two or more independent farm units were involved in a reorganization of farmland and continued to be operated as independent units. Realignments were not included as observations in the study.

(4) A "farm unit" is, for purposes of this study, an entrepreneurial unit. The definition considers partnerships of two or more individuals and/or tracts of land as one unit, providing such combinations are operated and managed as a single unit.

(5) A "merged unit" or "disappearing unit" is a farm absorbed by one or more adding units through consolidation.

(6) An "adding unit" or "base unit" is the farm unit which annexes or affixes a merged unit in a farm consolidation. In consolidations involving more than one annexing unit, all annexing units are considered as "base units," or "adding units." Operators of adding units are referred to as "adding operators" or "base-unit operators."

### Source of Data

The data used in this study were obtained by personal interview and mail questionnaire. Operators of both merged and adding units living within or near the survey area were interviewed personally. In some instances, operators of merged units had moved considerable distances from the survey area. Information from them was obtained by mail questionnaires.

Because of the length of the questionnaire, each operator contacted by mail was offered \$5 for completing the questionnaire. Thirteen of the 24 operators contacted by mail returned completed questionnaires after the first letter. Six additional questionnaires were returned after a second letter. Personal long distance calls were made to three of the five remaining operators, and their questionnaires were promptly returned. The two remaining operators who had not responded to the questionnaire were not listed in telephone directories. A final attempt was made to obtain information from these operators through use of a registered letter with return receipt requested. Signed receipts were received, but the questionnaires were not returned.

### Grouping for Analysis Purposes

Preliminary observation of questionnaires indicated that merged units logically fit into the following groups: (1) merged units whose former operators were employed in nonfarm jobs outside Iowa; (2) merged units whose former operators were employed in nonfarm jobs within Iowa; (3) merged units whose former operators were farming other farms of similar size or smaller; (4) merged units whose former operators were farming larger farms; (5) merged units whose former operators had retired; and (6) merged units whose former operators were deceased.

The grouping of adding or base units for analysis purposes was based on ownership of the base-farm unit. Adding units were divided into two groups: (1) adding units whose operators owned 50 percent or more of the base unit and (2) adding units whose operators rented more than 50 percent of the base unit. Base units whose operators owned more than half of the land resource are referred to in later discussions as "owned base units."

## DESCRIPTION OF THE FARM CONSOLIDATION PROCESS

A total of 214 farm units were involved in consolidations analyzed in this study. Ninety-nine merged farm units were absorbed by 115 adding farm units.

Although 84 of the farm consolidations were a result of a simple combination of one merged unit and one adding unit, multiple combinations occurred in 15 consolidations. The various ways that merged units were absorbed by adding units are shown in table 4. Twelve multiple combinations resulted from one merged unit being absorbed by two adding units. Further instances of multiple combination occurred through the combining of one merged unit with three adding units and through the absorption of one merged unit by four adding units. The remaining consolidation was more complicated since a single adding unit absorbed one entire merged unit and part of another merged unit.<sup>2</sup>

**Table 4. Farm combinations resulting from farm consolidation, 1957.**

Consolidation combinations	Number of combinations
One merged unit combined with one adding unit	84
One merged unit divided between two adding units	12
One merged unit divided among three adding units	1
One merged unit divided among four adding units	1
One merged unit and part of another merged unit combined with one adding unit	1

Although multiple combinations do occur frequently, it appears that the majority of farm consolidations result from a simple combination of one merged unit and one adding unit.

The data in table 5 show the breakdown of merged units with operator status following consolidation used as the basis for grouping. Adding units were grouped on the basis of operator ownership. Results indicated that 50 adding operators owned more than half of the base unit, while 65 adding operators rented more than half of the base unit.

**Table 5. Merged farm units grouped on the basis of former operator's status following consolidation.**

Operator status following consolidation	Number of merged farm units
Nonfarm job outside Iowa	23
Nonfarm job in Iowa	22
Farm operator—operating a unit the same size or smaller than the merged unit	10
Farm operator—operating a unit larger than the merged unit	19
Retired	20
Deceased	5

## RESOURCE USE AND COMBINATION

Consolidation not only alters farm size, but also affects the resource combinations used in farming. The purpose of this section is to describe resource use and resource combination before and after consolidation.

### Land Resources

Nearly 4 percent of all farmland in the survey area was involved in consolidations during 1956. Merged units with land resources of 15,892 acres were absorbed by adding units consisting of 29,041 acres.

### Merged-Unit Land Resources

The average size of merged units before consolida-

<sup>2</sup> An interesting case of a multiple combination of farms was noted in the survey area. Nine farm units began farming nearly 1,000 acres of a tenth farm of over 1,100 acres. Since the nine farms did not absorb all of the land resource of the tenth farm, the combination does not meet the requirements of a farm consolidation and is not included in this study.

tion was 160.5 acres, a size considerably smaller than the 207.7-acre average of all farms in the four-county area. Differences in farm size among the groups of merged units are shown in table 6. Operators who were retiring had operated units with an average size of only 124.4 acres. The former operators who moved to larger farms had operated units with the largest average farm size of all merged groups. None of the groups of merged units approached the average size of all farms in the survey area. Only 17 percent of the merged units were larger than the survey area average of 207.7 acres.

**Table 6. Farm size and ownership of merged units on the basis of former operator's status following consolidation.**

Farm size and ownership	Operator status						All merged units
	Nonfarm outside Iowa	Nonfarm within Iowa	Same size or smaller farm	Larger farm	Re-tired	De-ceased	
Total acres farmed	4,209	3,142	1,652	3,536	2,488	865	15,892
Av. size of farm (acres)	183.0	142.8	165.2	186.1	124.4	173.0	160.5
Av. number acres owned	41.6	25.2	30.8	48.4	94.1	173.0	55.4
Av. number acres rented	141.4	117.6	134.4	137.7	30.3	0.0	105.1
Percent of total acres owned	22.7	17.6	18.6	26.0	75.7	100.0	35.2

Operators of merged units had owned 35.2 percent of all merged land consolidated; however, the proportion of land which had been owned by the different groups of operators, when grouped according to their occupational status after consolidation, varied from 17.6 percent to 100 percent, as shown in table 6. Deceased operators of merged units had owned all of the land resource, and retired operators had owned 75.7 percent of the land resource. The remaining four groups of former operators of merged units had owned from 17.6 percent to 26 percent of the land resource. Since 46.2 percent of all land in the survey area was owned by farm operators, the four groups of former operators of merged units who were not deceased or retired had owned a much smaller proportion of the land resource than had all farmers in the survey area.

Further description of the merged-unit land resource is provided by productivity ratings supplied by the former operators (table 7). These operators rate 57.5 percent of the land as average and 27.2 percent as above average. Only 13.5 percent of the merged land was rated below average. The remaining 1.8 percent of the land was rated as very poor.

#### Base-Unit Land Resources

The average size of base units involved in consolidation was 252.5 acres, or 57 percent larger than the average size of merged units and 21.5 percent larger than the average farm size in this survey area, as shown in table 8. Examination of the size distribution of base units showed that 44.4 percent were larger than the average farm size in the survey area. (Only 17 percent of the merged units were larger than the area average.) Farms of 160 or more acres constituted 80.9 percent of all base units and only 50 percent of merged units. Little difference in average

**Table 7. Productivity of merged farmland as rated by its former operators, grouped on the basis of status following consolidation.**

Productivity rating	Operator status						All merged units
	Nonfarm outside Iowa	Nonfarm within Iowa	Same size or smaller farm	Larger farm	Re-tired	De-ceased <sup>a</sup>	
Very poor (%)	0	3.8	0	2.3	0	9.2	1.8
Below av. (%)	16.6	26.1	0	4.5	3.4	44.5	13.5
Average (%)	59.0	45.9	49.6	71.6	58.8	46.3	57.5
Above av. (%)	24.4	24.2	50.4	21.5	37.8	0	27.2

<sup>a</sup> Productivity rating provided by adding operators.

**Table 8. Farm size and ownership of base units.**

Farm size and ownership	Owned base units	Rented base units	All base units
Total acres farmed	12,719	16,322	29,041
Average size of farm	254.4	251.1	252.5
Average number of acres owned	239.4	20.9	115.9
Average number of acres rented	15.0	230.2	136.6
Percent of total acres owned	94.1	8.3	45.9

farm size existed between base units which were mostly owned by the operators and base units which were primarily rented by the operators. Considerable difference existed, however, between the farm-size distributions for the two groups of adding operators—owners and renters. Less than 10 percent of the rented base units were smaller than 160 acres, while 32 percent of the owned base units were smaller than 160 acres. Further, more than 50 percent of the rented base units were larger than the 207.7-acre average farm size for the survey area, while only 36 percent of the owned base units exceeded this figure. Operators of base units owned 45.9 percent of their land, or nearly the same as the survey area average of 45.5 percent.

Nearly all of the land resource of base units was rated as average or above by the adding operators. Less than one was rated below average, and none was rated as very poor. Adding operators classified 39.9 percent of the base-unit land above average and 59.9 percent as average. Suggested differences in land productivity between owned base units and rented base units are shown in table 9.

**Table 9. Land productivity of base units as rated by adding operators.**

Productivity rating	Operators of:		All base units
	Owned base units	Rented base units	
Very poor (%)	0.0	0.0	0.0
Below average (%)	0.0	0.4	0.2
Average (%)	51.2	66.7	59.9
Above average (%)	48.8	32.9	39.9

#### Land Reorganization Following Consolidation

Farm consolidation has a great effect on the size of farm units. Consolidation with merged units increased the land resource of base units by 54.7 percent. This resulted in an average consolidated unit of 390.2 acres. Owned base units increased to an average consolidated unit of 393.7 acres, and rented base units increased to an average consolidated size of 388.5 acres. The effect of consolidation on farm size is further indicated by the change in farm-size distribution following consolidation. Before consolidation, only 44.4 percent of



all base farm units were larger than the 1956 survey area average of 207.7 acres. Following consolidation, 91.3 percent of the consolidated units exceeded the 1956 survey area average.

Nearly 70 percent of the merged land acquired by all adding operators was rented. Operators of rented base units acquired 81.8 percent of the merged land through rental agreements. Operators of owned base units rented only 53.3 percent of the merged land. The remaining merged land was either purchased or owned prior to consolidation.

The productivity of merged land as rated by adding operators is shown in table 10. Operators of owned base units rated 27.1 percent of the absorbed land as above average. Only 9 percent of the absorbed land was rated as above average by operators of rented base units. It thus appears that operators of owned base units absorbed a higher percentage of above-average land than did operators of rented base units. When table 10 is compared with table 7 it is apparent that adding operators rated merged land somewhat lower than did the former operators of the land.

**Table 10. Productivity of merged farmland as rated by adding operators.**

Productivity rating	Operators of:		
	Owned base units	Rented base units	All base units
Very poor (%)	3.4	2.9	3.1
Below average (%)	17.1	19.1	18.2
Average (%)	52.4	69.0	61.8
Above average (%)	27.1	9.0	16.9

Forty-four percent of all base units were located adjacent to absorbed merged units. Nonadjacent merged units were an average distance of 5.6 miles from the absorbing base units. The location of nonadjacent merged units varied from 0.5 mile to 30 miles from the absorbing base units.

The expectations of adding operators for continued operation of the merged units are shown in table 11. Six percent of the adding operators expected the consolidation to be in effect for only 1 year. An additional 9.6 percent planned to farm the merged land from 2 to 5 years, and 32.1 percent indicated that they planned to operate the absorbed land more than 5 years. The remaining 52.2 percent planned to farm the absorbed land as long as the lease was renewed. Thus, it appears that a large majority of the adding operators considered the absorbed land as a part of their long-run plans.

**Table 11. Expectations of adding operators for continued operation of merged units.**

Expectation period	Operators of:		
	Owned base units	Rented base units	All base units
1 year (%)	6.1	6.1	6.1
2 to 5 years (%)	12.1	7.7	9.6
More than 5 years (%)	47.8	20.0	32.1
Long as lease renewed (%)	34.0	66.2	52.2

### Labor Resources

The labor resources of farm units involved in consolidation are described in this section in terms of operator labor, family labor and hired labor. In part-

nerships, the labor of both partners is considered as operator labor. The utilization of labor is discussed in terms of man-hours worked per year. Excluding all Sundays<sup>a</sup> and five holidays, a year of average 8-hour work days would total 2,456 man-hours.

### Merged-Unit Labor Resources

As shown in table 12, an average of 2,775 man-hours were used per merged farm before consolidation. Operator labor supplied more than three-fourths of all labor used on the merged units. Operators who moved to larger farms after consolidation had averaged the largest number of man-hours of operator labor on their former units. Operators of merged units who retired or found nonfarm jobs in Iowa had averaged the least number of operator man-hours of all merged groups. These two groups of operators had averaged less than 6 hours of work per day on the merged units. Many of the former operators who found nonfarm jobs in Iowa had part-time jobs before consolidation. The part-time jobs held by these operator provide some explanation of the low average number of hours worked on the merged units.

Family labor had contributed an average of 1.4 hours of work per day on all merged units before consolidation. Hired labor had supplied less than 1 percent of the total. It had been, however, an important source of labor on merged units whose operators subsequently retired or moved to larger farms amounting to 17 percent of total labor for the former and 7 percent for the latter. Custom work had been hired to replace labor and machinery on an average of 30.5 acres of all merged units, nearly half this being for corn picking.

**Table 12. Labor and custom hire used on merged units 1956 when grouped according to the status of the former operators.<sup>a</sup>**

Labor use and custom hire	Operator status					
	Nonfarm outside Iowa	Nonfarm within Iowa	Same size or smaller farm	Larger farm	Retired	Merged unit
Hours of labor used per unit						
Operator	2,489	1,801	2,543	2,632	1,750	2,274
Family	356	670	272	562	221	481
Hired	11	2	7	228	390	178
Total	2,856	2,473	2,822	3,422	2,361	2,933
Acres of custom work hired per unit						
Plowing	0.6	0.0	0.0	0.8	8.1	2.6
Cultivating	0.0	0.0	0.0	0.0	8.1	1.1
Combining	14.6	3.3	3.3	2.3	3.8	6.3
Picking	20.2	15.2	6.6	2.8	21.7	14.6
Baling	10.7	4.0	14.7	3.4	3.8	6.3
Total	46.1	22.5	24.6	9.3	45.5	30.9

<sup>a</sup> Information concerning merged units whose operators were deceased was not available.

### Base-Unit Labor Resources

Labor used on base units, totaling 3,901 hours year, had been 41 percent greater than the amount used on merged units. Sixty-nine percent all labor on the base units had been supplied by operators. Family labor had provided 15 percent, 16 percent had been hired. A comparison of labor used on rented base units and owned base units is shown in table 13. Operators of the latter had averaged fewer man-hours of operator labor and family labor than had operators of rented base units. Operators of the owned base units had averaged more hired labor, however, than had the operators of re-

**Table 13. Labor and custom hire used on base units in 1956.**

Labor use and custom hire	Owned base units	Rented base units	All base units
Hours of labor used per unit			
Operator .....	2,644	2,759	2,709
Family .....	562	585	575
Hired .....	763	507	617
Total .....	3,968	3,851	3,901
Acres of custom work hired per unit			
Plowing .....	0	1.2	0.7
Cultivating .....	0	1.5	0.9
Combining .....	4.7	3.9	4.3
Picking .....	8.9	2.5	5.2
Baling .....	5.4	2.3	3.6
Total .....	19.0	11.5	14.7

base units. Operators of base units had hired custom work for an average of 14.7 acres per farm, the majority being for picking, baling or combining.

#### Labor Reorganization Following Consolidation

Reorganization of labor resources following consolidation occurred in several ways. Operators of merged units found nonfarm employment, rented other farms, retired or were deceased. Operators of adding units replaced the labor resource of the former operators of the merged units by hiring additional labor, increasing the amount of custom work hired and giving up part-time jobs. Also, adding operators substituted some machinery for labor, a process described in a later section.

As a result of consolidation, 274,449 hours of labor were "removed" from the merged units by operators who left these farms. Adding operators replaced the 274,449 hours of "removed" labor with only 50,806 hours of labor. Hence, only 18.2 percent of the labor was replaced as farms were merged, three-fourths of this being in the form of hired help. Fifteen percent of the adding operators gave up part-time jobs because of the consolidations. Half of all adding operators did not replace any of the labor on the merged units (i.e., they neither hired labor nor gave up part-time jobs).

The total labor used on both merged and base units in 1956 was 723,507 hours. Total labor utilized on the consolidated units is estimated at 499,507 hours. Hence, consolidation resulted in an estimated 31-percent decrease in the total labor used on the combined units.

Adding operators replaced only 34 percent of the custom work hired on merged units in 1956. This represents a decline of 53 percent in the total number of acres of custom work hired. Evidently, operators of adding units had enough surplus capacity in machinery to allow this substitution.

#### Machine Resources

This section describes the machine resources used on merged and base units before consolidation and the changes which occurred as a result of consolidation.

#### Merged-Unit Machine Resources

Former operators of merged units had employed an average of \$2,930 of machine resources in 1956, the amount ranging from \$200 for horsedrawn equipment to \$10,500 for a complete set of machinery. Those mov-

ing to larger farms had used an average of \$4,632, while those retiring had had an average of only \$1,860 invested in machinery before consolidation. Results of this study indicated that a large amount of the machinery used by the ex-operators was well depreciated; 78 percent of these operators had had machinery investments of less than \$5,000.

#### Base-Unit Machine Resources

The machine resources used on base units in 1956 had had an average value of \$7,344, two and a half times greater than the value of machine resources on merged units. The base-unit machinery investment varied from a low of \$500 to a high of \$35,000. Forty-one percent of the base-unit operators had had a machinery investment of less than \$5,000, while 37 percent had had machinery valued above \$7,500.

#### Machine Resource Changes

Fifty-two percent of all adding operators had made changes in their machine resources by the time of the survey. The increased machine investment was \$107,-460 for all adding operators, or \$934 per farm (see table 14). Rented base-unit operators increased machine investment by \$1,071 per operator, while the figure for owned base-unit operators was only \$757. Acquisition of additional equipment accounted for 81.5 percent of the increase in machine investment. The remaining 18.5 percent of the machinery increase resulted from trading in old machinery for new equipment. The increased machine investment at the time of the survey represents an immediate replacement of 38 percent of the value of machine resources formerly used on the merged units. The value of machine resources on the consolidated units at the time of the survey was 15.8 percent lower than the total value of machine resources on merged and base units before consolidation.

Adding operators expected to further increase machinery investment by \$80,805, an average of \$703 per operator. Seventy-six percent of the further increase was expected to be in added machinery. The remaining 24 percent was expected to result from

**Table 14. Number and value of machinery changes in effect by adding operators at the time of the survey.**

Type of machine	Number added	Number replaced	Value of changes <sup>a</sup>
Tractors			
2-prow .....	14	2	\$28,320
3-prow .....	9	4	31,510
Planters and listers			
2-row .....	2	1	860
4-row .....	5	2	3,290
Cultivators			
2-row .....	5	2	2,465
4-row .....	6	2	4,165
Combines			
.....	3	1	5,190
Compickers			
1-row .....	1	0	1,050
2-row .....	3	0	3,060
Plows			
.....	6	3	2,900
Disks			
.....	6	3	2,150
Harrows			
.....	2	0	200
Drills			
.....	4	0	1,720
Mowers			
.....	5	1	1,640
Rakes			
.....	1	4	1,850
Balers			
.....	3	1	6,650
Choppers			
.....	1	0	900
Spreaders			
.....	3	0	1,490
Wagons and trailers			
.....	6	0	2,400
Racks			
.....	1	0	125
Trucks and pickups			
.....	2	1	3,500
Misc. machines			
.....	6	1	2,025
Total value of machinery changes			\$107,460

<sup>a</sup> Only the added value above the trade-in allowance is included as a change in value for the replaced machinery.

**Table 15. Number and value of machinery changes expected within 3 years following the survey.**

Type of machine	Number added	Number replaced	Value of changes <sup>a</sup>
Tractors			
2-prow	2	1	\$ 5,780
3-prow	7	2	25,170
Planters and listers			
2-row	5	0	1,380
4-row	1	3	1,520
Cultivators			
2-row	2	1	1,050
4-row	4	4	4,600
Combines	5	3	10,850
Compickers			
1-row	1	0	1,050
2-row	6	4	15,575
Plows	5	1	2,105
Disks	2	0	600
Harrows	1	0	100
Drills	3	0	1,800
Mowers	2	0	900
Rakes	0	0	0
Balers	1	0	2,200
Choppers	0	0	0
Spreaders	4	0	2,000
Wagons and trailers	1	0	400
Racks	1	0	125
Trucks and pickups	1	0	3,000
Misc. machines	1	0	600
Total value of machinery changes			\$80,805

<sup>a</sup> Only the added value above the trade-in allowance is included as a change in value for replaced machinery.

trading in old machines for new ones. The numbers and types of future machinery changes are summarized in table 15 for base farms. Of course, the additions would be offset by the fact that all machines formerly used on the merged units would have been liquidated or sold.

The over-all effect of immediate and future machinery changes would increase the machinery investment of adding operators by \$188,265, or \$1,637 per operator. This over-all value of machinery changes by adding operators would replace 65.8 percent of the machinery investment on the merged units before consolidation. The total machinery investment on both merged and adding units prior to consolidation was \$1,131,122. If both immediate and planned machinery increases are added to the original machinery investment of base-unit operators, the resulting machinery investment would total \$1,033,379, a decrease of 8.6 percent in the total value of machine resources employed on the consolidated units. Excluding all replacement trade-ins, the machinery investment would decline by 12.1 percent following consolidation.

One important aspect of the over-all change in machinery resources was an emphasis on increased machine capacity. Five adding operators had changed, or planned to change, from 2-row to 4-row planting equipment. Six of the adding operators had changed, or planned to change, from 2-row to 4-row cultivating equipment. Further, three adding operators planned to change from 1-row to 2-row corn pickers. Since fewer man-hours of labor are required per acre with larger equipment, a change to larger equipment reflects a substitution of capital for labor.

## Fertilizer Use

Application of commercial fertilizer on farm units represents the use of one form of capital by farm operators. The use of commercial fertilizer on merged and adding farm units in 1956 is described in this section. Fertilizer use on the combined units following consolidation also is compared with total fertilizer use before consolidation on both merged and adding units. Apparently, from these comparisons, and those for machinery, consolidation results in less capital used for machinery and more used for fertilizer and related investment. The aggregate effect is a reallocation of capital in agriculture, with the net effect being a greater output from a given land area.

### Fertilizer Use on Merged Units

Fertilizer used by operators of the merged farms averaged \$29.83 in 1956. Those who moved to nonfarm jobs outside Iowa had used the largest amount of fertilizer, \$61.91 (table 16). Those who moved to farms of similar or smaller size had used no commercial fertilizer at all. The group who shifted to nonfarm jobs in Iowa had used only \$1.18 worth of fertilizer per farm.

Commercial fertilizer had been applied on only 6.2 percent of the rotated farmland of all merged units. The former operators who retired after consolidation had had the highest percentage, 12.3 percent, of rotated farmland fertilized. However, this group had used only \$3.02 of fertilizer per acre fertilized, compared with an average fertilizer expenditure on all merged units of \$4 per acre. Only 0.5 percent of the rotated farmland of former operators who shifted to nonfarm jobs in Iowa had been fertilized. None of the land of operators who moved to similar or smaller sized farms had been fertilized. Former operators who moved to nonfarm jobs outside Iowa not only had used the largest amount of commercial fertilizer but also ranked second among the former operators in the percentage of rotated acres fertilized and in the value of fertilizer use per acre fertilized before consolidation. As is indicated later, operators who quit farming and moved out of the state evidently were some of the better managers in the four-county area.

### Fertilizer Use on Base Units

Operators of base units had used an average of over \$208 in fertilizer per base unit during 1956. This value per farm is seven times larger than that used on merged units before consolidation. Operators of owned base units had used \$265 of fertilizer per farm, while those with rented base units had used \$170.

Operators of base units had used commercial ferti

**Table 16. Fertilizer use on merged units in 1956.**

Fertilizer use	Status of former operators						All merged units
	Nonfarm outside Iowa	Nonfarm within Iowa	Same size or smaller farm	Larger farm	Retired	Deceased <sup>a</sup>	
Total value of fertilizer used (\$)	1,424	26	0	580	716	208	2,954
Average value used per farm (\$)	62	1	0	31	36	42	30
Average value used per acre fertilized (\$)	4.56	2.60	0	4.57	3.02	4.00	4.00
Percent of rotated acres fertilized (%)	9.3	0.5	0	5.1	12.3	7.5	6.2
Acres fertilized per farm (A.)	13.6	0.5	0	6.7	11.9	10.4	7.5

<sup>a</sup> Fertilizer data on merged units whose operators were deceased was provided by adding operators.

lizer on 15.3 percent of the rotated land, compared with only 6.2 percent for merged units. Operators who owned base units had used commercial fertilizer on 19.8 percent of all rotated land, while operators of rented base units had used commercial fertilizer on 11.7 percent. Operators of rented base units had used \$7.50 worth of fertilizer per acre fertilized, however, compared with only \$6.39 used by operators of owned base units for each acre fertilized.

#### Fertilizer Use Following Consolidation

Fertilizer use on merged units in 1957 is shown in table 17. The value of fertilizer used per merged farm increased from \$29.83 in 1956, the last year of operation by managers leaving the farm, to \$192.87 the first crop year following consolidation. Following consolidation, 26.9 percent of the total rotated acres of the merged units was fertilized, compared with only 6.2 percent fertilized in 1956 before consolidation. The value of fertilizer used per fertilized acre increased from \$4 in 1956 to \$6 in 1957.

The plans of adding operators for future use of fertilizer on the merged units are also shown in table 17. Adding operators planned to use an average value of \$236 of fertilizer on merged farm acreages after 1957, with fertilizer to be used on 32.3 percent of the rotated acres of merged units. Only 6.2 percent of the rotated farmland on merged units had been fertilized before consolidation.

The total value of fertilizer used on combined merged and base units in 1957 was \$43,051, compared with only \$26,911 in 1956—an increase of 60 percent. Further, the long-run plans of adding operators called for future fertilizer use on the combined units to be 75 percent greater than that before consolidation. The fact that adding operators planned to use much more fertilizer on the absorbed units than the previous operators had used indicates one reason why consolidation promises to increase total output from a

given land area in the four counties. The adding operators undoubtedly planned to use more fertilizer and related resources on the land previously used by others because of their greater management skills and knowledge and because of their more favorable capital position.

#### Total Capital Managed

This section deals with the total capital used before and after consolidation. The comparison is made to determine whether an exodus of labor from farming and whether fewer but larger farms will result in an increase or decrease in the total capital used in farming.

#### Total Capital Managed by Former Operators

The average value of total capital managed by operators of merged units in 1956 was \$40,403. Land value comprised 80.4 percent of the total capital managed, while machine resources represented 7.3 percent, and livestock represented 4.7 percent. Comparisons of the total capital managed by the different groups of former operators of merged units are shown in table 18. The group of operators who moved to farms of similar size or smaller had managed the largest amount of total capital per farm. Total capital managed by operators who shifted to nonfarm jobs outside Iowa had been slightly less than that of the operators who moved to similar or smaller sized farm units. Former operators who found nonfarm jobs in Iowa had had the smallest amount of capital.

"Total capital managed" includes the value of all assets directed by the farm operator but does not consider ownership of these assets. Table 18 also shows the average value of all assets that had been owned by the former operators. Operators who retired had had the greatest total assets, while those

Table 17. Fertilizer use on merged units following consolidation.

Fertilizer use	Status of former operators						All merged units
	Nonfarm outside Iowa	Nonfarm within Iowa	Same size or smaller farm	Larger farm	Retired	Deceased	
Fertilizer use in 1957							
Total value of fertilizer used	\$5,923	\$4,092	\$1,671	\$2,472	\$4,475	\$461	\$19,094
Av. value used per merged unit	257	186	167	130	224	92	193
Av. value used per acre fertilized	7.32	5.99	5.51	4.26	7.06	2.56	5.99
Percent of rotated acres fertilized	25.8	32.0	23.7	21.0	33.2	28.0	26.9
Long-run planned fertilizer use							
Total value of fertilizer used	\$6,483	\$6,055	\$1,985	\$3,412	\$4,947	\$461	\$23,343
Av. value used per merged unit	282	275	199	180	247	92	236
Av. value per acre fertilized	6.94	6.26	5.30	4.36	6.33	2.56	5.81
Percent of rotated acres fertilized	28.13	41.81	28.45	27.28	40.48	26.47	32.34

Table 18. Average total capital and net worth of operators of merged units in 1956.<sup>a</sup>

Assets and liabilities	Operator status after consolidation						All merged operators
	Nonfarm outside Iowa	Nonfarm within Iowa	Same size or smaller farm	Larger farm	Retired		
Machinery and equipment	\$ 2,840	\$ 2,389	\$ 2,826	\$ 4,632	\$ 1,860		\$ 2,930
Livestock and poultry	2,395	1,220	4,343	1,764	914		1,886
Feeds and supplies	1,477	725	1,033	579	574		877
Other assets	1,739	968	1,417	2,391	4,627		2,227
Value of land farmed	39,620	25,944	39,133	34,588	25,877		32,484
Total capital managed	48,072	31,245	48,752	43,954	33,851		40,403
Total assets owned	18,638	9,302	19,130	16,814	27,742		17,816
Farm mortgages	2,083	726	1,389	1,526	2,412		1,626
Other debts	2,441	894	836	474	206		1,035
Total liabilities	4,524	1,620	2,225	2,000	2,618		2,662
Net worth	14,114	7,682	16,905	14,814	25,125		15,155

<sup>a</sup> Data concerning deceased operators were not available.

who found nonfarm jobs in Iowa had had the least total assets. The average of assets of all former operators was \$17,816.

A measure of the net worth of the former operators before consolidation was obtained by subtracting farm liabilities from the value of owned assets. The average net worth in 1956 was \$15,155. Retired operators had had the largest average net worth of all groups of former operators. Those operators who had found nonfarm jobs in Iowa had had the lowest average net worth.

#### Total Capital Managed by Adding Operators

The average total capital managed by adding operators before consolidation, \$80,422, was nearly twice the amount managed by the operators whose farms were merged (table 19). Seventy-six percent of the total capital managed by adding operators consisted of the value of the land. The values of livestock and machine resources each represented 9.1 percent of the total capital. The average amount of assets owned by all adding operators was \$45,548, or more than 2½ times that of operators of merged units. Adding operators had an average net worth of \$40,704 in 1956, an amount more than 2½ times greater than the average of operators of merged units.

The total capital managed by adding operators after consolidation may be approximated by combining the total capital before consolidation with the value of land and machine resources added after consolidation. Based on this derivation, adding operators had an average total capital managed of \$110,882 following consolidation. In comparison with the total capital managed before consolidation, this represents an increase of 38 percent.

#### Management and Information Sources

Information sources available to farmers provide data and principles which may be used in formulating

**Table 19. Average total capital and net worth of adding operators in 1956.**

Assets and liabilities	Owned base units	Rented base units	All adding operators
Machinery & equipment	\$ 7,605	\$ 7,151	\$ 7,344
Livestock & poultry	8,074	6,816	7,350
Feeds & supplies	3,161	1,697	2,313
Other assets	2,385	2,168	2,259
Value of land farmed	60,528	61,620	61,156
Total capital managed	81,739	79,452	80,422
Total assets owned	77,875	23,415	45,548
Farm mortgages	6,117	2,064	3,768
Other debts	2,323	1,862	2,058
Total liabilities	8,440	3,927	5,844
Net worth	69,435	19,488	40,704

expectations. The use of such information sources by farm operators implies an effort on the part of the operators to assemble the data and principles necessary for formulating logical hypotheses. Thus, the number of operator contacts with available information sources provides one measure for comparing the management characteristics of the operators of merged and adding units. Farm information sources used for comparison include Iowa State University publications, USDA publications, farm magazines and county extension directors.

#### Information Sources of Former Operators

The utilization of farm information sources by operators of merged units is shown in table 20. Only 16.1 percent of these operators had contacted a county extension director for farm information in 1956. None of those who moved to farms of similar or smaller size had used this source of information. The group moving to larger farms had the highest percentage of operators who had contacted county extension directors. This group also had the highest percentage of operators who had read USDA publications. The lowest percentage of operators who had read USDA publications, Iowa State University publications and two or more farm magazines was found among those operators who retired following consolidation. It is interesting to note that the group of former operators who moved to nonfarm jobs outside Iowa contained the highest percentage of those who had read Iowa State University publications. This group also ranked second in the percentage of operators who had read USDA publications and had contacted county extension directors. Evidently, then, those who ceased farming and moved outside of the state were relatively well-informed and ranked high, in comparison with the other groups, as managers.

#### Information Sources of Adding Operators

Table 21 shows that larger percentages of adding operators made use of individual farm information sources than had operators of merged units. When individual groups of former operators are compared with the adding operator groups, it is apparent that operators who moved to larger farms ranked above both adding operator groups in extension director contacts and the use of USDA publications. In addition, a larger percentage of operators who found nonfarm jobs outside Iowa had read Iowa State University publications than had either of the two adding operator groups. Both groups of adding operators ex-

**Table 20. Farm information sources used by operators of merged units in 1956.<sup>a</sup>**

Farm information sources	Operator status after consolidation					All merged units
	Nonfarm job outside Iowa	Nonfarm job in Iowa	Farm operator same size or smaller unit	Farm operator larger sized unit	Retired	
Percent that contacted extension directors						
No contacts	81.0	90.5	100.0	66.7	88.9	84.0
One or two	14.3	0.0	0.0	11.1	11.1	6.9
Three or more	4.8	9.5	0.0	22.1	0.0	9.2
Percent that read farm magazines						
None read	4.8	14.3	0.0	5.55	11.1	8.0
One read	19.0	14.3	0.0	11.1	44.4	19.5
Two read	42.9	14.3	11.1	5.55	16.7	19.5
Three or more read	33.3	57.1	88.9	77.8	27.8	52.9
Percent that read ISU publications	47.6	28.6	11.1	33.3	0.0	26.4
Percent that read USDA publications	33.3	28.6	11.1	38.9	5.55	25.3

<sup>a</sup> Data concerning deceased operators were not available.

**Table 21. Farm information sources used by operators of adding units in 1956.**

Farm information sources	Owned base units	Rented base units	All adding operators
Percent that contacted extension director			
No contacts	68.7	78.5	74.3
One or two	16.7	12.3	14.2
Three or more	14.6	9.2	11.5
Percent that read farm magazines			
None read	6.2	6.2	6.2
One read	12.5	10.8	11.5
Two read	16.7	23.1	20.4
Three or more read	64.6	60.0	61.9
Percent that read ISU publications	41.7	40.0	40.7
Percent that read USDA publications	35.4	35.4	35.4

ceeded the remaining groups of former operators in the percentage using each farm information source. In terms of these data, we would expect management practices on consolidated farms to exceed those on merged farms prior to consolidation.

### Production Practices Used

Crop and livestock production practices carried out by farm operators reflect the action role of previous management decisions. Thus, production practices provide an additional measure for comparing management characteristics of operators of merged and adding units.

#### Production Practices of Former Operators

Table 22 summarizes the various production practices carried out by former operators of merged units. Only 18.2 percent of these operators had conducted soil tests in 1956. An additional 22.7 percent had conducted soil tests as recently as 1954. More than half stated that soil tests had never been made on their units or that they didn't know whether any test had been made. The group of operators who found nonfarm jobs outside Iowa after consolidation contained the highest percentage of those who conducted soil tests from 1954 to 1956. The group of operators who retired included the lowest percentage.

The percentage of all former operators of merged units who had used commercial fertilizer in 1956 was even smaller than the percentage who had made soil tests. While 15.2 percent had used commercial fertilizer in 1956, none of those who moved to farms of similar or smaller size had used it. The group of operators who found nonfarm jobs outside Iowa after consolidation contained the highest percentage of operators who had used commercial fertilizer in 1956.

Nearly 39 percent of all operators of merged units had sprayed weeds in corn during 1956. Those who found nonfarm jobs outside Iowa made up the highest percentage who had used this production practice. Less than 5 percent of all former operators of merged units had sprayed for corn borers in 1956. None of those who retired or moved to other farms following consolidation had sprayed for corn borers. Again, the largest percentage who had sprayed for corn borers was found in the group of operators who found nonfarm jobs outside Iowa after consolidation. This group also had the highest percentage of operators that had seeded treated oats.

More than three-fourths of all former operators of merged units had vaccinated hogs when they were operating the farms. The range among groups, however, extended from a low of 64.3 percent for those who found nonfarm jobs in Iowa to a high of 100 percent for those who moved to farms of similar or smaller size. It is interesting to note that a high percentage (92.3) of retired operators had vaccinated in 1956.

The operators who found nonfarm jobs outside Iowa stood out in terms of general management skills and production practices. The greatest percentage of these former operators had made soil tests, used fertilizer, sprayed weeds in corn, sprayed for corn borers and used treated seed oats before consolidation.

#### Production Practices Used by Adding Operators

Table 23 summarizes the production practices carried out by adding operators. Thirty-three percent of all adding operators had made soil tests on the base units during 1956, and an additional 26.1 percent had made soil tests as recently as 1954. In contrast, only 40.9 percent of all former operators had made soil tests on the merged units during the same period, 1954 to 1956. The percentage of adding operators using commercial fertilizer in 1956 was more than twice that of operators of merged units. A larger percentage of adding operators had sprayed weeds in corn than had operators of merged units. However, when we consider only those former operators who took nonfarm jobs outside Iowa, the percentage who sprayed for weeds in corn was greater than for either group of adding operators.

The percentage of all adding operators who had sprayed for corn borers or seeded treated oats in 1956 was about the same as that of all operators of merged units. As in the case of spraying weeds in corn, a larger percentage of former operators who found non-

**Table 22. Production practices used by operators of merged units in 1956.<sup>a</sup>**

Production practices	Operator status following consolidation					Operators of all merged units
	Nonfarm outside Iowa	Nonfarm within Iowa	Same size or smaller farm	Larger farm	Retired	
Percent having most recent soil test in:						
1956	28.6	19.0	11.1	21.1	5.6	18.2
1955	28.6	14.3	11.1	15.8	11.1	17.0
1954	4.8	4.8	11.1	5.3	5.6	5.7
1946-1953	0.0	9.5	0.0	5.3	11.1	5.7
Didn't know or never tested	38.1	52.3	66.6	52.6	66.7	53.4
Percent that used fertilizer in 1956	26.1	4.5	0.0	21.1	15.0	15.2
Percent that sprayed weeds in corn in 1956	52.4	33.3	33.3	44.4	27.8	38.6
Percent that sprayed for corn borer in 1956	14.3	4.8	0.0	0.0	0.0	4.5
Percent that used treated seed oats in 1956	47.1	28.6	12.5	36.8	13.3	30.0
Percent that vaccinated hogs in 1956	70.6	64.3	100.0	64.3	92.3	75.8

<sup>a</sup> Data concerning deceased operators were not available.

**Table 23. Production practices used by operators of adding farm units.**

Management practices	Owned base units	Rented base units	All adding operators
Most recent soil test:			
1956	38.0	29.2	33.0
1955	10.0	16.9	13.9
1954	12.0	12.3	12.2
1946-1953	6.0	3.1	4.3
Didn't know or never tested	34.0	38.5	36.5
Percent that used fertilizer in 1956	36.0	33.8	34.8
Percent that sprayed weeds in corn in 1956	44.7	44.6	44.6
Percent that sprayed for corn borer in 1956	7.5	1.6	4.5
Percent that used treated seed oats in 1956	35.0	27.3	30.5
Percent that vaccinated hogs in 1956	81.5	69.0	74.7

farm jobs outside Iowa had sprayed for corn borers than had either group of adding operators. This fact again supports the previous conclusion that some of the better managers in the area were represented by operators who ceased farming and moved to nonfarm jobs at long distances.

Again, the data suggest that operators taking over land in farm consolidation are better managers, on the average, than those who leave it. In management practices, however, those farmers who took over the land did not excel the ones who left farming and moved out of the state. The group of leaving operators who moved to nonfarm jobs outside Iowa exceeded all groups of operators studied in the percentage who had conducted soil tests, sprayed weeds in corn, seeded treated oats and sprayed for corn borers.

### Resource Combinations

Resource combinations before and after consolidation indicate in summary form the effect of consolidation on resource use. One hypothesis in farm adjustment is that fewer and larger farms allow more capital per worker, thus increasing the productivity of labor and income per family. This section describes the resource combinations of land, labor and machinery that occurred before and after consolidation.

#### Resource Combinations on Merged Units

The resource combinations which existed on merged units in 1956 before consolidation are shown in table 24. Operators of merged units had had an average machinery investment of about \$24 per acre of rotated cropland. The groups of former operators who retired or found nonfarm jobs outside Iowa had had the lowest investments per rotated acre, while those who moved to larger farms had had the highest machinery investment.

The amount of labor used per rotated acre on all

merged units before consolidation was 23.2 hours. Those operators who moved to nonfarm jobs outside Iowa had used the lowest amount of labor per acre of rotated cropland, while those who moved to larger farms or accepted nonfarm jobs in Iowa had used the largest amounts.

Operators of merged units had used \$1.04 of machinery investment per man-hour of labor. Those moving to larger farms had had the largest amount of machinery investment per man-hour of labor, while those retiring had had a low of \$0.79 per man-hour.

#### Resource Combinations on Base Units

The resource combinations of adding operators differed from those of operators of merged units primarily in the two machinery ratios shown in table 25. All adding operators had had an average machinery investment of about \$37 per rotated acre, or 50 percent more than the average of all operators of merged units. Only former operators who moved to larger farms compared about equally with adding operators in machinery investment per acre before consolidation. Operators of adding units also had had 81 percent more machinery investment per man-hour of labor than had operators of merged units. None of the individual groups of ex-operators came close to the \$1.88 machinery investment per man-hour of labor used by adding operators.

**Table 25. Resource use and combinations on base units in 1956.**

Resources and combinations	Owned base units	Rented base units	All base units
Total rotated acres	10,179	12,642	22,821
Total machinery value	\$380,274	\$464,840	\$845,114
Total hours of labor used	198,411	250,290	448,701
Machinery/land ratio	37.6:1	36.8:1	37.0:1
Labor/land ratio	19.5:1	20.0:1	19.7:1
Machinery/labor ratio	1.92:1	1.86:1	1.88:1
Capital/man year	\$50,600	\$50,671	\$50,644

With more machinery, adding operators had used fewer man-hours of labor per rotated acre than had operators of merged units. Adding operators had used 19.7 man-hours of labor for each rotated acre, or 15 percent fewer man-hours per rotated acre than had the former operators of the merged units. Evidently, the greater machinery investment on adding units not only allowed the operators to produce more per man, but also allowed surplus capacity so that they could take on added land in consolidation.

#### Changes in Resource Combinations

Important changes in resource combinations resulted from the consolidation of merged and base units. The resource combinations planned for the consolidated units are shown in table 26. The total resources

**Table 24. Resource use and combinations on merged units in 1956.**

Resources and combinations	Operator status following consolidation						All merged units
	Nonfarm outside Iowa	Nonfarm within Iowa	Same size or smaller farm	Larger farm	Retired	Deceased	
Total rotated acres	3,350	2,154	1,227	2,509	1,925	691	11,856
Total machinery value	\$65,326	\$52,566	\$28,264	\$88,009	\$37,193	\$14,650 <sup>a</sup>	\$286,008
Total hrs. of labor used	65,684	54,419	28,222	65,015	47,234	13,875 <sup>a</sup>	274,449
Machinery/land ratio	19.5:1	24.4:1	23.0:1	35.1:1	19.3:1	21.2:1	24.1:1
Labor/land ratio	19.6:1	25.3:1	23.0:1	25.9:1	24.5:1	20.1:1	23.2:1
Machinery/labor ratio	0.99:1	0.91:1	1.00:1	1.35:1	0.79:1	1.06:1	1.04:1
Capital/man year	\$41.441	\$30,936	\$41.668	\$31,622	\$35,261	\$35,755 <sup>a</sup>	\$ 35,745

<sup>a</sup> Estimated.

**Table 26. Summary of resource use and combinations before and after consolidation.**

Resources and combinations	Merged and base units in 1956	Combined units after consolidation
Total rotated acres	34,677	35,253
Total machinery value	\$1,131,122	\$1,033,122
Total hours of labor	723,158	499,515
Machinery/land ratio	32.6:1	29.3:1
Labor/land ratio	20.9:1	14.2:1
Machinery/labor ratio	1.56:1	2.07:1
Capital/labor man year	\$44.974	\$62.681

and resource combinations of merged and base units in 1956 are shown, for comparison purposes, in the same table.

As compared with the pre-consolidation situation for both sets of farms, a 10-percent over-all reduction in machinery investment per rotated acre followed consolidation. The largest change in resource combination following consolidation occurred in the comparison of labor and land resources. The number of man-hours of labor per rotated acre declined from 20.9:1 (the average for both merged and base units) to 14.2:1 following consolidation. In contrast to the 19.7 man-hours of labor used per rotated acre on base units in 1956, the consolidated units used 28 percent fewer man-hours of labor per rotated acre. Consolidated units used 39 percent fewer man-hours of labor per rotated acre in comparison with merged units.

Both machinery investment and man-hours of labor per rotated acre declined following consolidation; however, the amount of labor was reduced even more than the machinery investment. The result was a 32-percent increase in the machinery investment per man-hour of labor following consolidation. The \$2.07 machinery investment per man-hour of labor on consolidated units was 10 percent larger than the amount used on base units and nearly double the machinery investment per man-hour of labor on merged units. Considering that the acreage of consolidated units was the same as the sum of base and merged units, operators of consolidated farms were able to make a small additional investment in machinery, compared with the previous machine investment on base units, which substituted for a large amount of labor in aggregate. In other words, it was not necessary for adding operators to replace all the labor withdrawn as operators of merged units left their farms.

## EFFECTS OF CONSOLIDATION ON CROP AND LIVESTOCK PRODUCTION

A possible effect of farm consolidation is its impact on volume of crop and livestock production per man and per acre. This section includes an analysis of the volume of crop and livestock production before and after farm consolidation.

### Crop Production

The total volume of crop production is influenced by the distribution of crop acreage among the various crops and by the average yield per acre of each crop. The analysis of the effects of farm consolidation on crop production is based on a comparison of adjusted crop production on merged units before consolidation with expected crop production following consolidation. During 1956, hail and drouth reduced crop yields in the survey area below the levels of previous years. The reduced yields in 1956 have been adjusted upward, on the basis of normal or average yields of the past, to provide a more realistic measure of the effects of consolidation on crop production. Crop yields in the survey area during the 5-year period from 1951 through 1955 were used as the basis for adjusting 1956 crop production.

### Crop Acreage Distributions

The distributions of various crops raised on merged units before consolidation are presented in table 27. Before consolidation, 38.8 percent of all merged land was in corn, 12.5 percent was in oats, and less than 8.5 percent was in other rotation crops. The distributions of merged crop acres, however, varied considerably among the groups of merged units when grouped on the basis of the occupation of the former operators. Table 28 shows the distributions of crops on base units in 1956. Contrasts between base units and merged units existed in both row-crop acres and rotation acres. Base units had had 45.5 percent of the land resource in row crops, compared with only 43.5 percent on merged units. Base units also had had a higher percentage of the land in rotation than had merged units. Merged units had had larger percentages of the land resource in permanent pasture and in government program land.

**Table 27. Crop acreage distributions on merged units in 1956.**

Crop distributions	Operator status following consolidation						
	Nonfarm outside Iowa	Nonfarm within Iowa	Same size or smaller farm	Larger farm	Retired	Deceased	All merged units
Crop acres per 100 acres of land							
Corn	46.8	33.3	32.0	33.4	42.0	46.5	38.8
Silage	1.0	0.2	1.5	0.6	0.4	0.0	0.7
Sorghum	2.2	2.2	2.1	1.3	0.0	0.0	1.5
Oats	9.4	14.4	16.0	10.4	15.8	12.1	12.5
Soybeans	1.9	2.8	1.8	2.3	2.3	6.9	2.5
Wheat	5.2	3.6	0.5	3.2	1.8	9.7	3.6
Legume hay	8.1	7.2	11.6	9.0	8.9	3.9	8.4
Rotation pasture	5.0	4.9	8.8	10.8	6.2	0.7	6.6
Permanent pasture	10.4	22.2	16.3	16.4	8.1	5.6	14.1
Government program	2.7	2.7	0.6	1.5	7.6	0.0	2.8
Waste, buildings, misc.	7.3	6.5	8.8	11.1	6.9	14.6	8.5
Total acres	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Percent of land in row crops	51.9	38.5	37.4	37.6	44.7	53.7	43.5
Percent of land in rotation	79.6	68.9	74.3	71.0	77.4	77.9	74.6



**Table 28. Crop acreage distributions on base units in 1956.**

Crop distributions	Owned base units	Rented base units	All base units
Crop acres per 100 acres of land			
Corn	34.8	38.7	37.0
Silage	2.0	1.4	1.6
Sorghum	2.9	1.8	2.3
Oats	13.4	14.1	13.8
Soybeans	4.9	4.2	4.5
Wheat	3.7	4.7	4.3
Legume hay	9.7	9.0	9.3
Rotation pasture	8.6	3.6	5.7
Permanent pasture	11.9	14.8	13.6
Government program	2.0	1.6	1.8
Waste, buildings, misc.	6.1	6.1	6.1
Total acres	100.0	100.0	100.0
Percent of land in row crops	44.7	46.1	45.5
Percent of land in rotation	80.0	77.5	78.6

**Acreage Distributions on Merged Units After Consolidation**

The long-run plans of adding operators for cropping the merged units are shown in table 29. Following consolidation adding operators planned to utilize only 32.4 percent of all land for corn. This represents a reduction from the 38.8 percent of merged land planted to corn before consolidation. Although long-run plans of adding operators indicated a larger percentage of land in both sorghum and soybeans following consolidation, the percentage of land planned for all row crops was 1.1 percent less than before consolidation. Increases planned for other rotation crops, however, would result in a change in the percentage of all merged land in rotation from 74.6 percent before consolidation to 78.2 percent following consolidation. The percentage of land in permanent pasture would be decreased from 14.1 percent before consolidation to 10.4 percent following consolidation, according to the plans of adding operators.

Major shifts in crop acreage distributions within the groupings of merged units on the basis of occupational status of the former operators are apparent from tables 27 and 29. According to the plans of adding operators, the percentage of land in permanent pasture would be decreased in all groups following consolidation. The largest decrease in the percentage of land in permanent pasture would occur on the merged units whose former operators found nonfarm jobs in Iowa. Although the percentage of all merged land in row crops would decline on the basis of adding operator plans, the merged units whose former operators had retired or found larger farms to operate would experience increases in the percentage of land in row crops.

**Table 29. Planned crop acreage distributions on merged units.**

Crop distributions	Operator status following consolidation						All merged units
	Nonfarm outside Iowa	Nonfarm within Iowa	Same size or smaller farm	Larger farm	Retired	Deceased	
Crop acres per 100 acres of land							
Corn	33.6	29.8	34.9	33.2	31.9	29.9	32.4
Silage	0.4	0.0	0.0	0.0	0.4	0.0	0.2
Sorghum	8.9	4.6	1.2	2.0	5.5	12.6	5.4
Oats	12.4	14.1	17.3	12.7	13.8	7.6	13.3
Soybeans	6.9	2.7	3.0	2.8	3.7	9.3	4.4
Wheat	4.9	4.0	5.6	2.7	1.6	9.7	4.0
Legume hay	10.2	13.4	17.3	12.4	13.5	7.3	12.4
Rotation pasture	1.6	5.1	0.5	15.2	7.3	2.2	6.1
Permanent pasture	7.8	15.9	14.9	12.5	4.9	1.2	10.4
Government program	6.2	4.3	0.0	0.9	10.7	4.6	4.6
Waste, buildings, misc.	7.1	6.1	5.3	5.6	6.7	15.6	6.8
Total acres	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Percent of land in row crops	49.8	37.1	39.1	38.1	41.5	51.8	42.4
Percent of land in rotation	78.9	73.7	79.8	81.1	77.7	78.6	78.2

**Crop Yields**

The per-acre yields of crops produced on merged units before consolidation are shown in table 30. This table also shows adjusted crop yields which were computed because of drouth and hail damage in the survey area during 1956. The actual yield of corn per acre on merged units in 1956 was 39.1 bushels per acre. The adjusted yield of corn per acre was 42.7 bushels. Merged units whose operators moved to non-farm jobs outside Iowa had had the highest corn yield per acre of all merged groups. This same group of operators of merged units had produced the highest per-acre yields of oats and wheat, compared with other groups of former operators. The merged units whose former operators retired had had the lowest per-acre yields of corn, oats and wheat.

**Table 30. Crop yields on merged units in 1956.**

Crops	All merged units
Actual crop yields per acre	
Corn (bu.)	39.1
Silage (bu.) <sup>a</sup>	42.0
Sorghum (bu.)	46.3
Oats (bu.)	11.7
Soybeans (bu.)	18.2
Wheat (bu.)	21.1
Legume hay (tons)	2.0
Adjusted crop yields per acre	
Corn (bu.)	42.7
Silage (bu.) <sup>a</sup>	45.8
Sorghum (bu.)	50.5
Oats (bu.)	29.1
Soybeans (bu.)	20.6
Wheat (bu.)	26.3
Legume hay (tons)	2.3

<sup>a</sup> Silage is shown in terms of corn equivalent.

The actual yields and adjusted yields of base units in 1956 are shown in table 31. With the exception of sorghum, the 1956 per-acre yields of all crops were higher on base units than on merged units. The adjusted yield of corn on base units in 1956 was 48.4 bushels per acre, compared with 42.7 bushels per acre on merged units. Per-acre yields of both wheat and soybeans on base units were more than 20 percent larger than the per-acre yields achieved on merged units. We would expect, then, that the land taken over as one group of operators left would produce a greater volume of output as it is operated by those farmers who remain on the consolidated units.

The long-run yield expectations of adding operators for crops produced on merged units are shown in table 32. For every crop, the adding operators expected to achieve a higher yield per acre than the adjusted yield of the former operators in 1956. Adding opera-

**Table 31. Crop yields on base units in 1956.**

Crops	Owned base units	Rented base units	All base units
Actual crop yields per acre			
Corn (bu.)	45.8	43.3	44.4
Silage (bu.) <sup>a</sup>	48.5	43.4	46.1
Sorghum (bu.)	45.2	43.8	44.6
Oats (bu.)	13.6	12.1	12.8
Soybeans (bu.)	22.8	20.8	21.8
Wheat (bu.)	23.8	26.4	25.4
Legume hay (tons)	2.8	2.3	2.5
Adjusted crop yields per acre			
Corn (bu.)	50.0	47.3	48.4
Silage (bu.) <sup>a</sup>	52.9	47.3	50.3
Sorghum	49.3	47.8	48.6
Oats	34.0	30.2	31.8
Soybeans	25.9	23.7	24.7
Wheat	29.6	32.9	31.6
Legume hay	3.2	2.6	2.9

<sup>a</sup> Silage is shown in terms of corn equivalent.

**Table 32. Long-run crop yields expected by adding operators on merged units following consolidation.**

Crops	All merged units
Corn (bu.)	62.2
Silage (bu.) <sup>a</sup>	58.2
Sorghum (bu.)	57.4
Oats (bu.)	39.1
Soybeans (bu.)	28.9
Wheat (bu.)	36.2
Legume hay (tons)	3.0

<sup>a</sup> Silage is reported in terms of corn equivalent.

tors expected to achieve a corn yield of 62.2 bushels per acre on the merged units following consolidation. The adjusted corn yield on merged units in 1956 was only 42.7 bushels per acre. Thus, adding operators expected a long-run per-acre corn yield 46.7 percent larger than the adjusted corn yield in 1956. The expected per-acre yields of the remaining crops varied from 13.5 to 40.2 percent larger than the adjusted yields obtained on the merged units in 1956. On the basis of the expectations of adding operators, the per-acre yields of individual crops produced on merged units would increase from 13.5 to 46.7 percent following consolidation.

#### Total Volume of Crop Production

Changes in crop distributions and expected yields affected the volume of total crop production on the merged units after consolidation. Value of crop production before and after consolidation is used as a measure of the effect of consolidation on the total volume of crop production.

Table 33 shows both actual and adjusted values of crop production per merged unit in 1956. The value of adjusted crop production per merged unit in 1956 was \$5,572. Corn contributed 62.5 percent of this amount, and legume hay contributed 10.5 percent. Actual and adjusted crop production per base unit are shown in table 34. The value of adjusted crop production per base unit was \$10,391, nearly twice that on merged units in 1956. Corn contributed 57.5 percent of the value of crops produced on base units, and legume hay contributed 12.1 percent.

Table 35 presents the value of crop production expected per merged unit following consolidation. The average value of expected production on merged units was \$8,015. This represents an increase of 43.8 percent over the adjusted value of crop production per merged unit in 1956. The value of crop production per acre was expected to increase from \$37.92 per acre before consolidation to \$53.57 per acre following consolidation.

The 1956 value of adjusted crop production on

**Table 33. Value of 1956 crop production on merged units.**

Crops	All merged units
Actual production per unit:	
Row crops	\$3,547
Small grains	402
Hay and pasture	751
Government program	152
Total value	\$4,852
Actual production per acre	\$33.02
Adjusted production per unit:	
Row crops	\$3,877
Small grains	697
Hay and pasture	824
Government program	174
Total value	\$5,572
Adjusted production per acre	\$37.92

**Table 34. Value of 1956 crop production on base units.**

Crops	All base units
Actual production per unit:	
Row crops	\$6,549
Small grains	845
Hay and pasture	1,442
Government program	171
Total value	\$9,007
Actual production per acre	\$37.98
Adjusted production per unit:	
Row crops	\$7,171
Small grains	1,424
Hay and pasture	1,600
Government program	196
Total value	\$10,391
Adjusted production per acre	\$43.81

**Table 35. Value of expected crop production on merged units following consolidation.<sup>a</sup>**

Crops	All merged units
Expected production per unit:	
Row crops	\$5,276
Small grains	1,025
Hay and pasture	1,302
Government program	412
Total value	\$8,015
Expected production per acre	\$53.57

<sup>a</sup> Value in terms of 1956 prices.

merged and base units totaled \$1,750,629. If the value of future expected crop production from merged units is added to the value of adjusted crop production from base units in 1956, the total value of crop production from the combined units would total \$1,988,508. The combined total assumes that the value of crop production from base units would remain the same following consolidation. On the basis of this assumption, crop production on the consolidated units would be 13.6 percent larger than before consolidation. Hence, consolidation would lead to a greater crop output from a given area of land. It would not, as the labor force in total is reduced, cause output to decline.

#### Livestock Production

Consolidation of merged units with other adding units results in a withdrawal of the livestock production of the leaving operators. Following consolidation, the adding operators may or may not replace the former livestock production. The purpose of this section is to examine livestock production on merged and base units before consolidation and to analyze the adding operators' intentions for replacing the livestock production of the former operators.

Table 36 summarizes the number of livestock produced on merged units in 1956. The table shows that the hog enterprise on merged units had consisted primarily of spring pig production. A limited number of dairy cows had been kept on merged units, the average being 3.4 dairy cows.

**Table 36. Livestock and poultry production on merged units during 1956.<sup>a</sup>**

Class of livestock and poultry	All merged units
Spring pigs raised	
Pigs weaned per litter	7.3
Pigs weaned per unit	50.3
Fall pigs raised	
Pigs weaned per litter	7.4
Pigs weaned per unit	17.1
Feeder pigs fed	
Spring pigs per unit	4.8
Fall pigs per unit	3.5
Dairy cows per unit	3.4
Beef cows per unit	2.8
Feeder cattle	
No. fed per unit	9.4
Wt. added per unit	4,242
Poultry	
Hens per unit	72.9
Chicks raised per unit	104.7

<sup>a</sup> Information concerning units whose operators were deceased was not available.

The number of beef cows in 1956 averaged only 2.8 per merged unit. Operators of merged units had fed 9.4 head of feeder cattle per farm and had added an average of 452 pounds of weight to each animal before marketing. Poultry production had been of minor importance on the majority of merged units. The former operators had kept only 72.9 hens per merged unit and had raised 104.7 chicks per merged unit.

With the exception of the beef-cow enterprise, the group of operators who shifted to similar- or smaller-sized units after consolidation had, before consolidation, produced and fed the largest number of animals per unit in each class of livestock. The group of former operators of merged units who accepted nonfarm jobs in Iowa following consolidation ranked below the other groups in the number of pigs raised per unit, the number of feeder cattle fed per unit, and the number of beef cows kept per unit before consolidation. The group of operators who shifted to similar or smaller-sized units had had the second largest average net worth among all merged groups, while those operators who accepted nonfarm jobs in Iowa had the lowest average net worth.

Table 37 summarizes the number of livestock produced on base units in 1956. Operators of base units had weaned an average of 87.6 spring pigs per unit in 1956. The spring pig production was based on 11.6 litters farrowed per base unit with an average of 7.5 pigs weaned per litter. Both the number of spring litters per unit and the number of pigs weaned per litter on base units exceeded the comparable production figures on merged units of 6.9 litters per unit and 7.3 pigs weaned per litter. In addition, operators of base units had raised 5.1 fall litters per base unit,

**Table 37. Livestock and poultry production on base units during 1956.**

Class of livestock and poultry	All base units
Spring pigs raised	
Pigs weaned per litter	7.5
Pigs weaned per unit	87.6
Fall pigs raised	
Pigs weaned per litter	7.3
Pigs weaned per unit	37.0
Feeder pigs fed	
Spring pigs per unit	8.6
Fall pigs per unit	9.4
Dairy cows per unit	4.6
Beef cows per unit	7.1
Feeder cattle	
Number fed per unit	74.5
Weight added per unit	25,699
Poultry	
Hens per unit	89.7
Chicks raised per unit	117.5

compared with only 2.1 fall litters raised per merged unit. The base-unit operators had weaned a total of 124.6 spring and fall pigs per unit, compared with only 67.4 pigs weaned per unit by operators of merged units. The total number of spring and fall feeder pigs fed per unit on base units was more than double the number fed per unit on merged units in 1956. All base-unit feeder pig production had taken place on owned base units. The total number of pigs fed per base unit in 1956, both raised and purchased, was 88 percent larger than the number of pigs fed per merged unit in the same year.

The number of dairy cows kept per base unit in 1956 exceeded the number of dairy cows kept per merged unit by 30 percent. The number of beef calves raised per base unit in 1956 was 2.7 times larger than the number of beef calves raised per merged unit. The greatest difference in livestock production between merged and base units occurred in feeder cattle production. Although operators of base units had added less weight per animal than had operators of merged units, the base unit operators had fed an average of 74.5 feeder cattle per unit, compared with only 9.4 feeder cattle fed per unit for operators of merged units. Poultry production on base units was of minor importance in 1956. Limited numbers of lambs had been raised and fed on both merged and base units.

Operators of base units exceeded the per-unit livestock production of operators of merged units in every class of livestock; however, the greatest difference in livestock production occurred in the number of feeder cattle fed per farm. The number of feeder cattle fed per base unit was nearly eight times larger than the number fed per merged unit. The total number of pigs fed per base unit, both raised and purchased, was less than twice the number fed per merged unit.

#### Value of Livestock Production

The value of livestock production provides a single measure for comparison of all livestock enterprises. Table 38 summarizes the value of livestock produced on merged units in 1956. The 1956 average was \$4,310 per unit. Nearly 54 percent of the total value of livestock production on the merged units came from the hog enterprise. Feeder cattle contributed 17.8 percent of the total value and dairy cattle 14.6 percent. The value of all livestock production on base units in 1956 averaged \$10,781 per farm, or 2½ times more than the per-farm value on merged units (see table 39). Feeder cattle contributed 43 percent of the total value of all livestock production on base units. Hog pro-

**Table 38. Value of livestock and poultry production per merged unit in 1956.<sup>a</sup>**

Class of livestock and poultry	All merged units
Feeder cattle	\$ 768
Beef calves	166
Spring pigs raised	1,535
Fall pigs raised	521
Spring feeder pigs	145
Fall feeder pigs	108
Dairy cows (including veal calves)	627
Sheep and lambs	21
Hens (eggs)	349
Chicks raised	70
Total value	4,310

<sup>a</sup> Does not include the former production by the deceased operators.

**Table 39. Value of livestock and poultry production per base unit in 1956.**

Class of livestock and poultry	Owned base units	Rented base units	All base units
Feeder cattle	\$ 5,776	\$ 3,821	\$ 4,652
Beef calves	354	511	444
Spring pigs raised	2,498	2,806	2,676
Fall pigs raised	1,140	1,124	1,131
Spring feeder pigs	620	0	263
Fall feeder pigs	679	0	288
Dairy cows (including veal calves)	1,047	699	847
Sheep and lambs	3	104	61
Hens (eggs)	534	353	430
Chicks raised	84	75	79
Total value	12,735	9,494	10,871

duction contributed 41 percent of the total value of livestock production on base units.

#### Livestock Production Expectations

The consolidation questionnaire did not measure specific changes in livestock programs following consolidation; however, the general livestock changes planned by adding operators are summarized in table 40. Sixty-nine percent of all adding operators indicated that they planned to expand livestock production after consolidation, and less than 1 percent planned a decrease. Nearly 26 percent of the adding operators planned to retain the same level of livestock production that existed before consolidation. The remaining adding operators did not have livestock programs before consolidation and did not plan to add livestock programs following consolidation. Eighty percent of the adding operators who rented base units planned livestock increases, while only 54.2 percent of the adding operators who owned base units planned to increase livestock production.

**Table 40. Percentages of adding operators planning changes in livestock production.**

Livestock production expectations	Owned base units	Rented base units	All adding operators
Increase livestock production	54.2	80.0	69.0
Same level of livestock production	41.7	13.8	25.7
Reduce livestock production	2.1	0.0	0.9
No livestock production planned	2.1	6.2	4.4

Adding operators were asked to give their reasons for future livestock planning. Nearly all of the adding operators who planned to increase livestock production indicated that they planned larger livestock programs because of the increased grain and pasture available from the merged units. Additional reasons given for expanding livestock production included the availability of more building space and increased family or hired labor following consolidation. The most frequent reason given by adding operators who planned to retain previous livestock production levels was that the base unit had been overstocked with livestock before consolidation. Additional reasons given by adding operators who did not plan to increase livestock production included: (1) limited by the available labor supply, (2) limited by a high debt load and (3) the price of livestock was too low. The adding operator who planned to decrease livestock production felt that hog prices were too low to make a profit.

Although 69 percent of all adding operators planned to increase livestock production following consolidation, it is somewhat doubtful whether the increased production would be sufficient to offset the previous

livestock production on the merged units. The former operators of these units produced an estimated total value of livestock production of \$429,104 in 1956. The adding operators who planned to increase livestock production following consolidation had a total value of livestock production of \$760,744 in 1956. Thus, adding operators who planned livestock increases would have to expand their 1956 livestock production by 56 percent to offset the former livestock production of operators of the merged units. Although an expansion of 56 percent above the 1956 level of livestock production is not impossible, it seems unlikely that it would be accomplished except over a long-run period. It seems more probable, at least on a short-run basis, that increased livestock production by adding operators would not be sufficient to replace the former livestock production on the merged units. Therefore, total livestock production on the combined units immediately following consolidation would, in all probability, be less than that which existed on merged and base units before consolidation.

#### INCOME ASPECTS OF FARM CONSOLIDATION AND LABOR MOBILITY

Anticipated income differentials play an important role in many farm operators' decisions to either shift to nonfarm employment or change the size of the farm operation. This section is concerned with anticipated income differentials of operators of both merged and adding units by comparing farm incomes before consolidation with expected farm and nonfarm incomes following consolidation. In addition, the mobility of the adding operators and the leaving operators who were still farming after consolidation is discussed in terms of income levels that would induce these farm operators to shift to nonfarm jobs.

#### Expected Income Differentials

Excluding retired and deceased operators, the survey data permit comparison of actual farm income earned in 1955 and 1956 with expected income in 1957, 1958 and 1961. The expected incomes of operators of merged units represent future earnings from both nonfarm jobs and new farms. The expected incomes of adding operators represent future earnings from the combined merged and base units. To make further comparisons, former operators were asked to estimate incomes that they might have earned in 1961 if they had remained on the merged units. Adding operators were asked to estimate earnings in 1957 and 1961 if they had quit farming and accepted nonfarm employment alternatives.

#### Incomes of Former Operators

The past and expected incomes of the former operators of merged units who were still working following consolidation are shown in table 41. These operators earned an average of only \$1,276 from the merged units in 1955 and \$1,595 in 1956. Former operators who accepted nonfarm jobs in Iowa had received the lowest average farm income of all merged groups in both 1955 and 1956. Following consolidation, the former operators of merged units who continued to

**Table 41. Past farm incomes and future expected incomes of employed former operators of merged units.**

Past and expected incomes	Operator status following consolidation				All employed merged-unit operators
	Nonfarm outside Iowa	Nonfarm within Iowa	Same size or smaller farm	Larger farm	
Past farm income per operator					
1955	\$1,157	\$1,125	\$1,314	\$1,477	\$1,276
1956	1,711	1,294	1,775	1,497	1,595
Expected income per operator					
1957	4,476	3,260	1,838	4,093	3,677
1958	4,865	3,919	2,350	4,687	4,212
1961	5,737	4,940	3,138	5,533	5,041
Income expected from merged unit in 1961	3,207	2,415	2,963	2,207	2,639

work accepted nonfarm jobs or moved to new farms. The group who shifted to nonfarm employment outside Iowa expected the largest average income of all groups in 1957. The group working in nonfarm jobs in Iowa expected an average income 27 percent lower than the amount expected by those who moved outside Iowa. The group who moved to similar or smaller farm units expected, of all merged groups, the lowest average income in 1957.

By 1961 all former operators of merged units expected to earn an average income of \$5,041. The former operators who moved to nonfarm jobs outside Iowa expected to earn in 1961 the largest average income of all groups of former operators studied. Those who shifted to similar or smaller-sized farm units expected the lowest average income. Excluding the group who shifted to similar or smaller-sized farms, the remaining groups of former operators expected average earnings in 1961 more than three times larger than the average incomes received from farming in 1956. For every year of expected future earnings, the operators who moved to nonfarm jobs outside Iowa expected the largest average income. The expected average incomes of operators who moved to similar or smaller farms were from \$1,422 to \$2,599 lower than the expected incomes of the other groups. Operators who shifted to larger farm units ranked second highest in the average incomes expected in 1957, 1958 and 1961.

Former operators of merged units were also requested to estimate the probable earnings from the merged units in 1961, assuming that they had continued to operate the merged farms. The comparisons of anticipated nonfarm and new-farm incomes with expected earnings from the merged units in 1961 are shown in table 41. Every group of leaving operators expected to receive more income from nonfarm jobs or from new farms than if they had remained on the merged farm units. Operators who shifted to similar or smaller-sized farms expected to receive an average income in 1961 only \$175 larger than if they had remained on the merged farm units. All other groups expected average 1961 earnings from nonfarm jobs or new farms more than \$2,500 larger than the average incomes expected from the merged units in the same year.

Those operators who accepted nonfarm jobs outside Iowa moved an average distance of 1,128 miles from the merged units. Evidently their higher income expectations took them this distance. The group who shifted to nonfarm jobs within Iowa moved an average distance of only 21 miles. All operators who transferred to new farms following consolidation moved an average distance of 14 miles from the merged units.

Nearly 40 percent of the operators who moved to nonfarm jobs outside Iowa settled in the states of California, Washington and Oregon. Others found nonfarm employment in Missouri, New Mexico, Colorado, Arkansas, Minnesota and Nebraska. Only one former operator, finding nonfarm employment in Illinois, moved east of the Mississippi River.

#### Incomes of Adding Operators

The average incomes adding operators received from base-farm units in 1955 and 1956 are shown in table 42. The table also shows expected average incomes from combined merged and base units following consolidation. Adding operators received an average income of \$2,294 from base units in 1955 and \$2,134 from the same units in 1956. In both years, owned base-unit operators received an average income larger than the amount received by rented base-unit operators. Both groups of adding operators, however, exceeded the average incomes of all groups of operators of merged units in 1955 and 1956. Following consolidation, adding operators expected to receive average incomes from the combined units of \$4,931 in 1957, \$5,468 in 1958 and \$6,233 in 1961. The average incomes expected by adding operators were from 24 percent to 34 percent larger than the average incomes expected by the operators of merged units in the same years. Adding operators of owned base units expected the largest average incomes in 1957, 1958 and 1961, compared with all groups of operators. For all 3 years, former operators who moved to nonfarm jobs outside Iowa expected higher average incomes than did adding operators who rented base units. The expected average incomes of rented base-unit operators were similar to the average incomes expected by former operators who shifted to larger farms. As a result of combining merged and base units, both groups of adding operators expected farm incomes in 1961 approximately three times larger than the average incomes they had received from the base units alone in 1956.

Adding operators also were asked to estimate incomes that they might receive in 1957 and 1961 if

**Table 42. Past farm incomes and future expected incomes of adding operators.**

Past and expected incomes	Owned base unit	Rented base unit	All adding operators
Past farm income per operator:			
1955	\$3,021	\$1,706	\$2,294
1956	2,665	1,740	2,134
Expected income per operator from consolidated unit:			
1957	5,791	4,283	4,931
1958	6,369	4,745	5,468
1961	7,277	5,381	6,233
Expected income per operator from a nonfarm job:			
1957	4,269	3,800	3,994
1961	4,969	4,390	4,637

they were to shift to nonfarm employment. The estimated average incomes of adding operators from nonfarm employment are shown in table 42. Adding operators expected that the combined merged and base units in 1957 would return an average income 23 percent greater than the estimated average income from nonfarm employment. In 1961, adding operators estimated that the combined units would return an average income 34 percent greater than nonfarm job alternatives. Several of the adding operators commented on their lack of nonfarm job skills. One adding operator stated, "If I had to take a job off the farm, all I could get would be a common laborer job digging ditches at \$1.00 an hour."

### Estimated Income Requirements for Accepting Nonfarm Employment

This section is concerned with the mobility of farm operators in terms of nonfarm income levels that would induce movement to nonfarm employment. Both former operators who continued to farm and adding operators who absorbed merged units are included in the discussion. The movement of some operators to nonfarm jobs following consolidation indicated a willingness on their part to accept nonfarm employment at the income levels that they expected to earn in 1957. The questionnaire was designed to measure income levels that would induce movement to towns of varying sizes and distances from the survey area. In addition, an attempt was made to examine the influence of moving expense compensation on the income requirements of the farm operators.

The estimated income requirements that would induce shifts to nonfarm employment in different locations are shown in table 43. All four groups of farm operators listed in the table indicated that income requirements for shifting to nonfarm employment would be least for a move to an Iowa town of 5,000 population. The estimated income requirements increased when the proposed shift involved living in an Iowa town of 50,000 or more population. When the proposed nonfarm employment was located in large cities from 500 to 700 miles distant, farm operators required even larger incomes to make a shift to nonfarm employment. With the exception of owned base-unit operators, all other groups of farm operators required the largest income to make a move to nonfarm employment located in large cities more than 1,000 miles away from the survey area.

Compensation for moving expenses was of little importance in influencing the incomes required by farm operators to make moves to nonfarm employment. Less than 5 percent of the farm operators indicated that moving expenses would make a difference in their income requirements for moving. Farm operators who indicated that moving expenses were an important consideration increased income requirements by less than \$300 when the assumption was made that moving expenses would not be paid.

The average farm incomes expected by farm operators in 1957 are included in table 43 to facilitate comparisons with income requirements for moving to nonfarm employment. The average expected farm in-

comes listed in the table include only the incomes expected by farm operators who were willing to shift to nonfarm employment. In every proposed move, the average income requirements for shifting to nonfarm employment were greater than the average income expected from farming in 1957. The average income requirements for moving to nonfarm employment were from \$555 to \$4,900 larger than the average farm incomes expected by each group of farm operators.

Although the majority of all farm operators indicated that they would shift to nonfarm employment at some income level, several operators said that they would not move to nonfarm jobs for any income. One farmer who owned and operated over 1,000 acres of land emphatically declared, "nothing would tempt me to move unless they broke me, and that would take a long, long time." The percentages of farm operators who would not shift to the proposed nonfarm jobs are also shown in table 43. Resistance to the proposed moves was least for a move to an Iowa town of 5,000 population. The greatest resistance to nonfarm employment shifts occurred in the proposed move to a city more than 1,000 miles from the survey area. A lower percentage of the operators who had shifted to similar or smaller farms indicated that they would not make any of the proposed moves than did any of the other groups. The group of owned base-unit operators had the highest percentage of operators

**Table 43. Lowest annual income farm operators would accept, with and without moving expenses paid, to move to a nonfarm job in different areas of Iowa and the United States.**

Proposed move	Leaving operators		Adding operators	
	Same size or smaller farms	Larger farms	Owned base units	Rented base units
Lowest average income acceptable with moving expenses paid to:				
Move to another Iowa town of 5,000 population, more than 100 miles away	\$4,238	\$5,269	\$6,573	\$5,846
Move to another Iowa town of 50,000 or more population	4,990	6,182	8,279	7,249
Move to a city such as St. Louis, Minneapolis, or Chicago	5,883	7,336	10,182	8,614
Move to a city such as Atlanta, San Francisco, or Pittsburgh	6,369	8,273	10,062	9,118
Lowest average income acceptable with moving expenses not paid to:				
Move to another Iowa town of 5,000 population, more than 100 miles away	\$4,275	\$5,269	\$6,646	\$5,884
Move to another Iowa town of 50,000 or more population	5,053	6,182	8,332	7,262
Move to a city such as St. Louis, Minneapolis, or Chicago	5,940	7,336	10,197	8,698
Move to a city such as Atlanta, San Francisco, or Pittsburgh	6,383	8,273	10,069	9,233
Percent of operators that would not move regardless of income or moving expense				
Move to another Iowa town of 5,000 population, more than 100 miles away	0.0%	18.75%	16.7%	7.7%
Move to another Iowa town of 50,000 or more population	0.0	31.25	22.9	10.8
Move to a city such as St. Louis, Minneapolis, or Chicago	12.5	31.25	29.2	18.5
Move to a city such as Atlanta, San Francisco, or Pittsburgh	12.5	31.25	33.3	26.5
Expected farm income per operator in 1957	\$1,838	\$3,900	\$6,018	\$4,333

**Table 44. Percentages of former operators of merged units who were familiar with government employment services.<sup>a</sup>**

Government employment services	Operator status following consolidation					
	Nonfarm outside Iowa	Nonfarm within Iowa	Same size or smaller farm	Larger farm	Retired	All merged operators
Govt. employment office or branch office in county of merged unit						
Replied correctly (yes)	52.4	61.9	50.0	38.85	55.6	52.3
Replied incorrectly (no)	14.3	19.0	12.5	5.55	11.1	12.8
Didn't know	33.3	19.0	37.5	55.60	33.3	34.9
Free information about jobs within the county						
Replied correctly (yes)	47.6	71.4	50.0	55.6	44.4	54.7
Replied incorrectly (no)	0.0	4.8	0.0	0.0	0.0	1.1
Didn't know	52.4	23.8	50.0	44.4	55.6	44.2
Free information about jobs throughout Iowa						
Replied correctly (yes)	23.8	42.9	25.0	27.8	11.1	26.7
Replied incorrectly (no)	0.0	4.8	0.0	5.5	5.6	3.5
Didn't know	76.2	52.4	75.0	66.7	83.3	69.8
Free information about jobs throughout the United States						
Replied correctly (yes)	19.0	28.6	12.5	16.7	5.55	17.4
Replied incorrectly (no)	4.8	9.5	0.0	11.1	5.55	7.0
Didn't know	76.2	61.9	87.5	72.2	88.90	75.6
Free job counseling and job aptitude testing						
Replied correctly (yes)	38.1	28.6	12.5	11.1	5.55	20.9
Replied incorrectly (no)	4.8	19.0	0.0	5.6	5.55	8.1
Didn't know	57.1	52.4	87.5	83.3	88.90	70.9

<sup>a</sup> Information concerning deceased operators was not available.

indicating that they would not move to nonfarm jobs in cities more than 1,000 miles from the survey area.

### KNOWLEDGE AND USE OF EMPLOYMENT SERVICES

The consolidation process resulted in a change of employment for many operators of merged units. Several questions were included in the questionnaire to determine these operators' knowledge of government employment services. Similar questions were asked of adding operators for comparative purposes. The sources of employment assistance actually used by the former farm operators to obtain nonfarm jobs are also discussed in this section.

#### Knowledge of Government Employment Services

Government employment offices or branch offices were located in each county included in the survey area. Table 44 shows that only 52.3 percent of all former operators of merged units were aware that one of these offices existed in their county. The remaining 47.7 percent did not know of the government employment office or replied incorrectly that none existed. Free information concerning job opportunities within the county, throughout the state and in other states is available from each government employment office. In addition, government employment offices also supply free job counseling and aptitude testing. Nearly 55 percent of all operators of merged units were aware that government employment offices provide free job information concerning jobs within the county. Smaller percentages of these operators knew that free information concerning jobs throughout Iowa and in other states is available from government employment offices. Only 20.9 percent of the former operators replied correctly that government employment offices provide free job counseling and aptitude testing.

The group of operators who moved to nonfarm jobs outside Iowa had the highest percentage who

replied correctly that government employment offices provide free job counseling and aptitude testing. With the exception of job counseling and aptitude testing, a larger percentage of those who shifted to nonfarm jobs in Iowa answered correctly all questions concerning employment services than did other groups of former operators. Former operators who retired ranked above average in their knowledge of the location of government employment offices. The retired group had the lowest percentage of correct replies to questions concerning services of the employment offices.

More than half of the two groups of former operators who shifted to nonfarm jobs were aware that a government employment office existed in each county. However, less than one-fifth of these operators had contacted a government employment office for job assistance. Nineteen percent of the operators who moved to nonfarm jobs outside Iowa had made use of the free government employment services. Only 14.3 percent of the operators who shifted to nonfarm jobs in Iowa had contacted a government employment office for job assistance. Less than half of all operators of merged units who had contacted a government employment office for job assistance finally accepted a job opportunity arranged through the employment office.

Table 45 shows that similar percentages of base-unit operators were aware that a government employment office was located in each county. Nearly 65 percent of all adding operators were aware of the location of government employment offices, compared with only 52.3 percent of the merged-unit operators. In addition, larger percentages of adding operators replied correctly to all questions concerning employment office services than did merged-unit operators.

#### Sources of Employment Assistance

Several different employment sources were utilized by the leaving operators in obtaining nonfarm jobs. The various sources, and the percentage of former operators who obtained jobs through each source, are summarized in table 46. Friends and relatives pro-

**Table 45. Percent of adding operators familiar with government employment services.**

Government employment services	Owned base unit	Rented base unit	All adding operators
Government employment office of branch office in county of base unit			
Replied correctly (yes) . . . . .	64.6	64.6	64.6
Replied incorrectly (no) . . . . .	2.1	18.5	11.5
Didn't know . . . . .	33.3	16.9	23.9
Free information about jobs within the county			
Replied correctly (yes) . . . . .	50.0	66.2	59.3
Replied incorrectly (no) . . . . .	0.0	4.6	2.7
Didn't know . . . . .	50.0	29.2	38.1
Free information about jobs throughout Iowa			
Replied correctly (yes) . . . . .	25.0	41.5	34.5
Replied incorrectly (no) . . . . .	0.0	6.2	3.5
Didn't know . . . . .	75.0	52.3	62.0
Free information about jobs throughout United States			
Replied correctly (yes) . . . . .	18.8	21.5	20.4
Replied incorrectly (no) . . . . .	2.1	7.7	5.3
Didn't know . . . . .	79.2	70.8	74.3
Free job counseling and job aptitude testing			
Replied correctly (yes) . . . . .	25.0	32.3	29.2
Replied incorrectly (no) . . . . .	4.2	9.2	7.1
Didn't know . . . . .	70.8	58.5	63.7

**Table 46. Sources of assistance used by former operators of merged units to obtain nonfarm employment (in percent).**

Source	Operator status following consolidation		
	Nonfarm jobs outside Iowa	Nonfarm jobs in Iowa	All nonfarm jobs
Newspapers . . . . .	0.0	4.5	2.3
Government employment office . . . . .	9.5	4.5	7.0
Company employment office . . . . .	4.8	4.5	4.7
Assistance from relatives . . . . .	28.6	13.6	20.9
Assistance from friends . . . . .	19.0	27.3	23.3
Previous work with employer . . . . .	9.5	9.1	9.3
Personal inquiry . . . . .	14.3	18.2	16.3
Self employed . . . . .	4.8	13.6	9.3
Other sources . . . . .	9.5	4.5	7.0

vided job assistance to 44.2 percent who shifted to nonfarm jobs. Relatives supplied the most frequent source of job assistance to those who moved outside Iowa. Former operators who remained in Iowa relied most frequently on friends for job assistance. Sixteen percent of those who shifted to nonfarm employment found jobs on their own by personal inquiry. Only 7 percent accepted a nonfarm job arranged by a government employment agency. Small percentages of former operators found nonfarm employment through newspapers and through company employment offices.

**OTHER RELATED DATA**

Age, education and farm work experience provide some indication of the general backgrounds of operators of merged and adding units. These same characteristics also provide additional information concern-

ing the employment qualifications of farm operators involved in consolidations.

**General Characteristics of Operators**

Operators who retired following consolidation were much older than the other operators who left their farms. Individual retired operators varied in age from 59 to 75 years. Former operators who were still employed following consolidation varied in age from 22 to 56 years. However, more than 40 percent of the former operators who were still working after consolidation were in their thirties. With the exception of the retired operators, only slight age differences existed among the remaining groups of merged-unit operators. The average age of each group of former operators is shown in table 47. The median age of each group was approximately the same as the average age shown in the table.

Table 47 also shows the percentage distribution of the former operators of the merged units according to the amount of formal education completed. The group of operators who retired had the largest percentage of operators, 78.9 percent, with an eighth grade education or less. Nearly one-fourth of the operators who moved to nonfarm jobs outside Iowa had some college training. With the exception of the group who moved outside Iowa, less than 11 percent of the operators of each of the other groups had college training. The modal education level of the groups of former operators who retired or moved to larger farms was an eighth grade education or less. The modal educational level for the other groups of leaving operators was that of high-school graduate.

Adding operators who owned base units were older than those who rented base units. Seventy-three percent of the operators of owned base units were over 40 years of age. Only 43 percent of the operators of rented base units were over 40 years old. The median age of each group was approximately the same as the average group age shown in table 48. Operators of owned base units were also older, on the average, than all groups of former operators of merged units who were still employed following consolidation. The average age of the group of adding operators who rented base units was similar to the average ages of the individual groups of merged-unit operators who were still working after consolidation. The group of adding operators who owned base units had more experience as farm operators than all other groups

**Table 47. General characteristics of operators of merged units grouped according to occupational status following consolidation.<sup>a</sup>**

Characteristic	Operator status following consolidation					All merged-unit operators
	Nonfarm outside Iowa	Nonfarm within Iowa	Same size or smaller farm	Larger farm	Retired	
Average age . . . . .	39.0	40.3	38.8	41.7	68.2	46.0
Education distribution of operators (%)						
Eighth grade or less . . . . .	14.3	23.8	10.0	44.4	78.9	36.0
Some high school . . . . .	23.8	4.8	20.0	22.2	5.3	14.6
High school graduate . . . . .	38.1	61.9	60.0	33.3	5.3	38.2
Some college . . . . .	19.0	9.5	10.0	0.0	10.5	10.1
College grad. . . . .	4.8	0.0	0.0	0.0	0.0	1.1
Average years of formal education . . . . .	11.38	10.81	10.30	10.40	8.40	10.30
Farm work experience						
Average years as farm operator . . . . .	10.4	12.9	13.2	16.9	37.6	18.4
Average years worked with other farmers . . . . .	6.5	3.5	2.9	3.1	3.5	4.1
Average years all farm experience . . . . .	16.9	16.4	16.1	20.0	41.1	22.5

<sup>a</sup> Information concerning deceased operators was not available.



**Table 48. General characteristics of operators of adding units.**

Characteristics	Owned base units	Rented base units	All adding operators
Average age	46.0	39.1	42.0
Education distribution of operators (%)			
Eighth grade or less	33.3	23.1	27.4
Some high school	12.5	16.9	15.0
High school graduates	39.6	50.8	46.0
Some college	10.4	4.6	7.1
College graduate	4.2	4.6	4.4
Average years of formal education	10.81	10.96	10.89
Farm work experience			
Average years as farm operator	19.9	15.4	17.3
Average years worked with other farmers	3.9	2.0	2.8
Average years all farm experience	23.8	17.4	20.1

of operators, except the group of former operators who retired following consolidation.

**Disposition of Farm Residences**

Ninety-one farm residences were located on the 99 merged units before consolidation. Disposition of the farm residences on merged units after consolidation with adding units is shown in table 49. Nearly 30 percent of the houses on merged units were to remain vacant following consolidation. An additional 33 percent were to be rented, but many were not rented at the time of the survey. Approximately 20 percent of the houses were to remain as residences of the owners, who also were the former operators, of the merged units. In one case, a farm house was sold and moved from the merged unit. The remaining farm houses were to be used as residences by adding operators or by hired help.

**Table 49. Disposition of merged unit residences following consolidation with adding units.**

Disposition of farm residence	Owned more than half of base unit	Rented more than half of base unit	All base units
Farm house to remain vacant (%)	31.7	28.0	29.7
Farm house to be rented (%)	41.5	26.0	33.0
Farm owner to remain in house (%)	14.6	24.0	19.8
House to be used by hired help (%)	7.3	8.0	7.7
House to be residence of adding operators (%)	4.9	12.0	8.8
House sold and moved (%)	0.0	2.0	1.1
Number of merged farm houses (No.)	41	50	91

**Table 50. Reasons given by operators for leaving merged units.**

Reason for moving	Percent of operators
Nonfarm jobs offered more immediate income	15.2
Farm was too small or unproductive and could not obtain additional land nearby	12.1
Drouth and low prices forced quitting	9.1
Long-run farm income prospects compared unfavorably with other nonfarm opportunities	5.0
Farm was for sale or sold	10.1
Landlord difficulties	6.1
Retired because of age	12.1
Health:	
Forced to retire	8.1
Forced to take nonfarm job	7.1
Operator deceased	5.1
Miscellaneous	10.1

**Reasons for Consolidation**

The reasons given by former operators for leaving the absorbed units are summarized in table 50. More than 20 percent stated that they left their merged units because farm income compared unfavorably with nonfarm income opportunities in either the short run or long run. An additional 12.1 percent said that they made shifts because the merged unit was too small or unproductive, and additional land could not be obtained nearby. Although a total of 20.2 percent of the operators of the merged units retired, 12.1 percent indicated that they retired because of age, and 8.1 percent said that retirement was caused by poor health. The miscellaneous reasons given by former operators for leaving the absorbed units include the following: the farm owner wanted to farm the unit; the merged unit was placed in an estate; the owner placed land in the soil bank, thus reducing the size of the farm; and, one operator said that he moved because of the death of his son.

The primary reasons given by operators of base units for adding land are shown in table 51. Nearly 41 percent of all adding operators indicated that their primary reason for adding land was to expand the size of their farm unit to increase income. The next most frequent reason given was that the extra land was needed to make more efficient use of machinery and equipment. Slightly more than 10 percent said that additional land was needed to make more efficient use of either operator labor, family or hired labor. The miscellaneous reasons given by operators of base units for adding land include the following: the additional land was acquired to provide an estate for the family; the leaving operator moved from land owned by the adding operator or the former was unsatisfactory as a tenant.

Several of the adding operators also gave secondary reasons for acquiring merged units. Nearly 56 percent of all adding operators indicated that increased income was either a primary or secondary reason for expansion. Machinery efficiency was given by 43.5 percent of the adding operators as either a primary or secondary reason for annexing merged units.

**Table 51. Reasons given by operators of base units for adding land.**

Reasons for adding land	Percent of operators
Needed additional land to increase income	40.9
Needed additional land to make more efficient use of machinery and equipment	13.9
Added land to accomodate an owner at his request	13.0
Needed added land to make more efficient use of labor	
Family labor	5.2
Operator labor	2.6
Hired labor	0.9
Considered purchase or renting of this land too good a bargain to pass up	
Purchase	5.2
Renting	3.5
Needed more pasture or grain for livestock program	3.5
The added land was inherited	1.7
Miscellaneous reasons	9.4

STATE LIBRARY OF IOWA



3 1723 02094 9855