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UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

W. V. LAMBERT, Director

M. L. BAKER, Associate Director

Research Bulletin 175

Farm Family Housing Needs and
Preferences in Nebraska

VIRGINIA Y. TROTTER AND MARGARET I. LISTON
Department of Home Economics

LINCOLN, NEBRASKA
JUNE, 1954

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Technical Committee for Regional Research in Farm Family
Housing Needs and Preferences*

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* A subcommittee of N.C. 9, Regional Technical Committee for RMA
Project, Farmhouse Requirements.

SUMMARY OF FINDINGS

Characteristics and features that Nebraska farm families would like to have if they were building new houses:

- About: 85 percent would like houses of five, six or seven rooms
 - About: 25 percent would like five rooms
 - 40 percent would like six rooms
 - 20 percent would like seven rooms
- About: 80 percent would like one-story houses
 - Of those preferring more than one story
 - About: 90 percent would like one or more bedrooms downstairs
 - 95 percent would like the bathroom downstairs if they had no other lavatory
- About: 95 percent would like a sloping roof
- 90 percent regard a basement or cellar as necessary
- 85 percent would like (1) central heating system (2) one or more porches (3) a spare bedroom
- 70 percent would like a separate coat closet near the entrance
- 65 percent would like a separate dining room¹
- 60 percent would like the house and drive so planned that callers would come to the back door
- 40 percent would heat the whole house
- 50 percent would like a first-floor workroom¹

Selected activities that are related to housing needs of farm families:

Food preparation and meal service

- About: 95 percent have no more than two persons working in the kitchen for everyday tasks
- 99 percent do some baking
- 90 percent usually serve meals to no more than six persons
- 90 percent would like to serve meals in the kitchen
- 65 percent would like to serve more than six people in the dining room

Food preservation

- About: 99 percent can, freeze, dry, or pickle some foods
- 95 percent would like to prepare food and process it in the same place
- 55 percent have round water bath containers in the house
- 75 percent make and store lard
- 40 percent cut up meat in the farmhouse

¹This figure was obtained by combining the percentage of homemakers who said the feature "should be included by all means" with the percentage of those who said it would be "desirable" but might be left out if resources were limited.

Laundering

- About: 95 percent do all their laundry at home
- 70 percent would like to dry laundry in the basement
- 50 percent would like to wash in the basement

Sewing

- About: 90 percent do some sewing (more than hand mending) at home

Farm work and business requirements in the house

- About: 85 percent would like some space provided for farm business
- 75 percent would be satisfied with a desk for that purpose, do not want a separate room
- 75 percent prepare eggs for market
- 65 percent have churns or household scales to store
- 60 percent prepare some cream for market
- 40 percent store some seed

Hospitality, leisure and play

- About: 95 percent entertain groups of some kind (half of these entertain groups of 15 or more)
- 98 percent entertain overnight guests
- 99 percent want to be able to entertain overnight guests

Possession of selected household furnishings and equipment:

- About: 100 percent have radios
- 90 percent have console sewing machines
- 65 percent have wood or coal ranges
- 60 percent have nonautomatic electric washers
- 50 percent have electric refrigerators
- 25 percent have gas ranges
- 20 percent have gas or kerosene refrigerators
- 20 percent have electric vacuum cleaners
- 15 percent have electric ranges

Shortcomings of farmhouses in Nebraska:

- About 100 percent do not have an electric dishwasher
- 100 percent do not have an electric ironer
- 100 percent do not have a gas or electric clothes dryer
- 95 percent do not have a food freezer
- 85 percent do not have an electric mixer
- 60 percent do not have gas or electric range
- 75 percent lack bathrooms
- 75 percent lack a central heating system
- 70 percent have fewer than one clothes closet for each bedroom in the house
- 65 percent do not have both electricity and running water
- 60 percent lack running water

- 45 percent lack basements with finished walls and floors
- 35 percent lack electricity
- 15 percent lack adequate number of bedrooms on the basis of household size and composition

Differences in housing needs and preferences of farm families within Nebraska:

By type of farming area (the state was divided into five areas on the basis of type of farming, figure 11):

(The Northeast and South Central areas of Nebraska varied only slightly from the state as a whole in needs and preferences.)

More farm families in the North Central area than in any other area

- lack electricity
- lack a spare bedroom
- lack a basement
- lack clothes closets

Fewer families in the North Central area

- prefer central heating
- prefer a basement

Fewer farm families in the Southeast area

- live in one-story houses
- prefer to live in a one-story house
- prefer a utility room

More farm families in the Southeast area

- prefer a fireplace
- prefer a second-floor deck

By income:

More farm families with incomes under \$3,000 when contrasted with those having higher incomes

- have small houses
- lack running water
- lack a bathroom
- lack central heating

Fewer farm families with low incomes

- prefer a new house with space for farm business
- prefer a sewing room
- prefer a fireplace
- prefer a lavatory in addition to a bathroom
- prefer a first-floor workroom

More farm families with low incomes

- prefer a front porch

By type of farm operation:

More full- or part-owner operators than renters have a bathroom

- running water
- central heating

Little or no difference exists between owner and renter families
in preferences for new houses
in activities carried on in the farmhouse

By type of family:

Significant differences among family types are associated with increase and decrease in family size in relation to
characteristics of the houses occupied
family possessions
family activities carried on in the farmhouse
homemakers' housing preferences

Differences between Nebraska and the North Central Region:

(Although there was a significant difference in many instances the difference was in amount or degree and not in preference or need.)

More Nebraska families than North Central Regional families
rent the farms they operate
are cash grain or livestock farmers
have separate dining rooms
have basements with finished walls

More Nebraska families than North Central Regional families
prefer
one-story house
glassed-in porch
a work porch
coat closet for guests
guests to enter back door
fewer rooms than in present house
bedroom downstairs
not to heat all rooms

More Nebraska families than North Central Regional families
bake cakes, quick breads, yeast breads and yeast rolls
serve meals in the kitchen and dining room
preserve fruits and vegetables
do some sewing
handle eggs for market in the house
handle cream for market in the house
store seed in the house
entertain family and farm groups

Farm Family Housing Needs and Preferences in Nebraska

VIRGINIA Y. TROTTER² AND MARGARET I. LISTON³

INTRODUCTION

Purpose of Study

SOME FARM FAMILIES in Nebraska want to build new houses. Many others are planning to remodel.⁴ These families will be asking architects, engineers, builders, contractors, and dealers for plans that meet their needs. Thus, farmhouse plans should be developed that provide for the basic needs of all farm families and that are adaptable to special requirements of some families.

This bulletin reports the results of a survey of Nebraska farm family preferences, activities and possessions as they are related to housing needs. The study was part of a cooperative research project for the improvement of farm family housing in the North Central Region. It was coordinated with the survey of "Farm Housing Needs and Preferences in the North Central Region" that was completed and reported in 1951.⁵

The purpose of the study in Nebraska was three-fold:

1. To interpret the housing needs of farm families of the state in terms of:
 - a. Some of the physical characteristics of the farm dwellings currently occupied;
 - b. Features farm families would like in a new house if they were building one;
 - c. Activities carried on in farmhouses that require special space and equipment;
 - d. Statements of family members concerning preferred places in the house for carrying on specified activities; and
 - e. Possessions farm families have that require space for storage.
2. To determine the difference in housing needs and preferences of farm families residing in different areas of the state, and of

² Assistant Home Economist, Nebraska Agricultural Experiment Station.

³ Professor and Head of the Department of Home Management, Iowa Agricultural Experiment Station.

⁴ At the time of the interviews, 16 percent of the respondents said they planned to build within five years, 23 percent planned to remodel, and 61 percent did not plan to do anything to their houses.

⁵ *Farm Family Housing Needs and Preferences in the North Central Region*, North Central Regional Publication 20, Iowa State College, February, 1951.

those varying in family income, family composition and farm tenure.

3. To identify the ways in which the housing needs and preferences of farm families in Nebraska are different from those of the North Central Region.

A Brief of Methods and Procedure

Data for this study were obtained during 1948 and 1949 by interviewing the homemakers of 558 Nebraska farm families. Fifty-seven of these families had been selected as part of the sample for the survey of housing needs and preferences of farm families in the North Central Region. The Statistical Laboratory at Iowa State College drew an additional sample using area sampling techniques, to supplement the households included in the regional study in order that information from the Nebraska families might be representative of all farm families in the state.⁶ Figure 1 shows the distribution of the segments of the sample. With a few exceptions, each segment represents three households.

The data were used to make three kinds of observations. First, the preferences, activities and possessions of Nebraska farm families are described as they relate to housing needs. Second, the significant differences are noted between families differing in type of farming area, income, tenure, and family type in relation to their present housing conditions and their preferences and activities. Finally, the ways in which the preferences and activities of Nebraska farm families are similar to or different from those of the region are pointed out.

Characteristics of the Universe

The households and families. When the interviews were made, the number of persons in the household was identical to the number in the family in about 90 percent of the cases (table 1). Only about one tenth of the households included persons who were not related to the head such as hired help and roomers. Because the households and families were usually the same, these terms will be used synonymously in this report.

About three fourths of the families living in the open country of Nebraska had two, three or four members (table 1).⁷ Less than one sixth of them had as many as six persons.

⁶ For a detailed explanation of the methodology used, see Appendix E, *Farm Family Housing Needs and Preferences in the North Central Region*, North Central Regional Publication 20, pages 111 to 137, and pages 105 to 122 of this bulletin.

⁷ This statement and others that follow are based upon estimates made from the sample chosen to represent the entire state. The sample consists of 558 randomly selected Nebraska families.

TABLE 1.—Distribution of farm families and households, by size, Nebraska and the North Central Region.¹

Number of persons	Percentage of families		Percentage of households		Percentage of families same size as households	
	Nebraska	N. C. Region	Nebraska	N. C. Region	Nebraska	N. C. Region
One	0.9	2.7	0.5	2.4	100.0	87.5
Two	26.5	24.0	24.2	23.3	99.2	96.2
Three	22.9	23.1	22.9	23.5	89.8	98.5
Four	23.1	21.7	21.3	21.7	92.4	97.9
Five	12.8	13.1	14.9	12.7	75.9	92.2
Six	7.5	7.4	8.8	7.9	81.6	96.9
Seven	2.9	3.7	2.9	4.2	75.0	87.9
Eight or more.....	3.4	4.3	4.5	4.3	68.0	100.0
Total	100.0	100.0	100.0	100.0	88.5	96.3

¹In this table and the others that follow the data for the North Central Region are reported as well as those for Nebraska. The significant differences in the findings for these two areas are reported on pages 61 to 66.

About two thirds of the families included children under 19 years of age (table 2). The adult families—those in which there were no children under 19 years—usually consisted of some combination of adults other than young married couples in which the wife was under 35 years. Thus, the housing needs of growing families may present the first line of attack on farm housing problems. However, the fact that older couples continue to live on farms presents another problem to be considered.

TABLE 2.—Distribution of farm families, by family type, Nebraska and the North Central Region.

Family type	Distribution of families			
	Nebraska		North Central Region	
	No.	Pct.	No.	Pct.
Families including children under 19:				
Families in which all children are under 9 years	149	26.7	200	22.6
Families in which some children are 9 years or more	209	37.5	336	38.0
Total families with children	358	64.2	536	60.6
Families including no children under 19 (adult families):				
Single persons	3	0.5	24	2.7
Young couples (married couples in which wife is under 35).....	41	7.3	34	3.9
Older couples (married couples in which wife is 35 or older).....	89	16.0	150	17.0
Other adult families	67	12.0	140	15.8
Total adult families	200	35.8	348	39.4
Total families	558	100.0	884	100.0

During the interviews, the homemakers were asked to give the approximate family net income during 1947.⁸ According to these responses, about two thirds of the families had incomes between \$1,500 and \$5,000 (table 3). About one fifth had incomes of \$5,000 or more.

TABLE 3.—Distribution of farm families, by income, Nebraska and the North Central Region.

Income class	Distribution of families			
	Nebraska		North Central Region	
	No.	Pct.	No.	Pct.
Under \$1,500.....	54	9.7	250	28.3
\$1,500 to \$2,999.....	198	35.4	289	32.7
\$3,000 to \$4,999.....	190	34.1	216	24.4
\$5,000 and over.....	107	19.2	110	12.4
No information.....	9	1.6	19	2.2
Total.....	558	100.0	884	100.0

The houses occupied. Many of the houses occupied by Nebraska farm families did not have some of the characteristics often assumed to be desirable.⁹ A bathroom, central heating, running water, clothes closets, and a basement with finished walls and floors were the characteristics which most houses lacked (table 4). These inadequacies of Nebraska farmhouses point up some of the kinds of remodeling needed to provide for comfortable, convenient, and healthful living.

Two thirds of the houses occupied by Nebraska families living in the open country had more than one story (table B-1).¹⁰ Most of the houses had five, six, or seven rooms (table B-2).

⁸ They were asked to indicate which one of seven specified income groups best represented the family's gross income minus business expenses. Although nine of the homemakers were unable, or unwilling, to give accurate information, the percentages in table 3 probably indicate the general distribution of families by net income.

⁹ The list of characteristics assumed to be desirable in farmhouses is based, primarily, on two criteria. Some of the features are those which, in terms of the present study, are preferred by the majority of Nebraska farm families. Others, such as "at least one room per person," "adequate number of bedrooms," and "one clothes closet per bedroom needed" represent features often accepted as requirements for healthful living.

¹⁰ Table designations prefixed by letter B refer to tables in Appendix B, pages 70 to 94.

TABLE 4.—Characteristics of farmhouses relative to certain assumed requirements, Nebraska and the North Central Region.

Assumed requirements	Percentage of farmhouses meeting the requirement specified	
	Nebraska	North Central Region
Bathroom	24.4	27.1
Central heating system.....	25.7	.....
Both electricity and running water.....	33.9	35.9
Running water	38.0	37.6
At least one clothes closet for each bedroom needed by the household, excluding a spare bedroom.....	51.4	62.7
Basement or cellar with finished walls and floors ¹	55.6	45.1
Spare bedroom	60.8	58.6
Electricity (high line or private plant).....	65.2	72.4
Separate dining room.....	66.2	57.6
Adequate number of bedrooms ²	85.8	72.3
At least one room per person in the household.....	88.7	87.9
Porch of some kind.....	81.3	79.4

¹ Basements or cellars with walls and floors other than dirt.

² For the purposes of this study, an adequate number of bedrooms is defined as: not more than two persons to a bedroom, with segregation of children of 9 years or over by sex. Married couples, one parent and a child under 9 years, two brothers or two sisters, regardless of age, are allowed a single room.

The farms operated. In 1948-49 about nine tenths of the Nebraska families living in the open country were operating farms on a full- or part-time basis (table 5). About 5 percent of the families combined farming with another occupation and were classified as "part-time operators." Those who were not farming may have had a small garden plot and some poultry or livestock which yielded a limited income, but their major income was from a source other than farming.¹¹

Of all the Nebraska families living in the open country, about two fifths were operating only rented land, about one fourth owned all the land operated, and about one sixth were farming both owned and rented land. About three fourths of the farms operated were between 100 and 500 acres. The type of farming was almost equally distributed between livestock, cash-grain and general farming.

¹¹ A modification of the definition of a farm described in the 1945 Census of Agriculture was used. A farm was any establishment of 3 acres or more on which some agricultural operations were performed, or a smaller establishment if its agricultural products in 1947, including both those sold and those produced for home use, were valued at \$250 or more. However, the question put to homemakers asked only for the value of crops sold, at local market prices, so some households may have been classified as nonfarm that would have been regarded as farm under the census definition.

TABLE 5.—Distribution of open-country families, by type of operator, size of farm and type of farm, Nebraska and the North Central Region.

Characteristics of farms operated	Distribution of families			
	Nebraska		North Central Region	
	Number	Percent	Number	Percent
Tenure:				
Farm operator				
Full-time:				
Full owner	155	27.8	386	43.7
Part owner	92	16.5	121	13.7
Renter	240	43.0	192	21.7
Manager	0	0.0	13	1.5
Part-time	20	3.6	108	12.2
Total full- and part-time operators	507	90.9	820	92.8
Nonoperators	51	9.1	64	7.2
Total	558	100.0	884	100.0
Size of farm:				
Under 10 acres.....	21	4.1	46	5.6
10-99 acres	24	4.9	191	23.3
100-179 acres	118	23.2	224	27.3
180-259 acres	107	21.1	139	17.0
260-499 acres	144	28.4	113	13.8
500-999 acres	49	9.7	38	4.6
1,000 acres and over.....	44	8.6	14	1.7
Acres not specified.....	0	0.0	55	6.7
Total	507	100.0	820	100.0
Type of farming:				
General	177	35.0	486	59.3
Cash grain	137	27.0	78	9.5
Livestock	161	31.7	70	8.5
Dairy	4	0.8	56	6.8
Specialty	5	1.0	12	1.5
Truck	0	0.0	6	0.7
Poultry	0	0.0	4	0.5
Part-time	23	4.5	108	13.2
Total	507	100.0	820	100.0

CHARACTERISTICS PREFERRED IN A NEW FARMHOUSE

In order to design a farmhouse suited to the interests of Nebraska farm families, it is important to have information about the characteristics that families prefer. In the present study, homemakers were asked many questions about what they would want in a new farmhouse if they were building one.

General Characteristics

Number of stories. Regardless of the number of stories in the houses they occupied at the time of the interview, most families said they would prefer to live in a one-story house (figure 2, and table B-2).

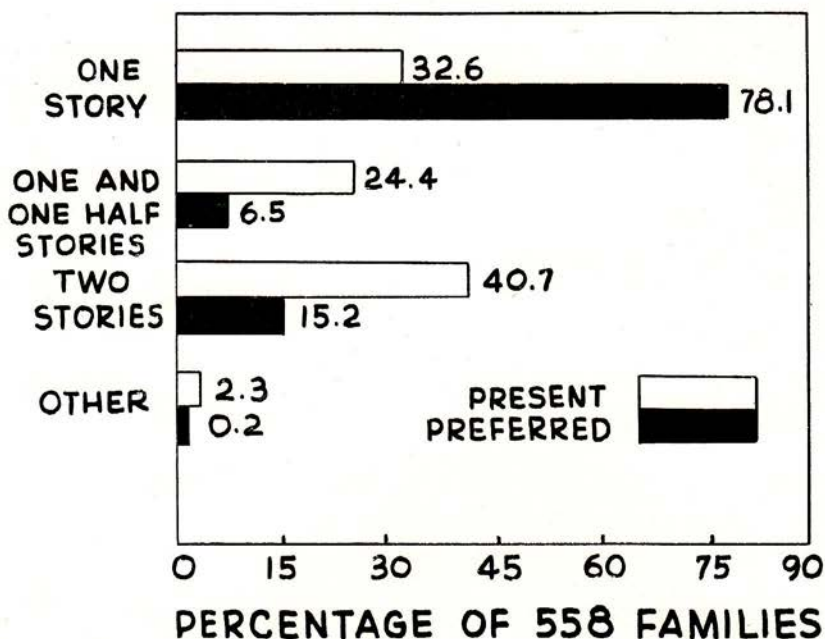


FIGURE 2.—Families having and preferring specified number of stories in a farmhouse.

From the information obtained from the 558 homemakers, it may be estimated that¹²

About: 80 percent of all the open-country families in Nebraska wanted houses of one story; 30 percent actually had houses of one story

20 percent wanted houses with more than one story; 65 percent had houses with more than one story

¹² The "about" that introduces every such statement should be interpreted as meaning "within 3 or 4 percentage points above or below" the stated percentage. If the base for the percentages is only part of the 558 households, the confidence interval must be widened. For instance, if the size of the sample is reduced to one fourth, the confidence interval will be approximately doubled. Estimates of the percentages of the families who would want specified combinations in a six-room house are based on the replies of the 222 homemakers who said they would like to have houses of that size if they were building. The "about" in statements based on their replies means "within 5 or 6 percentage points above or below." A similar widening of the interval is necessary if we want to make estimates with a degree of confidence higher than 95 percent—that is, if we want to be able to say, "The percentage for the universe sampled falls between these limits unless a one-in-a-hundred chance came off in the sampling" instead of "unless a one-in-twenty chance came off."

A difference of 5 points or less between the percentages reported may not represent a difference in the universe represented by the sample. It was found, for instance, that 27 percent of the 558 households operated cash grain farms, and 31.7 percent operated livestock farms. Using the 95 percent confidence intervals for

Number of rooms.¹³ If Nebraska farm families could have new houses about 40 percent would build a six-room house, while 25 percent would prefer a five-room house, 20 percent a seven-room house, and 10 percent each would like four rooms or fewer, or eight rooms or more (figure 3).

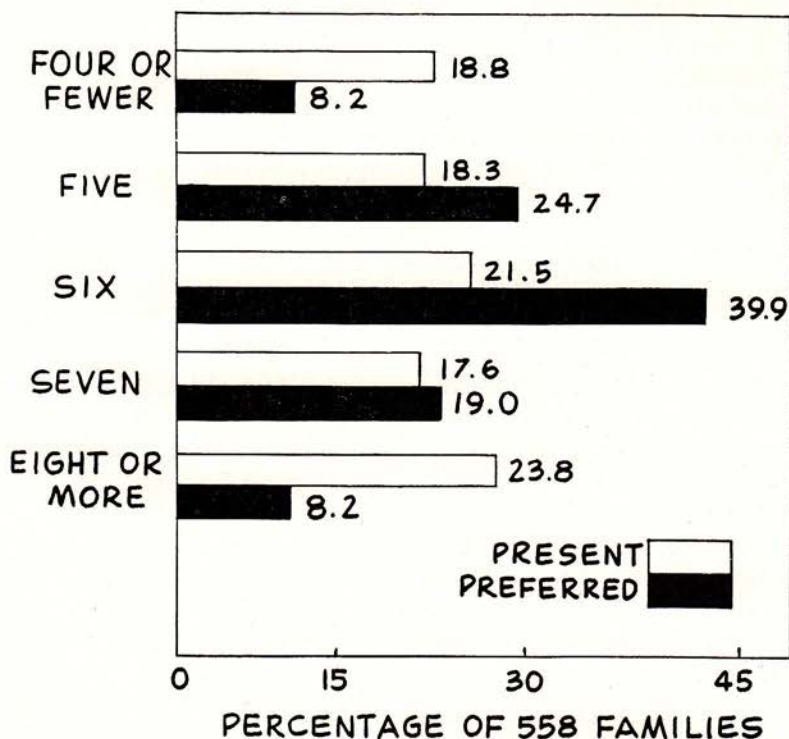


FIGURE 3.—Families having and preferring specified number of rooms in a farmhouse.

sample size 1000 from Snedecor, George W., *Statistical Methods*, table 1.1 (1946), we estimate that between 25 and 30 percent of the households in the population operated cash grain farms, and between 30 and 35 percent operated livestock farms. If each of those intervals is represented by the multiple of 5 included in it, we may say that "about 30 percent of all the households operated cash grain farms, and about 35 percent operated livestock farms." It is possible, however, that if all of the farm families in the state had been interviewed, we would have found that the number of cash grain farms and the number of livestock farms were about the same. That is, the difference found in the sample was not great enough to rule out the "null hypothesis"—the possibility that there were the same number of the two kinds of farms in the universe.

¹³ Homemakers were asked not to consider cost but to express the number of rooms it would take to meet their family needs most adequately (besides bathroom) if they were building new homes.

When the homemakers were asked if they were satisfied with the number of rooms in their present house, and if they were not, what rooms they would like to add or do without, it appeared that

About: 55 percent of the families were satisfied with the number of rooms they had
25 percent would like to have more rooms
20 percent would like to have fewer rooms (table B-3)

Farm families living in six- or seven-room houses were more often satisfied with their homes than families living in four-, five- or eight-room houses. Of the homemakers who said they would like to change the number of rooms in their houses approximately half indicated the need for more rooms.

About: 75 percent would like another bedroom
20 percent would like a dining room
20 percent would like a living room
70 percent would like some other room, such as work or utility room (table B-4)

The remaining 120 families did not need as many rooms as they had. About 95 percent of these would like to remove a bedroom.

From the foregoing observations it is evident that farmhouses should be planned so that room areas are more flexible and may be shifted from one use to another.

Roof styles and attics. The homemakers were shown sketches of two houses of the same size and general plan, one with a sloping roof, and the other with a flat roof (table B-5). The sloping roof was much preferred by Nebraska farm families. An attic was not as important as some other features.

About: 90 percent preferred a sloping roof
5 percent preferred a flat roof
5 percent were undecided
35 percent would like to have an attic

Basement. Almost all of the families (about 95 percent) considered a basement important when building a new home (tables B-5 and B-6). People who had houses with basements seemed to like them.

About: 90 percent of those who had houses with basements considered them necessary
75 percent of those who did not have a basement considered a basement necessary
10 percent of those who had a basement considered it nice but not necessary
15 percent of those who did not have a basement thought it would be nice to have, but not necessary
2 percent of those who had a basement would not want to spend money for one

10 percent did not have a basement and did not want to spend money for one.

The reason for wanting a basement was to have a place for washing and space for storage and a central heating plant.

Porches. Porches are an important feature to Nebraska farm families. The majority (about 85 percent) of the families preferred a glassed- or screened-in porch; a glassed-in porch was the favorite. More families preferred back porches than front porches. Only about 35 percent preferred both a back and front porch. A south exposure was most often preferred for a back porch, and an east exposure for the front porch. Ten percent preferred a side porch, with either a south or east exposure.

Room combinations. Preferences concerning the kinds of rooms in a farmhouse were obtained in two ways. First, all homemakers were asked to specify the kinds of rooms they would like in a four- and a five-room house. Second, each homemaker was asked to specify the number of rooms and the room combinations she would prefer if her family were to build a house soon. From the replies, particular preferences for specified room combinations were observed. These may be used as a guide for designing houses for farm family living.

In a four-room house, the 558 homemakers liked the same room combinations as did the homemakers who said they would like to build a four-room house. It can therefore be estimated that if farm families had to get along with only four rooms

About: 80 percent would want a kitchen, two bedrooms, and either a living room or combination living-dining room (table 6).

95 percent would want two bedrooms (table 7).

In a five-room house, the room combinations preferred by all homemakers, and those preferred by the 138 homemakers wanting to build a five-room house, were generally the same. Most families desired a kitchen, dining room, living room or living-dining room combination, with one or two bedrooms (tables 6 and 7). In some cases a workroom was desired. A more complete picture of the open-country preferences for room combinations in a five-room house appears below.

On the basis of the preferences of the 138 homemakers	On the basis of the preferences of all 558 homemakers	Room combinations
About: 50 percent	30 percent	would want a kitchen, dining room, living room, and two bedrooms
30 percent	30 percent	would make no provision for a dining room
65 percent	45 percent	would want two bedrooms (most of others would want three)
20 percent	15 percent	would include some "other" rooms

TABLE 6.—Preferences for specified room combinations, by families who would build houses of specified number of rooms.

Number of rooms	Families reporting (Number)	Percentage of families preferring specified room combinations								Total	
		Kitchen, living, dining room, bed-room (s)	Kitchen, dining room, living room, bed-room (s)	Kitchen, living room, bed-room (s) other (s)	Kitchen, living, dining room, bed-room (s) other (s)	Kitchen, dining room, living room, bed-room (s) other (s)	All other combinations	No information			
All families, if building houses of:											
4 rooms	558	52.4	1.8	0.7	0.5	0.0	13.1	1.0	100		
5 rooms	558	31.7	30.0	4.1	8.6	0.2	6.8	3.4	100		
Families preferring to build houses of:											
4 rooms	42	42.8	2.4	0.0	2.4	0.0	16.7		100		
5 rooms	138	29.8	47.1	2.8	12.4	0.0	1.4		100		
6 rooms	222	0.9	57.2	2.7	25.2	12.2	1.3		100		
7 rooms	106	0.0	42.5	0.0	2.8	23.6	31.1		100		
8 rooms	36	0.0	13.8	0.0	8.4	77.8	0.0		100		
Total Nebraska	544 ^{1,2}	11.0	44.4	2.0	14.8	14.8	8.4		100		
Total North Central Region	835 ^{1,2}	2.1	33.5	11.5	3.0	35.6	3.0		100		

¹ Preferences for room combinations in houses of fewer than four or more than eight rooms are not included.

² Also no information group not included.

TABLE 7.—Preferences for specified rooms, by families who would build houses of specified number of rooms.

Number of rooms	Families reporting (Number)	Percentage of families preferring specified rooms										"Other" ¹ rooms	No information	
		Kitchen	Living room	Dining room	Living-dining room	Kitchen-dining room	Bedrooms							
							1	2	3	4	5			
All families, if building houses of:														
4 rooms	558	90.3	33.1	11.6	53.6	8.6	3.2	93.0	2.7	0.0	0.0	0.0	1.4	1.0
5 rooms	558	92.3	49.5	37.1	42.1	4.3	0.2	44.6	51.8	0.0	0.0	0.0	14.7	3.4
Families preferring to build houses of:														
4 rooms	42	85.7	42.8	16.7	42.9	14.3	4.8	95.2	0.0	0.0	0.0	0.0	2.4	0.0
5 rooms	138	97.1	58.0	48.5	41.3	2.9	0.0	65.9	34.1	0.0	0.0	0.0	18.1	0.0
6 rooms	222	98.6	71.2	67.5	27.9	1.3	0.0	11.7	84.7	3.6	0.0	0.0	40.9	0.0
7 rooms	106	99.0	91.5	91.5	7.5	0.9	0.0	0.9	50.0	49.1	0.0	0.0	58.5	0.0
8 rooms	36	100.0	91.7	91.7	8.3	0.0	0.0	0.0	13.9	66.7	19.4	0.0	86.1	0.0
Total Nebraska	544 ²	97.5	70.9	65.1	27.2	2.5	0.4	29.0	53.8	15.4	1.3	0.0	38.2	0.0
Total North Central Region	835 ²	98.3	94.7	69.8	5.0	1.1	1.3	31.5	49.3	16.1	1.8	0.0	51.6	0.0

¹ See table 8 for detailed preferences for "other" rooms.

² Preferences for rooms in houses of fewer than four or more than eight rooms are not included.

TABLE 8.—Preferences for "other" rooms, by families who would build houses of specified number of rooms.

Number of rooms	Families reporting (Number)	Percentage of families specifying "other" rooms							Total
		Work or utility	Den, study, lounge	Sewing room	Other ¹	None	No information		
All families, if building houses of:									
4 rooms	558	0.4	0.4	0.5	0.2	97.5	1.0	100.0	
5 rooms	558	9.5	1.8	2.0	1.4	81.9	3.4	100.0	
Families preferring to build houses of:									
4 rooms	42	0.0	0.0	2.4	0.0	97.6	0.0	100.0	
5 rooms	138	10.1	3.6	4.4	0.0	81.9	0.0	100.0	
6 rooms	222	27.0	4.9	5.8	3.2	59.9	0.0	100.8	
7 rooms	106	40.6	7.6	14.1	0.9	41.5	0.0	104.7	
8 rooms	36	66.6	19.4	16.6	0.0	13.9	0.0	116.5	
Total									
Nebraska	544 ²	25.9	5.7	7.5	1.4	61.7	0.0	102.2 ³	
Total North									
Central Region	835 ²	32.1	10.4	7.1	12.9	48.4	0.0	110.9 ³	

¹ This includes such rooms as office, playroom, sun porch, parlor.

² Preferences for room combinations in houses of fewer than four or more than eight rooms are not included.

³ Some homemakers would include more than one "other" room, so percentages total more than 100.

Workrooms or utility rooms were the most frequently named "other rooms" (table 8).

More Nebraska farm families wanted six-room houses than houses of any other size. Room preferences for the six-room house and the five-room house were generally the same.

- About: 70 percent preferred a separate living room (table 7); the rest would combine living room and dining room
- 70 percent would have a separate dining room
- 85 percent would have three bedrooms
- 10 percent would have two bedrooms
- 40 percent would have some "other" room
- 30 percent would have a workroom (table 8)
- 5 percent would have a den or study

There were 106 farm families who would like to live in a seven-room house. The preferences of these families indicated that

- About: 25 percent would want a kitchen, dining room, living room, two or three bedrooms and some other room or rooms (table 6)
- 40 percent would want a kitchen, dining room, living room and four bedrooms
- 90 percent would want a separate dining room (table 7)
- 50 percent would want three bedrooms
- 40 percent would want a workroom (table 8)
- 10 percent would want a den
- 15 percent would want a sewing room

Only 36 families wanted an eight-room house. An analysis of the preferences for more rooms indicated that

- About: 90 percent would have a dining room
- 65 percent would have four bedrooms
- 15 percent would have three bedrooms
- 65 percent would include a workroom (table 8)

Dens and sewing rooms were the most desired "other" rooms.

Location of bedrooms and bathrooms. To obtain a true picture of the kinds of houses Nebraska farm families desire, it was important to determine the location of the preferred rooms and the room combinations. Only 20 percent of the farm families wanted a two-story house; however, the number of stories does influence the location of the bedrooms and bathroom in a house.

Of the families desiring a two-story house, about 90 percent would like at least one bedroom downstairs (table 9). The presence of an additional lavatory in a two-story house influences the preference for location of the bathroom. About 95 percent of the families would locate the bathroom on the first floor if the house did not have an additional lavatory, while about 60 percent would locate the bathroom downstairs even with a lavatory in the house (table 9).

TABLE 9.—Preferred location for bedrooms and bathrooms, by families preferring farmhouses of more than one story.

Location	Percentage of families by preference for location of					
	Bedrooms		Bathrooms			
	Nebraska (122 families)	North Central Region (301 families)	In house without a lavatory		In house with a lavatory	
		Nebraska (122 families)	North Central Region (301 families)	Nebraska (122 families)	North Central Region (301 families)	
Downstairs	93.4 ¹	87.3 ¹	95.1	76.7	59.9	45.8
Upstairs	6.6 ²	11.0 ²	4.1	21.3	37.7	52.2
No information	0.0	1.7	0.8	2.0	2.4	2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Nebraska

- ¹ 69.6 percent would have one bedroom downstairs
 20.5 percent would have two bedrooms downstairs
 3.3 percent would have three bedrooms downstairs
 0.0 percent would have "some" bedrooms downstairs
² This group would have all bedrooms upstairs.

North Central Region

- ¹ 74.4 percent would have one bedroom downstairs
 10.0 percent would have two bedrooms downstairs
 0.3 percent would have three bedrooms downstairs
 2.6 percent would have "some" bedrooms downstairs
² This group would have all bedrooms upstairs.

TABLE 10.—Family preferences for heating fuel, by type of heating system wanted.

Type of heating system preferred	Families reporting		Percentage of families preferring specified heating fuel								Total
	No.	Pct.	Oil	Soft coal	Gas	Wood	Hard coal	Combina- tion of fuels	Other and no infor- mation		
Central heating:											
Hot air	450	80.7	47.1	14.0	18.0	0.9	0.1	11.5	8.4	100	
Steam	3	0.5	66.7	0.0	33.3	0.0	0.0	0.0	0.0	100	
Hot water	16	2.9	31.2	25.0	12.5	0.0	0.0	12.5	18.8	100	
Unspecified	6	1.0	50.0	33.3	16.7	0.0	0.0	0.0	0.0	100	
Stove	64	11.5	50.0	15.7	18.7	0.0	0.0	12.5	3.1	100	
Other and no information	19	3.4	42.1	10.5	31.6	0.0	0.0	5.3	10.5	100	
Total											
Nebraska	558	100.0	47.0	14.3	18.3	0.7	0.4	11.3	8.0	100	
Total North											
Central Region	884	100.0	46.4	19.8	9.6	5.8	4.7	8.4	5.3	100	

About 90 percent of the families preferred to keep medicines and first aid supplies in the bathroom; the remaining families (with few exceptions) would keep them in the kitchen (table B-9).

Heating systems and fuels. Most families would want a central heating system if they were to build a new house.

Central heating was defined in terms of the kind of system desired, and the fuel preferred (table 10). Oil was the most popular fuel.

Availability of fuel seems to influence the kind preferred (table B-12a). The few families who expressed a preference for wood probably did so because it was readily available.

Replies of the homemakers in the sample indicated that

About: 45 percent preferred oil
20 percent preferred gas
15 percent preferred coal
20 percent preferred wood or a combination of fuels

Heating the entire house was not as important to the families as might be expected. About 35 percent preferred to heat all of the rooms and about 35 percent preferred to heat only the kitchen, dining room and/or living room (table B-13).

Special Characteristics

Location of men's wash-up area. The wash-up area is important to most farm families. The preferred location of this area varied. If the farmhouse had a bathroom, about 30 percent would use it as the wash-up area. The remaining 70 percent would have a special wash-up area, or would use the back porch or basement for this purpose. Fewer than 5 percent preferred the kitchen for this activity.

Although every family needs a bathroom, about 75 percent of the families interviewed did not have one. It seemed pertinent to find out where these families would locate a wash-up area. About 35 percent would use a special washroom or lavatory, and about 25 percent would use the back porch. About 20 percent felt they would have no alternative except to use the kitchen (table 11).

Guest entrance and coat closets. Most of the families (about 85 percent) used the back door as a guest entrance (table 12).

About: 40 percent wanted guests to use the back door
40 percent wanted them to use the front door
15 percent wanted them to use a side door

A separate coat closet for wraps worn to town was preferred by about 70 percent of the homemakers. One third of the families preferred that the coat closet be near the front entrance, and one fourth preferred it near the back entrance. The remaining families preferred a number of different locations for the closet.

TABLE 11.—Preferred location for wash-up area in farmhouse with and without bathroom.

Location	Percentage of families preferring specified location for wash-up areas					
	In farmhouse with bathroom			In farmhouse without bathroom		
	Nebraska	North Central Region	North Central Region	Nebraska	North Central Region	North Central Region
Bathroom	29.8	29.2	29.2	0.0	0.0	0.0
Basement	15.1	24.3	24.3	10.7	23.4	23.4
Utility or workroom	8.4	16.4	16.4	8.1	16.4	16.4
Back porch or "other" place	12.9	11.9	11.9	23.7	25.6	25.6
Washroom or lavatory	29.0	11.2	11.2	35.1	11.6	11.6
Kitchen	3.4	5.4	5.4	18.8	20.9	20.9
Outside	0.5	0.6	0.6	1.4	0.9	0.9
No information	0.9	1.0	1.0	2.2	1.2	1.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 12.—Family preference for entrance to be used by guests, by entrance used at present.

Entrance used by guests at present	Families reporting		Percentage of families preferring that guests use specified entrance				Total
	No.	Pct.	Back	Front	Side	Other and no information	
Back	477	85.5	46.3	38.8	11.5	3.4	100
Front	32	5.7	3.1	96.9	00.0	0.0	100
Side	44	7.9	9.0	2.3	88.7	0.0	100
Other and no information	5	0.9	00.0	00.0	00.0	100.0	100
Total Nebraska	558	100.0	40.5	38.9	16.8	3.8	100
Total North Central Region	884	100.0	24.5	57.9	15.2	2.4	100

View from kitchen window. Homemakers varied in their preferences for view from the kitchen window.

About: 25 percent would like to see the farm buildings (table B-11)
 35 percent would like more than one view
 15 percent would like to see the road
 10 percent would like to see the drive

Pantries and fireplaces. A pantry and a fireplace were not considered important housing features by most of the farm families interviewed. About 25 percent desired a pantry; half of these would use the space for storage (table B-5). Only about 30 percent of the families desired a fireplace in a new home (table B-5).

Other features. Homemakers were asked what other special features were so important that they would hesitate to build a house without including them. Most often mentioned was "adequate storage space." Special storage spaces most frequently mentioned were built-in cupboards and arrangements for muddy clothes, boots, and children's toys.

Homemakers' Ratings of Selected Characteristics of Farmhouses

All farm families prefer certain special features. To any family some features are more important than others. Each homemaker was asked to rate certain features in relation to their importance to her family. The ratings were as follows:

- "1" if you believe they should be included by all means,
- "2" if desirable but might be left out if resources are limited,
- "3" if the feature could be omitted without much disadvantage to family living.

The ratings are reported in table 13.

TABLE 13.—Family preference for certain rooms and other features in a farmhouse, as indicated by rating by the homemakers.¹

Room or selected feature of house design	Percentage of families giving specified rating ²								
	Rating 1		Rating 2		Rating 3		No information		
	Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region	
Basement	80.2	85.2	13.0	7.4	6.1	6.3	0.7	1.1	100
Central heating	83.5	79.7	10.2	12.0	5.2	6.8	1.1	1.5	100
Spare bedroom	47.0	50.0	37.6	37.8	14.5	10.8	0.9	1.4	100
Separate dining room	46.0	37.2	20.2	36.5	33.1	25.0	0.7	1.3	100
Front porch	30.2	33.7	21.8	32.6	46.7	31.9	1.3	1.8	100
First-floor workroom	33.0	40.2	17.2	20.6	48.7	37.3	1.1	1.9	100
Work porch	61.2	38.5	10.1	20.2	27.8	39.5	0.9	1.8	100
Lavatory (in addition to a bathroom)	12.0	21.9	39.7	35.6	46.9	40.4	1.4	2.1	100
Fireplace	5.8	10.9	21.3	28.0	68.8	59.7	4.1	1.4	100
Second-floor deck or porch	9.2	6.8	31.0	24.3	54.8	62.3	5.0	6.6	100
Pantry	14.0	18.1	9.0	8.5	76.1	71.9	0.9	1.5	100
Separate office	4.3	6.2	7.9	11.2	86.9	81.2	0.9	1.4	100

¹ Items are arranged in order of importance, indicated by combining ratings 1 and 2.

² See page 28 for explanation of ratings.

FAMILY ACTIVITIES IN FARMHOUSES

Activities carried on in the house are an important factor in planning a house to fit family needs. The activities Nebraska farm families were asked about were: (1) food preparation, preservation and meal service; (2) laundering; (3) sewing; (4) farm and home business, including the handling of produce for market; and (5) hospitality, leisure and play.¹⁴ In order to do further research on basic space needs, it is important to know what activities are carried on in the house.

Food Preparation, Preservation and Meal Service

Number of persons working in the kitchen. Nebraska farm homemakers cook family meals, wash dishes, preserve food, and cook for more than the family members. The homemakers were asked how many persons worked in the kitchen when carrying on their specified tasks (figure 4). Most kitchens that provide adequate working area for two people would be crowded for occasional entertaining of large groups.

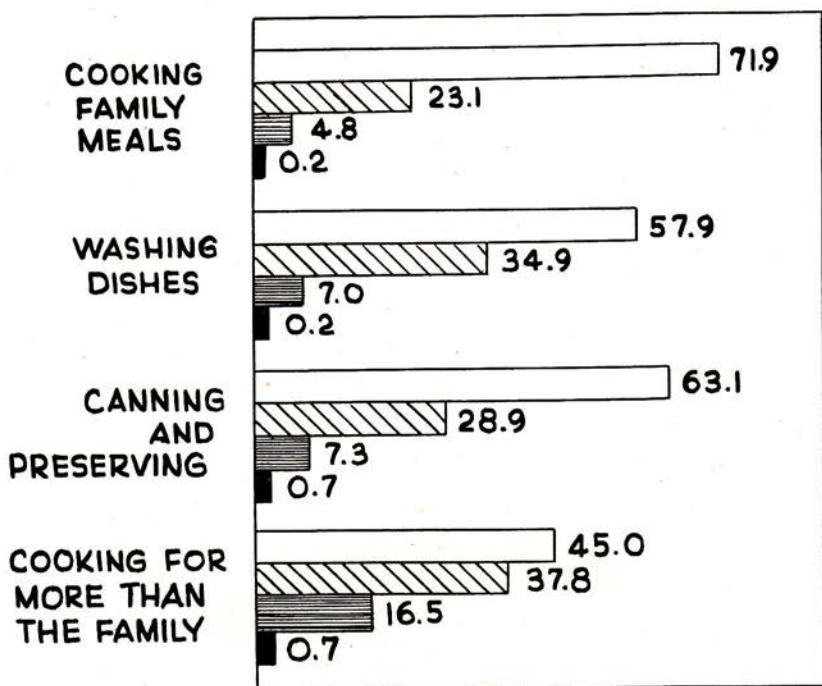
Baking. Baking plays an important role in the lives of Nebraska farm homemakers. Because baking takes considerable storage and working space, the homemakers were asked how frequently they made pies, cakes, cookies, quick breads, yeast and yeast breads, and in what quantities (table B-14).

About: 95 percent baked pies
95 percent baked cakes
85 percent baked cookies or doughnuts
90 percent baked quick bread
80 percent baked yeast rolls
75 percent baked yeast bread

Knowing the number that prepare baked products was not sufficient to determine the amount of space needed to carry on these activities. It was also important to know the amount of these products baked at one time and how often baking was done.

About: 70 percent baked pie four or more times a month
70 percent baked cake four or more times a month
80 percent baked quick bread four or more times a month

¹⁴ Children's activities and those adult activities related to children were omitted, not because they were regarded as unimportant, but because the complexity of the problem makes a separate study necessary. A study, *Houses for Farm Families with Children*, Kansas Agricultural Experiment Station Bulletin 365, June 1954, is now available.



PERCENTAGE OF 558 FAMILIES

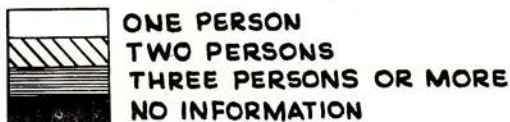


FIGURE 4.—Distribution of families, by number working in the kitchen.

- 60 percent baked yeast bread four or more times a month
- 50 percent baked yeast rolls four or more times a month
- 45 percent baked cookies or doughnuts four or more times a month

Cakes, pies and quick breads were more often baked one at a time, but cookies and loaves of bread were baked in larger quantities (table B-15).

Meal service. When serving regular family meals, only about 10 percent of the families seated more than six people, while about 30 percent served meals to more than four people (table B-16).

- About:
- 90 percent had room for some in the kitchen
 - 25 percent had room for more than six in the kitchen
 - 10 percent had room for nine or more in the kitchen

65 percent had room for some in the dining room
65 percent had room for more than six in the dining room
50 percent had room for more than eight in the dining room
20 percent had room for more than ten in the dining room

Some of the homemakers were not satisfied with their dining space (table B-17).

About: 10 percent would like to be able to seat more people in the kitchen
10 percent would prefer to have less seating space in the kitchen
20 percent would like to be able to seat more people in the dining room
10 percent would prefer to have less space in the dining room

About 60 percent of the homemakers preferred to serve meals in both the kitchen and the dining room, while about 15 percent preferred to serve meals in the kitchen and some other part of the house (table B-18). Only about 20 percent of the families wanted to serve both family and company meals in the kitchen. These may be important considerations for families building new houses or remodeling old ones.

Inadequate storage for wet dishtowels, garbage and trash is an irritation to most homemakers. Provision should be made for appropriate storage of these items. The replies of the homemakers interviewed indicated that

About: 50 percent needed space for one or two dishtowels
45 percent, for three or four
2 percent, for five or six

About 65 percent of the homemakers would like some kind of garbage container in the kitchen. Many of the families wanted to take refuse to poultry or farm animals as soon as possible. The size of the can varied from 1 to 5 gallons for most families (table B-19). About 80 percent of the families wanted a trash container holding up to 5 gallons. The kitchen was the preferred place for this container. Families preferring the trash container on the porch or workroom wanted a container larger than 5 gallons (table B-20).

Preservation. Most of the families did some kind of canning, freezing, drying or pickling (table B-21).

About: 100 percent preserved fruit
95 percent preserved vegetables
95 percent preserved fruit and vegetables
40 percent preserved meat
35 percent preserved fruit, vegetables and meat
5 percent preserved poultry

The homemakers were asked how much working space they needed for canning. The interviewer measured the amount of space the homemaker said she needed. This square footage was converted into a

length of counter 2 feet wide (table B-22). The amount of space desired by the homemakers differed widely.

- About: 10 percent wanted less than 7 feet
- 25 percent wanted less than 9 feet
- 55 percent wanted less than 11 feet
- 80 percent wanted less than 13 feet

The kitchen and the basement were used by most homemakers for canning. The homemakers preferred to use a workroom, kitchen, or basement (figures 5 and 6). Space for storing equipment used in food processing should be considered when planning farmhouses (table 14).

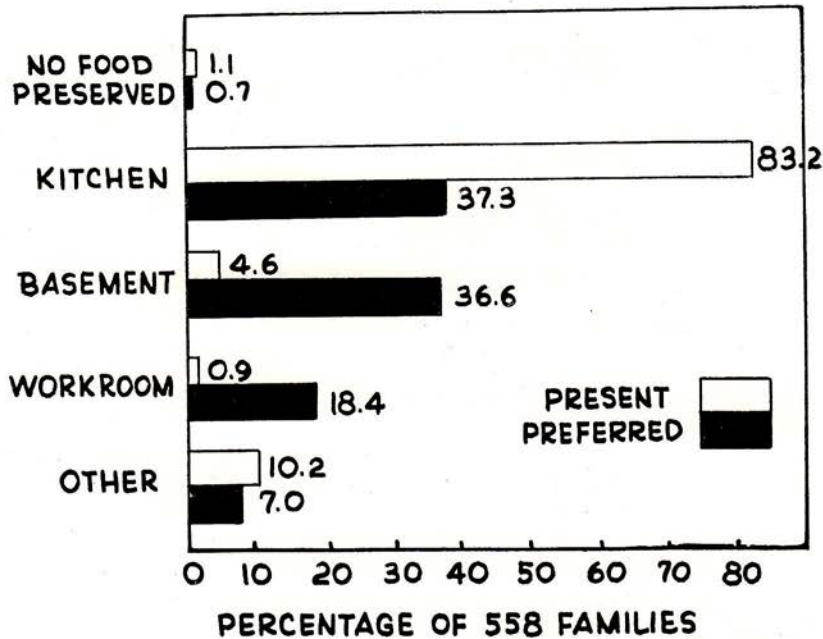


FIGURE 5.—Present and preferred locations for preparing food for preservation.

Most of the families (about 95 percent) preferred to prepare the food and process it in the same room, regardless of the location.

- About: 40 percent would center all canning activities in the kitchen
- 20 percent would prefer a workroom (table B-23)
- About: 60 percent stored canned food in the basement
- 90 percent would prefer to store it there (table B-24)

Meat cutting and lard making. About 35 percent of Nebraska farm families cut some meat in the house (table B-25). A similar proportion would like to have space provided for this activity in a new house.

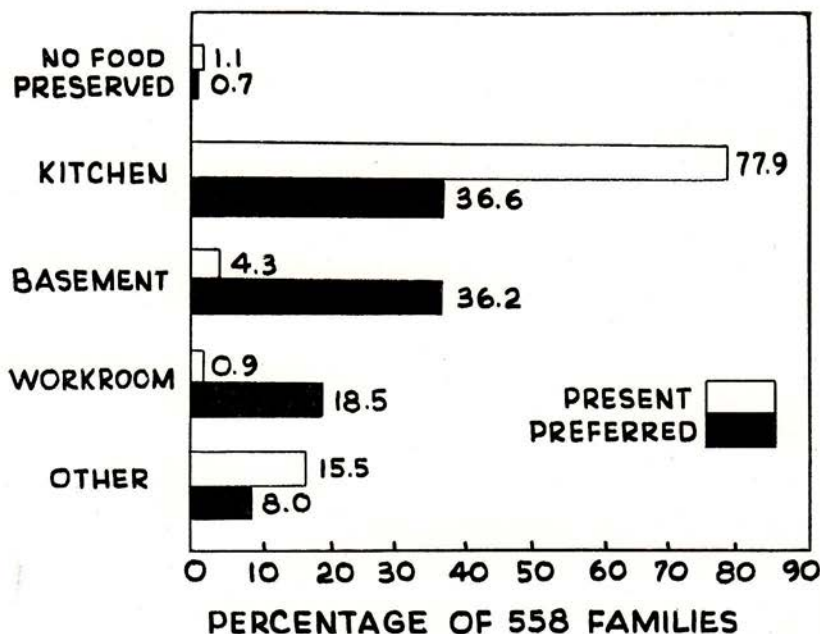


FIGURE 6.—Present and preferred locations for processing food.

The amount of meat cut at home varied from a few pounds to over 800 pounds.

About two thirds of the families who render lard made 4 to 12 gallons at one butchering (table B-26). Amounts of lard rendered were smaller for families who had butchering or rendering done at the locker plant. In spite of the fact that locker plants trimmed the fat for about half of the homemakers, about 90 percent continued to store lard at home. Most of the families preferred not to use locker space for lard storage (table B-27).

Laundering

About 99 percent of the homemakers did their laundry at home. Space for this activity should be seriously considered in planning houses to meet the needs and activities of farm families.

Preferred locations for washing. The most frequently used locations for doing the laundry were the porch, a detached washhouse, the basement and kitchen (table B-28 and figure 7). However, if they had a choice, the homemakers preferred to do the laundry in the basement or in a workroom. Some specified a basement or a detached washhouse because they did not want the clutter of laundering in the main part of the house.

TABLE 14.—Food processing equipment now stored in the farmhouse.

Kind of equipment stored	Percentage of families storing equipment in the house		Kind of equipment stored	Percentage of families storing equipment in the house	
	Nebraska (558 families)	North Central Region (884 families)		Nebraska (558 families)	North Central Region (884 families)
Milk pails ¹	72.9	50.2	Cream cans ²	62.3	32.6
Milk strainers	67.7	48.4	Ice cream freezers	39.8	29.1
Meat saws	57.1	48.3	Cream separators:		
Churns	65.9	47.2	Upright	59.8	27.9
Household scales	38.3	46.2	Table model	2.5	5.1
Water-bath canners:			Milk crocks ³	14.7	21.6
Round	55.3	41.3	Bottle cappers	0.5	15.8
Oval	32.7	14.3	Tin can sealers	0.1	2.4
Pressure canners	30.3	37.3			

Nebraska

- ¹ of the 407 families who had milk pails
 19.0 percent had one
 32.2 percent had two
 26.5 percent had three
 22.3 percent had four or more
- ² of the 348 families who had cream cans
 46.0 percent had one
 40.0 percent had two
 14.0 percent had three or more
- ³ of the 82 families who had milk crocks
 30.5 percent had one or two
 30.5 percent had three or four
 23.2 percent had five or six
 15.8 percent had seven or more

North Central Region

- ¹ of the 444 families who had milk pails
 32.6 percent had one
 38.3 percent had two
 16.7 percent had three
 12.4 percent had four or more
- ² of the 288 families who had cream cans
 47.2 percent had one
 36.1 percent had two
 16.7 percent had three or more
- ³ of the 191 families who had milk crocks
 37.7 percent had one or two
 36.1 percent had three or four
 18.3 percent had five or six
 7.9 percent had seven or more

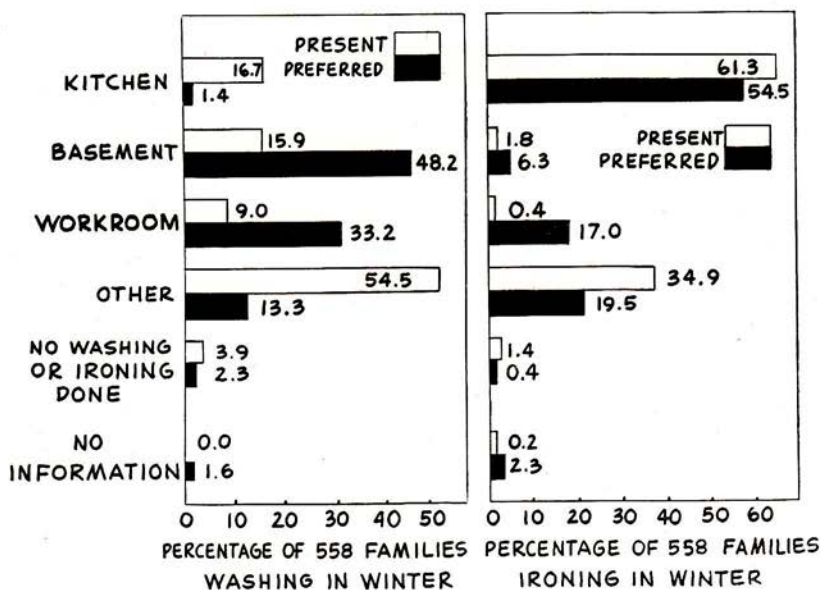


FIGURE 7.—Present and preferred locations for washing and ironing in winter. (Other locations now used for washing in winter include porch, 29.6 percent, and detached washhouse, 22.2 percent. Other locations now used for ironing in winter include dining room, 24 percent; living room, 8.2 percent; and bedroom, 1.1 percent. Other locations preferred for ironing in winter include dining room, 13.4 percent; living room, 3.9 percent; and bedroom, 0.2 percent.)

Preferred location for ironing. More families ironed in the kitchen than in any other place (figure 7).

About: 50 percent ironed in the kitchen
 25 percent ironed in the dining room
 10 percent ironed in the living room

With sufficient space and suitable room arrangement

About: 55 percent would iron in the kitchen
 15 percent would iron in a workroom
 10 percent would iron in the dining room
 5 percent would iron in the living room
 5 percent would iron in the basement

Preferred locations for storage of soiled clothes. About 50 percent of the families specified "other" or "miscellaneous" locations for soiled clothing containers, and about 20 percent of the families who preferred a certain room such as bathroom, bedroom, basement or workroom specified two locations (table B-29). The data obtained are too varied to indicate that one or two locations was actually preferred.

Containers for soiled clothing varied with the location preferred

for the storage. If the bathroom was specified, about 90 percent of the families preferred a hamper. If the basement was desired, about 75 percent preferred a basket. Nearly half of the families wanted a clothes chute in a new home.

Preferred locations for indoor drying. During the winter and on rainy days most families found it necessary to dry laundry indoors. Space provided for this purpose would eliminate lines strung across the porch, kitchen, dining room, living room and bedrooms (table B-30). Almost three fourths of the Nebraska families preferred to use the basement for drying clothes indoors. Few homemakers estimated that they needed more than 200 feet of indoor clothes line (table B-31). About half of them said that between 100 and 150 feet would be adequate.¹⁵

Preferences for laundry center. About 75 percent preferred to wash and iron in different places. When a homemaker specified that she would like to wash and iron in the same location, it was assumed that she would like a laundry center (table 15).

About: 15 percent would like a laundry center in a workroom
 5 percent would like a laundry center in the basement
 1 percent would like a laundry center in the kitchen

The preferred location for a "laundry center" varied with the size of the house.

TABLE 15.—Farm family preferences for laundry centers and their location, by number of rooms preferred in a farmhouse.

Number of rooms	Families reporting		Percentage of families who would wash and iron in					Total
	No.	Pct.	Base-ment	Work-room	Kit-chen	Porch	Different place	
Fewer than four	4	0.7	0.0	25.0	0.0	50.0	25.0	100
Four	42	7.5	0.0	7.1	0.0	2.4	90.5	100
Five	138	24.7	5.1	10.9	0.7	2.9	80.4	100
Six	222	39.8	5.4	14.9	0.4	5.9	73.4	100
Seven	106	19.0	3.8	19.0	0.0	6.6	70.6	100
Eight	36	6.5	2.8	30.5	0.0	2.8	63.9	100
More than eight	10	1.8	0.0	80.0	0.0	0.0	20.0	100
Total Nebraska	558	100.0	4.3	16.3	0.4	5.0	74.0	100
Total North Central Region	884	100.0	15.6	20.4	1.9		62.1	100

¹⁵ The possible use of an automatic dryer was not suggested with this question.

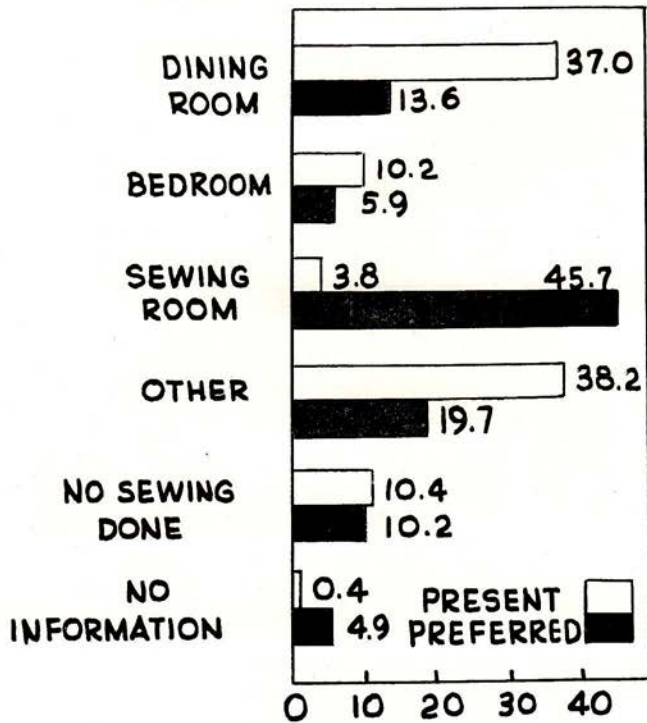
Sewing

Planning space for sewing activities that require a sewing machine, cutting space, and storage for sewing materials is important if the homemaker is to avoid cluttering other frequently used areas in the home. This is often overlooked when designing farmhouses.

Preferred location for sewing. The inconvenience of poor location and inadequate storage space may be one reason that many homemakers do so little sewing. About 80 percent of the homemakers said they would like to leave the sewing machine open when not in use (table B-36). This indicates that even though the homemaker may prefer to continue sewing in the present location, she prefers to have this activity confined to an area out of the main work centers and lines of traffic.

Each room in the house was used for sewing activities by some of the homemakers (table B-34).

About: 35 percent sewed in the dining room
 10 percent sewed in a bedroom
 40 percent sewed in the living room, kitchen and other rooms or combinations



PERCENTAGE OF 558 FAMILIES

FIGURE 8.—Present and preferred locations for sewing.

More than half of the homemakers were dissatisfied with the arrangements they had for sewing.

About: 45 percent would like to use a sewing room (figure 8)
 15 percent would like to use the dining room
 20 percent would like to use other places
 5 percent would like to use a bedroom

Fewer homemakers would choose to continue sewing in the kitchen, living room, or bedroom if that was the present location for this activity. About 5 percent of the homemakers had sewing rooms, and all of them were satisfied with this arrangement (table B-34).

Preferred locations for cutting out garments. More families used the dining room table than the kitchen table or floor for cutting out

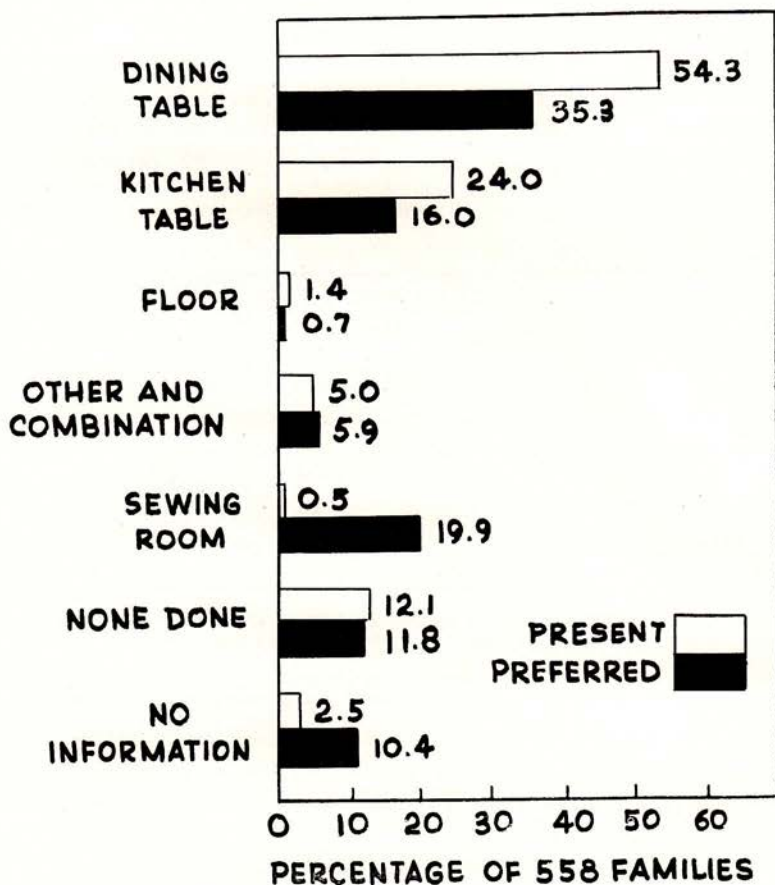


FIGURE 9.—Present and preferred locations for cutting out garments.

garments (figure 9). When asked where they preferred to cut out garments, their answers indicated that

About: 35 percent would like to use the dining room table
 20 percent would like to use the sewing room table
 15 percent would like to use the kitchen table

Farm Work and Business Requirements

Market goods handled in the house. Most farm families prepared eggs and cream for market in their home. About 75 percent of the homemakers handled eggs for the market.

About: 50 percent handled 1 to 5 dozen eggs a day
 15 percent handled 6 to 10 dozen eggs a day
 10 percent handled more than 10 dozen eggs a day

Two thirds of the families processed cream in the house.

About: 35 percent processed 1 gallon or less daily
 30 percent processed 2 to 5 gallons daily

Most farm families (about 80 percent) preferred to handle eggs in the basement and about 60 percent would also like to take care of cream there (table 16). Space in the basement for egg crates and cream cans was needed by these families.

TABLE 16.—Preferred locations for handling eggs and cream in a farmhouse.¹

Preferred location	Percentage of families handling in the house			
	Eggs		Cream	
	Nebraska	North Central Region	Nebraska	North Central Region
Basement	79.0	70.0	58.3	54.2
Kitchen	2.6	10.6	2.9	12.7
Workroom	6.6	10.1	8.7	9.0
Porch	3.3	3.2	5.5	2.4
Other	4.7	3.9	21.1	19.8
No information	3.8	2.2	3.5	1.9
Total	100.0	100.0	100.0	100.0

¹ For Nebraska:

Based on 424 families (76 percent of the sample) who would handle eggs, and the 345 families (61.8 percent of the sample) who would handle cream in the new house.

For Region:

Based on the 463 families (52.4 percent of the sample) who would handle eggs, and the 212 families (24 percent of the sample) who would handle cream in the new house.

About 35 percent of the farmers interviewed stored seed in the house. If this practice is to be continued, planning for such storage cannot be overlooked.

About: 5 percent stored less than 5 bushels
 15 percent stored 5 to 10 bushels
 15 percent stored more than 10 bushels (table B-40)

Less than 1 percent of the farm families stored such items as motors, machinery belts and incubators in the house (table B-41).

Farm and home business requirements. About 85 percent of the families would like some space for taking care of farm business (table B-43). Only about 5 percent of the homemakers said they would like space provided for household business. For farm business

- About: 75 percent wanted only space for a desk; they would not want a separate room
- 10 percent would like to have a separate room
- 40 percent of those who want a desk would like to have it in the living room (table B-44)
- 45 percent would like to have space for a desk in the dining room

Hospitality, Leisure and Play

Hospitality, leisure and play must be considered in planning space to meet the family needs. Organized meetings, overnight guests, formal and informal entertaining and family group and individual leisure all are part of rural family living. About 90 percent of the families said they would like to entertain in a new home.

Group meetings. Family group gatherings were more frequent than any other in most of the farm homes. Other group meetings such as Parent-Teachers Association, church groups, farm and business groups, Grange, 4-H Club, Future Farmers of America, and social groups were often entertained at home. Groups of about 20 were most often entertained (table 17).

About 40 percent of the families entertained only family groups. About 45 percent entertained family groups and other types, bringing the total of those entertaining family groups to a little more than 90 percent. These families entertained a median of two times a year, but enough families entertained more frequently to bring the mean to about five times a year.

Only about 35 percent of the Nebraska farm families entertained social groups, and about 25 percent held business group meetings. A few of the families (about 10 percent) entertained youth groups.

Accommodations for overnight guests. All of the Nebraska farm families had overnight guests and would like provision made for them in a new house (table B-45). About 90 percent of these families would like to have a spare bedroom for overnight guests. A few families would accommodate overnight guests in the family bedroom, or in the living room (figure 10).

Most of the Nebraska farm families have two to four overnight guests for whom they wish to make provision of some kind (table B-45).

- About: 55 percent would like to accommodate one or two guests
- 35 percent would like to accommodate three or four guests
- 5 percent would like to accommodate five or more guests

TABLE 17.—Types, size, and frequency of groups entertained in the farmhouse.¹

Kind of groups	Percentage of families entertaining		Number of persons in groups entertained				Number of times a year					
	Nebraska	North Central Region	Mean ²		Median ²		Mean ²		Median ²			
			Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region		
None			6.8	34.9								
Family groups only	37.2	23.8										
Family groups and others	43.9	23.1										
Total family groups	81.1	46.9	19.8	22.2	20	20	4.6	5.2	2	2	2	2
Social groups only	3.9	8.6										
Social groups and others	32.8	23.0										
Total social groups	36.7	31.6	20.2	21.3	18	20	4.6	3.3	2	2	2	2
Farm and business groups only	3.4	1.8										
Farm and business groups and others	21.5	12.8										
Total farm and business groups	24.9	14.6	20.4	20.9	19	20	2.0	2.6	1	1	1	1
Youth groups only	0.5	1.5										
Youth groups and others	9.9	8.9										
Total youth groups	10.4	10.4	18.5	19.6	15	20	3.3	2.9	2	2	2	2

¹ For Nebraska:

Of the 558 families, 91.9 percent said they would plan to entertain in a new farmhouse, 4.8 percent said they would not plan to entertain in a new farmhouse, and 2.3 percent gave no information.

For Region:

Of the 884 families, 68.9 percent said they would plan to entertain in a new farmhouse, 30.2 percent said they would not plan to entertain in a new farmhouse, and 0.9 percent gave no information.

² Mean and median calculated for the families who entertained each kind of group.

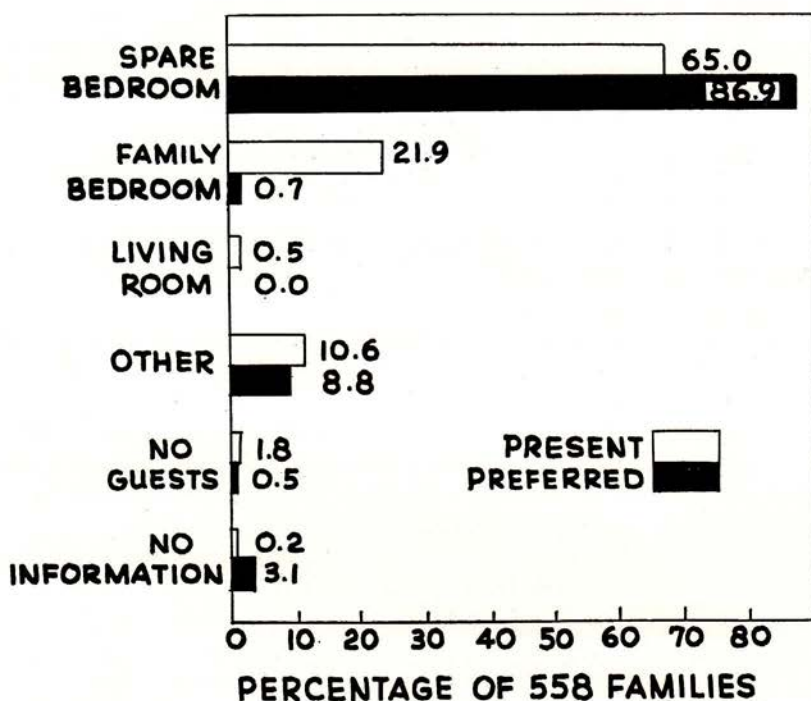


FIGURE 10.—Present and preferred locations for accommodating overnight guests.

Books and magazines. Most of the farm families did not own a large number of books, although they wanted some kind of shelf for books and magazines. The place for storing books and magazines preferred by the largest group of homemakers was in the living room, with the dining room the next most preferred area. The amount of space desired seemed to be related to the location preferred by the homemaker (table B-46). The variety in places and amounts points to the importance of flexible planning of storage for books and magazines.

Rest and relaxation. Extra sitting space for other family members when the living room is being used for special occasions by some family members seemed to be considered unnecessary by most Nebraska farm families. About 90 percent had no such space, and about 70 percent wanted no extra area for sitting (table B-47). Of those who did prefer extra sitting space

- About: 5 percent would like to have a den
- 5 percent would like to use the bedroom, sewing room or recreation room
- 20 percent gave no information concerning location

Although a place to lie down for rest is often considered important for farm family members, no special place for resting was provided in two thirds of the farm homes (table B-48). Of those who had a place to lie down

About: 20 percent had a couch in the dining room
5 percent had a place on the porch
10 percent made some "other" provision

Two thirds of the farm homemakers said they would like to have a place for lying down.

About: 15 percent would like space on a porch
10 percent would like space in the recreation room
35 percent would like space in such places as den, workroom, kitchen, office, dining room, and sewing room

A house does not fit the family needs unless the activities carried on in the house are considered in planning. The information in the above section will be an aid to all those interested in planning and building better houses for farm families.

FAMILY POSSESSIONS

In order to plan farmhouses so that effective use is made of space, consideration should be given to the kinds and numbers of possessions stored in the house. To make a detailed survey of farm family possessions is a task beyond the practical limits of this study. However, because of the urgent need for the information by house planners and researchers, an attempt was made to secure data concerning some of the possessions stored in the house.

Information about family possessions was obtained in two ways. All of the homemakers interviewed were asked to report which items on a list of house furnishings and equipment their families owned. In addition, a supplementary inventory form was left with the homemaker to be filled out and returned later. This inventory called for information about kinds and numbers of articles of food, clothing, equipment, linens and other groups.¹⁶

Reports from the Inventories

Household equipment. More than half of the farm families in Nebraska were using wood or coal ranges and one fourth of them were using gasoline (table 18). About one tenth were using electricity. In contrast, about two thirds had mechanical refrigeration. About 5 percent had a home freezer and only one family had an automatic dishwasher.

¹⁶ Since only 49 of the clothing inventories were complete enough to be used, this information is not included in the present report. Anyone interested in the responses should write to the Home Economics Department, University of Nebraska.

TABLE 18.—Distribution of farm families, by possession of selected household furnishings and equipment.¹

Item	Percentage of families by number of articles reported						Total
	Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region	
	None		One		More than one		
Cooking range:							
Wood or coal	37.1	44.8	62.9	54.6	0.0	0.6	100
Electric	88.0	84.0	12.0	16.0	0.0	0.0	100
Gas	74.9	73.5	25.1	26.5	0.0	0.0	100
Kerosene	92.3	75.3	7.7	24.7	0.0	0.0	100
Combination	91.9	94.5	8.1	5.5	0.0	0.0	100
Other	99.3	98.2	0.7	1.8	0.0	0.0	100
Refrigerator:							
Electric	53.0	51.3	47.0	48.6	0.0	0.1	100
Gas or kerosene	82.8	94.4	17.2	5.6	0.0	0.0	100
Ice	87.6	87.0	12.4	12.9	0.0	0.1	100
Cabinet or chest freezer	95.2	92.9	4.8	7.1	0.0	0.0	100
Dishwasher	99.8	99.8	0.2	0.2	0.0	0.0	100
Electric mixer	85.8	85.4	14.2	14.6	0.0	0.0	100
Washing machine:							
Electric:							
Nonautomatic	43.2	34.7	56.8	65.1	0.0	0.2	100
Automatic	99.1	99.1	0.9	0.9	0.0	0.0	100
Gasoline	65.4	80.5	34.6	19.5	0.0	0.0	100
Hand-powered	97.3	97.4	2.7	2.6	0.0	0.0	100
Ironer	98.9	97.6	1.1	2.4	0.0	0.0	100
Clothes dryer	100.0	99.9	0.0	0.1	0.0	0.0	100
Sewing machine:							
Console	11.2	19.7	88.6	80.1	0.2	0.2	100
Portable	98.0	97.6	2.0	2.4	0.0	0.0	100
Vacuum cleaner:							
Tank type	88.7	80.7	11.3	19.3	0.0	0.0	100
Upright type	88.5	82.4	11.5	17.6	0.0	0.0	100
Piano	43.0	65.0	56.5	34.3	0.5	0.7	100
Rocking chair	10.9	11.4	38.5	31.3	50.6 ²	57.3 ²	100
Easy chair	31.4	20.6	47.1	32.1	21.5 ³	47.3 ³	100
Radio:							
Table	18.6	17.2	75.5	68.6	5.9	14.2	100
Console	76.7	70.1	23.1	29.4	0.2	0.5	100
Dining room table	11.1	26.9	88.0	72.4	0.9	0.7	100
Sideboard	35.3	45.8	62.9	52.6	1.8	1.6	100
Library table	85.1	51.1	14.9	48.0	0.0	0.9	100

¹ Interviewers asked all the families in the sample for information about these items of household furnishings. The question came late in the interview, and the space allowed for recording answers was such that mistakes in recording could very easily occur. Thus, the information may well be less accurate than most of that obtained in the interviews.

² For Nebraska: 32.0 percent have 2 rocking chairs, 5.6 percent have 4, 17.3 percent have 3 rocking chairs, 1.8 percent have 5 or more
For Region: 31.3 percent have 2 rocking chairs, 5.6 percent have 4, 15.6 percent have 3 rocking chairs, 4.8 percent have 5 or more

³ For Nebraska: 76.7 percent have 2 easy chairs, 17.5 percent have 3 easy chairs, 5.8 percent have 4 or more
For Region: 34.2 percent have 2 easy chairs, 9.4 percent have 3 easy chairs, 3.7 percent have 4 or more

Between half and three fourths of the families kept milk pails, milk strainers, cream cans, a cream separator, and churns in their houses (table 14). One third of the families needed storage space for a pressure canner; two thirds kept water-bath canners in the house.

Laundry and cleaning. Although most of the Nebraska families owned a washing machine of some kind, only half of them had electric washers. Two families had an automatic washer and fifteen were using hand-powered machines. About one third of the families operated washing machines with gasoline power (table 18). Ironers were owned by only six families; none had an automatic clothes dryer.

The homemakers were asked whether they had used stationary or portable tubs, and which kind they preferred. Only about 15 percent had used both kinds; almost 50 percent had used neither kind. Therefore, it was difficult for them to specify a preference, and many had no opinion regarding laundry tubs. Stationary tubs seemed to be preferred by more homemakers than the portable type (table B-32).

Built-in ironing boards had been used by about one third of the homemakers; half of these women preferred a built-in board. About one third of those who had not used a built-in ironing board would like one in a new house.

About one fourth of the families had a vacuum cleaner. Equal numbers of these cleaners were of the upright and the tank type.

Sewing. A sewing machine was owned by about 85 percent of Nebraska farm families (table B-36). Pattern storage was a problem for these homemakers (table B-37).

About: 40 percent had 1 to 15 patterns
25 percent had 16 to 30 patterns
20 percent had 31 or more patterns
10 percent had no patterns to store

The sewing materials and equipment most often stored were garments in the process of being made, spreads or quilts, and rugs. Few families owned sewing tables or dress forms (table B-38).

About: 60 percent needed storage for one garment being made
15 percent needed space for storing two garments being made
20 percent needed space for storing a spread or quilt being made

Furnishings. The homemakers were asked if they owned specified kinds of home furnishings (table 18). Almost all of the families had a radio and more than half owned a piano.

Reports from Inventories of 110 Families

At the close of the interview, a detailed inventory of possessions to be stored in the house was left with those homemakers who said they were willing to fill it out. Because of the tediousness and length of this inventory, it was filled out with varying degrees of complete-

ness and accuracy. Of the inventories returned, 110 could be used to indicate the items that were most likely to be stored in Nebraska farm houses.

A summary of the possessions most commonly reported follows.¹⁷

Possessions

All of the items listed on the following pages were reported by at least one fourth of the 110 families that turned in storage schedules. Those not marked with an asterisk were reported by at least half of the families. The number given for each item is equal to or larger than the numbers reported by half of the homemakers who said that they had some of the specified items.

I. Bedding

Articles to be stored all year

- *4 blankets
- *2 comforters
- *4 quilts
- 4 pillows
- *2 spreads

Articles to be stored in warm weather only

- 6 blankets
- 4 comforters
- *4 quilts
- *4 blanket sheets

Articles to be stored in cold weather only

- *2 blankets

II. Household linens

For everyday use

- 6 sheets
- *2 spreads
- 8 pairs of pillow cases
- *2 bath mats
- 4 lunch cloths
- 2 table cloths
- 10 bath towels
- 10 hand towels
- 14 dish towels
- 6 scarves, runners

For guest and future use

- 4 sheets
- *2 spreads
- 6 pairs of pillow cases
- *6 hand towels
- 4 lunch cloths
- 2 table cloths
- 2 table pads
- *6 scarves, runners
- 6 bath towels
- *12 napkins
- 12 dish towels

III. Dishes and glassware

For everyday use

Vegetable dishes: oval, uncovered

- *2 less than 6" long
- *2 6", less than 8"
- *2 8", less than 10"
- *2 vegetable dishes, covered
- *2 serving plates 10" and over
- 2 sugar and creamer sets
- *2 gravy boats

Platters

- 2 less than 12" long
- *2 12", less than 14"

Pitchers

- *2 less than 6" high
- *2 6", less than 8"
- *2 8", less than 10"
- *2 pots: coffee, tea and chocolate; stored with dishes

Plates

- 9 dinner and luncheon
- 7 salad and pie
- *7 soup
- *7 bread and butter
- 7 saucers

¹⁷ Anyone interested in the detailed tables concerning family possessions may obtain them by writing to the Department of Home Economics, University of Nebraska.

- 7 soup bowls
- 7 cereal dishes
- 7 fruit and dessert dishes
- 7 cups, tea and coffee

Glasses

- 7 water
- *7 juice
- 5 jelly and relish dishes

For guest and future use

Vegetable dishes: oval, uncovered

- *2 6", less than 8"
- *2 8", less than 10"
- *2 vegetable dishes, covered

4 serving plates 10" and over

- 2 sugar and creamer sets
- *2 gravy boats

Platters

- *2 less than 12" long
- *2 12", less than 14"
- *2 14", less than 16"

IV. Silver

For everyday use

- 7 knives
- 9 forks
- 11 teaspoons
- *7 soup spoons
- 7 table spoons
- *2 butterknives

V. Kitchen utensils and equipment

- *1 toaster
- *1 waffle iron
- *1 coffeemaker

Saucepans with long handles

- 2 1 qt., and under
- 2 over 1 qt., under 3 qts.
- *1 3 qt., under 5 qts.

Pots with bails or short handles

- *1 2 qts., and under
- *1 over 2 qts., under 4 qts.
- *2 4 qts., under 6 qts.

Skillets or frying pans

- *1 6" and under
- *1 over 6", under 10"
- 1 10", under 12½"

1 double boiler

- *1 pressure saucepan
- 1 coffeemaker
- 1 tea kettle

Pitchers

- *2 less than 6" high
- *2 10", less than 12"
- *2 pots; coffee, tea and chocolate, stored with dishes

Plates

- 12 dinner and luncheon
- 12 salad and pie
- *12 soup
- *9 bread and butter

12 saucers

- *9 soup bowls
- *9 cereal dishes
- 12 fruit and dessert dishes
- 12 cups, tea and coffee

Glasses

- 12 water
- *12 iced tea
- *9 juice
- *12 goblets
- *12 sherbets
- 5 jelly and relish dishes

For guest use

- 12 knives
- 12 forks
- 12 teaspoons
- *9 soup spoons
- 7 table spoons
- 2 butterknives
- *2 serving pieces

Baking utensils

- *2 muffin pans
- 4 layer cake or pie pans
- 2 loaf pans
- 2 biscuit or flat baking pans
- *1 tube pan
- *1 cookie sheet

Baking dishes

- 2 less than 9"
- *2 9" and over

Roasters

- *1 9" x 13" and under
- *1 larger than 9" x 13"

Mixing bowls

- 2 1 qt., and under

- 2 over 1 qt., under 3 qts.
- *1 3 qts., under 5 qts.

Measuring cups

- 1 1 cup
- *1 1 pint

- *1 electric mixer
- 1 egg beater
- *1 egg whisk
- 2 mixing spoons
- 1 flour sifter
- 1 rolling pin

Small equipment

- 1 colander and sieve
- *1 dish drainer
- 2 dish pans

VI. Miscellaneous storage

Cleaning equipment

- 1 broom
- 1 long-handled mop
- 1 mop pail
- 2 waxes and polishes
- 6 bars of laundry soap
- 4 bars of toilet soap
- 2 boxes soap powder
- 2 cans of scouring powder
- 1 first aid kit
- *1 fuel can for lamps
- 2 extra kerosene lamps
- *4 paint and varnish cans
- *1 roll of paper towels
- 4 rolls of toilet paper
- 6 boxes of matches

House and garden equipment

- *1 lawnmower
- *1 sprayer
- *1 rake
- *2 hoes
- *1 garden hose
- *7 screens
- *6 storm windows

- *1 food grinder
- 6 knives, spatulas, scissors, forks
- *1 juice extractor
- 4 refrigerator dishes
- 1 shredder and grater

Miscellaneous equipment

- 1 lunch box
- *1 thermos jug
- 1 thermos bottle
- 1 meat saw
- 1 household scales
- *1 cornpopper (other than electric)
- 1 funnel
- *1 kraut cutter
- *1 pressure canner

Recreation, sports

- 1 card table
- *2 game boards
- *1 musical instrument
- *1 sled
- *2 skates (pairs)
- 2 guns

Other

- *1 kitchen stepladder
- *1 trunk
- 2 suit cases
- 4 table leaves
- 6 light bulbs
- 2 milk pails
- 1 milk strainer
- 1 churn
- 1 round water-bath canner
- *1 oval boiler-water-bath canner
- 2 cream cans
- *1 ice cream freezer
- 1 upright model cream separator

The numbers and kind of possessions listed above are amazingly similar to those reported to be owned by families in the regional report, North Central Regional Publication 20, Iowa State College, February 1951, pages 57-59.

DIFFERENCES IN HOUSING NEEDS AND PREFERENCES OF FARM FAMILIES WITHIN NEBRASKA

In a state varying as Nebraska does in natural resources and types of farming, differences would be expected in the kinds of dwellings occupied as well as in the kinds of houses families would like to have if they were to build soon. Moreover, differences in family income, types of farm operation, and family type may be associated with housing conditions and needs. Described here are some of the conditions which, according to the survey data, were associated with farm family housing. This information should help those who work with programs of farm housing improvement to know where the needs probably are greatest.

The interrelationships of (1) areas of the state, (2) family income, (3) type of farm operation (including farm tenure), and (4) family type will be noted before reporting their association, or lack of it, with certain characteristics assumed to reflect the housing needs and preferences of Nebraska farm families. The chi-square technique was used to test the null hypothesis that no difference did exist between the attribute by which the families were classified and the specific family or housing characteristic being studied.

Differences by Type-of-Farming Area

The 558 households included in the survey were grouped in the five geographical areas shown in figure 11. These represent combinations of the 13 type-of-farming areas determined by Garey in 1937.¹⁸ County data on crop and livestock production from the 1945 Census of Agriculture were used to delineate the boundaries of the five areas. In the Southeast area general farming was most common. Intensive livestock farming predominated in the Northeast area, range livestock in the North Central area, and cash grain and livestock in the Western area. A mixture of general farming, cash grain, and livestock farming characterized the South Central area. The types of farming reported by the 558 households included in this study substantiate this type-of-farming pattern for the state (table 19).

Differences in the housing needs and preferences of farm families in the five areas of the state could be due to variations between the areas in family income, type of farm operation, family type, and other characteristics, rather than to area, as such. When the data were interpreted in terms of the chi-square technique, it was found that the areas of the state did not differ significantly with respect to family income, size of household, and age of homemaker (table 20).

¹⁸ *Systems of Farming and Possible Alternatives in Nebraska*, Nebraska Agricultural Experiment Station Bulletin 309, June, 1937.

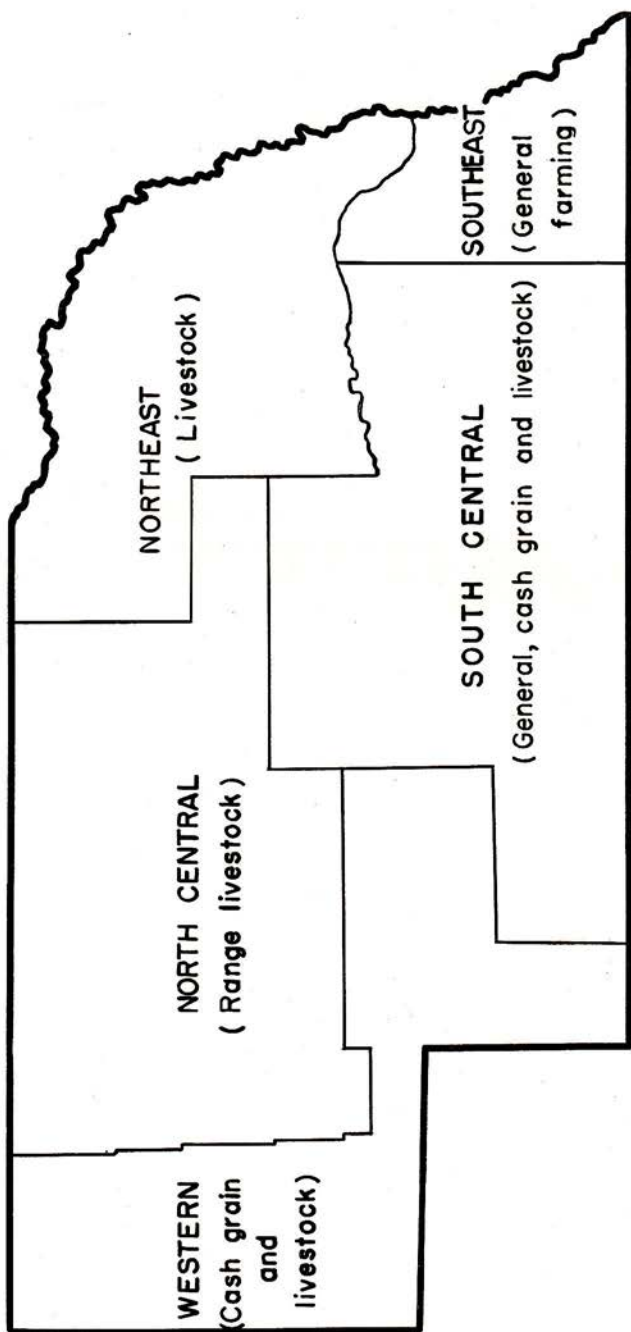


FIGURE 11.—Type-of-farming areas in Nebraska.

TABLE 19.—Distribution of families, by type-of-farming area and type of farm.

Type of farm	Families in all areas		Percentage of farms of each area				
	No. (558)	Pct.	South-east (83)	North-east (162)	South Central (221)	North Central (36)	Western (56)
General	169	30.3	60.2	24.8	33.5	0.0	8.9
Livestock	163	29.2	12.1	46.3	21.6	55.6	17.8
Cash grain	137	24.5	10.8	19.1	32.6	8.3	39.3
Dairy	13	2.3	0.0	0.0	1.4	25.0	1.8
Specialty	8	1.4	2.4	0.6	1.8	0.0	1.8
Other	4	0.8	1.2	0.6	0.5	0.0	1.8
Non-farm	62	11.1	13.3	8.6	8.6	11.1	25.0
No information	2	0.4	0.0	0.0	0.0	0.0	3.6
Total	558	100.0	100.0	100.0	100.0	100.0	100.0

However, the null hypothesis that the areas of the state did not vary by type of farm operation was rejected. Proportionately more of the farm families in the North Central area owned all or part of the land they operated. Full renters were relatively more common in the Northeast than in other areas. The proportions of full- or part-owner operators and of renter operators in the Southeast and South Central areas were about the same as for the state as a whole. In the Western area there were relatively fewer full renters than owners and part-owners. In this area, also, proportionately more families who lived in the open country were not farming.

TABLE 20.—Type-of-farming areas in relation to selected family characteristics.¹

Characteristics	All families in sample for state		Percentage for area related to percentage for state ^{2, 3}				
	No. (558)	Pct.	South-east (83)	North-east (162)	South Central (221)	North Central (36)	Western (56)
Type of farm operation:							
Full-time farmers:							
Owners or part owners	247	44.3	.....	Low**	.....	High*	.....
Full renters	240	43.0	.....	High	.....	Low*	Low*
Part-time and nonfarmers	71	12.7	High	Low	Low	Low	High***

¹ See table C-2 for explanations, definitions and percentages.

² Amount of difference between percentage for an area and that of the state is interpreted as follows:

0 to 9 percent higher or lower:
 10 to 24 percent higher or lower:
 25 to 49 percent higher or lower: *
 50 to 74 percent higher or lower: **
 75 or more percent higher or lower: ***

³ Characteristics which did not differ significantly between the five areas were:

Family net income
 Type of family
 Size of household
 Age of homemaker

When the 558 households were grouped by six family types, the null hypothesis that the areas did not differ by family type was substantiated (table C-7). When the five family types (excluding single-person households) were grouped as "younger" and "older" families, the null hypothesis was rejected only at the 0.10 level of significance. Thus, if some family types were proportionately more prevalent in certain areas of the state than in others, the differences were slight. There appeared to be some tendency for younger families to be located in the Northeast area and for older families to reside in the Western area (table 20).

Sixteen characteristics of the dwellings occupied by the families at the time of the survey were tested for probable variation between the five type-of-farming areas of the state (table C-3). Of these, 12 characteristics did vary significantly. The greatest differences were in the proportions of dwellings having high-line electricity, one story, six or more rooms, separate dining room, and running water. The ways in which each of the five areas differed from the state as a whole are reported in table 21.

Four kinds of family possessions were studied in relation to their prevalence by area (table C-3). Possession of a pressure canner did not vary, proportionately, in different parts of the state. There were significant differences in the relative frequency of possession of gas or electricity as cooking fuel, mechanical refrigeration, and vacuum cleaner (table 21).

Of 11 types of family activities carried on in the farmhouse, only two differed by area of the state (table 21). Families of the North Central area were less inclined to handle eggs for market in the house. Entertaining of social groups in the home was relatively more common in the Western area and less common in the Southeast area.

Preferences for specific features in a new farmhouse varied between areas (table 21). Significant differences were found for about half of the 18 preferences studied. Greatest differences related to central heating and houses of one story. Significantly more of the homemakers of the Southeast area preferred central heating and fewer were interested in houses of one story. In contrast, significantly fewer of the families in the North Central area were interested in central heating and more of those in the North Central and Western than in other parts of the state preferred one-story houses.

TABLE 21.—Differences between type-of-farming areas of Nebraska in relation to housing needs and preferences of farm families.¹

Characteristics indicating farm family housing needs and preferences	All families in sample for state		Percentage for area related to percentage for state ^{2, 3}				
	No. (558)	Pct.	South-east (83)	North-east (162)	South Central (221)	North Central (36)	Western (56)
Occupied dwellings have:							
High line electricity	290	52.0	High*	High	Low	Low***	.....
One story	182	32.6	Low*	Low*	High	High***	High***
Six or more rooms	351	62.9	High*	.....	.....	Low*	Low*
Separate dining room	341	66.7	High	Low	.....	Low*	Low*
Running water	212	38.0	.....	High	Low*	High*	High**
Porch of any kind	452	81.3	High	.....	.....	.....	Low
Basement or cellar, any kind	394	70.2	High	.....	.....	Low*	.....
Spare bedroom	339	60.8	High	.....	.....	Low*	Low
Electricity, any kind	362	65.2	High	.....	Low	Low*	High
Space to eat in kitchen	514	92.6	.....	.....	.....	.....	Low
Basement or cellar with finished walls and floors	310	55.6	High	.....	.....	Low*	High
One or more clothes closets per bedroom in house	157	28.1	Low	.....	High	Low*	High*

Continued on page 55.

¹ See table C-3.

² See footnote 2, table 20 for interpretation of amount of difference between percentage for an area and that of the state.

³ Characteristics which did not differ significantly between the five areas were:

Occupied dwellings:	Bathroom Central heating Adequate number of bedrooms for the size and composition of the household One or more clothes closets per bedroom needed
Family possessions:	Pressure canner
Family activities in the farmhouse:	Entertain family groups Bake cake four or more times per month Bake yeast loaf bread four or more times per month Bake yeast rolls four or more times per month Places where food is prepared for preservation Places where food is processed for preservation Places where washing is done in winter Places where ironing is done in winter Handle cream for market
Homemakers' preferences for features in a new farmhouse:	Space for farm business Sewing room Place to handle cream for market Eating space in kitchen Spare bedroom Six or more rooms Basement would be necessary or nice Family coat closet on first floor Guest coat closet on first floor
Homemakers' rating of features desired in a new farmhouse:	Separate office Pantry Work porch Front porch Spare bedroom

TABLE 21.—Differences between type-of-farming areas of Nebraska in relation to housing needs and preferences of farm families (continued).

Characteristics indicating farm family housing needs and preferences	All families in sample for state		Percentage for area related to percentage for state ^{2, 3}				
	No. (558)	Pct.	South-east (83)	North-east (162)	South Central (221)	North Central (36)	Western (56)
Family possessions:							
Gas or electricity used as cooking fuel	250	44.8	.....	Low	.....	High	High***
Mechanical refrigeration	320	57.3	High*	High	.....	Low*	Low*
Vacuum cleaner	118	21.1	High**	Low	Low	Low**	High**
Family activities in farmhouse:							
Handle eggs for market	424	76.0	.....	.....	.....	Low	.....
Entertain social groups	208	36.7	Low	.....	.....	.....	High*
Homemakers' preferences for features in a new farmhouse:							
Central heating	475	85.1	High	.....	.....	Low*	.....
One story	436	78.1	Low	.....	.....	High	High
Space in basement for:							
Drying laundry	404	72.9	Low	.....	.....	Low*	.....
Handling eggs for market	335	60.0	.....	.....	.....	Low*	.....
Place to iron in winter:							
Kitchen	326	58.5	.....	.....	.....	Low*	.....
Utility room	92	16.5	Low*	High*	Low*	High**	High*
Place for processing food for preservation:							
Kitchen	205	36.7	High	Low	.....	Low	High*
Basement	207	37.1	.....	.....	.....	.....	Low
A place to cut up meat in house	221	39.2	.....	Low	High	High	.....
Homemakers' ratings of features desired in a new farmhouse:							
Basement	519	93.2	.....	.....	.....	Low	.....
Central heating	523	93.7	.....	.....	.....	Low	.....
Lavatory in addition to bathroom	288	51.7	.....	Low	.....	High*	High
Fireplace	151	27.1	High*	Low	.....	Low	Low*
First-floor workroom	280	50.2	Low	High	.....	.....	High
Second-floor deck	224	40.2	High*	Low	.....	Low*	.....
Separate dining room	369	66.2	.....	.....	.....	.....	Low

Differences in Income Groups

The 549 households who reported their incomes were divided in two groups above and below \$3,000. Significant differences were found in the incomes of these families by type of farm operation, age of homemaker, and type of family, but not by area of the state (table 22).

TABLE 22.—Farm family income in relation to selected family characteristics.¹

Characteristics	All families in sample for state		Percentage for income group related to percentage for state ² , ³	
	No. (549)	Pct.	Incomes under \$3,000 (252)	Incomes \$3,000 and over (297)
Type of farm operation:				
Full-time farmers:				
Owners and part owners	243	44.3	Low*	High*
Full renters	236	43.0	High	Low
Part-time and non-farmers	70	12.7	High**	Low*
Age of homemaker:				
Under 35 years	203	37.3	High	Low
35 to 49 years	193	35.2	Low	High
50 years and older	150	27.5	Low	High
Type of family:				
Younger families	251	45.9	.....	Low
Older families	304	54.1	.....	High

¹ See footnote 1, table C-2 for criteria of significant differences and table C-4 for percentages.

² See footnote 2, table 20, for interpretation of amount of difference between percentages by income group and that of the state.

³ The only characteristic which did not differ significantly by income groups was:
Type of farming area

Among those who were full-time farm operators, proportionately more renters than owners and part owners had incomes under \$3,000. Part-time and non-farmers were concentrated in the lower-income group. Families with homemakers under 35 years of age were more likely to be in the lower-income group.

The dwellings occupied by the lower-income families had significantly fewer modern facilities, and proportionately fewer of them had such family possessions as gas or electricity as cooking fuel, mechanical refrigeration, or a vacuum cleaner (table 23). Except for less entertaining of social groups by lower-income families, there was little difference among the income groups in family activities carried on in the farmhouse.

Homemakers of the two income groups did not differ in preferences for selected features in a new farmhouse except that proportionately fewer of the lower-than of the higher-income groups said that they preferred space for farm business and a sewing room.

Of the 12 characteristics of a farmhouse which each homemaker was asked to rate in terms of relative importance for her family, significant differences in the ratings by income classes were found for only four. Fewer of the homemakers with family incomes under \$3,000 considered a fireplace, a lavatory in addition to a bathroom, and a first-floor workroom as desirable, and more of them were interested in having a front porch.

TABLE 23.—Differences between income groups in relation to housing needs and preferences of farm families.¹

Characteristics indicating farm family housing needs and preferences	All families in sample for state		Percentage for income group related to percentage for state. ²	
	No. (549)	Pct.	Incomes under \$3,000 (252)	Incomes \$3,000 and over (297)
Occupied dwellings have:				
Bathroom	136	24.8	Low*	High*
Six or more rooms	200	63.6	Low	High
Running water	207	37.7	Low*	High*
Central furnace	142	25.9	Low*	High*
Electricity, any kind	356	64.8	Low	High
Separate dining room	338	61.6	Low	High*
Gas or oil used as heating fuel	306	55.7	Low	High
Family possessions:				
Gas or electricity used as cooking fuel	246	44.8	Low*	High*
Mechanical refrigeration	314	57.2	Low**	High*
Vacuum cleaner	117	21.3	Low*	High
Pressure canner	166	30.2	Low*	High
Family activities in farmhouse:				
Entertain social groups	204	37.2	Low	
Homemakers' preferences for features in a new farmhouse:				
Space for farm business	455	82.9	Low	.....
Sewing room	257	46.8	Low	.....
Homemakers' ratings of features desired in a new farmhouse:				
Fireplace	146	26.6	Low	High*
Lavatory in addition to bathroom	283	51.5	Low	High
Front porch	309	56.3	High	Low
First-floor workroom	276	50.3	Low	.....

¹ See table C-5.

² See footnote 2, table 20, for interpretation of amount of difference between percentage for an income group and that for the state.

³ Characteristics which did not differ significantly by income group were:

Occupied dwellings:	Eating space in kitchen
	Adequate number of bedrooms for size and composition of household
	Entertain family groups
	Bake cake four or more times per month
Family activities in the farmhouse:	Bake yeast loaf bread four or more times per month
	Bake yeast rolls four or more times per month
	Handle eggs for market
	Handle cream for market
	Places where food is prepared for preservation
	Place to cut up meat in house
Homemakers' preferences for features in a new farmhouse:	Six or more rooms in house
	Basement
	Spare bedroom
	Basement for drying laundry indoors
	Place to prepare food for preservation
	Basement
	Spare bedroom
Homemakers' ratings of features desired in a new farmhouse:	Separate dining room
	Second-floor deck
	Pantry
	Separate office
	Central furnace
	Eating space in kitchen

Differences by Type of Farm Operation

Table 24 summarizes differences in characteristics of families by type of farm operation. Proportionately more of the families who farmed full time as owners or part owners had homemakers of 35 years or older and incomes of \$3,000 or more. They were less likely than were renter families to have five or more persons in the family at the time of the survey. Relatively more full- or part-owner-operator families were located in the Southeast area and more were located in the North Central area. Families of part-time and non-farmers tended to have older families with homemakers 50 years of age or older, to have incomes under \$3,000, and to be located in the Southeast and Western areas.

TABLE 24.—Type of farm operation in relation to selected family characteristics.¹

Characteristics	All families in sample for state		Percentage for type of farm operation related to percentage for state ²		
	No. (558)	Pct.	Farm full time as:		Part-time and non-farmers (71)
			Owners or part owners (248)	Full renters (239)	
Age of homemaker:					
Under 35 years	205	37.0	Low*	High*	Low
35 to 49 years	196	35.4	.....	.....	Low
50 years and over	153	27.6	High*	Low**	High**
Family type:					
Under \$3,000	252	45.9	Low*	High	High**
\$3,000 and over	297	54.1	High*	Low	Low*
Type of farming area:					
Southeastern	83	14.9	.....	.....	High
Northeastern	162	29.0	Low	High	Low
South Central	221	39.6	.....	Low*	High**
North Central	36	6.5	High*	Low*	Low
Western	56	10.0	.....	Low*	High***
Size of family:					
Four or less persons	385	69.0	.....	.....	.....
Five or more persons	173	31.0	Low	High	Low

¹ See footnote 1, table C-2 for criteria of significant differences and table C-4 for percentages.

² See footnote 2, table 20, for interpretation of amount of difference in percentages of types of farm operation and that of the state.

The dwellings occupied by owner-operator families were more likely than were those of full renter-operators to have a bathroom, running water, central furnace and one or more clothes closets per bedroom in the house (table 25). Proportionately more of them owned a vacuum cleaner. There were no significant differences between renter and owner-operator families in the proportion possessing a pressure canner, mechanical refrigeration, and gas or electricity as cooking fuel. The proportions of the two groups handling market eggs and cream in the house did not vary significantly.

More part-time and non-farmer families lived in houses with a central furnace than did full-time operators.

TABLE 25.—Differences between types of farm operation in relation to housing needs and preferences of farm families.¹

Characteristics indicating farm family housing needs and preferences	All families in sample for state		Percentage for type of farm operation related to percentage for state ²		
	No. (558)	Pct.	Operate farms full time as:		Part-time and non-farmers
			Owners or part owners	Full renters	
Occupied dwellings with:					
Bathroom	137	24.6	High*	Low*	.....
Running water	212	38.0	High	Low*	.....
Central furnace	143	25.6	High	Low	High
Clothes closets, one or more per bedroom in house	144	25.8	.....	Low	.....
Separate dining room	342	61.3	.....	.....	Low** ³
Family possessions included:					
Vacuum cleaner	118	21.1	High	Low	.....
Pressure canner	170	30.5	High	.....	Low** ³
Family activities in farm house included:					
Handling eggs for market	429	76.5	.....	High	Low** ³
Handling cream for market	354	62.9	High	High	Low**
Homemakers' preferences for features in a new farmhouse:					
Basement for drying laundry indoors	404	72.4	.....	.....	Low
Space for farm business	461	82.6	.....	.....	Low ³
Six or more rooms in house	374	67.0	.....	High	Low

¹ See table C-7.

² See footnote 2, table 20, for interpretation of amount of difference between percentages.

³ Characteristics which did not differ significantly (as defined in footnote 1, table 26) between the three classifications were:

Occupied dwellings:

Adequate number of bedrooms for size and composition of household
 Basement or cellar (any kind)
 Basement or cellar (finished walls and floors)
 Clothes closets (one or more per bedroom needed)
 Eating space in kitchen
 Electricity (any kind)
 Spare bedroom
 Six or more rooms in house

Homemakers' preferences for features in a new farmhouse:

Basement (would be necessary or nice)
 Central heat
 Eating space in kitchen
 More space for farm business
 Kinds of porches wanted
 Spare bedroom
 Sewing room
 Places for men's wash-up area in houses with and without bathrooms

Family possessions:

Gas or electricity used as cooking fuel
 Mechanical refrigeration

Family activities in farmhouse:

Bake cake four times a month or oftener
 Bake yeast loaf bread four times a month or oftener
 Bake yeast rolls four times a month or oftener
 Entertain family groups
 Entertain social groups
 Use back door for callers

Homemakers' ratings of features desired in a new farmhouse:

No ratings were tested

Differences by Type of Family

Significant differences were found in nine of twenty-six factors studied in relation to family type (table 26). Three of the nine factors represented possession of or preference for six or more rooms and

TABLE 26.—Differences between family types in relation to housing needs and preferences of farm families.

Characteristics indicating farm family housing needs and preferences	All families in sample for state		Percentage for type of farm operation ^{1, 2, 5} related to percentage for all families				
	No. (558) ³	Pct.	Younger couples (41) ³	Founding families (149)	Expanding families (209)	Adult families (67) ⁴	Older couples (89) ³
Occupied dwellings:							
Adequate number of bedrooms for size and composition of household	478	85.7	High	.....	Low	High	High
Six or more rooms	351	62.9	Low	.....	.....	High	.....
Family possessions:							
Vacuum cleaner	118	21.1	Low	Low	.....	.....	High*
Family activities in farmhouse:							
Bake four or more times per month:							
Cake	405	72.6	Low	.....	High	Low	Low*
Yeast loaf bread	338	60.6	Low	.....	High	.....	Low
Yeast rolls	292	52.3	Low*	Low	High*	.....	Low
Need space for farm business	461	82.5	.....	High	.....	.....	.....
Homemakers' preferences for features in a new farmhouse:							
Six or more rooms	374	67.0	.....	High	High	Low	Low**
Basement for drying laundry indoors	404	72.9	High	.....	.....	Low	.....

¹ Characteristics included are those for which chi-square values were significant at the 0.10 level or higher and for which the percentage of at least one classification of families varied from the percentage for all families by 5.0 or more.

² See footnote 2, table 20, for interpretation of amount of differences between percentages.

³ Younger couples include husband and wife under 35 years of age; older couples include husband and wife 35 years of age or older.

⁴ Adult families include those other than "older couples" in which all members were 19 years of age or older. Three of these families consisted of single persons.

⁵ Characteristics tested and found not to differ significantly (as defined in footnote 1, above) between the family types were:

Occupied dwellings:	Family possessions:
Electricity (any kind)	Gas or electricity used as cooking fuel
Running water	Mechanical refrigeration
Eating space in kitchen	Pressure canner
Separate dining room	Family activities in farmhouse:
Places to prepare food for preservation	Entertain family groups
Places to process food for preservation	Entertain social groups
Homemakers' preferences for features in a new farmhouse:	
Basement	
Eating space in kitchen	
Sewing room	
Space for farm business	
Places to prepare food for preservation	
Places to process food for preservation	

enough bedrooms to accommodate the size and composition of the household. These varied according to the increase and decrease in size of household throughout the family life cycle.

Older families more often than others had a vacuum cleaner. Younger homemakers seemed to have more interest than older ones in

having space in the house for farm business, and for drying laundry indoors.

Baking cake, bread and rolls is related to the family type. This is illustrated by the fact that a higher percentage of expanding families than of younger and older families reported that they baked each of these foods four or more times per month. Since two thirds to three fourths of the expanding families were baking breads and cake, and since most families go through this stage of the family cycle, farmhouses should be designed to accommodate these baking activities.

STATE AND REGIONAL CONTRASTS

Most of the tables in the preceding sections of this report have included data for the total North Central Region as well as for Nebraska. These data reveal numerous likenesses and differences in the two areas as to family characteristics and housing needs and preferences.¹⁹ This information about some of the ways in which Nebraska was, and was not, typical of the region of which it is a part should be of value to research workers, educators, farmhouse planners and others. Some of the ways in which Nebraska was different from the region may suggest special needs of other Great Plains states such as Kansas, South Dakota and North Dakota.

Likenesses

In terms of the statistical interpretations of the data, the percentages for Nebraska did not vary significantly from those for the North Central Region in the following respects:

Family and household characteristics

Farm tenure

Full- and part-time operators

Size of farms operated

Farms consisting of 100 to 179 acres

The household and families

Size of household same as size of family for one, two, three, four, six and seven

Families including children under nineteen

Families in which all children are under nine years

Families in which some children are nine years or more

Families including no children under nineteen

Younger and older married couples

¹⁹ When the confidence intervals of percentages for the state and the region overlapped, it was assumed that the two areas were similar with respect to the particular characteristic and no statistical tests were made. In other cases the chi-square technique was used to test the null hypothesis that there was no difference between the percentages for the state and the region. When the chi-square values obtained were greater than the necessary allowance for sampling error at the 0.01 level of significance, the differences in percentages were considered significant.

Income

Income from \$1,500 to \$2,999

The houses occupied

Spare bedroom

Porch of some kind

Running water

Both electricity and running water

Bathroom

At least one room per person in the household

At least one clothes closet for each bedroom in the house

Family preferences

Number of rooms

Prefer same number of rooms as in present house

Satisfied with present number of rooms

Dissatisfied with present number of rooms

Would add a bedroom

Would remove a bedroom

Room combinations

Prefer to build a house with a dining room

Prefer two bedrooms

Prefer three bedrooms

Would like no "other" room

Men's wash-up area

Location of men's wash-up area with a lavatory in the bathroom

Selected features of housing

Prefer a basement

Consider a basement necessary

Prefer central heating

Prefer to heat with oil

Prefer a pantry

Do not prefer a pantry

Do not prefer a fireplace

Porches

Prefer east porches

Prefer south porches

View preferred from kitchen window

Farm buildings

More than one view

Family preference as indicated by ratings of selected features

Rating I

Basement

Central heating

Spare bedroom

Separate dining room

Front porch

Rating II

Spare bedroom

Lavatory (in addition to a bathroom)

Rating III

Separate dining room

Pantry

Separate office

Family activities

Food preparation

Baked pies

Baked cookies or doughnuts

Meal service

Prefer to seat 7-8 in dining room

Prefer to seat same number as present in kitchen

Prefer to seat same number as present in dining room

Food preservation

Fruits, vegetables and meat

Prefer to can in the kitchen

Prefer to can in the basement

Prefer to store canned goods in the basement

Meat cutting and lard making

Do no meat cutting

Trim fat at home

Laundering

Prefer to wash in the basement

Prefer to wash in the workroom

Prefer to store soiled clothes in hamper

Prefer to store soiled clothes in basket

Need 51-100 feet of clothesline

Prefer built-in ironing board

Prefer movable ironing board

Sewing

Prefer same location as present for cutting out garments

Have 1-15 patterns to be stored

Farm work requirements

Prefer to handle cream in the basement

Do not start garden plants in the house

Farm and home business requirements

Prefer no space for home business

Hospitality, leisure and play

Entertain social groups

Differences

Following is a summary of differences between Nebraska and the North Central Region in the characteristics of farm families and their activities, possessions, and preferences as related to housing needs.

Characteristics of the farm families

More farm families in Nebraska than in the North Central Region
had family incomes above \$3,000
were living in houses
without electricity
with basements having walls and floors finished with concrete, brick or stone
with separate dining rooms
with the number of bedrooms adequate for the size and composition of the household
rented the farms they were operating
had farms of 260 to 499 acres
were cash grain or livestock farmers

Housing preferences

More farm families in Nebraska than in the North Central Region preferred a new farmhouse with
one story
six rooms
a glassed-in porch
a second-floor deck
a work porch
a room combination of kitchen, dining room, living room, and one or more bedrooms.
a living-dining room combination
a smaller number of rooms than were in the present house
no rooms other than kitchen, dining room, living room, and one or more bedrooms
at least one bedroom downstairs in a house of more than one story
a bathroom downstairs in a house of more than one story, even though there was a lavatory
a medicine cabinet in the bathroom
a men's wash-up area in a washroom or lavatory, regardless of whether or not the house has a bathroom
a coat closet for guests
back door used as guest entrance

Household activities

More farm families in Nebraska than in the North Central Region baked cakes, quick breads, yeast breads, and yeast rolls served meals in the dining room as well as in the kitchen

preferred space in both kitchen and dining room for serving meals
preferred space in kitchen to seat 1 to 4 or 5 to 6 persons for meals
preferred space in dining room for seating 9 to 10 persons for meals
preserved fruits and vegetables
stored preserved fruits and vegetables in places other than the basement
made lard in the house
stored lard in the house
had fat trimmed at the locker
preferred space for cutting up meat in the house
needed 101-150 feet of indoor line for drying clothes
preferred space in basement for drying laundry
preferred space for doing the washing and ironing in different places
did some sewing other than mending
preferred space for leaving sewing machine open while not sewing
handled eggs for market in the house
preferred space in basement for handling eggs
handled cream for market in the house
stored seed in the house
preferred some space for farm business
preferred space for farm business at a desk in the dining room
entertained family and farm groups in the house
preferred extra space to lie down

Family possessions

More farm families in Nebraska than in the North Central Region
had no pressure canner in the house
had no household scales in the house
had the following articles in the house: milk pails, milk strainer, churn, cream cans, cream separator, ice cream freezer, water bath canner, meat saw
had sewing machines
had no electric washing machine
had a gasoline washing machine
used wood or coal for cooking fuel
had a piano
had a dining room table
had a sideboard
had no library table
had no easy chair

Fewer farm families in Nebraska than in the North Central Region preferred a new farmhouse with

- eight or more rooms
- an attic
- a front porch
- a glassed and screened porch
- a room combination of kitchen-dining room, living room, bedroom(s), and other rooms
- a living room
- a work or utility room
- heat in all rooms
- a wash-up area for the men in the basement, regardless of whether or not the house has a bathroom
- a coat closet on first floor for the family
- front door used as entrance by guests
- a fireplace
- space for serving meals in kitchen only
- space for sewing located similar to that used at present
- space for farm business located in living room
- spare bedroom for guest use
- space for sitting other than in living room

APPENDIX A

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APPENDIX B

Characteristics, Activities, and Possessions

TABLE B-1.—Family preference for number of stories in a new farmhouse, by number of stories in present house.

Number of stories in present house	Families reporting		Percentage of families preferring to build houses of					Total
	No.	Pct.	One story	One and a half stories	Two stories	Other	No information	
One	182	32.6	88.5	2.7	8.8	0.0	0.0	100
One and a half	136	24.4	72.0	11.8	16.2	0.0	0.0	100
Two	216	38.7	74.1	5.5	20.4	0.0	0.0	100
Two and a half	11	2.0	54.5	18.2	18.2	9.1	0.0	100
Other ¹	13	2.3	84.6	7.7	7.7	0.0	0.0	100
Total Nebraska	558	100.0	78.1	6.5	15.2	0.2 ²	0.0	100
Total North Central Region	884	100.0	65.9	16.3	17.5	0.1	0.2	100

¹ 11 families lived in three-story houses, 2 families lived in basement houses.

² 1 family preferred a two-and-a-half-story house.

TABLE B-2.—Family preference for number of rooms in a new farmhouse, by number of rooms in present house.

Number of rooms in present house	Families reporting		Percentage of families by number of rooms preferred in a new farmhouse relative to number of rooms in present house				Total
	No.	Pct.	Same number	More rooms	Fewer rooms		
4 rooms or fewer.....	105	18.8	13.8	86.0	0.2	100	
5 rooms	102	18.3	29.4	64.7	5.9	100	
6 rooms	120	21.5	43.4	28.3	28.3	100	
7 rooms	98	17.6	21.4	9.2	69.4	100	
8 rooms or more.....	133	23.8	3.0	1.5	95.5	100	
Total Nebraska.....	558	100.0	21.7	36.0	42.3	100	
Total North Central Region	884	100.0	25.1	41.9	32.8	100 ¹	

¹ No information was received from 0.2 families.

TABLE B-3.—Families satisfied with number of rooms in present house, or desiring more or fewer rooms, by number of rooms in present house.

Number of rooms in present house	Families reporting		Percentage of families by attitude toward present number of rooms				
	No.	Pct.	Satisfied	Dissatisfied and want		No information	Total
				More rooms	Fewer rooms		
4 rooms or fewer.....	105	18.8	32.4	65.7	1.9	0.0	100
5 rooms	102	18.3	54.9	42.2	2.9	0.0	100
6 rooms	120	21.5	73.3	17.5	7.5	1.7	100
7 rooms	98	17.6	71.4	5.1	23.5	0.0	100
8 rooms or more.....	133	23.8	36.8	0.0	63.2	0.0	100
Total Nebraska	558	100.0	53.2	24.7	21.7	0.4	100
Total North							
Central Region	884	100.0	51.6	31.3	16.8	0.3	100

TABLE B-4.—Farm family preference for adding or removing specified kind of rooms.

Would like to add or remove	Families reporting (number)		Percentage of families preferring that rooms be changed, if could change any									
	Nebraska	North Central Region	Bedroom		Dining room		Living room		Other		Total	
			Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region		
Would like to add	143	277	73.4	80.8	20.3	31.4	20.3	8.6	69.2 ¹	44.3 ¹	183.2 ²	165.1
Would like to remove	120	148	94.1	73.7	8.3	4.7	2.5	0.0	7.5 ³	21.6 ⁴	112.4 ⁴	100.0

¹ Most families wanting other rooms specified work or utility rooms.

² 22.6 percent of the Nebraska families would like to add more than one room.

³ Other rooms not needed were parlors, storerooms and pantries.

⁴ Some of the Nebraska families would like to remove more than one room.

TABLE B-5.—Family preferences for selected features in a new farmhouse.

Selected feature	Percentage of families by preferences for selected features							
	Want		Do not want		No information		Total	
	Nebr.	North Central Region	Nebr.	North Central Region	Nebr.	North Central Region	Nebr.	North Central Region
Basement	91.3 ¹	93.7 ¹	6.4	5.6	2.3	0.7	100	100
Central heating system	84.4	91.7	13.6	7.5	2.0	0.8	100	100
Sloping roof	94.8	88.8	3.1	5.2	2.1	6.0	100	100
Front porch	46.1	61.2	49.6	36.8	4.3	2.0	100	100
Back porch	62.9	58.0	31.0	42.0	6.1	0.0	100	100
Attic	32.6	43.8	63.8	54.5	3.6	1.7	100	100
Second-floor deck	54.6	41.3	36.1	52.9	9.3	5.8	100	100
Fireplace	30.8	40.2	63.2	56.8	6.0	3.0	100	100
Pantry	23.6 ²	28.9 ²	75.1	70.0	1.3	1.1	100	100

¹ Families who consider a basement as either "necessary" or "nice."

² Among those who would have a pantry, the uses to be made of it would be:
 for storage by 51.5 percent of the Nebraska and 69.0 percent of the North Central Region;
 for work by 6.1 percent of the Nebraska and 10.6 percent of the North Central Region;
 for work and storage combined or for other purposes by 42.4 percent of the Nebraska and 20.4 percent of the North Central Region.

TABLE B-6.—Farm family preference for a basement, by present possession of a basement.

Possession of a basement	Families reporting		Percentage of families by ratings given to basement				
	No.	Pct.	Necessary	Nice	Not wanted	No information	Total
Have basement	392	70.2	87.2	9.9	2.6	0.3	100
Have no basement	166	29.8	74.7	14.5	10.8	0.0	100
Total Nebraska	558	100.0	83.5	11.3	5.0	0.2	100
Total North Central Region	884	100.0	87.9	5.8	5.6	0.7	100

TABLE B-7.—Type of construction preferred for porches, by type of porch preferred for farmhouses.

Type of porch preferred	Number of families reporting	Percentage of families preferring specified type of construction					Total
		Glassed and screened	Glassed	Screened	Open	No information	
Front	282	13.9	38.3	21.6	21.6	4.6	100
Back	386	22.0	66.1	7.0	1.8	3.1	100
Side	67	25.4	31.3	10.4	3.0	29.9 ³	100
Total Nebraska	735 ¹	19.2	52.3	12.9	9.5	6.1	100
Total North Central Region	1208 ²	51.9	12.2	17.8	15.5	2.6	100

¹ A total of 473 families in Nebraska (84.8 percent of those in the sample) stated their preferences for porches, naming a total of 735 porches they would like to have; 35.1 percent of the 558 families would prefer both front and back porches; 8.1 percent wanted some other combination of two or more porches.

² A total of 781 families in the North Central Region (88.3 percent of those in the sample) stated their preferences for porches, naming a total of 1,208 porches they would like to have; 37.2 percent of the 884 families would prefer both front and back porches; 8.8 percent wanted some other combination of two or more porches.

³ The reason that this number is so large is that these families had never had the use of a side porch, and therefore had no opinion whatsoever.

TABLE B-8.—Direction preferred for porches, by type of porch preferred for farmhouses.

Type of porch	No. of families reporting	Percentage of families preferring specified directions for porch						Total
		East	South	West	North	Combination	No information	
Front	281	47.7	33.1	6.4	3.2	0.4	9.2	100
Back	387	32.6	40.0	12.4	5.2	0.8	9.0	100
Side	72	29.2	22.2	5.5	1.4	4.2	37.5	100
Total Nebraska	740 ¹	38.0	35.7	9.5	4.0	0.9	11.9	100
Total North Central Region	1208 ²	31.6	31.5	15.7	11.9	2.1	7.2	100

¹ See footnote 1, table B-7. The total number of Nebraska families reporting porches is not the same as shown in table B-7 because some families indicated no preference as to direction but preference for glass and screen or vice versa.

² See footnote 2, table B-7.

TABLE B-9.—Farm family preference for location of medicine and first aid supplies.

Preferred location	Percentage of families	
	Nebraska	North Central Region
Bathroom	91.2	80.9
Kitchen	11.3	15.1
Bedroom	0.2	0.8
Other	0.4	2.3
No information	0.7	0.9
Total	103.8 ¹	100.0

¹ 3.8 percent of the families in Nebraska would prefer to have first aid supplies in both the bathroom and kitchen.

TABLE B-10.—Farm family preference for coat closet.

Preference	Percentage of families by preference for coat closet			
	For family use		For guest use	
	Nebraska	North Central Region	Nebraska	North Central Region
Would plan to have	64.9 ¹	78.4 ²	57.9	43.8
Would not plan to have	34.0	18.8	35.1	52.4
No information	1.1	2.8	7.0	3.8
Total	100.0	100.0	100.0	100.0

¹ 21.5 percent would have a family coat closet near back door

26.5 percent would have one near front door

16.8 percent preferred other locations

² 32.8 percent would have a family coat closet near the back door

35.3 percent would have one near the front door

10.3 percent preferred other locations

TABLE B-11.—Farm family preference for view from kitchen window.

View preferred	Percentage of families preferring specified views	
	Nebraska	North Central Region
Farm buildings	24.2	25.1
Road	15.2	19.1
Drive	9.9	10.1
More than one view	35.7	31.9
Other ¹	13.6	10.5
No information	1.4	3.3
Total	100.0	100.0

¹ Other views specified by families included:

7.0 percent yards or garden

1.2 percent fields

3.9 percent nature—trees, lake, etc.

0.5 percent children

0.4 percent chickens

0.4 percent something pretty

0.2 percent school house

TABLE B-12a.—Farm family preference for heating fuel, by areas of Nebraska.

Areas of Nebraska ¹	Families reporting		Percentage of families preferring specified heating fuel							Total
	No.	Pct.	Oil	Soft coal	Gas	Wood	Hard coal	Combination of fuels	Other and no information	
Southeast	83	14.9	51.8	7.2	12.1	1.2	1.2	14.5	12.0	100
Northeast	162	29.0	54.9	17.9	8.0	0.6	0.6	13.0	5.0	100
South Central	221	39.6	42.1	13.6	23.1	0.9	0.0	11.7	8.6	100
North Central	36	6.5	44.4	5.5	27.8	0.0	0.0	16.7	5.6	100
Western	56	10.0	42.9	17.9	21.4	0.0	0.0	5.3	12.5	100

¹ Refer to page 51, figure 11, for definition of areas.

TABLE B-12b.—Farm family preferences for heating fuel, by sections of the North Central Region.

Sections of the North Central Region	Families reporting		Percentage of families preferring specified heating fuel							Total
	No.	Pct.	Oil	Soft coal	Gas	Wood	Hard coal	Combination of fuels	Other and no information	
Northern section	306	34.6	52.3	10.1	6.9	7.2	6.2	13.1	4.2	100
Southern section	578	65.4	43.2	24.9	11.1	5.0	4.0	5.9	5.9	100
Eastern section	249	28.2	41.4	34.2	8.0	2.8	6.0	6.8	0.8	100
Middle section	441	49.9	53.5	15.7	8.6	8.4	5.9	6.8	1.1	100
Western section	194	21.9	36.6	10.9	13.9	3.6	0.5	13.9	20.6	100

TABLE B-13.—Farm family preference for rooms to be heated.

Rooms to be heated	Percentage of Nebraska families preferring to heat ¹
All rooms	35.8
All rooms but one or more bedrooms.....	11.1
Kitchen, dining room, living room ²	19.9
Kitchen and dining room only.....	8.8
Kitchen, dining room, living room and one other.....	0.9
Kitchen, dining room, one or more bedrooms.....	10.8
Kitchen, dining room, one other room	0.7
Kitchen, living room.....	6.6
Kitchen, living room, one or more bedrooms.....	3.6
Kitchen, living room, one other room.....	0.4
Kitchen, one or more bedrooms.....	0.5
Kitchen only	0.5
No information	0.4
Total	100.0

¹ North Central Region family preferences for rooms to be heated are:

All rooms, 74.5 percent

Kitchen and one or two others, 16.4 percent

Other, 8.6 percent

No information, 0.5 percent

² Includes living room-dining room combinations.

TABLE B-14.—Frequency of preparing baked products.

Number of times per month	Percentage of families preparing					
	Pies	Cakes	Cookies or doughnuts	Quick breads	Yeast rolls	Yeast bread
None						
Nebraska	3.8	3.6	14.9	7.7	17.2	25.8
North Central Region	5.4	9.7	17.2	19.1	35.5	43.9
1-3						
Nebraska	27.0	25.3	42.3	13.6	30.3	13.8
North Central Region	19.1	18.4	30.2	20.9	23.8	10.6
4						
Nebraska	25.8	34.6	29.4	16.9	32.1	24.0
North Central Region	32.0	42.1	36.9	22.9	27.7	22.6
5-6						
Nebraska	4.8	6.4	2.5	2.7	3.8	4.8
North Central Region	5.1	4.2	5.3	3.7	2.9	2.5
7-8						
Nebraska	19.2	16.5	8.6	12.7	12.5	22.4
North Central Region	21.5	14.4	5.8	13.2	6.7	15.1
More than 8						
Nebraska	19.2	13.6	2.1	46.2	4.1	9.2
North Central Region	16.0	10.5	3.1	18.5	2.6	4.5
Do not know						
Nebraska	0.2	0.0	0.2	0.2	0.0	0.0
North Central Region	0.9	0.7	1.5	1.7	0.8	0.8
Total						
Nebraska	100.0	100.0	100.0	100.0	100.0	100.0
North Central Region	100.0	100.0	100.0	100.0	100.0	100.0

TABLE B-15.—Number of baked products prepared at one time.

Number prepared at one time	Percentage of families preparing					
	Pies	Cakes	Dozens of cookies or doughnuts	Dozens of recipes ¹ of quick breads	Dozens of yeast rolls	Loaves of yeast bread
None						
Nebraska	3.6	3.2	14.0	8.2	17.0	25.4
North Central Region ²	6.2	10.4	18.3	22.3	36.7	44.9
1						
Nebraska	54.1	95.5	1.1	69.4	17.2	3.8
North Central Region	43.4	85.5	8.8	58.6	16.4	2.8
2						
Nebraska	34.2	0.0	2.7	16.7	28.1	19.0
North Central Region	37.3	3.9	7.1	15.1	32.5	10.0
3						
Nebraska	5.8	0.0	8.2	1.6	26.0	18.8
North Central Region	8.2	0.0	19.4	1.7	8.9	14.6
4						
Nebraska	0.9	0.4	34.2	0.5	7.2	19.4
North Central Region	3.5	0.1	18.7	0.7	3.8	14.2
5-6						
Nebraska	0.5	0.2	34.6	0.5	3.2	11.1
North Central Region	1.3	0.0	18.9	0.8	1.6	10.4
More than 6						
Nebraska	0.4	0.0	2.9	0.0	0.9	2.1
North Central Region	0.1	0.1	8.8	0.8	0.1	3.1
No information						
Nebraska	0.5	0.7	2.3	3.1	0.4	0.4
North Central Region	0.0	0.0	0.0	0.0	0.0	0.0
Total						
Nebraska	100.0	100.0	100.0	100.0	100.0	100.0
North Central Region	100.0	100.0	100.0	100.0	100.0	100.0

¹ A "recipe" refers to the amount produced by 2 cups of flour. If the housewife could not tell the amount of quick bread she ordinarily baked in more exact terms, the interviewer asked her how many cups of flour she used.

² A slightly larger percentage of the homemakers said that they baked more of each kind of product when they were asked how much they baked at a time, than when asked how often they baked.

TABLE B-16.—Families actually serving and preferring to be able to serve specified numbers at meals.

Number of persons	Percentage of families						Percentage of families						
	Actually serving family meals to specified numbers			Preferring to be able to seat specified numbers in			Kitchen			Dining room			
	Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region	
	Percent	Cumulative percent	Percent	Cumulative percent	Percent	Cumulative percent	Percent	Cumulative percent	Percent	Cumulative percent	Percent	Cumulative percent	
None	00.0	00.0	00.0	00.0	9.8	16.5	16.5	9.8	16.5	29.6	37.6	29.6	37.6
1-4	69.7	71.3	69.7	71.3	29.9	22.4	22.4	39.8	38.9	00.0	00.0	29.6	37.6
5-6	21.7	20.3	91.4	91.6	38.5	29.6	29.6	78.3	68.5	1.2	1.8	30.8	39.4
7-8	6.4	6.4	97.8	98.0	13.3	16.0	16.0	91.6	84.5	12.9	7.9	43.7	47.3
9-10	1.4	1.3	99.2	99.3	5.0	6.2	6.2	96.6	90.7	31.9	16.6	75.6	63.9
11-12	0.2	0.6	99.4	99.9	2.7	6.5	99.2	99.2	97.2	21.5	28.1	97.1	92.0
More than 12	0.2	0.1	99.6	100.0	0.4	2.0	99.6	99.6	99.2	2.9	7.8	100.0	99.8
No information	0.4	00.0	100.0	00.0	0.4	0.8	100.0	100.0	100.0	00.0	0.2	100.0	100.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE B-17.—Families satisfied with present seating space for meals and preferring more and less space, by location and size of present seating space.

Number that can be served in	Families reporting		Percentage of families preferring to be able to serve			
	No.	Pct.	Same number	More	Fewer	No information
Kitchen						
None	45	8.1	35.6	64.4	0.0	0.0
1-4	173	31.0	79.2	14.4	6.4	0.0
5-6	199	35.7	84.9	5.0	10.1	0.0
7-8	84	15.1	76.2	4.8	19.0	0.0
9-10	33	5.9	57.6	0.0	42.4	0.0
11-12	20	3.6	65.0	0.0	35.0	0.0
More than 12	2	0.3	100.0	0.0	0.0	0.0
No information	2	0.3	0.0	0.0	0.0	100.0
Total Nebraska	558	100.0	75.3	12.2	12.2	0.3
Total North Central Region	884	100.0	72.6	10.7	16.6	0.1
Dining Room						
None	185	33.1	55.7	44.3	0.0	0.0
1-4	0	0.0	0.0	0.0	0.0	0.0
5-6	11	2.0	45.5	45.5	9.0	0.0
7-8	89	15.9	66.3	18.0	15.7	0.0
9-10	153	27.4	74.5	5.9	19.6	0.0
11-12	103	18.5	82.5	1.0	16.5	0.0
More than 12	16	2.9	75.0	0.0	25.0	0.0
No information	1	0.2	0.0	0.0	0.0	100.0
Total Nebraska	558	100.0	67.7	20.3	11.8	0.2
Total North Central Region	884	100.0	71.5	23.5	5.0	0.0

TABLE B-18.—Present and preferred location for serving meals.

Location	Percentage of families, by location of space for serving meals					
	Present		Preferred			
	Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region
Kitchen only	18.1	45.5	8.1	28.5		
Kitchen and dining room	59.1	36.4	65.6	47.7		
Kitchen, dining room and other	0.4	2.0	0.2	2.5		
Kitchen and other (not including dining room)	14.2	4.4	16.8	4.7		
Dining room only	5.7	9.0	3.8	7.6		
Dining room and other (not including kitchen)	1.4	1.5	2.3	5.8		
Dinette only	0.5	0.8	2.1	2.0		
Living room only	0.4	0.2	0.4	0.0		
Combinations not including kitchen or dining room	0.2	0.2	0.7	1.2		
Total kitchen	91.8	88.3	90.7	83.4		
Total dining room	66.6	48.9	71.9	63.6		
Total	100.0	100.0	100.0	100.0		

TABLE B-19.—Farm family preference for size of garbage can, by preferred location.

Preferred location	Families reporting		Percentage of families by size of can preferred						Total
	No.	Pct.	None	Less than 1 gal.	1-2 gal.	3-4 gal.	5 gal. or more	Do not know	
None	222	39.8	82.0	0.0	6.3	3.1	8.6	0.0	100
Kitchen	106	19.0	1.9	0.0	23.6	26.4	47.2	0.9	100
Porch	163	29.2	0.0	0.0	14.7	12.3	72.4	0.6	100
Workroom	23	4.1	0.0	0.0	4.4	21.7	73.9	0.0	100
Entry, basement and other	30	5.4	0.0	0.0	26.6	10.0	56.7	6.7	100
Do not know where	14	2.5	57.1	0.0	0.0	0.0	14.3	28.6	100
Total Nebraska	558	100.0	34.4	0.0	12.9	11.3	40.0	1.4	100
Total North Central Region	884	100.0	15.1	8.0	34.3	17.4	24.2	1.0	100

TABLE B-20.—Farm family preference for size of trash container, by preferred location.

Preferred location	Families reporting		Percentage of families by size of container preferred				Total
	No.	Pct.	0-5 gal.	6-19 gal.	20 gal. and over	Do not know	
None	444	79.6	94.4	2.5	3.1	0.0	100
Kitchen	20	3.6	80.0	20.0	0.0	0.0	100
Porch	67	12.0	25.4	71.6	0.0	3.0	100
Workroom	9	1.6	66.7	33.3	0.0	0.0	100
Entry, basement and other	9	1.6	11.1	66.7	22.2	0.0	100
Do not know where	9	1.6	22.2	11.1	11.1	55.6	100
Total Nebraska	558	100.0	82.6	13.1	3.0	1.3	100
Total North Central Region	884	100.0	27.8	20.3	10.5	41.4	100

TABLE B-21.—Distribution of farm families, by kinds of food preserved.¹

Kinds of food preserved	Families			
	Nebraska		North Central Region	
	Number	Percent	Number	Percent
Fruits and vegetables	317	56.8	336	38.0
Fruits, vegetables and meats	187	33.5	236	26.7
Fruits, vegetables, meats and poultry	17	3.1	203	23.0
Fruits, vegetables and poultry	0	0.0	33	3.7
Fruits only	22	3.9	27	3.1
Fruits and meat	5	0.9	7	0.8
Fruits and poultry	0	0.0	4	0.5
Fruits, meats and poultry	0	0.0	3	0.3
Vegetables and meat	0	0.0	1	0.1
Vegetables only	1	0.2	0	0.0
None	8	1.4	31	3.5
No information	1	0.2	3	0.3
Total	558	100.0	884	100.0

¹ Combining the percentages reported in the table, we find that for
 Nebraska 98.2 percent of the homemakers preserved fruit
 93.5 percent preserved vegetables
 93.4 percent preserved fruit and vegetables
 37.5 percent preserved meat
 36.6 percent preserved fruit, vegetables and meat
 3.1 percent preserved poultry
 North Central Region 96.1 percent of the homemakers preserved fruit
 91.5 percent preserved vegetables
 91.4 percent preserved fruit and vegetables
 50.9 percent preserved meat
 49.7 percent preserved fruit, vegetables and meat
 27.5 percent preserved poultry

TABLE B-22.—Distribution of farm families, by number of linear feet of counterspace desired for food preservation.

Feet of counterspace desired	Families			
	Nebraska		North Central Region	
	Number	Percent	Number	Percent
None	5	0.9	28	3.2
1-6	44	7.9	115	13.0
7-8	93	16.6	88	9.9
9-10	184	33.0	260	29.4
11-12	136	24.4	157	17.8
13-15	74	13.2	134	15.2
Over 15	16	2.9	72	8.1
No information	6	1.1	30	3.4
Total	558	100.0	884	100.0

TABLE B-23.—Preferred location for preparing food for preservation, by preferred location for processing food.

Preferred location for processing food	Families reporting		Percentage of families preferring specified location for preparing food to be preserved						
	No.	Pct.	No food preserved	Kitchen	Basement	Porch	Workroom	Other; do not know	Total
No food preserved	4	0.7	100.0	0.0	0.0	0.0	0.0	0.0	100
Kitchen	209	37.5	0.0	96.6	0.0	0.5	1.0	1.9	100
Basement	205	36.7	0.0	1.0	98.5	0.0	0.0	0.5	100
Porch	8	1.4	0.0	0.0	0.0	100.0	0.0	0.0	100
Workroom	101	18.1	0.0	0.0	0.0	0.0	100.0	0.0	100
Other; do not know	31	5.6	0.0	0.0	0.0	0.0	0.0	100.0	100
Total Nebraska	558	100.0	0.7	36.6	36.2	1.6	18.5	6.4	100
Total North Central Region	884	100.0	2.7	40.2	30.8	2.9	19.9	3.5	100

TABLE B-24.—Distribution of farm families, by present and preferred location for storing canned food.

Location for storing canned food	Percentage of families by location for storing canned food			
	Present		Preferred	
	Nebraska	North Central Region	Nebraska	North Central Region
No food preserved	1.6	3.4	0.7	2.7
Kitchen	2.0	2.1	0.9	0.8
Basement	59.9	68.8	89.4	86.8
Workroom	0.4	1.5	3.4	3.4
Other	35.9 ¹	24.1	4.9	5.5
No information	0.2	0.1	0.7	0.8
Total	100.0	100.0	100.0	100.0

¹ Of the 194 Nebraska families specifying other locations for storing canned foods:

- 140 families stored it in the cave
- 37 families stored it in the cellar
- 7 families stored it in other buildings
- 4 families stored it in the pantry
- 3 families stored it in cabinets but location of cabinets was not specified
- 1 family stored it in upstairs storeroom
- 1 family stored it in porch
- 1 family stored it in closet under stairs

TABLE B-25.—Meat cutting in the present farmhouse, and preferred location for meat cutting in a new farmhouse.

Kind, amount and preferred location	Percentage of families	
	Nebraska	North Central Region
Kind of meat cutting now done:		
No information	0.3	0.0
None	63.1	68.5
Hogs only	11.5	7.0
Beeves only	2.7	4.1
Hogs and beeves.....	21.9	18.7
Other	0.5	1.7
Total	100.0	100.0
Amount of meat cutting now done:		
No information	0.7	0.0
None	63.1	68.5
0-399 lbs.	16.7	16.0
400-799 lbs.	14.9	10.0
800 lbs. and over	4.6	5.5
Total	100.0	100.0
Preferred location for meat cutting in a new farmhouse:		
No meat cutting in house.....	58.6	66.7
In basement	23.3	19.5
In workroom	8.4	6.5
In kitchen	6.5	5.2
In other location.....	1.4	1.1
No information	1.8	1.0
Total	100.0	100.0

TABLE B-26.—Amount of lard made at one time.

Number of gallons of lard	Percentage of families making specified amounts at one time	
	Nebraska	North Central Region
None	16.1 ¹	32.4
1-3	5.4	10.6
4-6	32.3	20.6
7-9	17.7	11.5
10-12	16.8	12.0
13-15	5.2	5.9
Over 15	5.2	5.3
No information	1.3	1.7
Total	100.0	100.0

¹ See footnote 1, table B-27.

TABLE B-27.—Present location for trimming fat and storing lard.

Present location	Percentage of families			
	Trimming fat		Storing lard	
	Nebraska	North Central Region	Nebraska	North Central Region
Home	40.5	44.1	76.7	63.1
Locker	41.1	19.3	6.5	2.0
Other	3.2	4.0	1.6	2.3
No fat trimmed, or no lard stored	15.2 ¹	32.6	15.2	32.6
Total	100.0	100.0	100.0	100.0

¹ Eight Nebraska families trimmed and stored lard at home but had it rendered away from home.

TABLE B-28.—Preferred location for washing in winter, by present location.

Present location	Families reporting		Percentage of families preferring specified locations								Total
	No.	Pct.	None done	Basement	Kitchen	Porch	Workroom	Detached washhouse	No information		
										Percentage of families preferring specified locations	
No washing done	22	3.9	31.8	27.3	0.0	0.0	4.5	0.0	0.0	36.4 ¹	100
Basement	90	16.1	0.0	60.0	0.0	1.1	37.8	1.1	0.0	0.0	100
Kitchen	95	17.0	0.0	48.4	4.2	7.4	33.7	6.3	0.0	0.0	100
Porch	167	29.9	0.0	50.9	1.2	9.6	31.1	7.2	0.0	0.0	100
Workroom	50	8.9	0.0	44.0	0.0	0.0	56.0	0.0	0.0	0.0	100
Detached washhouse	121	22.0	0.0	48.8	0.8	1.7	32.2	16.5	0.0	0.0	100
Other	13*	2.2	0.0	46.2	0.0	0.0	53.8	0.0	0.0	0.0	100
Total Nebraska	558	100.0	1.3	49.8	1.3	4.5	34.6	7.0	1.4	0.0	100
Total North Central Region	884	100.0	6.8	52.7	2.3	2.6	31.0	3.7	0.9	0.0	100

¹ Eight families indicated they would include space for laundry equipment in a new house, but did not indicate where.

² Three families washed in the bathroom, two in the pantry, one in the living room, one in the summer kitchen, two in the garage and four in entrance halls.

TABLE B-29.—Preferred container for storing soiled clothes, by preferred location.

Preferred location	Percentage of families preferring specified type of container												
	Families reporting			Percentage of families preferring specified type of container									Total
	Number	Pct.		Hamper		Basket		Others ² container		Clothes chute			
Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region	Nebr.	North Central Region	Nebraska	North Central Region	Nebr.	North Central Region		
Bathroom	106	158	19.0	17.9	93.4	91.8	4.7	6.3	1.9	1.9	0.0	0.0	100
Basement	111	148	19.9	16.7	11.7	36.5	75.7	56.8	12.6	6.7	0.0	0.0	100
Bedroom	91	134	16.3	15.1	47.2	50.0	34.1	31.3	18.7	18.7	0.0	0.0	100
Workroom	114	127	20.4	14.4	57.9	48.8	26.3	43.3	15.8	7.9	0.0	0.0	100
Other and un-specified ¹	260	402	46.6	45.5	12.7	14.9	26.5	28.9	13.1	14.4	47.7	41.8	100
Total	682	969	122.2 ³	109.6 ^{3a}	45.5	43.9	39.3	34.7	15.2	12.0	22.2	19.0	122.2 ^a

¹ Most frequently named among "other locations" for North Central Region: back porch, closet, washhouse, washroom, storeroom, for Nebraska: porch, closet, washhouse, storeroom, hall, kitchen, stairway, pantry.

² Most frequently named among "other containers" for North Central Region: box, laundry bag, washing machine, sack. for Nebraska: washing machine, bins, box, laundry bag.

³ 114 (20.4 percent) of the homemakers named two preferred locations and containers; 48.1 percent of those who preferred the bathroom, 31.5 percent of those who preferred a basement, 48.4 percent of those who preferred a bedroom, 30.7 percent of those who preferred the workroom, 26.5 percent of those who preferred some other place, named two preferences.

^{3a} 85 (9.6 percent) of the homemakers named two preferred containers and locations; 30.4 percent of those who preferred the bathroom, 14.9 percent of those who preferred a basement, 20.9 percent of those who preferred a bedroom, 18.9 percent of those who preferred the workroom, 18.4 percent of those who preferred some "other place," named two preferences.

TABLE B-30.—Present and preferred location for drying laundry indoors.

Location	Percentage of families, by location of space for drying laundry indoors			
	Present		Preferred	
	Nebraska	North Central Region	Nebraska	North Central Region
Upstairs	21.7	17.6	5.9	3.3
Basement	18.3	16.5	72.9	60.1
"All over"	21.8	15.5	4.7	6.7
Kitchen	11.6	9.4	0.4	0.8
Porch	6.3	8.0	1.3	1.9
Dining room	6.3	5.8	0.5	0.7
Attic	2.0	5.4	2.3	3.9
Living room	3.4	5.4	0.2	0.2
Workroom	1.1	3.1	5.0	16.4
No laundry dried indoors	5.0	13.3	1.8	4.5
No information	2.5	0.0	5.0	1.5
Total	100.0	100.0	100.0	100.0

TABLE B-31.—Number of feet of clothesline needed for indoor drying.

Number of feet of line	Percentage of families	
	Nebraska	North Central Region
1-50	0.9	5.5
51-100	23.3	25.5
101-150	44.4	28.8
151-200	23.5	19.8
201-250	2.5	6.3
251-300	1.6	6.4
301 and over	0.7	3.2
Do not know	2.9	2.3
None	0.2	2.2
Total	100.0	100.0

TABLE B-32.—Family preference for laundry tubs, by homemakers' experience in using them.

Kinds of tubs used	Families reporting		Percentage of families preferring specified kinds of tubs				
			Portable	Stationary	None	No opinion	Total
	No.	Pct.					
Portable only	154	27.6	40.9	12.3	2.0	44.8	100
Stationary only	41	7.3	26.8	48.8	0.0	24.4	100
Both	84	15.1	33.3	47.6	2.4	16.7	100
Neither	276	49.5	22.5	8.3	3.3	65.9	100
No information	3	0.5	0.0	0.0	0.0	100.0	100
Total Nebraska	558	100.0	29.4	18.3	2.5	49.8	100
Total North Central Region	884	100.0	56.8	34.3	3.3	5.6	100

TABLE B-33.—Family preference for built-in ironing board, by homemakers' experience in using one.

Experience with built-in ironing board	Families reporting		Percentage of families by kind of ironing board preferred				
	No.	Pct.	Built-in	Movable	Both	No opinion	Total
Have used	172	30.8	47.7	44.2	4.6	3.5	100
Have not used	382	68.5	36.4	49.2	1.0	13.4	100
No information	4	0.7	0.0	50.0	0.0	50.0	100
Total Nebraska	558	100.0	39.6	47.7	2.1	10.6	100
Total North							
Central Region	884	100.0	33.4	50.6	0.5	15.5	100

TABLE B-34.—Preferred location for sewing, by present location.

Present location	Families reporting		Percentage of families preferring specified location for sewing							
	No.	Pct.	Same as present location	Sew-ing room	Bed-room	Din-ing room	Sun porch	Other	Combi-nation of two rooms	No in-formation
No sewing done	58	10.4	98.3	0.0	0.0	0.0	0.0	0.0	0.0	1.7
Dining room	207	37.1	32.4	51.7	1.9	0.0	1.9	4.3	1.0	6.8
Bedroom	57	10.2	36.8	43.9	0.0	7.0	1.8	7.0	0.0	3.5
Living room	69	12.4	26.1	42.0	5.8	4.4	5.8	7.2	1.5	7.2
Kitchen	73	13.1	24.6	54.8	4.1	1.4	1.4	8.2	1.4	4.1
Sewing room	21	3.8	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	26	4.6	53.8	42.3	3.9	0.0	0.0	0.0	0.0	0.0
Combination	45	8.1	44.5	46.7	0.0	2.2	2.2	2.2	0.0	2.2
No information	2	0.3	0.0	50.0	0.0	0.0	0.0	0.0	0.0	50.0
Total Nebraska	558	100.0	42.3	41.9 ¹	2.2 ¹	1.6 ¹	2.0 ¹	4.5 ¹	0.7 ¹	4.8 ¹
Total North										
Central Region	884	100.0	50.0							

¹ Percentages based on this classification would represent the percentage of the 558 homemakers who did not use a specified location for sewing and would like to use it. See figure 8 for the percentages of the 558 who would like to use each location, including those who used the location as well as those who did not.

TABLE B-35.—Preferred location for cutting out garments, by present location.

Present location	Families reporting		Percentage of families preferring specified location for cutting out garments				
	No.	Pct.	Same as present location	Sewing room	Dining table	Other upstairs	No information, don't know
No garments cut out	68	12.2	97.0	1.5	0.0	0.0	1.5
Dining table	303	54.3	63.0	23.8	0.0	3.3	9.9
Kitchen table	134	24.0	66.4	21.7	2.2	1.5	8.2
Floor	8	1.5	50.0	12.5	25.0	0.0	12.5
Bed	3	0.5	66.7	33.3	0.0	0.0	0.0
Sewing table	3	0.5	66.7	0.0	0.0	0.0	33.3
Other	10	1.8	60.0	30.0	0.0	0.0	10.0
Combination	15	2.7	86.6	6.7	6.7	0.0	0.0
No information	14	2.5	35.7	7.1	0.0	0.0	57.2
Total Nebraska ¹	558	100.0	67.7				
Total North Central Region ²	884	100.0	73.8				

¹ See figure 9 for the percentages of the 558 who would like to use each location, including those who used the location as well as those who did not.

² See figure 9 for the percentages of the 884 who would like to use each location, including those who used the location as well as those who did not.

TABLE B-36.—Preference for leaving sewing machine open while not sewing.

Preference for leaving sewing machine open	Percentage of 558 families in total sample	Percentage of 884 families in total sample	Percentage of 458 families having sewing machines	Percentage of 643 families having sewing machines
	Nebraska	North Central Region	Nebraska	North Central Region
No machine	17.9	27.2	0.0	0.0
Would	67.2	49.0	81.9	67.3
Would not	12.7	21.4	15.5	29.4
No opinion	2.2	2.4	2.6	3.3
Total	100.0	100.0	100.0	100.0

TABLE B-37.—Families having specified number of patterns to be stored.

Number of patterns to be stored	Percentage of families	
	Nebraska	North Central Region
None	12.0	35.2
1-15	39.6	36.2
16-30	25.8	17.0
31 and over	21.5	5.5
No information	1.1	6.1
Total	100.0	100.0

TABLE B-38.—Families having sewing materials and equipment to be stored.

Number to be stored	Percentage of families				
	Garments	Spreads or quilts	Rugs	Dress forms	Sewing tables
None					
Nebraska	14.5	67.6	73.1	95.5	96.1
North Central Region	44.4	68.5	75.7	96.9	94.9
1					
Nebraska	59.1	24.7	20.6	1.4	0.5
North Central Region	18.8	18.7	11.2	2.8	4.4
2					
Nebraska	14.9	3.6	4.1	0.0	0.0
North Central Region	10.1	6.8	3.9	0.2	0.0
3 or 4					
Nebraska	8.4	1.6	0.7	0.0	0.0
North Central Region	12.8	4.3	3.2	0.0	0.1
5 or 6					
Nebraska	1.3	0.4	0.2	0.0	0.0
North Central Region	8.4	1.1	1.4	0.0	0.0
7 or more					
Nebraska	0.5	0.0	0.0	0.0	0.0
North Central Region	5.2	0.5	1.0	0.0	0.0
No information					
Nebraska	1.3	2.1	1.3	3.1	3.4
North Central Region	0.3	0.1	3.6	0.1	0.6
Total					
Nebraska	100.0	100.0	100.0	100.0	100.0
North Central Region	100.0	100.0	100.0	100.0	100.0

TABLE B-39.—Quantity of eggs and cream handled in the farmhouse daily.

Dozens of eggs handled daily in house	Percentage of families		Gallons of cream handled daily in house	Percentage of families	
	Nebraska	North Central Region		Nebraska	North Central Region
None	24.0	47.6	None	36.5	76.0
1-5	50.2	29.3	1 or less	35.5	17.1
6-10	16.5	13.6	2-5	27.8	5.7
11-15	8.3	5.7	6-8	0.0	0.7
16 and over	0.5	3.7	9 or more	0.0	0.4
No information	0.5	0.1	No information	0.2	0.1
Total	100.0	100.0	Total	100.0	100.0

TABLE B-40.—Quantity of seed stored in the farmhouse.

Amount of seed stored	Percentage of families	
	Nebraska	North Central Region
None	62.7	74.4
1-4 bushels	6.6	8.7
5-9 bushels	14.5	5.2
10 or more bushels	16.0	8.2
Some, but no information on amount	0.2	3.5
Total	100.0	100.0

TABLE B-41.—Motors, machinery belts, and incubators stored in the farmhouse.

Number stored in farmhouse	Percentage of families					
	Motors		Machinery belts		Incubators	
	Nebraska	North Central Region	Nebraska	North Central Region	Nebraska	North Central Region
None	99.1	97.3	99.1	98.6	99.6	98.8
1	0.9	2.3	0.2	0.8	0.2	1.1
2	0.0	0.4	0.3	0.5	0.0	0.0
3	0.0	0.0	0.2	0.1	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.1
No information	0.0	0.0	0.2	0.0	0.2	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

TABLE B-42.—Farm families starting garden plants in the house.

Classification	Percentage of all families		Percentage of families					
	Nebraska	North Central Region	Nebraska farm families					
			South-east ¹	North-east	South Central	North Central	West-ern	Section ²	Section^{3}
Do start garden plants in the house	15.1	15.8	8.4	11.1	13.1	30.6	33.9	8.0
Do not start garden plants in the house	84.9	84.2	91.6	88.9	86.9	69.4	66.1	92.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹ See figure 11 for definition of areas.

² Michigan, Wisconsin, Minnesota, North Dakota, South Dakota.

³ Ohio, Indiana, Illinois, Iowa, Missouri, Nebraska, Kansas.

TABLE B-43.—Kind of space needed in the farmhouse for farm and home business.

Kind of space needed	Farm business		Kind of space needed	Home business	
	Percentage of families			Percentage of families	
	Nebraska	North Central Region		Nebraska	North Central Region
None	16.9	26.9	None	93.2	87.1
Desk	74.9	58.7	Desk	5.2	4.3
Separate room	7.7	12.6	File drawer	0.2	4.5
Other	0.0	0.9	Space in kitchen ..	1.0	1.3
No information ..	0.5	0.9	Combination, other	0.2	1.9
			No information ..	0.2	0.9
Total	100.0	100.0	Total	100.0	100.0

TABLE B-44.—Preferred location in the farmhouse for desk for farm business.

Preferred location for desk	Percentage of 418 families wanting desk for farm business	Percentage of 519 families wanting desk for farm business
	Nebraska	North Central Region
Living room	39.7	49.1
Dining room	44.3	30.7
Kitchen	3.1	5.0
Den	1.0	2.3
Sewing room	1.4	2.1
Bedroom	2.6	1.9
Other	2.6	8.9
No information	5.3	0.0
Total	100.0	100.0

TABLE B-45.—Preferred location for guests to sleep, by number of overnight guests farm families would like to have.

Number of guests farm families would like to have	Families reporting		Percentage of families by preferred location of guest sleeping space						
	No.	Pct.	Spare bed-room	Family bed-room	Living room	Other	No guests	No information	Total
None	5	0.9	20.0	40.0	0.0	0.0	40.0	0.0	100
1 or 2	307	55.0	62.2	27.3	0.7	9.1	0.7	0.0	100
3 or 4	205	36.8	71.7	14.1	0.5	13.2	0.0	0.5	100
5 or 6	34	6.1	55.9	23.5	0.0	11.8	8.8	0.0	100
7 or more	4	0.7	100.0	0.0	0.0	0.0	0.0	0.0	100
No information	3	0.5	66.7	0.0	0.0	0.0	33.3	0.0	100
Total Nebraska	558	100.0	65.2	22.1	0.5	10.6	1.4	0.2	100
Total North Central Region	884	100.0	79.5	7.4	6.3	2.9	3.1	0.8	100

TABLE B-46.—Number of feet of shelf space needed for books and magazines, by preferred location.

Preferred location for shelf space	Families reporting		Percentage of families needing specified number of feet of shelf space							Total
	No.	Pct.	1-5	6-10	11-20	21-30	31-40	41-50	Over	
Living room	244	43.7	33.2	35.7	25.4	3.3	1.2	0.8	0.4	100
Office	15	2.7	40.0	13.3	40.0	0.0	0.0	0.0	6.7	100
Child's bedroom	26	4.7	57.7	23.1	19.2	0.0	0.0	0.0	0.0	100
Dining room	101	18.1	46.5	32.7	18.8	1.0	0.0	1.0	0.0	100
Kitchen	40	7.2	92.5	5.0	0.0	2.5	0.0	0.0	0.0	100
Parents' bedroom	8	1.4	62.5	25.0	12.5	0.0	0.0	0.0	0.0	100
Other	51	9.1	49.0	19.6	21.6	7.8	0.0	0.0	2.0	100
Total Nebraska ¹			44.5 ^{2a}	29.3 ^{2a}	21.5 ^{2a}	2.9 ^{2a}	0.6 ^{2a}	0.6 ^{2a}	0.6 ^{2a}	100
Total North Central Region ¹			29.2 ²	20.9 ²	26.9 ²	10.8 ²	7.4 ²	3.0 ²	1.8 ²	100

¹ Because some homemakers may have said that they wanted shelf space in more than one location, the sum of the numbers of families reporting would equal, not the total number of families desiring some shelf space, but the total number of desired locations for shelf space specified by those families who wanted some space.

^{2a} The base for this percentage is the 485 desired locations for shelf space specified by those families who wanted some space.

² The base for this percentage is the 862 desired locations for shelf space specified by those families who wanted some space.

TABLE B-47.—Preferred location for extra sitting space, by present space.

Present location	Families reporting		Percentage of families preferring specified location							Total
	No.	Pct.	None	Recreation room	Den	Parlor	Bedroom and sewing room	Other	No information	
None	503	90.1	69.4	1.0	3.7	1.2	1.4	2.2	21.1	100
Dining room	4	0.7	25.0	0.0	0.0	0.0	0.0	50.0	25.0	100
Kitchen	8	1.4	37.5	0.0	25.0	0.0	0.0	37.5	0.0	100
Parlor	11	2.0	27.3	0.0	36.3	18.2	9.1	0.0	9.1	100
Other	21	3.8	23.8	19.0	14.3	14.3	9.5	14.3	4.8	100
No information	11	2.0	36.4	9.1	9.1	0.0	0.0	0.0	45.4	100
Total Nebraska	558	100.0	65.4	1.8	5.2	2.0	1.8	3.4	20.4	100
Total North Central Region	884	100.0	55.8	8.9	8.3	3.0	1.7	16.2	6.1	100

TABLE B-48.—Preferred location for extra place to lie down, by present location.

Present location of extra place to lie down	Families reporting		Percentage of families by preferred location of extra place to lie down						
	No.	Pct.	None	Porch	Den	Recreation room	Other ¹	No information	Total
None	354	63.5	52.3	16.7	3.4	4.8	13.5	9.3	100
Dining room	111	19.9	5.4	6.3	4.5	0.9	80.2	2.7	100
Porch	32	5.7	3.1	68.8	3.1	3.1	15.6	6.3	100
Other	57	10.2	8.8	7.0	3.5	33.3	38.6	8.8	100
No information	4	0.7	0.0	25.0	0.0	0.0	0.0	75.0	100
Total									
Nebraska	558	100.0	35.3	16.7	3.6	6.8	29.4	8.2	100
Total North Central Region									
Region	884	100.0	46.4	19.8	7.4	2.8	16.4	7.2	100

¹ Includes workroom, kitchen, office, sewing room.

APPENDIX C

Differences Between Nebraska and the North Central Region

TABLE C-1.—Comparison of family characteristics, preferences and activities in Nebraska and North Central Region.

Comparison of significant differences	Nebraska (Percentage)	Regional (Percentage)	Chi- square value	Level of signi- ficance
FAMILY AND HOUSEHOLD CHARACTERISTICS				
Tenure				
Full owner of farm	27.8	43.7	36.7	0.01
Renter of farm	43.0	21.7	74.2	0.01
Size of farm				
Size of 260-499 acres	28.4	13.8	47.1	0.01
Type of farming				
General farming	35.0	59.3	81.0	0.01
Cash grain farming	27.9	9.5	89.2	0.01
Livestock farming	31.7	8.5	128.0	0.01
Income				
Income under \$1,500	9.7	28.3	70.8	0.01
Income from \$3,000 to 4,999	34.1	24.4	16.0	0.01
The houses				
Basement or cellar finished	55.6	45.1	62.1	0.01
Separate dining room	66.2	57.6	10.4	0.01
Electricity	65.2	72.4	8.7	0.01
Adequate number of bedrooms	85.8	72.3	7.3	0.01
FAMILY PREFERENCES				
Number of stories				
One story house	78.1	65.9	25.0	0.01
Number of rooms preferred in a new house relative to number in present house:				
More rooms than in present house	36.0	41.9	4.9	0.10
Fewer rooms than in present house	42.3	32.8	10.1	0.01
Add or remove specified rooms in present house				
Like to add a dining room	20.3	31.4	12.8	0.01
Like to remove a bedroom	94.1	73.7	20.7	0.01
Room combinations				
Kitchen, dining room, living room, bedroom combination	44.4	33.5	19.2	0.01
Kitchen-dining room, living room, bedroom, other	14.8	35.6	76.0	0.01
Specified rooms				
Like living room	70.9	94.7	160.9	0.01
Like living-dining room	27.2	5.0	146.1	0.01
Would like no "other" room	61.7	48.4	24.2	0.01
Like bedroom downstairs	93.4	87.3	15.0	0.01
Bathrooms				
House without lavatory, would like bathroom downstairs	95.1	76.7	87.0	0.01
House with lavatory, would like bathroom upstairs	37.7	52.2	7.8	0.01
House with lavatory, would like bathroom downstairs	59.9	45.8	320.4	0.01

Continued on pages 96 and 97.

TABLE C-1.—(continued).

Comparison of significant differences	Nebraska (Percentage)	Regional (Percentage)	Chi- square value	Level of signi- ficance
Men's wash-up area				
Location for men's wash-up area with a bathroom				
In the basement	15.1	24.3	16.4	0.01
In the washroom or lavatory	29.0	11.2	74.4	0.01
Location for men's wash-up area without a bathroom				
In the basement	10.7	23.4	37.2	0.01
In the washroom or lavatory	35.1	11.6	113.7	0.01
Features of houses				
Glass porch	52.3	12.2	237.4	0.01
Glass and screen porches	19.2	59.1	124.8	0.01
Front porch (preferred)	46.1	61.2	100.2	0.01
Want attic	32.6	43.8	17.3	0.01
Prefer second floor deck	54.6	41.3	24.2	0.01
Prefer fireplace	30.8	40.2	12.0	0.01
Medicine cabinet in bathroom	91.2	80.9	28.6	0.01
Coat closet for family	64.9	78.4	32.4	0.01
Coat closet for guests	57.9	43.8	26.8	0.01
Guests to enter back door	40.5	24.5	40.0	0.01
Guests to enter front door	38.9	57.9	49.4	0.01
Like to heat all rooms	38.2	74.5	190.1	0.01
Ratings of selected features				
Rating number I				
Separate dining room	46.0	37.2	12.0	0.01
First floor workroom	33.0	40.0	7.5	0.01
Work porch	61.2	38.5	71.4	0.01
Rating number II				
Separate dining room	20.2	36.5	43.5	0.01
Front porch	21.8	32.6	19.7	0.01
Fireplace	21.3	28.0	24.4	0.01
Second floor deck	31.0	24.3	7.9	0.01
Rating number III				
Separate dining room	33.1	25.0	10.6	0.01
First floor workroom	48.7	37.3	19.8	0.01
Work porch	27.8	39.5	22.1	0.01
Fireplace	68.8	59.7	12.1	0.01
Second floor deck	54.8	62.3	8.4	0.01
FAMILY ACTIVITIES				
Food preparation				
Do bake cakes	96.4	89.6	13.4	0.01
Do bake quick breads	92.1	79.2	42.6	0.01
Do bake yeast breads	74.2	56.1	48.3	0.01
Do bake yeast rolls	82.8	63.7	61.5	0.01
Meal service				
Do serve meals in kitchen only	18.1	45.5	112.4	0.01
Do serve meals in kitchen and dining room	59.1	36.4	71.8	0.01
Prefer to serve meals in kitchen only	8.1	28.5	85.7	0.01
Prefer to serve meals in kitchen and dining room	65.6	47.7	43.9	0.01
Seat 1-4 at kitchen table	29.9	22.4	11.9	0.01
Seat 5-6 at kitchen table	38.5	29.6	9.8	0.01
Seat 9-10 at dining room table	31.9	16.6	45.3	0.01
Prefer no garbage can	34.4	15.1	72.9	0.01
Prefer 1-2 gallon garbage can	12.3	34.3	85.7	0.01

TABLE C-1.— (concluded) .

Comparison of significant differences	Nebraska (Percentage)	Regional (Percentage)	Chi- square value	Level of signi- ficance
Food preservation				
Preserve fruits and vegetables	56.8	38.0	64.4	0.01
Store fruits and vegetables in the basement	59.7	68.8	12.4	0.01
Meat cutting and lard making				
Prefer no meat cutting in the house	58.6	66.7	9.5	0.01
Lard now stored in the house	76.7	63.1	29.1	0.01
No lard now made in the house	16.1	32.6	47.4	0.01
Trim fat at the locker	41.1	19.3	79.8	0.01
Laundering				
Prefer basement indoor drying space for laundry	72.9	60.1	27.6	0.01
Need 101-150 feet indoor drying clothesline	44.4	28.8	36.7	0.01
Prefer to wash and iron in different place	74.0	62.1	22.1	0.01
Sewing				
Do some sewing	89.6	73.0	48.1	0.01
Prefer to sew in same place as present	42.3	50.0	8.7	0.01
Have no machine	17.9	27.2	16.2	0.01
Prefer to leave machine open (percent of all families)	67.2	49.0	45.6	0.01
Families with a machine prefer to leave open (percent of those with machines)	81.9	67.3	37.0	0.01
Have no patterns to be stored	12.0	35.2	94.4	0.01
Have 16-30 patterns to be stored	25.8	17.0	17.1	0.01
Have to store garments in process of being made	59.1	18.8	246.7	0.01
Have to store quilts in process of being made	24.7	18.7	7.4	0.01
Farm work requirements				
Families handling eggs	76.0	52.4	81.0	0.01
Prefer to handle eggs in basement	79.0	70.0	14.4	0.01
Families handling cream	63.5	24.0	223.4	0.01
Do not store seed in the house	62.7	74.4	22.2	0.01
Farm and home business requirements				
Prefer space in the home for farm business	83.1	63.1	67.1	0.01
Prefer desk for farm business	74.9	58.7	39.4	0.01
Prefer desk for farm business located in living room	39.7	49.1	12.1	0.01
Prefer desk for farm business located in dining room	44.3	30.7	27.7	0.01
Hospitality, leisure and play				
Prefer guests to use spare bedroom	65.2	79.5	29.6	0.01
Prefer 105 feet shelf space for books and magazines	44.5	29.2	35.0	0.01
Prefer 6-10 feet shelf space for books and magazines	29.3	20.9	10.4	0.01
Prefer no extra sitting space	65.4	55.8	11.2	0.01
Prefer no extra space to lie down	35.3	46.6	17.9	0.01
Entertain family groups	81.1	46.9	167.4	0.01
Entertain farm groups	24.9	14.6	23.7	0.01

TABLE C-2.—Type-of-farming areas of Nebraska related to selected family characteristics.^{1,2}

Characteristics	Percentage						Degrees of freedom	Chi-square value	Level of significance
	State (558)	South-east (83)	North-east (103)	South Central (221)	North Central (36)	West (56)			
Type of farm operation:									
Full-time farmers:									
Owners or part owners	44.3	43.4	40.1	44.8	63.9	44.7	8	16.49	0.05
Full renters	43.0	41.0	48.8	45.2	25.0	30.3			
Part-time and non-farmers	12.7	15.6	11.1	10.0	11.1	25.0			
	100.0	100.0	100.0	100.0	100.0	100.0			

¹ Only those characteristics which varied significantly by type-of-farming area are included in the table. These are the characteristics for which (a) chi-square values were greater than the necessary allowance for sampling error at the 0.10 level of significance and (b) the percentage for at least one of the areas varied from that of the state by at least 10 percent.

² By the foregoing definitions, there were no significant differences among the areas of the state as to family income, family type, size of household and age of homemaker.

TABLE C-3.—Differences between type-of-farming areas related to housing needs and preferences of farm families.

Characteristics indicating farm housing needs and preferences	Percentage							Degrees of freedom	Chi-square value	Level of significance
	State of Nebraska (558)	Type-of-farming areas				Western (56)				
		South-east (78)	North-east (162)	South Central (221)	North Central (36)					
Occupied dwellings with:										
Electricity										
Any kind	65.2	79.5	69.8	57.5	44.4	71.4	4	24.34	0.01	
Highline	52.0	75.9	58.0	44.8	8.3	55.4	4	52.10	0.01	
One story	32.6	18.1	17.9	35.7	58.3	67.9	4	46.5	0.01	
Six or more rooms	62.9	79.5	65.4	64.1	38.9	42.9	4	29.6	0.01	
Separate dining room	66.2	74.7	57.4	67.0	44.4	39.3	4	25.3	0.01	
Running water	38.0	36.1	42.6	28.1	50.0	58.9	4	24.3	0.01	
Porch of any kind	81.3	90.4	84.6	79.2	83.3	62.5	4	18.3	0.01	
Basement or cellar										
Any kind	70.6	81.9	66.7	73.3	44.4	71.4	4	17.2	0.01	
With finished walls and floors	55.6	62.7	53.1	56.6	33.3	62.5	4	10.7	0.05	
Spare bedroom	60.8	67.4	65.4	61.0	38.9	50.0	4	13.7	0.01	
Space to eat in kitchen	92.1	94.0	91.4	93.7	97.2	82.1	4	12.4	0.02	
One or more clothes closets										
per bedroom in house	28.1	20.5	26.5	31.2	16.7	39.3	4	8.9	0.10	
Family possessions included:										
Gas or electricity used as cooking fuel	44.8	42.2	37.0	41.2	55.6	78.6	4	33.5	0.01	
Mechanical refrigeration	57.3	74.7	65.4	52.5	33.3	42.9	4	30.1	0.01	
Vacuum cleaners	21.1	32.5	18.5	18.1	5.6	33.9	4	18.7	0.01	
Family activities in farmhouse:										
Handle eggs for market	76.5	81.9	79.0	76.9	58.3	71.4	4	10.7	0.05	
Entertain social groups	37.3	33.7	34.6	36.7	36.1	53.6	4	8.9	0.10	

Continued on page 100.

TABLE C-3.—Differences between type-of-farming areas related to housing needs and preferences of farm families (continued).

Characteristics indicating farm family housing needs and preferences	State of Nebraska (558)	Percentage						Degrees of freedom	Chi-square value	Level of significance
		Type-of-farming areas								
		South-east (83)	North-east (102)	South Central (221)	North Central (36)	Western (56)				
Homemakers' preferences for features in a new farmhouse:										
Central heating	85.1	94.0	87.7	84.6	55.6	85.7	4	33.7	0.01	
One story	78.1	66.3	71.6	81.4	91.7	92.9	4	23.6	0.01	
Space in basement for:										
Drying laundry	72.4	65.1	75.9	76.9	52.8	67.9	4	13.1	0.01	
Handling eggs for market	60.0	65.1	63.6	60.6	33.3	57.1	4	13.7	0.01	
Place to iron in winter:										
Kitchen	58.5	56.7	59.0	63.4	38.9	53.5	4	15.8		
Utility room	16.5	12.0	21.1	12.2	25.0	21.4	4	15.8		
Place for processing food for preservation:										
Kitchen	37.5	41.0	31.4	36.7	30.6	50.1				
Basement	36.7	39.5	38.4	37.1	36.1	30.3				
A place to cut up meat in house	39.6	37.3	30.2	46.6	47.2	37.5	4	11.4		
Homemakers' ratings of features desired in a new farmhouse:										
Basement	93.9	94.0	95.7	93.7	80.6	89.3	4	17.5	0.01	
Central heating	93.7	97.6	96.3	92.8	80.6	92.9	4	16.7	0.01	
Lavatory in addition to bathroom	51.6	54.2	39.5	54.2	69.4	60.7	4	16.5	0.01	
Fireplace	27.2	34.9	21.6	29.4	33.3	17.9	4	9.8	0.05	
First-floor workroom	50.2	42.0	57.4	45.7	50.0	58.9	4	9.5	0.05	
Second-floor deck	40.1	51.8	35.2	41.1	25.0	42.9	4	9.3	0.10	
Separate dining room	66.1	72.3	62.3	70.1	63.9	53.6	4	8.0	0.10	

TABLE C-4.—Farm family income in Nebraska related to selected family characteristics.^{1,2}

Characteristics	Percentage			Degrees of freedom	Chi-square value	Level of significance
	All families (549) ³	Families with incomes				
		Under \$3,000 (252)	\$3,000 and over (297)			
Type of farm operation:						
Full-time farmers:						
Owners or part owners	44.2	30.2	56.2	} 2	79.3	0.01 ⁴
Full renters	43.0	50.4	36.7			
Part-time and non-farmers	12.8	19.4	7.1			
	100.0	100.0	100.0			
Age of homemaker: ⁵						
Under 35 years	37.3	45.8	29.8	} 2	15.4	0.01
35 to 49 years	35.2	29.9	40.0			
50 years and over	27.5	24.3	30.2			
	100.0	100.0	100.0			
Type of family:						
Younger families	45.9	46.1	39.1	} 1	3.7	0.10 ⁶
Older families	54.1	53.9	60.9			
	100.0	100.0	100.0			

¹ See footnote 1, table 1, page 12, for criteria of significant difference between income groups.

² There were no significant differences in the distribution of income groups among type-of-farming areas of the state.

³ Nine households did not report their incomes.

⁴ When tests were made for farm operators only, the incomes of renters were significantly lower than those of owners or part owners at the 0.01 level of significance.

⁵ For 12 households, no data were obtained for age of homemaker.

⁶ When tests were made for six classifications of family type in relation to income, a significant difference was found at the 0.02 percent level.

TABLE C-5.—Differences between income groups related to housing needs and preferences of farm families.¹

Characteristics indicating farm family housing needs and preferences	Percentage			Degrees of freedom	Chi-square values	Level of significance
	State of Nebraska	Families with incomes				
		Under \$3,000	\$3,000 and over			
Occupied dwellings have:						
Bathroom	24.8	13.1	34.7	1	33.1	0.01
Six or more rooms	63.6	51.6	73.7	1	28.5	0.01
Running water	37.7	25.8	47.8	1	28.1	0.01
Central furnace	25.9	15.1	35.0	1	27.9	0.01
Electricity, any kind	64.8	54.8	73.4	1	20.8	0.01
Separate dining room	61.6	52.0	69.7	1	17.9	0.01
Gas or oil used as heating fuel	55.7	48.4	62.0	1	10.1	0.01
Family possessions:						
Gas or electricity used as cooking fuel	44.8	27.8	59.3	1	54.8	0.01
Mechanical refrigeration	57.2	43.3	69.0	1	46.7	0.01
Vacuum cleaner	21.3	10.3	30.6	1	34.3	0.01
Pressure canner	30.2	21.8	37.3	1	15.3	0.01
Family activities in farmhouse:						
Entertain social groups	37.2	27.8	45.1	1	19.1	0.01
Homemakers' preferences for features in a new farmhouse:						
Space for farm business	82.9	75.0	89.6	1	20.7	0.01
Sewing room	46.8	41.7	51.2	1	5.1	0.05
Homemakers' ratings of features desired in a new farmhouse:						
Fireplace	26.6	17.1	34.7	1	21.6	0.01
Lavatory in addition to bathroom	51.5	40.9	60.6	1	21.1	0.01
Front porch	56.3	62.7	50.8	1	7.6	0.01
First-floor workroom	50.3	45.2	54.5	1	5.0	0.05

¹ See footnote 19, page 61, for criteria of significant difference.

TABLE C-6.—Type of farm operation related to selected family characteristics.¹

Characteristics	Percentage				Degrees of freedom	Chi-square value	Level of significance
	All families (558)	Farm full time as:					
		Owners or part owners (248)	Full renters (239)	Part-time non-farmers (71)			
Age of homemaker:²							
Under 35 years	37.0	22.7	54.1	30.0	} 4	77.5	0.01
35 to 49 years	35.4	37.7	35.4	27.1			
50 years and over	27.6	39.6	10.5	42.9			
	100.0	100.0	100.0	100.0			
Family type:							
Younger families	71.9	60.9	86.6	60.9	} 2	45.5	0.01
Older families	28.1	39.1	13.4	39.1			
	100.0	100.0	100.0	100.0			
Family income:³							
Under \$3,000	45.9	31.3	53.8	70.0	} 2	44.3	0.01
\$3,000 and over	54.1	68.7	46.2	30.0			
	100.0	100.0	100.0	100.0			
Type-of-farming area:							
Southeast	14.9	14.5	14.2	18.3	} 8	16.5	0.05
Northeast	29.0	26.2	33.1	25.4			
South Central	39.6	39.9	41.8	31.0			
North Central	6.5	9.3	3.8	5.6			
Western	10.0	10.1	7.1	19.7			
	100.0	100.0	100.0	100.0			
Size of family:							
Four or less persons	69.0	72.2	64.0	74.6	} 2	5.1	0.10
Five or more persons	31.0	27.8	36.0	25.4			
	100.0	100.0	100.0	100.0			

¹ See footnote 1, table C-2, page 98, for criteria of significant difference between types of farm operation.

² For 12 households, no data were obtained for age of homemaker.

³ Nine households did not report their incomes.

TABLE C-7.—Differences between types of families and their needs and preferences for housing.

Characteristics indicating farm family needs and preferences for housing	All families		Percentages, by family type, related to average percentage for all families					Chi-square values	Level of significance
	No. (558)	Pct.	Younger couples (41)	Founding families (149)	Expanding families (309)	Adult families (67)	Older couples (89)		
Occupied dwellings:									
Adequate number of bedrooms for									
size and composition of household	478	85.7	95.1	85.2	74.1	97.0	100.0	48.35	0.01
Six or more rooms	351	62.9	47.3	59.7	64.1	74.6	64.0	10.19	0.10
Family possessions:									
Vacuum cleaner	118	21.1	4.9	18.8	20.1	22.4	33.7	15.64	0.01
Family activities in farmhouse:									
Bake four or more times per month:									
Cake	405	72.6	56.1	76.5	88.5	61.2	47.2	74.61	0.01
Yeast loaf bread	338	60.6	48.8	54.4	72.7	61.2	49.2	29.20	0.01
Yeast rolls	292	52.3	36.6	46.3	67.5	47.8	39.3	38.36	0.01
Need space for farm business	461	82.5	82.9	92.6	82.3	74.6	74.2	19.68	0.01
Homemakers' preferences for features in a new farmhouse:									
Six or more rooms	374	67.0	63.4	74.5	78.9	59.7	34.8	62.03	0.01
Basement for drying laundry indoors	404	72.9	80.5	75.8	75.1	62.7	66.3	13.93	0.01

APPENDIX D

SURVEY PROCEDURES

FOREWORD

The Nebraska Agricultural Experiment Station allocated funds for a state study of farm housing requirements at the time of field work for the North Central farm family housing study in which the Station participated. This appendix describes the procedures used in the design and execution of the sample survey for the state study of open-country family housing requirements.

By conducting field work for the state survey and the regional interviewing jointly and by following the regional sampling and analysis schemes as much as possible, data for the Nebraska study could be collected with a maximum of speed and economy. To this end a sampling design for the state was superimposed on the regional structure so that all clusters of households already chosen in Nebraska for the North Central sample became part of the Nebraska sample. These clusters were pooled with additional clusters to yield a large enough sample for the state.

The consulting services and facilities of the Statistical Laboratory, Iowa State College, Ames, Iowa, which were being used in the North Central study, were employed for designing this sample, preparing general instructions for field procedure, and making certain tabulations and analyses of the data.

OBJECTIVES OF THE NEBRASKA SAMPLING DESIGN

- (1) To obtain a sample of households which will be generally representative of all households in the open-country portion of the state.
- (2) To be able to make estimates of state totals, means, etc., from the sample data, which could be compared with corresponding regional estimates if so desired.
- (3) To obtain a sample which permits the determination, on the basis of information from the sample alone, of the precision of estimates made from the sample data.
- (4) To utilize available resources to choose a general structure for the sample which would provide a maximum of information (precision) for the amount of funds spent.

THE SAMPLING PLAN

Definition of Population and of Universe

The population of households to be studied was restricted to households in the open-country zone and included *all* households in that zone rather than households of farm operators only. This decision concerning the nature of the population of households to be dealt with made the problem of preparing a sample much easier, as the Master Sample Project materials¹ developed at the Statistical Laboratory include area sampling information which covers the open-country zone in detail. In 1940 approximately 96 percent of all farms in the state fell into this zone.

Definition of terms for this survey:

- (1) **HOUSEHOLD:** is a family or any group of persons living together, with common housekeeping arrangements, in the same living quarters. Persons not related to, but living with, the family unit are regarded as members of the household. (A more complete definition covering special cases of

¹ King, A. J., and Jessen, R. J., "The Master Sample of Agriculture," *Journal of the American Statistical Association*, 40:38-56, March, 1945.

membership in a household was given in the interviewers' Questionnaire Instructions.)

- (2) OPEN-COUNTRY ZONE: consists of all the area lying outside of incorporated places (cities and towns), unincorporated name places and other unincorporated places with a 1940 population density of at least 100 persons per square mile.
- (3) POPULATION: has been defined as including all households in the open-country zone of Nebraska. The smallest element of this population, the household, is the major unit of observation on which data were obtained.
- (4) UNIVERSE: is the aggregate of small areas of land or sampling units (into which the geographic area of the open-country zone has been divided.) The population of households is wholly contained and distributed geographically within the universe, and whereas the size of the population is unknown and changing, that of the universe is known and constant by definition.
- (5) SAMPLING UNIT (s.u.): is a small area of land that on the average encloses a cluster of four to twelve households. Its boundaries are such that they can be located in the field.
- (6) SAMPLE SEGMENT: is the term applied to a sampling unit which has been chosen for the sample.

The population was in a sense an unknown entity in that no accurate up-to-date measure of its size existed at the time the sample was designed. The most recent information available for open country by county was the 1940 number of farms and a map count of the number of indicated farms and dwelling units. By 1948, when this survey was being planned, a number of significant shifts in population might be expected. Use of the area sampling techniques avoids this problem by permitting the association of every element in the population of unknown size with one and only one small area of known size and location. Therefore, although data on open-country family housing for Nebraska were mainly taken on households, the population *actually* sampled was one of *small, contiguous areas* containing clusters of households and is called the *universe*.

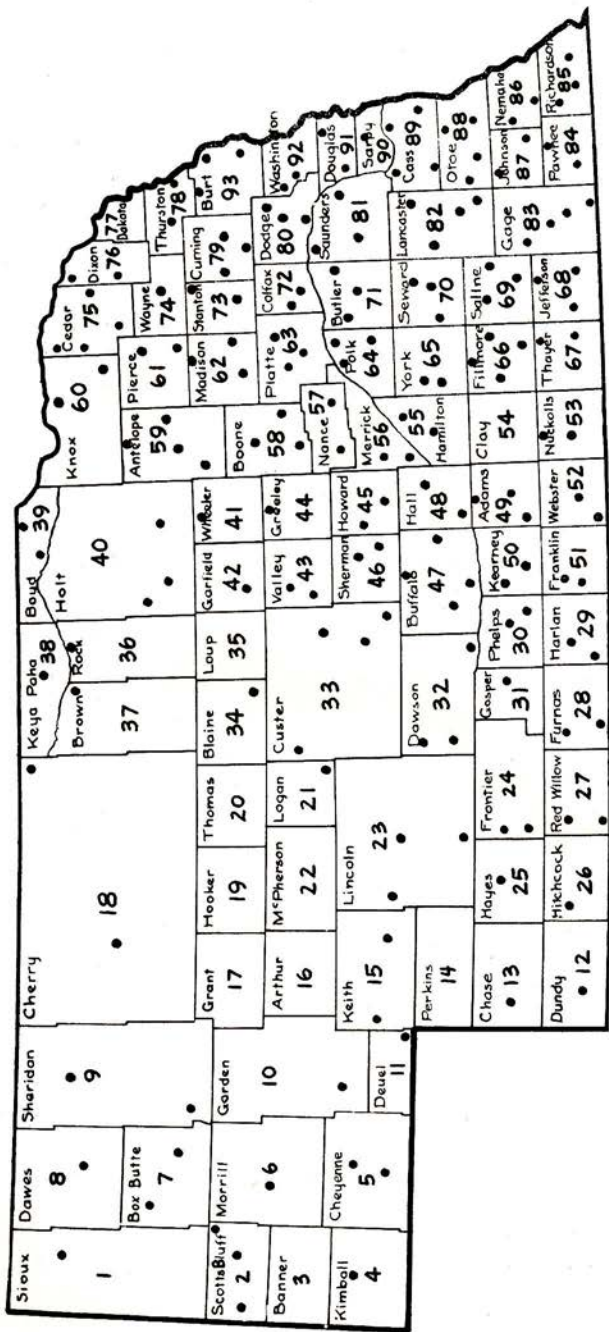
Size of the Sampling Unit

From the Master Sample Project materials, 15,485 small, contiguous areas called sampling units were designated, covering the open-country zone of Nebraska. Each sampling unit (s.u.) contained, on the average, about eight indicated (map) farms and four to twelve indicated dwelling units. (In terms of the Master Sample Project materials, the s.u. was composed of two adjacent master-sample-sized units, or m.s.s.u.'s.)

Selection of a Sample of S.U.'s

Two stages of sampling were involved in the over-all scheme: (1) probability selection of a sample of small areas, and (2) selection of a random sample of households within those sample areas. The area sampling methods were developed around the belief that the essential requirement for a dependable, representative sample is that the laws of probability should operate in the selection of the sample so that the chance which each element of the universe or population has of coming into the sample is known. If proper methods are followed, unbiased estimates of the population and its characteristics can be made from such samples.

The first stage in the sampling plan dispersed the sample by a selection (at constant rates) of segments throughout the state. Counties were ordered within the state in a serpentine manner, starting at the northwest corner and progressing toward the east. (Figure 12 shows both this ordering of counties and the geographic distribution of the segments.) Within counties, master-sample-sized units (m.s.s.u.'s) were ordered in a contiguous, serpentine manner and cumulated by county (see table D-1).



•= SHOWS LOCATION OF SAMPLE SEGMENT

FIGURE 12.—Ordering of counties and location of sample segments.

TABLE D-1.—Universe totals and summary of the first stage of sampling.

County	1940 open-country census farms ¹	Master sample INOD ²	Number of m.s.s.u.'s	Cumulated number of m.s.s.u.'s	Cumulated equivalent number of s.u.'s	No. assigned to sample segment ³		Within-sample INOD
						Reg.	Supp.	
1 Sioux	698	781	160	160	80	1	9	
2 Scotts Bluff	1887	2658	454	614	307	2-4	34	
3 Banner	323	385	91	705	352			
4 Kimball	510	527	133	838	419	5	7	
5 Cheyenne	1137	1100	283	1121	560	6-7	13	
6 Morrill	997	1140	250	1371	685	8	10	
7 Box Butte	844	933	250	1621	810	9-10	13	
8 Dawes	827	849	187	1808	904	11	14	
9 Sheridan	1222	1264	318	2126	1063	12-13	19	
10 Garden	643	794	154	2280	1140	14	11	
11 Deuel	509	528	137	2417	1208	15	8	
12 Dundy	648	803	197	2614	1307	16	10	
13 Chase	748	771	193	2807	1403	17	6	
14 Perkins	862	853	219	3026	1513	18	6	
15 Keith	694	901	204	3230	1615	19-20	20	
.....								
.....								
86 Nemaha	1313	1593	359	28,256	14,128	170-171	16	
87 Johnson	1254	1407	324	28,580	14,290	172-173	18	
88 Otoe	2150	2310	556	29,136	14,568	174-177	31	
89 Cass	1836	2051	498	29,634	14,817	179-180	22	
90 Sarpy	954	1149	243	29,877	14,938	181	8	
91 Douglas	1188	1489	291	30,168	15,084	182-183	19	
92 Washington	1503	1690	397	30,565	15,282	184-185	13	
93 Burt	1465	1707	405	30,970	15,485	186-187	22	
TOTAL	116,072	131,239	30,970	.....	.....	19 + 169	1559

¹ By "census farm" is meant that which is considered a farm according to the definition used by the U. S. Bureau of Census. The number of open-country census farms is derived from the 1940 Census of Agriculture data and the Master Sample Project materials. The figures indicate the number of farms whose headquarters are in the open-country zone—not the number of farms whose operators live in the open country.

² INOD means "indicated number of dwellings" and was obtained from map counts.

³ Segments were selected systematically following random number starts, a sampling rate of 1 out of 1652 m.s.s.u.'s being used to specify regional segments (double-sized m.s.s.u.'s) and a rate of 1 out of 165 to specify state supplement segments.

Nineteen segments or sample s.u.'s had been selected as the state portion of the North Central study, as follows: A regional sampling rate of 1 out of 1652 m.s.s.u.'s had been applied systematically to the cumulative listing of m.s.s.u.'s, beginning with a random number start of 1233. Each selected m.s.s.u. was then combined with the one following it in the cumulative listing to form a sampling unit. Since each state in the North Central Region had been treated as a stratum and sampled separately for the regional study, it was possible to obtain an adequate state sample simply by having a supplemental sample drawn and pooling it with the 19 regional segments. Since at least 500 interviews were wanted, an over-all sample size ten times that of the regional portion was considered quite adequate, as well as convenient for sampling purposes. Accordingly, to select the state supplement a rate of 1

out of every 165 m.s.s.u.'s was applied systematically from a random number start of 78. Whenever it was found that both a state supplemental segment and a regional segment were specified within the same group of 165 m.s.s.u.'s or state sampling interval, the supplemental segment was thrown out. So we can disregard the separate draws of the two portions of the Nebraska sample and thus have, in effect, one sample of 188 segments selected systematically at a rate of 1 out of 82.5 s. u.'s, where an s. u. is a double m.s.s.u.

Every s. u. defined in the state thus had an equal chance of being selected for the sample, i.e., one chance out of 82.5. Regional segments were then designated in red on two sets of county highway maps and state supplement segments were designated in green. One set of maps was for use in the field by the interviewer; the other set, for the office and supervisors.

Sampling Within the Segment

(Selection of a subsample of households)

The second stage of sampling was a field operation carried out by the interviewer according to instructions provided by the Statistical Laboratory. A "fixed-take" method of subsampling was used to select at random three households within each segment. These three households were called *sample households*. In cases where the interviewer found three or fewer actual households in the segment, all would be sample households.

After reaching a sample segment, the interviewer cruised its boundaries and drew a sketch of the segment, showing the location of all observed household dwelling units, churches, schools, etc., and noting any discrepancies from the county map. Next the actual households in each segment were numbered in a counterclockwise order, starting from the northeast corner of the segment. Sample households were then selected for interviewing by means of a table of random number sets provided by the Laboratory.² For example, segment 13, in Sheridan county, with an expected number of eleven households, was found to contain nine actual households. The first unused random number set for a segment with nine households (as determined from the interviewer's table) specified numbers 1, 5 and 8 for complete interview.

The chance of any household's being selected for complete interviewing was equivalent to the product of (1) the chance which the sampling unit on which the household was located had of being chosen, and (2) the within-segment sampling rate or approximately the fraction three divided by the actual number of households found within that sampling unit.

Who Was to Be Interviewed

The eligible respondent to be interviewed from a sample household was the *senior homemaker*, who was defined as the *decision-making homemaker* of the household.

Call-Backs

When an interview could not be obtained during the first call to a sample household, the interviewer made an appointment with the senior homemaker, when possible, for a later call. In general, whether or not there was a definite appointment, at least one additional attempt to get the interview was to be made. The only exceptions were in cases of outright refusals by the homemaker or when it was known that the homemaker either would not be home for a long period of time or was incapable of answering the questions for reasons such as deafness, language difficulties, or physical or mental illness.

² This table was included in the interviewer's manual of "Field Operations and Sampling Instructions."

Treatment of Noninterviews in the Field

In a carefully made survey dependent on interviews for information, attention should be given to the problem of what to do when an interview can not be obtained from a specified respondent. In this case, it was decided to employ a controlled-substitution scheme within segments. According to this scheme, if an interview was not obtained from a designated sample household after several calls, it was regarded as a noninterview household and certain procedures were followed:

(1) A questionnaire was assigned to the noninterviewed subsample household, and a detailed reason for noninterview recorded inside. Also, as much information as could be ascertained—by observation, from neighbors, and from other members of the household—about the type of structure, composition of the household, and farm characteristics was filled out in the questionnaire. Space was provided for miscellaneous comments about the eligible respondent or her home.

(2) *Field substitution* was made for this household, according to rule, and the number assigned to the substitute household on the segment sketch was recorded in the questionnaire for the noninterviewed household. The rule for substitution specified that the household next in counterclockwise or numbering order to the noninterview household should be contacted for a substitute interview. If an interview could not be obtained here with reasonable effort, a questionnaire was assigned to the household and noninterview information recorded. The interviewer then substituted the *next* household in order and continued in this manner until an interview was obtained or the segment was exhausted.

It was realized that, with this scheme, bias would not be prevented whenever the noninterviewed group of eligible respondents differed markedly from the interviewed group with regard to the subject matter of the questionnaire. Thus, the scheme is not concerned directly with the missing-data problem *per se*. Prevention of such biases would require a procedure for getting more information about these "noninterview" households—such as making repeated calls to the noninterviewed group as a whole or to some randomly selected portion of them.

OBTAINING AND PROCESSING THE DATA

The Questionnaire

Some of the members of the Regional Technical Committee and several special experiment station representatives who had had experience in the subject-matter field, i.e., problems of family living and activities—constituted a committee to formulate a questionnaire for the North Central study, and the same questionnaire was used for the Nebraska study. The experience of the BHNHE in developing questionnaires on housing and household inventories was utilized.

The committee members, using a farm housing questionnaire which had been developed for a southern regional study, each interviewed several farm homemakers in their localities. The interviewing functioned primarily to provide a common starting point in adapting a questionnaire to the North Central Region, and furnished specific insights into the problems of content, wording and organization. Then the committee, meeting at Ames in January, 1948, sifted and integrated specific criticisms and made recommendations for a tentative questionnaire.

The general problems involved in construction of a questionnaire for this survey were as follows:

1. To define the subject-matter boundaries of the area of inquiry, i.e., what types of data are desired—and, more concretely, to determine the basic data wanted. Part of this was achieved by the early formulation of objectives for the survey. Also early study was given to what major tabulations were wanted.
2. To phrase questions to obtain desired specific data in as objective a manner as possible. This meant that questions should be worded so as to be clearly

stated and uniformly interpreted by both interviewers and respondents.

3. To word and order the questions so that answers would be readily convertible to code.
4. To restrict both the general and specific kinds of data sought and the length of the questionnaire to bring about ease and speed in the interview situation.

At the outset the committee agreed on the variables which it wanted to use for classifying the other data. Questions concerning these variables (i.e., family type, farm-nonfarm status, income group, etc.) were in general included in the last sections of the questionnaire, both because they tended to be of a fairly personal nature and because the respondent might have more difficulty in seeing why they should be asked if they were presented first. The sections of the questionnaire dealing with the Present Dwelling, the Family and the Farm were prepared in consultation with the Statistical Laboratory and several agricultural economists. Questions on income were cut to a minimum, since they tend to be highly resisted.

It was believed that if all the desired information were incorporated into one questionnaire, the time required for interview would be almost prohibitive in many cases. One could expect a large number of complete or partial refusals and, in other cases, hasty or incomplete answers. Therefore the committee decided to put the inventory questions to determine storage needs into a second questionnaire which would be handled as a separate problem in interviewing and analysis.

Pretesting

The tentative Part I questionnaire was pretested in the field to check on its effectiveness. As a result a number of further changes were made in the format and content of the questionnaire. For example, the time required for interview was cut even more by providing, so far as possible, space for the interviewer to check the responses given to particular questions rather than requiring her to write responses in longhand. Pretesting also indicated that certain storage problems were discussed voluntarily when homemakers talked about the household activities. So corresponding short storage need sections were transferred from the tentative Part II questionnaire to the section on household activities in Part I. It was expected that coverage of a segment, with the final length of questionnaire, would take about one day plus call-back time.

The questionnaire was approved for coding by the Statistical Laboratory before interviewing began. Special blanks for coded answers were provided in the margin of each page to facilitate processing of data. The final questionnaire was checked and approved by the cooperating agencies, "outside" subject-matter specialists and several statisticians.

One other feature of the questionnaire was the use of printed cards as visual aids to supplement certain questions. These cards served various purposes, as indicated below:

1. Cards showing sketches of houses with flat and sloping roofs supplemented the question: "If you were building a new house, would you prefer a flat or a sloping roof?" It had been found that respondents as well as interviewers varied widely in their interpretations of "flat" and "sloping." The sketches, showing modifications of the same house, established more uniformity in understanding of the terms.
2. There were several long questions offering the homemaker a choice of a large number of fixed responses. The length and complexity of these questions made it difficult for respondents to keep track of the meaning and range of choices, so cards were shown listing the possible responses.
3. A card listing seven income groups, identified by capital letters, accompanied the question: "What was the net income of the head of the household in 1947?" The card method of presentation was aimed at reducing the emotional connotations of the question, since the homemaker could mention either a letter on an income range as an answer.

The Data
(Units of observation)

The data obtained were primarily indirect. Fixed questions were used, and responses were mostly controlled open-end answers, although some were multiple choice or closed-end types. In scattered instances, direct data were obtained, either by measurement or by observation.

Each interviewer was equipped with a steel tape measure. For questions requiring answers specifying the volume or area of a space, the homemaker's response was usually sufficient. Occasionally the respondent could not give an approximate answer, but would indicate a container of the desired size. Or the interviewer might probe for a more exact answer. In such cases, the answers recorded by the interviewer would be obtained by her personal measurement of the indicated spaces.

Color of the head of the household was to be ascertained by observation rather than by questioning. If the head was not at home, his color was to be inferred from the color of other visible members of the household. In cases where the evidence observed was confusing, the interviewer's guess was to be recorded.

Miscellaneous observations of the interviewer were frequently recorded on page 1 of the questionnaire in a space for Interviewer's Comments. Such comments were encouraged and added to the Central Office's feelings of confidence about the quality of the field work. In case of noninterviews, the interviewer was to record as much information as possible about the house, family and farm. The number of stories in the house, and usually whether or not there was electricity or a basement, could be observed from outside the house.

The unit on which data are obtained is called the *unit of observation*. The information obtained from each interviewed respondent dealt with:

1. the characteristics of the *household*;
2. the characteristics of the *dwelling unit* in which that household resided—usually a complete house or *structure*;
3. the characteristics of the *farm*, if a farm was operated by some member of the respondent's household.

One problem in constructing the sampling plan and the questionnaire was to decide how to deal with these different units of observation. The chance of any household's being drawn into the sample was known. What differences would be caused by changing the unit of observation to the dwelling unit or the farm? If the new units of observation did not come into the sample with known probabilities, biases might be introduced into the data, and regional estimates for characteristics based on these units of observation might be biased.

A dwelling unit (d. u.) was defined in the Questionnaire Instructions as consisting of a room or group of rooms occupied or intended for occupancy as separate living quarters by a household. A duplex containing two families would then be equivalent to one structure but two dwelling units. The chance of an occupied d. u.'s coming into the sample would be the same as the chance the household living in it had. However, if data are obtained about the structure or house, the chance of a structure's coming into the sample will not be the same as the d. u.'s chance whenever there is more than one d. u. within the structure. This makes no difference for characteristics like "possession of electricity," since what is true for the structure is generally also true for the dwelling unit in open country. Other characteristics, however, would be positively biased for structures, if the data obtained from the d. u. homemaker were used unqualified. A number of questions in the tentative questionnaire were modified so as to apply to the present dwelling unit rather than to the house or structure.

In general, an attempt was made to make most questions apply to the household or dwelling unit. Thus, the questions on household activities relate mainly to those activities carried on by the homemaker, the head of the household and/or

the farm operator for himself and for the household unit. A further discussion of the effects of the use of different units of observation will be given in a special memorandum concerning an evaluation of the survey procedures.

The Interviewers

All but 15 of the 558 interviews for the present study were made by the home economist who had been trained for and had completed the 57 interviews for the regional sample.³ The 15 not made by this interviewer were completed by a home economist who was trained by the project leader.

Most of the interviewing was completed during the period from April, 1948, through June, 1949. During those months interviewers were required to keep daily time-and-mileage records covering all field work. Segment sketches were checked closely against the office set of maps during and at the close of interviewing for proper segment location and sampling procedure.

The editing procedure employed was set up as follows:

1. Project leader receives completed questionnaires from the interviewer, edits them and prepares a correction slip from each questionnaire in which corrections are to be made.
2. Editor returns the edited and reviewed questionnaires requiring correction to the interviewer.
3. Interviewer makes corrections in any questionnaires returned by the editor and revisits the corresponding households if necessary.

The state project leader edited all questionnaires during the interviewing period, primarily for consistency and completeness of answers.

Then the data were hand-tabulated on strips. These were 9-inch pieces of heavy paper 24 inches long. Each item of data was consistently tabulated in a specified square. Three strips were necessary to accommodate the data of each household. On each of these three strips were identification and other data used for sorting the households for purposes of analysis. After tabulations were checked, the necessary sorts and counts were made and checked. Work sheets were prepared from which tables were developed and statistical calculations made.

SAMPLE CHECK

Nature of the Resultant Sample

When all interviewing was completed, a chart was compiled to aid in the evaluation of the field work. This involved laying out all sample returns (both for completed interviews and missing interviews) by county and segment as in the original design, and checking for adequacy and plausibility of reporting returns. The 188 segments were found to contain 1497 households, or to average 7.96 each. Over 80 percent of the segments contained between four and ten households. Only one segment (no. 22, inaccessible, Cherry County) was reported as having no eligible households; three other (no. 5 in Kimball, no. 32 in Red Willow, and no. 65 in Buffalo) were each found to contain only two actual households. It was obviously impossible to obtain the fixed-take of three households for interviewing within these four segments.

Segment 24 in Lincoln County, located on the edge of North Platte and with 11 expected households, has been extensively built up since 1940 until it now contained 99 households—but the fixed-take number of households were to be interviewed. A fairly large portion of the estimated relative sampling errors (measures

³ See pp. 122-123 of *Farm Family Housing Needs and Preferences in the North Central Region*, Regional Publication 20, for description of training given interviewers for the regional study.

of the amount of variability found within the sample units which can be attributed to chance) arises from the presence of this segment in the sample, yet omission or alteration of the segment once it had been chosen would have obscured the probability basis of the sampling process so that we no longer would know what chance any particular unit had of coming into the sample. There were accordingly 558 fixed-take households to be interviewed.

The sample check showed that interviews were completed for 503 of these sample households, while substitute households were interviewed in place of 52. For the remaining three designated sample households all attempts to complete interviews or make conclusive substitutions were unsuccessful.

Editing Procedure and Treatment of Missing Data

The main purpose of editing is to put the data in the questionnaire forms into such shape that the only questions the code personnel will have to consider will be those regarding code classification and organization of data. This necessitated a final scrutiny of all questionnaires, after the close of field work, for completeness of response. The checking in and editing of all questionnaires were done by home economics staff members.

Certain editing symbols were used in cases of incompleteness. For example DK was used when the respondent "didn't know" how to answer some questions; "nonapplicable" sections of the questionnaire, which the interviewer had been directed to skip after receiving a certain response to a preceding question, were crossed out with a long diagonal line; responses of "none," "no," "nothing," etc., were edited in as O.

Answers to certain quantitative questions had to be reduced to a common denominator. For example:

(1) For questions, "What size is your refrigerator? ——— cu. ft." and "What size is your home freezer? ——— cu. ft." the editor computed cubic footage if the interviewer recorded inside dimensions of the food storage compartments. (The interviewers had been directed in the Questionnaire Instructions to measure the insides of the compartments and record their lengths, widths and heights, when the respondent was uncertain about the respective sizes.)

(2) Responses to the question, "How many feet of work space would you like to have for preserving food? ———," were converted into the form of so many feet in length of a counterspace 2 feet wide.

In general, no attempt was made to edit in values for missing data. However, in case no income data had been obtained, a member of the Agricultural Economics Department staff appraised the interview questionnaire, and his estimate of income range was edited in.

Duplication for Missing Interviews

To adjust the sample for the three designated households for which no interviews of any kind had been obtained, a process called duplication was used. This involved (1) selecting a completed questionnaire at random from those taken from households in the same segment as the noninterview household, or in a nearby segment, and (2) duplicating the contents of this questionnaire to take the place of the missing interview.

Duplication is essentially a weighting process and was used for two reasons: (1) On the basis of past experience in the Statistical Laboratory, it is believed that use of duplication yields better estimates than would be obtained by using an overall state mean for those households. (2) Duplication also keeps sample numbers balanced for computation of estimates of population totals and estimates of variance, according to the original sample design. Duplication is especially convenient when a large amount of machine tabulation and analysis is expected.

METHODS OF ESTIMATION AND MEASURES OF RELIABILITY AND VALIDITY

This section will describe appropriate methods for the Nebraska study for making estimates from the data collected and for obtaining measures of their accuracy. The two estimation schemes used here (one biased, the other unbiased) were originally devised for the North Central farm family housing study, and readers interested in the more complex mathematical aspects involved in obtaining estimates of variation due to sampling are referred to the regional publication on the North Central Study.

Estimates of Means and Totals

Item or characteristic means presented in tables of this report are obtained by the following expression (multiplied by 100 when a mean is expressed as a percentage):

$$\bar{x} = \frac{(\text{sample total for that item})}{(\text{actual number of sample households})} = \frac{X}{558}$$

where \bar{x} is the sample mean, and X is the sample total obtained by summing over the 558 sample households. This mean is a biased, but consistent estimate.

An unbiased estimate of the total number of households in open-country Nebraska is computed by multiplying the total number of households found in the 188 segments, before subsampling, by the inverse of the first stage sampling rate:

$$\hat{N} = 82.5 (1497 \text{ households}) = 123,502 \text{ open-country households.}$$

The sample means or percentages can be extended to regional totals by multiplying them by this estimate of the total number of households.

Measures of Reliability (Sampling errors)

For estimating the sampling errors when a systematic sample of clusters of households has been drawn, the following device may be used. Since, in the selection of the Nebraska sample, all counties and all sampling units within counties were ordered and numbered contiguously, strata consisting of 2 t sampling units and each containing two sample segments can be constructed—where t is the sampling interval (82.5) employed in the systematic selection of sampling units.

Thus segments 1 in Sioux County and 2 in Scotts Bluff County may be considered as selected from a stratum of the first 165 sampling units in the state, segments 3 and 4 in Scotts Bluff County, from a stratum of the next 165 s.u.'s, and so on through the 94 strata. Making the assumption that the two elements drawn from any stratum so constructed constitute a random selection of two elements from that stratum makes possible a very simple and approximately unbiased estimate of the stratum total and its variance.

The following notation may be adopted:

Let $L = 94$ be the number of strata in the universe.

$K = 2t = 165$ be the number of sampling units in each stratum.

$k = 2$ be the number of s.u.'s selected as segments from each stratum.

i refer to the i th stratum.

a refer to one of the k sample segments within any stratum.

N_{ia} be the observed total number of actual households in the a th segment in the i th stratum, for $a = 1, 2$.

Then for any one stratum,
$$\hat{N}_i = t (N_{i1} + N_{i2}) = t \sum_{a=1}^2 (N_{ia})$$

or for the state,
$$\hat{N} = t \sum_{i=1}^L (N_{i1} + N_{i2})$$

$$= 123,502 \text{ households.}$$

The variance of \hat{N} is estimated approximately (i.e., finite correction term, $\frac{K-k}{K}$, ignored) by

$$\begin{aligned} \hat{V}(\hat{N}) &= L \left(\frac{K^2}{k} \right) \left[\text{Within stratum mean square from the} \right. \\ &\quad \left. \text{sample analysis of variance} \right] \\ &= L \left(\frac{K^2}{k} \right) \sum_{i=1}^L \sum_{a=1}^k \frac{(N_{ia} - \hat{N}_i)^2}{L(k-1)} \\ &= \left(\frac{K^2}{2} \right) \sum_{i=1}^L \sum_{a=1}^2 (N_{ia} - \hat{N}_i)^2 \quad \text{where } \hat{N}_i = N_{i1} + N_{i2}, \text{ the mean} \\ &\quad \text{number of actual households per} \\ &\quad \text{segment in stratum } i. \end{aligned}$$

This variance is the same as the mean square error expression (M.S.E.) for \hat{N} since it is unbiased. Thus the estimated *relative sampling error* (R.S.E.)—which provides information about the precision of the estimate—is the square root of this mean square error expressed as a percent of the estimator.

i.e.,

$$\begin{aligned} R.S.E.(\hat{N}) &= \frac{100 \sqrt{\hat{V}(\hat{N})}}{\hat{N}} \% \\ &= \frac{(100) (8277.59)}{123,502} = 6.70\%. \end{aligned}$$

An approximate 95% confidence interval can be constructed for the estimated total using the formula

$$\begin{aligned} C.I. &= N \pm 2 R.S.E. \cdot \hat{N} \\ &= 123,502 \pm 2 (6.70\%) (123,502) \text{ or} \\ &= 123,502 \pm 16,549 \text{ households.} \end{aligned}$$

The interval (107,453 to 140,051) thus covers the true unknown number of eligible households in the state unless a one-in-twenty chance has occurred in the sampling. In other words, we can say that we are 95% confident that this interval covers the true number of open-country households in Nebraska.

(Scheme 1):

The sample arithmetic mean $\bar{x} = \frac{X}{n}$ or $\frac{\sum x}{n}$, where $n = 558$, is a biased estimator of the population mean $\mu = \frac{\sum x}{N}$

where N is the total number of open-country households in the state (unknown)

and the summation extends over N households. \bar{x} is actually an unbiased estimator of μ' , the mean of the unweighted s.u. means per household, where segment data are not weighted by the variable sampling rates within segments resulting from use of the fixed-take scheme. μ' is not of interest to us here, however.)

Within a stratum we estimate the variance of this mean by

$$\hat{V}(\bar{x}_i) = 1/4 (\bar{x}_1 - \bar{x}_2)^2 \text{ where } \bar{x}_i = \frac{\bar{x}_1 + \bar{x}_2}{2}$$

For the state,

$$\hat{V}(\bar{x}) = \frac{1}{L^2} \left[1/4 \sum_{i=1}^L (\bar{x}_1 - \bar{x}_2)^2 \right] \text{ since } \bar{x} = \frac{1}{L} \sum_{i=1}^L \bar{x}_i.$$

The mean square error of \bar{x} as an estimate of μ' is given by

$M.S.E. (x) = V(\bar{x}) + (\mu' - \mu)^2$ where μ' is the true mean

of the unweighted s.u. means perhousehold and $(\mu' - \mu)^2$ is the square of the bias. An estimate of the magnitude of this bias for several characteristics will be given later.

Similarly for \hat{T} , (a biased estimate of the true total T), where $\hat{T} = \hat{N}\bar{x}$, the variance is estimated by

$$\hat{V}(\hat{T}) \cong \bar{x}^2 \hat{V}(\hat{N}) + \hat{N}^2 \hat{V}(\bar{x}) + 2 \hat{T} \widehat{cov}(\hat{N}\bar{x})$$

and the mean square error, by

$$\begin{aligned} M.S.E. (\hat{T}) &\cong \hat{V}(\hat{T}) + (bias)^2 \\ &= \bar{x}^2 \hat{V}(\hat{N}) + \hat{N}^2 \hat{V}(\bar{x}) + \hat{N}\bar{x} \widehat{cov}(\hat{N}\bar{x}) + (bias)^2 \end{aligned}$$

The estimated covariance of \hat{N} and \bar{x} is

$$\widehat{cov}(\hat{N}\bar{x}) = \frac{1}{L} \left[\hat{T}_u - \sum_{i=1}^L (\hat{N}_i \bar{x}_i) \right],$$

where \hat{T}_u is the unbiased estimate of T obtained by using the second estimation scheme described below.

(Scheme 2):

An estimator \bar{x}_u which is practically unbiased can be calculated, although it is computationally much more involved than the biased estimator of the population mean.

\bar{x}_u , a ratio estimate of means per household,

$$= \frac{\hat{T}_u}{\hat{N}}, \text{ where } \hat{T}_u \text{ and } \hat{N} \text{ are the unbiased estimates of the total for a characteristic and number of eligible households in the population.}$$

The variance of this ratio estimate, $V(x_u)$,

$$\begin{aligned} &= V\left(\frac{\hat{T}_u}{\hat{N}}\right) = \text{the mean square error.} \\ &\cong \left(\frac{\hat{T}_u}{\hat{N}}\right)^2 \left[\frac{V(\hat{T}_u)}{\hat{T}_u^2} + \frac{V(\hat{N})}{\hat{N}^2} - \frac{2 \widehat{cov}(\hat{T}_u \hat{N})}{\hat{T}_u \hat{N}} \right] \end{aligned}$$

and is estimated by

$$\hat{v} \left(\frac{\hat{T}_u}{\hat{N}} \right) = \left(\frac{\hat{T}_u}{\hat{N}} \right)^2 \left[\frac{\hat{v}(T_u)}{T_u^2} + \frac{\hat{v}(N)}{N^2} - \frac{2 \widehat{cov}(T_u N)}{T_u N} \right].$$

The estimate for the covariance was found to be

$$\widehat{cov}(T_u N) = \frac{K(K-2)}{4} \sum_{i=1}^L \left\{ \left[N_{i1} \bar{x}_{i1} - N_{i2} \bar{x}_{i2} \right] \left[N_{i1} - N_{i2} \right] \right\}$$

or, substituting for K and L ,

$$\widehat{cov}(T_u N) = \frac{165(163)}{4} \sum_{i=1}^{94} \left\{ \left[N_{i1} \bar{x}_{i1} - N_{i2} \bar{x}_{i2} \right] \left[N_{i1} - N_{i2} \right] \right\}$$

Further substituting numerical values for N and its estimated variance, we have

$$\hat{v}(\bar{x}_u) \cong \hat{v} \left(\frac{\hat{T}_u}{\hat{N}} \right) = \frac{(T_u)^2}{(123,502)^2} \left[\frac{\hat{v}(T_u)}{T_u^2} + (.0044922) - \frac{2 \widehat{cov}(T_u N)}{(123,502) T_u} \right].$$

The unbiased estimate of a stratum total, for some item or characteristic x , is

$$T_{(u)} = \frac{K}{k} \sum_{a=1}^2 (N_a \bar{x}_a) = t (N_1 \bar{x}_1 + N_2 \bar{x}_2)$$

and its variance for the stratum is estimated by

$$\hat{v} \left(T_{(u)} \right) = t^2 (N_1 \bar{x}_1 - N_2 \bar{x}_2)^2$$

For estimates of state totals,

$$T_u = \sum_{i=1}^L T_i = \sum_{i=1}^{94} T_i$$

$$\hat{v}(T_u) = \sum_{i=1}^L \hat{v} \left(T_{(u)} \right) = \text{the estimated mean square error.}$$

Estimated relative root mean square errors for both scheme 1 and 2 then are obtained as for N , i.e., are equivalent to the square root of the mean square error expressed as a percent of the estimator. For x_u and T_u these are the same as the *relative sampling errors*. For x and T , the scheme 1 statistics, some estimate of the magnitudes of the bias due to nonweighting within segments is necessary before values can be obtained for the estimated mean square errors. Biases for the mean were estimated as a difference from the unbiased estimates ($x - x_u$, in other words) and are expressed as percentages of the unbiased estimates in table D-2.

Amount of bias due to adoption of a simple method of estimation:

The magnitude of the bias in estimates \bar{x} and T depends on the nature and degree of relationship between the segment means on a household basis (or d.u. or farm basis) and the size of the segment as measured by the number of households (or d.u.'s or farms) it contains. If the segment means remain relatively constant for all sizes of segments, the bias in \bar{x} and T will be negligible. However, if the segment means show a tendency to, say, increase with increasing size of segment, a negative bias will result.

TABLE D-2.—Estimates of means, totals, bias, and relative root mean square errors for selected items.

Item	Sample total (Number)	Weighted sample ¹ (Number)	Estimates of means		Estimated bias of \bar{x} as a percentage of \bar{x}_u (Percent)
			Biased \bar{x} (Number)	Unbiased \bar{x}_u (Number)	
Number of households	558	1497			
Per dwelling unit					
D.u.'s: possession of electricity					
a. None	195	456	0.3495	0.3046	14.72
b. Highline	290	863	0.5197	0.5763	-9.81
c. Home plant	73	178	0.1308	0.1191	9.82
D.u.'s having running water	208	635	0.3728	0.4240	-12.08
Per household					
Number of people in household	2178	5731	3.9032	3.8285	1.95
Number of homemakers	554	1487	0.9928	0.9931	-0.03
Number of farm operators	496	1283	0.8889	0.8573	3.69
Farm tenure:					
a. Nonfarm	62	214	0.1111	0.1427	-22.15
b. Owner, part owner	254	635	0.4552	0.4240	7.37
c. Renter	242	648	0.4337	0.4333	0.09
Per farm					
Size of farms in acres	242,379	733,870	488.667	490.229	-0.32
Per type of person					
Age of homemaker in years	22,611	61,388	40.8141	41.0075	-0.47
Age of farm operator in years	21,589	63,844	43.5262	42.6484	2.06

Item	Estimates of totals		Estimated relative root mean square errors ²		
	Biased \hat{T} (Number)	Unbiased \hat{T}_u (Number)	Biased \bar{x} (Percent)	Unbiased \bar{x}_u (Percent)	Unbiased \hat{T}_u (Percent)
Number of households	123,502				6.70
D.u.'s: possession of electricity					
a. None	43,159	37,620	14.22	10.13	6.70
b. Highline	64,186	71,170	11.82	7.12	12.90
c. Home plant	16,157	14,712	14.46	14.98	13.45
D.u.'s having running water	46,037	52,360	14.91	7.05	12.45

Continued on page 120.

¹ This figure was obtained by weighting the sample total for each segment by the inverse of the variable within-segment sampling rate and adding all these adjusted s.u. totals together for the state.

² The estimated relative root mean square errors for the unbiased estimates (\bar{x}_u) are estimates of the usual Relative Sampling Errors.

TABLE D-2.—Estimates of means, totals, bias, and relative root mean square errors for selected items (continued).

Item	Estimates of totals		Estimated relative root mean square errors ²		
	Biased T (Number)	Unbiased T_u (Number)	Biased \bar{x} (Percent)	Unbiased \bar{x}_u (Percent)	Unbiased T_u (Percent)
Number of people in household	482,056	472,831	2.74	3.17	5.95
Number of home-makers	122,617	122,650	0.64	1.10	6.75
Number of farm operators	109,780	105,876	3.88	2.94	5.39
Farm tenure:					
a. Nonfarm	13,722	17,626	30.69	16.92	21.69
b. Owner, part owner	56,218	52,360	8.39	8.65	5.92
c. Renter	53,562	53,516	5.13	7.12	11.40
Size of farms in acres	60,351,390	60,544,273	10.26	14.50	14.64
Age of homemaker in years	5,040,620	5,064,511	1.52	1.88	7.43
Age of farm operator in years	5,375,574	5,267,161	2.60	2.75	6.66

Examination of table D-2 shows the estimate \bar{x} to be considerably biased for the items "electricity," "running water," and "farm tenure," particularly for the non-farm classification, and accordingly much less accurate than \bar{x}_u which takes into account any correlation between an item and segment size. For the item, "running water," for example, \bar{x} , the biased mean number of d.u.'s having running water, on a d.u. basis, has an estimated negative bias of about 12 percent. This means that a dwelling unit in a segment containing only three or four occupied d.u.'s tends to be less likely to have running water than one in a more heavily populated segment, which contains, say, 12 or 14 d.u.'s.

Sampling errors and confidence interval statements:

The subject-matter tables in the main give, for sample items, percentage means which are unweighted and consequently biased estimates of the true values. However, according to the above study of the magnitude of the biases, tables based on household means would seem to have negligible bias. A confidence interval statement for any of these percentage means (which have negligible bias), with 95 percent confidence, is determined in general by

$$\text{Sample mean } \bar{x} \pm 2 \left(\frac{\text{estimated relative root mean square error}}{\bar{x}} \right) (\bar{x}) .$$

To illustrate, for estimated age of homemaker, the interval is:

$$40.814 \pm 2 (.0152) (40.814) = \pm 1.2407 \text{ years,}$$

and covers the true average age of homemakers unless a one-in-twenty chance has occurred in the sampling. Even if the one-in-twenty chance has come off, we would expect the discrepancy between the true population value and the closest value

within the sample confidence-interval band, resulting from the random sampling process, to be small.

Where bias in \bar{x} or \bar{T} is not negligible, confidence limits should be set up around unbiased estimates of the item means or totals, as for N .

Check Data
(Reasonability of Results)

The 1945 Census of Agriculture provides information concerning some of the items that were estimated from the sample. In table D-3 some of the sample estimates of totals with their .95 confidence limits are shown with comparable figures for open country derived from the census data.

TABLE D-3.—Sample estimates of totals with .95 confidence limits.

Item	Sample estimates of totals: 1948 $\bar{T}_x \pm 2 \text{ RSE} (\bar{T}_x)$	Totals derived from 1945 Census of Agri- culture data (using 1940 open-country proportions)
Number of farm operators ¹	105,876 \pm 11,422	107,149
Tenure: a. nonfarm	17,626 \pm 7,647	.....
b. owner, part owner ²	52,360 \pm 6,200	56,239
c. tenant	53,516 \pm 12,208	50,910
Number of open-country households or occupied dwelling units, whether on farms or not	123,502 \pm 16,555	
Number of farm operator households	105,876 \pm 11,422	
Number of occupied dwelling units on open-country farms		110,034
Number of people in open-country households	472,831 \pm 56,290	
Open-country farm population ³		386,883
Number of open-country occupied dwelling units:		
a. having electricity ⁵	85,882 \pm 22,313	
b. without electricity	37,620 \pm 5,041	
c. having running water	52,360 \pm 13,037	
Number of open-country farm dwell- ing units (whether occupied or not): ⁴		
a. having electricity ⁵		44,959
b. without electricity		59,904
c. having running water		33,835

¹ The sample figures may include some persons who operate farms jointly, i.e., partnership—whereas the census figures are equivalent to the number of farms.

² The census figures include about 400 managers.

³ This was defined as the population living in dwelling units on farms, excluding people in d.u.'s rented to any one not a farm operator. Farm population thus includes the households of resident farm operators and resident landlords, and those of farm laborers, relatives of farm operators and others occupying d.u.'s on farms without paying specific rent.

⁴ Adjusted proportionately for "not reporting."

⁵ Including both highline and home plant.

The sample estimates all seem reasonable for these items. Postwar increases in electrification and possession of running water would account for a large portion of the discrepancy between 1945 and 1948 figures, quite apart from the dissimilarities in type of dwelling unit concerned. A larger sample size would be necessary for closer or more reliable estimates, particularly whenever the data for an item have been separated into a number of categories.

For several other items, no comparable figures for open country were found. However, the information in table D-4 may be of some interest, although the census figures pertain to all Nebraska farms rather than to open-country farms or households only.

TABLE D-4.—Sample estimates for some other items for all Nebraska farms.

Item	Open-country sample estimates: 1948	Total Nebraska: 1945 Census of Agriculture data (including all rural and urban)
A. For totals:		
Size of farms in acres	$\hat{T}_u \pm 2 \widehat{RSE}(\hat{T}_u)$ 60,544,273 \pm 17,728,574	48,164,832
B. For means:		
Size of farms in acres	$\bar{x}_u \pm 2 \widehat{RSE}(\bar{x}_u)$ 490.2 \pm 142.2	431.0
Age of farm operator	42.65 \pm 2.34	46.9
Average number of persons per occupied household (whether farm or not)	3.83 \pm 0.24	
Average number of persons per occupied dwelling on farm		3.52

Unmeasured Errors

The previous discussion of errors due to sampling variation does not allow for errors that might be introduced by the interviewer, the questionnaire used, transcribing and coding processes, or some consistent behavior of the respondents.

The interviewer may cause biases by rewording questions for probing purposes, emphasizing certain words, failing to obtain the desired responses, failing to follow instructions correctly, etc. For example, an interviewer, by not asking specifically whether any persons other than members of the family live with a respondent in the same dwelling unit, may neglect to count a hired hand as a member of the household.

Some error may be introduced by the nature of the question or desired information. Incomes, for instance, tend to be reported lower than they actually are—a discrepancy which cannot wholly be accounted for by a memory bias, but is often due to a deliberate attempt to avoid revealing a fact regarded perhaps as highly "personal." In such a case the degree of bias may vary with type of respondent—persons with higher income levels may tend to underreport income, while some with lower levels may overreport. Questions are often unavoidably pointed or "loaded" to get specific kinds of information. Failure to recognize the effects these questions have can cause misinterpretation of responses and even result in making erroneous conclusions from the data. Preference questions sometimes create pressure for a definite response of some sort, and the respondent feels obligated to answer though he may actually have no preference. Errors of this sort may be undetected unless thorough examinations of questions and responses are made.

Aside from occasional deliberate misrepresentation of facts by respondents, there is likely to occur what is called memory bias for questions which require respondents to recall events that happened over a long period of time. In some cases respondents may tend to overestimate; in others, underestimate the true value.

Recognition of these types of errors is important not only to the analysis but also to the survey planners. Much of the development of a good survey involves the minimizing of such errors, at least to the point where the errors are either very small or of a compensating nature.