

*Adison*

North Dakota Agricultural College

EXTENSION BULLETIN  
NUMBER THREE

Rural School Industrial Contest  
Season of 1911

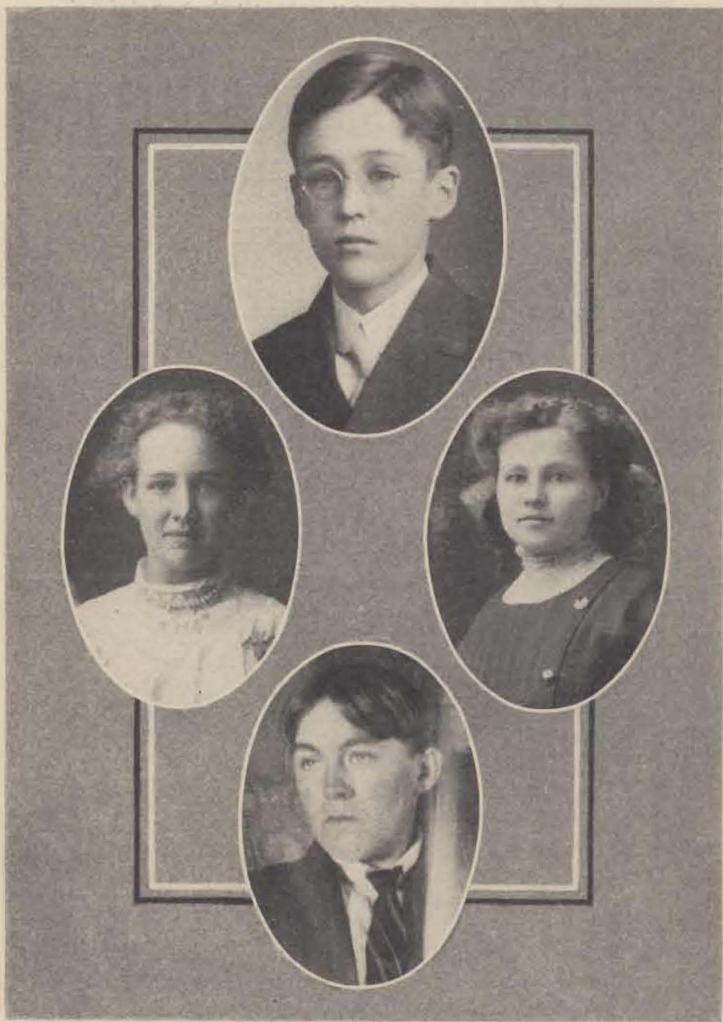


BY  
G. W. RANDLETT  
AND  
JESSIE M. HOOVER

Any farmer, teacher or student in the state may have this bulletin mailed to his address free of charge upon application.

FARGO, NORTH DAKOTA, U. S. A.

April, 1911



**Officers of N. D. Boys' and Girls' Institute**

**MONROE KIRK, Ramsey County, President**  
**HAZEL WHITE, Billings County, Treasurer**  
**HARRIET DOUGLAS, Pembina County, Secretary**  
**LEE ROMINE, Pierce County, Vice-President**

# Rural School Industrial Contests

By G. W. RANDLETT, Director College Extension, and  
JESSIE M. HOOVER, Professor of Home Economics.

## INTRODUCTORY.

The rural school industrial contests are now interesting many thousands of boys and girls in the state. The corn contest is now looked upon as a part of the regular educational machinery in North Dakota, as it is in all really progressive sections of the country. Corn and potato growing, sewing and bread making will be the lines most generally followed.

The North Dakota Boys' and Girls' Institute was organized last December, the history of which is given in succeeding pages. It is hoped the organization may be maintained permanently to become a potent influence for sane and practical educational methods.

### STRAWBERRIES.

In case any one wishes to work with strawberries, complete information may be secured by asking for Extension Bulletin No. 1.

### POTATOES.

A quantity of seed true to variety type should be secured by the county superintendent and distributed to the pupils who desire to enter the contest. Any standard variety may be used.

**Selection of the Plot.** Select a plot of rich sandy loam with good natural drainage, add well rotted manure in reasonable quantity, but avoid the use of green manure.

**Preparation of the Seed Bed.** Plow the land deep and pulverize thoroughly. Even though the land was plowed last fall, pulverize, plow deep, pulverize again and harrow several times.

**Formaldehyde Treatment.** If the seed potatoes show indications of scab or dry rot, they should receive this treatment. Put the whole potatoes in a tub or barrel and submerge one hour in a formalin solution prepared by adding one pint 40% formaldehyde to about 30 gallons of water. At the end of this time they are ready to be taken out, cut and planted. Scabby potatoes never win in a contest. Do not grow them.

**Seed Cutting.** Cut a medium to large potato into four or six pieces, lengthwise as far as possible, or cut so there will be one to two good eyes in each section.

**Planting.** Plant in rows about  $3\frac{1}{2}$  feet apart. One cutting may be planted singly every 16 to 18 inches. Place the seed in trenches four to six inches deep and cover until ground is level.

**Time of Planting.** Any time during the month of May.

**Cultivation.** Soon after the seed has been planted begin to cultivate by harrowing. Harrow often until the potato plants are two or three inches high and cultivate the same as corn until the plants are full grown. Pull or hoe the weeds from the row.

**Potato Beetles.** These insects probably will attack the plot. As soon as the adults appear they should be picked off and destroyed. Any eggs that may have been deposited will be found on the under side of the leaves. These leaves should be carefully removed and burned. If after these precautions have been taken the larvae hatch they should be treated with Paris Green. Dissolve a teaspoonful of the powder in twelve quarts of water and spray the solution on the vines with the watering pot, using as fine a screen as can be secured. If an atomizer is used the solution should be made much stronger.

**Digging.** Use a garden fork or a five or six tined manure fork. Be very careful not to damage the potatoes with the tines.

**Selection for Exhibit.** Select ten medium to large potatoes. The very largest specimens are to be regarded with suspicion. They are very apt to be unripe and of poor quality. The potatoes selected should be uniform in size, shape and general type. They should be very smooth with shallow eyes. Discard those that are irregular in shape, scabby, bruised, sunburnt or otherwise damaged. Never exhibit scabby potatoes.

## CORN.

**Selection of the Plot.** The ground selected for this purpose should be well drained yet not too light or sandy. A rather light silt loam is ideal for corn. A south slope is preferable if it can be secured because the rays of the sun fall more nearly vertical on such ground and hence the soil is warmer than it would be otherwise. If this choice soil with the south slope can be secured with timber protection at the north and west so much the better, for then one has a combination of all the best conditions.

**Preparation of Seed Bed.** If the ground has been well plowed the previous fall it may be prepared now by disking or by a very thorough harrowing, or it may be spring plowed. Supply plant food by giving a medium dressing of well rotted manure. Too heavy manuring sometimes causes too great a growth of stalks to the neglect of the ears. It is safer to use old manure as green manure holds the soil open and may cause the crop to suffer in case of drouth. The ground must be perfectly clean and in good tilth by planting time.

**Seed.** The seed is furnished to superintendents by the Agricultural College. It is not grown upon the College farm but is obtained from some of the most careful corn breeders of the state. All seed used in these contests is guaranteed North Dakota grown, and the very best that can be secured.

**Varieties.** Four different varieties are being used this year. Gehu Flint, a small and very early maturing variety will be furnished to counties in the northern part of the state. Golden Dent, the kind that has been so largely used for contests heretofore will be supplied to the central por-

tion, while Minn. No. 13 and Northwestern Dent will be used in a few counties in the south.

**Planting.** In no case plant earlier than May 10th nor later than May 31st with the possible exception of Gehu Flint in the extreme northern part of the state. Plant with a hoe in hills about three and one-half feet apart each way. Cover the seed to a depth of about two inches. Plant four kernels in a hill. Later the contestants may thin down to three or even two stalks to a hill.

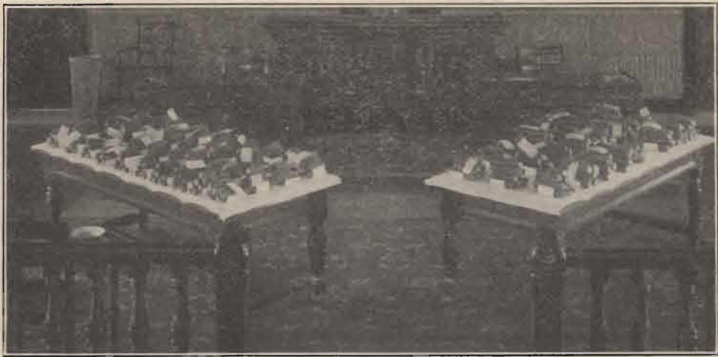


**Pembina County Corn Growers**

**Cultivation.** Before the corn is large enough to receive inter-tillage it should be harrowed several times with a light harrow. If the plot is too small to be harrowed conveniently the work may be done with a garden rake. As soon as the hills can be seen plainly commence regular horse cultivation. Go over the plot about once a week. Keep the hills clean by hoeing or pulling the weeds. Cultivation should be shallow rather than deep in order that the corn roots may not be disturbed and that a nice dust mulch or blanket may be made to prevent evaporation.

**Harvesting.** When the ears have fully ripened or after killing frosts have come, say about the 15th of October, the ears should be husked out and placed in a dry, well ventilated mouse proof building to cure. Never allow your show corn to become mouldy or discolored.

**Selection of the Exhibit.** In selecting the ten ears for exhibit the points on the score card should be carefully noted. The largest ears are not necessarily the best ears. A very large ear of corn like a very large animal is quite



Stutsman County Exhibit

likely to be coarse and lacking in quality. The ears selected above all should be ripe and sound. Take the ear of corn in the hand and attempt to move the kernels back and forth with the ball of the thumb. If they move freely the corn is not ripe, if they are firm and resist pressure the ear is mature. The butts and tips should be well filled. A butt that is too large or that is not well covered with kernels or that has too large a shank is always objectionable. As ear shape and well filled tips come in for large consideration in judging corn, great care should be exercised in selecting ears with well filled tips. The rows should be straight and close together. Never select an ear with a wide, deep



furrow between the rows. The ears should be uniform in size, color, shape, and general type. Uniformity counts for much in an exhibit, so much indeed that one exhibit possessing this quality may be given a place over another of better individual ears. Do not put in mixed ears. If you have yellow corn and the judge should find white kernels in it he will surely score your exhibit down on this account.

**Care of the Exhibit.** After the ten ears have been selected be sure that they receive the best of care. They must be kept perfectly dry, clean, and free from mice. Be very careful in handling them not to shell out any of the kernels. A single missing kernel may be the cause of missing an award. Do not tie strings around the ears as the strings wedge in between the kernels and damage the appearance. Wrap each ear separately in paper and pack in a small box with sufficient paper or excelsior around the ears to take off the jar. In this condition they may be sent with safety to the county or state corn show.

**Observations.** The contestant should have a note book and make memoranda during the entire season. If this practice is followed for a number of years the data will become decidedly valuable. A few points are suggested here and others may be added. Condition of soil. Preparation of soil. Date of planting. Time between planting and appearance of little plant. Frequency and manner of cultivations. Rapidity of growth. Arrangement of leaves. Date of tasseling and silking. Use of pollen dust. Date of ripening. Date of first killing frost. Height of stalks. Height of ears. Number of ears to the stalk. Effect of weather conditions.

**Yield.** All the corn from the plot should be gathered and cured. It may then be weighed or measured (preferably weighed) and having the accurate measure of the plot the yield per acre may be computed. This should form a part of the report to the county superintendent.

**Seed for Future Use.** Every boy or girl who applies for free seed should grow the plot of corn according to the rules. If he does not intend to do so, it is not honest to secure the seed. Having once secured this seed he should raise his own afterwards—indeed, he should enlarge the plot from year to year and have seed corn to sell. There is always a ready market at a good price in North Dakota.

Note rule No. 10.

## RULES GOVERNING PUPILS' CORN GROWING CONTEST.

1st. All pupils regularly enrolled in the public schools are eligible to take part in this contest.

2nd. No seed shall be used except that furnished or approved by county superintendent.

3rd. Each contestant is entitled to about six hundred kernels, if furnished by county superintendent, otherwise he may have as large a plot as desired.

4th. Four kernels should be planted in each hill.

5th. The hills should be approximately  $3\frac{1}{2}$  feet part each way.

6th. One hundred forty-four hills should be planted in the form of a square, making the plot twelve hills on each side.

7th. All work on the corn to be used for contest purposes is to be done by or under the direction of the pupils who shall enter the exhibit.

8th. Ten ears are to be selected from those grown on the plot and exhibited at the time and place indicated by the county superintendent.

9th. The corn is to be judged according to points given on the score card appearing below.

10th. No pupil will be entitled to free seed corn a second time after 1911 except by special arrangement with the county superintendent.

11th. In case any of the above rules are at variance with those given by the county superintendent, they shall be discarded and the rules of the superintendent shall be effective.

## SCORE CARD.

Maturity .....	40 points
Uniformity .....	25 points
Color (grain and cob) .....	10 points
Kernel shape .....	10 points
Rowing .....	05 points
Butts .....	05 points
Tips .....	05 points
Total.....	
	100

## NORTH DAKOTA BOYS' AND GIRLS' INSTITUTE.

During the week just before Christmas ninety-five boys and girls, winners in their local contests whose names are given below, were the guests of the Agricultural College. The girls lived in Ceres Hall, a very handsome and nicely furnished building on the college campus, while the boys stayed at hotels in the city and rode back and forth on the street cars. The forenoons were given over to lessons on such topics as Nature of the Soil, What Plants Eat, Different Kinds of Corn, Weeds, Horses, Cattle, Milk, Butter Making, etc.

The girls had special lessons in cooking, sewing and general housekeeping.

The early part of the afternoons was given over largely to inspection tours of the barns and live stock, the shops, laboratories, etc. During the latter part of each afternoon the boys played indoor base ball in the big armory and the girls had similar games in the girls' gymnasium.

On one afternoon they went to the Grand Theater and then took a street car ride about the city. Thus the entire week was crowded with instruction and enjoyment of the very best kind. Every one had a thoroughly good time.

Although there will be no free passes on the railroads this year, yet it is hoped the institute may be held just the same with even a larger membership than before. Undoubtedly county commissioners, commercial clubs, farmers' clubs, banks or public spirited individuals will be found in every county who will be glad to look after the financial end of this enterprise.

## CONSTITUTION

### ART. I. NAME AND PURPOSE.

Sec. 1. The name of this association shall be the North Dakota Boys' and Girls' Institute.

Sec. 2. It shall be the purpose of this organization



A Lecture on Horses

to enlarge and enrich the life of country youth by acquainting them with the advantages of scientific farming and home economics. That the boys and girls of this great agricultural state shall be in harmony with their environment, the members of this association are banded together for

the purpose of studying newer and better methods of managing the affairs of farm and home under the direction of the Agricultural College and for the dissemination of such knowledge.

ART. II. MEMBERS OF THIS ASSOCIATION SHALL CONSIST OF TWO CLASSES, ACTIVE AND HONORARY.

Active members shall be pupils of and between the ages of 10 and 17 attending any school within our state who shall have won honors in county contests which have been planned by the county superintendents of schools under the rules and regulations of the Extension Department of the Agricultural College. No prize winner shall



The Lecture Over

be admitted to more than two of these institutes. Active members shall also include county superintendents of schools or one of their deputies or one other person from each county deputized by the county superintendent to act as chaperone. The number of representatives from each county shall be regulated by the Board of Management.

Only active members have a vote in the association. A membership fee of 25 cents per annum shall be required of all active members. Honorary members must in all cases bear all of their own expenses.

Honorary members shall include pupils who have engaged in such county contests as described in this article but who have not been among the highest winners, also a parent or friend accompanying members. Honorary members may participate in discussions but have no vote.

#### ART. III. OFFICERS.

The officers of this association shall consist of a president, vice-president, secretary, treasurer and board of management; Provided that president, vice-president, secretary and treasurer shall be chosen from active members who have been prize winners.

#### ART. IV. DUTIES OF OFFICERS.

The president shall preside at all business meetings of the association and shall perform such duties as appertain thereto.

The vice-president shall preside in the absence of the president.

The secretary shall keep the minutes of the meetings of the association and conduct its correspondence. The secretary shall also collect membership fees, making proper record and turn same over to the treasurer.

The treasurer shall have charge of all funds which shall belong to the association and shall pay them out upon a warrant drawn by the secretary and signed by the president.

The board of management shall consist of the faculty of the Extension Department of the Agricultural College and two county superintendents to be selected by them.

## ART. V. AMENDMENTS.

To amend this constitution, a notice of such amendment must be presented on the first day of the Institute by an active member of the association, said amendment to be voted upon at the last business meeting of the Institute. A two-thirds vote shall be required to pass an amendment.

## ART. VI. COLORS AND MOTTO.

The colors of this society shall be green and gold (the colors of the Agricultural College.)

The motto "Up and Doing."

## ART. VII. MEETINGS.

The association shall meet annually at the Agricultural College of this state at such time and for such duration as shall be agreed upon by the Board of Management.



## RESOLUTIONS.

We, the members of the North Dakota Boys' and Girls' Institute, offer the following resolutions:

First. That we thank the several railroads for their kindness in furnishing us free transportation.

Second. That we are greatly obliged to the county superintendents who inaugurated the corn contests, thus enabling us to come to this institute.

Third. That we appreciate the motherly attention of the ladies of the dormitories.

Fourth. That we will remember the citizens and business men of Fargo for their courtesies to us, especially the managers of the street car lines and of the Grand Theater.

Fifth. That we are especially grateful to Mrs. Lovell, the mother of the movement, to Professor Randlett, the able manager, and to Mrs. Campbell, his assistant, for the week of enjoyment and profit.

Sixth. That we appreciate the address of President Worst, and that we shall endeavor to live out in our homes the high ideals he showed us.

Seventh. That we owe a debt of gratitude to the Agricultural College and its faculty for this work and instruction on topics which are of interest to every farmer boy and girl, and that we shall try to put into active operation the principles and suggestions here received.

Eighth. That we carry with us many pleasant memories of the friendships here formed; and

Lastly, that every boy and girl write the railroads over whose lines we came a letter thanking them.

## NAMES AND ADDRESSES.

## BARNES COUNTY.

BOYS	GIRLS
Thos. Van Steenbergh.....Oriska	
Hiram Miller .....Sanborn	

## BENSON COUNTY.

Edith Hendrie .....	Leeds
Hilda Hansen .....	Leeds

## BILLINGS COUNTY.

Enoch Norem .....	Sentinel Butte	Edna Boyer .....	Beach
Chas. Kirkpatrick, Sentinel Butte		Hazel White .....	Marmarth
David Davidson.....Sentinel Butte		Ethel Lebo .....	Medora
Earl Madson .....	Bellevue		

## BOTTINEAU COUNTY.

Helmer Skjervem .....	Bottineau
Norman Hearonemus .....	Souris

## DICKEY COUNTY.

Chas. Blumer .....	Ellendale
Willie Johnson .....	Ellendale
Albert Heine .....	Ellendale
Jos. Bilmeyer .....	Oakes
Oscar Swanson .....	Oakes
Andrea Dethlefsen .....	Oakes
Emil Dethlefsen .....	Oakes

## FOSTER COUNTY.

Stanley Copenhaver .....	Carrington
Clarence Lynn .....	Carrington
Phillip Coleman.....	Carrington

## HETTINGER COUNTY.

Orvel De Lano .....	Mott
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## LA MOURE COUNTY.

Clifford Cachrison .....	Kulm
Leonard Twete .....	La Moure
Howard Lowe .....	La Moure
Glenn Smith .....	Kulm
Raphael Kinney .....	Grand Rapids

McHENRY COUNTY.

BOYS

GIRLS

Henry Frishman ..... Upham  
 Phillip Torr ..... Bantry  
 Carl Miller ..... Bantry  
 Otto Rom ..... Star

NELSON COUNTY.

Mildred McCrae ..... Petersburg  
 Regina Sundre ..... Kloten

PEMBINA COUNTY.

Clarence Ralston ..... Crystal    Harriet Douglass ..... Cavalier  
 Fred Douglass ..... Cavalier  
 Glenn Douglass ..... Cavalier  
 Leon Pettit ..... Backoo

PIERCE COUNTY.

Gunnar Negard ..... Rugby    Elma Trushel ..... Rugby  
 Lee Romine ..... Brazil    Hazel Williams ..... Rugby

RAMSEY COUNTY.

Marvin Kirk ..... Devils Lake    Marie Kirk ..... Devils Lake  
 Monroe Kirk ..... Devils Lake  
 Clark Taylor ..... Devils Lake  
 Robert Tufford ..... Devils Lake

RANSOM COUNTY.

Earl Hoffa ..... Lisbon    Mabel Kelly ..... Englevale  
 Lucius Hoffa ..... Lisbon    Alma Quall ..... Lisbon  
 Norman Nelson ..... Lisbon    Eleanor Standt ..... Lisbon  
 Elmer Nelson ..... Lisbon  
 Francis Strong ..... Milnor

RICHLAND COUNTY.

Clarence Swanson ..... Fairmount    Inga Haugen ..... Dwight  
 Glenn Swanson ..... Fairmount    Marie Quamme ..... Dwight  
 Harold Ness ..... Wahpeton    Bernice Gabriel ..... Wvndmere  
 Oscar Tideman ..... Walcott  
 Knute Tideman ..... Walcott

ROLETTE COUNTY.

Chas. Rosscup ..... Rolla  
 Fred Rosscup ..... Rolla  
 Winfield Ward ..... Rolla

## STUTSMAN COUNTY.

## BOYS

Elmer Albrecht .....Fried  
 Donald Wanner .....Jamestown  
 Richard Pendray .....Jamestown

## GIRLS

Villetta Willows .....Edmunds  
 Nettie Albrecht .....Fried  
 Mary Dirks .....Pingree  
 Elizabeth Jessen .....Ypsilanti

## TOWNER COUNTY.

Harry Peterson .....Bisbee  
 Ira Wagenman .....Zion  
 Jacob Schach .....Perth  
 Noble Brightbill .....Cando

Gladys Mateer .....Rock Lake

## TRAILL COUNTY.

Conrad Leraas .....Hillsboro

Helen Aune .....Buxton  
 Alice Aune .....Buxton  
 Marie Leraas .....Hillsboro

## WALSH COUNTY.

Willie Ebert .....Grafton  
 Melvin Donnelly .....Grafton  
 Ervin Schumacher .....Drayton

## WILLIAMS COUNTY.

John Nelson .....Ray  
 Henry Nelson .....Ray  
 Carl Moe .....Tioga

Olava Moe .....Tioga  
 Alice Hayden .....Williston

## OFFICERS.

Monroe Kirk, President .....Ramsey County  
 Lee Romine, Vice President .....Pierce County  
 Harriet Douglas, Secretary .....Pembina County  
 Hazel White, Treasurer .....Billings County

## Domestic Science, Home Economics Domestic Art

In connection with the contest rules, given last year, there has been considerable demand for information regarding the science of bread making. Therefore considerable space will be given to this phase of the subject.

During the past year many contests were held and this department deemed it a pleasure to judge the bread in several of these contests. It is hoped that the interest already aroused may increase until every pupil in the state may make good, wholesome, nutritious bread, the one article of food that appears on the table three times each day for three hundred and sixty-five days in the year. Every contestant should write to the United States Department of Agriculture, Washington, D. C., and ask for Farmers' Bulletin No. 389, Bread and Bread Making. This will be sent free.

### CONTEST SUGGESTIONS.

It is hardly wise to have all contestants in the same class. Those from 14 to 18 years of age should be in class A. Those under 14 years should be in class B. Premiums should be arranged for locally.

### RULES GOVERNING THE CONTEST.

1. All pupils regularly enrolled in the public schools are eligible to take part in this contest.
2. Each contestant must bake not less than thirty loaves of bread in the three months preceding the contest. One loaf not less than twenty-four hours old should be entered.
3. All work done on bread entered must be the work of the contestant.



In the Cooking Laboratory

4. The bread should be judged according to the score card given.

5. Each entry must be accompanied by the "Entry Card." It must also be accompanied by a composition giving recipe used and stating observations according to outline given.

6. Each loaf must be baked in a pound pan  $2\frac{3}{4}$  inches by  $4\frac{1}{2}$  inches by 9 inches, or a pan of approximately those dimensions. Very large loaves should not be entered.

#### OUTLINE FOR WRITTEN REPORT ON BREAD.

##### I. Essential Ingredients

1. Good flour
  - Kind
  - Milling process
  - Color
  - Price
  - Quantity used
2. Good yeast
  - a. Kind
    - Dry
    - Compressed
    - Liquid
  - b. Price per pound
  - Quantity used
3. Liquid
  - a. Water
  - b. Milk
    - Sweet
    - Sour

##### II. Accessory Ingredients

1. Salt
  - Purpose
  - Quantity

2. Sugar  
Quantity
3. Potato water

### III. Methods of Making

1. Short method; 5 hours
2. Long method; 12 hours

### IV. Formula

### V. Manipulation

Reasons for kneading

### VI. Baking

Reasons for baking

Oven temperature

Tests for

Time required

Tests when done

### VII. Cooling of bread

1. Place on a rack for ventilation

### VIII. Storing

1. Put in stone jar or bread box; cover closely; do not wrap paper or cloth about bread in box.

Formula:

1 cup liquid.  $\frac{1}{4}$  to 1 cake yeast. 1 tablespoonful shortening. 1 teaspoonful salt. 3 cups flour more or less.

Directions: All measurements are level. Soak yeast in warm water. Scald milk and add to it sugar, shortening, cold water and salt. When the milk is luke warm add  $1\frac{1}{2}$  cups of flour. Beat thoroughly to distribute the yeast plants. The more the batter is beaten the less kneading the dough will require. If the long process is used, the batter or sponge



is set to rise and when it has doubled its bulk it should be stiffened by adding more flour. Knead until it is elastic and does not stick to the fingers. For the hard wheat 3 cups of flour will probably be too much. For soft wheat it will be about right. Let it rise at a temperature of about 75 degrees F. to 85 degrees F. When it has doubled its bulk knead down and let it rise again, or if desired it may be molded into a loaf. When the loaf has doubled in size it is ready to bake. With the short process bread, fresh compressed yeast or liquid yeast is used and the bread is stiffened, omitting the sponge stage. Five hours is considered long enough for short process and twelve hours for long process bread.

### BREAD MAKING.

The first thing to be considered in making bread is good materials. We can make poor bread from good materials, but to make good bread of poor materials is impossible. Too often we blame lack of success to bad luck or the flour, when we will in the majority of cases find that the yeast or variable temperature has been the cause of failure. Every girl knows that if seed is poor and slow to germinate, good soil will never make up for poor seed, and it is just so with bread; the yeast is the seed and the flour the soil in which it grows. The plant must not only have good soil and good seed and plenty of moisture, but it must also have thorough cultivation. In the field this is done with plows and other machines, but in the dough it is called kneading and is done by hand or in a dough mixer. Warmth is as necessary for yeast plants as any other plants.

Salt makes the bread more palatable, but it must not be added in too large quantities, else it will kill the tiny plants. Have you ever poured salt brine on the grass or

plants in the yard? If you have, you have soon noticed them grow brown and die. The effect of an excess of salt, on the yeast plant is just the same. Hence we should only use sufficient to give the pleasant flavor and this should be added to the batter with the flour.

Sugar is often added because it is so nearly ready to be used as food for the plant. The starch of the flour must be changed or digested. Shortening is also added sometimes; this makes the bread more tender, but if too much is added it retards the growth of the plant.

Flour is the chief constituent of bread, and wheat flour is most commonly used, first because of the large amount available, and second, because it contains elements and compounds that are peculiarly adapted for bread making. The outer layers of the wheat kernel contain the bran and most of the mineral matter, while the inner part is mostly starch and gluten.

If you take a spoonful of flour and add to it a drop of iodine a blue color will appear. This shows the presence of starch. Did you ever chew wheat kernels? Have you noticed an elastic substance similar to gum? This substance is gluten and it is this that holds the bubbles of gas which make the bread light.

A long time ago wheat was ground by rubbing two large, flat stones together; but now the wheat goes through a complex milling system, by which the kernel is freed from dirt, scoured, and treated with water to toughen the bran. It is then run through rollers to crack the kernels, each set being placed closer together than the preceding set. After each "break" the flour is sifted from the middlings and the different grades of flour result.

Yeast is a tiny plant, so small indeed that we cannot see it. It is only about 1-2800 of an inch in diameter. People who live near the market usually get compressed yeast because the yeast plants are fresh and moist and just ready to grow when planted. When one lives far from the market, it is usually more convenient to use dry yeast.

Dry yeast is composed of yeast plants and some ingredient which acts as a binder. This is usually starch of some kind. In drying some of the yeast is killed. The rest of the yeast is inactive. Dried yeast can be kept for weeks or even months. Cold does not affect it.

Bakers use liquid yeast which is obtained from breweries.

The temperature of bread sponge and bread dough should not vary, but should remain constant, 70 degrees to 95 degrees F. It is better to make a sponge with hard wheat. When the loaf is put in the oven it should be punctured in several places with a long hat pin. This lets the gas out and avoids large holes.

To test the temperature of the oven, put a piece of white writing paper in and if it is browned in 6 minutes the oven is ready. If the loaf is brushed with water before it is placed in the oven it does not crust so soon and a better flavor results. In baking, the loaf should continue to rise for the first 15 minutes, after which it should brown for 20 minutes; the heat should then be reduced until the baking is finished.

To tell when bread is baked (1) press on the sides, and if they rebound it is done; (2) the loaf shrinks from the sides of the pan. It is very important that bread be thoroughly baked, as in baking the gluten is hardened, holding gas bubbles. The yeast is killed. Alcohol and carbon dioxide are driven off and flavors are developed. The starch becomes soluble. Have you ever noticed how much sweeter the crust is than the crumb? This is because it is baked better. Baking also makes the loaf look more attractive.

## SCORE CARD

Shape of loaf .....	5
Crust—Color (evenness and shade) .....	5
Depth .....	2
Texture .....	3
Crumb—Flavor .....	35
Lightness .....	10
Texture .....	10
Grain—Fineness .....	5
Evenness .....	5
Thoroughness of baking .....	10
Moisture .....	5
Color .....	5

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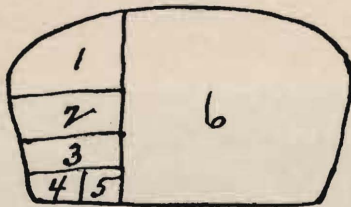
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## EXPLANATION OF THE SCORE CARD.

The shape of the loaf should be symmetrical; cracks indicate that the oven was too hot, causing the bread to crust over before it was light, or that the bread was not sufficiently light, or that the dough was too stiff. The color of the crust should be golden brown and an even color all over. It should be of medium depth and the crust fairly tender. To crisp the crust, put in hot oven and the moisture will be driven in, making a moist crumb and crisp crust. Bread should be sweet and nutty, not sour. The crumb should be light, not heavy and soggy, and its texture soft and velvety, cutting clean not crumbling, hard and horny. The grain should be fine and even. Coarse grain with large holes indicate that it was over light or that it was not thoroughly kneaded. Bread should be thoroughly baked and when the crumb is pressed between the thumb and fingers should rebound when released. Underdone bread is likely to cause fermentation in the stomach, caused by the growth of the yeast plant. The color should be creamy.

FOOD VALUE OF BREAD.

Some one has said that bread is the staff of life, then bread and butter is a gold headed cane, and certain it is that this is a good ration.



*Composition of Bread  
(Hutchinson)*

1. Water	.....39 %	4. Fat	..... 1 %
2. Carbohydrate	51½%	5. Mineral	..... 1 %
3. Proteid	..... 6½%	6. Gas	.....66⅔%

The diagram shows the percentage of constituents in bread. Two-thirds of the loaf is gas and this is necessary to make the loaf light that the process of digestion may be performed. Of the nutritive portion, 39 per cent is water. Water is very necessary to the body, as it is almost three-fourths water. The carbohydrates are the starch and sugar, and they are composed of carbon, hydrogen, and oxygen. You all know that the coal which you burn in the stove contains these same elements and that when carbon is burnt, heat is produced. When it is used to run an engine

it does work because it makes energy. Now the carbohydrates of bread will do the same for us. They make us warm and they give us energy that we may do work. Proteid is also found in bread in the form of gluten that you found when you chewed the wheat kernels. This is what furnishes muscle and repairs tissue. If any part of an engine is destroyed it must be repaired by a mechanic, but the body does its own repairing through the proteid food. When fat is burned it makes a very hot fire, and when hot fat spatters on the hands it burns more than hot water.



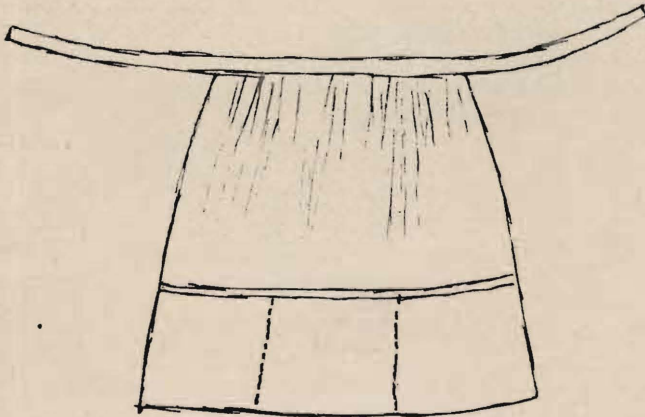
**In the Sewing Laboratory**

This is because fat produces over twice as much heat as water or starch. So fat must be eaten in rather limited amounts. The mineral matter is necessary as we must have bones.

Thus we find that bread contains all the materials necessary to life, and it is hoped that many pupils will prove that they can make a good, nutritious, toothsome loaf.

## RULES FOR SEWING CONTEST.

1. All pupils regularly enrolled in the public schools are eligible to enter this contest.
2. Soft unbleached muslin 6 in. by 18 in. will be used, the strip to be cut lengthwise of the cloth may be used for sampler.
3. Red or blue thread must be used in making stitches.
4. The work must be the contestant's own.
5. The following stitches will be placed on the sampler: Overcasting, Half Inch Basting Stitch, Running Stitch, Back Stitch, Overhand Hem, Cat Stitch, Feather Stitch, Plain  $2\frac{1}{2}$  Inch Hem, Buttonhole Outlined, Buttonhole Finished.
6. If desired other articles can be entered, as an apron or work bag or a pair of towels, the committee in charge deciding.



*Sewing Apron.*

## PRIZES.

It is hoped that those pupils winning first place in the Home Economics contests may receive as a prize expenses for a trip to the Agricultural College for the Boys and Girls Institute which is held in December. The teachers in this department will give instruction in cooking and sewing. One feature of this institute will be the bread

contest, when the contestant taking the state championship will be given a scholarship for the Home Makers' Course, the second prize being a two year scholarship in the same course for the second and third year. The scholarship means that all tuition fees are free.

The work should all be hand work. If the sewing apron is made it will be better to make it a trifle less than knee length. The pockets should be about nine inches deep. One width of cloth is sufficient.

#### A SUGGESTIVE SCORE CARD.

Evenness of stitch .....	10
Fineness of stitch .....	10
Utility of article .....	10
Beauty of article .....	10
Durability of stitches .....	30
Cleanness of article .....	10
General neatness of article .....	10
Appropriateness of material used .....	10

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#### SAMPLER SHOWING STITCHES.

Explanations:—Along the two sides of the sampler we have the over-casting stitch. 6 in. of the strip of cloth is turned down and is sewed firmly by the overhand stitch. (2) Half inch basting stitch. (3) Running stitch. (4) Back stitch. (5) Overhand hem. (6) Cat stitch. (7) Feather stitch. (8) Plain hem 2½ in. (9) Button hole outlined with back stitch before cutting. (10) Finished button hole. (11) Shows position of needle and thread in making the button hole.

By grading each perfect sample 10 per cent, the basis of grading will total 100 per cent.