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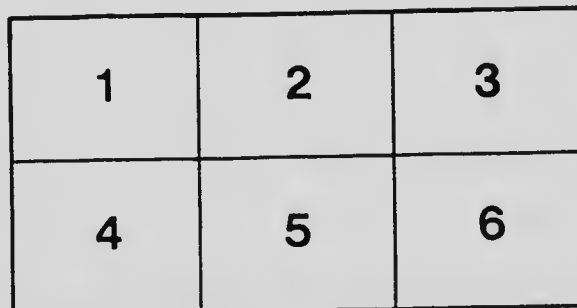
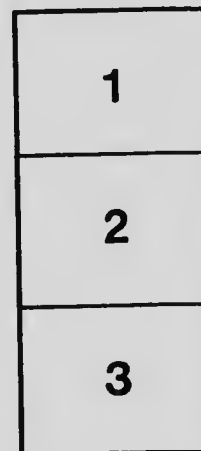
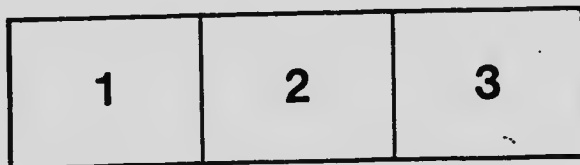
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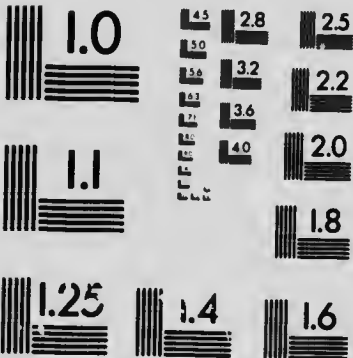
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Issued February, 1918.

HAND BOOK

Manitoba Boys' and Girls' Clubs

FOR USE DURING THE YEARS
1916 and 1918



WINNIPEG, MT.

A. Y. NEWTON,

DIRECTOR, AGRICULTURAL EXTENSION SERVICE

WINNIPEG, MANITOBA

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How Members Buy and Club Data have grown



Issued February, 1918.

HAND BOOK

Manitoba Boys' and Girls' Clubs

FOR USE DURING THE YEARS
1918 and 1919



COMPILED BY
S. T. NEWTON,
DIRECTOR, AGRICULTURAL EXTENSION SERVICE
WINNIPEG, MANITOBA

By Authority of Hon. V. Winkler, Minister of Agriculture and Immigration,
and Hon. R. S. Thornton, Minister of Education.

FOREWORD

This handbook has been prepared with the idea of providing a suggested scheme of organization whereby the Boys' and Girls' Club work of the Province will be carried on in a uniform manner easily understood by all. Another plan might prove equally good, or even better. The outline given here represents the ideas of those who have been most closely identified with Boys' and Girls' Club work in Manitoba from the beginning.

At the annual meeting of the Public School Inspectors, held November, 1917, Boys' and Girls' Clubs was a topic which received very thoughtful consideration, and a Committee was appointed to deal with the matter. The Director of the Extension Service, in drafting this bulletin, endeavoured to give full expression to the views of the Committee of Inspectors, with whom he has been in close consultation.

An informal meeting of Boys' and Girls' Club leaders was held in Winnipeg during the latter part of November at which the plans suggested by the Inspectors were carefully considered, and the following provisional officers were elected:

Hon. Presidents—The Hon. Dr. R. S. Thornton, Minister of Education;
The Hon. V. Winkler, Minister of Agriculture.
President—S. E. Lang, High School Inspector.
Vice President—H. W. Coxsmith, Sec. Manitoba Trustees Assoc.
Hon. Secretary—S. T. Newton, Director, Extension Service.
Secretary—W. C. Hartley, Inspector of Schools, Carman.
Executive Comm.—R. M. McCaul, Dauphin; Mrs. C. Jessop, Gladstone;
T. M. Maguire, Inspector of Schools, Portage la Prairie.

To a considerable extent the technical information contained in the handbook was prepared by heads of departments at the Agricultural College; particularly does this apply to that upon pig-raising and poultry.

On account of the expense of publishing a bulletin of this kind, it is not possible to supply a copy for each member; but an effort will be made to see that a copy is placed in every school library, and that each officer in a club or branch club will receive one. It will be necessary carefully to preserve this copy, as a new handbook will not be issued in 1919.

It is assumed that the young people of Manitoba will do their part in carrying out the various contests, most of which have to do with the production of more food for the Nation.

S. T. NEWTON,
Director, Agricultural Extension Service.

Boys' and Girls' Clubs

INTRODUCTION.

Largest Agricultural Organization in Manitoba.

The largest agricultural organization in Manitoba is the Boys' and Girls' Clubs. The organization is a big one because its members have, through their industry, pluck and enthusiasm, gained the respect and admiration of all the grown up people who have had an opportunity of observing what is being done. This has resulted in help and encouragement being given whenever needed.

On the front page of a leading British agricultural publication the editor comments on the fact that the banks in Manitoba loan money to boys and girls with which to finance their agricultural projects, the only security asked being the word and integrity of a Manitoba boy or girl; and we venture the prophecy that this estimate of our young people will long continue. The Manitoba boys and girls have reached a stage in their history when they have a reputation to maintain. Magazines in all parts of Canada and the United States are writing to learn what the Manitoba boys and girls are doing. If they continue to put forth the same energy, it will always be worth while for others to watch the boys and girls of this Province.

Brief History of the Boys' and Girls' Club Movement.

The first clubs were organized in Manitoba in 1913, when eight venturesome districts, with 460 members, undertook to raise chickens, potatoes and corn.

From the very first the idea appealed to parents, teachers and pupils. The following year there were 20 clubs with 1846 members. In 1915 there were 58 clubs and 5500 members. 1916 saw 110 clubs and 12,250 members and last year there were 150 clubs with over 15,000 members.

The Province is now thoroughly organized. The Department of Education is co-operating with the Department of Agriculture in every possible way, with the result that there is no duplication of effort and the best energies of both Departments are at the disposal of the boys and girls. It is confidently expected that this year there will be 200 clubs and 20,000 members.

EDUCATIONAL ASPECTS OF CLUB WORK.

The Inspectors' Conference Committee authorize the following statement:

"The contests as conducted hitherto have been made interesting and attractive to young people. There is no doubt that the success of the movement has been due in a great measure to the fact that the appeal is made to practical, constructive, economic, and acquis-

itive instincts of boys and girls. Some fears have been expressed to the effect that the Boys' and Girls' Club contests, appealing so strongly to these interests, might interfere with the success of the regular school work. Up to the present time, however, no such result has been observed. On the contrary, a number of cases have been mentioned in which the regular school work of pupils who had actively competed in contests and fairs was pronounced quite satisfactory. It is the opinion of some observers that active participation in Club work tends to improve the work of the school in its regular branches. Time and experience alone can prove the ultimate value of the movement in this respect, but at present the omens are favorable.

"These contests seem adapted, as already said, to fostering a greater interest in country life and farming activities, increasing the children's knowledge of the vital and mechanical processes of agriculture and home making, cultivating skill in the operations of the farm and the household, and generally developing the industrial and commercial interest of young people and their industrial and commercial intelligence and acumen.

"This is vocational training. It is frankly individualistic in tendency and chiefly concerned with economic productive capacity. But the Inspectors are of opinion that the above statement does not exhaust the educational possibilities of Boys' and Girls' Club work. They believe that something more might be done to give effect to the socializing and liberalizing value of education along agricultural lines. The contests might be improved in an educational sense by reducing somewhat the individualistic appeal. Team work and helping the other fellow should occupy a larger place than it now appears to do. The Inspectors are of opinion also that in the management of contests and fairs a greater emphasis should in future be laid on fine art.

"(a) To the end that these educational advantages may be secured, understanding on the part of the boys and girls is essential. They should be directly taught that while they are in a keen contest, they are in reality co-operating with their opponents for the benefit of all. This principle should be constantly in the minds of all teachers and officers associated with Boys' and Girls' Clubs, so that it may be impressed on all members.

"(b) While the prizes granted are an incentive, the various contests afford a direct opportunity for teachers and officers to impress on the boys and girls the greater importance of conscientious effort, of generous appreciation of the worth of opponents' efforts, and of courage, cheerfulness, and perseverance under disappointment.

"(c) Having in view the relative importance of various kinds of educational activity, the evil of over-absorption in one branch to the detriment of others, and particularly the danger that Club contests might be allowed to engross all or nearly all of the spare time of the pupil, thus depriving him of necessary family and neighborly intercourse and the performance of social duties generally, it is deemed desirable to limit the number of contests that he should be permitted to enter. Two or three of the contests outlined in the bulletin should be the limit in most cases. The choice of the contests should be made as early in the season as possible, but the pupil may be permitted, within a reasonable time, to alter his choice, if he should deem it advisable to do so. After a certain date, preferably fixed by the local Club, no change of choice should be permitted. In conducting these tests, the social side of the child's life should not be lost sight of, and if in the performance of the work connected with the Club contests

he is permitted to take up a burden too heavy for him to carry, or if the work interferes with either his regular school duties or his social duties, the primary aim and object of the contest is defeated.

"Care should be exercised in conducting these contests not to emphasize the commercial side. The chief aim should be to call forth the pupil's best effort and to encourage sustained effort in whatever choice he makes. It should also be strongly emphasized that the exhibits of the contestants must be the results of their own efforts.

"(d) In each local Club there should be a prize of no monetary value, to be given to the member who receives the largest number of votes of his fellow members as having exhibited throughout the year the most sportsmanlike, helpful, neighborly, unselfish, and courteous spirit.

"(e) As regards meetings of members of the Boys' and Girls' Clubs, it is believed that such gatherings would be beneficial if social, literary, and cultural interests were the chief features thereof.

"(f) A policy of generous, financial support by the Extension Service would be of great benefit in the case of Clubs now in the course of formation in districts where it is difficult to secure financial aid.

"(g) The members of the Extension Staff available for work among the various Clubs should, during the month of January in each year, communicate with the Inspectors of the Division to which they have been assigned in order that their work may be directed to the best advantage.

"(h) Bound record books formed to contain records for a series of years, showing contests, entries and prizes won by individuals and teams of boys and girls, should be provided and kept permanently in each school."

Objects and Aims of Club Work.

1. "To bring home and school closer together in understanding, sympathy, and co-operative efforts.

2. "To make the school the centre for the acquisition and dissemination of information of direct practical value to the community and to make the home and the home farm, with its implements, its live stock, its fields and farm buildings, the laboratory where all this knowledge will be applied under actual farming conditions.

3. "To arouse a spirit of loyalty to the school, the community, and the Province by a more complete realization and appreciation of the assistance which members may be able to render each other.

4. "To develop a better knowledge of the advantages and possibilities of rural life in Manitoba.

(a) by providing an opportunity of finding out how much real pleasure there is in systematically carrying on a definite line of work along agricultural and home-making lines.

(b) by providing healthful and interesting employment as a part of the spare time activities.

(c) by providing a means of earning extra money.

5. "To encourage a right attitude towards work and to show that work if pursued in the right spirit is real recreation, for recreation has been defined as 'doing what one likes to do'.

6. "To foster in young people a sense of responsibility.

7. "To stimulate thought, initiative, and leadership.

8. "To assist in providing food urgently needed for the nation."

Do Not Join a Club if Free Supplies are Your Highest Motive.

Club members have been known to enter only those contests where they can get something for nothing. That attitude is

entirely wrong and out of keeping with the whole spirit of Boys' and Girls' Club work. Assistance given is intended only for those who cannot secure the supplies needed. In fact, we do not think there are many parts of the older section of the Province where club members join the club for the sake of getting free supplies. There are, however, portions of the Province where assistance is urgently needed, and a special effort will be made to encourage the boys and girls who live in these particular districts.

ORGANIZING CENTRAL AND BRANCH CLUBS.

At the beginning of the year the Inspector will send to the Extension Service a list of the places in his division at which he considers it desirable that clubs be organized. Very often it will be possible for him to organize the club, but occasionally his duties will not permit him to be in that part of the district at the time when the club should be organized, in which case some one else should take the initiative.

Keep the School Inspector posted as to your plans.

The plan which seems to work most satisfactorily is:—

1. The organizer or the person interested in the formation of a club should, first of all, get from the Extension Service any literature that has been prepared on the subject.
2. Get in touch with the Inspector and ascertain when it will be convenient for him to attend an organization meeting.
3. The date thus being decided on, arrange for a place of meeting. Usually the trustees at the marketing centre of the district will be agreeable to the school being used.
4. Advertise the meeting as widely as possible, and invite the trustees and teachers from every school in the district, as well as representative citizens, such as officials of the Agricultural Society, the Home Economics Society, Grain Growers' Association, Horticultural Society, Poultry Association, Municipal Council, etc. At this meeting a Central Boys' and Girls' Club Executive Committee should be elected. This Committee meets as soon after this meeting as convenient and elects a President, a Vice President, a Secretary or Manager, and a Treasurer.

Duties of the Central Executive Committee:

1. To appoint a Secretary and Manager, who, when appointed, becomes a member of the Central Executive Committee.
 2. To finance the club.
 3. To arouse interest in the work by securing the co-operation of as many different agencies as possible.
 4. To aid in securing supplies for the various contests.
 5. To determine the lines of work that will prove most suitable for the district.
 6. To arrange prize lists for the fair.
 7. To appoint Leaders for the various contests.
- There should be a leader for each contest in each Central Club

District, though the same person might be leader for two or even three contests.

8. To arrange for monthly meetings of the Central Club, when the chief features, in addition to a discussion of the various club projects, should be of a social, literary, or cultural character, the latter being particularly desirable during the winter months when the practical end of club work is not pressing.

The Contest Leaders may or may not be members of the Executive Committee. They should be chosen because of their particular knowledge of the contest and their sympathy and enthusiasm for the work of the club. Thus the leading gardener in the district might be Leader of the home garden contest. The most prominent swine breeder would be able to render splendid assistance in the pig raising contest, and so on.

Duties of Contest Leaders.

1. To appoint the most wide awake boy or girl as his secretary and assistant.

2. To instruct his secretary to enroll contestants.

3. To ascertain what seeds, live stock, etc., are needed.

4. To confer with the Central Club Manager as to how the supplies may be obtained.

5. To have as many members as possible meet with him once a month for the purpose of receiving reports on the progress being made and also to give such instruction as will enable the contestant to carry on his work during the month. It might be advisable to have a few extra meetings just before club work starts in the spring.

6. To call when convenient and see how the various members taking part in the contest are getting along and to sign the record card at the time of the visit.

Branch Club Officers.

Each school or branch club should organize and appoint its officers immediately after the new year if it has not already done so.

Officers of the Branch Club.

1. Chairman. The teacher or a member of the trustee board; occasionally one of the older pupils may fill this position creditably.

2. Secretary. One of the older members of the club, who, under the direction of the Chairman, will be responsible for (a) Securing and sending all reports to the Central Club Secretary, (b) Making a list of supplies needed, (c) Attending meetings of the Central Club officers, particularly if the chairman cannot attend, (d) Sending a list of the officers to the Inspector and to the Central Club Secretary, (e) Sending a list of the contests in which his club intends to take part with a list of the contestants to the Central Club Secretary before March 1. (Application form for this purpose is enclosed in this bulletin as sent out; but if an insufficient supply of the forms

is on hand, and it becomes necessary to use other paper for applications, the wording of the form will be found at the foot of this page.)

Duties of the Central Club Secretary.

1. The Central Club Secretary or Manager will be in charge of the activities of the Central Organization under the direction of the Executive Committee. He will find it of advantage to have frequent meetings of the Executive in order that he may get as much assistance as possible.
2. He will receive all reports from the branch clubs.
3. Arrange for all supplies needed for the branch clubs.
4. Visit branch clubs when convenient.
5. Send a list of branch club chairmen and secretaries to the Extension Service. Also list of supplies for all branches of the Central Club.

Membership.

All boys or girls living in Manitoba who will be over ten and under nineteen years old when the Club Fair is held are eligible to become members whether they are attending school or not.

How to Enroll.

If for any reason an organization meeting for your district has not been held, call up the Principal of the school at your marketing centre or the School Inspector and ascertain whether a meeting is being held. If no information can be obtained, proceed to organize your own branch. Elect officers as per instructions on page 7 re officers of branch clubs. Next make out three forms like that given on this page. Fill in the names of the contestants and put an X under each contest in which the various members wish to

MANITOBA BOYS' AND GIRLS' CLUBS													
APPLICATION FORM													
(To be mailed to the Extension Service, Manitoba Department of Agriculture, and to the Central Club Manager.)													
..... Branch of the.....					 Boys' and Girls' Club							
(School)						(Central Club)							
Location of School: Sec..... Tp..... R..... Teacher..... P.O.....													
Date Secretary P.O.....													
	1	2	3	4	5	6	7	8	9	10	11	12	
NAME OF MEMBER	Age Sept. 1	Pig Raising	Calf Raising	Chicken Raising	Grain Growing	Gardening	Cockery	Garment Making	Canning	Noxious Weeds	Dairying	Wood Working	Essay Writing
1													
2													
3													

(Continue as necessary to accommodate entries.)

Wording of Application Form, referred to at top of this page.

take part. Then forward one form to the Extension Service, Parliament Buildings, Winnipeg. Keep one copy for your own reference, and as soon as you learn who the district club manager is forward the third form to him.

NOTE: Club members should not sign up for more than three or four contests.

In making entrees and in all correspondence give the name of your SCHOOL or BRANCH CLUB and also of the Central Club.

SUPPLIES.

In general, the bulk of the free or partially free supplies will go to new clubs as it is felt that the old clubs will have, from eggs and seeds supplied in other years, sufficient breeding stock, etc., to meet their needs.

For new clubs supplies will be provided as follows:

One dozen eggs from any of the following breeds—Barred Rocks, White Wyandottes, Rhode Island Reds, Buff Orpingtons and White Leghorns (express prepaid), for 40c. a dozen, in 12 dozen lots.

(Eggs will not be forwarded until after May 1st on account of danger of chilling while in transit.)

Ten pounds of potatoes on condition that the club member selects ten pounds from potatoes secured locally in accordance with instructions given in the Gardening section of this bulletin.

Clubs organized after April 1st cannot depend upon getting any supplies.

HOW THE EXTENSION SERVICE ASSISTS.

1. Provides all literature, such as bulletins, application forms, record cards, etc.
2. Sends Club Organizers to places where the School Inspector finds it inconvenient to organize a club, or where he considers additional help desirable.
3. Provides judges for the pig-raising, seed grain, and garden contests, provided there are at least ten entries.
4. Provides posters to advertise the fairs.
5. Provides judges' books, entry tags, record sheets, price cards and ribbons.
6. Arranges for two or three judges for each fair.
7. Assists the Club in co-operating with such organizations as the Agricultural Societies, Home Economics Societies, Bankers, and Live Stock Associations.
8. Provides instructors for short courses in sewing, millinery, cookery, canning, woodworking, and blacksmithing during the summer holidays or at other times.

9. Provides supplies on the following basis:

- (a) Eggs for hatching purposes at the rate of 40 cents a dozen in 12 dozen lots.
- (b) Ten pounds of potatoes free to new Clubs, provided those getting the potatoes themselves supply 20 pounds.
- (c) Seeds at the prices named in the Gardening section of this bulletin, which are at about $\frac{3}{5}$ of the actual cost of the seeds.
- (d) Wheat, $1\frac{1}{2}$ bushels @ \$1.30 per bushel; Barley, 2 bushels @ \$1.00 per bushel; Oats, 2 bushels @ 90 cents per bushel.

Record Cards.

Record cards are being provided for each contest and will be forwarded to the teacher for the members of her branch as soon as the enrolment has been received.

Keeping of the record cards was the least satisfactory of last year's work, and the judges are being instructed to award ten per cent of the points in each contest on the accuracy of the information contained on the record card.

Prizes.

On receipt of a list of the prize winners with the amount of the prize won, certified to by the manager and the club auditor, the Department of Agriculture will forward a cheque for one third of the amount actually paid out in cash prizes on the contests included in this bulletin under Agriculture and Home Economics and on essays written under the conditions of contest No. 12.

Diplomas.

11x14 inch diplomas like that shown on page 12 will be awarded to those who, in the opinion of the officers of the club, did the most satisfactory work during the year in each contest, also one diploma to the pupil in each rural school, or each school room in a graded school, who secures the highest number of points in not more than four contests.

Publicity.

All successful enterprises depend on the right kind of publicity. The prize list should be prepared early in order that Club members will know what to prepare for. To advertise the Fair, neat posters will be sent out by the Extension Service about three weeks before the date of the Fair, but every member should make it his or her business to invite a number of people to be present.

The editor of the local paper is always interested in every movement tending to the advantage of the district, and will be willing to keep everyone posted on the work of the Club if he is supplied with information from time to time.

Entry Forms.

In order that the district Manager may be able to have the books all entered up for the judges, the following entry form should be written out on a sheet of paper about $5\frac{1}{2}$ x8 inches, and handed to the teacher who will forward to the Club manager at least a week before the Fair.

APPLICATION FORM

DATE.....

To the Central Club Secretary:—

I hereby make application to exhibit.....
 in Contest No....., Section....., and I certify that my exhibit was
 made, grown, or raised by me without the assistance of an adult during the
 Club year of 1918 (or 1919, if in that year), and that it has not won a prize at
 a previous Fair in connection with the
 Boys' and Girls' Club.

NAME ADDRESS

Approved byTeacher, School.

Entry Tags.

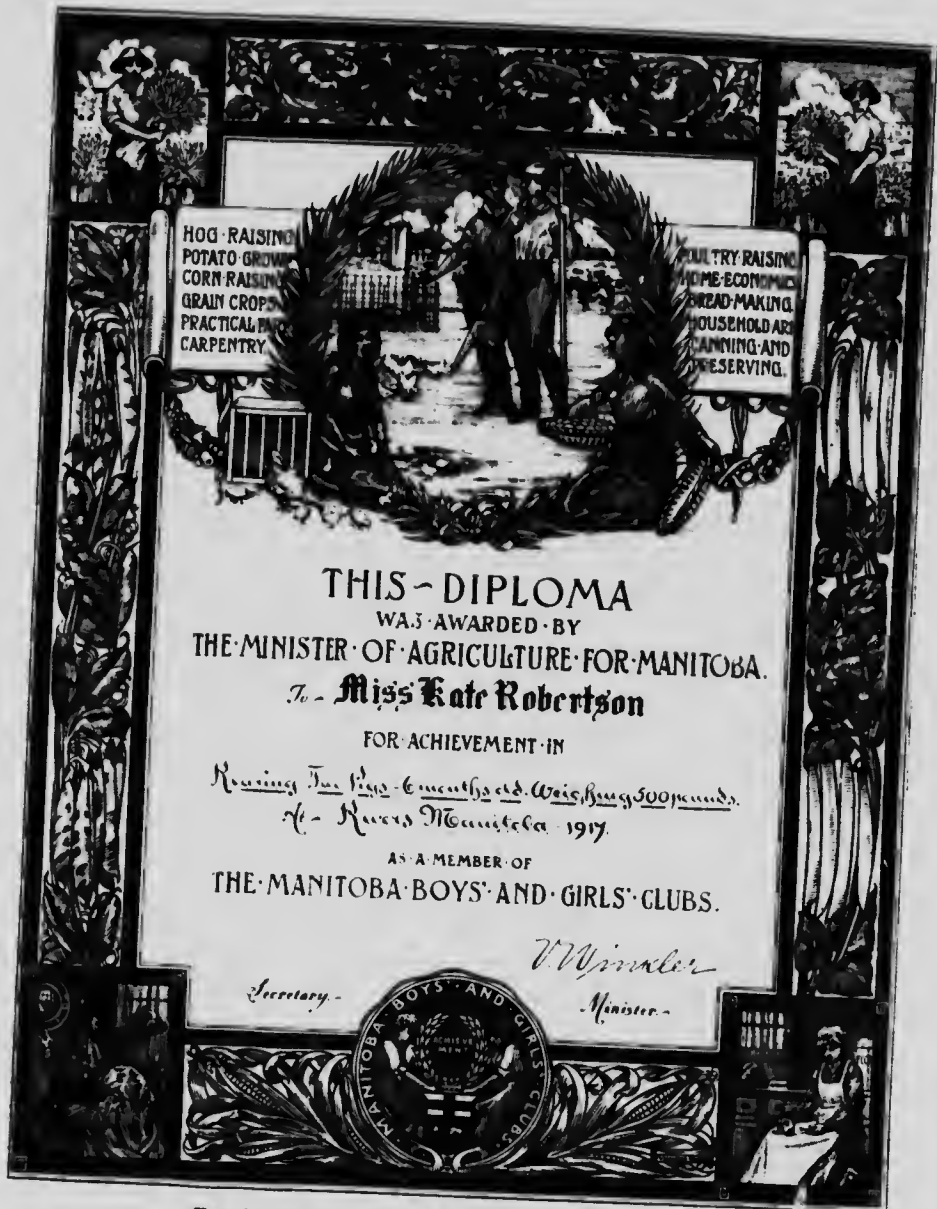
A supply of simple entry tags will be sent by the Extension Service to the Club Manager, and he will, on receipt of the application forms, fill out the tags, enter the names in his judges' books, and send the tags to the teacher. The tags should be securely attached to the exhibit. Each exhibitor will use the same number for all of his exhibits. Entry books will be provided for the Manager of each Club, in order that a record of the work of the Club may be kept from year to year.

ENTRY TAG
O
Exhibitor's No.....
Contest No.....
Section
Article

Tag ready to attach.

ENTRY TAG
O
Exhibitor's No.....
Contest No.....
Section
Article
Exhibitor
Address
Fold here

The right hand tag is as it appears before folding. After filling out, the tag is folded so as to appear as in the left hand figure.



Fascimile of Diploma mentioned on Page 10.

These diplomas are 11x14 inches.

Prize Schedules

(SUGGESTED LIST)

Prizes for Sections 2, 3, 4, 5, 6, 7, 8.

Prize—	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Value—	\$2.00	1.75	1.50	1.25	1.00	.80	.60	.50	.40	.25

In all Sections except 1, 2, 3, 4, 5, 6, 7, 8, the prizes are based as follows—

Prize—	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Value—	\$1.00	.90	.80	.70	.60	.50	.40	.30	.20	.10.

Six entries or over.

Less than six entries.

Prize—	1.	2.	3.	4.	5.
Value—	.75	.60	.50	.40	.30.

CONTEST NO. 1—PIG RAISING.

(Limited to pigs born between Feb. 28th and June 1st.)

Section

1. Pair of pigs, at least one pure bred parent.

Prize—	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
Value—	\$5.00	4.50	4.00	3.50	3.00	2.50	2.00	1.50	1.00	.75	.50	.25.

If there are less than 6 entries, Prizes in Section 1 are the same as in Sections 2 to 8.

Section

2. Individual Pig.—Prizes same as Sections 2 to 8.

CONTEST NO. 2—CALF RAISING.

(Limited to animals born between March 1st and June 1st.)

Section

3. Beef Calf.

Section

4. Dairy Calf.

CONTEST NO. 3—CHICKEN RAISING.

Section

- 5. Pen six Barred Rocks.
- 6. Pen six White Wyandottes.
- 7. Pen six Rhode Island Reds.
- 8. Pen six any other breed.
- 9. Trio Barred Rocks.

Section

- 10. Trio White Wyandottes.
- 11. Trio Rhode Island Reds.
- 12. Trio any other breed.
- 13. Cockere., any breed.
- 14. Pullet, any breed.

The same birds are not to be entered in more than one Section.

CONTEST NO. 4—GRAIN GROWING.

Section

- 15. Half bushel of Wheat and 4 inch sheaf.
- 16. Half bushel of Oats and 4 inch sheaf.

Section

- 17. Half bushel of Barley and 4 inch sheaf.
- 18. Half bushel of Rye and 4 inch sheaf.

CONTEST NO. 5—GARDENING.

Section

- 19. 1 Doz. White Potatoes.
- 20. 1 Doz. Red Potatoes.
- 21. 1 Doz. other variety Potatoes
- 22. 1 Doz. Table Carrots.
- 23. Half Doz. Table Beets.
- 24. Half Doz. Table Turnips.

Section

- 25. Half Doz. Mangels.
- 26. Half Doz. Field Turnips.
- 27. 1 Doz. Large Onions.
- 28. 1 Doz. Pickling Onions.
- 29. 1 Doz. Parsnips.
- 30. Half Doz. Field Carrots.

CONTEST NO. 6—COOKERY.

Section

- 31. Two Loaves Brown Bread.
- 32. Substitute for Bread.
- 33. Half Dozen Buns.

Section

- 34. Half Dozen Tea Biscuits.
- 35. Half Dozen Muffins.
- 36. Half Doz. Oatmeal Cookies.

CONTEST NO. 7—SEWING.

Section	Junior—Under 14.	Section	Senior—Under 19.
37.	Needle Book Cover.	45.	Table Runner.
38.	School Bag or Personal Property Bag (Soldiers).	46.	Dust Cap.
39.	Darning and Mending or Khaki Socks.	47.	Combination Suit.
40.	Guest Towel—hand made.	48.	Kimona.
41.	Sewing Apron—hand made.	49.	Middy Coat.
42.	Middy Blouse—hand or machine.	50.	Skirt.
43.	Plaited Skirt — hand or machine.	51.	Pair Khaki Socks.
44.	Red Cross Article.	52.	Any Red Cross Article.

CONTEST NO. 8—CANNING.

Section		Section	
53.	Two 1-pint Jars Peas.	58.	Two 1-pint Jars Onions.
54.	Two 1-pint Jars Beans.	59.	Two 1-pint Jars Plums.
55.	Two 1-pint Jars Tomatoes.	60.	Two 1-pint Jars Berries.
56.	Two 1-pint Jars Chickens.	61.	Two 1-pint Jars Peaches.
57.	Two 1-pint Jars Beets.	62.	Two 1-pint Jars Blueberries.

CONTEST NO. 9—NOXIOUS WEEDS.

* (Only those weeds mentioned in the Manitoba Noxious Weeds Act may be entered for competition. List at foot of this page.)

Section		Section	
63.	Mounted specimens of six Noxious Weeds (named).	65.	Drawing of four Noxious Weeds (named).
64.	Seeds of ten Noxious Weeds mounted or in vials (named).	66.	Longest Perennial Sow Thistle Root Stock.

CONTEST NO. 10—DAIRYING.

Section		Section	
67.	Three 1-lb. prints of butter.	69.	Two Pounds Cottage Cheese.
68.	One Quart Cream.	70.	Two Pounds Cream Cheese.

CONTEST NO. 11—WOOD WORKING.

Section		Section	
71.	Chicken Brooder.	74.	Piece of Furniture.
72.	Exhibit Coop.	75.	Taboret or Plant Stand.
73.	Bird House.	76.	Feed Hopper.

Plans for any of above will be sent on request.

CONTEST NO. 12—BOOKLETS AND ESSAYS.

Section		Section	
77.	Pig Raising.	84.	Canning
78.	Calf Raising.	85.	Noxious Weeds.
79.	Grain Growing.	86.	Dairying.
80.	Gardening.	87.	Woodworking.
81.	Poultry Raising.	88.	Wild Animals and Birds in our locality.
82.	Cookery.		
85.	Garment Making.		

(*) Quotation from the Manitoba Noxious Weeds Act:—

The expression "noxious weeds" means and includes perennial sow thistle, Canada thistle, Russian thistle, and tumbling mustard, together constituting class I, and common wild mustard, hare's ear mustard, wild oats, French weed or stink weed, false flax, giant rag weed, dwarf rag weed, blue bur, blue lettuce, prickly lettuce, berberis vulgaris (commonly known as barberry bush), and couch or quack grass, together constituting class II.

SPECIAL TEAM CONTEST.**Section 89.—Gardening.**

To be competed for by a team consisting of three club members from a rural school or from a room in a graded school.

Space. The space occupied is to be approximately two feet by four feet of table space and an equal amount of wall space.

Exhibit. Each member of the team is to exhibit products grown on his own garden plot as follows:—Ten potatoes, six table carrots, six table beets, six any other vegetable; Four one pint jars either vegetables or fruit canned by the exhibitor but not necessarily grown by him. Grains, grasses, or any other products may be used to decorate the exhibit. The score card used will be as follows:—Potatoes 15, carrots 15, beets 15, other vegetable 15, canned goods 25, arrangement 15.

Section 90.—Physical Drill.

Teams to consist of six club members. The drill to extend over a period of from eight to ten minutes.

Section 91.—Milking Contest.**Section 92.—Harnessing Contest.**

Two members in team. To harness two horses and hitch them to a light wagon or to two buggies.

Section 93.—Weed Naming Contest.

The weeds included in the Ottawa Noxious Weeds bulletin "Weeds and Weed Seeds" (bulletin No. 88), and those included under the Manitoba Noxious Weeds Act.

Section 94.—Tire Changing Contest.

Two members in team to change two tires on a Ford Automobile and inflate the tires.

Section 95.—Speeches.

Two members in a team. Three minute speeches on any subject.

Section 96.—

A special gold filled enamel button will be presented by the Extension Service to the boy or girl in each school who has done the most to unselfishly promote the interests of Club work in the school. The winner will be decided by a vote of the Club members of a Branch Club who exhibit something in any of the previously named contests at the fair.

**SPECIAL PRIZES.****Free Trips to The Agricultural College.**

Last year twenty-seven club members won a trip to Winnipeg with a week of instruction and entertainment through the co-operation of the T. Eaton Company and the Department of Agriculture, and the boys and girls enjoyed the trip so much that arrangements have been made whereby twice as many may enjoy a similar trip this year.

The T. Eaton Company will again provide for free transportation and entertainment for the club member who gets the highest number of points in the gardening and poultry raising contests in each inspectorial division, and the Manitoba Swine Breeders' Association

will provide for a similar trip for the boy or girl who raises the best pair of pigs in each inspectoral division provided there are not less than 36 contestants in the division.

Rules governing the Eaton Contest.

This contest is intended to promote food production and is limited to the poultry raising and gardening contests:

(a) Poultry—Two exhibits will be permitted in the poultry contest—a trio and a pen of six chickens—any breed.

(b) Gardening—Exhibits in four of the sections given under gardening will be considered.

Prizes won in other contests will not be counted in determining the winners in the Eaton Contest.

This year the judges will receive instructions to deduct ten points from the 100 if a properly kept and properly witnessed record card does not accompany the exhibit. These record cards will be provided as soon as a list of contestants from each school is received.

SCORE CARD FOR EATON PRIZE.

Exhibit.	Prize Won.						
	1st. Points.	2nd. Points.	3rd. Points.	4th. Points.	5th. Points.	6th. Points.	7th. Points.
Pen of six chickens	20	18	16	14	12	10	8 etc
Trio chickens	16	14	12	10	8	6	4 etc
One dozen potatoes	12	11	10	9	8	7	6 etc
One dozen table carrots	10	9	8	7	6	5	4 etc
Six table beets or one pint jar of canned peas	10	9	8	7	6	5	4 etc
Six parsnips or 2 one pint jars of canned beans	10	9	8	7	6	5	4 etc

The Swine Breeders' Prize.

The rules which apply to the pig raising contest apply to this contest as well. It is not necessary for all of the 36 contestants in an inspectorial division to exhibit their pigs at the fair provided the Inspector certifies that there were 36 bona fide contestants in his division. A shortage of help may prevent some of the contestants getting their pigs to the fair. The winner, however, will be selected from those who do exhibit. A record card must accompany each exhibit.

How the Department of Agriculture Co-operates.

As soon as the contest winners reach Winnipeg one representative of the Department will take charge of the boys and another of the girls and will spend the whole week with them. Arrangements will be made for their entertainment at either the Agricultural College or other suitable places such as the Y.W.C.A. or the Y.M.C.A.

In case the war is over by the time the fairs are held, a home cured ham and bacon show will be held at the same time as the Soil Products Exhibition in February and for the first year it will be confined to the members of Boys' and Girls' Clubs. Contestants will be permitted to get assistance at hog killing time but will themselves look after the curing of the meat.

Full instructions for cutting and curing meat will be provided in good time.

Date of Trip to the College.

The winners will leave for Winnipeg on Monday morning, November 11th; consequently, all reports should be sent in to the Extension Office before November 1st in order that definite arrangements can be made for transportation, etc.

Following is a list of those who won the trip to Winnipeg last year and we feel quite sure that every one of them is already making plans for this year's contests:

Miss Emily Badger, Morris.	Miss Jean Paterson, Miami.
Miss Evelyn Bates, Gilbert Plains.	Miss Sadie Quinn, Crandall.
Miss Thelma Davis, Gladstone.	Miss Jeanette Strachan, Beulah.
Miss Mary Esau, Winkler.	Miss Gladys Willett, Treherne.
Miss Mattie Ellwood, Darlingford.	Miss Winifred Yull, Melita.
Miss Violet Freeman, Killarney.	Master Gordon Holloway, Balmoral.
Miss Nellie Gugin, Minnedosa.	Master Bruce MacKenzie, Gladstone.
Miss Hazel Hutchinson, Carroll.	Master Leslie Muir, High Bluff.
Miss Mildred Leif, Hamiota.	Master Melvin Park, Carman.
Miss Eva Lindley, Mulvihill.	Master Arthur Nott, Roblin.
Miss Edith McCorvie, Dauphin.	Master Reginald Rodgers, Elkhorn.
Miss Sarah Moffatt, Carroll.	Master Willie Sage, Ninga.
Miss Estella Mooney, Elkhorn.	Master Jack Wilmot, Clanwilliam.
Miss Olga Mastluk, Ethelbert.	

Discussion of Specific Contests

CONTEST NO. 1.

Pig Raising

Boys and girls naturally love all kinds of live stock, and there is no branch of farming in which there is more pleasure than in caring for some high class live stock. Our country never stood in such great need of food, particularly bacon, and we are appealing to every boy and girl in Manitoba to raise one or two pigs if at all possible.

The old Macedonian cry "Come over and help us" is as urgent to-day as it was nearly twenty centuries ago. The boys and girls cannot go, but they can help to raise the kind of food that our soldiers most need, and the government will be glad to send it across.

Raise Pigs and Help the Nation more even than by Buying a Victory Bond.

Thousands of people bought Victory Bonds from a sense of patriotism, but it is more patriotic to raise the kind of food urgently needed than even to buy bonds. The kind of pigs raised in Manitoba makes the finest bacon known. Bacon is the form in which food can be most easily shipped overseas.

The pig raising contest is one that is particularly suited to Boys' and Girls' Club work, because the little pigs can be weaned when they are five or six weeks old, and from that time on the contestant can take full charge of them, and the gains made are in direct proportion to the care taken of them in providing shelter and the kind of food which will make the greatest gains. The pigs make their most economical gains during the four months over which the contest extends, and as the pigs are at the right age for selling when the fair is held, the whole season's work can very well end on that date. Almost any buyer will pay a premium for pigs which are cared for as Manitoba boys and girls care for their pigs.

Rules for Pig Raising Contest.

1. Own one or two pigs which will be about six weeks old when feeding for the contest commences. The contestant may give his note or other security for money to procure the pigs, but it is very necessary that he actually OWN them.
2. As soon as feeding commences, he must report to the Secretary of the branch Club the age, weight, color, sex, and breed of pigs.
3. Keep a record of the amount and cost of feed consumed.
4. Have the record card certified to by the teacher, or some one who is not a relative, at the time mentioned on the record card.
5. Secure pigs, if possible, that have a pure bred sire.

The awards will be based on:—

Appearance	45 Points	Economy of gain	15 Points
Gain in weight	30 Points	Record Card	10 Points

How to get the Pigs.

The swine breeders of Manitoba have shown their confidence

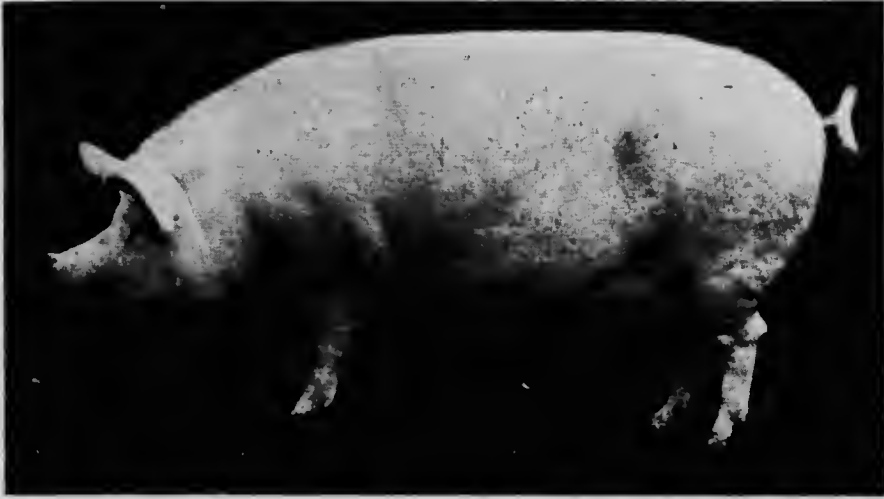


Fig. 1.—Notice the length of body, arch of back and strength of legs of this fine animal. She is a Yorkshire and belongs to the "bacon type."

in the boys and girls by contributing \$300 of their funds toward promoting this contest, and where any organization's money is, you can be sure their interest is also, and they will spare no pains to keep the Extension Service posted as to where pigs can be purchased; consequently those who wish to enter this contest and cannot secure pigs locally should enroll early and let us know if they wish us to obtain pigs for them.

Where to get the Money.

Possibly your father will be partner with you and will supply you with a pair of pigs and the feed, you to supply the labor, and after the fair the proceeds can be divided.

A number of the banks are prepared to lend money to bright boys and girls who are recommended to them by the teacher. The money is lent on the understanding that it is to be paid back when the pigs are sold. Anyway, get a pig and OWN him.

In a number of districts the Agricultural Society will lend money to Club members.

* The Kind of Pig to Raise.

To be a successful competitor in a competition, or to raise pigs profitably, one should know something about what the judges like to see, or, in other words, what is considered a good pig, and how big he should be when finished, and how to care for him to bring him to a finished condition.

No doubt every one who enters a competition has seen pigs, and probably has noted that some pigs are short, thick, dumpy and fat, while others are long, deep, active and somewhat lean. Then be-

(*) The technical instruction in this bulletin as to how to raise pigs was prepared by the Animal Husbandry Department of Manitoba Agricultural College.

tween these two extreme types there are pigs of all degrees. Now it so happens that most people like to eat lean pork better than fat pork, so those who raise pigs try to produce pigs having a large proportion of lean meat. These pigs sell most readily, and so it comes to be said that the type of pig most in demand is the long, lean animal, and as this kind makes the choicest bacon, it is called the bacon type. This does not mean that the leanest, thinnest pig is the most desirable. It means that there is a kind of pig, which is not thick and fat, but yet fleshy and muscular, that carries a lot of lean meat rather than fat, and that this is the kind of pig which will win prizes, sell readily, and make the best use of its feed.

Where to get the Pigs.

Now let us suppose that one is about to begin pig raising. First, he would inquire and find out who has pigs to sell. Generally a neighbor will sell a pair or more. Then he should learn which of his neighbors raises pigs that are in good demand, which means to find out who raises the best types of pigs. When this is settled and the neighbor has agreed to sell a pair of pigs, go to his pen when the pigs are about six weeks old, at which time they will be ready to wean, and look the pigs over carefully. If you have the chance, go and look at the pigs several times before they are old enough to wean; this will help you to recognize the right type. Then pick the pigs that are the longest, deepest, heaviest in the bone, and yet smooth. Don't be carried away by the short, fat, sleek type; remember that you want your pigs to grow first, and that the short, dumpy ones do not grow as big as the long ones. When you have made your choice, take them home, and put them into a pen that is clean, light and dry.

First Month's Feeding.

Arrange a trough that will hold about a pailful of liquid, and prepare to feed for the first month, which will be the third month of the pigs' age, on a mixture of shorts or middlings, which may be got from a mill or feed store, with fine oat chop and skimmed milk. Each day the pair of pigs will eat from four to five pounds of the grain made into a thin slop with the skimmed milk. For the first four weeks make the slop quite thin by putting the grain into about two quarts of the milk four times a day. If they do not eat this up and squeal for more before the next feeding time, cut down the quantity. Gradually increase the quantity of grain until by the beginning of the fifth week the mixture is as thick as porridge. If shorts cannot be got, use oats ground very fine with the hulls sifted out. As the feed is thickened by increasing the quantity of chop and lessening the amount of milk, the pigs should be given water to drink. A convenient way to do is to put the water in the trough about half an hour after giving the morning or noon feed.

Green Feed and Shelter.

During this third month cut some green grain or clover or grass and throw into the pen each day. Give just what they will eat, and

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Fig. 2.—Providing the young growing pigs with plenty of green feed makes for economy of gains.

for the fourth month have ready a fenced yard on green grass or green grain, or a clover patch, and, in this yard, a sheltered corner to protect from the sun and rain. The shelter may be made of rough boards, leaned against the fence, or, better still, a cot as shown in Fig. 3. This cot should be moved on to fresh ground every three weeks. The best kind of pasture for this month



Fig. 3.—The type of pig cots in use at Manitoba Agricultural College, for wintering brood sows, and for housing sows and litters in the spring when turned on pasture.

is a field of clover, after that, green oats and barley mixed, then grass. If the pasture is just grass or brush land, continue to give the small armful of green grain each day, varying with weeds, clover, alfalfa and corn, which will be two or three feet high by the end of the pigs' fourth month. During this month the feed may be changed from milk and shorts to a mixture of equal parts of shorts and ground oats, made into a medium thin slop with water. Of this, the pair of pigs should eat, on the average, 4 to 6 lbs. a day, and each gain in weight about four-fifths of a pound a day. Water should be kept before them more continually this month.

Fall Feeding.

For the fifth month of the pig's life, which will be about August on the calendar, continue the feeding as in the fourth month. By the end of the month the pasture, whether it be grain, clover or grass, will have become quite dry. To offset this, the daily feed of green stuff may be increased, or, better still, the pigs moved into a fresh lot of second growth clover, rape or late sown grain, and in addition some mangels or sugar beets thrown to them. During this month the pair of pigs will eat on the average about nine pounds of grain daily, and should each have gained a little over a pound per day. About the middle of September there may be stubble fields for the pigs to feed on. Then one should decide whether he will keep his pigs over for breeding purposes or finish them for market. For breeding purposes only long, deep, growthy sows should be kept, and they may be handled as described below. Later we shall see how to handle the pigs that are to be finished for sale or to be shown at the School Fair. If they are to be kept for breeding, they may be left to get their living on the stubble, provided they have access to water. If they are not let on the stubble, continue to feed a mixture of ground oats and mill feeds. When oats are cheaper per pound than mill feeds, give about three parts oats, or if mill feeds are cheaper make the mixture one part oats. If one can get barley cheaper than mill feeds, use barley as outlined in the table on feeding (page 30). In the fifth month the pigs will eat about nine pounds of grain daily, and should each gain in weight a little over a pound per day. This feed may be the same as in the fourth month or have a larger proportion of barley.

By this time, middle of October, the pigs should each weigh about 160 pounds, and may be fed on whatever is cheap—low grade wheat or barley or oats. They are now nearly full grown for market and do not need so much grain, for they will do on more bulky feed. Roots are good, or if a patch of rape has been sown, they will live most of this month and the previous one on rape and about two pounds a day of cheap grain. This will bring them toward the end of October, and the weather will be getting cold.

Winter Quarters.

Now is the time to decide upon the winter quarters for these pigs, which have now become sows, or rather gilts. Many people say one must have a warm pen, but that is not necessary. The cot

shown on page 21 will make good winter quarters for two sows. Move it up into a bluff or windbreak shelter and bank it up with manure. Keep a deep bedding of straw in it, and the sows will be comfortable. The cot should be located about 150 yards from where the sows will be fed in winter. If the ground is dry and firm or frozen, the grain they are to get may be put on the ground and let them gather it up. This method of feeding may be started by the first of November and continued. When the ground is wet and muddy, feed in a trough. The sows will not take much water, and this may be given in a trough outside the horse or cattle stable door, the trough being taken in so that it will not fill with ice. This practice of feeding may be continued until the middle of March, when it will be time to prepare for the new pigs.

This preparation should be begun the first week in January, when the gilts or young sows should be bred. From the time they are bred until they farrow, or have young pigs, will be 112 days, so if one wants to have pigs farrowed earlier than the first two weeks in April, he should breed the sows earlier. After being bred, the sows should be kept in thrifty condition, and fed so that they will gain about one pound in weight each day up to the time they farrow. With sows over a year old the daily gain should be about one-half pound a day. Where one follows the most economical practice of keeping sows, he will arrange so that the sows may have access to a feed rack containing clover or alfalfa hay. They will eat some of this, and with about two pounds of grain, barley

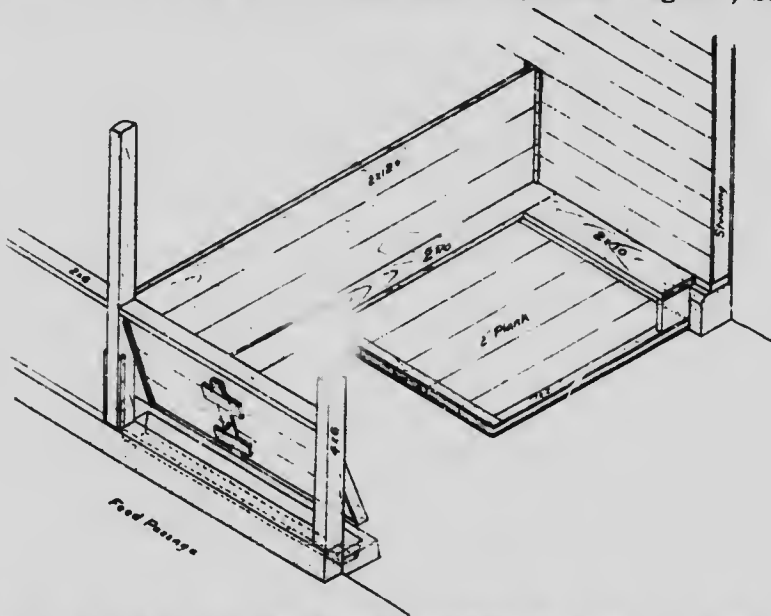


Fig. 4.—The inside of this pen has been prepared for a litter of young pigs. Notice the projecting planks coming out from the wall in the far corner. These planks prevent the sow from lying up close to the wall and jamming any little pigs that have got in the way.

and oats mixed, or barley and low grade wheat, will keep in thrifty condition and provide themselves with the necessary elements of growth.

Care of Young Pigs.

About two weeks before a sow is due to farrow she should be given a separate cot or pen, clean, well bedded and free from draughts. The feed at this time may be made of about equal parts of crushed oats and shorts with an addition of roots, if they are to be had, or cut alfalfa or clover. About two pounds a day of the grain made into a slop will keep the sow in good condition, but she should exercise considerably.

If the weather is very cold, there may be trouble through the newly born pigs becoming chilled. Young pigs cannot stand as much cold as other young animals since their mothers do not lick them, as cows and sheep do. This is why it is better to have young pigs come after the winter has gone. At this time of year the sow and the young will get along nicely in the cot or a closed pen, so long as it is clean and fresh, and the sunlight can strike in, but if these conditions are not present and the weather is cold, there should be personal attention given in case the young pigs require to be helped. The help a young pig might need would be to take it when it is born, wipe it dry, and place it close to its mother's dinner basket. If a young pig gets a chill, it may be revived by dipping it in warm water for a few minutes, then wiping it thoroughly dry. After being born, a young pig can go for four to eight hours without feeding, but if it does not get to suckle in three hours, it should be placed with the teat in its mouth. Do not attempt to feed a young pig on prepared foods; if it does not nurse naturally when given a chance, there is not much use in trying to raise it.

When the pigs are born, see that there is not a great bulk of straw in the pen. It is well to have only a little short straw, so that they can move around easily, and so avoid being crushed. A device on wall as shown in Fig. 4 helps to keep young pigs from being crushed by their mothers. Never under any ordinary circumstances try to move a sow that has farrowed. The process makes her restless and cross, and invariably greater losses of pigs result than if left where they are farrowed.

After the young pigs have arrived and got settled, the sow should be left to herself for from four to six hours, then given a thin, warm slop made of water and shorts. For about three days she should be fed slop about as thick as gruel, and in quantities she will eat up clean. Then the feed may be thickened, at the same time adding oats to make a mixture half oats and half shorts. This diet may be continued for a month, when the sow and pigs may be moved into a piece of grazing crop previously prepared. This treatment will prevent the pigs getting too fat and force them to take needed exercise.

During the second month, young pigs will learn to feed at the trough with their mother. This should be encouraged. In this month the sow may have the thick slop, and, after she has been fed,

a supply of water. The young pigs will soon learn to take a share of the feed. A sow and litter of growing pigs will take about 12 to 16 pounds of the grain mixture a day during the second month of the pigs' lives. At about five weeks of age, a trough for the young pigs may be placed in the yard, and when the sow is fed, the pigs

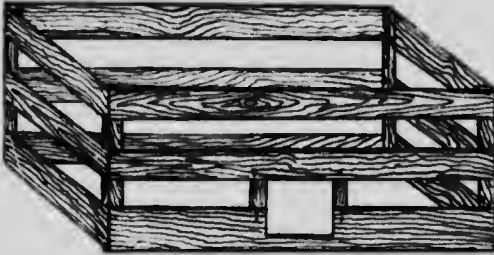


Fig. 5.—A "creep" for feeding little pigs. By placing a trough inside this, the little pigs, which can run in and out, may be fed, but the sow cannot steal the feed.

may be given some skimmed milk in this trough. It is even well worth while to make a "creep," which is a small yard in the paddock, into which there is an opening large enough to admit the pigs, but too small for the sow. In this creep, place the trough so that the pigs may feed without interruption.

Raising Pigs in Winter.

Some people find it advisable to raise pigs that are born in the early fall, in which case the sows are bred at the first opportunity after the spring farrowing. This will be when the pigs are about four to five weeks of age with some sows and with others soon after the pigs are weaned. In fact, where two litters are to be raised, it is well to have the spring litter arrive in March to ensure an early start for the fall litter. When young pigs come in early fall and are to be raised through the winter, the object should be to get them well started before cold weather sets in. If pigs are farrowed in September, they may be got up to 40 or 60 pounds in weight in two months. Of course, there will be little opportunity to use pasture or fodder crops, but in place of these, for the purpose of filling up on foods not too concentrated or heating, one can feed roots and cured clover or alfalfa. In fact, if pigs are to be grown economically, it is necessary to use these fodders or considerable quantities of skimmed milk. Where skimmed milk is not to be had for young pigs at any season of the year, a very good substitute is a commodity known as tankage, which is made from blood and other by-products of slaughter houses. This is sold in a dry powdered form and is stirred up with water and chop before being fed. With this and the forage mentioned, together with light, dry quarters, winter pigs may be raised with fair satisfaction, with this advantage, that spring prices for market hogs are usually higher than fall prices.

Now it must not be thought that pigs are never farrowed and reach maturity at other seasons than spring and fall. Hogs come in all the months and go to market in a continuous stream, but we have traced the care of pigs through the seasons when they can be raised to the greatest advantage.

Finishing for Market.

When pigs have been grown to the weight of about one hundred and sixty pounds, which should be at from five to six months of age, and they are not to be kept for breeding purposes, they should have special care and feeding to finish them for market. To grow hogs cheaply we have said they should have the run of pasture crops and get grains that make growth; now having made most of their growth they should be denied a chance to exercise and fed fattening foods. Accordingly, they should be closed up in a feeding pen and given all they will eat of a grain mixture which for the particular season is cheapest. Generally this will be about three parts barley to one part oats, and should always be finely ground. On some farms in some seasons low grade wheat will be cheaper than barley or oats. When this is the case, feed the wheat, but in every case feed some oats with wheat or barley to make the feed lighter and more easily digested. During the fattening period a pig will eat from five to six pounds of grain per day. This may be fed dry and water given afterwards, or it may be made damp before being fed. The advantage in making the feed damp is that less will be wasted. There is no other advantage than this in "preparing" feed for hogs.

A feeding period of from four to six weeks should put a lot of thrifty pigs in the best of condition for the market, should make them weigh from 185 to 225 pounds each, and command the top price.

Housing.

In describing the care of pigs frequent reference has been made to housing or pens. In our climate pigs require some pro-

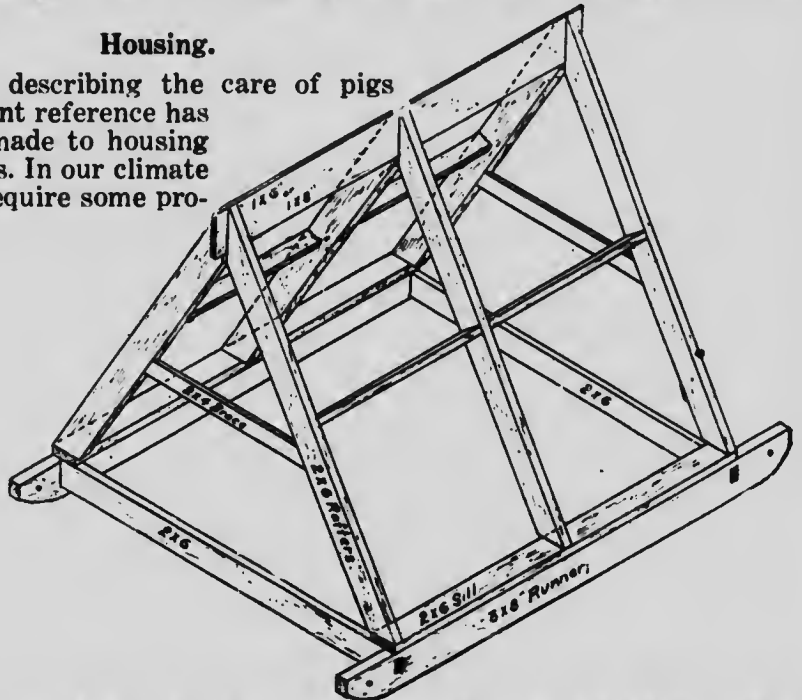


Fig. 6.—The frame for a hog cot. Notice that the runners are shaped so as to permit of hauling the cot around.

tection against extremes of climate at certain periods of growth, and it becomes a matter of particular study to know how cheaply his shelter may be provided, and yet answer all the requirements of hog shelter. One thing about shelter is certain, and that is that the most expensive and elaborate houses are not necessarily the best from the standpoint of money making. There are seasons when it is an advantage to have pens that provide convenience in feeding, dry, clean quarters, and protection from rain or cold, but in summer time pigs should be raised on forage crops, and these may be some distance from the piggery, or, at least, should be changed from year to year, so it is necessary to provide shelter that is adapted to such practice. Then in winter a permanent piggery is not satisfactory for sheltering brood sows, as it contains too much free air, which comes in contact with the pigs and chills them. The only time, then, when a permanent piggery is useful is in the early spring to house sows and young pigs, or in the late fall and winter, when one practices raising fall litters for the spring market. The object, therefore, should be to provide shelter for these short periods cheaply and yet have it convenient and clean. The cots pictured in Fig. 3, page 21, are very satisfactory for summer shelters. They may also be used in winter and as farrowing pens. The advantage is that they can be moved wherever the pigs are grazing and can be frequently moved to clean ground. In the summer time a piggery containing troughs and sleeping quarters becomes a positive menace to health by reason of the dense swarms of flies which breed in such places. When the troughs are in the open field, the wind and sun prevent the rapid increase of flies.

In the winter these cots are sufficiently warm if they are made tight and banked with manure, straw or snow. The amount of air circulating about the pigs is quite limited, the place is not draughty, but the door should never be entirely closed or the pigs will suffocate in a few hours. Such cots may be improved for farrowing pens in late winter or early spring by providing a large sized window on the sunny side. When these cots are used it is necessary to provide for feeding at some other place. This may be done by having a feed room and feeding floor separate, where the pigs may be fed and then return to the cots to bed. If only a few pigs are being kept in winter, such a feeding room is not necessary, but if pig raising is carried on extensively, this would be worth while.

Another method of providing winter shelter is to give the pigs access to a straw stack and to encourage them to burrow into it by placing a truss at the south side, as in Fig. 7. This is particularly suited to wintering breeding stock. The pigs rest comfortably in such a place, the straw absorbs the moisture and the air is fresh. Feeding arrangements can be provided as with cots. It is good practice to place either cots or the straw pile about 300 yards from where the pigs are to be fed. This compels them to exercise, which is most essential to good health. Where one is feeding pigs for the commercial market, such a shelter might be provided close to a feeding floor, so that the hogs would not be compelled to exercise.



Fig. 7.—The inside of a straw stack is a fine winter pig bedroom. To provide this opening, have strong poles erected before the stack is built; then thresh the straw on top. The entrance should be about $2\frac{1}{2}$ feet high by 2 feet wide. The open space inside should be about 5 feet by 10 feet.

In making pork, the object should be to provide conditions for eating and sleeping, so that no food energy is used for any other purpose than flesh production. The feeding floor with feed bins and troughs should be built on skids, so that it can be moved to clean quarters each fall, and the old stack cleaned up each spring.

Improving the Hog Stock.

When one has undertaken hog raising his ambition should be to raise pigs with the least possible outlay of feed, and in the length of time required to make marketable weights. One will not raise many hogs before he will notice marked differences in types and in capacity to make weight. The easiest way to improvement, then, lies in keeping for breeding stock the type most in demand and that makes best use of its feed. In general outline, the hog that meets those requirements is long and deep rather than short and thick. But within this type there will be some that grow bigger at a faster rate during the first six months than do others, and others that at the end of a year or at full maturity will be bigger and heavier. So one should select for breeding purposes not simply the biggest, but those which grow to marketable weight earliest. This applies to both parents. Be constantly on the watch for good type and early

growth. Next, one will notice a marked difference in the size of litters from different sows. From a commercial standpoint, extremely large litters are not desirable because there is a limit to the capacity of sows to nurse. A litter of ten is quite large enough for a sow to raise, but a sow which does not raise more than seven of the first two litters should be discarded, nor should her sow pigs be kept for breeding purposes. To this rule there may be some exception in the case of pure-breds. Sows vary in their milking capacity and teat development. A good brood sow should have at least ten teats, and where there are more pigs in a litter than there are teats for, it is generally good practice either to destroy the smaller pigs or have them adopted by another sow.

Breeds of Pigs.

Highly improved hogs are classified into breeds, which are groups of individuals similar in type and color. These breeds have been built up from selections and mated so that there is no mixture of type and color. The breeds themselves fall into two distinct types, one called the "fat" type and the other the "bacon" type. The breeds representing the bacon type are the Yorkshires (white), the Berkshires (black) and the Tamworths (red). Those of the fat type are the Poland China (black), Duroc Jersey (red), and Chester (white). When one wants to improve his stock towards either type or towards the special characteristics of one of the breeds, he uses a male parent of the type or breed desired; then when he has learned the work, he will likely buy pure-bred sows.

The question most frequently asked about pigs is: "Which is the best breed?" and to this question no direct answer can be given. If there is a best breed, it is the one that makes the most weight on a given amount of feed under all conditions, and in tests that have been made it has not been proven that any one breed is better than another. It has been shown, however, that there is much difference in individuals and in strains, so that one should pick upon the type that suits him, then the breed within that type, then select individuals that make fast growth and finish early for the market. It has been said that the bacon type is preferred in our markets, but that does not mean that the fat type cannot be sold, and if one has a preference for the fat type, or for any other reason wants to raise this kind, he will be able to sell them readily.

In selecting breeding stock, certain details of conformation should be sought. Large bone is associated with quick, early growth, so avoid very fine boned animals. Large development of hind-quarters is desirable, as is also thickness behind the fore legs. Avoid coarse, wavy hair, heavy throat and neck, long, flat feet, heavy rough shoulders and a hollow back. Remember that parentage gives a tendency to grow to a certain shape and that feeding develops the tendency.

TABLE OF FEEDS AND EXPECTED GAINS.

Age of Pigs	FEED		Expected Av. Gain.
	1st Selection	2nd Selection	
6 weeks continuing to 10 weeks.	Equal parts shorts and ground oats $1\frac{1}{2}$ to 2 lbs. per day per pig, made up into a thin slop with skinned milk.	Mixture of 5 parts shorts, 5 parts ground oats and 1 part tankage $1\frac{1}{2}$ to 2 lbs. per day per pig, made into a thin slop with water.	$\frac{7}{8}$ lbs. per pig per day.
10 to 14 weeks.	Same as above, 2 to 3 lbs. grain per day with alfalfa pasture. May use barley in place of shorts.	Same as above, 2 to 3 lbs. per day with clover, green grain or grass pasture. May use barley in place of shorts.	$4\frac{1}{5}$ lbs. per pig per day.
14 to 18 weeks.	Above mixture using barley without milk and with alfalfa pasture, 3 to 4 lbs. grain per day per pig.	Above mixture using barley, plenty of water and pasture, 3 to 4 lbs. grain per day per pig. May leave out tankage.	$1\frac{1}{5}$ lbs. per pig per day.
18 to 22 weeks.	Above mixture 4 to $4\frac{1}{2}$ lbs. grain per day per pig.	Above mixture 4 to $4\frac{1}{2}$ lbs. per day per pig.	$1\frac{1}{3}$ lbs. per pig per day.
22 to 26 weeks.	Mixture 3 parts barley and 1 part oats, $4\frac{1}{2}$ to $5\frac{1}{2}$ lbs. per day per pig.	Mixture 3 parts poor wheat and 1 part oats, $4\frac{1}{2}$ to $5\frac{1}{2}$ lbs. per day per pig.	$1\frac{1}{2}$ lbs. per pig per day.

CONTEST NO. 2.

Calf Raising

Rules for Calf Raising Contest.

1. Own a calf born between March 1 and June 1.
2. The calf must be entirely weaned from sucking a cow (if it has ever been permitted to suck), when contest commences, which should not be later than May 15th.
3. Report to the club manager the age, weight, color, sex, and breed of calf.
4. Keep an accurate record of the amount, kind and cost of feed consumed.
5. Each calf shall be led in to the judging ring by the competitor.
6. The contestant may register and feed two calves, and show the one making the best record.
7. If possible, in securing a calf for this contest, get one that has a pure bred sire.

The awards will be based on the following score card:—

Appearance and conformation,	45	points.
Gain in weight	30	"
Economy of gain	15	"
Certified record	10	"

Suggestions for Calf Feeding.

1. Feed the calf whole milk for three or four weeks, feeding from 2 to 3 quarts morning and evening.

2. In four weeks feed 5 or 6 quarts per day. Take one week to change from whole milk to skim milk. This is gradually increased until about 1 gallon of milk is fed each meal at five months old. When starting skim milk, add to it 1 tablespoonful of meal, 1 part ground flax to 2 parts shorts, corn meal, coarse flour. This meal is gradually increased until from 1 to 1½ lbs. per day is fed when the calf is five months old.

3. At six weeks little whole oats and bran (2 parts oats, 1 part bran) should be fed. A little green feed should be fed at this age. After five months old the calf will eat so much of the feed mentioned in this paragraph as to enable the feeder to discontinue the meal mentioned in the preceding paragraph.

4. Feed uniformly warm milk, and do not over-feed. Scours are caused by over-feeding.

5. Turn out calf in evening for exercise and grass, but not in hot sun and flies.

6. Give calves a little salt and what water they will drink, water to be available to calf at frequent intervals.

7. Feed at regular intervals.

8. If calf shows sign of scours, reduce quantity of feed. In a bad case, however, give the calf a tablespoonful of castor oil followed with a raw egg every three hours; boil the milk, omit flax seed, and add a small quantity of dry flour to the milk.

It is always to be remembered that heifer calves, to be raised for dairy cows, will take less feed (especially grain feed) than might be given to beef calves that are expected to grow more quickly. The individuality of the calf must be studied.

NOTE.—Whether raising pigs or calves, keep your record during the season in a note-book; then make the final report on the record sheet.

CONTEST NO. 3.

Poultry Raising

This contest has always been popular, but this year it will be more popular than ever, because the needs of our nation are greater than ever and Manitoba boys and girls will wish to help their country in this way, and because of the shortage of help many girls and boys will be willing to relieve their parents of this important branch of the farm work.

Perhaps you want to buy a bicycle, a baseball outfit or a pure bred calf. Why not do as hundreds of others are doing—get the chickens to earn money for you. The chickens will destroy insects, use up waste products, provide the family with some good wholesome food which will take the place of the ham and bacon, which is badly needed by our boys who are overseas.

Rules for the Poultry Raising Contest.

Each member should

1. Set twelve eggs under a hen if possible before May 15th, or, better still, set two hens each with 12 eggs.
2. Test the eggs between the seventh and ninth day and record the number infertile on that date. If more than six eggs are infertile in either nest, another hen should be set.
3. Keep a record as to the date when the hens were set, when the chickens were hatched, the number hatched, amount of feed used.
4. Fill in the record card and have it witnessed on the dates mentioned on the card.
5. Exhibit the chickens at the school fair in accordance with the prize list. At least one square foot of floor space in the coops should be provided for each chicken.
6. The awards will be based on the following basis:

(1) General appearance of the chickens as regards size, color, health and condition	85
(2) Record card showing number raised in comparison to the number hatched, cost of feed, labor, etc.	15
7. On page 33 is a copy of the record card and the judges will be instructed to base 15 per cent of the points on this record.

*** How to Start Poultry Raising.**

1. Secure a couple of settings of good eggs either from your parents or from some good poultry raiser.
2. Get baby chicks. The Poultry Department of Manitoba Agricultural College may supply a limited number of White Leghorns and Barred Rocks baby chicks. They can be sent out in dozen lots, and will cost you 25 cents each, plus express, the express on the dozen amounting to from 35c. to 75c.
3. Go into partnership with your parents. They will let you pick out a dozen of the best hens in the flock and provide feed for

* The technical instruction as to Poultry Raising has been written by Prof. M. C. Herner, Poultry Department, of Manitoba Agricultural College.

MANITOBA BOYS' AND GIRLS' CLUBS CHICKEN RAISING RECORD

Report of.....
 Name of Member..... Age..... Post Office.....
 School:..... Central Club:.....

1. What literature on chicken raising did you read?.....
2. Breed raised?..... 3. Color of eggs?..... 4. No. set?.....
5. From when were eggs obtained?..... 6. Did you use eggs for sitting that on new were fresh?..... 7. Otherwise did you candle the eggs to make sure they were fresh?..... 8. Cost of eggs?..... 9. Letters or numbers on side of egg?..... 10. Date eggs were received?.....
11. Date set?..... 12. Number hatched?..... 13. Infertile?.....
14. Bad?..... 15. Number chicks alive at five days?..... Witness.....
16. What kind of chickens do your parents keep?..... 17. What kind did you raise last year?..... 18. How did you dispose of them last year?..... Why?..... 19. Did you fix up a clean new coop this year?.....
20. Did you dust the hen with insect powder before putting the eggs under her?.....
21. How old were the chicks before you fed them?..... 22. What did you feed them during the first week?..... 23. The next three weeks?.....
24. Did you provide any sprouted grains or green food?..... 25. How large an air space would be permissible in an egg for hatching?..... 26. How often did you move the coop?..... 27. Why did you move it?.....
28. How many chickens did you raise?..... 29. Describe your chickens under the following heads:—Type of combs..... Color ear lobes..... Color of legs..... No. of toes..... Color of plumage.....

FINANCIAL REPORT

RECEIPTS	EXPENDITURES
.....Pullets sold at \$1.00.....\$	Cost of Eggs.....
.....Cockerels sold or to be sold at 75c.....	Sour Milk.....pts. at ½c.....
.....Pullets kept for next year at \$1.....	Chick Feeds.....lbs. at 1½c.....
.....One Rooster kept to exchange..... 1.25	Grain.....lbs. at 1½c.....
Value of Coop..... 2.00	Lumber for Coop.....\$ 1.00
	Labor..... 2.00
	Any other expenditure.....
Total.....	Total.....
NETT GAIN.....\$	

This presents the text of the Chicken Raising Record Card.

them if you will return to them a reasonable number of eggs for hatching purposes, as well as the original hens when the hatching season is over.

If this plan is decided on, the first thing to do is to write to either the Extension Service or the Publications Branch of the Department of Agriculture for copies of Professor Herner's bulletins, "Common Breeds of Poultry" and "Poultry Houses for Farm and Town." About the first of March select your hens, choosing only those that come nearest to the description given in the bulletin.

Selecting Layers.

In selecting laying hens out of your parent's flock for your pen, you should be guided first by the points that show that the hen is strong, vigorous and healthy, and, second, by the points that show whether or not she is a good layer.

A strong, vigorous, healthy hen should have—

- | | |
|--|------------------------------------|
| 1. A deep wide body. | 5. Short, stout, well curved beak. |
| 2. Legs short, strong, set well apart. | 6. Eyes clear, bright and sharp. |
| 3. Breast bone long and straight. | 7. Face full in front of eyes. |
| 4. Head short and broad. | 8. Comb and wattles red. |

Good layers will —

- | | |
|---|---|
| 1. Be up early in the morning. | 6. Go to roost late. |
| 2. Work and scratch all day. | 7. Have full crops at night. |
| 3. Hunt up a lot of insects, as well as feed. | 8. Moults late in the fall. |
| 4. Be in good working condition. | 9. Lay in the winter when eggs are high in price. |
| 5. Look bright and healthy. | |

Pullets that have laid during December or January are usually better layers than any other hens. These are going to be the heaviest layers in the whole flock. Eggs laid by them are in turn likely to hatch chicks that will grow into good layers. By selecting these you will be able gradually to build up a flock of heavy layers. Eggs from late hatched pullets that matured slowly, and are small and under size will not be good eggs for hatching. Chicks from such eggs are likely to be weak. Eggs from year old hens will usually hatch a little larger chickens than pullets' eggs, but they are not likely to grow into such good layers as those hatched from heavy laying pullets' eggs, unless these yearling hens were heavy layers as pullets. These layers should be selected in the winter, and a leg band put on each one of them so that when the time comes to get eggs for hatching you will know which hens to take out.

In chicken raising the "rooster is one-half the flock," hence get the best. One that has a strong vigorous constitution, and can fight; one that can look at you with a sharp piercing eye, showing that he is not afraid of you, will make a good one. A loud, strong and lusty crow is a very good sign of vigor. A rooster should be low set, deep and wide, with good strong legs, set well apart. He should have a bright red comb, broad head, bright eyes and full face. A short neck and wide back help to make the good general purpose type. A rooster like this mated with the selected hens will be sure to produce good, strong, healthy chicks.

How to get a Rooster.

There are three ways in which you can get a rooster.

1. You may be able to exchange one of your own roosters for an equally good one with your neighbor.
2. You may get the loan of one from the Poultry Department of the Agricultural College.
3. If you wish to invest a little money you can probably buy one from a good breeder at from three to five dollars.

The plan of getting the loan of a cockerel from the Poultry Department of the Agricultural College is intended to help in improving the quality of the flocks of the members of the Boys' and Girls' Clubs, and also to increase the egg production. The work will be confined to Barred Rocks exclusively, and cockerels of this

breed will be loaned only to the members agreeing to the following conditions:—

1. The borrower will select from 6 to 12 of the best hens or pullets as outlined, and leg band them. (These bands will be supplied free).
2. Separate these from the rest of the flock at least two weeks before eggs for hatching are required.
3. Mate them with the Barred Rock cockerel loaned by the Poultry Department of the Manitoba Agricultural College.
4. Use no other eggs for hatching but those produced by the hens mated with the College cockerel.
5. Make such reports on the work as may be required from time to time.
6. Return the cockerel to the Poultry Department of the College not later than July 1st, 1918.

How to Apply for a Cockerel.

Fill out the enclosed form and forward to the Extension Service.

The Extension Service,1918
Parliament Buildings, Winnipeg.

Dear Sirs:—

I am anxious to secure a Barred Rock Cockerel from the Agricultural College and agree to comply with the rules given in the Boys' and Girls' Club Bulletin.

I havehens.
My nearest Express Office is.....
The District Club Manager is.....
My teacher's name is.....
Signed

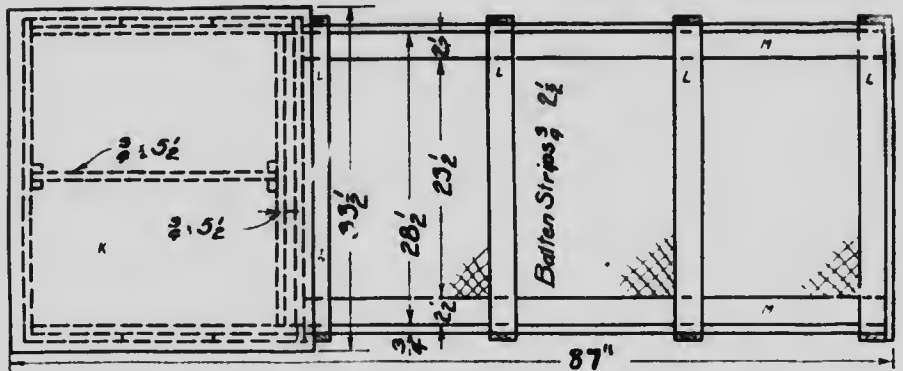
Another plan is for six members to club together and each supply two hens. One of the members will probably have a place to keep them, the others can supply the feed, and each one can secure a couple of settings. They should first draw lots or otherwise decide who will get the first, second and third settings. In this . . . cockerel should be obtained from the College.

Setting the Eggs.

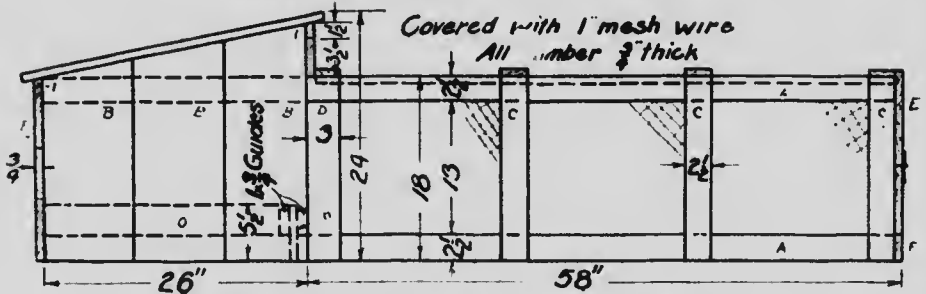
People who are extensively engaged in the poultry business very generally use incubators, but where less than one hundred hens are kept and for Boys' and Girls' Club contests, the old reliable farm hen will prove most satisfactory. If you can possibly spare time to make a brooder similar to the one illustrated on page 36, it will pay you to have it ready when you wish to set your hens. Each brooder will accommodate two hens, and when the chickens come out the one hen may be able to look after both broods. If you cannot get the brooder ready for this year, select a quiet, slightly darkened corner where the other hens are not likely to disturb your setting hens. Get a box about 12x14 inches and ten inches deep, put two or three inches of sod or dirt in the bottom and shape to fit the body of the hen, cover this with chaff and a little straw or dry grass.

Eggs should be set under the hen as soon as possible after they are laid. If kept any length of time the temperature should be between 45° and 60°, 50° to 58° being about the best. Tests made

CHICKEN BROODER



Brooder as Viewed From Above



Brooder as Viewed From the Side

Figure 8.—Chicken Brooder referred to on Page 35.

by some poultry authorities gave the following results at a temperature of 65°.

Length of time held.	No. of Eggs.	Percentage of fertility.	Percentage of chicks hatched.
1 day	50	86	74
7 days	50	80	46
14 days	50	78	32
21 days	50	52	12
28 days	50	19	10
35 days	50	8	6

This shows that if eggs are long held at a high temperature, before setting, they rapidly lose their ability to hatch.

Selecting the Hen.

In selecting a hen for brooding purposes, get one that is at least a year old; one two years old, or one that has hatched chickens before will be better still. The larger breeds, such as the Barred Rock and White Wyandotte, will prove more satisfactory than the more active and smaller hens, such as the White and Brown Leghorns.

Before placing the hen on the nest, dust her thoroughly with insect powder and put two or three china eggs under her. If she is sitting all right in twenty-four hours, the eggs can be put under her. Thirteen eggs are quite sufficient for the average sized hen.

A good insect powder can be made "by using 3 parts of gasoline and 1 part of cresol. Mix these together and add gradually, with stirring, enough plaster of Paris to take up all the moisture. As a general rule, it will take about 4 quarts of plaster of Paris to 1 quart of the liquid. The exact amount, however, must be determined by the condition of the powder in each case. The liquid and dry plaster should be thoroughly mixed and stirred so that the liquid will be uniformly distributed through the mass of plaster. When enough plaster has been added, the resulting mixture should be a dry, pinkish powder having a fairly strong carbolic odor and a rather less pronounced gasoline odor".

On account of the scarcity of carbolic acid or cresol, you can use Zenoleum in the same proportions instead.

Generally a good louse powder can be bought from your druggist. If he does not have it in stock, he will likely know where he can get it for you.

For a dust bath keep a box of ashes, fine sand or road dust mixed with a little lime. Have clean water and grit where the hen can get it at any time. Throw grain in the straw or litter on the floor to get the broody hen to exercise in scratching for it.

Caring for the young Chickens.

At hatching time it is well to leave the hen alone. Nature has provided her with enough brains to know how to do her work right. If she has been sitting well, the eggs are all likely to hatch about the same time. Give her time to hatch the chicks first, and then if any are late, they can be removed to another hen, or the chicks can be removed, and placed in a basket lined with flannel, or some other warm material.

Powder the hen with good insect powder before putting her and the chicks in the brood coop. Should the chicks become troubled with lice, a very little lard or vaseline may be applied with the fingers on the head, neck and under the wings. Use this sparingly as too much of it is likely to cause irritation and blisters.

Feeding the Chicks.

If the following suggestions are followed the chickens are likely to get a good start, grow well, and be strong, vigorous and healthy.

1. Give the first feed when the chicks are from thirty-six to forty-eight hours old; feeding too soon may cause bowel trouble.
2. Coarse sand or grit and green food should be within reach at all times. Grasses, weeds and sprouted grains usually furnish an abundance of green food.
3. Sour milk or buttermilk should be given from the start. These furnish the water required to make body growth, and the acid in the milk helps to digest the food. Buttermilk or sour milk is the cheapest flesh forming food that can be secured. To show the value of buttermilk for feeding chicks an experiment was conducted on the Poultry Plant of the Agricultural College. Two lots each of 100 White Leghorn chicks were taken from the incubators

to the brooders and for nine weeks were fed exactly alike, with the exception that one lot got only buttermilk to drink, whereas the other lot had only water. At the beginning of the experiment there was only half an ounce difference in the weight of the two lots, and at the end of the nine weeks the buttermilk lot weighed thirty-six pounds heavier than the lot which had only water to drink.

4. Dry mash makes the chicks grow, and helps to counteract the loosening effect of the buttermilk.

5. Wet mashes will help to make the chickens grow faster. Do not feed too wet or sloppy, as it will cause bowel disorders.

6. Free range will provide room for exercise and scratching, and will produce strong, healthy, vigorous growth.

7. Variety in grain and other foods will be relished by the chickens.

8. Mineral matter or ash is necessary for the growth of flesh and bone. The ordinary farm grains along with the insects and grains the chicks pick up will usually furnish mineral matter in sufficient quantity to produce good growth. Better results, however, can be obtained by feeding bone meal and beef scrap to get more flesh and bone growth. But under ordinary farm conditions, this is hardly practical, as the price of these special feeds is out of reach and too high compared with their food value.

9. Cleanliness in both the care and feeding of the chicks will prevent disease and lice.

10. During the first few weeks feed often and only a little at a time. Feed early in the morning and late in the evening to shorten the period between the evening and next morning meal. Avoid over feeding.

Method of Chick Feeding.

First week.—Just prior to, and during the process of hatching, and also for thirty-six hours afterward, nature itself furnishes the necessary food in the form of the absorbed yolk. For the first few days we keep as close to nature as possible, and feed eggs in the hard boiled form, mixed with stale bread soaked in milk and pressed dry. Three parts of bread are used with one part of egg. The shell, white and yolk are cut up finely and mixed with the bread, and fed five times a day on small boards or in saucers. Commercial chick food is one of the best grain foods, but this is too high priced, and hard to get. Cracked wheat or cracked corn will take its place on the farm. A small quantity of pinhead oatmeal mixed with it the first few days will help to give the chicks a good start. A few feeds of this should be given each day. A good plan is to feed bread and egg at the first feed, cracked wheat the second, and alternate each succeeding feed. Chicks should also be started on dry mash the first day. Even at this young age, they will, if allowed, eat more dry mash than everything else put together. This dry mash can be made of equal parts of shorts, and fine oat or barley chop, adding a little home-made charcoal, or a little charred wood. Put this in a shallow pan where the mother hen cannot upset or waste it. Wheat screenings chopped fine also makes a very good dry mash. Give the chicks buttermilk or sour milk to drink. Do not change from sweet to sour, or sour to sweet, as it will cause bowel trouble. Coarse sand should be thrown somewhere close to the coop so the chicks can get all the grit they need. As a rule grass furnishes sufficient green food without giving anything extra. Mixing a few oats or whole wheat with the cracked wheat will provide the food for the mother hen.

Second week.—The same feed is fed as the first week, except that larger wheat may be added. It may also be scattered farther away from the coop to induce the chicks to run around more. The coop should be moved this week to a new green spot.

Third week.—Fewer feedings will do now. The bread and eggs may also be dropped out of the feed. The dry mash can now be put in a small box holding more than the shallow dish first used. The supply will then last longer. Cracked barley or hulled oats are sometimes available on the farm. These can now be fed with the wheat, using one part each of the cracked barley and the hulled oats to three parts of wheat.

Fourth to Tenth week.—All the grain should now be hopper fed so the chicks can get all they want at any time. The dry mash should also be fed in a hopper. Hopper feeding lessens the work, and at the same time insures a good steady supply of feed at all times.

As the chickens get older the oat and barley chop fed in the dry mash need not be quite so fine. After the chickens have reached the age of ten or eleven weeks they will be able to look after themselves pretty well, but even so you should not make them shift for themselves altogether.

The feeding of soft or wet mash is a thing boys and girls should know about. Such mashes will make the chicks grow faster and lay earlier than they would if they got none. A wet mash can be made by scalding bran, shorts or oat chop with boiling water. Any or all of these three can be used. Add water to make the mash wet or crumbly, but not sloppy. The table scraps can be added to this. A small amount of soft mash can be fed as early as the third week of a chick's life. If care is taken in feeding it the chicks will thrive, but if it is fed too wet and sloppy it will surely cause bowel trouble. Keep on giving them a wet mash once a day right along. See that they always have plenty to eat and drink. Keep them growing. Keep on feeding the farm grains, the dry mash and the milk. If you have given them good care, the chickens of the heavier breeds, such as the Rocks, Wyandottes, Rhode Island Reds and Orpingtons, should weigh three pounds each at ten or eleven weeks of age. Leghorn chickens should weigh two and a half pounds each at this age.

Under ordinary conditions little chickens pick up a large amount of food, such as insects, green stuff, and sand, so but little green food, grit and animal food need be added to their regular feed. Where chicks are raised in hundred lots it may be necessary to supply these additional foods, but when only a few are raised, they pick up everything they need in these lines.

Pointers for Boys and Girls.

The boys and girls should remember that it is the little things that count in chicken raising. The eggs from which you intend to hatch your chickens must not be handled roughly. The setting hen that you expect to hatch the eggs for you needs her drink and

her feed every morning as regularly as you need your breakfast. She should have a nice comfortable nest away from the other hens in a dark corner all by herself. She needs the nest large enough so she can spread herself over the eggs. If the nest is too small, she will have to roll some of the eggs on top of each other, and sit on them in this way. Don't blame her if she breaks a few; she tries to cover them all and is doing her best. Then, too, she requires plenty of straw or chaff under the eggs, otherwise she will break a few on the hard floor. Sand or earth in the bottom of the box, and straw or chaff on top of this will make her feel even better, as it helps to make the nest softer, and her work easier. She is doing her share to bring out as many chicks as she can, so you do yours too.

When the little chicks are hatched see that their mother is free from lice. Give her an extra sprinkling of lice powder. See that both the hen and her chicks are comfortable. They both like a bright clean coop having plenty of fresh air and sunshine, and lots of green grass around it. If you have a floor in the coop, they can keep dry and warm. This will also keep out rats. Close the coop at night, so that rats cannot get in and kill the chicks. A little extra feed will often make the chicks feel happier. They like a good drink of fresh water or clean milk every morning, and during the day if they need it give them some more. During the hot summer days they need shade. A few bran bags tacked on frames and raised off the ground will make a good shelter for them. When they are six to eight weeks old the hen will be ready to leave them; they should get a little extra care at this time.

Chickens will, of course, grow without any or all of these little things being looked after, but the boys and girls who do them all will be well paid for their work. Chickens respond quickly to good feed and proper care; they will be bigger, stronger and healthier, and you will have done more for your country by having raised a few pounds more of good wholesome food.

Finishing the Chickens.—When the time for the school fair comes the chickens should receive some special care and attention. A few weeks before the fair they should be separated from the rest of the chickens, so that they can be kept clean. Their own little coop is too small to give them the care they should have at this time, and a larger pen away from the other chickens should be secured. Give them plenty of good, clean, dry straw to scratch in. This will help to give them a bright, clean, glossy plumage, and also keep their feet clean. The judge will be particular about these things, so you should do all you can to present the chickens in a good, clean, healthy condition.

Judging Poultry at Boys' and Girls' Club Fairs.

For the information of the boys and girls, the following outline on judging poultry is given:

General Instructions.—In judging poultry at these fairs the vigor and vitality of the birds, and health and condition are of first

importance. It was agreed early last spring that purity of breed should receive more consideration this season than last. While this is a step in the right direction, still it is well to bear in mind that, as far as purity of breed goes, the boy or girl had but little chance to choose; that is to say, he or she had no choice in the matter of selecting eggs from a certain flock. On the other hand, since each boy or girl is required to show only six chickens it will leave some room for selection. In many cases, however, the hatch may have been poor, and the boy or girl has but very little chance of selecting for purity of breed. Where such has been the case the judge should make due allowance.

Score Card.—The following score card will give a fair idea of the relative value of the different considerations in chicken judging. There should be but little deviation from this:

	Points
Health and vigor of flock	20
Size and uniformity of flock	20
Cleanliness of plumage and feet	10
Style or type of coop and method of showing; space allowed for chickens (height, width and length in proportion to number of chickens; slatted or wire front, easy to get out chickens, etc.)	20
Purity of breed	20
Poultry record card	10
Total	100

Judging for Health and Vigor of All Breeds.—The most common indications of health and vigor are: Red comb, face and wattles,



Fig. 9.—The picture of this Barred Plymouth Rock cock has been especially chosen to illustrate the correct utility type. Note the prominent eye, wide skull, full breast and long body. These indicate constitution, and are desirable characteristics in all breeds.

bright eyes and general activity. A lack of these naturally indicates a lack of health. Vigor is denoted by a short, stout beak, full face, bright eye, wide skull, short neck, deep and wide and fairly long body, short legs well apart. These characterize the utility type, and, indeed, this description holds good both for utility and egg breeds, the only difference being in size and in the peculiarities of breed type. A long, narrow bill, sunken face, and dull eyes indicate lack of vigor or constitution. This may be inherited, or may be due to the condition under which the chickens were raised, such as lack of proper feed and overcrowding. Pale combs are often attributable to the same causes. Of course, as pullets and cockerels grow older the combs become larger and redder; as a rule the

older and nearer a chicken is to maturity, the brighter its appearance will be.

Size and Uniformity of the Chickens.—To judge properly as to this characteristic the judge must have a fair knowledge of what size a chicken should attain at a certain age. Size and general thrift are closely related. A chicken that is a good "rustler" will usually attain good size and mature at an early age. While size, health and vigor are also closely related, still it is possible for chickens to be healthy and vigorous, and yet have stunted growth and lack the size. If they are not, it is usually an indication of lack of vigor and vitality, and they should be cut under both sections.

Kind of Coop.—Under this heading reference is made only to the coop from the standpoint of handling the birds. This matter

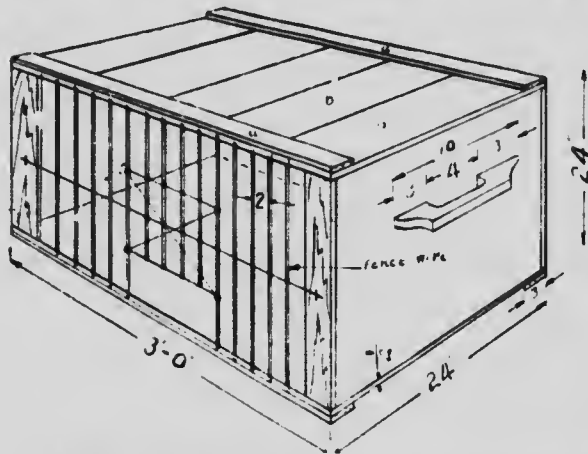


Fig. 10.—Exhibition Coop.—This exhibition coop is 2 feet high, 2 feet wide, and 3 feet long, and is a nice size for a half dozen chickens. It is closed in on all sides but the front. Lumber which is $\frac{1}{2}$ inch thick will suit very well for the top and bottom and back. The cleats marked a.a. should be about $\frac{3}{8}$ inch thick. They serve to keep the several boards, b.b., out of which the top and bottom are made, together and also to keep the pieces of fence wire used on the front from sliding out. The wires should be set back about an inch from the edge.

Three-fourth inch lumber should be used for the ends so that there will be sufficient room for nailing the top and bottom to the ends. The grain of the lumber in the ends should run up and down.

two of the slats one-third of the way from the top of the coop, and freeing the lower ends. By putting in a few cross slats, these two can be made to slide up and down nicely. The slatted front should extend all the way up to the top of the coop. A nice coop for six chickens is illustrated on this page.

gives more annoyance to a judge than any other. The judge should be able to see the chickens clearly. No wide slats or boards should be used in making any chicken coop. Narrow slats placed upright and just so far apart that chickens cannot slip through between is what is wanted. Wire fronts offer the least obstruction to the judge's eye, but these wire fronts are usually nailed up tightly, and it is impossible to get the chickens out of the coops. The slatted front with one or two slats sliding upward to form a door affords a good kind of opening. The door can be made by cutting

Cleanliness.—This refers more especially to clean feathers, legs and feet. Many chickens shown at these fairs are just picked up in the barnyard the morning of the show, put into a coop and shown in a filthy condition with the feathers all messed up, and the legs and feet covered with barnyard filth. Now, if anything is worth doing, it is worth doing well. Chickens should be properly prepared for the show by putting them in a coop or small pen a day or two before the show. The legs and feet should be washed with warm water and soap; and clean straw or chaff put on the floor of the coop or pen. By looking after the chickens properly a week or ten days before the show, the feathers will usually show up bright and clean. Dirty, filthy plumage and feet show lack of care and interest on the part of the boy or girl, and should be scored accordingly.

Method of Showing.—This refers to the size of the coop in proportion to the number of chickens shown. They should not be crowded for room. Also the coops should be high enough that the chickens can stretch properly, and appear to best advantage. The crowded condition of so many of the coops at these fairs is an eyesore both to judge and visitors. The coops should be of sufficient height, length and width to give comfort to the chickens, and also permit the judge to see the chickens properly in their natural condition. Plenty of straw, chaff, or other dry material should be on the floor of the coop. The judge can then handle the chickens without continual fear of becoming "messed up."

Purity of Breed.—This section has been left to the last to permit of a full and detailed description of the breed requirements without breaking up the continuity of the other sections too much. The hints on judging for purity of breed will be confined to Barred Rocks, White Wyandottes, Rhode Island Reds, Buff Orpingtons and White Leghorns—the five breeds most commonly shown at these fairs. These hints are intended for the inexperienced judge rather than for the qualified poultry judge, who is usually quite familiar with the finer points of judging such as are not here mentioned.

Barred Rocks.—To be pure these must have single combs, red ear-lobes and yellow legs and feet. Often Barred Rocks having rose combs are shown. Partially white lobes and white legs are also quite common at these shows. In detailed judging the chicken is taken up section by section, but for this work a general understanding of details will be quite sufficient. Looking at a flock of Barred Rocks the shade of color surface should be uniform in all sections. A bay bill and bright yellow legs and feet are preferred. Usually the bill has black streaks in it, and the legs or shanks usually have dark spots on them. In color the males are usually lighter than the females, but the standard calls for dark males and light females. The tendency is for the barring in males to "run out" or appear "washed out." In females it usually becomes "blurred" and "smoky." This is caused by the black bars becoming wider and running into the white. Both bars should be of equal width and run straight across the feathers in both males and females. The white and black bars should also be distinctly separate. The barring should run right down to the skin in all sections.

The judge must bear in mind that utility qualities must not be sacrificed for color. First should be considered the health, vigor and vitality; then the purity of breed, such as type of comb, color of ear-lobes and color of legs and

feet. Last of all come the color markings. It might also be pointed out that as yet the bred-to-lay Barred Rocks have not the perfected color markings that are found in the straight exhibition Barred Rocks.

White Wyandottes.—The most common defects in this breed are single comb, partially white ear-lobes and white legs. The breed, being solid in color, does not require much in the way of description. Not infrequently, however, there are found "brassy" birds, and birds with a touch of brown in their plumage. Sometimes, also, a trace of black is to be found.

Rhode Island Reds.—These may have either rose or single combs, but must have red ear-lobes and yellow legs. Partially white lobes and white legs are the most common indications of impure blood. Reds should have a uniform red surface color in all sections. Fifty-seven different varieties of shades and color is one of the weaknesses of this breed. Uniform red under color is also important. "Smut" or "slate" in the under color is a common defect. Black in the hackle or breast of the males is also a defect quite frequently seen. Black showing in the wing coverts or shoulders of males is objectionable. In the primary and secondary wing feathers of both males and females a streak of black is required. This should be located on the outer web next to the quill in the primaries, and on the inner web in the secondaries in both males and females.

Buff Orpingtons.—This breed has a single comb, red lobes and white legs and feet with a reddish tinge down the shanks. Variation from these indicate lack of purity. In color, they should be a lemon buff in all sections with a good buff undercolor. In males, there is a tendency for some wing feathers to be white or have a splash of white. Too much "peppering" or too many black specks in the wings and tail are not desired but are permissible.

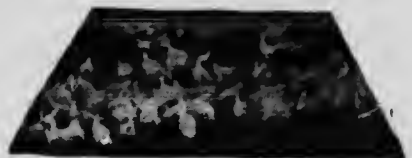
White Leghorns.—These may have either rose or single combs, but must have white ear-lobes and yellow legs and feet. Sometimes there is a trace of red in the lobes, which is allowable but not desirable. White legs indicate lack of purity. Any foreign color is objectionable in this breed.

For breed types the bulletin on "Common Breeds of Poultry," with its cuts of the breeds here mentioned, will probably convey a better idea than any word description might give.

All these breeds are to be clean legged, or free from feathers on their legs and feet. The judges should point out to the boys and girls what chickens should not be used for breeding purposes on account of not having the right kind of comb, lobes, or legs and feet. A good practice is to mark with a blue pencil on the entry tag any special defects, disqualifications or criticism of the chicken or the coop. There is nothing like publicity to make a boy or girl, or even an old exhibitor, take notice. Besides this, it serves as an education for the average visitor.

Poultry Record Card.—The poultry record card explains itself. This should be properly filled out before the day of the fair, if the work in connection with it is to be of any value. This record card is intended to teach the club members the need or the importance of keeping accurate records of any work done. Moreover, it should teach them to observe more closely the conditions under which the chickens are raised, and how these affect the dollar-and-cents side of poultry raising.

M. C. HERNER,
Professor of Poultry Husbandry,
Manitoba Agricultural College.



CONTEST NO. 4.

Grain Growing

Junior Canadian Seed Growers.

The one and five acre seed grain contests require greater ability on the part of the contestants than do the other contests. These are planned especially for bright, active boys who have been successful in other contests in previous years and are now willing to tackle a much larger undertaking.

General Rules.

1. The two contests shall be:
 - (a) The one acre contest.
 - (b) The five acre contest.
2. The size of the plot shall be:
 - (a) One acre.
 - (b) Five acres.
3. Only boys between 15 and 20 years of age will be accepted.
4. A least five contestants must enrol from the same club before the application will be accepted.

If five contestants must take the same kind of grain,—say, Marquis Wheat—but when these have enrolled a second group of five may take another kind of grain—say, oats or barley.

6. Members may supply their own seed, but in order that they may be registered as Junior Canadian Seed Growers, the seed must either be registered seed or seed approved by Professor T. J. Harrison, President of the Manitoba branch of the Canadian Seed Growers' Association.

7. The application form published on page 8 must be filled out and forwarded to the Club Manager who, if he is satisfied that the applicant is capable of complying with the conditions of the contest, will sign the application and send it to the Extension Service.

8. Provided applications are received before March 1st, sufficient registered seed to sow one acre will be sent, freight prepaid, to the nearest station, of each of the first 1,000 who apply at the following rates:

- 1½ Bushels Wheat @ \$1.30 per bushel.
- 2 Bushels Barley @ \$1.00 per bushel.
- 2 Bushels Oats @ 90 cts. per bushel.

Those taking the five acre competition can obtain sufficient grain for two acres at this rate.

To encourage team work, a group of five boys may obtain this grain on credit provided they give their joint note payable when the grain is threshed and bearing interest at the rate of eight per cent per annum for the following amounts:—

7½ Bushels Wheat	\$ 9.75
10 Bushels Oats	10.00
10 Bushels Barley	9.00

In case those taking the five acre competition wish to borrow money for their project, and it cannot be obtained from the local bank, they should write to the Extension Service, and a way will be found to finance the undertaking provided the boys are recommended by the Club Manager.

General Instructions.

Full instructions as to the right kind of land, method of culti-

vation, treatment of seed for smut, rouging, head selection, harvesting, etc., will be included in each sack of grain sent out.

Inspecting the Plots.

Where there are fewer than ten contestants, the Club Manager will arrange for local judges to inspect and judge the plots. If there are ten or more contestants in the acre competition, or five contestants in the five acre contest, the Extension Service will provide judges for the contest shortly before cutting.

Prizes.

Prizes may be offered.

1. For the best plots judged shortly before cutting.
2. For the best bushel of threshed grain and the neatest arranged sheaf, 3½ inch diameter, at the local Seed Grain Fair—November 20th to December 20th.
3. At the Provincial Seed Grain Fair—February 18th-23rd (in 1919); ascertain dates for 1920.

Toward the prizes for the best plots and the awards at local Seed Grain Fairs the Department of Agriculture will pay 66 2-3 per cent. of the amount actually paid out in cash prizes, provided there are not less than five contestants, and at the Provincial Seed Grain Fair the Department will pay all the prizes. Every member is eligible to compete in all three contests.

See page 13 for suggested prize list.

CONTEST NO. 5.

Home Garden

The United States has pledged itself to feed France and Italy. Canada must provide food for the British soldiers; hence anything that the boys and girls can do to grow food to take the place of wheat will be a contribution much greater than money would be. The home garden offers a splendid opportunity for all Club members to do something that is well worth while.

Garden seeds are now very scarce, and, consequently, much higher in price; hence each one should plant a half dozen each of carrots, beets, turnips and mangels, for next year's seed. Choose smooth vegetables with, so far as possible, straight, unbroken roots and tops that have not been cut off too closely.

To help the various clubs we have made arrangements with some of the largest seed houses in Canada for sufficient seed for the first 3,000 bona fide club members who make application for seeds.

As you will see by comparing the prices indicated here with those quoted in the seed catalogues, the Extension Service is paying considerably over half the price of the garden seeds, in addition to postage.

Size of Gardens.

For the Home Garden Competition the following sized gardens are recommended:

1. The square rod garden, or a plot 45 feet by 6 feet, 30x9, 27x10, or 15x18.
2. 1/32 acre, or a garden 34x40 feet, or 25x54 feet.
3. 1/16 acre, or a garden 40x68 feet, or 50x54 feet.
4. 1/8 acre or a garden 40x136 feet.

In garden 1 there may be two rows of potatoes. Garden 2 may be one-quarter potatoes. Garden 3 one-half potatoes. Garden 4 three-quarters potatoes.

Any vegetable that can be used on the home table may be grown.

Seeds for Garden No. 1.

For No. 1 Garden (Plot 15x18) seeds will be supplied as follows:

- | | |
|--|---|
| 2 rows Beans, Golden Wax 1/2 lb. | 2 rows Swede, Perfection 1/2 oz. |
| 2 rows Beet, Early Blood Turnip 1 oz. | 2 rows Peas, Western Beauty 1/2 lb. |
| 2 rows Carrots, Chantenay 1/2 oz. | 2 rows Parsnip, Hollow Crown 1/2 oz. |

The Extension Service will supply the above mentioned seeds for 40 cents.

Seeds for Garden No. 2.

For No. 2, 1/32 acre (Plot 34x40 feet):

- | | |
|--|--|
| 1 row Corn, Malakoff 4 ozs. | 3 rows Parsnip, Hollow Crown .. 1 oz. |
| 2 rows Beans, Golden Wax 1 lb. | 3 rows Beet, Early Blood Turnip 2 ozs. |
| 3 rows Peas, Western Beauty 1 1/2 lbs. | 3 rows Swede, Perfection 3/4 oz. |
| 3 rows Carrots, Chantenay 1 oz. | 2 rows Onion, Yellow Globe |
| | Danvers 1 oz. |

The Extension Service will supply this lot of seeds for \$1.00.

This order is to be mailed to the Agricultural Extension Service, Winnipeg, enclosing remittance to cover full amount.

MANITOBA BOYS' AND GIRLS' CLUBS.

Order Sheet for Eggs and Supplies for the Home Garden Contest
 School Club Name of Organizer.....

NAME OF MEMBER	Dozen Eggs at 40 cents per Dozen.	Seeds for Garden No. 1, 40 cents.	Seeds for Garden No. 2, \$1.00.	1/2 ounce Packets Carrots, 6 cents.	1/2 ounce Packets Beets, 6 cents.	1 ounce Packets Turnips, 10 cents.	4 ounce Packets Peas, 6 cents.	6 ounce Packets Beans, 8 cents.	12 ounce Packets Onion Sets, 9 cts.	1/4 ounce Packets Lettuce, 2 cents.	1/2 ounce Packets Parsnips, 3 cents.	Packets Onion Seeds, 5 cts.
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I hereby certify that those applying for seeds at reduced rates have promised to care for the garden in which the seeds are planted.
 Amount of money enclosed \$.....

Seeds to be sent to P. O. or Express Office
 Teacher or Secretary.

Above is the wording of the order form to use in sending to the Extension Service for Eggs or Garden Seeds.

For those who prefer to make their own selection, seeds will be supplied at the following rates:

Carrot Seed, ½ oz.	6 cents.	Onion Seeds, one packet	5 cents.
Beet Seed, ½ oz.	6 cents.	Onion Sets, 12 oz.	9 cents.
Peas, Early Variety, 4 oz.	6 cents.	Lettuce, ¼ oz.	2 cents.
Beans, 6 oz.	8 cents.	Parsnips, ½ oz.	3 cents.
Turnip, 1 oz.	10 cents.		

Seeds will be supplied only to Boys' and Girls' Club members who agree to plant them and take care of the garden during the entire season.

In ordering seeds, use the order sheet provided, and mail direct to the Extension Service, and the seeds will be forwarded by parcel post, provided sufficient money is sent to pay for the seeds in accordance with the quotations given here. For fifty cents and under, postage stamps may be used, but for larger amounts it will be better to use a postal note or P. O. money order.

It is planned to send out loose order sheets to each Club, but in case none are on hand the wording of the order form will be found on page 47. The prices quoted apply to 1918 only. They may be different in 1919.

Location of Garden

It is not always possible to obtain an ideal site, but in choosing one, try to have it conform to as many of the following requirements as possible:

1. It should slope toward the south or east, in order to benefit as much as possible from the sun's rays.
2. It should be sheltered from the north and west winds, by a clump of trees or shrubs, farm buildings, or even a close board fence. This helps to keep the moisture from being swept away by the winds, and permits the owner to work under more favorable conditions.
3. Trees or buildings should not be so close on the south or east side as to obstruct the sunlight or to rob the soil of either moisture or plant food.
4. The garden should be so located that the surplus water will drain off readily.
5. It will be of considerable advantage to have the garden near the house and water supply. It will also be free from intruders, and frequently many odd minutes will be spent in it when other work is not pressing. Time saved is money earned.

If a suitable location cannot be found near the house or even on the farm, the prospective gardener need not be deterred; other conditions may off-set most of the disadvantages and the greatest educational value comes from learning how to overcome adverse conditions.

Soil.

In general, cool moist soils are not as satisfactory for gardening purposes as are the sandy loam soils, but any soil except a very light, sandy or stiff clay soil, if reasonably well supplied with moisture, will grow good vegetables.

The reasons for choosing a medium sandy loam are:

1. It warms up earlier in the spring and the plants get an earlier start.
2. It is not as much subject to late spring and early autumn frosts, and the plants have a longer season.
3. It absorbs water readily.

4. It warms up more quickly after rains.
5. The soil is more easily worked.
6. Transplanting is performed more easily.
7. Manure is more readily applied and mixed with the soil and gives quicker returns.
8. Root crops are cleaner and usually more mature.

Cultivation.

If your site has been selected in the fall, so much the better. You can, during the fall, spread from three to four wagon loads of well rotted barn yard manure over an eighth of an acre, and plow to a depth of six inches before the manure becomes dry. The moist manure will mix more readily with the soil than if it were plowed down when dry. The ground should be thoroughly harrowed (1) to conserve or save up moisture, (2) to permit the fall rains to soak in, and (3) to start all weeds growing.

If you have not had a chance to plow the land in the fall, apply two or three wagon loads of well rotted manure, in the spring, as soon as the frost is out, plow about six inches deep, and work the manure well into the soil by harrowing or discing and harrowing.

Fall plowing is better than spring plowing because—

1. The frost breaks down the soil particles.
2. The soil takes up more moisture from the fall rains and snow. This moisture is stored to a depth of four or five feet and during the summer works up to the plant, much as coal oil works up through the wick in the lamp.
3. The plowed land can be cultivated earlier in the spring, thus giving more weeds a chance to germinate and be destroyed.
4. Spring plowing works up more or less lumpy, and, unless carefully handled, will increase the amount of work necessary in getting a good seed bed.

Garden seeds, being very small, require a good seed bed. A little extra work in preparing the seed bed will save considerable work later on. The land should be harrowed two or three times a week until the seeds are planted. Harrowing conserves the moisture, loosens up the soil and lets air in to warm it up, improves the seed bed and kills a large number of weeds. The soil, however, should not be worked when in a wet condition, as it has a tendency to harden in lumps, making further cultivation more difficult.

The operations of many Club members, especially in the towns and villages, will be confined to back yards, and it will not be possible to make use of the plow and harrow; consequently the work has to be done either with the spade or spading fork, and will require to be done systematically in order to save time. As each shovelful is taken out, it is inverted and the clods crushed with the back of the spade. When six or seven rows have been turned over, they should be raked and all the large lumps broken before they harden.

Testing the Seeds.

The wide-awake gardener always sees to it that his seeds are on hand early so that he will have plenty of time to test their vitality or power to grow. Possibly the simplest plan to follow is to take two pieces of cloth or blotting paper, place one piece in a shallow plate and spread on it 25 seeds, cover this with the other piece and dampen them. Cover with another plate and set away

carefully in a warm place for a week. Be sure to add a little water each day, for if the seeds become dry while testing, the test cannot be depended upon. Count the seeds that germinate. This exercise will prove a good problem in percentage. Good seed should germinate a percentage of from eighty to ninety.

Quantity to Plant.

In connection with planting, remember these facts:—

1. The earlier the seed is sown, the greater is the quantity of seed required.
2. Clayey soils require more seed than sandy loam, as the seedling has greater difficulty in breaking through the crust on the surface.
3. The percentage of seeds that will germinate, as indicated by your test.
4. If insect pests are usually troublesome in your locality, a greater quantity of seed should be sown.

Seed Beds.

Do not raise the seed bed above the common level unless it needs drainage. The raised seed beds permit the soil to dry out, which is very undesirable, especially during the hot months when vegetables grow rapidly and need plenty of moisture.

Length and Width of Rows.

In planning a garden the scarcity of labor should be considered and a plot chosen where a horse can do all the heavy work. If a horse is to be used, the rows should be from 30 to 36 inches apart. Where a hand or wheel cultivator is used, the rows should be about 18 inches apart, and where the hoe and rake are to be used, the rows can be still closer. Occasionally in very small gardens it will be found of advantage to make seed beds about five feet wide with the rows eight or nine inches apart and running crosswise.



Fig. 11.—If possible, plan your garden so that the cultivation can be done by horse power. This reduces the work to the minimum.

Make a Plan for your Garden.

Drafting the plan of your garden would be a good exercise in drawing. If this plan is made before the snow is off the ground, you will know how much of the different kinds of seeds to buy, and will be spared considerable planning in the spring, when everyone is busy.

Depth of Sowing.

Generally speaking, the larger seeds are planted deeper than the smaller ones. In sandy loam, the seeds can be planted deeper than in clayey soils. If the weather is particularly warm, the seeds should be planted deeper.

Grouping.

Potatoes, beets, turnips, carrots, peas, and parsnips, can be grouped together in one part of the garden. They are planted in rows about the same distance apart, at the same time, and require similar cultivation. Where the rows are over one hundred feet in length, the horse cultivator can be used and will save a lot of hard work. For this reason, the row should run the long way of the piece. If one row of any vegetable, such as turnips, is more than is required for the needs of the home, two or even three different kinds of vegetable can be planted in different portions of the same row.

Planting the Seeds in the Small Garden.

As soon as the weather is warm enough to commence planting, prepare a number of stakes which will serve the double purpose of indicating where the rows are and what has been sown in them. Stake out the plot and carefully rake the surface level with a hand



Fig. 12.—Garden Hand Drill with Attachment for Sowing, Hoeing, Cultivating and Hilling.

rake. Then stretch a line the whole length of the garden and make a nice straight furrow by following along the line. The seed can be dropped by hand at the required intervals along this furrow and covered before the soil has had time to dry out. The soil should be firmly pressed down so that the moist earth will be packed closely around the seed to hasten the germination.

PRICE OF HAND SEED DRILL.—The Garden Hand Drill shown on page 51 costs \$18.50, Winnipeg price. A very satisfactory combined hill and drill seeder, wheel hoe, cultivator and plow (for hand use) can be bought for \$15.50, Winnipeg price. The Extension Service, Parliament Buildings, Winnipeg, will attend to any orders sent them.

Get a Co-operative Hand Drill.

Where there are six or seven in a Club, it will not cost each one very much if they will join together and purchase a good hand drill, such as the one shown on page 51. (See page 51 regarding prices).



Fig. 13.—Horse Cultivator for use in Gardens where Vegetables are planted in long rows.

A drill is required by one person only for a day or two, and then is not used for the rest of the year. This is the proper place to learn how to co-operate, for the one drill will serve three or four boys as well as one. It saves a great deal of time, as it opens the furrow, drops the seeds, covers them, presses

down the soil and marks the next row at one operation.

Thinning the Plants.

A weed has been spoken of as a plant out of place. Perfectly good plants, if too thick, are as bad as weeds. However, it is safer to sow too many than too few seeds, and then thin them out afterward.

SPECIAL INSTRUCTION FOR INDIVIDUAL CROPS.

Potatoes.

The boy or girl who undertakes to look after one sixteenth of an acre of potatoes has an opportunity of making some money, as well as getting some healthful outdoor exercise. He may, by selecting a uniform sample of a good variety, planting the "seed" in good soil, and looking after the plot carefully during the summer, produce the best potatoes in the district.

Selecting the "Seed."—The Department of Agriculture will supply 10 pounds of choice "seed" on condition that the contestant secures another half bushel either from his father or some farmer whom he knows has good "seed." This offer is extended to new clubs only.

If possible, the "seed" should be purchased when the potato crop is being harvested. This will afford an opportunity of choosing healthy, well shaped potatoes from the part of the row where the potatoes are largest and most numerous. Usually the medium sized "seed," oval and slightly flattened with shallow eyes well distributed over the potato, will prove most suitable.

Treating for Scab.—Occasionally potatoes are affected with either dry rot or scab, and it will be safer to treat with a formalin solution. Soak the uncut potatoes for three hours in a solution made of one-eighth pound of formalin to five gallons of water.

Cutting "Seed" Potatoes.—The best size of "seed" pieces for cuttings is a question that has not been definitely settled. When "seed" potatoes are very high in price, it usually pays to make the smaller cuttings. Two good eyes to the seed piece, or good sized potatoes cut into fourths, divided according to location of eyes, are the general rules to follow under ordinary conditions.

Planting the Potatoes.—The easiest method to follow on the eighth or quarter acre plot is to use the ordinary plow and drop the sets in every third furrow close up against the perpendicular edge, so that the horse will not tramp on them in passing up the furrow. Each furrow should be eleven or twelve inches wide and four inches deep. The sets should be placed from twelve to fourteen inches apart. With the sixteenth acre garden, the potatoes will be better planted in hills 24 to 30 inches apart. They should be in rows so that the hand cultivator can be used.

Cultivation of Potatoes.—The principal part of the cultivation should be done before the potatoes are planted, but cultivation should be kept up throughout the summer. It will not be necessary to cultivate very deeply, simply enough to keep down the weeds, keep the soil mellow and free from crust, and form a mulch on the top to conserve or save the moisture.

It is not necessary to hill or ridge up the potatoes. A little hilling to cover any potatoes that may be near the surface is all right, but regular cultivation to conserve the moisture and destroy weeds is much more important and serves the same purpose as does hilling.

Spraying Potatoes.—If the potato beetle becomes troublesome, spray with one of the following materials used according to directions:

PARIS GREEN

Paris Green	½ lb.
Fresh Lime	1 lb.
Water	25 gallons

Make a thin paste with the Paris green by using a small quantity of water in a vessel. When all the lumps of Paris Green have been broken up, pour the paste into the spray tank or barrel and thoroughly agitate to secure a uniform mixture. When using any spray solution, it is well to keep the liquid well agitated so as to get the poison evenly distributed.

ARSENATE OF LEAD IN PASTE OR POWDERED FORM.

Powder.—If the powdered form of arsenate of lead is used, stir the required quantity into a vessel with a gallon of water. This material is very easily dissolved and for this reason is preferable to the paste form. When the powder has been dissolved, make up to the required amount with water.

Powdered Arsenate of Lead	1½ to 2 lbs.
Water	40 gallons.

Paste.—Put the arsenate of lead in a vessel with a small amount of hot water, say one gallon. Stir with a paddle until the paste has been completely dissolved, and, when solution has taken place, make up to the required quantity with water.

Paste Arsenate of Lead	3 lb.
Water	40 gallons.

For small plots the ordinary sprinkler will be satisfactory. Spray the potatoes on the morning of a bright sunny day.

Preparing the Potato Exhibit.—The following plan for preparing a half bushel of potatoes for the school fair was prepared by O. H. Benson, of Washington, D. C., and is well worth careful consideration:

"Make a study of pictures showing the type of potatoes that you are growing. Go through the field and select the hills that have vigorous, medium growth plants, and turn these hills out, very carefully, with a fork. Select all potatoes that appear true to type and take them home for study. Do not allow them to sunburn. Place the potatoes on a table and select one that you believe true to type. Weigh it and measure it both ways, and then proceed to select, weighing and measuring each potato selected, to be sure that it is a near duplicate of the first one selected. You have now selected for size and shape. Remove every particle of dirt from each potato and reject all that show injuries, bruises, or diseased skin. Then reject all that are darker or lighter in color than the type potato. Select from the remaining potatoes those that have a medium number of well-distributed, shallow eyes.

"Secure a box that will hold the exhibit in a single layer. Pad the bottom with soft paper and wrap the lower half of each potato in tissue paper, and pack this carefully away from the light. Deliver your exhibit early and secure for it a place that will show it to advantage."

Beans.

The bean plant is very tender and easily injured by frost, consequently, the seed should not be sown before the first week in June. Plant in rows 36 inches apart, or 24 inches apart in the small garden. The seed should be planted two inches deep and one and a half apart. Cultivate as soon as the beans push through the soil and continue throughout the season in order to keep down the weeds and conserve moisture. Gather the pods before they become tough and stringy. A good rule to follow is to pick the pods when they will snap easily; they are then in the best condition for canning or cooking. The green pods of the bean plants are among the most nutritious foods, and a sufficient quantity should be canned to last throughout the year.

Beets.

The Beet is easily and successfully raised in all parts of Canada and is a very desirable vegetable for table use and will afford splendid material for canning. Sow the seeds between May 1st and May 12th in rows 24 inches apart in the small gardens or 36 inches apart where the horse cultivator is to be used.

Commence cultivating as soon as the plants appear through the soil. When from four to six inches high, thin to three inches apart. Harvest early in October or just before the severe fall frosts arrive. Beets have a tendency to "bleed" if they receive rough handling. Instead of cutting the tops off with a knife, take the beet in one hand and with the other twist off the top. Those intended for summer use, should be either canned or pickled. The others may be stored in a cool cellar much the same as potatoes.

Peas.

Peas are not easily damaged by frost and can be sown as soon as the soil is in condition. They should be planted about two inches deep in rows 36 inches apart if the horse cultivator is to be used.

Peas furnish splendid material for canning and each pupil should plan to can at least two dozen one pint jars.

Cabbage.

Owing to the shortness of the season in Manitoba, cabbage, cauliflower and tomatoes must be started in the hot bed or in boxes in the house about the second week of April and transplanted to the garden in the latter part of May or first week of June.

Growing Cabbage Seedlings.—Sow cabbage seed in the hot bed or in boxes in the house about the second week of April. Sow the seed in rows in the hot bed 6 inches apart and about $\frac{3}{4}$ inch deep. If a hot bed is not available, get a box about 24 inches square and 4 inches deep. Fill with good soil worked down fine, plant the seed in rows 6 inches apart and $\frac{3}{4}$ inch deep and cover carefully with soil. Keep the soil moist, giving it a little water every day and place the box where as much light as possible will strike it. Keep in a warm place out of danger of frost and do not allow cool frosty draughts to strike the plants, as these will seriously check the growth.

Transplanting.—When about 3 to 4 inches high, thin the plants to about 2 inches apart by transplanting some of the plants to another box. This operation, if carefully done, will check the plants but very little. Have the soil in a good moist condition when transplanting so that the earth will cling to the roots.

Hardening.—About the 10th of May place the boxes containing the plants outside for about 4 hours in the warm part of the day, but care must be exercised and the plants only put out days when there is no danger of frost. If a hot bed is used, remove the windows and allow the air to circulate freely. This is called the hardening process and is continued until the plants are removed to the garden. The period of hardening requires ten days to two weeks. Plants so hardened will grow faster when planted out into the garden plots.

Setting out the Plants.—Transplant to the garden about the 24th of May. The transplanting should be done in the evening or on a dull day. The plants should be 30 inches apart in the row and the rows 36 inches apart.

Harvesting Cabbages.—The cabbage will stand considerable frost, but it should be stored before it is damaged in any way by frost. Prepare cabbage for storage by pulling up from the soil; remove the large outer leaves and the soil from the roots. Leave the larger part of the root on and hang up to the ceiling by the roots, the head hanging down. Keep the heads from touching one another and keep the cellar cool. Cabbage so stored will keep

a considerable time. Should any of the heads commence to rot, remove from the cellar at once.

NOTE:—The cabbage may also be canned or pickled.—(See Canning section.)

Insect Pests of the Cabbage.—If the cabbage worm is prevalent, spray the infested plants with either Arsenate of lead or Paris green, used according to directions given for controlling the potato beetle on page 53. When the heads are nearing maturity use hellebore, 1 oz. to 2 gals. of water, or apply it in the dry form as a dust.

Cauliflower.

Cauliflower is handled in the same manner as cabbage. This vegetable is very desirable for boiling and pickling. It is rather harder to store over winter than cabbage, hence is either canned or pickled for winter use. (See Canning section.)

Garden Care.—Handle in the same way as cabbage, except that when the heads are about three quarters grown the leaves are tied loosely together at the top with binder twine in order to bleach the head.

Storing.—If Cauliflower is to be stored for a while in the cellar, it should be removed from the garden early, as cauliflower spoils very readily if left exposed to the fall rains.

Insects.—If worms bother the heads, use hellebore the same as for cabbage.

Carrots.

Carrots are grown and handled much the same as beets.

Sowing.—Sow about May 12th in rows 36 inches apart on well prepared soil. Sow the seed fairly thickly about one inch deep. Carrot seed is very fine and if sown too deeply will rot in the ground.

Cultivation.—Commence cultivating as soon as plants appear above the ground. When 4 inches high, thin to about 2 inches apart. Keep free of weeds.

Harvesting.—Harvest before they become damaged by heavy frosts. Harvest along with the potatoes. In removing the tops, clip with a knife in such a manner as will not injure the carrot.

Storing.—They can be stored in the cellar, the same as potatoes, if the cellar is cool enough and a considerable number are placed in a box. Those for spring use can be placed in an outside pit along with potatoes or turnips. If an outside root house is available, store them in it.

Parsnips.

Handle the same as carrots. Sow about May 12th in rows 24 inches apart and sow seed 1 inch deep. Thin when about 4 inches high to 3 inches apart. Store in a root cellar, in a pit or along with carrots and potatoes in the house cellar if cool enough.

Part of the parsnips can be left in the ground over winter if protected with some straw and removed for spring use before

growth commences. They keep well this way, but are not fit for human food after they commence to grow.

Onions from Seed.

Onions are good winter keepers and with a little care can be easily grown.

Sowing.—Sow one inch deep in rows 18 to 24 inches apart about May 12th. After covering the seed with earth, pack it firmly by tramping with the feet. After packing, rake a little loose earth over the row to prevent the soil baking.

Summer care.—Keep the plot cultivated and free of weeds. When about 3 inches above ground, thin the plants out to 3 inches apart.

Harvesting.—When nearly full grown, which is about August 28th, break over the tops before pulling. Pull the onions, laying them in neat rows in the field until the tops have become thoroughly dry. When dry, remove the top about $\frac{3}{4}$ of an inch above the onion, using a sharp knife. Do not remove the outer skin of the onion, if possible to avoid doing so.

Storing.—Place in boxes and store in a cool, dry part of the cellar. Onions keep well if dry and cool. If too warm, they grow readily in the cellar.

Insects.—If cutworms bother, use Poisoned Bran Mash scattered along the rows at night. See page 59 for particulars.

Tomatoes.

Tomatoes belong to a class of crops known as the warm season crops; hence it is necessary to start the plants in a hotbed if ripe fruit is required. Sow the seed in hotbeds or in "flats" (that is, shallow boxes in the window) from March 15th to April 1st, in rows three to four inches apart and cover one-half inch deep. When the young plants have put forth the second pair of leaves they should be pricked out and spaced $2\frac{1}{2}$ x 2 inches apart in flats, or in other parts of hotbed. In from three to four weeks these plants should be transplanted again and spaced 4 x 4 inches, or they may be put separately in berry boxes and grown in these until planting time. Large, strong stocky plants should be selected for planting in the open as such plants will produce more and better fruit than the smaller specimens. Set the plants 4 x 4 feet each way as soon as all danger of frost is over, being sure to put the tomato patch in a sunny place. The first week in June is a very good time to set tomato plants. Cultivate and hoe the plants at least once a week until the vines become large enough to interfere with these operations. About August 15th the ends of the main stems should be cut or pinched back eight to ten inches to induce a better setting of fruit.

Some gardeners claim that larger and firmer fruit can be obtained by pruning the plants to one or two stems and tying these to a stake. The particular advantages claimed for this method are

that the fruit, in addition to being larger, will ripen earlier, and be cleaner and less liable to disease. If this method is adopted, the plants may be set in rows three feet apart, and sixteen to eighteen inches apart in the row. As soon as the plants become large enough they should be pruned to one or two main stems and tied to stakes by raffia or ordinary strings. The tie should be placed underneath a leaf stalk so as to afford greater support to the plant. Four or five ties will usually be found sufficient for each plant. Side shoots which appear in the axils of the leaves (that is the angle just above the junction of the leaf stem and main stem) should be pinched out, and, when the plants have grown about three to three and one-half feet high, the tops should be pinched off to induce greater fruitfulness. About four or five fruit clusters should be left on each plant and six to eight of the best shaped fruits left in each cluster.

As the individual fruits ripen they should be picked from the plants. If wanted for market or for indoor ripening a small part of the stem is left on the fruit. The season for tomatoes may be prolonged for some time by pulling the plant before heavy frosts come and hanging it in a dry, frost-proof, well-ventilated shed or room. The fruits on the plant will continue to ripen for some time if treated in this way. The larger, unripened tomatoes will ripen very well if picked off before heavy frosts come and placed in a warm, sunny position.

Cucumbers.

Large quantities of cucumbers are grown each year for pickling purposes in some sections of Manitoba. The ideal garden soil, that is, a warm, rich, sandy loam, is one of the best for this crop. Sow the seeds two to three inches apart in rows six feet apart, in well-prepared soil, from May 24th to June 5th, and, when the third leaf appears, thin to eight or twelve inches apart.

Cucumbers may be grown in hills four to five feet apart each way. Some prefer to fertilize the hill with a large forkful of well-rotted barnyard manure placed in the bottom of the hill. If the soil has been heavily manured beforehand, this may not be necessary. Sow eight to ten seeds in each hill, and, when these have nicely started to grow, thin them, leaving four strong plants to each hill. If very early cucumbers are desired, these may be secured by growing the plants in boxes in a hotbed. Sow six to eight seeds in each box, about April 15th, give careful attention, and, when the plants have grown two inches high, thin out, leaving two of the strongest plants. These plants should be carefully transplanted to a warm sunny spot in the garden about June 1st. The plantation should be carefully and thoroughly cultivated so as not to disturb the vines when they begin to run. In the early stages of the plants' growth a horse scuffler may be used and the spaces between the plants should be hoed by hand.

Picking.—The crop will usually be ready to pick about August 1st. For pickling purposes the cucumbers should be picked when they are about three to four inches long, but for slicing they

should be allowed to grow larger. Care should be taken to pick all cucumbers before they become ripe: if allowed to ripen they greatly weaken the plant and lessen its productiveness. The patch should be gone over every four or five days, or twice a week if necessary. When picking, leave about one-quarter of an inch of stem on the fruit.

Radishes—Lettuce—Cress.

These are easily grown and require about the same cultivation and soil preparation, hence are grouped under the one head.

Sow in rows 24 inches apart and one inch deep. It is best to sow at two or three different periods to make the crop last over a period of at least two months. Dates of sowing May 12th, May 24th and June 10th.

CONTROL OF CUTWORMS.

As a result of numerous experiments that have been carried out by Mr. E. H. Strickland, M. Sc., of the Dominion Entomological Branch, it has been found that the most reliable poisoned bait mixture for prairie conditions is the following:—

• Shorts	50 lbs.
Paris green	1 "
Molasses	1 gall.
Water	1½

Shorts are preferable to bran for prairie conditions, because no bait can be kept moist when applied to the soil, and cutworms will eat dry shorts when they refuse dry bran. In damp localities and seasons when the soil is moist, the shorts can be replaced with an equal weight of bran in which case three gallons of water should be used instead of one-and-a-half gallons. In all cases, however, shorts give somewhat better results than bran. Crude beet molasses give



Fig. 14.—Enlarged picture of Cutworm
The full grown cutworm is about 1½ inches long.

the best results. It is suggested that arrangements be made with a storekeeper at each town in infested districts to keep a barrel of this extremely cheap and valuable material on hand.

Preparation:—Thoroughly mix the shorts and paris green while dry. Care must be taken not to allow more of the paris green dust to be breathed than is absolutely unavoidable, when making this mixture, for it is a violent poison. A handkerchief tied over the mouth will lessen any danger from this source.

Stir the molasses into the water and add the solution slowly to the shorts and paris green, thoroughly mixing with the hands at the time to prevent lumps forming.

Application.—Apply to infested areas, and for a few feet beyond, at the rate of fifty pounds of shorts per acre, preferably in the late afternoon.

When the soil is very dry, it is essential that the ground be lightly harrowed or stirred after the bait has been applied, as the cutworms feed almost exclusively below ground under these conditions and a surface application of poisoned bait is nearly all wasted.

Harrowing is not necessary when the soil is moist.

* Adapted from Circular No. 6, Dominion Entomological Branch.

CONTEST NO. 6.—COOKERY.

Bread Making

That bread is the staff of life was never truer than today, when it is the greatest need of all the warring nations, and, owing to the necessity of a smaller percentage of white flour being used, greater attention is required on the part of those whose duty it is to look after this very important part of household work.

To encourage the girls (and the boys too) to practice bread making, the four big milling companies with headquarters in Winnipeg—The Ogilvie, Maple Leaf, Western Canada, and Lake of the Woods companies—have very generously donated \$300 to be competed for by Manitoba's prospective home makers, and we venture to say that the bread competition at the Provincial Soil Products Exhibition next year will be the biggest event of its kind ever held anywhere, for there will be not less than four hundred contestants.

The contest is intended to encourage team work as well as skill in cooking; consequently the competition unit will be two instead of one, as is usually the case.

Value of the Prizes.

The nominal value of the prizes is \$300, but the actual value will be much greater, as the prizes will be purchased at wholesale rates.



Fig. 15.—There is a great deal of difference in Bread.

These prizes will be a source of pride and satisfaction for many years. In all, forty prizes will be offered, and each pair will range in value from \$25 to \$6, and will include such articles as gold filled 10 jewelled watches, mantle clocks 3A Brownie and Ansco cameras,

etc. In addition, each winner will be presented with a beautifully engrossed diploma of honor and achievement.

Contest Rules.

1. Two members between the ages of 12 and 19 shall constitute the "team".
2. These two will be the two who secure the highest standing at the local Boys' and Girls' Club fair.
3. In the case of large clubs where there will be more than two contestants, such club may enter one team for each ten who enter in this contest at the fair.
4. Each contestant exhibiting bread at the local Boys' and Girls' Club fair is expected to have baked bread at least six times during the year.
5. The two winners at the local fair are expected to bake at least twenty loaves between the date when the local fairs are held and the date when the Provincial Contest takes place at Winnipeg, February 20, 1919.
6. The final contest loaves should be baked in a pan about 3"x4"x8", and to prevent the contestant from adverse criticism must be baked in the presence of a responsible person appointed by the School Inspector for the district in which the club is held.
7. The loaves for the Provincial Contest are to be baked on February 18, and sent by Express, charges collect, to the Extension Service, Winnipeg, so as to reach their destination not later than the evening of February 19.
8. The judges will be cookery experts employed by the four milling companies donating the prizes in co-operation with the Extension Service cookery demonstrator.
9. Each contestant is required to use flour of any one of these four milling firms, and shall enclose in a sealed envelope the name of the company which manufactured the flour from which the bread was made. These envelopes will not be opened by the judges until the judging is completed.
10. In a separate envelope the following Record Card must be enclosed.

Name..... Age..... Club.....
 Address

Number of loaves baked between Feb. 18 and Sept. 1, 1918.....
 Number baked between Sept. 20, 1918, and Feb. 18, 1919.....
 Number of loaves in the batch of bread from which the contest loaf was selected.....

Time required:

For mixing For first kneading
 For first rising For second kneading
 For second rising For baking

Time required for the entire process.....
 Signed.....

I hereby certify that..... baked the loaf of bread entered for competition in my presence and that she did all the work connected with it herself.

(Name).....
 (Occupation)

How to Make Bread.

Manitoba is justly proud of its breadmakers, and most of the contestants can get first hand instructions from their parents. A large number, no doubt, will wish to experiment with other methods, and one which has given very good satisfaction is given here:

(*) The best results in bread-making demand the best materials and care, and, above all, regard for the correct temperature, as yeast plants grow well at from 75 to 95 degrees F., or warm room temperature, but are killed by temperatures of 110 degrees or more. They grow more rapidly as the tem-

(*) The instructions given here are reproduced from the Minnesota bulletin, "The Bread-Making Contest."

perature rises, up to 95 degrees F. Therefore, the best temperature, because it shortens the whole process, is from 90 to 95 degrees F. These facts explain why it is desirable to keep the bread warm but not too warm, and why bread kept warm rises more rapidly and thus shortens the bread-making process. They also explain why a thermometer should be used, and why better results are often obtained in summer when the air is naturally about the right temperature.

The Short Process.—Bread may be made by the short process in from 4 to 6 hours. Compressed yeast must be used in this case, as the bread is to be hurried as fast as possible, and time cannot be taken to start the dry yeast in a soft batter.

Proportions for 1 Loaf.

Milk, $\frac{1}{2}$ c.	Salt, 1 tsp.
Water, $\frac{1}{2}$ c.	Sugar, 2 tsps.
Flour, $3\frac{1}{2}$ c.	Fat, 1 tsp.
Compressed yeast, $\frac{1}{2}$ cake	

Scald the milk, and cool to 95 degrees F. Heat the water to 95 degrees F. Pour one-fourth of the liquid (95 degrees F.) over the yeast cake to soften it and the remainder over the salt, sugar, and butter, in a mixing bowl or pan. If a heavy earthen mixing bowl is used, warm it first with hot water until heated through, that it may not chill the bread. Then add the yeast and enough flour, mixing thoroughly, to make a dough that can be handled on the mixing-board. Knead until the dough is elastic and does not stick to the board or hands. With a little practise, this can be done in five minutes.

The object of this first kneading is (1) to mix the ingredients thoroughly, and (2) to bring the sticky substance in the flour, known as gluten, into a smooth, elastic condition and distribute it evenly throughout the dough. Just as soon as this condition is obtained, additional kneading is of no use, except possibly to whiten the bread, and is an expenditure of time and energy which can well be saved.

Place in a well-oiled bowl or pan and set the pan in warm (100 degrees F.) water. It is, of course, very desirable to use a thermometer, and a good one can be purchased for \$1, but if one does not have it, the water can be kept a little more than lukewarm, and tested by the hand. Water just comfortably warm for washing the hands or dishes is about 100 degrees F. It may be kept warm by adding a little hot water frequently, or by standing the bowl in its water bath, on the radiator or reservoir, providing these are not too hot. Warm water is more satisfactory than a warm place because an even temperature is more easily secured. Cover with a clean towel.

Allow the bread to rise until doubled in bulk. When light, turn onto the board, knead lightly, and form into a loaf. Very little, if any, flour should be required at this stage. The second kneading is for the purpose of evenly distributing the gas throughout the mass, and getting the dough into shape for the pan. Three to five minutes of deft, light working should accomplish this.

Place the loaf in an oiled pan, 3x4x8 inches, or equivalent, in size. If the pan does not leak it may be put into warm water again, but otherwise the loaf must be kept warm by some other method, always taking care that it does not become hot on the bottom, as this will kill the yeast in the bottom of the pan and there will be a heavy, dark layer on the bottom of the loaf. Always keep the bread covered with a clean towel while rising. When the loaf is light, place it in a moderate oven. For the first ten minutes, the bread should continue to rise and in fifteen minutes should have begun to brown slowly. Keep the oven temperature very moderate and allow the loaf to bake from 45 minutes to one hour. Remove the bread from the pan as soon as done, and allow to cool in the air, lightly covered with a towel.

Bread made by this process is perfectly satisfactory. The method is most desirable, because of the saving in time.

If compressed yeast cannot be obtained at the local stores, it can be ordered from any of the large grocery houses in Winnipeg.

Club
Class

Judging Bread.

		The Score Card		
		Points		Points
General Appearance		20	Lightness	15
Size (5)			Crumb	30
Shape (5)			Character (20)	
Crust (10)			Color (5)	
Flavor		35	Grain—Distribution	
Total		100	of Gas (5)	
Story				
Standing				

Explanation of Score Card.

General appearance is placed first simply because it comes first in the order of impressions which the loaf makes upon the eye. Moreover, in judging a loaf one cuts it and may thereby destroy its shape.

Crust.—The color and character of the crust enter into the general appearance and are, therefore, grouped with it. The characteristics of a good crust may be summarized as follows: Brightness of bloom or color, crispness, cracked, pliable, smooth feel (coarse, grainy crust means bad molding).

Flavor.—In all the early work with bread it seemed most desirable to emphasize flavor because there was so much bread that looked very well and yet was really sour both in odor and to the taste. Moreover, emphasis should be put upon flavor in all foods. Any bread that is conspicuously "off" in flavor would be called, in the language of a teacher, "below passing," or unworthy of further consideration. Flavor is made up of the two elements, odor and taste. A well-trained nose will detect in the freshly cut loaf the lack of flavor or the approach to sourness before it can be detected by taste.

The degree of fermentation, the quality and condition of the flour, and the amount and character of the added substances all modify flavor, but the ideal is the flavor obtained by chewing the wheat grain.

Lightness.—This is a quality best shown in the loaf, though made up of many elements. It is often judged by size, apparent weight, the presence or absence of holes, and the tendency to crumble. These points enter into the judgment of lightness. Possibly the volume per pound of flour used would be more correct, but it is not easy for the home-maker to determine volume.

Crumb.—A very large part of the value of a loaf of bread is determined by the condition of the crumb. The points in judging the crumb have been given in detail in order to avoid confusion regarding the term texture, and in order to make plain the elements that enter into the formation of texture. The Book of Bread gives the following definition for it: "Texture can be defined as being the disposition or connection of interwoven threads or fibers," and describes it by saying, "A loaf, to be of good texture, must not only be of fine and regular mesh, but also of soft, pliable, and springy crumb; that is, not coarse to look at, nor hard or unyielding to the thumb when pressed, nor yielding too much."

If a thin slice of bread be looked at by placing it between the observer and the light, the mesh and the distribution of the gluten walls can be seen easily.

Grain.—There is a very general agreement that by grain is meant the distribution of the gas cavities, also their size and number. This, too, may be seen in the thin slice when examining texture.

Elasticity is perhaps best shown in the half loaf by pressing the cut edges together to see whether they resume the original position when the pressure is removed.

CONTEST NO. 7.

Sewing

On account of the instructions in sewing being extensive enough to make a good sized bulletin, they are not included here, but will be sent to the various schools as soon as a list of the Club members has been received.

Before learning to operate a sewing machine, it is very necessary that Club members be able to do good work by hand; hence all the articles listed on page 14 between section 37 and section 41 (inclusive) should be made by hand. In all the other sections a sewing machine may be used wherever it will save time.

It is suggested that even a larger number of Red Cross articles be included than are mentioned on page 14, as the need for these articles is great. We would like to see every girl (and many boys also) make something for our soldiers.

CONTEST NO. 8.

Canning

Canning appeals to old and young because it provides a practical method of saving the perishable food products of the country at a time when every ounce of food is needed. Owing to so many of the boys manfully taking the places of older brothers who have gone to fight the battles of the nation, the responsibility of saving the greatly increased yield of vegetables which will be grown in response to the persistent appeal for more food will fall on the shoulders of the girls and women in their own homes. Apart from the educational value of this work, the national call is sufficient to enlist the aid of every girl in Manitoba from fourteen to twenty.

The Cold Pack Method.

The cold pack method of canning has been most largely followed in connection with the Boys' and Girls' Clubs. So successful has it been that from one end of the continent to the other it has come, within two or three years, to be the universal method for canning all kinds of perishable food products.

What is meant by the Cold Pack Method of canning? It simply means packing the product uncooked into jars or cans, closing the jars and cooking or sterilizing the food in the jar.

The Need for Canning.

Most of us do not eat enough vegetables during the winter because they are expensive, yet in the summer tons of vegetables go to waste which could be canned easily and cheaply; and think of the comfort of knowing that in case of emergency there are choice cans of vegetables, greens, fruits and chicken carefully stored away on

our shelves in the cellar. Our climate limits to a considerable extent the variety of vegetables which we can grow with advantage, hence the suggestions given here refer more particularly to the products grown in Manitoba, such as carrots, beets, peas, beans, cauliflower, chicken, turkey and beef.

As very few boys and girls will have special canning outfits, the instructions given here take it for granted that a deep stew kettle or a wash boiler will be used.

Equipment Needed.

1. A wash boiler or a deep stew kettle (Fig. 16).
2. A false bottom or rack (Fig. 16), which permits the water to circulate freely around and under the jars and keeps them from coming in contact with the metal. A better form of rack is shown in Fig. 17. By means of the wires

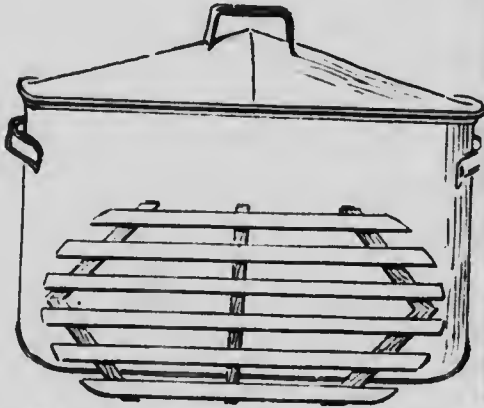


Fig. 16.—The clothes boiler as a sterilizer. The false bottom which is used as a rack is shown standing alongside the boiler.



Fig. 17.—This shows a better form of rack than that leaning against the boiler in Figure 16. The bent wires help greatly in lifting the rack out of the boiler.

the jars can be raised out of the water when the sterilizing is completed. Note that the wire ball is in two sections. The top of the lower section hooks over the side of the boiler when it is raised high enough.

3. Suitable jars. Almost any of the commercial jars on the market will prove satisfactory if they can be perfectly sealed. The wide mouthed jars, however, will prove most convenient.

4. Plenty of good elastic rubbers. Rubbers cannot be used a second time.

5. A couple of deep dishes for blanching and the cold dipping process.

6. A wire basket or a couple of yards of cheese cloth to hold the product when it is blanched and cold dipped.

7. Wiping cloths, towels, etc.

8. Plenty of clean hot and cold water.

9. Two table spoons, and sharp paring knives.



WASH·CLEAN
Fig. 18.



SNIP·ENDS·AND·STRING
Fig. 19.



BLANCH·IN·HOT·WATER
Fig. 20.

GENERAL PREPARATION FOR CANNING.

1. **Containers.**—See that all jars, whether new or old, as well as other equipment to be used, are thoroughly cleaned.

2. **Use fresh products only.**—Vegetables, fruit or meat to be canned must be absolutely fresh. The sooner it is canned the better.

3. **Washing the product.**—All grit or dirt should be washed off carefully, and then the product graded according to size and ripeness.



PLUNGE·IN·COLD·WATER
Fig. 21.



PACK·CLOSELY
Fig. 22.



DO·NOT·SEAL·TIGHT!
Fig. 23.

4. **Sterilizing the jars.**—All jars and tops should be put in a vessel of cold water and the water brought to a boil. Then they will all be ready when the products are ready for packing.

Successive Steps in Canning.

- | | |
|--------------------------|---------------------------|
| 1. Select product. | 6. Add syrup or brine. |
| 2. Wash, trim, grade. | 7. Place rubber and cover |
| 3. Scald or blanch. | 8. Place in boiler. |
| 4. Cold dip. | 9. Sterilize or process. |
| 5. Pack closely in jars. | |

Select Product.

Possibly the best material to practice on is carrots. These can be obtained early in the season and the small tender carrots which must be pulled out when thinning will, if canned, prove delicious in January or February.

Wash, Trim, Grade.—Grade all products for size, ripeness and



COOK 2½ HOURS
Fig. 24.



SEAL TIGHT AT ONCE
Fig. 25.

quality. If the products are uniform in size and ripeness, they are more likely to receive the proper degree of cooking.

Scald or Blanch.—These two terms seem to be much the same, although blanching is generally understood to be a longer process than scalding. This operation is intended to reduce the bulk, drive out objectionable acids, loosen the skins, and bring the coloring matter to the surface. Have ready two kettles, one full of boiling water and the other full of cold water. Put the product in a wire basket or cheese cloth bag and lower quickly into the boiling water and let it remain there the length of time given in the time table.

Cold Dip.—As soon as the product is taken out of the boiling water it is plunged quickly into the cold water and left there for a second or two. The cold dip makes the product easier to handle, sets the coloring matter and makes the texture of the product firmer.

Pack Closely.—Do not go to the expense of canning air or needless water; to avoid this, the product should be packed carefully and closely into the jars. Each jar should be hot, so there will be no danger of its breaking, when, as soon as it is filled, it is set on the rack in the sterilizer which contains hot water.

Add Syrup or Brine.—Add a half teaspoonful of salt to a pint of vegetables or meat and pour in sufficient hot water to fill all the spaces; then adjust covers and springs.

Do not seal Jars tightly.—All products, when heated, expand, and if the tops are sealed up tightly the expansion may either break the jar or force the rubber out of place. If screw top jars are being used, screw the cover down until it catches, then turn one-eighth of a turn back. In using jars with the patent wire snap, put the cover in place, the wire over the nick in the top, but leave the clamp up.

Process or Sterilize.—We are now ready for sterilizing or processing, as this operation is called in the canning factories.

1. Place the false bottom or rack in place.
2. Put in about four inches of warm water. This is to keep the first jars filled from cooling until the others are ready. Each jar should be placed in the water on the rack as soon as filled.
3. Place over a slow fire and leave the boiler uncovered until all the jars are in. This is so the jars will not heat too quickly at first, and so the water will not become so hot as to break the fresh jars. It may be necessary with the last two or three jars to dip each one in and lift it out once or twice to warm it.
4. Add warm water until the water rises one inch above the tallest jar. This is done so that there will be sufficient pressure above the jars to keep the water inside the jars from boiling out.
5. Cover the boiler first with a cloth and then with the lid and bring the water to a boil as quickly as possible.
6. Length of sterilizing period. Sterilize or process for the length of time given in the time table for the product you are working with, but do not commence to count the time until the water is boiling.

Removing the jars.—As soon as the time is up move the boiler off the fire, let it stand a minute and take off the lid. As soon as the steam has escaped, dip out the water until the jars can be reached, or, if the rack has wire handles, raise it until the jars are out of the water and hook the wire over the edge of the boiler.

Tightening the covers.—As soon as the jars are removed, the covers should be tightened and the jars inverted to see that there are no loose joints. It may be necessary to pour boiling water into some of the jars to fill them. If this is done, screw the tops on tightly and sterilize another ten minutes.

Keep jars out of draughts.—The hot jars will break easily if set where a draught of cold air will strike them. It is better to cover them with a cloth or towel while they are cooling.

Storing.—Label each jar and wrap in paper to exclude the light and preserve the color; then store on shelves in a cool dry part of the cellar. Dampness favors mould and heat breeds bacteria.

Canning Time Table

For wash boiler or steam cooker and 5 to 10 pound pressure canner.

Choice of Sterilizing Methods.

Products.	Scald or blanch Minutes	Cold Dip. Seconds	Choice of Sterilizing Methods.	
			Steam Cooker or Boiler. Minutes	Steam Pressure 5 to 10 pounds. Minutes
Cauliflower	3	5	60	30
Peas, beans, cabbage	5 to 10	5	180	60
Beets, carrots, parsnips	6	5	90	60
Tomatoes	1 to 2	3	22	15
Squash, pumpkins	10	3	120	60
Greens: Asparagus, Dandelion, Brussels Sprouts, Spinach (steam)				
Beet Tops	15	6	120	60
Chicken, turkey, veal, beef, mutton	—	—	180	120
Apples, pears	1½	3	20	8
Blackberries, Blueberries, Raspberries, Strawberries.....	—	—	16	10

Fruits may be canned without sugar in case a sufficient quantity cannot be obtained, but time and labor will be saved if sugar is used when the canning is being done.

Fruit Syrups.

Three parts sugar to two parts water (by measure) is the right proportion to use in making thin syrup. To make the thicker syrups, less water will be needed, and reduction effected by subsequent boiling.

Thin Syrup.—The sugar is simply dissolved and the solution brought to a boil. Use when you do not wish the product sweet.

Medium Thin.—Boil until it begins to be sticky. Use for canning cherries, blackberries, gooseberries, peaches and plums.

Medium Thick.—Boil until it catches over the edge of the spoon. Use for strawberries, raspberries, as well as other delicate fruit and extremely sour fruit.

Thick Syrup.—Boil until it will hardly pour out of the spoon. Use for jellies, jams, etc.

A Few General Notes on Canning.

Corn, beans, peas and other vegetables with a large proportion of protein can be canned in a hot water outfit, but a little better result will be obtained if canned in a steam cooker.

Rhubarb should always be canned in glass.

To retain the color in canning beets, leave on three or four inches of the stem, as well as the root until after they are blanched and cold dipped.

Greens are better blanched or cooked for from 15 to 20 minutes to reduce the bulk.

Peas, beans and corn should be canned within three or four hours of gathering.

Do not turn jars containing canned meat upside down to cool,

as the fat will rise to the bottom of the jar instead of being at the top, where it helps to seal it.

In canning cauliflower use the flowered portion. Before blanching, soak it for one hour in a solution of brine—a quarter of a pound of salt to six quarts of water.

In canning beans, break the pods and pull out the string on the back of the pod.

An easy way to peel peaches:—Dip the peaches for from $1\frac{1}{2}$ to



Fig. 26.—Canned Vegetables and Fruits shown by one school at the Stonewall School Fair, 1917.

2 minutes in a solution of one tablespoonful of potash, one half tablespoonful of alum and $2\frac{1}{4}$ gallons of warm water.

If, when removing jars from the boiler, it is found that the

liquid does not come up to the top of the vegetables, the top can be taken off and boiling water poured in and the top quickly replaced. The jar should then be returned for another ten minutes boiling.

In canning chicken or turkey, the bones should be stewed and the liquid poured over the meat, which has been packed in the jars, instead of water.

Beets that run about 40 to the pound are the best size for canning.

There are only two things to master in canning—(1) How to sterilize properly; (2) How to secure a perfect seal.

Glass contracts when cooling, and seals which were perfectly tight when the jars were hot may be loose after the jars have cooled. Test and tighten all tops ten or twelve hours after canning.

Blanch rhubarb after peeling.

CONTEST NO. 9.

Noxious Weeds

Many of the worst weeds in Manitoba have gained a foot-hold because the people did not know them. This is particularly true of sow thistle, which is now the worst menace to profitable farming in Manitoba. Every teacher should write to the Publications Branch, Department of Agriculture, Ottawa, for copies of the Dominion Noxious Weeds bulletin, and copies of the Manitoba Noxious Weeds Act will likely be sent to every school in the Province.

The Weed Naming contest is a particularly desirable one, and should form a part of the School Fair activities. An exercise which the teacher will find very interesting is to put ten weeds on a table and number them, then hand out sheets of paper and ask each pupil to write down the numbers from 1 to 10 and put opposite each the name of the plant. The second time this is done there will be a marked improvement in the number of weeds identified.



Fig. 27.—Sow Thistle.

CONTEST NO. 10.

Dairying

With the increased use of fats in the manufacture of explosives, butter seems to be scarcer than at any other period in the world's history. In many parts of Manitoba creameries have been established, and the cream is shipped in every few days. There are, however, many parts of the Province where the people cannot avail themselves of the advantages of a creamery, and the butter must of necessity be made in the home dairy. But here good results also may be obtained if careful attention is paid to cleanliness, and the various details which enter into the making of good dairy butter.

The main defects in butter made on the farm are:

1. Bad flavors.
2. Lack of uniformity in color and salt.
3. Unsuitable packages and no uniformity in the style of package.

Flavor.

The flavor is of the highest importance, and, no matter how good the butter may be in other respects, if the flavor is wrong, it is bound to be classed as an inferior article.

Staleness and rancidity, so common in dairy butter, are due largely to the fact that the cream, and the butter itself, are not kept at low temperatures. Any taint that may be in the milk or cream will, to some extent, be carried into the butter.

Therefore, the dairy butter-makers will see at once the necessity of having healthy cows, providing them with wholesome feed, salt, pure water, and having the cream properly taken care of until the time of churning.

Causes of Taints in Butter.

1. Such strong flavored feeds as Stink weed, Turnip tops, and Rape.
2. Cows' udders and teats in an unclean condition at milking time.
3. Milking in unclean stables.
4. Using unclean wooden, galvanized, or rusty milking pails.
5. Separating the milk in the stables.
6. Improperly cleaned separators.
7. Keeping the cream in cellars, or other places where there are roots or vegetables.
8. Keeping the cream in cellars for several days where the temperature is over 55 degrees.
9. Cows drinking water from stagnant pools, or water contaminated with seepage from barnyards.

Conditions which are necessary to produce fine flavored cream—

1. Feeds which will not taint the milk or cream.
2. **Pure water.** Cows should have at all times an abundant supply of pure water.
3. **Salt.** When cows have free access to salt at all times they will keep in better health, and will give more milk. The cream from this milk will have a better flavor and keep sweet longer than otherwise.
4. **Milking.** Cleanliness in the stable is desirable at all times, but especially during the milking period. The udders, teats and flanks should be clean, when the cows are being milked.
5. **Utensils.** Only bright clean tin milk pails should be used.

Care of Cream.

Skimming a rich cream leaves more skim milk for feeding young stock; there is less can room required for the cream, and it will keep sweet longer than thin cream.

The cream should be skimmed about 30 per cent butter fat, or one gallon (10 lbs.) of it will yield 3 to 3½ lbs. butter.

The temperature at which cream is kept depends upon the methods to be followed. If the cream is to be kept for several days in order that a sufficient amount can be collected to justify churning, the temperature should be low enough (approximately 50 degree.) to check bacterial action, and retain the cream in as sweet condition as possible until the whole lot can be ripened together. The favorable temperature in such case is 50 degrees F., or lower if practicable.

If the cream is to be ripened to obtain a more pronounced flavor, a higher temperature is more favorable for the growth of bacteria, which produces the flavors. The best flavors are produced by the bacteria which grow at 65 to 70 degrees F.; but, since this flavor is wanted only at the time cream is churned, it is most satisfactory to hold them in check by low temperatures until eight to ten hours before churning; then raise the temperature to 65 or 70 degrees F. and retain for a few hours, and gradually cool the cream to the desired churning temperature, which varies from 52 to 62 degrees F. This temperature should be maintained from two to three hours, in order to insure firmness or texture in the butter.

Warm cream from the separator should not be added to cream already cooled. The cream should be well stirred each time a fresh lot is added, and occasionally until ready to churn.

Preparing the Cream for Churning.

This means developing the proper acidity (sourness) and having the cream at the right temperature. No fresh cream should be added for at least twelve hours before churning.

The appearance of cream when ready to churn should be white and glossy, and it should pour like syrup; it should smell and taste slightly sour. Butter made from cream that is very sour has generally a poor flavor and will not keep well. Do not let the cream become too sour.

The proper temperature of cream for churning depends upon:—

1. The richness of the cream.
2. The length of time the cows have been milking.
3. The breed of the cow.
4. The feed of the cows.

It will, therefore, be seen how difficult it is to indicate any temperature as the best for churning. It is well, however, to know that the following conditions require low churning temperatures—52 to 60 degrees F.

1. Very rich cream.
2. Cream from the milk of fresh cows.
3. Cream from the milk of cows receiving succulent feed, such as pasture, clover, ensilage, and wheat bran.

Conditions that require high churning temperatures (60 to 75 degrees F.) :—

1. Very thin cream.
2. Cream from cows a long time in milk.
3. Cream from the milk of cows receiving dry feed, such as hay, straw, or dry pasture.

Aim to have the cream at such a temperature going into the churn that the churning will be completed in about thirty minutes.

Churning.

All cream should be strained through a finely perforated tin strainer as it is being put into the churn.

The churn should never be more than half full.

When coloring is used, it should be added to the cream just before churning is commenced. Butter-makers should be guided in using color by the tastes of their customers. Too deep a shade is undesirable.

If, for any reason, the butter is coming too fast, it is advisable to add, just when the cream is breaking, some water, with a little salt in it, about two degrees colder than the cream. This will assist in separating the butter from the buttermilk.

Two common causes for cream churning too slowly are:—

1. Too much cream in the churn.
2. The temperature of the cream is too low.

When to Stop the Churn is an important point, and it has a great deal to do with the quality of the butter. The churn should be stopped when the granules are about the size of wheat. When the granules are too small, many of them will go through the strainer into the buttermilk, and cause a considerable loss.

Over-churning should also be avoided as much as under-churning. Over-churned butter will retain a large amount of buttermilk, which will be difficult to remove in washing, and the butter will not keep as well as if it were devoid of buttermilk. The buttermilk should be drawn off through a strainer as soon as churning is completed.

Washing the Butter.

The butter should be washed as soon as the churning is completed, and only pure clean water should be used. If the butter is for immediate use, it will not require as much washing as for packing.

In washing run in slightly more water than there was cream; revolve the churn, as in churning, until the granules are about the size of peas and draw off the water immediately. In warm weather, have the water about two degrees colder than the buttermilk, and in cold weather from two to three degrees warmer. If the butter is for packing, it is advisable to wash twice as above.

Salting Butter.

A large quantity of the dairy butter is too heavily salted, and there is very little uniformity in the amount of salt used. We would suggest that $\frac{1}{2}$ to $\frac{3}{4}$ of an ounce per pound be used. Add the salt

as soon as the washing water is drained off, sifting on half of the salt; then turn the churn partly over, sift in the balance of the salt, put on the cover of the churn and revolve slowly until the butter is gathered into a solid mass, and allow it to lie in the churn for ten to twenty minutes before working it.

If the salting is done on the worker, the butter can be weighed and the salting done accurately. If the butter is salted this way, spread the butter, while in the granular form, evenly on the worker, and sift all the salt on before commencing to work it.

For farm butter-making a lever butter worker is preferable to a bowl worker. In working the butter, a sliding or scraping motion should be avoided. The lever should be pressed downward, double the butter over with a ladle, or, by inserting the lever under the butter at one side of the worker, roll it over and work as before. When the butter is worked enough, it should present a smooth, solid appearance. When cut with a sharp ladle and when pressed between the worker and the ladle, the moisture should show in small beads evenly distributed over the cut surface. Butter which has been salted in the churn will not require as much working as that salted on the worker. Only fine dairy salt should be used, and it should be kept in a clean, dry place. Salt will absorb odors, and this may injure the flavor of the butter.

Insufficient working usually is shown by a mottled appearance in color. This is largely due to uneven distribution of the salt. Over-working is usually shown by a poor grain, or texture, and salvy appearance.

Packages.

Packed Butter.—For packed butter there is nothing so neat as a ten or twenty pound spruce tub lined with parchment paper, or crocks can be used. The butter should be packed in solidly, and the package filled to within $\frac{1}{4}$ inch of the top, be nicely smoothed off and a neat circle of parchment placed over the butter. This can be covered with a salt paste, which makes the package almost air tight.

Print Butter.—The brick shaped one pound print neatly wrapped in parchment paper is the most popular and attractive package. Keep the butter in a cold atmosphere until placed on exhibition, or marketed.

Cream Contest.

For the Cream Contest, a one quart jar should be filled with cream, such as would be used for churning on the day of the fair.

Cheese Bulletin.

A bulletin has been printed giving full instructions for making both Cream Cheese and Cottage Cheese. Copies of this bulletin may be obtained by writing to the Publications Branch, Department of Agriculture, Winnipeg.

CONTEST NO. 11. Wood-Working

Every boy should know how to use all the ordinary carpenter's tools. We venture to say, however, that nine out of ten of the women will tell you that if any fixing has to be done around the house, they do it; consequently the girls should know how to use carpenter's tools as well. In many of the greatest furniture plants in the United States thousands of women are now operating high speed wood-working machines, and their work is proving very satisfactory.

Last year several clubs held short courses in wood-working, and very satisfactory results were obtained, and a limited number of these courses will be provided this year. Also we would like one or two clubs to co-operate with us in two new experiments: One is a blacksmithing short course, and the other is a wood-working course where real, large articles will be made on a co-operative plan,—such as portable chicken houses, hog self-feeders, portable hog houses, wagon racks, etc. In this work four boys or four girls would work on the one article until it is finished; and under the direction of the expert carpentry teachers whom we are prepared to send out there is very little chance for failure.

Schools interested in birds (and all schools should be) can obtain a very helpful book on bird house construction for 50 cents by writing to the Extension Service, or they can get it at the same price from the Manual Arts Press, Peoria, Illinois.



Fig. 28.—Articles made by Members of the Boys' and Girls' Clubs at the Deloraine Short Course in Wood-working, held in July, 1917.

CONTEST NO. 12.

Essays

The essay part of Boys' and Girls' Club work affords an excellent opportunity for co-relation. It is much easier for a boy to write a good essay on pig raising or gardening if he has actually raised a pair of pigs or has tended a garden throughout the season. The essay serves also to review the work done during the year, and if a good essay is to be written it will be necessary to keep a record, and records are one of the most desirable features of Boys' and Girls' Club work.

The Department of Agriculture will provide one-third of the prize money paid out for essay prizes on the contests included in this bulletin. The Central Club Executive will be expected to make provision for judging the essays.

Belgian Hares

Rabbits or Belgian Hares are being raised by a large number of people in the Old Country and by many in Canada and the United States as a means of providing a substitute for the meats which we are sending overseas.

In a year like this, when grain is scarce, rabbit raising will be very popular. They live entirely on grass and other green feeds, grow rapidly, and several litters can be raised in one year. Rabbits can be included as Contest 13 in any districts in the Province where Club members are able to obtain them.



Fig. 29.—A nice lot of Calves shown at the Portage la Prairie School Fair, 1917.



Fig. 30.—Members of Boys' and Girls' Clubs Short Course School in Sewing at Deloraine, 1917. The girls are wearing the hats and garments made by them during the course.



Fig. 31.—Prize Wheat at the Boys' and Girls' Club Fair at Gladstone, 1917.

Free Bulletins

The Bulletins mentioned in List A and List B are recommended as likely to be helpful to the Boys and Girls in their Club work:

List A—From Ottawa.

Obtainable free from the Publications Branch, Department of Agriculture, Ottawa:—

- "Weeds and Weed Seeds" by Geo. H. Clark.
 "Beef Raising in Canada" by J. B. Spencer.
 "Swine Husbandry in Canada" by J. B. Spencer.
 "Feeding and Housing of Swine" (Pamphlet No. 22).

(A list of other Agricultural Bulletins available for distribution may be had from the Publications Branch, Dept. of Agriculture, Ottawa.)

List B—From Winnipeg.

Obtainable free from the Publications Branch, Department of Agriculture, Winnipeg:—

- "Common Breeds of Poultry" by M. C. Herner.
 "Poultry Houses for Farm and Town" by M. C. Herner.
 "The Manitoba Noxious Weeds Act".

Any of the following may also, upon request, be obtained free from the President, Manitoba Agricultural College, or the Publications Branch, Manitoba Department of Agriculture, Winnipeg:

BULLETINS

(Of the series not issued periodically)

- | | |
|-------------------------------|--|
| 1. Horses in Manitoba. | 12. The Farm Flock (Sheep). |
| 3. Care of Milk and Cream. | 15. Hay and Pasture Crops in Manitoba. |
| 5. The Farm Garden. | 17. Silo Construction and Ensilage Production. |
| 7. Hog Raising in Manitoba. | 18. Beekeeping in Manitoba. |
| 8. Cow Testing. | 21. Farm Cost Accounting. |
| 10. Plans for Farm Buildings. | 22. Manual of Industrial Drawing. |
| | 23. Debating Clubs. |

MANITOBA FARMERS' LIBRARY

(Bulletins of the series issued monthly and constituting the "Manitoba Farmers' Library")

- | Extension Bulletin | Extension Bulletin |
|---|--|
| No. 1. Lightning Control. | No. 13. Common Diseases and Disorders of the Foal. |
| No. 2. Barn Ventilation. | No. 14. The Potato. |
| No. 3. Control of the Sow Thistle in Manitoba. | No. 15. Poultry Houses for Farm and Town. |
| No. 5. Hand Selection and Harvesting of the Seed Plot. | No. 16. Cookery Recipes. |
| No. 7. Fattening, Killing and Dressing Chickens for Market. | No. 17. Vegetable Storage. |
| No. 8. Sending the College to the Country. | No. 18. The Gas Engine. |
| No. 9. Common Breeds of Poultry. | No. 19. Autumn Cultivation for Weed Control. |
| No. 11. Management of the Brood Mare and Foal. | No. 20. Cheese-Making on the Farm. |
| No. 12. Canning by the Cold Pack Method. | No. 21. Better Farm Homes (A Bulletin of House Plans). |
| | No. 22. Asparagus. |
| | No. 23. Our Friends, the Birds. |

CIRCULARS

- | | |
|----------------------------------|---|
| 1. The Farmers' 10-cf Ring. | 30. Treatment of Alkali Soils. |
| 13. Cream for Creameries. | 39. Blackleg—A Disease of Cattle. |
| 14. Method in Skirt Making. | 41. Some Forage Crops for Manitoba. |
| 16. Pork Making on the Farm. | 42. Summerfallow Competitions in Manitoba. |
| 17. Servants in the House. | 43. The Plowing Match. |
| 18. Alfalfa Growing in Manitoba. | 44. Beautifying the Farm Home (Trees, Shrubs, Fruits, Flowers). |
| 19. Fodder Corn in Manitoba. | 45. Injurious Insects of Garden, Field and Forest. |
| 20. Alfalfa Inoculation. | 46. Eggs from the Farm to the Consumer. |
| 21. Barley Growing. | 47. How to Preserve Eggs. |
| 28. Spray Mixtures. | |
| 29. Tree Pests and Outworts. | |

PLAN OF ORGANIZATION FOR MANITOBA BOYS' AND GIRLS CLUBS

