

# 4-H Dairy Project Resource Guide



September 2008

#### THE 4-H PLEDGE

# This project produced with the support of Agriculture & Agrifood Canada

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Agri-Food Canada

"I pledge:

My Head to clearer thinking My Heart to greater loyalty My Hands to larger service

My Health to better living

For my club, my community and my country."

THE 4-H MOTTO
Learn to do by doing

## **VISION FOR 4-H ONTARIO**

We will be recognized for delivering quality, innovative, and sustainable leadership and life skill programs for youth and volunteers; which will benefit the citizens and communities in which they live.

#### **VOLUNTEER STATEMENT**

4-H Ontario volunteers are passionate and dedicated individuals essential to the delivery and success of the Ontario 4-H program.

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# The 4-H Dairy Project

# **Table of Contents**

Use the spaces beside the topic to record dates the topic was covered. You can also use this from year to year to help plan your meetings.

Dairy Project Manual-Introduction	Pg
Welcome to the 4-H Dairy Project	1
Objectives	1
How To Use this Manual	1
Achievement	2
Sample Meeting Plans	4
Vo-Cow-Bulary	10
Resources	13
Club Completion Certificate	14
Project Evaluation and Feedback	15

Judging		
Date	Topic	Pg
	Introduction to Judging	16
	Parts of the Cow	17
	Dairy Cow Scorecard	18
	Steps in Placing a Class	19
	Judging Format	20
	You Be the Judge	21

Fitting & Showing Guide		
Date	Topic	Pg
	Fitting & Showing Clinics	41
	Preparing to Lead Guide	42
	Selecting Dairy Show Animals	62
	Show Preparation Schedule	62
	Leading to Win	64

Animal Care, Welfare & Transportation		
Date	Topic	Pg
	The Basics of Animal Care	77
	Animal Welfare	78
	Ambassador for Agriculture	79
	Animal Handling	81
	Transportation of Livestock	83
	References & Resources	84

Health		
Date	Topic	Pg
	Healthy Vital Signs	85
	Body Condition Scoring	85
	Healthy Animals	87
	Biosecurity & Animal Health	88
	Diseases	89
	Preventing Diseases	89
	Building Immunity	90
	Infectious Diseases with no Vaccines	93
	Preventing Non-Infectious Diseases	94
	Keeping Cattle Healthy at all Ages & Stages	94
	More Colostrum Cautions	96
	Dehorning & Removing Extra Teats	96
	Common Calf Diseases	97
	Keeping Heifers & Dry Cows Healthy	99
	Drying Off Cows	100
	Heifer & Dry Cow Nutritional Disorders	100
	Keeping Milk Cows Healthy	101
	Canadian National Health Project	103
	Mastitis	105
	Lameness	108
	Hoof Diseases	110
	Displaced Abomasium	111
	Milk Fever	111
	Ketosis	112
	Digestive Disorders	112
	Diseases Making Headlines - FMD & BSE	114
	Commonly Used Antibiotics on a Dairy Farm	116
	Using Medications on a Dairy Farm	117
	Vo-Cow-Bulary	122
	References	123

Nutrition		
Date	Topic	Pg
	Ruminant & Monogastric	125
	Stomachs	
	The Digestive Trail	126
	A Closer Look at the Four Stomach	129
	Chambers	
	Newborn Calves Compared to	130
	Adult Cows	
	Keys to Feeding Calves	131
	Feeding Dry Cows	140
	Feeding Milk Cows	141
	Feeding a Balanced Ration	142
	Methods of Feeding	146

Feeding to Alter Milk Composition	147
Tips for Getting Cows to Clear	148
Their Plates	
Vo-Cow-Bulary	149

Housing & Equipment		
Date	Topic	Pg
	The Basics	151
	Tingle Voltage	154
	Cold vs. Warm Environments	155
	- Calf Housing	
	Heifer Housing	159
	Milk Cow Housing	160
	Housing Design	161
	Milking Systems	167
	Types of Parlours	169
	Auto Milking Systems	171
	Feed Storage	172
	Farm Safety in Feed Handling	174
	Farming for a Healthy Environment	174
	The Farmstead - Putting all the Pieces Together	180
	Planning a New Facility	181
	Vo-Cow-Bulary	182
	References & Resources	184

Reproduction & Breeding		
Date	Topic	Pg
	The Female Reproductive System	186
	The Other Half: The Male	189
	Reproductive System	
	Digging Deeper: Control of the Cycles	190
	The Estrus Cycle - the 21-day Shift	191
	Digging Deeper: Managing the Reproductive Cycle	193
	Managing the Reproductive Cycle - It's Breeding Time!	194
	Other Breeding Options	196
	Detecting Pregnancy	198
	Late Gestation Care	199
	The Calving Process	200
	Problem Calvings	201
	Newborn Calf Care	203
	Cow Care After Calving	206
	Breeds of Dairy Cattle in Canada	207
	Production of the Breeds	211
	Registered or Grade Animals	212
	Crossbred Animals	212
	Genetic Improvement	212
	Inheriting Genes	212

Parent Averages	214
Toolkit for Genetic Improvement	215
Ranking Genes	216
Bull Proofs	217
Developing Mating Strategies	217
Linebreeding	218
Selecting Sires	218
Vo-Cow-Bulary	219
References & Resources	221

Taking Care of Business		
Date	Topic	Pg
	The Economic Importance of the Dairy Industry	222
	Careers in Agriculture	223
	Record Keeping on the Dairy Farm	225
	Dairy Breed Scorecards	231
	Managing Money & People on Your Farm	238
	Digging Deeper: You be the Boss - Hiring Farm Employees	243
	Digging Deeper: Farm Succession Planning	244
	"Precision" Dairy Management	245
	Computers on the Dairy Farm	246
	References & Resources	249

Milk Production & Marketing		
Date	Topic	Pg
	The Udder	250
	Getting the Milk Out	251
	Proper Milking Procedures	252
	Lactation Curves	253
	Food Safety	254
	The Canadian Quality Millk Program	256
	Digging Deeper: National Dairy Regulations & Code Production & Processing Regulations	257
	The Dairy Farmers of Ontario	261
	How do we Sell the Product?	262
	Management of Milk Marketing	266
	Why Milk?	268
	Meeting Consumer Demands	269
	Marketing More than Milk	270
	Vo-Cow-Bulary	273
	References & Resources	274

# Introduction

**Welcome to the 4-H Dairy Project!** This project will give members the opportunity to learn about dairy cattle and the dairy industry, regardless of their age or experience level.

# **Objectives of the 4-H Dairy Project**

- Develop an appreciation of dairy animals
- Members will learn to care for dairy animals through all phases of their lives, including birth, calf, heifer, calving, dry and lactating cow stages
- Learn about the different facets of care provided to animals related to housing and equipment, feeding, milk production, health, reproduction, and other aspects of herd management that together form a successful operation
- Members showing project dairy animals as an element of their project will learn about preparing animals for shows as well as showring practices and procedures
- Members will be introduced to modern aspects of the dairy industry, including trends in feeding, milking equipment, and marketing strategies that are present in the Canadian dairy industry
- Learn in a fun, comfortable, interactive and hands on environment, developing life skills relating to the goals of the 4-H program and the 4 H's Head, Heart, Hands and Health

#### How to Use this Manual

The 4-H Dairy Project Manual consists of three separate booklets for use by 4-H Dairy leaders and members:

- 1. Resource Guide This guide contains several sections to provide information on different aspects of care and management of dairy cattle, including:
  - General Information
  - Health
  - Breeding and Reproduction
  - Nutrition
  - Housing, Equipment & the Environment
  - Milk Production and Marketing
  - Managing the Farm Business

At the end of each section will be a listing of resources used in that section. Volunteers may find these resources useful in providing supplemental information to enhance the Dairy Project. A topical glossary (Vo-Cow-bulary) is also included, for use in activities, or for member reference.

2. Activity Guide – This guide contains activities to compliment each of the resource topics covered in the Resource Guide, and is organized in the same sectional order as the Resource Guide.

At the beginning of each section of the Activity Guide will be a list of roll call suggestions, potential

guest speakers for the topic, and a list of take home assignments that members could be asked to complete or that could be a component of Youth Leader Projects.

Most Activities are broken down into various components to assist the volunteer in organizing the activities: Purpose, Age Group, Time Allotted, Preparation & Equipment, Instructions and Debrief.

3. Record Keeping Booklet – This booklet is designed for members to record information on their project animal and other club activities. Heifer record keeping worksheets are included for those keeping their project animal past achievement.

### To prepare manuals for the members:

- Decide which topics and activities you would like to use to make the Dairy Project suitable
  for your members. There are many topics covered so different ones can be selected each
  year to keep the project new and interesting for returning members.
- Print or photocopy the resource pages, parts of the record keeping book, and activity sheets that you require. Distribute the material either as a complete booklet at the beginning of the club or as smaller units at each meeting.
- When facilitating this project for the first time, keep track of what went well, ,and what you would change for the next time, because each time the project is taught, the content of the meetings can be different!

# As a club volunteer your responsibilities are to:

- Have membership lists completed and submitted along with fees collected (if applicable) by the end of the second meeting
- Review project material in the Resource and Activity Guides to familiarize yourself with the
  information and adapt it to fit your group- be well organized, and teach the material based
  on your group's age, interest, and experience level
- Arrange a meeting schedule, participate in club meetings, the achievement program and other club activities
- Complete the volunteer screening process and attend a volunteer training session

#### As a club member your responsibilities are to:

- Participate in at least 2/3 of his/her own club meeting time. Clubs must have a minimum of 12 hours of meeting time.
- Complete the project requirements to the satisfaction of the club leaders
- Take part in the project Achievement Program

## **Achievement Program**

While most dairy clubs have a calf show as their final achievement project, it is not mandatory that 4-H dairy members show a calf to complete the Dairy project. Before the club begins, leaders must decide whether members will be showing animals or not. Remember that project animals must have Project Animal Identification Forms submitted to 4-H Ontario by June 1<sup>st</sup> in order to be eligible for multi-county events. All club members should be fulfilling the same requirements to complete the individual club.

If you are running a dairy club that will not be using 4-H project animals, members can be asked to complete a different type of project to be granted a project completion. At the beginning of each section of the Activity Guide is a list of Take Home ideas or assignments, many of which can be adapted to be a project for club completion.

# **Meeting Plan**

Typically, 4-H meetings are approximately 120 minutes (2 hours) in length. Before each meeting, create a timeline to ensure that you are providing an adequate amount of instructional time for club completion, and also to make sure that you are finished each meeting in time for the members' parents to pick them up. Sample meeting plans for each topic are provided on the next few pages. If you are running this club for the first time, or if you have many beginning members in your club, you should make sure you spend lots of time

on judging, showing and fitting, and animal care and welfare during your first meetings.

# 4-H meeting agendas should include the following features:

- Welcome & Call to Order
- 4-H pledge
- Roll Call
- Secretary's Report
- Treasurer's Report (if any)
- Press Report
- New Business: Update on 4-H local and provincial activities and member opportunities as well as upcoming club activities
- Meeting content and activities
- Social recreation and/or refreshments
- Adjournment

# Meeting Alternative – Taking a Tour:

nstead of holding a meeting at one location, you may wish to tour several farms to teach members about different aspects of dairy farming. There are a few things to remember when conducting a farm tour:

- This will take longer than a typical meeting and may be best organized during the daytime to have enough daylight hours
- Ask permission from host farmers
- Adequately thank host farmers (have a member thank them on behalf of the group but a thank you note or small gift is also appropriate)
- Consider biosecurity. Hosts may want guests to walk through a foot bath or wear plastic boots.
- To make sure that members are gaining something from the experience, ask them some review questions based on the facilities visited or give them some questions in advance
  - o Comparing facilities visited may be beneficial (i.e. free stall vs. tie stall housing, different feeding methods or calf raising methods, etc.)

• Make sure that there is sufficient transportation for members and that they are accompanied by a screened adult.

# A Typical Meeting Schedule (example):

Welcome & pledge	5 min
Roll Call	5 min
Reports and Updates	5 min
Review Cow Parts or Judging	20 min
Meeting Content & Activities	75 min
Social Recreation	<u>10 min</u>
	120 min

Not sure where to start? We've included sample meeting outlines for each topic on the following pages.

# Meeting Planning Guide – Breeding

This flexible 4-H manual allows for any combination of reference and activity material to be used together to teach 4-H members about milk dairy cattle breeding in an interesting and hands on manner.

Here's a sample meeting agenda incorporating key information and activities from the Resource Guide and Activity Book:

Welcome, Call to Order & Pledge		5 min
Roll Call	Name one trait that you can try to improve when breeding your cows.	5 min
Reference Material Discussion	Guest Speaker – AI technician to talk about cattle proofs and breeding cows	30 min
	<ul> <li>Discuss the basics of dairy cattle breeds</li> <li>The different breeds of dairy cattle</li> <li>Registered, grade and crossbred animals</li> <li>Mating strategies (corrective mating and mass selection)</li> </ul>	20 min
Activity Related to Reference Material	Junior Members – Promoting the breeds activity Senior Members – Cow Mating – You Make the Decisions Activity	30 min
Activity Related to Reference Material	Pair senior and junior members to do the Genetic Improvement Activity	20 min
Adjourn	Adjourn the meeting and introduce a take home activity (i.e. Predict the production of milk, fat and protein you can expect from your 4-H project calf based on her parents' genetics.)	5 min
Social Time / Snacks		10 min

- Always have extra material prepared Running out of things for members to do will result in boredom or lead to difficulties managing members. Extra activities can be utilized during future meetings but will ensure that you always have something prepared for members to do.
- Remember that basic material can be covered as a portion of a meeting that is held on any topic:
  - o Parts of a cow
  - o Judging cows, feedstuffs, etc.
  - Preparation for showing washing, clipping, showmanship, etc.
  - Animal care and welfare
- Throughout the club, use some activities that separate junior and senior members to promote continued learning of senior members; but don't forget to combine members for some activities as well (junior members can often learn from senior members and it is an important skill for senior members to learn to share information).
- Consider the age and experience of members when planning for meetings.
- Ask members what topics they would like to learn about.

# Meeting Planning Guide – Reproduction

This flexible 4-H manual allows for any combination of reference and activity material to be used together to teach 4-H members about reproduction in an interesting and hands on manner.

Here's a sample meeting agenda incorporating key information and activities from the Resource Guide and Activity Book:

Welcome, Call to Order & Pledge		5 min
Roll Call	Name one part of a cow or bull's reproductive system. What is its function?	5 min
Reference Material Discussion	Discuss 5 things needed for a successful breeding program	10 min
	Junior Members – parts of reproductive system Senior Members – hormones that control reproductive system	15 min
Activity Related to Reference Material	All Members (groups should have both junior and senior members) – Build a Ruminant Reproductive System activity	30 min
Judging Activity	Judge a class of cows and discuss how some traits are important for reproduction and lasting through repeated calvings (i.e. adequate slope from hooks to pins, width between pins, mammary system structure, etc.)	20 min
Adjourn	Adjourn the meeting and introduce a take home activity (i.e. Follow a cow or heifer through a heat, observing her for about 10 minutes every two hours. Record the signs you see over a period of time.)	5 min
Social Time / Snacks		15 min

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# Meeting Planning Guide - Health

This flexible 4-H manual allows for any combination of reference and activity material to be used together to teach 4-H members about health in an interesting and hands on manner.

Here's a sample meeting agenda incorporating key information and activities from the Resource Guide and Activity Book:

Welcome, Call to Order & Pledg		5 min
Roll Call	What can a farmer do to help keep animals healthy on his/her farm?	5 min
Reference Material Discussion	Guest Speaker – Host farmer to discuss their animal health program	15 min
	Discuss signs of healthy cows and calves:  • A Healthy Cow or Calf's Vital Signs  • Body Condition Scoring  • Healthy Animals ActHealthy!	15 min
Activity Related to Reference Material	Junior Members – Taking A Calf's Vital Signs activity (this can be done with senior members too if they do not know how to do it). Senior Members –Body Condition Scoring Activity	30 min
	All members – Explain that sometimes, medicines are given to restore health when animals are sick. Then try the Using Medicine Safely – Labels and More! Activity.	30 min
Adjourn	Adjourn the meeting and introduce a take home activity (i.e. Make up a list of things you would include in a dairy farm's medicine chest or make a list of what the contents are in an existing chest.)	5 min
Social Time / Snacks		15 min

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# Meeting Planning Guide - Milk Production and Marketing

This flexible 4-H manual allows for any combination of reference and activity material to be used together to teach 4-H members about milk production and marketing in an interesting and hands on manner.

Here's a sample meeting agenda incorporating key information and activities from the Resource Guide and Activity Book:

Welcome, Call to Order & Pledge		5 min
Roll Call	Name one thing that affects how much milk a cow gives?	5 min
	OR Name one thing you need to do when you milk the	
	cows.	
Reference Material Discussion	Guest Speaker – Local milk committee member	10 min
	Discuss milk production and the anatomy of the udder and	20 min
	milk let down at milking time. Then discuss how farmers	
	can ensure that milk produced on their farms is safe for	
	human consumption (ask members for input)	
Activity Related to Reference	Junior Members – Milking the Cows the Right Way Activity;	20 min
Material	Milking Time Crossword Activity	
	Senior Members – Learning About Lactation Curves activity	
Judging Activity	Judge and give reasons on a class of udders.	20 min
Farm Inspection Activity	All members – split members into groups of junior and	30 min
	senior members	
Adjourn	Adjourn the meeting and introduce a take home activity (i.e.	5 min
	Create a poster advertising a milk product.)	
Social Time / Snacks		15 min

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- Consider the age and experience of members when planning for meetings.
- Ask members what topics they would like to learn about.

# Meeting Planning Guide - Nutrition

This flexible 4-H manual allows for any combination of reference and activity material to be used together to teach 4-H members about nutrition in an interesting and hands on manner.

Here's a sample meeting agenda incorporating key information and activities from the Resource Guide and Activity Book:

Welcome, Call to Order & Pledge		5 min
Roll Call	Name one of the feeds that you (or your neighbour) feeds	5 min
	dairy cows or calves on your farm.	
Reference Material Discussion	Learn about the parts of the ruminant stomach and the	20 min
	differences between ruminant and monogastric stomachs.	
	Discuss how a calf's stomach develops to become that of an	
	adult cow. Discuss the different stages of feeding from calf	
	to heifer to milking cow to dry cow.	
Activity Related to Reference	All members – Build a Ruminant Digestive System Activity	30 min
Material		
Activity Related to Reference	Junior members – Feeding the Calves Activity	20 min
Material	Senior members – Reading the Label Activity	
Judging Activity	Judge a class of hay or another feedstuff	20 min
Adjourn	Adjourn the meeting and introduce a take home activity	5 min
	(i.e. Get a sample of a heifer or dry cow ration fed on a	
	farm. Find out what's in the ration.)	
Social Time / Snacks		15 min

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# Meeting Planning Guide - Housing, Equipment & Environment

This flexible 4-H manual allows for any combination of reference and activity material to be used together to teach 4-H members about housing and equipment used in raising dairy cattle in an interesting and hands on manner.

Here's a sample meeting agenda incorporating key information and activities from the Resource Guide and Activity Book:

Welcome, Call to Order & Pledge		5 min
Roll Call	Name one feature of a healthy or unhealthy house.	5 min
Reference Material Discussion	Discuss the basic requirements of animal housing systems.	20 min
	Focus on a particular age group (calves, heifers or cows) for	
	the meeting to discuss the different types of housing for a	
	specific age group. For example – compare milk cows in tie	
	stalls, free stalls and pack barns.	
Activity Related to Reference	Stall Sketch Activity	15 min
Material		
Activity Related to Reference	Elements of an Efficient Dairy Facility	20 min
Material	Detete Mancheye hatiyaan thaas tiya satiiyiti aa	20
Activity Related to Reference	Rotate Members between these two activities:	20 min
Material	My Space Your Space Activity	
	<ul> <li>You Be the Judge – Farmstead Planning Selection</li> </ul>	
Adjourn	Adjourn the meeting and introduce a take home activity	5 min
	(i.e. Find an article about heifer or dry cow housing in	
	a dairy magazine. Report on your findings at the next	
	meeting.)	
Social Time / Snacks	<b>5</b> ,	15 min

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# Meeting Planning Guide - Taking Care of Business

This flexible 4-H manual allows for any combination of reference and activity material to be used together to teach 4-H members about the dairy business, record keeping and other management areas in an interesting and hands on manner.

Here's a sample meeting agenda incorporating key information and activities from the Resource Guide and Activity Book:

Welcome, Call to Order & Pledg	е	5 min
Roll Call	What is one type of record that would be kept on a dairy farm?	5 min
Reference Material Discussion	Discuss the economic importance of dairy farms in the country and province. Teach members about how keeping different types of records keeps farms more organized and increases animal values. If focusing on the cattle aspect, discuss the importance and the contents of milk recording records and classification reports.	20 min
Activity Related to Reference Material	records and classification reports. All members – Types of Records Activity	20 min
Activity Related to Reference Material	Reading a DHI Report Activity	15 min
Guest Speaker	Holstein Canada Classifier or Milk Recording Fieldperson to talk about their program	45 min
Adjourn	Adjourn the meeting and introduce a take home activity (i.e. Explore the internet and find a dairy related website. Share your findings at the next meeting including – Who is it for? What type of information do they have? Is it easy to navigate? Is it attractive to look at?)	5 min
Social Time / Snacks		15 min

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# **General VO-COW-BULARY**

(Source of some definitions: Ontario Farm Animal Council's Virtual Farm Tours DVD)

Artificial insemination: The use of frozen semen from selected bulls

to breed dairy cows. It allows farmers to use top genetics from selected bulls to improve each

generation of dairy cows.

**Bedding:** Material such as straw, wood chips or sand used as

cushion for animal comfort. This bedding often covers

a mattress made of recycled rubber tires.

**Biosecurity:** Method used to protect the herd against the introduction or spread of disease.

**Bulk Tank:** A refrigerated stainless steel storage unit in which milk is cooled quickly to 1°C to 4°C

(35° F to 39° F) and stored.

**Bull:** An uncastrated male bovine.

**Calf:** A newborn bovine. The plural of calf is calves.

**Colostrum:** The first milk produced by the mammary gland of a cow after calving. It is a rich

source of nutrients, fats and antibodies. Feeding colostrum to the calf is critical in the first hours of life as it provides essential nutrients and infection-fighting antibodies to

the newborn.

**Cow:** A mature female bovine that has given birth at least once.

**Crossbreed:** An animal whose dam and sire were from different breeds.

**Dam:** The female parent of an animal.

**Dry cow:** A cow that is waiting to give birth and who is not producing milk.

**Free stall barn:** The cows are housed in large group pens or individual stalls without being tied.

The cows are loose in the barn to access water and feed in specific places. They get

milked by walking to a milking parlour or a milking robot.

**Freemartin:** A heifer who has been born as a twin with a bull and is unable to breed due to the

transfer of hormones between bull and heifer inside the uterus during the gestation

period.

**Gestation Period:** The time that a cow is pregnant, ranging from 279 to 290 days.

**HACCP:** This acronym stands for Hazard Analysis Critical Control Point (HACCP). This is a

quality assurance program that identifies risk factors (critical points) to reduce them to an absolute minimum. Dairy Farmers of Canada has developed an on-farm food safety program, called Canadian Quality Milk, which is recognized by the Canadian

Food Inspection Agency.

**Heifer:** A young female that has not yet had a calf.

Resource Guide - Introduction

**Lactation:** The secretion of milk by the mammary glands. A cow produces milk only after it has

calved. The lactation period lasts about ten months.

**Nutrient:** Any chemical element or compound essential for the growth and development of an

organism.

Nutrient Management: Matching the nutrients in manure and fertilizer to crop requirements in an

environmentally friendly way.

**Registered:** A cow that has registration papers to prove her parentage.

Milk house: A section of the barn that houses the milking and sanitizing equipment as well as the

bulk tank, in which the milk is stored and cooled.

**Milking:** The action of obtaining milk from a cow's udder with a milking machine.

**Milking Machine:** Machine to obtain milk.

Milking parlour: A cow walks onto a raised platform with gates, which keep the animal from moving

while she is being milked. The milk goes directly from the milking machine through a pipeline to the bulk tank in the milk house. When milking is over, the cow walks out.

Milk replacer: Mainly made of high quality milk products such as dried skim milk, dried whey and

dried buttermilk. Milk replacer can be used by a farmer to improve feed intake and

growth of the young calf.

**Pipeline:** Glass or stainless steel pipe that collects the milk from the milking machines and

brings it to the bulk tank.

**Purebred:** A cow whose dam and sire were both of the same breed.

**Ruminant:** An herbivorous animal that swallows its food un-chewed and regurgitates it in a

semi-digested form (known as cud) for chewing. This process is called rumination. Ruminants have a stomach divided into four compartments that allows them to digest plants high in fibre like grass. Cows, goat, sheep, lamas, bison, buffalo, elk and

deer are ruminants.

**Robotic milking system:** This is similar to a parlour system, except that the entire milking system is

automated. Cows can enter the robot at anytime during the day to be milked. This technology is still new to North America. This technology is still new to North

America.

Silage: Made of grasses (e.g. hay), legumes (e.g. alfalfa) or corn, which are chopped and

stored while still moist in a silo.

Silo: Silos are extremely useful to store a wide variety of livestock feeds, including silage. A

silo can be vertical (like a tower) or horizontal (called a bunker).

Sire: The male parent of an animal

**Slatted floor:** A floor with open spaces to allow evacuation of manure.

**Steer:** A castrated male bovine.

**Tie stall milking system:** In this type of barn, the cows are tied in stalls next to each other. They have

constant access to water and are fed in a manger in front of them. The cows are

milked in their stall.

**Transponder tag:** A tag with a computer chip that identifies an animal and transmits information about

its feed intake or milk output to the computer (for statistical purposes).

**Udder:** The udder is the mammary organ that secretes the cow's milk. The udder has four

teats.

**Ventilation:** Ventilation is extremely important in dairy barns as cows need to have access to fresh

air year-round. There are several types of ventilation systems that are adaptable to

the change in seasons.

# References and Resources - General

Holstein Canada. "Good Show Ethics Begin with Young Adults" www.holstein.ca/english/Shows/youth.asp. Accessed April 27, 2008.

Holstein Canada. "Preparing to Lead" www.holstein.ca.

Holstein Canada. "Showmanship...Leading to Win" www.holstein.ca.

Holstein Canada. "You Be the Judge" www.holstein.ca.

Manitoba 4-H Dairy Manual – Junior, Intermediate, Senior and Record Books, Drafts 2000.

Previous editions of the 4-H Ontario Dairy Manual.

# Related Activities (See Activity Guide)

Internet Activities	General	All ages
Label the Parts*	General	All ages
Body Parts Crossword	General	All ages
Judging Dairy Cattle	General	All ages
The Judge's Corner - Mammary Systems	General	All ages
Functional Conformation of Dairy Cattle	General	12 and over
Judging Dairy Heifers	General	All ages
What Traits Matter?	General	All ages
Calf Buying Selection	General	All ages
Meet the Press at the Fair	General	All ages
Line in the Sand	General	All ages
Take a Virtual Farm Tour	General	All ages
Dairy Jeopardy	General	All ages

# Dairy

# Congratulations on successfully completing this 4-H Project

Leader's Signature

Date



# Project Evaluation and Feedback

For members and parents to complete at the end of the project.
I joined this club because
I really enjoyed the meeting where we
My least favorite activity was when we
Something I learned this year that I did not know before was
Something I would like for us to do next year is
Next year I would like to improve
Parent/ Guardian comments This year I learned
Next year I would like to see
Leader Comments  This year you did a great job of
Additional Comments