



**Saskatchewan
Learning**

**Cow/Calf Production 10, 20, 30
Agriculture Technician Program
Curriculum Guide
A Practical and Applied Art**

**Saskatchewan Learning
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This Cow/Calf Production curriculum guide has been adapted from Alberta Agriculture's Green Certificate Program.

Overview

The Agriculture Technician (ATEC) Program develops students' knowledge, skills, and abilities in six major areas of agricultural production. These six areas of production are:

- field crop and irrigated field crop
- cow/calf
- feedlot
- dairy
- sheep
- pork.*

* Initially, pork will be developed as an ATEC program but may eventually be elevated to a designated trade.

The courses within each area of production are organized into three levels of knowledge, skills and abilities: introductory, intermediate, and advanced.

Introductory modules (Level 10) help students gain knowledge and build the skills and abilities that are used in the day to day operation of the particular production sector. These modules form the basis of further learning. The range of experience and knowledge of students at the introductory level will vary from very little or none to considerable. Those students with prior knowledge and experience should be assessed and given credit for the core modules as quickly as possible, using the optional modules to enhance students' knowledge, skills and abilities.

Intermediate modules (Level 20) build on the competencies developed at the introductory level. These modules broaden or refine the knowledge, skills and abilities used in the particular production sector. Optional modules are used to enhance learning and address individual interests and learning needs. These modules also help students direct their learning toward related careers, job opportunities, and post-secondary education.

Advanced modules (Level 30) demand that students acquire a higher level of knowledge, skills and abilities in the particular production sector. These modules encourage development of employability skills which help students gain entry into the workplace or related post-secondary program.

If articulation agreements are established, these courses could provide the desirable background and skills for farm employment or entry into related programs at public and vocational colleges, technical institutes, apprenticeship programs, and universities in Saskatchewan.

All of the courses have been prepared with the guidance of Saskatchewan Learning and follow the outline, format and required dimensions of the Saskatchewan Learning Practical and Applied Arts curricula.

Philosophy and Rationale

Saskatchewan is a world leader in traditional primary production agriculture. Today, there is ever increasing and intense global competition for primary agriculture products. This means that Saskatchewan agricultural producers and employees need to have knowledge, skills and abilities in a variety of areas in order to maximize production and remain viable.

Providing students with practical knowledge, skills and abilities in cow/calf production will help students provide meaningful contributions to their family farming operations or pursue related career and educational opportunities.

Aim and Goals

Aim

The aim of Cow/Calf Production is to provide students with knowledge, skills and abilities in Cow/Calf Production including farm safety procedures, communication skills, and basic knowledge of machinery and livestock equipment operation as well as the care and handling of beef cattle.

Goals

Awareness: To provide students with an awareness of the nature of cow/calf production including the knowledge, skills and abilities required for cow/calf production.

Connections between School and Work: To create a connection for students between the world of school and the world of work.

Business and Entrepreneurship Attitudes: To develop the skills and abilities which encourage students to understand the business of cow/calf production and markets.

Community Environment: To use relevant community examples which will help develop students' skills and abilities as well as encourage a sense of pride and community.

Communication: To develop social and communication skills as potential employees or employers in cow/calf production.

Employability Skills: To encourage the development of employability skills in cow/calf production.

Personal Management Skills: To promote self-esteem, confidence and a proactive attitude toward time management, communication skills, and technical skills.

Course Components and Considerations

Course Description

Cow/Calf Production 10, 20, 30 requires 100 hours of instruction per credit. The guidelines have been developed to provide a balance between:

- *knowledge* of all facets of cow/calf production including farm safety
- *skills and abilities* provided by information and practical application of concepts
- *exposure* to farms involved in cow/calf production
- *opportunities* for mentoring, job shadowing, or work study using resources in the community.

The ATEC Program guidelines are organized into two sets of modules.

Cow/Calf Production 10, 20, 30 Core Modules represent 50-65 hours of in-class or practical instruction which will develop student knowledge, skills and abilities at the introductory level of cow/calf production.

Cow/Calf Production 10, 20, 30 Optional Modules are used to meet the particular interests of individual students. Students should be encouraged to develop learning contracts indicating their particular area of interest.

To successfully complete Cow/Calf Production 10, 20 or 30, a student must spend in the range of 25-50 hours of every 100 hours receiving practical instruction at a work site.

Training Plans

The appendices contain training plans in the form of checklists. These training plans can be used by teachers or farmers-trainers for organizing, planning and monitoring work study or instruction at a work site. Student expectations include observation and assistance or demonstration of a skill or set of skills.

Adjusting for Prior Learning and Experience

Many students, particularly those coming from farm backgrounds, may have already acquired some of the basic knowledge and/or competencies in cow/calf production prior to taking this course. Teachers should assess individual students and evaluate their level of competency. Teachers should apply the Adaptive Dimension to all modules (by adjusting their instruction, materials, and environment to support student achievement of objectives) and encourage students to select optional modules which will enhance their knowledge, skills and abilities in cow/calf production.

Students should develop their own learning contract according to their own needs. Each module has a suggested range of instructional hours allowing for flexibility in designing individual learning plans.

Course Overview

In the Cow/Calf Production 10, 20, 30 series, there are no prerequisites for any of the courses. While it is recommended that students complete all three courses in the series, a teacher may choose to teach 20 or 30 without the others. In order to accommodate this option, few modules have prerequisite modules identified. However, when not providing the 10, 20 and 30 courses in order, teachers must review, and may need to incorporate, learning objectives from earlier comparable modules to ensure that students gain all the necessary knowledge and skills.

Module Code	Module	Suggested Time (hours)
Core and Optional Modules for Cow/Calf Production 10		
CALF01	Module 01: Farm Safety (Core)	7-9
CALF02	Module 02: Communications (Core)	3-4
CALF03	Module 03: Career Exploration (Core)	3-4
CALF04	Module 04: Planning for Livestock Production (Core)	4-6
CALF05	Module 05: Farm Equipment Maintenance and Repair (Core)	10-14
CALF06	Module 06: Marketing (Core)	4-5
CALF07	Module 07: Beef Cattle Breeds (Optional)	4-6
CALF08	Module 08: Basic Handling of Beef Cattle (Core)	3-4
CALF09	Module 09: Cattle Nutrition (Core)	4-5
CALF10	Module 10: Livestock Handling Equipment (Core)	6-8
CALF11	Module 11: Beef Cattle Health Care (Core)	5-10
CALF12	Module 12: Pasture and Pen Maintenance (Optional)	5-7
CALF13	Module 13: Riding and Handling a Horse (Optional)	1-3
CALF14	Module 14: Recordkeeping in a Cow/Calf Operation (Optional)	1-3
CALF15A	Module 15A: Work Study Preparation and Follow-up Activities (Core)	5-10
CALF16A	Module 16A: Work Study (Core)	25-50
Core and Optional Modules for Cow/Calf Production 20		
CALF15B	Module 15B: Work Study Preparation and Follow-up Activities (Core)	5-10
CALF16B	Module 16B: Work Study (Core)	25-50
CALF17	Module 17: Farm Safety (Core)	7-9
CALF18	Module 18: Communications (Core)	3-4
CALF19	Module 19: Career Exploration (Core)	3-4
CALF20	Module 20: Planning for Beef Cattle Production (Core)	4-6
CALF21	Module 21: Farm Equipment Maintenance and Repair (Core)	5-7
CALF22	Module 22: Marketing (Core)	4-5
CALF23	Module 23: Cattle Breeds (Optional)	2-4
CALF24	Module 24: Beef Handling (Core)	3-5
CALF25	Module 25: Cattle Nutrition (Core)	5-7
CALF26	Module 26: Livestock Handling Equipment (Core)	5-7
CALF27	Module 27: Pasture and Pen Checking (Optional)	4-5
CALF28	Module 28: Repair and Maintenance of Cow/Calf Facilities (Core)	5-6

CALF29	Module 29: Veterinary Drugs (Core)	4-6
CALF30	Module 30: Calving Procedures (Core)	5-10
Core Modules for Cow/Calf Production 30		
CALF15C	Module 15C: Work Study Preparation and Follow-up Activities (Core)	5-10
CALF16C	Module 16C: Work Study (Core)	25-50
CALF31	Module 31: Recordkeeping for a Cow/Calf Operation (Core)	4-6
CALF32	Module 32: Causes and Prevention of Farm Accidents (Core)	4-5
CALF33	Module 33: First Response for Farm Accidents (Core)	3-4
CALF34	Module 34: Communications (Core)	2-3
CALF35	Module 35: Career Exploration (Core)	3-4
CALF36	Module 36: Farm Planning (Core)	3-4
CALF37	Module 37: Farm Equipment Maintenance and Repair (Core)	5-7
CALF38	Module 38: Cattle Anatomy (Core)	4-5
CALF39	Module 39: Culling and Breeding Plans (Core)	5-6
CALF40	Module 40: Specialized Livestock Equipment (Core)	7-9
CALF41	Module 41: Cattle Behaviour (Core)	4-6
CALF42	Module 42: Marketing Beef Cattle (Core)	5-6
CALF43	Module 43: Pasture Management (Core)	5-6
CALF44	Module 44: Animal Identification (Core)	4-6
CALF45	Module 45: Code of Ethics in Animal Practice (Core)	4-6

Considerations for Program Delivery

Community Partnerships Involve Using Local Farms and Farmers to Learn

Throughout this program, beef producers, livestock equipment and machinery dealers, and livestock specialists are recommended as resource persons to enhance student learning and to provide practical experience. Students should also use related livestock production businesses and services such as:

- feed mills
- livestock auction markets
- producer organizations
- farm building contractors
- veterinarians
- short-line equipment manufacturers or machinery dealers.

Teachers will need to seek assistance from beef producers in the community in order to provide opportunities for practical experience and to act as resources as required. Adjustments should be made to accommodate the particular circumstances of the community as well as the related experiences of the students.

Work study opportunities are a requirement of the course (i.e., 25 to 50 hours per credit).

Instructional Resources

There are a wide variety of resources for the instruction of cow/calf production. Students should develop skills in finding and using the most current information on topics relating to cow/calf production.

Saskatchewan Agriculture, Food and Rural Revitalization is the most important source of current resources. Resources can be ordered from the Publication Distribution Centre Order Desk by telephone at (306) 721-4330; by fax at (306) 721-4626 or by e-mail at Valb.pad@sk.sympatico.ca. Saskatchewan Agriculture, Food and Rural Revitalization's web site is <http://www.agr.gov.sk.ca>.

Instructional Strategies and Methods

The ATEC Program, Cow/Calf Production 10, 20, 30 encourages the use of the following instructional strategies and methods. Consult Saskatchewan Learning's foundation document *Instructional Approaches: A Framework for Practice* (1991), for additional information. Many instructional methods are recommended for use with the ATEC program.

experiential

- field trips
- field observations
- job shadowing.

interactive

- presentations including on-site demonstrations or symposiums
- discussions
- mentoring with co-operating farmers-trainers.

independent learning

- learning contracts
- student reference manuals.

Learning contracts and the creation of Student Reference Manuals are of particular importance in the ATEC Program.

Learning Contracts

The ATEC Program, Cow/Calf Production 10, 20, 30 is designed for more individualized exploration and application of skills and abilities through on-site practice with working farmers or on-site trainers. Learning contracts should be used to organize the on-site practice with the foundational and specific learning objectives required by the modules throughout the course. Examples of learning contracts can be found in the Saskatchewan Learning foundation document, *Student Evaluation: A Teacher Handbook*.

Student Reference Manual

The purpose of the Student Reference Manual is to be a repository of useful work site reference material collected throughout the course and throughout the various levels.

The Student Reference Manual will provide an exhibit of a student's effort, progress, and achievement over a period of time. The manual should be organized so that it is clearly useful to the individual student.

Throughout each level, students will be requested to prepare material to insert and maintain in the log. The material in the manual should be evaluated on accuracy, completeness, usefulness, and organization.

Preparing for the Cow/Calf Production

The courses in the ATEC Program focus on the skills and abilities required at the technician level of cow/calf production. Students are expected to achieve the basic competencies outlined throughout the course by:

- engaging in hands-on, practical experiences with knowledgeable experts in cow/calf production
- monitoring progress using checklists at key points throughout the course. These checklists should be self-assessed and verified by the farmers-trainers as well as the teacher.

The key factor to successful achievements of the basic competencies is the contribution made by the co-operating farmer-trainer. In order to establish a successful relationship, expectations should be discussed, defined, and mutually agreed upon by the co-operating farmers-trainers and the teacher. Teachers should refer to the "Guidelines for Work Study", a section of the *Practical and Applied Arts Handbook* for specific direction.

Teachers should also prepare an inventory of other community resources, work study opportunities, and field trip or demonstration sites prior to implementing Cow/Calf Production 10, 20, 30.

Planning Schedule for Teachers

Time period	To Do
Prior to course	Identify possible co-operating farmers-trainers* Review guidelines for Work Study Identify and select possible field trip or demonstration sites Identify possible work study opportunities.
Early in course	Work with students to: <ul style="list-style-type: none">• prepare individual learning contracts• identify and arrange field trip sites• identify and arrange work study opportunities.
Mid-way	Have students review individual learning contracts Discuss progress with co-operating farmers-trainers.
End of course	Remind students of deadlines Prepare for final assessment.

* Working with Saskatchewan Agriculture, Food and Rural Revitalization's (SAFRR) Green Certificate Program is considered optional but recommended in order for students to receive high school credit as well as certification through the SAFRR Green Certificate program. By having students enrol in the SAFRR Green Certificate Program, SAFRR can assist teachers with the identification of co-operating farmers-trainers as well as possible symposiums, field trips or demonstration sites.

Student Evaluation

There are three areas of importance in this curriculum on which teachers will collect data on student progress. Teachers should clearly outline their expectations of students and make students aware of the expectations for content (concept attainment), application (knowledge of processes), and experiential knowledge.

Areas of importance	Range of emphasis (%)	Suggested assessment techniques
Content (concept attainment)	20 – 30%	Ongoing student activities including written assignments, presentations, homework, attendance at workshops, and symposiums.
Application (knowledge and application of basic competencies and processes)	30 – 40%	Checklists indicating achievement of basic competencies in cow/calf production.
Experiential (application of knowledge, developing skills and abilities, processes and attitudes using actual situations, site visitations, and work study)	30 – 50%	Learning contracts (personal development and application of skills, abilities, and attitudes) Student Reference Manual including appropriate ongoing documentation indicative of independent learning Work study component assessment.

Refer to Saskatchewan Education's *Student Evaluation: A Teacher Handbook* (1991) for examples of a variety of evaluation and assessment techniques.

Program Evaluation

Program evaluation is the systematic process of gathering and analyzing information about some aspect of the school program in order to make a decision or to communicate to others what is happening in a program.

By its nature, Cow/Calf Production 10, 20, 30 can accommodate the interests and needs of each individual student. The course also depends on the co-operation of farmers-trainers. Although assessment is time-consuming, the course should be assessed regularly to ensure that:

- the program is meeting the needs of the individual student
- the co-operating farmer-trainer/student relationship is successfully operating
- the program provides meaningful awareness, adequate exploration opportunities, and relevant experiences.

Techniques for gathering and analyzing information on the course are anecdotal records, interviews and surveys at various times of the year. The information that is gathered can be used to make decisions about the program in future years.

Relationship to Saskatchewan Agriculture, Food and Rural Revitalization's Green Certificate Program

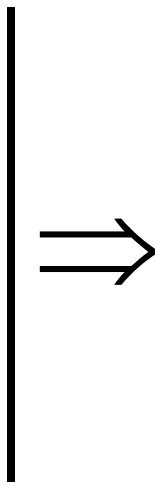
The Cow/Calf Production 10, 20, 30 is based upon Saskatchewan Agriculture, Food and Rural Revitalization's (SAFRR) Green Certificate Program - Technician Level. The following chart indicates the relationship with SAFRR's Green Certificate Program. Students or teachers should contact SAFRR's Green Certificate Program at (306) 787-8191 for more information.

Agriculture Technician Program

Cow/Calf Production 10 –
Introductory modules
1 Secondary Level credit

Cow/Calf Production 20 –
Intermediate modules
1 Secondary Level credit

Cow/Calf Production 30 –
Advanced modules
1 Secondary Level credit



Saskatchewan Agriculture, Food and Rural Revitalization's Green Certificate Program

Green Certificate Program
Level I: Technician

Students completing all three courses of Cow/Calf Production will be eligible for certification as a Level I Technician: Cow/Calf Production through Saskatchewan Agriculture, Food and Rural Revitalization. This applies for all production sectors with the exception of pork. Students completing the pork production sector may be eligible to receive credit in SIAST's pork management program once articulation processes have been completed with Saskatchewan Learning and the Apprenticeship and Trade Certification Commission (ATCC).

The ATEC Program relies on a partnership of students, teachers, and co-operating farmers-trainers. Teachers are encouraged to involve Saskatchewan Agriculture, Food and Rural Revitalization's Green Certificate Coordinator to assist in the program.

The following chart outlines the roles and responsibilities of each person involved in the ATEC Program. Teachers should review this information prior to making arrangements for delivery of the program.

Roles, Responsibilities and Accountability

The following charts indicate the role of each person involved in the ATEC Program.

Note: Working with the Saskatchewan Agriculture, Food and Rural Revitalization's Green Certificate Program is considered optional but is recommended in order for students to receive high school credit as well as receive certification through the Saskatchewan Agriculture, Food and Rural Revitalization Green Certificate Program. SAFRR's Green Certificate Program can also provide students with various learning opportunities through workshops, symposiums, and demonstrations.

Teacher
Read, interpret and comply with policy regarding Work Study, including completion of a Work-based Learning Consent Form and registration with the Regional Office of Learning.
Identify course needs of students and ensure the registration process.
Determine if the work site is acceptable. Facilitate the location and approval of a suitable training site. The co-operating farmers-trainers should: <ul style="list-style-type: none">• be qualified in the occupation• be able and willing to give direction to the student• have time to supervise and give direction.
Ensure that the work place is safe, complying with Occupational Health and Safety Standards.
Supervise the student's on-site work experience in accordance with school and Saskatchewan Learning's policies.
Monitor student and co-operating farmer-trainer on a regular basis for progress and results on training.
Provide for sound education program for students.
Evaluate students.
Optional: Communicate with Saskatchewan Agriculture, Food and Rural Revitalization's Green Certificate Coordinator. Look for opportunities which would be of mutual benefit, (i.e., symposiums, testing days for training periods, locating co-operating farmers-trainers, tour sites).

Student
Show initiative in taking the course and understanding the course requirements.
Establish an individual learning contract.
Participate in training sessions, symposiums, and meetings.
Learn the skills outlined in the course to the level required.
Work with the co-operating farmers-trainers to learn and acquire basic competencies.
Maintain records in the Student Reference Manual.
Keep records, prepare reports, and complete other evaluation procedures required by the teacher to receive high school credit in the course.
Optional: Attend a test day for a training period as required by Saskatchewan Agriculture, Food and Rural Revitalization's Green Certificate Program.

Co-operating Farmer-Trainer
Participate in orientation for the ATEC Program.
Spend time and energy to help in the training of the student.
Provide a safe learning environment for students.
Ensure that students have achieved competence in the skills according to the various standards outlined in the course.
Communicate with the teacher on the student's program.

SAFRR Green Certificate Coordinator (Optional)
Work with the teacher to establish the program.
Recognize the difference between the roles of the teacher, the co-operating farmer-trainer, student and SAFRR Green Certificate Coordinator.
Provide information and outline the process to students who wish to enroll in the ATEC Program for high school credit as well as receive certification through Saskatchewan Agriculture, Food and Rural Revitalization's Green Certificate Program – Technician Level.
Help supply materials, manuals, and other resources which support the delivery of the program.
If requested by the teacher, help identify suitable co-operating farmers-trainers for various production sectors.
Invite students to participate in test days for training periods, workshops or symposiums.
Arrange testers and organize test days.

* These tables have been modified from Battle River Regional Division #31 (1997), *Green Certificate Program: Handbook for Administrators and School Coordinators*, Camrose, AB.

Core and Optional Modules for Cow/Calf Production 10

Module 1: Farm Safety (Core)

Suggested Time: 7-9 hours

Level: Introductory

Prerequisite: None

Module Overview

This module is used to establish the critical importance of farm safety. Students are alerted to become aware of a variety of potential farm hazards. Students are also introduced to safety precautions and procedures associated with operating and maintaining farm vehicles.

Teachers, students and farmers/on-site trainers should be well familiar with farm safety including taking a farm safety audit and requiring continuing compliance with farm safety precautions. Further information can be obtained from the Farm Safety Division, Occupational Health and Safety, Saskatchewan Labour.

The significance of farm safety should be reinforced by stipulating to students that failure to demonstrate farm safety procedures would result in non-completion of the program.

Foundational Objectives

- To understand and use farm safety procedures at all times.
- To be able to recognize potential hazards on farms.
- To observe, assist with or demonstrate farm safety skills.

Common Essential Learnings Foundational Objective(s)

- To understand how technology influences occupational roles within society and affects the workplace (e.g., occupational health, safety, etc.). (TL)

Learning Objectives	Notes
1.1 To identify potential farm hazards.	Have a farm safety specialist talk to the students about general farm safety. Use site visitations and have students identify potential hazards and precautionary measures. Explain why these areas need cautionary attention. Contact Saskatchewan Labour, Prevention Services Branch, (787-8399 or 1-800-567-7233) for more information.
1.2 To describe the use of safety guards, shields, and other safety devices used on farm equipment.	Demonstrate a safety walk around all machinery and other devices to check for the placement and installment of safety devices. Point out the use of safety guards, shields and other safety devices used on farm equipment. Have students demonstrate the ability to locate, read, and comprehend the warning messages on the farm equipment.

Learning Objectives

Notes

Involve students in a discussion on farm safety around livestock.

Student Reference Manual: Prepare a safety checklist and inspection to be used on a routine basis.

- | | | |
|-----|---|--|
| 1.3 | To describe the kind of proper clothing and protective gear necessary to observe farm safety. | Discuss the kind of clothing, footwear, gloves, glasses, and breathing and ear devices necessary to work on farms and operate farm machinery. Identify the farm jobs or situations that warrant these precautionary measures. |
| 1.4 | To distinguish between a safe practice and an unsafe practice when using a number of manual and power tools as well as lifting equipment such as jacks and winches. | Manual and power tools as well as lifting equipment (jacks and winches) are used by all production sectors. Many times students do not recognize that these power tools and lifting equipment can be potentially dangerous. Have students examine the safety hazards associated with these kinds of small tools, jacks or winches. |
| 1.5 | To identify potential fire hazards and prevention procedures on farms. | Fires on farms can be caused by a variety of sources. Have students list the various fire hazards on farms. Have students described fire prevention on farms and investigate various types of fire equipment. |
| | | Student Reference Manual: Have students prepare a list and description of the various types of fire extinguishers. |
| 1.6 | To know when and how to use basic First Aid. | Basic First Aid is an essential skill on farms. Students would benefit from taking First Aid courses. Invite a practical nurse or St. John's Ambulance personnel to instruct students in basic First Aid of cuts, burns, sprains, and breaks. Students should be familiarized with emergency procedures for calling police, ambulance and fire fighters. |
| | | Student Reference Manual: Have students prepare a list of basic First Aid procedures. |

Module 2: Communications (Core)

Suggested Time: 3-4 hours

Level: Introductory

Prerequisite: None

Module Overview

Effective oral and written communication skills are important skills in all areas of cow/calf production. Throughout the course, students should be encouraged to develop and use effective verbal and written communication skills. An important component of effective communication is the use of appropriate industry language including accurate technical terms. Teachers may wish to have students establish vocabulary lists.

Foundational Objectives

- To develop effective oral and written communication skills.
- To observe, assist with or demonstrate effective communication skills.

Common Essential Learnings Foundational Objectives

- To gradually incorporate the vocabulary of the subject area into their talk and writing. (COM)
- To understand and use organizational structures within the subject area (e.g., to order ideas sequentially or chronologically, to compare and contrast, to discern cause and effect). (COM)

Learning Objectives	Notes
2.1 To understand the need for reliable information throughout all activities associated with cow/calf production.	<p>Providing and understanding current and reliable information involves a number of effective oral and written communication skills. Discuss with students the various kinds of communication required in cow/calf production including reading and forwarding messages, reading and interpreting animal health products, calculating feed rations or rates of gain, and interpreting manuals and other types of information.</p> <p>Many times, non-verbal communication can interfere with messages. Role play various situations with students, emphasizing employee/employer interactions.</p>
2.2 To identify the characteristics of effective verbal and written communication.	<p>Effective use of words is very important in making sure that the message is clearly understood. Effective communication depends on:</p> <ul style="list-style-type: none">• choice of words• simple instructions and answers• concise, specific language. <p>In farming, communication is critical not only to the operation of the farm but to follow safety procedures. Have students identify the information and communication needs on the farm.</p>

Learning Objectives	Notes
2.3 To develop skills in receiving and passing on messages and important information.	<p>Farmers are continually receiving and passing on information on everything from machinery repairs to livestock market reports. There are specific skills that a student should use when receiving a message that needs to be passed on as well as giving messages. Many times these messages are verbal (i.e., telephone, person to person) or through electronic communication such as faxes and e-mail.</p> <p>Have students compose and pass on messages and information that might be used on a farm through a variety of ways. Examples include:</p> <ul style="list-style-type: none">• telephone messages with written notes• messages left and retrieved through voice mail or answering machines• messages delivered or received through faxes• face to face messages and information.
2.4 To locate and use specific information contained in a variety of publications.	<p>Cow/calf production makes use of many sources of information. Finding and sorting information is an important skill particularly for technical information including farm equipment maintenance, calving information, and animal health products. Provide students with a number of manuals and technical information. Practice locating, sorting, and discussing when to use specific information.</p> <p>Student Reference Manual: Have students prepare a list of useful manuals and publications relating to cow/calf production.</p>

Module 3: Career Exploration (Core)

Suggested Time: 3-4 hours

Level: Introductory

Prerequisite: None

Module Overview

Students should explore the career options available to them throughout the course on cow/calf production. This module can be used as a guideline for future career and educational plans. It also introduces students to the concept of employability skills.

Foundational Objectives

- To create an awareness of the post-secondary programs, careers, and employment opportunities in cow/calf production.
- To develop a career plan.
- To understand the concept of employability skills.
- To observe, assist with using or demonstrate career and employability skills.

Common Essential Learnings Foundational Objectives

- To seek information through a steadily expanding network of options, including other libraries, databases, individuals and agencies. (IL)
- To recognize that learning is continuous from birth to death (e.g., life experiences). (IL)

Learning Objectives	Notes
3.1 To develop individual career profiles.	<p>This learning objective is used to help students identify specifically their areas of interest and abilities in production of field crops. This will enable students over the long term to maintain their enthusiasm as well as act as a positive reinforcement. Ask students to create an inventory of activities and interests.</p> <p>Assist students in identifying their academic and non-academic strengths including their present knowledge base. Encourage students to value their life experiences and their abilities outside of school. Emphasize the importance of relevant experience and expertise.</p> <p>Have students prepare a list of the many kinds of career opportunities in cow/calf production.</p> <p>Have students research career clusters and the range of occupational opportunities related to cow/calf production. Have students investigate various factors before making career choices including:</p> <ul style="list-style-type: none">• description of the work duties• personal qualities an individual must possess to succeed in the career• processes required to become certified within the career or trade

Learning Objectives

Notes

- length of education and training
- school locations
- cost of education and up-grading
- trends within the business or career
- worst and best aspects of the job
- starting salary
- opportunities for advancement.

Have students use this information to develop individual career profiles and a statement of educational and career goals particularly related to production of field crops.

3.2 To identify the basic personal and employability skills.

This learning objective is used to reinforce the notion of employability skills in students including:

- teamwork
- punctuality
- personal responsibility
- positive attitude
- co-operation.

Have students provide a description of each of these employability skills. Role play situations demonstrating situations where these skills would come into play.

3.3 To understand and practice time management.

Time management is an important lifelong skill. Have students list the jobs on a particular farm that need to be done on a weekly, monthly, seasonal or yearly basis. Prioritize the jobs and ask students to prepare a time management system.

Have students list their own jobs including schoolwork and extra curricular activities. Prioritize and prepare a personal time management system.

Student Reference Manual: Have students prepare a personal time management system.

Module 4: Planning for Livestock Production (Core)

Suggested Time: 4-6 hours

Level: Introductory

Prerequisite: None

Module Overview

This module is used to outline the basic types of planning required for livestock production.

Foundational Objectives

- To understand basic types of planning used in the production of beef cattle.
- To collect and use information related to farm planning.
- To observe, assist with or demonstrate abilities in planning for livestock production.

Common Essential Learnings Foundational Objectives

- To distinguish between primary and secondary sources of information. (COM)
- To apply conclusions and generalizations to new situations. (CCT)

Learning Objectives	Notes
4.1 To describe the kinds of plans that are used in cow/calf production.	<p>There are a number of plans used daily, monthly and yearly on a farm. Some of these include:</p> <ul style="list-style-type: none">• land management plans• financial plans• crop plans• cash projections• equipment usage• fertilizer and chemical plans. <p>Discuss with students the basics of a plan, what they are used for and how they are developed. Plans are used to assist in the daily, monthly and yearly operation of a farm. They are developed using a review of past performance, identifying future goals, suggesting strategies to help achieve the goals, and, checking to see how well the plan worked.</p> <p>Describe the basic elements of planning. Ask students to apply these basics and provide a brief description using these elements in a land management plan, financial plan, and equipment usage plan. Have students list the kinds of information they would need to complete each of these plans.</p>
4.2 To develop a land management or farm plan.	<p>At this basic level, students are introduced to planning through a land management (or farm) plan. Inform students of the purpose of a land management or farm plan. Have them discuss why it is important.</p>

Learning Objectives

Notes

In preparing a land management or farm plan, it is important to identify all the resources that are available or required to operate the farm. To prepare a land management plan, students need to study and describe:

- land features including soil types and water sources/availability
- cultivated/non-cultivated land
- uses of various land types
- most suitable types of farming/ranching
- other environmental considerations.

To prepare a farm management plan, students need to study and describe:

- natural, human and equipment resources
- financial resources
- geographical area
- natural resources - soil type, land formations, cultivated acres
- suitable type of farm/ranching for the area.

Have students select a location and develop a farm and/or land management plan. Use Saskatchewan Agriculture, Food and Rural Revitalization's web site to assist in finding information.

Student Reference Manual: Have students prepare a number of plans for buildings, fences, corrals, livestock handling equipment, and feed storage.

Module 5: Farm Equipment Maintenance and Repair (Core)

Suggested Time: 10-14 hours

Level: Introductory

Prerequisite: None

Module Overview

This module is used to give students an introduction into general maintenance and repair of farm machinery. Farm safety is stressed throughout the module.

Note: In dealing with all modules on farm equipment, teachers should inform students of the dangers and legalities of under-aged drivers operating farm machinery.

Foundational Objectives

- To develop basic skills and abilities in the repair and maintenance of farm machinery.
- To develop skills and abilities in the use of hand and power tools which are used to service farm machinery.
- To observe, assist with or demonstrate skills necessary for farm machinery maintenance and repair.

Common Essential Learnings Foundational Objectives

- To determine own learning needs. (IL)
- To analyze data to create hypotheses, predictions and estimates. (CCT)

Learning Objectives	Notes
5.1 To develop skills in the processes associated with regular machinery maintenance.	<p>The first step in maintenance of farm machinery is preventive maintenance process (i.e., checking oil, fuel levels, cleaning radiators, preventing chaff build-up, and monitoring gauges).</p> <p>Explain regular maintenance processes to students. Have students use the manuals of several different kinds of farm equipment to describe preventive practices of the particular machine.</p> <p>Student Reference Manual: Have students develop a checklist of preventive maintenance procedures for each piece of cow/calf production equipment.</p>
5.2 To identify and describe a variety of different types of tools (power and manual).	<p>On a farm operation, there are a number of screwdrivers, wrenches, and tools used in the daily maintenance and operation of farm machinery such as, the daily maintenance of the machinery, daily routine checkups of pulleys, or adapting the machinery to different uses.</p> <p>Each tool has a distinct operational procedure. Have students describe how to use a variety of common farm tools. Students should examine and demonstrate the standards illustrated in the operator's manual of each specific tool.</p>

Learning Objectives

Notes

Have students determine the different types and sizes of wrenches (manual and power) that best suit the job that the wrench is designed to achieve.

Demonstrate that the correct selection and use of the specific tool to fit the correct screw or bolt is very important to prevent damage to the tool, bolt or screw.

Distinguish between a safe practice and an unsafe practice when using specific manual and power tools.

- 5.3 To identify and describe the characteristics of the common farm mechanical, hydraulic, and hand jacks and winches.

In order to maintain machinery, it is often necessary to hoist or elevate machinery, parts of machinery, or other objects while working around the farm. There are a number of different ways to hoist an object depending on the structure of the article. It is important for students to be aware of the weight range, strength, and capacity of the jack and the item being lifted.

Have students compare and contrast the uses and efficiencies of the direct vertical lift, automotive, floor type, and any other. Identify the type that is best suited for each job.

Student Reference Manual: Have students prepare a summary of the type of common farm mechanical, hydraulic and hand jacks and winches.

- 5.4 To identify the dangers and hazards associated with common lifting equipment.

Overloading, tipping of the jack, and damaged or worn equipment can be just a few of the hazards when using lifting equipment. Select and illustrate the dangers and hazards that are associated with common lifting equipment.

Demonstrate the correct operating procedures in using the jack or hoisting equipment in a safe and efficient manner.

- 5.5 To identify the transportation regulations for farm equipment and livestock on public roads.

Transporting livestock and large farm equipment requires skills and caution. The province and rural municipalities have a number of regulations relating to agriculture. It is the responsibility of the farmer or rancher to know and abide by these regulations. Legal settlements for negligence can be very costly to a farming operation.

Learning Objectives

Notes

Identify and explain licensing, insurance, operator's qualifications and *Dangerous Goods Transportation Act* for handling all types of farm equipment on public roads.

Consideration should be given to liability insurance, license class, and types of roads.

Examine and describe the width-height-length requirements, the lighting requirements, slow moving signs, clear visibility rules and seasonal restrictions on all farm equipment.

Livestock transportation regulations also specify the types of trailers that can be used as well as restrictions to the amount of time livestock can be hauled.

Student Reference Manual: Have students prepare a number of descriptions/situations of transportation of livestock or farm equipment. Include outside sources of information for specific rules and regulations (e.g., Highway Traffic Board for over-width, over-height vehicles).

- 5.6 To understand the need for having emergency equipment.

Outline and give examples of the tools and emergency equipment, which are required if the farm machinery has a crisis while in transport on a public road. Assess student's knowledge using a short answer test.

Module 6: Marketing (Core)

Suggested Time: 4-5 hours

Level: Introductory

Prerequisite: None

Module Overview

Marketing is one of the most important activities in livestock production. This module gives students basic awareness and knowledge of agricultural marketing.

Foundational Objectives

- To develop an understanding of how agricultural commodities are marketed.
- To develop an awareness of the market information available to producers.
- To observe, assist with or demonstrate skills related to marketing livestock.

Common Essential Learnings Foundational Objectives

- To read and interpret quantitative information found in newspapers, magazines, and government, political and business publications and evaluate the validity of arguments based on such information. (NUM)
- To propose generalizations that explain relationships. (CCT)

Learning Objectives	Notes
6.1 To gain first hand knowledge of how marketing information is used in producing an agricultural commodity.	<p>Students would benefit from a field trip to an auction barn, inland terminal or grain elevator as a practical introduction to marketing. Prepare hosts ahead of time of the level of students' understanding and the kind of information that would be helpful to students.</p> <p>Students could use a case history or interview approach to gather and sort information about livestock marketing.</p>
6.2 To describe the basic steps involved in livestock marketing.	<p>At this level, students should develop only a basic understanding of livestock marketing. Marketing involves gathering and making decisions about when to buy or sell calves, cows or finished cattle. Have students locate and sort current market information.</p> <p>Have students provide a description of the various kinds of markets used in cow/calf production.</p>

Module 7: Beef Cattle Breeds (Optional)

Suggested Time: 4-6 hours

Level: Introductory

Prerequisite: None

Module Overview

This module introduces students to the basic physical characteristics of beef cattle. It is also used to introduce students to the beef breeds common on Saskatchewan farms and ranches.

Foundational Objectives

- To develop an awareness of the basic physical characteristics of the most common types of Saskatchewan beef cattle.
- To understand the physical differences of beef cattle according to gender and age.
- To observe, assist with or demonstrate knowledge about beef cattle.

Common Essential Learnings Foundational Objectives

- To generate, classify and explore reasons or rules underlying categories. (CCT)
- To organize information for reporting, discussing or sharing. (COM)

Learning Objectives	Notes
7.1 To describe the basic physical characteristics of beef cattle.	<p>Have students identify the gender of the beef cattle animals by proper name (i.e., steer, cow, heifers, virgin bulls, etc.) and list their main distinguishing characteristics. Have students identify the main physical characteristics (e.g., age, frame, size, weight) and “ideal” types for each. Have students gain practical experience in identifying and judging quality animals.</p> <p>Have students use appropriate gender descriptions throughout the course.</p>
7.2 To identify beef cattle by types of breeds and breed characteristics.	<p>In operating a cow/calf operation, producers need to select the most suitable cattle for their particular farming operation. Each breed has its own special characteristics. Knowing and understanding each breed’s uniqueness is helpful in planning for the cow/calf operation.</p> <p>Purebred animals provide the foundation or seed stock for both commercial and purebred cow/calf operations. Explain the relationship between purebred breeders and commercial cattle operations. Explain the benefits of cross-breeding.</p> <p>Have students research and compare the different breed types of cattle used in a beef cow/calf operation. Have students list the qualities of each breed and state what their strengths and weaknesses.</p>

Learning Objectives

Notes

Student Reference Manual: Have students identify the names and locations of various breeders in their area. Include an inventory of quality and availability.

Module 8: Basic Handling of Beef Cattle (Core)

Suggested Time: 3-4 hours

Level: Introductory

Prerequisite: None

Module Overview

This module provides students with the basic handling of beef cattle in a cow/calf operation. Students should be reminded of the information and practices contained in the module on farm safety.

Foundational Objectives

- To develop an understanding of the relationship between the physical characteristics of an animal and their behaviour.
- To observe, assist with or demonstrate basic skills in handling beef cattle.

Common Essential Learnings Foundational Objectives

- To ask pertinent questions in order to further their own understanding. (COM)
- To examine moral issues uncovered in this module through a framework which incorporates cultural understandings. (CCT)

Learning Objectives	Notes
8.1 To describe cattle vision, hearing and movement.	<p>The ways in which the operator of a cow/calf operation handles beef cattle requires knowledge of the basic physiology and structure of the animal. Herding, handling, and providing health treatment are just a few of the daily routine duties that are involved in a cow/calf operation. The operator must be very familiar with the behaviours of cattle in order to handle the cattle. It is necessary for the operator to have a working knowledge of the vision, foot structure, and hearing of animals and how these structures affect the cattle's behaviour.</p> <p>Identify the proper way to restrain an animal by use of a halter, rope (size and length), and knot tying techniques.</p> <p>Invite a livestock specialist or veterinarian to discuss beef cattle characteristics such as vision, hearing and footing. Include cattle and herd behaviour in the discussion. Have veterinarians, ranchers or livestock specialists discuss noise and handling situations which can hurt, cause stress, or excite the cattle.</p> <p>Have students:</p> <ul style="list-style-type: none">• identify proper techniques to reduce noise and stress in cattle• outline the nature of cattle's vision and describe the handling practices that are used around cattle to reduce noise stress• recognize and distinguish the structural features of the cattle's foot and what are the best conditions for footing to reduce injury• identify situations in which cattle can cause injury through improper handling.

Module 9: Cattle Nutrition (Core)

Suggested Time: 4-5 hours

Level: Introductory

Prerequisite: None

Module Overview

This module looks at cattle nutrition and feeding programs necessary for successful cow/calf production.

Foundational Objectives

- To understand the importance of meeting the nutritional requirements of beef cattle.
- To observe, assist with or demonstrate skills required to meet the nutritional requirements of beef cattle.

Common Essential Learnings Foundational Objectives

- To distinguish between quantitative situations where precision is required and those where approximations are acceptable. (NUM)
- To distinguish between primary and secondary sources of information. (COM)

Learning Objectives	Notes
9.1 To understand the importance of meeting the nutritional requirements of beef cattle.	<p>Nutrition and the management of a nutritional plan is critical in the operation of a cow/calf operation. Cows must be in excellent shape for the breeding/reproduction cycle, feeding of calves, and maintaining a healthy herd.</p> <p>Have students consider the physiological state of the cow and how the type and quality of forage, dry food or water affects performance and health.</p> <p>Invite a veterinarian to discuss the problems associated with inadequate nutrition or the effect that insufficient water intake has on cattle.</p>
9.2 To identify the components of a feeding plan.	<p>Have students research the basic components of a feeding plan including:</p> <ul style="list-style-type: none">• different rations, properties and quantities required for the age and sex of beef cattle (e.g., spring calves, fall calves, bred cows, bulls)• water quality in terms of mineral content, pollutants and algae• types of feeding equipment used in a cow/calf operation. <p>Student Reference Manual: Have students prepare a feeding plan according to age and gender.</p>

Module 10: Livestock Handling Equipment (Core)

Suggested Time: 6-8 hours

Level: Introductory

Prerequisite: None

Module Overview

This module gives students information about and practice in using livestock handling equipment. Remind students at all times of basic farm safety.

Foundational Objectives

- To understand and know farm safety procedures associated with livestock handling equipment.
- To observe, assist with and demonstrate skills related to livestock handling equipment.

Common Essential Learnings Foundational Objective(s)

- To explore the evolution of technological innovations related to livestock handling. (CCT)

Learning Objectives	Notes
10.1 To demonstrate the operation of livestock equipment.	<p>Students should be able to describe or demonstrate the safe operation of front end loaders, augers, conveyors, and platform scales. Students should be knowledgeable about and able to identify the dangerous parts and hazards of operating these types of equipment.</p> <p>Ensure that students demonstrate precautionary steps which need to be taken to eliminate the possibility of dangerous situations.</p>
10.2 To demonstrate the operation of livestock handling equipment such as squeezes and gates.	<p>Have students identify the parts of manual or power cattle squeezes and gates. Demonstrate how this equipment is used. Have students demonstrate their knowledge and ability to use this equipment. Students should be thoroughly familiar with the hazards associated with operating a squeeze for the operator and the cattle.</p> <p>Students should be able to demonstrate or describe the precautionary measures that should be taken to prevent injury to the cattle.</p>
10.3 To become familiar with feeding equipment.	<p>The equipment to operate a proper feeding program is essential to keeping the plan on schedule. The equipment must be maintained and serviced on a regular basis to have the operation function according to the plan. Have students identify and propose proper techniques for operating and maintaining portable feed milling and mixing equipment.</p> <p>Students should describe the hazards associated with operating this equipment and locate the precautionary measures stated by the operator's manual.</p>

Module 11: Beef Cattle Health Care (Core)

Suggested Time: 5-10 hours

Level: Introductory

Prerequisite: None

Module Overview

This module can be used to enhance the knowledge of students already familiar with beef cattle. Students will investigate basic health care of beef cattle.

Foundational Objectives

- To develop an understanding of the concept of herd health.
- To develop basic skills and abilities in basic beef cattle health care.
- To become knowledgeable about common diseases and disorders in cattle.
- To observe, assist with or demonstrate skills and abilities related to the health of beef cattle.

Common Essential Learnings Foundational Objectives

- To synthesize ideas gleaned from current reading/discussion/viewing/oral presentations with prior knowledge and understanding. (COM)
- To understand that divergent thinking and reasoning often precede convergent thinking and solutions to problems. (NUM)

Learning Objectives	Notes
11.1 To describe the concept and procedures associated with basic herd health.	<p>At this level students should become familiar with the concept of herd health and the basic procedures of maintenance and treatment which maintain herd health. Invite a local veterinarian to talk about the preventive procedures that ensure overall herd health.</p> <p>Student Reference Manual: Have students prepare a checklist of preventive measures and practices.</p>
11.2 To demonstrate a basic knowledge of animal drug products.	<p>A component in maintaining cattle health is understanding the basic nature of drug products available. It is important to know what each drug is like in nature and its use. An operator must interpret the labels and determine the dosage as well as the correct administration style. The drug products must also be stored properly for further use.</p> <p>Have students identify a drug label or product information and describe the use and purpose of each drug. Have them interpret the drug label or product for administration style, dosage, and frequency.</p> <p>Students should also describe the possible contamination hazards during storage and handling and identify the techniques to minimize these hazards.</p>

Learning Objectives

Notes

Have students explain the administration style with the proper equipment, restraining procedures, and economic considerations.

Student Reference Manual: Have students prepare a list of the most common animal health products to have on hand in a cow/calf operation. Students should include animal health equipment such as calf pullers, pails, and stomach tubes.

- 11.3 To develop the ability to administer animal First Aid

Cow/calf operators must have the ability to identify the situation and make a judgement call in order to decide if a veterinarian should be involved. For economic reasons, it is important to establish a basic First Aid kit to treat the animals instead of calling outside help.

Student Reference Manual: Have students make a list for a First Aid supply kit that is appropriate for a cow/calf operation.

- 11.4 To identify common diseases and disorders in a cow/calf operation.

A cow/calf operator is required to demonstrate a basic knowledge of cattle health disorders. The ability to recognize and identify common symptoms, the nature of the diseases, and the precautionary measures that prevent the diseases are essential in running a successful operation. Have a veterinarian discuss what to look for in diagnosing basic animal health problems.

Student Reference Manual: Have students prepare a chart or reference list of common diseases and disorders in a beef cattle operation. Students should include symptoms such as, respiratory rate, skin conditions, eye or nasal discharge or weeping, injuries to feet and legs and digestive diseases such as scours or coccidiosis. Students should also identify the causes and describe a medication and/or prevention plan.

Module 12: Pasture and Pen Maintenance (Optional)

Suggested Time: 5-7 hours

Level: Introductory

Prerequisite: None

Module Overview

In the summer, beef cattle depend on pastures for food and shelter. In the winter months, cattle are housed in pens or pastures with wind fence or shelter belts. This module is used to introduce students to basic pasture and pen maintenance.

Foundational Objectives

- To acquire basic skills in pasture and pen maintenance.
- To observe, assist with or demonstrate skills related to pasture and pen maintenance.

Common Essential Learnings Foundational Objective

- To learn through synthesizing understandings, experiences, interests and needs. (IL)

Learning Objectives	Notes
12.1 To demonstrate skills in checking and maintaining pen facilities.	<p>Buildings, corrals and fences need regular maintenance in order to provide a safe and healthy environment for cattle. The inspection of feed bunks, water containers, fences, gates, etc. is crucial to the daily operation. The operator must be able to use the equipment to repair the corral and fence.</p> <p>The operator should learn how to minimize dangerous situations when operating the equipment associated with repairing the facilities.</p> <p>Student Reference Manual: Have students develop a plan that includes the critical points of checking and maintaining pens. The plan should include a description of what to look for when inspecting the feed bunks, water systems, and the pasture conditions.</p>
12.2 To develop skills in checking and maintaining pastures.	<p>The condition of the pasture is important for the growth and development of the animals. The operator must be able to analyze the state of the pasture. Compare pictures or encourage a discussion of what constitutes situations of proper grazing and management techniques. Investigate stocking rates for the area. Visit a Prairie Farm Rehabilitation Administration (PFRA) Community Pasture and talk to the pasture manager.</p> <p>Make sure that students are aware of the importance of clean and abundant water supply. Discuss management practices such as fencing dugouts, protecting riparian areas, and preventing algae growth.</p>

Learning Objectives

Notes

Have students demonstrate the ability to use corral and fence mending tools when repairing the fences and corrals. Make sure to identify the hazards associated with fencing jobs and power post pounders, and demonstrate procedures to minimize dangers.

Student Reference Manual: Have students develop a checklist of pasture maintenance.

Module 13: Riding and Handling a Horse (Optional)

Suggested Time: 1-3 hours

Level: Introductory

Prerequisite: None

Module Overview

Many students have horses to use for recreational activities as well as to work in a cow/calf operation. Building on personal interest, this optional module refines students' basic knowledge of horses. It is not intended to teach riding.

Foundational Objectives

- To understand the basic horse behaviour as it relates to beef cattle.
- To observe, assist with or demonstrate skills related to handling a horse.

Common Essential Learnings Foundational Objective

- To develop independence regarding planning, monitoring and evaluation of learning experiences. (IL)

Learning Objectives	Notes
13.1 To develop an understanding of basic horse behaviour.	<p>Horses are often used to assist in the sorting and gathering of cattle. Have students describe how to safely use and handle a horse in situations of sorting, gathering, handling and feeding cattle.</p> <p>Encourage students to demonstrate the proper selection, preparation and saddling of the tack necessary for a cow/calf operation. The demonstration should include the hazards associated with riding horses in a pasture, feedlot, or herding setting to both horse and rider.</p>

Module 14: Recordkeeping in a Cow/Calf Operation (Optional)

Suggested Time: 1-3 hours

Level: Introductory

Prerequisite: None

Module Overview

This module is used to introduce students to the importance of recordkeeping in cow/calf operations. While Recordkeeping in a Cow/Calf Operation is listed as optional at this level, it is a requirement at the 20 and 30 levels.

Foundational Objectives

- To develop skills in developing and using records in cow/calf operations.
- To observe, assist with or demonstrate skills related to using records in cow/calf operations.

Common Essential Learnings Foundational Objectives

- To make notes and organize with a system, such as index cards or a database. (COM)
- To organize information for reporting, discussing or sharing. (COM)

Learning Objectives		Notes
14.1	To understand the importance of keeping livestock records.	<p>Designing and maintaining livestock records is an important activity in a cow/calf operation. Livestock records are used to record and determine calving rates, birth weights, productivity from various cows or bulls, markets, customers, and prices.</p> <p>Have students discuss the importance of keeping livestock records as well as the kinds of records that might be of value.</p>
14.2	To develop a basic recordkeeping plan for livestock.	<p>Have students develop a variety of records that can be used in a cow/calf operation. Encourage students to use information technology wherever possible.</p> <p>Student Reference Manual: Have students develop record plans for calving, performance records, feed rations, and pedigrees.</p>

Module 15A, B, C: Work Study Preparation and Follow-up Activities (Core)

Suggested Time: 5-10 hours

Level: Introductory, Intermediate, Advanced

Prerequisite: None

Module Overview

This module is used to prepare students for work study placement. Learning objectives include pre-placement information, preparation for interviews, and expectations for the workplace experience.

Foundational Objective

- To develop workplace skills in the beef production sector.

Common Essential Learnings Foundational Objective

- To increase awareness of a variety of employability skills in the workplace. (CCT, COM, PSVS, TL)

Learning Objectives		Notes
15.1	To create an awareness of the expectations of each of the partners in the work study component.	<p>In order to establish a successful working relationship with all of the partners involved in the workplace, it is important to define the expectations of each partner.</p> <p>Refer to Guidelines for Work Study, a section of the <i>Practical and Applied Arts Handbook</i> (2003) for expectations of business, student, teacher monitor, and school.</p>
15.2	To determine factors that would affect the student contribution in the workplace. (CCT)	<p>The students may formulate a list of what they can bring to the workplace and how each may impact on their jobs. Their lists may include topics such as:</p> <ul style="list-style-type: none">• school subjects• past experiences• self-concept and personality• needs, values and interests• knowledge skills and attributes• career goals and plans. <p>Ask students to do a self-assessment of skills using the influences in the above list as a guide. Have students explain how these skills are valuable to the pork industry. Try to incorporate the value of communication and teamwork in the discussion.</p>

Learning Objectives	Notes
15.3 To foster an awareness of building good communication in the workplace.	<p>Discuss verbal and non-verbal communication. List some ways in which negative non-verbal communication may be addressed. Encourage students to role play ways of demonstrating effective techniques of verbal communication on the job when giving or receiving instructions, and when resolving conflict. With the use of case studies, divide the students into groups and have them role play to show how effective use of communication can be used to resolve conflict on the job.</p>
15.4 To develop a résumé and cover letter that can be forwarded to a potential employer.	<p>The student will develop a résumé and cover letter using the correct format. ATEC teachers can work with other staff members to ensure résumé and cover letter preparation is covered. The résumé and cover letter is currently addressed in English Language Arts, Information Processing, and Career and Work Exploration.</p> <p>Students should develop the résumé on a computer disk and update the résumé during the progression of the course as references are accumulated.</p> <p>If students have already completed the résumé and cover letter in another course, the teacher may do a review and encourage students to update their résumé. Students shall submit a résumé for teacher approval prior to going to the workplace.</p> <p>The résumé and cover letter may be used as an introduction for the employer of a workplace site prior to an interview with the student.</p>
15.5 To determine student guidelines in preparation for an interview.	<p>Through a classroom discussion or in groups, have students generate a list of guidelines for an interview. After the students formulate their list, the instructor may add missing items to the list.</p> <p>Outline and describe the three stages of an interview. Point out to the students in what stage each of their previously discussed guidelines will be used. A brief description of the three stages of an interview follows.</p> <p>The greeting involves an introduction between the student and employer. Discuss or demonstrate how this should be done.</p> <p>The exchange is where the employer asks a series of questions and engages in a conversation with the student about information on the résumé and other matters relating to the job placement.</p>

Learning Objectives

Notes

The **parting** brings the interview to a close. It can be just as important as the greeting. Explain how this can be done.

Provide students with a list of questions frequently asked by employers or ask students to formulate a list in a group and role play the stages of the interview.

15.6 To discuss the interview.

After the student has completed the interview with the employer, do a follow-up activity. Review the interview with the student using the three stages as a point for discussion.

15.7 To develop procedural guidelines for the work site.

Discuss work site guidelines, related to the following factors, with students:

- transportation
- hours of work
- absence and tardiness
- procedures for conflict resolution
- role of the student, teacher and work place supervisor
- dress code
- job description
- school and employer expectations.

Ensure that students understand these guidelines by asking students to describe each of these guidelines.

15.8 To relate feedback from the work placement.

Students should be encouraged to provide information about work placement including: where they were placed, type of business, duties, most rewarding experience, most difficult situation, and how they handled it.

It is recommended that each student send a thank-you note or card to the employer upon the completion of each work placement. If more than one placement has been made in the course, follow-up activities must be completed after each placement.

Module 16A, B, C: Work Study (Core)

Suggested Time: 25-50 hours

Level: Introductory, Intermediate, Advanced

Prerequisite: 15A, B, C respectively

Module Overview

Refer to the Work Study Guidelines included in the *Practical and Applied Arts Handbook* (2003) for direction on implementing work study.

Foundational Objectives

- To be aware of the careers and opportunities in the field of agriculture that exist in Saskatchewan and other provinces.
- To integrate classroom learning with work-related learning.
- To increase awareness of employability skills as they relate to the work environment.

Common Essential Learnings Foundational Objectives

- To engage in a work study experience and develop entry level workplace skills that may lead to sustainable employment. (PSVS)
- To expand career research beyond the classroom setting. (IL)

Teachers need to use or design appropriate learning objectives for this module (e.g., to demonstrate ability to follow a “Training Plan”).

Note: Consult the Career and Work Exploration 10, 20, A30, B30 Curriculum Guide and the Department of Labour for content about Labour Standards, Occupational Health and Safety, and Workplace Hazardous Materials Information System (WHMIS). Add more depth if you offer several work studies during grade 11 or 12 in a course series.

Core and Optional Modules for Cow/Calf Production 20

Module 17: Farm Safety (Core)

Suggested Time: 7-9 hours
Prerequisite: None

Level: Intermediate

Module Overview

Given the importance of farm safety, each level of ATEC courses begins with a core module on farm safety. This module provides students with knowledge, skills and abilities used when operating or maintaining farm equipment in all areas of production. Remind students of farm safety precautions at all times including the rules and regulations associated with operating farm vehicles.

Farm safety precautions are also required when working around beef cattle. Knowledge of, and respect for, the particular characteristics of beef cattle are of great value in the prevention of accidents to both the handler and the animal.

Students should develop comprehensive and useful notes on each of these subjects and place the information in their Student Reference Manuals.

Foundational Objectives

- To understand and use farm safety procedures at all times.
- To observe, assist with or demonstrate farm safety procedures with farm machinery and when working with beef cattle.

Common Essential Learnings Foundational Objective

- To understand how technology influences occupational roles within society and affects the workplace (e.g., occupational health, safety, etc.). (TL)

Learning Objectives	Notes
17.1 To identify existing or potential hazards on the farm.	<p>Have a farm safety specialist talk to the students about general farm safety. Identify hazardous equipment or chemicals around the farm. Use site visitations and have students identify potential hazards and precautions. Explain why these areas need cautionary attention.</p> <p>Have students consider the existing or potential hazards that are unique to beef cattle operations. Students need to consider these hazards from the perspective of the beef producers as well as to the cattle.</p> <p>Student Reference Manual: Have students develop and/or use a farm safety audit. Include safety for animals as well as operators, handlers and visitors.</p>

Learning Objectives	Notes
17.2 To describe the use of safety guards, shields, and other safety devices used on farm equipment.	<p>Demonstrate a safety walk-around. Check on all the devices used for safety and make sure everything is in proper working order. Ask students with prior knowledge to point out the use of safety guards, shields and other safety devices used on farm equipment.</p> <p>Have students demonstrate their knowledge and ability to locate, read, and comprehend the warning messages on the farm equipment.</p> <p>Student Reference Manual: Have students develop a safety checklist and inspection to be used on a routine basis.</p>
17.3 To describe the proper clothing and protective gear used on farms.	<p>Engage students in a discussion about the proper clothing, footwear, gloves, glasses, and breathing and ear devices to use when working around and operating farm machinery, and when applying chemicals and other hazardous materials.</p> <p>Have students identify when and where protective gear should be used.</p>
17.4 To distinguish between a safe practice and an unsafe practice when using specific manual and power tools as well as lifting equipment such as, jacks and winches.	<p>Examine the safety hazards associated with the use of power or manual tools. Identify the hazards associated with jacks and winches.</p>
17.5 To identify fire hazards and precautions on farms.	<p>Examine and list the fire hazards on farms. Know how and when to use various types of fire equipment.</p> <p>Have students consider the fire hazards to feed supplies such as, hay, straw and grain. Indicate or have students suggest precautionary measures.</p>
17.6 To know when and how to use basic First Aid.	<p>Have students prepare a list of basic First Aid procedures. If possible, encourage students to take the First Aid Course through St. John's ambulance.</p>

Module 18: Communications (Core)

Suggested Time: 3-4 hours

Level: Intermediate

Prerequisite: None

Module Overview

Students will enhance their verbal and written communication skills including the use of forms and recordkeeping. Recordkeeping is extremely important in beef cattle production, particularly for purebred herds and in feedlot situations.

An important marketing and management tool for beef cattle production is the ability to access and use the most current information and human resources available. This module is intended to encourage students to develop the practice of seeking information on a regular basis.

The module is also used to remind students of how and where to find information including reading manuals and finding industry-related information.

Foundational Objectives

- To enhance verbal and written communications skills used on farms.
- To develop skills in using forms and recordkeeping on farms.
- To observe, assist with or demonstrate effective communication.
- To develop skills in finding and using information.

Common Essential Learnings Foundational Objectives

- To gradually incorporate the vocabulary of the subject area into their talk and writing. (COM)
- To understand and use organizational structures within the subject area (e.g., to order ideas sequentially or chronologically, to compare and contrast, to discern cause and effect). (COM)

Learning Objectives		Notes
18.1	To encourage effective verbal and written communication skills. (COM)	<p>Ask students to list a number of examples of verbal and written communication that are used on a daily basis on a farm. Review the characteristics of effective communication and ask students to prepare examples.</p> <p>Role play employee/employer situations using verbal and written communication. Emphasize the importance of communication skills on the farm. (COM)</p>
18.2	To develop skills in using and filling out a variety of forms used on a farm.	<p>There are a variety of forms that are used on farms. Some of these include:</p> <ul style="list-style-type: none">• employee time logs• tax forms• compensation reports• market forms• feed and consumption records• cattle inventories
Learning Objectives		Notes

-
- production records
 - budget forms and other types of banking information.

Using a variety of forms such as, weigh dockets, time sheets, tax forms, production records, and inventory sheets, have students develop skills in completing forms. Indicate when they should be used, as well as those which are legal requirements.

18.3 To develop skills in finding, analyzing, and using a variety of information. (IL)

Beef producers need current information in order to make profitable decisions about marketing and production. This information can be found in manuals, weekly or monthly publications, trade magazines, and government and industry publications.

Have students find, analyze and describe the use of a variety of kinds of information on beef cattle production. Remind students of the importance of using the table of contents, index, order forms, toll free numbers, or on-line assistance.

Saskatchewan Agriculture, Food and Rural Revitalization is a good source for information on beef cattle production.

Students may also want a chance to access the Internet for a variety of product and equipment information. The *Western Producer Farm Directory* has a wide variety of web sites listed.

Student Reference Manual: Have students list the most important publications and web sites for personal use.

Module 19: Career Exploration (Core)

Suggested Time: 3-4 hours

Level: Intermediate

Prerequisite: None

Module Overview

Students will explore the career options available to them in beef production and develop long term plans. Students will also review the concept of employability skills. Students who have previously taken Career Exploration at level 10 of ATEC courses should re-examine and update their career plans.

Foundational Objectives

- To develop a career or educational plan.
- To understand and appreciate the importance of employability skills.
- To observe, assist with or demonstrate skills relating to career choice and employability.

Common Essential Learnings Foundational Objectives

- To seek information through a steadily expanding network of options, including other libraries, databases, individuals and agencies. (IL)
- To recognize that learning is continuous from birth to death (e.g., life experiences). (IL)

Learning Objectives	Notes
19.1 To examine the importance of employability skills. (CCT)	<p>Have students examine the following list of employability skills and describe how they would apply to their careers in agriculture:</p> <ul style="list-style-type: none">• ability to communicate effectively• problem-solving skills• technological ability• positive attitude• punctuality• responsibility• adaptability• independence and self-reliance. <p>Have students interview cattle producers or farmers/trainers to determine the kinds of employability skills that are important to them.</p>
19.2 To examine a different career choices in the production of beef cattle.	<p>Have students look at a number of career choices that fit their personality and learning styles. Then have students prioritize these choices by interest and job requirements. Have students state the reasons for these decisions.</p>

Learning Objectives	Notes
19.3 To identify the sources of counseling and organizations that can assist in planning a career.	A number of services can assist students in planning a career. Assist students with the preparation of a list of these services including post-secondary institutions, employment agencies, and courses at regional colleges.
19.4 To develop a career plan and appropriate educational strategy.	Have students prepare a career plan including both short term (1-2 years) and long term (2-6 years) objectives. Have them describe the objectives in writing and how they might achieve them. Help review the plans with students, making sure that they are realistic.

Module 20: Planning for Beef Cattle Production (Core)

Suggested Time: 4-6 hours

Level: Intermediate

Prerequisite: None

Module Overview

This module helps students enhance their knowledge and use of farm planning techniques, or review and evaluate existing plans.

Foundational Objectives

- To enhance skills associated with beef cattle production plans.
- To understand the basics of financial planning.
- To observe, assist with or demonstrate planning for beef cattle production.

Common Essential Learnings Foundational Objectives

- To distinguish between primary and secondary sources of information. (COM)
- To apply conclusions and generalizations to new situations. (CCT)

Learning Objectives	Notes
20.1 To review and/or develop farm and land management plans specifically related to beef production.	<p>Core modules in Level 10 develop the basic elements of farm planning. Review the strategies presented at that level. Have students review and/or develop the farm and land management plans specifically relating to beef cattle production.</p> <p>Have students share their plans with students in other ATEC courses. Have students discuss, share and critique plans. If possible, have students present their plans to an extension agrologist or financial person for review.</p>
20.2 To review the process of effective time management (personal and farm).	<p>Have students review or prepare a personal time management schedule as well as a farm time management schedule. Make sure students develop their time management schedules in balance with school, work, and recreation. In beef production, managing personal time is often beyond the control of the individual producer. Remind students that, in spite of the seasonal pressures of calving, balance in life is important.</p> <p>Students should also be reminded that lack of sleep is a leading cause of farm injuries.</p> <p>Student Reference Manual: Have students prepare, review and update time management plans.</p>

Learning Objectives	Notes
20.3 To develop a basic understanding of financial planning.	<p>Financial planning and maintaining business records are some of the most important components of operating a farm or ranch. Have students research the different ways that a financial plan can be prepared. Contact various financial institutions for plans and/or resource people that can provide useful information or assistance to students. Refer to Saskatchewan Learning's Accounting 10, 20, 30 Curriculum Guide, Farm Accounting Module, for more information and practice.</p> <p>Student Reference Manual: Have students prepare a financial plan for a particular farming operation.</p>
20.4 To develop a farm recordkeeping system.	<p>Preparing a financial plan for a farm is as easy as the quality and accessibility of the records that provide the information.</p> <p>Have students develop a filing system for a farming operation. Discuss the categories that need to be included and how to file and retrieve information when it is required.</p> <p>Farmers need to know what they have in inventory. Developing and using an inventory system is required for effective operation of a farm. This inventory should include cost, ownership, current value and date, and replacement value.</p> <p>Have students gather or prepare inventory records for agricultural commodities.</p>

Module 21: Farm Equipment Maintenance and Repair (Core)

Suggested Time: 5-7 hours

Level: Intermediate

Prerequisite: None

Module Overview

This module is used to reinforce the basic skills of general maintenance and repair of farm machinery that were introduced in Level 10. Rather than observe, students will be expected to assist and demonstrate skills listed in the training plans.

Farm safety is stressed throughout the module.

Note: In dealing with all modules on farm equipment teachers should inform students of the dangers and legalities of under-aged drivers operating farm machinery.

Foundational Objectives

- To develop basic skills and abilities in the repair and maintenance of farm machinery.
- To develop skills and abilities in the use of hand and power tools which are used to service farm machinery.
- To assist and demonstrate skills associated with general farm maintenance and repair.

Common Essential Learnings Foundational Objectives

- To develop and use point form notes. (COM)
- To analyze data to create hypotheses, predictions and estimates. (CCT)

Learning Objectives	Notes
21.1 To assist or demonstrate skills in the processes associated with regular machinery maintenance.	<p>The first step in maintenance of farm machinery is a preventive maintenance process (i.e., checking oil and fuel levels, cleaning radiators, preventing chaff build-up, and monitoring gauges).</p> <p>Have students describe the regular maintenance of the farm equipment used on a regular basis.</p> <p>Students should be able to use the manuals of several different kinds of farm equipment to describe preventive practices of the particular machine.</p> <p>Student Reference Manual: Have students prepare or update checklists of preventive maintenance procedures for each piece of cattle production equipment.</p>
21.2 To identify and describe a variety of different types of tools (power and manual).	<p>On a farm operation, there are a number of screwdrivers, wrenches, and tools used in the daily maintenance and operation of farm machinery such as the daily maintenance of the machinery, daily routine checkups of pulleys, or adapting the machinery to different uses.</p>

Learning Objectives

Notes

Each tool has a distinct operational procedure. Have students describe how to use a variety of common farm tools. Students should examine and demonstrate the standards illustrated in the operator's manual of each specific tool.

Have students determine the different types and sizes of wrenches (manual and power) that best suit the job that the wrench is designed to achieve.

Demonstrate that the correct selection and use of the specific tool to fit the correct screw or bolt is very important to prevent damage to the tool, bolt, or screw.

Distinguish between a safe practice and an unsafe practice when using specific manual and power tools.

- 21.3 To identify and describe the characteristics of the common farm mechanical, hydraulic, and hand jacks and winches.

In order to maintain machinery, it is often necessary to hoist or elevate machinery, parts of machinery, or other objects while working around the farm. There are a number of different ways to hoist an object depending on the structure of the article. It is important for students to be aware of the weight range, strength, and capacity of the jack and the item being lifted.

Have students compare and contrast the uses and efficiencies of the direct vertical lift, automotive, floor type, and any other. Identify the type that is best suited for each job.

Student Reference Manual: Have students prepare a summary of the type of common farm mechanical, hydraulic, and hand jacks and winches.

- 21.4 To identify the dangers and hazards associated with common lifting equipment.

Overloading, tipping of the jack, and damaged or worn equipment can be just a few of the hazards when using lifting equipment. Select and illustrate the dangers and hazards that are associated with common lifting equipment.

Demonstrate the correct operating procedures in using the jack or hoisting equipment in a safe and efficient manner.

Learning Objectives	Notes
21.5 To identify the transportation regulations for farm equipment and livestock on public roads.	<p>Transporting livestock and large farm equipment requires skills and caution. The province and rural municipalities have a number of regulations relating to agriculture. It is the responsibility of the farmer or rancher to know and abide by these regulations. Legal settlements for negligence can be very costly to a farming operation.</p> <p>Identify and explain licensing, insurance, operator's qualifications, and <i>Dangerous Goods Transportation Act</i> for handling all types of farm equipment on public roads. Consideration should be given to liability insurance, license class, and types of roads.</p> <p>Examine and describe the width/height/length requirements, the lighting requirements, slow moving signs, clear visibility rules and seasonal restrictions on all farm equipment.</p> <p>Livestock transportation regulations also specify the types of trailers that can be used as well as restrictions to the amount of time livestock can be hauled.</p> <p>Student Reference Manual: Have students prepare a number of descriptions/situations of transportation of livestock or farm equipment. Include outside sources of information for specific rules and regulations (e.g., Highway Traffic Board for over-width, over-height vehicles).</p>
21.6 To understand the need for having emergency equipment.	<p>Outline and give examples of the tools and emergency equipment which are required if the farm machinery has a crisis while in transport on a public road.</p>

Module 22: Marketing (Core)

Suggested Time: 4-5 hours

Level: Intermediate

Prerequisite: None

Module Overview

Marketing is one of the most important activities in the production of beef cattle. This module is intended to enhance students' basic understanding of marketing by exposing them to the variety of options available to livestock producers.

Foundational Objectives

- To develop skills in using market information.
- To describe different marketing mechanisms.
- To observe, assist, or demonstrate skills in marketing beef cattle.

Common Essential Learnings Foundational Objectives

- To read and interpret quantitative information found in newspapers, magazines, and government, political, and business publications and evaluate the validity of arguments based on such information. (NUM)
- To propose generalizations that explain relationships. (CCT)

Learning Objectives	Notes
22.1 To describe how to market an agricultural commodity.	<p>Marketing of any product incorporates a series of activities. These activities include but are not limited to:</p> <ul style="list-style-type: none">• locating, sorting, and analyzing market information for current and potential markets• identifying and considering the factors which influence marketing such as, product supply and demand, imports and exports, consumer trends, and economic conditions• assessing the potential of advertising and promotion in a variety of markets. <p>Describe what each of these activities entails in practical terms and have students apply the series of activities to a particular agricultural commodity. Have students compare the marketing activities of different commodities.</p>
22.2 To develop skills in gathering and using market information for a particular agricultural commodity.	<p>Have students locate current sources of market information for a particular agricultural commodity. Review market terminology with students including terms such as futures market, bull or bear market, FOB pricing, open market. Have students practice reading commodity markets and discuss the events that might affect the price.</p> <p>Have students graph the price of a particular commodity for the duration of the course.</p>

Learning Objectives

Notes

Student Reference Manual: Have students list sources of current market information. Students should include web sites, radio or television broadcasts and print information.

- 22.3 To identify factors that influence decisions about marketing an agricultural commodity. (CCT)

Commodity prices are based on supply and demand. There are other factors, however, which influence decisions about when to sell a commodity. These factors include:

- financial constraints such as, limited cash flow or credit requirements
- limits on the amount of time for perishable products
- distribution and transportation requirements
- international and domestic trade policies and regulations.

Farmers need to consider these factors and more when making decisions about marketing an agricultural commodity. Discuss these factors with students. Encourage students to think of ways to mitigate the negative influences as well as how to take advantage of favourable influences.

- 22.4 To identify different market opportunities.

Many farmers have chosen to market their agricultural products through alternative contracts or niche markets. Have students investigate the different marketing opportunities for a particular commodity. Encourage students to analyze the advantages and disadvantages.

Engage students in a discussion on the best time to sell calves, replace cows with younger animals, buy feed, rent pasture, and lease or buy equipment.

Students may also wish to explore the opportunities for them to buy beef cattle through feeder associations, short term business loans, or through leasing beef cows.

Have students describe their ideas for innovative marketing opportunities of beef cattle. If possible, have students attend the Canadian Western Agribition or other cattle sales to get a first-hand look at marketing.

Module 23: Cattle Breeds (Optional)

Suggested Time: 2-4 hours

Level: Intermediate

Prerequisite: None

Module Overview

This module is used to encourage students to consider the strengths and weaknesses of various breeds of beef cattle. Students will consider these characteristics in conjunction with the ways in which beef cattle anatomy and physiology affects production.

Foundational Objectives

- To develop an awareness of the strengths and weaknesses of various breeds of cattle.
- To observe or demonstrate the strengths and weaknesses of various cattle breeds.

Common Essential Learnings Foundational Objectives

- To generate, classify and explore reasons or rules underlying categories. (CCT)
- To organize information for reporting, discussing or sharing. (COM)

Learning Objectives	Notes
23.1 To recognize the breed types that are most cost-efficient for a particular cow/calf operation.	<p>A comparison of breed types can help an operator make a clear decision to the best breed that will suit his or her type of operation. Some desirable characteristics include the type of animals that have a quiet nature for ease in handling, a record of rapid growth and feed efficiency, rapid weight gain, and high weight at weaning. Past performance in calving is also helpful.</p> <p>Have students examine and outline the different breed types and their characteristics in terms of handling behaviours, breeding and reproduction rates, growth rate, and marketability. Breed organizations often have a variety of promotional literature which students can use to compare the various breed types. In addition, ranchers from the local community may be invited as guest speakers to contribute information on this topic.</p> <p>Discuss, compare and contrast the advantages and disadvantages of each breed according to the type of cow/calf operation. Be sure to include all aspects mentioned above.</p> <p>Students involved in 4-H programs can also be used to as resources. Have students visit livestock shows such as the Canadian Western Agribition to investigate the “ideal” for modern beef cattle.</p> <p>Student Reference Manual: Have students prepare a list of useful information on various breeds including breeders in the area.</p>

Learning Objectives**Notes**

23.2 To identify and explain various aspects of the anatomy and physiology of beef cattle.

Knowledge of the anatomy and physiology of beef cattle is very helpful to operators of cow/calf operations. For example, operators use their knowledge of the anatomy and physiology of beef cattle to make daily decisions regarding feed, housing, health and reproduction.

Indicate to students the basic anatomy of beef cattle including the body, neck, head, feet, and legs. Also examine the different muscle structures and outline the function of each structure.

Student Reference Manual: Have students insert various diagrams illustrating the basic anatomical features of beef cattle.

Module 24: Beef Handling (Core)

Suggested Time: 3-5 hours

Level: Intermediate

Prerequisite: None

Module Overview

Cow/calf operators need to handle beef cattle several times during the year. This module expands students' understanding and expertise in relation to handling cattle by examining cattle behaviour through different age levels and production stages.

Foundational Objectives

- To understand that the ways in which cattle are handled often depend on the stage of development and production stages.
- To observe, assist with or demonstrate expertise in handling beef cattle.

Common Essential Learnings Foundational Objectives

- To ask pertinent questions in order to further their own understanding. (COM)
- To examine moral issues related to beef handling through a framework which incorporates cultural understandings. (CCT)

Learning Objectives	Notes
24.1 To describe and demonstrate skill in good handling techniques of cattle.	<p>Handling beef cattle in humane and safe ways varies according to the stage of development and the stage of production. With the assistance of a farmer-trainer, demonstrate to students cattle handling in the different stages of a cow/calf operation. Have students describe how they would handle cattle at different stages such as during the calving, breeding or weaning.</p> <p>Demonstrate any special equipment such as halters, ropes, chutes, or squeezes that are used to handle cattle. Contact the Farm Animal Council of Saskatchewan (FACS) for more information at www.facs.sk.ca.</p>

Module 25: Cattle Nutrition (Core)

Suggested Time: 5-7 hours

Level: Intermediate

Prerequisite: None

Module Overview

This module is used to enhance students' knowledge of beef cattle nutrition. This module begins with a discussion of the signs of inadequate or improper nutrition. Students use their basic knowledge to identify and analyze rations for maximum cow/calf production.

Foundational Objectives

- To demonstrate knowledge of the basic feed and nutritional requirements of beef cattle.
- To become knowledgeable about a beef cattle feeding program.
- To observe, assist with or demonstrate the ability to identify and analyze rations.

Common Essential Learnings Foundational Objectives

- To distinguish between quantitative situations where precision is required and those where approximations are acceptable. (NUM)
- To distinguish between primary and secondary sources of information. (COM)

Learning Objectives	Notes
25.1 To describe the signs of inadequate or improper feed rations.	<p>Have students investigate the basic nutritional requirements of a beef cattle herd. Invite veterinarians, livestock producers, or livestock specialists to talk to students about physical or behavioural symptoms of improper or inadequate feed rations. Discuss how to establish a routine health check that will ensure that the cattle are receiving adequate rations.</p> <p>Have students work with a livestock specialist or extension agrologist to determine the feed rations for various ages, weights, and circumstances of cow/calf operations. Students should become aware of terminology such as, total digestible nutrients, protein content, energy, trace minerals, and feed supplements. Make sure that students understand the importance of the availability of fresh, quality water.</p> <p>Student Reference Manual: Have students prepare a chart listing feed rations for various weights, ages, gender, and types of cattle. Remind students to include water consumption in their charts.</p> <p>Have students summarize the warning signs of inadequate feed rations.</p> <p>Students should also develop a checklist for monitoring adequate feed and water supplies.</p>

Learning Objectives	Notes
25.2 To interpret the nutritional content of prepared rations.	<p>Cow/calf operators rely on feed mills and livestock specialists to advise them on the kinds of rations and nutritional requirements that their cattle need. Feed rations need to be processed and mixed to achieve maximum production at the different stages in each type of herd. Have students identify the proper mixture for nutritional value of prepared food for maintenance, growing, or fattening. Have students contact livestock specialists or extension agrologists to talk about feed testing. As a class, identify and analyze the kinds of prepared rations required for maximum cow/calf production.</p> <p>Student Reference Manual: Have students prepare a list of feed mills, comparing prices of various kinds of supplement including freight costs.</p>
25.3 To describe feed storage.	<p>Cattle producers need to watch livestock feed for spoilage, dust, or contamination. Have students describe and explain the types of spoilage, dustiness, or contamination that can occur in the preparation, storage, and feeding of silage, hay, and processed or mixed feed.</p>

Module 26: Livestock Handling Equipment (Core)

Suggested Time: 5-7 hours

Level: Intermediate

Prerequisite: None

Module Overview

This module is based on students' prior knowledge of livestock handling equipment. The module enhances student knowledge by focusing on the skills needed for maintenance and repairs of livestock equipment. Students should also apply their knowledge of cattle behaviour when using livestock handling equipment.

Foundational Objectives

- To demonstrate the safe operation and maintenance of livestock handling equipment.
- To use regular maintenance and repair skills in livestock handling equipment.
- To observe, assist with or demonstrate the use of livestock handling equipment.

Common Essential Learnings Foundational Objective

- To explore the evolution of technological developments in livestock handling equipment. (CCT)

Learning Objectives		Notes
26.1	To identify and demonstrate maintenance and repair skills of squeezes and gates.	With the farmer-trainer, inform students of the proper inspection of livestock handling equipment. Identify the areas for repair and maintenance. Demonstrate the actual service and lubrication of the parts on the squeeze. Explain the proper setting for the squeeze according to the size of the animal. Student Reference Manual: Have students prepare a checklist of the visual and operational inspection of livestock equipment.

Module 27: Pasture and Pen Checking (Optional)

Suggested Time: 4-5 hours

Level: Intermediate

Prerequisite: None

Module Overview

Checking cows in pastures or pens is one of the best preventive measures against disease and accidents that can negatively affect beef cattle. Routine inspection means developing an “eye” for sick or injured cattle, problems with feed and water, or hazards. This module develops student’s skills in checking cattle in pastures and pens.

Foundational Objectives

- To develop the ability to check beef cattle in pens or pastures.
- To observe, assist with or demonstrate checking cattle in pastures or pens.

Common Essential Learnings Foundational Objective

- To learn through synthesizing understandings, experiences, interests and needs. (IL)

Learning Objectives	Notes
27.1 To identify the required activities of daily pen or pasture checks.	<p>Daily routine checks of the pasture or pens are necessary to maintain the well being of the cattle. It is important that the operator knows the common signs or irregularities to look for when doing the check. Many of the conditions can be remedied easily if caught in the early stages. Pens or pastures are also checked for problems with facilities, fences, water, and missing or stray animals.</p> <p>Students should demonstrate knowledge about:</p> <ul style="list-style-type: none">• symptoms or signs of sickness or disorder• normal or abnormal animal behaviours• significant signs of disorder in movement, noises, and walking• signs for respiratory conditions• eye, skin and eating disorders• signs of dehydration and fever• intestinal infections or parasitic infestations• pasture conditions including water quality and quantity <p>Student Reference Manual: Have students develop a checklist of routine activities in pastures or pens.</p>

Module 28: Repair and Maintenance of Cow/Calf Facilities (Core)

Suggested Time: 5-6 hours

Level: Intermediate

Prerequisite: None

Module Overview

Repair and maintenance of cow/calf facilities should be a matter of routine in a cow/calf operation. This module brings attention to the repair and maintenance of cow/calf facilities including fencing and corrals.

Foundational Objectives

- To demonstrate skills in the repair and maintenance of cow/calf facilities.
- To observe, assist with or demonstrate skills in repair and maintenance of cow/calf facilities.

Common Essential Learnings Foundational Objective

- To develop and use point form notes. (COM)

Learning Objectives	Notes
28.1 To demonstrate the ability to repair and maintain cow/calf facilities.	This is a hands-on module requiring that students demonstrate various methods which are used to repair and maintain livestock facilities including maintaining electric and conventional types of fencing, repairing waterers, fixing and planning corrals and barns.
	Student Reference Manual: Have students prepare a checklist of routine inspection areas.

Module 29: Veterinary Drugs (Core)

Suggested Time: 4-6 hours

Level: Intermediate

Prerequisite: None

Module Overview

This module is used to focus students' attention on the use, administration, and storage of veterinary drugs. All veterinary drugs should be administered carefully and only under the direction of a veterinarian. Proper storage and attention to the shelf life of drugs is critical to the efficacy of vaccines and medications.

Foundational Objectives

- To understand the need for careful use, administration and storage of veterinary drugs.
- To observe, assist farmer-trainers with, or demonstrate the proper use, administration and storage of veterinary drugs.

Common Essential Learnings Foundational Objective

- To understand the meaning of precision and determine the most appropriate degree of precision for a particular task. (NUM)

Learning Objectives	Notes
29.1 To manage a drug and medication program in a cow/calf operation.	<p>It is essential that cow-calf operators manage a drug and medication program based on knowledge of how to store, handle, and dispose of medications. The operator should be able to identify potential contamination hazards and describe the techniques to minimize problems. An important management tool is a well-designed recordkeeping system for use and administration of medication supply.</p> <p>Veterinarians are key resources for helping students understand the care and attention needed to handle, store and administer veterinary drugs.</p> <p>Student Reference Manual: Have students describe the handling, storage, and disposal procedures for each type of medication or drug that is required in a cow/calf operation.</p> <p>Students should identify the potential contamination hazards that can occur and describe the best techniques to avoid any contamination to the medications.</p> <p>Students should also design a recordkeeping system that is efficient in maintaining the health of the cattle and allowing the farmer to have the basic medications available when needed.</p> <p>In addition, have students develop an inventory system for the drugs and medications that ensures that the supplies are adequate.</p>

Learning Objectives**Notes**

- | | | |
|------|--|---|
| 29.2 | To understand the procedure and location for administering antibiotics and vaccines. | Students should have an opportunity to observe the administration of antibiotics and vaccines. Students should understand the food safety issues around administration of medication and should be aware of the reasons for different injection sites for vaccines and antibiotics. |
|------|--|---|

Module 30: Calving Procedures (Optional)

Suggested Time: 5-10 hours

Level: Intermediate

Prerequisite: None

Module Overview

Given the seasonal nature of calving, this module is considered optional but whenever possible it should be included in the course. It is used to introduce students to calving procedures including routine and optimal pre- and post-calving procedures necessary to provide safety for cows and calves. The module also includes pre-partum, partum and post-partum care of cows and calves.

Foundational Objectives

- To understand basic beef cow and calf care during calving.
- To observe, assist with or demonstrate calving skills.

Common Essential Learnings Foundational Objectives

- To interview persons with prearranged questions to acquire information. (COM)
- To select learning methods appropriate for task and own learning style. (IL)

Learning Objectives	Notes
30.1 To identify the proper care and nutrition for bred cows.	<p>The profit for a cow/calf operation is dependent on the number of calves produced in a year. Producers must take a number of precautionary measures to ensure successful calving including high calving rates and healthy animals. One of the most important factors for successful calving is the condition of the cows at the time of birth.</p> <p>After discussing cow nutrition with a farmer-trainer or a veterinarian, have students describe a program that would allow bred cows to have optimal health during the pregnancy. Have students include in the description the type of feed, nutrients, and general care required during gestation and calving.</p>
30.2 To describe the process of calving.	<p>Calving is always exciting for newcomers but often labour intensive and stressful for those who make their living from cattle. Students participating in this module should be reminded of the seriousness of calving to producers.</p> <p>Have a veterinarian explain the stages of labour and describe the process of calving. Include in the discussion common calving problems or conditions that require special attention or assistance. Students should prepare a checklist of necessary equipment and procedures including the steps required in case of problems.</p>

Learning Objectives

Notes

Student Reference Manual: Have students collect necessary information about calving procedures and develop a list of necessary equipment, drugs and nutritional supplements to have on hand when calving.

30.3 To demonstrate the post-partum care for cows and calves.

Post-partum care is required for both cows and calves. Have students identify and prepare a summary of procedures (including vaccinations) required for cows and calves.

Recordkeeping and identifying calves and their mothers is very useful in giving post-partum care to cows and calves. Discuss with students why recordkeeping is important during calving.

Student Reference Manual: Have students develop a recordkeeping system of recording cows and calves during calving season.

Core Modules for Cow/Calf Production 30

Module 31: Recordkeeping for a Cow/Calf Operation (Core)

Suggested Time: 4-6 hours

Level: Advanced

Prerequisite: None

Module Overview

Cow/Calf producers use a variety of records in their daily operations including records of calving, weaning weights, bulls, veterinary records and feed consumption. Purebred breeders in particular depend extensively on accurate records. This module expands students' skills and abilities in preparing and using livestock records

Foundational Objectives

- To understand the importance of livestock records.
- To develop the ability to plan livestock records.
- To observe, assist with, or demonstrate recordkeeping skills for a cow/calf operation.

Common Essential Learnings Foundational Objectives

- To make notes and organize with a system, such as index cards or a database. (COM)
- To organize information for reporting, discussing or sharing. (COM)

Learning Objectives		Notes
31.1	To understand the importance of livestock recordkeeping.	Have students identify livestock records and how they might be used. Some examples include: <ul style="list-style-type: none">• calving records• sales, prices, and purchases• weaning weight and rate of gain• cow productivity and fertility of bulls• purebred records breeding dates• feeding rates• kind of feed• days on pasture.
31.2	To develop various livestock records.	Have students design livestock records for a particular cow/calf operation. Use and application of computer software and spreadsheets are encouraged.

Student Reference Manual: Have students develop a livestock recordkeeping plan for a particular cow/calf operation.

Module 32: Causes and Prevention of Farm Accidents (Core)

Suggested Time: 4-5 hours

Level: Advanced

Prerequisite: None

Module Overview

At the advanced level of ATEC courses, students should be thoroughly familiarized with the importance of farm safety. This module serves as a review of farm safety and emphasizes the causes of accidents as well as procedures and practices which can prevent farm accidents.

Students should refer to their Student Reference Manual for checklists and examples of farm safety audits.

Foundational Objectives

- To demonstrate operating and maintenance procedures of various pieces of farm equipment.
- To observe, assist with, or demonstrate skills associated with farm safety.

Common Essential Learnings Foundational Objective

- To understand how technology influences occupational roles within society and affects the workplace (e.g., occupational health, safety, etc.). (TL)

Learning Objectives	Notes
32.1 To identify farm hazards.	Have a farm safety specialist speak to students about farm safety. Students should be able to identify a number of hazardous situations that need to be monitored on a farm. Students should also be familiar with various farm safety groups, organizations and regulations such as, Workers' Compensation.
32.2 To describe the use of safety guards, shields, and other safety devices used on farm equipment.	<p>Students should demonstrate a safety walk-around check on all the devices used for safety and make sure everything is in proper order pointing out the use of safety guards, shields, and other safety devices used on farm equipment.</p> <p>Students should also be knowledgeable about the proper clothing, footwear, gloves, glasses, and breathing and ear devices necessary for personal safety when working around and operating farm machinery, and when applying chemicals and other hazardous materials.</p> <p>Student Reference Manual: Have students revise and/or develop and use safety checklists for specific equipment on the farm.</p> <p>Students should develop a personal safety audit of a farm.</p>

Learning Objectives	Notes
32.3 To demonstrate safe practices when using lifting equipment.	<p>Students should be able to demonstrate safe practices when using specific manual and power tools as well as when lifting equipment such as, jacks and winches. Have students examine the safety hazards associated with the use of power or manual tools. Identify the hazards associated with jacks and winches.</p> <p>Have students describe the kinds and sizes of jacks and winches which should be used for various farm equipment repair and maintenance.</p>
32.4 To identify potential fire hazards and recommend precautions and fire fighting techniques.	<p>Students should be able to identify fire hazards and demonstrate various types of fire fighting techniques. Have students examine and list the fire hazards on farms. Students should know how and when to use various types of fire fighting equipment.</p> <p>Student Reference Manual: Have student prepare a checklist of potential fire hazards, types of fire extinguishers and the fire safety precautions.</p>

Module 33: First Response for Farm Accidents (Core)

Suggested Time: 3-4 hours

Level: Advanced

Prerequisite: None

Module Overview

Students have been encouraged throughout this course to take advantage of a First Aid Course. This module is used to develop students' practices of "first response" in the event of farm accidents.

Foundational Objectives

- To develop skills in dealing with emergency situations on a farm.
- To observe, assist with, or demonstrate skills in responding to emergency situations on a farm.

Common Essential Learnings Foundational Objective

- To generate and evaluate alternative solutions to problems. (CCT)

Learning Objectives	Notes
33.1 To develop skills in handling emergency situations.	<p>A course in First Aid is highly recommended but not always possible. With the help of an ambulance driver, RCMP or local police officer, St. John's Ambulance, nurse, or doctor, help prepare students to deal with emergency situations by identifying the steps involved in seeking assistance, caring for injured people, and First Aid supplies.</p> <p>Student Reference Manual: Have students prepare a checklist of the components of a well-equipped First Aid kit.</p> <p>Also have students make a chart of emergency phone numbers, police and fire departments, and ambulance services.</p>

Module 34: Communications (Core)

Suggested Time: 2-3 hours
Prerequisite: None

Level: Advanced

Module Overview

Producers rely on current information and effective communication on their farms. Effective communication skills are critical to maintaining good employee-employer relationships.

Throughout this module students develop and use skills required to find, gather and sort useful information and communicate effectively. Students may choose to focus on specific production information include finding and using specific information.

Foundational Objectives

- To locate, gather and use information about a production sector.
- To be able to differentiate between fact and opinion in information.
- To develop a range of skills used for effective communication.
- To observe, assist with, or demonstrate effective communication skills in cow/calf production.

Common Essential Learnings Foundational Objectives

- To understand and use organizational structures (e.g., to order ideas sequentially or chronologically, to compare and contrast, to discern cause and effect). (COM)
- To read, comprehend and use written materials including graphs, charts and displays. (NUM)

Learning Objectives	Notes
34.1 To understand the need for reliable information in all production sectors.	<p>Using flow charts or concept webs, identify where producers need reliable information. Have students consider the kind of information each requires. For example, producers need information on:</p> <ul style="list-style-type: none">• commodity prices, markets and growing conditions• transportation and input costs• health problems and weed or insect infestations• financial and banking information. <p>After identifying these information needs, have students consider where they would gather information related to each of these needs and what kind of communication about this information is the most effective.</p> <p>Have students consider the role of reliable information and effective communication on farms.</p>
34.2 To locate and sort useful information required on a farm.	<p>Finding, sorting and using information are important skills on a farm.</p>

Learning Objectives

Notes

In groups or as individuals, have students gather, sort and critique information about cow/calf production.

Have students prepare a resource listing of information including the source and availability of the information and where and how it might be used. Try to make the listings as comprehensive as possible including transportation, storage, related services and so on. Reinforce the value of reliable information and effective communication.

Student Reference Manual: Have students prepare a list of valuable resources.

34.3 To recognize the importance of effective communication.

All sectors in agriculture require effective communication skills in order to understand or be understood by employees, employers, suppliers, or customers. Some examples follow:

Producers need effective communication skills to:

- obtain and effectively use related goods and services
- market their products effectively.

Employees need effective communication skills to:

- analyze, organize and clarify information
- establish good will for their organizations
- communicate their ideas to both technical and non-technical colleagues
- support better workplace and interpersonal relationships
- create positive first impressions.

Have students describe the communication needs for their particular farming operation. Have students describe and demonstrate the skills that are required as well as when and how they would be used. Some examples are:

Writing and publications packages such as:

- word processing systems
- desktop publishing packages - Powerpoint, PageMaker, Claris Works.

Information Management systems such as:

- spreadsheets
- database management
- teleconferencing.

Learning Objectives**Notes**

Office tools such as:

- facsimile
- electronic mail
- voice mail.

Module 35: Career Exploration (Core)

Suggested Time: 3-4 hours

Level: Advanced

Prerequisite: None

Module Overview

This module provides students with a more extensive career exploration. Having worked and participated in a particular production sector by this stage of the program, students should be able to describe a variety of career opportunities and post-secondary educational programs that are of interest.

Foundational Objectives

- To be able to describe and access careers and job opportunities in the production agriculture or other field.
- To observe, assist with or demonstrate ability in determining career paths.

Common Essential Learnings Foundational Objectives

- To seek information through a steadily expanding network of options including other libraries, databases, individuals and agencies. (IL)
- To recognize that learning is continuous from birth to death (e.g., life experiences). (IL)

Learning Objectives	Notes
35.1 To identify career clusters and the range of occupational opportunities in crop production.	<p>List and research careers or occupations relating to crop production and cluster them according to:</p> <ul style="list-style-type: none">• primary production - professional science, management and operation• marketing, distribution and retail services• support services - production and processing inputs, financial and governmental• resource management. <p>Consider job descriptions, employment market, educational requirements, and wage expectations. If possible, assess current employment opportunities based on employment statistics. There are a number of web sites on agricultural careers for students to review.</p> <p>If possible, work with other ATEC students and hold a career fair or make oral presentations on other sectors.</p>

Module 36: Farm Planning (Core)

Suggested Time: 3-4 hours

Level: Advanced

Prerequisite: None

Module Overview

In this module students apply farm planning skills to a particular production sector. This module is used to enhance students' skills in farm planning with particular attention to financial planning. As an alternative, students may wish to complete the Farm Accounting module contained in the Accounting 10, 20, 30 Curriculum Guide.

Foundational Objectives

- To develop farm planning skills, particularly financial planning skills.
- To observe, assist with, or demonstrate farm planning skills.

Common Essential Learnings Foundational Objectives

- To distinguish between primary and secondary sources of information. (COM)
- To apply conclusions and generalizations to new situations. (CCT)

Learning Objectives	Notes
36.1 To prepare a projected budget.	Have students prepare a projected budget of income and expenses for a year in a farming operation. Reinforce the usefulness of a recordkeeping system to verify and modify the budget. Student Reference Manual: Have students develop a budget.
36.2 To select and use an accounting system.	Have students select and/or use an accounting system for farm business transactions. Be sure to reinforce the keeping of records to support the system.
36.3 To prepare a net worth statement.	Describe to students the concept of a net worth statement or have a representative from a financial institution talk to students about a net worth statement. Student Reference Manual: Have students prepare a net worth statement.
36.4 To study the sources of credit and the credit rating system.	Invite a representative from a financial institution or Farm Credit Corporation to talk to students about farm credit and the credit rating system.

Module 37: Farm Equipment Maintenance and Repair (Core)

Suggested Time: 5-7 hours
Prerequisite: None

Level: Advanced

Module Overview

Farm equipment maintenance and repair have been introduced in Level 10 and reinforced in Level 20. At Level 30, students are expected to demonstrate the skills and procedures described at the 10 and 20 level.

Using the training plans from farm equipment maintenance and repair, Level 10, have students demonstrate all of the skills and procedures identified.

Foundational Objective

- To observe, assist with, or demonstrate skills and procedures of farm equipment maintenance and repair.

Common Essential Learnings Foundational Objectives

- To develop and use point form notes. (COM)
- To analyze data to create hypotheses, predictions and estimates. (CCT)

Learning Objectives

Notes

Refer to Modules 5 and 21 as well as training plans (see appendices).

Module 38: Cattle Anatomy (Core)

Suggested Time: 4-5 hours

Level: Advanced

Prerequisite: None

Module Overview

This module expands students' knowledge of beef cattle anatomy to include rumination and digestion. Students identify the parts of the digestive tract, outline the stages of the rumination and digestive process, and give the function of each stomach. Students will also investigate the effects of different feed types on the reproduction and growth of beef cattle.

Foundational Objectives

- To become knowledgeable about beef cattle anatomy.
- To know and describe various disorders and diseases that are caused by nutrition.
- To develop an awareness of the effects of different feed types on the reproduction and growth of beef cattle.
- To observe, assist with, or demonstrate knowledge about cattle anatomy.

Common Essential Learnings Foundational Objectives

- To analyze tables of contents of several texts or reference books on the same topic for depth and breadth of topic coverage. (COM)
- To use a variety of resources to cover the breadth and depth of a topic. (COM)

Learning Objectives	Notes
38.1 To describe the processes of rumination and digestion.	<p>Cattle have unique systems of rumination and digestion which change as the animal matures. In addition, the function of the digestive tract changes as animals mature. Cow/calf producers need to understand the rumination and digestion systems of cattle in order to ensure animal health and maximum productivity.</p> <p>Have students investigate the processes of rumination and digestion in beef cattle. Have students examine and explain the different microorganisms required to break down different feeds. Test their knowledge.</p> <p>Have students describe the digestive system functions and nutritional requirements of:</p> <ul style="list-style-type: none">• newborn calves• weanlings• feeder cattle• breeding animals• mature cows and bulls. <p>Have students describe the effects the different food types have on the reproduction and growth of cattle.</p>

Learning Objectives

Notes

- 38.2 To prepare and assess feeding programs for various stages of cow/calf production.

Different types of feed affect the birth weight, calving rate, growth rate, and overall health of the beef animals. The nature of the digestive system in beef cattle is such that different feeds have different effects on cattle. Feeding programs are usually based on the feed available on the farm or ranch. Feed testing is used to determine the value of the feed. It is an important tool for producers to use in order to maximize the efficiency of the feed and prepare suitable feeding programs. Feed testing or analysis will provide information on total digestible nutrients, crude protein, trace minerals or contamination.

Students should have knowledge of the basic components and nutritional needs of the various stages of beef cattle from Levels 10 and 20. Review these basic requirements with students.

Discuss with students the significance of a clean and abundant supply of water and how water affects feed consumption and growth rate.

Have students obtain feed samples and/or use feed analysis reports to prepare a feeding plan that addresses the different stages of a cow/calf operation. Have students verify these plans with a veterinarian and livestock specialist.

Student Reference Manual: Have students prepare feeding programs for various stages. Remind students to include a list of basic nutritional requirements.

- 38.3 To identify the symptoms of common digestive diseases and disorders.

Common digestive diseases and disorders can be caused by:

- rapid changes in the type and amount of feed
- contamination of feed
- inadequate nutritional components
- rumen overload
- hardware disease.

Review the signs and symptoms of diseases and disorders with the farmer-trainer or veterinarian.

Student Reference Manual: Have students research and prepare a chart listing the various digestive diseases and disorders, and their causes, prevention, medication and other remedies.

Module 39: Culling and Breeding Plans (Core)

Suggested Time: 5-6 hours

Level: Advanced

Prerequisite: None

Module Overview

This module is used to help students determine how to evaluate cows and bulls for culling and breeding.

Foundational Objectives

- To understand the criteria used for evaluating cows and bulls for culling and breeding.
- To observe, assist with, or demonstrate the ability to cull cattle.

Common Essential Learnings Foundational Objectives

- To render a judgement and support that judgement by referring to clearly defined criteria. (CCT)
- To consider available evidence before drawing conclusions and developing generalizations. (CCT)

Learning Objectives	Notes
39.1 To identify the common health and/or physical qualities leading to culling cows and bulls.	<p>Cow/calf producers look for specific qualities when making decisions about whether to cull animals or keep them for future breeding. Discuss with students what some of these considerations might be. Some considerations include age, health, desirable physical characteristics and ability to raise a calf or breed cows.</p> <p>Have students reflect on the importance of breeding records when making decisions about culling.</p>
39.2 To develop the ability to evaluate an animal's physical problems and recommend treatment or shipping.	<p>Not all animals in poor condition for breeding should be culled immediately. Some may be suffering from ailments which could be treated and, therefore, help to return the animal to the breeding program. Students should consider alternatives between marketing the animal or using treatments. Have students present their rationale for a culling versus treatment decision.</p> <p>Student Reference Manual: Have students list auction markets and sale days in the local areas. Students should compare costs for yardage, and sale costs and prices on average.</p>

Module 40: Specialized Livestock Equipment (Core)

Suggested Time: 7-9 hours

Level: Advanced

Prerequisite: None

Module Overview

This module provides specific information and requires the demonstration of abilities in specialized livestock handling equipment.

Foundational Objectives

- To know and be able to operate various kinds of specialized livestock equipment.
- To observe, assist with or demonstrate the use of specialized livestock equipment.

Common Essential Learnings Foundational Objective

- To explore the evolution of technological innovations within the subject area. (CCT)

Learning Objectives	Notes
40.1 To identify and demonstrate the operation of specialized livestock equipment.	There is a variety of specialized livestock equipment that may be used in the operation of a cow/calf operation. These include weigh scales, feed mills, front end loaders, bale shredders, tub grinders, forage harvesters, and feed wagons. Have students prepare a list of specialized livestock equipment, describe the major components, identify safety procedures and demonstrate proper operation and maintenance.

Module 41: Cattle Behaviour (Core)

Suggested Time: 4-6 hours

Level: Advanced

Prerequisite: None

Module Overview

This module reinforces and enhances student's knowledge of cattle behaviour including the appropriate reactions to make and precautions to be used when handling cattle. In any given cow/calf situation students should be able to analyze cattle behaviour and demonstrate appropriate handling techniques

Note: Students need to demonstrate at all times the safety procedures associated with the different types of handling activities and differentiate between hazardous and healthy handling techniques.

Foundational Objectives

- To recognize the importance of understanding cattle behaviour.
- To demonstrate an awareness of cattle behaviour when handling cattle.
- To observe, assist with or demonstrate skills associated with handling cattle in a safe and humane way.

Common Essential Learnings Foundational Objective

- To ask pertinent questions in order to further their own understanding. (COM)

Learning Objectives	Notes
41.1 To understand cattle behaviour.	<p>The range of cattle breeds, types, ages, and background can affect the operator handling techniques required to manage a cow/calf operation. It is important for the operators to understand the concept of flight distance and other handler techniques to minimize accidents and health hazards.</p> <p>Have students describe the following behaviours of beef cattle:</p> <ul style="list-style-type: none">• herd instinct• flight distance.
41.2 To recognize the concept of handler controlled factors in cattle handling activities.	<p>Have students demonstrate how to handle each animal differently according to the animal's characteristics. Make sure that students are able to recognize the animal's response to invasion of flight distance and the appropriate handling response. Students should recall and demonstrate the risk to animal health associated with common handling techniques.</p>

Module 42: Marketing Beef Cattle (Core)

Suggested Time: 5-6 hours

Level: Advanced

Prerequisite: None

Module Overview

This module is used to expand students' knowledge and expertise in marketing beef cattle. Students should be reminded to customize their learning to suit his or her particular cow/calf operation.

Foundational Objectives

- To develop an awareness of the marketing beef cattle typically bought and sold in a cow/calf operation.
- To develop an awareness of the some of the factors involved in marketing beef cattle.
- To understand some of the specific terminology associated with marketing beef cattle.
- To observe, assist with or demonstrate marketing skills.

Common Essential Learnings Foundational Objectives

- To read and interpret quantitative information found in newspapers, magazines, and government, political, and business publications and evaluate the validity of arguments based on such information. (NUM)
- To propose generalizations that explain relationships. (CCT)

Learning Objectives	Notes
42.1 To understand terminology specific to the marketing of beef cattle.	Have students research and describe the meaning of the following terms: <ul style="list-style-type: none">• grading system• shrinkage• yield• backgrounders, replacement heifers, feeders, slaughter cattle, cull cows and bulls• rate of gain• cost of production.
42.2 To describe the different marketing options available for cow/calf operators.	Cow/calf producers have a number of options available to them for marketing their cattle. Some of these include selling calves directly to a feedlot, selling cattle through an auction market, video and satellite sales, or selling to a livestock or order buyer. Have students research and describe the different types of markets available to the operator. As a class, compare and contrast these different types for advantages and disadvantages.

42.3 To understand the factors that need to be considered when making marketing decisions associated with a cow/calf operation.	<p>The maximum price for selling as well as the minimum price for buying still does not guarantee profit margin. Buyers and sellers need to obtain as much information as possible on current and future conditions including:</p> <ul style="list-style-type: none"> • livestock price • feed requirements and costs • condition of the cattle • transportation • interest rates • grain prices • weather conditions • number of cattle in feedlots • purebred and commercial demand. <p>Have students suggest how each of these factors might influence decisions about marketing cattle.</p>
42.4 To identify the various ways of marketing cattle.	<p>Cattle can be bought or sold in a variety of ways including brokers, livestock markets, satellite sales and direct to packing plants. Each has advantages and disadvantages including sales costs, yardage, and transportation costs.</p> <p>Have students describe the various ways that beef cattle can be bought or sold. Using current prices, have students select the best option for marketing.</p> <p>Student Reference Manual: Have students identify the auction markets or order buyers in the local area and itemize the costs of each.</p>
42.5 To describe the transportation of cattle.	<p>Regardless of how or when cattle are sold, they still must be transported to another place. Have students describe the best conditions of transporting the cattle to market.</p> <p>Student Reference Manual: Have students develop a marketing plan for the various types of cattle in a typical cow/calf operation.</p>

Module 43: Pasture Management (Core)

Suggested Time: 5-6 hours

Level: Advanced

Prerequisite: None

Module Overview

This module is used with the resource, *Managing Saskatchewan Rangeland*, available in all school libraries.

Foundational Objectives

- To understand that pasture management is an important skill in cow/calf operations.
- To observe, assist with or demonstrate pasture management skills.

Common Essential Learnings Foundational Objective

- To learn through synthesizing understandings, experiences, interests and needs. (IL)

Learning Objectives	Notes
43.1 To understand various concepts and practices associated with pasture management.	<p>Develop a list of terminology used in pasture management including:</p> <ul style="list-style-type: none">• stocking rates• cow/calf units• rate of gain• forage production. <p>Have students develop an understanding of managing pastures wisely emphasizing environmental as well as production importance.</p>
43.2 To investigate the costs of grazing cattle.	<p>Have students do an analysis of the costs of grazing cattle. Students should look at rate of gain, forage production, taxes, and fencing.</p>
43.3 To discuss alternative concepts of pasture management and grazing.	<p>Invite a livestock specialist or rangeland agrologist from the Grazing and Pasture Technology Program to discuss various grazing strategies including intensive grazing, swath grazing, and fall and spring grazing.</p> <p>Ask an agrologist or biologist from Ducks Unlimited to talk to students about the relationship between wildlife and cattle.</p> <p>Student Reference Manual: Have students develop a comprehensive list of perennial and annual forages. Students should also include notes on productivity, response to grazing pressure, and palatability to cattle.</p>

Module 44: Animal Identification (Core)

Suggested Time: 4-6 hours

Level: Advanced

Prerequisite: None

Module Overview

Every cow/calf operation has a method of identifying animals. This module provides students with a working knowledge of the methods producers use to identify animals.

Foundational Objective

- To observe, assist with or demonstrate a working knowledge of animal identification.

Common Essential Learnings Foundational Objectives

- To understand how public policy shapes technology. (TL)
- To explore the evolution of technological developments related to animal identification with a focus on the political and social forces that spawned the innovation and the steps involved in the development. (TL)

Learning Objectives	Notes
44.1 To identify various methods used to identify animals.	<p>The care of a herd depends largely on the records of each animal and being able to track the animals throughout their life at the cow/calf operation. It is now mandatory for producers across Canada to identify animals with approved tags. Cattle can be also be identified with tattoos, hot iron brands, freeze brands or computer chips. It is important that the operator is able to look at the different choices and apply them to the animals.</p> <p>Have students describe the different types of marking animals. As a class, compare and contrast the advantages and disadvantages of the different ways to mark animals. Demonstrate the techniques and procedures to apply each type with minor discomfort to the animal. Identify the hazards of each type and describe the safety precautions to be taken during the process.</p> <p>Verify with students that the method that they have chosen is incorporated in livestock records.</p>

Module 45: Code of Ethics in Animal Practice (Core)

Suggested Time: 4-6 hours

Level: Advanced

Prerequisite: None

Module Overview

This module is used to draw attention to the Code of Ethics for Animal Practice established by the Farm Animal Council of Saskatchewan.

Foundational Objective

- To know and understand the Code of Ethics.

Common Essential Learnings Foundational Objective

- To examine moral issues related to cow/calf production through a framework which incorporates cultural understandings. (CCT)

Learning Objectives		Notes
45.1	To identify the Code of Ethics for Animal Care.	Contact the Farm Animal Council of Saskatchewan for more information on the Code of Ethics.

Resources

Alberta Agriculture, Food and Rural Development. (1996). *Alberta animal health course – level 2*. Edmonton AB: Author.

Alberta Agriculture, Food and Rural Development. (1995). *Alberta beef herd management*. Edmonton AB: Author.

Alberta Agriculture, Food and Rural Development. (1996). *Alberta cattle nutrition course - level 2*. Edmonton AB: Author.

Alberta Agriculture, Food and Rural Development. (1996). *Cow/calf production technician: Training curriculum, skill profile and performance standards*. Edmonton AB: Author.

Alberta Agriculture, Food and Rural Development. (1996). *Feedlot production technician: Training curriculum, skill profile and performance standards*. Edmonton AB: Author.

Canadian Rural Information Service. E-mail: cris@agr.gc.ca. Web site: http://www.rural.gc.ca/cris/about_e.phtml. Telephone: 1-888-757-8725. Mailing address: 930 Carling Avenue, Ottawa ON K1A 0C5.

Newspapers: *Western Producer* and *Grainews*

Rural Service Centres. Videos and other publications.

Saskatchewan Labour, Prevention Services Branch (787-8399 or 1-800-567-7233). Information and publications on farm safety.

Saskatchewan Agriculture, Food and Rural Revitalization. Web site: www.agr.gov.sk.ca. Miscellaneous publications available from the Publication Distribution Centre Order Desk (306-721-4330, fax: 306-721-4626 or e-mail: Valb.pad@sk.sympatico.ca).

References

Alberta Agriculture, Food and Rural Development. (1996). *Cow/calf production technician: Training curriculum, skill profile and performance standards*. Edmonton AB: Author.

Alberta Agriculture, Food and Rural Development. (1996). *Feedlot production technician: Training curriculum, skill profile and performance standards*. Edmonton AB: Author.

Battle River Regional Division #31. (1997). *Green certificate program: Handbook for administrators and school coordinators*. Camrose AB: Author.

Saskatchewan Education. (1991). *Instructional approaches: A framework for professional practice*. Regina SK: Author.

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Appendix A: Training Plans for Cow/Calf Production 10

Module 1: Farm Safety (Core)

Student's Name _____ Farmer-Trainer _____

Learning Objectives	√ if Student: A – Assisted O – Observed D – Demonstrated			Completion Date	Comments
	A	O	D		
Identifies the major types of potential farm hazards: <ul style="list-style-type: none">• moving vehicles• speed and power of machines and moving parts• center of gravity (roll over)• working with groups of people around machinery• clothing, gloves, and footwear• rotating parts (PTO, belts, chains, etc.)• hot surfaces and fluids• high pressure hydraulics• other _____					
Demonstrates personal safety habits when working around and operating farm machinery and livestock					
Identify and describe situations which warrant: <ul style="list-style-type: none">• use of ear plugs• eye protection• dust protection for breathing• location and accessibility of fire, First Aid equipment					
Maintains the tools and shop in a clean and safe condition					
Identifies safety guards, shields, safety devices and warning signs used on farm equipment					

Module 1: Farm Safety (Core)

Learning Objectives	√ if Student: A – Assisted O – Observed D – Demonstrated			Completion Date	Comments
	A	O	D		
Describes proper clothing and protective gear					
Demonstrates the safety hazards associated with small tools, jacks, winches, and other lifting equipment					
Describes three basic components of a fire Describes the three classes or types of fire Lists the classes of possible fire on: <ul style="list-style-type: none"> • a truck or tractor • farm shop • other potential areas 					
Reads and interprets the labels on a fire extinguisher					
Selects the proper extinguisher for the type of fire					
Performs basic emergency First Aid procedures to: <ul style="list-style-type: none"> • restore breathing • choking victims • bleeding cases • victims of shock • other _____ 					
ADDITIONAL COMMENTS:					

Module 2: Communications (Core)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Demonstrates the following communication skills: <ul style="list-style-type: none">• reading and forwarding messages• reading and interpreting charts• interpreting manuals• other _____					
Demonstrates effective communication through: <ul style="list-style-type: none">• choice of words• simple instructions and answers• concise, specific language					
Composes and passes on messages and information through: <ul style="list-style-type: none">• telephone messages on written notes• messages left and retrieved through voice mail and answering machines• messages delivered or received through faxes• person to person messages and information					
Locates, sorts, and summarizes specific information for manuals and a variety of publications					
ADDITIONAL COMMENTS: 					

Module 3: Career Exploration (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Develops an individual career profile					
Identifies basic personal and employability skills					
Prepares a personal time management system					
ADDITIONAL COMMENTS: 					

Module 4: Planning for Livestock Production (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	<input checked="" type="checkbox"/> if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Describes the kinds of plans used in beef production					
Develops a land management plan					
Develops a farm plan					
ADDITIONAL COMMENTS:					

Module 5: Farm Equipment Maintenance and Repair (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Demonstrates preventative maintenance such as: <ul style="list-style-type: none"> checking oil checking fuel levels cleaning radiators monitoring gauges removing dust build-up 					
Interprets manuals of farm equipment					
Identifies and describes the operational procedure and safety hazards for: <ul style="list-style-type: none"> screwdrivers wrenches pliers and cutters hammers, mauls, chisels and punches other _____ 					
Identifies and describes the characteristics of and the safety hazards associated with: <ul style="list-style-type: none"> mechanical jacks and winches hand jacks and winches hydraulic lifting equipment other lifting devices 					
ADDITIONAL COMMENTS: 					

Module 5: Farm Equipment Maintenance and Repair (Core)

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies the transportation regulations for moving farm equipment on public roads in terms of: <ul style="list-style-type: none"> • licensing • insurance • operator's qualifications • types of roads • other _____ 					
Describes the transportation regulations for the equipment in terms of: <ul style="list-style-type: none"> • width, height and length requirements • lighting • slow moving signs • clear visibility • seasonal restrictions • other _____ 					
Understands the need for emergency equipment					
Describes examples of tools and emergency equipment for farm equipment in transport					
ADDITIONAL COMMENTS:					

Module 6: Marketing (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Describes and understands how the marketing system works for: <ul style="list-style-type: none"> • feed grain • cattle 					
Locates and interprets current market information					
Identifies and describes the various kinds of markets used in beef production and lists the advantages and disadvantages of each					
ADDITIONAL COMMENTS:					

Module 7: Beef Cattle Breeds (Optional)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Describe and state the function of the physiological characteristics of beef cattle <ul style="list-style-type: none">• body structure• digestive systems• reproductive systems• age and its relation to the size, frame and weight• mammary system• other _____					
Identifies the genders by proper name and distinguishing characteristics					
Identifies types of breeds of beef cattle					
States characteristics of each breed, each breed's uniqueness or special characteristics, and the strengths and weaknesses of each characteristic when operating a cow/calf operation					
ADDITIONAL COMMENTS: 					

Module 8: Basic Handling of Beef Cattle (Core)

Student's Name _____ Farmer-Trainer _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Demonstrates a working knowledge of vision, foot structure and hearing					
Understands how these structures affect cattle behaviour					
Identifies proper ways to restrain an animal using a halter or rope and proper tying techniques					
Describes situations which can hurt, cause stress or excite cattle					
Identifies ways to reduce noise and stress on cattle					
Demonstrates proper handling of cattle					
ADDITIONAL COMMENTS:					

Module 9: Cattle Nutrition (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
States the importance of nutrition for beef cattle					
Identifies problems associated with inadequate nutrition					
In a feeding plan, states the importance of: <ul style="list-style-type: none"> different rations/proportions and components for different herd groupings water quality(mineral content, pollutant count, and algae) types of feeding equipment 					
Develops a basic feed plan					

ADDITIONAL COMMENTS:

Module 10: Livestock Handling Equipment (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Describes and demonstrates the operation of and identifies hazards in the operation of: <ul style="list-style-type: none"> • front end loaders • augers • conveyors • platform scales • squeezes and gates • portable feed milling and mixing equipment • other _____ 					
ADDITIONAL COMMENTS:					

Module 11: Beef Cattle Health Care (Core)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Describes the concept and procedures associated with basic herd health					
Describes procedures of maintenance and treatment					
Prepares a checklist of preventative measures and practices of herd health					
Interprets labels of drug and medication products					
Describes the basic nature and the use of the different drug products					
Determines the dosage and correct administration style					
Describes the proper storage procedures for further use					
Describes the possible contamination hazards of drugs and medications					
Explains the administration style of drugs and medications with: <ul style="list-style-type: none">• proper equipment• restraining procedures• economic considerations• other _____					

Module 11: Beef Cattle Health Care (Core)

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Describes the contents of an animal First Aid kit					
Demonstrates the ability to make an on-farm diagnosis of various ailments					
Develops a plan to analyze animal value versus cost of animal					
Describes what to watch for in the animal's response to the different treatments					
Identifies the common diseases and disorders by: <ul style="list-style-type: none"> recognizing symptoms of: <ul style="list-style-type: none"> respiratory rate skin conditions eye and nasal discharge/weeping injuries to feet and legs digestive disorders other _____ describing the nature of the disease suggesting precautionary measures describing a medication or preventative plan 					
ADDITIONAL COMMENTS:					

Module 12: Pasture and Pen Maintenance (Optional)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Demonstrates skills in checking and maintaining pen facilities <ul style="list-style-type: none"> • feed bunks • water containers • fences and gates • other _____ 					
Demonstrates skills in maintaining pastures by: <ul style="list-style-type: none"> • identifying proper grazing techniques • ensuring a clean water supply • managing dugouts and other danger areas within the pasture • checking for pasture/grass availability • determining stocking rates 					
Demonstrates the ability to use corral and fence mending equipment					
Identifies the hazards of using fence mending equipment					
ADDITIONAL COMMENTS:					

Module 13: Riding and Handling a Horse (Optional)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Demonstrates the proper techniques in: <ul style="list-style-type: none"> • knowing horse behaviour • tacking a horse • safe use of a horse • sorting, gathering, and handling cattle 					
Demonstrates skills in riding horses in a pasture or feedlot setting					
ADDITIONAL COMMENTS: 					

Module 14: Recordkeeping in a Cow/Calf Operation (Optional)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies the importance of recordkeeping					
Designs and maintains accurate records for: <ul style="list-style-type: none"> • calving rates • birth weights • productivity gain • feeding charts • individual pens • markets • customers • prices • other _____ 					
Develops a recordkeeping plan					
ADDITIONAL COMMENTS:					

Appendix B: Training Plans for Cow/Calf Production 20

Module 17: Farm Safety (Core)

Student's Name _____ Farmer-Trainer _____

Learning Objectives	√ if Student: A – Assisted O – Observed D – Demonstrated			Completion Date	Comments
	A	O	D		
Identifies potential farm hazards Explains why these areas need cautionary attention					
Describes the use of safety guards, shields and other safety devices used on farm equipment Locates, reads, and comprehends warning messages on the farm equipment					
Describes the kind of proper clothing and protective gear (footwear, gloves, glasses, breathing devices, hearing devices) necessary to observe farm safety Identifies the farm jobs that require such cautionary equipment					
Demonstrates safe practice when using manual or power tools Identifies the safety precautions when using jacks and winches Describes the hazards associated with manual or power tool and other lifting equipment					
ADDITIONAL COMMENTS: 					

Module 17: Farm Safety (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A – Assisted O – Observed D – Demonstrated			Completion Date	Comments
	A	O	D		
Identifies various fire hazards in a farm environment					
Describes fire prevention strategies on farms					
Identifies the different types of fires that can occur on a farm					
Demonstrates basic First Aid skills required on a farm					
Identifies the steps in handling emergency procedures that require police, ambulance, and fire fighters					
ADDITIONAL COMMENTS:					

Module 18: Communications (Core)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Demonstrates effective oral and written communication skills when: <ul style="list-style-type: none">• reading and forwarding messages• reading and interpreting farm products• calculating rates and rations• interpreting manuals• interpreting other types of communication					
Demonstrates effective verbal and written communication by using: <ul style="list-style-type: none">• careful choice of words• simple instructions and answers• concise, specific language Identifies the information and communication needs on the farm					
Receives and passes on messages accurately in the following ways: <ul style="list-style-type: none">• telephone messages with written notes• messages left and retrieved through voice mail or answering machines• messages delivered or received through faxes• person to person messages and information• e-mail or other computer generated messages					

Module 18: Communications (Core)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Locates, sorts, and uses information contained in a variety of publications					
Locates, sorts, and uses information retrieved from the Internet or other computer sources					
ADDITIONAL COMMENTS:					

Module 19: Career Exploration (Core)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Develops an individual career profile by: <ul style="list-style-type: none">• specifically areas of interest• life experiences• areas of expertise• relevant experiences• strengths and abilities• activities and interests• dislikes or areas that need improvement• academic and non-academic strengths• other _____					
Identifies the career opportunity related to cow/calf production Researches career clusters and the range of occupational opportunities related to cow/calf production					
Demonstrates use of time management skills Prioritizes and prepares a personal time management system					
Identifies the basic personal and employability skills required for cow/calf production					
ADDITIONAL COMMENTS: 					

Module 20: Planning for Beef Cattle Production (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies the kinds of plans used in a beef production operation					
Develops the plans necessary to operate this type of farm					
Develops a: <ul style="list-style-type: none"> land management plan farm management plan 					
ADDITIONAL COMMENTS:					

Module 21: Farm Equipment Maintenance and Repair (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Demonstrates skills in machinery maintenance such as: <ul style="list-style-type: none"> • checking oil • checking fuel levels • cleaning radiators • cleaning filters • monitoring gauges • preventing dust build up on screens or filters • other _____ 					
Identifies and describes a variety of different types of tools and their uses Demonstrates correct selection and use of each tool Distinguishes between a safe practice and an unsafe practice					
Identifies and describes the characteristics of the common farm mechanical, hydraulic, and hand jacks and winches Compares and contrasts the uses and efficiencies of the direct vertical lift, automotive, floor type, and any other type of lifting device					
ADDITIONAL COMMENTS: 					

Module 21: Farm Equipment Maintenance and Repair (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies the dangers and hazards associated with common lifting equipment					
Describes the need for having emergency equipment which is required if the farm machinery has a crisis while in transport					
Describes the transportation regulations for farm equipment and livestock on public roads Identifies and explains licensing, insurance, operator's qualifications and the Dangerous Goods Transportation Act for handling all types of farm equipment on public roads					
ADDITIONAL COMMENTS:					

Module 22: Marketing (Core)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Describes how marketing information is used in producing agricultural commodities					
Describes the basic steps involved in livestock marketing					
Describes the various kinds of markets used in cow/calf production					
ADDITIONAL COMMENTS:					

Module 23: Cattle Breeds (Optional)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies the gender of beef cattle by proper name					
Lists main distinguishing characteristics (age, frame, size and weight)					
Describes the structure and function of the mammary system					
Describes the structure and function of the reproductive system					
Describes the structure and function of the digestive system					
Lists the different breed types of beef cattle and the special characteristics of each breed					
Identifies how each unique characteristic is helpful in beef production for each breed					
ADDITIONAL COMMENTS:					

Module 24: Beef Handling (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Describes: <ul style="list-style-type: none"> the nature of cattle vision visual incidents which can affect cattle behaviour positively and negatively the nature of cattle hearing noise situations which can cause problems good handling practices to reduce sound 					
Describes the footing agility of cattle Identifies the good footing situations and improper footing situations					
Describes the behavioural differences between all breeds, genders, and ages of the animals and describes how these affect the handling					
ADDITIONAL COMMENTS: 					

Module 25: Cattle Nutrition (Core)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies: <ul style="list-style-type: none">• water quality factors which affect its consumption• forage quality factors which affect performance and health• dry food quality factors which affect performance and health					
By size, gender, and physiological state of the animal, identifies: <ul style="list-style-type: none">• daily water requirements• forage requirements• dry food requirements					
Describes the effect of insufficient: <ul style="list-style-type: none">• water intake on cattle performance• forage intake on cattle performance• dry food intake on cattle performance					
Develops a basic feeding plan for the different types of herd groupings Identifies types of feeding equipment and describes basic operation of each Demonstrates proper operating procedures of feeding equipment					
ADDITIONAL COMMENTS: 					

Module 26: Livestock Handling Equipment (Core)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Describes the hazards associated with operating front end loaders Identifies the items to be checked before starting a front end loader Demonstrates the operation of the loader					
Describes the operating components of the auger and conveyor Identifies the hazards of operating a screw type auger and conveyor Identifies parts needing periodic service Demonstrates proper procedure to maintain an auger and conveyor Demonstrates the proper procedures to transport, set up, and operate an auger or conveyor					
Identifies the parts of manual and power squeezes and gates Identifies and describes personal safety hazards when using squeezes and gates					
ADDITIONAL COMMENTS: 					

Module 26: Livestock Handling Equipment (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Demonstrates : <ul style="list-style-type: none"> proper setting and maintenance of the squeezes and gates the safe and effective operation of the squeezes/gates minor service and lubrication of squeezes/gates 					
Demonstrates the operation of feeding equipment such as: <ul style="list-style-type: none"> milling and mixing equipment feed roller silage wagon other _____ 					
Identifies the operating parts of platform scales Demonstrates the operation of platform scales					
ADDITIONAL COMMENTS:					

Module 27: Pasture and Pen Checking (Optional)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Develops a chart that is thorough for animal health identification					
Develops a checklist for problems with facilities, fences, water, and missing or stray animals					
ADDITIONAL COMMENTS: 					

Module 28: Repair and Maintenance of Cow/Calf Facilities (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies the tools required for maintaining a facility					
Describes the various types of fencing, corrals, pens, etc. Lists the advantages and disadvantages of for each type					
Describes the various types of feeding troughs, forage feeders, etc. Demonstrates how to repair the feeders, troughs, etc.					
Demonstrates the ways in which to repair each type of fence, such as corral fence, etc. Demonstrates repair of water pump and other watering devices					
ADDITIONAL COMMENTS:					

Module 29: Veterinary Drugs (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
<p>Manages a drug and medication program</p> <p>Describes the handling, storage, and disposal of each drug</p>					
<p>Identifies potential contamination hazards of each drug</p> <p>Describes the techniques to minimize contamination and storage problems</p>					
<p>Designs a recordkeeping system for maintaining the health of the cattle</p> <p>Designs an inventory system for the drugs and medications to ensure adequate supplies are immediately available</p>					
<p>ADDITIONAL COMMENTS:</p>					

Module 30: Calving Procedures (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Describes a program that would allow bred cows to have optimal health during pregnancy					
Describes the stages of labour and process of a normal delivery Identifies common calving problems or conditions that require special assistance					
Prepares a checklist of equipment needed for delivery of calves Assists in the delivery of calves					
Describes a post-partum care summary including vaccinations					
ADDITIONAL COMMENTS:					

Module 31: Recordkeeping for a Cow/Calf Operation (Core)

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Develops the plans for various livestock records (sales, prices, purchases, rate of weight gain, cow productivity, fertility of bulls, feeding rate)					
Uses spreadsheets, databases, or commercial programs on computers to keep data					
ADDITIONAL COMMENTS:					

Module 32: Causes and Prevention of Farm Accidents (Core)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies and is perceptive of farm hazards Identifies farm safety groups, organizations, and regulations set out by Workers' Compensation and other groups					
Describes the use of safety guards, shields, and other safety devices used on farm equipment Demonstrates a safety walk-around check on all the devices used for safety Develops a personal safety audit of a farm environment					
Demonstrates safe practices when using lifting equipment Identifies the safety hazards associated with use of: <ul style="list-style-type: none">• power or manual tools• jacks, winches and other lifting equipment					
Identifies potential fire hazards in a farm environment Describes all types of fire fighting techniques needed for a farm setting Describes the precautions necessary with dealing with the different types of fires					
ADDITIONAL COMMENTS: 					

Module 33: First Response for Farm Accidents (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Demonstrates the required skills to handle emergency situations					
Develops and creates a well-equipped First Aid kit					
Displays charts of emergency phone numbers (police, fire fighters, ambulance, doctor, hospital, etc.) in appropriate places					
ADDITIONAL COMMENTS: 					

Module 34: Communications (Core)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies where producers need reliable information such as: <ul style="list-style-type: none">• commodity prices, markets, and growing conditions• transportation and other input costs• health problems and weed/insect infestations• financial/banking information• other _____					
Demonstrates the ability to locate and sort useful information Demonstrates the ability to critique information Demonstrates the ability to communicate effectively reliable information					
Describes and demonstrates the communication needed for: <ul style="list-style-type: none">• writing• information management• office tools					
Demonstrates effective communication skills to understand or be understood by employees, employers, suppliers, or customers					
ADDITIONAL COMMENTS: 					

Module 35: Career Exploration (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies career cluster and the range of occupational opportunities in the type of farming that interests the student according to: <ul style="list-style-type: none"> primary production (professional science, management, etc.) marketing, distribution, and retail services support services (production, financial, and government) 					
ADDITIONAL COMMENTS:					

Module 36: Farm Planning (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Prepares a projected budget for the particular type of farm					
Selects and demonstrates use of an accounting system					
Describes a net worth statement					
Prepares a net worth statement					
Investigates the sources of credit and a credit rating system					
ADDITIONAL COMMENTS:					

Module 37: Farm Equipment Maintenance and Repair (Core)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Lists the components and the types of fluids that need to be checked: <ul style="list-style-type: none">• fuel/oil (engine, transmission, steering)• water (radiator, battery)• accessories (hydraulics)					
Demonstrates correct procedures to change: <ul style="list-style-type: none">• oil and filters for all parts of the vehicle• hydraulic, fuel, air, and water filters					
Describes the types of greases and oils for high/low speed, seasons, and other factors					
Demonstrates the correct procedures to change: <ul style="list-style-type: none">• non-engine parts requiring lubrication• air cleaners• grease gun• coolant• battery• other _____					
ADDITIONAL COMMENTS: 					

Module 37: Farm Equipment Maintenance and Repair (Core)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Demonstrates the correct procedures to service: <ul style="list-style-type: none">• drive train and transmission• brake system• tires and rims					
Demonstrates the standards illustrated in the operator's manual, use and operational procedure, and safety precautions required to use: <ul style="list-style-type: none">• wrenches• screwdrivers• hammers• chisels• punches• files and rasps• saws for wood and metal• other tools					
Identifies and describes the characteristics of and knows the weight range, strength, and capacity of: <ul style="list-style-type: none">• hydraulic jacks and hoists• hand jacks and hoists• direct vertical lift• floor type lift• automotive type lift• other power or manual jacks/winches					
ADDITIONAL COMMENTS: 					

Module 37: Farm Equipment Maintenance and Repair (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies the dangers and hazards associated with lifting equipment Identifies unsafe, worn, or defective parts on any lifting equipment					
Demonstrates the ability to repair any lifting equipment					
Identifies and explains: <ul style="list-style-type: none"> • licensing • insurance • Dangerous Goods Transportation Act • width, height, and length requirements • lighting • use of slow moving signs • clear visibility rules • seasonal restrictions • emergency equipment required in crisis of transporting machinery on public roads 					
Obtains and knows the government and municipal guidelines for transporting farm equipment, trucks, or machinery on public roads					
ADDITIONAL COMMENTS: 					

Module 38: Cattle Anatomy (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
<p>Describes the processes of rumination and digestion</p> <p>Describes the digestive system functions and nutritional requirements of:</p> <ul style="list-style-type: none"> • newborn calves • weanlings • feeder cattle • breeding animals • mature cows and bulls <p>Describes the effects that the different food types have on the reproduction and growth of cattle</p>					
<p>Prepares and assesses feeding programs for various stages of the animal's development</p> <p>Completes feed analysis reports to prepare a feeding plan at different stages of development of the animal</p>					
<p>Identifies the symptoms of common digestive diseases and disorders</p> <p>Prepares a chart listing the digestive diseases and disorders, and their causes, prevention, medication and their remedies</p>					
<p>ADDITIONAL COMMENTS:</p>					

Module 39: Culling and Breeding Plans (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies the common health and/or physical qualities leading to culling cows and bulls					
Reflects on and refers to breeding records when making decisions about culling					
Completes an evaluation of an animal's physical problems for a recommendation about treatment or shipping the animal					
ADDITIONAL COMMENTS:					

Module 40: Specialized Livestock Equipment (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies and prepares a list of specialized livestock equipment, and describes the major components					
Identifies safety procedures and demonstrates proper operation and maintenance					
Demonstrates the operation of: <ul style="list-style-type: none"> weigh scales feed mills front end loaders bale shredders tub grinders forage harvester feed wagons other _____ 					
ADDITIONAL COMMENTS:					

Module 41: Cattle Behaviour (Core)**Student's Name** _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Identifies cattle behaviour in terms of herd instinct and flight distance					
Demonstrates how to handle each animal differently according to the animal's characteristics taking into consideration the risk to the animal's health associated with common handling techniques					
ADDITIONAL COMMENTS:					

Module 42: Marketing Beef Cattle (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
<p>Describes the different marketing options and lists the advantages and disadvantages of each</p> <p>Uses the correct terminology specific to marketing beef cattle (shrinkage, yield, backgrounders, feeders, etc.)</p>					
<p>Describes the grading system and categories</p> <p>Lists all the factors that affect profit margins and how this influences marketing cattle</p>					
<p>Describes the different ways to transport cattle</p> <p>Knows the rules and regulations on transporting cattle</p>					
<p>Designs and operates a marketing plan taking into consideration all of the above components</p>					
<p>ADDITIONAL COMMENTS:</p>					

Module 43: Pasture Management (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Uses the proper terminology for pasture management: <ul style="list-style-type: none"> • stocking rates • cow/calf units • rate of gain • forage production • others _____ 					
Identifies the environmental issues associated with pasture management					
Completes a cost analysis of grazing cattle with all its components					
Identifies the different concepts of pasture management and grazing					
ADDITIONAL COMMENTS: 					

Module 44: Animal Identification (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Demonstrates various methods of identifying animals Compares and contrasts the advantages and disadvantages of each method					
Demonstrates the application of various methods in a safe way for the animal					
Designs a system of recording and filing the animal identification for each animal					
ADDITIONAL COMMENTS:					

Module 45: Code of Ethics in Animal Practice (Core)

Student's Name _____ **Farmer-Trainer** _____

Learning Objectives	√ if Student: A - Assisted O - Observed D - Demonstrated			Completion Date	Comments
	A	O	D		
Knows and understands the Code of Ethics for Animal Practice					
Demonstrates the use of the Code of Ethics for Animal Practice					
ADDITIONAL COMMENTS: 					