GREEN CERTIFICATE PROGRAM

A. PROGRAM RATIONALE AND PHILOSOPHY

RATIONALE

The Green Certificate Program was developed by Alberta Agriculture and Forestry (AAF) as a means of developing human resources for Alberta's agriculture sector.

AAF continues to be the primary administrator of the Green Certificate Program and continues to be responsible for determining the performance outcomes for each agricultural specialization. However, through a partnership among Alberta Education, AAF and representatives from each of the specializations, each of the Green Certificate specializations has been restructured and is now available as Alberta Education approved courses.

Prior to the restructuring, students were able to access Green Certificate training by enrolling in work experience courses.

The new Green Certificate courses enable Alberta senior high school students to earn senior high school credits by enrolling in combinations of courses relating to one of the following specializations:

- Bee Keeper Production Technician
- Cow–Calf Beef Production Technician
- Dairy Production Technician
- Equine Technician
- Feedlot Beef Production Technician
- Field Crop Production Technician
- Greenhouse Technician
- Irrigated Field Crop Production Technician
- Sheep Production Technician
- Swine Production Technician

Like the Registered Apprenticeship Program, each of the Green Certificate specializations provides students with access to the first level of an agricultural apprenticeship. Learners can progress in each specialization through two levels—technician level and supervisor level—and, if their career interests expand to management roles in agriculture, to a generic third level of the Green Certificate, the Farm Manager Program.

Each of the first two levels in each specialization requires approximately 400 hours of on-the-job learning.

The courses constituting this program of studies address the Level 1: Technician component only. Most senior high school students enrolling in and attaining a Green Certificate do so at the technician level. A small number of students may progress to the Level 2: Supervisor program in their selected specialization while still in school. To access Level 2 programs, students may enroll in Work Experience 15–25–35 courses.

Students completing a Level 1 Green Certificate in any of the specializations are awarded the Green Certificate Technician credential, and their Alberta Education transcript will identify the specific courses completed.

PHILOSOPHY

The Green Certificate Program provides students with opportunities to enter a variety of agriculture-related, structured learning pathways as a part of their senior high school program and to earn a credential leading to a career in agribusiness.

Students learn on the job, under the direction of experienced farm personnel and under the supervision and administration of AAF and Alberta Education.

The notion of "learner as worker and worker as learner" is becoming increasingly accepted. There is considerable research that supports viewing the workplace as an extension of the school and the school as an extension of the workplace.

Similarly, experiential/applied learning is being increasingly seen as a vehicle for enhancing more formal learning systems, by making other senior high school courses more relevant and meaningful to the learner.

The Green Certificate Program is based on the above research and on the belief that programs delivered off campus contribute to effective learning and the development of closer linkages among the school, the student and the local community.

Within the philosophy of the Green Certificate Program, students enrolled in each specialization will:

- demonstrate general and specific outcomes that enable them to earn a Level 1: Technician credential within their selected specialization
- develop competencies in a selected agricultural specialization
- develop appropriate employability skills
- recognize and develop a positive attitude toward safety and safe workplace practices
- analyze career opportunities in the agricultural industry

B. PROGRAM ORGANIZATION AND DELIVERY

PROGRAM ORGANIZATION

The Green Certificate Program currently consists of the 10 specializations listed below. AAF is, however, currently considering the addition of new specializations.

- Bee Keeper Production Technician
- Cow–Calf Beef Production Technician
- Dairy Production Technician
- Equine Technician
- Feedlot Beef Production Technician
- Field Crop Production Technician
- Greenhouse Technician
- Irrigated Field Crop Production Technician
- Sheep Production Technician
- Swine Production Technician

The required outcomes for each specialization are structured as three nonsequential courses for a total of 16 credits. The first course in each specialization is offered for 6 credits and the other two courses are offered for 5 credits each.

For each specialization, local, seasonal and other factors will determine the order of delivering the three courses.

PROGRAM DELIVERY

Each course in each specialization of the Green Certificate Program is designed to be delivered off campus. Green Certificate courses must, therefore, be delivered in accordance with the guidelines in the *Off-campus Education Handbook*, which requires that each potential workplace be inspected and approved annually by a person designated by the school authority.

In addition, a certificated teacher must be assigned the responsibility for ensuring that:

- the selected work placement provides a safe and caring learning environment
- effective learning is taking place
- the curriculum is being followed and that appropriate opportunities exist for the student to develop the competencies specified by the general and specific outcomes
- student progress is monitored and supervised
- student performance is appropriately assessed, in partnership with the employer and local AAF representative
- the student is enrolled in the prerequisite course, AGR3000: Agriculture Safety, prior to enrollment in the first course of any Green Certificate specialization

C. STUDENT SELECTION, PLACEMENT AND ASSESSMENT

STUDENT SELECTION

In deciding to enroll in the Green Certificate Program, students should be able to indicate their understanding of what it means to enroll in an agricultural apprenticeship program.

Most students choosing to enroll in the Green Certificate Program self-select. That is, they request permission of their school to enroll in a specialization, having been encouraged to do so by a parent, relative or other party knowledgeable about the program.

Students who are interested in exploring career options in agriculture but who are not ready to commit to enrolling in the Green Certificate Program should be encouraged to consider enrolling in one or a combination of the following courses:

- Career Internship 10
- Work Experience 15, 25 or 35
- courses selected from the Agriculture strand of the Career and Technology Studies program

In approving a student's request to enroll in Green Certificate courses, the teacher should consider the student's:

- current and planned school programs
- interests, career goals, maturity
- previous knowledge and experience in the agriculture industry
- understanding of the commitment required to ensure successful completion of the program

STUDENT PLACEMENT

Students self-selecting to enroll in the Green Certificate Program have usually selected a specialization and identified a placement.

In situations where students have not identified an employer willing to accept them in a Green Certificate program, the local AAF coordinator may be contacted to assist in securing an appropriate placement. In addition, an AAF coordinator will provide an in-school introduction for new students entering the program or for those interested in learning more about the program.

STUDENT ASSESSMENT

Assessment of student progress and performance in a Green Certificate course must be ongoing and be conducted through consultation among:

- the certificated teacher assigned by the school to supervise the student
- the student's workplace trainer
- assessors designated by AAF

At the completion of each Green Certificate course, AAF assessors at a provincial assessment centre will formally evaluate the student's knowledge and skills to determine if the student has met the general and specific outcomes specified for the course.

Teachers are encouraged to participate in these end-of-course assessment processes.

D. SCOPE AND SEQUENCE

The courses identified for each specialization are nonsequential. Local, seasonal and other factors will determine the order of course delivery in each specialization.

Prerequisite Course

AGR3000: Agriculture Safety, a 1-credit course from the Agriculture (AGR) occupational area within the Career and Technology Studies program, must be completed prior to enrollment in the first course of any Green Certificate specialization.

Nonsequential Courses			Specialization
Bee Operation Preparation and Planning 33 (6 credits)	Bee Operation Production and Practices 33 (5 credits)	Bee Operation Support Systems 33 (5 credits)	Bee Keeper Production Technician
Cattle Care and Production 33 (6 credits)	Calving and Herd Health 33 (5 credits)	Beef Support Systems 33 (5 credits)	Cow–Calf Beef Production Technician
Animal Husbandry and Health 33 (6 credits)	Dairy Operations 33 (5 credits)	Dairy Equipment Operation and Service 33 (5 credits)	Dairy Production Technician
Equine Operations and Care 33 (6 credits)	Equine Processes and Practices 33 (5 credits)	Equine Support Systems 33 (5 credits)	Equine Technician
Handling Feedlot Cattle 33 (6 credits)	Feedlot Cattle Care and Feeding 33 (5 credits)	Feedlot Support Systems 33 (5 credits)	Feedlot Beef Production Technician
Field Crop Care 33 (6 credits)	Land Preparation and Planting 33* (5 credits)	Harvesting Operations 33** (5 credits)	Field Crop Production Technician
Greenhouse Operations and Care 33 (6 credits)	Greenhouse Process and Practises 33 (5 credits)	Greenhouse Support and Systems 33 (5 credits)	Greenhouse Technician
Irrigation Processes and Practices 33 (6 credits)	Field and Crop Preparation 33* (5 credits)	Field Crop and Forage Harvesting 33** (5 credits)	Irrigated Field Crop Production Technician

Sheep Production and Health 33 (6 credits)	Sheep Farm Operations and Equipment 33 (5 credits)	Sheep Handling and Facilities 33 (5 credits)	Sheep Production Technician
Swine Behaviour and Production 33 (6 credits)	Swine Handling and Welfare 33 (5 credits)	Swine Health and Operations 33 (5 credits)	Swine Production Technician

*** Students may earn credits in either Land Preparation and Planting 33 OR Field and Crop Preparation 33.**
**** Students may earn credits in either Harvesting Operations 33 OR Field Crop and Forage Harvesting 33.**

E. COURSE DESCRIPTIONS BY SPECIALIZATION

Students completing all three courses in a specialization, to the standards specified, will earn the technician level Green Certificate for that specialization, which is issued by Alberta Agriculture and Forestry.

Note: To earn the technician level Green Certificate in Field Crop Production, students must complete the following courses to the standards specified: Field Crop Care 33, Land Preparation and Planting 33 **OR** Field and Crop Preparation 33, and Harvesting Operations 33 **OR** Field Crop and Forage Harvesting 33.

To earn the technician level Green Certificate in Irrigated Field Crop Production, students must complete the following courses to the standards specified: Irrigation Processes and Practices 33, Field and Crop Preparation 33 **OR** Land Preparation and Planting 33, and Field Crop and Forage Harvesting 33 **OR** Harvesting Operations 33.

Bee Keeper Production Technician	**Bee Operation Preparation and Planning 33** (6 credits) Students are introduced to the basic biology and behaviour of bees; study pollination requirements; receive and install package bees; maintain hive equipment, schedule production season activities and comply with government regulations; manage wildlife, vandals and minimize pesticide damage; safely operate and maintain farm trucks, trailers and accessories; demonstrate a positive attitude toward safety; and demonstrate effective and appropriate employability skills.	**Bee Operation Production and Practices 33** (5 credits) Students demonstrate their ability to perform routine field work with colonies, queens and cells; feed bees sugar and protein; control parasitic mites, prevent blood diseases and nosema disease; operate and maintain forklifts, boom trucks and power tail gates under specified conditions; and demonstrate effective and appropriate employability skills.	**Bee Operation Support Systems 33** (5 credits) Students demonstrate the ability to plan the winter and spring season; prepare for winter and complete related activities; use integrated pest management strategies; describe the functions and design of buildings; describe bee specialty enterprises; safely operate and maintain hand tools and power tools; and demonstrate effective and appropriate employability skills.
Cow–Calf Beef Production Technician	**Cattle Care and Production 33** (6 credits) Students are introduced to the anatomy and physiology of cattle; study animal behaviour; handle and move cattle; recognize and treat specified cattle diseases and disorders; safely operate and maintain farm vehicles in yards, on fields and on public roads; demonstrate a positive attitude toward safety; and demonstrate effective and appropriate employability skills.	**Calving and Herd Health 33** (5 credits) Students demonstrate their ability to maintain cattle health; operate a feeding program, including monitoring a feeding plan; operate trucks and tractors under specified conditions; and demonstrate effective and appropriate employability skills.	**Beef Support Systems 33** (5 credits) Students demonstrate the ability to ship, move and receive cattle; perform basic first aid on cattle; perform basic pest control operations; safely operate and maintain hand tools and power tools; perform basic services on trucks and tractors; and demonstrate effective and appropriate employability skills.

Dairy Production Technician	**Animal Husbandry and Health 33** (6 credits) Students demonstrate the ability to handle cattle, perform castration by elastrator, maintain cattle health, water cattle, perform safety practices, and demonstrate effective and appropriate employability skills.	**Dairy Operations 33** (5 credits) Students demonstrate the ability to handle livestock of all ages, operate milk-handling equipment, milk cows, operate milk sampling and recording equipment, read and interpret milk quality reports, maintain sanitation, demonstrate safe work skills and a positive attitude toward safety, and demonstrate effective and appropriate employability skills in a variety of workplace situations.	**Dairy Equipment Operation and Service 33** (5 credits) Students operate manure spreaders; maintain cattle health and breeding; feed the dairy herd; operate farm equipment; maintain fences and corrals, using fence amending tools; select and use basic hand and shop tools correctly; and demonstrate effective and appropriate employability skills.
Equine Technician	**Equine Operations and Care 33** (6 credits)Students demonstrate the ability to identify horse breeds, markings and colours; handle horses safely; maintain and clean stable area; and recognize and attend to basic equine health and nutritional needs.	**Equine Processes and Practices 33** (5 credits)Students demonstrate the ability to maintain outdoor equine environments, apply business management skills, manage tack and equipment, communicate and interact professionally, and display a positive attitude toward equine and personal safety.	**Equine Support Systems 33** (5 credits)Students demonstrate the ability to discuss basic equine reproduction, recognize and prevent common diseases in Alberta, offer basic first aid, and provide for more complex nutritional requirements.
Feedlot Beef Production Technician	**Handling Feedlot Cattle 33** (6 credits) Students demonstrate the ability to process and handle cattle, including receiving cattle, implanting growth stimulants, applying ear tags, vaccinating cattle, branding cattle, shipping cattle, applying insecticides, dehorning cattle and performing castration; maintain facilities, using appropriate housekeeping procedures; and demonstrate effective and appropriate employability skills.	**Feedlot Cattle Care and Feeding 33** (5 credits) Students demonstrate the ability to process and handle cattle; treat cattle; perform pen-checking duties; handle and administer treatment drugs; identify and treat selected cattle diseases, disorders and parasites; pull cattle from pens; receive feedstuffs; prepare and maintain bedding; and demonstrate effective and appropriate employability skills.	**Feedlot Support Systems 33** (5 credits) Students demonstrate the ability to operate livestock handling equipment, including a cattle weigh scale; feed cattle; operate a feed truck, and service equipment; use operator manuals; demonstrate knowledge of road travel regulations; operate trucks and operate tractors with front-end loaders; perform routine truck servicing; use fire extinguishers and basic hand and power tools; repair fences and corrals; and demonstrate effective and appropriate employability skills.

Field Crop Production Technician	**Field Crop Care 33** (6 credits) Students demonstrate planting abilities; use basic servicing equipment and tools; operate, service and maintain an auger; identify signs of weeds, pests, diseases and disorders in grain fields; operate crop sprayers; have a working knowledge of a farm's marketing program; demonstrate crop care, by operating a swather and determining moisture levels; demonstrate a positive attitude toward safety; and demonstrate effective and appropriate employability skills.	**Land Preparation and Planting 33** (5 credits) Students demonstrate the ability to perform planting activities, by understanding a farm's cropping program, following regulations and operating farm equipment, including cultivators, fertilizer applicators, trucks, tractors and towed implements; use basic servicing tools; demonstrate safety practices, including performing emergency first aid; and demonstrate effective and appropriate employability skills.	**Harvesting Operations 33** (5 credits) Students demonstrate the ability to harvest grain and forage crops, operate a combine, store a grain harvest, prepare crop storage facilities, and demonstrate effective and appropriate employability skills.
Greenhouse Technician	**Greenhouse Operations and Care 33** (6 credits) Students demonstrate planting abilities; identify characteristics of plant development and growth; demonstrate product knowledge, marketing and sales factors; complete end-of-season duties, including equipment inspection and repair; understand how to overwinter plants; demonstrate a positive attitude toward safety; and demonstrate effective and appropriate interpersonal, communication and employability skills.	**Greenhouse Process and Practises 33** (5 credits) Students demonstrate the ability to assist with upkeep of the greenhouse facility: monitor greenhouse conditions, including temperature, humidity, ventilation and lighting; identify proper growing conditions; apply water and fertilizer during stages of plant growth; prepare growing media; seed, root and transplant propagation material; carry out tasks in the greenhouse retail area; market and sell greenhouse product; and perform sanitizing, cleaning and upkeep duties between crops.	**Greenhouse Support and Systems 33** (5 credits) Students demonstrate the ability to perform and maintain daily and weekly cleanliness and sanitization procedures; assist with daily and weekly upkeep of the facility; distinguish between healthy and unhealthy plants; identify and scout for plant problems, including insects, disease, watering and external and internal problems that cause plant problems; assist with application of integrated pest management (IPM) strategies; remove diseased or infested plants; maintain production quality of crop; keep records; practise personal hygiene; interact with and sell products to customers; and monitor retail appearance.

Irrigated Field Crop Production Technician	**Irrigation Processes and Practices 33** (6 credits) Students demonstrate the ability to handle, operate and maintain irrigation equipment according to a farm's protocol and following related legislation; prepare and secure piped systems for winter storage; care for crops by identifying signs of pests, disorders and diseases; demonstrate a working knowledge of a farm's marketing plan; demonstrate a positive attitude toward safety; and demonstrate effective and appropriate employability skills.	**Field and Crop Preparation 33** (5 credits) Students demonstrate the ability to perform planting activities, by understanding a farm's cropping program, following regulations and operating farm equipment, including cultivators, fertilizer applicators, trucks, tractors and towed implements; use basic servicing tools; demonstrate crop care, by identifying weed infestations and minimizing the introduction and spread of weeds; demonstrate farm safety, including emergency first aid and knowledge of components of fire; and demonstrate effective and appropriate employability skills.	**Field Crop and Forage Harvesting 33** (5 credits) Students demonstrate the ability to operate a grain auger, harvest grain and forage crops, operate a swather, operate a combine, store a grain harvest, prepare crop storage facilities, and demonstrate effective and appropriate employability skills.
Sheep Production Technician	**Sheep Production and Health 33** (6 credits) Students demonstrate the ability to manage sheep grazing, maintain sheep health, demonstrate knowledge of basic sheep enterprises, distinguish among breeds of sheep, demonstrate knowledge of sheep nutrition and lamb management, assist with sheep reproduction, demonstrate knowledge of basic sheep marketing practices, identify and maintain farm records, and demonstrate effective and appropriate employability skills.	**Sheep Farm Operations and Equipment 33** (5 credits) Students demonstrate knowledge of how to dispose of dead sheep, feed sheep and manage waste, operate farm equipment, demonstrate a positive attitude toward safety and safe work skills, and demonstrate effective and appropriate employability skills.	**Sheep Handling and Facilities 33** (5 credits) Students demonstrate the ability to handle sheep, including tipping a sheep, crutching a sheep, applying tags and other identifiers, and shearing a sheep; demonstrate knowledge and apply the principles and practices of the Recommended Code of Practice for the Care and Handling of Sheep; and demonstrate effective and appropriate employability skills.

Swine Production Technician	**Swine Behaviour and Production 33** (6 credits) Students study swine behaviour, demonstrate the knowledge and ability to handle breeding stock, feed swine, recognize specified swine disorders and diseases, maintain facilities, safely operate and maintain farm equipment, perform basic record keeping, and demonstrate effective and appropriate employability skills.	**Swine Handling and Welfare 33** (5 credits) Students demonstrate their ability to wean pigs, operate feed handling equipment, castrate baby pigs, operate a manure handling system, monitor and maintain facility environmental controls, and demonstrate effective and appropriate employability skills.	**Swine Health and Operations 33** (5 credits) Students demonstrate a working knowledge of swine anatomy, basic disorders and diseases of swine, and the herd's health program; demonstrate the ability to handle and administer medications and vaccines; demonstrate knowledge of the farm's operating management systems, including indicators, goals and targets, Alberta hog marketing strategies, and quality assurance programs; and demonstrate effective and appropriate employability skills.