

AGRICULTURE

SECTION H: LINKAGES/TRANSITIONS

This section of the Guide has been designed to provide an overview of linkages and transitions of CTS modules with a number of organizations. The charts and information presented in this section will assist CTS students and teachers in understanding the potential application of CTS modules as students move into the workplace.

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LINKAGES/TRANSITIONS

LINKAGES

With Other CTS Strands

The Agriculture strand provides opportunities for students to develop competencies in one or more sectors of the agriculture industry, including:

- plant and/or animal production
- agrifoods
- agribusiness
- landscape and turf management
- animal husbandry and health care
- floristry
- marketing
- environmental management.

Each industry sector (and area of course emphasis) links with competencies that are developed in other CTS strands. To facilitate and strengthen these linkages, courses may be designed by combining Agriculture modules with modules from other CTS strands (e.g., Construction Technologies, Design Studies, Fabrication Studies, Foods, Forestry, Mechanics, Wildlife).

Linkages of particular relevance to the design of CTS courses in Agriculture include:

Strand	Themes and/or Modules
Career Transitions	Project modules provide opportunities for learning beyond the expectations of given Agriculture modules. Practicum modules enable students to work toward obtaining credentials recognized in the workplace/community. Safety modules provide opportunities to address safety skills relevant to specific sectors of an agriculture or horticulture industry.
Community Health	Modules within the “Injury Prevention” theme link with a range of workplace competencies developed within the Agriculture strand.

Strand	Themes and/or Modules
Construction Technologies	Modules within the “Building Systems” theme have a range of applications in the design/construction of structures used within the agriculture and horticulture industry.
Design Studies	Design principles and processes have a range of applications in the design/assembly of floral arrangements and marketing displays.
Fabrication Studies	Modules within the “Fabrication Processes” theme can be contextualized within specific agriculture production and service operations (e.g., welding of structures and equipment).
Mechanics	Modules within the “Propulsion Systems” and “Guidance and Control Systems” themes can be contextualized within specific agriculture/horticulture production and service operations (e.g., maintenance of power driven machines).

It is important to note that the project, practicum and safety modules in Career Transitions may be combined with Agriculture modules to provide opportunities for students to:

- acquire safety competencies and credentials
- complete a plant/animal production venture or landscape service
- enhance specific production, processing or marketing skills
- expand upon a topic in a module or theme.

Additional information regarding connections with other CTS strands is provided in this section (see “Connections with Other CTS Strands”).

Sample courses in Agriculture that include modules from other CTS strands are also provided in this section (see “Agriculture in Junior High” and “Agriculture in Senior High”).

With Other Secondary Programs

The Agriculture strand has many links with other core and complementary subject areas across the curriculum. For example, many of the modules in Agriculture link with the junior and senior high science programs, and provide opportunities for students to extend and apply related knowledge and skills in practical ways.

Core and complementary course linkages of particular relevance to CTS courses in Agriculture include:

Course/ Program Area	Linkage/Connection
Language Arts	Application of the research process; development of reporting and oral/multimedia presentation skills within a range of agriculture/horticulture contexts.
Mathematics	Application of measurement (e.g., length, area volume), ratio, fractions and percent within a range of industry contexts (e.g., ration formulation, application of fertilizer/pesticides, costing of services).
Science	Use of observation and experimentation; knowledge and theory of relevant topics in biology, chemistry, physics and earth science; analysis of relationships among science, technology, society and the environment.
Social Studies	Knowledge of the impact of social, economic and environmental perspectives on agriculture; issue analysis, negotiation, debate, and environmental citizenship within a range of industry contexts.
CALM	Awareness of career opportunities and trends; career research and preparation.

Additional information regarding connections between Agriculture modules and other core and complementary subject areas is provided in this

section (see “Agriculture: Connections Across the Curriculum”).

With Practical Arts Courses

Modules in the Agriculture strand replace existing content in the Junior High Agriculture: Land and Life, and Horticulture 12, 22 and 32 programs. A detailed correlation of the Agriculture strand to these practical arts courses can be found in this section (see “Agriculture: Correlations with Practical Arts Courses: Agriculture: Land and Life 7, 8 and 9 and “Agriculture: Correlations with Practical Arts Courses: Horticulture 12, 22 and 32”).

TRANSITIONS

To the Workplace

Intermediate and advanced modules are designed to develop knowledge, skills and attitudes that provide transitions to occupations in Alberta’s agriculture industries. Some career sectors welcome individuals who have basic skills and are prepared to learn through further training from the employer.

Information from the National Occupational Classification (NOC) regarding occupations in agriculture-related areas that can be accessed upon completion of high school is provided in this section (see “Agriculture: Related Occupations”).

To Related Post-secondary Programs

Advanced level modules will assist students to make plans regarding further studies in agriculture at post-secondary levels. The Agriculture modules provide desirable background and skills for entry into related programs at public and private colleges, technical institutes, universities and vocational colleges in Alberta.

A summary of agriculture- and horticulture-related programs currently offered at post-secondary institutions in Alberta is provided in this section

(see “Agriculture: Summary of Related Post-Secondary Programs”).

A number of articulation agreements have been established with post-secondary institutions in Alberta. These agreements provide preferred entrance and/or advanced standing/credit for CTS students who have successfully completed designated modules. A current summary of articulation agreements in place that involve CTS modules is available through Alberta Education’s web site at <<http://ednet.edc.gov.ab.ca>>. For further information regarding particular articulation agreements, contact the post-secondary institution and/or review its respective calendar.

CTS courses in Agriculture may also link with one or more of Alberta’s Apprenticeship Training Programs (e.g., Landscape Gardener, Agriculture Mechanic). Students who are employed as an apprentice in one of these trade areas and have successfully completed designated CTS modules may qualify, upon the recommendation of their employer, for a portion of the in-school training component. A summary of articulation agreements established for specific apprenticeship trades (including a correlation to CTS modules) is available through Alberta Education’s web site. Further information regarding apprenticeship linkages can be obtained by contacting Alberta Advanced Education and Career Development, Apprenticeship and Industry Training Division.

CREDENTIALLING

Students may earn partial or complete credentials recognized in the workplace and/or post-secondary institutions by demonstrating specified competencies within the CTS curriculum. The Agriculture strand, in conjunction with modules from the Career Transitions strand, provides opportunities for students to develop competencies that link with a number of credentialling programs.

Of particular significance are credentials available through:

- First Aid certificate courses
- the Alberta Green Certificate Farm Training Program
- Flowers Canada Accreditation programs
- Pesticide Applicator/Dispenser certificate courses.

Teachers may wish to explore opportunities for linking courses in Agriculture with these and/or other credentialling programs. A partial list of credentialling opportunities relevant to CTS courses in Agriculture is provided in this section (see “Credentialling Opportunities in Agriculture”).

Further information regarding these and other credentialling opportunities available to CTS students is provided in the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers* (see Appendix 14: Credentialling Opportunities in CTS), and also on Alberta Education’s web site at <<http://ednet.edc.gov.ab.ca>>.

LINKAGES – Agriculture: Connections with Other CTS Strands

Agriculture Modules	Other CTS Strands																				
	Career Transitions	Communication Technology	Community Health	Construction Technology	Cosmetology Studies	Design Studies	Electro-Technologies	Energy and Mines	Enterprise and Innovation	Fabrication Studies	Fashion Studies	Financial Management	Foods	Forestry	Information Processing	Legal Studies	Logistics	Management and Marketing	Mechanics	Tourism Studies	Wildlife
Theme: Social and Cultural Perspectives																					
AGR1010: Agriculture: The Big Picture	■												■		■						
AGR2020: Animal Husbandry/Welfare	■			■		■			■	■					■	■					
AGR3010: Issues in Agriculture	■							■					■		■					■	■
Theme: Technology and Applications																					
AGR1030: Production Basics	■								■			■	■	■							
AGR1060: Consumer Products & Services	■								■			■	■	■							
AGR1070: Basic Landscape/Turf Care	■		■	■					■			■	■	■					■	■	
AGR1080: Basic Floral Design	■					■			■			■	■	■					■	■	
AGR1090: Market Fundamentals	■								■			■	■	■					■	■	
AGR1100: Agriculture Technology	■	■		■		■			■		■	■	■	■					■	■	
AGR2030: Field Crops 1	■		■	■					■			■	■	■					■	■	
AGR2040: Livestock/Poultry 1	■		■	■					■			■	■	■					■	■	
AGR2050: Agrifoods 1	■								■			■	■	■					■	■	
AGR2060: Landscape/Turf Management 1	■		■	■		■			■			■	■	■					■	■	
AGR2070: Equine 1	■		■	■					■			■	■	■					■	■	
AGR2080: Floral Design 1	■					■			■			■	■	■					■	■	
AGR2090: Marketing 1	■								■			■	■	■					■	■	
AGR2100: Protected Structures	■			■					■			■	■	■					■	■	
AGR2140: Nursery/Greenhouse Crops 1	■		■	■					■			■	■	■					■	■	
AGR3030: Field Crops 2	■		■	■					■			■	■	■					■	■	
AGR3040: Livestock/Poultry 2	■		■	■					■			■	■	■					■	■	
AGR3050: Agrifoods 2	■								■			■	■	■					■	■	
AGR3060: Landscape/Turf Management 2	■		■	■		■			■			■	■	■					■	■	
AGR3070: Equine 2	■		■	■					■			■	■	■					■	■	
AGR3080: Floral Design 2	■					■			■			■	■	■					■	■	
AGR3090: Marketing 2	■								■			■	■	■					■	■	
AGR3100: Biotechnology	■								■			■	■	■					■	■	
AGR3140: Nursery/Greenhouse Crops 2	■		■	■					■			■	■	■					■	■	
Theme: Management and Conservation																					
AGR1110: Resource Management	■								■			■	■	■					■	■	
AGR2120: Soils Management 1	■								■			■	■	■					■	■	
AGR213: Integrated Pest Management	■		■						■			■	■	■					■	■	
AGR3110: Water Management	■								■			■	■	■					■	■	
AGR3120: Soils Management 2	■								■			■	■	■					■	■	
AGR3130: Sustainable Agriculture Systems	■								■			■	■	■					■	■	

Provides many direct links with competencies in this strand. Students will reinforce, extend and apply a substantial number of knowledge and/or skill components in practical situations.



Provides some links with competencies developed in this strand, usually through the application of related technologies and/or processes.



LINKAGES – Agriculture in Junior High

Course Emphasis	Agriculture Modules	Foods Modules	Mechanics Modules	Wildlife Modules
Environmental Management (3 modules)	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Agriculture: The Big Picture <i>AGR1010</i></div> <div style="border: 1px solid black; padding: 5px;">Resource Management <i>AGR1110</i></div>			<div style="border: 1px solid black; padding: 5px; text-align: center;">Taking Responsibility <i>WLD1050</i></div>
Landscape/Turf Care (4 modules)	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Agriculture: The Big Picture <i>AGR1010</i></div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Basic Landscape/ Turf Care <i>AGR1070</i></div> <div style="border: 1px solid black; padding: 5px;">Agriculture Technology <i>AGR1100</i></div>		<div style="border: 1px solid black; padding: 5px; text-align: center;">Engine Fundamentals <i>MEC1040</i></div>	
Agrifoods (5 modules)	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Agriculture: The Big Picture <i>AGR1010</i></div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Consumer Products & Services <i>AGR1060</i></div> <div style="border: 1px solid black; padding: 5px;">Agriculture Technology <i>AGR1100</i></div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px; text-align: center;">Food Basics <i>FOD1010</i></div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Canadian Heritage Foods <i>FOD1060</i></div>		
Field Crop Production (6 modules)	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Agriculture: The Big Picture <i>AGR1010</i></div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Production Basics <i>AGR1030</i></div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Market Fundamentals <i>AGR1090</i></div> <div style="border: 1px solid black; padding: 5px;">Agriculture Technology <i>AGR1100</i></div>		<div style="border: 1px solid black; padding: 5px; text-align: center;">Engine Fundamentals <i>MEC1040</i></div> <div style="border: 1px solid black; padding: 5px; text-align: center; margin-top: 10px;">Mechanical Systems <i>MEC1130</i></div>	

LINKAGES – Agriculture in Senior High

Course Emphasis	Agriculture Modules	Enterprise & Innovation Modules	Design Studies Modules	Career Transitions Modules
Introductory Horticulture (5 credits) Prerequisite: None	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Production Basics <i>AGR1030</i> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Basic Landscape/ Turf Care <i>AGR1070</i> </div> <div style="border: 1px solid black; padding: 5px;"> Nursery/Greenhouse Crops 1 <i>AGR2140</i> </div>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> Challenge & Opportunity <i>ENT1010</i> </div>		<div style="border: 1px solid black; padding: 5px; text-align: center;"> Project 1A <i>CTR1110</i> </div>
Intermediate Horticulture (5 credits) Prerequisite: Introductory Horticulture	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Nursery/Greenhouse Crops 1 <i>AGR2140</i> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Landscape/Turf Management 1 <i>AGR2060</i> </div> <div style="border: 1px solid black; padding: 5px;"> Soils Management 1 <i>AGR2120</i> </div>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> Planning a Venture <i>ENT1020</i> </div>		<div style="border: 1px solid black; padding: 5px; text-align: center;"> Project 2A <i>CTR2110</i> </div>
Advanced Horticulture (5 credits) Prerequisites: Intermediate Horticulture	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Protected Structures <i>AGR2100</i> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Landscape/Turf Management 2 <i>AGR3060</i> </div> <div style="border: 1px solid black; padding: 5px;"> Soils Management 2 <i>AGR3120</i> </div>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> Implementing the Venture <i>ENT2040</i> </div>		<div style="border: 1px solid black; padding: 5px; text-align: center;"> Project 3A <i>CTR3110</i> </div>
Beginning Floral Design and Plantscape (3 credits) Prerequisite: None	<div style="border: 1px solid black; padding: 5px;"> Basic Floral Design <i>AGR1080</i> </div>		<div style="border: 1px solid black; padding: 5px; text-align: center;"> 3D Design Fundamentals <i>DES1040</i> </div>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> Project 2A <i>CTR2110</i> </div>
Advanced Floral Design and Plantscape (4 credits) Prerequisite: Beginning Floristry and Plantscape	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Floral Design 1 <i>AGR2080</i> </div> <div style="border: 1px solid black; padding: 5px;"> Floral Design 2 <i>AGR3080</i> </div>		<div style="border: 1px solid black; padding: 5px; text-align: center;"> 3D Design Studio 1 <i>DES3040</i> </div>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> Project 3A <i>CTR3110</i> </div>

LINKAGES – Agriculture: Connections Across the Curriculum

Agriculture Modules	Across the Curriculum																		
	Junior High						Senior High												
	Language Arts	Social Studies	Mathematics	Science	Health & PLS	Physical Education	Fine Arts	English	Social Studies	Mathematics	Science (General)	Biology	Chemistry	Physics	CALM	Physical Education	Fine Arts	Social Sciences	Second Language
Theme: Social and Cultural Perspectives																			
AGR1010: Agriculture: The Big Picture	■	■	■					■	■	■					■				
AGR2020: Animal Husbandry/Welfare	■	■	■	■				■	■	■		■	■						
AGR3010: Issues in Agriculture	■	■	■	■				■	■	■								■	
Theme: Technology and Applications																			
AGR1030: Production Basics			■	■						■		■							
AGR1060: Consumer Products & Services			■	■						■		■							
AGR1070: Basic Landscape/Turf Care			■	■						■	■	■			■				
AGR1080: Basic Floral Design			■	■			■			■	■	■			■		■		
AGR1090: Market Fundamentals	■	■							■										
AGR1100: Agriculture Technology		■	■	■					■	■	■	■	■						
AGR2030: Field Crops 1		■	■	■						■	■	■	■		■				
AGR2040: Livestock/Poultry 1		■	■	■						■	■	■	■		■				
AGR2050: Agrifoods 1		■	■	■						■	■	■	■		■				
AGR2060: Landscape/Turf Management 1		■	■	■						■	■	■	■		■				
AGR2070: Equine 1		■	■	■						■	■	■	■		■				
AGR2080: Floral Design 1		■	■	■						■	■	■	■		■		■		
AGR2090: Marketing 1		■	■	■					■						■				
AGR2100: Protected Structures		■	■	■					■	■	■	■	■		■				
AGR2140: Nursery/Greenhouse Crops 1		■	■	■						■	■	■	■		■				
AGR3030: Field Crops 2		■	■	■						■	■	■	■		■				
AGR3040: Livestock/Poultry 2		■	■	■						■	■	■	■		■				
AGR3050: Agrifoods 2		■	■	■						■	■	■	■		■				
AGR3060: Landscape/Turf Management 2		■	■	■						■	■	■	■		■				
AGR3070: Equine 2		■	■	■						■	■	■	■		■				
AGR3080: Floral Design 2		■	■	■						■	■	■	■		■		■		
AGR3090: Marketing 2		■	■	■					■						■				
AGR3100: Biotechnology		■	■	■						■	■	■	■		■				
AGR3140: Nursery/Greenhouse Crops 2		■	■	■						■	■	■	■		■				
Theme: Management and Conservation																			
AGR1110: Resource Management	■	■		■				■	■	■	■	■	■						
AGR2120: Soils Management 1				■						■	■	■	■						
AGR2130: Integrated Pest Management				■						■	■	■	■						
AGR3110: Water Management	■	■		■				■	■	■	■	■	■						
AGR3120: Soils Management 2				■						■	■	■	■						
AGR3130: Sustainable Agriculture Systems	■	■		■				■	■	■	■	■	■					■	

Provides many direct links with course content. Students will reinforce, extend and apply a substantial number of knowledge and/or skill components in practical contexts.



Provides some links with course content, usually through the application of related technologies and/or processes.



LINKAGES – Agriculture: Correlations with Practical Arts Courses:*
Agriculture: Land and Life, 7, 8 and 9

Modules: CTS Agriculture

	Agriculture: The Big Picture	Production Basics	Consumer Products & Services	Market Fundamentals	Agriculture Technology	Resource Management	Agrifoods 1	Protected Structures	Soils Management 1	Agrifoods 2	Soils Management 2
Themes/Topics: Agriculture - Land & Life	1010	1030	1060	1090	1100	1110	2050	2100	2120	3050	3120
Survey: What is Agriculture?											
diversity of agriculture	x										
steps in production, processing and marketing		x	x	x							
agriculture careers	x	x	x	x							
agriculture as both producer and consumer	x										
historical trends	x										
local, national and international food production	x			x							
transportation and trade of food products			x	x							
factors that support and inhibit food production	x	x									
global issues in food production						x					
YEAR ONE											
Theme 1: Production, Processing and Marketing - Emphasis on Consumer											
consumption; consumer needs and preferences	x										
classifying products	x										
steps in processing and packaging			x								
approaches to marketing				x							
farm production		x									
transportation and storage			x	x							
career specializations	x	x	x	x							
local, provincial and national production	x			x							
Theme 2: Technology and Research - Mechanics											
tasks performed in agriculture production		x			x						
manual and mechanical approaches to production		x			x						
power sources					x						
technology as a means of problem solving					x						
efficiency of technologies		x	x		x						
safe use of technologies		x	x		x						
effectiveness of technologies		x	x		x						
drawing, designing and constructing technologies					x						
Theme 3: Resource Management - Water											
water requirements		x				x					
water resources						x					
landforms and water supply						x					
strategies for water management						x					
water rights						x					
water issues						x					
trade-offs in water uses						x					
conservation ethic	x					x					
careers in water management	x	x	x	x							

* September 1997: All practical arts courses replaced by Career and Technology Studies.

LINKAGES – Agriculture: Correlation with Practical Arts Courses:*
Agriculture: Land and Life 7, 8 and 9 (continued)

Modules: CTS Agriculture

	Agriculture: The Big Picture	Production Basics	Consumer Products & Services	Market Fundamentals	Agriculture Technology	Resource Management	Agrifoods 1	Protected Structures	Soils Management 1	Agrifoods 2	Soils Management 2
Themes/Topics: Agriculture - Land & Life	1010	1030	1060	1090	1100	1110	2050	2100	2120	3050	3120
YEAR TWO											
Theme 1: Production, Processing and Marketing - Emphasis on Nutrition											
nutrient composition of foods							x			x	
consumer needs and preferences	x										
identifying and classifying products	x										
processing and packaging			x								
farm production operations		x									
breed development					x						
transportation and storage			x	x							
local, national and international production	x			x							
Theme 2: Technology and Research - Planning, Monitoring and Managing											
natural, artificial and micro environments								x			
plant growth and plant health		x									
soil moisture and humidity		x									
plant propagation		x									
pest and disease management		x									
controlled growing environments								x			
optimum conditions for plant growth		x									
Theme 3: Resource Management - Soil											
soil functions and characteristics		x				x					
soil types		x				x					
soil development						x					
nutrient cycles									x		
soil degradation						x					
soil management						x					
organic and inorganic nutrients						x					
global issues in soil management						x					
careers in soil management	x	x	x	x							
YEAR THREE											
Theme 1: Production, Processing and Marketing - Emphasis on Energy											
range of food crops	x										
consumption; consumer needs and preferences	x										
identifying and classifying products	x										
processing, packaging and merchandising			x	x							
farm production operations		x									
transportation and storage			x	x							
inherent and invested energy					x						
food pyramid	x										
local, national and international production	x			x							

*September 1997: All practical arts courses replaced by Career and Technology Studies.

LINKAGES – Agriculture: Correlation with Practical Arts Courses:*
Agriculture: Land and Life 7, 8 and 9 (continued)

Modules: CTS Agriculture

	Agriculture: The Big Picture	Production Basics	Consumer Products & Services	Market Fundamentals	Agriculture Technology	Resource Management	Agrifoods 1	Protected Structures	Soils Management 1	Agrifoods 2	Soils Management 2
Themes/Topics: Agriculture - Land & Life	1010	1030	1060	1090	1100	1110	2050	2100	2120	3050	3120
Theme 2: Technology and Research - Biotechnology											
breeds and varieties		x			x						
genetic characteristics		x			x						
principles of animal breeding		x			x						
artificial insemination and embryo transplants		x			x						
growth supplements and food additives		x			x						
hormones		x			x						
biotechnology		x			x						
Theme 3: Resource Management - Land Use											
classifying land uses						x					
identifying land use issues	x					x					
evaluating alternative land uses						x					
historical changes in land use						x					
sustained yield and stewardship						x					
interpreting/drawing land use plans											x
setting goals in land use	x					x					
careers in land use planning	x	x	x	x							

*September 1997: All practical arts course replaced by Career and Technology Studies.

LINKAGES – Agriculture: Correlation with Practical Arts Courses:*
Agriculture: Land and Life 7, 8 and 9 (continued)

Modules: CTS Agriculture

	2020	2140	2050	2060	2080	2090	2100	2120	2130	3010	3030	3050	3060	3080	3110	3120	3130	
	Animal Husbandry/Welfare	Nursery/Greenhouse Crops 1	Agrifoods 1	Landscape/Turf Management 1	Floral Design I	Marketing 1	Protected Structures	Soils Management 1	Integrated Pest Management	Issues in Agriculture	Field/Greenhouse Crops 2	Agrifoods 2	Landscape/Turf Management 2	Floral Design 2	Water Management	Soils Management 2	Sustainable Agriculture Systems	Career Transitions
Topics: Horticulture 12, 22, 32																		
HORTICULTURE 12																		
landscaping				X									X					
indoor plants					X									X				
soils and fertilizers				X	X			X					X	X		X		
food production		X						X			X							
botany and biology		X		X					X		X		X					
greenhouses		X						X			X							
pruning				X									X					
floral design					X									X				X
HORTICULTURE 22A																		
food and ornamental plants		X		X							X		X					
greenhouses		X						X			X							
greenhouse systems								X										
safety		X		X				X		X		X	X					
soils in greenhouse		X						X	X		X					X		
practical project		X		X	X			X			X		X	X				X
HORTICULTURE 22B																		
ground maintenance				X				X	X				X		X	X		X
scheduling and planning ground care activities													X					X
site preparation				X									X					X
planting trees, shrubs, lawns, annuals and perennials				X									X					X
general maintenance of landscaped areas				X				X	X				X		X	X		X
use of equipment and tools				X									X					X
landscape construction and maintenance				X				X	X				X		X	X		X
HORTICULTURE 22C																		
history of park and garden development																		X
reasons for landscaping																		X
commercial and residential design													X					X
preparation of a landscape plan													X					X
cost estimating					X								X	X				X
using annual and perennial flowers				X									X					
use of indoor plants					X									X				
design work using flowers and plants					X									X				

*September 1997: All practical arts courses replaced by Career and Technology Studies.

LINKAGES – Agriculture: Correlations with Practical Arts Courses:*
Horticulture 12, 22 and 32

Modules: CTS Agriculture

	Animal Husbandry/Welfare	Nursery/Greenhouse Crops 1	Agrifoods 1	Landscape/Turf Management 1	Floral Design 1	Marketing 1	Protected Structures	Soils Management 1	Integrated Pest Management	Issues in Agriculture	Field/Greenhouse Crops 2	Agrifoods 2	Landscape/Turf Management 2	Floral Design 2	Water Management	Soils Management 2	Sustainable Agriculture Systems	Career Transitions
Topics: Horticulture 12, 22, 32	2020	2140	2050	2060	2080	2090	2100	2120	2130	3010	3030	3050	3060	3080	3110	3120	3130	
HORTICULTURE 32A																		
nursery site selection		X									X							
identification of woody ornamentals		X		X							X		X					
propagation of woody ornamentals and greenhouse crops		X		X							X		X					
nursery development		X									X							
marketing procedures						X												
scheduling of crops		X									X							
greenhouse cost accounting																		X
practical project		X		X	X		X				X		X	X				X
HORTICULTURE 32B																		
biological aspects of horticulture		X		X					X		X		X					
horticulture crops		X	X								X	X						
ecological aspects of organic gardening		X								X	X						X	
ecological aspects of parks and other landscapes				X						X			X		X		X	
HORTICULTURE 32C																		
landscape construction																		X
pesticide application		X		X					X		X		X					
business management													X	X				X
work study		X		X	X						X		X	X				X

*September 1997: All practical arts courses replaced by Career and Technology Studies.

TRANSITIONS – Agriculture: Related Occupations

Information for this chart was obtained from the National Occupational Classification (NOC) descriptions.

Educational Requirements:

D: High School Education
C: Apprenticeship

B: College or Vocational Education
A: University

STRAND-RELATED OCCUPATIONS		EDUCATION REQUIREMENTS			
Occupation Profile	NOC#	D	C	B	A
Agricultural and Fish Products Inspectors	2222	✓		✓	✓
Agricultural and Related Service Contractors and Managers	8252	✓		✓	✓
Agricultural Commodity Inspector	2222	✓		✓	✓
Agricultural Engineer	2148				✓
Agricultural Engineering Technologist	2221/223			✓	✓
Agricultural Mechanic/Farm Equipment Mechanic	7312		✓		
Agricultural Products Processing Occupations	9461	✓			
Agricultural Representatives, Consultants and Specialists	2123				✓
Animal Care Attendant	6483			✓	✓
Animal Health Technologist	3213			✓	
Artificial Insemination Technologist	8252			✓	
Aquaculture and Marine Harvest Labourers	8611	✓			
Aquaculture Operators and Managers	8257	✓		✓	
Beekeeper	8251	✓		✓	
Biochemist	2112				✓
Biological Technician	2221			✓	✓
Biologist and Related Scientists	2121				✓
Botanist	2121				✓
Dairy Producer	8251			✓	
District Agriculturist	2123			✓	✓
Environmental Auditor	2263			✓	✓
Environmental Education Specialist	4169				✓
Environmental Engineer	2131/2148				✓
Farm Supervisors and Specialized Livestock Workers	8253	✓		✓	
Farm Worker	8431	✓			
Farmers and Farm Managers	8251	✓		✓	
Farrier	7383			✓	
Feed Mill Worker (Production)	9461	✓			
Florist (Floral Designer)	6421			✓	

...continued

TRANSITIONS – Agriculture: Related Occupations (continued)

STRAND -RELATED OCCUPATIONS		EDUCATION REQUIREMENTS			
Occupation Profile	NOC#	D	C	B	A
Grain and Forage Crop Producers	8251	✓		✓	✓
Grain Elevator Manager	6234	✓		✓	
Grain Elevator Operator	6234	✓			
Greenhouse/Nursery Operator	8254/8256	✓		✓	
Harvesting Labourer	8611	✓			
Hazardous Waste Management Technician	2263			✓	
Hydrologist	2113				✓
Inspectors in Public and Environmental Health and Occupational Health & Safety	2263	✓		✓	✓
Land Surveyor	2154				✓
Landscape and Horticulture Technicians and Specialists	2225			✓	✓
Landscape Architect	2152				✓
Landscape Architectural Technologist	2225			✓	
Landscape Gardener	2225		✓		
Landscaping and Grounds Maintenance Contractors and Manager	8255			✓	
Landscaping and Grounds Maintenance Labourers	8612	✓			
Livestock Producer	8251	✓	✓	✓	✓
Manufacturing Manager	0911			✓	✓
Market Gardener	8251	✓		✓	
Other Labourers in Processing, Manufacturing and Utilities	9619	✓			
Other Professional Engineer	2148				✓
Other Professional Occupations in Physical Sciences	2115				✓
Pet Groomer and Animal Care Worker	6483		✓		
Pest Control Operator/Exterminator	7444		✓		
Pollution Control Technical	2211				✓
Primary Production Managers	0811				✓
Supervisors, Food, Beverage	6212	✓			
Supervisors, Landscape and Horticulture	8256	✓			
Testers and Graders, Food and Beverage Processing	9465	✓			
Turfgrass Management Specialist	2225			✓	
Veterinarian	3114				✓

Section H: Linkages/Transitions

SUMMARY OF RELATED POST-SECONDARY PROGRAMS

Effective September 2004, the chart Summary of Related Post-secondary Programs has been deleted from ALL CTS strands as the information is out of date.

Current information is available in the publication:
“It’s About Time ... to choose a post-secondary education program 2003–2004” published by Alberta Human Resources and Employment.

This publication is available:

- online through the Alberta Learning Information Services (ALIS) Web site at www.alis.gov.ab.ca/careershop
- in print through the Learning Resources Centre (LRC)
Product Number: 519275.

CREDENTIALLING – *Credentia*lling Opportunities in Agriculture

The following credentialling opportunities link with modules in the Agriculture strand. Further information (including current contacts) for these and other credentialling opportunities available to CTS students is available through Alberta Education’s web site at <<http://ednet.edc.gov.ab.ca>>.

Credential/ Certificate	Training/ Credentialling Agency	Related CTS Strands/Modules	Program Description
Farmer Pesticide Certificate	Extension Services, Olds College	AGR2030: Field Crops 1 AGR3030: Field Crops 2 CTR3040–3080: Practicum Modules	An industry-based credentialling program that leads to certification by Olds College in the safe use of pesticides. Develops knowledge of poisoning and first aid, safe handling procedures, environmental safety, legislation and food safety, application and equipment calibration. The course and examination are administered by Olds College.
Flowers Canada Accreditation: <ul style="list-style-type: none">• Basic Florist Skills• Floral Design Level I• Floral Design Level II• Floral Management Level I• Floral Management Level II	Flowers Canada, The Association of the Canadian Floral Industry	AGR1080: Basic Floral Design AGR2080: Floral Design 1 AGR3080: Floral Design 2 CTR3040–3080: Practicum Modules	An industry-based credentialling program that leads to certification by Flowers Canada as <i>Canadian Accredited Floral Designer, Canadian Accredited Floral Manager</i> and/or <i>Canadian Accredited Master Florist</i> . Develops introductory through advanced competencies in floral design and management. Certification requires successful completion of both a written and practical examination administered by Flowers Canada.
Green Certificate Farm Training: <ul style="list-style-type: none">• Beef Production• Dairy Production• Crop Production• Irrigated Crop Production• Sheep Production• Swine Production	Alberta Agriculture, Food & Rural Development	AGR2020: Animal Husbandry/Welfare AGR2030: Field Crops 1 AGR2040: Livestock/Poultry 1 AGR2130: Integrated Pest Management AGR3030: Field Crops 2 AGR3040: Livestock/Poultry 2 CTR3040–3080: Practicum Modules	An industry-based “apprenticeship-style” training program that develops practical competencies in livestock/crop production at technical, supervisory and managerial levels. Involves establishing a partnership between student, school, industry coach and Alberta Agriculture, Food and Rural Development. Practical competencies are assessed by Green Certificate personnel.
Pesticide Applicator Certificate: <ul style="list-style-type: none">• Agriculture• Landscape• Industrial	Contact Alberta Environmental Protection for information regarding approved training/credentialling agencies	AGR2030: Field Crops 1 AGR2060: Landscape/Turf Management 1 AGR2140: Nursery/Greenhouse Crops 1 AGR3030: Field Crops 2 AGR3060: Landscape/Turf Management 2 AGR3140: Nursery/Greenhouse Crops 2 CTR3040–3080: Practicum Modules	A provincial credentialling program administered by Alberta Environmental Protection that leads to a certificate in pesticide application. Develops knowledge and skills relevant to practical aspects of pesticide application, including weed identification, pest identification and equipment calibration. Independent study materials that align with the provincial certification examination are available.