

**YUKON AGRICULTURE MULTI-YEAR
DEVELOPMENT PLAN**

**PREPARED FOR
AGRICULTURE AND AGRI-FOOD CANADA
AND
THE YUKON GOVERNMENT
AND
YUKON AGRICULTURAL ASSOCIATION**

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1.0 INTRODUCTION

Will farming be a part of the Yukon's future? If so, what will the industry look like? What will be required to nurture its success?

Key Yukon agriculture players grapple with these very questions. Together, the Yukon Government (Department of Renewable Resources, Agriculture Branch, in conjunction with the Department of Economic Development), Agriculture and Agri-Food Canada, and the Yukon Agricultural Association, took an opportunity to step back and gain a new perspective on their industry. They commenced a process of planning a future for agriculture that takes into account current challenges and prepares the industry for the future. This process provided a means to identify and address weaknesses and opportunities in the business of agriculture. It also permits the integration of personal goals with enterprise production, economics, social well-being, marketing and natural resource management

This document, the 'Yukon Agriculture Multi-Year Development Plan', is the first phase of the collaborative endeavour. Stakeholders in the Yukon agricultural industry have the power to pool their energies and work toward common goals.

1.1 PURPOSE AND OBJECTIVES

The basis for this document was conceived in February, 2000. The objectives for completion of this report were identified as to:

- develop an overview of the current state of the agriculture and agri-food sectors in the Yukon;
- determine strengths, weaknesses, opportunities, and constraints for each identified sector;
- prepare a five-year development plan which will assist the industry to progress in a sustainable manner; and,
- develop performance measurement indicators for each component of the development plan.

This document is designed to:

- facilitate identification and development of ideas and enterprise sectors;

- increase the opportunity for investment in viable agricultural sectors;
- increase the understanding of emerging new agricultural industries; and,
- provide a framework for the development of new agricultural industries.

The report considers the industry as an economic and social entity. It looks at the potential of agriculture to contribute to the aspirations of Yukoners and enhance the Yukon economy. The scope of the plan includes mainstream industry sectors. It does not directly include natural harvesting operations (e.g. morel mushrooms), fish farming or silvaculture (a forestry sector).

1.2 METHODOLOGY

The study methodology that addressed the objectives encompassed six phases. These included orientation, data assembly including an industry survey, an analysis of strengths, weaknesses, opportunities, and constraints (SWOC), two workshops, the preparation of a five-year development plan including performance measure indicators, and report preparation and presentation.

In developing the guidelines for this investigation, industry involvement was given top priority. A concerted effort was made to engage in dialogue with farmers, distributors, retailers, regulators and policy makers; all who are directly involved in the Yukon agricultural industry. Personal or telephone interviews were completed with 42 producers, 7 grocer/distributors, and 14 government and industry experts. It is their voiced ideas, perspectives and experiences that form the foundation for this report.

This process enabled rural people to articulate their own perceptions of community needs, local knowledge, opportunities, problems and solutions. In this way, the process puts the rural community back at the centre of their own development as owners of the development process.

1.3 IMPORTANCE OF THE PLAN

Why consider agriculture as an industry warranting a development effort – given its turbulent and slow historic progress, and given Yukon's remoteness from major input and product markets? Because even in these difficult times, some farms are viable. These farms are economically and environmentally sound, provide their families with a good quality of life, and contribute to the social well-being of the community.

The collaborative undertaking by industry, federal, and territorial government representatives demonstrates a commitment to ensuring agriculture's place in the planning mainstream. All participants in the industry appreciate the need to develop strong working relationships among the territorial and federal governments and farmers.

The industry wants to take advantage of emerging opportunities and build on the strengths of Yukon's innovative, determined farmers, its clean products and pristine environment, and its relative freedom from pests and diseases. The planning process involves matching Yukon's strengths with available opportunities to ensure that agriculture can be sustained and enhanced in the future.

The Yukon agricultural industry has an excellent spirit and enthusiasm. It is entrepreneurial in nature and most farmers have few expectations for direct government assistance.

Agricultural production has both economic and social dimensions that are important to any region, especially to a remote area with unique physical and environmental traits. To be effective, a development plan has to consider all of these components.

1.4 DESCRIPTION OF THE INDUSTRY

Agriculture in the Yukon has a long and varied history, from serving the gold rush period in the 1890's to current times. Growth has been slow and at times has stagnated. Currently there are a number of new ventures that are creating incentives to develop the agricultural industry for the future.

The Yukon has a total of 483,450 square kilometres of land and fresh water. Of this, about 522,600 hectares (1,291,345 acres) is deemed suitable for agricultural production, that is, Canada Land Inventory Soil Capability for Agriculture land rated Class #3, #4, and #5. This represents about 1.1% of the Yukon land base. The main limitations to production are climatic, namely a short growing season and limited moisture, and soils with very little organic matter or nutrients.

The current population is estimated to be 31,000, with about 90% being urban residents. There were over 318,000 non-Yukon residents border-crossing in 1999. This large tourism traffic increases the market for local products, and effectively adds an estimated 10% to the overall consumption of food products in the Yukon.

About 12,522 hectares (30,942 acres) of land have been granted to individual landowners through the Agricultural Land Program. About 50% of this is considered to be utilized for crops, hay production or improved pasture. The number of farms has increased from 38 in 1986 to 160 in 1996 and to an estimated 165 in 1999. About 70% of the farms are located within 100 kilometres of Whitehorse.

An estimated 10% of the farms are operated by full time farmers, while the rest farm part time or as a hobby. The majority of farms are less than 70 acres in size, a concern when assessing economic viability. Based on 1996 Statistics Canada Census information and the Yukon Agriculture Branch 1998/99 industry status report, inventories are estimated as follows: 300 head of cattle; 2,500 head of horses; 300 hogs; 7,000 poultry; 50 bison (plus a wild herd of 500); 120 elk and reindeer; about 7,900 square meters of greenhouse space; about 40 acres of potatoes and vegetables; and about 40 acres of nursery products and sod.

An estimated \$44.9 million (1996) is invested in the agricultural industry. This is a large investment for such limited production and net return. High land prices are a major contributor to this capitalization.

In 1999, the total value of agricultural production was approximately \$3.9 million in sales and an additional \$0.6 million consumed at home or on the farm. Although undocumented, there was an unconfirmed estimate of \$1.5 million of morel mushrooms

exported in 1999. No other information was obtained for subsequent years.

Agriculture represents about 0.10% of the total real Yukon GDP, or about \$1.3 million in 1998. Although only a small percentage of the Yukon real GDP, the contribution of agriculture and related services has continued to grow, almost tripling in the last decade.

The percentage of the work force involved in agriculture (80) and related services (35) is also less than 1.0% of the total Yukon labour force. These ratios indicate agriculture's relative role in the total Yukon economy.

The Yukon Government has an Agriculture Branch, one of six branches within the Department of Renewable Resources. Programs and administration are handled by a full time staff of six, plus three part time assistants on a program and/or seasonal basis.

Agriculture and Agri-Food Canada (AAFC) has one representative in Whitehorse. This representative is the direct contact for all programs and services offered by AAFC, including the administration and enforcement of Canadian Food Inspection Agency (CFIA) services related to food. CFIA services that specifically relate to the Health of Animals Act and Meat Inspection Act and are provided by the Dawson Creek, B.C. office and a locally trained veterinarian to complete the inspection at the local abattoir.

Further details about the region and the agricultural industry are included in the Appendix.

2.0 ASSESSING PROSPECTS FOR DEVELOPMENT

In order to assess prospects for an agricultural industry development plan, consideration has to be given to all components that have an economic or social impact. Consideration was given to statistical information, the interviews completed, the workshops, and feedback from the Steering Committee. The 63 completed interviews, of which 49 were producers or agri-business, and the Strengths, Weaknesses, Opportunities, and Constraints (SWOC) analysis determined which components influence viability on an industry-wide and sectoral-specific basis.

2.1 SWOC ANALYSIS

The SWOC framework is a well-known approach to facilitating strategy development. Describing the agriculture industry's internal capabilities (strengths and weaknesses) relative to the opportunities and constraints (external environment) helps identify strategic gaps that the development plan must address.

The SWOC analysis, a direct result of the interviews and all information gathered during the study, is outlined below by category. The following categories and responses were derived from the interviews.

Agro Climatic Condition

Strengths

- ⇒ the climate enhances production of elk
- ⇒ northern vigour
- ⇒ disease and pest control
- ⇒ micro climates
- ⇒ long daylight hours make up for short growing season

Weaknesses

- ⇒ soils lack fertility
- ⇒ low or no organic matter in most soils
- ⇒ clay soils
- ⇒ salinity
- ⇒ few frost free days
- ⇒ very low precipitation
- ⇒ high evaporation

Opportunities

- ⇒ grow native grasses for region and export for reclamation

Constraints

- ⇒ productivity capability

Agro Development

Strengths

- ⇒ spirit and enthusiasm of the Yukon farmers utilized on the farm
- ⇒ off-farm economic resources

Weaknesses

- ⇒ cost of clearing land is high
- ⇒ services-electricity, fuel (heating) are high
- ⇒ operating fuel is high
- ⇒ high cost of inputs
- ⇒ high labour costs
- ⇒ difficult to get access across crown land for water lines to irrigate

Opportunities

- ⇒ expand more cultivated land
- ⇒ reduction of fuel and electricity costs (cost sharing)

Constraints

- ⇒ access to proper finance for development activities
- ⇒ lack of programs and/or services, i.e. Rural Electrification Associations (REAs)

Government Policy (land development)

Strengths

- ⇒ provision for and encouragement of small land holdings
- ⇒ public land available for farmers
- ⇒ the program has provided 30,942 acres of land for Yukon agriculture

Weaknesses

- ⇒ difficult to acquire public land due to lengthy entitlement process
- ⇒ many land applications awaiting title
- ⇒ land improvement constitutes clearing rather than just fencing for game farming
- ⇒ conflict of interested parties in the use of available agricultural land
- ⇒ lack of availability greatly inflates land values
- ⇒ changes in entitlement process over time has led to confusion
- ⇒ subdivision of land into non-economic parcels (small parcels)
- ⇒ a number of First Nation land claims are outstanding
- ⇒ a lot of problems with water availability which can be timely and costly

Opportunities

- ⇒ expedite the land entitlement process
- ⇒ consider a mediation board for land entitlement issues

Constraints

- ⇒ limited access to land in order to create economically viable farm units

Government Policy (taxation)

Strengths

- ⇒ government tax program for agricultural holdings exists on paper

Weaknesses

- ⇒ land tax rebate program has not been implemented

Opportunities

- ⇒ reduce taxes on agricultural holdings

Constraints

- ⇒ lack of implementation

Land Utilization

Strengths

- ⇒ sufficient land available for development

Weaknesses

- ⇒ underutilized due to lack of financing to develop
- ⇒ undeveloped crown land preferred over developed land
- ⇒ lifestyle farmers are considered acceptable for land acquisition

Opportunities

- ⇒ increase utilization of existing farmland
- ⇒ determine best use of underutilized land

Constraints

- ⇒ inadequate financing
- ⇒ game farming needs fences rather than the required land development

Finance/Capital

Strengths

- ⇒ FCC has an understanding of Yukon farming and has a credit advisor responsible for the area

Weaknesses

- ⇒ limited financing available to develop land and improvements because no title is granted until land is developed
- ⇒ lack of knowledge in agricultural financing
- ⇒ lack of infrastructure financing for irrigation, power, etc.

Opportunities

- ⇒ flexible financing with consideration to use off-farm income for repayments of loans for land development

Constraints

- ⇒ loan security
- ⇒ economic viability during development
- ⇒ lack of government risk management program

Infrastructure – Animal Slaughter

Strengths

- ⇒ there is a territorially inspected abattoir

Weaknesses

- ⇒ current abattoir does not serve southern regions of Yukon effectively



Opportunities

- ⇒ more local slaughter facilities to satisfy local needs or develop process to move cattle to existing plant

Constraints

- ⇒ ready and reasonable access to slaughter for all regions of the Yukon
- ⇒ dispersion of livestock too vast to be serviced by one facility

Infrastructure – Produce Storage

Strengths

- ⇒ good quality produce

Weaknesses

- ⇒ no cool storage for fresh produce

Opportunities

- ⇒ co-ordinate and utilize existing facilities for vegetable storage

Constraints

- ⇒ short season for fresh produce because of weather and lack of storage

Infrastructure – Inputs, Supplies, and Services

Strengths

- ⇒ adequate transportation to the area

Weaknesses

- ⇒ freight costs are very high
- ⇒ time delay for input supplies, parts, etc.
- ⇒ lack of freight co-ordination and volume shipments

Opportunities

- ⇒ co-ordinate co-operative shipments of inputs
- ⇒ establish a farm equipment facility
- ⇒ develop sources for inputs through internet

Constraints

- ⇒ distance to source of inputs
- ⇒ limited back-haul opportunities
- ⇒ no bulk storage of fertilizer

Infrastructure – Water

Strengths

- ⇒ adequate water generally available for domestic livestock and field use

Weaknesses

- ⇒ wells are costly to drill
- ⇒ irrigation plans and development are costly
- ⇒ water licenses are difficult to obtain

Opportunities

- ⇒ co-operatively hire well driller to do a number of farms

Constraints

- ⇒ water related infrastructure

Infrastructure – Research and Development

Strengths

- ⇒ extensive soil research has been completed
- ⇒ extensive agronomic research has been completed

Weaknesses

- ⇒ lack of knowledge of seed, fertilizer and chemicals specific to Yukon conditions

Opportunities

- ⇒ carry out more applied research
- ⇒ share farming techniques

Constraints

- ⇒ diverse soils and agro climatic micro areas

Infrastructure – Information and Technology Transfer

Strengths

- ⇒ Agriculture Branch considered to be very conscientious and has good general knowledge

Weaknesses

- ⇒ current staff have to serve all forms of agricultural production
- ⇒ lack of applied research
- ⇒ lack of support for agriculture by government

- ⇒ Agriculture Branch perceived as spending too much time with gardeners and not enough with "farmers"
- ⇒ lack of animal nutrition and management expertise

Opportunities

- ⇒ continue to create specialist workshops bringing in outside expertise
- ⇒ make production and economic information more accessible

Constraints

- ⇒ limited human resources

Game Farming

Strengths

- ⇒ natural habitat for game animals
- ⇒ low wintering costs compared to cattle or horses.
- ⇒ high demand for exporting Wood Bison breeding stock for hybrid reproduction
- ⇒ Yukon perceived as being able to produce high quality elk velvet antlers
- ⇒ Yukon vigour gives elk strong advantage for breeding purposes

Weaknesses

- ⇒ limited to Wood Bison production
- ⇒ lack of access to U.S. markets for Wood Bison
- ⇒ limited slaughter facilities for game in southern Yukon
- ⇒ no hunting reserves in existence
- ⇒ land development policy negative to game farming
- ⇒ costly to establish game farms
- ⇒ lack of good quality feed source
- ⇒ lack of veterinarians qualified for artificial insemination or to work with bison and elk
- ⇒ lack of local expertise in bison husbandry

Opportunities

- ⇒ establish hunting reserves for spent animals
- ⇒ expand markets for breeding animals
- ⇒ capture more wild Wood Bison for domestic production
- ⇒ establish more Wood Bison operators
- ⇒ develop training courses for bison production and take advantage of existing courses

Constraints

- ⇒ market access to U.S. for Wood Bison because they are on a threatened species list
- ⇒ no prairie bison allowed in the Yukon

Marketing of Agricultural Production

Strengths

- ⇒ Farmers' Markets are well received
- ⇒ roadside markets have grown recently
- ⇒ demand for local produce is strong as it is perceived to be more naturally grown
- ⇒ good attitude towards "grown in the Yukon" by locals and tourists

Weaknesses

- ⇒ farmers lack marketing infrastructure
- ⇒ small population limits the market potential
- ⇒ lack of reliable supply in quantity and quality
- ⇒ lack of year-round supply
- ⇒ outside market competition has to be considered at all times
- ⇒ ability to access export markets

Opportunities

- ⇒ there is local and international market opportunities
- ⇒ market livestock through abattoir i.e. abattoir buys animals on the hoof and markets carcasses or cuts
- ⇒ agro-tourism
- ⇒ good supply of hay needed

Constraints

- ⇒ market access to local retailer
- ⇒ inconsistent supply

2.2 POLICY FRAMEWORK

2.2.1 General Comments

Acts and regulations govern inspection and marketing of agricultural products, game farming, land allocation, and agricultural development. The main concerns orientated around land acquisition, land development, and specific issues such as water licenses for irrigation and rights of way for water lines across federal or territorial lands.

Currently, the freedom granted processing and marketing of some of the commodities allows for a viable niche market to exist for a small portion of local production.

2.2.2 Lands Act and Regulations

The Lands Act and Regulations outline all the criteria for the purchase or lease of Yukon lands to individuals. Considerable concern was raised by nearly all interviewees regarding the process to acquire land. The main issues relate to the inability to develop economic units, the agreement for sale format which created security problems for borrowing money for development, and the time to finalize a transaction.

The land disposition policy creates serious problems for those wishing to develop economic units. It also escalates land values far beyond its productive value, because it creates a scarcity of available land, even though there is a strong demand for land by full time, part time, and lifestyle farmers.

The inability of farmers to acquire adjacent land in parcels of reasonable size also affects the development of infrastructure for such developments as irrigation.

2.2.3 Agriculture Development Act and Regulations

Current legislation, described in the Agriculture Development Act and its Regulations, is considered a major impediment to farmers who wish to expand and develop their land base for enterprises requiring large acreages. The expansion of the land base would provide an opportunity to take advantage of economies of scale. These economies relate not only to the size of production units, but also to the volume of production required for effective marketing.

The regulations that require farmers to develop the land (clear for cropping) before title is given, make it difficult for farmers to finance activities on the land. Financial institutions usually require the land as security when advancing funds for improvements. Under the "Agreement for Sale" process, no security can be offered by the farmer. The current land base is being underutilized due in part to the lack of financing to develop land now under option to farmers.

Agricultural policies stipulating the land must be cleared to meet the requirement of improvement does not seem reasonable if the land is going to be used by game farmers for grazing. Other forms of development such as fencing should be eligible under the development requirements.

The policy in regard to the development of small parcel agricultural land into small (3-15 acre) holdings is said to be a result of political pressure to provide more land for small agricultural operations when in fact the eventual use of the land is for country residences. Existing farmers who want to acquire adjacent land to expand their operations must compete with non-farmers willing to pay higher prices per acre for small parcels.

2.2.4 Other Policy Issues

Current policy tends to be an impediment to the development of irrigation systems by farmers. The issuance of water licenses is considered to be a lengthy and frustrating process. Authorization for remote pumping and rights of way for the mainline requires numerous approvals from various federal and federal-territorial agencies. These agencies have jurisdiction over land development, the environment, fisheries and water issues.

A large portion of the Yukon is under negotiation for native land claims by various First Nations. Any consideration of a land use change needs to also be considered by the federal government and the respective First Nation.

2.3 INFRASTRUCTURE

The infrastructure available to support the Yukon agricultural industry is quite limited. Although basic community and regional infrastructure – roads, communications, electricity, municipal services – is well developed, there is a distinct lack of facilities and services directly related to agriculture. These include an absence or lack of:

- ⇒ farm equipment suppliers, and equipment repair and maintenance services;
- ⇒ suppliers or services related to irrigation systems, e.g. equipment, engineering, design, construction, maintenance;
- ⇒ local sources or suppliers of such key agricultural inputs as feed and fertilizer (one

feed company exists in Whitehorse). The vast majority of these items must be trucked up the Alaska Highway at an additional cost of \$100 or more per tonne;

- formal education and training programs, notably at the post-secondary level;
- specific technical and consulting resources other than those currently provided by the Agriculture Branch; and,
- downstream processing facilities (with the exception of the abattoir constructed in 1998).

These are significant constraints that tend to retard industry development. They limit opportunities for such things as processing of agricultural products, research and innovation, and technology and information transfer. Perhaps more significant, they increase costs by forcing producers to access remote services and suppliers, thereby making local producers less competitive with outside sources of the same products.

2.4 VIABILITY IN AGRICULTURE

The concept of “viability” in the agriculture industry can mean different things to different people. To a home gardener, for example, it may simply mean the ability to grow a selected plant or product in one’s back yard. A commercial farmer, on the other hand, will typically focus on economic and market factors such as input costs, prices, margins and market share.

This report deals with the agriculture industry as a sector of the Yukon economy. In considering the development of agriculture as an industry and an economic force, the focus is on the potential commercial applications of agriculture and developing successful agri-businesses. Also necessary is the development of programs for hobby or lifestyle farming operations as they create economic wealth and social well-being for the community.

For purposes of the analysis in this chapter, we define a viable agricultural operation or opportunity as meeting three criteria:

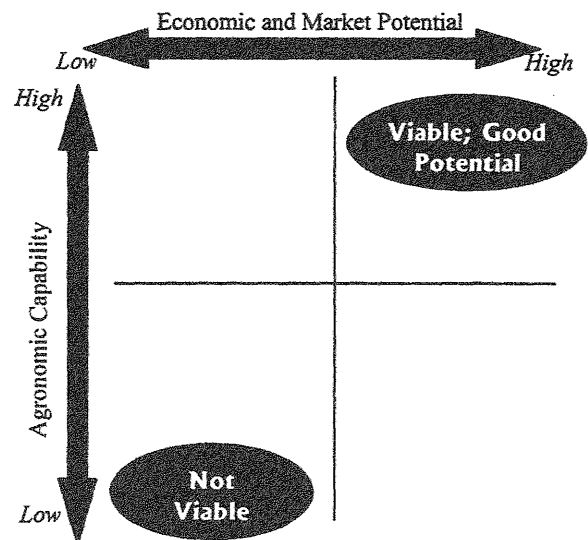
- *Agronomic Capability* – the product can be grown under normal local conditions, without extraordinary measures being taken.

- *Market Availability* – projected demand for the product is sufficient to justify production.
- *Economic Rationale* – the difference between potential input costs and revenues justifies the investment required.

In a graphic presentation, these criteria can be used to rate or plot sectors or individual products, as shown in Figure 2.1.

Those products/sectors in the “high-high” quadrant are those that are proven viable – they have the greatest potential as farm businesses. Those in the “low-low” quadrant, on the other hand, are best left out of any agricultural development plan, and those that fall in the remaining two quadrants would typically need support (time, capital, technology) to succeed, or to push them into the viable category.

Figure 2.1
The Concept of Agricultural Viability



Agronomic capability, market availability, and economic rationale are discussed in greater detail as they pertain to the Yukon situation.

2.4.1 Agronomic Capabilities/Constraints

The main factors affecting agronomic conditions are climate and soil. The semi arid climatic conditions and shorter growing season along with less than ideal soil conditions for a large portion of the agricultural land, provides a significant challenge to agriculture production.

The main climate condition limiting agricultural crop production is the low annual precipitation rate. Irrigation is required in most parts of the agricultural area to achieve acceptable yields. Those farmers who have established irrigation systems on their farms have increased yields significantly. The development of land with regard to minimum field size and proximity to existing developed land often relates to the configuration of the irrigation system. Irrigation and related constraints are discussed in the section on policy and infrastructure.

The shorter growing season not only limits the types of crops grown but also narrows the window to plant, grow, harvest and market crop production. This short timeframe lessens the opportunity for farmers to share equipment, utilize custom operators, and spread the marketing of non-storable production over a greater time period.

Much of the soil dedicated to agriculture is very low in natural nutrients required for plant life. Essential nutrients such as nitrogen, phosphorus and potassium and trace elements must be added in the form of fertilizer in order to successfully produce crops. The amount of chemical fertilizer and the associated freight cost to ship it from Edmonton, Alberta or Dawson Creek, B.C. contributes to a major cost in the production of crops.

The inherent soil conditions also make organic farming more difficult. Vast amounts of manure are required to provide sufficient plant nutrients and this is just not available. Therefore, chemical fertilizers are used, limiting the potential for organic production.

2.4.2 Market Considerations

Yukon agriculture markets are small. Even a large (25 to 50%) share of the domestic market represents relatively little production. Estimates of the market for selected agriculture products, derived from information obtained from CompuServe (see Appendix 3), suggests that demand for the Yukon is as shown in Table 2.1.

Table 2.1 is derived from information obtained from CompuServe's Household Expenditure Survey. This up-to-date market survey tracks expenditures for all purchases. We have, based on retail prices in Whitehorse, converted these expenditures into units of production – head of beef, poultry, dozens of eggs, etc.

To determine the total available market we have taken into account the Yukon population of 31,000+, plus 318,000 border crossings of non-Yukon residents (tourists) which are deemed to be equivalent to 10% of the population. Also considered is the estimated 13% of home consumption for all mentioned items.

Table 2.1
Estimated Yukon Demand for Selected Products

Product	Targeted Share of Local Market	Projected Market Size	Productive Units	Productivity Assumption
Beef	20%	150,832.0 kg	587 hd.	565.7 lb retail/hd
Eggs	50%	220,403.9 doz.	13,198 birds	200 eggs/layer
Hay**	100%	8,909.7 t	5,940 acres	1.5t/acre
Pasture**	100%	7,073.1 ac	7,073 acres	2 acre/animal except 2.5 acre/bison
Honey	5	363.5 kg	364 kg	
Hatching**	100%	90,010.3 eggs	667 birds	135 chicks/bird
Chicken	25	135,180.3 kg	70,970 birds	2 kg/bird & 5% death rate
Turkey	15	13,564.1 kg	2,158 birds	6.6 kg/bird & 5% death rate
Potatoes	30	150,113.1 kg	43 acres	5t/acre and 70% marketability
Tomatoes*	25	25,268.8 kg	0.1 acres	50 kg/m ²
Cucumbers*	25	31,108.8 ea.	0.1 acres	100 /m ²
Lettuce	10	29,498.4 ea.	5.5 acres	225 cases (24/case)/acre
Onion	5	14,760.9 kg	2.1 acres	7t/acre

Product	Targeted Share of Local Market	Projected Market Size	Productive Units	Productivity Assumption
Carrots	30	54,518.3 kg	21.0 acres	4t/acre & 65% marketability
Broccoli	5	1,990.6 kg	2.0 acres	1t/acre
Mushrooms	25	15,654.4 kg	0.04 acres	1.8 kg/m ²

Source: CompuServe Household Expenditures, Serecon conversion to product units.
 Note: Market Size includes % local share, 10% tourism and 13% home use
 * Greenhouse production
 ** Market size indicates required amounts as inputs to support end use (meat production).

The result is an estimate of the demand for selected product categories based on a proportion of market share. Total acreage required for this projection is 13.086, based on current production per acre.

Local products cannot generally compete with outside products solely on price due to the high local cost of production. This situation suggests a need to differentiate and position products in a way designed to obtain higher prices. Local products can, however, compete on the basis of quality, freshness, convenience, "buy local," uniqueness, and related factors. All these factors emphasize the need to differentiate from competing outside products.

Three factors limit the share of domestic market that local producers can expect to capture: high prices, seasonal supply, and the retailers' philosophy. A certain number of consumers – or many consumers on selected occasions – are prepared to pay premium prices for local products such as vegetables. Most consumers will not, however, routinely pay such premium prices. This rarely becomes an issue for consumers because supply of most products is seasonal, and demand usually exceeds supply. An exception to this situation is eggs, which are supplied all year. Unless their prices become more competitive with outside products, Yukon egg suppliers will not capture a majority share of the market.

A limited number of products have export potential. Producers can generally use a "Yukon mystique" theme to help position their products in the marketplace; a few have done so on a small scale. The approach shows the greatest promise with value-added products such as processed specialty foods and elk velvet antler. It is far less useful in marketing commodity-type products such as vegetables or hay,

which are difficult to distinguish from comparable southern products.

Niche markets can be developed for specialized products, particularly value-added products, in both domestic and export markets. Such a niche approach tends to fit the small scale Yukon agricultural production and has potential to generate the larger margins needed to underwrite the high costs of production.

Currently, the largest retailer of food products has a purchasing philosophy which effectively does not allow for the purchase of local produce. This, in effect, limits the available market for local products to about 50% of the available Yukon market. Already, about 13% of the Yukon market is "home grown", that is grown and consumed at home. The effective market is therefore quite limited.

2.4.3 Economic Considerations

The economic environment under which Yukon agriculture exists is considered by the industry as restrictive. Economic support by all levels of government to agriculture is said to be lacking. Because there is no federal – territorial agreement on cost sharing of support to agriculture, there are no safety net programs or other risk management tools such as the Net Income Stabilization Account (NISA) and Crop Insurance, available to Yukon farmers.

There is considerable government spending – federal and territorial in agriculture. This is especially true when considering the number of farmers and the size of their operations. Comparing the Yukon to other provinces across Canada indicated government spending (on a gross farm revenue basis) was slightly



ahead of Newfoundland, the highest of all ten provinces. This indicates government spending in the Yukon is not lacking.

Costs of production are higher for Yukon farmers compared to the cost for farmers in competing areas. Programs such as Alberta's Farm Fuel Benefit program give farmers outside of the Yukon a production advantage. Farmers in the prairie region have access to water infrastructure programs through the Prairie Farm Rehabilitation Administration, which provides financial and technical assistance for projects such as well drilling, dugout excavation, and irrigation.

Other input costs such as electricity are higher in the Yukon when compared to other regions. This input cost is a major factor, particularly in greenhouse production.

There are few opportunities for Yukon agriculture to benefit from economies of scale, both in production or in marketing. Size and characteristics of the arable land base limit the total production and that of individual production units. Agriculture enterprises not constrained by land factors are limited by the extent of production support and the size of the domestic market. Currently the agriculture sector is heavily reliant on the Yukon market, with the exception of some shipments of products to Alaska.

Activities that increase the size of any of the agriculture enterprises in order to reduce cost of production must consider the limits of the domestic market. Export opportunities exist only for high-value commodities or those with a minimum freight cost component.

Import substitution, and diversification of the local economy are two reasons often cited for encouraging local production. It is difficult to justify enhanced local production when products can be imported at less cost than they can be produced locally.

2.5 TARGETING SECTORS AND PRODUCTS

In general terms, the strategic approach for the agricultural industry should involve identifying and supporting those sectors or products that are "viable"

in the Yukon. As discussed above, the most promising segments in the agriculture industry are those that have:

- ⇒ agronomic capability; and,
- ⇒ market and economic potential.

During two workshops held in Whitehorse in March 2000, industry and government representatives were asked to rank products or sectors according to established criteria and assign them to one of four categories (the four quadrants). Assessments were based on their present knowledge of the industry with no regard given to government policies that might interfere. Individual assessments were discussed in order to arrive at a group consensus. The collective results of the two workshops are summarized in Table 2.2.

Table 2.2
Categorizing Agricultural Products

<i>Viable with limited profit potential</i>	<i>Viable with good profit potential</i>
<ul style="list-style-type: none"> ⇒ Market gardening: mixed vegetables & plants ⇒ Eggs ⇒ Potatoes ⇒ Farmgate beef ⇒ Native grass seed 	<ul style="list-style-type: none"> ⇒ Hay ⇒ Game farming: elk and reindeer breeding stock; perhaps meat ⇒ Elk velvet antler ⇒ Greenhouse produce & flowers/bedding plants ⇒ Herbs
<i>Show potential but not yet proven viable</i>	<i>Considered not viable</i>
<ul style="list-style-type: none"> ⇒ Game farming: wood bison, musk-ox ⇒ Broilers; hatchery chicks ⇒ Feed grains: barley, oats ⇒ Berries, small fruit ⇒ Root vegetables ⇒ Organic produce ⇒ Honey ⇒ Boreal products: various indigenous products ⇒ Various nutraceuticals 	<ul style="list-style-type: none"> ⇒ Dairy products ⇒ Wheat, most grains ⇒ Pork/hogs ⇒ Sheep

These product assessments, in part, provide the basis for the sectoral strategies described in the following chapter. All rankings are the consensus of the workshops, and may not be as we have ranked them in the final analysis.

2.6 SEGMENTING THE PRODUCERS

As previously described, there are approximately 165 farms producing agricultural products in the Yukon. These farmers who own and operate their farms can be considered in three groups:

- full-time farmers who derive the majority of their income from agriculture;
- those who aspire to join the above group, but are constrained by a lack of land, money or markets; and,
- those who farm strictly on a part-time basis, who derive only a portion of their income from (or who subsidize) their agricultural operations, and who are typically motivated by non-economic factors when considering their farms.

The latter group is by far the largest. Lifestyle rather than economic factors motivate the vast majority – probably upwards of 80% – of people involved in Yukon agriculture. These people operate small-parcel agricultural operations or hobby farms that are not intended to be commercially viable. The owners hold full-time jobs or operate businesses that provide the majority of their household income. They are motivated by a fondness for farming or animals or country living, or perhaps by the fact that farming offered the only opportunity by which they could acquire title to a parcel of land. They have no intention of farming commercially, even if the necessary land, infrastructure and financing were available to them.

The ratio of full-time to part-time farmers has apparently not changed for many years. While the number of farms has grown in the past decade, the percentage of full-time operations has remained around 10%. A related issue is succession; many respondents to our survey expressed concern that the current group of producers is aging but is not being replaced by younger people.

Because they represent the majority of producers, the lifestyle farming segment plays an important role by:

- increasing the resources (labour, management, capital) available to farming operations;
- building awareness and contributing to diversification of the industry;
- serving on boards and committees of agricultural and community organizations;

- lobbying government for policy and program improvements;
- providing a base for applied research and experimentation;
- producing crops, livestock and other products that provide for a significant amount of consumption (estimated at 13% of the total); and,
- contributing to the viability of the community.

A recent article in the *Edmonton Journal* (Appendix 7) describes the trend in the United States regarding the contributions and value of small part-time market garden operations.

These producers are similar to many other people who work part-time in various avocations while maintaining a full-time job or career. Craftspeople, performing and fine artists, fully or partially employed in government or business, various hobbyists, and those who operate part-time contracting or home-based businesses fall in this category. Together, they represent a significant part of both the formal and the informal economy. In the agriculture industry, they are distinguished because they form the overwhelming majority of producers in the Yukon.

A number of questions and implications with respect to industry development arise from this segmentation of Yukon farmers, including:

- What types of development and forms of support does each segment want and need?
- Is it desirable to have more full-time commercial farming operations? Does the present domination of the industry by lifestyle farmers inhibit or promote industry growth?
- What development potential exists among lifestyle farmers, and how can this potential best be pursued?
- Since full-time and prospective full-time farmers represent only a small percentage of the operations, how much growth and development can be stimulated within these segments?
- Should something be done to promote succession of existing farming operations? If so, what?
- Is the demand for land by lifestyle farmers escalating the price for agricultural land, especially in the Whitehorse vicinity?

3.0 A PLAN TO DEVELOP YUKON AGRICULTURE

3.1 THE VISION – CREATING CHOICES

Envision a competitive advantage for small farms in the Yukon, realized through a framework of supportive, yet responsible, government and private industry initiatives, the application of appropriate research and extension, and the stimulation of new marketing opportunities.

Small farms will be stronger and will thrive using farming systems that emphasize the management, skill, and ingenuity of the individual farmer (a strong and determined breed). These small farms will contribute to the Yukon's food supply, fuel local economies, and energize rural communities across the Yukon. The same small farms will contribute to the strengthening of communities with opportunities for self-employment and ownership of land, and provide places to raise families.

This vision is founded on the following principles:

- *Safe and healthy food* – encouraging farming systems that produce safe, healthy, and diverse food.
- *Relationships between farmers and consumers* – creating greater opportunities to connect farmers with consumers directly to enable farmers to stimulate increased interest in agriculture among consumers.
- *Community* – sustaining and strengthening rural communities.
- *Sustainability of natural resources* – responsible stewardship and care of the land, water, and air.
- *Fair and open markets* – creating a wide variety of products for a diversity of local and export markets.
- *Provide opportunity for employment* – opening opportunities for owning and operating farms as a livelihood.
- *Farm income* – generating farm incomes comparable to other economic sectors.

Recognize the importance and build on the strength of Yukon farms – small farms possess unique potential to “produce” not only foodstuffs, but also a variety of economic, social, and environmental goods. Small farms are in a better position to respond to specialty products for a narrow consumer taste. Directly marketing their production to consumers through farmers markets, pick-your-own or Community Supported Agriculture methods, small farms provide urban people with a social connection to farming, farmers, and rural people and a healthy, fresh food supply. The challenge therefore is to develop an industry plan that builds on the strengths and unique capabilities of Yukon farms, that recognizes the social and ecological benefits of their production, and that capitalizes on the labour, capital, and ingenuity of Yukon farm operators to improve economic opportunity and benefits to communities.

This plan sets forth development strategies which focus on both industry wide issues and sector specific opportunities. Emphasis is placed on creating an industry that captures a relatively untapped market for local products right at the doorstep, a share of what Yukon consumes, and targeting alternative market opportunities. This is achievable when Yukon farmers are permitted to operate on an equalized competitive playing field with other provinces and by distinguishing their produce as ‘clean-green-pristine’, produced in relative freedom from animal and plant pest and disease. The market will be captured by:

- *Building exposure and credibility* – to achieve frequent exposure and credibility, producers need to build an image for two targets – the grocers/distributors and the consumers. Much of the effort put forth to reach consumers will have the secondary benefit of keeping grocers and distributors up to date as well. Consequently, creating a strong presence in the marketplace, having solid credibility, and promoting a positive image is essential to reaching the goals.
- *Positioning Yukon produce* – positioning is a key issue in determining a long-term marketing strategy for the industry – differentiation from imported product. This will entail ‘telling the world’ about the attributes of Yukon produced foods and convincing major customers



(grocers/retailers) that Yukon producers are credible suppliers offering a unique advantage through their home grown products.

- *Apply sound marketing techniques* – encouraging small farms to adopt farm operations and production practices, such as value-added co-operatives or direct marketing, can help to improve their profitability.

3.2 THE FOCUS FOR DEVELOPMENT

In general terms, the focus for agricultural development should be on:

- long-term sustainability for the Yukon;
- those sectors or products that are proven viable or have the potential to be so;
- those producers who display the wherewithal to establish or sustain commercially viable agribusinesses; and,
- lifestyle farmers because of the importance they provide to the socio-economic aspects of the Yukon.

Based on our analysis, products or sectors that have demonstrated greatest viability (either in practice or based on comparative analyses with southern experience) in the Yukon include:

- hay;
- elk (antler and breeding stock);
- bison breeding stock and meat;
- market gardening of produce and bedding plants; and,
- poultry: eggs, chicken and turkey.

Products or sectors that have, in our opinion, potential to be viable if specified agronomic, market or economic issues can be satisfactorily addressed include:

- beef;
- native grass seed;
- berries; and,
- honey.

Strategies for those sectors identified as having the greatest economic viability are presented below.

The producers whose competencies best match the opportunities are those who are presently full-time

producers and those who aspire to be full-time producers. These people may be current residents of the Yukon or they may be prospective residents living elsewhere. Lifestyle producers make a significant contribution to the agricultural industry, and although they may not be interested in building commercially viable operations they need to be considered when developing a multi-year plan.

It is important to recognize that although the small market gardener is categorized as a lifestyle producer who does not intend to become a commercial sized operation, their production has value. Proceeds are used to supplement family income. These “part-time plots” (described in Edmonton Journal article, Appendix 7) are growing in number while the number of medium sized farms are decreasing in the United States. Unlike the commercial ventures, which market to processors, wholesalers or retailers, these producers sell directly to the consumer, often capturing the organically grown or naturally grown market.

The social benefits to the rural community, of the existence of part-time producers, are significant. They add stability to the rural population. These small production units, in mass, contribute a large portion of the annual agricultural production in the Yukon.

This notion of a “focus” for industry development can be displayed graphically as follows:

**Figure 3.1
Agriculture Industry Development Focus**

Sector/Product	Producers		
	Full-time	Aspiring Full-time	Lifestylers
Hay	Primary Focus		
Elk & reindeer			
Bison			
Market gardening			
Poultry			
Beef	Secondary Focus		
Native grass seed			
Berries			
Honey			
Grains	Tertiary Focus		
Pork			
Dairy			
Others			



3.3 INDUSTRY-WIDE STRATEGIES

Certain opportunities and constraints emerge as significant across all sectors of the industry. Approaches to dealing with these issues may be considered industry-wide or "core" strategies; these are described below.

3.3.1 Infrastructure

- Promote and facilitate the development of irrigation systems including water wells by providing technical advice and planning assistance.
- Simplify the procedure for and reduce the time required to secure a water license for irrigation purposes.
- Assisting in the establishment of local irrigation supplies and services by promoting and helping to organize the idea into a private sector business.
- Investigate to determine why the rural electrification program currently under the Department of Community and Transportation Services, is not used by farmers. Is it too costly? not enough participants?
- Consider establishing a "system" to move large animals to and from the existing abattoir, the system could be a trucking system or a co-operative initiative that takes ownership of the livestock at the farm gate and arranges for slaughter and processing and marketing to overcome its location disadvantage.
- Determine the need for storage of fresh produce, and longer-term potato and carrot storage. Determine current storage availability and cost and/or the cost to acquire a new storage facility.

3.3.2 Regulatory and Support Program Policies

- Make land available in economic sized parcels and facilitate additional land acquisition by targeted producers. Issue title to agricultural land with no requirement to clear or "develop" the site; use zoning, tax assessment and other methods to regulate use of the land for agricultural purposes.
- Clear up the backlog of applications for land acquisitions.

- Investigate and consider an energy support program for the agricultural sector similar to those in many provinces, which would address the current high costs of fuel and electricity to producers.
- Investigate the reduced energy costs during summer months as a means to provide agriculture with lower energy costs during that time period.
- Consider a plan to partially compensate producers for the high cost of freight on key agricultural inputs such as feed and fertilizer, which adversely affects the competitive position of Yukon producers, especially when fuel costs are at an all time high.
- Consider the creation of a crop insurance and net income stabilization program for eligible farmers. If viable, enter into a federal-territorial agreement on cost-sharing, similar to provincial programs currently in place. The producer costs for crop insurance might be prohibitive, but it should be explored.
- Develop programs that suit all three producer categories:
 - full timers;
 - aspiring to be full timers; and,
 - lifestylers.
- Develop an understanding and promote the importance of lifestyle farmers on the socio-economic aspects of the Yukon.
- Consider the organizational placement of the Agriculture Branch, under a Devolution scenario, especially if the land acquisition/administration is consolidated into one branch. The options could be to be on its own, under Renewable Resources, under Economic Development.
- The Agriculture Branch should focus its efforts first on industry development and second on its regulatory mandate.
- Support the Circumpolar Agriculture Conference as it provides related information for the Yukon agricultural industry.
- Land use changes require Yukon government approval, regional government approval (if there is one), game outfitters (with rights in the area), the federal government (if it is federal land), and First Nations if the area is under entitlement negotiations. This complex situation requires skill



and diplomacy at all levels. To help this process, the Agriculture Branch could prepare an outline for the land use change process.

3.3.3 Financing

- Consider granting security to lenders on lands held by Agreements for Sale, to allow for orderly development of the land held in this state.
- Increase awareness of producers regarding the Farm Credit Corporation (FCC) and promote use of its programs.
- Increase local banks' awareness of farm financing options. Outline to the banks all loan programs that are partially or wholly guaranteed by the federal government.
- Provide support and advice to targeted producers to prepare farm development plans, feasibility studies and market analyses; such measures will help to clarify plans and support financing. This could be a cost-shared program that would allow the farmers adequate resources to hire a financial planner.
- Refinements to land policies and the agriculture support measures suggested above will provide an improved climate for financing within the industry.

3.3.4 Research and Development

- Focus on applied research on improving production capability and increasing yields of viable products.
- Utilize available information from those with long-term experience in farming in the Yukon.
- Increase applied research into pesticides and crop varieties most suited to the Yukon agronomic and climatic conditions.
- Develop and implement a research strategy aimed at assessing the environmental affects of agricultural operations in the Yukon, giving full consideration to studies already completed.
- Continue to facilitate convenient testing of soil, feed and products related to the agricultural industry through outside testing facilities by coordinating samples and providing sample kits for producers. Continue to promote this service to Yukon farmers.

- Carry out market research that supports greater penetration by Yukon products in both domestic and export markets.
- Complete current cost of production analyses on major crops/products and work with producers to create an awareness of economic viability.
- Consider the feasibility of small community greenhouse facilities in remote regions of the Yukon, based in part on waste heat from power generation facilities.

3.3.5 Marketing

- Ensure that agri-business plans reflect market considerations and are market oriented.
- As suggested above, carry out market research to support improved market strategies.
- Access the Yukon Government Trade and Investment Fund (TIF) to secure financial assistance for products with export potential.
- Implement the recommendations contained in the "Yukon Grown Marketing Strategy" prepared for the YAA in 1998 (some of these recommendations are repeated in this report).

3.4 SECTORAL STRATEGIES

The preceding discussion of industry-wide strategies describes the needs of the industry, which are common to or are linked to all the agricultural sectors. These industry strategies along with specific sector strategies are included in the following developmental plans for each of the sectors listed in the Agriculture Industry Development Focus (see Figure 3.1). These sectors include hay, elk and reindeer, bison, market gardening, and poultry production. The development plan will describe the issue/need, establish goals, propose strategies and determine a performance measure.

3.4.1 Hay

Production of forages in the Yukon is primarily for the use by the outfitters and recreation horse owners (secondly) for horse feed, to sustain the cattle population and more recently to provide feed for the elk and bison game farms. Some baled hay is exported to southeastern Alaska.

The 1996 census indicated that a total of 3904 acres were in forage production with 668 acres producing

alfalfa and alfalfa mixtures, and 3236 acres producing other tame hay and fodder crops. It is estimated that this production has increased to about 4,200 in 1999, a 7.6% increase. The increase in production is a result of more land being developed and dedicated to forage production. The high cost of transporting feed from other areas such as the Peace River region along with quality issues have created a good market for locally produced hay. Current estimates are that at least 50% of the hay consumed in the Yukon is imported, or livestock (horses and elk) are shipped to the Peace River region to be winter fed.

The greatest production increases have resulted from the installation of irrigation systems by producers. Irrigation along with the application of chemical fertilizer has increased production in some areas to almost 2.5 tonnes per acre. Although the costs associated with irrigation and fertilizer are high, the revenue, which can exceed \$240.00/ton or \$7.00 per small square bale, make hay production a viable enterprise.

3.4.1.1 Issue/Need

- There is a need for forage production to meet the requirements of the outfitters and the recreation horse owners, the bison and elk producers, and the beef producers, with potential to export to the nearby portions of Alaska. Currently some outfitters and elk producers send their stock to the Peace Region of British Columbia for the winter due to the lack of good quality feed. Production is limited in part due to the inability of producers to expand their land base.
- Due to the climatic conditions in most areas, there is a need for more producers to install irrigation systems on hay and pasture land to optimize production. Regulations regarding the accessing of water, the lack of technical expertise and the lack of financial support are impediments to the development of irrigation.
- Most soils are deficient in essential nutrients which requires the addition of chemical fertilizers to achieve acceptable levels of production. There is a need to minimize these costs to the producer in order to increase viability.
- Because of the nutrient deficiency, it is not feasible to produce significant volumes of organic forage.

3.4.1.2 Goals

- To expand the current production of forages to 6,000 acres for winter feed, and 7,000 acres of pasture.
- Producers to be viable and of economic size – 100 acres or more.

3.4.1.3 Strategies

- Make land available in economic parcels and facilitate additional land acquisition by targeted producers (see Section 3.3.2 - Public Policy).
- Increase hay and forage production with the use of irrigation (see Section 3.3.1 – Infrastructure).
- Promote the availability and quality of Yukon grown hay to the outfitters and the game farmers as well as to the Alaskan market.
- Carry out appropriate research in an effort to reduce input costs, e.g. legumes for nitrogen fixation, to maximize yields e.g. drought tolerant varieties, etc.

3.4.1.4 Performance Measures

- An increase in the total acres of forage and pasture production to 13,000 acres over a five year period.
- Reduction in quantity of hay imported, i.e., acceptance by local outfitters and farmers of locally grown top quality forage.
- Increase by 50% or more the number of livestock wintered in the Yukon verses sent out.
- Increase in hay exports to Alaska.

3.4.2 Elk and Reindeer

The 1999 estimate of the elk and reindeer population in the Yukon is 120 head.

The production of elk breeding stock and velvet antler provides an opportunity for Yukon agriculture to participate in a growing and profitable alternative livestock industry. The market for breeding stock is strong and the market for velvet antler has partially recovered with the improving Asian economy.

Hunt farms are becoming an integral part of the game farming industry in parts of North America. Big game enthusiasts, especially those in the United



States, are prepared to pay large amounts of money to shoot game on fenced hunting facilities. Saskatchewan farmers are reportedly earning more than \$10,000 for each bull elk shot on their farms. These hunting facilities are, in part, stocked with spent animals that will have to be put down anyway.

Although elk and reindeer can browse on marginal grasslands and can survive on poplar leaves, year-round care is dependent on a good supply of forages. Some Yukon outfitters bring in winter feed or truck their animals to the Peace River Region for wintering.

3.4.2.1 Issue/Need

- The development of elk and reindeer farms needs to take place in harmony with the existing wildlife/game industry.
- An adequate land base for grazing is essential to each production unit along with an ample supply of quality forage for winter feed. This forage production, as mentioned previously, is dependent on irrigation and costly inputs such as chemical fertilizer.
- Technical information is required for new producers along with specific veterinary needs such as artificial insemination.
- Marketing needs include promotion of Yukon's advantage in elk production, including such factors as northern vigour and high quality velvet antler. Because the velvet antler market is highly dependent on the export market to Asia, there is a need for market support in the development of the market for this high valued product.
- Financial institutions need to become more familiar with elk farming in order to increase their willingness to support the expansion activities.

3.4.2.2 Goals

- Increase production to 200 head of elk.
- Have 8 to 10 producers involved in the production of elk and velvet antler.
- Have sufficient feed supply to maintain the elk and reindeer herds in the Yukon year-round.

3.4.2.3 Strategies

- Increase the supply of forages (see Section 3.4.1) to support the expansion.

- Further develop local veterinarian expertise on alternative livestock health matters and artificial insemination procedures.
- Carry out a feasibility study on the establishment of a small velvet antler processing facility in the Yukon.
- Develop a marketing plan for elk breeding stock. Activities would include access to the British Columbia market by encouraging that province to increase their game farming activities.
- Develop a marketing plan for velvet antler both domestically and for export. This process would include promotion of the "Yukon Mystique" and benefits the Yukon product has.
- Investigate the possibility of establishing hunting reserves in the Yukon. The purpose of these reserves would be to earn significant revenue from the hunting of stock which is no longer productive and would otherwise be put down.

3.4.2.4 Performance Measures

- Increase overall herd size to 200 head of elk.
- Increase in the production of velvet antler from an estimated 1,000 lbs to 4,000 lbs.

3.4.3 Bison

Bison is another alternative livestock that is growing in popularity throughout North America. There is an opportunity to increase the production of Wood Bison in the Yukon, both for breeding stock and meat production. Interest in bison stems from the animal's ability to convert low-grade roughage. Bison are also very hardy when it comes to surviving in the cold and are fed without antibiotics or hormones. Breeding stock is in high demand by North American buyers along with buyers from Russia and Australia. Meat will eventually become the main market as consumers are attracted to the natural quality. Recent trade regulations have been corrected allowing bison meat to be shipped to the United States tariff-free, thereby improving access to that market.

Wood Bison is the breed first introduced to the Yukon. The industry considers the Wood Bison valuable because when cross-bred with the Plains Bison overall performance is improved. The total population of wood bison in the Yukon is included in one wild herd and one herd being raised on a domestic bison ranch.

3.4.3.1 Issue/Need

- Production is highly dependent on an adequate land base for grazing and for the production of hay for winter feed. Land development and hay production are discussed earlier in this section.
- There is a need to capitalize on the advantages of the Wood Bison and maintain the genetic purity of existing and future herds. Production will require access to distant markets in Canada.
- Current management practices allow for the control of genetic stock so that Prairie Bison could also be grown in the Yukon but it is against the Game Farming regulations. Although both types could easily be produced, it may be more advantageous to produce only Wood Bison, and to market the uniqueness of Yukon production. This issue needs to be carefully considered.
- New producers require more technical information on production along with veterinary services particular to the raising of Bison.

3.4.3.2 Goals

- Increase the domestic herd size to 200, including the establishment of an additional five producers.
- Maintain the unique Wood Bison genetics and restrict other types.
- Cull 10 females and 1 male from the wild herd per year to provide seed stock for new producers.

3.4.3.3 Strategies

- Increase available markets by lobbying to have the Wood Bison removed from the list of threatened species. This would provide access to the United States market.
- Increase industry knowledge of producers through seminars/workshops and the internet.
- Promote information sharing among producers in regard to production facilities such as handling and enclosures.
- Encourage farmers to consider this alternative to traditional livestock production.

3.4.3.4 Performance Measures

- Establish five additional Wood Bison operations with a total herd size of 200.
- 10 females and 1 male Bison transferred from the wild herd to a domesticated herd per year.

3.4.4 Market Gardening and Greenhouse Production

This sector includes the production of tomatoes, cucumbers, peppers, and bedding plants in greenhouses; vegetables including potatoes, onions, lettuce, rutabagas, and carrots grown in fields, along with berries and herbs.

The 1996 census indicated that there were 31 farms with 83,520 square feet of greenhouse production. Of this area approximately 38,000 square feet were devoted to flowers/bedding plants, 43,000 square feet to vegetables, and 2,000 square feet to other products. The census also indicated that there were 41 acres of potatoes and 30 acres of other vegetables grown as field crops. Nursery products and sod were included in another 40 acres of production. Most of this production supplies the fresh or direct-to-consumer market with some production supplying the local retail stores.

3.4.4.1 Issue/Need

- The local market is being largely supplied by out side production. There is potential for local producers to increase their share of the market.
- In order to access the local market, a permanent Farmers' Market needs to be established. This market needs to be supported by local producers if consumers are to be convinced that the market offers a reliable supply of fresh produce.
- In order to lengthen the marketing time period for local production, storage is required for some vegetable crops. Processing could take place with some crops, such as freezing or making jams/jellies.
- Water supply is very important to producers in this sector. There is a need for assistance to develop nearby sources of water such as wells.

3.4.4.2 Goals

- Maximize local market opportunities for Yukon based products.
- Extend market season to mid-winter by use of storage, i.e., perhaps some form of co-operative venture.

3.4.4.3 Strategies

- Consider the development of a community kitchen to further process berries, fruits, and

vegetables. Processing equipment would be shared. Investigate the possibility of working with the Yukon College on the development of a community kitchen for further processing, combined with education and training.

- Develop a permanent location for the Farmers' Market (see Yukon Grown Marketing Strategy). The facility could consist of a large tent erected each season. Summer long activities could include sales of bedding plants, trees, shrubs and ornamentals, garden produce and crafts along with promotions for tourists and outfitters. The Farmers' Market would run through to the fall culminating with the Klondike Harvest Fair.
- Determine the capacity to grow fresh produce and potatoes and carrots; i.e., estimate annual production, so as to determine storage requirements.
- Determine the availability of storage for fresh produce, and over-wintering for potatoes, rutabagas, and carrots.

3.4.4.4 Performance Measures

- Completed feasibility study regarding the community kitchen concept.
- Establish a permanent Farmers' Market.
- Determine available storage for fresh produce and long-term storage for potatoes and carrots.

3.4.5 Poultry

Included in this sector is the production of eggs, broilers, and turkeys. The 1996 census reported that 4,766 laying hens on Yukon farms produced 96,000 dozen eggs. This production is estimated at 102,000 dozen in 1999, or an estimated 20% of the current market. The market for this production is primarily local retail stores. About 2,000 broiler chickens and 800 turkeys were also raised in 1996.

Poultry production relies on processed feed being shipped in from the south. Because freight costs are high, coordination of shipments along with adequate on-farm storage for feed is essential to keep this cost to a minimum. This could be accomplished by a co-operative, or by using the internet.

An abattoir located at Stewart Valley provides slaughter facilities for the poultry sector.

3.4.5.1 Issue/Need

- Feed costs are a significant component of input costs. There is a need to minimize this cost.
- Storage facilities are needed for locally grown feed grains and for volume shipments of import feed supplies.
- In order to increase the utilization of the abattoir's processing capacity, increase the processing of poultry.

3.4.5.2 Goals

- Increase the market share of locally produced eggs to 50%, and poultry meat to 25%.

3.4.5.3 Strategies

- Secure the institutional markets in the Yukon for locally grown products.
- Increase retail market share by promoting locally grown products.
- Lower feed costs by producers participating in transportation co-operatives. Work with companies that are interested in developing methods to reduce transportation costs for feed inputs.
- Assist farmers with feed freight costs (see 3.3.2 Public Policy).

3.4.5.4 Performance Measures

- Consumption of locally grown poultry meat is 25% and eggs 50% of total Yukon consumption.
- More than 60% of poultry products consumed in Yukon institutional facilities are produced by Yukon producers.

3.5 ITEMS FOR SECONDARY FOCUS

3.5.1 Beef

A number of farmers in the Yukon have small herds of beef cattle. Most of these herds are less than 20 cows in size. In 1996 there were a total of 264 cows, calves and bulls. In addition to personal consumption much of the production is sold for freezer beef at the farm gate. Consumers are prepared to pay premium prices for the naturally grown, grass fed beef.



The economics of raising beef in the Yukon are questionable because of the high costs of feed during the winter and the cost of maintaining pasture during the summer. When one applies the market value of hay to winter carrying costs and the opportunity cost of pastureland not being used for hay production, costs to raise a animal for 18 months is significant. Although \$3.00 per pound carcass weight (current slaughtered price at the farm gate) at first glance appears lucrative, expenses consume a majority of the income. In competition to this production is beef shipped from Edmonton meat packers at \$1.89 per pound (March, 2000) FOB Whitehorse.

In addition to the high costs of feed, the lack of slaughter facilities in the southern area of the Yukon is a constraint on the sector. Presently on-farm slaughter occurs or live animals are shipped to the abattoir and the carcasses hauled back to the market on a second trip. The establishment of a marketing or transportation co-operative would help to reduce transportation costs related to the slaughtering process.

Viability of the beef sector would improve if forage, both hay and pasture production increased to the point where annual feed cost were reduced. This increase in production is likely if more land is developed and irrigation becomes the main stay of forage production. Reduced input costs such as fertilizer would also contribute to lower feed costs to the beef producer.

3.5.2 Native Grass Seed

The industry has indicated there is a large demand for native grass seed. The seed is used in the reclamation of industrial sites, primarily in the resource sector and reclamation for road construction. Currently, demand exceeds supply due to the limited production. This sector would benefit from an increase in the number of producers in order to have the critical mass required to meet demand. Excess demand is currently met by outside suppliers.

3.5.3 Berries

The production of berries lends itself to the smaller Yukon land holdings. However, the small holdings are not always located where the soil is appropriate for growing berries. Limitations on this sector relate to the suitability of soil and the supply of water. Experimentation with new species to the area such as

saskatoons and raspberries are making some headway.

3.5.4 Honey

Honey production is limited by the lack of prolonged flower bloom. A limited amount of fireweed honey is produced and is in high demand. More honey could be produced if the number of flowering crops increased. This increase is dependent on expansion of irrigation and the increased production of flowering forage crops which will grow in this region.

3.6 IMPLEMENTATION OF INDUSTRY AND SECTORAL STRATEGIES

The five-year implementation plan is depicted in a table included in this section. The plan lists both the industry and sectoral strategies presented in the preceding sections of this report. For each strategy, the organizations are identified as to responsibility, the needed resources, human or monetary, are suggested, and the timeline for implementation over the five-year period is shown.

The organizations identified include the Yukon and Federal Government departments/agencies, the producers and the Yukon Agricultural Association (YAA). Other organizations involved in implementation are private sector consultants involved in the recommended studies, the support sectors including veterinarians, bankers, and farm input businesses, and related organizations such as the Yukon Outfitters Association. First Nations are recognized as having an interest in strategies involving land policy and are therefore included in the implementation plan.

Resources are allocated to each strategy as human resources or as an estimated monetary amount. Canadian Adaptation and Rural Development (CARD) Fund is the main source of monetary resources. CARD is a Federal program administered by YAA with six areas of emphasis – Research/Innovation, Human Resources, Environmental Sustainability, Food Safety and Quality, Marketing, and Rural Development. Total CARD funding allocated under the proposed plan is \$130,000 over five years. CARD funding is

predicated on obtaining matching funding from the proponent of the initiative. Other monetary resource requirements may qualify for CARD funding.

Most of the strategy activities are assigned specific years of implementation. Some activities once implemented are ongoing and span all five years.

3.7 IMPLEMENTATION OF INDUSTRY-WIDE STRATEGIES

3.7.1 Infrastructure

Strategies	Roles/Responsibility	Resources	Timeline Years					
			1	2	3	4	5	
Promote and facilitate the development of irrigation systems including water wells and reservoirs, by providing technical advice and financial assistance for the planning and common costs.	YG Ag Br AAFC – PFRA	Current PFRA programs PFRA Tech. advice \$20,000	█					
Expedite water use licenses and right of way negotiation	YG Gov't Canada Gov't First Nations	Human Resources and Political Will	█					
Assist in the establishment of local irrigation supplies and services	Local Industry YAA		█					
Investigate reason for lack of use of the rural electrification program	Rural Community Yukon Electric YG Canada –Co-op	\$5,000	█	█				
Consider establishing a producer-owned co-operative for the purchase of animals for slaughter at the Farmgate, and transport the animals to the abattoir and market products locally	Producers Private Sector Consultants YAA	CARD Funding \$20,000	█					

█ Immediate Action — Ongoing

3.7.2 Public Policy

Strategies	Roles/Responsibility	Resources	Timeline Years					
			1	2	3	4	5	
Make land available in economic parcels and facilitate additional land acquisition by targeted producers	YG Ag Br Canada Gov't	Human Resources Policy Change	■					
Investigate and consider an energy support program for the agricultural sector	YG Ag Br	Human Resources		■	■			
Consider a crop insurance and net income stabilization program for eligible farmers (other risk management tools)	YG Ag Br AAFC	Human Resources		■	■			
Consider a plan to compensate producers for the high freight costs of farm inputs	YG Ag Br YAA	CARD funded study \$10,000	■					
Develop an understanding of the importance of lifestyle farmers on the socio-economic aspects of the Yukon	YG Ag Br YAA	Human Resources		■	■			
Consider the organizational placement of the Agriculture Branch under the devolution scenario	YG	Human Resources	■	■				

3.7.3 Financing

Strategies	Roles/Responsibility	Resources	Timeline Years					
			1	2	3	4	5	
Increase the awareness of producers regarding the services of FCC	FCC YG Ag Br AAFC	Human Resources	■	■				
Build local banks' awareness of farm financing options	YG Ag Br YAA	Human Resources	■	■				
Address the security issue regarding land on Agreement for Sale prior to granting title (see Ref. 3.3.2)	YG FCC and Other Financial Institutions	Human Resources Policy Change	■	■				
Provide support and advice to targeted producers on development plans, feasibility studies, and marketing	Private Sector Consultants YAA	FBMC-CARD Funding \$10,000	■	■	■	■	■	■

3.7.4 Research and Development

Strategies	Roles/Responsibility	Resources	Timeline Years				
			1	2	3	4	5
Focus research on improving production capability – carry out more applied research	YG Ag Br Producers YAA	\$25,000					
Develop and implement a research program aimed at assessing the environmental affects of Yukon agriculture	YG Ag Br YAA	Human Resources					
Carry out market research which supports greater penetration by Yukon products in both domestic and export markets	Private Sector Consultants Producers YG Ec Dev and Ag Br AAFC	\$10,000					
Complete current Cost of Production analyses on major crops/products and work with producers to create an awareness of economic viability	Private Sector Consultants YG Ag Br	CARD Funding \$10,000					

3.7.5 Marketing

Strategies	Roles/Responsibility	Resources	Timeline Years				
			1	2	3	4	5
Ensure that agri-business plans reflect market considerations and are market oriented	Private Sector Consultants YG Ag Br	Human Resources					
Encourage the industry to access the Yukon Government TIF for financial assistance in exporting products	YG Ec Dev and Ag Br Producers	Human Resources					
Implement the recommendations contained in the Yukon Grown Marketing Strategy	YG Ag Br YAA	See "Yukon Grown Study"					



3.8 IMPLEMENTATION OF SECTORAL STRATEGIES

3.8.1 Hay

Strategies	Roles/Responsibility	Resources	Timeline Years				
			1	2	3	4	5
Increase Hay and forage production with the use of irrigation (See section 3.3.1. – Infrastructure).	YG Ag Br AAFC PFRA Producers	Human Resources					
Promote the availability and quality of Yukon grown hay to the outfitters and Alaska markets	Producers YG Ag Br YAA	CARD Funding \$5000					
Carry out necessary research in an effort to reduce inputs, e.g. legumes for nitrogen fixation, and to maximize yields e.g. drought tolerant varieties.	YG Ag Br AAFC Producers	\$30,000					

3.8.2 Elk and Reindeer

Strategies	Roles/Responsibility	Resources	Timeline Years				
			1	2	3	4	5
Increase the supply of forages (See Section 3.4.1) to support the expansion	See 3.4.1						
Further develop local veterinarian expertise on alternative livestock health matters and artificial insemination procedures.	Local Veterinarians YG Ag Br YAA	CARD Funding \$10,000					
Do a feasibility study on the establishment of a small velvet antler processing facility in the Yukon.	Private Sector Consultants YG Ag Br AAFC	CARD Funding \$10,000					
Develop a marketing plan for elk breeding stock. Activities would include access to the British Columbia market by encouraging that province to increase their game farming.	Private Sector Consultants YG Ec Dev and Ag Br Producers AAFC	\$10,000					
Develop a marketing plan for velvet antler both domestically and for export. This process would include the promotion of the “Yukon Mystique” and benefits the Yukon product has.	Private Sector Consultants YG Ag Br Producers	\$10,000					
Investigate the possibility of establishing hunting reserves in the Yukon. The purpose of these reserves would be to earn significant revenue from the hunting of stock which is no longer productive and would otherwise be put down.	YG – Renewable Resources Outfitters Assoc. Producers	Human Resources					

3.8.3 Bison

Strategies	Roles/Responsibility	Resources	Timeline Years					
			1	2	3	4	5	
Review and determine potential to have Wood Bison removed from the list of threatened species so as to increase markets for breeding stock. There is currently a problem accessing the United States market.	AAFC YG Ec Dev and Ag Br YAA	Human Resources						
Increase industry knowledge of producers through seminars/workshops and the internet.	YG Ag Br YAA AAFC	Human Resources						
Promote the sharing of information among producers in regard to production facilities such as handling and enclosures.	YAA YG Ag Br AAFC	Human Resources						
Provide agronomic and economic information to farmers for them to consider bison as an alternative to traditional livestock production.	YG Ag Br AAFC	Human Resources						

3.8.4 Market Gardening/Greenhouse

Strategies	Roles/Responsibility	Resources	Timeline Years				
			1	2	3	4	5
Consider the development of a community kitchen to further process fruits and vegetables. Processing equipment would be shared. Investigate the possibility of working with the Yukon College on further processing	YAA YG Ag Br AAFC Private Sector Consultants Yukon College	CARD Funding \$20,000					
Develop a permanent location for the Farmers' Market.	YAA	CARD Funding \$15,000					
Determine the availability of storage for fresh produce, and for potatoes and carrots for over-wintering	YAA YG Ag Br Private Sector Consultants	\$5,000					
Secure the institutional market	YG YAA Producers	Human Resources					



3.8.5 Poultry Production

Strategies	Roles/Responsibility	Resources	Timeline Years				
			1	2	3	4	5
Secure the institutional market	YAA Producers YG	Human Resources					
Increase retail market share by promoting locally grown products	YAA Producers Canada Gov't	CARD Funding \$20,000					
Lower feed costs by producers participating in transportation co-operatives.	See 3.3.2						
Assist farmers with feed freight costs. (See 3.3.2 Public Policy)	See 3.3.2						



4.0 SUMMARY AND CONCLUSION

The five-year agricultural development plan is based on findings obtained from interviews of a cross-section of the industry, statistical reports, and other studies and documents. The report outlines the findings, the analysis that formed the basis for the development of issues, goals, strategies, roles and responsibilities, resources, and a timeline for the development to occur, over the next five years.

Agriculture in the Yukon has varied considerably over the past 100 years. Although it represents a very small portion of the Yukon GDP, the industry makes an important social contribution by, among other things, offering to Yukoners high quality, fresh products and opportunities for a rural or agricultural lifestyle. The aspirations expressed by stakeholders for the industry are straightforward: create an environment that enables viable farm operations that can be sustained over the long term.

The analysis focused on the three categories of producers: the full time farmers, those aspiring to be full time, and the lifestyle group. The latter group represents the largest percentage of the total farmer population. Issues from the full time and those aspiring to be full time include: clarify government policies regarding land acquisition, land use, water availability, energy and freight support, research and development, access to finance, marketing assistance, risk management options, and land availability for expansion. The lifestyle producers want more technical information, a co-operative approach to marketing, support for inputs, cost sharing of freight costs on inputs, and more awareness of agronomic issues. Co-operation on inputs will benefit all three producer categories.

The Yukon has a competitive edge with the "Yukon Mystique", and the desire by Yukon residents to buy naturally produced fresh local produce. The mystique can also be used as an advantage for marketing products outside the Yukon. With the high percentage of lifestyle farmers, there is less demand for support programs or production subsidies. The Yukon producers are very entrepreneurial and are willing to put their own capital and time into the venture without high expectations on a return on

investment or time. They contribute significantly to the social well-being of the residents of the Yukon.

Strategies set forth are divided into those which apply to the total agricultural industry and those which apply to specific sectors considered, in our opinion, to have significant potential. These consist of hay, elk, bison, market gardening, and poultry.

We have included PFRA in the strategies even though this is not an area they currently have in their mandate. Their involvement in water and soil projects would be most beneficial to Yukon agriculture.

The development plan is designed to make use of existing programs so as to expedite the development process and to utilize existing funding whenever possible. In total, the resources required are a minimum of \$130,000 of CARD funds over the five year period, which would be matched with proponent dollars. In addition, significant human resources and some program funds from other existing programs would be required. We have attempted to outline strategies that will not require more human resources although year one and two have a lot of requirements for people time.

The development plan is ambitious in that it calls for a fundamental re-thinking and re-focusing of where the Yukon agriculture industry is heading. It is also realistic and achievable. If the strategies set out here are implemented, the industry has the potential to achieve impressive growth and improvement over the next five years.

YUKON AGRICULTURE DEVELOPMENT PLAN

APPENDIX

- Appendix 1** **Yukon Facts and Figures**
- Appendix 2** **Agricultural Information**
- Appendix 3** **Yukon Demand/Market**
- Appendix 4** **Survey Results/Responses**
- Appendix 5** **COP Calculations**
- Appendix 6** **Excerpt From *"Yukon Grown Marketing Strategy"***
- Appendix 7** ***Edmonton Journal Article***

1.0 YUKON FACTS AND FIGURES

1.1 LAND BASE

- ⇒ Total area encompasses 483,450 sq. km. which includes 478,970 sq km of land and 4,480 sq km of fresh water.
- ⇒ Land deeded suitable for agricultural production 522,600 hectares (1,291,345 acres).
- ⇒ Privately owned agricultural land (estimate) 13,122 hectares (32,425 acres)
- ⇒ Total land suitable for agricultural production as a percentage of total land mass, 1.1%

1.2 KEY DEMOGRAPHICS/STATISTICS ON THE YUKON

- ⇒ Population – 30,766 (Stats Can 1996) Health Care Estimate - 32,682 (5-6% higher??)
- ⇒ Population decreased slightly (6%) from 1996 (33,051) to 1999 (31,166) - Yukon Health Care Stats
- ⇒ Yukon population declined by 3.9 % in 1998 and by 3% in 1999 (Source: YEC Economic Outlook 2000)
- ⇒ Population expected to reach 31,500 in 2000. Natural population growth is expected to exceed net out migration (Source: YEC Economic Outlook 2000)
- ⇒ Population 1901 – 1992 (Yukon Crop Guide)

1901	27,219
1911	8,512
1921	4,157
1931	4,230
1941	4,914
1951	9,096
1961	14,628
1971	18,390
1981	23,153
1991	31,395
- ⇒ 90% Urban; <10% Rural (Stats Canada 1996)
- ⇒ Major Centres (Statistics Canada, 1996)

Whitehorse - 21,065 (68% of total)	23,380
Dawson City - 1,287 (4.2%)	2,013
Faro - 1,261 (4.1%)	1,255
Watson Lake - 993 (3.2%)	1,791
- ⇒ Approx 16 smaller communities with population of 100 - 600
- ⇒ Between Dec 1998 and Dec 1999 - Population increased in Watson Lake, Teslin, Pelly Crossing, Ross River, Destruction Bay, Burwash Landing and Beaver Creek (Source: YEC Economic Outlook 2000)
- ⇒ Between Dec 1998 and Dec 1999 - Population decreased in other Yukon communities including Whitehorse, Faro and Dawson City (Source: YEC Economic Outlook 2000)
- ⇒ Population decline across most age groups except those aged 45 and older, and, 15 – 19 (Source: YEC Economic Outlook 2000)

- Population aged 50 and older increased by 5% from previous year (Source: YEC Economic Outlook 2000) - similar to National trends - the number of seniors is expected to continue to grow.
- More males than females - In Dec 1999 males accounted for 50.4% (Source: YEC Economic Outlook 2000)
- Except in the 20 - 44 age range - there were 850 more women than men (Source: YEC Economic Outlook 2000)

1.3 IMPORTANCE OF AGRICULTURE INDUSTRY

1.3.1 Economic Overview

- Economy has major swings - decrease of 20% in 1993 to an increase of over 15% in 1995
- 1997: Steep drop in economic output - declining metal prices and closure of Faro mine.
- 1998: GDP grew by 0.5% with strong growth in tourism, service industries and government services offsetting declines in mining, construction and resource sectors
- 1999: GDP estimated growth at 1.5% with increases in agriculture, tourism, construction, increased government spending and a booming forestry sector
- 2000 Outlook: Moderate economic growth expected with increased tourism, stronger commodity prices and diversified growth in a number of sectors including film and forestry industries (Source: YEC Economic Outlook 2000)

1.3.2 Industry Sectors

Sector	Overview	2000 Outlook
Mining	<ul style="list-style-type: none"> ➤ 1999 Production estimated at \$60 million ➤ 1998 Production - \$113.5 million ➤ Exploration funding declined from \$15.4 million in 1998 to \$9.5 million in 1999 - ➤ Infrastructure construction at Minto copper/silver/gold estimated start up late 2000/early 2001 ➤ Kudz Ze Kayah copper/lead/silver /gold has water licence but production decision still required ➤ Projects in permit process; <ul style="list-style-type: none"> ⇨ Dublin Gulch -gold ⇨ Carmacks Copper - copper/gold ⇨ Metallurgical studies on Wolverine ⇨ Development expenditures of \$6.5 million estimated for work at Brewery Creek and Minto site 	<ul style="list-style-type: none"> ➤ Economic conditions improve ➤ Demand for base metals should increase ➤ Asian economies expanding ➤ Higher prices ➤ Investment funding may increase due to higher prices - although time lag re confidence for new projects ➤ Exploration funding expected to remain low ➤ Yukon mineral production expected to total \$70 million
Oil and Gas	<ul style="list-style-type: none"> ➤ Consumer demand and prices remain high ➤ Reserve growth is limited (Western Sedimentary Basin) ➤ Renewed interest in extending pipelines for Alaska huge reserves of natural gas to southern markets ➤ Development expenditures nil in 1999 ➤ Yukon has two natural gas wells -both located in Kotaneelee field, in the SE 	<ul style="list-style-type: none"> ➤ Slight ongoing decline in annual production expected due to normal depletion of the producing gas reservoir ➤ Oil and gas development funding expected to be \$5 million ➤ Exploration to continue similar to 1999 levels - 4 licenses

<p>Forestry</p>	<ul style="list-style-type: none"> ➤ With downturn in mining industry, forest products are the most valuable export - more than \$6.9 million exported in first 11 months of 1999 up from \$1.4 million in 1998 ➤ Growth expected over a few years primarily in milling and processing capacity ➤ New process for issuing Timber Harvest Agreements plus other new initiatives will help generate interest in the sector ➤ Increased pressure on wood supply across N America 	<ul style="list-style-type: none"> ➤ Lumber continues to be a primary international export from the territory ➤ Increased output expected from two new mills ➤ District heating and wood fuelled co generation projects may increase employment ➤ Harvest ceiling expected to increase although not all of the wood available in 1999 was harvested
<p>Tourism</p>	<ul style="list-style-type: none"> ➤ 1999 saw continued strong growth ➤ 1999 - 318,000 non Yukon resident border crossings ➤ Canadian Airlines and Canada 3000 will serve Whitehorse plus new international flights 	<ul style="list-style-type: none"> ➤ Winter tourism should increase <ul style="list-style-type: none"> - Artic Winter Games: expected to create 49 person years of employment, and add \$6 million to Yukon GDP - Fulda Challenge - Yukon Quest - Thunder on Ice ➤ Golden Spike ceremony at Carcross July 29 ➤ Three international flights per week to Whitehorse during the summer tourist season(May - Sept) ➤ Non resident border crossings expected to increase 2% - 4% to around 325,000
<p>Government</p>	<ul style="list-style-type: none"> ➤ 1999 total payroll was around \$250 million (excluding First Nation governments) ➤ Total budgetary spending increased from 8% from \$474 million to \$512 million in 1999/2000 fiscal year ➤ Capital expenditure increased by 20% to \$120 million in the 1999/2000 fiscal year ➤ Ongoing tax reductions to increase disposable income and stimulate the economy 	<ul style="list-style-type: none"> ➤ Government spending will continue to provide economic stability ➤ Ongoing tax reductions to provide stimulus to the economy ➤ Investments in strategic capital projects for several sectors to encourage economic diversification ➤ Projects include: <ul style="list-style-type: none"> - Whitehorse Multiplex - Waterfront development - Mayo community school - Continuing care Facility - Reconstruction of the Alaska highway
<p>Construction</p>	<ul style="list-style-type: none"> ➤ Building construction activity increased by 20% to \$49.4 million in 1999 ➤ Residential construction declined ➤ Commercial and institutional construction booming ➤ Population decline resulted in high rental vacancies ➤ Build up of unsold residential lots ➤ House prices have remained flat for a few years ➤ 	<ul style="list-style-type: none"> ➤ Permitted building construction expected to increase 10% to \$55 million ➤ Large commercial and institutional projects will boost construction in 2000 ➤ New residential construction expected to remain low



Retail and Wholesale Trade	<ul style="list-style-type: none"> ➤ 1999 continued strong growth in value of retail sales - up 4% to \$325 million ➤ Annual Yukon sales have increased every year since 1991 ➤ Average rate of growth - just over 8% per year ➤ Wholesale sales dropped 12% in 1998 and about 7% in 1999 	<ul style="list-style-type: none"> ➤ Continued growth expected – at 5% to over \$330 million in retail trade sales in 2000 ➤ Drivers include increased tourism and higher disposable incomes ➤ Higher interest rates may slow demand for motor vehicles and other durable goods
Renewable Resources	<ul style="list-style-type: none"> ➤ Agricultural production was \$3.9 million in 1999/2000 ➤ Salmon runs were low again in 1999, down some 48 to 66% from a 10 year average ➤ The fur harvest was down about 25% ➤ Lake Trout was down, compared to 1998 	<ul style="list-style-type: none"> ➤ Agricultural production expected to grow 5% ➤ Commercial salmon harvest will remain at 1999 levels ➤ Lake trout harvest will remain the same or decline slightly ➤ Fur harvest is expected to increase slightly

Source: YEC Economic Outlook 2000.

1.3.3 Mineral and Commodity Prices

		2000 Outlook
Gold	Volatile in 1999 as banks sold and then limited their gold sales. Prices then stabilized in the \$285 - \$290 Us range before rising again in early 2000.	\$290 - \$310 US/oz*
Zinc	Used to galvanize steel for construction and automobiles production. Global economic growth expected to increase demand although increased output from other mines e.g. Cominco in Alaska will moderate price increases.	\$0.52 - \$0.58 US/lb*
Lead	Demand expected to accelerate for automotive batteries with price increases expected, in fact escalating as mine capacity is depleted	\$0.24 - \$0.26 US/lb*
Silver	Global production expected to increase but supply expected to outstrip demand. Prices may still fluctuate due to speculation	\$5.35 US/oz*
Copper	Consumer demand has increased over the last few years. Prices are expected to increase with increased Asian demand coupled with limited increases in production	\$0.80 - \$0.87 US/lb*
Oil	Crude oil increased 140% in 1999. Prices are expected to remain high	Average \$24 US/barrel
Gas	Prices expected to increase due to new export pipeline capacity, increased demand and a declining ratio of reserves to production	\$2.50 - \$2.60 /mcf
Lumber	Increase of 11% in 1999. Prices will grow more steadily in 2000 as the pace of US home building slows	

* Survey of forecasters

Source: YEC Economic Outlook 2000

1.3.4 Employment

	1998	1999	2000 (forecast)
Average Number -Employed	13,617	13,442	13,550
% change		- 1.3%	0.8%
Unemployed	1,992	2,017	1,950
% change		1.3%	-3.3%

Source: YEC Economic Outlook 2000 - Pulled from text

Overview:

- Drop in working age population 1999 compared to 1998
- Yukon labour force participation rate is 80% - Canada average is 65%
- 1999 - shift in employment from full time to part time
- 1999 - increase in number of self employed
- 1999 - employment of women increased while employment of men declined
- 1999 - large seasonal variations in employment rate, as a result of reliance on tourism and construction

2000 Outlook

- Strong tourism spending and major construction projects should strengthen employment especially during the summer
- Labour force should grow to 15,500
- Average unemployment rate expected to drop to 12.5% or 1950
- Yukon Agricultural Employment (Source: 1996 Census)

Total agricultural employment	115
Agricultural industries	80
Related service industries	35
Wages and salaries (farms only)	\$610,203

1.3.5 Importance of the Agri Food Industry

	Yukon Real GDP (Millions - 1992 dollars)		
	1996	1997	1998
Yukon Total	947.4	944.1	1,042.0
Agriculture and Related Services	1.3	1.2	1.2
Agriculture % Share of Total	0.14%	0.13%	0.12%

Source: Yukon Bureau of Statistics

1.3.6 Value

- Agricultural production sold in the Yukon totalled around \$3.9 million in 1999/2000.
- Positive growth in livestock and poultry sectors.
- 2% increase in forage production.
- Agriculture has been increasing at about 11% per year for the past few years.

2.0 AGRICULTURAL INFORMATION

2.1 RELEVANT ACTS AND PROGRAMS

2.1.1 Agricultural Lands Act and Regulations

- One of few places in Canada where Crown land can be obtained for agricultural purposes
- Application takes 18-36 months
- Applicants must be:
 - Canadian citizen or permanent resident of Canada
 - At least 19 years of age
 - Have lived in the Yukon for one year
- Intended land use has to be outlined
- Applicant must agree to submit an acceptable farm development plan within 30 – 60 days
- Applicant must declare their intention to remain a Yukon resident during the life of resulting Agreement for Sale

- Application reviewed by
 - Agriculture Branch of Department of Renewable Resources
 - Lands Branch of Department of Community and Transportation Services
 - Potential conflicts are identified - including fisheries, habitat, wildlife, recreational, environmental and First Nations
 - Agricultural Land Application Review Committee
 - Federal/Territorial Land Advisory Committee
 - First Nation holding traditional territory in the proposed area
 - Most of the applications are denied
 - If approved the land is released with an attached value
 - The applicant must then meet all conditions including property development
 - Many applications are on hold pending land claims, land planning or policy constraints

2.1.2 Agriculture Development Act and Regulations

- Policy developed in 1991
- Emphasis on land release through planned agricultural development as it:
 - permits coordinated use of infrastructure such like roads and hydro
 - puts less demand on other services such as school bussing
 - allows orderly development of future services
 - permits agriculture to be developed in accordance with regional and sub regional plans (if they exist)
- Total of nine lots released in two lotteries since inception

2.1.3 Agricultural Products Act and Regulations

- ⇒ Meat Inspection and Abattoir Regulations
- ⇒ Amended in 1995 to include Game Animals
- ⇒ The Act and Regulations include all definitions and what all is included within the Act and Regulations inspections, marketing of products, license requirements, equipment and facility requirements for slaughter and processing facilities, labelling and records, and the appeal process.

2.1.4 Grazing Agreements

- ⇒ Also submitted to the Agriculture Branch
- ⇒ Similar process to agricultural land applications for acquiring grazing leases. Leases cannot be purchased, no improvements are required, inspection is to ensure proper grazing practices are followed.

2.1.5 Permits Required

2.1.5.1 Irrigation

Yukon Waters Regulations require farm operations pumping 300 cubic metres of water per day (from fish bearing water source) to acquire a water use license from the Water Board, Indian and Northern Affairs Canada Program.

2.1.5.2 Pesticides

Pesticide Regulations administered by the Government of Yukon - permit plus pesticide certificate required for anyone applying pesticide on property other than own. Includes herbicides, insecticides and rodenticides. Not generally needed for own farm property unless:

- ⇒ using within 30 metres of open body of water
- ⇒ using restricted pesticides
- ⇒ using identified toxic pesticides
- ⇒ applying pesticide from an aircraft.

Generally low use of chemical pesticides by Yukon Farmers.

2.1.6 Joint Federal – Yukon Programs

- ⇒ Canadian Adaptation and Rural Development Fund (CARD): Federal program administered by YAA to help rural and agricultural people/communities adapt/adjust to changing economy. CARD projects in 1997 received CARD funding totalling around \$250,000.

In early 1999, funding was extended for another four years – with almost \$500,000 being allocated for Yukon projects. The current areas of focus for the Yukon are:

- research/innovations
- human resources
- environmental sustainability
- food safety and quality
- marketing
- rural development

- Agriculture Planning and Advisory Committee (APAC) was started in 1984 to provide for ongoing consultation between the federal and territorial governments and the agriculture industry. It reports to the Minister of Renewable Resources.
- Canada/Yukon Economic Development Agreement (EDA) - research and feasibility assessments of innovative agricultural projects. These no longer exist.
- There is a Community Development Fund which is run by the Yukon Government Economic Development Department.

2.1.7 Other

- Renewable Resources Cooperation Agreement (RRCA) - \$9 million in funding between 1991/1996. Agriculture industry was largest beneficiary (relative to it's importance in the economy)
- Green Plan
- Prairie Farm Rehabilitation Administration (PFRA)
- Farm Credit Corporation
- Circumpolar Agricultural Conferences
- Soil Conservation Project
- Education and Training Trust Fund (ETTF) – administered by an independent committee of YAA
- Liaison with First Nations?

2.1.8 Agriculture and Agri Food Canada

- There is one full time AAFC staff member in the Yukon to provide a direct contact with AAFC programs and services.

2.1.9 Research Branch

- Long term Research branch employee – Scott Smith, relocated from Whitehorse to Summerland (BC). He will continue to manage Yukon research along with other duties. Other scientists from Summerland may visit occasionally.
- CARD project on feasibility to using sulphur to reduce soil pH
- Soil monitoring through series of air and soil temperature sites

2.1.10 Market and Industry Services Branch

- Focuses on enhancing the Yukon agri-food sector's share of domestic and international markets

2.1.11 Policy Branch

- Provides several programs to assist Yukon agricultural producers adapt to changing regulatory and economic conditions.
- Provides CARD funding to the Yukon.

2.1.12 Canadian Food Inspection Agency

- Is responsible for all inspection services related to food safety. In the Yukon they:
 - Inspect a federally registered egg grading station
 - Inspects a federally registered fish processing plant
 - Inspect Yukon food processing facilities (smoked salmon, bottled water, beer and processed products etc.) under the Food and Drug Act
 - Carry out retail and manufacturing inspections
 - Provide information on the programs and services of the CFIA

2.1.13 Rural Secretariat

- Rural policy development through the Canadian Rural Partnership (CRP) focuses on five areas:
 - Partnerships to help government work better within the and across external jurisdictions
 - Rural dialogue to better understand local and regional issues
 - Rural Lens to promote and foster inclusion of more rural considerations in federal programs/policies.
 - Information Outreach to reach, better inform Canadians in rural and remote areas
 - Pilot Projects working through partnerships with community groups
- There is a Yukon Rural Team which contains membership from all levels of government and some non-government organizations.

2.1.14 Yukon Government Services and Programs

The Agricultural Branch of Renewable Resources represent agriculture for the Yukon Government. Functions include policy, regulatory development, dispensing information & technical advice and providing financial assistance in selected areas.

Permanent staff include:

- Director: Key responsibilities - policy, regulations, overall management and administration, also sit as an ex-officio member of the CARD Fund Committee
- Administrative Assistant: Provides administrative services to Branch employees
- Agriculture Development Officer: administers and coordinates
 - Canada Plans Service (CPS) – over 100 farm plans are available for agricultural buildings – root cellars to animal chutes to grain storage
 - Prairie Farm Rehabilitation Administration (PFRA)
 - Inspects land under Agreement for sale
 - Livestock control
 - On Farm extension services
 - Assistance to land applicants
- Agrologist: The key extension officer designs and administers research and demonstration programs. Publishes the Branch newsletter, puts on educational seminars and courses and conferences, handles the majority of farm calls and visits
- Agricultural Land Disposal Coordinator: Processes and tracks land applications (database)
- Soils Technician: Technical support to Branch members. Identifies and evaluates agricultural capability, approves or rejects agricultural land applications based on soil criteria.

Auxiliary staff include:

- Grazing Management Coordinator
- Agriculture Technician
- Meat Inspector

Budget:

- ⇒ 1997 – 98 \$568,000 (6% decrease from 1996/97)
- ⇒ 1998 – 99 \$606,000 (7% increase)

2.1.15 Yukon Agricultural Association (YAA)

YAA developed from the Yukon Livestock and Agriculture Association. Above one-half the 160 producers are members of the not for profit organization - although many more participate in some way. Chapters in Whitehorse, Stewart Valley and Dawson City. Has developed “locally grown” stickers, newspaper and radio ads, posters, and newsletters.

The YAA Constitution is as follows:

1. *The name of the Society is the Yukon Agricultural Association.*
2. *The objects for which the Society are formed are:*
 - a) *to foster and promote the livestock and agricultural industry in Yukon and elsewhere;*
 - b) *to cooperate with governmental authorities and other interested groups to develop and advance a suitable policy for livestock and agricultural industry and communications relating thereto;*
 - c) *to collect and study legislation pertaining to livestock and agricultural industry in Yukon or elsewhere in order to develop and update regulations which will meet the requirements and needs of the industry;*
 - d) *to act as a medium for the expression of views of its members affecting the interest of those engaged in the livestock and agricultural industry, and to distribute to its members and the public accurate and reliable information on matters of livestock and agriculture;*
 - e) *to enter into affiliation or reciprocal arrangements with other organizations in Yukon or elsewhere;*
 - f) *to mutually discuss problems related to livestock and agriculture;*
 - g) *to purchase, take or lease or exchange, hire or otherwise acquire any real or personal property and any rights or privileges and to engage in any activity necessary or ancillary to carrying out the objects or purpose of the Society.*

An independent committee of YAA administers:

- ⇒ Education and Training Trust Fund (ETTF) to increase the knowledge and skills needed to develop a strong, diversified agricultural economy
- ⇒ The CARD Fund

2.1.16 Yukon 4-H Program

International youth program to develop young people – pledging of heart, health, head and hands to community service. Clubs in Whitehorse, Watson Lake and Dawson City. Approximately 60 members with 10-12 adult leaders/helpers. The clubs are primarily focused on horses and dogs.

2.1.17 Game Growers Association

Started in 1989 to promote the Yukon game farming industry. From 5 members in 1994-95 to 16 members in 1999.

2.1.18 Research

- ➔ Formal research started – development of New Crop development Program, changed in 1988-1990 to the Yukon Crop Development Program
- ➔ Yukon Agricultural Branch began research plot North of Whitehorse – still in operation in 2000
- ➔ 1990 – 1993 Yukon Soil Survey Unit conducted a salinity research project
- ➔ 1973 – Haines Junction experimental stations closed down
- ➔ Soil scientist has been provided by Yukon Land Resources Unit
- ➔ Ongoing - Yukon Renewable Resources – Agriculture Branch – Takhini Forestry Farm Demonstration Plot. Annual report details field trails on a variety of crops – including seed bed preparation, fertilizer application, varieties used, planting methods as well as costs and returns on a per hectare basis.

2.1.19 Current Marketing

- ➔ Number of marketing initiatives over the last few years - have tended to be independent projects rather than industry wide initiatives.
- ➔ Farmgate and direct sales - established customers, repeat sales. Smaller producers sell directly to specific clients - not as effective for larger producers in more competitive sectors
- ➔ Farmers Market -Whitehorse approximately 12 producers - Saturday in the Summer. Decreased attendance in recent years - site has changed several times: Dawson City and Mayo also have farmers markets
- ➔ Commercial outlets - some producers use commercial outlets such as egg producers and market gardeners
- ➔ Klondike Harvest Fair – annual good participation from a variety of producers. Initiative of Whitehorse chapter of YAA. Held on a late August weekend.

2.2 AGRICULTURAL CAPABILITY

2.2.1 Agricultural Capability Classes

Class	Yukon Occurrence	Central*	South-West*	South-East*
Class 1: No significant limitations for a full range of agricultural crops	None			
Class 2: Slight limitations that restrict crop range or require modified management practices (grain and warm season vegetables still grow)	None			
Class 3: Moderate limitations limit range of crops and require special management practices (small grain cereals and vegetables still grow)	Small localized areas along rivers and/or lakeshores	2.5	-	4.4
Class 4: Severe limitations restrict crops to forages, cold hardy grain and vegetables or require special management practices	Small localized areas along rivers and/or lakeshores	21.2	-	6.0

Class	Yukon Occurrence	Central*	South-West*	South-East*
Class 5: Very severe limitations – restrict the range of crops to forages, improved pasture and cold hardy vegetables	Most common – for forage production and cold hardy vegetables	79.8	199.4	209.3
Class 6: Such severe limitations that cultivated agriculture not feasible – may be suitable for native range	None identified			
Class 7: No capability for cultivated agriculture or range for domestic animals	None identified: -Not suitable for cultivated agriculture and grazing not possible due to topography (steep slopes/surface pattern)			

* Distribution of Class 3,4 and 5 lands (thousands of hectares) by Agricultural Region

Total Hectares (Acres):

- Class 3 6,900 ha (17,050 acres)
- Class 4 27,200 ha (67,210 acres)
- Class 5 488,500 ha (1,207,080 acres)

2.2.2 Soil Quality

- Most of the soil in the Yukon is low in organic matter
- Surface crusting can occur which affects the emergence of crops
- Cultivated soils in the Yukon tend to be cooler than in Alaska and much cooler than regions in southern Canada
- Soil organisms and bacterial activity are impacted by the cooler temperature, thus reducing decomposition of organic matter
- Soils are nitrogen and phosphorus deficient in most areas
- Potassium and sulphur may also be deficient
- Micronutrient deficiencies are usually boron and magnesium
- Salinity an issue in some localized areas

2.2.3 Climate

Source Yukon Crop Guide (1991/92 Survey)

Greatest limiting factor for Agriculture in the Yukon – is climate – due to short frost free period and cool temperatures during the growing season.

- Low growing season heat accumulation, (Growing degree days or GDD) is the principal limitation to agriculture in the Yukon
- Precipitation is low throughout the Yukon, therefore soil moisture deficits limit agricultural potential
- Moderate droughts occur in South Central Yukon on a regular basis
- Irrigation is generally necessary to ensure good yields of field crops
- The Whitehorse area, where most farming occurs, has precipitation generally in the fall so that irrigation is a must to establish and grow crops
- In the summer, long hours of daylight help promote rapid growth which help compensate for cooler summer temperatures

2.2.4 Climatic Regions of the Yukon

Source Yukon Crop Guide (1991/92 Survey)

Regions:

- Liard Basin: Broad Liard River fairly flat, with elevations between 700 and 1000 meters. Precipitation is moderate – 400-600 mm pa. Summers are warm, winds are moderate – climate statistics collected by Watson Lake airport. Forage and vegetable farming near Watson Lake plus some home gardening.
- Upper Yukon – Stikine Basin: Relatively high elevation/plateau dissected by deep river valleys. Low precipitation as rain shadow effect from the St. Elias Coast Mountain barrier. Majority of population and agriculture are in this region. Area extends from Teslin in the SE, West to Carcross, Whitehorse, Haines Junction and Burwash Landing. Represented by Whitehorse Airport and Haines Junction climatic statistics .
- Central Yukon Basin: Comprised of Pelly River, Yukon River and Stewart River watersheds. A northward extension of the Yukon-Stikine Region with lower average elevation. Precipitation is moderate – 300 – 400 mm pa, mostly summer showers. Temperatures are more variable and extreme – warm summers and severe cold periods in winter. Winds tend to be light.
- Pelly Cassiar Mountains
- St. Elias Coast Mountains
- Ogilvie Mackenzie Mountains
- Porcupine – Peel Basin: Limited home gardening in the community of Old Crow.
- Northern Mountain
- Artic Slope

Cultivated agriculture occurs only in the first three regions. The other areas tend to be mostly mountainous, remote with no/limited settlements.

2.2.5 Climatic Parameters by Region

Climatic Region	Liard Basin	Upper Yukon-Stikine	Upper Yukon-Stikine	Central Yukon Basin	Central Yukon Basin	Central Yukon Basin	Central Yukon Basin
Agricultural Region	Southeast	Southwest	Southwest	Central	Central	Central	Central
Data Collection At:	Watson Lake	Whitehorse Airport	Haines Jct	Carmacks	Fort Selkirk	Mayo	Dawson
Station – Height above sea level (m)	689	703	599	523	454	504	369
July Mean Temp *	14.9	14.1	12.5	14.5	14.8	15.2	14.7
May – Sep total Precipitation (mm) *	224.9	145.7	139.6	154.4	161.0	178.3	183.3
Growing Degree Days (GDD) *	960.8	881.6	672.4	901.9	926.9	970.4	897.8
Frost Free Period (Days) *	93	82	21	74	61	71	64
Last Frost (Spring) *	June 2	June 8*	July 6	June 6	June 16	June 8	June 13
First Frost (Fall) *	Sept 4	Aug 30	July 26	Aug 20	Aug 17	Aug 19	Aug 17
Soil Moisture Deficits (mm) Note 2	121	218	31	-	-	167	167

Notes *: Climatic data for the period 1951 – 1980

Note 2: Soil moisture deficit = precipitation – potential evaporation . May be improved with the addition of organic matter to improve moisture storage capacity

2.3 STRUCTURE OF AGRICULTURE

2.3.1 Farmland in Use

Agricultural Titles Issued			
Year	No. of Titles Issued	Total Area (ha)	Average Parcel Size (ha)
Prior to 1990		7,400.00	
1990	8	290.90	36.4
1991	12	390.12	32.5
1992	9	420.99	46.8
1993	25	1,016.77	40.7
1994	12	399.88	33.3
1995	15	741.73	40.5
1996	14	605.52	43.2
1997	14	538.07	38.4
1998	13	657.29	50.6
1999 (4/30)	1	61.30	61.3
	123	12,522.57	41.7

- Agricultural land – not through the Agricultural Land Program – an estimated 400 to 800 hectares – say 600 hectares more, for a total of 13,122.57 hectares (32,425.87 acres)
- To acquire title, 53% of the land acquired under an Agreement for Sale has to be cultivated, therefore, a total of at least 17,185 acres could be used for crops, hay, tame pasture, etc.
- An aerial survey completed in 1997 of the Whitehorse area provided the following results regarding land utilization of agricultural land

Agricultural Land Utilization – 1997 Aerial Survey			
Land Utilization	Parcel Numbers	Hectares	Percent of Total Survey
Adequate (annual crop, perennial forages, summer fallow)	46	2,278.35	43.8%
Marginal (improved pasture, mixed farmed and unfarmed)	29	1,303.2	25.0%
Inadequate (revegetation of cleared fields)	43	1,625.39	31.2%
Totals	118	5,206.94	100.0%

- Applying these results to the overall agricultural land base would not vary considerably from the estimated amount utilizing the 53% required cleaned acreage to acquire title.

2.3.2 Farm Profile

- ⇒ Substantial growth in number of farms over the last decade - from a very small base to 160 in 1996, and an estimated 165 in 1999
- ⇒ The number of farms increased four fold from 1986 to 1996
- ⇒ Agricultural sales increased six times from 1986 to 1996
- ⇒ Range of agricultural products has also increased significantly
- ⇒ Over half the farms are less than 70 acres in size

Acres	Under 10	10 -69	70 - 129	130 - 179	180- 239	240- 399	400- 559	560- 759	760- 1119	1120- 1599	1600- 2239	2240- 2879
No of farms	31	54	19	22	8	14	6	1	2	1	1	1

Source: 1996 Census

- ⇒ The vast majority of farms are hobby farms or part time operations (estimated at 83%)
- ⇒ Farms are located in all regions of the Territory, but 70% of Yukon farms are within 100 kilometres of Whitehorse
 - Average farm capital is \$175,000
 - 10% of farms are full time operations
 - 50% of farms reported hiring seasonal labour
 - 60% of agricultural holdings are titled

2.3.3 Yukon Farms

	1986	1991	1996	1999 Est.
Number of farms	38	113	160	165
Gross farm receipts (\$millions or actual)	.5	2.0	\$3,536,098	\$3,900,000
Total farm expenses			\$3,352,221	
Total farm capital (\$ millions or actual)	5.8	23.2	\$44,852, 012	
Total market value, land & buildings			\$33,593,201	
Total value: machinery and equipment			\$5,474,780	
Land in crops (acres)	1,330	3,446	5,678	

Source: 1996 Census/Yukon Agriculture Branch, Yukon Economic Outlook 2000

- ⇒ Number of Businesses

2.4 AGRICULTURAL SECTORS

Agriculture in the Yukon has five sectors:

2.4.1 Meat and Poultry

- ⇒ Yukon Livestock Production by Sector: 1996 and 1999. Source: 1996 Census and Yukon Dept of Renewable Resources

	1996	1999 (Estimate)
Dairy Cows	14	-
Beef Cattle and Calves	264	-
Total Cattle	278	300
Hogs	264	300
Laying Hens	4,766	-
Egg production (est)	96,000 doz	102,000 doz
Total hens and chickens	6,806	-
Turkeys	809	1,000
Horses (on farm)	995	1,000
Horses (hobby, outfitters and recreation)		1,500
Bees (colonies)	30	-

Source: Yukon Agriculture, State of the Industry, 1998-1999

- ⇒ Continues to show steady but slow growth
- ⇒ Beef and hog slaughter has increased since opening of the abattoir in late 1998
- ⇒ Continued growth anticipated due to availability of slaughter facility
- ⇒ Strong growth in chickens in 1998/1999 with the new abattoir. In 1999 there was regular monthly slaughter and locally produced chickens can now be purchased in local stores
- ⇒ Good opportunity for poultry expansion based on an estimated 500,000 bird consumption for the Yukon

2.4.2 Forage and Grain Crops

- ⇒ Predominantly hay and oats.
- ⇒ Yukon Field Crops: 1996 and 1999. Source: 1996 Census and Yukon Dept of Renewable Resources

	1996 acres	1999 acres (estimate)
Total area	5,554	-
Grain	-	-
Greenfeed (oats, barley and fall rye)	1,543	2,500
⇒ Oats	1,320	
⇒ Barley	88	
⇒ Fall Rye	155	
Forage crops	3,904	4,200
⇒ Alfalfa and alfalfa mixtures	668	
⇒ All other tame hay and fodder crops	3,236	
Potatoes	41	-
Berries for sale	4.4	-
Vegetables for sale	29.9	-
⇒ Green peas	5.8	
⇒ Cabbage	3.5	
⇒ Carrots	2.0	
⇒ Lettuce	2.4	
⇒ Cauliflower	1.4	
⇒ Broccoli	1.4	
Nursery products and sod	40	-

Source: Yukon Agriculture, State of the Industry, 1998-1999

- ➔ Grain production is limited because of high risk of frost during the growing season, modest growth in cereal crops in the last two to three years
 - Further growth anticipated over next few years as early maturing varieties are cropped, increased harvesting equipment available and more on farm storage available
 - Demand will increase as livestock numbers grow
 - Yukon forage now has protein levels between 10 and 12 %
 - Forage production meets only 50 – 55% of Yukon demand (consumption)
 - Berry and field vegetable production in the Yukon declined from 1991 to 1997
 - Tests on new varieties started in 1999 – west of Whitehorse
 - Organic produce for the Whitehorse market was available from two young entrepreneurs

2.4.3 Market Gardening

- ➔ 43,000 sq ft of greenhouse space for market gardening, 41 acres of potatoes and 30 acres of other vegetables
- ➔ Yukon Greenhouse Production: 1996. Source: 1996 Census

No. of farms with greenhouse production	31
Total greenhouse area	83,520 ft sq
Flowers	38,363 sq ft
Vegetables	42,869 sq ft
Other products	1,778 sq ft

Source: Yukon Agriculture, State of the Industry, 1998-1999

In 1996 there were 31 commercial greenhouses in the Yukon
Industry growth continues to be strong

2.4.4 Bedding Plants

- ➔ Over 38,000 sq ft of greenhouses and 40 acres of nursery products and sod. Source: Yukon Agriculture, State of the Industry, 1998-1999
 - Two local operations expended to field production of nursery stock for the landscaping industry
 - Smaller greenhouse operators are entering the competitive spring bedding markets for both Whitehorse and Dawson City

2.4.5 Other

- ➔ Includes elk, bison, goats and rabbits, honey bees and herbs
- ➔ Yukon Game Farm Animals: Number of Head: 1996 and 1999. Source: 1996 Census and Yukon Dept of Renewable Resources

	1996	1999 (estimate)
Bison	50	50
Elk and reindeer	108	-
Elk only	77 (in 1997)	120
Llamas	18	25

Note: There is one reindeer herd, one wood bison operation and one small herd of musk-ox in the Yukon

Source: Yukon Agriculture, State of the Industry, 1998-1999:

- Growth of game farming is slow
- Yukon elk breeding stock and velvet antler are highly rated – they considered among the best in Canada
- Reindeer operation continues to grow – produces quality animals selling to farms in the prairie provinces
- Wood Bison operation also produces top quality breeding stock
- Yukon conditions are good match for llamas. Domestic stock started to develop in mid 1990's and is expected to continue with interest for both breeding and as pack animals
- Small number of duck, geese and game birds raised in the Yukon with potential for growth targeting seasonal and niche markets

3.0 YUKON DEMAND/MARKET

3.1 CONSUMER PRICES

Source: YEC Economic Outlook 2000

1999 Overview:

- Consumer prices increased by an average of 1% in Whitehorse - national average 1.7%.
- Inflation rate steadily increasing - somewhat masked by annual average.
- Year over year inflation rate for Whitehorse: 0.1% in January, 2.2% in December
- Mainly due to higher oil prices - crude oil rose from \$12US to \$28 US in 1999

2000 Outlook

- Consumer prices in Whitehorse are expected to increase by an average of 1.5% - lower than the national average of 2.2%
- Electricity costs have been stabilized through to March 2002 - Rate Stabilization Fund
- High vacancy rates and a good supply of houses should limit increases housing cost
- Low wage increases, increased retail competition and productivity improvements are expected to help keep price increases low over the next few years
- Increased fuel costs are going to have an impact.

3.2 YUKON FOOD CONSUMPTION ESTIMATES: 1999

Product	Total	Yukon Produced	% of Total
Eggs	500,000 doz	102,000	20.4
Poultry	500,000 birds		
Pork	12,000 animals		
Beef	5,000 animals		

Source: Yukon Dept of Renewable Resources

3.3 SPENDING - YUKON RETAIL SALES (MILLIONS OF CURRENT DOLLARS)

	1996	1997	1998
Yukon Total	283.3	309.7	311.7
Supermarkets and grocery stores	89.0	97.9	97.1
Supermarkets and grocery % share	31.4%	31.6%	31.2%

Source: Yukon Bureau of Statistics

3.4 RETAIL PRICES - YUKON AGRICULTURAL PRODUCTS: MARCH 2000 - LOCAL OUTLET SURVEY

This survey, completed by CompuServe differs considerably, in some instances from the figures projected by the Yukon Agriculture Branch. The CompuServe survey is a detailed household expenditure. We have, based on current retail prices, computed the units of products required.

MARKET ESTIMATES BASED ON CONSUMER SPENDING (ACTUAL)

	Units	Average Price	Consumption		Targeted Share of Local Market	Market Size
			Whitehorse	Yukon		
Beef	kg	\$6.60	376,567.3	613,138.3	20.0%	122627.7
Pork	kg	\$10.02	125,874.1	170,484.9		
Other Prepared	kg	\$6.03	13,802.8	18,624.6		
Chicken	kg	\$8.00	427,396.5	558,981.9		
Turkey	kg	\$4.59	344,547.7	439,610.7	25.0%	109902.7
Fish	kg	\$8.58	57,727.0	73,518.4	15.0%	11027.8
Eggs	kg	\$11.55	95,204.4	122,155.9		
Fruit	doz	\$2.18	275,195.9	358,380.3	75.0%	268785.2
Fruit	kg	\$2.89	426,895.5	575,536.2		
Fresh Vegetables						
Green or wax beans	kg	\$6.57	4,303.0	5,493.5		
Broccoli	kg	\$4.37	24,732.0	32,367.7	5.0%	1618.4
Cabbage	kg	\$1.72	28,214.5	35,020.3	5.0%	1751.0
Carrots	kg	\$1.85	110,679.2	147,746.0	30.0%	44323.8
Cauliflower	ea	\$1.98	34,794.9	47,085.9		
Celery	ea	\$1.78	78,578.1	102,247.8		
Corn	ea	\$0.68	47,875.0	68,201.5		
Cucumbers	ea	\$1.48	72,418.2	101,166.9	25.0%	25291.7
Lettuce	ea	\$1.38	180,152.2	239,824.6	10.0%	23982.5
Mushrooms	kg	\$4.37	37,988.6	50,908.5	25.0%	12727.1
Onions	kg	\$1.06	180,634.0	240,015.1	5.0%	12000.8
Peppers	kg	\$4.39	36,347.2	47,471.3		
Potatoes	kg	\$1.72	292,893.0	383,158.7	30.0%	114947.6
Radishes	lb	\$4.36	3,019.5	4,171.7		
Spinach	bunch	\$1.78	5,608.4	8,365.2		
Tomatoes	kg	\$3.92	58,542.3	82,175.0	25.0%	20543.8
Turnips and rutabagas	kg	\$3.04	14,081.3	18,844.4		
Other seed and gourd vegetables	kg	\$7.67	8,885.8	11,302.9		
Other root vegetables	kg	\$2.16	19,368.1	25,321.8		
Other leaf and stalk vegetables	kg	\$4.14	29,365.7	35,872.0		

Frozen Vegetables						
Corn	kg	\$3.47	14,964.6	19,099.1		
Peas	kg	\$3.17	21,507.9	26,151.7		
Potato products	kg	\$2.46	66,175.2	87,511.8		
Other frozen vegetables	kg	\$4.37	18,934.1	25,990.2		
Dried vegetables						
Potato products - dried	kg	\$6.41	1,446.7	2,040.7		
Other vegetables - dried	kg	\$1.80	13,780.6	17,712.2		
Canned Vegetables						
		\$3.42	263,334.8	452,996.7		
Pickles (including olives)	L	\$3.67	31,144.4	40,699.5		
Ketchup	L	\$6.07	25,336.4	33,288.6		
Mayonnaise and salad dressings	L	\$3.87	60,896.6	87,125.6		
Spices --herb	kg	\$45.86	4,076.2	4,939.2		
Tea	kg	\$62.29	2,907.9	3,818.3		
Honey	kg	\$5.78	4,356.1	5,911.2	5.0%	295.6
Potato chips and similar products	kg	\$3.83	151,156.4	195,612.2		

Source: CompuServe Household Survey, 1999.

SURVEY RESULTS/RESPONSES

1.0 PRODUCER SURVEYS

The following synopsis represents the findings from the 42 producer surveys completed in March and April, 2000.

1.1 PHYSICAL CHARACTERISTICS OF PARTICIPANTS

1.1.1 Farming Operations:

	Crops Acres	Summer Fallow Acres	Pasture Acres	Other Land Acres	Total Acres	Cultivated Acres	Owned Acres	Leased Acres
Total	2,905	160	2,162	7,011	12,238	2,246	7,311	4,927
count	32	4	20	37	39	24	40	15
average	90.8	40.0	108.1	189.5	292.8	93.6	182.8	328.5

1.2 PRODUCTION

1.2.1 Livestock:

	# Beef Cows	# Beef Finished	# Dairy Cows	# Sows	# Market Hogs
Total	94	55	2	11	98
count	7	6	1	3	2
average	13.4	9.2	2.0	3.7	49.0

	# Layers	# Broilers	# Bees	# Horses
Total	4,524	6,200	25	95
Count	6	6	1	13
average	754.0	1,033.3	25.0	7.3

1.2.2 Grain:

	Wheat Acres	Barley Acres	Oats Acres	Mixed Acres
Total	9	25	411	50
count	2	2	8	1
average	4.5	12.5	51.4	50.0

1.2.3 Forage & Fruit:

	Forage Tame Hay Acres	Other Forage Acres	Berries Acres
Total	1,963	280	2
count	20	3	1
average	98.2	93.3	2.0

1.2.4 Vegetables and Horticulture:

	Vegetable Acres	Acres of Potatoes	Sq. Ft. of Tomatoes	Sq. Ft. of Cucumbers	Sq. Ft. of Mixed/ Other	Sq. Ft. of Greenhouse	Sq. Ft. of Flowers/ Shrubs	Sod Acres
Total	9.25	14.5	2,900	4,364	225,299.7	28,600	65,803	20.0
Count	7	5	3	4	8	8	8	1.0
Average	1.32	2.9	966.7	1,091.0	28,162.5	3,575.0	8,225.4	20.0

1.2.5 Game Farming:

	# of Wood Bison	# of Elk/Reindeer
Total	47	77
count	1	4
average	47	19

1.3 FINANCIAL FACTORS

1.3.1 Revenue & Expenses:

	Crop Income	Livestock Income	Horticulture Income	Other Income	Total Farm Income
Total	\$366,550	\$267,250	\$314,000	\$210,000	\$1,555,800
Count	13	7	4	3	25
Average	\$ 28,196	\$ 38,178	\$ 78,500	\$ 70,000	\$ 62,232

	Crop Expense	Livestock Expense	Overhead Expense	Other Expenses	Total Operating Expenses
Total	\$116,000	\$71,800	\$98,500	\$14,000	\$1,042,900
Count	11	5	6	2	24
average	\$ 10,545	\$14,360	\$16,416	\$7,000	\$ 43,454

1.3.2 Capital Assets:

	Livestock & Poultry	Building and Land	Implements & Machinery
Total	\$738,000	\$ 8,721,000	\$2,332,300
count	10	29	26
average	\$ 73,800	\$ 300,724	\$ 89,703



1.4 INTENTIONS AND EXPECTATIONS

Expectation of gross farm revenue for the coming season:

- Thirty-three producers indicated that they expected their gross farm revenue to rise in the coming season, six producers anticipated a decrease.

Gross Farm Revenue Comments:

- Recovery of Asian market will provide for higher velvet antler prices
- No change.
- Nursery tree revenues up - more product available - more landscaping work available this year.
- Greater efficiency in operations, use of greenhouse.
- Stable
- New hay field to produce (if enough moisture).
- Increase in government policy.
- Snow cover and soil moisture levels are good; expect a good crop
- Will be up substantially if the oat crop grows on newly broken land.
- Have enlarged greenhouse; bedding plant sales likely to rise.
- Will have a crop of hay to sell.
- More land coming into production.
- Exporting to Alaska - good potential - local market very weak in 1999.
- About the same - still in experiment/development stage.
- Expect big increase in hay production due to irrigation.
- Expecting bigger hay crop due to increased ground moisture (lots of snow)
- Building a greenhouse this year and expand.
- Gross income is low; better farming will result in increased revenue.
- Additional land in production.
- New greenhouse will increase production by 40%
- Change to more elk and bison

Expectation of farm expenditures:

Twenty-eight producers indicated that they expected their farm expenditures to increase, seven producers anticipated a decrease.

Farm Expenditure Comments:

- Need to winter stock elsewhere due to lack of pasture and no water, etc.
- No change.
- If revenues increase, we plan to expand. Normal O & M expenditures otherwise.
- Buy seedling stock and plant 4-5 more acres. Fencing, irrigation expenses; well required. expansion costs; fuel costs; freight increase; operating cost increase.
- About the same.
- Fuel costs.

- Fuel cost.
- Expanding capacity x 2.
- Rising fuel price will increase costs (same volume of fuel)
- Substantial increase because 1) hopes to clear and break 100+ acres; 2) fertilizer costs likely to rise; 3) fuel costs up.
- No change.
- Will be running irrigation system; fuel costs.
- More acres.
- Fuel expenses will increase both on farm and for transport. Wages will go up slightly.
- Increase to plant 1/2 acre of strawberries and buy equipment. irrigation costs; fuel costs.
- Maybe a bit due to increased fuel costs.
- Construction of greenhouse = \$5,000+
- Expenses are high.
- Corresponding expenses to expanded greenhouse.
- Fewer chickens to feed.
- Developing land.
- Farm equipment expense will rise.
- Cost of fencing, etc.

If the farm net income in 2000 were to rise, priority spending would be given to:

- 1) Irrigation and holding ponds; 2) Tractor and implements; 3) hay shed.
- 1) Expansion - build new building for retail sales; 2) New greenhouse
- Irrigation system and well (cost \$30,000)
- 1) automation in layer operation; 2) grain storage; 3) own freight equipment; 4) equipment upgrades.
- Finish shop building; sales are on back of greenhouse.
- 1) tractor; 2) greenhouse equipment.
- 1) irrigation; 2) good hired help; 3) tractor
- 1) Marketing; 2) equipment.
- 1) major repairs on equipment; 2) upgrade haying equipment; 3) repair/upgrade barns and chicken houses.
- 1) break new land; 2) upgrade harvesting equipment; 3) fencing
- 1) improved pump and irrigation system; 2) potato digging machine.
- 1) barn; 2) bull; 3) equipment.
- Equipment - and clearing the land.
 - 1) Equipment replacement; 2) clear land for new leases.
- Land/crop development. Develop a U-pick operation.
 - 1) more irrigation; 2) fencing; 3) pole barn.
 - 1) new tractor; 2) breaking disc.
- Labour - help in crop maintenance; organic fertilizers; materials for greenhouse, e.g. potting soil
- Increase herd to 25 head and finish cattle.
- House on farm; irrigation; hay storage.
- Water well - \$7-10,000; equipment (greenhouse)

- Improve irrigation; bale handling equipment.
- No money to spend.
- Land expansion - clear more land; paid down debt; upgrade equipment.
- New equipment (tractor, large square baler); pivot irrigation; field expansion and fencing.
- Develop lease land

Confidence in financial survival over the next five years:

Almost all of the producers indicated a strong sense of confidence in their business's future survival. Comments were as follows:

- Very confident that the elk range is very viable.
- N/A - need markets - place and means to sell
- Very confident - business has shown consistent profit in recent years after many tough years.
- Quite confident - now subsidizing business with other income. Operation takes only part time. He has done homework re market and yield.
- Fairly confident - have been through an economic downturn and have increased production; decreased costs - have no debt loan.
- Fairly confident - small family business with no debt; little risk.
- 100% confident - been doing it for many years, know the market; part of lifestyle.
- 100% - can support it with off-farm income.
- Very confident.
- 100% certain; we have been here many years, it will be hard to starve us out now.
- 100% certain - is willing to invest off-farm income into the farm operation.
- If the local economy suffers a marked decrease then the business will be in trouble. Stable local economy = stable business.
- Very confident - prepared to support the operation with off-farm income.
- Quite confident income and debt are okay. Income is not reflective of the investment and market value - economics are not there on this scale but it will survive.
- Reasonably confident - intend to make it work but many unknown factors.
- Very confident - part of a way of life.
- 100% part of larger business.
- Fairly confident it can survive financially; question of whether they want to continue.
- Yes
- Need off-farm income to survive.
- Can sell everything they grow; provided they can finance production expenditure.
- Very confident - has good market for hay and beef.
- Unknown; works off-farm - 20% income
- Reasonably confident

COST OF PRODUCTION (COP) CALCULATIONS

Summary of Enterprise Analysis				
Product/Enterprise	Size (# Units)	Gross Revenue/Unit	Total Expenses/Unit	Net Income/Unit
<i>Livestock:</i>				
Bison	50 cows	\$1,320.00	\$1,057.00	\$ 263.00
Elk Cow/Calf	40 cows	2,862.00	1,405.00	1,457.00
Velvet Antler	40 bulls	1,300.00	830.00	470.00
Beef	<50 cows	1,800.00	1,862.00	(62.00)
Chicken Layers	1 layer	44.67	38.02	6.65
Broilers	1 broiler	5.26	4.70	0.57
Turkeys	1 bird	36.75	34.29	2.46
<i>Crops:</i>				
Hay	100 acres	280.00	190.00	90.00
Oats	100 acres	227.50	217.00	10.50
Barley	100 acres	251.00	237.00	14.00
Potatoes	10 acres	2,625.00	1,620.00	1,005.00
Carrots	5 acres	1,950.00	1,335.00	615.00

Assumptions for the Enterprise Cost of Production Analysis

1. Bison

The 50 bison cow-calf enterprise includes 45 cows, 4 bulls, 3 yearling heifers, 3 bred heifers and 3 heifer calves.

The average calving rate is 80-90% and the target weaning weights are 400 lbs. for heifers and 450 lbs. for bull calves. Selling price for heifer calves is assumed to be \$2000.00 per head while bull calves are \$1100.00.

Breeding stock generally requires 2% of their body weight of dry matter feed per day to maintain their weight. The winter feed requirement for cows is 25 lbs/day while bulls require approximately 30 lbs/day.

2. Elk (Cow/Calf)

The 40 elk enterprise is comprised of 40 cows and 2 bulls. Revenue is based on sale price of heifer calves at \$3000.00 and bull calves at \$2000.00.

As with bison, elk-breeding stock requires approximately 2% of their body weight (10 lbs.- females, 12 lbs.- bulls) on a dry matter basis per day to maintain their weight.

3. Elk (Velvet Antler)

The enterprise analysis is based on the production from 40 bulls. Average production per animal is approximated to be 20 lbs. and revenue is based on a price of \$65.00/lb.

4. Beef Cattle (Cow/Calf)

It is assumed that optimal revenue is earned by selling freezer meat from grass fed calves, 18 months of age. Spring calves would be weaned in the fall, carried over the winter on a higher quality ration, and slaughtered in the fall after grazing on ample pasture. The carcass yield is estimated to be 600 pounds and the selling price is assumed to be \$3.00 per pound at the farm gate.

Expenses are based on an enterprise size of 50 or less head. Average weight of the cows is assumed to be 1200 pounds each, multiplied by a factor of 1.18 to include bulls, replacements and death loss. Winter feed costs are based on a 240 day feeding period, with a daily consumption of 2% of body weight for cows and 2.7% for calves. Feed costs are assumed to be \$150.00/ ton for cows and \$200.00/ ton for calves. Pasture costs are assumed to be relative to the cost of hay production and therefore are proportional to daily winter feed costs. Labour expense considers the opportunity cost of the producer not working off farm. Other expenses are based on survey results as published by Alberta Agriculture, Food and Rural Development adjusted for local economic factors.

5. Chicken (Layers)

Revenue is based on a target yield of 295 eggs per hen and a price range of 1.80 to 2.00 per dozen for grade "A" eggs, and \$1.00 for other eggs. No value for spent hens was considered.

Feed expense considers 38 kilograms of consumption at a price of \$0.75- \$0.78/kg. Cost of pullets is assumed to be \$6.00. Other expenses are based on the B.C. Ministry of Agriculture, Fisheries and Food livestock plan for poultry, adjusted to reflect local costs. Costs associated with levies or quota were not considered.

6. Chicken (Broilers)

Income is estimated assuming a price of \$2.75/kg. and a target weight of 1.92 kg/bird. Condemnations are considered in determining net income. The average age of the broilers is assumed to be 40 days.

Feed consumption is assumed to be 3.456 kilograms per bird at a cost of \$.90 /kg. This consumption rate represents a conversion rate of 1.80. The cost of chicks is assumed to be \$1.126. Other costs are adjusted to reflect local economic conditions. No costs are attributed to levies or quota.

7. Turkey

Revenue calculated by assuming a heavy Tom turkey weight of 13.0 kilograms and a selling price of \$2.80-\$2.85/kg.

Feed cost is based on 31.85 kilograms at \$.90/kg. Poults are assumed to cost \$2.25 each, and all other costs reflect local conditions.

8. Hay

Production assumptions include a yield of 1.4 tons per acre from one cut per year. Revenue is based on a selling price of \$200.00/ton.

Annual costs include seed establishment costs amortized over a five year period.

9. Oats

Price used in the analysis is equivalent to the cost to import grain from the nearest supply. A freight cost of \$100.00/tonne was added to a price per bushel at Dawson Creek, B.C. to determine the market value of production.

10. Barley

The same pricing methodology as used for oats was used in the pricing of barley production.

11. Potatoes

Yield is assumed to be 5 tonnes per acre of which 70% would be marketable. An estimated price of \$0.75/kg. was applied to determine revenue. Production and cost estimates are based on local information.

12. Carrots

Yield is assumed to be 4 tonnes per acre with 65% being marketable. The price of carrots in the local market is estimated to be \$0.75/kg. Production and cost estimates are based on local information along with information from B.C. Ministry of Agriculture, Fisheries and Food.

Bison Enterprise Analysis

Unit Size: 50 cows

	<u>Total (\$)</u>	<u>\$/cow</u>
A) Revenue		
Sales (Net of Purchases)	66,000.00	1,320.00
Heifer calves, Bull calves, Culls minus replacements	-	-
Other Income	-	-
Total	\$ 66,000.00	\$ 1,320.00
B) Variable Costs		
Feed	20,832.00	415.98
Bedding	-	-
Pasture	750.00	15.00
Veterinary & Medicine	1,100.00	22.00
Breeding Costs	-	-
Trucking and Marketing	1,650.00	33.00
Fuel	1,650.00	33.00
Repairs - Machinery & Buildings	1,925.00	38.50
Utilities & Misc. Expenses	1,975.00	39.50
Custom Work & Specialized Labour	-	-
Operating Loan Interest & Paid	2,761.00	55.22
Paid Labour & Benefits	15,000.00	300.00
Unpaid Labour	-	-
Total	\$ 47,610.00	\$ 952.20
C) Fixed Costs		
Cash/Share Rent & Land Lease	-	-
Taxes, Water Rates, Insurance	1962.00	39.24
Equipment & Building Depreciation	3280.00	65.6
Equipment & Building Lease Payments	-	-
Paid Capital Interest	-	-
Total	\$ 5,242.00	\$ 104.84
D) Total Production Costs (B+C)	\$ 52,852.00	\$ 1,057.04
Net Income	\$ 13,148.00	\$ 262.96

Elk (Cow/Calf) Enterprise Analysis

Unit Size: 40 cows

	<u>Total (\$)</u>	<u>\$/cow</u>
A) Revenue		
Sales (Net of Purchases)		-
Calves and Cull animals	113,053.00	2,826.33
Velvet	1,430.00	35.75
Other Income		-
Total	\$ 114,483.00	\$ 2,862.08
B) Variable Costs		
Feed	11,342.00	283.55
Bedding		-
Pasture		-
Veterinary & Medicine	1,680.00	42.00
Breeding Costs		-
Trucking and Marketing	1,050.00	26.25
Fuel	1,050.00	26.25
Repairs - Machinery & Buildings	1,050.00	26.25
Utilities & Misc. Expenses	1,150.00	28.75
Custom Work & Specialized Labour		-
Operating Loan Interest & Paid	1,949.00	48.73
Paid Labour & Benefits	30,000.00	750.00
Unpaid Labour		-
Total	\$ 49,271.00	\$ 1,231.78
C) Fixed Costs		
Cash/Share Rent & Land Lease		-
Taxes, Water Rates, Insurance	2131.00	53.28
Equipment & Building Depreciation	4800.00	120.00
Equipment & Building Lease Payments		-
Paid Capital Interest		-
Total	\$ 6,931.00	\$ 173.28
D) Total Production Costs (B+C)	\$ 56,202.00	\$ 1,405.05
Net Income	\$ 58,281.00	\$ 1,457.03

Elk (Velvet Antler) Enterprise Analysis

Unit Size: 40 cows

	<u>Total (\$)</u>	<u>\$/cow</u>
A) Revenue		
Sales (Net of Purchases)		-
Velvet	52,000.00	1,300.00
Other Income		-
Total	\$ 52,000.00	\$ 1,300.00
B) Variable Costs		
Feed	12,481.00	312.03
Bedding		-
Pasture		-
Veterinary & Medicine	600.00	15.00
Breeding Costs		-
Trucking and Marketing	1,000.00	25.00
Fuel	1,000.00	25.00
Repairs - Machinery & Buildings	1,000.00	25.00
Utilities & Misc. Expenses	1,100.00	27.50
Custom Work & Specialized Labour		-
Operating Loan Interest & Paid	897.00	22.43
Paid Labour & Benefits	5,000.00	125.00
Unpaid Labour		-
Total	\$ 23,078.00	\$ 576.95
C) Fixed Costs		
Cash/Share Rent & Land Lease		-
Taxes, Water Rates, Insurance	1030.00	25.75
Equipment & Building Depreciation	9100.00	227.50
Equipment & Building Lease Payments		-
Paid Capital Interest		-
Total	\$ 10,130.00	\$ 253.25
D) Total Production Costs (B+C)	\$ 33,208.00	\$ 830.20
Net Income	\$ 18,792.00	\$ 469.80

Beef Cattle (Cow/Calf) Enterprise Analysis

Unit Size: 20 cows

	<u>Total (\$)</u>	<u>\$/cow</u>
A) Revenue		
Sales (Net of Purchases)		-
Slaughtered beef 20 - 600 lb. Carcasses @ \$3.00/lb	36,000.00	1,800.00
Other Income		-
Total	\$ 36,000.00	\$ 1,800.00
B) Variable Costs		
Feed	20,580.00	1,029.00
Bedding		-
Pasture	7,820.00	391.00
Veterinary & Medicine	1,400.00	70.00
Breeding Costs		-
Trucking and Marketing	600.00	30.00
Fuel	380.00	19.00
Repairs - Machinery & Buildings	64.00	3.20
Utilities & Misc. Expenses	580.00	29.00
Custom Work & Specialized Labour	60.00	3.00
Operating Loan Interest & Paid	648.00	32.40
Paid Labour & Benefits	100.00	5.00
Unpaid Labour	3,600.00	180.00
Total	\$ 35,832.00	\$ 1,791.60
C) Fixed Costs		
Cash/Share Rent & Land Lease		-
Taxes, Water Rates, Insurance	500.00	25.00
Equipment & Building Depreciation	900.00	45.00
Equipment & Building Lease Payments		-
Paid Capital Interest		-
Total	\$ 1,400.00	\$ 70.00
D) Total Production Costs (B+C)	\$ 37,232.00	\$ 1,861.60
Net Income	\$ (1,232.00)	\$ (61.60)

Chicken (Layers) Enterprise Analysis

Unit Size: 1 hen

	<u>Total (\$)</u>	<u>\$/hen</u>
A) Revenue		
Sales	44.67	44.67
Other Income	-	-
Total	\$ 44.67	\$ 44.67
B) Variable Costs		
Feed	28.92	28.92
Bedding	0.50	0.50
Pasture	-	-
Veterinary & Medicine	0.25	0.25
Breeding Costs	-	-
Trucking and Marketing	-	-
Fuel	-	-
Repairs - Machinery & Buildings	0.50	0.50
Utilities & Misc. Expenses	0.60	0.60
Custom Work & Specialized Labour	-	-
Operating Loan Interest & Paid	-	-
Paid Labour & Benefits	0.20	0.20
Unpaid Labour	-	-
Pullet	6.00	6.00
Total	\$ 36.97	\$ 36.97
C) Fixed Costs		
Cash/Share Rent & Land Lease	-	-
Taxes, Water Rates, Insurance	0.05	0.05
Equipment & Building Depreciation	1.00	1.00
Equipment & Building Lease Payments	-	-
Paid Capital Interest	-	-
Total	\$ 1.05	\$ 1.05
D) Total Production Costs (B+C)	\$ 38.02	\$ 38.02
Net Income	\$ 6.65	\$ 6.65

Chicken (Broilers) Enterprise Analysis

Unit Size: 1000 birds

	<u>Total (\$)</u>	<u>\$/bird</u>
A) Revenue		
Sales	5,262.00	5.26
Other Income	-	-
Total	\$ 5,262.00	\$ 5.26
B) Variable Costs		
Feed	3,110.00	3.11
Bedding	30.00	0.03
Pasture	-	-
Veterinary & Medicine	45.00	0.05
Breeding Costs	-	-
Trucking and Marketing	-	-
Fuel	-	-
Repairs - Machinery & Buildings	25.00	0.03
Utilities & Misc. Expenses	150.00	0.15
Custom Work & Specialized Labour	40.00	0.04
Operating Loan Interest & Paid	-	-
Paid Labour & Benefits	50.00	0.05
Unpaid Labour	-	-
Chicks	1,186.00	1.19
Total	\$ 4,636.00	\$ 4.64
C) Fixed Costs		
Cash/Share Rent & Land Lease	-	-
Taxes, Water Rates, Insurance	50.00	0.05
Equipment & Building Depreciation	10.00	0.01
Equipment & Building Lease Payments	-	-
Paid Capital Interest	-	-
Total	\$ 60.00	\$ 0.06
D) Total Production Costs (B+C)	\$ 4,696.00	\$ 4.70
Net Income	\$ 566.00	\$ 0.57

Turkey Enterprise Analysis

Unit Size: 1 bird

	<u>Total (\$)</u>	<u>\$/bird</u>
A) Revenue		
Sales		-
Grade @ Heavy TOM	20.37	20.37
Under grade	16.38	16.38
Other Income		-
Total	\$ 36.75	\$ 36.75
B) Variable Costs		
Feed	28.67	28.67
Bedding		-
Pasture		-
Veterinary & Medicine	0.20	0.20
Breeding Costs		-
Trucking and Marketing		-
Fuel		-
Repairs - Machinery & Buildings	0.50	0.50
Utilities & Misc. Expenses	1.00	1.00
Custom Work & Specialized Labour	0.35	0.35
Operating Loan Interest & Paid		-
Paid Labour & Benefits	0.35	0.35
Unpaid Labour		-
Poults & Costs	2.87	2.87
Total	\$ 33.94	\$ 33.94
C) Fixed Costs		
Cash/Share Rent & Land Lease		-
Taxes, Water Rates, Insurance	0.05	0.05
Equipment & Building Depreciation	0.30	0.30
Equipment & Building Lease Payments		-
Paid Capital Interest		-
Total	\$ 0.35	\$ 0.35
D) Total Production Costs (B+C)	\$ 34.29	\$ 34.29
Net Income	\$ 2.46	\$ 2.46

Hay Enterprise Analysis

Unit Size: 100 acres

	<u>Total (\$)</u>	<u>\$/acre</u>
A) Revenue		
Crop Sales		-
One cut, 1.4 ton/acre @ \$200/ton	28000	280.00
Other Crop Revenue		-
Total	\$ 28,000.00	\$ 280.00
B) Variable Costs		
Seed & Establishment Costs	2500	25.00
Fertilizer	6500	65.00
Chemicals		-
Crop Insurance Premiums		-
Trucking and Marketing		-
Fuel	2000	20.00
Irrigation Expenses		-
Repairs - Machinery & Buildings	3000	30.00
Utilities & Misc. Expenses		-
Custom Work & Specialized Labour		-
Operating Loan Interest		-
Paid Labour & Benefits		-
Unpaid Labour		-
Twine	2000	20.00
Total	\$ 16,000.00	\$ 160.00
C) Fixed Costs		
Cash/Share Rent & Land Lease		-
Taxes, Water Rates, Insurance	500	5.00
Equipment & Building Depreciation	2500	25.00
Equipment & Building Lease Payments		-
Paid Capital Interest		-
Total	\$ 3,000.00	\$ 30.00
D) Total Production Costs (B+C)	\$ 19,000.00	\$ 190.00
Net Income	\$ 9,000.00	\$ 90.00

Oats Enterprise Analysis

Unit Size: 100 acres

	<u>Total (\$)</u>	<u>\$/acre</u>
A) Revenue		
Crop Sales		-
80 bu/acre, \$1.30/bu plus \$100/tonne frt. (\$4.02/bu)	22,750.00	227.50
Other Crop Revenue		-
Total	\$ 22,750.00	\$ 227.50
B) Variable Costs		
Seed	1,675.00	16.75
Fertilizer	6,500.00	65.00
Chemicals	400.00	4.00
Crop Insurance Premiums		-
Trucking and Marketing		-
Fuel	2,000.00	20.00
Irrigation Expenses	5,000.00	50.00
Repairs - Machinery & Buildings	1,125.00	11.25
Utilities & Misc. Expenses	2,000.00	20.00
Custom Work & Specialized Labour		-
Operating Loan Interest		-
Paid Labour & Benefits		-
Unpaid Labour		-
Total	\$ 18,700.00	\$ 187.00
C) Fixed Costs		
Cash/Share Rent & Land Lease		-
Taxes, Water Rates, Insurance	500.00	5.00
Equipment & Building Depreciation	2,500.00	25.00
Equipment & Building Lease Payments		-
Paid Capital Interest		-
Total	\$ 3,000.00	\$ 30.00
D) Total Production Costs (B+C)	\$ 21,700.00	\$ 217.00
Net Income	\$ 1,050.00	\$ 10.50

Barley Enterprise Analysis

Unit Size: 100 acres

	<u>Total (\$)</u>	<u>\$/acre</u>
A) Revenue		
Crop Sales		-
60 bu/acre, \$2.00/bus + \$100.00/tonne freight (\$4.18/bu)	25,063.00	250.63
Other Crop Revenue		-
Total	\$ 25,063.00	\$ 250.63
B) Variable Costs		
Seed	1,900.00	19.00
Fertilizer	6,500.00	65.00
Chemicals	2,200.00	22.00
Crop Insurance Premiums		-
Trucking and Marketing	2,000.00	20.00
Fuel	2,000.00	20.00
Irrigation Expenses	2,500.00	25.00
Repairs - Machinery & Buildings	1,125.00	11.25
Utilities & Misc. Expenses		-
Custom Work & Specialized Labour	2,500.00	25.00
Operating Loan Interest		-
Paid Labour & Benefits		-
Unpaid Labour		-
Total	\$ 20,725.00	\$ 207.25
C) Fixed Costs		
Cash/Share Rent & Land Lease		-
Taxes, Water Rates, Insurance	500.00	5.00
Equipment & Building Depreciation	2,500.00	25.00
Equipment & Building Lease Payments		-
Paid Capital Interest		-
Total	\$ 3,000.00	\$ 30.00
D) Total Production Costs (B+C)	\$ 23,725.00	\$ 237.25
Net Income	\$ 1,338.00	\$ 13.38

Potatoes Enterprise Analysis

Unit Size: 10 acres

	<u>Total (\$)</u>	<u>\$/acre</u>
A) Revenue		
Crop Sales		-
5 tonnes/acre, 70% marketable @ \$0.75/kg (minimum)	26,250.00	2,625.00
Other Crop Revenue		-
Total	\$ 26,250.00	\$ 2,625.00
B) Variable Costs		
Seed & Establishment Costs	2,000.00	200.00
Fertilizer	2,000.00	200.00
Chemicals	1,750.00	175.00
Crop Insurance Premiums		-
Trucking and Marketing		-
Fuel	750.00	75.00
Irrigation Expenses	1,250.00	125.00
Repairs - Machinery & Buildings	850.00	85.00
Utilities & Misc. Expenses		-
Custom Work & Specialized Labour		-
Operating Loan Interest		-
Paid Labour & Benefits	4,000.00	400.00
Unpaid Labour		-
Washing & Grading	3,000.00	300.00
Total	\$ 15,600.00	\$ 1,560.00
C) Fixed Costs		
Cash/Share Rent & Land Lease		-
Taxes, Water Rates, Insurance	100	10.00
Equipment & Building Depreciation	500	50.00
Equipment & Building Lease Payments		-
Paid Capital Interest		-
Total	\$ 600.00	\$ 60.00
D) Total Production Costs (B+C)	\$ 16,200.00	\$ 1,620.00
Net Income	\$ 10,050.00	\$ 1,005.00

the anticipated demand for these products. In the meantime, YAA will continue to assess producers' needs and monitor the situation.

3.0 SUGGESTED MARKETING ACTIVITIES

This sectoral approach is incorporated in the YAA marketing activities suggested below. It is important to note that these activities are intended to take place over several years – at least three – to produce a sustained marketing effort. In most cases, the information described here can be reproduced on or adapted to the YAA website, which provides a continuous communications medium for the Association.

3.1 ALL SECTORS

Target	Strategic Objectives	Methods/Message
Producers	Increase awareness and knowledge of marketing techniques	<ul style="list-style-type: none"> ➤ Develop and offer four marketing workshop modules of 3 hours each; key topics include market planning, direct selling, pricing and grading, graphics and advertising, promotion, and publicity. ➤ Place a series of marketing articles in the newsletter. ➤ Share marketing experiences and information among producers through the newsletter, presentations, etc. ➤ At AGM and other meetings, update activities and involve members in market planning.
	Provide appropriate direct selling support	<ul style="list-style-type: none"> ➤ Improvements in direct selling are possible, and will increase sales. ➤ Plan and present a direct selling workshop. ➤ Develop a marketing theme and appropriate sales tools, e.g. labels, price tags, sign formats, display materials. ➤ Provide support and advice through a local advertising/graphic service (cost-shared?). ➤ Maintain a flexible approach; types of support and techniques may vary by region and sector.
	Explore and coordinate cooperative sales opportunities	<ul style="list-style-type: none"> ➤ Change the concept for the Farmers Market to one that offers a varied, fun marketing event ➤ Develop guidelines for producers' participation in cooperative ventures aimed at increasing the success of the venture.
	Promote uniform grading and pricing practices	<ul style="list-style-type: none"> ➤ Prices do not have to be the same for all producers, but they must relate to grades, quality and competition. ➤ Include information on pricing and grading practices in marketing workshops. ➤ Develop voluntary guidelines in this area through consensus of growers.

Target	Strategic Objectives	Methods/Message
Consumers	Promote a positive image of Yukon Grown products	<p><i>Key messages:</i></p> <ul style="list-style-type: none"> ➤ YGP's are fresh, healthy, superior quality. ➤ Producers are part of and contribute to your community. ➤ Buying is a fun experience: Farmers Market, Klondyke Harvest Fair, other events. <p><i>Methods:</i></p> <ul style="list-style-type: none"> ➤ Build on a Yukon Grown marketing theme to develop and maintain a graphic 'identity.' ➤ Distribute identity materials freely to producers; use them in all ads, events, etc. ➤ Upgrade the Farmers Market to reflect a varied, fun event. ➤ Carry out a media advertising campaign in the spring and summer months. ➤ Use profiles of local producers to help personalize the image/identity. ➤ Use publicity techniques to build exposure and awareness of the industry.

3.2 BEDDING PLANTS SECTOR

Target	Strategic Objectives	Methods/Message
Producers	As stated above, for All Sectors	
Consumers	Build awareness of local producers and services	<ul style="list-style-type: none"> ➤ Annual media advertising campaign in late winter/early spring; use ad agency to develop a campaign plan, ad layouts, placement, etc. ➤ Publicity (articles, interviews) to build awareness of producers, expertise, services
	Increase demand for local products and services	<ul style="list-style-type: none"> ➤ Move media advertising campaign from awareness phase to 'reasons to buy local.' ➤ Position local against outside products; emphasize advantages of quality, suitability for local growing, higher survival rate. ➤ Promote advance ordering to get a jump on imports, e.g. ads listing growers with advance ordering capability through mail order forms, e-mail, website ➤ Emphasize complete package of local goods and services, e.g. plants and shrubs, know-how, planting, landscape design and construction; prepare co-op ads and a series of info/rack cards with this theme. ➤ Use local "success stories" and testimonials to highlight use of local products & services.

Market gardens replacing the disappearing family farm

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Part-time plots surpass growth of U.S. agribusiness

STEPHANIE SIMON
Los Angeles Times
ST. LOUIS

These are not wheat-to-the-horizon farms. Not ranches penning in hundreds of cattle. They are small plots — one hectare, maybe two — where seeds are planted by hand and weed control depends on nothing more high-tech than a sturdy pair of gardening gloves.

But they are, nonetheless, farms. Family farms. And against the odds — against the devastating collapse of independent growers, against the incredible consolidation of American agriculture — they are thriving.

Thriving precisely because they're small, because they work the margins of the agricultural economy. They cannot replace the family farms that once checkered the heartland: the vast stretches of corn and beans, the noisy pens of hogs and cattle. Those farms could support a family. These can't. They bring in money for a new computer or a big vacation or maybe a second-hand car. Not more.

Still, for all their limitations, these vest-pocket farms are being hailed as a rare bright sign for U.S. agriculture. Nearly 15,700 small farms sprang up last year, according to a recent agricultural census. The boom was so dramatic that it more than offset the continued sag in the number of medium and large farms.

But more important than their numbers is their novel approach to agriculture. Small-scale farmers are making it by shunning the traditional commodities markets, by passing up the grain elevators and feedlots increasingly controlled by major agribusiness. They are selling their wares in-

stead directly to consumers, through farmers' markets or roadside stands or neighbour-

"Get enough of us going, and we'll supply a lot of the population with good, healthy food."

Rita Rash, pocket farmer

hood co-ops, through flyers advertising fresh, hormone-free beef in half-a-cow-size slabs.

Although they sell, by definition, less than \$10,000 worth of goods a year, small farms have provided a significant boost to rural economies. And they have a psychological effect as well: They prove that despite year after gloomy year of ag failures in the heartland, "people still want to farm," said Lynn Byczynski, who tracks the trend through her *Growing for Market* newsletter.

Rita and Daniel Rash hope she's right.

They both have "real" jobs — sit-at-a-desk-with-clean-fingernails jobs — with regular hours and regular paycheques. She's a tax consultant; he's a computer programmer. But both love the messy, sunburned, muscle-aching work of coaxing food from the soil. So three years ago, they started what they call a "market garden" — a small farm on a tiny plot of land they own in Excelsior Springs, in northwest Missouri.

The first two years, the Rashses earned less than \$500 US selling their organic squash and cucumbers to a local health food store.

This spring, however, they were confident enough to expand: They have 300 tomato plants, 200 lettuce seedlings, peppers and eggplant and even some flowers. Their spare bedroom has become a makeshift greenhouse. Lettuce carpets their basement. Starter plants huddle under heating blankets on an old bunk bed strung with fluorescent lights.

It's a shoestring operation, but 28-year-old Rita Rash proudly calls herself a farmer. And she fully expects to be tending the garden full time one day soon.

"Sure, we're not going to feed the state of Missouri," she said. "But get enough of us going, and we'll supply a lot of the population with good, healthy food. And we'll support the local economy."

In the meantime, adds Nebraska farmhand Bill Henkel, who has launched a small-scale poultry business that nets him maybe \$3,000 a year, "It gives a person hope that the big firms won't take over agriculture completely."

Rita Rash, raising squash for the local health food store, is no antidote to this tremendous consolidation in American agriculture.

Neither is Henkel, butchering 1,300 chickens a year.

Yet many rural analysts cite this backyard ag as a model for the family farm of the future. True, no one can make a living on less than \$10,000 in annual sales — and it is only this category of farm that shows growth. But by forging ties directly with consumers, these hobby farms are opening ever-bigger niches for independent growers.

Take Dave Mikus, whose family has grown grain in central Missouri for more than half a century. A dozen years ago, the Mikus family started a pumpkin patch for extra pocket money. They sold one pickup load the first year, a few more the second. They went to Disney World on the profits. Then they expanded. Did a little local advertising. And the pumpkin patch that brought in just \$400 the first year now yields up to \$20,000.

"You have the potential to get more profit out of (10 to 15 hectares) dealing directly with the consumer than you did with several hundred acres" on the traditional commodities market, said Charles Ellis, an ag outreach adviser for the University of Missouri.

