YUKON AGRICULTURE

1986/87

STATE OF THE INDUSTRY

Agriculture Canada
Research Branch

YUKON AGRICULTURE 1986-87

STATE OF THE INDUSTRY

prepared by

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Agriculture Development Series Report No. 4. Agriculture Canada, Land Resources Research Centre, Box 2703, Whitehorse, YT. April 1988

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ACKNOWLEDGEMENTS

As this annual report is composed of activities undertaken by government, private sector associations and private individuals, the preparation of it would have been impossible without the cooperation and contribution of many individuals.

The authors wish to thank Terry Hayward, John Ross and Andrew Cullen, Agriculture Development Branch, Agriculture Canada; Linda Eckart, Yukon Soil Survey Unit; Dale Cassidy, Farm Credit Corporation; Tammy Borgford, Lands Branch, Yukon Department of Community and Transportation Services; Darwin Wreggitt, Economic Development Office, Yukon Department of Economic Development; and Beth Hawking of the Wildlife Branch, Art Hutchison and Margaret Ames of the Agriculture Branch, and Mark Hoffman, Policy and Planning Branch, all of the Yukon Department of Renewable Resources; for their various assistance and contributions.

We also wish to acknowledge Kathy Bisset for her assistance in the preparation of the New Crop Development section; Al Heiland for his report on the activities of the Yukon Commercial Growers Cooperative; Al and Lynn Alcock for their contribution on the Yukon Livestock and Agricultural Association; and Tracy Boyd from the 4-H Yukon, Doug Whittington from the Yukon Beekeepers Society, Garry Trew from the Annie Lake Golf and Country Club who provided summary reports on the activities of their respective groups. We thank Jim Butler of the Whitehorse Star for providing access to newspaper reprint files on agriculture and weather.

Arlene Biggs of the Agriculture Branch, Yukon Department of Renewable Resources prepared figures and word processed the manuscript.

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SECTION 1.0 INTRODUCTION

This report is the third Yukon Agriculture annual report. The 1984 annual report was both an annual summary as well as a presentation of the Agriculture Industry and its development to that point in time. The 1985 report was an annual up-date on the State of the Industry. Due to workload pressures as well as staff changes it was not possible to publish an 1986 annual report, thus the State of the Industry report we are now presenting includes the calendar years 1986 and 1987.

Many changes have taken place since 1984 when the first report was published and we are very encouraged by the growth that is taking place in the agriculture industry. Agriculture is a small industry in the Yukon but it is a "determined industry" and is typified by people intent on success as well as pursuing a unique rural life-style.

It will become obvious as you read this report that there is a sincere and serious government commitment to agriculture. This is evidenced both by the dollars allocated to the industry as well as the number of programs and support being offered.

However, it is recognized that some things are still lacking. There is still a need to develop a Agriculture Policy as well as put into place the necessary regulations that will enhance and help develop various segments of the industry. All of these things are now being dealt with by both government and industry and it is hoped that in the near future Yukon farmers will have the necessary guidelines, framework, and infrastructure necessary to make it possible to expand their operations, or expand into other areas of production.

This report is divided into five main sections, Section 2 is a brief narrative on the uniqueness of Yukon agriculture; Section 3 deals with governmental agriculture initiatives both federal and territorial while

Section 4 lists private agriculture initiatives. Section 5 details the Economic Development Agreement which has had a significant effect on agricultural development in the territory. Section 6 is an update on land dispositions showing the most recent trends. Section 7 presents research and development projects and programs, which includes both the Agriculture Branch activities as well as the New Crop Development Program being carried out by the Yukon Livestock and Agricultural Association. Section 8 is of particular interest because it is a summary of interesting articles taken from local newspapers dealing with agricultural concerns and issues. Section 9 summarizes the more pertinent data presented in the report and acts as a quick reference on the state of the industry up to the end of the 1987 calendar year.

Monthly weather reviews are presented in two appendixes at the end of this report. A list of publications on Yukon Agriculture prepared during the last two years is given in Appendix III, these are available from the Agriculture Branch office. A listing of agricultural associations, with contact names and telephone numbers is included.

SECTION 2.0 YUKON AGRICULTURE - a Unique Resource

Agriculture in the Yukon is unique by its very existence in such a northern location. To understand what makes it unique, one must take a look at what typifies Yukon agriculture and why agriculture exists here at all.

What is Yukon Agriculture? It is an attempt at import substitution for Yukon residents in order to provide them with some locally grown fresh agricultural products. The industry is typified by very diverse ventures; different types of farming include the production of sod, bean sprouts, market gardening, fruit, native grasses, elk, reindeer, swine, poultry, sheep, cattle, berries, grains, forage crops and honey. These ventures in diverse agricultural endeavors show an expression of individuality not seen in other agricultural areas. Farmers in the Yukon are not bound by agricultural traditions or influenced by what others are doing around them. This diversity is also a result of the early stage of agricultural development in the Yukon. The industry as a whole is still not certain what agricultural ventures will be profitable at this point. However, Yukon agriculture still has to grow significantly to fill the domestic market. This also makes it unique, as this cannot be said for many other agricultural areas in the world. The farms in the Yukon also tend to be small and isolated; there are no continuous farming areas but instead small pockets of agricultural development. At this stage then, it is easy to see why many of the farms also operate with a very low level of services. It is common for a Yukon farm to have poor road access and no power, water and sewer facilities. This obviously dictates a certain lifestyle, and leads one to the conclusion that the people who are involved in Yukon agriculture are a special type of people. They are hardy, rugged individualists who are involved in agriculture for the lifestyle it offers as well as the business.

With all the hurdles posed during the development of agriculture, one also has to wonder why agriculture is being developed at all in the north. We have a short growing season of less than 100 days, growing season

precipitation is low, soils are in many places nutrient deficient, the terrain is mountainous, there is no infrastructure for the agriculture industry, and we don't know yet what practices will work here. Bringing agricultural products into the north for our own consumption means that they will be expensive and no longer fresh, however, growing products ourselves may not be any cheaper but they will be fresher. It will also diversify our economy which has been traditionally dependent on the mining industry. Agriculture is an untapped renewable resource in the Yukon.

The smallness of Yukon Agriculture is depicted in Figure 2.1. As of 1987 there was a total of less than 2,000 ha of cultivated land in the territory. Most of this land is located in the Yukon and Takhini River valleys outside Whitehorse, but development is also occurring sporadically throughout central and southwest Yukon.

Information based on a recent survey on the current size, scope and activities of the industry is presented in Table 5.1. Summary data on aspects of land and economic development associated with this unique resource are discussed in the summary section of the report and listed in Table 9.1 for quick reference.

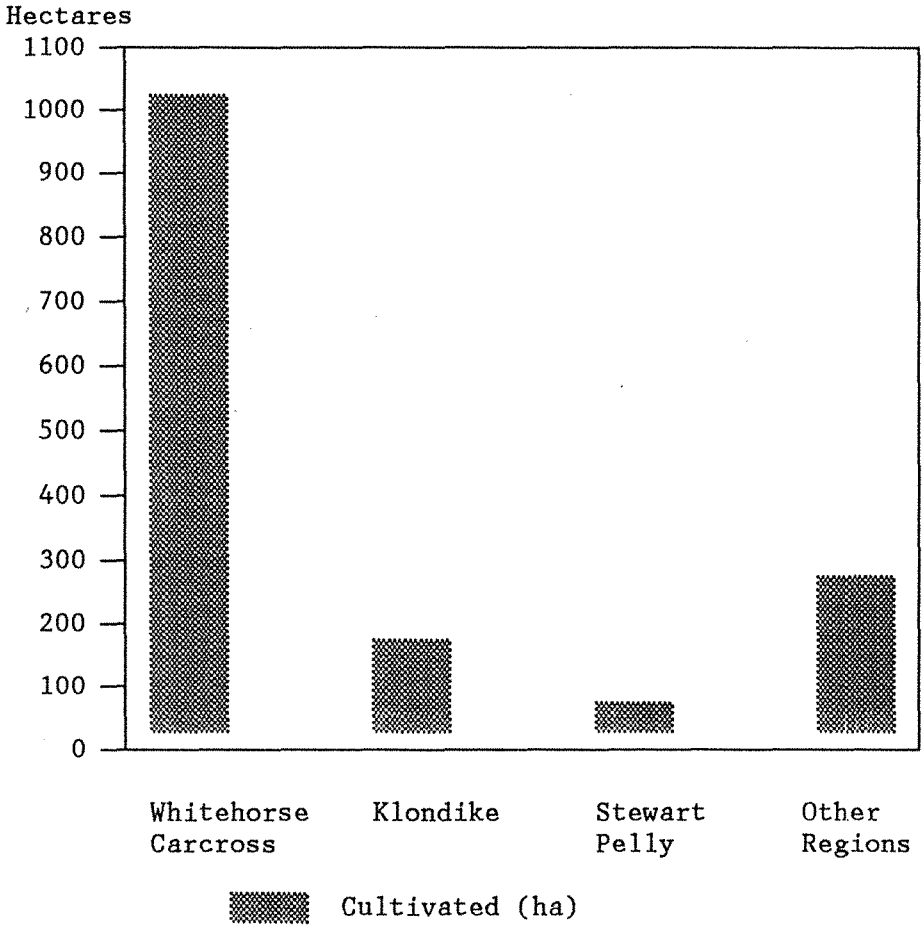

Figure 2.1 Areas of cultivated land in the Yukon during the 1987 growing season, organised by region.

SECTION 3.0 GOVERNMENT AGRICULTURAL INITIATIVES

The development of the Agricultural Industry in the Yukon reflects the initiative of governments, associations and individuals. This section updates some of the 1986-1987 agricultural activities and outlines the objectives and developments of recent projects.

3.1 Agriculture Branch, Yukon Department of Renewable Resources

The main areas of work in the Agriculture Branch of the Department of Renewable Resources covers extension services, research projects and policy development. A description of the work done in these areas will follow a brief presentation of the staff.

3.1.1 The Staff

Mr. David Beckman has held the position of Director since October 5th, 1987. Mr. Beckman moved from northern Alberta where he worked for the Alberta Agriculture Development Corporation (a Farm Lender). He also worked as a District Agriculturist for several years in Alberta, and spent five years working on Agriculture Development projects in Africa.

The director of the Agriculture Branch is assisted by an Agriculture Development Officer (Art Hutchison) and a secretary (Arlene Biggs) and the auxiliary position of Crops Demonstrator (Margaret Ames).

The Agriculture Development Officer is responsible for the management reviews stemming from land applications. He also spends time advising farmers, and acts as a liaison with the Prairie Farm Rehabilitation Administration (PFRA) and the Farm Credit Corporation (FCC) on their twice yearly visits. He is involved with the Agricultural Planning Advisory Committee (APAC) and the Canada Plan Service.

The Crops Demonstrator is involved with the research and development aspects of the Agriculture Branch.

3.1.2 Extension Services

The extension services offered by the Agriculture Branch assist producers in assessing their input needs such as: seed, fertilizer, pesticides, irrigation, finances, and equipment. As well, the Branch helps producers with marketing.

The Agriculture Branch provides an information and education resource. The Branch has been compiling information on many aspects of agriculture and they now have over 400 pamphlets available to the public. They also have over 100 blueprints available from the Canada Plan Service on a wide range of agricultural building needs, ranging from barns to corrals and fencing, etc. These plans have been designed and compiled by a committee of agricultural engineers from across Canada.

Beginning this year, a quarterly Newsletter is published by the Agriculture Branch. Articles deal with the various services of the Branch, technical information, as well as recent results in research and development which are relevant to Yukon conditions.

The Agriculture Branch staff also compiled, and edited a Garden Handbook. It presents up-to-date information on agricultural production in the Yukon. This handbook is now be available through the Agriculture Branch.

3.1.3 Research Projects

The Agriculture Branch informally accumulates data by covering the costs of soil testing with the aim of gaining insight into local conditions and assisting local producers. The soil testing indicates nutrient deficiencies and in some regions salinity problems. Nitrogen is often deficient, due to cold soil

temperatures and dry climate contributing to slow organic matter decomposition. Deficiencies of the micro-nutrients, zinc and boron occur often, producing a negative effect on plant growth. The Branch can instruct producers on how to take soil samples for lab analysis, interpret results and give fertilizer recommendations.

The Agriculture Branch is also involved with more formal types of research that include the New Crop Development Program (NCDP), forage trials, local cereal trials, horticultural trials and herbicide trials. The Branch acts as the technical advisor for the New Crop Development Program and provides extra manpower when needed, especially at seeding and harvest time. The Forage trials are a joint project between the Agriculture Branch and the local Agriculture Canada Soil Survey Unit. A review of these trials is presented in Section 7. The Agriculture Branch is attempting to develop management recommendations for local forage conditions through this research.

3.1.4 Policy Development for Agriculture

The Agriculture Branch, works in close cooperation with the Yukon Livestock and Agricultural Association and the Agricultural Planning Advisory Committee, in developing policies and regulations that will stimulate and enhance the growth of agriculture in the Yukon.

3.2 **Agriculture Planning Advisory Committee (APAC)**

The Agricultural Planning Advisory Committee (APAC) has been in place since 1984. Its main function is to advise the Minister of Renewable Resources on agricultural matters. To ensure the participation of the public three of the six members of APAC are appointed by the industry. The Yukon Livestock Agriculture Association (YLAA) recommends the industry representatives that are to serve on the Committee. The other three members are appointed by the Minister.

In 1986-1987, APAC was extremely busy with various policies and regulations needed for the agriculture community. The following point

form summary lists what was proposed, discussed and completed in the 1986-1987 APAC annual report.

Proposed:
- Livestock control and containment regulations
- Taxation and zoning regulations and appointment of a committee for public input.
- A Canada Plan Service to be located in Yukon for the Agricultural community.
- Appeal Board Regulations to be developed for the Agriculture Products Act.
- Circumpolar Agricultural Conference for "North of 60"
- Meat and Abattoir Regulations to be developed for Yukon farmers under the Agriculture Products Act.
- Grazing Policy to be developed for Yukon

Input Requested:
- Game Farming and Ranching Study for Yukon

Taxation & Zoning:
- APAC's recommendations presented to the Minister

Completed:
- Veterinarians contacted, transportation approved with EDA.
- Meat Regulations for Yukon agreed and recommended to the Minister, to be incorporated into Agriculture Products Act.
- APAC sent recommendations to the Minister on the Game Farming Study.
- Grazing lease policy discussed and recommendations forwarded to the Minister through Renewable Resource
- Pounds Act discussed and recommendations sent to Minister regarding livestock control.
- Wildlife conflicts study discussed and recommendations sent to Minister.
- Agriculture Products Act
- Appeal Board Regulations discussed - recommendations forwarded to Minister

3.3 Agriculture Canada

In Canada, the services and programs related to the agriculture and food industry are many and varied. Special needs arise from the country's size, the variations in climate and soils, and the federal system, which apportions agricultural responsibilities between the federal, territorial and provincial governments. Agriculture Canada, a Federal agency, is responsible for programs and services dealing with the agri-food issues most appropriately dealt with from a national perspective.

3.3.1 Agriculture Development Branch

- Participation with the Agriculture Branch and the Yukon Livestock and Agricultural Association in the second and third year of a New Crop Development Project;
- Participation with the Yukon Livestock and Agricultural Association in the production of an Agricultural Productivity and Marketing Survey funded under the Canada/Yukon Northern Economic Development Agreement (see Economic Development Agreement projects, Section 5.1;
- Consultation and cooperation with the Department of Renewable Resources and individual producers;
- Participation with the Department of Renewable Resources Agriculture Branch in establishing a Canada Plan Service office in the Yukon (1986);
- Provision of an agricultural summer student position in the Yukon to work with and assist the Agriculture Branch in its work (1986).

This commitment to the growth and development of the Yukon agri-food industry will continue in 1988. Agriculture Canada looks forward to once again working with the Yukon Territorial Government and the Yukon Agricultural community.

3.3.2 Research Branch - Yukon Soil Survey Unit

Agriculture Canada's Yukon Soil Survey Unit coordinates soil mapping projects in the territory and undertakes cooperative research on various aspects of Yukon's soil resources. The Unit provides a quality control function to insure that soils information collected and published in the territory is of the same standard as that produced elsewhere in Canada.

Detailed soil maps showing agricultural capabilities and residential suitabilities have been prepared for the Takhini (Hootalinqua North Plannng area) and Klondike valleys. Mapping at a scale of 1:20,000 now exists for a total of 70,000 ha in these valleys. Additional coverage includes the Mayo Road as far north as Deep Creek in the Whitehorse area and the Sunnydale area west of Dawson. These maps replace the general reconnaissance maps produced in 1977 and are available for public viewing at the Agriculture Branch office. Both projects were expedited by partial funding support from the Renewable Resources Sub-agreement of the Economic Development Agreement.

The Soil Survey Unit also co-hosted an international tour of geologists and soil scientists in July 1987. One of the stops on the tour was the Drury Farm on the Alaska Highway. Various research plots have been located there for four years and the tour participants were able to see the results of some of this work. The tour ended at Old Crow where many fossils of prehistoric mammals have been found. Many of the participants were European and found the Yukon landscapes and geology to be fascinating. Copies of the guidebook prepared for this tour of Yukon Quaternary history can be purchased at the Canada Map office at 200 Range Road, Whitehorse.

3.3.3. Prairie Farm Rehabilitation Administration

Since 1985, the Prairie Farm Rehabilitation Administration (PFRA) has assisted the Yukon Department of Renewable Resources,

Agriculture Branch, in providing technical assistance to local farmers wanting to develop irrigation and other water resource projects.

The items most frequently discussed to date have included: irrigation systems, storage reservoirs, land clearing, saline soil management, water conveyance systems and well development.

The PFRA made twice yearly visits to Yukon during 1986 and 1987, averaging about 30 farm visits per year. The two field crews sought to meet with as many farmers as possible to discuss individual concerns and proposed projects. The crews were comprised of one member from PFRA`s Soil and Water Conservation Service, and another from the Engineering Service, and offered a broad range of expertise in matters relating to irrigation, water storage, soil conservation, and project design and management.

Where projects were of a more complex nature, and questions could not be answered during the visit, site data such as field surveys and water samples were obtained to assist in follow-up design work carried out at PFRA's regional engineering office in Calgary. General information, technical recommendations, designs, plans and cost estimates have been forwarded to over 20 Yukoners in the past two years.

3.4 **Farm Credit Corporation**

The Farm Credit Corporation (FCC) was established in 1959 as a Crown agency reporting to Parliament through the Federal Minister of Agriculture. Its role is to provide financial services to enable Canadian farmers to establish, develop and maintain viable agricultural enterprises.

In the Yukon, the value of annual agricultural production is estimated at somewhere between $1.0 - $2.0 million, which is a small but significant contribution to the total economy of the area.

The Farm Credit Corporation can contribute to increasing the value of agricultural production in the Yukon, by assisting individuals with the potential to intensify, expand, or establish new operations through long term financing. Production from new operations will help replace food products that are currently imported to the Yukon.

In addition to expanding production in the traditional areas of agriculture such as the production of vegetables, cereal crops, livestock and livestock products, the Corporation will also consider financing new technology and enterprises that are suitable to the area. The demand for farm supplies, materials and equipment is increased by increasing the number of producers and/or size of operation, where practical and economically feasible to do so. This increased demand for infrastructure services should ultimately result in a lower per unit cost for these supplies and services.

Over the past four years the Corporation has approved loans in the amount of $656,000.00 for the Yukon. This sum only represents the Corporation's total loan approvals and does not include the applicant's contributions or other sources of funding by public and private institutions, primarily the Yukon Economic Development Fund. The average size loan to date is $50,500.00. It is anticipated that the majority of those loans approved will become successful operations.

3.5 Economic Development Agreement (EDA) - Overview of Projects

Economic Development Agreement is a $21.7 million agreement between the Federal government and the Yukon Territorial Government. The main goals of EDA are to expand, diversify and stabilize the Yukon economy as well as to improve the skills and abilities of Yukoners.

Assistance is offered under two types of programs. One promotes feasibility studies and resource inventory and the other conducts pilot or demonstration projects to prove the viability of local resource based industries.

Funding occurs through five subsidiary agreements. Agriculture is included in the Renewable Resources Subsidiary Agreement responsible for allotting funds of up to $4.12 million.

To the end of 1987, EDA funding had been approved for twenty-five projects in agriculture for a total amount of $848,781.00. A brief up-to-date account of these projects are shown in Table 3.1. This agreement has had a major impact on the development of the industry. Section 5 of the report describes the results of many of the projects.

TABLE 3.1

PROJECTS APPROVED FOR ECONOMIC DEVELOPMENT AGREEMENT FUNDING

TO	FOR	AMOUNT
Al Heiland	hydroponic greenhouse food production	$93,777
Aurora Herbs & Spices	feasibility study of greenhouse production of herbs and spices	5,774
Al Falle	feasibility study of local sod production	83,500
Chick-a-bee	feasibility study of egg production unit	76,952
Al Hodgson	to construct a solar-powered irrigation system	13,000
Mayo Indian Band	feasibility study of growing native berries and new fruits	27,500
Decora Landscaping	test native grasses for future reseeding projects	15,368
Pidborochynski & Gregory	establish a herd of 45 reindeer for tourism and meat sales	53,040
Appropriate technology	demonstration of high technology greenhouse	30,240
Decora Landscaping	seminar on natural grass production	3,500
Government of Yukon	game ranching study	66,140

TABLE 3.1 (continued)

TO	FOR	AMOUNT
Government of Yukon (Klondike Valley Planning Association	soil survey of the Dawson City area	$29,000
Government of Yukon	study of forage production of natural grassland	28,000
Government of Yukon	travel costs for prospective veterinarians	5,000
Ike Penner	fencing for elk herd	40,870
Northern Splendor	fencing and veterinary costs for reindeer herd	50,000
Yukon Beekeepers Association	sponsorship of course on beekeeping	5,320
Yukon Livestock and Agricultural Association	Yukon agricultural production and marketing study	12,885
Agriculture Canada	soil survey of Whitehorse area	64,200
Bartsch Enterprises	feasibility of mushroom production	27,000
Bryn Mryddin Farm	demonstration of sheep farm viability	62,775
Decora Landscaping	production of native seed stocks	119,012
Roland & Mary Girouard	demonstration of warm water irrigation feasibility	20,951
Klondike Agriculture Association	horticulture seminar	316
Stan Naylor	root cellar demonstration project	9,450
John & Yvonne Schuffels	feasibility demonstration of "plasticulture" irrigation	50,405
Gordon Toole	feasibility assessment of frost fogging and irrigation	15,900
Yukon Gardens	demonstration of fruit propagation	27,240
Yukon Livestock and Agricultural Association	provision of veterinary extension services	3,546
Yukon Livestock and Agricultural Association	survey of agricultural industry	25,370

SECTION 4.0 PRIVATE AGRICULTURAL INITIATIVES

4.1 Yukon Livestock and Agricultural Association (YLAA)

New committees for the Whitehorse Chapter were formed after the Annual General meeting in March, to enable more detailed information exchange in the livestock, forage, and market garden sectors of the industry. Agricultural Planning Advisory Committee meetings were held with Government representatives on issues such as land availability, land claims negotiations, grazing policy, game farming/ranching, livestock control, and the urgent requirement for meat inspection regulations and slaughter house facilities. The president or executive members also attended all of the Yukon 2000 meetings called by the Government in the planning of Yukon's economic future.

Through a contract funded by an Economic Development Agreement grant the YLAA conducted an agricultural information survey throughout the territory in 1987, to establish a base for future planning. YLAA provided input on agricultural matters such as game farming, dairy farming, tax reform and import substitution to various consultants.

The Farmers Markets in Whitehorse and Mayo were a great success 1987. They are becoming an established event in both communities and will continue to serve Yukoners and tourists alike in the coming year.

"Plowboy News", a newsletter to inform the public about Yukon Agriculture, was printed in the Economic News, a government publication, and distributed throughout the Yukon. More agricultural articles have been requested by the Economic News in 1988 and these will be provided by the "Plowboy News" committee.

1987 was the third and final year of the New Crop Development Program. It was a very successful year, with favourable comments from the

Agriculture Canada representative who attended the Field Days at all the sites. The information gathered from this research will be beneficial to established and future farmers. (see section 8)

The industry also received more recognition from "Outside" with the request by CBC's Country Canada to do a feature on Yukon Agriculture. The crew came up in August with the program aired in November.

The Association will continue to actively participate in activities to encourage and increase the agricultural industry in Yukon and cooperate whenever possible with the Government to reach this end. The Association appreciates whatever assistance is offered from the Agriculture Branch and other government agencies.

4.2 Commercial Growers Cooperative

The Commercial Growers Cooperative formed with the Yukon Livestock Agricultural Association, had a very busy year in 1987 organizing and setting up its program for the future. Its approach is to gather together the commercial growers in the Whitehorse area to share information and ideas to further commercial market gardening.

Fertilizer and mulch trials were conducted in four locations with the assistance of the Agriculture Branch. Broccoli and potatoes were used as crops for these tests. Temperature probes were inserted in the soil to record the effect of these mulches on soil temperature. The trials indicated higher yields using mulches, and testing will continue in 1988.

A feasibility study to determine the economics of a vegetable storage facility has been accepted for funding through EDA. The study is to be completed by June 1988, and should provide very valuable information regarding the future of commercial gardening.

The next growing season (1989) will be planned through the winter. Crop selection and acreage to be planted, will, hopefully avoid oversupply of certain vegetables.

4.3 Yukon Beekeepers Society

Beekeeping skills in the Yukon have improved tremendously over the last few years. Beekeeping is done on a very small scale in the Yukon, with approximately eighty to one hundred hives producing an estimated 2000 - 3000 kgs in total. Some colonies have produced 50 kgs or better.

The growing season is quite short, rainfall is limited and the soils are such, that with the exception of a few areas such as Pelly River Basin, Mayo, Dawson City areas and possibly some areas in the South Yukon, there appears to be limited economic potential for honey production.

With a population of approximately 25,000 people and a large tourist trade, the Yukon could quite likely support many times the number of bee colonies it now has. The average Canadian consumes 1 kg of honey annually. A number of people use honey sales to supplement their income.

Beekeeping will quite likely remain as a hobby or sideline in the Yukon. Keeping bees as a total source of income is not plausible, especially considering the low present price of honey produced elsewhere in Canada, where geographic and climatic conditions are much more favourable for honey production. However, bees do provide some positive benefits to Yukoners in the good grade of honey produced, as well as the pleasure and satisfaction of producing it. The pollination provided by the bees helps other types of crops which are being developed in the Yukon.

Yukon beekeepers are a well organized, very enthusiastic group of people. The Yukon Beekeepers Society has approximately 40 members throughout Yukon communities. The society assists honey producers with any help and background information necessary for honey production. They are also concerned with maximizing production, not only for individual producers but also for the entire Yukon. There are three major concerns: developing suitable forage, selecting the best strain of bees for the Yukon, and high production costs.

The main concern for beekeepers in the Yukon is a suitable forage crop for the bees. Depending on weather, the wildflower (fireweed) season is often very short which can dramatically affect honey flow. The society is working to establish test trials on forages to improve honey production in the Yukon. They have agreements with YTG Lands Branch on reclamation sites, a local farmer, and the Agriculture Branch to test three forages. The forages to be tested will be sweet clover, white clover and sainfoin.

The strain of bees that is being tried from the Beaverlodge Research Station is the Alberta Bee. This bee was developed from a strain of wild bee with the intent of producing queens better suited for northern climates. The society reports that generally, the number of bees per hive was much higher with the Alberta Bee, but that honey production varied widely. Results are still inconclusive.

The other concern for beekeepers in the Yukon is the high cost of honey production. The society is attempting to bring the cost down by purchasing sugar in bulk to feed the bees.

In 1987, the Beekeeper's Society also arranged for a Beekeeper's course to be held locally. This was taught by Fairview College with assistance from Yukon College and EDA funding. The first session was presented in May. Twenty-five people received ten hours of instruction in the theory of beekeeping. In May, the Fairview College staff delivered eighty packages of bees and related equipment and visited beekeepers. With the discovery of American Foul Brood in some hives, an additional short evening course on bee diseases was given in June. A field day with demonstrations of re-queening, disease inspection, pollen collection and honey harvesting was given in July.

4.4 4-H Yukon

The 4-H program attempts to give its' members guidance and teach leadership qualities and responsibility through 4-H activities. Members meet every two weeks, year round. The 4-H operates out of Whitehorse with 2 horse clubs, a junior club and and a senior club. Summer activities include riding lessons, cross country fun rides and horse jumping.

Events in 1987 included participation in the activities of the Yukon Horseman's Association, a trip to Wasilla, Alaska for a three day clinic, and representation at the South East Alaska State Fair in Haines, Alaska, where the club qualified for its' first silver medal. Also, local families sponsored by the Royal Bank, played host to three Travel West Students from Saskatchewan. A senior member represented 4-H Yukon at the Pacific National Exhibition in August. The senior leader attended a leadership training program in Naramata, B.C. Two local 4-H members are presently enrolled at Old College in Alberta, completing a two year program in the equine field.

SECTION 5.0 ECONOMIC DEVELOPMENT AGREEMENT:
Funded Projects Related to Agriculture

The following sections describe the results of many of the agriculture projects outlined in section 3.5. They are organized according to the nature of the project.

5.1 Survey of Yukon's Agricultural Industry

This study conducted under contract to the YLAA, was designed to provide information on existing agricultural production, as well as the scope and extent of the industry throughout the territory.

Table 5.1 is a condensed summary adapted from the census report compiled during July and August 1987. These figures may not be totally accurate nor comprehensive in scope (some greenhouse products are not included) but they do reflect the overall holdings of the Yukon agriculture industry in 1987.

There were just under 200 land holdings which were recorded as either full or part-time farming operations. There are approximately 12,000 ha of land in the territory utilized for agriculture-related uses, but only a small proportion of these lands (approximately 1,600 ha) are in crop production. Much of this agricultural land is presently undergoing development and it is expected that the ratio of cultivated to uncultivated land will increase as the industry matures.

The total value of product for the territory is listed as $364,000. However, this is only off-farm sales and does not reflect the significant product value that is consumed on-farm. We estimate that a total value of production, expressed in terms of replacement value, exceeds $1,000,000.

As clearing and development proceed, there is significant cost recovery for some operators through sale of forest materials either as firewood, rough-cut lumber or fence posts. These products made up nearly a quarter of the total product value of the industry.

Presently the industry is concentrated in the Whitehorse-Carcross area in the southwest Yukon. Major markets are close and off-farm employment is most accessible in this region. It would appear there is opportunity for the industry to develop in some of the climatically more productive valley systems of central and southeastern Yukon.

5.2 **Agriculture Business Development Projects**

5.2.1 A Hydroponic Greenhouse at Heiland Farms Limited

During 1987 the production of alfalfa and bean sprouts increased at Heiland Farms. A new blend of mixed sprouts was also introduced to the market, which was well received by the consumer. Two new products were tested and should be marketed next year.

The hydroponic greenhouse was started up in the fall, and the first crop of lettuce was harvested in December. Production should steadily increase over the next few months. The first winter in production showed encouraging results and confirmed the feasibility of growing certain types of vegetables during winter. Variety trials are being conducted to determine the best variety to sow and at what time of the year to use them.

This coming year will see further variety trails, evaluation of new heat and light systems, and testing of new growing systems.

5.2.2 A Cage Laying System for the Production of Eggs at Chick-a-bee Farm

The project is to build a cage laying system for the production of eggs. The exterior of the barn has been completed and the interior was mostly insulated and finished before October 1987. A brooding pen has been established on location.

Table 5.1 A summary of size and scope of Yukon's Agriculture Industry based on findings of the 1987 survey.

	YUKON TOTAL	WHITEHORSE CARCROSS	KLONDIKE	STEWART PELLY	OTHER REGIONS
No. Farms Reported	198	116	23	14	45
Land (acres)	30,511	18,212	1,728	3,272	7,299
(hectares)	12,347	7,370	699	1,324	2,954
Total Crop (acres)	3,977	2,581	381	253	762
(hectares)	1,609	1,044	154	102	308
Chickens	9,613	7,026	984	930	673
Cattle	241	57	29	83	72
Hogs	144	75	15	18	36
Sheep	70	67	0	0	3
Horses	992	370	22	23	577
Goats	70	47	0	14	9
Rabbits	835	704	50	24	57
Bee Hives	32	30	0	0	2
Total Value (,000$)					
Machinery	3,967	2,690	255	194	828
Land/Buildings	24,578	15,952	2,196	1,215	5,215
Total Product Sold (,000$)					
Forest	364	179	62	38	85
Agriculture	97	59	20	3	15

Eggs produced at Chick-a-bee Farm have been on the market since December 1986. More than 1300 laying chickens are producing 540 dozen eggs per week at a price slightly higher than imported eggs.

5.2.3 Northern Splendor Reindeer Farm by Stella Pidborochynski and Tim Gregory

The project started in September 1986, with the fencing of the main holding areas. In February 1987, the managers of the farm went to Tuktoyaktuk to get the reindeer. The change of diet killed a few animals, but this was compensated by the fact that the reindeer cows delivered fourteen calves in April and May. The rut season seemed to be a success but it will be confirmed only in April of 1988, when the cows will deliver calves.

5.2.4 Sourdough Sodbusters, Sod Farm by Al Falle

Despite the irreversible damage inflicted on part of the sod farm by stray horses in the spring, 1987 was a very successful year. Five full-time employees are kept busy during the season fertilizing, irrigating, mowing, cutting and delivering the sod to both local and regional destinations. The product has been well accepted by the market and costs the homeowner an average of $250.00 to lay a 1000 ft^2 lawn.

5.2.5 Circle P Elk Farm by Ike Penner

Ike Penner has a contract for managing the Government Elk Herd.

Due to the late date at which the elk project was approved, construction of the elk facilities carried on through the winter, spring and summer of 1987. Although the facilities are adequate for sorting, drenching, velvetting, etc., modifications will continue until optimum efficiency and ease in handling the herd are reached.

Another fifty acres were fenced in 1987, including twenty-two acres of oats. This brings the total available elk pasture to approximately two hundred and fifty acres.

A feed bin (8'x 8'x 12' high) was constructed to hold the milled brome hay. Sending the hay through the hammer mill increased the utilization of hay by inproving the ease of digestion.

With the help of Renewable Resources personnel, twelve male elk were velvetted. Since some bucks were not quite ready for velvetting and some were past the prime stage, the prices for the velvet were lower than expected.

5.3 **Feasibility and Demonstration Studies**

5.3.1 Solar Powered Irrigation System by Al Hodgson

This project consists of providing irrigation water to a market garden located at Little Atlin Lake.

The pump is run by an electric motor which derives power from a battery bank recharged by solar panels. In addition, a tracking device permits the solar panels to track the sun which increases the efficiency of the panels. Fertilizer can be applied to the fields via the irrigation system (fertigation). The system was completed in the spring of 1987 and was successfully operated during that summer.

5.3.2 Study into Growing Native Berries and New Fruits by Mayo Indian Band

The project studied the productivity of small native fruits and the feasibility of introducing proven varieties of hardy berries and trees into the area.

The main conclusions of the 1986 report were that the Mayo area is capable of producing both berries and fruits but a better knowledge of the soil and proper selection of strains would improve production. In 1987, new species were planted to replace those that didn't survive. Work began on an irrigation system.

Figure 5.1 Yukon Government Leader Tony Penikett along with Stella Pidborochynski and Tim Gregory of Northern Splendor feed the territory's only reindeer herd. The animals were shipped from Tukoyuktuk, N.W.T. in February 1987.

Figure 5.2 Al Heiland of Heiland Farms in Whitehorse displays a crop of lettuce grown in his hydroponic greenhouse. He is able to produce lettuce year-round. Depending on the season, the crop takes 5 to 8 weeks from the time of seeding to harvest.

5.3.3 Frost Fogging and Irrigation by Gordon Toole

The project was to demonstrate the feasibility of using a combined frost protection and irrigation system in market gardening near Watson Lake. The two major obstacles to vegetable growth in Watson Lake are the low rainfall and the early frost damage.

A sprinkler type system operating under relatively high pressure was installed to supply adequate moisture and prevent frost damage. During the 1987 summer, the irrigation system was not required once for moisture because of the extremely wet and cold summer and fall. The system was used to prevent frosting on several nights, but had to be discontinued towards the end of August, because the ground became quite saturated due to the wet season.

Root vegetables (carrots, beets, turnips) did poorly because of the colder than normal season, but the potato crop did well and certainly showed the worth of the system. Results should be better under a normal drier season.

5.3.4 Warm Water Irrigation System by Roland and Mary Girouard

The project is to construct a reservoir and install an irrigation system using warmed water instead of cold river water, and compare the productivity in each case.

The study was done on potatoes, a root crop; cabbage, a cole crop; peas, a legume crop, and oats, a forage crop. The numerical results were inconclusive for the growing season of 1987, but observation showed some beneficial effects of warmed water.

5.3.5 Demonstration of Sheep Farm Viability by Bryn Mryddin Farm

The project attempts to demonstrate that a sheep farm can be a self-sustaining agricultural occupation in the Yukon. The farm presently has 40 pregnant sheep and 15 rams of which 13 are for red meat sales. In the near future, the farm owner hopes to produce a dall/domestic cross-bred in an interesting breeding project.

5.3.6 Plasticulture Project by John and Yvonne Schuffels

This project intends to demonstrate the effectiveness of plastic technology for market gardening in the Yukon. It attempts to demonstrate that the problems of wind, rain storage, and frost can be overcome using plastic technology. It also attempts to demonstrate the economic viability of market gardening in the Yukon. This project was started in the fall of 1987 and should be completed in November, 1988.

5.3.7 Yukon Mushroom Farm Potential by Bartsch Enterprises

This project examined the feasibility of developing a mushroom farm in a specific building located in Faro. The results were presented in two parts. The first presented the results of the analysis and recommendations and the second part contained the financial analysis and strategy.

The analysis concluded that there is a viable market, and that Yukon wholesalers, distributors, and retailers are interested in high quality and cost competitive local mushrooms. The most critical aspects would be to identify the type of vegetable raw material to produce the best compost. Also, a composting barn was recommended because of the complexities of composting, and the fluctuating northern environmental conditions. The economic challenge would be to operate through the first four years, after which a positive financial position would be expected.

5.4 **Technical Studies**

5.4.1 Fruit Propagation Study by Yukon Gardens

A study on the propagation of fruit plants in the Yukon will help to determine which fruit plants and technologies should be applied to fruit propagation in the Yukon.

The Yukon Gardens took on a new look during the first full year of operation. In 1987, it produced vegetables and a good variety of

berries for show and sale. New exhibits and construction, as well as a massive fruit research program are planned in the next year's projects.

5.4.2 Seed Nursery Development by Decora Landscaping

This project consists of the propagation of indigenous seed for revegetation purposes at latitudes similar to those of the Yukon Territory.

In 1986 assistance was provided to conduct a market potential survey and set up a selection nursery at Circle D Ranch.

In 1987 the breeder's plots were established with seed donated from M. Vaartnou and Associates. Equipment necessary to grow and harvest seed was purchased through the assistance of the Yukon Economic Development Agreement.

5.4.3 High Technology Greenhouse by Appropriate Technology

The project will demonstrate the effectiveness of using high technology insulation and heat storage methods on commercial greenhousing in a northern environment. It will attempt to compare this technology with standard greenhousing. The first part of the construction was done in 1987.

5.4.4 Study of Forage Production of Natural Grassland
by the Wildlife Branch

The focus of the project is to determine how much forage is produced per year from natural ranges, such as dry meadows, wet meadows, sedge communities, and how this productivity could be enhanced by simple manipulation techniques. Two reports were presented in December 1986; one a literature review and the second a summary of progress made in relation to site selection.

5.4.5 Soil Survey Projects by Agriculture Canada/YTG

Two soil surveys, conducted by private contractors and coordinated by Agriculture Canada were completed in 1987. Soil maps providing information on agricultural capability and residential suitability were produced for the Klondike and Hootalinqua North planning areas.

5.5 Other Projects

5.5.1 Mountain View Golf Course by Annie Lake Golf and Country Club

The Annie Lake Golf and Country Club opened the new Mountain View Golf Course to public use on August 2nd, 1987, and continues to operate the old Annie Lake Golf Course.

During the summers of 1986 and 1987 the club installed an automatic irrigation system consisting of three and one half miles of underground pipelines, sixty-six fairway sprinklers and sixty-three tee and green sprinklers on the front nine holes of the Mountain View Golf Course. The system is planned to be operational in the spring of 1988. The Club also plans to test bent grass on a green to determine the suitability of this specialized grass in this environment.

5.5.2 Agriculture Seminar in Dawson City
by Klondike Agriculture Association

Mr. George Krahn travelled to Dawson City to present a seminar to the local population on the potential for small fruit and berry production in the area.

5.5.3 Vet Extension Program by YLAA

This project involved a vet coming to the Yukon for ten days to provide veterinary and extension services to the agriculture industry in the Yukon. This was an interim measure to having a large animal vet service provided in the Yukon.

The result of this project was the visit of veterinarian Gail Jewell to the Yukon in November. She gave three seminars at the Yukon College on horses, other farm animals, and game farming. During her time in the Yukon she visited several farms.

5.5.4 Large Animal Vet Travel to Yukon by Agriculture Branch

This project defrayed expenses of travel to Yukon by large animal veterinarians who wanted to evaluate the feasibility of establishing a practice in Yukon.

None of the three vets that came during this project decided to establish their practice in the Yukon but interest has been shown by outside vets to do some work in the Yukon.

SECTION 6.0 LAND DISPOSITIONS

6.1 Evolution of the Agricultural Land Demand

Prior to 1976 the Federal Department of Indian and Northern Affairs managed land requests for agriculture through a land leasing system. However, this process was frozen by the department in 1976 and between 1976 and 1982 there were few new land releases for the purposes of agriculture in the Yukon.

While existing leases were administered by the Federal Lands Office, it was not until the Yukon Territorial Government initiated its own disposition program in 1982 that any additional lands were made available for agricultural development leading to entitlement. Since 1982 this program has grown and now acts as the sole clearing house for all agricultural land requests in the territory. The program is operated by the Lands Branch of the Department of Community and Transportation Services in coordination with the Parks, Resources and Regional Planning Branch of the Department of Renewable Resources who undertake land use reviews and soil capability assessments.

Initially this land disposition program dealt only with applications on Commissioner's Land, that is, those lands around communities that lay under control of the Territorial Government. As a result of an agreement in 1985 which transferred much of the jurisdiction of Federal Lands used for agriculture to the Yukon Government, the territorial program now receives, reviews and disposes of land (following federal transfer where necessary) throughout the Yukon.

To date over 400 applications for land for agricultural pursuits have been received by the program. After an initially flood of application's in 1982 when the program was first announced, there has been a steady decline in the number of applications received each year since (Figure 6.1). This decline is likely the result of most interests

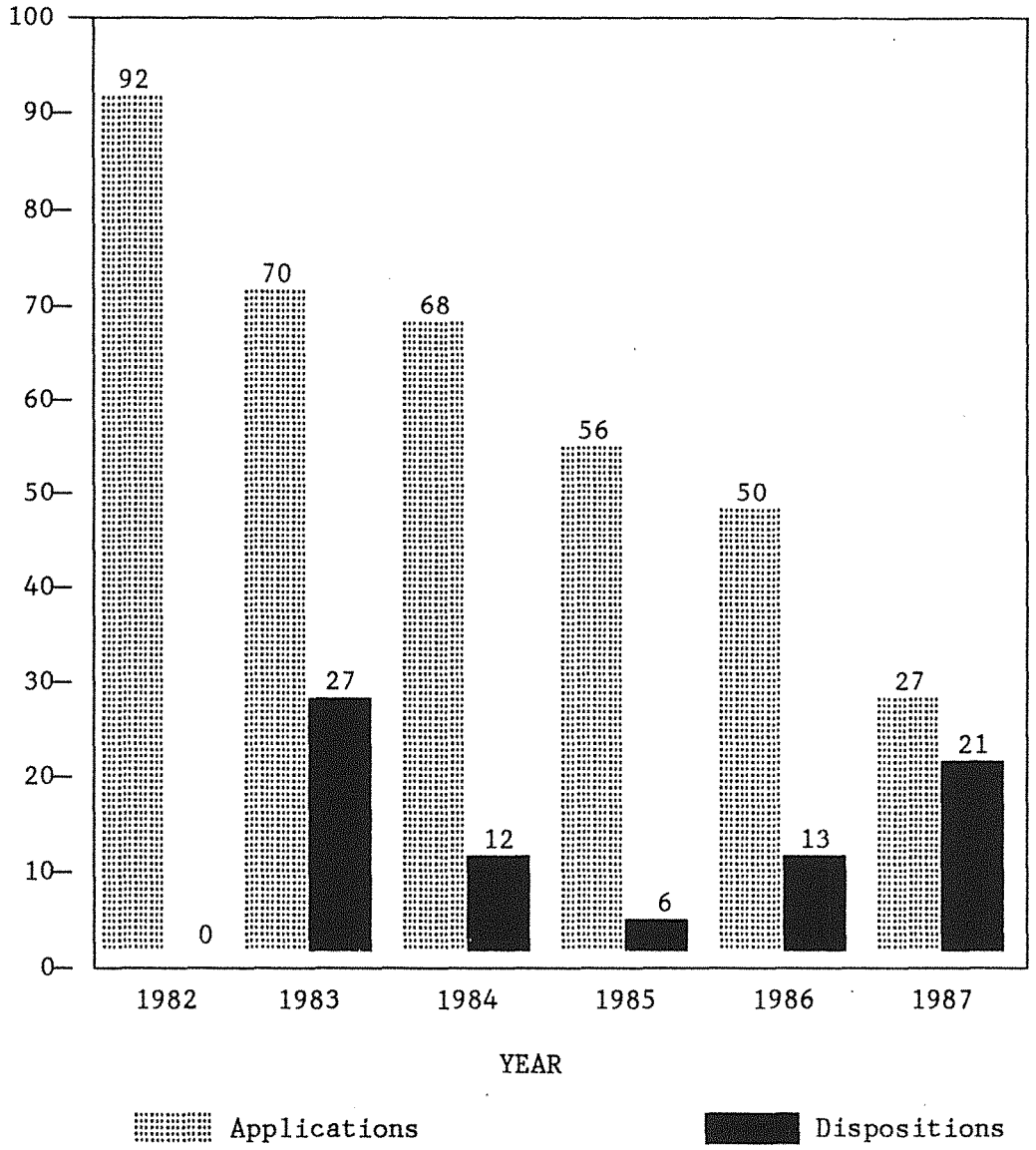

Figure 6.1 Comparison of the numbers of applications received and dispositions made for cultivated agriculture by the agricultural land disposition program since its inception in 1982.

having already been expressed through application earlier in the program and the lack of remaining accessible agricultural land around major communities.

Although the annual number of applications received has dropped the cumulative backlog of unprocessed applications continues to grow. Dispositions for cultivated agriculture were relatively high early in the program when many applications fell on Commissioner's Land. Dispositions reached a low in 1985 prior to the development of a federal transfer system for agriculture parcels. 1987 marks the first time since the program was initiated that applications and dispositions for cultivated agriculture have been roughly equal.

6.2 The Current Picture

Grazing leases now make up nearly half of all applications for agricultural land uses in Yukon (Figure 6.2). All grazing leases are now reviewed and managment plans developed in consultation between the lease holder and Agriculture Branch.

The increase in the number of applications for grazing land results directly from the establishment of a new territorial grazing policy. Many of the applications stem from existing leases that are being re-evaluated for 30 year tenure under this policy and don't necessarily represent new initiatives in livestock production. Most large grazing leases belong to members of the outfitting industry and are used to overwinter pack horses. While the new policy facilitates longer term leases, the associated fencing requirements have placed many outfitters in a difficult situation for the immediate future (see section 8.1.3).

Figure 6.3 illustrates the condition of land parcels identified for agricultural uses in Yukon. Most agricultural parcels are still only at the application stage. Some of these proposed developments will probably never come into production as they lie in areas of land use conflict or unsuitable soils. As of the end of 1987 there were only 32 titled parcels devoted to agriculture. This number will increase as

developments are completed on present agreements-for-sale and as application parcels are processed for disposition as new agreements-for-sale.

It is estimated that during the summer of 1987 there were approximately 12,000 ha of land identified under various tenure for agricultural use (see section 5.1). Only about 13% of this total (about 1,600 ha) was cultivated the remainder either being used for grazing purposes, presently under development or used for non-agricultural purposes (buildings, roads, rough and broken land).

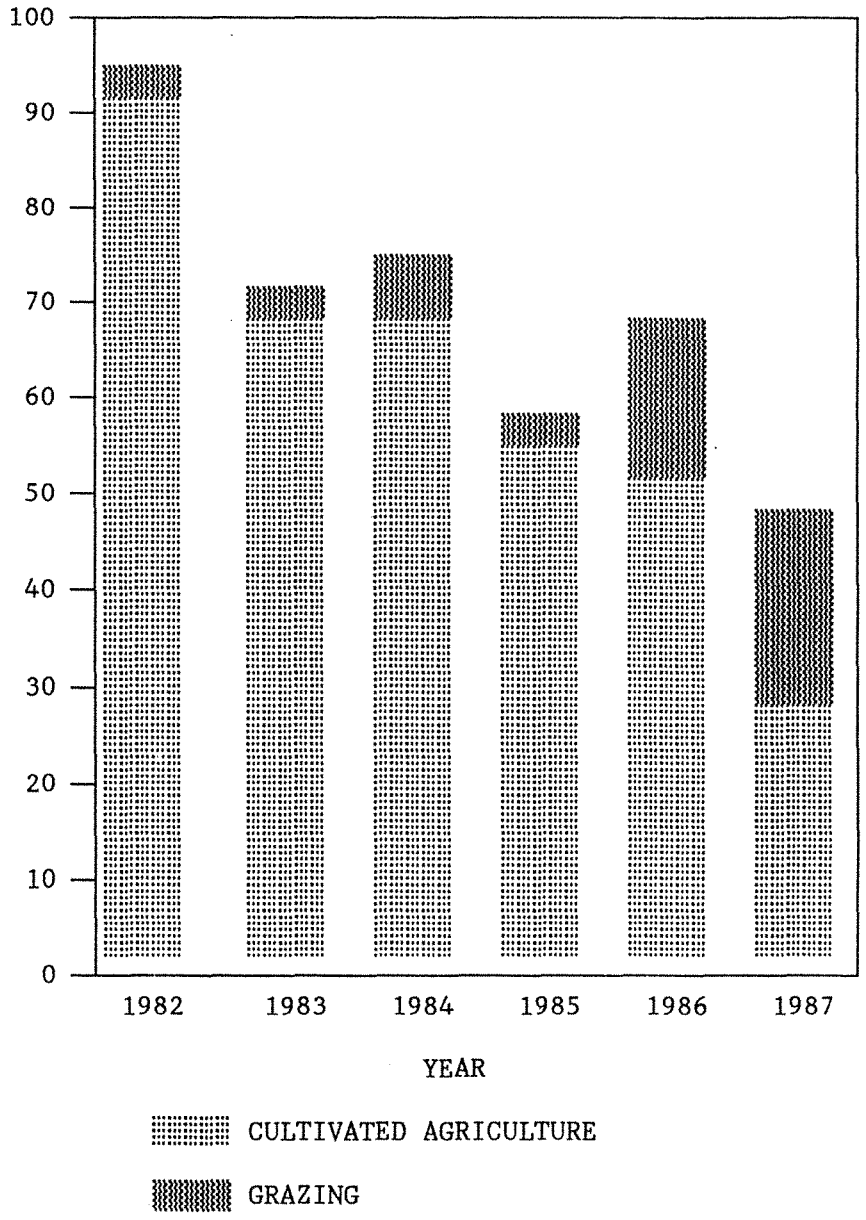

Figure 6.2 Numbers of applications received for both cultivated agriculture agreements-for-sale and grazing leases. The increased demand for grazing leases comes largely from the outfitting industry wishing longer term lease arrangements.

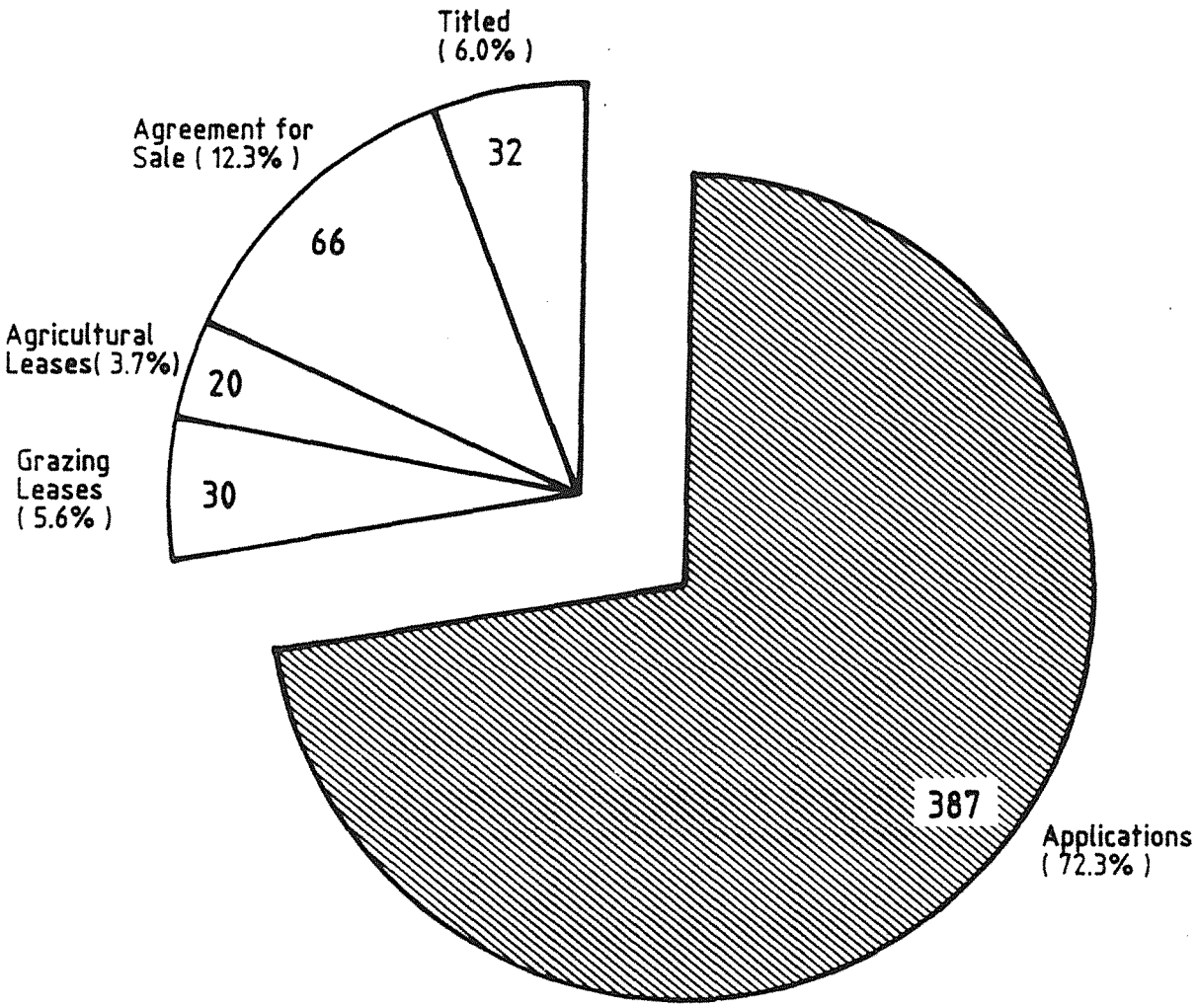

Figure 6.3. Pie chart showing the relationship in the number of parcels of land (not area) under various tenure or application. The parcels under application are presently undeveloped and represent potential future growth. Total number of parcels included in the above chart is 535.

7.0 CROP TRIALS

The emergence of an agricultural industry in the Yukon in the 1980's has emphasized the need for research to determine suitable agricultural crops and practices for northern conditions.

Previous research on cereal crops and forage mixtures was conducted between 1915 and 1925 by the Dominion Department of Agriculture at Swede Creek near Dawson City. Also, previous research on suitable crops was conducted between 1946 and 1968 at the Agriculture Canada Experimental Farm near Haines Junction.

In recent years, projects were instigated to fill the gaps of agricultural information in the Yukon. This section presents some results from these projects.

7.1 New Crop Development Program

The New Crop Development Program was started in 1985 as a cooperative effort between the Department of Renewable Resources, Agriculture Canada and the Yukon Livestock and Agricultural Association. It was a three year program to test the suitability of crops for the varied Yukon growing conditions.

The project involved growth trials of ten crops with up to nine varieties of each. The crops included cereals, legumes and grasses suitable for livestock, and potatoes or peas for human consumption.

In the third year, only the best varieties were tested on eight participating farms distributed in the southern half of the Yukon to represent a full range of climatic and agricultural capabilities occurring in the Yukon. Testing of canola, safflower, and mustard varieties was not continued. Therefore, the results that are presented in the 1987 report represent what appear to be the most suitable varieties and crop types for Yukon conditions.

Oats proved to be the most appropriate cereal for the Yukon. The most successful variety was Cascade, which is suitable for grain and forage

production and was developed and released in Alberta in 1979. The best variety of barley was Datal, an early maturing variety that was developed in Alaska in 1983. Park was the best variety of wheat. It is an early maturing variety developed in Alberta in 1968. It is interesting to note that the protein levels for the wheat analysis ranged from 15% to 23%. These are higher than the levels commonly found in the prairies (12% - 15%). The best producer for field peas was Tara, a high yielding medium seeded yellow pea which takes 92 days to mature. The best variety of fababeans was Pegasus, it was the highest producing fababean variety in Canada, and was developed in Manitoba in 1984. Carleton was the best variety of marketable potatoes. This early maturing variety was a superior producer in the NCDP trials, but also the most susceptible to common scab. The best alfalfa producer was the BL1019 variety that was originally developed at the Agriculture Research Station at Mile 1019 in Haines Junction. Finally, brome was the most outstanding grass. Carleton variety is a northern brome grass that has shown good winter hardiness and productivity in Alaskan trials and is currently the most common grass forage grown in Yukon.

It appears that the most suitable areas for grain production were Pelly farm, Dawson City and Mayo. The most suitable areas for green feed production were Whitehorse and Watson Lake. In most locations potatoes performed well, but the best results were on sites with irrigation and frost protection systems.

During the three years of field trials, the New Crop Development Program held field days to share ideas and knowledge of Yukon agriculture.

Detailed quantitative information on yeilds, protein levels of grains and green feed, and the economic return of each crop is available in the 1985, 1986 and 1987 field season reports of the New Crop Development Program available at the Agriculture Branch office.

Figure 7.1 Kathy Bisset, New Crop Development Project manager stands by plots located at the Pelly River Ranch. The plots demonstrated continued success with maturing grains at this site.

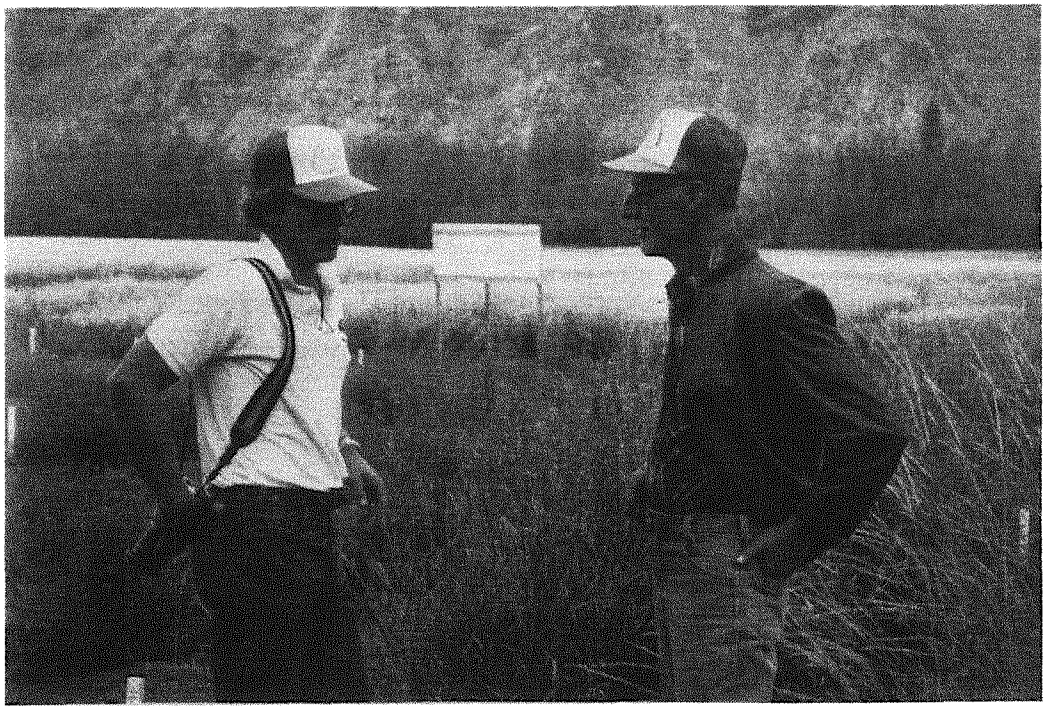

Figure 7.2 Randy Lewis of the Yukon Livestock and Agricultural Association and Hugh Bradley of the Pelly River Ranch discuss the results of the 1987 New Crop Development Project trials. The Bradleys have operated the ranch since 1954.

7.2 Forage Trials

The Forage Trials are a joint project between the Agriculture Branch and the local Agriculture Canada Soil Survey Unit. The trials began in 1984 to observe the response of perennial and annual grasses to fertilizer. During the summer of 1987, two trials were conducted on established irrigated sites found in the Takhini Valley and the Dawson City Area. These two sites are considered to be representative of their regions.

The plot plans for the two sites were different although soil tests taken the previous fall provided a basis for their fertilizer application. A one meter square area was harvested near the time of the cooperator's harvest. The harvest was air dried, weighed, and shipped to Edmonton for analysis of calcium, phosphate and protein.

Brome grass in both locations showed a positive response to the application of fertilizer under irrigation. Yield and protein content increased with the addition of fertilizer and in all cases the economic returns were positive. The fertilizer application rates were determined by using soil test results from an Alberta lab. Yield data suggests that increased application above laboratory recommended rates may economically increase yields in Yukon forages. Work on the optimum fertilizer level for forage production will be continued, and studies will be extended to include impact of irrigation on yield.

Results are summarized in the report "Response of Brome grass to Various Fertilizer Levels" and is available from the Agriculture Branch.

7.3 Herbicide Trials

The Herbicide Trials were conducted to observe the effects of different herbicide on various perennial weed infestations. Of particular interest is foxtail barley which is a serious problem in many areas. Continued trials are planned for next year's field season.

7.4 Horticulture Trails

The Horticulture Trials are a joint project between the Agriculture Branch and the Commercial Growers Cooperative to investigate the response of broccoli and potatoes to row covers, mulches and fertilizer. Soil temperatures were also monitored. Four representative sites were chosen around the Whitehorse area and two studies set up.

The fertilizer study observed both target crops under macro and micro nutrient fertilizers and concluded that use of the recommended fertilizer and the micronutrient boron was positive in increasing plant growth and yield, except in cases where boron was adequate. Addition of boron to these soils reduced yields.

The mulch study used two mulches (black plastic, clear plastic) and one row cover (remay) in observing the response of both crops. Broccoli yields were generally greatest with the remay while potatoes produced most with black plastic. Soil temperatures were highest with the clear plastic mulch although weed growth was prolific. Temperatures with the black plastic and remay were comparable, with the remay showing less variation in a twenty-four hour period.

This is an ongoing project and in the following years more data will continue to be recorded and be made available to the public. The report "Response of Potatoes and Broccoli to Fertilizer Treatment, Row Covers and Mulches" is available from the Agriculture Branch office.

7.5 Agricultural Test Plots

In the fall of 1987, the Yukon Agriculture Branch leased 1 ha of land from the federal government for the purpose of establishing a permanent site on which to develop agricultural test plots. This irrigated site, found on the forestry reserve located just outside Whitehorse, will house these plots. Work on varietal trials, fertilization and irrigation response and alternate culture techniques will be conducted utilizing forages, berry and horticultural species as the target crops. A field day will be held in August offering the public access to the site.

SECTION 8.0 1986-1987 IN REVIEW: EVENTS AND ISSUES

The following section presents a brief review, as presented in local newspapers of some important issues and events for the agricultural industry over the past two years.

8.1. The New Agriculture Branch

In April 1986, the Agriculture Branch was created out of the previously existing agriculture section of Lands, Parks and Resources to full branch status within the Department of Renewable Resources.

Dick Filteau was the first acting director. Paul Dribnenki filled the position as director between August 1986 and June 1987. The position stayed opened until October 5th, 1987 at which time David Beckman became director.

The operating budget of the branch was $217,000 for the fiscal year 1986-1987 and $260,000 for 1987-1988.

A major challenge for the new branch is to develop regulations and inspection procedures for farm products. The present lack of inspection is considered a limitation to the growth of commercial agriculture in the Yukon.

8.2 Dick Filteau Leaving the Yukon

After three years as Director of Agriculture Dick Filteau left the Yukon in September 1986. Mr. Filteau had visited almost every farm in the Yukon giving advice, as well as helping farmers adapt southern farming information and techniques to the northern environment and helping the Yukon Government reach its goal of supporting an economically viable, self-supporting agricultural industry.

Figure 8.1 A large gathering of Yukoners wished Dick Filteau (left) and his wife Helen a fond farewell in Whitehorse, September 1986. Long-time Yukon agriculturalist Red Stevens (right) and his wife May, were some of the 80 people present.

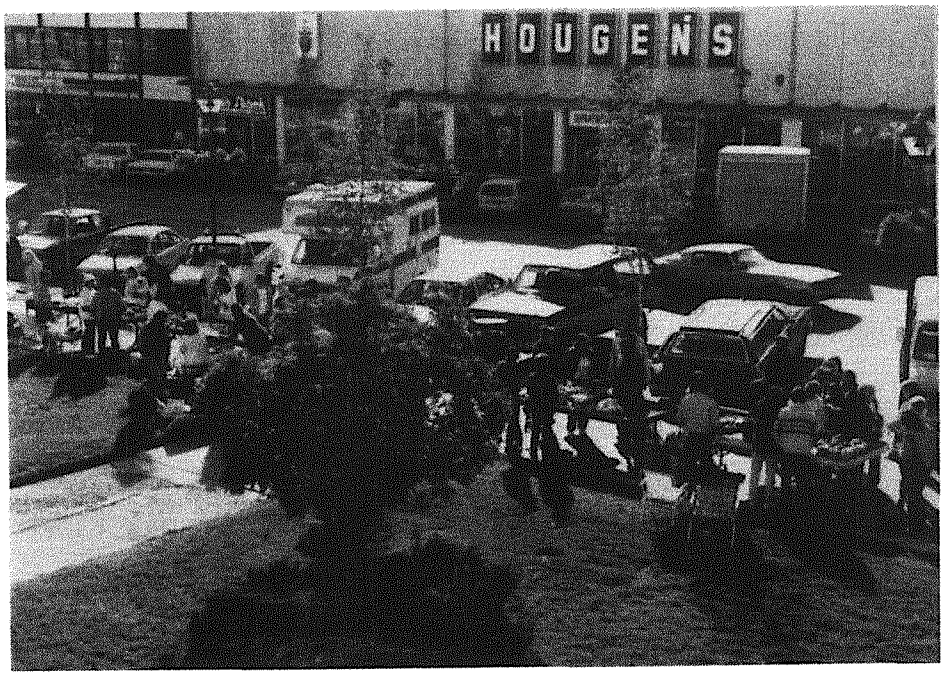

Figure 8.2 The Yukon Livestock and Agricultural Assocation continued to sponsor Farmers Markets in Whitehorse. This scene is taken on Main Street where 5 markets were held between June and September 1987.

Filteau's research on agriculture in a northern environment led to several interesting conclusions about the potential production, available markets, and the limitations of agriculture in the Yukon. Production of vegetables, eggs, hay and possibly fluid milk may have good potential in the Yukon. Also elk, bison, reindeer and fish production may have some potential and could in fact be exported.

Filteau was optimistic that local production could help offset a major portion of the $43 million worth of food imported annually. Filteau thought that the success of the industry is largely dependant on learning how to deal with the elements. The timeliness by which a farm operation is carried out is imperative. Proper use of fertilizers, as well as irrigation are essential for good crop production.

Also, Filteau mentioned the perpetual problem of a lack of information on northern agriculture and the lack of infrastructure, such as implement dealers, a meat processing plant, or a feed mixing plant.

Although, optimistic about the future of farming here, Filteau indicated the necessity of diversifying production to diminish the high risk to the farmer operating under the variable conditions of the Yukon.

Dick Filteau returned briefly to the Yukon during the summer of 1987 to conduct the industry survey described in Section 5.1 and continues to keep in touch with friends and collegues in the territory.

8.3 **Free Ranging Livestock Issue**

The problem of livestock roaming on Yukon's roads became a critical issue in 1986. A group of Mayo Road residents pressured the government to find a solution to end a series of accidents involving vehicles and livestock.

Public meetings, discussion papers, and proposals were presented by individuals, associations and government agencies.

In December of 1986, the government introduced legislation to resolve the problem of free roaming livestock. Pound districts were created. It is illegal to have animals loose anywhere within a pounds district. Poundskeepers were appointed to enforce the new, stricter rules. At the same time, long term grazing leases were offered to make enclosure a more attractive option for animal owners.

8.4 Game Ranching/Farming Issues

In July 1986, the Yukon Government called for proposals from consultants to investigate the possibility of game farming in the Yukon. The main objectives were:

1) to see if game farming could be a profitable business and
2) to establish a game farming policy.

There was some opposition to the Yukon Government's approval of reindeer farming before a report on game ranching was finished. The consequences of the reindeer carrying diseases into the territory, or escaping their corrals and interbreeding with mountain caribou were expressed as major problems to be investigated.

The draft report called "A Policy Oriented Analysis of the Game Ranching Potential of the Yukon", was presented in February 1987.

The game ranching policy should be ready in mid to late 1988.

8.5 Flat Creek Agriculture Subdivision Issue

In 1986 the Lands Branch, Department of Community and Transportation Services proposed a 43 lot subdivision 40 km west of Whitehorse. Comprized of parcels 8 to 10 ha in size, the subdivision was designed to meet the high demand for small agricultural holdings near Whitehorse. Preliminary engineering and soil studies were conducted in the fall of 1986 and were made public in early 1987.

Citing problems with tax-funded services, game depletion, and spoiled views, area residents disagreed with creation of the Flat Creek agricultural subdivision maintaining that a sudden influx of new residents would drastically downgrade their quality of life.

This strong opposition to the development plan has meant a re-evaluation of the the project. Its future was uncertain in late 1987. Residents are now awaiting the Hootalinqua North district plan, to be completed in July 1988, which will provide a framework for agricultural and rural residential planning and set guidelines for future development in the area.

8.6 Land Application Issue

One of the major events that marked the 1987 year was the formation of the Agriculture Application Action Committee to pressure the government to process agricultural applications more rapidly.

The government is committed to distributing agricultural land but has to consider other interests such as trapping, outfitting and land claims selections. There is also a problem with the transfer of federal land to the territorial government. In December, 1987, the government established the "Code of Fair Practice" for land applicants. It gives applicants the right to appeal; to keep some information confidential; to have access to their files and add information; to be informed of the status of their applications in the review process; to be told of the reasons for any decision; and to be able to make a presentation to the application review committee.

8.7 Competing Interest on Agricultural Land Issue

In March 1987, a consultant's report on competing interest on agricultural land was presented to Renewable Resources. The report states the need of a policy to guide the resolution of resource conflicts. It underlines the necessity for the government to consider all interests when deciding whether to dispose land. The report also suggests a process for identifying and resolving resource conflicts in agricultural land disposition.

SECTION 9.0 SUMMARY

The history of agriculture in the Yukon dates back to the turn of the century and the Klondike gold rush. Developments in the 1980's represent the latest round of agricultural activity in the territory and are characterized by significant government involvement together with innovative adaptations of modern technology by members of the private sector. The results viewed in 1987 reflect these action. We have an industry moving out of its infancy into a wide spectrum of business ventures, supported with an array of grant and loan options and government busy with crop testing and a flurry of policy-making intended to provide the framework for future agricultural infrastructures.

Government actions have come in response to requests from private individuals for land, extension services, research and agricultural policy. A principal force in presenting the private sector views to government has been the Yukon Livestock and Agricultural Associations. Formed in 1973, the Association has been instrumental in the revival of agriculture in the territory over the last 10 years. Largely as a result of YLAA initiatives, the Yukon Government became involved in agriculture with the advent of their agricultural land disposition program in 1982. The creation of the Agriculture Branch in 1986 represents the achievement of a long-time goal for the Association.

The availability of land for agriculture has been, and remains, a major stumbling block for many individuals. How much land does agriculture need in the Yukon? The answer depends on how much emphasis is placed on horticulture relative to livestock production. With increased coordination between the federal lands office and the territorial Lands Branch the future looks brighter for an increased flow of land for the industry. Concern over the disposition of too much land for agriculture to the detriment of other land users remains a concern to most of the general public. The completion of two district land use plans (one near Whitehorse and the other in the Klondike Valley) in 1988 will help to ensure an orderly, coordinated and balanced allocation of land for agriculture in the territory.

The recent and increasing involvement of federal agencies, specifically the Prairie Farm Rehabilitation Administration, and the Farm Credit Corporation and Agriculture Canada's Agriculture Development and Research Branches will affect the form that agriculture takes in the territory. This involvement is important when bearing in mind the very small size of the Yukon Agriculture Branch. The availability of these services means that Yukon agriculturalists similar footing on which to work as others elsewhere in the country.

The nature and extent of public economic support for agriculture in the territory will also effect how the industry establishes itself. Economic support of Yukon agricultural development exists in a number of forms:

- land can be homesteaded and developed on an agreement-for-sale basis,
- EDA funding for agriculture-related ventures totals just under a million dollars to date,
- Farm Credit Corporation lending exceeds a third of a million dollars in the territory,
- the Agriculture Branch annual operating budget sits at a quarter of a million dollars.

The industry's gross annual production was estimated at $1.5 million for 1987 and product revenues were in the order of $0.4 million (Table 9.1).

All agree that the future success of the industry depends on developing a dependable, competitively priced, quality product that is marketed with intelligence and innovation. The development of agriculture is the development of small, diversified Yukon businesses. This is one of the goals of the Yukon Economic Strategy. An enormous opportunity exists in import replacement for a portion of the $43 million dollars spent annually on food in the territory. Ultimately, it will be the business sense of Yukoners, in conjunction with policies that facilitate growth, that will determine the degree of success of this experiment in marginal agriculture in the far northwest of Canada.

Table 9.1 Summary figures and estimates for the state of Yukon's agricultural industry to the end of 1987 (all figures rounded).

		Source
Land		
Total area designated to agricultural use (ha)	11,500	1
Total area of cultivated land (ha)	1,550	1
Total number of land parcels classified as agricultural	148	2
Total number of residences undertaking horticulture/agriculture activities	198	1
Economics		
Annual retail food sales in Yukon (estimate)	$43,000,000	3
Annual value of Yukon agricultural production (estimate)	1,500,000	4
Annual value of Yukon agriculture sales	364,000	
Total value of agriculture land/buildings	24,578,000	1
Total value of farm machinery	3,967,000	1
Total value of Farm Credit Corporation loans	383,000	5
Total value of Economic Development Agreement grants for agriculture-related projects	849,000	5

1 Agricultural Market Survey, Yukon Livestock and Agricultural Assocation.

2 Lands Branch, Yukon Department of Community and Transportation Services, SAS output file "Status of Agricultural Land Interest in Yukon" February 5th, 1988.

3 Assessment of import substitution opportunities 1986. Yukon Economic Development Department.

4 Yukon economic review and outlook 1986-1988. Yukon Department of Mines and Small Business. April 1987

5 This report.

APPENDIXES

APPENDIX I MONTHLY WEATHER REVIEW 1986

Weather during the growing season varied tremendously throughout the agricultural regions of the territory. A very late spring was evident in all regions as mid-winter conditions pursisted through most of April. The southwest Yukon was plagued by light frosts through July and August which reduced yields from most market gardens in the Whitehorse region.

Drought-like conditions existed in the Klondike Valley with little precipitation received between break-up and mid summer. Temperatures were warm and no frosts were experienced until late August when a record low of -8°C was recorded.

The fall was wet in the southwest Yukon which hampered hay production. However, even with these weather obstacles most producers in the territory reported having had a good year.

The following is a month by month summary of the weather conditions for the year.

January

Yukoners enjoyed the fourth warmest January on record. There was an average temperature of -7.8°C in Whitehorse (ave. -20.7°C). Even so, the only record broken was January 26th when the mercury rose to -0.6°C. Temperatures throughout the Yukon ranged from a high of -6C at Teslin to -47°C at Ogilvie. Precipitation was light across the south until the end of January when snowfalls of 30-60 cm closed sections of the Haines Road and Alaska Highway.

February

Whitehorse received 180% of its usual quota of sunshine. Generally total monthly snowfalls were below normal. On February 27th, Watson Lake had a high of 9.4°C, tying the monthly record set in 1968. On the same day Waston Lake neared record highs, the Ogilvie highway camp hit -50°C. Average temperature for the month was about normal. (ave. -13.2°C).

March

March was milder than usual in most parts of the Yukon, with Whitehorse receiving almost double the all-time record snowfall, for March.

April

Temperatures to mid-month were up to 10°C below normal. The latter part of the month saw temperatures rise above freezing. Night-time minimums were below freezing most of the month. On April 10th, Whitehore had a record low of -29.4°C, the coldest temperature ever recorded in April. Total precipitation for the month was 11.9 mm, (ave. 9.5°C). Hours of sunshine was about average. April set up a very late spring arrival.

May

Throughout the territory, May was wet and cool - the fourth coolest on record. Territorial extremes were set on May 30th - +20.4°C in Dawson City and -21°C at Shingle Point, 400 km to the north. The monthly average was only 5.4°C (norm 6.7°C). We had the lowest monthly maximum ever, recorded on the 30th in Whitehorse - only 15.8°C. Whitehorse precipitation in snowfall was almost three times the normal.

June

Although the average monthly temperature in Dawson was two degrees above normal, Whitehorse averaged 2-4 degrees below normal. Rainfall was generally half of normal.

July

Twice the normal amount of rain fell on Whitehorse, but we did get 269 hours of sunlight (ave. 250 hr). The longest period without rain was four days. Three all-time low maximums were recorded on July 27th; Beaver Creek at 17.8°C, Watson Lake at 13.9°C, and Burwash at 7.5°C. Dawson even hit zero one night, although that wasn't a record.

August

Record-shattering cold and frost badly damaged some crops and gardens. Whitehore had a record low of -1.9°C on August 24th, Dawson had a low of -8.4°C breaking the old record. We only had 210 hours of sunshine instead of the normal 230. We had 54 mm of rain (norm 37 mm). Average temperature was slightly below the average 12.5°C.

September

Ten record temperatures were set as the Yukon enjoyed a hot, sunny weekend September 7th and 8th. Old Crow reached 23°C, smashing the 1977 record. Mayo was the hottest of all with its record high of 23.5°C on September 8th. However, the month still ended up with a below normal temperature (ave. 6.6°C), double the precipitation and higher than usual sunshine. Twenty-nine centimetres of snow fell, but most of it was gone by month-end.

October

Temperatures were above normal for most of the month (ave 0.6°C). We had only 87 hours of sunshine (ave. 93) and 29.9 mm of precipitation.

November

November averaged out 2.7 degrees below normal although the actual temperatures ranged from 10° above normal to 20° below normal. Hours of sunshine were about normal (ave. 50) as was the precipitation.

December

Whitehorse had the second warmest December in recorded history, averaging 11.6°C warmer than usual. We also had the second sunniest December with 39 hours (ave. 23). Wind speed was up also, with the average of 21 km (ave. 14.5 kmh).

APPENDIX II MONTHLY WEATHER REVIEW 1987

Weather conditions were generally favourable throughout the growing season. Spring arrived in good time but temperatures remained extremely cool through most of the territory until the end of June. The southwest Yukon was spared any summer frosts and horticultual crops did well despite the cool spring. The Watson Lake area was warm but experienced above normal rainfall throughout the growing season. Fall weather was near normal for most regions.

The following is a month by month summary of the weather during the year..

January

January was mild with temperatures well above normal throughout the Yukon. In southwestern Yukon mean temperatures were 10 to 14 degrees above long term averages. The monthly high was 5.9 degrees at Mayo on January 9th, and the monthly low was -44°C at both Dawson City and Mayo on January 13th. The southern parts of the territory also recorded a very dry January with only 10 to 20 per cent of normal precipitation.

February

In Whitehorse, February was the third mild month in a row this winter. The average temperature of -6.8°C was 6.4 degrees above normal. The monthly maximum was 5.2 degrees at Haines Junction on the 23rd. Old Crow and Ogilvie had the lowest temperature with -45°C on both the 12th and 13th. Precipitation amounts were near normal until the last week in the month when snow accompanying the surge of cold air pushed monthly totals 10 centimetres above normal with 25.8 cm of snow.

March

Whitehorse shattered the all time record for sunshine for the month with 222 hours of brightness. The monthly average temperature was below normal. In Whitehorse it was 1.8 degrees below average.

Precipitation was below normal everywhere except in the far north. Whitehorse only had 5.6 cm of snow all month.

April

With an overall temperature being one to two degrees above normal, winter was chased out of the Yukon in April. Daily temperatures of five to ten degrees were felt south of Dawson City. In Whitehorse, maximum daily temperatures registered above freezing every day. During the first week of April, 10 to 15 centimetres of snow fell in the central areas of the territory and the only other precipitation was a snow storm in Beaver Creek which left 21 cm of snow. The territory received regular spring time rains.

May

May was a disappointing month in Whitehorse, with an average temperature of 6.5°C, slightly below normal. All but the central areas of Yukon were colder than normal and precipitation was far above average. The central Yukon received higher than normal temperature with little precipitation. The month's highest temperature was 23°C on May 30th in Dawson City. The Klondike area was the driest with only 10 millimetres of precipitation.

June

It took until June 20th for the temperature to reach 20°C in Whitehorse where low maximum temperature records were established on June 17th, 18th and 22nd. All these days were cooler than 12°C. At the same time Dawson City recorded a record breaking high temperature of 30°C on both June 22nd and June 30th. Finally, Watson Lake established a new precipitation record of 105.8 millimetres of rain, enough to close the Alaska Highway.

July

July was generally warm in the Yukon. For the first time since 1942, it snowed slightly in Whitehorse on July 12th. The city also recorded a record maximum temperature with 27.4°C on July 21st. In Whitehorse and the southwestern corner of the territory the average temperature was one to two degrees higher than normal. Precipiation varied throughout the territory because of local thundershowers. The southeastern part of the Yukon received above average precipitation for the third month in a row.

August

The temperature was slightly above normal in August but Whitehorse and the far south experienced average temperatures a degree below normal. The hottest temperature recorded was 26°C at Carmacks and Dawson City, and the coldest was -11°C in Dawson City on August 31st. Generally, the Yukon saw more rain than usual.

September

September was a bit below normal throughout the Yukon. Beaver Creek was the warmest place with 22°C on September 7th and also the chilliest, hitting -13°C on the night of September 30th. The mean monthly temperature for Whitehorse was a normal 8°C. Early in the month, most of the precipitation was rain, becoming wet snow from mid-month on and staying on the ground and mountain tops by the end of the month.

October

Most parts of the Yukon saw temperatures above normal. The hot spots were Watson Lake and Morley River where the temperature hit 18°C. On the other hand Klondike, Old Crow, and Beaver Creek all reported some minus 20°C weather. Precipitation was light in much of the Yukon, with 50 percent below normal in the south and average precipitation for central areas.

November

November was mild throughout the Yukon south of the Ogilvie Mountains. In Whitehorse the average was -3.3°C, more than 5.0°C above normal and above zero temperature for over half the days of the month. Moist Pacific air brought clouds most of the month. Precipitation was sporadic and normal during the month.

December

December was the fourth month in a row with above normal temperatures in Yukon. In Whitehorse the temperature climbed above freezing for seven days during the month. The cold Arctic air brought cold temperatures during the last week of December. Precipitation was generally below normal.

APPENDIX III REFERENCES AND INFORMATION SOURCES ABOUT YUKON AGRICULTURE

The following reports are available from the Agriculture Branch, Department of Renewable Resources, Box 2703, Whitehorse, Yukon, YiA 2C6.

Title and Authors	Date Prepared
Annie Lake Soil Survey, 1:20,000 scale mapping by C.A.S. Smith, D. Murray and A. Hargrave, Agriculture Canada, Whitehorse, Yukon	May 1986
Yukon New Crop Development Project: Report of the 1986 Field Season Kathy Bisset, Project Manager, Agriculture Canada, Government of Yukon, Yukon Livestock and Agricultural Association	December 1986
Klondike Valley Soil Survey, 1:20,000 scale mapping by M. Wamsley, D. Maynard and K. McKenna Westland Resources, Victoria, B.C.	December 1987
Response of Bromegrass to Various Fertilizer Levels by Margaret Ames, Agriculture Branch, Department of Renewable Resources	December 1987
Response of Potatoes and Broccoli to Fertilzer Treatments, Row Covers and Mulches by Margaret Ames, Agriculture Branch, Department of Renewable Resources	December 1987

APPENDIX III (continued)

Yukon New Crop Development Project Report of the 1987 Field Season Kathy Bisset, Project Manager, Agriculture Canada, Government of Yukon, Yukon Livestock and Agricultural Association.	December	1987
Agricultural Newsletter, Winter 1987/88 compiled and edited by D. Beckman and M. Ames, Agriculture Branch, Department of Renewable Resources (to be published quarterly).	January	1988
Yukon Garden Handbook by R.R. Filteau, compiled and edited by M. Ames, C.A.S. Smith, and P.C. Dribnenki, Agriculture Branch, Department of Renewable Resources.	March	1988
Hootalinqua North Soil Survey, 1:20,000 scale mapping by Charlotte Mougeot, David Murray, and Hilary Wilkinson, Agriculture Canada, Whitehorse, Yukon	April	1988

APPENDIX IV YUKON AGRICULTURE ASSOCIATIONS

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