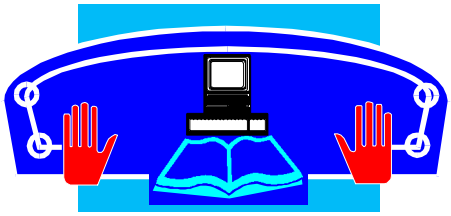

Agriculture In The Northwest Territories - Status And Development Direction
Type of Study: Analysis/review Agriculture, Nwt Agriculture
Author: G.n.w.t. - Economic Development & Tourism
Catalogue Number: 1-1-13

Library Managed By Economic Planning Section, Economic Development and Tourism Government of the NWT, and by:
The Inuvaluit Community Economic Development Organization (CEDO)
Financial assistance provided by the NWT EDA, Inuvik Regional Office of ED&T and DIAND, Indian and Inuit Services.

AGRICULTURE IN THE NORTHWEST TERRITORIES

STATUS AND DEVELOPMENT DIRECTION

Prepared By:
Economic Development and Tourism

September 1990

TABLE OF CONTENTS

LIST OF TABLES

AGRICULTURE IN THE NORTHWEST TERRITORIES: STATUS AND DEVELOPMENT DIRECTION

1. Introduction

This paper provides a synopsis of agriculture activities, in the N.W.T. and suggests options that the government of the N.W.T. may pursue to foster growth and expansion in the agricultural sector.

Agriculture has a long history in the Northwest Territories dating back to the 17th century. Agricultural development was initially limited to the valleys of the Mackenzie River and some of its tributaries. Later, greenhouses and coldframes extended production to both the Eastern and Western Arctic.

A growing demand for agricultural products of the highest quality in sufficient quantities has rekindled interest in agriculture. Indeed the availability of earlier maturing varieties and improved farming techniques have undoubtedly enhanced the feasibility of commercial agriculture in the N.W.T. However, appropriate infrastructure and programs have to be put in place to create an environment conductive to growth and expansion of a thriving agriculture sector.

The 19801s have witnessed renewed confidence in the NWT's agricultural potential and its capacity to contribute to the Territories efforts toward self reliance and import substitution, especially in food products. The development of agriculture will offer a number of potential advantages to Territorial residents including a) improved quality in terms of freshness and nutritional value, b) reduction of high freight costs, c) opportunities for local employment, and d) diversification and expansion of regional/community economic base and business sectors. Based on recent studies and reports, the NWT has the potential to be competitive with the South in the production of some agriculture products excluding cereals.

2. Agricultural Activities in Retrospect

Farming has always played an important role in the lives of NWT residents. Although the original peoples sustained themselves by fishing and hunting, their diets of meat and fish were supplemented by indigenous berries and other plant parts which they gathered.

Small scale farming operations and gardening were carried on along the Mackenzie Valley since the earliest days of exploration and settlement. Much of the initial production was undertaken by missionaries and fur traders who grew vegetables, raised livestock and horses, and in some cases, planted small quantities of grain for feed.

Every Hudson’s Bay post as far north as Fort Good Hope had its own gardens by 1826. Roman Catholic missions undertook garden trials in 1911 for the Department of Agriculture at a number of settlements along the Mackenzie Valley, including Fort Resolution,

Fort Smith, Fort Providence, and later in Fort Good Hope.
The 1941 Canada Census indicated that there were no farms reported in the NWT. That information was correct in the sense that there were no farming industry comparable to those that existed in the settled areas of the provinces. However, a number of gardens occupying several acres were known to have existed in the Mackenzie district. That fact was subsequently confirmed in 1943 by the results from a questionnaire of the Dominion Experimental Farm Services. there were a total of 148 gardens and 10 farms collectively accounting for 103 hectares (252 acres) of cultivated land.

In 1941, co-operative agricultural experiments were started at Fort Simpson, and subsequently in january 1943, an Inter-Departmental Committee, composed of representatives of the Department of Agriculture and Mines and Resources, was formed to assist in the improvement and promotion of agriculture. Between 1944 and 1945, on the recommendation of this committee, soil and horticulture surveys were undertaken in the Mackenzie District.

Production of vegetables was a proven success. The horticultural survey revealed considerable success in growing vegetables for local consumption, and that specific farm enterprises could be pursued economically. On the other hand, livestock was scarce, perhaps due to the high cost of imported feed. There were only a total of 71head of horses and cattle reported in1944. There were only a few goats and sheep.

The livestock that were kept in Fort Smith and Fort Simpson were fed on locally grown grain and hay. In recognition of the potential for livestock farming, the Medical Officer stationed in Aklavik commenced a dairy experiment in 1946. He used native grasses in the summer and in winter, locally produced green oats and grasses harvested from sedge meadows in the Delta. The experiment was a limited success. Several settlements also kept poultry for meat and eggs.

Agriculture continued to flourish and expand as the demand for fresh produce grew with rising populations. An experienced agriculturist was appointed to take charge of the Fort Simpson experimental station in the fall of 1946 and experimentation started in 1947. The Yellowknife substation was bypassed as it was felt at the time that the land in the Fort Simpson area had greater potential for agricultural development. Major studies were done and the development of early maturing varieties pushed the Canadian agricultural frontier northward and westw,ard.

In the **Eastern arctic, agricultural activities had** seemed impractical. However, some government officials, merchants and missionaries grew vegetables in greenhouses using imported soils and fertilizer. At Chesterfield Inlet, it was even possible to grow lettuce successfully on small plots of native soil without the aid of greenhouses.

The importation of cheaper produce from he South has gradually become very significant. By 1943, over 70% of all food consumed in the NWT was imported. Yet in spite of that general trend, the NWT continued to be self-sufficient in potatoes. The extension of the Mackenzie Highway to Hay River in 1948, and the railway from Alberta to the NWT in the 1964 accelerated the process. To many observers, August 29, 1964, the day of the first railway crossing, was a major setback for agriculture development in the NWT. A few people continued to be engaged in agricultural activities, usually on a part-time hobby farm basis. In spite of the demise of agriculture, land was readily available. Prospective farmers were able to purchase up to 65 hectares (160 acres) of arable land or lease up to 259 Hectares (640 acres) for farming purposes or up to 2590 hectares (640 acres) for grazing.

The Fort Simpson experimental station continued to demonstrate the technical feasibility of agricultural in the NWT. Experimental plots were started at Inuvik to test gardening over permafrost. The results were positive and encouraging. In 1965, the station had six permanent agriculturalist who conducted field trials at various locations in the Mackenzie District. In 1966, in an effort to save agriculture in the NWT, the Advisory Commission on the Development of Government in the Northwest Territories recommended the creation of "... a department of lands and resources, with jurisdiction over game, forestry, agriculture, and surface rights to land in and adjacent to the settlements." This wasto no avail: in 1970 the Department of Agriculture closed the Fort Simpson experimental farm citing lack of agricultural activities.

There was a brief revival of interest in agricultural following the phenomenal increase in beef prices in 1970. The interest was directed at low cost grazing lands for potential operations that would serve southern markets. That interest was accompanied by applications for large tracts of land for grazing purposes. In one particular case, the Federal-Territorial lands Advisory Committee received an application for 20,263 hectares (50, 000 acres) for agricultural development on unsurveyed land whose agricultural capability was not fully known. Growing interest culminated the incorporation of the Territorial Farmers' Association in 1970, which has as its aims to a) promote cooperation within the farming community, b) exchange and disseminate agricultural information and innovations, c) lobby for appropriate agricultural legislation, policies and programs and d)cooperate with similar organizations. This Associations has since been advocating high levels of farm service (road, electricity, water) plus grants and tax breaks which would effectively shift the costs of developing agricultural lands to the Territorial government.

The increased demand for agricultural lands caught the various governments off guard. Consequently, on January 10, 1975, a temporary suspension of land disposition for large scale agricultural operations was introduced pending field work and the development of long term land disposal policies. Disposal of smaller acreages was permitted for market gardening purposes. This was an effort to accommodate the needs of the growing number of

hobby farmers in the territory.

The 1980's have witnessed yet another burst of rekindled interest in agriculture. Successes have been achieved in those areas that require intensive farming practices, including egg laying operations.

3. Agriculture Today in the N.W.T.

The technical feasibility of agriculture in the NWT is not an issue as the following extract from the 1967 report of the Advisory Committee on Northern Development indicates:

"Vegetables like leaf lettuce, radish, turnip, swiss chard and beet can be produced satisfactorily bv direct seedinu in the open in the local soils over permafrost. Vegetables like cabbaue, broccoli, cauliflower and kale were successfully grown from transplants. Soil temperatures had to be increased to produce good crops of peas, brussels sprouts, Potatoes and carrots. This was achieved by usinq clear Plastic mulch applied on the flat or ridged ground in the garden."

Although the present report concerns itself with the physical, economic and technical status of agriculture in the NWT, the political environment is equally important as agriculture will compete with other activities including hunting and trapping, recreation and urban expansion.

a) Agricultural Land Base

Arable land in the NWT amounts to approximately 4.3 million hectares and is located in four major regions: The Slave River lowlands, the Hay River lowlands, West of Great Slave Lake and the Laird River Lowlands. An analysis of, arable lands in the NWT is shown in table I.

TABLE I

Arable Lands in the Northwest Territories
(' 000 hectares)

	Slave River	Hay River	blest Great Slave Lake	Liard River Valley	Total Class	Class% of Total Arable	Potential Uses
Class III	178	19	449	293	939	22	Cereals & Vegetables
Class IV	26	5	222	148	401	9	Cereals & Vegetables
Class V	518	110	342	449	1,419	33	Forage
Class VI	3			88	91	3	Forage
Class VII	74	124	943	278	1,419	33	Grazing
Area Total	799	258	1,956	1,256	4,269		
Area as % of Total Arable Land	18.72	6.04	45.82	29.42			

b) Arable Land in Use

Over the last 43 years, the total acreage of developed agricultural land has increased 13 fold, from the 103 hectares (253 acres) in 1943 to 1,359 hectares (3,356 acres) in 1986. the most significant increase occurred between 1981 and 1986 when 544 hectares (1, 342 acres) and 1359 hectares (3, 356 acres) respectively were under cultivations. The 1,359 hectares (3, 356 acres) reported in the 1986 Census is an indication that agricultural lands in the NWT are highly under-utilized. That acreage shows that under 1% of lands suitable for agriculture are being used. Exactly 0.03% (or 3 percent of 1%) is under cultivation.

c) Sectoral Activities

According to the 1986 Canada Census, 11 farms contributed $108,411 to the NWT'S economy. this contribution was estimated to have increased in 1987 to approximately $1,2 million. Table II indicates that the greatest contributor was egg production.

TABLE II

Estimated NWT Commercial Agriculture Productions in 1987

	Number of Operators	Estimated Revenues
Egg Production	1	$ 938,000
Dairy Farm	1	102,500
Market Gardens	2	100,000
Potato Farms	4	27,000
Greenhouses	1	5,000
Hog Farm	1	2,000
Total		$1,184,500

d) **Demand for Agricultural Products**

While agricultural production, consumption and trade are most directly influenced by national agricultural policies, they are also influenced by economic trend; the major variables being the level of economic growth, unemployment rate and inflation. therefore, as the standard of living improves, the demand for agriculture products is expected to rise. this growth will be further compounded by the rapid demographic increase being experienced and projected in the NWT. Demand for selected products in five communities in 1985 is shown in Table III. the quantities clearly show a higher level of demand in the west.

TABLE III

Demand for Selected Agricultural Products in Five Communities in 1985
(' 000 Kilograms)

Product	Iqaluit	Rankin Inlet	Cambridge Bay	Inuvik	Yellowknife
Potatoes	89	35	15	309	659
Salad Vegetables	69	33	14	124	352
Table Vegetables	40	16	7	92	239

Projected increase in total demand for agricultural products vary between 4 to 10 percent for communities across the NWT. In Yellowknife the projected increase is about 10%. Demand for potatoes will experience the greatest expansion, 15% as indicated in Table IV.

TABLE IV

Trends in Market Demand for Four Agricultural Products in Yellowknife 1985 - 1990
(' 000 Kilograms)

	1985	1986	1987	1988	1989	1990
Potatoes	659	667	675	684	691	760
Salad Vegetables	352	359	361	365	369	372
Table Vegetables	239	341	245	384	250	253

Consumption of livestock and livestock products are also expected to increase appreciably as local production makes them available and at competitive prices. The demand for pork and milk in 1987 are shown in Tables V and VI respectively.

TABLE V

Demand for Pork in the NWT

Region	Number of Hogs Required
Fort Smith	3,334
Baffin	1,285
Inuvik	1,110
Keewatin	651
Kitikmeot	490
Total	6,880

TAELE VI

Demand for Milk in the NWT

Region	Quantity of Liauid Demanded (' 000 kg.)	Number of' Dairy Cows Required
Fort Smith	2,620	485
Baffin	1,007	186
Inuvik	874	161
Keewatin	511	95
Kitikmeot	384	72
Total	5,398	999

a drop in milk prices was experienced in the Yellowknife area in 1986/87 when a dairy came into production. Equally so, many communities in the NWT now have access to fresher eggs at a cheaper price since commercial production of eggs started in Hay River in 1987.

4. Impediments to Industry's Development

The problems associated with agricultural development in the Northwest Territories are myriad and vary in complexity; ranging from the physical, socioeconomic to the political. Indeed, some of these problems require long term solutions where as others could be addressed by a structured realignment of GNWT policies and programs. The following impediments have been identified.

a) Physical Limitations

It is known that the harsher climatein the NWT precludes certain kinds and scale of agricultural activities.

The winters in the sub-Arctic region of the Mackenzie Valley are long and cold. Temperatures fall below O"C for seven months of the year, October to April, and extremes as low as -57°C have been recorded. Daily summer temperatures average 10"C, July being the warmest when extreme temperatures may be as high as 36"C. In the major agricultural areas, the frost free period ranges from 50 to 100 days. The average number of degree-days of heating required in Yellowknife each year is 8529 compared to 5923 in Winnipeg. Conditions in the Arctic regions are more severe. Another problem that has to be contended with is the depth of the permafrost. In some areas the ground is permanently frozen to a few centimetres below the surface. There are three possible ways to overcome these problems:

i) use of controlled environment farming e.g. greenhouses;

ii) adaptation of crops to northern climatic conditions;

iii) development of indigenous northern livestock and plant species for agriculture.

b) The inability to readily access financing often means project delays, and in some instances abandonment of promising business opportunities. Commercial lending institutions are generally reluctant to finance high risk projects even when the probable returns are good. This is a difficult issue to resolve since commercial funding decisions are often made outside the NWT. Three solutions are suggested:

i) redesigning GNWT funding programs to specifically address development of specific agricultural potential in the NWT.

ii) commercial funding agencies can be encouraged to play a more proactive role in the NWT's economic development effort;

iii) ensuring a higher degree of NWT/Federal cooperation in accessing funding programs for agriculture, such as the Farm Credit Corporation, PFRA.

c) Limited Access to Land

The availability of suitable land in adequate acreages is crucial for land based agriculture. The moratorium on new land disposition in 1975 has effectively halted growth and expansion of arable farming. Disposition of land for agricultural purposes is held to be contentious in many circles, but this is far from the truth. The South Slave Regional Council, at its January 1988 meeting was supportive of agricultural development and wants to be involved in the decision-making process. New land allocations may not jeopardize ongoing land claims negotiations providing the Dene/Metis are coopted to the decision-making bodies. Prior to the settlement of land claims, could be made available in the following ways:

i) lease only policy; this endorses the status quo. The specific land development would be subject to the approval of a committee comprised of all relevant interest groups;

ii) pre-selection of agricultural lands by a committee composed of representatives of the federal and territorial governments and the Dene/Metis;

iii) coordinated development of easy access and high potential areas identified as class III to IV capability.

d) **Supply Management Systems**

National Marketing Agencies effectively limit new entrants to quota regulated industries such as milk, egg, and poultry by restricting the number of producers in operation.

These agencies were created at a time when potential for related production industries in the NWT was considered minimal and actual production was VXK. The NWT had no base production upon which to ux: an allocation at the time, consequently, the NWT was excluded from entering into Federal/Territorial agreements to access quota allocations.

The NWT is currently seeking admittance to the Canadian Egg, Chicken and Turkey Marketing Agencies, and it is anticipated that agreements for NWT quota for Chicken and Turkey will be negotiated in the near future. Egg quota is proving to be somewhat of more difficult issue. Surplus removal allowances the present oversupply of eggs nationally have created more restrictive environment in terms of national allocations.

e) **Lack of Agri-Business Entrepreneurs**

Lack of a skilled agricultural work pool and agri-business entrepreneurs in the NWT are problems to the extent that skilled labour and expertise will have to be imported. There are medium term solutions to this situation:

i) **encourage joint venture enterprises which access southern expertise in affiliation with local native development corporations;**

ii) encourage community oriented small scale foods programs to increase the awareness, interest and skill levels present in the NWT particularly among native peoples.

iii) an agricultural option be included in the Renewable Resource Management diploma program of Arctic College, Fort Smith.

f) **Lack of an Acrricultural Infrastructure**

There is need to create an appropriate infrastructure to accommodate agriculture in the NWT. There are no approved processing facilities for livestock, game animals, poultry or vegetables in the NWT. There are no land development programs to facilitate drainage and irrigation improvements to agricultural lands. There are limited livestock or large mammal veterinary services in the NWT.

In spite of these deficiencies, the extension services provided by the Department of Economic Development & Tourism have attempted to address address of producers in terms of providing technical advice and accessing financial assistance. In the private sector, there are no exclusive farm machinery

dealerships or supply centres. Kingland Ford Mercury Sales Ltd. of Hay River stocks a limited quantity of farm implements, but the preponderance of its business is in automobile sales and maintenance. These inadequacies will impact i.n a major way the type and level of agricultural development that could be attained in the NWT. There are only medium and long term solutions to this problem. Appropriate institutions will have to be created and facilities built. The following are possible solutions:

i) attract a veterinarian to service the agricultural centres of Fort Smith, Hay River and Fort Simpson;

ii) facilitate the construction of abattoirs, processing and storage facilities;

iii) create relevant financial and technical support programs and agencies to administer them.

9) Lack of an Agricultural Policy, Standards and Regulations

The absence of a Territorial policy and regulations not only limits the scale of operations but also reduces consumer confidence in home grown products. The required policies and regulations would have to be in place to satisfy industry requirements and consumer expectations.

5. Options for Development

The ultimate objective for developing an agricultural industry is for the efficient provision of a safe, secure and sufficient supply of food for NWT residents at reasonable prices while ensuring a satisfactory and equitable standard of living for those who choose farming as a vocation. This statement encompasses regional development, resource conservation and import substitution sub-objectives.

There are a number of opportunities that can be realized in the agricultural sector. however, agriculture in the NWT, as in other regions, faces a number of risks uncommon to other businesses. These include weather fluctuations, market conditions, vulnerability to imports and cyclical prices among others. Programs to promote and stimulate the agricultural sector must be varied and capable of satisfying the changing and different requirements of the sector. Basically, two types of programs can be introduced:

i) production oriented programs delivered on a per unit basis; and
ii) consumer oriented programs.

Since agriculture is still in its infancy, producer directed programs will be more appropriate. Producer directed programs can take different forms as outlined below.

a) Direct Income Support Prourams

These are measures that raise the effective price received by producers. Such programs are usually implemented through the budget and do not raise the price paid by consumers. These programs can be introduced through the following instruments:

i) direct payments (disasters, deficiency, head, acreage, direct storage payments, etc.) ; and

ii) "Buy North" Compensation

b) Indirect Income Programs

These programs seek to reduce the costs paid by producers, mainly for their inputs. These programs can be budget supported. They do not affect the market prices received by producers or paid by consumers. These programs may include the following:

i) capital gains and contributions;
ii) concessions on credit (interest subsidies, repayable loans, contributions) ;
iii) input subsidies (fuel, fertilizer, transport, etc.);
iv) insurance; and
v) processing and storage assistance.

c) Market Price Support Programs

These programs raise the market price received by producers for their crops. Generally, they are implemented through the market and therefore will tend to raise prices paid by consumers. There are various ways to implement such programs including:

i) price premiums;
ii) export refunds/credits;
iii) import substitution schemes;
iv) supply management (production\acreage quotas) ; and
v) monopoly organizations (marketing boards, import control organizations) .

d) Other Programs

These include programs that will impact the agricultural sector as a whole in the long term by reducing costs. For example:

i) research, advisory, training and extension;
ii) transportation subsidy;
iii) tax rebates; and
iv) land improvement and soil conservation.

6. Federal and Territorial Programs

Existing federal agricultural programs can be accessed to satisfy some of the deficiencies in territorial programs. These federal programs can be grouped into six categories as follows:

a) consumption tax benefits programs;
b) credit programs;
c) livestock programs;
d) stabilization programs; and
e) employment programs.
f) research and development

Some of these programs are target specific as they are designed to impact a particular industry or area. Many can be made available to territorial farmers through federal/territorial agreements.

Programs administered by the Department of Economic Development & Tourism are limited in scope and are not always appropriate for the specific needs that are peculiar to the agricultural sector. The majority of the programs available through the Department are indirect income programs, in the form of capital grants, contributions and loans. Such programs, for example, do not seek to promote consumer confidence nor compensate farmers for the cyclical fluctuations in the marketplace. However, programs such as the Renewable Resource Enhancement Program can be further developed to accommodate the unique requirements of the agricultural industry.

7. Opportunities for Development

The NWT has yet to claim comparative advantage in the production of any particular commodity. This, however, does not preclude the Territories from producing various products for its domestic market. There is the potential for saving on freight and production costs of some products. Some products will be best produced near transportation systems while others like greenhouse crops may be more advantageous in remote locations.

Three studies commissioned by the Department are in support of local production:

a) "Small Scale Agriculture in the Northwest Territories", 1985;

b) "Study of Vegetable Markets in Selected N.W.T. Communities" 1986; and

c) "Pond Inlet Gardens", 1987.

From these reports the general conclusion is that most items could be produced competitively in the North with the exception of cereal crops. There is an adequate market to justify agricultural development at various locations throughout the NWT, with a greater proportion of the activities located in the Southern Mackenzie Region.

There exists potential in the following areas:

Game farming, (utilization of indigenous species unique to the NWT such as Muskox, Caribou;
Small fruit and berry production and associated processing and marketing of specialized products relating to both wild and domestic products;
Poultry operations (broilers and turkeys) ;
Egg-laying operations;
Farrow to finish hog operations;
Hay growing enterprises;
Cow-calf/feed lot operations;
Beekeeping operations;
Market gardening and truck farming;
Diary industry (fluid milk) ; and
Greenhouses.

In addition to these primary producing activities, secondary industries of a small to medium scale can be profitable as well. These include:

Berry processing;
Poultry packaging;
Meat packing;
Vegetable and potato processing; and
Processing of dairy products.

Realization of these opportunities will contribute in a major way to the reduction of the approximately $130 million spent annually on imported food from the South.

8. Conclusion

Commercial agriculture in the NWT is a possibility. The NWT has been endowed with an arable land base of 4.3 million hectares which present tremendous potential for development. Various studies and indeed history have clearly demonstrated the NWT's capacity to satisfy its domestic food requirements. To fully realize this agricultural potential, the appropriate policies, programs, regulations and infrastructures will have to be put in place.

9. Recommendations

In order to realize the opportunities for self-reliance and import substitution in food that the agricultural sector presents, the following actions are recommended:

a) development of a comprehensive agricultural policy and appropriate standards and regulations; and

b) creation of an agricultural agency with the mandate to foster agricultural development, provide financial and technical support, formulate agricultural programs, develop and enforce standards and regulations, and advise on policy matters.

An Interdepartmental Standing Committee on Agricultural Development has been formed to facilitate effective communication between NWT departments having regulatory or developmental jurisdiction on the industry. Departmental interests are envisaged as follows:

Economic Development and Tourism
- Agricultural Development;
- Promotion and Marketing;
- Operation of Commodities' Board; and
- Agricultural Extension services.

Renewable Resources
- Veterinary services;
- Enforcement of regulations and standards;
- Environmental impacts;
- Animal health;
- Agricultural land use outside municipalities;
- Territorial meat inspection; and
- Land development and soil conservation.

Health
- Advice on health matters;
- Workers' safety;
- Enforcement of Territorial Health Acts and Regulations; and
- Federal Food and Drug Act.

Community Affairs
- Agricultural land use within municipalities.