AGRICULTURAL POTENTIAL ON INDIAN RESERVES IN ONTARIO

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ABSTRACT

This thesis, written in the form of a professional report to the Indian Agricultural Program of Ontario (IAPO), presents a case for increasing significantly the level of attention paid to agricultural opportunities on Indian reserves in Ontario. Using available economic indicators as well as findings from an IAPO-commissioned survey of currently active Indian farmers, the thesis begins by demonstrating the potential importance of expanded farming activity within the reserve economy context. Employing data on land capability for agriculture, from Environment Canada's *Canada Land Inventory*, together with statistics on the nature and intensity of farming in local counties surrounding or adjacent to Indian reserves (as proxy indicators for the economic feasibility of farming in local economies throughout the province), the thesis provides a preliminary estimate of the potential number of full-time farm operations (or equivalent part-time) which might be sustained on Indian reserves at levels consistent with local county norms. The thesis subsequently addresses some of the most significant barriers and obstacles standing in the way of successful development of the full agricultural potential on Indian reserves, and of potential roles for the IAPO in helping Indian farmers to overcome them. The thesis concludes with a number of specific recommendations for IAPO to initiate action in response to the findings. This is aimed primarily at engaging greater federal and provincial government support for further research and exploration of the agricultural potential on reserves in the province.

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PUBLICATIONS

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- *The Criminal Law in Canadian Society* (with Renate Mohr and Jack MacDonald), Justice Canada, 1982
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J. Phillip Nicholson

CONTENTS

FOREWORD

This thesis has been written in the form of a report for the Indian Agricultural Program of Ontario (IAPO), a non-profit Ontario corporation with letters patent issued in June, 1984. IAPO is owned by, and accountable to Indian farmers in Ontario, with a Board of Directors who are Indian farmers representing various farming districts across the province. The corporation's mission is to assist Indian farmers in achieving the "economic utilization of the agricultural resources on Ontario Indian reserves".[1] More specifically, the goals and objectives of the corporation are to:

- evaluate the agricultural potential of the land and of the Indian people on reserves[2] in Ontario, and develop programs to assist interested Indian people to effectively utilize these resources;

- create, enlarge and administer a fund to be used for the benefit and promotion of Indian farmers;

- provide financial assistance in the form of loans and guarantees to Indian farmers on a direct and indirect basis to improve agricultural resources for the Indian people of Ontario;

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1. Indian Agricultural Program of Ontario program leaflet, June 1987.

2. A reserve is a tract of land, owned by Her Majesty in Right of Canada, and made available to registered ("status") Indians of a particular band or bands, for their use and benefit. There are approximately 113 reserves in Ontario, most of which have at least some population resident on-reserve.

- provide management and extension services of all types to make optimum use of agricultural lands within the reserves;

- encourage Indian farmers to take advantage of assistance programs in agriculture offered by other agencies, particularly the Ontario Ministry of Agriculture and Food (OMAF); and

- assist in the development of business skills among Indian farmers.

The Indian Agricultural Program of Ontario serves registered ("status") Indians, within the meaning of the Indian Act (Canada), residing in the province of Ontario. While IAPO provides services to some on-reserve Indian farmers who may have part of their operations located *off-reserve*, its primary orientation is toward farmers and farm operations based on reserves. (Indian farm operations located *completely* off-reserve are considered by IAPO to have more direct access to "mainstream" commercial and government programs and services, and therefore do not qualify for IAPO assistance.)

While IAPO financial assistance is available only to adult Indian farmers (18 years of age or older), the corporation recognizes the importance of the *family unit* in many farming operations, and emphasizes technical and advisory services which cater to the needs of young and aspiring Indian farmers. Similarly, IAPO recognizes the importance of *community-based* farming operations such as *band farms* (i.e., farms owned and/or operated by an Indian band council or designated agency at the reserve community level), and *farm cooperatives*.

Since its creation in 1984, the Indian Agricultural Program of Ontario (IAPO) has focused on developing an organizational structure, a set of policies and procedures for operating a loan guarantee program, and a delivery system for technical and advisory services, with offices located in Lambeth and Stirling. IAPO has begun establishing a network of contacts and service relationships with Indian farmers on several reserves throughout the province.

I INTRODUCTION

Purpose of this Report

The purpose of this report, and the study on which it is based, is to improve the overall knowledge and appreciation of the agricultural potential on Indian reserves in Ontario, and to outline and assess opportunities for IAPO to assist current and aspiring Indian farmers in pursuing that potential. The *primary objective* is to convince appropriate federal and provincial agencies[1] of the merits of increasing significantly the level of interest and attention paid to agricultural opportunities on reserves, and of the need for more financial and technical support to the Indian Agricultural Program of Ontario to enable it to further research, test, demonstrate and promote this potential on behalf of Indian farmers.

More specifically, the report:

- provides a preliminary estimate of the extent, nature and significance of current levels of farming activity by Indians on-reserve in Ontario, taking into account general socio-economic conditions and opportunities on-reserve;

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1. At the federal level, these include: Indian and Northern Affairs Canada, which has primary responsibility for federal policies and programs related to Indian people on reserves; the Department of Industry, Science and Technology, which administers the Native Economic Development Program; Agriculture Canada; and the Farm Credit Corporation, a federal crown agency. At the provincial level, these include: the Ontario Ministry of Agriculture and Food; the Ontario Ministry of Citizenship, which administers the Native Community Branch programs; the Ontario Native Affairs Directorate; the Ministry of Natural Resources; and the Ministry of Northern Development and Mines.

- estimates the potential for new and expanded levels of farming activity on Indian reserves in the province, taking into account soil and geo-climatic factors as well as local market conditions, available support services and general farming traditions in various regions of the province;

- outlines and assesses other barriers and obstacles facing Indian farmers and/or Indian communities in pursuing agricultural potential on reserves; and

- outlines and assesses potential roles and strategies for IAPO (in concert with other relevant organizations, where applicable) to further explore the feasibility of promoting and supporting expanded agricultural development on reserves, taking into account lessons learned from other provinces and other jurisdictions.

Background

Prior to the completion of this study, relatively little was known about the overall level of farming activity on reserves throughout the province. Nor was there a comprehensive estimate of the potential for new and expanded Indian farming operations on-reserve over the longer term. Indeed, only relatively modest (though much appreciated) financial and technical support for Indian farmers has been available to date from the federal and provincial governments.

The most significant forms of assistance targeted specifically to Indian farmers have been the following:

- approximately $200 000/yr. from Indian and Northern Affairs Canada to support operations of the Indian Agricultural Program of Ontario;

- $2 525 000 from the Native Economic Development Program of the federal Department of Industry, Science and Technology in the form of a one-time contribution to IAPO to capitalize a loan guarantee fund for Indian farmers on reserve (including IAPO access to the interest on these funds to be used for IAPO operations), $500 000 of which was later released to be used for direct loans; and

- other one-time contributions to IAPO for purchase of a computer, commissioning of the survey and study upon which this report is based, and construction of an office building in Stirling.

At the provincial level, there are at present no long-term financial assistance programs available for farmers in Ontario. At the federal level, the Farm Credit Corporation (FCC) offers a variety of financial assistance programs to complement assistance available through private sector sources. Despite a declared policy of special support for Indian farmers, however, no targeted delivery arrangements have been made for these FCC programs, and Indian participation has been minimal.[1]

Other federal and provincial programs for farm assistance have been narrow in focus and short-term in nature; none have been targeted specifically to Indian farmers on-reserve. Indian participation in such programs as FARMSTART (Ontario Ministry of Agriculture and Food, providing contributions up to $37 000 over 7 years for new full-time farms), the Ontario Family Farm Interest Rate Reduction (OFFIRR) program, the

1. Despite 100% guarantees from the Minister of Indian and Northern Affairs for FCC loans to Indian farmers on reserve, Indian participation has been negligible.

Special Canadian Grains program (Agriculture Canada), the Drought Assistance Program (Agriculture Canada), the Ontario Farm Machinery Safety and Repairs Program and the Ontario Land Stewardship Program (grants from OMAF and the Ontario Ministry of the Environment for conservation, tillage, grassed waterways and erosion control investments) have had little application and/or insignificant take-up on Indian reserves.

The federal *Special Agricultural and Rural Development Act* (Special ARDA) assistance programs do not apply to reserves in Ontario. None of the Ontario Ministry of Agriculture and Food farm extension workers are dedicated specifically to Indian farms on-reserve, nor are the special 8%-interest rate loans for tile drainage investments under terms of the *Ontario Tile Drainage Act* available to Indian farmers on-reserve.[1]

In Ontario, as in other provinces, one of the principal barriers standing in the way of targeting programs to support expanded farming activity on reserves has been the general perception that Indian reserves are poorly suited for agriculture and that expanded farming activity on reserves would not be particularly significant or beneficial from a social or economic development point of view. This is perhaps best exemplified in the 1985 report of the federal Task Force on Program Review, chaired

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1. OMAF is presently working with IAPO to arrange for more active use of OMAF extension workers, and for IAPO to play the role of a "municipality" in administering the *Tile Drainage Act* provisions on reserves to enable Indian farmers to benefit. Similarly, the Native Community Branch of the Ontario Ministry of Citizenship is currently exploring a potential new program to promote and assist development of "native crops" with promises of high returns on investment (i.e., evening primrose used for a range of cosmetic and medicinal purposes, and the naked-seed pumpkin). Finally, the Ontario Native Affairs Directorate is developing a new program to assist Indian and other native financial institutions, possibly including IAPO.

by the then Deputy Prime Minister. The study team report focusing on Indian and native programs concluded, inter alia:

> *"While great hope has been voiced for a native economic renaissance, the 'found' natural resource base for any such renewal is strikingly inadequate on most reserves. For example, the per-capita land base for Indians on reserve in Saskatchewan is about 50 acres. A viable prairie farm can require 1000 acres."*[1]

This conclusion, prominently positioned in the Review Highlights section of the final report, simultaneously displays an ignorance of the real agricultural potential on Indian reserves and reflects a fundamental lapse in logic. Comparing the *per-capita* land base in Saskatchewan (50 acres) to the needs of a viable prairie farm (1000 acres) is inappropriate, since the per-capita figure reflects the total amount of land available to *every man, woman and child* on-reserve. In Canada, only 4% of all employed persons 15 years of age and over are involved in agriculture. Furthermore, the employed population accounts for only 60% of the population 15 years of age and over, and less than 45% of the total population (i.e., all ages combined). Therefore it can be seen that in Canada less than 2% of the total population (i.e., all ages) is employed in agriculture.[2] Thus, while there may be only 50 acres of reserve land *per-capita* in Saskatchewan, there *would be 1000 acres per potential farmer* even if the proportion of Indian people involved in farming was *two-and-a-half times* the national average.[3]

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1. *Improved Program Delivery: Indians and Natives,* A Study Team Report to the Task Force on Program Review, Government of Canada, 1985, p. 24.

2. Nicholson, J. Phillip and Paul Macmillan. *An Overview of Economic Circumstances of Registered Indians in Canada,* Indian and Northern Affairs Canada, 1986.

3. Given the different nature of farming on the prairies, compared to central Canada, the absolute numbers from the Saskatchewan example do not apply directly to Ontario, but the logic is the same. As noted later in this report, the amount of arable land available to Indians on-reserve in Ontario, as in other regions of Canada, compares very favourably to the non-Indian population, and also appears to be capable of supporting a very significant expansion of farming opportunities for Indians on-reserve.

Use of this Report

This report may be used by IAPO to promote broader awareness of, and interest in, the on-reserve agricultural potential in Ontario. Most importantly, the study findings will help to erase the general misconception that Indian reserves[1] lack the basic soil and geo-climatic attributes to make viable agriculture possible. Secondly, the study findings may be used by IAPO, on behalf of Indian reserve communities in general and Indian farmers in particular, to illustrate the very real and significant scope for expanded farming activity on many Indian reserves. Thirdly, the preliminary findings of the study regarding investment requirements, barriers and obstacles, and potential roles and strategies for IAPO (and other appropriate agencies) can be used by IAPO to establish strategies and priorities for the further exploration and assessment of agricultural potential and appropriate programs of support for Indian farmers.

Naturally, this study provides only a preliminary assessment of the agricultural potential and related issues and implications. Accordingly, the results are not intended to support the immediate creation of specific programs. Nor are they intended to elicit commitments of major development funds. Further research and assessment - especially on a reserve-by-reserve basis - will be necessary. The study findings contained in this report should be used by IAPO to convince Indian community leaders and appropriate federal and provincial government officials of the merits of increasing substantially the level of attention and resources paid to assessing and demonstrating farming potential on reserves.

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1. As noted later in this report, the study focuses on the *southern portions* of the province, which are covered by Environment Canada's *Canada Land Inventory*, and where approximately one-third of the province's Indian reserves are located. These include virtually all areas, whether on or off-reserve, where there are any significant concentrations of land with good agricultural potential.

II FARMING AND THE ON-RESERVE ECONOMY IN ONTARIO

Background: Economic Conditions and Circumstances on Reserves

According to the Census of Canada, there were a total of 42 645 registered Indians living on reserves in Ontario in 1981. This represented approximately 55% of the total registered Indian population in the province, and slightly more than one-fifth (22%) of the total registered Indian population on reserves in Canada. More than 95% of on-reserve Indians reside in rural areas (compared to less than 25% of the non-Indian population).[1] The on-reserve population is distributed amongst approximately 113 reserve communities throughout the province, averaging less than 500 persons per community.

Although economic conditions among registered Indians living on-reserve rank higher in Ontario than in any other province or territory of Canada, registered Indians living on-reserve remain among the most economically disadvantaged of any group in Ontario society.

Some indicators of the generally poor economic and employment conditions among registered Indians living on-reserve in Ontario are outlined below:

- The "employment rate" (i.e., the proportion of the population of conventional "working age", 15-64 years inclusive, which is no longer attending school and which is employed) was 36% for Indians on-reserve in 1981 (compared to

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1. Ontario Native Affairs Directorate. *Towards A Framework for Native Economic Development Policies and Programs in Ontario,* Government of Ontario, 1987.

64% for non-Indians in general, and 62% for non-Indians in rural areas). This means that among on-reserve Indians *of working age*, there are almost twice as many *not* employed as there are employed.[1] Indian employment rates on-reserve are less than three-fifths those of non-Indians - even those in rural areas only.

. Even though employment rates among Indians *off*-reserve are only four-fifths those of non-Indians in Ontario (52% compared to 64%, respectively), they are substantially higher than those among Indians *on*-reserve. Among persons of working age, employment rates among Indians *on*-reserve are only two-thirds those among Indians *off*-reserve.[2]

. In 1980, the average personal income for persons 15 years and over *with* income was $6,802 among Indians living on-reserve - only one-half (51%) that of non-Indians in Ontario.[3] (Note: Since most Indians on-reserve reside in rural areas, it is perhaps more appropriate to compare their income levels with non-Indians *in rural areas*. The gap is almost as large. Average economic family incomes among rural Indians in 1980 were only 58% those of rural non-Indians.[4])

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1. Nicholson, J. Phillip and Paul Macmillan. *An Overview of Economic Circumstances of Registered Indians In Canada,* Indian and Northern Affairs Canada, 1986.
2. Ibid.
3. Ibid.
4. Ontario Native Affairs Directorate, op. cit. Volume II, p. 27.

- In the same year, more than one-quarter (26%) of Indians on-reserve, 15 years of age and over and no longer attending school, had *no* income, compared to only 13% of non-Indians.[1]

- The income situation among Indians on-reserve is particularly bleak when one takes into account the higher proportions of persons of working age with *no income* and the significantly larger average family size of registered Indians on-reserve compared to non-Indians. The average income *per-capita* in the total registered Indian population in 1980 amounted to $3,112 - only slightly more than one-third (34%) of the level for non-Indians in the province.[2]

- In 1980, more than one-third (36%) of Indians on-reserve, 15 years of age and over and no longer attending school, were dependent on government transfer programs (e.g., social assistance, unemployment insurance benefits and welfare payments) as their major (i.e., single largest) source of income. This was almost three times the level among non-Indians in the province.[3]

- More than two-fifths (44%) of Indians on-reserve in Ontario, 15 years of age and over and no longer attending school, had attained *less* than even some high school education, and almost fully three-quarters (74%) had only high school education or less.[4]

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1. Graham, Katherine. *An Overview of Registered Indian Conditions in Ontario,* Indian and Northern Affairs, Government of Canada, 1986, p. 81.
2. Nicholson, op. cit.
3. Graham, op. cit.
4. Ibid.

From the above selected indicators, it can be concluded that current economic conditions on-reserve are bleak.[1] While the conventional economic and employment indicators used tend to downplay or ignore completely the significance of non-wage and so-called *traditional* pursuits (including hunting and trapping) they also do not adequately reflect the fragility and insecurity of economic and employment opportunities in most reserves. Many of the better-paying and more secure jobs are related to band administration and delivery of local government programs within the community. Many of the other jobs tend to be seasonal and/or part-time, with relatively little continuity and security. Many are located off-reserve and require extensive travel.

The above data suggest that the development of a viable agricultural base in many communities might greatly enhance economic and employment conditions and opportunities.[2] With less than 10 000 Indians on-reserve successfully employed, it is evident that for every additional 100 full-time jobs (or equivalent part-time), the total employed labour force would increase by more than 1%. Such prospects would be particularly important in reserve communities where unemployment is currently relatively high and/or where agricultural opportunities are especially significant.

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1. Data are not provided in all cases to allow a direct comparison between Indians on-reserve (being largely rural) and rural non-Indians. However, in most cases there is only a modest gap between urban and rural economic, employment and educational attainment levels among the non-Indian population. As a consequence, only a modest portion of the gaps between Indians on-reserve and the general non-Indian population can be attributed to differences in rural urban compositions of the populations.

2. As noted later in this paper, prospects for development or expansion of agricultural opportunities are concentrated in 32 of the 113 reserves in the province, all of these being in the more southern portions of the province where, as with non-reserve land, soil and geo-climatic conditions are most favourable for agriculture.

To the extent that any significant expansion of agricultural activity on reserves is possible, there are many potential benefits, including:

- The creation of any new wage positions, including both full- and part-time, will reduce unemployment and increase personal, family and community income levels, while reducing dependency on government for social assistance.

- As will be shown later in this study report, the average personal and family income levels attributed to farming on-reserve compare very favourably to other economic pursuits on-reserve. Moreover, farming can be a relatively stable pursuit. Since it involves management of a renewable resource, it is not subject to resource depletion associated with some other primary sector pursuits on-reserve such as mining and sand & gravel operations.

- Farming provides an opportunity for those Indians who wish to remain resident on their traditional reserves. Any such community-based employment opportunities help to maintain the harmony, stability and integrity of families, and the reserve community as a whole.

- Since the vast majority of Indian farm operations are owned by individuals and families, there is considerable scope for the involvement of women working either as farm operators or providing complementary farm management services in support of their partners. Similarly, larger band-operated farm operations can be managed so as to maximize part- and full-time employment opportunities for members of the community.

- Agriculture is seen as a culturally appropriate employment option for Indians on-reserve. Many Indian bands have maintained a long tradition of involvement in agriculture - dating back several hundred years. (It is only in this century, with the new difficulties facing Indians on-reserve in gaining access to financial and technical services to modernize farm operations, that Indian involvement in agriculture in Ontario has fallen substantially below that of non-Indian counterparts.)

- Community-based enterprises, such as reserve farm operations, which are wholly owned and operated by Indians can also provide positive role models for younger members of the community in their developmental years. At the same time, they can provide younger workers - including those involved in part-time or seasonal occupations - with transportable skills which may be useful in other pursuits, whether on- or off-reserve.

- In addition to providing direct cash benefits, farming also provides opportunities for non-cash benefits in the form of consumable produce and livestock for Indian farmers and their families. By reducing dependence on foodstuffs purchased through commercial suppliers (often located off-reserve), farming on-reserve can help enhance the quality of life and sense of independence within Indian communities, while reducing economic leakages to outside economies, thus preserving local employment opportunities.

Naturally, development of expanded on-reserve farming is not without its challenges. Chapter IV of this report reviews some of the major barriers and obstacles.

Survey of Current Farming Activity on Reserves

In 1987, the Indian Agricultural Program of Ontario (IAPO) commissioned a survey of all known active farm operations on reserves throughout the province.[1] The purpose of the survey was to establish a database on Indian farm operations on reserves to assist IAPO in estimating current and prospective needs for assistance from IAPO or other agencies in farm start-ups, expansions, improvements and/or on-going operations.

The survey consisted of on-site visits and interviews with current and aspiring Indian farmers. The survey process was planned and organized by J. Phillip Nicholson, a consultant with a background in geography, economics and planning, and extensive experience in Indian economic development and related research. The interviews themselves were conducted by a small team consisting of: Fred Hayward, a professional agrologist with extensive experience in Indian farming operations in several provinces as well developing nations; Mary Taylor, a Master's graduate (geography) with a background in soil sciences, resource management and resource economics; and Richard Maracle, an Indian management consultant with extensive contacts throughout the Indian community in Ontario.

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1. This report draws upon the unpublished data from that survey, results of which are being used by IAPO in planning its programs and strategies, and in supporting applications for government assistance for funding of IAPO programs and/or greater tapping of existing federal and provincial programs by Indian farmers.

Prospective interviewees were identified through existing membership and mailing lists of IAPO, supplemented by additional active or prospective farmers identified through telephone contact with band council officials and agricultural representatives in the reserve communities prior to the on-site visits. Additional interviewees were identified in the course of the field visits.

Notice of the survey activity and general schedule was provided to reserve communities through letters from the IAPO Board of Directors to band council officials and agricultural representatives, where applicable. In addition, notices were placed in the IAPO newsletter and, in a few instances, in individual newsletters of Indian communities and associations. In most cases, the on-site interview process began with a general introduction and orientation meeting in the community, attended by an official representative of IAPO as well as the study team. Meetings were typically held in community facilities such as band council offices, fire halls or community centres. Specific interview schedules and arrangements were finalized at these sessions or in direct follow-up contact (in telephone or in person) with the interviewees once the interviewers were on-site. This on-site interview approach was considered superior to other survey techniques (most notably telephone interviews, and/or mail-out and mail-back written questionnaires) for several reasons:

- The on-site interviews helped to establish and enhance the visibility and presence of the relatively-new IAPO, which was not particulary well-known in some of the smaller, more remote and/or less agriculturally active reserves. On-site interviewers were able to distribute IAPO information and promotional materials (e.g., newsletter, program descriptions and caps bearing the IAPO logo).

- Given the relatively low levels of formal educational attainment and literacy among Indians on-reserve, it was felt that written questionnaires would enjoy a particularly poor response rate. This is especially true since Indian people are subject to the "paper burden" of numerous formal surveys and evaluations, and are also often reluctant to participate in exercises which have the appearance of government intervention. (While IAPO enjoys government funding, it is *not* a government agency, but could be easily misconstrued as such if a relatively formal-looking written questionnaire process were utilized.)

- The on-site survey enabled the interviewers to identify additional interviewees, not previously identified in formal membership and mailing lists. This included a few active farmers identified through "windshield" observations on-reserve, as well as aspiring farmers referred to through other interviewees.

- In addition, the on-site survey allowed the interviewers, with formal training in farm economics and statistics, to assist interviewees in completing the forms. Through on-site inspection, and questions and answers, the interviewers were able to ensure comprehensiveness, consistency and accuracy in the tabulation of data. At the same time, they were able to establish a rapport with the interviewees, and to probe them on their plans, concerns and financial, technical or other needs. They were also able to take note of any specific questions concerning IAPO services and activities, and to relay these to IAPO officers for immediate follow-up.

- No other reliable sources of information on current or prospective farming activity on reserves were available. For example, the Census of Canada does not provide information on investment and expansion intentions of farmers, nor

does it address their problems and concerns. In any case, the most recent Census data available are from 1981. The 1986 Census data have not been fully tabulated at the reserve level, and will cover only some reserves, since an appreciable number of reserves, for various reasons, chose not to participate in the 1986 Census. Similarly, the monthly Canada Labour Force Survey, administered by the Canada Employment and Immigration Commission, is not applied on reserves since most Indian communities have expressed their wish not to participate. Individual farming studies in Ontario have been restricted to only a few reserves and, in any case, do not provide a consistent province-wide database. (In this context, the on-site survey coverage rates were encouraging. With the exception of one reserve, where a group of "traditionalist" Indians refused to participate in the study, there was a 100% participation rate for all other identified Indian farmers.)

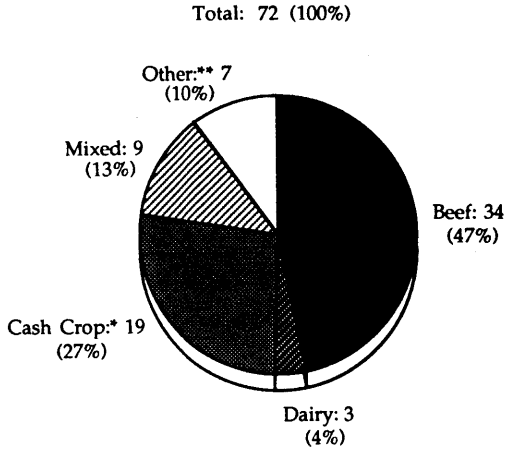
Survey Findings

There are at least 72 active Indian farm operations in Ontario. These comprise all active farm operations which are known to IAPO *and* which agreed to participate in the survey. An additional handful of known or possible farm operations were identified through second-hand sources, but either could not be directly contacted or could not provide sufficient information to warrant inclusion in the IAPO survey.

As summarized in Figure 1, below, almost one-half (47%) of the active farm operations are beef cattle farms, the majority of these being cow/calf operations. Slightly more than one-quarter additional operations were involved in cash crops such as grain, corn, soybeans, wheat and white beans. A further 13% were mixed farms (i.e., they derived their revenue from a mixture of beef, cash crop or other livestock operations). Only

three were dairy farms, and an additional seven were so-called "alternative" agricultural operations, including a fish farm, a cranberry marsh, a sheep farm, a mixed livestock operation (sheep, poultry, etc.), a vegetable/market garden, a fox ranch and a blueberry cultivation operation.

FIGURE 1:
ACTIVE FARM OPERATIONS, BY TYPE, 1987



* grain corn, soybeans, wheat, white beans, etc.

** fish farm; cranberry operation; sheep farm; combined sheep, poultry and miscellaneous; vegetable/market garden; fox ranch; blueberry operation

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As summarized in Figure 2, below, there are active farm operations on a total of 18 reserves, representing six different districts of the province, and accounting for almost one fifth of all occupied reserves. Of the 72 active farm operations, six are band[1] farms which typically employ several people either full-time or seasonally. The rest are owned and operated by individuals and families. More than half of the active farm operations are concentrated in three reserves (Mohawks of the Bay of Quinte, Wikwemikong, and Six Nations) each of which had 10 or more active farms. No active farms are located in the more northerly (and less arable) regions of the province.[2]

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1. Band farms are typically owned by, and operated under the general direction of, the band council, for the collective benefit of the farm manager(s) and workers, and/or the community as a whole.

2. IAPO does not provide services to wild rice operations (prevalent in northwestern Ontario), hence these were not included in the survey.

FIGURE 2:
ACTIVE FARM OPERATIONS, BY TYPE, 1987

Reserves Surveyed	Beef	Dairy	Cash	Mixed	Other	Total
BRANTFORD DISTRICT						
New Credit	0	0	3	2	0	5
Six Nations	1	0	9	1	0	11
District Sub-Total	1	0	12	3	0	16
BRUCE DISTRICT						
Chippewas of Nawash (Cape Croker)	1[1]	0	0	0	0	1
Saugeen	1[2]	0	0	0	0	1
District Sub-Total	2	0	0	0	0	2
FORT FRANCES						
Big Grassy	0	0	0	0	0	0
Couchiching	0	0	0	0	0	0
Rainy River	1[3]	0	0	0	0	1
District Sub-Total	1	0	0	0	0	1
LONDON DISTRICT						
Chippewas of the Thames	0	0	1	0	0	1
Muncey of the Thames	0	0	0	0	0	0
Kettle and Stony Point	0	0	0	0	1*	1
Moravian of the Thames	0	0	2[4]	1	0	3
Oneida of the Thames	0	0	0	1	0	1
Walpole Island	0	0	1[5]	0	0	1
District Sub-Total	0	0	4	2	1	7
PETERBOROUGH DISTRICT						
Beausoleil (Christian Island)	2	0	0	0	0	2
Georgina Island	3	0	0	0	0	3
Gibson	0	0	0	0	1[6]**	1
Mohawks of the Bay of Quinte (Tyendinaga)	6	3	2	2	2***	15
Akwesasne	8	0	0	0	1[7]****	9
District Sub-Total	19	3	2	2	4	30
SUDBURY DISTRICT						
Nipissing	0	0	0	0	2*****	2
West Bay	1	0	0	0	0	1
Wikwemikong	10	0	1	2	0	13
District Sub-Total	11	0	1	2	2	16
PROVINCIAL TOTAL	34	3	19	9	7	72

* Fish Farm
** Cranberry Operation
*** 1 Sheep Farm; 1 Sheep, Poultry and Miscellaneous Farm
**** Vegetable/Market Gardening Operation
***** 1 Fox Ranch, 1 Blueberry Operation

FIGURE 2:
ACTIVE FARM OPERATIONS, BY TYPE, 1987 (cont'd)

NOTE: Includes all known active farm operations identified and surveyed for IAPO study.

1. Band farm which employs 1 person full-time year-round and 4 people seasonally.
2. Band farm which employs 4 people full-time and seasonal labourers as required.
3. Band farm which employs 1 person full-time year-round, 1 person part-time year-round and 3 people seasonally.
4. Band farm which employs 1 person full-time 10 months of the year and 1 person on a part-time basis.
5. Band farm which employs 4 people full-time year-round (two of these are natives) and 5-6 people seasonally (spring and fall).
6. Band farm which employs 4 people year-round and up to 14 others during the harvest in the fall.
7. The Canada Land Inventory data showed no lands with Class 1-3 capability for agriculture on the *Ontario* portion of the Akwesasne reserve, hence the presence of 9 farm operations may seem contradictory. However, the reserve includes lands in Quebec and the United States, which may be used for some of the operations. In any case, the farms consist of 8 modest cow/calf operations, with purchased feed supplies, and 1 vegetable/market gardening operation.

As indicated in Figure 3, below, the known active farm operations on reserves in Ontario are divided almost equally between *commercial operations* (whether full-time or part-time) and *hobby farms*. Similarly, the commercial farm operations are almost equally split between full-time and part-time operations.

In IAPO's nomenclature, the commercial operations are categorized as either *Level I* (full-time) or *Level II* (part-time). Hobby farms are classified as *Level III*. IAPO's criteria for classification of farms is as follows:

- *Level I* (full-time) farm operations are defined as full-time, commercially-viable farms. The production of agricultural products, when sold, will be on a scale that will yield a surplus of revenue over all costs (in a normal production year) which is sufficient to support at least one family.
- *Level II* (part-time) farm operations will encompass farm operations with a production of agricultural products that will normally provide a surplus of

- *Level II* (part-time) farm operations will encompass farm operations with a production of agricultural products that will normally provide a surplus of revenue over all costs, but the scale of production will not yield total revenues to the operator to adequately sustain a minimum satisfactory family income (i.e., farm income must be supplemented by *non*-farm income).

- *Level III* (hobby) farm operations are categorized as non-commercial production of agricultural products that are used for home or band (i.e., community) use, but with either no or very limited cash sales. Home gardens, community gardens, and small-scale production of poultry or livestock operations are typical. Hobby farms are often seen as a stepping-stone for new farmers to enter into the agriculture business, and also provide non-cash benefits in the form of consumable produce and livestock.

- NOTE: For IAPO's purposes, farming enterprises which are intended to meet and satisfy markets for recreational, decorative and aesthetic purposes are not considered to be farming operations.

FIGURE 3:
ACTIVE FARM OPERATIONS,
BY IAPO "LEVEL" OF FARM OPERATIONS, 1987

Total: 72 (100%)

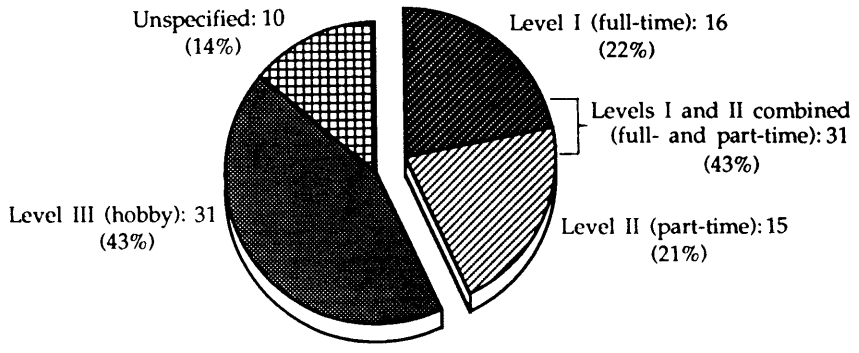

FIGURE 4:
ACTIVE FARM OPERATIONS,
BY IAPO "LEVEL" OF FARM OPERATION, 1987

Reserves Surveyed	Level 1 (full-time)	Level II (part-time)	Level III (hobby)	Unspecified (I-III)	Levels I-III Combined
BRANTFORD DISTRICT					
New Credit	0	1	4	0	5
Six Nations	4	2	5	0	11
District Sub-Total	4	3	9	0	16
BRUCE DISTRICT					
Chippewas of Nawash (Cape Croker)	1[1]	0	0	0	1
Saugeen	1[2]	0	0	0	1
District Sub-Total	2	0	0	0	2
FORT FRANCES DISTRICT					
Big Grassy	0	0	0	0	0
Couchiching	0	0	0	0	0
Rainy River (Manitou Rapids)	1[3]	0	0	0	1
District Sub-Total	1	0	0	0	1
LONDON DISTRICT					
Chippewas of the Thames	1	0	0	0	1
Muncey of the Thames	0	0	0	0	0
Kettle and Stony Point	<------unspecified------>			1	1
Moravian of the Thames	1[4]	1	1	0	3
Oneida of the Thames	0	1	0	0	1
Walpole Island	1[5]	0	0	0	1
District Sub-Total	3	2	1	1	7
PETERBOROUGH DISTRICT					
Beausoleil (Christian Island)	0	0	2	0	2
Curve Lake	0	0	0	0	0
Georgina Island	0	0	3	0	3
Gibson	1[6]	0	0	0	1
Mohawks of the Bay of Quinte (Tyendinaga)	3	7	5	0	15
Akwesasne	<------unspecified------>			9	9
District Sub-Total	4	7	10	9	30
SUDBURY DISTRICT					
Nipissing	0	0	2	0	2
West Bay	1	0	0	0	1
Wikwemikong	1	3	9	0	13
District Sub-Total	2	3	11	0	16
PROVINCIAL TOTAL	16	15	31	10	72

FIGURE 4:
ACTIVE FARM OPERATIONS,
BY IAPO "LEVEL" OF FARM OPERATION, 1987 (cont'd)

NOTE: Includes all known active farm operations identified and surveyed in IAPO study.

1. Band farm which employs 1 person full-time year-round and 4 people seasonally.
2. Band farm which employs 4 people full-time and seasonal labourers as required.
3. Band farm which employs 1 person full-time year-round, 1 person part-time year-round and 3 people seasonally.
4. Band farm which employs 1 person full-time 10 months of the year and 1 person on a part-time basis.
5. Band farm which employs 4 people full-time year-round (two of these are non-natives) and 5-6 people seasonally (spring and fall).
6. Band farm which employs 4 people year-round and up to 14 others during harvest.

While perhaps modest by non-Indian (i.e., mainstream) economy standards, the current scale of Indian farming activity on reserves is by no means insignificant. Total livestock consists of more than 1800 beef cattle, close to 200 dairy cattle (including approximately 80 milking dairy cows), almost 100 head of other livestock (hogs, sheep and goats) and more than 600 poultry. The total value of farm assets on Indian reserves was estimated as approximately $21.3 million in 1987. (Estimates of the land component of these assets are based upon comparable off-reserve open-market prices for farmland in Ontario.[1] Estimates of the value of buildings, livestock and machinery are based upon the IAPO survey findings as well as data from the Ontario Ministry of Agriculture and Food on comparable average farm asset values.[2])

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1. Farm Credit Corporation Survey of Farmland Prices, Government of Canada, 1984.
2. *Agricultural Statistics for Ontario,* Ontario Ministry of Agriculture and Food, 1985.

FIGURE 5:
ESTIMATED VALUE OF FARM ASSETS
($s 1986)

Reserves Surveyed	Farm Land	Buildings	Livestock	Machinery	Total
BRANTFORD DISTRICT	4 550 964[1]	828 895	145 420	668 825	6 194 104
BRUCE DISTRICT	1 329 650[2]	488 850	354 300	166 010	2 338 810
LONDON DISTRICT	2 301 142	372 675	15 475	1 063 530	4 053 222
PETERBOROUGH DISTRICT	3 218 710[3]	884 625	371 482	596 726	5 066 543
SUDBURY DISTRICT	2 447 582[4]	444 600	412 925	364 980	3 670 087
PROVINCIAL TOTAL	14 148 448	3 019 645	1 299 602	2 855 071	21 322 766

1. Includes 839 acres of rented land valued at $934 698.
2. Includes 765 acres of rented land valued at $461 745.
3. Includes 847 acres of rented land valued at $540 386.
4. Includes 710 acres of rented land valued at $275 320.

Note: Farm land values refer only to lands actively farmed, and not those with agricultural potential.

Indian on-reserve farm operations are generally modest in scale, though in certain aspects not drastically lower than the provincial averages. For example, the three dairy operations on reserves average approximately 25-30 milking cows each, compared to the provincial average of approximately 42 milking cows each.[1] Similarly, the 34 beef operations averaged approximately 50-55 head of cattle, compared to the

1. On-reserve data are from IAPO unpublished survey data, 1987; provincial data are from *Agricultural Statistics for Ontario*, Ontario Ministry of Agriculture and Food, 1985 (table 70, p. 63.).

provincial average of more than 80 head.[1] With a total of 12 112 acres under active production, the 72 full-time, part-time and hobby farms on-reserve averaged approximately 168 acres. This compares with the provincial average of slightly more than 180 acres.[2] (In 1981, 27% of farms in Ontario were less than 70 acres, and a further 37% between 70 and 179 acres; only 19% were 240 acres or more, and less than 10% were 400 acres or more.[3])

The average capital value of Indian farms on-reserve was approximately $296 000 in 1986, compared to a provincial average in excess of $380 000 in 1981 (with adjustment for inflation, all others being equal, the provincial average in 1986 would exceed $500 000).[4]

To further place Indian farming in the broader provincial context, it should be noted that the 72 on-reserve farms account for less than one-tenth of one percent of the more than 82 000 farms in Ontario. The range of types of farms on-reserve does not match that in the province, where dairy, (beef) cattle and mixed farms (which dominate the on-reserve operations) are complemented by hog, poultry, wheat, small grains, other field crop and fruit and vegetable operations.[5]

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1. On-reserve data are from IAPO unpublished survey data, 1987 (based on previous year's values); provincial data are from *Agricultural Statistics for Ontario*, Ontario Ministry of Agriculture and Food, 1985 (table 70, p. 63).
2. Ibid. (table 17, p. 15).
3. Ibid. (table 21, p. 19).
4. Ibid. (table 17, p. 15).
5. Ibid.

Indian farms tend to focus on less sophisticated and less capital intensive operations. For example, only 3 of the 72 operations - accounting for 4% of on-reserve farms - are dairy operations. This contrasts sharply with the provincial average, where almost one-fifth (19%) of the 68 960 farms in Ontario with sales of $2 500 or more in 1981 were dairy farms.[1] Almost one-half of on-reserve farms are beef operations, compared to the provincial average of only approximately one-quarter (28%).[2]

The estimated annual net income or "net cash receipts" (i.e., gross receipts less farm business expenses) for all on-reserve Indian farm operations in the province amounted to more than $212 000 in 1986. This equates to an average of approximately $4 260 per active farm. However, since some hobby farms show appreciable cash losses,[3] the

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1. On-reserve data are from IAPO unpublished survey data, 1987; provincial data are from *Agricultural Statistics for Ontario*, Ontario Ministry of Agriculture and Food, 1985 (table 23, p. 21).

2. Ibid. (table 23, p. 21). The distribution of farms in Ontario with sales of $2 500 or more in 1981, by type, is as follows:

Total: 68 960 (100%)

. Dairy	12 841	(19%)
. Cattle (including beef and cow/calf operations)	19 567	(28%)
. Hogs	4 984	(7%)
. Poultry	1 886	(3%)
. Wheat	692	(1%)
. Small Grains	14 016	(20%)
. Other Field Crops	3 190	(5%)
. Fruits and Vegetables)	4 335	(6%)
. Miscellaneous Specialty and Mixed	7 449	(11%)

3. For hobby farms and commercial farms alike, the cash receipts do not fully reflect the value of *farm products consumed by the farm operator* and his or her family. Nor do they include *non-farm* sources of income.

total net income for the *commercial farms* (i.e., Levels I and II) amounted to $248 033 - an average of $8 858 per farm.[1] This compares with the provincial average for net cash receipts for all "census" farms (i.e., excluding "hobby farms" with annual sales less than $250) which amounted to approximately $13 700 in 1981. With adjustment for inflation, all other things being equal, this would equate to approximately $17 500 in 1986. This means that average net receipts of Indian on-reserve farms (excluding hobby farms) are approximately one-half the provincial average. However, incomes earned by Indians on-reserve are wholly exempt from personal or corporate income tax. Thus, the real gap between Indian and non-Indian "take home" receipts is less than that suggested by these data.

Discounting for inflation, the average cash receipts for Indian farms on-reserve ($50 382 in 1986) would equate to approximately $40 300 in 1981. This means that the average *gross income* of all farms on-reserve (commercial farms as well as hobby farms) was *greater* than that of at least one-half, and possibly as much as two-thirds, of all farms in the province. In fact, the average *net* income of Indian farms on-reserve was greater than the *gross* income of approximately one-fifth of all farms in Ontario.[2]

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1. Based on information from 50 of the 72 active farms, from which relatively comprehensive receipts and expenditure data were available. These included 13 of the 16 Level I farms, all 15 Level II farms and 22 of the 31 Level III farms.

2. *Agricultural Statistics for Ontario*, Ontario Ministry of Agriculture and Food (table 22, page 20). The distribution of farms in Ontario, by value of agricultural products sold is as follows ($s 1981):

Total:	82 448	100%
< 2 500	13 488	16%
2 500 - 4 999	8 818	11%
5 000 - 9 999	10 158	12%
10 000 - 24 999	13 952	17%
25 000 - 49 999	10 963	13%
50 000 - 99 999	12 510	15%
100 000+	12 559	15%

FIGURE 6:
ESTIMATED ANNUAL CASH RECEIPTS
BY IAPO "LEVEL" OF FARM OPERATION, ALL DISTRICTS
($s 1986)

	Income (Cash Receipts)	Expenses	Net Income (Net Cash Receipts)
LEVEL I (full-time)			
Total[1]	2 002 954	1 847 564	155 390
Per Farm Average[2]	154 073	142 120	11 953
LEVEL II (part-time)			
Total	313 450	220 807	92 643
Per Farm Average	20 897	14 720	6 176
SUB-TOTAL (I & II Combined)			
Total	2 316 404	2 068 371	248 033
Per Farm Average	82 729	73 870	8 858
LEVEL III (hobby)			
Total	202 674	237 832	(35 158)
Per Farm Average	9 212	10 811	(1 598)
PROVINCIAL TOTAL (I, II & III)			
Total	2 519 078	2 306 203	212 875
Per Farm Average	50 382	46 124	4 258

NOTE: The IAPO study, which was conducted in 1987, asked for data on last full year of operations (i.e., 1986).

1. Includes only those farm operations where complete income and expense data were provided or could reasonably be estimated. (Includes 13 of the 16 Level I farms; all 15 of the Level II farms and 22 of the 31 Level III farms.) It is appreciated that these farm income data are based on a relatively small sample size, and therefore have limited reliability for comparisons with province-wide data. However, they *do* illustrate that there *are* a number of relatively viable farm operations established on reserves in the province.

2. For Level I includes 3 **band** farm operations. Data for Level I **individual/family** operations only (i.e., excluding band farm operations) are as follows:

Individual/Family Farms Only	Income	Expenses	Net Receipts
Total	652 404	506 489	145 915
Per Farm Average	65 240	50 649	14 592

A more detailed analysis of the farm income data suggests that *within the overall reserve economy context*, farming can be *relatively* lucrative. For example, the average incomes for *full-time farm operations only* (i.e., Level I) amounted to $11 953, while for part-time farms (i.e., Level II), they amounted to $6 176. Excluding band-owned farms, the average net farm receipts for *individually or family-owned full-time farms* (i.e., Level I) were $14 592. (With the exception of one such farm showing a *net loss* in 1986, the net incomes of individually- or family-owned full-time farms ranged from approximately $7 000 to $38 000; only 3 of the 13 for which data were available had net incomes *less* than $10 000.)

While average net incomes of Indian farms on-reserve are lower than those of non-Indian farms throughout Ontario, they compare very favourably to the average income levels of Indians on-reserve in general. For example, in 1980, the *average personal income* for Indians who lived on-reserve *and* who had an income, amounted to $6 802. Adjusting for inflation, this would equate to approximately $9 455 in 1986.[1] This means that full-time *individual and family-owned farms* enjoyed incomes from agriculture which were on average more than one-and-one-half times the average annual income of other working-age Indians with income on reserves. Similarly, *part-time* Indian farmers were able to supplement their non-farm incomes through farm incomes which *alone* amounted to almost two-thirds of the average income for other Indians with income on reserves.

It should be appreciated that these data compare total *farm-unit* incomes (i.e., for individual and family-run farm operations) with *individual* incomes for the total on-reserve population. A somewhat more direct comparison might be *average farm incomes*

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1. Adjustment for inflation is based on annual increases in the Consumer Price Index, as reported in the *Bank of Canada* monthly reports.

compared to *average economic family incomes* on-reserve. The latter equaled $14 981 in 1980. Adjusted for inflation this would equal approximately $20 800 in 1986, meaning that average commercial farm incomes (individual and family operated) on-reserve amounted to slightly less than one-half the average economic family incomes on-reserve. The farm incomes do not, however, include income from *non*-farm sources. Moreover, "economic" families differ from "census families" in that they include, where applicable, both the parents *and* the children of the principal householders living in the same dwelling unit. Thus, the average extended "economic family" would include a larger number of contributing *income earners* than the typical individual or family-run farm unit. The addition of *non-farm* income sources from *all* earners in *farm-based economic families* would almost certainly make total farm family income compare even more favourably with average family incomes on-reserve.[1]

FIGURE 7:
AVERAGE NET INCOME OF ON-RESERVE FARMS, COMPARED TO AVERAGE INCOME OF INDIANS ON-RESERVE
($s 1986)

FARM OPERATIONS ON-RESERVE (excludes *non-farm* incomes)	
. All farms, including Level III (hobby)	$ 4 260
. Level II (part-time) only	6 176
. Level I (full-time) only (*including* band farms)	11 953
. Level I (full-time) individual/family farms only (i.e. *excluding* band farms)	14 592
ALL INDIANS ON-RESERVE (includes *all* income sources)	
. Individuals with income (i.e., *excludes* non-income earners)	9 455
. Economic families	20 800

1. The IAPO survey did not gather reliable data on *non*-farm income levels of Indian farmers on-reserve; nor do Census of Canada data distinguish between *farm* and *non-farm* sources of income for Indians on-reserve.

Conclusions

The survey results show that there is an established, though modest, network of individual, family and band-operated farms on reserves throughout Ontario. Most of the operations tend to be concentrated in a few major reserves, with the rest sprinkled throughout another dozen or so reserves. Most reserves in the province do not currently have active farm operations, whether on a full-time, part-time or hobby basis.

While Indian on-reserve farm operations may be modest in scale in comparison to the mainstream provincial norm, they are relatively significant at the individual community level. Moreover, it is clear that Indian-run on-reserve farms can show appreciable profits, which compare favourably to other sources of income on-reserve.

The remaining questions focus on whether there is scope for expanded farming activity on Indian reserves, and on what barriers and obstacles need to be overcome to enable this to happen.

III AGRICULTURAL POTENTIAL ON INDIAN RESERVES IN ONTARIO

The Challenge of Estimating Agricultural Potential

Prior to IAPO's 1987 study, upon which this report is largely based, there did not exist in Ontario a comprehensive and consistent estimate of the total agricultural potential on Indian reserves. Individual soil tests or agricultural feasibility assessments had previously been carried out on individual tracts of land or on individual reserves, but there had been no overview of the full potential on all reserves - even at a preliminary or crude level.

The lack of a broad overview and appreciation of the agricultural potential on reserves throughout the province has probably tended to stand in the way of federal and provincial agencies committing major economic development funds to Indian individuals, band agencies or other Indian enterprises for agricultural development purposes. This may be especially true in light of the generally widely-held notion that Indian reserve lands are generally poorly-suited for agricultural activity.

To help pave the way for increased interest in agricultural development on Indian reserves, both among Indian people themselves and on the part of relevant federal and provincial economic development agencies, there is a need for a reasonably reliable estimate of:

- the total quantity of land on reserves which, from a soil and geo-climatic point of view, is suitable for viable agriculture;

- the approximate geographic distribution of such agriculturally-suited lands amongst the various reserves;

- the proportion of such lands which are presently unutilized for agricultural production; and

- the number of potential full-time farm operations (or equivalent part-time) which could reasonably be expected to be supported by such lands, taking into account appropriate market and other socio-economic factors.

At this time, detailed and highly geographically-specific assessments are not required. Such studies are relatively costly, since they require on-site examination of specific tracts of land and detailed soil tests, engineering assessments, and financial analyses taking into account specific farm plans of individual operators within specific local markets. Such studies are appropriate once a broad appreciation of agricultural potential on Indian reserves has been developed, and once appropriate financial and/or technical assistance is available to farmers to carry out the detailed studies.

Utilization of Canada Land Inventory Data

Environment Canada's Canada Land Inventory (CLI) provides information on, among other things, the agricultural potential of land across Canada for conventional agricultural use.[1] In Ontario, as in other provinces, the CLI data cover virtually all significant arable regions of the country. Thus, while the inventory does not cover the more northerly regions of Ontario and other provinces, it does not overlook any significant regions with appreciable agricultural potential. In Ontario, the inventory covers the arable southern regions of the province, including more than one-half of the 113 reserves in the province.[2]

The Canada Land Inventory provides a categorization of land for agricultural potential, taking into account soil characteristics which, in turn, reflect a broad range of geo-climatic factors. The inventory takes into account both the kind and the intensity of factors affecting production, including *basic soil fertility, depth, drainage, stoniness,* and *similar characteristics.* The classification of capability for *agriculture* is based upon consideration of soil characteristics and their suitability for cultivated field crops and/or perennial forage crops. The classification does not include capability of soils for trees, tree fruits, small fruits, or ornamental plants; nor does it include capability of soils for recreation or wildlife activities (these are the subject of complementary CLI classifications). Nor does the classification of agricultural potential take into account such factors as *distance to market, types of roads, location, size of farms, type of ownership,*

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1. The Canada Land Inventory, managed by what is now Environment Canada (a department of the Government of Canada), is a land database which provides a detailed inventory and assessment of land capability for agriculture, as well as forestry, waterfowl, ungulates and outdoor recreation. It covers more than 650 million acres of Canada - about 25% of the country - and covers virtually all lands with significant productive capacity.

2. As shown later in this report, approximately one-half of these, in turn, appear to have the potential for at least one full-time farm (or equivalent part-time).

cultural patterns, skills or resources of individual operators, and *hazard of crop damage by storms.* Land requiring improvements (e.g., clearing or drainage) *that can be made economically* is classed according to its limitations or hazards and use *as if the improvements had been made.* Land requiring improvement *beyond the means of a typical owner* (e.g. farmer) is classed according to its present condition.[1]

The CLI land classification is based upon a combination of detailed on-ground sample tests on a finely-detailed grid, aerial photographic interpretation, and examination of other databases on surface and sub-surface characteristics.[2] The Canada Land Inventory is widely regarded as among the most detailed, reliable and relevant of any such land classification systems and databases in the world.

The CLI classification system consists of seven basic categories, from 1 (best) to 7 (worst) in terms of suitability for agriculture. (An eighth category, called O, for organic, is assigned to certain wetlands with peat or other properties.)

Class 1, 2 and 3 soils are generally considered to have the highest and most potentially productive capabilities for agriculture. Class 4 land is also reasonably productive, especially for intensive pasture. Class 1 soils have *no significant limitations*

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1. In other words, soil capability classification is based on the *economic,* rather than *technical* feasibility of carrying out improvements. If improvements to overcome the limitations cannot be made economically, then the land is classed according to its present condition.

2. Canada Land Inventory, Soil Capability for Agriculture (*Agriculture and Rural Development Act, 1987*).

in use for crops, while Class 2 and Class 3 soils have *moderate limitations* and *moderately severe limitations*, respectively, that restrict the range of crops or require moderate or special conservation practices.[1] The national classification system of the CLI takes into account the different geographic zones of Canada, thereby reflecting the suitability of soils within each broad geographic zone for crops *common to that zone* (e.g., wheat in the prairies, market vegetables in southern Ontario, etc.).

Although such labels are not officially utilized by the CLI, for purposes of this report Class 1 lands are considered to have *excellent* potential for agriculture, while Classes 2, 3 and 4 are considered to have *very good, good and fair* potential for agriculture, respectively. While the better classes of land, by definition, have relatively low requirements for improvements (e.g., clearing and drainage) to be productive, they can often produce proportionally larger crop yields than the poorer classes when appropriate improvements are made. Hence, depending on the relative costs and

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1. Class 1 soils ". . . are deep, are well to imperfectly drained, hold moisture well, and in the virgin state were well supplied with plant nutrients. They can be managed and cropped without difficulty. Under good management they are moderately high to high in productivity for a wide range of field crops."

   Class 2 soils ". . . are deep and hold moisture well. The limitations are moderate and the soils can be managed and cropped with little difficulty. Under good management they are moderately high to high in productivity for a fairly wide range of crops."

   Class 3 soils have limitations which are more severe than for Class 2 soils. ". . . They affect one or more of the following practices: timing and ease of tillage; planting and harvesting; choice of crops; and methods of conservation. Under good management they are fair to moderately high in productivity for a fair range of crops."

   Class 4 soils have limitations which ". . . seriously affect one or more of the following practices: timing and ease of tillage; planting and harvesting; choice of crops; and methods of conservation. The soils are low to fair in productivity for a fair range of crops but may have high productivity for a specially adapted crop."

   Source: Canada Land Inventory, Soil Capability for Agriculture (*Agriculture and Rural Development Act, 1967*).

benefits of such improvements in particular areas for particular crops, *even the best* classes of land often warrant investment in improvements such as drainage. This is true for reserve and non-reserve lands alike.

While the precise delineation of various categories of land within the Canada Land Inventory database (including corresponding CLI maps) cannot be considered to be sufficiently accurate for individual farm analyses, the inventory data are considered to be sufficiently accurate to provide a reasonable estimate of the distribution of land on Indian reserves according to the seven basic capability classifications for agriculture. There is no reason to suspect that the CLI classification has any bias one way or another. In other words, any "over-classification" of a particular small plot in one area will tend to be compensated by an "under-classification" in another area.

Prior to the 1987 IAPO study, the CLI database had not been fully and consistently utilized for the purposes of assessing agricultural potential on Indian reserves. This study called for the generation by Environment Canada of a customized computer tabulation of all land classification data for Indian reserves identified within the CLI survey area in Ontario. All Indian reserves are specially geo-coded in the CLI inventory, in view of their distinct legal and geo-political status. The custom tabulation provided, on a reserve-by-reserve basis, a tabulation of all lands within each reserve according to the seven basic land classifications (plus the organic category). For comparative purposes, it also provided an equivalent tabulation for all non-reserve lands in Ontario within the CLI survey area (i.e., lands in the mainstream economy).

The custom tabulation provided CLI agricultural classification data on 66 of the approximately 113 reserves in Ontario. As noted above, for reserve and non-reserve lands alike not included within the CLI survey area, there is no significant capability for conventional productive agriculture, except in isolated instances.

Capability of Reserve Lands for Agriculture

Contrary to what may have previously been popular opinion, Indian reserve lands in Ontario compare very favourably with non-reserve lands in terms of basic soil and geo-climatic capability for agricultural productivity. According to Environment Canada's Canada Land Inventory (CLI), *fully one-quarter* of all reserve lands in the areas covered by the CLI were ranked as having good to excellent capability for agriculture (i.e., Classes 1-3 inclusive).

The CLI survey includes virtually all of the viable arable land in Ontario. The 25% of the reserve lands categorized as Class 1, 2 or 3 (i.e., the lands best suited for agriculture) compares with 27% for non-reserve lands in the province. Although the non-reserve lands have an appreciably higher proportion of the very best (i.e., Class 1) lands than reserve lands, the reserve lands have higher proportions of Class 2 land, and almost equal proportions of Class 3 land.[1] With appropriate improvements and proper management, Class 2 land in Ontario can be essentially as productive as Class 1 land. This means that, *acre-for-acre,* Indian reserve lands in Ontario are essentially as good as non-reserve lands for agriculture.

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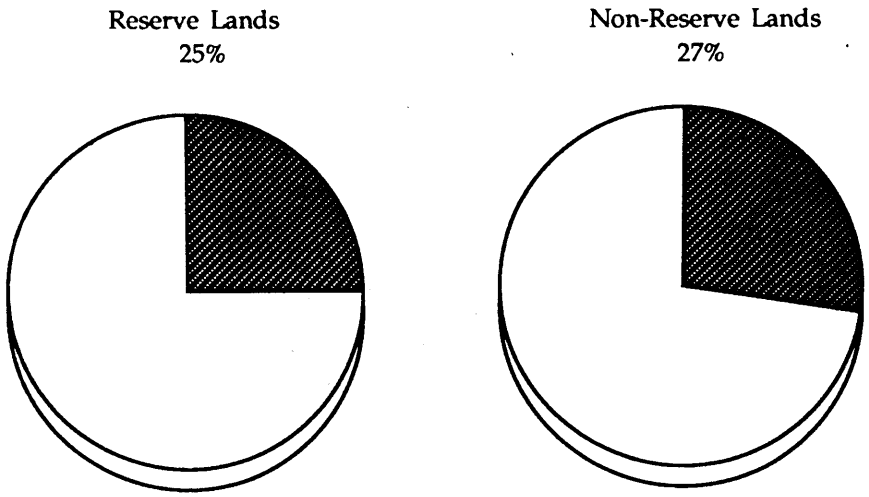
1. For reserve and non-reserve lands alike, this applies to the southern regions of the province covered by the Canada Land Inventory (CLI), accounting for *all* significnt concentrations of land with good potential for farming. The distributions of land by CLI classification of capabilities for agriculture are as follows:

	Reserve Lands	Non-Reserve Lands
Class 1	2%	8%
Class 2	13%	8%
Class 3	10%	11%
Class 1-3 combined	25%	27%
Class 4-7 plus organic	75%	73%
TOTAL	100%	100%

Source: Custom tabulation, unpublished data: *Canada Land Inventory,* Environment Canada.

FIGURE 8:
PROPORTION OF LAND WITH GOOD TO EXCELLENT CAPABILITY FOR AGRICULTURE
(Class 1, 2 and 3 lands as % of all lands[1])

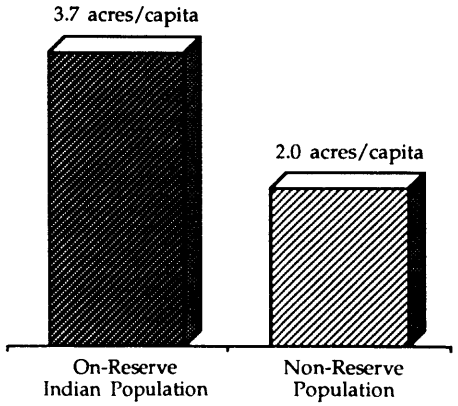


1. The CLI classification covers virtually all arable regions of Ontario. This includes 66 of the 113 Indian reserves in the province. (See Figure 10 for a list of reserves for which there is significant agricultural potential.)

Source: Custom tabulation, unpublished data: *Canada Land Inventory*, Environment Canada.

On a *per-capita* basis, the amount of prime agricultural land (i.e., Classes 1-3 inclusive) for the total on-reserve population in Ontario in 1984 amounted to 3.7 acres. This was almost double the 2.0 acres per-capita for the rest of the population in the province. This means that, all other things being equal, there is no reason why the on-reserve Indian population cannot enjoy as great a proportion of its population involved in agriculture as in the non-Indian population. At first glance, this may appear to be an unfair comparison since the on-reserve Indian population is largely rural while the non-Indian population is largely urban. However, Indian reserves are distinct legal and socio-economic entities, and the reserve lands are for the exclusive economic benefit of the on-reserve populations. The data simply suggest that, all other things being equal, the volume of available prime agricultural land on reserves might allow the Indian population on-reserve to enjoy a higher level of involvement in agriculture (as a proportion of the population) than that for the total provincial population. (Even if the proportion of the Indian population involved in farming was *only equal* to the provincial total, this would translate into approximately 850 full-time farmers, compared to the equivalent of 50 full-time farmers on-reserve today.)

FIGURE 9:
SHARE OF LAND WITH GOOD TO EXCELLENT CAPABILITY FOR AGRICULTURE, 1984[1]



1. To provide the most fair comparison, the reserve lands with Class 1-3 capability were divided by the *total* on-reserve Indian population throughout the province (i.e., whether in the CLI survey area or not). Similarly, the non-reserve lands with Class 1-3 capability were divided by the *total* non-reserve population throughout the province.

When Class 1-3 lands, which are prime lands suitable for cultivation of a wide range of crops and/or support of livestock, are combined with Class 4 lands, which are also reasonably good for agriculture - especially intensive pasture, it is evident that there are almost *one-quarter million* (241 402) acres of land suitable for farming on Indian reserves in Ontario.[1]

Lands classified as CLI category 1-4 inclusive account for almost one-third (31%) of all reserve lands on the 66 Indian reserves included in the CLI survey area. Almost half (30) of these 66 reserves each have 1000 acres or more of Class 1-4 land. This includes 15 reserves with 1000-4999 acres of Class 1-4 agricultural land, 9 with 5000-9999 acres of Class 1-4 land, and 4 reserves with 10 000-19 999 acres of such land. One reserve (Wikwemikong) has more than 27 000 acres of Class 1-4 land, while another (Six Nations) has more than 46 000 acres of such land.

Lands with Class 1-4 capability for agriculture account for 40% or more of lands on 25 of the 66 reserves with appreciable agricultural capability. In fact, such prime agricultural lands account for 50% or more of the land on 20 of the reserves.

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1. As with non-reserve lands of comparable CLI classification for agriculture, significant portions of these lands may require or warrant improvements such as clearing and drainage to make them fully productive to levels consistent with mainstream agricultural practices.

FIGURE 10:
LAND CAPABILITY FOR AGRICULTURE ON RESERVES
(Canada Land Inventory Classification)
(# acres in each class of capability for agriculture)

RESERVE	CLASS I	CLASS 2	CLASS 3	CLASS 4	CLASS 1-4 COMBINED	CLASS 5-7 & ORGANIC
BRANTFORD DISTRICT						
New Credit*	602	5 014	401	0	6 017	76
Six Nations*	6 833	34 858	4 556	0	46 247	0
District Sub-Total	7 435	39 872	4 957	0	52 264	76
BRUCE DISTRICT						
Chippewas of Nawash (Cape Croker)*	2 8130	1 747	1 665	6 225	11 112	64
Saugeen*	696	2 099	3 676	0	6 471	4 586
District Sub-Total	3 509	2 099	5 423	1 665	12 696	15 698
FORT FRANCES DISTRICT						
Big Grassy*	0	0	450	0	450	7 721
Big Island	0	0	0	0	0	245
Couchiching*	N/A	N/A	N/A	N/A	N/A	N/A
Naicatchewenin	0	0	0	0	0	5 573
Neguaguan Lake	0	0	0	0	0	12 659
Nicickousemenecaning	0	0	0	0	0	6 004
Rainy River (Manitou Rapids)*	0	37	2 523	271	2 831	3 249
Seine River	0	0	0	0	0	6 384
Stangecoming	0	0	0	0	0	4 510
District Sub-Total	0	37	2 973	271	3 281	46 345
JAMES BAY DISTRICT						
Albany	N/A	N/A	N/A	N/A	N/A	N/A
Attawapiskat*	N/A	N/A	N/A	N/A	N/A	N/A
Kashechewan*	N/A	N/A	N/A	N/A	N/A	N/A
Moose Factory*	N/A	N/A	N/A	N/A	N/A	N/A
New Post	0	0	0	3 603	3 603	344
Winisk	N/A	N/A	N/A	N/A	N/A	N/A
District Sub-Total	0	0	0	3 603	3 603	344
KENORA DISTRICT						
Dalles	0	0	0	0	0	8 511
Eagle Lake	0	4	814	2 932	3 750	4 715
English River	0	2 010	4 992	0	7 002	906
Islington	0	3 001	6 474	0	9 475	9 836
Kenora	0	0	0	0	0	4 992
Lake of the Woods	0	0	0	0	0	1 236
Northwest Angle #33	0	0	0	516	516	3 532
Rat Portage	0	0	0	124	124	7 451
Sabaskong Bay	0	0	0	0	0	1 385
Shoal Lake	0	0	0	0	0	8 440
Wabigoon	0	4 336	359	0	4 695	7 084
Whitefish Bay	0	0	0	0	0	7 492
District Sub-Total	0	9 351	12 639	3 572	25 562	65 580
LAKEHEAD DISTRICT						
Fort William	0	0	203	298	501	13 887
District Sub-Total	0	0	203	298	501	13 887

* reserves included in IAPO survey of active Indian farms on-reserve
N/A Canada Land Inventory data not available

FIGURE 10:
LAND CAPABILITY FOR AGRICULTURE ON RESERVES
(Canada Land Inventory Classification)(cont'd)
(# acres in each class of capability for agriculture)

RESERVE	CLASS I	CLASS 2	CLASS 3	CLASS 4	CLASS 1-4 COMBINED	CLASS 5-7 & ORGANIC
LONDON DISTRICT						
Chippewas of Sarnia*	712	1 137	1 375	0	3 224	0
Chippewas of the Thames & Muncey of the Thames (Caradoc)*	0	9 721	1	2 359	12 081	0
Kettle and Stony Point*	0	345	0	0	345	2 337
Moravian of the Thames*	466	2 087	0	0	2 553	668
Oneida of the Thames*	498	2 120	2 951	167	5 736	0
Walpole Island*	0	15 769	0	0	15 769	20 794
District Sub-Total	1 676	31 179	4 327	2 526	39 708	23 799
PETERBOROURGH DISTRICT						
Akewsasne*	0	0	0	0	0	2 032
Alderville*	1 404	0	938	452	2 794	790
Beausoleil (Christian Island)*	0	0	2 097	0	2 097	7 436
Curve Lake*	0	0	0	409	409	1 060
Georgina Island*	519	930	1 417	774	3 640	0
Gibson*	0	0	0	0	0	14 804
Golden Lake*	0	0	0	3	3	1 815
Hiawatha*	887	0	591	0	1 478	314
Mohawks of the Bay of Quinte (Tyendinaga)*	110	0	14 689	0	14 799	3 059
Moose Deer Point	0	0	0	0	0	535
Parry Island	0	0	0	0	0	18 135
Rama*	0	725	0	0	725	291
Scugog*	225	562	0	56	843	0
District Sub-Total	3 145	2 217	19 732	1 694	26 788	50 271
SIOUX LOOKOUT DISTRICT						
Sachigo Lake*	N/A	N/A	N/A	N/A	N/A	N/A
SUDBURY DISTRICT						
Batchewana (Goulais Bay)	0	0	0	1 973	1 973	0
Dokis	0	0	0	0	0	37 066
French River	0	0	0	0	0	2 775
Garden River*	0	1 196	1 951	6 517	9 664	22 305
Henvey Inlet	0	0	0	0	0	22 931
Magnetewan	0	0	0	0	0	11 815
Mattagami	0	0	0	0	0	11 138
Mississauga	0	0	0	636	636	3 935
Naiscoutaing	0	0	0	0	0	222
Nipissing*	0	775	9 412	5 282	15 469	47 421
Rankin Location	0	0	933	1 534	2 467	1 357
Serpent River	0	267	1 701	0	1 968	18 378
Shawanaga	0	0	0	0	0	8 015
Sheguiandah*	0	90	0	802	892	4 108
Sheshegwaning*	0	283	1 008	1 639	2 930	2 104
Spanish River	0	0	890	4 415	5 305	15 379
Sucker Creek*	0	263	28	140	431	1 198
Thessalon	0	126	0	1 822	1 948	366
West Bay*	0	2 448	783	2 706	5 937	2 339
Whitefish Lake	0	61	18	0	79	42 160
Wikwemikong*	0	9 882	10 472	6 946	27 300	75 110
District Sub-Total	0	15 391	27 196	34 412	76 999	330 122
PROVINCIAL TOTAL	15 765	100 146	77 450	48 041	241 402	546 122

* reserves included in IAPO survey of active Indian farms on-reserve
N/A Canada Land Inventory data not available

FIGURE 11:
LAND CAPABILITY FOR AGRICULTURE ON RESERVES
(Canada Land Inventory Classification)
(% of reserve land in each class of capability for agriculture)

RESERVE	CLASS I	CLASS 2	CLASS 3	CLASS 4	CLASS 1-4 COMBINED	CLASS 5-7 & ORGANIC
BRANTFORD DISTRICT						
New Credit*	10	82	7	0	99	1
Six Nations*	15	75	10	0	100	0
District Sub-Total	14	76	9	0	100	-
BRUCE DISTRICT						
Chippewas of Nawash (Cape Croker)*	16	0	10	10	36	64
Saugeen*	6	19	33	0	59	41
District Sub-Total	9	5	13	4	31	38
FORT FRANCES DISTRICT						
Big Grassy*	0	0	6	0	6	94
Big Island	0	0	0	0	0	100
Couchiching*	N/A	N/A	N/A	N/A	N/A	N/A
Naicatchewenin	0	0	0	0	0	100
Neguaguan Lake	0	0	0	0	0	100
Nicickousemenecaning	0	0	0	0	0	100
Rainy River (Manitou Rapids)*	0	1	42	5	47	53
Seine River	0	0	0	0	0	100
Stangecoming	0	0	0	0	0	100
District Sub-Total	0	-	6	1	7	93
JAMES BAY DISTRICT						
Albany	N/A	N/A	N/A	N/A	N/A	N/A
Attawapiskat*	N/A	N/A	N/A	N/A	N/A	N/A
Kashechewan*	N/A	N/A	N/A	N/A	N/A	N/A
Moose Factory*	N/A	N/A	N/A	N/A	N/A	N/A
New Post	0	0	0	91	91	9
Winisk	N/A	N/A	N/A	N/A	N/A	N/A
District Sub-Total	0	0	0	91	91	9
KENORA DISTRICT						
Dalles	0	0	0	0	0	100
Eagle Lake	0	-	10	35	44	56
English River	0	25	63	0	89	11
Islington	0	16	34	0	49	51
Kenora	0	0	0	0	0	100
Lake of the Woods	0	0	0	0	0	100
Northwest Angle #33	0	0	0	13	13	87
Rat Portage	0	0	0	2	20	98
Sabaskong Bay	0	0	0	0	0	100
Shoal Lake	0	0	0	0	0	100
Wabigoon	0	37	3	0	40	60
Whitefish Bay	0	0	0	0	0	100
District Sub-Total	0	10	14	4	28	72
LAKEHEAD DISTRICT						
Fort William	0	0	1	2	3	97
District Sub-Total	0	0	1	2	3	97

* reserves included in IAPO survey of active Indian farms on-reserve
N/A Canada Land Inventory data not available

FIGURE 11:
LAND CAPABILITY FOR AGRICULTURE ON RESERVES
(Canada Land Inventory Classification)(cont'd)
(% of reserve land in each class of capability for agriculture)

RESERVE	CLASS I	CLASS 2	CLASS 3	CLASS 4	CLASS 1-4 COMBINED	CLASS 5-7 & ORGANIC
LONDON DISTRICT						
Chippewas of Sarnia*	22	35	43	0	100	0
Chippewas of the Thames & Muncey of the Thames (Caradoc)*	0	80	0	20	100	0
Kettle and Stony Point*	0	13	0	0	13	87
Moravian of the Thames*	15	65	0	0	79	21
Oneida of the Thames*	9	37	51	3	100	0
Walpole Island*	0	43	0	0	43	57
District Sub-Total	3	49	7	4	63	37
PETERBOROURGH DISTRICT						
Akewsasne*	0	0	0	0	0	100
Alderville*	39	0	26	13	78	22
Beausoleil (Christian Island)*	0	0	22	0	22	78
Curve Lake*	0	0	0	28	28	72
Georgina Island*	14	26	39	21	100	0
Gibson*	0	0	0	0	0	100
Golden Lake*	0	0	0	-	-	100
Hiawatha*	50	0	33	0	82	18
Mohawks of the Bay of Quinte (Tyendinaga)*	1	0	82	0	83	17
Moose Deer Point	0	0	0	0	0	100
Parry Island	0	0	0	0	0	100
Rama*	0	71	0	0	71	0
Scugog*	27	67	0	7	100	0
District Sub-Total	4	3	26	2	35	65
SIOUX LOOKOUT DISTRICT						
Sachigo Lake*	N/A	N/A	N/A	N/A	N/A	N/A
SUDBURY DISTRICT						
Batchewana (Goulais Bay)	0	0	0	100	100	0
Dokis	0	0	0	0	0	100
French River	0	0	0	0	0	100
Garden River*	0	4	6	20	30	70
Henvey Inlet	0	0	0	0	0	100
Magnetewan	0	0	0	0	0	100
Mattagami	0	0	0	0	0	100
Mississauga	0	0	0	14	14	86
Naiscoutaing	0	0	0	0	0	100
Nipissing*	0	1	15	8	25	75
Rankin Location	0	0	24	40	65	35
Serpent River	0	1	8	0	10	90
Shawanaga	0	0	0	0	0	100
Sheguiandah*	0	2	0	16	18	82
Sheshegwaning*	0	6	20	33	58	42
Spanish River	0	0	4	21	26	74
Sucker Creek*	0	16	2	9	27	74
Thessalon	0	5	0	79	84	16
West Bay*	0	30	10	33	72	28
Whitefish Lake	0	-	-	0	-	100
Wikwemikong*	0	10	10	7	27	73
District Sub-Total	0	4	7	8	19	81
PROVINCIAL TOTAL	2	13	10	6	31	69

* reserves included in IAPO survey of active Indian farms on-reserve
N/A Canada Land Inventory data not available

Land Currently Under Cultivation

According to the IAPO survey of active Indian farmers on-reserve, a total of only 12 112 acres were under active cultivation (excluding pasture) by Indian farmers on-reserve in 1987. A total of 8 228 acres, accounting for more than two-thirds (68%) of this land were cultivated by the 16 Level I (full-time) Indian farmers (average = 514 acres). A further 2 004 acres were cultivated by the 15 Level II (part-time) farmers (average = 134 acres), accounting for 17% of cultivated land on-reserve, while 1 809 acres were cultivated by the 31 Level III (hobby) farmers (average = 58 acres), accounting for the remaining 15%.

The total of 12 112 acres of land under active cultivation by Indian farmers includes approximately 1 000 acres of cultivated land *off-reserve* leased by on-reserve Indian farmers. As a result, the on-reserve land which is under cultivation, accounts for *less than 6%* of the total land on-reserve with Class 1-3 capability for agriculture. Only eight reserves actively cultivate 5% or more of their Class 1-3 land, and of these, only two cultivate more than 15%. None cultivate more than 30% of their prime agricultural land.

As shown in Figure 12 below, in every district for which data are available, the proportion of land on-reserve which is actively cultivated is substantially less than the corresponding proportions in the surrounding or adjacent counties. In most cases, the proportion of land in local counties that is actively cultivated ranges from 5 to 15 times that of the corresponding reserves. The obvious conclusion is that the majority of prime agricultural land on-reserve remains untapped, and the levels of use of such land for agriculture on-reserve lag far behind those in immediately surrounding or adjacent counties.

FIGURE 12:
LAND UNDER ACTIVE CULTIVATION BY INDIAN FARMERS, 1987

Reserves Surveyed	Land Under Cultivation[1] (acres)	CLI Class 1-3 Land (acres)	Class 1-3 Reserve Land Under Cultivation	Local County Land Under Cultivation*
BRANTFORD DISTRICT				
New Credit	533	6 017	9%	68%
Six Nations	1 841	46 247	4%	68%
District Sub-Total	2 374	52 264	5%	--
BRUCE DISTRICT				
Chippewas of Nawash	370	4 560	8%	62%
Saugeen	475[2]	6 471	< 5%	62%
District Sub-Total	845	11 031	< 8%	--
FORT FRANCES DISTRICT				
Big Grassy	0	450	0%	**
Couchiching	0	N/A	0%	**
Rainy River (Manitou Rapids)	245	2 560	10%	**
District Sub-Total	245	2 560	10%	--
KENORA DISTRICT				
Eagle Lake	0	818	0%	**
English River	0	7 002	0%	**
Islington	0	9 475	0%	**
Wabigoon	0	4 695	0%	**
District Sub-Total	0	21 990	0%	--
LAKEHEAD DISTRICT				
Fort William	0	203	0%	**
District Sub-Total	0	203	0%	--
LONDON DISTRICT				
Chippewas of Sarnia	0	3 224	0%	81%
Chippewas of the Thames	320	9 772[3]	3%	80%
Kettle and Stony Point	0	345	0%	81%
Muncey of the Thames	0	9 772[3]	0%	80%
Moravian of the Thames	688	2 553	27%	94%
Oneida of the Thames	125	5 569	2%	84%
Walpole Island	4 072	15 769	26%	81%
District Sub-Total	5 205	37 182	14%	--

FIGURE 12:
LAND UNDER ACTIVE CULTIVATION BY INDIAN FARMERS, 1987
(cont'd)

Reserves Surveyed	Land Under Cultivation[1] (acres)	CLI Class 1-3 Land (acres)	Class 1-3 Reserve Land Under Cultivation	Local County Land Under Cultivation*
PETERBOROUGH DISTRICT				
Akwesasne	71	0	0%	56%
Alderville	0	2 342	0%	68%
Beausoleil (Christian Island)	0	2 097	0%	57%
Georgina Island	0	2 866	0%	44%
Hiawatha	0	1 478	0%	68%
Mohawks of the Bay of Quinte	1 765	14 799	12%	72%
Rama	0	725	0%	57%
Scugog	0	787	0%	93%
District Sub-Total	1 836	25 094	7%	--
SUDBURY DISTRICT				
Garden River	0	3 147	0%	**
Nipissing	0	10 187	0%	**
Rankin Location	0	933	0%	**
Serpent River	0	1 968	0%	**
Sheguiandah	0	90	0%	29%
Sheshegwaning	0	1 291	0%	29%
Spanish River	0	890	0%	**
Sucker Creek	0	291	0%	29%
Thessalon	0	126	0%	**
West Bay	590[4]	3 231	N/A	29%
Whitefish Lake	0	79	0%	**
Wikwemikong	1 017	20 354	5%	29%
District Sub-Total	1 607	42 587	< 9%	--
PROVINCIAL TOTAL	12 112	193 361	6%	--

1. Excludes rough or unimproved pasture.
2. Most of the 475 acres cultivated are located off-reserve.
3. Value for Class 1-3 land is total for Caradoc Reserve which includes both Muncey and Chippewa of the Thames.
4. Most of the 590 acres are located off-reserve.

* Includes all classes; land under cultivation as proportion of *Class 1-3 land only* could be even higher.

** Data not available. There is some level of farming activity in these districts but it is relatively modest in relation to the more active farming counties, for which data *are* provided.

Potential Number of Farm Operations On-Reserve

As noted above, Indian reserve lands compare favourably to non-reserve lands in Ontario, with respect to their soil and geo-climatic suitability for conventional agriculture. However, the technical suitability of the land is only a necessary, and not a sufficient condition to support viable farming on reserves. Other factors, which affect the financial viability of farming in specific market areas loom large in the equation. These other factors include:

- local market conditions for agricultural produce;
- access to support services and facilities;
- local agricultural traditions; and
- other competing and/or complementary economic and employment opportunities in the local area which may make farming (whether on a full-time or part-time basis) relatively attractive or unattractive.

In the absence of consistent, reliable and readily accessible data on these local conditions, there is a need to utilize an appropriate *proxy indicator* to gauge the agricultural demand and general viability of farming in local markets surrounding the Indian reserves. It has already been shown above that the current active on-reserve farm operations - especially the Level I (full-time) and Level II (part-time) - enjoy positive financial returns which compare very favourably with alternative economic and employment opportunities on reserves.

However, the currently active Indian farms are only a relatively small sample, and do not cover all of the reserves for which there is a significant quantity of land with good to excellent capability for agriculture.

An appropriate, and readily-accessible, proxy indicator is *the level of agricultural activity in local areas immediately adjacent to Indian reserves.* The local market conditions in counties adjacent to or surrounding Indian reserves provide a general indicator of local agricultural traditions, market conditions and available infrastructure and farm support services. Since virtually all of the Indian reserves with significant quantities of land with agricultural capability are located in the southern (and more populated) regions of the province, physical access to off-reserve markets should not be a major factor for most of these reserves. (Refer to Figure 17 for map showing the location of the 32 reserves with apparent potential to support at least one full-time farming operation.)

Data are readily available on the proportion of land in local counties which are actively cultivated, as are data on the average size of farm operations in the off-reserve (i.e., mainstream economy) situation. With a few exceptions, these data are available for all counties adjacent to or surrounding the majority of Indian reserves with appreciable agricultural potential. Regrettably, however, these data do not provide a specific tabulation of the proportion of land in each CLI category which is under cultivation. Accordingly, it is necessary to assume that the *average* distribution of Class 1-4 land on any individual reserve closely matches that in the local (i.e., adjacent or surrounding) county. This is perhaps not an unreasonable assumption, in view of the fact that, on average, Indian reserve lands compare favourably with non-reserve lands and the reserve lands themselves are randomly distributed throughout the province (i.e., there is no other evidence to suggest that the fundamental geo-physical characteristics of reserve lands differ markedly from lands in their immediate environs).

To the extent that the proportion of land in local counties can be used as a proxy indicator to reflect local agricultural traditions, local market opportunities, and available infrastructure and services to support the farming industry in the area, then local county norms can be used to estimate the total quantity of land on-reserve which could be expected to be put into active production. This would be based on the notion that, all other things being equal, Indian reserve lands of comparable soil quality should be capable of utilization to levels neither greater nor less than those of non-Indians in the same general environs. In a similar fashion, the local county data on average size of farms (measured in terms of acres under active cultivation) can be used as proxy indicators of the general size and type of farm operation suitable for the local market conditions.[1]

Utilizing both sets of local county data enables one to estimate the total number of potential full-time farm units (or equivalent part-time units) on each reserve to levels consistent with local county norms. This is done by first calculating the total quantity of *potential farm land* which could put under active cutlivation on a given reserve, utilizing the local county data on the *proportion of total land in the area which is currently under active cultivation off-reserve.* By subsequently dividing the total quantity of potential active farm land on a given reserve by the local county *average size of farm operation,* one can estimate the total number of *potential full-time farm operations* on the reserve, to levels consistent with the local county norms. At worst, this method provides an estimate of the *order of magnitude* of potential farm units on Indian reserves.

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1. As shown earlier in this report, the average existing Indian farms on-reserve are somewhat smaller in size than the average farms off-reserve in Ontario (reflecting the early stage of development, and the relatively high proportion of part-time operations on reserves). It should therefore be appreciated that the estimate of *full-time* farms on-reserve, based on a comparison with local county norms (with larger, and mostly full-time farms), could translate into the equivalent of even more *part-time* operations.

As shown in detail in Figure 13, and as summarized on a district level in Figure 14, the total quantity of potential active farm land on Indian reserves is estimated to be 173 220 acres (fourteen times the 12 112 acres currently cultivated on-reserve[1]). This constitutes the total of potential active farm land on the 34 reserves for which there are *both* Canada Land Inventory data *and* local county farm data. Since there are a number of additional reserves for which there exists appreciable agricultural potential (according to the Canada Land Inventory classification), but for which there are not local county farm data available, the actual total of potential farm land is somewhat higher than this estimate.[2]

As shown earlier, the total quantity of Class 1-4 land on Indian reserves amounts to 241 402 acres. This means that approximately 72% of such lands on-reserve would be put into active cultivation if reserve lands were to be utilized to levels comparable with local county norms. (Consistent with local county norms, this proportion ranges from lows of 4 or 5% in some reserves to highs in excess of 90% in other reserves.) Since only 6% of the *Class 1-3 land alone* on-reserve (i.e., *excluding* Class 4 lands) is currently under active cultivation, it is clear that there is a significant gap between the current quantity of land under cultivation and the potential which is consistent with local county norms.[3]

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1. Even *including* the approximately 1000 acres *off*-reserve that are cultivated by on-reserve farmers.

2. Furthermore, certain forms of agriculture (e.g., fur ranching, fish farming, greenhouse operations and game ranching) are not heavily dependent on the better quality agricultural lands. Thus, there is even greater potential for farming on reserves than is evident from available farm land alone.

3. It is appreciated that improvements, such as clearing and drainage, may be required on Indian reserve lands to bring them into production or to make them as productive as off-reserve lands of comparable quality. The investment required for reserve lands should be neither greater nor less than that for non-reserve lands of similar classification under the Canadian Land Inventory.

FIGURE 13:
POTENTIAL FULL-TIME FARM OPERATIONS BASED ON LAND CAPABILITY FOR AGRICULTURE AND LOCAL COUNTY NORMS

Reserve	% of Total County Area in Farmland[1]	Potential Farmland On-Reserve (reserve area x % of county in farmland)	Average Farm Size in County[2] (acres)	# of Potential Farms On-Reserve
BRANTFORD DISTRICT				
New Credit	68	4 143	149	28
Six Nations	68	31 448	149	211
District Sub-Total	-	35 591	-	239
BRUCE DISTRICT				
Chippewas of Nawash (Cape Croker)	62	10 749	225	48
Saugeen	62	6 855	225	30
District Sub-Total	-	17 604	-	78
FORT FRANCES DISTRICT				
Big Grassy				
Big Island				
Couchiching		Unknown:		
Naicatchewenin				
Neguaguan Lake		Data on county averages in this		
Nicickousemenecaning	<----------	area are not available in		---------->
Rainy River (Manitou Rapids)		*Agricultural Statistics for Ontario, 1985*		
Seine River				
Stangecoming				
District Sub-Total				
JAMES BAY DISTRICT				
Albany		Unknown:		
Attawapiskat				
Kashechewan		Data on county averages in this		
Moose Factory	<----------	area are not available in		---------->
New Post		*Agricultural Statistics for Ontario, 1985*		
Winisk				
District Sub-Total				

N/A - Canada Land Inventory and/or *Agricultural Statistics for Ontario, 1985* data not available. (Although there is some degree of farming in these areas, the counties for which data *are* shown constitute the prime and most active farming areas in Ontario.)

1. Based on *Land Use Capability for Agriculture* and *Agricultural Statistics for Ontario, 1985* (Table 20).
2. Based on Number and Area of Census Farms *Agricultural Statistics for Ontario, 1985* (Table 18).

FIGURE 13:
POTENTIAL FULL-TIME FARM OPERATIONS BASED ON LAND CAPABILITY FOR AGRICULTURE AND LOCAL COUNTY NORMS (cont'd)

Reserve	% of Total County Area in Farmland1	Potential Farmland On-Reserve (reserve area x % of county in farmland)	Average Farm Size in County[2] (acres)	# of Potential Farms On-Reserve
KENORA DISTRICT				
Dalles				
Eagle Lake				
English River				
Islington		Unknown:		
Kenora				
Lake of the Woods		Data on county averages in this		
Northwest Angle #33	<----------	area are not available in	---------->	
Rat Portage		*Agricultural Statistics for Ontario,*		
Sabaskong Bay		*1985*		
Shoal Lake				
Wabigoon				
Whitefish Bay				
District Sub-Total				
LAKEHEAD DISTRICT		Unknown:		
Fort William				
District Sub-Total	<----------	Data on county averages in this area are not available in *Agricultural Statistics* for Ontario, *1985*	---------->	
LONDON DISTRICT				
Chippewas of Sarnia	81	2 611	184	14
Chippewas of the Thames & Muncey of the Thames (Caradoc)	80	9 665	180	54
Kettle and Stony Point	81	2 172	184	12
Moravian of the Thames	94	3 028	172	18
Oneida of the Thames	84	4 818	185	26
Walpole Island	81	29 616	184	161
District Sub-Total	-	51 910	-	285

N/A - Canada Land Inventory and/or *Agricultural Statistics for Ontario, 1985* data not available. (Although there is some degree of farming in these areas, the counties for which data *are* shown constitute the prime and most active farming areas in Ontario.)

1. Based on *Land Use Capability for Agriculture* and *Agricultural Statistics for Ontario, 1985* (Table 20).
2. Based on Number and Area of Census Farms *Agricultural Statistics for Ontario, 1985* (Table 18).

FIGURE 13:
POTENTIAL FULL-TIME FARM OPERATIONS BASED ON LAND CAPABILITY FOR AGRICULTURE AND LOCAL COUNTY NORMS (cont'd)

Reserve	% of Total County Area in Farmland[1]	Potential Farmland On-Reserve (reserve area x % of county in farmland)	Average Farm Size in County[2] (acres)	# of Potential Farms On-Reserve
PETERBOROUGH DISTRICT				
Akwesasne	56	1 138	193	6
Alderville	68	2 437	185	13
Beausoleil (Christian Island)	57	5 434	177	31
Curve Lake	33	485	192	3
Georgina Island	44	1 602	133	12
Gibson	4	592	179	3
Golden Lake	24	436	272	2
Hiawatha	68	1 219	185	7
Mohawks of the Bay of Quinte (Tyendinaga)	72[3]	12 858	234	55
Moose Deer Point	4	21	179	0
Parry Island	5	907	270	3
Rama	57	579	177	3
Scugog	93	784	150	5
District Sub-Total	-	28 492	-	143
SIOUX LOOKOUT DISTRICT		Unknown:		
Sachigo Lake	<----------	Data on county averages in this area are not available in *Agricultural Statistics* for Ontario, *1985*		---------->

N/A - Canada Land Inventory and/or *Agricultural Statistics for Ontario, 1985* data not available. (Although there is some degree of farming in these areas, the counties for which data *are* shown constitute the prime and most active farming areas in Ontario.)

1. Based on *Land Use Capability for Agriculture* and *Agricultural Statistics for Ontario, 1985* (Table 20).
2. Based on Number and Area of Census Farms *Agricultural Statistics for Ontario, 1985* (Table 18).

FIGURE 13:
POTENTIAL FULL-TIME FARM OPERATIONS BASED ON LAND CAPABILITY FOR AGRICULTURE AND LOCAL COUNTY NORMS (cont'd)

Reserve	% of Total County Area in Farmland[1]	Potential Farmland On-Reserve (reserve area x % of county in farmland)	Average Farm Size in County[2] (acres)	# of Potential Farms On-Reserve
SUDBURY DISTRICT				
Batchewana (Goulais Bay)	N/A	N/A	N/A	N/A
Dokis	5	1 853	270	7
French River	5	139	270	1
Garden River	N/A	N/A	N/A	N/A
Henvey Inlet	5	1 147	270	4
Magnetewan	5	591	270	2
Mattagami	N/A	N/A	N/A	N/A
Mississauga	N/A	N/A	N/A	N/A
Naiscoutaing	5	11	270	0
Nipissing	N/A	N/A	N/A	N/A
Rankin Location	N/A	N/A	N/A	N/A
Serpent River	N/A	N/A	N/A	N/A
Shawanaga	5	401	270	1
Sheguiandah	29	1 450	512	3
Sheshegwaning	29	1 460	512	3
Spanish River	N/A	N/A	N/A	N/A
Sucker Creek	29	472	512	1
Thessalon	N/A	N/A	N/A	N/A
West Bay	29	2 400	512	5
Whitefish Lake	N/A	N/A	N/A	N/A
Wikwemikong	29	29 699	512	58
District Sub-Total	-	39 623	-	85
PROVINCIAL TOTAL		173 220		830

N/A - Canada Land Inventory and/or *Agricultural Statistics for Ontario, 1985* data not available. (Although there is some degree of farming in these areas, the counties for which data *are* shown constitute the prime and most active farming areas in Ontario.)

1. Based on *Land Use Capability for Agriculture* and *Agricultural Statistics for Ontario, 1985* (Table 20).
2. Based on Number and Area of Census Farms *Agricultural Statistics for Ontario, 1985* (Table 18).

Taking into account the total quantity of potential active farm land on Indian reserves consistent with local county norms (see Figure 13 above), as well as the average farm size in each county adjacent to the 34 Indian reserves for which there are both Canada Land Inventory data and local county farm data, it can be concluded that there is a potential for approximately 830 full-time (or equivalent part-time) farm operations on Indian reserves in Ontario.[1] Given that the 72 currently active on-reserve farms of all types (i.e., full-time, part-time and hobby) amount to the equivalent of perhaps 55 to 65 full-time operations, the estimated potential is approximately 12 to 15 times the current level of farming activity on reserves.

A total of 32 reserves show potential for at least one full-time (or equivalent) farm operation. A dozen have the potential for 1-4 full-time (or equivalent) farm operations, and an additional 5 have the potential for 5-9 full-time farm operations. A further 15 have the potential for 10 or more full-time farm operations, including several reserves with the potential for 50, 100 or more full-time farm operations. (See Figure 16 for a list of these reserves, and the map in Figure 17 for their location.) Virtually all of these reserves are located in the more populated and developed southern regions of the province. Furthermore, all reserves with potential for 10 or more full-time farms (accounting for 771 - or 93% - of the 830 potential farms) are located no greater than approximately 100-120 km (60-80 miles) from at least one major urban centre.

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1. It should be appreciated that the Fort Frances District, the James Bay District, the Kenora District and the Lakehead District all show at least some modest potential for agriculture according to the Canada Land Inventory (see Figure 10). However, since there are no available local county farm statistics for these districts, it is not possible to estimate the number of potential full-time farm operations. (There is *some* level of farming activity in these counties, but is is modest in relation to the more active farming counties.) Moreover, these estimates are based upon *conventional* agriculture, and do not estimate the potential for *alternative* farming activities such as fur farms, fish farms, berry marsh operations and ungulate herd management. Since IAPO services are not extended to wild rice operations (prevalent in northwestern Ontario), these are also excluded. Thus, the estimate of 830 farm units will tend to *under-estimate* the total farming potential on all reserves.

FIGURE 14:
ESTIMATED POTENTIAL QUANTITY OF ACTIVE FARM LAND AND CORRESPONDING NUMBER OF POTENTIAL FULL-TIME FARMS (OR EQUIVALENT PART-TIME)

District	Potential Active Farm Land (acres)	# of Potential Full-Time Farms
Brantford	35 591	239
Bruce	17 604	78
London	51 910	285
Peterborough	28 492	143
Sudbury	39 623	85
PROVINCIAL TOTAL	173 220	830

FIGURE 15:
DISTRIBUTION OF RESERVES WITH AGRICULTURAL POTENTIAL, BY NUMBER OF POTENTIAL FULL-TIME FARMS (OR EQUIVALENT) ON THE RESERVE

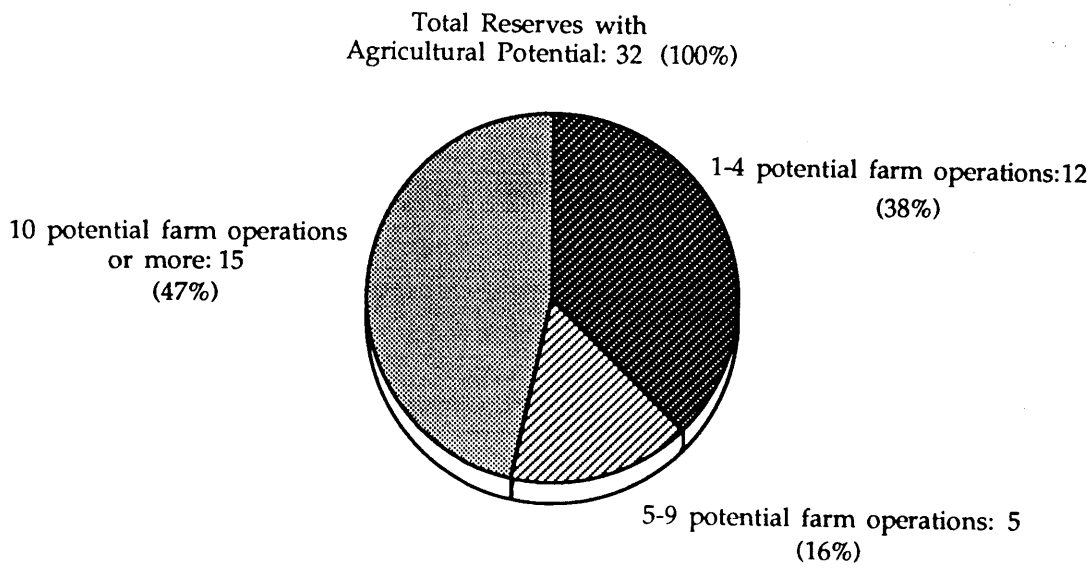


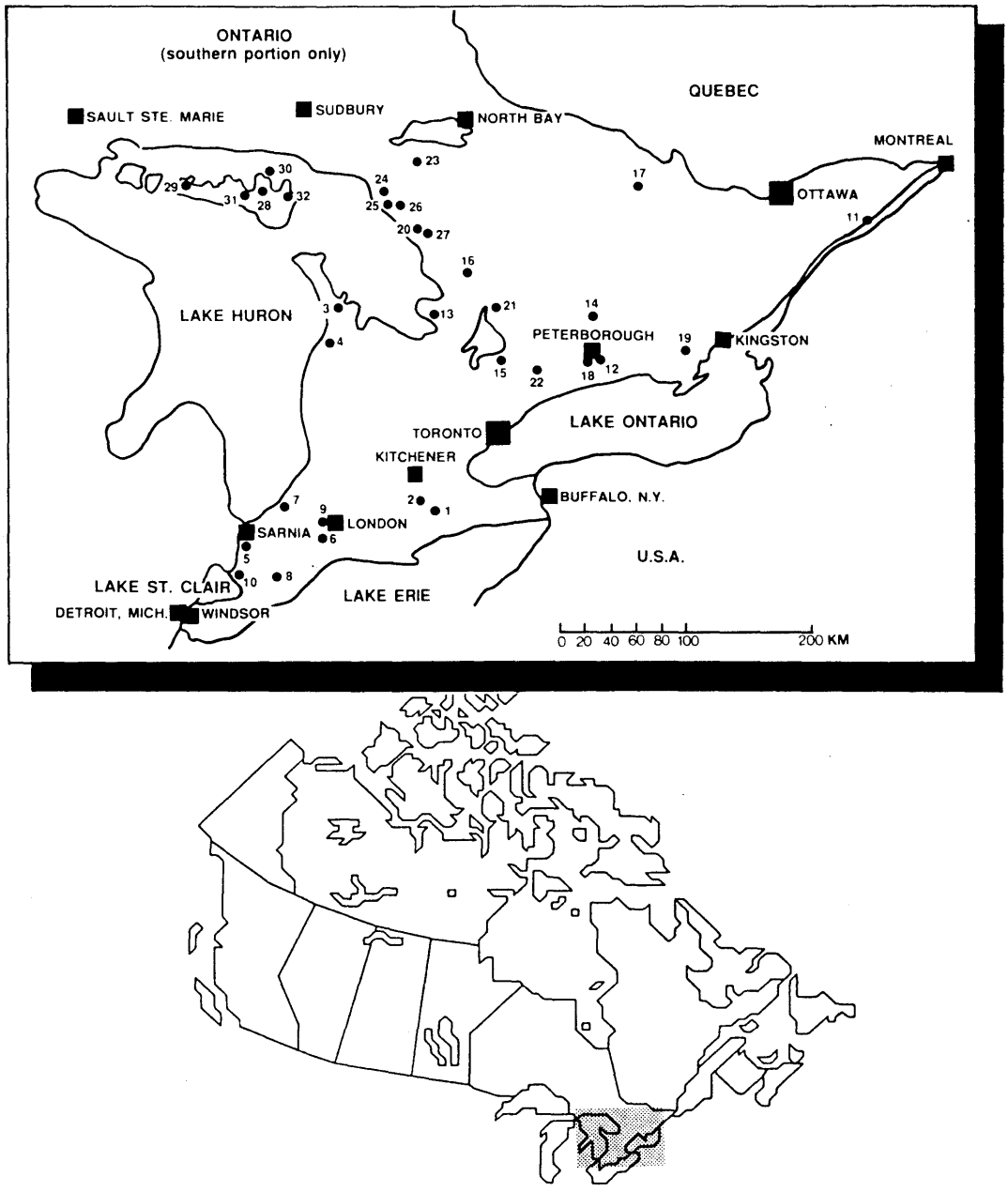
FIGURE 16:
RESERVES WITH POTENTIAL FULL-TIME FARM OPERATIONS, BASED ON LAND CAPABILITY FOR AGRICULTURE AND LOCAL COUNTY NORMS

(see map, Figure 17, for location)

Reserve	# Potential Farms On-Reserve	Location Number on Map
BRANTFORD DISTRICT		
New Credit	28	1
Six Nations	211	2
BRUCE DISTRICT		
Chippewas of Nawash (Cape Croker)	48	3
Saugeen	30	4
LONDON DISTRICT		
Chippewas of Sarnia	14	5
Chippewas of the Thames & Muncey of the Thames (Caradoc)	54	6
Kettle and Stony Point	12	7
Moravian of the Thames	18	8
Oneida of the Thames	26	9
Walpole Island	161	10
PETERBOROUGH DISTRICT		
Akwesasne	6	11
Alderville	13	12
Beausoleil (Christian Island)	31	13
Curve Lake	3	14
Georgina Island	12	15
Gibson	3	16
Golden Lake	2	17
Hiawatha	7	18
Mohawks of the Bay of Quinte (Tyendinaga)	55	19
Parry Island	3	20
Rama	3	21
Scugog	5	22
SUDBURY DISTRICT		
Dokis	7	23
French River	1	24
Henvey Inlet	4	25
Magnetewan	2	26
Shawanaga	1	27
Sheguindah	3	28
Sheshegwaming	3	29
Sucker Creek	1	30
West Bay	5	31
Wikwemikong	58	32

FIGURE 17:
LOCATION OF RESERVES WITH
POTENTIAL FULL-TIME FARM OPERATIONS[1]

(see table, Figure 16, for names of reserves,
and number of potential full-time farms)



1. See footnote, page 64, for explanation of absence of northern reserves, where there appears to be some (limited) potential for conventional agriculture. *Not* estimated is the potential for *alternative* farming such as fur and fish farms, ungulate herd management and berry marsh operations. Since IAPO does not provide services for wild rice operations (prevalent in northwestern Ontario), these are also not included.

Conclusions

It is estimated that there is in excess of one-quarter million acres of land on reserves with good to excellent potential for agriculture. As a proportion of all land on reserves, this compares very favourably with non-reserve lands in the arable regions of the province. Moreover, on a *per-capita* basis it is almost double the average for the non-Indian population in the province. Thus, while recognizing that there may be a need for substantial investment to take full advantage of the productive potential of reserve lands (e.g., clearing and drainage), the basic soil properties of reserve lands do *not* appear to be a significant barrier to expanded agricultural development on reserves. Indeed, more than 94% of the better agricultural lands on-reserve remain uncultivated.

If reserve lands with agricultural potential were developed to levels consistent with local county norms in the environs of each reserve, there is a potential for more than 830 full-time farm units (or equivalent part-time). This is approximately 12 to 15 times the current level of farming activity on reserves.

It is recognized that there are significant socio-economic and financial barriers standing in the way of full exploitation of this potential on reserves (as will be shown in Chapter IV). Furthermore, it is not fully known what current and future interest there

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1. The IAPO survey identified a number of Indians on-reserve who were interested in becoming involved in farming, whether through existing family or band operations, or through new start-ups on their own. A comprehensive survey of prospective farmers has not been carried out.

is among Indian people for participation in agricultural pursuits. (The 1987 IAPO survey identified a score of individuals expressing interest in entering farming, but did not systematically canvass or survey the population in prime reserves.) In any case, it is not likely that the full on-reserve agricultural potential could be realized in the immediate future (i.e., 10-20 years). Figure 18 below indicates the number of potential full-time farm operations on reserves under assumptions of 25%, 50%, 75% and 100% achievement of the full potential. It is evident that achievement of *only one-quarter* of the full potential would still *triple or quadruple* the current level of farming activity on Indian reserves.

FIGURE 18:
POTENTIAL FULL-TIME FARM OPERATIONS ON-RESERVE TO VARIOUS LEVELS OF POTENTIAL

Reserve	Number of Current Active Farm Operations (full-time, part-time or hobby)	Number of Potential Farms[1] (full-time or equivalent)			
		100% Reserve Potential @ County Norms	75% Reserve Potential @ County Norms	50% Reserve Potential @ County Norms	25 % Reserve Potential @ County Norms
Brantford	16	239	179	120	60
Bruce	2	78	59	39	20
London	7	285	214	143	71
Peterborough	30	143	107	72	36
Sudbury	16[2]	85	64	43	21
PROVINCIAL TOTAL	71	830	623	417	208

1. Figures for potential number of farms are based on Canada Land Inventory Classification and local county norms.

2. Excludes Fort Frances District, which has 1 active farm operation, since local county data are not available. Also excludes other districts where Canada Land Inventory shows agricultural potential, but where local county norms data are not available (i.e., James Bay District, Kenora District and Lakehead District).

IV BARRIERS AND OBSTACLES

There are several major challenges facing Indian people wishing to explore and exploit the agricultural potential in their reserve communities. These challenges go well beyond the obvious difficulties of commissioning and funding more specific and scientific studies of agricultural potential on precise tracts of land on reserves. Similarly, they go well beyond the relatively simple task of identifying prospective farmers. These formidable barriers and obstacles reflect the underlying social and economic realities of reserve communities. These challenges may be addressed under the following broad issues:

- access to finances required for capital investment (land improvement, buildings, livestock and machinery) and operating expenses (i.e., working capital);

- needs for training, skill development and technical advice;

- access to on-reserve (and off-reserve) lands;

- opportunities for supplementary non-farm employment and income (and competition from such non-farm pursuits); and

- impact on family and reserve community relationships.

Financing Requirements

Using a technique similar to that employed earlier in this report for estimating the number of potential full-time farm units on-reserve, it is possible to provide a *preliminary estimate* of the *potential capital investment* required to achieve the full farming potential on reserves to levels consistent with local county norms. Utilizing local county data on the average value of capital per farm for machinery and livestock[1] and assuming an average of $50 000 per farm for land and buildings,[2] it is evident that achievement of 100% of the agricultural potential on reserves would require approximately $105 million for land, buildings, machinery and livestock alone.

In addition to investment required for land acquisition, buildings, machinery and livestock, there is a need for land clearance and installation of tile and outlet drains. Land clearance costs are relatively modest and may be considered to be subsumed in the land "acquisition" costs identified above. Drainage is considerably more costly.

The proportion of reserve land that requires drainage may amount to *as much as* 30% of Class 3 land, 60% of Class 2 land and 90% of Class 1 land. (The higher proportions for the *better*, i.e., Class 1, lands reflect the relative cost-effectiveness of

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1. *Agricultural Statistics for Ontario, 1985*, Ontario Ministry of Agriculture and Food.
2. The majority of this is for farm buildings, since land is already held by Band Councils, and is typically purchased or leased by individuals or families on-reserve at nominal cost.

investing in drainage for the more productive lands.) Under this assumption, the total investment requirements for tile and outlet drainage on reserves in Ontario are in excess of $87 million. (See Figure 2, Appendix 1, for further explanation.)[1]

Since the above estimates of the proportion of land needing or warranting drainage may be quite high, and since drainage and other improvements need not always be made *immediately* to allow at least modest levels of production, this estimate represents the *maximum* requirements for investment in drainage.

Taking into account requirements for land, machinery, buildings, and livestock, as well as drainage, the total estimated investment required to achieve 100% of the estimated on-reserve potential, under the above assumptions, approaches $200 million.[2] (This does *not* include requirements for working capital, to allow fledgling or expanding farm operations to meet cash flow requirements pending payments after harvest.[3]) It

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1. These estimates are almost certainly *high*. Data on the proportion of farmland in Ontario which has been subject to tile and outlet drains are not available by CLI class of land capability. Nor do data on the total acreage of land in Ontario which has been afforded tax relief under the *Tile Drainage Act* accurately or fully reflect the total lands which have been improved for drainage. For Indian and non-Indian lands alike, even the best class land (i.e., Class 1) has *some* limitations, most notably, the need for drainage to allow early cultivation and late harvest in the wet spring and fall seasons respectively. In many cases, investment in drainage is most cost-effective for the better (i.e., more productive) lands. The 90% estimate for Class 1 lands on Indian reserves is likely very high, while the estimates of 60% and 30% respectively for Class 2 and 3 lands are perhaps closer to a realistic level - especially for well-established farms seeking to maximize yields. In any case, the Class 1 land accounts for only 2% of all reserve land (and 8% of the Class 1-3 land combined). If the proportions to be improved for drainage were only 20%, 40% and 30% respectively (accounting for a total of approximately 50% of all Class 1-3 land combined, or 13% of all reserve land), the total investment required for drainage might be in the order of $60 million.

2. See Figures 1 and 2 in Appendix 1 for a summary of these potential capital investment requirements.

3. The need for additional sources of working capital (i.e., beyond personal capital or income from non-farm sources) depends on the stage of development of the farm (i.e., start-up or expansion phase versus well-established), the typical cash flow, as a function of the production/marketing cycle, and the availability and reliability of non-farm income.

should be appreciated that this level of investment would yield 830 full-time farm operations operating at levels consistent with the off-reserve (i.e., mainstream economy) averages. More modest operations and/or part-time or cooperative operations may require less investment per individual or family farm operator. Furthermore, even on an individual farm basis, it is normal to spread such investments out over a relatively long time, in pace with the growth, increasing sophistication and profitability of the farm.

The major challenge facing prospective Indian farmers is in gaining access to the necessary investment and working capital for farm start-ups, expansions or improvements. Most Indian families and communities lack an established source of discretionary and investment income and basic wealth to enable them to participate in farming. With typically spotty employment records (chronic unemployment, seasonal and/or part-time work, involvement in unconventional, non-wage pursuits such as hunting and trapping, etc.) and insecure non-farm income sources, the majority of Indians on-reserve do not enjoy strong credit ratings with conventional (i.e., mainstream economy) lending sources. This is further complicated by the fact that, under federal law, Indian reserve lands and related assets cannot be seized by creditors in the event of any loan defaults by Indians on-reserves. Accordingly, creditors are generally reluctant to provide investment or operating capital to Indians on-reserve for on-reserve enterprises, without some form of alternative guarantee which circumvents this legal restriction.[1] This is a formidable restriction, since the estimated

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1. *Indian Act*, Federal Statutes, Government of Canada.

value of Class 1-4 lands on Indian reserves in in excess of $200 million.[1] (See Figure 3, Appendix 1 below.) Off-reserve lands of equivalent value could be used to secure farm loans in the tens of millions of dollars.

Even when loan guarantees can be offered, either under authority of the federal Minister of Indian and Northern Affairs, or through the Indian Agricultural Program of Ontario, many conventional lending agencies are still often reluctant to provide capital to on-reserve farmers. Many conventional lending agencies are generally averse to making farm loans of less than approximately $100 000 (i.e., to small-scale farmers) because of the proportionaly high administrative costs entailed. Moreover, they have tended to remain isolated from Indian communities and have concentrated on more accessible, lucrative and less risky mainstream markets.

There is clearly a need for improved access to adequate and affordable financing for Indian farm start-ups, expansions, and modernizations, as well as operating requirements to cope with adverse cash flow. Commercially-viable Indian farms require improved access to direct loans as well as to loan guarantees. Less commercially-viable farm operations, including fledgling farms which are not expected to yield net positive returns in their first several years of operation, have a further

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1. Based on average land values derived from the Farm Credit Corporation, Government of Canada survey of farm land values, 1984, providing average land values in Ontario for each of Class 1, 2, 3 and 4 under the CLI classification system. These values relate to *all* Class 1-4 lands on reserves, whether currently used for farming or not. (Only approximately 12 000 acres of the 240 000 acres of Class 1-4 land on-reserve are currently cultivated.)

need for access to forgiveable loans[1] and/or direct contributions. These latter sources of financing would reflect the longer-term social and economic benefits of promoting agricultural development on reserves.

The rationale for public investment in agricultural development on reserves, through appropriate federal and provincial government programs, rests on the premise that increased employment and community-generated income will reduce, over the longer term, the dependence of Indians on other forms of social assistance (e.g., unemployment benefits, social welfare allowances and related shelter subsidies). As with other forms of economic and development programs for Indians, eligibility criteria for access to publicly-managed and financed loans, loan guarantees, forgiveable loans and contributions can be geared to ensure that those who can afford to finance operations completely or partially on their own, or through conventional commercial sources, do so to the maximum extent possible. Similarly, financial assistance, especially in the form of forgiveable loans and contributions, can be targeted to those who need help most, including those who are in early (i.e., pre-profitability) stages of their farm operation.

At the same time, there is a need to break down existing barriers which inhibit access to conventional lending and financing sources. However, it would not be prudent to place too great a reliance on the mainstream financial markets to fully and readily

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1. Unlike direct contributions, forgiveable loans are treated as loans unless and until they are satisfactorally utilized for the purposes for which they were intended. If terms of the loan are met, repayment of the forgiveable portion is waived. If they are not met, the loan must be repaid in full under terms of the lending agreement.

respond to the financing needs of the Indian farming community. This situation is not unique to Canada, but has been experienced in the United States Indian Reservation context as well, and has led Indian farmers to focus much of their attention on the creation or enhancement of federal government programs to respond to the needs of Indian farmers.

As noted in the final report of the National Indian Agricultural Working Group (U.S.A.), ". . . *to date, the private sector has been unable or unwilling to meet the needs of Indian Agriculture. For this reason, and in an effort to define realistic and meaningful actions which can be taken to quickly reverse the trends in Indian Agriculture, the working group has concentrated on Federal policies and programs.*"[1] The Working Group focused its attention in particular on the credit programs available through the U.S. Bureau of Indian Affairs. It made recommendations to ensure that the Bureau's Direct Loan Program, Loan Guaranty Program, and Grant Program were made more accessible and relevant to the needs of Indian farmers, with provision of adequate technical assistance, and a streamlining of applications and approvals processes, to facilitate such Indian access. The Working Group also recommended that the Grant Program in particular be realigned to provide a more long-term and strategic perspective to ensure continuous and consistent availability of funds for Indian farmers in need.

To deal with the perceived reluctance on the part of commercial lenders to ". . . *do business on reservations largely due to . . . jurisdictional problems and lack of experience or*

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1. National Indian Agricultural Working Group. Final findings and recommendations of the National Indian Agricultural Working Group, Assistant Secretary, Indian Affairs; and Agriculture Council, 1987.

information on Indian financing . . ."[1] the National Indian Agriculture Working Group (U.S.A.) advocated the promotion of public relations with the banking industry on the part of both the Bureau of Indian Affairs and Tribes. Notwithstanding this recommendation, the Working Group advocated caution in placing *too* heavy a reliance on commercial lenders, noting that ". . . *until risk and uncertainty* (in the Indian reservation agricultural context) *can be lowered to levels which are acceptable to private commercial institutions, reliance on the Federal Government to meet financial needs should remain. The current push to transfer agricultural programs to commercial lenders should be discontinued, and all lending agencies, both private and governmental, should attempt to work together to meet the needs of the native American . . . operators.*"[2]

Need for Training, Skill Development and Technical Advice

Current as well as prospective Indian farmers have a requirement for the acquisition and upgrading of a broad range of skills and knowledge relevant to agriculture. This includes basic agricultural skills such as livestock management, crop development and harvesting techniques, soil management and machinery and facilities maintenance. It also includes the complementary business skills such as bookkeeping, financial planning and management, (farm) business plan development and general work planning and scheduling. Depending on the particular type of operation, there is also a need for specialized training and timely information of a unique and technical nature dealing with topics ranging from breeding techniques and tilling practices to the proper use of herbicides and insecticides.

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1. National Indian Agricultural Working Group. Final findings and recommendations of the National Indian Agricultural Working Group, Assistant Secretary, Indian Affairs; and Agriculture Council, 1987.

2. Ibid.

There are two major barriers standing in the way of access to skill development, training and technical information and advice for Indian farmers on-reserve. The first is an absence of a continuous, well-developed network and tradition of Indian farming in recent years. In the mainstream agricultural community, many of the farming and farm management skills, and much of the technical knowledge is handed from generation to generation. Moreover, it is fostered and disseminated richly and readily through well-developed networks at the local, regional and national levels (e.g., farmers cooperatives, local agricultural societies, farming associations specializing in particular agricultural practices or "product lines",[1] 4-H clubs, and farm service organizations such as breeders associations, soil conservation societies and informal social groups, including "wives" groups, "women's" auxiliary associations, and similar clubs or groups). These organizations and associations play a major role in skill development knowledge transfer for farmers, both informally through casual exchange of ideas and experience, and formally through newsletters, fact sheets, workshops, seminars, training courses, enquiry services and agricultural fairs and exhibitions.

While membership or participation in mainstream agricultural societies and organizations is not closed to Indian farmers, these associations do tend to be less accessible to Indian farmers than to farmers in the mainstream. In some cases, this is simply a function of the lack of knowledge or awareness on the part of Indian people on the existence of such organizations. In other cases, geographical and social isolation tend to restrict Indian participation. Added to this is the common reluctance on the

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1. e.g., cattlemen's associations, dairy herdsmen associations, hog producers, etc.

part of many Indian people to participate in mainstream activities and programs which may be perceived as too sophisticated for Indian people - especially those who are managing fledgling and very small-scale operations - and who consequently lack confidence and/or experience in seeking technical advice from organizations outside their own community.

A second major barrier is the relative absence of government training, information and technical advisory services catering directly to the specific needs and circumstances of Indian farmers on-reserve. Many of the agricultural support programs in mainstream government departments at the federal and provincial levels (e.g., Agriculture Canada, Farm Credit Corporation, Ontario Ministry of Natural Resources, Ontario Ministry of Northern Development and Mines, and Ontario Ministry of Agriculture and Food) cater to a broad farming clientele. Many of the programs are focused on the needs of established farmers, seeking to expand or modernize operations. In any case, limited government resources have tended to be concentrated in the prime agricultural regions of the province. In the absence of technical and financial resources targeted specifically and directly to the farming needs in Indian communities, there is a tendency for the Indian farming community to remain isolated from these mainstream programs. With lower levels of education and less familiarity with conventional bureaucracy, Indian farmers have generally been reluctant to pursue available programs and services. Similarly, with a generally poor understanding of the conditions, prospects and needs of Indian agriculture on reserves, officials in government departments and agencies have tended to refrain from actively promoting the availability of their services on reserves.

There is a clear need for programs and delivery mechanisms which can help to bridge the current knowledge gap. This calls for three complementary initiatives:

- the development of a more active network of Indian farmers in the province to share ideas and information about their own needs and experiences, and to provide a conduit for the dissemination of agricultural information (including knowledge about available services in the outside world) from other organizations and government departments to Indian farmers;

- greater targeting and formal commitment of dedicated resources within existing agricultural programs to meet the specific needs of Indian farmers (i.e., the establishment of appropriate Indian agricultural outreach and extension services, complemented by more active and specific targeting of information services, training courses and related assistance programs to Indian farmers); and

- the establishment and utilization of an appropriate "broker" agency working on behalf of Indian farmers to simultaneously promote knowledge of available programs amongst Indian farmers, foster greater sensitivity and responsiveness to the needs of Indian farmers on the part of government programs and officials, and assist in corresponding applications and delivery procedures (this organization could provide a similar function for financial assistance programs).[1]

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1. As noted in Chapter V, this is a major role which can be even more actively pursued by the Indian Agricultural Program of Ontario.

Access to Land

Indian reserve lands in Canada enjoy a unique legal status which renders conventional (i.e., mainstream) land market pricing and allocation procedures somewhat irrelevant. According to the *Indian Act*, which is the principal federal legislation governing the Government of Canada's relationships to Indian peoples - especially those on-reserve - a reserve is ". . . *a tract of land, the legal title of which is vested in Her Majesty, that has been set apart by Her Majesty for the use and benefit of a band.*"[1] A band, in turn, is a ". . . *body of Indians recognized by government, for whose benefit and use land and money have been set aside and held by the government.*"[2] The normal, and officially recognized form of local government on an Indian reserve, consists of a band council headed by a band chief. These are responsible for development and enforcement of by-laws and the management and delivery of a wide range of programs, under authority of the *Indian Act* and/or through specific agreements with the Government of Canada regarding program delivery (under the principle of Indian control and self-determination).

Until recently, there have been three basic devices[3] for the allocation of reserve lands. First, under terms of *surrendered land sales*, it has been possible for Indian individuals or bands to sell land outright, alienating it forever after from the reserve and hence from band control. This has been a rare and complicated process wherein the band members were obligated to democratically vote to agree to surrender all rights to the

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1. *Indian Act*, Revised Statutes of Canada, 1985.
2. Knox, Robert H. *Indian Conditions: A Survey*, Indian and Northern Affairs Canada, Government of Canada, Ottawa, 1980.
3. Under terms of recent revisions to the *Indian Act*, it is now possible for reserve lands to be set aside for leasing and economic development without jeopardizing their reserve status. Leases on these lands may now be used as collateral, although this device would have limited applications (e.g., for mineral developers), since most lenders would prefer *outright ownership* as collateral.

land back to the Crown (i.e., Her Majesty in Right of Canada). Once this was complete, the government (acting on behalf of Her Majesty) was then free to sell the land through the established procedures for sale of Crown lands. Upon completion of the sale, jurisdictional responsibility for regulation of subsequent use, sale or letting of the land would revert to the provincial government, rather than the Government of Canada. Since the process has been unwieldy, and more importantly, since Indian bands have been loathe to alienate reserve lands from community ownership or benefit, this has been an extremely rare device utilized only in special circumstances (e.g., commercial disposal of reserve lands in prime urban centres).

A second, and highly common device involves *unsurrendered land sales.* In these cases, sales are, by law, restricted to either individual band members or the band as a whole. In these cases, the rights to the land are granted to the purchaser, with such rights, for legal reasons, certified by the Minister of Indian Affairs, who issues a Certificate of Possession (CP) to the purchaser. This assigns exclusive use and occupation to the purchaser and his/her heirs - provided they are band members, whether living on- or off-reserve.

A third, and also highly common device, involves *rental of reserve lands* - whether to band members or to non-band members (i.e., non-Indians living off-reserve). This may involve the band council letting band-owned and controlled lands to individual members or to outsiders. It may also involve individual members holding Certificates of Possession (i.e., owning the rights to certain specific tracts of land) letting their lands to others, whether they be other band members or outsiders. In the latter case, approval of band council is required. A third, and relatively rare case, involves band members surrendering certain rights of the land to the Minister of Indian Affairs, who

in turn lets the land to outsiders for the benefit of the band members. (Formally, all such tenacies are ". . . *contracts between tenant and Her Majesty the Queen in Right of Canada, but in practice the terms or conditions are settled by the band.*"[1]

There are several problems and issues related to the allocation of, and access to, reserve lands for use by Indian farmers. First, the *isolation of reserve lands from the mainstream land market* and the limited competition for such land among residents on-reserve tend to minimize any real capital gains normally realized from the ownership and improvement of farmland. This tends to make the pursuit of farming on-reserve less attractive than off-reserve, especially when one takes into account the fact that much of the real returns on capital investment in mainstream agricultural activity relate to the capital gains (i.e., real increase) in land values. (As noted in the publication of the Appraisal Institute of Canada: *"it certainly appears that the 'live poor and die rich' phenomenon will continue to prevail in agriculture for the foreseeable future. The biggest gain from farming* (off-reserve) *will likely continue to come from the capital gain on the stock, not from the annual dividend.*"2

Since any exposure of Indian reserve farmlands to the mainstream market could only come about through full exposure to alienation of such lands through sale to outsiders, there is probably little that could be done to deal with this problem. At the same time, however, the promotion of an active, though necessarily more restricted, internal

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1. Lowry, William V. "Indian Lands: A Peculiar Market", in *The Canadian Appraiser,* Appraisal Institute of Canada, Volume 31, Book 1, Spring 1987.

2. Gilson, J.C. "Going! Going! Last Call! Sold!" (What is the Price of Farmland?), in *Appraisal Institute Magazine,* Appraisal Institute of Canada, Volume 25, Book 4, November, 1981.

land market on-reserve can help to increase the commercial attractiveness of ownersip and improvement of reserve farmlands. This could be achieved through greater use of *Certificates of Possession* (rather than informal allocation of lands on a "rental" basis at merely nominal sums by band council). This could be coupled with the *charging of off-reserve market rates* for lands leased (or otherwise informally occupied and used) by band members. In fact, this could be further reinforced by the imposition of *land taxes* which would reflect the opportunity costs of holding lands with agricultural or other economic potential. (As noted below, these measures would also foster a more serious examination of present land allocation and use, reflecting opportunity costs.) This is a new possibility, since recent amendments to the *Indian Act* now provide Indian bands with rights to tax lands.[1] Other amendments to the *Indian Act* also effectively replace the "*surrendered*" lands instrument referred to above, with provisions for a "*designated lands*" instrument. Under these new terms - yet to be fully promoted and utilized - bands are enabled to set lands aside for leasing and economic development without loss of reserve status. Individual Indians will also be able, for the first time, to use leases as collateral for loans.[2]

A second problem relates to the *land allocation criteria and processes* within certain bands. In some reserves, there is an objective, open and competitive process whereby members can gain access to reserve lands, whether through rental from the band

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1. Indian and Northern Affairs Canada. *Proposed Amendments to the Indian Act Concerning Conditionally Surrendered Land and Band Taxation Powers.* Government of Canada, Ottawa, 1987.

2. Indian and Northern Affairs Canada. "Kamloops Amendment Clears Commons", *Transition*, Vol. 1, No. 1. Government of Canada, Ottawa, July, 1988. Use of *leases* as collateral would have limited application (e.g., mineral developers), since most lenders would prefer *outright ownership*. In any case, the removal of certain *legal* barriers does not deal with other barriers to lending on reserves, such as cultural isolation, and general lending practices of mainstream financial institutions.

council or through outright purchase using the Certificate of Possession instrument. In other cases, however, there is no such objective process. Allocation is made on the basis of family tradition or political whim (or a combination of the two). As a consequence, prime farmland may be held and occupied by individuals or families who have no interest in, or capability for, farming. Although it is possible for these lands to be subsequently transferred or made available to interested farmers, in practice there is a tradition of holding lands within the family. This is reinforced by the absence of any land tax (or equivalent financial or regulatory instruments) which "penalize" non-use, under-use or mis-use of productive farmlands. Thus, there is no real cost to keeping productive lands idle.

Unless prospective farmers are willing and able to pay substantial sums to purchase or lease such lands from the initial owners, there is no incentive for the holders to free them up for use by individual or band farming operations. This problem applies equally to lands which continue to be held in common by the band council. In fact, as with Crown (i.e., publicly owned) lands off-reserve, even the imposition of a land tax would have no significant effect on the *band council's* landholding practices since it would involve the council paying taxes to itself. Thus, there is a need for both financial incentives to promote the highest and best use of on-reserve lands, as well as enlightened attitudes on the part of band councils which have the authority to impose land use guidelines and restrictions on-reserve.

An additional problem relates to the relatively common practice in several reserve communities to *let reserve farmlands to non-Indian farmers* in adjacent communities off-reserve. While this has had the benefit of providing a source of income to the holders of the land, whether these be individuals or the band council collectively, it is also

militated against the development of an Indian-owned and controlled agricultural base on-reserve. In fact, it is recently becoming apparent (as revealed in the IAPO 1987 survey of reserves) that many of the off-reserve farmers leasing reserve lands are treating the reserve lands as a non-renewable rather than a renewable resource. The Indian landowners, often lacking adequate knowledge about appropriate soil conservation techniques and principles, have been unable to establish proper controls on the use of productive farmlands by off-reserve farmers. The result has been a tendency for off-reserve farmers, typically operating under short-term lease arrangements, to maximize short-term yields. Through over-use, and lack of investment in fertilization and sound conservation practices, the soils have become exhausted (this is referred within the agricultural community as "mining the soil"). While there may be some merits to continuing the letting of some lands to off-reserve farmers (especially in reserve communities where there is little or no interest in farming, or where the quantity of accessible productive farmland on-reserve is inadequate to support a viable farm operation), there is a need for several remedies or preventive measures:

- adoption by bands of appropriate regulations and controls on the use of farmlands on-reserve (these could apply equally to on-reserve and off-reserve farmers operating on the reserve);

- provision of appropriate training to Indian landholders to equip them with the knowledge and skills to monitor and supervise the use and management of their lands by off-reserve farmers;

- promotion of more active and direct involvement by Indians themselves in farming, rather than the letting of lands; and

- in support of the above, and as an alternative to full and direct involvement in farming by the Indian landholders, promotion of joint or collaborative farming ventures with off-reserve farmers, akin to share-cropping or farmer-in-training arrangements (i.e., access to on-reserve lands could be made contingent upon joint equity participation and/or provision of training to Indian reserve farmers by the off-reserve farmers); and/or promotion of longer-term lease arrangements with off-reserve farmers (so as to promote a longer-term and more responsible perspective on the use of reserve lands), potentially coupled with lease terms linked to the annual value of production, rather than a fixed rental fee which would otherwise need to be met "at all costs" by the off-reserve farmer.

A final challenge relates to the difficulties which on-reserve farmers face in gaining *access to off-reserve lands* which may be necessary to augment on-reserve lands for a viable level of production. Since, until recently, on-reserve lands could not legally be used as collateral for loans, on-reserve farmers have had unique difficulties in raising cash for the outright purchase of off-reserve lands.[1] Being effectively restricted to leasing such lands, they may be reluctant to make the appropriate investments in land improvement or off-reserve capital stock necessary for a viable farm operation.

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1. In any case, the recent amendments to the *Indian Act* only open up prospects for using on-reserve *leases* (rather than *outright ownership*) as collateral. These will have limited application, mostly in the more urban reserves or in the few reserves where non-Indians would be welcome to locate their homes and/or businesses.

Non-Farm Opportunities

As with a double-edged sword, farmers face a dilemma with respect to access to non-farm employment and income-generating opportunities. On the one hand, many Indian farmers - especially those with fledgling and small-scale operations - require part-time non-farm jobs to supplement their farm income (and, for that matter, to cope with adverse cashflow, both in start-up situations and prior to harvest). On the other hand, the availability of non-farm employment serves as a competing factor which may tend to undermine the relative attractiveness of farming. This is especially true since farming is relatively capital-intensive, and requires considerable front-end financial and sweat equity investment for several years before any appreciable returns are realized (by contrast, for example, employment in a band administrative position is relatively stable, secure and rewarding, with steady pay every two weeks).

The best candidates for farming tend to also be good candidates for other forms of work. By definition, successful farmers must be sober, industrious and possessing at least basic technical and managerial skills. These attributes make them attractive candidates for other forms of work. Therefore, when such work is available on or near the reserve community, most Indian farmers should not experience particularly great difficulties in augmenting their farm incomes. The major limitation, of course, is the relatively scarce employment opportunities in many reserve communities (this is no more applicable, however, to Indian farmers than it is to other members of the community).

The major challenge is to ensure that Indian farmers *do* have access to secondary sources of income. This is particularly important because farming can be a relatively risky venture, especially for fledgling farmers starting from "scratch". Since there are

so few active farms on reserves which can be passed on from one generation or family to the next, the majority of Indian farms in the future would be of a fledgling nature, and hence relatively risky. Many would likely begin as part-time operations, with non-farm pursuits offering both stability and the necessary working capital for the farm. Indeed, depending on the nature of the farm operation (e.g., seasonal nature of work; scale and workload of operations), farming can lend itself quite readily to certain non-farm pursuits - especially those of a seasonal and/or flexible-time nature (e.g., driving school bus, logging, craft work, carpentry, and band administration). (As noted earlier in this report, less than one-third of active farms on-reserve are currently full-time.) *Contributions* and *operating loans* to start-up farmers can allow them to rely upon part-time non-farm employment while they are establishing their farming operations.

Impact on Family and Community Relationships

As noted earlier in this report, there are two common forms of farms on Indian reserves: individual/family operations, and band farms.

The designation of *Indian/family* operations is perhaps a misnomer, since the vast majority of so-called individual operations are in reality *family operations*. While the senior male of the household is typically the principal active farmer, the female partner or spouse plays a major role. This often includes responsibility for an appreciable portion of farm chores (e.g., tending of livestock, milking, cleaning, driving for supplies, feeding of farmhands and assistance with planting and harvesting operations), a major responsibility for farm management and financial responsibilities (e.g., bookkeeping, accounts payable and receivable, and marketing arrangements), and collaboration with her partner on overall farm plans, investments and practices.

Problems arise when - as is frequently the case - these appreciable farm responsibilities of the female partner are added to conventional domestic responsibilities (i.e., child-rearing, home maintenance, and routine family chores). Indeed, the decision to become involved in farming is often that of the male alone, even though it carries immediate and major responsibilities and consequences to his partner. An additional burden is the anxiety associated with heavy debt load experienced by many families involved in farming.

Band farm operations carry their own burdens as well. Pursuit of farming opportunities by band councils (or by organizations established by band council) can place limited community resources at considerable risk. Furthermore, the pursuit of band farm operations tends to remove incentives and opportunities for individuals with families to develop their own farming operations. Finally, jealousies and tensions can arise if and when band councils (or their designated agencies) make "arbitrary" or "political" decisions regarding who may participate in and benefit from band farm operations. It should be appreciated, however, that band farm operations can be a useful device to make the best use of collective community resources (both human and capital) and to share benefits from farm operations collectively amongst all members of the community.

Band farms can also be used to share the burden of farm and domestic duties, thereby easing pressures on families and individuals. They might serve as a training ground or stepping-stone for new farmers, and could also sponsor training or "apprenticeship"-type programs which foster broad community awareness of the positive benefits of farming, while also engaging the interest and strengthening the skills of young farmers.

To further respond to the inherent inter- and intra-family pressures and tensions, there is a need for comprehensive training and counselling programs which strengthen farm family skills (hence the ability to cope with the workload) and which openly and directly address typical problems arising from agricultural development, and appropriate means for their resolution.

V TOWARD A DEVELOPMENT STRATEGY: A ROLE FOR THE INDIAN AGRICULTURAL PROGRAM OF ONTARIO (IAPO)

The Indian Agricultural Program of Ontario (IAPO) is a relatively new agency created to directly serve the needs and interests of Indian farmers on-reserve. It is modelled after several other so-called *Indian sectoral institutions* focusing specifically on on-reserve agricultural development in individual provinces. Other agricultural sectoral institutions have been in place in British Columbia, Alberta, Saskatchewan and Manitoba for a considerable time.[1] The Western Indian Agricultural Corporation (British Columbia), Alberta Indian Agricultural Development Corporation, Saskatchewan Indian Agricultural Program, and the Manitoba Indian Agricultural Program have, to

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1. Resource Initiatives Ltd. *Native Agriculture in Ontario.* Report prepared for Native Economic Development Program. Government of Canada, Winnipeg, 1985.

   Resource Initiatives Ltd. *Native Agriculture in Saskatchewan.* Report prepared for Native Economic Development Program. Government of Canada, Winnipeg, 1985.

   Resource Initiatives Ltd. *Native Agriculture in Alberta.* Report prepared for Native Economic Development Program. Government of Canada, Winnipeg, 1985.

   Resource Initiatives Ltd. *Native Agriculture in British Columbia.* Report prepared for Native Economic Development Program. Government of Canada, Winnipeg, 1985.

   Resource Initiatives Ltd. *Native Agriculture in Manitoba.* Report prepared for Native Economic Development Program. Government of Canada, Winnipeg, 1985.

   Western Indian Agricultural Corporation. *Western Indian Agricultural Corporation: Serving the Indian People of British Columbia,* program description brochure. Vancouver, 1984.

   Intergroup Consulting Economists Ltd. *Manitoba Indian Agricultural Program Inc.: Program and Performance Evaluation.* Indian and Northern Affairs, Government of Canada. Winnipeg, 1983.

   Economic Development Division, Saskatchewan Region, INAC. *Saskatchewan Indian Agricultural Program 1975-1980.* Indian and Northern Affairs, Government of Canada, 1974.

varying degrees of success, filled major gaps in the range of financial, technical and advisory services on behalf of Indian farmers in their respective jurisdictions. The Indian Agricultural Program of Ontario, which has been in operation since 1984, is rapidly moving to play a comparable role on behalf of Indian farmers in Ontario. Objective evaluations of these institutions, carried out by independent evaluators, have consistently shown that there is both a need and considerable merit in Indian-owned and controlled non-profit institutions playing a developmental role on behalf of Indian farmers.

These institutions are effective in their roles for several reasons:

- they are created by, and are dedicated exclusively to, serving Indian farmers;

- staffed by professional agrologists, agronomists and other farming experts, they are more sensitive to the financial and technical needs and circumstances of farmers than are general-purpose financial institutions or government agencies;

- with managers, directors and professional staff largely drawn from the Indian community itself, they are familiar with the specific needs and circumstances of farmers in Indian reserve communities;

- their offices are located in centres which are more geographically accessible to the Indian clientele than are conventional institutions and/or government agencies;

- they enjoy a relatively high profile both within the Indian community and within the broader commercial and government environment, and accordingly can play an appropriate intermediary or brokerage role in helping Indian people gain access to mainstream programs and services, and, conversely, in making such mainstream institutions more sensitive and responsive to Indian farmers' needs.

Drawing upon the lessons learned from the other Indian agricultural institutions in western Canada, the Indian Agricultural Program of Ontario should continue to develop and exercise its useful role in providing financial, technical and advisory services to Indian farmers on-reserve. This includes:

- developing a better understanding of the agricultural potential on Indian reserves and of the rate of progress toward full and optimal development of that potential;

- provision of financial services to supplement those which can or should be available through other commercial and government sources;

- facilitating Indian farmers' access to both commercial and government programs and services, through such activities as public relations, information services (i.e., improving awareness of available commercial and government services) and assistance with applications and approvals processes;

- direct provision of farm extension and advisory services (including on-site visits as well as workshops, training sessions and similar developmental activities);

- collaboration with other farm assistance programs and agencies to promote and encourage complementary extension services and outreach to Indian farmers on-reserve; and

- general promotion of awareness on the part of federal and provincial agencies of the needs of Indian farmers and of means by which existing programs and services could be made more relevant and accessible.

The Indian Agricultural Program of Ontario has yet to establish a substantial and secure source of funds to operate a full range of financial and technical services. If and when such substantial funding can be put in place, IAPO should consider complementing its existing direct loan fund with a loan guarantee program which will help to overcome the major barrier of gaining access to commercial funds (at both the federal and provincial levels) in the absence of mortgagable lands on reserves. In addition, IAPO needs to substantially tap available government developmental funds to assist Indian farmers in making the necessary land improvements (most notably tile drainage) to make agriculture more possible and productive.

VI NEXT STEPS

As noted in the introduction, the purpose of this report, and of the study upon which it has largely been based, is to present a reasonable case for increasing significantly the level of interest and attention paid to agricultural potential on Indian reserves. While the evidence, based upon readily-available data, *suggests* that there is the potential for in excess of 800 full-time farm operations (or equivalent part-time) on Indian reserves (to levels of development consistent with local county norms), this is by no means conclusive. The degree of interest among Indians to pursue relatively risky (but also relatively attractive) careers in farming, whether on a full- or part-time basis, is not known. Nonetheless, it does appear that there is scope for a significant expansion of farming activity beyond the present level of approximately 50 full-time-equivalent farm operations.

The report has noted that expansion of agricultural activity on Indian reserves would make a major positive contribution to overall economic conditions and opportunities in the 20 or 30 reserve communities where there appears to be an appreciable agricultural opportunity. Noting the barriers and obstacles facing current and potential Indian farmers on-reserve, and the current lack of appropriate programs of assistance from federal and provincial agencies, this report concludes that there is a need for greater awareness of, and sensitivity to, the opportunities for farming on reserves, and of the needs of Indian farmers. The steps outlined below focus on immediate action which can be taken by IAPO to engage broader support for further research, testing, demonstration and promotion of this potential.

To make most effective use of the findings and recommendations outlined in this report, IAPO should immediately carry out the following initial steps:

1. Prepare and deliver an organized and coordinated set of *briefings to all key federal and provincial agencies involved with agriculture or related development programs* (whether directly or indirectly). These briefings should highlight the magnitude of the potential for agricultural development on Indian reserves, while giving appropriate recognition of the real limitations and barriers. This should provide preliminary notice, as well, of major expectations on the part of IAPO (and its Indian farmer clientele) for continued and expanded assistance from these agencies.

2. To complement the above, IAPO should arrange similar, but more personal, *briefings for key federal and provincial ministers and their staff,* to make them more aware and sensitive to the opportunities for expanded farming activity on reserves in Ontario, and of related implications - especially the need for greater financial and program support from government through or in parallel with IAPO.

3. IAPO should promote the *establishment of an inter-band council or working group of Indian farmer representatives* to plan and initiate action aimed at:

    . broadening awareness within the community of *farming opportunities* and the *work and services of IAPO;*

- broadening awareness outside the community of the *needs and expectations of Indian farmers* for more responsive commercial and government sector support.

4. Drawing upon the above inter-band working group, IAPO should commission more detailed *community-level assessments of the current status of farming activity, prospective interest* in future farming, and *specific needs for start-ups, expansions or modernization.*

5. *Secure immediate funding* from appropriate sources for the above study, as well as for a *systematic review and assessment of existing government policies, programs and resource allocations* relevant to Indian farming, with a view to proposing means by which they can be made more substantial, relevant and accessible.

6. Focus immediately on the *development of tangible goals* (even though they may be preliminary or tentative) and a *game plan* for the systematic development of Indian farming potential over the next 10 to 20 years. This will provide a visible set of targets on which Indian, private sector and government attention and support can be focused, and against which progress can be measured.

7. Perhaps in association with the above working group, recruit a *"blue ribbon" panel of leaders from government and the private sector to plan and oversee a "joint action plan"* in support of Indian agricultural development.

Follow-up Research and Related Activities

To further explore and assess the scope for farming on Indian reserves, more detailed and focused research will be required. This will consist of the following key elements:

- There is a need to identify and measure the precise *extent and configuration of land with good to excellent agricultural capability*. Utilizing the findings in this report, this research can be targeted to the 32 reserves on which there appears to be scope for at least one full-time farm operation. In fact, it can be targeted more immediately on the 15 reserves on which there appears to be scope for 10 full-time farm operations or more. (These account for some 771 of the total 830 estimated potential farms on reserves in Ontario.) This research needs to examine more precisely the actual soil conditions on reserves, and other factors which will affect agricultural potential, including:

    - current ownership patterns;
    - the geographic distribution of the better farmlands on reserves (i.e., to determine whether they are too scattered to allow viable farm units); and
    - the precise nature of soil limitations, and of the technical feasibility and potential costs of overcoming them, paying particular regard to the need for investment in tile and outlet drains.

- To complement this research, there is a need to address more directly the *current and potential future level of interest in farming among Indians on-reserve.* This can be carried out through consultations with band chiefs, band

council members and/or band economic development officers, followed up by appropriate meetings and individual interviews with prospective candidates. This should address the following:

- general level of personal and family interest in farming or, in the case of band council or community in general, in the establishment of one or more band-operated farms;
- levels of formal training and/or practical experience in farming;
- availability of personal, family or community capital for investment in farm start-ups or expansions;
- degree of current landholdings, whether leased or owned, by the individual or family;
- general family and community attitudes and priorities regarding the establishment or expansion of farming on-reserve, whether individually, family or band-operated; and
- availability of non-farm employment opportunities to provide sufficient supplementary income without distracting potential farmers from their agricultural pursuits.

- There is a need for a more detailed assessment of the *financial viability of farming on specific reserves*, taking into account not only the above factors, but also local market conditions and farm capitalization and operation costs. This should address the following factors:

  - current levels of farming on the reserve, including current levels of capitalization (assembly of land, buildings, machinery and livestock);

- access to on-reserve and off-reserve markets for agricultural produce, including physical access, marketing arrangements (e.g., milk production quota licences, distribution networks, etc.), and demand for non-cash commodities (i.e., for personal, family or community consumption or non-cash trade);
- local costs of construction of buildings, acquisition of machinery and livestock;
- access to farm support services, including technical advisory and farm exention services, machinery and equipment repair services, livestock management and breeding services, and similar services;
- access to, and costs of investment capital and operating lines of credit; and
- eligibility for, and access to, government technical and financial support.

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APPENDIX 1:

SUPPLEMENTARY STATISTICAL TABLES RE: POTENTIAL INVESTMENT REQUIRED AND ESTIMATED VALUE OF LAND ON RESERVES

FIGURE 1:
POTENTIAL INVESTMENT REQUIRED TO ATTAIN VARIOUS LEVELS OF ON-RESERVE AGRICULTURAL POTENTIAL, EXCLUDING INVESTMENT FOR DRAINAGE
(Land, Buildings, Machinery and Livestock only)

($000s 1985)

District	Average Investment per Farm[1] Operation	Required Investment[2]			
		100% Reserve Potential @ County Norms	75% Reserve Potential @ County Norms	50% Reserve Potential @ County Norms	25 % Reserve Potential @ County Norms
Brantford	126	30 114	22 554	15 120	7 560
Bruce	150	11 700	8 850	5 850	3 000
London	133	37 905	28 462	19 019	9 443
Peterborough	110	15 730	11 770	7 920	3 960
Sudbury	117	9 945	7 488	5 031	2 457
PROVINCIAL TOTAL	-	105 394	79 124	52 940	26 420

1. Average investment per farm based on typical costs/investments for average farm operation in county. Investment data for machinery and livestock are from *Agricultural Statistics for Ontario, 1985*. Assumed $50,000 per farm needed for land and buildings. Note: Average data on Kent and Middlesex counties were used for London District, data on Hastings County were used for Peterborough District and data on Manitoulin County were used for Sudbury District.

2. Based on estimate of the number of potential farms on-reserve, outlined in Figures 13 and 18 of the main text of this report.

FIGURE 2:
ESTIMATED MAXIMUM POTENTIAL INVESTMENT REQUIRED
TO ATTAIN FULL ESTIMATED AGRICULTURAL POTENTIAL

($000s 1985)

District	Potential Investment for Land, Buildings, Machinery & Livestock (to 100% of on-reserve capability consistent with local county norms	Potential Investment for Tile and Outlet Drainage[1]	Total Potential Investment
Brantford	30 114	32 102	62 216
Bruce	11 700	6 044	17 744
London	37 905	21 513	59 418
Peterborough	15 730	10 081	25 811
Sudbury	9 945	17 394	27 339
PROVINCIAL TOTAL	105 394 000	87 134	192 528

1. *Tile drainage* costs range from $450 to $550/acre (average = $500/acre), while *outlet drains* range from $100 to $1000/acre, depending on the density of coverage required (average = $500/acre). Tile and outlet drainage is estimated to be required for *up to* of 30% of Class 3 land, 60% of Class 2 land and 90% of Class 1 land, to yield optimal agricultural output at Ontario agricultural standards. These estimates are likely high, especially for Class 1 lands (which, however, account for only 2% of reserve lands). The drainage costs, therefore represent the *maximum* potential investment required.

   If the proportions of Class 1, 2 nd 3 land to be improved for drainage were only 20%, 40% and 30% respectively (accounting for a total of approximately 50% of all Class 1-3 land combined, or 13% of all reserve land), the total investment required for drainage might be in the order of $60 million.

FIGURE 3:
ESTIMATED LAND VALUE FOR CLASS 1-4 LAND
(Canada Land Inventory Classification)
($s 1984)

DISTRICT	CLASS 1 (average value = $1800/acre)[1]	CLASS 2 (average value = $1040/acre)	CLASS 3 (average value = $722/acre)	CLASS 4 (average value = $450/acre)	CLASS 1-4
BRANTFORD	13 383 000	41 466 880	3 578 954	0	58 428 834
BRUCE	6 316 200	2 182 960	3 915 406	749 250	13 163 816
FORT FRANCES	0	38 480	2 146 506	121 950	2 306 936
JAMES BAY	0	0	0	1 621 350	1 621 350
KENORA	0	9 725 040	9 125 358	1 607 400	20 457 798
LAKEHEAD	0	0	146 566	134 100	280 666
LONDON	3 016 800	32 426 160	3 124 094	1 018 750	39 585 804
PETERBOROUGH	5 661 000	2 305 680	14 246 504	762 300	22 975 484
SIOUX LOOKOUT	N/A	N/A	N/A	N/A	N/A
SUDBURY	0	16 006 640	19 635 512	15 484 400	51 127 552
PROVINCIAL TOTAL	28 377 000	104 151 840	55 918 900	21 500 500	209 948 240

N/A - Canada Land Inventory data not available.

1. Average land values derived from Farm Credit Corporation survey of farm land values, Government of Canada, 1984.