



Creating a Northern Agriculture

1. AN AGRICULTURAL DEVELOPMENT PERSPECTIVE

Wayne E. Burton

FOREWORD

This report, "An Agricultural Development Perspective," is one of a series being published under the title, CREATING A NORTHERN AGRICULTURE, by the Institute of Agricultural Sciences. The authorship is strictly that of Dr. Wayne E. Burton. Technical consultation has been provided by Dr. Minnie E. Wells. The content and conclusions are those of the author and do not necessarily reflect the views and policies of the University of Alaska, the Institute of Agricultural Sciences, or other Institute faculty.

The objective of these reports is to direct attention to opportunities for development of a northern agriculture, and to opportunities foregone if agriculture continues to be ignored in Alaska's land use and control planning process.

This series of reports rests squarely on the belief that substantial development of northern agriculture is in the national interest as well as for Alaska, and would contribute materially to the economic and social well-being of Alaska's peoples, particularly after the "boom" of the petroleum industry is gone. Moreover, development of agriculture could provide the largest source of employment for Alaskans of any resource based industry.

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CREATING A NORTHERN AGRICULTURE

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I. AN AGRICULTURAL DEVELOPMENT PERSPECTIVE

Wayne E. Burton

The reality of the North has not greatly affected the thought of mid-latitude man, partly because he has long associated with the North spirits and mysteries which have had greater value to him than mere reality. It has served his needs best as an unknown place to fashion as suits his fancy and to house the creatures of his wilder dreams. Being unreal has always been its greatest virtue. (11)

Introduction

Alaskans now face a time of decision with regard to agriculture. In the past, national and state bureaucracies have largely ignored agriculture. It has existed merely as a foreign intrusion into the northern ecosystem, with its scope and success pitifully limited. While rural areas have needed agriculture for subsistence, urban Alaska has had no such need, so it is easy for "natural status" environmental interests to hamper the genesis of an agricultural environment. The public must realize that a planned development based on a new perspective can prevent discordant effects on the Alaska wilderness.

When the Alaska Native Claims Settlement Act (1) brought to an end the federal monopoly of lands within the state, it also established a mandatory land use planning and control process in the Joint Federal-State Land Use Planning Commission for Alaska. Section 17 (a) (7) (I) of the Act instructs the Commission to:

make recommendations to insure that economic growth and development is orderly, planned and compatible with State and national environmental objectives, the public interest in public lands, parks, forests, and wildlife refuges in Alaska, and the economic and social well-being of the Native people and other residents of Alaska.

The ultimate pattern of land ownership, control, and use that emerges from implementation of the Act will determine in large part the very quality of future life in Alaska (12).

With millions of acres of latent agricultural lands identified, a designed agricultural environment can play a significant role in the cultural, economic, and political development of the state. It can provide foods, fibers, oramentals, and environmental* particularly needed in the evolution of a truly modern northern culture. It can also provide not only income and employment to large numbers of Alaska's present and future citizens, but also a broadened base to the Alaskan economy in general after the *boom* of the oil is gone. If agriculture is to play such a role, however, attention must be directed to new and different concepts and approaches for creating a *northern agriculture*, and this must be done now!

A Concept of Northern Agriculture

It will take more than a Green Revolution to develop agriculture in the North. The products and artifacts of northern agriculture will contrast with those found in mid-latitude climes, for particular attention will be directed to amenities contributing to the quality of life in the northern environment. Products will include foods such as reindeer and musk ox, and the delicate flavor and quality of vegetables, some of which will be grown in completely controlled environments. Other products will include unique, light-insensitive ornamentals to offset long-winter stresses, and hardy northern ones to accent summer's beauty. Environmental will be produced to heal the scars of man's intrusion into the northern ecosystems.

One of northern agriculture's initial thrusts must be directed to intensified land use to increase subsistence and expand the economic base in the isolated or rural villages. Concurrent with this thrust will be a major concern directed to production of similar goods to supply local urban demands and increasing export demands for food and amenity products in both national and international markets. Inherent in northern agriculture's development must be an ever increasing awareness of interrelationships among the needs of settlement in the profoundly undeveloped agricultural lands and the creation of modernized ecosystems in this northern environment.

A basic philosophy of northern agriculture should be that of ecological engineering, with accommodation made for maximizing complementarities between domesticated plants and animals, and continued production and maintenance of the wild state. The philosophy of *normal-growth*, with its inherent neocolonial exploitation and umbilical ties to mid-latitude urban centers of power, will be supplanted with a philosophy of *structured-growth* (7) indigenous to the development region. An ecological engineering philosophy would accommodate major population increases while still retaining most of the desired attributes of the northern life style.

Northern agriculture's development will be guided by a concept (agroethenics) which deals with the improvement of human well-being by enhancing living conditions through intensified resource use which results in increased production and consumption of wild or domesticated plant and animal products, and services (9). This adaptation of agriculture to the

* Those grasses, annual and perennial plants, shrubs, and trees used to revegetate and landscape disturbed sites resulting from public and private construction, natural disasters, and designed ecosystems. (4. p. 144)

northern climes will offset many disadvantages of direct and indirect isolation, which have contributed so heavily to the paucity of urban amenities in northern regions and resulted in people's reluctance to settle the northern lands (19).

An Approach to Agricultural Development

The comprehensive development of the whole rural sector, including human and non-agricultural resources, linked dynamically with the urban areas, must replace agricultural development as the goal of policy, and provide the setting for agricultural development programs. (16)

Northern agriculture, differing in purpose and concept from that in mid-latitude regions, must be approached in a significantly different manner for its successful development. Historic approaches have been directed to the needs of large, traditional, agrarian populations in their quest for economic progress and cultural modernization. Results have been measured in greater crop yields, and numbers of migrants to the urban-industrial sector of the country's economy. In contrast, any approach to northern agriculture must direct its attention to settlement of latent agricultural lands, and to development of the whole rural sector.

Historic Approaches Inadequate

Alaska can no longer afford the luxury of traditional rural settlement-development approaches, and the resulting scarred landscape strewn with remnants of a 19th century homestead approach to agricultural development. Neither can it afford the continued frustrations of negative national and state agricultural development policies. Seventy years of development efforts dependent on such approaches have left their mark, but that mark has not been a modern rural socio-economic environment nor a modern commercial agriculture.

Alaska has suffered the affliction of fragmented and isolated state and national agricultural programs, operated without a viable perspective of northern agriculture. Public efforts have been directed to those rural and agricultural programs, available in *all the other states*. Traditional agencies and institutions have found the transferral of information, technology, and experience, to Alaska, inordinately difficult. As a result, even traditional agricultural possibilities have continued to decline, due to the ever increasing disparity of information and technology between Alaska's rural areas and those of the rest of the nation.

Martin (15), in treating the American information processes and flows approach to agricultural development, has noted the inapplicability for direct transferral to underdeveloped regions:

"As it stands, . . . (the American information processes and flows approach) . . . applies more to advanced countries than to

underdeveloped countries. . . . Underdeveloped countries can import some but not all of the needed basic knowledge from developed countries. . . . In the Underdeveloped countries the process of information adaptation should be the only connector leading away from the stock of new technology. Those involved in development, education, and dissemination processes would obtain inputs of information from the stock of adapted information rather than directly from the stock of new technology in its unadapted form.”

Alaska vividly illustrates the unadapted interlatitudinal transferral of the American agricultural development approach. The traditional agricultural development triumvirate (U. S. Department of Agriculture — Land Grant University — agribusiness complex) has only visited Alaska, and on rare occasions at that. While a U. S. Department of Agriculture presence has been maintained in Alaska, national policy has not allowed its adaptation to a new-lands development perspective. The Land Grant College (University) triumvirate of education — research — extension has not materialized. The agribusiness complex (national) has largely ignored Alaska, so there is no availability of adapted technology or service expertise from that source. No specialized news media coverage of farm and agricultural information and events has evolved. Moreover, there are no farm organization spokesmen in Alaska’s political arena.

Preconditions for Development

In any unsettled, underdeveloped, northern region such as Alaska, it will be necessary to make a penetrating assessment of preconditions to determine an apropos approach to agricultural development. Particular attention must be directed to national and regional goals, desires of the indigenous population, and purposes of the development effort. Necessary preconditions include:

- a) the *will* to develop rural and agricultural type programs and projects, in the minds of at least some of the national and local leadership;
- b) a minimal corps of administrative and organizational competence, with the sense of institutional dedication to resolving the problems of rural and agricultural development and growth;
- c) a sensitive responsiveness among program administrators and technical personnel to the needs and relevance of program inputs to the success of the development effort;
- d) an “open-ended” approach to resource use which provides for a selected target population with the potential for future organization, and exertion of political power, to provide an external check on performance of the development system, encouraging adaptations of public inputs to needs and circumstances of the times, and assuring effective continuation of development efforts despite possible entrenched hostile attitudes and vested interests;

- e) an expanding market (demand) for products and services of rural modernization and socio-economic development in the relevant rural region (as well as the country at large); and
- f) both domestic and national resources available to supply the necessary inputs for rural modernization and agricultural development.

Enthusiastic, enlightened, and dedicated public leadership will be critical to the success of agricultural development in a region such as Alaska. Where there is no large agrarian population, public leaders must recognize and pursue national and Alaskan goals for food and amenity production. They must also bear the burden of articulating and communicating the purposes of such development efforts. Theirs will be a heavy burden, because program results will be directed to the long-run future rather than to the immediate problems of the day.

Development Goals

Development goals must express identified long-run targets for the attainment of societal desires for cultural and economic progress. They must also provide guidelines for the development of policy and programs. The identification and articulation of such goals marks the beginning of progress towards socio-economic development. The following goals could provide some of the needed targets and guidelines for agricultural development in the North, particularly Alaska.

An overall goal for agricultural development in the North could be:

To provide those foods, fibers, ornamentals, and environmental products which contribute to cultural, nutritional, and environmental needs of continuing settlement and socio-economic development, which are in the national and regional interest, and, in addition, would provide human and resource development opportunities, jobs, and exportable products that would contribute to the state and national welfare.

More specific objectives for such development in Alaska could be:

- a) to identify and dedicate specific lands and locations for present and future agricultural production;
- b) to identify and implement public policies, institutions, infrastructures, and programs which would facilitate credibility and provide services to agricultural development in new-lands settlement-development regions;
- c) to increase availability and assurance of a variety of agricultural and environmental products which would most significantly contribute to social and economic well-being of present and future populations, and to present and future human and natural resource development; and
- d) to develop agriculture with a maximum complementarity to wildlife, recreation, and other sustained-yield land uses.

A Process Approach

Agricultural development and modernization is a continuing process and must be treated as such. A research-development process approach, particularly directed to the northern environment, must be conceived. Its primary focus must be directed to the systematic application of technology at the interface between development planning and production development (12).

First, such an approach should be directed to enhancement of man's interrelationship with the many environmental factors found in the North. Second, it should be concerned with the people-public administration interaction, in solving problems of the development process. Finally, the approach must be directed to functional and economic development activities which alleviate incomprehensible time delays, yet minimize environmental degradation.

A research-development process approach must include three integral functions not found in traditional American approaches: (a) identification and assessment of potential values associated with new production availability, (b) conceptualization, appraisal, development, testing, and demonstration of *production systems*, which can be packaged to quite different production situations, and (c) appraisal of cultural, institutional, and legal factors which could promote or retard production and distribution development within identified socio-political situations or regions.

The approach would also differ from traditional American ones in several additional ways since it would: (i) recognize wants and desires of ultimate consumers, (ii) presuppose recognized goals for development, (iii) incorporate an intelligence function to identify and assess potential enterprises and development situations, (iv) incorporate a coordination function via a task group, advisory commission, or citizens council to provide for continuous and intimate dialogue, interaction, and feedback among scientists, policy makers, educators, program technicians, and users of program outputs.

It must be noted, however, that a research-development process approach would include traditional planning, education, research, development, and extension elements. These would be functionally organized to provide positive input into the development process, and therefore, responsive to identified goals for rural and agricultural development within particular regions.

The Alaskan Perspective

Many Alaskans continue to maintain varying degrees of interest in agriculture even though historical records have documented a dismal experience for farm and public agency efforts alike. A renewal of cautious inquiry into the potential for commercial agriculture began with the study, "Alaska's Agricultural Production Potential: An Economic Analysis" (7). Subsequent reports, *Possibilities of New Land Development in Matanuska-Susitna Borough Alaska* (2), *Alaska's Agriculture: An Analysis of Development Problems* (8), *Irrigation Potentials Tanana River Valley Alaska*

(3), and others, provided additional data which further substantiated opportunity for commercial agricultural production.

The Alaska Rural Development Council, early in 1972, charged one of its standing committees with studying future agricultural possibilities within the state. The completed report, *Alaska's Agricultural Potential* (4), identified some 16 million acres suitable for tillage, 10 million acres suitable for livestock grazing, and more than 100 million acres suited to reindeer grazing. It was the first documented inventory of latent agricultural lands.

In recent testimony, a further identification of latent production possibilities was described:

"Results of a preliminary reconnaissance of one agricultural development alternative provided the following perspective: Alaska has the land resource capability of producing 1,652.6 million pounds of carcass beef, 2,350.5 million pounds of carcass pork, 0.8 million pounds of carcass lamb and mutton, 13.2 million pounds of carcass reindeer, 80,000 reindeer skins, one million pounds of (velvet) reindeer antlers, 450 million pounds of milk, 13.4 million dozen eggs, 0.4 million pounds of wool, 8,014 thousand tons of barley, 27.8 thousand tons of oats, 13,050 thousand tons of hay/silage (D.M.), 79.3 thousand tons of vegetables and 1.4 thousand tons of fruits and berries. This reconnaissance has not explored production possibilities for greenhouse ornamentals, nursery stocks, turfgrasses, field produced plants and seeds, environmentals (particularly those used in revegetation projects of all kinds), recreational services and other products more directly associated with the agroethenics concept." (9)

Not all of the public interest has come from the institutional-agency sector. The Alaska Legislature passed the **Clearing and Draining of Agricultural Lands Act** — 1967 (5). It also passed the **Small Grain Incentive Program Act** — 1968 (6). The University of Alaska, after a lapse of more than 20 years, again established an agricultural experiment station program — 1968. The Department of Natural Resources instituted a state-federal meat inspection program — 1969 (following guidelines of the Wholesome Meat Act — P.L. 90-201). The University of Alaska received funding to construct new research facilities — 1970, and authorization for a new research center on the Kenai Peninsula. The Alaska Crop Improvement Association established a grass-seed processing plant — 1972. The Legislature authorized and funded the Alaska Plant Materials Center — 1972 (14).

Private sector interests, though small in number, have been expressed in a positive manner. Several commercial greenhouse units have been built in recent years. A large-scale greenhouse started year-round operation in the Anchorage community — 1969, and has since doubled in size. A large-scale greenhouse (initially constructed in 1966) began year-round production under lights, of both vegetables and ornamentals. A completely controlled environment vegetable-ornamental research-development project, which, on completion, will be ultra-modern in both technical sophistication and

production capability, is now being developed near Kenai (18). Several medium sized greenhouses have been built or expanded during this period.

One large-scale general farming operation was started on undeveloped agricultural land in the Delta Junction area in the spring of 1970 (8, 10). In addition, several other smaller farms in that community have expanded and further developed their farming operations.

Certain factors and events not directly associated with farming or agriculture nevertheless have had significant impact on the Alaska perspective. The petroleum lease sale (North Slope) of September 1969 brought national attention to Alaska as a potential resource development region, and created anticipations of socio-economic development on a scale not previously known in the North. The Office of the Governor commissioned a study on planning for future resource development — 1969, which treated agriculture in its socio-economic development context (17). The Alaska Native Claims Settlement Act — 1971, in providing for Native selection of some 40 million acres and reactivation of State selection under the Alaska Statehood Act, will eventually provide access to some latent agricultural lands for possible development.

While impact of these activities is as yet undetermined and may not be fully realized for decades, the previously described events do provide some insight into the Alaska Agricultural Perspective.

Conclusions

Alaskans face an urgent burden of decision regarding their future quality of life. While most public attention is being directed to the problems and spoils of the petroleum industry "boom", and to the planning for creation of vast areas of parks, forests, and wildlife refuges, little attention is being directed to the social and economic well-being of Alaska's future populations. Alaska's oil boom will, in all probability, not last for more than twenty years. During that period, Alaska's population may well approach the million mark. Yet planners continue to ignore the need to plan for orderly economic growth and development which will support Alaska's social and political institutions after the petroleum development period.

A well developed *northern* agriculture could have much to offer in providing for the economic and social well-being of Alaskan peoples. It could provide a wide range of foods and amenities which would contribute significantly to the evolution of a modern northern culture. It would also insure a broader economic base for Alaska, and contribute to the needs of a famine threatened world. On the other hand, continuation of the headlong rush to dedicate a major portion of Alaska's latent agricultural lands to uses excluding agriculture, as is now being seriously considered, could do irreparable damage to the future economic and social well being of Alaska's peoples.

Many Alaskans continue to maintain varying degrees of interest in agriculture even though their interests are ill-defined, fragmented, and uncoordinated. Continuing studies are directed to its potential. Each successive legislature directs attention to some facet of agriculture's

development problems. A wide variety of individual interests are expressed each year, and some few are successfully developed into production units. In contrast, some public administrators and leaders ignore agriculture and express abject negativism regarding its future.

If a modern northern agriculture is to be developed in Alaska, then attention must be quickly directed to the development perspective suggested in this report. Also, attention must be directed to further development of a concept of *northern agriculture*. Greater efforts must be made to understand the purposes of agriculture development in the North. The scope and magnitude of possible agricultural development in Alaska must be more clearly defined. Agricultural development approaches must be designed which are particularly adapted to attaining development goals in this northern environment. And, particularly critical will be a greater understanding and appreciation of the role of public leadership, and development institutions, in the agricultural development process.

Fully informed and enlightened decisions regarding Alaska's future land use cannot be made until the agriculture question has been resolved. Such decisions are dependent on determination of agriculture's role in insuring the future economic and social well-being of Alaska's peoples. Only when this is done can the opportunity costs of foregoing agriculture's development be introduced into the land use planning equation.

Subsequent reports in this series will, hopefully, contribute to further understanding and resolution of Alaska's agricultural lands and development questions.

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Alaska

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Scale in Miles

