1815 HRES AGRICULTURE DAY 2 - AGRICULTURE DAY 3 1815

What CFAB Can Mean To You

The cooperative structure of the Bank provides specific benefits to you which are unavailable at any other financial institution in Alaska.

1. Proprietary Interest

As a member/borrower with CFAB, you gain a piece of the pie, so to speak. Our goal is to maximize the earnings of the fishing and agriculture industries, not to maximize our profits.

2. Dividends

Any profits we receive, over and above operating costs, reserves and monies needed to pay debts, revert to our members in the form of dividends. Dividends are declared and paid at the discretion of the Board of Directors, and are distributed on the basis of interest paid by the borrower. In effect, your cost of borrowing is reduced by the amount of your dividend.

3. Voice in Administration

As a member of the cooperative, you have a direct vote in the election of the Board of Directors. This control of the Board and the Bank's activities ensures that your interests are protected.

4. Financial Strength

CFAB is able to increase its loan limits, and consequently the amount of money it lends and receives interest on, through leveraging. This affords you greater borrowing power and increased dividend potential.

What We Do

CFAB provides financial support and business expertise for the COMMERCIAL FISHING and AGRICULTURE industries in Alaska. We deal only with these two industries and only in Alaska.

Financial support is in the form of loans for most aspects of the fishing and agriculture industries. These loans are made at competitive rates with terms designed especially to suit the peculiar nature of these businesses. The inserts accompanying this brochure give you the details.

For the fishing industry, CFAB provides money for vessel construction; vessel purchase; gear; working capital for seasonal supplies; real estate; processing equipment; inventories; and receivables.

The agriculture industry is provided with revolving credit for crops as well as longer term loans for equipment, dairy animals, cattle and capital improvements.

How We Operate

As a cooperative, CFAB is concerned with meeting the needs of its customers/members. Applying for financial assistance, therefore, has been made as simple as possible.

We have or will have offices in Anchorage, Ketchikan, Cordova, Sand Point, Homer, Dillingham and Seattle, staffed with people who know the FISHING and AGRICULTURE industries. They are business people first, bankers second; they know your special needs and how CFAB can meet them.

We have adopted the state format for vessel loan applications. This format is straight forward and familiar to most of the people in the industry.

We have one Specialist assigned to Agriculture to meet your needs.

Our service office personnel can help you organize the necessary information, such as surveys and photographs, to speed the approval process. In most cases, your application can be processed within 30 to 45 days.

In addition, our personnel are there to listen to you. We realize how difficult it is to maintain communications with lending institutions and still tend to the job at hand. We make every effort to be available when you need us; to listen to your problems and suggestions; and to follow-up as necessary to see a solution through.

Processor Services

Real Estate Financing
Loans for real estate are available with terms of up to 20 years or to 30 years with a Farmers Home Loan Guarantee.

Equipment Loans
Assistance with the purchase of new and used equipment is available through CFAB with terms up to 15 years.

Plant Expansion
Look to CFAB for help in the expansion of existing facilities or the purchase of new ones. You may receive terms up to seven years.

Working Capital
Inventories and receivables may be financed through the Bank, with an understanding of the seasonal nature of your business.

Commercial Fishing Services

Vessel Loans
CFAB provides a variety of financial support programs for construction of a new vessel or the purchase of new or used vessels. New vessels will be eligible for up to 75% financing; used vessels for between 60% and 75% financing. Terms are available up to 15 years, depending on the cost and size of the craft.

Gear Loans
Gear loans for all types of fish harvesting are available. Up to 65% of the purchase price may be financed, with up to seven years repayment.

Working Capital
Loans for seasonal supplies are also available. We usually will ask for some form of support from the processor to whom fish are sold.

While most of our financing stands alone, we also participate in state loans, providing the required 10% private lending institution investment. Participations will also be done with commercial banks as well as with federal and state agencies.

Agricultural Services

All aspects of the agriculture industry are eligible for financial assistance through CFAB.

Crop Loans
CFAB's crop financing program is geared to meet the seasonal operating capital needs of the grower. Loan maturities are coordinated with the crop harvest.

Livestock Loans
CFAB offers a wide variety of livestock programs from dairies to meat production in beef, sheep and swine. Operating capital loans are available for seasonal needs and term loans, up to three years, are available for establishing or improving livestock operations.

Equipment Loans
CFAB's equipment financing program provides for terms of three to seven years, based on the useful life of the equipment.

New equipment may be financed for up to 75% of value and used equipment for up to 50% of value.

Poultry Loans
CFAB's financing programs are geared to servicing both the layer and meat bird operations.

Farm-Related Business Loans
CFAB may also make both seasonal operating and term loans to a business which purchases farm products from, or sells inputs to, farmers and ranchers if 90% or more of their business relates to farm operations.

over

Alaska Council on Science and Technology

Northern Technology Grants Program

The Science and Technology Act of 1978 was the first step in political recognition of the importance of the role of science and technology in public policy and decision making. The act gave a statutory framework for the creation of the Alaska Council on Science and Technology. The Council's aim is to guide research activities in support of state objectives and to ensure the efficient transfer of resulting data and information.

In July, 1979, grant funds were appropriated by Alaska's state government to be awarded by the Alaska Council on Science and Technology (ACST) in grants of up to $5000 each. This debut program was successful and in 1980, additional grant funds were awarded to ACST to conduct a second Northern Technology program.

Following the program's guidelines, ACST has solicited proposals from Alaskan residents in the areas of energy generation, waste disposal, recycling, food production, transportation, building design and other innovations that could prove less costly or less energy-intensive than methods now in use.

Independence and survival has made Alaskans natural innovators. The immediate benefit of the grant is to the person with the idea. However, with efficient transfer of project data and information, ACST thinks the long range benefit will be to all Alaskans.

The 1980 summer program attracted almost 600 proposals from Alaskans - a 300% increase over proposals received last year. Proposals were reviewed and rated by 250 northern technology experts. Final selections were made by the council. Performance results will be published as projects are completed.

A similar program will be conducted this winter by the council. Deadline date will be announced in the late fall.

For more information concerning the program, contact the Alaska Council on Science and Technology, Pouch AV, Juneau, Alaska, 99811 or call (907) 465-3510.

August 1980

$4000
Alakanuk City Council (0506-80D)
City of Alakanuk
P. O. Box 51
Alakanuk 99554

Induction Generator - The use of an Enertech 1500 wind powered generator will create an energy conservation project for remote villages, and supply power to these remote areas on an uninterrupted schedule.

$1500
Alaska Alternative Energy Resources Center (0226-80)
1069 W. 6th Avenue
Anchorage 99501

Solar Space Heater - To construct an easily adaptable solar space heater for retrofitting onto existing homes and to conduct a workshop in conjunction with the construction. The simplicity of the construction of the solar collector should be conducive to assembly by the average Alaskan homeowner. At the workshops, the retrofitting topic will be combined with a weatherization session.

$400
Don Bailey (0063-80)
P. O. Box 70
Anchor Point 99566

Furnace Conversion - A unique conversion - from oil to wood. The conversion of the forced air oil furnace heating system is simple and is a means of beating the high cost of oil. The existing wiring will not be touched so a circulation fan can activate at the correct temperature and continue to blow air.

$1100
Norman Bair (0312-80)
Box 10043
Dillingham 99576

Treatment Unit - To help establish state regulations for the disposal of grey-water. A 30 yard septic tank would be installed outside with a gravel filter installed downline in the basement of a home. The gravel filter would further purify waste material.

$800
Thomas R. Berson (0508-80D)
SR 937
Chugiak 99567

Battery or Fuel Cell made from Scrap Metal - To develop a cheap, long-life, high energy battery or mechanically charged fuel cell to be made from common materials or scrap metal. This will provide an alternative power/storage supply which could replace or assist fossil fuel generators, in vehicles and in home heating systems.

$200
Jim Cunningham (0036-80)
5300 "A" Street
Anchorage 99504

Window Insulation - With the use of styrofoam panels. Students at the Specialized Academic Vocational Education Center (S.A.V.E.) will participate and earn credits. Other schools will be invited to view the panels and share the resultant data to be recorded on comparative values of these and other types of window insulation.

$400
Bill Hall (0358-80 & 0359-80)
SR 1438
Eagle River 99577

Dog, Water or Wind Powered Washing Machine - To be used in remote region of Skwentna. For dog power, an exercise wheel will be used to harness the dog or dogs for operating the washing machine. The method would be demonstrated at local dog mushing club meetings.

$2200
K. Quinn Hart (0515-80D)
SR 196 H
Eagle River 99577

Greenhouse - An energy efficient greenhouse using soil thermal mass storage and waste heat recovery on a year-round basis. In the summer months, the excess solar heat collected is transferred and stored in the soil. In the winter, waste heat from the residential coal stove is recovered to maintain soil temperatures. Upon completion of construction, a workshop will be conducted.

$1600
Steve Hicks (0098-80)
Box 147
Glennallen 99588

Wind Generator - To build and demonstrate a 12 volt generator constructed from junk auto parts. The main component will be a shortened rear axle which will serve as the propeller shaft. A demonstration seminar will be conducted in Glennallen upon completion of the project.

$3300
Marnie & John Isaacs (0165-80)
2418 Forest Park Drive
Anchorage 99503

Waterproofing for Earth Shelter House - To utilize and test existing material-"Bituthene" for waterproofing house. Bituthene is used primarily in tunnels and subways. The Isaacs wish to demonstrate that this material will be more effective and less costly than other more commonly used products.

$4100
Ed Knoebel (0055-80)
P. O. Box 84
Glennallen 99588

Greenhouse - Knoebel has excess domestic warm water from his home heating system. He plans to recycle this water to a greenhouse as a heat method. Tests will be run for a one-year period on the practicality of growing vegetables under these greenhouse conditions.

A

$5000
Alex Matheson (0081-80)
1817 W. 13th Avenue
Anchorage 99501

Trailer Steering Device - To develop a remote control rear axle steering device for truck trailers. The problem with multi/trailer rigs is maneuverability. Three trailer rigs would be used more frequently if they were more maneuverable. In addition, a moveable rear axle will eliminate the problems of backing up a multi/trailer rig.

$700
John Phillips (0085-80)
4211 Cope, #3
Anchorage 99503

Recycling Aluminum Scrap - This is an alternate method of handling scrap aluminum cans and other aluminum scrap material. A small crucible furnace will transform the scrap into ingots. The ingots could be packed in a small area per unit weight for economy of shipping.

$5000
Radio Communications Inc. (0332-80)
3350 Mountain View Drive
P. O. Box 98190
Anchorage 99508

Generator - To construct a hybrid solar panel/wind generator system supplemented by lead-acid battery plant, that would have the capacity to power a moderate 25 Watt 12 V.D.C. load. The proposed system would be suitable for providing power to such equipment as microwave relays, VHF/UHF communications, repeaters, hydrologic telemetering instruments and low power television translators.

$5000
Robert Reinhardt (0072-80)
General Delivery
Aniak 99557

Solar Heat House - Will also provide heat for hot water heating system. During winter months, additional heat will come from a modified multi-fuel stove boiler. The heat house could also be used as a fruit drying house, a greenhouse and a clothes drying area.

$1800
Alfred Doner (0155-80)
SR 5620
Wasilla 99687

Boiler System - Design and install heat storage tank with solar assist. This will demonstrate the feasibility of year-round wood burning boiler operation. This will also demonstrate the feasibility of adding a wood or coal burning boiler in series with any existing oil or gas-fired boiler.

$3000
Bruce Forster (0116-80)
P. O. Box 1021
Homer 99603

Solar Wood Drying Kiln - This is an air transfer solar kiln. Forster is a cabinet maker and would prefer using local woods which are of higher quality than imported woods. The kiln will hold up to 2000 board feet of lumber (1" thick) and is designed to dry a loan in approximately one month's time. The body is a two-layer sandwich of clear fibre glass supported by four insulated walls.

$2600
William Hightower (0540-80D)
P. O. Box 4 (Mile 24)
Moose Pass 99631

Wind Generator - Using auto electrical parts for 12 volt wind generator to light outbuildings such as chicken house, etc. A Savenius rotor will be installed on a hill with three or four alternators attached to it. The current will be transmitted to storage batteries in the outbuilding area. When 110 volt current is needed, a power inverter will be employed.

$5000
Edward Johnson (0045-80)
P. O. Box 1347
Soldotna 99669

Digester - Methane gas producing digester which will generate energy as well as dispose of waste. Waste from the digester will be transformed into fertilizer. A reinforced 2000 gallon digester in four compartments will facilitate total digestion and keep the gas supply stable.

$_000
Cecil R. Jones (0374-80)
Star Route A, Box 49A
Homer 99603

Improved Willow Rake - Designed to speed up farm land development. It will remove willow and alder roots in the area with little disturbance to topsoil. Current methods remove excessive topsoil with removal of growth.

$1000
Karen Leis (0298-80)
P. O. Box 923
Homer 99603

Fruit and Nut Tree Cultivation - To grow various fruit and nut bearing trees in remote area. Orchard is planned on a remote plateau at the head of Kachemak Bay, east of Homer. Leis is a knowledgeable grower and believes Pecan trees and other varieties of fruits and nuts will do well on the site under proper controlled growing conditions.

A

$5000
Charles Posciri (0232-80)
SR Box 9360
Palmer 99645

Permafrost Excavation - A pre-facture method for excavating permafrost and rock formations. The method is designed to save on gas and oil and at the same time preserve the environment by eliminating the major portion of environmental damage normally suffered during excavation.

$2300
Ricardo Quiroz (0281-80)
P. O. Box 770
Valdez 99686

Hybrid Electric Car - To modify a conventionally powered gasoline engine in a 1970 Volvo station wagon. The Volvo presently gets 16 MPG and Quiroz hopes to bring that figure up to 75 MPG. This hybrid electric propulsion system is self-containing and self-generating. Emphasis will be geared to learning if additional modifications will be required to produce a hybrid electric car compatible with Alaskan weather. A 16 gallon tank should yield about 1200 miles.

$5000
Elizaveta Shadura (0290-80)
P. O. Box 3907
Kenai 99611

A

Plant Hydro Feed System - Using the nutrient film technique which is a streamlined version of hydroponics. A recirculating system allows a weak concentration of a complete nutrient solution to constantly run by the plant roots. This method supplies a constant flow of nutrients that can be taken up by the roots on a continuous basis.

$1700
Steven B. Smiley (0159-80)
SRA Box 41-C
Homer 99603

Passive Solar Home Plans - To design standard superinsulated passive solar home plans that will meet FHA approvals. It is difficult to obtain FHA approval on a "custom" looking home, rather than a conventional design. These plans will combine energy-saving features in an FHA acceptable design.

$1000
Alaska Federation for Community Self-Reliance (0327-80)
P. O. Box 73488
Fairbanks 99707

A Shutters for Greenhouse - Insulated shutter demonstration project on site of Federations's community garden project. Roll-down quilt/type shutters in super insulated solar heated greenhouse. The system would have the advantages of light weight, low cost and esthetic appeal. Local artists will donate their time to decorate the shutters. The shutters can easily be modified for residential use.

$4800
Phillip Albert (0130-80)
General Delivery
Ruby 99768

A Subterranean Outbuildings - To build subterranean area for chickens, goats, etc. On the earth surface, a greenhouse will be constructed on the top of the animal stock outbuilding. Produce for local consumption would be grown in the greenhouse. Eggs and milk would be available from the chickens and goats on a year-round basis.

$5000
Joseph Balch (0044-80)
Mile 34 Salcha
Fairbanks 99701

Solar Thawing of Permafrost - Thermal tube method using heat jacket at base of tube. Could be used for specific research programs. With the use of a wind pump and solar collector, could possibly supply water year-round in the remote regions.

$5000
Axel R. Carlson (0139-80)
SR Box 30183 Scenic Heights
Fairbanks 99702

Effective U-Value Measurements - To develop a technique with instruments to measure the effect of thermal mass, solar orientation and color of exterior surfaces. Also to determine effective U-values (R-value) of floors, walls and roofs below grade for earth shelter homes. Will also determine the effective U-values of heavy timber and masonry of walls above grade. A computer program will be developed to convert and tabulate the data as U-values.

$3400
Bobby Cloyd (0505-80D)
3750 Geist Road
Fairbanks 99701

Arctic Home Construction - Various techniques will be implemented by the vocational carpentry class at the Hutchinson Career Center. Results will be monitored and compared for effectiveness with other types of home construction.

$4800
Michael Crawford (0328-80)
Box 73560
Fairbanks 99707

Solar Greenhouse - An air/hydronic solar collector system. An attached solar greenhouse to be constructed on the south wall of the Two Rivers Grange (Alaska #3). Labor to be donated by members. The greenhouse will be utilized by the community, including the 4H Club and other young people's organizations.

$5000
John Dillon (0118-80)
Mary Moorman
P. O. Box 81123
College 99708

Home Energy System - Plan to design, build and demonstrate hybrid solar, wood and coal energy system as conservation features in a home. There will be a solar-chimney attached greenhouse with energy storage in eutectic salts. Use will be made of locally available resources to avoid rising fuel costs.

$400
Chris Lamb (0362-80)
P. O. Box 602
Nome 99762

Methane Generator - Utilizing honeybuckets with a two-stage generator. The two stages allow for continuous gas production. Disposal of human waste is a major problem in northern areas. Fuel costs are high. Lamb hopes to alleviate both problems with the generator.

$2400
Ed McGrath (0309-80)
P. O. Box 80807
Fairbanks 99708

Automated Thermal Shutters - Four motor operated retrofit automated shutters when combined with 2 panes of glass have an R value of 18 - substantially higher than most insulated shutters.

$5000
Robert Mchattie (0020-80)
Richard Jurick
1921 Capitol Avenue
Fairbanks 99701

Technique for Shallow Subsurface Exploration - To be developed with an electromagnetic solid conductivity instrument to delineate permafrost and ground ice conditions for building, map subsurface conditions and for small placer and hard rock mining operations.

$5000
Carl Pelz (0538-80D)
P. O. Box 93
Petersburg 99833

Generating System - A hillside stream will be the energy source. A dam will be built 200 feet above the generating system. A pipe in the dam will guarantee a steady flow of water. A Pelton wheel will be used to transmit mechanical energy from the water to the generator.

$1100
James Raymond (0205-80)
P. O. Box 81504
Fairbanks 99708

Data Recording Instrument - Will build a multi-purpose instrument for recording environmental data in remote regions. The data would provide information that could help to improve the design of buildings and other projects for suitability of construction in the wilderness areas.

$5000
Richard Seifert (0064-80)
Gary Newman
Box 80147
Fairbanks 99708

Solar Energy Heating System - To purchase two identical thermal and flow monitoring systems, two differential thermostate controllers and temperature sensors and two recording and integrating pyranometers. Seifert and Newman will monitor the systems for the lifetime of the units. Seifert's system will be heating a basement using panel heating (pipes imbedded in a concrete pad) and Newman's system will be used to provide space heating and domestic hot water heating, with additional exchangers to be used for extended gardening ground warming at a later date.

$2000
Charles Simmons (0248-80)
Box 81724
College 99708

Solar Wood Drying Kiln - To dry wood for use in woodworking and woodcarving. This would enable artist Simmons to utilize local rather than imported wood. The kiln will utilize fiberglass for insulation on a 2 x 4 construction, with control from thermostate operated fans.

$2000
Leslie A. Viereck (0177-80)
SR 20791
Fairbanks 99701

Water Heating - A method for heating domestic water by a combination of wood stove and solar panels. The solar panels will heat the water from March through October and assist in heating during late fall and early spring. The project is designed to demonstrate that domestic water need not be heated by oil or electricity in the interior of Alaska.

$5000
Ole Wik (0145-80)
Savoona 99769

Fish Drying Process - A method of drying fish in a vacuum chamber, powered by existing wind electric system. The Danes use a similar process called press-fisk, where the fish is squeezed into blocks during the process.

$5000
Ronald Klein (0262-80)
P. O. Box 1587
Juneau 99802

Steam Plant for Small Boat - To install and modify a commercially made steam boiler and engine for a small launch hull. To demonstrate practical use of steam as a means of locomotion, especially in the southeastern area where wood is plentiful.

$5000
David Molvik (0166-80)
Narrows Broadcasting Corporation
Box 149
Petersburg 99833

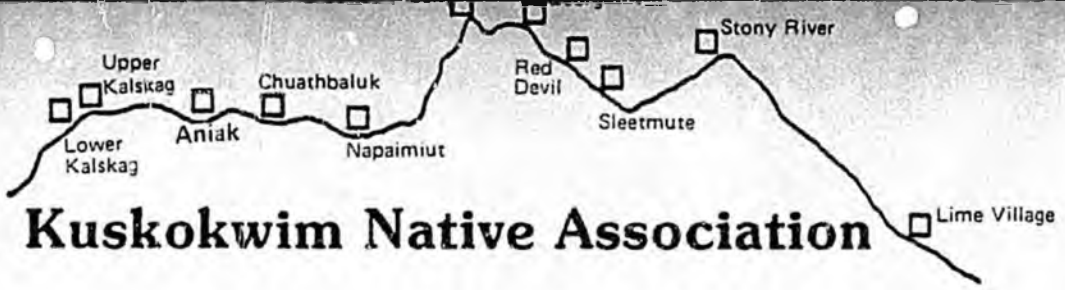
1 Watt Translator - Translators are low power repeater stations. This would be erected on a mountain top for energy generation via solar voltaic cells for the operation of radio broadcast transmission equipment.

$4800
Jay Moor (0234-80)
9175 Skywood Lane
Juneau 99801

Home Energy Conservation System - A dual domestic system comprised of heaters, controls, and environmental stabilizers that can be coordinated by means of small computer, or operated manually when the electrical power supply fails. To demonstrate the system can be packaged in modules for easy adaption to professionally built housing in Alaska.

AGRICULTURE

DAY 3



Kuskokwim Native Association

February 24, 1981

Representative Terry Gardiner
House Resources Committee
Alaska State Legislature
Pouch V
Juneau, Alaska 99811

Attention: Mary Hakala

Dear Representative Gardiner,

The Kuskokwim Native Association is pleased to respond to Mary Hakala's request for information about our Agriculture Program.

The Kuskokwim Native Association, which is the non-profit Native organization for the Mid-Kuskokwim River area, has operated its Agriculture Program for the past five (5) years. The program currently operates for following projects:

1. The Aniak Farm: demonstrational/experimental farm mentioned.

2. The Village Technician Project: which provides practical gardening services to the villages of the Kuskokwim Native Association Region,

3. And currently under development; a Poultry Project, which will prove the feasibility of raising chickens in this area.

The KNA Agriculture Program has been highly successful in meeting the goals that were orginally established for the Program. The Aniak Farm has demonstrated, with its successful testing and experimentation of various varieties of vegetables and grains, the potential and feasibility of agricultural development in the area.

The Aniak Farm has recently moved to a new site, and 1981 will be its first planting year. Twenty-five (25) acres have been cleared, fourteen (14) of which will be planted this year with a variety of vegetables and grains. The farm also has two (2) greenhouses; one which will complete this summer (1981). Funds for the completion of the unfinished greenhouse and the construction of a storage building were requested as a component of a proposal that was sent to the KNA area Legislative Representatives and Senators, in December 1980. This proposal is attached to this letter, as Attachment A.

BOX 106, ANIAK, ALASKA 99557 PHONE (907) 675-4384

Construction of the storage building is also expected to be completed this summer, which will provide the Farm with storage necessary for its 81 crops. In past years, without sufficient storage space, year around Farm produce has not been available for regional residents or for other marketing outlets.

The feasibility of marketing Aniak Farm produce has not yet been explored. A marketing approach outline was completed by the U of A Agriculture Experiment Station in 1980. This outline indicated the feasibility of marketing produce in this area, based on Aniak's geographical location, and the growing potential of the area. A complete marketing analysis based on the marketing approach outline is required, before the successful marketing of Aniak produce can occur.

The development of a Marketing Analysis requires Legislative funding, and is included in KNA's Legislative funding request. (Attachment B) As a part of this Marketing Analysis, the KNA Agriculture management structure will be analyed and restructured. This restructuring is necessary for several new projects and developments that are occuring within the program, which will shift and add responsibilities of Agriculture staff members.

The second major component of KNA's Agriculture Program is the Village Technican Program. The Program was funded in conjunction with a Poultry Project, by the 1980 State Legislature. The Poultry Project component of this appropriation has, until recently, primarily focused on research and planning. This research was necessary to provide a based for a successful Poultry Project. With the research nearing completion, construction of poultry facilities is scheduled to occur shortly after break-up. Upon completion of the facilities, poultry will be brought into the area. The Aniak Farm will be planting rapeseed to use as poultry feed.

The Village Technican Program component has been a highly successful program. The Village Technican travels to the villages, working with gardeners on proparing their soil, fertilization, vegetable and grain varieties, weeding and harvesting. In addition to this, he travels to the villages during the winter months, with a media presentation for the communites and schools. This presentation provides the gardeners with basic gardening information necessary for successful growing seasons.

There is an increasing interest in agriculturally related programs, both on the State and Regional level, and a growing awareness of the rich agricultural potential of this area. In addition to this, an increasing number of residents are participating in community and private gardens. These factors contribute to demands for more specialized guidance assistance and technical than the KNA Agriculture Program is qualified to provide.

Based on this, KNA requests funding necessary for an Extension Agent position for this area. This request is attached as Attachment C. An Extension Agent, working through KNA, would provide technical assistance needed for current and developing agricultural projects in this area. The need is for an Extension Agent in this area becoming increasingly more obvious, and the priority of this request cannot be overstated.

Recently the KNA Board of Directors evaluated the Agriculture Program and its various components. At that time the original goals and objectives were reviewed and the Programs present focus was discussed. In reviewing and restructuring goals, the Board recognized that prior to any new development, other than farming and poultry, certain facets required completion and/or assistance. The KNA Board then directed the KNA staff to prepare the attached proposal,-and request funding for these priority program items from the Legislature. These Agriculture projects, as previously individually discussed, include:

* Completion of solar greenhouse and storage facility. Included is the purchase of a farm vehicle, and the repair of the harvester. (Attachedment A)

* Marketing/Management Analysis for the Aniak Farm/ KNA Region (Attachment B)

* Extension Agent position for the KNA area. (Attachment C)

We ask that the House Resources Committee review these priorities and recognize the necessity of their funding, for the continuing success of the KNA Agriculture Program.

Thank you for your consideration in this matter.

Sincerely,

Penelope Horter
Executive Director

enclosure: 1980 Agriculture Annual Report

CC: Glenn Fredericks, Board of Director, President
Representative Tony Vaska
Representative Vern Hurlbert
Senator John Sackett
Senator George Hohman

Priority # 1 - Completion of Aniak Farm Facilities

The KNA Agriculture Program has been successful in meeting its originally outlined goals and objectives. Based on this success, KNA feels it is timely to evaluate and assess the past five years performance , so that any future expansion will occur in a well-based and organized manner.

As a part of this evaluation, several Projects were identified as unfinished and requiring completion. These Projects are primarily buildings whose construction began, but was not completed,because of a lack of funds. This is the case for three (3) of the Aniak Farms' buildings, including:

I. Vegetable Storage Facility:
Materials for the construction of a Storage Facility were funded by the BIA. Building Construction was begun, but was not completed. Materials have been secured for the completion of the facility, but funds for labor are not available. The building will continue to sit unfinished until such funds are allocated.

The Vegetable Storage Facility is necessary for the storage of vegetables for marketing during fall and winter months. At the present time, without storage facilities, marketing possibilities are untapped for Farm produce. This is a loss,both economically for the Farm, and to potential consumers. Included in the construction of the Vegetable Storage Facility are materials necessary to properly equip, light, heat, cool and humidify the Storage Facility bins, electrical equipment and installation is also required.

II. Solar Greenhouse:
The Solar Greenhouse was funded by the Department of Energy, for material costs only. Labor was provided by CETA workers. Partially due to the inexperience of the CETA carpenters, and partly due to financial limitations, the building was not completed.

The Solar Greenhouse, a demonstrational project, has already, even its incomplete state, proven its effectuality. Vegetables have been grown in the Greenhouse which were not previously grown in the KNA Region.

Funds are needed to complete this Project for labor and added material costs.

III. Equipment Storage Building:
A pole storage building for housing Agricultural equipment has been funded for construction by the Legislature. At the time of that appropriation, the building was designed to house only a portion of the agriculture programs' equipment. We now feel that the building should be constructed to house all the agricultural equipment, which includes two tractors and an assortment of smaller equipment, such as tillers.

Included in this request for funding, is funding for a pick-up for the Agriculture Program. This has become an increasing need for the Program, and is particularly now so, with the new Farm site in use. Transportation to and from the farm, located two miles from Aniak, is done by tractor, which should not be used for this purpose.

In addition to the need of a vehicle on a daily-use basis, a pick-up is needed to haul vegetables, other produce and agriculture materials to and from transportation outlets.

Also included in this proposal is funding necessary for the repair of the Aniak Farm harvester, which was damaged in shipping.

COMPLETION OF ANIAK FARM FACILITIES

I. Labor needed to complete vegetable storage facility demonstration solar greenhouse.

Construction Foreman 125 hours @ 18.00/hour to complete Solar Greenhouse	$ 2,225.00
Construction Foreman 400 hours @ 18.00/hour to complete storage facility	$ 7,200.00
Carpenters 250 hours @ 12.50/hour to complete Solar Greenhouse	$ 3,125.00
Carpenters 800 hours @ 12.50/hour to complete Storage Facility	$ 11,200.00
Construction Helper 800 hours @ 6.00/hour to complete Storage Facility and Greenhouse	$ 4,800.00
Electrician to wire Storage Facility and Solar Greenhouse	$ 3,360.00
Employer Payroll Taxes, Workman's Compensation Insurance @ 13% of gross wages ($ 31,910.00)	$ 4,148.00
	$ 36,058.00

II. Equipment and Materials for Storage Facility and demonstration Solar Greenhouse. $ 28,610.00

III. Expansion to equipment storage building (building materials) $ 6,000.00

IV. Pickup Truck $ 8,000.00

V. Repair of Harvester (estimated material & labor) $ 3,000.00

Subtotal $ 73,668.00

VI. Indirect Administrative Expenses 36.5% of $73,668.00 $ 26,889.00

Total $ 108,557.00

ATTACHMENT B

PROJECT PROPOSAL

PRELIMINARY

Support and Advisory Services for the Kuskokwim Native Association for a 12-acre Commercial Garden and a Beginning Poultry Project

Submitted by:

Agricultural Experiment Station
University of Alaska
Fairbanks, Alaska 99701

Cooperative Extension Service
University of Alaska
Fairbanks, Alaska 99701

Alaska Resource Methods
Box 81711
Fairbanks, Alaska 99708

Submitted to:

Kuskokwim Native Association
Aniak, Alaska

February 19, 1981

INTRODUCTION

The following personnel and budget are proposed to begin the commercial phase of vegetable production in Aniak, Alaska and to provide advice and instructions during the beginning phase of the poultry project. The personnel suggested have expertise in vegetable production and marketing in remote, sub-arctic areas. Personnel from the Kuskokwim Native Association should acquire sufficient knowledge and expertise after working intensively with them to be able to carry on the vegetable production operation and its expansion with only occassional advisory help in future years. Additionally, the poultry project should have a viable start and a reasonable future if those interested follow recommendations and suggestions which will be forthcoming during the visits of the animal specialist.

The team will concentrate on the efficient production, quality control, and effective marketing of produce from a 12-acre area. The break-down of crops and necessary fertilizer and herbicides are suggested below. Suggestions have not been made for the poultry project at this time. It is understood that the Kuskokwim Native Association wishes to place a small number of birds in several of the Kuskokwim Valley villages. This is considered a reasonable plan and advise and instructions will proceed accordingly.

CROPS	ACRES[a]	FERTILIZER[b]	SEED	HERBICIDE[c]
Potates	4.2	79 bags	10,060 lb	10 gal Premerge
Carrots	2.3	43 bags	7 lb	16 lbs Dachtal
Cabbage[d]	.1	21 bags	6 oz	1 qt Treflan
Onions[e]	.8	15 bags	720 lb	6 lbs Tenoran
Turnips	.7	13 bags	5 oz	5 lbs Dachtal
Rutabagas	.5	10 bags	6 oz	4 lbs Dachtal
Broccoli	1.4	27 bags	6 oz	1.5 qt Treflan
Cauliflower[d]	1.0	19 bags	4 oz	1 qt Treflan
Tomatoes[d]	147 plants	11 lb 10-52-17[f] 3 lb 0-48-0 1/4 lb $MgSO_4$	441 seeds	-

[a]The acreages are in fractions. This can be adjusted in the spring to obtain roughly the same ratios among crops. It does not have to be this exact.

[b]Specify potassium as sulphate of potash. All fertilizer is 10-20-20 applied at 1500 lbs of nitrogen per acre. Bags weigh 80 lb.

[c]Herbicide may not be required the first year on new lands but most likely will be in the future. Diazonon for cutworms aphids, and root maggot control may also be needed. 9 gal should be sufficient for all crops.

[d]Grown from transplants.

[e]Grown from sets.

[f]Soluable, greenhouse type.

Horticultural crops are not good new-land crops. Soils will be cool, organic matter low, and ground conditions most likely rough. Because the 12 acres will be on new lands, fertilizer recommendations have been increased to 1500 pounds of nitrogen per acre for all crops. The ground must be as free as possible of sticks. The rotovator is a very good method of preparing the seed bed, but it cannot be used if a large number of sticks and debris are present. The ground should be worked as early as possible in the spring. A chisel or cultivator would be best. If there are too many sticks, a heavy disk may be appropriate.

In addition to the 12-acre horticultural crop area, a green manure crop should be planted on an additional number of acres. This ground will be used to plant potatoes the following year. For example, if 8 acres of potatoes are planned for 1982, 8 acres of a green manure crop such as spring rye, oats, common buckwheat or annual rye grass should be planted.

The new lands, if worked properly, will be an appropriate area on which to plant the 1 acre of barley and 1 acre of rapeseed suggested for the 1981 season. Rapeseed is marginal on new lands, but with proper cultivation, fertilization and weed control can be grown with a reasonable yield. The recommended fertilizer, seed and herbicides are shown below.

CROPS	ACRES	FERTILIZER	SEED	HERBICIDE[a]
Barley	1	4 bags of 20-10-10[b]	72 lb	1 qt 2-4,D
Rapeseed	1	6 bags of 20-10-10	6 lb	1 qt Treflan
Oats	8	9 bags of 20-10-10	170 lb	2 at 2-4,D

[a]Herbicides may not be needed the first year on new lands.

[b] Specify potassium as sulphate of potash. Bags weigh 80 lb.

It may be desirable to continue the variety testing work. However, variety trials should not be a part of the 12-acre commercial area. Due to the fact that soils will be cool, the two best producing early varieties of each crop should be selected and used for the commercial crops. In later years, later maturing varieties can be used.

The crop mix suggested and the marketing plan are predicated on the availability of storage facilities. A facility (preferrably two facilities) which will hold 80-100 tons of porduce will be needed. If a smaller storage facility, or none at all, is available, the crop mix will be adjusted to accomodate the harvest season market demand only.

The land use plan suggested for the cleared 25 acres is as follows:

12 acres - Commercial garden area
1 acre - Barley
1 acre - Rapeseed
8 acres - Green manure (oats,)
3 acres - Work and clean the ground without planting any crop

The 3 acres remaining would be a good area in which to plant test plots in 1982. Be working the soil and doing a good job of removing sticks, the area should be in reasonable condition by that year.

PROPOSED PERSONNEL

Horticultural and Production Advisor

The Agricultural Experiment Station of the University of Alaska will provide advisory services concerning horticultural crop growth and production methods and costs.

Dr. Donald Dinkel, Professor of Plant Physiology, has extensive research and applied experience in horticultural crop production and will be available for advice. He will be making three trips to Aniak during planting, mid-season, and at harvest. He plans to spend a total of 2 weeks in the Aniak area and can also help in other villages along the Kuskokwim River.

Dr. Carol Lewis, Associate Professor of Resource Management, has worked with the Kuskokwim Native Association in the past and has continued to follow the progress of the Aniak Garden Project. She will be able to aid in production techniques to improve the efficiency of the garden operation. She also can help to set up a bookkeeping method to record the costs and returns from produce sold. Dr. Lewis will plan to make three trips to Aniak in conjunction with those made by Dr. Dinkel for a total of 2 weeks time.

Small Animal Advisor

The Cooperative Extension Service of the University of Alaska has agreed to supply support services for the small animal program. Dr. Ken Krieg, who is an animal specialist stationed in Fairbanks, would be involved in the poultry program in the Kuskokwim Valley. He would be able to assist in Aniak as well as other River villages. Three trips would be made. The first would occur when the chicks arrive, the other two as the chicks begin to mature. He could plan to spend possibly a week in the Kuskokwim each trip. Dr. Krieg can supply information on rations, general care, and housing.

Horticultural Support

In addition to Dr. Donald Dinkel's technical advice, it will be advisable to have a part-time, on-site person to help with crop production during the first growing season if a grower manager has not been hired or if it is desirable to have someone to work with the new grower manager. The person hired would be experienced in commercial

horticultural crop production and in working with persons with relatively little experience in producing these crops. It is planned that the person would make three trips to Aniak for a period of 2 to 2½ weeks each. These would occur during field preparation and planting, approximately mid-season to estimate crop yields, and during the harvest period.

Marketing Support

Mr. John S. Lewis of Alaska Resource Methods in Fairbanks developed the marketing and pricing approach in 1979 for a truck farm in Aniak. It is now necessary to implement that plan. Modifications will be made to accommodate the desire of the Kuskokwim Native Assocation to wholesale the produce in Aniak and utilize the remainder ~~of~~ market ~~fresh~~ at retail prices to River villages or to Bethel. Mr. Lewis will help set up the wholesale market outlets in Aniak during an early spring visit. After yields have been estimated, he will return to Aniak to aid in determining and negotiating the amounts of produce which will be delivered each delivery period and help with obtaining commitments from persons outside Aniak to purchase produce at retail prices. Mr. Lewis will make two more trips. The first will be when the marketing begins. He will help with packaging, scheduling, arranging transportation, assessing quality and delivery to stores and retail buyers. A fourth trip will follow up the marketing efforts. At that time, the system employed will be evaluated in terms of effectiveness and applicability to the Aniak and Kuskokwim area. This will require 3 months of his time.

BUDGET

Agricultural Experiment Station

Salaries:

Dinkel (2 weeks)	$2,502.40	
Leave allowance @ 16%	400.38	
Benefits @ 18.3%	531.21	
		$ 3,433.99
Lewis (2 weeks)	$1,854.40	
Leave allowance @ 16%	393.56	
Benefits @ 18.3%	296.20	
		$ 2,544.16
Overhead @ 38.8%		1,960.71
Total		$ 7,938.86

Travel and Per Diem:

Airfare:	Dinkel 3 trips @ $282	$ 846.00
	Lewis 3 trips @ $282	846.00
Per Diem:	Dinkel 10 days @ $50/day	500.00
	Lewis 10 days @ $50/day	500.00
Charter:	Dinkle 5 hours @ $100/hr	500.00
	Lewis 2 hours @ $100/hr	200.00
Total		$ 3,392.00

Total Agricultural Experiment Station $11,330.86

Cooperative Extension Service

Travel and Per Diem:

Airfare:	Krieg 3 trips @ $282	$ 846.00
Per Diem:	15 days @ $50/day	750.00
Charter:	10 hours @ $100/hr	1,000.00
Total Cooperative Extension Service		$ 2,596.00

Horticultural Support Services

Fees:

$4,500 per month including 12.5% overhead	
2 month period	$ 9,000.00

Travel and Per Diem:

Airfare:	3 trips @ $282	$ 846.00
Per Diem:	80 days @ $50/day	4,000.00
Total		$ 4,846.00
Total Horticultural Support Services		$13,846.00

Marketing Support Services

Fees:

Alaska Resource Methods @ $6,000 per month including 15% overhead		
3 month period		$18,000.00

Travel and Per Diem:

Airfare:	4 trips @ $282 (Aniak)	$ 1,128.00
	4 trips @ $76 (Bethel)	304.00
Per Diem:	40 days @ $50/day (Aniak)	2,000.00
	10 days @ $67/day (Bethel)	670.00
Charter:	20 hours @ $100/hr	2,000.00
Total		$ 6,102.00
Total Marketing Support Services		$24,102.00

TOTAL PROJECT COSTS	$51,874.86

ATTACHMENT #C

PROPOSAL TO THE STATE LEGISLATURE
FOR AN EXTENSION AGENT FOR THE KNA REGION
SUBMITTED BY THE KUSKOKWIM NATIVE ASSOCIATION

We understand that it has become a high priority of the State Legislature to develop the Agricultural potential of the State of Alaska. It has also become a high priority of the Mid-Kuskokwim River area, to develop the Agricultural potentials and regional food production of our area. The Mid-Kuskokwim River area is indeed rich in Agricultural possibilities, and the resources necessary for their development. KNA's experimental/demonstrational Farm, located in Aniak, has provided factual concurrence with what regional residents have been proving in their own gardens for years.

The Kuskokwim Native Association Agriculture Program currently operates the following projects:

* The Aniak Farm: the demonstrational/experimental farm mentioned,

* A Village Technician Project: which provides practical gardening services to the villages of the KNA Region,

* And currently under development: a Poultry Project, which will prove the feasibility of raising chickens in this area.

These Projects, while soundly based and progressing smoothly, all require varying amounts of technical agricultural/agronomical expertise, which KNA cannot provide. Too, the escalating cost of food and the ever-increasing costs of air freighting food into the area, is turning more and more regional residents to the growing of their own food. This of course, increases the requests for technical information, which again, we are not able to provide.

When technical expertise was needed in the past, but not available, the KNA Agriculture Program staff had no choice but to attempt to apply their own staff knowledge to the areas requiring expertise. While the KNA Agriculture Program strives to provide guidance and necessary information to regional residents that arise, these requests are of such a nature to require someone with an extensive agricultural educational background.

This proposal is a request for funding for an Extension Agent to be placed in the KNA Region. This agent could provide technical services to the residents of the KNA Region, working through KNA, and using it as a regionally based vehicle for meeting agriculturally related needs of the area.

At one time, an Extension Agent was located in Aniak, servicing the villages of the KNA Region. Since that time, when funding for an Extension Agent was cut off, the area has relied on the Extension Agent operating out of Bethel. However, the distance of the location of the Extension Agent from our area, and the large geographical area she is expected to serve, creates problems in providing adequate service for the Mid-Kuskokwim River area. Furthermore, her particular area of expertise, homemaking, while an obvious need, is not the expertise our area most demands.

The Extension Agent placed in the KNA Region, would be responsible for working closely with the KNA Agriculture Program, and providing technical expertise and assistance to individuals in Aniak, and the ten (10) other villages of the KNA Region.

The technical agriculture assistance requested by regional residents, could be adequately addressed by the placing of an Extension Agent in the KNA area. A person educated and experienced in the agricultural field is required to work throughout the area, with all the various Agricultural programs and new developments. We request your consideration in the appropriation of funds for an Extension Agent in the Mid-Kuskokwim River area. We appreciate your consideration in this request for funding necessary for this vitally important program.

PROPOSAL TO THE STATE LEGISLATURE
FOR AN EXTENSION AGENT FOR THE KNA REGION
SUBMITTED BY THE KUSKOKWIM NATIVE ASSOCIATION

BUDGET FOR AN EXTENSION AGENT FOR THE KNA REGION:

Staff Costs: 1 Extension Agent beginning Assistant Professor which assumes a Masters Degree and three or more years professional experience. Fringe benefits include.	$46,717
Secretarial Support: 1/2 to 2/3 time	15,182
Travel: Village travel/ 3 trips to Anchorage/ one to Fairbanks	4,200
Equipment: Initial year start-up, then major investment time - includes projector and audio capabilities	4,000
Supplies	1,000
Services: Contractual/Agricultural Specialist	2,500
SUBTOTAL:	$73,599
KNA Indirect 36.5% of $67,099.00 *	24,491
TOTAL BUDGET	$98,090.00

*The Indirect rate is not applicable in Equipment and Services.

ANA AGRICULTURE LEGISLATIVE PROPOSAL 1981

BUDGET SUMMARY

Attachment A - Completion of Aniak Farm Facilities	$ 108,557.00
Attachment B - Marketing Analysis	51,875.00
Attachment C - Extension Agent	98,090.00
Total Funding Required of the 1981 Legislature	$ 258,522.00

$61,000 total appropriation
25% ($15,250) was paid in October
Requests for payment are
expected in March
Called for completion date is 6/30/81

MARY HAKALA

Proposal

Community Gardening project in Ambler.

Submitted by

Maunoluk Association
Box 256
Kotzebue, Alaska 99752

To

Department of Community and Regional Affairs
Pouch B
Juneau, Alaska 99811

July 30, 1980

AMBLER AGRICULTURE PROJECT

This proposal is in response to a solicitation to bid that appeared in the Bering Straits newspaper July 25, 1980.

Mauneluk Association proposes to plan and deliver services, equipment, buildings and supplies to the village of Ambler for gardening on a self-sufficient basis.

BACKGROUND

In recent years there has been a resurgence of gardening in the village of Ambler. This has been due in part to the high prices of imported vegetables and the efforts of Kobuk Valley Educational services in cooperation with the Marston Foundation. There are a number of family gardens, ranging in size from one hundred (100 sq. ft.) to several hundred square feet. Three (3) miles outside of Ambler a multi-acre gardening site is being developed. Small quantities of cold crop vegetables (i.e. cabbage, potatoes, carrots, turnips) are now being grown locally. The amount grown is constrained by the size of the gardens and the amount of storage space available. Through this appropriation the size of the gardens will be increased. Currently under construction is a community storage facility scheduled to be completed this Fall.

NEED

On June 13th a public meeting was held in Ambler to discuss the future development of gardening and possible uses of the appropriation. At this meeting a list was developed outlining the communities needs:

1. Tilling equipment, bigger than roto-tillers but smaller than bulldozers.
2. Equipment storage facilities
3. Fertilizer (organic and commercial)
4. Greenhouses
5. Expansion of "family" and "truck" gardening.

Due to the unavailability of prices on equipment, supplies and facilities, the exact type of equipment and supplies were not detailed out.

PROGRAM NARRATIVE

This program has been divided into two (2) phases. The first phase of the plan will be to develop a cost breakdown for the five (5) items listed in the needs assessment and to assist in the development of a community agriculture development plan. These items will be presented at a community meeting in the Fall for their consideration.

The second phase will involve the purchase of the specific equipment and supplies that the community has chosen, delivery to the village, and training in the use of the equipment.

BUDGET

Equipment tilling tractors accessory implements pumps and supplies	$23,000
Equipment Shelter	10,000
Fertilizer commercial equipment to produce organic	6,000
Greenhouses design, materials labor	12,000
Planning, Administration and training	10,000
TOTAL	61,000

AMBLER GARDENING PROJECT.

ACTIVITY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE
RESEARCH AND PRESENTATION PREPARATION			———									
VILLAGE MEETING					———							
PRELIMINARY PLAN					———							
VILLAGE MEETING						———						
FINAL PLAN AND BUDGET						X						
MATERIAL AND EQUIPMENT ORDER									———			
DELIVERY												
GREENHOUSE CONSTRUCTION									———			
TRAINING												
FINAL REPORT												X

Summary of

Village Gardening Project

Villages Involved: English Bay, Port Graham and Tatitlek

Project Goal: Increased self-sufficiency in providing food for villages, and improved nutrition.

Project Objectives:

Provide workshops on

a) choosing and fertilizing land.

b) planting, cultivation and harvest of vegetables.

c) greenhouses.

d) nutritional and safe preservation of home-grown and wild plants and berries.

Budget Summary

Quarter-time Project Coordinator	$ 5,688
Travel for Project Coordinator	5,615
Travel for Extension Service Staff	3,365
Miscellaneous Office Expenses	1,364
Indirect	3,968
Proposed Budget	$ 20,000

Agency Requesting Funding: The North Pacific Rim.

CHUGACH REGION

VILLAGE GARDENING PROJECT PROPOSAL

The North Pacific Rim is the non-profit human services Native Corporation for the Chugach Region, serving seven coastal communities. It is governed by a Board of Directors composed of one representative from each community in the Region. Three of these communities are villages interested in starting gardening in the villages. English Bay, Port Graham and Tatitlek are all villages which depend substantially on local fish, game and vegetation for their food. They have asked The North Pacific Rim to obtain funds for and aid them in developing a village gardening project. The increasing costs of food and fuel, and a growing interest in better nutrition are prompting villagers to seek ways to become self-sufficient in providing healthy foods for their families..

Project Objectives

The overriding and long range goal of the project is to increase the self-sufficiency of villagers insofar as providing food for themselves and their families. In order to realize this goal, the aim of the project is to provide villagers of all ages with the necessary knowledge of village gardening methods and means.

The project has four immediate objectives designed to achieve this goal:

1. To teach villagers how to choose and fertilize land.
2. To teach villagers how to plant, clutivate and harvest vegetables.
3. To provide information on additional ways of enhancing the growing season, including greenhouses.
4. To teach villagers how to preserve home grown vegetables and gathered plants and berries for winter use.

Project Description

In order to realize these objectives, we have designed a project that combines education, supervision, jobs and experience, centering on vegetable gardens in each village.

Our proposal includes travel funds for Cooperative Extension Service people to give on-the-spot training in planting, cultivation, harvesting, and preserving.

It also provides a salary for one 1/4 time Project Coordinator to oversee the project. Working with both the villages and the Extension Service, the Project Coordinator will expedite workshops and other activities. This person will also explore other educational possibilities, such as starting a 4-H program. Funding for the Coordinator's travel to the villages and to two of the Alaska Rural Development Council meetings is included in the budget.

Number of People Participating

Of thirty households in English Bay, over half have one or more members interested in the workshops, with a similar number of families in Port Graham expected to be involved. In Tatitlek, a village consisting of seventeen households, we anticipate the involvement of at least one member of eight to ten households.

Area Description

Location and Economy

All three villages are coastal communities with the ocean on one side and mountains on the other. Access is only by air or boat, weather permitting.

Port Graham and English Bay are on the Kenai Peninsula, south of Kachemak Bay in Cook Inlet. A recent Kenai Borough Census reports that English Bay has a population of 127 and Port Graham has a population of 250. They are both governed by traditional councils. During the summer, a number of people from the villages are involved in commercial fishing. Port Graham also has a cannery which provides some local employment. Both villages have a grocery store. English Bay's store opened in March 1980. These stores employ one person throughout the year. In addition to these jobs, there are also part-time Community Health Aides and Health Outreach Workers, and a few maintenance positions. The majority of people in the villages are unemployed during the winter months.

Tatitlek. The village of Tatitlek has a population of approximately 80 people. The village is governed by an IRA Council. Tatitlek lies between Cordova and Valdez on the Prince William Sound. The village does not have a store. Groceries must be ordered out of Cordova and airfreighted in, or else brought in on the mail boat which runs once every two weeks during the winter months.

Until Fall of 1980, the villagers were relying on private generators for power. These were run only in the evenings, precluding use of freezers for winter food storage. However, two new generators were recently installed and now provide continuous power to the village.

Income

According to a 1980 survey done by The North Pacific Rim, 35% of the households in Port Graham have members unemployed. In English Bay, the rate is even higher at 46%. Better than 60% of the households in all three villages reported incomes of $15,000 or less. In English Bay and Port Graham, more than 50% had incomes of $10,000 or less. Currently, electricity, fuel oil, and supplemental groceries constitute the major cash expenditures for most households. Cash is an important factor in the village economies, but by no means the sole, or even predominent element.

Soil

A Cooperative Extension Agent based in Homer has done soil tests in the English Bay area. The tests reveal the soil to be silty loam, high in acidity and organic matter. Some fertilizers have already been tested in a garden in English Bay in past years, and the Cooperative Extension person reports that fertility problems seem correctable with lime and fertilizer. Like most coastal areas, the villages receive a lot of rainfall. Most of the land that would be used for growing is not level, varying from a 5% to 10% slope, with sufficient drainage. Although the growing season is short, measures can be taken to prolong it.

The Soil Conservation Service has done extensive soil testing in the Port Graham area. The soils around the village are very similar to English Bay soils, although the slope runs from 8% to 15%. It is predominantly Sarkar

with a stongly acid topsoil, volcanic ash and bedrock at 5" to 20". A large peat deposit is available in the area for those plots requiring increased organic content. The Soil Conservation Service was optimistic about gardening possiblities in the village.

Agency Involvement

The North Pacific Rim will be administering the program. The Human Resource Development Department within the Rim plans to coordinate its summer CETA employment with the gardening education. This would involve village youth who then might be local coordinators. In addition to the Cooperative Extension Service conducting workshops on various facets of gardening, food preparation and preservation, TNPR Health Department will be coordinating the nutrition dimension of the project. As part of the Health Department's four-year plan, in 1981 and 1982 they will be implementing a nutrition education and training program, including nutrition awareness for homemakers, school age children and for expectant mothers.

We plan on drawing upon the University of Alaska Agriculture people for training, research and direction, as well.

The Cooperative Extension Service, beyond the on-site training, has already been and will continue to be a major resource and informatin center. They will provide the staff to conduct workshops, and this proposal will supply the travel funds for the agents. Both Extension Service offices and people in Homer and in Fairbanks have been very interested in our project.

Local Interest

Local interest is the primary reason for seeking funding and initiating a gardening project. TNPR has not previously been involved in village agriculture, and has developed this proposal at the request of the communities.

Completion Date

Because funding is not anticipated until late in the summer of 1981, the project is focused on the summer of 1982. We expect to wrap up all the canning and preservation by November 1982.

Public and Community Benefits

The benefits we perceive resulting from this project are:

1. General education on gardening methods.
2. A greater awareness of land use possibilities.
3. A large step away from dependence on shipped-in groceries and towards increased self-sufficiency.
4. On-the-job training and exposure to possible vocational fields for youth.
5. Increased use of renewable resources.
6. Improved nutrition.

While one or two family gardens have been attempted in the past in Port Graham and English Bay with limited success, gardening has not been undertaken in Tatitlek for several decades. Essentially, this is a research and pilot gardening program. This particular program should provide sufficient education and training, with staff support for implementation in order for the villages to continue village gardening on their own with minimal assistance in the future.

VILLAGE GARDENING PROJECT

PROPOSED BUDGET

Salaries and Wages: Project Coordinator			
1/4 time, 12 months: $1,567 x 12 x .25			$ 4,701
Fringe Benefits @ 21%			987
Staff Travel & Per Diem			
Travel:			
six 4 day trips, Anchorage to English Bay and Port Graham @ $160 each	$ 960		
six 3 day trips, Anchorage to Tatitlek @ $285 each	1,710		
three 1 day trips, Anchorage to Homer @ $90 each	270		
one trip Anchorage to Juneau @ $280	280		
one trip, Anchorage to Fairbanks @ $175	175		
Per Diem:			
42 days in villages @ $35/day	1,470		
5 days in Fairbanks @ $67/day	335		
5 days in Juneau @ $83/day	415		
		$ 5,615	
Miscellaneous Expenses:			
Research Materials, Subscriptions	$ 350		
Telephone	350		
Office Supplies	264		
Copying	300		
Postage	100		
		1,364	
			$12,667

Extension Service Travel & Per Diem

Travel:			
Four 3 day trips, Homer to English Bay and Port Graham @ $70 each	$ 280		
Four 3 day trips, Anchorage to Tatitlek @ $285 each	1,140		
One 5 day trip, Fairbanks to English Bay and Port Graham @ $335	335		
One 4 day trip, Fairbanks to Tatitlek $455	455		
Per Diem:			
33 days in villages @ $35/day	1,155		
		$3,365	
TOTAL DIRECT COST			$16,032
Indirect:			
$12,667 @ 30%	$3,800		
$3,365 @ 5%	168		
TOTAL INDIRECT COSTS			3,968
PROPOSED BUDGET			$ 20,000

RESOLUTION 81-4

Port Graham Village Council

WHEREAS, the Village of Port Graham is a non-road connected community accessible only by air and water in good weather, and

WHEREAS, the Village of Port Graham desires to improve the overall nutrition and diet of the community, and

WHEREAS, local gardening would accomplish this purpose, and

WHEREAS, education in the areas of fertilization, cultivation and preservation is needed in order to effectively undertake gardening in the Village of Port Graham,

THEREFORE BE IT RESOLVED THAT

the legislature appropriate the necessary funds for the Chugach Region Village Gardening Project.

Dated this 12 day of Feb., 1981.

Walter R. Meganack SR

[illegible signature]

RESOLUTION 81- 1

English Bay Village Council

WHEREAS, the Village of English Bay is a non-road connected community accessible only by air and water in good weather, and

WHEREAS, the Village of English Bay desires to improve the overall nutrition and diet of the community, and

WHEREAS, local gardening would accomplish this purpose, and

WHEREAS, education in the areas of fertilization, cultivation and preservation is needed in order to effectively undertake gardening in the Village of English Bay,

THEREFORE BE IT RESOLVED THAT

the legislature appropriate the necessary funds for the Chugach Region Village Gardening Project.

Dated this 3 day of Feb, 1981.

Vincent Kvasnikoff

Lydia A. Kvasnikoff

THE NORTH PACIFIC RIM
RESOLUTION 81- 2

WHEREAS, the Chugach Region has three villages which are non-road connected communities accessible only by air and water in good weather, and

WHEREAS, the villages of English Bay, Port Graham and Tatitlek desire to improve the overall nutrition and diet of the communities, and

WHEREAS, local gardening would accomplish this purpose, and

WHEREAS, education in the areas of fertilization, cultivation and preservation is needed in order to effectively undertake gardening in the villages of English Bay, Port Graham and Tatitlek, and

WHEREAS, the North Pacific Rim is the non-profit corporation serving the Chugach Region, and

WHEREAS, the North Pacific Rim Board of Directors consists of one representative of each Chugach Region community and directs the activities of the North Pacific Rim, and the villages herein mentioned have requested and are supportive of the Gardening Project,

THEREFORE BE IT RESOLVED THAT
the Alaska legislature appropriate to the North Pacific Rim $20,000 for the Chugach Region Village Gardening Project.

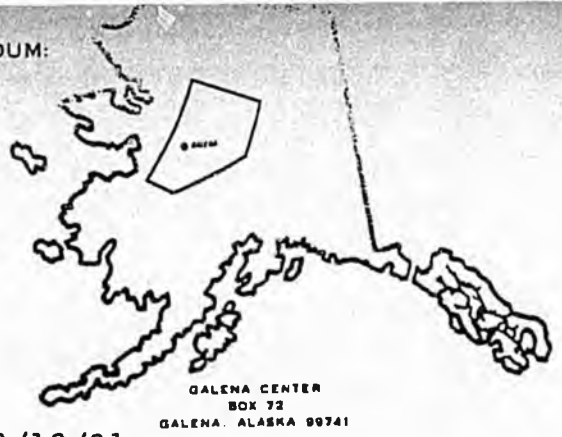
Dated this 19 day of February 1981.

Carol Bean

[illegible signature]

KOYUKON DEVELOPMENT CORPORATION, INC.

MEMORANDUM:



GALENA CENTER
BOX 72
GALENA, ALASKA 99741

TO: Rep. Terry Gardiner

FROM: John Quirk, Executive Director

SUBJECT: Agriculture DATE: 2/12/81

Agriculture in the region during 1980 was divided into the following areas:

1. Education
2. Gardening and food preservation
3. Grains, grasses and red meat
4. Equipment--operation and maintenance

The first report will be a recap of the educational activities only. The follow on reports will cover the other subjects.

Classes were conducted in twenty villages in all or part of the following villages:

1. Bedding Plant Production (all villages) 37 credit 222 non-credit (number of students)
2. Basic Gardening (all villages) ___ credit 131 non-credit
3. Fundamentals of Machinery Services and Operation (all villages) 2 credit 42 non-credit
4. Food Preservation (all villages) 70 non-credit
5. Small grain and potato Harvest (one village) 13 non-credit
6. Welding (ten villages sent students) 56 credit
7. Forestry 10 non-credit 20 credit
8. Data Collection (six villages)

The bedding plant, gardening, and food preservation class population consisted of local grade and high school teachers, students, and villagers. There were three main objectives:

1. Introduce bedding plant, gardening, and food preservation to rural school educators.
2. Teach local villagers the basic elements of bedding plant production.
3. Introduce new varieties of vegetables to rural Native Alaskans to supplement their diet. Some of the new varieties were--kale, spinach, brussel sprouts, broccoli, cauliflower, swiss chard, mustard greens, kohlrabi, celery, squash, flowers etc.

People in each village have received initial training in machinery operation and maintenance. This needs to be a continuing process to insure proper utilization and maintenance of the equipment for two more years in most of the villages. All the villages used most of their equipment. This year should see all the equipment in use.

Welding classes were held in Galena, Kaltag, and Nulato. Proper accomodations are available in Galena. Students came from ten villages to the class. The classes in Kaltag and Nulato was for local residents. Ten people from each village were taught or upgraded their welding skills. Many of the local residents became certified welders.

Small grain and potato harvest was conducted in Galena only. Grain and potato's were grown of sufficient quanity to warrant a class.

The data collection class produced a comprehensive survey of the twenty villages that has been distributed to all the villages and many government agencies.

An intensive training program in gardening used the workshop approach and did result in successes that was evidenced by the produce displayed at the Galena and McGrath Fairs. Village people have been requesting more intensified training for the coming years. Interest continues to grow in agriculture as evidenced by a recent survey.[1] Teachers and other interested villagers were encouraged to take credit courses and start small programs in the local schools. (Thirty-seven?) students did take the bedding plant course. Instructional monies was not available for a credit course in Gardening so the workshop emphasis was on non-credit participation. The developmental approach protrayed in the Department of Labor grant for training in Subsistance Agriculture was utilized and the objectives completed.[2] In fact, some of the objectives in the second year of training was initiated.

The second year of the plan will be started in the Spring of 1981 under a State Grant. The budget was reduced by 50%. This will reduce or retard the completion of the objectives. Steps are being initiated at this level to start a cooperative effort with other State agencies to help in the completion of the second year objectives.

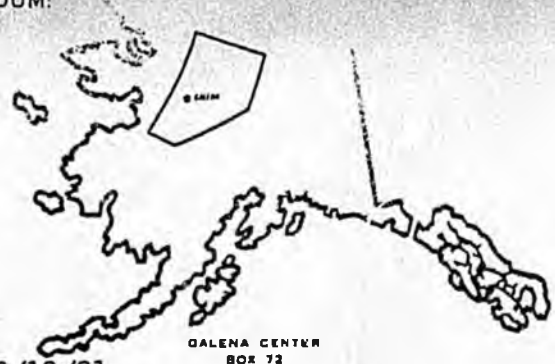
Training in vocational agriculture in rural Alaska has started in the Interior of Alaska in twenty villages. Teachers, students, and villagers were involved in credit and non credit work to start training Rural Native Alaskans to Train themselves. Your advice, help, and participation is requested.

[1] Koyukon Development Corporation Survey Results 1980, Koyukon Development Corporation, page 4

[2] Basic Subsistance Agriculture for Native Alaskans Grant, Koyukon Development Corporation, August 17, 1979, page 5

KOYUKON
DEVELOPMENT
CORPORATION, INC.

MEMORANDUM:



GALENA CENTER
BOX 72
GALENA, ALASKA 99741

TO:

FROM: John Quirk, Executive Director

SUBJECT: Agriculture Report # 2, 1980

DATE: 2/18/81

Gardens were grown in all twenty villages. Training in bedding plant production and basic gardening was conducted once in each village. Resources of KYC were not available for additional workshops. Follow up was conducted during the course in machinery assembly and operation.

The cleared area for gardens in most villages is small. Some villages have a drainage problems, perma frost, and cold soils. Experiments have been conducted in Galena in:

1. Potato
2. Hot house
3. Heated soil
4. Cold frame
5. Raised beds
6. Seep irrigation
7. Wide beds

Intensified gardening in potato's, cabbage, and broccoli was tried. This is the second year on potato's. The potato eyes were planted ½ inch apart or closer over fertilized soil. A six inch deep trench was dug. Cow manure and commercial fertilizer was put in the trench. Four inches of dirt was put over the fertilizer. The eyes were planted and covered with 2 inches of dirt. During the growing season four light side dressings of potash 4-6 inches out was placed by the sides of the plants. Potato's were watered daily after bloom. The harvest yielded 50# on a 15 foot row. This equals to 38 bushel's per acre. This is the second year that potato's have responded with a very good yield.

In another demonstration plot four hills of potato's were planted the last week in April - as soon as the ground could be spaded. Medium size tubers were available on the 4th of July for dinner. If the seed is available, it is advisable to plant early potato's.

Three acres of potato's was planted on new ground using the potato planter. The yield was approximately 3½ ton per acre.

The broccoli and cabbage was planted 12 inches apart. The heads were smaller but the yields in quanity was 2½ times as much on similar plants 2 feet apart.

Raised beds were constructed over perma frost soil. A mixture of peat and silt soil was placed in beds 12 inches thick over the tundra. Broccoli, cauliflower, lettuce, beets, spinach, onions,and there vegetables were planted.

The over all yields were very good. On one of the raised beds a portable visqueen cold frame was made for an early start for lettuce, radish, onion, and spinach. Edible portions were harvested the last week in May. Lettuce and spinach was harvested untill the September frost. Raised beds can make gardening meaningful on a limited scale in former non productive areas. The limit is the amount of peat and silt soil you can haul. Cold frames can greatly extend the growing season.

The soil was heated with 1½ mil visqueen over wide beds during germination for peas, beans, and carrots. After the seeds sprouted the visqueen was taken off. On wide beds where the visqueen was left on, most of the plants died. The wide beds had been fertilized before planting. There appears to be too much concentration of toxic gases in the wide beds left under visqueen. It is our opinion that not much is gained by using visqueen over wide beds.

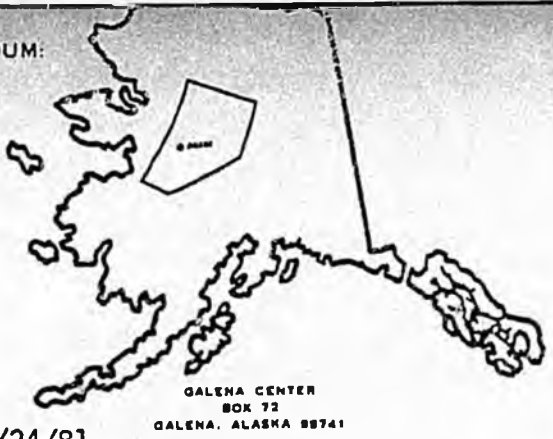
Seep irrigation was used by Royce Purrington in Nulato. This is his second year to use seep irrigation on part of his garden. Again the vegetables with seep irrigation were handier and had a vastly increased yield over the rest of the garden. The initial expense is buying the seep hose. With proper care it will last for years.

Commercial hot caps were used on tomato's, squash, broccoli, and cauliflower. The transplants can go out a couple of weeks earlier and survive. This increases the yield over those plants set out later. This year gallon plastic jugs with the bottom cut out and home made hot caps using old visqueen will be used instead of commercial hotcaps. When tomato plants become too [illegible] for the hot caps, a one season hot house was constructed out of willow boughs and pieces of visqueen. Ripe tomato's were eaten, canned, and dried in late August and September.

In summary, when cleared land is not available, or perma-frost is a problem, close planting and or raised beds can increase yields and allow you to garden on tundra. Heated soil with visqueen, hot caps, temporary hot houses, cold frames and seep irrigation can extend the season and increase yields.

KOYUKON DEVELOPMENT CORPORATION, INC.

MEMORANDUM:



GALENA CENTER
BOX 72
GALENA, ALASKA 99741

TO: Representative Jerry Gardiner

FROM: John Quirk, Executive Director

SUBJECT: Agriculture Report #3
Grains, Grasses, and Red Meat

DATE: 2/24/81

Past surveys indicate that approximately 1/3 of the people in the area were interested in training for growing grains, grasses, and red meat. A plan was developed i the fall of 1979 to answer these needs. The resources necessary to accomplish this did not materialize in the Spring of 1980. The plan was modified and reduced to be functional within the available resources.

Jim Barger, A[illegible]ure instructor for the Galena Center, distributed quanities of oa[illegible]bar[illegible] and wheat seed in Bettles, Allakaket, Huslia, Nulato, McGrath, Takotna, and the Holy Cross area. A frost in the middle of July in the Bettles and Allakaket area retarded the growth of the grain. The grain was not fully matured when harvested in the fall. Reports from the other were inadequate to be reliable data. By the time the equipment was distributed, ground selected, worked up, and seeded at best they would get a green manure crop.

Oats and barley was planted in Ruby at four different locations, again the grain was planted late in June due to heavy rain on the first three attempts to plant, in May and early June. Time is a critical element when available people are limited.

Test plots and fields of grain were planted in Galena. The new equipment had to be assembled, serviced, and calibrated. Most of the grain was planted on new ground in a dry lake and inside the dike. To save time the ground was rototilled once then seeded and fertilized the same day on cold soil. The over all results were very good. Test plots were planted 2' by 5' of canadian barley varieties on May 16, 1981. They were fertilized at the rate of 300# 11-22-22 per acre inside the dike on river silt soil.

Test Plot #	Headed Out	Hand Thrashed	Yield bu. per acre
1	7/1/80	8/8/80	13.6
2	7/1/80	8/8/80	61.7
3	7/1/80	8/8/80	29.5
4	7/15/80	8/22/80	49.9
5.	7/15/80	8/22/80	63.99
7	7/1/80	8/8/80	34.49
13	7/15/80	8/22/80	31.76
14	7/1/80	8/8/80	56.7
15	7/15/80	8/22/80	56.3
16	7/15/80	8/22/80	36.75
17	7/1/80	8/8/80	31.76
18	7/15/80	8/22/80	87.57

A total of 19 plots were planted. A local person inadvertly dug up and planted a garden in the other plots.

The seeds were saved and will be planted this year. Some of the varieties are very early maturing and have promise of a substancial yield. More information is available on source and type at the KDC office.

One half acre of chena wheat was planted on May 16, 1980. It was fertilized at the rate of 150 # per acre with 11-22-22 it was combined on October 2, 1980, the yield was 30 bushel per ½ acre. The wheat was combined with a high moisture content. Some of it has been dried and hammered for flour. Local residents are using the whole wheat flour for bread, pancakes, and cookies. Comments have all been favorable.

Four and one half acres of lidal barley was planted on May 17, 1980. It was fertilized with 11-22-22 at the rate of 100# per acre. Common goose grass started to take over the barley during the rains in late May. Thirty pounds of nitrogen per acre was applied when the rains stopped. The barley was combined on September 4, 1980. The yield averaged 100 bushel per acre.

Six acres of moore oats was planted on dry lake that has been farmed for three years. It was fertilized at the rate of 50 pounds per acre of 11-22-22. It grew chest hight with large heads. Winds in late August caused heavy lodging. It was combined on September 20, 1980. Three hundred bushels was combined. More than three acres could not be combined.

A small plot (10' x 30') of Hinoats was planted in the same field at the same time. It had shorter straw and matured two weeks earlier. It did not lodge. It yielded 1½ bushels.

Athabasca oats was planted on May 29, 1980 on new ground with minimum tellage, middle was very wet. No fertilizer was available until the second week in June. The oats was short like the Hinoats and had good heads. It was combined on September 29, 1980. Yield was 90 bu. per acre. Considered a very good yield in spite of the adverse conditions.

Three and one half acres of weal barley were planted under the same conditions in the same field. It was combined on September 24, 1980. Yield was 45 bu. per acre.

Gateway barley and park wheat was planted on 1½ acres each inside the dike with minimum tillage. A broadcast seeder was used. It rained before the seed bed could be harrowed after planting. The seeds sprouted on top of the ground. It had a thin stand and was combined on October 21, 1980.

Test plots of Anik, Beaver, and F.V. alfalfa were planted. The stand was good. Next spring the wintering results will be recorded.

Plots of rough rider winter wheat was planted in Ruby and Galena during the first week of August 1980. Results will be recorded next spring and summer.

ACST
THE ALASKA COUNCIL ON SCIENCE AND TECHNOLOGY

AGRICULTURE AND ANIMAL HUSBANDRY

Research Priorities and Recommendations

A Special Report

Based Upon the Results of the

Alaska Council on Science and Technology

Agriculture and Animal Husbandry Committee Workshop

Held February 1980 in Anchorage, Alaska

March 1980

Christopher Noah, Executive Director · Pouch AV, Juneau, Alaska 99811

ALASKA COUNCIL ON SCIENCE AND TECHNOLOGY SPECIAL REPORT

AGRICULTURE AND ANIMAL HUSBANDRY: Research Priorities and Recommendations

* *

CONTENTS

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EXECUTIVE SUMMARY:

This report cites certain background and priority needs for activities in agriculture and animal husbandry research in Alaska. The working committee was selected to represent a broad background and diversity relative to Alaska agriculture. The committee identified more than 30 critical concerns in agriculture and animal husbandry. Each concern was evaluated and the top 10 selected and set in order of their priority for this report.

The Council itself, in consultation with the committee's chairman, has added recommended fiscal actions for consideration this year.

BACKGROUND AND STATUS OF CURRENT ACTIVITIES IN AGRICULTURE AND ANIMAL HUSBANDRY:

Over the past six years the State of Alaska has launched a dynamic agricultural development program. Agricultural rights to land are already being sold, approximately 75,000 acres since 1977. An estimated 30,000 to 40,000 acres were already in private holdings, bringing the present potential agricultural base in private ownership to more than 100,000 acres. Present proposed legislation could add another 75,000 acres by 1983. The State has identified a goal of 500,000 acres for agricultural development by 1990. The people of Alaska, as identified in "Alaska Destination Tomorrow" released by the Office of the Governor, placed high priority on development. Through several planning efforts, both commercial and subsistence, agriculture has been consistently emphasized by the Alaskan citizen. (Subsistence in this case refers to farms, usually small, that produce food and fiber for family use and income to generally supplement other income sources.)

Alaska can produce many agricultural products consumed by the in-state population, especially on a subsistence level. Further, as transportation and other costs of imported food continue to rise, this potential becomes more significant. At present, most food needs for Alaska are met through the Seattle marketing structure. If this supply were cut, food shortages would start immediately, and critical shortages would develop within a matter of weeks. This has become an expressed concern and is an important factor behind present agricultural development interest.

The red meat industry is developing rapidly, especially the reindeer industry. Alaska produces less than 2 percent (estimate) of its annual red meat consumption. This can be increased, especially in view of Alaska's rapidly developing grain base. Small grains produced in Alaska could be first made available to meet local needs such as feed requirements for dairy, swine, and cattle feeding. Most of the small grain produced in Alaska over the next five years could be utilized within the state if the proper infrastructure were developed, but the lack of such a system is very evident and a source of concern. It should also be noted that Alaska's developing hydrocarbon industry manufactures urea (nitrogen) fertilizer in Alaska, providing a low-cost source of this most important fertilizer element. (The Kenai plant is presently the largest in the world.)

ANALYSIS AND DISCUSSION:

The present trend favoring agricultural development has been motivated by individual Alaskans. The Soil Conservation Service, through a public participation effort with local subdistricts, noted a strong public concern about the loss of present crop land and potential acreages. Citizens throughout the railbelt area expressed a concern that agricultural lands were being diverted to other uses (especially urban) or were being tied up by special interests.

The Delta Land Management Planning Study, conducted by the Division of Lands, also emerged with strong local public participation. Agriculture development and preservation have become the first identified objectives of this plan, resulting in the Delta Agricultural Development Project.

Several considerations relating to agricultural development and preservation have been developed by local citizens over the past four years.

1. Project Approach

   There is a need to clearly define each development boundary, and how the proposed project will proceed. All resources must be considered in each project. Where it is possible and practical, conflicts must be resolved or minimized.

2. Conservation Ethics

   Precautions must be taken to allow for minimum impacts on the environment during and after development. Erosion control practices, water-quality concerns, and potential pesticide hazards must be

identified. An attitude of prevention of the environmental hazards before they occur rather than correction after they have developed prevails among the public.

3. State Leadership

The need for strong state leadership has been expressed by local people. This includes: a) the necessary legislative authorities to support and maintain the agricultural industry, b) the financial resources necessary to participate, c) identification of the marketing structure, and d) technical support in both research and development.

As an overview of the above, it has been noted by soils experts that Alaska has the soils and climate to produce a variety of adapted, quality crops for both in-state consumption and export purposes.

MAJOR ISSUES

The following are the 10 most urgent concerns for agriculture and animal husbandry. These were selected from approximately 30 areas identified as major research deficiencies in Alaska. The list is presented and explained in order of priority as determined by the committee.

1. Plant and Animal Improvement Research

Top priority was given to this basic area of research. Broad as it is, it is fundamental to establishing a stable agricultural base. The committee includes in this priority the recognition of the need for research in small animal, subsistence farming, village and urban gardening, and large-scale commercial farming. Research emphasis should be placed on:

a. The introduction of new crop species and new animal species for evaluation under Alakan conditions.

b. Improvement of plants and animals through breeding programs designed to utilize both domestic and introduced genetic material.

c. The management of plants and animals to best utilize the natural resources unique to Alaska, i.e., long summer days, and to increase the efficiency of production.

d. The nutritional requirements of plants (fertilizer) and animals (feed) and especially how the former affects the latter.

As this is a broad display of research, it is recommended that this committee further define the specific research needs on a priority basis when funding is considered for plan and animal improvement research. This report of the committee will be forwarded by the Council to the University for their guidance.

2. Climatological Data

The second priority was given to the collection, analysis, and application of weather data. No natural phenomenon has more impact on agriculture than daily, seasonal, and annual weather conditions. Agriculture is now being practiced in areas with insufficient weather data to make daily forecasts or long-range planning decisions. In addition, agriculture is expanding into new areas where little or no weather data have ever been collected. These data are urgently needed to assure that proper decisions are made on crop species and variety selections, seeding and harvesting dates, wind and water erosion control measures, storage, transport, marketing considerations, and the myriad of other daily choices that must be weighed in light of the weather in all agricultural endeavors. Wind and water erosion control are the prime considerations, however.

Environmental hazards (such as floods, severe storms, and site-specific hazards) need identification in each potential agricultural area. Even short-term research (3-4 years) is of prime importance for the establishment of conservation practices. This activity has been developed and installations have been made for both the Delta Junction and Nenana areas. It is important that these efforts be continued there and expanded elsewhere when agriculture potentials are investigated.

3. Agricultural and Legal Relationships

The third priority specifies two research needs of agriculture which are bound by legal restraints. The first of these involves testing and clearance for use in Alaska of chemical pesticides and drugs by the Environmental Protection Agency (EPA) or the Food and Drug Administration. (Many chemicals and drugs cleared for use on specific crops and animals in the Lower 48 or other countries are not cleared for use in Alaska.) Chemicals cleared for use in Alaska on crops we do grow are not always effective at approved rates of application because of climate and/or soil conditions that differ from those where effective rates were determined and maximum limits set. EPA clearance of these chemicals on the crops that we grow and at rates of application that are effective under our conditions requires extensive support data and assurance that neither human beings nor the environment would be adversely affected. For example, one drug of primary importance to Alaska is Worbex. This drug is extremely effective in controlling warble fly infestations of reindeer and currently is used in both Scandinavia and the USSR. This drug has not been approved for use on Alaska reindeer.

The second research need now bound by legal restraints is the development of phosphate fertilizer deposits. These valuable deposits are presently within the boundaries of federal land withdrawls or in areas of State or Native land with land access. Phosphate is one of the major limiting minerals in agricultural soils in Alaska. Application of high rates of phosphorus are needed to produce economical crop yields. Methods or procedures are needed to provide access to and utilization of these deposits.

4. Marketing and Processing Beyond the Farm

The fourth research priority is concerned with the complex disposal system of farm products after they leave the farm. Research is needed in all areas of slaughtering, processing, packaging, storage, and shipment of animals as well as the processing, storage, shipment, and utilization of crops. This research should be directed toward developing technologies appropriate to Alaska's conditions and needs, village and remote area consumption, and urban utilization. The unique marketing system found in rural areas needs to be addressed as well as the development of foreign market feasibility. (Some of these kinds of research are related to priority number 10, below.)

5. Animal and Plant Disease and Insect Control

The fifth priority addresses the serious need for research into the control of animal and plant diseases and insects. These pests annually cause large losses of animals, poor growth rates and feeding effiencies, and reduced quality of finished meat products. Plant diseases and insects likewise reduce plant population, yields, and quality. There is presently neither a plant or animal pathologist or entomologist on the University of Alaska faculty. Both are desperately needed.

6. Erosion Control Practices

The sixth priority of erosion control research is essentially mandated by the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-50, Sec. 208) and the Clean Water Act of 1977 (P.L. 95-217). These two acts combined require the development of what are called Best Management Practices (BMP's), and the application of these BMP's to agricultural lands to reduce nonpoint source pollution of lakes and streams. Many BMP's are already developed and practiced, and more are being developed to fit special or changing situations. Their suitability under Alaska conditions and development of BMP's specially for our conditions, need to be researched. The urgency of preventing erosion and water pollution before it occurs is recognized by Alaskans. This is the only state which still has this opportunity. Research of this nature is needed now, not later.

7. Extension - The Transfer of Resources

The seventh priority emphasizes the transfer of research results into appropriate technology that is understandable and usable by large and small commercial farmers, subsistence farmers, and rural and urban gardeners or small animal raisers. The traditional role of the Cooperative Extension Service in this effort is recognized. An intensification of research under other priorities listed here will require a concomitant expansion of extension activities to communicate the results to the people. Increased research without communication is futile.

Additionally, the committee recognizes the accumulation of large amounts of research data over seventy-odd years which now rests, unavailable to

the majority of the public, in archives, private libraries, forgotten files, attics, and closets. These data must be gathered together and placed in a repository with public access. Computer storage of these data, similar to that of the Arctic Environmental Information and Data Center of the University of Alaska, would provide ready access to a large amount of research already conducted and would avoid duplication with new research.

8. Interrelationship of Agriculture and Natural Systems

The eighth priority responds to a controversy which commands the collective attention of agriculturists and nonagriculturists alike--are agriculture and natural ecosystems compatible, complementary or antagonistic, and if so, to what degree? Just as important is the question--can agriculture be adjusted or manipulated to be compatible with natural systems without jeopardizing man? Sound information on these interrelationships is lacking and often misunderstood. Of special importance to Alaska is the relationship of natural systems during the development of artificial systems. The integration of agriculture with natural systems needs to be studied to enable orderly development to proceed without compromising nature.

9. Range Site Identification and Carrying Capacity

The ninth priority concerns the vast range lands of Alaska, estimated to exceed 100,000,000 acres. The true value of these range lands in terms of human food production, wildlife production, and vegetative resources is unknown. Demand for the utilization of Alaska's range lands is growing. The resource is known to be fragile. Identification and classification of different kinds of range lands, their carrying capacities of domestic stock and wild animals, the necessary management for sustained use, and preservation of their aesthetic values, need to be determined.

10. Feasibility of Regional Agricultural Base

The tenth priority addressed a problem peculiar to Alaska and other northern countries--distance and isolation of populated regions. These regions, including Anchorage and the Cook Inlet area, depend upon outside sources for more than 90 percent of their agricultural products. The unsoundness of this dependency is evident wherever the transportation system is disrupted. Even with the transportation system to Seward, Anchorage, and Southeast intact, redistribution to outlying regions depends on the variables of weather, sea ice, space on available carriers, internal transportation strife, etc. The ability of individual isolated population regions to maintain an integrated and self-sustaiing agricultural base would relieve them of total dependency on the outside and avoid crisis situations during transportation or other disruptions. Soils with agricultural potential have already been identified in most of Alaska, and they are well dispersed throughout the state south of the Brooks Range. Information is available on a number of crops adapted to these areas. Research on the feasibility of the concept of regional agricultural bases is now appropriate.

PRIORITIES AND RECOMMENDATIONS:

1. New plant and animal improvement research should be funded with an initial line item appropriation to the University of Alaska Agriculture Experiment Station in the amount of $200,000. The University of Alaska should be directed to use these funds cooperatively with both federal and state agriculture agencies and to be guided by further recommendations of the Council's committee.

2. New climatological data for agricultural growth through collection, analysis, and dissemination should be funded with an initial first-year line item appropriation to the University of Alaska Arctic Environmental Information and Data Center in the amount of $40,000.

3. Legal restraints on agriculture should be examined by the University of Alaska, Institute of Agriculture for that purpose. In pursuing this effort, the Institute should work closely with other state agencies and federal agricultural experts.

4. Problems of marketing and processing beyond the farm should be analyzed through an appropriation to the Department of Commerce and Economic Development in the amount of $80,000. This unique and difficult problem must be examined in light of Alaska's food consumption in relation to its production ability and the marketing structure and legislation needed to tie these together.

5. Two new research positions in the fields of animal and plant disease should be established within the Institute of Agriculture of the University of Alaska by the initial appropriation of $120,000 for salary and support.

6. The Office of the Governor should appoint a lead agency for the coordination of research related to agriculture-related erosion and direct this accomplishment in agencies through the use of existing funds. The U.S. Soil Conservation Service needs to be closely consulted in this activity.

7. The University of Alaska Arctic Environmental Information and Data Center and Agricultural Extension Service should be directed to cooperatively develop a plan for the compilation and dissemination of appropriate bibliographies, data files, and materials for the transfer of knowledge to the agricultural community through the utilization of existing funds. The University should be directed to keep the agricultural committees of the legislature informed of the progress of this effort.

8. The problem of relationships between agriculture and natural systems should be addressed by a pilot project, perhaps in the Mat-Su Valley, examining these agriculture, natural habitat, and wildlife relationships. This report might be requested by an appropriate legislative committee or funds made available to the Council on Science and Technology for the solicitation of research proposals throughout the Alaska community of interest.

9. The Department of Natural Resources, in cooperation with the U. S. Soil Conservation Service, Bureau of Land Management, Forest Service, and others as needed, should be requested to provide a plan for range site identification and carrying capacity research.

10. The Office of the Governor should be requested to develop a framework research plan and proposal for the feasibility analysis of regional agricultural bases.

In summary, appropriations as follows are suggested relative to specific recommendations:

1.	University of Alaska Agriculture Experiment Station	200,000
2.	Arctic Environmental Information and Data Center, University of Alaska	40,000
3.	University of Alaska, Institute of Agriculture	N/C
4.	Department of Commerce and Economic Development	80,000
5.	University of Alaska Institute of Agriculture	120,000
6.	Office of the Governor and U. S. Soil Conservation Service	N/C
7.	University of Alaska Cooperative Extension Service and Arctic Environmental Information and Data Center	N/C
8.	Legislature (appropriate committee)	open
9.	Department of Natural Resources	N/C
10.	Office of the Governor	N/C
		440,000 +

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Palmer, Alaska

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ABOUT THE COUNCIL:

The Alaska Council on Science and Technology reports annually to the Governor and the Legislature on research activities funded by the state and recommends research and funding priorities. Though the Council itself does not perform research, it is charged with helping to coordinate research activities and to enhance standards of research. Nonpartisan advisory services to assist planning at both state and local levels are provided by the Council; for this and other purposes the Council convenes committees, task forces and conferences as needs arise. Utilizing earmarked funds appropriated to the Council's Scientific and Technological Account, the Council conducts the Northern Technology Grants Program to foster Alaskan innovation. From the Account, the Council can award research grants and contracts for purposes specified when monies are appropriated or otherwise assigned to the Account.

1979

NORTHERN TECHNOLOGY GRANTS PROGRAM

The purpose of the Northern Technology Grants Program is to help develop and encourage the use of low-cost and small-scale technologies appropriate tc Alaska.

In July, 1979, $50,000 in grant funds was appropriated by Alaska's state government to be awarded by the Alaska Council on Science and Technology (ACST) in grants of up to $5,000 each.

Proposals were solicited in the areas of "energy generation, waste disposal, recycling, food production, transportation, building design, or any residential or industrial enterprise which might be more efficient, less costly or less energy-intensive than methods now in use." Appropriateness to the Alaskan environment was required. The first year's program closed for receipt of applications on August 15, 1979.

The Alaska Council on Science and Technology received 178 proposals and selection of winning proposals was made in mid-September. Proposals were judged on innovativeness, potential benefit to Alaskans, and soundness of use of funds. Grant awards ranged from $200 to $5,000. Results will be published as projects are completed.

For more information on the program, please contact:

Alaska Council on Science & Technology
Pouch AV
Juneau, Alaska 99811
(907) 4653510

ACST

SUMMARY OF PROJECTS

#0011 REGENERATIVE FREEZER — Keven McDougal, Delta, Alaska — $3,100

Mr. McDougal will build a multi-family freezer which will store the winter's cold for summer use. It will maintain freezing temperatures for 3,000 pounds of meat or fish year-round without need of any power source whatsoever. The freezer will be a buried 14'x14' room housing a 10 foot high, 10 foot diameter brine-filled tank. A fluid-filled convection loop will be installed in the tank and project above ground. When the outside air is colder than the brine, the convection loop will continuously remove heat from the freezer and dissipate it above ground. The freezer will be insulated well enough to keep heat out during the summer.

#0107 JUICE BOTTLING PLANT — M. Michael Rowcroft, Juneau, Alaska — $3,250

M. Michael Rowcroft will set up a juice processing, bottling and distributing center in Juneau. Overripe produce purchased from local markets and wholesale distributors will be processed, bottled in recycleable containers and sold to the public at a reasonable cost. All processing will be performed according to the state Division of Public Health regulations -- Mr. Rowcroft is the Juneau District Sanitarian.

#0146 HYDRAULIC-POWERED . TO — Bert Bingham, Ken Kunkel, Don Luterbach, Fairbanks, Alaska — $4,045

This grant will help finance the building of an automobile with a hydraulic propulsion system. A volkswagen chassis and running gear with a sleek fiberglass body will house the low-fuel/high-energy system. The system starts with a 16 h.p. Briggs and Stratton engine. This drives a hydraulic pump. The hydraulic pump supplies charge pressure to two 5000 psi accumulators, and drive pressure to a Sunstrand hydraulic motor. The small gas engine operates at full power until the accumulators are fully charged. At that point the engine drops back to idle and the accumulator takes over. The sequence repeats automatically when the accumulators are drained to a certain level. The propulsion system, which has been previously demonstrated elsewhere, is expected to develop 75 mpg while cruising at 55 mph to 75 mph.

#0083 BEE-OVERWINTERING BUILDING — David W. Stoops, Kasilof, Alaska — $3,775

A

Mr. Stoops will construct a building in which he will over-winter bees in a controlled environment. Presently the state's 250 beekeepers have no alternative but to kill their bees each fall and face the difficulty and expense of shipping in new bees each spring.

#0029 WASTE-HEAT-CLAIMING GREENHOUSE — Galena Regional Learning Center, Galena, Alaska — $2, 70

A

GRLC is a rural extension of the University of Alaska involved in facilitating subsistence gardening programs in 17 villages along the Yukon and Koyukuk Rivers. The group will use grant money to build a 1,500 square foot greenhouse heated by waste heat from the local power plant. The Galena Air Force Site will provide access to the glycol solution in the plant's cooling system. The hot glycol will be piped to a unit heater inside the greenhouse as well as through the soil bed of a garden behind the power plant.

#0089 SOLAR HOT WATER HEATER — Julie Scott, Camp Bingle, Alaska — $1,200

Camp Bingle-Harding Lake Camp is a non-profit camp operating at Harding Lake, a recreational area 40 miles east of Fairbanks. The camp is used by various children's groups and its program is educational in nature. The staff will build a solar collector into the camp's hot water system to help offset operating expenses and incorporate energy awareness into the camp's educational program.

#0144 INSULATED SHUTTERS — Rob Walton, Fairbanks, Alaska — $1,100

Mr. Walton will design and construct insulating shutters that can be used to cover large window areas to reduce heat loss. The shutters will take advantage of garage door technology and photoelectric or temperature sensing switches to achieve ease of operation.

#0162 TIDAL/CURRENT HYDRAULIC SUCTION DREDGE — O. Alexander Hoke, Juneau, Alaska — $5,000

Mr. Hoke will design and develop a working model of a tidal/current hydraulic suction dredge. A tide or current powered low velocity hydraulic turbine will drive a centrifugal water pump after the high-torque, low-RPM turbine energy has been translated into low-torque, high-RPM energy by a water tight gear box. The high-velocity discharge of water will be injected through a reduction nozzle and create a vacuum at the suction head. This vacuum will lift sand and gravel through a flexible hose to a sediment stockpile on the bank. Mr. Hoke will also consider methods of achieving a regular, automatic sweep of a channel by the dredge.

#0139 SOLAR GREENHOUSE — Steve and Cyndie Tack, Fairbanks, Alaska — $5,000

A

Steve and Cyndie Tack will build a greenhouse which combines several of the better greenhouse construction and energy conservation principles now in use. The structure will be similar to a large cold frame with solar storage in the back wall and in the soil. Some of the features expected to make the greenhouse free of dependence on fuel heat from mid-April to late September include:

a) Burying the north wall and parts of the other three walls to moderate the effect of very cold and very hot weather;

b) Using solar collectors and an underground array of pipes to heat the soil;

c) Using a massive north wall to store heat during the day and radiate heat at night;

d) Glazing the greenhouse with a twin-wall stressed material;

e) Making an easily-used blanket to cover the glazed surfaces at night.

#0145 OIL-FIRED CLOTHES DRYER — Mike Potter, Fairbanks, Alaska — $500

Mr. Potter will convert a standard household dryer from electric to oil-fired hot water heat to take advantage of the oil-fired boiler which heats his house. Hot water will be piped to a radiator core which will be mounted on the rear of the dryer; air forced across the radiator will dry the clothes. The energy requirements and cost of drying clothes with an electric dryer will be measured before the conversion; when the oil-fired system is installed, its heat requirements will also be tested. Mr. Potter says the high cost of electricity and gas, and the fact that a large number of Alaskan homes use hot water heat suggest significant potential savings.

#0165 METHYL-FUEL PLANT — Douglas R. Grimm, Auke Bay, Alaska — $5,000

Mr. Grimm will build a scale model of a system capable of accomodating the electrical and automotive energy needs of a typical urban or rural residence in southeast Alaska. The methyl-fuel plant will produce approximately one gallon of methyl-fuel for every 20 pounds of waste material. This project will make use of the large quantity of sawmill wood chips available in southeast Alaska. Experimentation will also be done with many other forms of "garbage." The fuel produced will then be applied to a modified 4 H.P. internal combustion engine driving an 1800 watt generator. This scale model should supply about 1/10 of the electrical energy requirement of a typical residence.

#0155 HYDROELECTRIC GENERATOR — Richard V. Ford, Copper Center, Alaska — $2,500

Mr. Ford will build a small-scale hydroelectric system to reduce his family's dependence on a diesel generator. The system will be mounted on a raft in the Copper River and provide enough electricity to the residence for 8 months of the year.

#0136 WOOD FURNACE — Donald M. Ruef, Palmer, Alaska — $2,109

Mr. Ruef will build, instrument and test a wood-coal furnace with a fluid-filled jacket. The fluid tube will store heat and be controlled to produce a low-pressure hot fluid and not vapor. Mr. Ruef expects the furnace to deliver 100,000 BTU/H, provide long term even heat, require no electricity, and be marketable at less than $1,500 each.

#0098 ELECTRIC CAR — David Grove, Fairbanks, Alaska — $5,000

Mr. Grove will build and test an electric car for operation in cold climates. The plans for the vehicle will be purchased, but modifications will be incorporated, such as the use of light weight aircraft steel, an insulated battery compartment, and solid state devices for startup. Mr. Grove expects to demonstrate that the electric car is uniquely suited to Alaska for three reasons: first, gasoline is generally priced higher here; second, because pollution, especially ice fog, is a serious problem; and finally, because much of Alaska's road system is disconnected, the auto's 60-mile range per charge will not be a serious limitation.

#0074 SOLAR GREENHOUSE — Jeremy and Linda Weld, Gakona, Alaska — $5,000

A

The Welds will build an add-on solar greenhouse which will utilize a thick gravel pad to store heat from the greenhouse for later use in the greeenhouse and in the attained cabin. The gravel pad will be insulated from the ground around it and a heat collector at the greenhouse ridge will pump warm air into it. In addition, a rain water collection system will be incorporated into the greenhouse such that the stored water will also bank heat.

#0027 AMBULANCE SPLINT — Steven J. Carney, Fairbanks, Alaska — $200

Mr. Carney will build a modification of the long spine board used by ambulances which he expects to be an improvement. His patient stabilization system will utilize vacuum "bean bags" in conjunction with conventional straps. The vacuum bags would rely on the same principal as the vacuum splints, be adjustable, and would attach to the board with velcro.

#0129 HYDROELECTRIC GENERATOR — Ted Neville, Fairbanks, Alaska — $350

Mr. Neville will build a small-scale water-powered electric generator to be powered by a river. A paddle wheel's rotation will be translated by a 2:1 ratio gearbox, and then drive an electric motor. The electric motor, when driven, produces current. Mr. Neville hopes to produce enough current to run small power tools.

#0065 SOLAR HEATER — Chris Johansen, Fairbanks, Alaska — $600

Mr. Johansen will use grant money to build a simple solar air heater which could be placed in window openings. The heater would consist of a plastic panel which would admit fresh cold air from outside, allow the sun to heat it as it rises toward the window opening, and have a simple thermostatic device at the top to allow air to pass in only when it is warmer than the ambient room temperature.

#0106 WASTE-OIL HEATER — Donald C. Pendergrast, Fairbanks, Alaska — $250

Mr. Pendergrast will build a stove that burns waste crankcase oil. The stove will provide a more complete use of a scarce resource and an efficient method of waste disposal. The design utilizes a discarded electric water heater, several frying pans, and generally available and inexpensive hardware.

#0180 EXPERIMENTAL GREENHOUSES — Jim Donally, Anchorage, Alaska — $1,000

A

Mr. Donally will build three greenhouses to test the efficiency of a plastic product, called ACPS, as a greenhouse wall material. ACPS is commercially available in long sheets or on rolls. Its common purpose is as a packing stock for fragile merchandise. It is a clear plastic film with little bubbles in it which, Mr. Donally notes, when squeezed "give a satisfying little pop." But, the bubbles also seem ideally suited to provide insulating dead air space for greenhouse walls. The first greenhouse built will have only a 6-mill visqueen covering. The second greenhouse will have ACPS, and the third, ACPS plus an insulated north wall. Maximum-minimum thermometers will be installed in each greenhouse and daily readings taken to determine the length of frost-free season.

LIST OF GRANT RECIPIENTS

#0011	$3,100	Kevin McDougall (Regenerative Freezer) P. O. Box 503 Delta, Alaska 99737
#0027	$200	Steven J. Carney (Ambulance Stretcher) University of Alaska Fire Department Fairbanks, Alaska 99701
#0029	$2,570	Galena Regional Learning Center (Waste-heat-claiming-greenhouse) P. O. Box 181 Galena, Alaska 99741
#0065	$600	Chris Johansen (Solar Heater) P. O. Box 81162 College, Alaska 99708
#0074	$5,000	Jeremy & Linda Weld (Solar Greenhouse) P. O. Box 165 Mile 128 Richardson Highway Gakona, Alaska 99586
#0083	$3,775	David W. Stoops (Winter Beehouse) Mile 2.8 Kalifornsky Loop S.R. 2 Box 707 Kasilof, Alaska 99610
#0089	$1,200	Julie Scott (Solar Water Heater) Camp Property Committee c/o Box 80435 College, Alaska 99708
#0098	$5,000	David Grove (Electric Car) 214 Harwood Hall University of Alaska Fairbanks, Alaska 99701
#0106	$250	Donald C. Pendergrast (Waste-oil Heater) S.R. Box 50342 Fairbanks, Alaska 99701
#0107	$3,250	M. Michael Rowcroft (Juice Bottling) R. 3 Box 3323 Juneau, Alaska 99801
#0129	$350	Ted Neville (Hydroelectric Generator) 313 Lakeview Trailer Court Fairbanks, Alaska 99701
#0136	$2,109	Donald M. Ruef (Wood Furnace) P. O. Box 1906 Palmer, Alaska 99645

#0139	$5,000	Cyndie & Steve Tack (Experimental Greenhouse) S.R. Box 51113 Mile 24 Chena Hot Springs Road Fairbanks, Alaska 99701
#0144	$1,100	Rob Walton (Insulated Shutters) P. O. Box 1480 Fairbanks, Alaska 99707
#0145	$500	Mike Potter (Oil-fired Clothes Dryer) P. O. Box 80293 Fairbanks, Alaska 99708
#0146	$4,045	Bert Bingham (Hydraulic-powered Auto) 1650 Beaver Road Fairbanks, Alaska 99701
#0155	$2,500	Richard V. Ford (Hydroelectric Generator) P. O. Box 158 Copper Center, Alaska 99573
#0162	$5,000	O. Alexander Hoke (Tidal-powered Dredge) P. O. Box 963 Juneau, Alaska 99802
#0165	$5,000	Douglas R. Grimm (Methyl-fuel Plant) S. E. Applied Electronics P. O. Box 324 Auke Bay, Alaska 99821
#0180	$1,000	Jim Donally (Experimental Greenhouses) 1014 East 11th, #4 Anchorage, Alaska 99501

ACST Newsletter

Alaska Council on Science and Technology

Volume 1 No.3 January/February 1981

Report

Executive Director

Christopher Noah

In the January 12 issue of the Anchorage Times, an editorial titled "Planning for Disaster" appeared, pointing out that there was good reason to step up considerations of government responses to major natural disasters. This, of course reiterates what ACST has been saying for some time. The appearance of even one media story concerning Alaskan natural hazards, prompted my reply to Fred Dickey, executive editor of the Times.

Dear Mr. Dickey:

I am very encouraged to see the lead editorial in Monday's newspaper concerning planning for the possibility of a catastrophic earthquake in California and by inference expressing the need for such measures in Alaska, the nation's most seismologically active state. Unfortunately, the federal government through its current science policy, does not see the severity of the problem in our state as compared to that of California. This is evidenced by the U.S.G.S. and Department of Commerce continual rapid withdrawal of funding from Alaska's seismology program. This significant reduction in funds will mean closure of seismic stations throughout the state and elimination of the seismology program at the University of Alaska; a useful program which monitors earthquakes, attempts to predict seismic activity, and, up until 1979, compiled seismological data in its quarterly bulletin "Summary of Alaskan Earthquakes."

Two of the Council's reports "Alaskan Seismology: Research Priorities and Recommendations" and "Alaskan Natural Hazards: Research Priorities and Recommendations" have spelled out the need for more support in this area. One recommendation of the seismology report states:

"As the nation's most seismically active state, Alaska should give high priority to establishing a comprehensive state policy for seismic safety. This policy should involve codes and standards for the design and construction of buildings, means of dealing with critical facilities such as dams, hospitals and schools, planning, development and land-use control, emergency preparedness and post-disaster recovery, and seismic research needs."

If the federal government is to continue its reduction of scientific support, then it is up to the state to perform this important program function at a level sufficient to Alaska's needs. The report in addressing this point states:

"Governmental decisions concerning actual and potential influences of natural [hazards] on Alaska's population and future development require a long-term historical record of hazard observations, including frequency, magnitude, location and extent. To avoid costly duplication of effort and to ensure adequate coverage of critical hazards, the Alaska Division of Geological and Geophysical Surveys should take a lead role in establishing an ongoing hazards monitoring system that meets specifically Alaskan needs. The overall monitoring program should be designed to take maximum advantage of monitoring activities that are already operational."

The legislature responded to these experts by appropriating $300,000 to the Alaska Council on Science and Technology for "geophysical hazards and other research." However, what is needed is a commitment to coordinated seismological planning and research programs on an ongoing basis.

(signed) **Christopher Noah**

AAAS

Alaska Division News

T. Neil Davis

A resolution that will have an impact on arctic science policies in Alaska was passed unanimously at the annual meeting of the American Association for the Advancement of Science, January 7, in Toronto.

The resolution, presented by myself and adopted by the national 133,000-member organization, parallels the recent resolution of the Council on Science & Technology states "that there is an urgent need for the United States and the State of Alaska to articulate rigorous arctic science policies that will encourage the pursuit of knowledge necessary to effect the development of national energy needs, enhanced fisheries management in North Pacific and Arctic Ocean waters, and the resolution of developmental and environmental conflicts in arctic and subarctic regions."

William D. Carey, executive officer of AAAS, the oldest and

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largest general scientific organization in the nation, emphasized that "the resolution is clear in its intent and urgency - to establish comprehensive policies towards arctic research and resources management."

As Executive Secretary of the Alaska Division of AAAS, and chairman, I emphasized the disparate attention given antarctic research over arctic affairs by the National Science Foundation and other federal agencies and stated that research costs in Antarctica are running ten times as much as costs in arctic regions. Furthermore, Antarctica does not have resident people and holds very little immediate promise for the nation in energy, fisheries, and other resources development. Development of an enhanced defense position clearly holds promise in the arctic. This will prove out when long overdue science policies and research priorities are targeted for the arctic.

Members of the Alaska scientific community have long been concerned and vocal over the lack of national policy towards arctic research. This neglect has lead to piecemeal attrition of federal support to research facilities, failure to reciprocate in international scientific exchange and an absence of long-range planning.

National and state research-lags have placed the United States behind other countries in certain areas of arctic development.

Russia is in the lead in developing and exploring northern regions for human use. The United States is the only nation in the world with Northern interests that does not have a single research vessel capable of year-round arctic operation. Eight vessels of this type are in operation in Canada, nine in Norway, and twenty operate out of the Soviet Union.

Many other areas of research neglect exist and will continue to present real problems for the residents of Alaska. The state leads the nation in the number and magnitude of earthquakes, windstorms, avalanches, forest fires, floods, and other natural hazards. There's an average of twenty-four potentially damaging earthquakes per year, with magnitudes of 5.5 or higher. Last year, a single windstorm caused thirty million dollars damage in Anchorage. The establishment of a policy relative to the recognition, evaluation and mitigation of natural hazards would lessen the adverse effect on Alaska's residents and their property.

The Council will be seeking congressional and state legislative hearings during the 1981 sessions. The supportive action taken by AAAS, this prestigious national association, in adopting the resolution, will add impetus in urging state and federal governments to take a realistic look at present arctic science policies and research - especially in Alaska. I hope that decisions on progressive policies that will lead to much needed research will finally be forthcoming.

ACST meetings

The Alaska Council on Science and Technology will be meeting in Juneau on February 25,26 and March 25,26 in the ACST offices. Suite 510, Mendenhall Apartments, 326 Fourth Street.

The council annual report outlining its activities for 1980 is available. For copies, write ACST, Pouch AV, Juneau, 99811.

Northern Technology

Grants up to $5,000 are again available to Alaskans with innovative ideas in northern technology. For the third time since the inception of the program in 1979, the ACST Northern Technology program is seeking low-cost alternatives in such areas as building design, food production, recycling, transportation, energy generation, waste disposal and small residential and industrial enterprises.

Proposals should include requests for materials, supplies, or services, to help develop feasible northern technology ideas. Personal labor compensation is not covered by the funds.

Deadline for submissions of proposals is April 20, 1981. Names of those persons receiving grant awards will be released May 22.

Proposal guidelines are available at the ACST office, Pouch AV, Juneau, 99811, or call 465-3510.

Reports on the results of projects funded by the 1979 ACST Northern Technology program are currently being studied by the council. Most of the progress reports are in and the council expects to have brief summaries of the project progress by next month. Restricted space in the newsletter does not permit a summary of reports on hand. However, a brief on one of the reports appears below.

, oject

Construction of three improved design greenhouses. Participants are Jim Donally and Norm Stoppenbrink, Anchorage.

Summary of results

Two greenhouses of improved geodesic design have been constructed. One greenhouse has improved light-transmitting insulation. A third greenhouse of total solar design is almost finished. Qualitative measurements show that the completed greenhouses are able to extend frost-free time for growing plants by 4 months per growing year. Quantitative measurements show that using the improved double insulation gives an R-value of 69, as compared with 52 for conventional double paning with visqueen and 35 with single sheet visqueening of greenhouses.

Oral History Project

The Alaska Historical Commission has awarded the Rasmuson Library, University of Alaska, Fairbanks, a grant for $22,000 to compile an annotated index of all the oral history collections in Alaska and to propose a system for updating the index. Dr. William Schneider, an anthropologist specializing in ethnohistory, is project director.

The project will inventory recorded speeches, testimonies, elders' conferences, life histories and legends that are scattered throughout the state. Dr. Schneider will be the first to systematically investigate what has been done in this area and where the collections are located.

Dr. Schneider pointed out that it's a long overdue task and it is fortunate that some of the people who played key roles in the events that shaped Alaska's history, are still alive.

It is hoped that, in addition to keeping track of what has already been done, an aggressive program can be pursued by the continuation of the Oral History Project, on a sound financial basis, to copy tapes and collect original material, before these items disappear forever.

Transportation and education

Two Research and Priorities reports, "Rural, Primary and, Secondary Education in Alaska" and "Transportation in Alaska", have recently been completed by ACST committees.

The central issue in the rural education report is the problem of delivering effective and relevant education to culturally different population groups. Most groups are scattered in remote communities and the remainder comprise significant minorities in urban areas. These problems differ from national educational issues and research funds are not available from non-state sources.

Concerning Alaskan transportation needs, the committee's report emphasized that most research has concentrated on foundation problems caused by permafrost and other arctic soil conditions. The report is broad in scope, dealing with the use of appropriate vehicles, support facilities, aviation, ice-fog, roads, railways and market structure. The emphasis of the report is on the need to improve research in the areas of trnsportation that affect the daily existence of Alaskans, such as moving basic commodities and commuters to work.

These report are available at the ACST office, Pouch AV, Juneau, 99811, or call 465-3510.

Natural hazards grants

Grants totaling $86,500 have been allocated by the Council on Science and Technology for research on Alaskan natural hazards in relation to coastal flooding and avalanche forcasting.

The council approved an allocation of $57,500 for a study of coastal flooding from storm surges and $28,500 for a project that would incorporate snowpack structure into regional avalanche hazard forecasting.

The grant award on flooding will be given to the Arctic Environmental Information and Data Center, University of Alaska. The center's proposal outlines a plan to prepare a climatology of storm surges, develop manual objective forecast procedures to be used by the National Weather Service and to develop an automated forecast procedure for use at weather service offices in Anchorage.

The avalanche prediction grant is to be awarded to the Geophysics Program, University of Washington and involves a new technique of avalanche prediction incorporating snowpack structure. Research would be concentrated on the restructure of current snowpack data to determine slope stability with an end result of improved avalanche forecasting and a wider scope of forecast capabilities

ACST assists fire protection plans

The Division of Alaska State Troopers of the Alaska Department of Public Safety has requested that ACST assist them in an examination of the most suitable types of fire or smoke detectors for use in rural residences.

The Village Public Safety Officer (VPSO) program within the Alaska State Troopers, began in July, 1980, as a means of addressing the very serious public safety problems that exist in rural Alaska. As a part of the fire protection aspect of the program, funds were provided to purchase smoke detectors for village homes. Since there are many brands and types of smoke detectors available, there is the need for research involving on-site testing to determine which type or brand will best meet the rural arctic environment.

The first step will be to identify the problems and requirements involved in the prevention of loss of life and property in rural areas of Alaska. The current status of technology must be determined, especially the decision on whether further laboratory testing of comercially available devices is needed.

There have been two preliminary meetings involving representatives of the Department of Public Safety and ACST. In mid-December, a meeting was chaired by Neil Davis, with the two agencies and technical resource personnel from the fire service and the University of Alaska.

Senate Bill No. 48

Grant increases

Senate Bill No. 48, by the Rules Committee, at the request of the Governor, states, in part, that ACST may, as funds are appropriated, make grants of financial assistance of up to $7500, rather than the current maximum of $5000, to participants in the Northern Technology program.

The Governor, in his letter to the Senate President, pointed out that the original grant maximum of $5000 has been diminished, due to inflation, increased shipping costs and the technical assistance needed to insure success of the innovative projects, even though ACST does not allow applicants to charge for their own labor.

He added that in the past, ACST has been unable to fund some excellent projects because they were over the $5000 ceiling, yet did not qualify as a large scale project.

Report updates

These reports are the results of workshops conducted by ACST and are available, upon request, at the council office in Juneau.

Report contents include: executive summary, background material, status of current research, analysis and discussion, priorities and recommendations, and contributors to the report.

Alaska Seismology
Alaska Energy
Alaska Minerals
Alaska Health and Human Life
Alaska Agriculture and Animal Husbandry
Alaska Natural Hazards
Alaska Rural Education
Alaska Transportation

A report on scientific and technological research needs in Alaska, from a joint meeting of ACST and the Polar Research Board, including public comments, is also available in limited numbers.

Newsletter mailing list

ACST is working on updating its present mailing list. If you are receiving duplicate copies of the newsletter, or have changed your address, please notify the ACST office in Juneau. Or, if you have names of individuals or organizations who would be interested in receiving a copy of the newsletter - please let us know.

Highlights 1980 Annual Activity Report

While 1979 could be described as the year of organization and initiation of programs, 1980 can be described as the year of implementation. Activities associated with implementation of the Act included setting state research needs and priorities in a number of areas and providing expert advice to policy makers. The implementation of the Science and Technology Account included its use in conducting the Northern Technology Grants Program and a Research Grants Program.

Research Needs

The Council formed committees comprised of experts in various fields to review specific research needs and identify priorities in Alaska. Eight completed reports are the result of the committees' findings and are available in the Council office.

Five other committees are constituted. These will be producing reports in the following areas: Basic Sciences; Communication and Information Transfer; Community Structure; Cultural/Lifestyle Relationships; and Renewable Resources and Related Habitat Protection.

Scientific and Technological Research

Following receipt of capital appropriations from the Legislature, the Alaska Council on Science and Technology established a Scientific and Technological Account in 1980. This account was used to make grants for research and innovation to individuals applying through two programs, the Northern Technology Grants Program (NORTECH) and the Research Grants Program.

Research Grants

The Council capital budget included $300,000 for research grants. Initially, the Council decided to award $150,000 for research in natural hazards and $50,000 for research in domestic violence. The request for proposals yielded eleven proposals. Following a scientific review of the proposals, the Council awarded research monies to two projects: "Coastal Flooding by Storm Surges and Development of Objective Forecasting Procedures in Alaska" in the amount of $57,500; and, "Incorporating Snowpack Structure Into Regional Avalanche Hazard Forecasting" in the amount of $28,503.

The Council is currently soliciting proposals for research needs identified by the working groups in the areas of Natural Hazards and Seismology, Health and Human Life, Minerals, Education and Transportation. It is anticipated that the remaining $213,000 will be awarded for research in those areas by mid spring of this year.

Assistance to Government

During the past year, the Council has received fifty-five requests from the Legislature and twenty-five requests from the executive branch for information on a variety of scientific subjects. Additionally, the Council has developed an ongoing working relationship with the Alaska Energy Center, the Polar Research Board of the National Academy of Sciences, the American Association for the Advancement of Science and other organizations.

Alaska Energy Center

AS 44.46.080 requires the Council to recommend projects which should be conducted or supported by the Alaska Energy Center. The Council's report on Energy recommended a number of research projects on Alaska's natural resources, including coal, oil, gas, hydro power, geothermal energy, windpower and solar energy. Additionally, the enabling legislation for the Energy Center states that the Alaska Council on Science and Technology shall meet with the Board of Directors of the Energy Center at least two times each year. An officer of the Council has attended all meetings of the Board of Directors of the Energy Center.

Inter-Agency Activities

The Council worked closely with EPA in their effort to receive additional federal funding. As a result, $900,000 was allocated to EPA for cold climate research in Alaska.

The Council reviewed the Department of Commerce and Economic Development's appropriate technology grant proposals.

Ernst Mueller and Christopher Noah assisted NOAA/OCSEAP in formulating their research priorities.

Public Information

The news media has actively publicized the NORTECH program and its award recipients. Additionally, the NORTECH program was the subject of a television documentary, "Grassroots Energy", produced by the Arctic Environmental Information and Data Center in collaboration with station KAKM with funding from the state of Alaska.

Alaska Council on Science and Technology

The Science and Technology Act of 1978 was the first step in political recognition of the importance of the role of science and technology in public policy and decision making. The act gave a statutory framework for the creation of the Alaska Council on Science and Technology. The Council's aim is to guide research activities in support of state objectives and to ensure the efficient transfer of resulting data and information.

Robert D. Burkett
Department of Fish & Game

T. Neil Davis (ACST Chairman)
Geophysical Institute
University of Alaska

Mim Dixon
Private Anthropological Consultant

David Hickok, Director
Arctic Environmental Information & Data Center
University of Alaska

Jay Hogan, Director
Division of Legislative Finance

Ernst Mueller, Commissioner
Department of Environmental Conservation

Richard Straty (ACST Vice Chairman)
Director, Marine Investigations
Auke Bay Fisheries Laboratory
U.S. Dept. of Commerce/NOAA

Christopher Noah, Executive Director
Alaska Council on Science and Technology
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Delta Agricultural Project
Anticipated Schedule of Events
April 1978

Statement Deadline for Farmer Qualification	June 1, 1978
Application period for qualified applicants	Month of June, 1978
Qualifications and Notifications of Qualified Lottery Participants	July 1, 1978
Appeal Period for Refjected Applicants	Month of July
Lottery Drawing (22 plus five alternates)	August 1, 1978
Down Payment Due	August 1, 1978
Burning of Test Clearing	Summer-Fall, 1978
Farm Plans Due From Successful Participants	September 15, 1978
Clearing and Road Contract Let for 60,000 Acres	October 15, 1978
Clearing Begins	October 15, 1978
Test Market, 1978 Crop	October, November 197
Agricultural Symposium on Marketing and Production	January, 1979
Transportation Study Report and Market Report	February, 1979
Recommendation for Type of Market Structure	February, 1979
1. Power System Construction Begins	April, 1979
Burning, Cleanup, and Breaking of 60,000 Acres (timing as dictated by results of test clearing)	Summer-Fall, 1979
Contract Let for Construction of Country Elevator Clearners, and Drying Facility	Early Fall, 1979
Contract Let for Construction of Port Facilities (if necessary)	Early Fall, 1979
Land Payment Due (possibly covered by clearing credit) ?	October, 1979
Plant at least 30,000 acres	Spring, 1980
2. Power Grid Systems Available	Spring, 1980
3. Country Elevator Available	August 1, 1980
4. Port Elevator Available (if necessary)	August 1, 1980
First Payment Due, Including First Clearing Payment	January, 1981
~~First~~ Last Land Payment Due	1998
Final Clearing Payment	2018

REPORT ON THE DEVELOPMENT OF AGRICULTURE

IN THE DELTA AREA

By

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INTRODUCTION

Agricultural development in the Delta area actually began with the activities of the original homesteaders in the early 1950s. Agricultural production was primarily a subsistance effort at that time, and remained basically so until the early 1970s.

A corporate, large-scale farming enterprise attempted commercial production during the 1970s. Due to the economies of scale and lack of an adequate marketing system, the corporate farm was forced to dissolve.

It was during the mid 1970s that the citizens of Delta, along with numerous state and Federal agencies, developed and implemented a Delta Land Management Planning Study (DLMPS). As a result of this study and public demand, the land in the Delta area was classified for best usage as determined by resource inventories and community needs.

The area encompassed by the current Delta Agricultural Project (Delta I) and that of the proposed expansion (Delta II) was classified as agricultural land and reserved for large-scale commercial farms (Figure 1). Simultaneously, the agricultural lands in the Tanana Loop and Clearwater areas were so classified and reserved for smaller subsistance farms.

The overall intent of developing agriculture in Alaska is to establish a viable, renewable-resource industry with investments from our current economy, financed on finite non-renewable resources. Therefore, according to the recommendations of the DLMPS, the State of Alaska initiated the Delta Agricultural Project in 1977. Baseline environmental data were collected, and experimental land clearing trials were conducted in 1977-78 to determine the most economically and environmentally sound method of development.

In April of 1978, 57 small farm parcels (6,000 acres) were released to private ownership in the Tanana Loop area. Approximately 60,000 acres were released in 22 large parcels (Delta I) on August 5, 1978. Again, in November 1980, another 4,100 acres of agricultural land were distributed in 36 parcels for small-scale farming. The small-scale farms are benefitting from the economies of scale generated by the larger commercial farming operations.

CURRENT DEVELOPMENT

Development of the crop land on Delta I is progressing according to schedule. Approximately 39,000 acres have had the debris and overburden stripped and piled into berm rows. Over

22,000 acres have been cleared sufficiently for the production of crops. This has all been accomplished in less than 18 months --of which less than half were suited to land clearing.

Other agricultural development is occurring also. Within the Tanana Loop, more than 2,500 acres have been cleared. Previous farmland is being reclaimed and new farmland developed in the Clearwater area (2,500-plus acres).

In 1979, approximately 3,000 acres of barley were planted in the Delta area, of which only 300 acres were on the Delta I project. This past year, the local acreage in small grains increased to nearly 11,000 acres with some 8,000 on the Delta Agricultural Project.

The livestock industry is also increasing dramatically in the Delta area. One farmer has created a 200-cow foundation beef herd and will be marketing slaughter beef in 1983. Another farmer has built and equipped a swine facility capable of producing 3,000 slaughter hogs per year. The first market hogs will be available for slaughter in September of this year. Several other land owners are entering the livestock industry in smaller scale with beef herds of 20-80 cows, and dairy herds of 20-60 milk cows. Delta does have a family-operated dairy with milk processing capabilities in operation.

COMMUNITY IMPACT

The agricultural development has provided substantial employment for the Delta Community. Estimates of seasonal and full-time positions created by--or directly related to--the Delta Agricultural Project exceeds 150.

One farmer, who planted 700 acres of grain last year, provided the following cost and/or investment information for 1980:

Hired Labor	$ 34,000
Land Clearing	60,500
Buildings	13,000
Farm Equipment	276,000
Seed & Fertilizer	52,500
Well	3,000

One of the three local equipment dealers indicated an investment of $175,000-180,000 in real property, excluding inventory. This dealer also has three permanent employees and anticipated expanding to five in the near future.

Community sales and services have increased in accordance with the influx of new agricultural families (12 on the Delta Agricultural Project and 25-plus on other agricultural parcels). These figures do not reflect temporary residency due to seasonal employment.

The major impact to the community school system has been in the vocational agriculture and Future Farmers of America programs. In 1976, 12 students were enrolled in the Vo-ag program. Today, that enrollment stands at 52 out of a total high school enrollment of 182 (refer to the February 18, 1981 issue of The Delta Paper).

The Vo-ag program has recently acquired a 40-year lease on 65 acres of agricultural land. A new vocational education/ vocational agricultural building is being erected. However, real problems plague the Vo-ag program in terms of obtaining

funding for equipment and extended contracts for instructors. These youth are tomorrow's farmers and therefore are a vital ingredient in the successful development of Alaska's agricultural industry.

RESULTS

The Delta Agricultural Project has proven that a family operation can indeed develop quality 2,000/3,000-acre farms within the time period desired. They are also capable of producing crops successfully on a large scale--in excess of 1,000 acres. This does not mean that they are without significant problems, however.

Tables I and II contain the yield results from hand-sampling the crops in 1979 and 1980 respectively. The depressed yields for 1980 can best be explained by addressing the various problems encountered.

1. Logistics - The local agricultural industry was not familiar with the quantity or quality of input products necessary to produce 11,000 acres of grain. This caused planting delays while seed and fertilizer supplies were replenished. Also, equipment dealers were not familiar with the most vulnerable components of specific implements--once again, adding to the delays in planting and harvesting.
2. Weather - The 1980 season was plagued with inclement weather. July precipitation was only 33% of normal, causing slow growth and stress to the grain. August and September were cool and damp, thereby delaying