ALASKA LEGISLATURE COMMITTEE FILES 1985-1986 8672

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SUCCESS AND FAILURE —

World War I

By 1915 the farmers had to start thinking about marketing surplus, crop storage and securing more seed. The construction of the railroad to transport coal from the Matanuska coal fields and to Fairbanks created demand for farm products. Success of a growing agriculture seemed assured with the increased development along the rails. But when Alaska's men answered the call to duty at the beginning of World War I, both mining and farming stagnated. Men left farms, unfinished construction, partially developed mines and other enterprises. After completion of the harvest in September of 1917, the market for farm products had shrunk, and a ruinous surplus of vegetables and potatoes resulted. Of a total harvest of 1,300 tons, 600 tons were left to rot.

Farming did continue, but on a declining scale. Work on the U.S. Department of Agriculture Experiment Farm on Trunk Road began. C.C. Georgesson impressed upon the farmers that they could produce their own foodstuffs and should rely less on cash crops and more on shipping their supplies.

The settled area at that time moved east and north from Knik over to Wasilla, Matanuska Junction, along the Matanuska River, the Palmer railroad siding, Bodenburg Butte, and up to the Moose Creek area. Some of today's place names remind us of early settlers. John Bugge took up his homestead in present-day Palmer around 1914; in 1909 W.J. Bogard raised livestock and potatoes; J.J. Swanson bought an already existing homestead and later sold half of it to Max Sherrod. Heinie Snider in Wasilla was successful at fur farming on the north shore of Lake Lucille until the price of fur dropped.

Some early setbacks

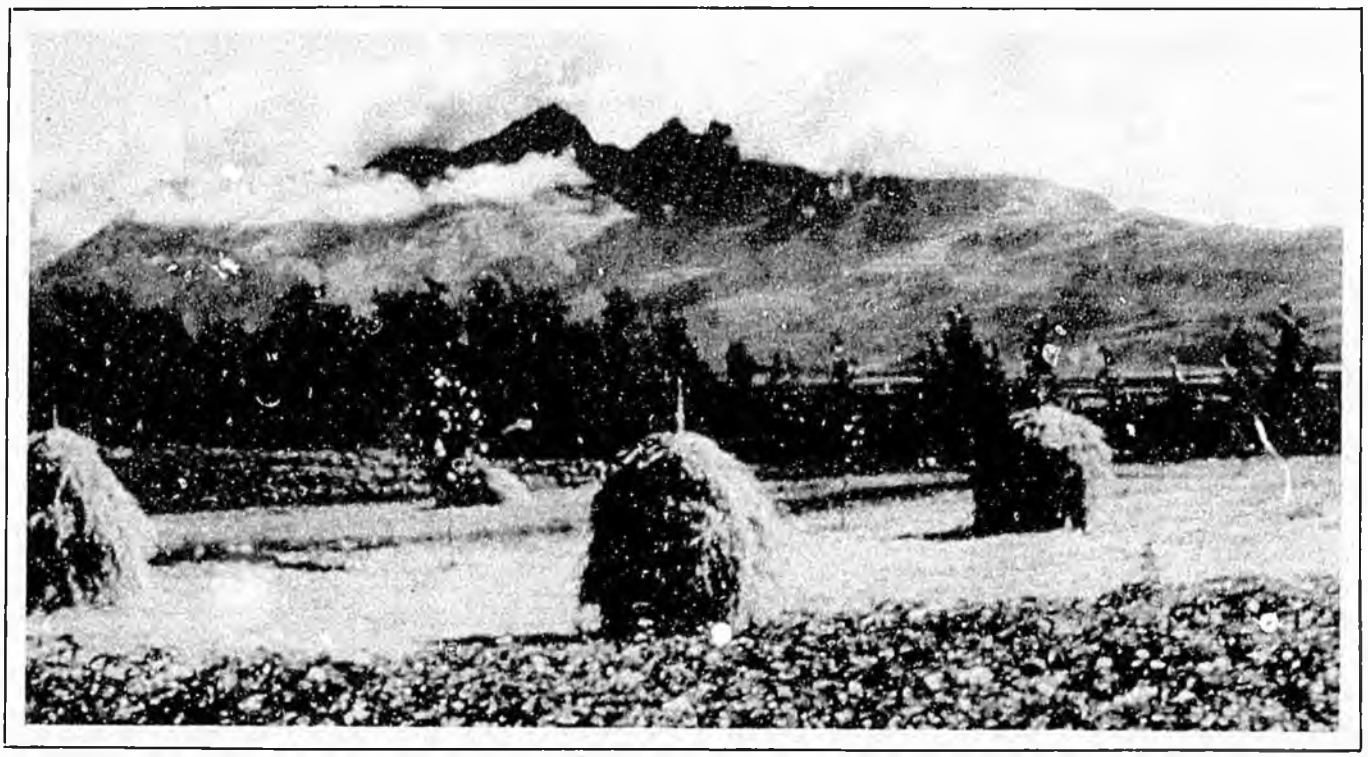
In the early 1920's, a group of farmers tried to interest Anchorage merchants in a warehouse and cannery to offset high, small-volume freight rates and to process surplus vegetables, but the effort failed, and marketing continued to be handled by the individual farmers.

Fifty-eight land owners were engaged in farming in the late 1920's. Strawberries were raised commercially in Wasilla, there were two fox and mink farms, several farmers raised sheep, with the Bodenburg Butte being one of the grazing areas, and there were a few small dairy herds. A farm on Lake Wasilla supplied milk to that town. The Alaska Railroad and the Experiment Station constructed a creamery at Curry in 1927, creating a market for Matanuska Valley milk.

To bolster income, many farmers sought employment in the gold mines at Hatcher Pass and the coal mines near Sutton. The mining industry, which employed nearly a thousand men in the 1930's, should have provided a ready market for Valley crops. Not so. Merchants were reluctant to purchase anything grown in the Valley. Produce could still be shipped to Alaska cheaper and retailed at less than Valley produce. Besides, the quality of potatoes and vegetables was reported unsatisfactory. Rabbits damaged crops extensively, and root maggots and cutworms were quite a problem. While the Experiment Station and the farmers undertook tests to find an effective insecticide, the consumers were warned to wash thoroughly all vegetables coming from the Valley. This did little to bolster consumer confidence in locally grown produce. But the farmers persevered, and the Valley 's reputation as a farming area continued to increase gradually.

In the late twenties and early thirties the Alaska Railroad brought in another fifty-five families under a land grant project that was to encourage agricultural settlement. Priority was given to World War I soldiers and their dependents. It was assumed that "each farmer would be worth about $700 a year to the railroad" by increasing the tonnage carried on the trains. M.D. Snodgrass, former superintendent of the Matanuska Experiment Station, headed this colonization project for the railroad. He received some 12,000 applications and inquiries. Mr. Snodgrass personally interviewed 600 applicants. Many settlers that were chosen arrived with some capital and knowledge in agriculture. Their farms were, and some still are, among the finest in the Valley.

By the mid-thirties, the Experiment Station, with the help of farmers, had gained considerable information on the climate, soils, seed varieties, and productivity of crops and livestock. Tractors were beginning to replace horses.



"Brother, Let me Roll in It." one pioneer exclaims on seeing rich loam of Valley.

"You can't find a man among the unshaven, tobacco spitting oldtimers who inhabit this wild Matanuska valley who speaks badly of its soil. Even the dour 'boys back in the hills, who since Klondike days have been 'clean mad for the muck called gold,' concede its fertility.

Small wonder than that not one of the new colonists from Wisconsin, Michigan and Minnesota has uttered a complaint against the soil they have come to till."

". . . The land does make an impression on anyone who knows anything about farming, especially when compared with the sterile stuff the colonists abandoned. You can see in the patches under cultivation how well it works up. No clumps, no big rocks, no sandy wastes—just jet black, fancy soil that needs only the right growing weather to return heavy yields."

Arvilie Schaleben
Reporter

1935 — The Colony

The Alaska Railroad experiment laid the foundation for a much larger colonization effort—the Matanuska Colony. This time 102 new colonists were brought into Alaska.

To many newcomers, the colony project and agriculture in the Valley are synonymous. In retrospect, the project may have stifled the progress of large scale commercial agriculture because of the small size of the tracts available to the colonists. But the contributions made by the colonists to Alaskan agriculture were tremendous. The knowledge that allows Alaska to proceed with present-day big ag projects is the result of their experiments, failures and successes.

The Matanuska Colony was not, for the most part, an opening up of new lands; rather it was a resubdivision of larger homesteads into smaller 40, 60 and 80 acre farms. It was done hastily and, as in the case of many New Deal experiments, there was much disorganization.

The Alaska Rural Rehabilitation Corporation purchased almost 8,000 acres of private land from homesteaders. By April 1935, the colonists were on their way to the Valley, and in May 1935 they drew for parcels. By 1936, the Colony was established. The colonists had acquired a house, a barn, animals, farm equipment, and a 30-year federal mortgage, usually for about $3,000. A Matanuska Valley Farmers Cooperative was established to sell the farmers' products.

Within four years, about 60 percent of the original colonists had left the colony and moved on to other places. The 40 percent who remained were by and large the same persons who would carry farming in the decades of the seventies and eighties.

As time went on, it was discovered that the Colony area, the railbelt, and Anchorage could not support the number of small farms that had been established. Fortunately for the colonists, the two large military bases in Anchorage that were built during World War II created a major new market for Colony produce. Those farmers still not able to make a living on the farms could work in construction or on the bases.

The 40 and 80 acre Colony farms were much too small. It was soon discovered that 40 acres were not enough to support a dairy farm — a good self supporting farm would require a minimum of 280 acres for dairy, 30 acres for raising potatoes, and 320 acres for grain. The Colony tracts were side by side and there was no way to purchase government owned lands to expand farms. However, after World War II, as more Colony families went on to other things, farm tracts became available and the remaining farmers were able to enlarge their holdings creating the bigger farms of today.

Eventually, because of the perseverance of the early settlers and the colonists, a firm foundation had been laid for agriculture in Alaska.

". . . One farmer in the valley, A.A. Shonbeck, has used commercial fertilizer successfully. He is considered a large scale farmer, having some 120 acres under cultivation. One piece of his equipment, a hay drier made in Milwaukee, cost him $10,000 last year. It is the only one in Alaska. Through oil heat it makes wet hay dry in 20 minutes."

Arville Schaleben
Reporter
1935

"All these colonists have to do to make good is work. The soil is here, ready to produce. There are farmers in the valley who showed it would produce by hard work. I suppose some of these new men will fail up here. They'll be the ones who didn't work like the rest of us have done. The ones who really dig in will soon find themselves coming out on top."

M.D.Snodgrass to
Arvile Schaleben, Reporter
1935

FORTIES THROUGH THE FIFTIES —

Heyday of agriculture

After 1947, defense preparations in the Anchorage area provided a new market for food. Production grew steadily and peaked in the fifties and sixties. Primary emphasis was directed to milk, forage, potatoes and vegetables. Milk accounted for most of the production.

Farm size continued to increase. Tracts relinquished by colonists or repossessed by the Alaska Rural Rehabilitation Corporation (ARRC) were redistributed to enlarge adjoining farms. The small tracts originally were laid out for colonists under the assumption that they would be adequate to support a family at a subsistence level. Contrary to plan, many families were not satisfied to lead a subsistence life. Some sold their cropland to adjoining dairymen, took off-farm employment, and used their buildings as rural residences. By 1955, the 201 colony units had shrunk to 132. Most of those colonists who depended on agriculture exclusively for their livelihood, increased their land holdings.

Dairying was the foremost industry in the Valley. In 1952, the supply from forty-two Grade A dairies was not even enough to cover the demand in Anchorage and Fort Richardson. Potatoes were the chief cash crop. Average gross income of a dairy farm annually was $9,200; for a combination vegetable-potato farm $6,206; for a potato farm $8,138, and for a poultry farm $4,697.

The farmer received about $10.50 for 100 lbs. of milk, and 60 to 90 cents for a dozen grade A large eggs. The cost of clearing new land was from $75 to 150 per acre, and a fully-equipped, 20-cow, Grade A dairy was priced at about $50,000. Financing was available at 4 to 8 percent.

By the late fifties the Matanuska-Susitna Valley had a population of approximately 6,000. The size of individual farms varied from 40 to 320 acres, with from 15 to 100 acres cleared on each. In 1958, most of the agricultural products were marketed through the Matanuska Cooperating Association, as well as through private buyers who distributed in Anchorage and Palmer.

The Co-op operated a garage, a warehouse which handled sales of feed, seed and hardware, and a department store. Its largest operation was the creamery, which shipped fluid milk to Anchorage, and manufactured ice cream, cottage cheese and buttermilk. In the late sixties, the Co-op, now known as Matanuska Maid, moved the creamery to Anchorage.

Milk production, the mainstay of Valley agriculture, reached its peak in 1962. With the competition of low-cost imported milk transported to Anchorage by barge, Valley farms found it increasingly difficult to maintain their share of the market. The Valley produced 177,600 cwt. (2.22 million gallons) in 1962, versus 119,000 cwt. (1.49 million gallons) in 1981.

SIXTIES AND SEVENTIES

Gradual Decline

In 1967, there were still 47 dairy farms, 22 vegetable-potato farms, and perhaps 66 small part-time farms. These 135 farms harvested 10,700 acres. Ninety-five percent of this acreage produced livestock feed. The remaining acreage grew cash crops, with four percent in potatoes, and a little more than one percent in lettuce, carrots, cabbage and other vegetables. Milk represented forty-five percent of the crop value; hay and silage used primarily for dairy cattle ranked next, with eggs last.

Two commercial poultry farms supplied all the local eggs, except for several small farm flocks. Each farm graded and marketed its own production, usually to a specialized trade, and at a premium price over shipped-in eggs because of preference by some people for fresh eggs.

The production value of Matanuska Valley crops, livestock and poultry in 1965 was $3.4 million. This did not include greenhouse and nursery- ornamental, horse- seed- and specialty-crop values.

RECENT FARMING ACTIVITY

Farms dwindled further in the late 60's and early 70's. Not more than a dozen dairy farms and some 17 vegetable and potato producers remained in the Valley.

The focus of public attention had turned to land speculation, residential subdivisions, service and construction businesses. Prior to 1968, land values in the borough were relatively stable. The emphasis was on developed agricultural lands. Competition for non-agricultural lands was slight. Supply exceeded demand. A drastic turn-about came during 1969-70. Non-ag lands which had sold at not more than $70 per acre in the mid-sixties, were now sold at prices ranging from $1,500 to $3,000 per acre. By the late seventies, one-acre subdivision lots were selling for $7,000 to $10,000, and up to $18,000 in some cases.

The limitation of space in the Anchorage bowl, discovery of oil on the North Slope with accelerated population growth and economic activity, coupled with an anticipated move of Alaska's capital to Willow, contributed to the residential and speculative land boom in the Valley. Even for many agricultural land holders, agriculture became of secondary interest to subdivision speculation and residential development.

Agricultural in the seventies was becoming marginal.

"The two great impediments to the development of the section are the mosquitoes and the winter. I place the mosquitoes first because from my experience, and I believe it is that of every man who has been in there, they must always come first in any consideration of any part of Alaska. It is not that they are any larger or fiercer than the mosquitoes found in Florida, Louisiana, or New Jersey, but because they are so much more numerous."

Chas. A. Adams
to Professor C.C. Georgesson
— 1898

THE EARLY EIGHTIES —

A Firm Foundation

An average of 10,500 acres has been kept in crops during the last 20 years, declining to 10,006 acres in 1981. The size of the farms increased. There were 135 farms in 1957, and around 50 in 1982.

These acreage statistics highlight the fact that agriculture has not kept up with Alaska's population growth - up from 250,000 to 425,000 in the last twenty years.

One reason for the stable acreage in production is that during the period from 1970 to 1980 the price for private land rose so much that only very few farmers were able to increase their land holdings by purchasing additional farm acreage. Most of the available public land offered was not contiguous to the established farms, and often in areas not served by roads.

The 1981 value of commercial agricultural production was $7,552,900, not including values for greenhouse, nursery, small fruit, small livestock and horse production. Combined with the latter, the total annual production value is estimated to be over 15 million dollars. (The value of annual sales from local farms has not been determined).

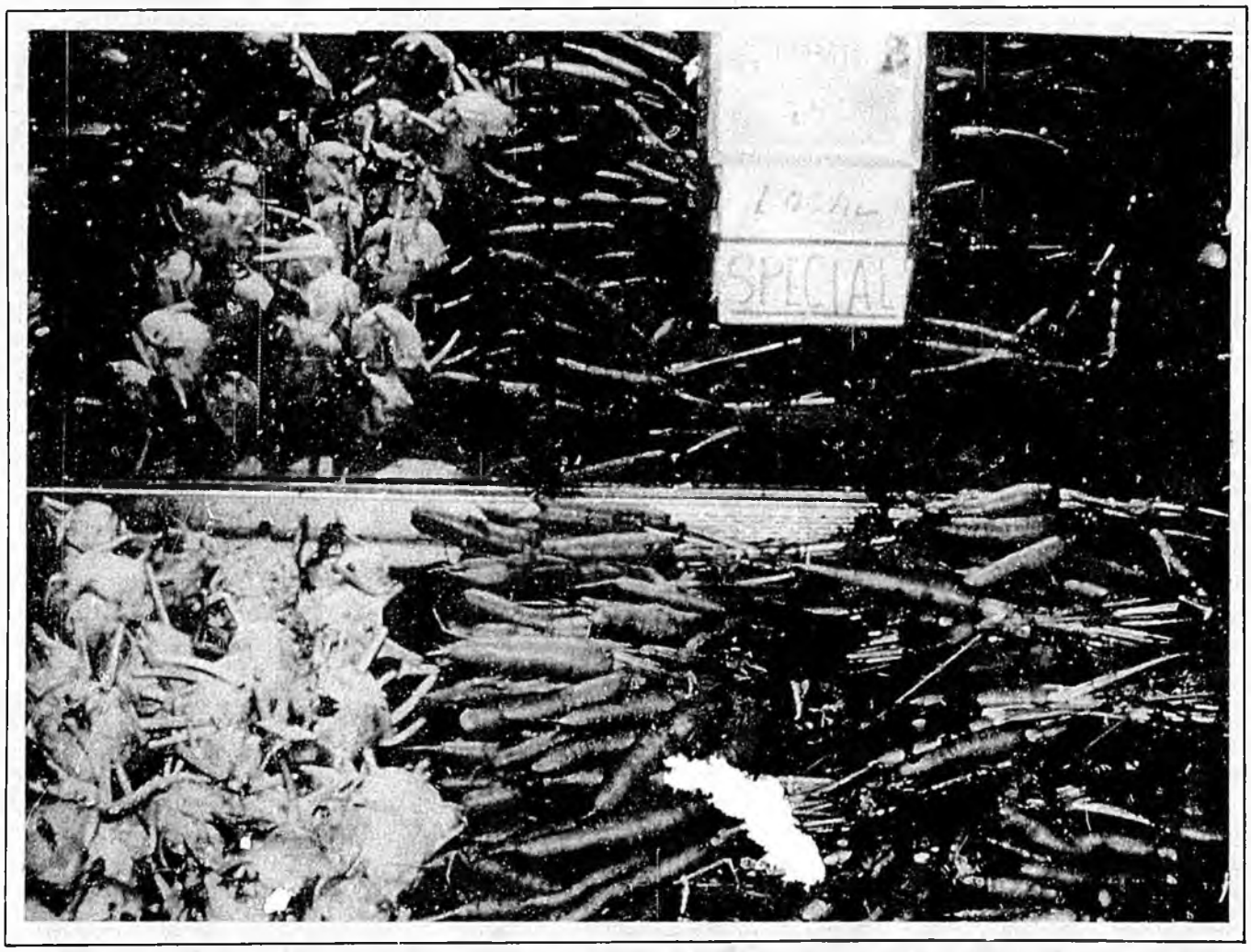
Valley farming, once the main industry, is still an integral part of Valley business and employment, but less significant than other borough businesses and employment. Retail sales volume was over 50 million dollars in 1979 ($13.5 million in food stores, and $36.5 in other store categories).

In 1978, out of 3,096 persons reported as employed in the borough, 129, or 4.2 percent, were in agriculture, compared to 1,528, or 49.4 percent, in government and utilities, and 588, or 19 percent, in the retail trade.

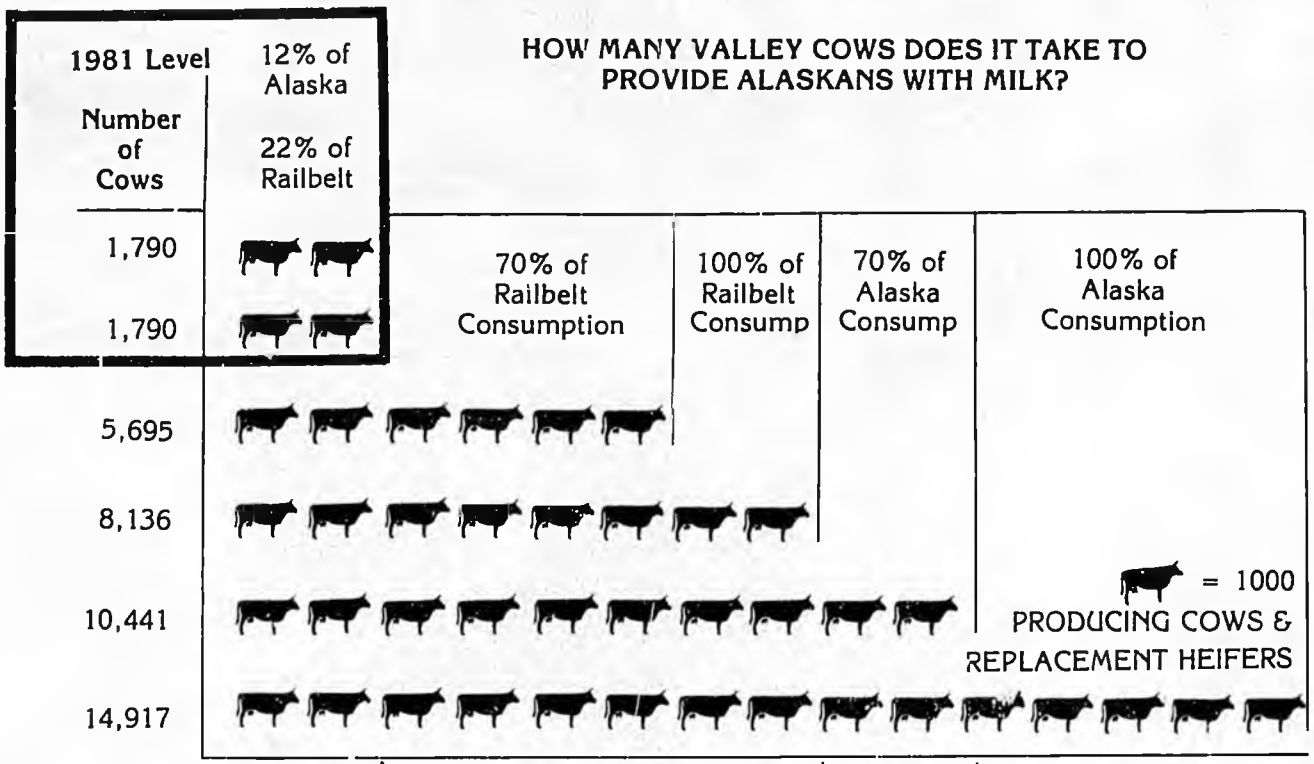
If these statistics told the complete story, the outlook for Valley agriculture in the 1980's would be bleak. However, an analysis of agricultural production, crop by crop, shows that a firm foundation has been laid for a rapid growth.

PRODUCTS FROM VALLEY FARMS

Farmlands now in cultivation in the Matanuska-Susitna Borough yield crops that are consumed as quickly as they are made available by the about fifty farmers. The sign "local" on the market shelf quickly disappears following the growing season for vegetables, since there are no commercial freezing or processing facilities to ensure a year-round supply.



HOW MANY VALLEY COWS DOES IT TAKE TO PROVIDE ALASKANS WITH MILK?



HOW MUCH LAND IS NEEDED TO FEED THE COWS THAT PROVIDE THE MILK?

7,500 ac. for 1,790 cows | 23,805 ac. for 5,695 cows | 34,008 ac. 8,136 cows | 43,643 ac. 10,441 cows | 62,353 ac. for 14,917 cows

1981 Alaska Population: 422,187
1981 Railbelt Population: 232,186
US per capita consumption of milk: 29.6 gal/year

This analysis is simplified to show approximate values. It is based on 1981 statistics. No effort has been made to project population growth. During 1981, Mat-Su's share of statewide agricultural production was 60% for Crops, and 70% for Livestock & Poultry.

Dairying

Dairying is the largest farm industry in the borough. In 1982, milk was provided by eight dairies and 880 producing cows. In 1981, from nine dairies and 980 producing cows, the Valley supplied 1.49 million gallons (119,000 cwt.), or about 22 percent of the milk consumed by the railbelt population, and almost 12 percent statewide.

When dairy cows start feeding on Point MacKenzie forage and pasture, and continue eating Delta barley, a major increase in Valley milk production is expected. About sixty percent, or 9,000 acres, of the 15,000 acres in the Point MacKenzie project are designated for dairy farms. Total farm land in the Valley is about 10,000 acres, so an additional 9,000 acres of dairy farms more than doubles farm land for milk production.

"One would not expect agricultural development in Alaska to follow the general pattern experienced by most of the lower 48 states.

Agriculture was the basic industry in the early development of the lower 48 states. Industrialization came later as agriculture moved through the nation.

In Alaska, agriculture has not developed into a sufficiently large or pervasive enough industry to be called basic. Because Alaska can now be considered somewhat industrialized, agriculture would have to be added to the industrial base rather than vice versa.

— Dr. James W. Matthews
Cooperative Extension Service Fairbanks
1976

The source of most of the statistics in this report is the US Crop & Livestock Reporting Service, "Alaska Agricultural Statistics." The statistics contain farm activity valued at $1,000 and up a year from cooperating farmers.

Hay and Grasses

Hay and grasses are forage crops for livestock. Dairy cows and horses are the primary consumer for Matanuska Valley hay. This crop is so important that milk production in the Valley has to some degree varied according to hay availability.

Hay takes up most of the productive acreage in the borough. In 1981, 7,500 acres were in hay and grass, of which 6,200 acres were harvested. In a good year, Valley farmers can get as much as 4 tons per year (in two cuttings) under optimum conditions. During years with wet summers, such as 1980 and 1981, or early snowfall, such as in 1982, production has fallen off to as little as one ton per acre or less on some farms. This has created shortages of hay.

In 1980, 8,400 tons of hay and silage were harvested, and in 1982, 9,600 tons.

A dairy cow eats anywhere from 3½ to 5 tons of hay a year, plus 2 to 3½ tons of grain. With 980 producing cows in the Valley eating about 5,000 tons in 1981, 810 replacement heifers and beef cattle eating 3,000 tons, and 2,000 some horses in the area needing from 4,000 to 7,000 tons (depending on how much grain or concentrated food they are fed), it is no surprise that hay has been in short supply.

This shortage has almost doubled the price for hay: from $4 for a 40-50 pound bale in 1980/81 to $7 in 1982/83. To supplement local hay, compressed 100-pound bales are shipped up and sold for $16 to $18 each. This includes the shipping cost of at least $6.00 per hundred pounds (cwt.). depending on the quantity.

Grain

Grain and cereal is grown on a small scale in the area. In 1981, there were only 700 acres in barley, and 200 acres in oats, both used for feed. An additional 750 acres was used for grain silage. Big Delta and, possibly, Nenana, will be the source of most grains for Valley livestock. Experimental plots of wheat have been grown and harvested intermittently over the years. Ground wheat in small quantities has been made available to health food stores and off-the-farm purchase occasionally.

VALLEY GRASSES

Blue joint, brome and timothy are perennial grasses that will come up without reseeding for as long as three to seven years. They generally grow fast enough for two cuttings, one cutting being around June 20, during less rainy weather, when the farmer attempts to bale as much dry hay as possible, and early to mid September, a wetter time of the year, when much of the grasses are chopped for haylage (partially dried and chopped grasses), or silage (undried grasses). Haylage and silage, because of their weight and their susceptibility to spoiling if moved, are generally stored and used on the farm where they were cut. Baled, dry hay is lighter and much less susceptible to spoilage, and can easily be shipped.

Many of the cleared areas not seeded are in native blue joint grass. Native blue grass does well in the more acid soils found in the Schrock Road area and the Susitna Valley. Being a native grass, it is also excellent for revegetation of bare ground.

Brome Grass

Brome grass is a particularly good field crop where it can be grown. When established it creates a sod that protects the soil. This is important in those portions of the borough which are highly susceptible to wind and water erosion, and where soil conservation is a major objective. Brome grass has a large seed, is easy to harvest for seed and to plant, and is good for pasture, haylage and silage. The Polar variety of brome grass developed in 1965 by the University of Alaska Agricultural Experiment Station with the cooperation of the US Department of Agriculture is extremely winter hardy.

Brome grass has the best yield in the Valley. It comprises the majority of fields in cultivated grasses. It does particularly well in the Palmer and Butte areas, where the soils are less acid. (Palmer and Butte soils have a pH of 6 (7 is neutral), compared to 5.3-5.7 in Point MacKenzie and on Homestead Silt Loam areas to the west of Palmer.

Timothy

Research trials over a third of a century at the Agricultural Experiment Station have evaluated dozens of varieties of timothy from North America and Europe. The variety "Engmo" from coastal, northernmost Norway surpasses all varieties from the US and Canada in winterhardiness when grown in Alaska. Its far northern origin, above the Arctic Circle, confers north-latitude climatic adaptation upon it, suiting it ideally to Alaska's growing conditions and winters.

Timothy is the second most popular cultivated grass in the Valley. It does not yield as well as brome, but tolerates acid conditions better and does better in droughty situations.

Alfalfa

Much experimentation has been done with alfalfa and several other legumes, but to date suitable species have not been developed for Alaska. Alfalfa is of particular interest because of its nitrogen fixing capability that enriches the soil.

Alaska Grasses Succeed in Revegetation

When the trans-Alaska oil pipeline was proposed, considerable doubt was expressed over the possibility of revegetating construction scars, particularly in the Arctic and at other environmentally harsh locations. However, research by University and US Department of Agriculture personnel at the Agricultural Experiment at the Palmer Research Center had developed a variety of red fescue, appropriately named "Arctared," that proved critical to early revegetation efforts. In the early trials it was the only commercially available grass that was successful in the Arctic. Seed of this grass produced in the Matanuska Valley established stands that have maintained an adequate cover under some of the most severe conditions along the pipeline route for over 8 years.

Other grasses of native Alaskan origin were subsequently developed at the Palmer Research Center to also serve for revegetation, particularly in situations that demand indigenous materials. They bear such names as "Alyeska" polargrass, "Sourdough" bluejoint reedgrass, "Tundra" glaucous bluegrass, and "Norcoast" Bering hairgrass. The Bering hairgrass was used in a revegation mix on Amchitka Island in the Aleutians following the Cannikin nuclear test and has aroused the interest of researchers in the circumpolar region.

Seed lots of the polargrass and Tundra bluegrass, produced in the Matanuska Valley, have been used in arctic plantings. Tundra bluegrass is of arctic origin and is considered to be the first variety of that origin released for commercial production.

The Agricultural Experiment Station at Palmer has attracted international attention through its efforts at developing plants adapted for north-latitude use.

GRAINS IN THE MAT-SU VALLEY

Recent public awareness of commercial grain production in Alaska has centered around the Delta Agriculture Project. However, Mat-Su Borough agriculture has a long history of successful grain production.

Barley, in particular, has been widely grown for feed and seed purposes since the introduction of "Edda," a Swedish variety, in 1951. This variety has now been replaced in production by newer varieties, including the Alaska developed "Lidal," "Weal," "Otal," "Datal," and "Thual." Weal, a hooded variety, produces high grain yields, but also is rapidly being adopted for forage production. Thual, with naked kernels, may find acceptance in the health food industry.

Oats has in the past been largely harvested for forage. Limited grain production of adapted varieties like "Toral" and "Ceal" continues for seed and feed purposes. The rapidly expanding horse population in this area will provide a steady market for oats.

Wheat has, in general, been too late in maturity for dependable grain production. The new Alaska varieties "Ingal" and "Nogal" normally can mature in the short production seasons here. These find limited use for human consumption in support of subsistence way of life, but competitive yields are not high enough at this time to encourage large scale commercial wheat production in preference to the more dependable barley and oats.

AWNLESS BARLEY - A "WEAL" WINNER

A new field crop has appeared in Mat-Su Borough farm fields. Viewed from the road it is often mistaken to be wheat or timothy; but is actually a rather unusual appearing new Alaska barley variety, "Weal." Its most unusual feature is the absence of the long, needle-like awns common on heads of most barley varieties.

It is the absence of awns that is responsible for the rapid, popular acceptance of this variety for forage production by dairymen. For forage use, barley varieties with awns are undesirable. Although totally suited for growing to maturity as a productive crop of grain and straw, "Weal" is more widely grown as a component, usually with oats, for forage. As forage crops, these cereals are harvested at an immature stage when leaves are still green and the grain kernels are still soft.

These annual forage mixtures are commonly preserved as silage, a feed which benefits from the heavy vegetative production of "Weal," as well as its earliness which imparts desirable lower moisture content, leading to better preservation and higher feed value of the silage. The abundance of carbohydrates stored in the immature grain of "Weal" harvested at forage stage, adds a valuable higher energy level to silages than obtainable with former oat-pea silage mixtures.

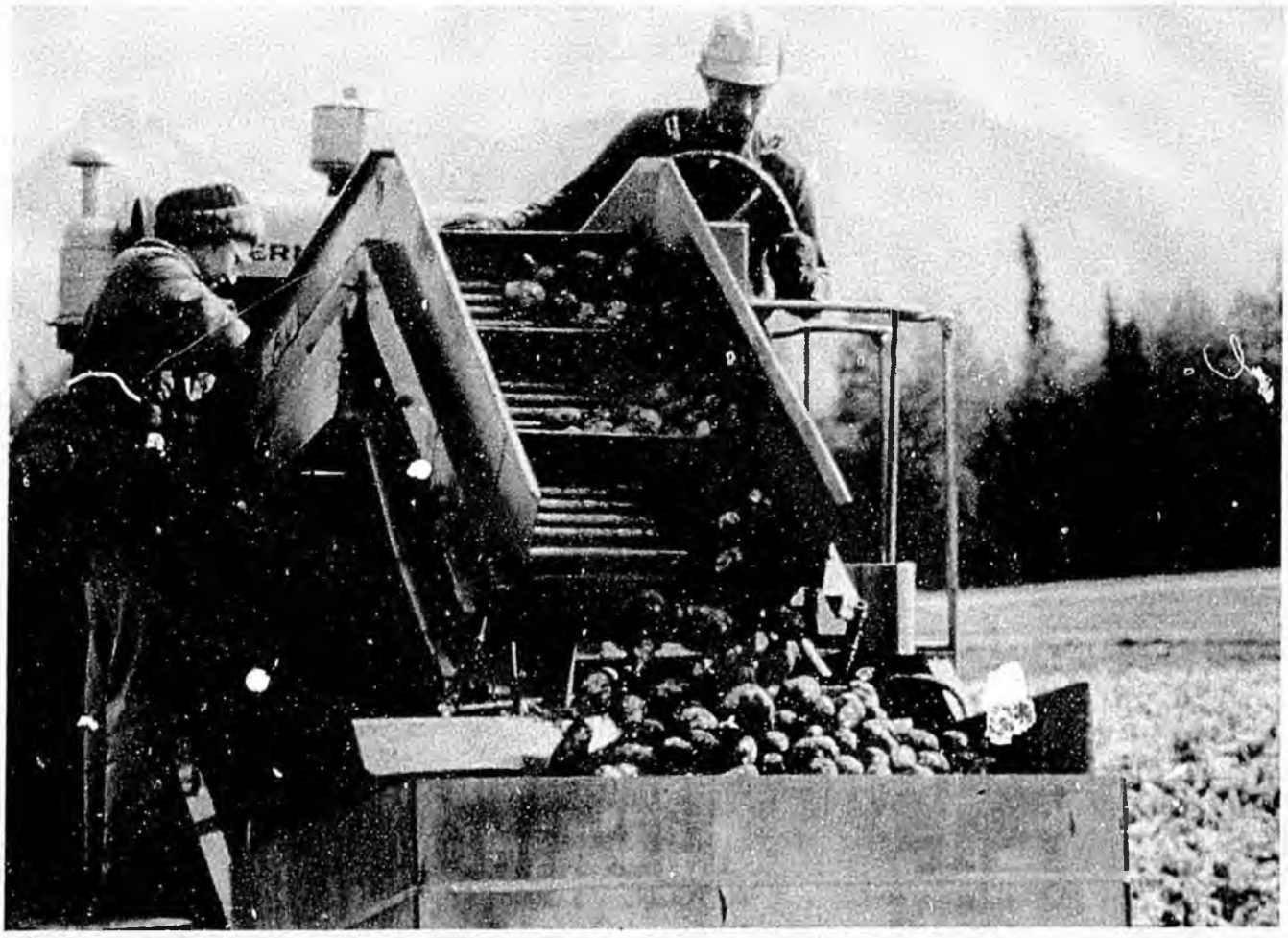
Potatoes

Most of Alaska-grown potatoes come from the Matanuska Valley. In 1981, they made up 43 percent of the fresh potatoes eaten in the railbelt area, or 23 percent statewide. Of the 500 acres in potatoes in Alaska, approximately 395 acres are in the Valley.

Local potato growers are not able to supply the in-state market for frozen, or otherwise processed potatoes, because few persons have been able to finance the mechanization necessary for producing, storing and marketing. In Alaska, as in other potato growing regions, consumption of processed and frozen potato products, mainly french fries, exceeds consumption of fresh potatoes. Processing in Alaska is a "must" if Alaskan growers are to supply the Alaskan market. Processing also means less waste, since only the top-graded potatoes are desirable for retail. The lesser grades — those potatoes that don't conform to size and appearance — are generally used for processing. A small start has been made by a farmer/processor team in Palmer. They fresh-process potatoes for use as hash-browns, sliced, and french fries by Anchorage hotels and restaurants. Valley potatoes are also being used by an Anchorage potato chip manufacturer.

The Matanuska Valley is an excellent place to grow potatoes. The Valley's freedom from troublesome insects of the potato such as the Colorado potato beetle, white grubs and tuber worms, and near-fredom from blights and viruses make this an outstanding environment for producing insect- and disease-fee seed for home and export. It is important for the State of Alaska and the US Department of Agriculture to maintain disease-free potato breeder stock, from which growers can grow seed potatoes. Seed potatoes brought into Alaska are much more likely to spread diseases, such as ring rot and black leg, and to permanently disease fields.

Many Alaskan consumers do not know that their homegrown "Snowchip" and "Bake King" varieties are better baking and table potatoes than the heavily publicized Russet potato from Idaho.



Vegetables

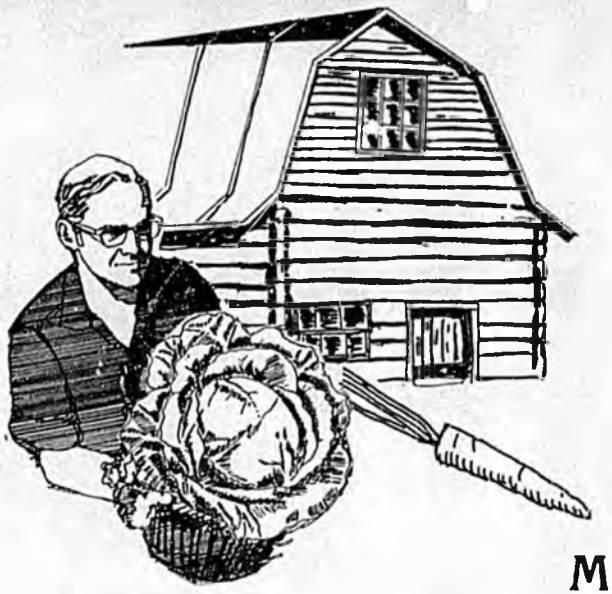
233 acres were devoted to growing 2,075,500 pounds (1,037 tons) of field vegetables in 1981, with an average production value of almost $2,750 per acre. These vegetables include peas, carrots, broccoli, cauliflower, beets, squash, parsnips, cabbage and lettuce. They are all very well adapted to the Alaskan climate.

The flavor of Matanuska Valley vegetables is unsurpassed. Compared with imported produce, Alaskan vegetables excel markedly in sweetness and succulence. These premium products are in demand during the growing and harvest season, and with organized processing, marketing and promotional inputs will have an even wider market.

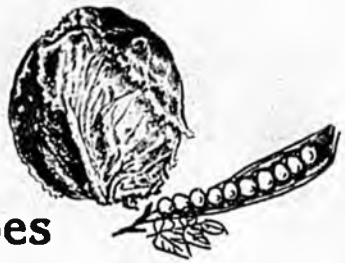
Most Mat-Su Valley vegetables are used for home consumption. They are available from roadside stands on well-traveled highways, or are delivered to retail outlets. Home freezers allow for year-round consumption by those buying from the farms either in bulk or in the "u-pick" manner. These home freezers are almost the only processing facilities available, besides home canning. The development of a processing industry has been thwarted by a previously limited Alaskan market, but with the larger population, the volume needed now should support a freezing industry.

Until 1982, perishability limited field production of a variety of vegetables for the Alaskan market.

More land than ever before is now being utilized for various vegetables. The dollar yield per acre is highest for vegetable crops compared to any other uses.



Supply & Demand for Mat-Su Vegetables & Potatoes



	1981 LEVEL				How many tons of vegetables on how many acres does it take for Mat-Su to supply:								Annual US per capita consumption fresh & frozen Lbs.
	Mat-Su produced Tons	Grown on Acres	Mat-Su supplied Percentage of Consumption by Railbelt Pop.	by Alaska Pop.	60% of Railbelt pop. Tons	Acres	100% of Railbelt pop. Tons	Acres	60% of Alaska pop. Tons	Acres	100% of Alaska pop. Tons	Acres	
Cabbage	192.5	34	18.5%	10.0%	627.0	110	1,045.0	183	1,140.0	204	1,900.0	340	9.0
Carrots	150.0	21	17.0%	9.0%	529.5	74	882.0	123	963.5	140	1,604.0	233	7.6
Lettuce	470.2	86	19.0%	10.5%	1,462.0	271	2,437.5	452	2,660.0	491	4,433.0	819	21.0
Misc.Veg.	225.0	92	13.0%	7.0%	1,038.0	424	1,730.0	707	1,887.0	788	3,145.0	1314	14.9
Potatoes	4,025.0	395	32.0%	17.5%	7,592.5	740	12,654.0	1234	13,805.5	1354	23,009.0	2257	109.0
		628				1619		2699		2977		4963	

1981 Alaska Population: 422,187
1981 Railbelt Popultion: 232,186

This analysis is simplified to show approximate values. It is based on 1981 statistics. No effort has been made to project population growth, or any contingencies. During 1981, Mat-Su's share of statewide agricultural production was 60% for Crops, and 70% for Livestock & Poultry.

Lettuce is a good example. Even though lettuce is planted in intervals so that one crop is supposed to be ready for picking each week during the short growing season, this has rarely worked due to unpredictable weather and a fluctuating market. Several growers have invested in vacuum cooling and storage systems that quick-chill the produce immediately after harvest. This enables them to be more flexible, and extend the season by almost three weeks. The system also widened the farmers' marketing field. The extended shelf-life capability makes it possible for the vegetables to be shipped anywhere in the state.

Vegetables such as peas, beets, leaf lettuce, radishes, turnips, parsnips, zucchini, broccoli, cauliflower and brussel sprouts took up 92 acres in 1981. Production value per acre averaged $1,858. 1981 was a very wet summer, and optimum yields were not achieved. 1982 also left many acres of vegetables under early snow.

The per acre yield for vegetables shows an increase over the past several years up to 1980, so greater production can be expected for 1983 and subsequent years if the weather allows.

Carrots were grown on about 20 acres for the last three years, enough to supply 17 percent of the railbelt population, and not quite 10 percent of all of Alaska with fresh carrots. Carrots are a very labor intensive vegetable, with a high production value of $4,571 per acre.

Cabbage is a major crop. Even though an outside expert suggested that Alaskans restrict themselves to growing five-foot wide cabbages for picture postcards rather than consider agriculture seriously, Matanuska Valley farmers have supplied an average of 360,000 pounds of cabbage annually for the past six years on just 23 acres. Eighteen percent of railbelt residents, or ten percent of Alaska's residents, dined on fresh cabbage, homemade sauerkraut, cole slaw and stuffed cabbage leaves.

Most of the fast-food franchises in Anchorage get their shredded lettuce from the Lower 48. On each bag they lose about one-third from spoilage incurred during shipping. If lettuce were to be supplied from Valley farms, the customer would get a fresher product, with no spoilage and waste to the franchise operator.

Beef Cattle

Cattle for beef come from two major sources in the area: from the dairy farms where bull calves and cull cows make up a fair share of the market, and from ranchers who ship cattle up in the spring, to be fattened on Valley rangeland. Most of the beef cattle is marketed by the individual producers and sold to individuals. At times, a small percentage goes into manufactured beef, where the carcasses are ground for hamburger and other processed meats. Some cuts of Alaska beef are intermittently sold at retail on a supply-available basis

Beef sold from Valley sources supplies only one percent of the railbelt, and not even one-half percent of the statewide market. 1981 production value was $320,000, with 274,000 lbs. dressed weight available, which translates roughly into 350 head on the hoof.

Cattle consume eight to ten pounds of grain for every pound of meat produced. Any growth in cattle production will cause an immediate demand for Big Delta barley and additional forage and hay.

Eggs & Poultry

One commercial producer in the Valley, using two facilities, supplies the railbelt area with fresh eggs, which in 1981 amounted to a total of 412,000 dozen.

Since shipped-in chicken feed is expensive, it is difficult for the operator to compete with prices for outside eggs. Eggs from outside of Alaska are often on special at the retail level, with the stores making no profit on this item to attract the consumer. A locally developed feed base will reduce feed supply problems, and make local eggs more competitve, to garner a larger share of the market. In 1981, Matanuska Valley eggs comprised only 6.7 percent of the railbelt, and 3.7 percent of Alaska's market.

Poultry meat in Alaska is primarily a byproduct of egg production, providing a means of getting rid of older birds. There are no commercial broiler operations in the Valley at this time.

Pork

Pork, from 1972 to 1981, showed a steady increase, even though by 1981 not even one percent of the railbelt, and less than one-half percent of the Alaska market was supplied. Indications are that more hogs were raised in 1982 because of the availability of Delta barley, and the anticipated construction of another slaughter facility.

Even though hogs are more efficient feed converters than beef cattle, using 3.5 pounds of feed per pound of gain, barley must be available in sufficient quantities to be economical and cost competitive with Seattle and Canadian markets, before the hog producers can commit themselves to a large-scale operation. Some local producers believe that the Delta Agricultural project will be in a position to provide an adequate barley supply starting in 1983. With Point MacKenzie coming into production in 1984, feed from there also will enable producers to start enlarging confinement facilities, develop bigger herds, and plan for an increased share of the pork market.

Horses

There are more horses than cattle in the area. These estimated 2,000 animals are used for pleasure, show and breeding, at riding stables and for guiding and outfitting. They play a big part in the borough's tourism industry. Breeders, owners and riders are organized in several horsemen's associations which hold shows, maintain trails, teach riding and horsemanship to children and generally promote horse ownership and riding.

An owner cared-for horse eats a minimum of $1,200 worth of hay and grain a year, and requires veterinary and horseshoeing services of $200 annually. A commercially stabled horse costs $180 or more a month, or $2,160 a year, exclusive of any additional services. The annual production value of horses in the borough amounts to at least $4.5 million.

Sheep & Goats

Sheep and wool production is not significant in the Valley. There is one enterprise considered major for the area with an average of 90 head, two part-time farms with around 25 head, and a number of individuals, mostly 4-H and FFA-guided (Future Farmers of America), who have been marketing lambs, market lambs, mutton, wool and wool products on a small basis.

Wool that is not being used by local spinners and weavers is sent to the east coast of the United States to a commercial plant for scouring (washing) and spinning, to be shipped back and sold as specialty wool. For every pound of raw wool sold, the US Department of Agriculture pays the producer a certain percentage of the price received as an incentive to improve quality.

Sheep have to be kept in an electric fence or other entry-proof enclosure to minimize loss from stray dogs. They are grazed on pasture in the summer, supplemented with hay and grain. The flavor and texture of local lamb and mutton compares very favorably with shipped-in meat.

Goats are kept by private individuals. The meat and milk are mainly used by the producers, with the surplus being sold to individuals.

Greenhouses & Nurseries

Statistical information on greenhouse and other controlled-environment agricultural production has not yet been gathered. There are about eight major enterprises who grow bedding plants for flowers and vegetables, nursery stock, tomatoes, cucumbers and peppers. Based on greenhouse production statewide, it is estimated that these operations add a minimum of $180,000 annually in agricultural production.

The greenhouse season is generally March through October. Marketing to local retailers is difficult in light of their preference for a constant single-source, year-round supply. Local producers face stiff competition, as local vendors can expect greenhouse products coming in year-round from outside firms.

A successful greenhouse operation is considered one that includes a variety of product lines throughout the year. Vegetables, cut and potted flowers, houseplants, landscaping trees and bushes, bedding plants, and regenerative vegetation, such as sod and young saplings for reclamation and reforestation are all greenhouse products.

The greenhouse enterprises are, and have been for an extended period, the largest single segment of Alaska's agricultural industry.
—University of Alaska
Institute of Social, Economic & Government Research, June 1976, Vol.XIII, 2

Ornamentals

Oldtimers, such as Bill Hoskins who came to the Valley over 50 years ago, and new residents of the state enjoy the beauty of hardy, Alaska grown ornamentals.

With the construction of roads, homes and office buildings in southcentral Alaska, there is an expanded market for Alaska grown landscaping material — trees, shrubs and ground cover.

Commercial ornamental horticulture includes the production of plants for ornamental use, their sale, storage and marketing, and the service of on-site advice and maintenance. The demand for locally grown, adapted plants for use as ornamentals around homes and business places, on public grounds and indoors is not nearly being supplied by Matanuska-Susitna production. This demand includes native plants as well as hardy exotics. Many imported ornamentals are poorly adapted to the Alaskan climate and succumb to winter stress.

Most of the work on Alaskan foreign ornamentals, such as Siberian crab apples, has been done by the University of Alaska Experiment Station and the Plant Material Center of the State Division of Agriculture near Palmer. Among other plants, the Plant Materials Center is working with a number of Russian and Canadian crabapples, various ornamental pines, grasses for revegetation and soil stabilization (slough grass, wheat grasses, beach wildrye), five different willows, some ornamental and some for revegetation. Alaska ornamentals such as dogwoods, cinquefoils and blueberries and exotic ornamentals such as roses and lilacs.

CRAB APPLES

At the Alaska Plant Material Center near Palmer various apple rootstocks are being compared with the proven Siberian crabapple. The Siberian crabapple and the Columbian crabapple have been used as hardy rootstock in Alaska. The new rootstocks being evaluated were developed in other northern latitude countries for hardiness in their cold climates. One new crabapple, *Malus sp.* "Wein," was developed in the Fairbanks area and is being evaluated for its potential use as a rootstock and an ornamental. Some of the rootstocks, which are being propagated, were developed in the Soviet Union.

The apple varieties "Noran," "Norcue" "Norda," "Noret," and "Norhey," which were developed at the Canadian Research Station at Beaverlodge, Alberta, are among the seventeen varieties brought into the Plant Material Center as scion wood last winter. Many of the other varieties that were acquired were developed at other Canadian research centers or in the Soviet Union.

Nugget — A Very Special Grass

Lawn grass varieties from the other states and Canada frequently are damaged or killed during severe Alaskan winters. Alaskan agronomists have traveled hundreds of miles during the past two decades by road, air, and riverboats, collecting native and naturalized grasses in Alaska. These were then tested in research trials for suitability for use as turf, forage, and soil stabilization. One outstanding collection of Kentucky bluegrass was extremely winterhardy, formed beautiful turf when mowed, and produced high yields of seed.

This discovery was named "Nugget" and released as an Alaska-adapted variety of bluegrass. It is proving useful both in Alaska and elsewhere — it was even planted for turf in a soccer stadium in Norway.

Alaskan growers of Nugget bluegrass seed have made more profit from this "nugget" than many prospectors who toiled for wealth in searching for other nuggets.

Rape

Rape (of the mustard family) for lubricating and cooking oils, and livestock feed,may have a future if more land is available. Rape varieties grown in more southern climates are too toxic to be used as feed crop after the extraction of its oil. Because of high erucic acid and glucosinolates, the oil for human consumption is not allowed in many countries. In recent years, Canada developed varieties, marketed as "Canola," that exhibit low concentrations of undesirable erucic acid and glucosinolates. They grow well in the Valley and are promising for use both as oils and feed. Large fields of these yellow plants are very visible in Scandinavia and Canada; in fact, rape is Canada's second largest export crop after wheat.

Seed and Turf

Statistical information is also lacking for seed. Native grass seed for revegetation, Alaska adapted, certified barley seed, poppy and wildflower seed has started to become a major crop in the Valley. Some resident seed growers have experimented with turf production, but have been restricted by the amount of available acreage. Land good for turf is also good for higher-yield vegetables.

Production of turfgrass seed for use in Alaska can be accomplished both in Alaska and in areas outside the state. However, the "Foundation" class of seed of Alaska-developed turfgrass varieties must be produced within the state, while the "Certified" class of seed may be produced either locally or outside of Alaska. Production of living turf for transplant represents an area ripe for small, but significant expansion. As more land becomes available, some of the deep soils in the Mat-Su Valley are suitable to grow turf for market as effectively as is done in the lower states. The transplanting of turfgrass sod provides instant turf where it is preferable not to wait for normal germination and establishment of planted turfgrasses. Sodding is an especially useful alternative where soil erosion potential is high or the appearance of an established lawn is desired immediately.

Honey

Honey production has increased in the Valley over the past few years, due to the growing consumer demand for natural foods. Most producers sell their honey at about $3.00 a pound. There are about 160 beekeepers in the Valley. Their hives yield some 50 pounds of honey a year, and the estimated profit averages $50.00 per hive.

Fruits & Berries

Fruit crops, from cultivated strawberries and raspberries to the native blueberry, low- and highbush cranberry, red and black currant, lingenberry, salmonberry and serviceberry, abound in the Valley.

The cultivated, high-value cash crops need much attention; otherwise the crop is easily lost to weed competition, rodent destruction, moose browse, or winterkilling.

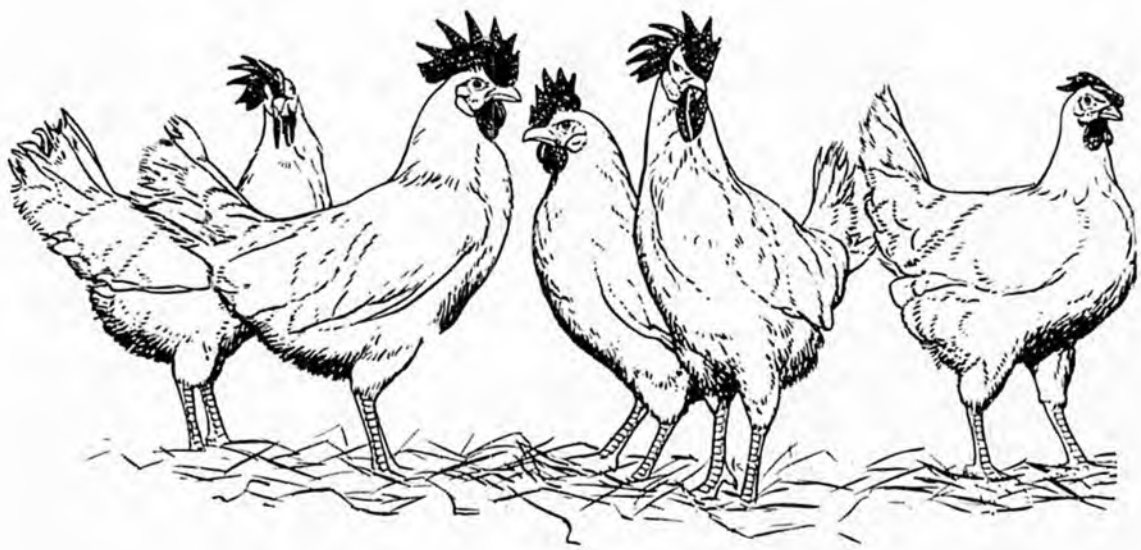
No significant commercial production has developed, although a ready local market in the Cook Inlet area exists for the fruit production from 15 to 20 acres of plants. Strawberries are mostly available on a "pick-your-own" basis to avoid high labor costs. Enterprises producing and marketing Alaskan specialty preserves seem to be eager to secure a good supply of berries, and inquiries for large amounts of blueberries have been received from overseas periodically, but not much effort has been made toward a cultivated fruit crop production. Most of the populace seems to be content with harvesting Mat-Su's wild berries in late summer and fall.

Small Livestock & Hobby Farms

Rabbits and small poultry flocks are common in all areas of the borough. These non-commercial enterprises, be they crop or small-livestock oriented, have always been an offshoot of any commercial farming community in rural areas. This is no different in Alaska's Matanuska-Susitna Valley.

In 1980, Anchorage and Fairbanks Stores imported roughly 12,000 frozen ducks, 1,800 frozen geese, and 7,700 frozen rabbits. Tanned rabbit pelts find a market at some furriers, who pay $3 to $10 each.

A fairly large portion of agricultural activity that is not reported for statistical purposes due to its part-time or "backyard" approach, does have an overall impact on agricultural production and economics within the railbelt area, and is an integral part of life in the Mat-Su Valley.



THE LAND

The Matanuska-Susitna Borough's 14,720,000 million acres extend from Point MacKenzie at the entrance of Knik Am north to the southern boundary of Denali National Park, and run the entire length of the Susitna River from its start in the Alaskan Range. The eastern boundaries of these 23,000 square miles reach into the Copper River country east of Lake Louise and the Nelchina Glacier, and its western borders go to beyond Skwentna, to the tributaries of the Kuskokwim River.

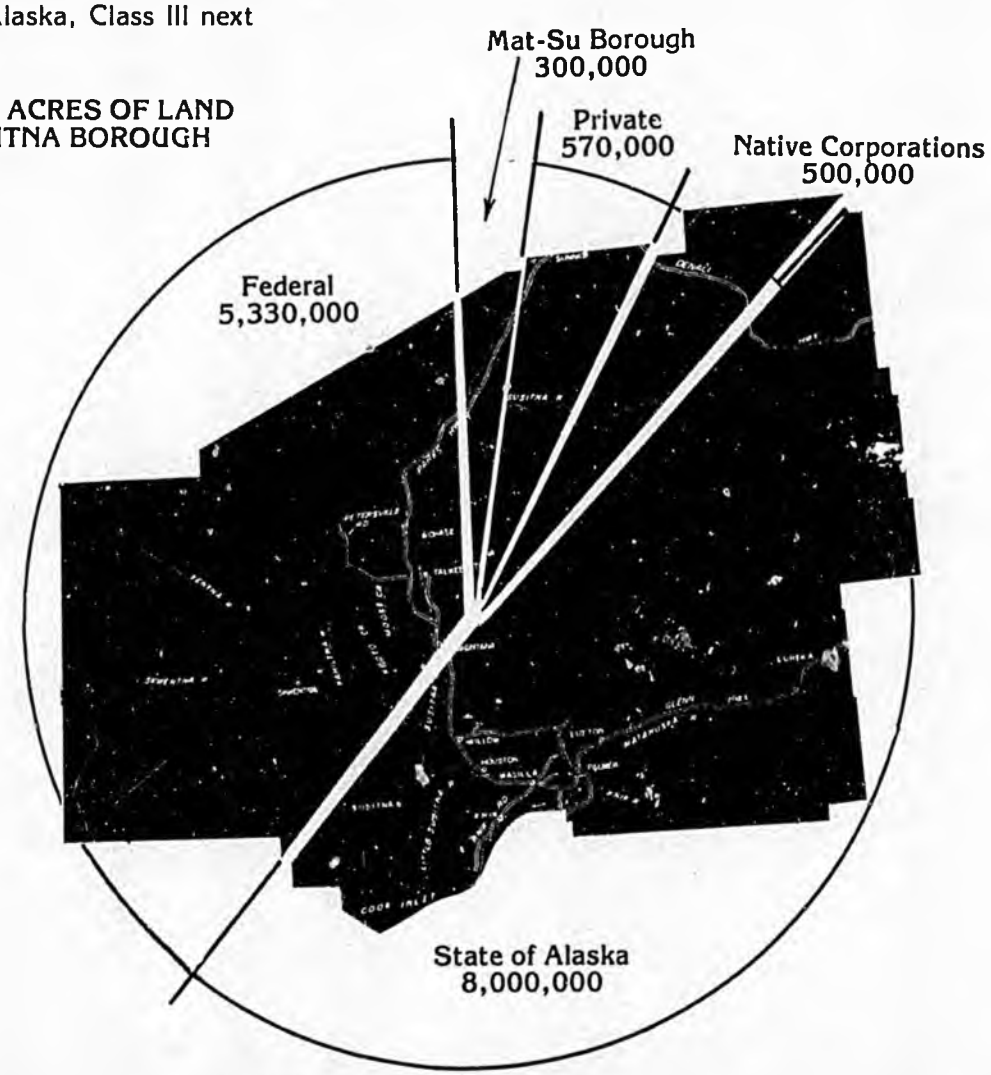
The borough is entitled to 355,000 acres within its boundaries.

The US Soil Conservation Service has classified 146,290 acres within the borough as Class II agricultural lands, and 213,660 acres as Class III, with a total of 359,950 acres suitable for agriculture.

Class II soils are the best in Alaska, Class III next best. Class IV soils, of which there are about 181,560 acres, are marginal for farming because of steepness, shallowness, wetness, sandiness, lack of fertility or other limiting factors, but are suitable primarily for grass crops. There are no Class V soils in the Matanuska or Susitna Valley areas. The approximately 541,000 acres of Class VI and VII soils are generally suitable for pasture or range. Poorly drained peat soils (muskeg) included in Class VII have few agricultural uses.

A little over 10,000 acres in the borough is reported to be in commercial agricultural production. Most of the producing farm land is concentrated in the "Old Colony" area. The best soils are found here. The Susitna Valley is the target for land yet to be developed, which is contingent on access-roads and bridges.

OWNERSHIP OF 14,700,000 ACRES OF LAND WITHIN MATANUSKA-SUSITNA BOROUGH



SOIL ASSOCIATIONS IN MATANUSKA-SUSITNA BOROUGH
according to U.S. Soil Conservation Service

Matanuska Valley

1. BODENBURG ASSOCIATION consists of gray, well-drained silty or very fine sandy upland soils that are deep over sand and gravel. This soil is the most intensively farmed part of the Matanuska Valley. It needs to be protected from the strong, gusty winds that occasionally reach gale velocity as they funnel from the upper reaches of the Matanuska and Knik River valleys.

2. DOONE-KNIK ASSOCIATION is brown to grayish-brown, well drained, silty upland soil that is deep to shallow over sand and gravel. It borders the Bodenburg soils north of Palmer and extends northeastward up the Matanuska River valley, several miles beyond Sutton. Many farms are scattered on the nearly level to rolling tracts of land. They are commonly separated by ridges, ravines, or other rough terrain.

3. HOMESTEAD ASSOCIATION is a brown, well-drained, silty upland soil, shallow over gravel and sand. Hilly moraines, high terraces, and benchlike ridges bordering the mountain foot slopes make up this association in the eastern and northeastern parts of the Valley. Knik soils generally are at slightly lower elevations than Homestead soils. There are a few scattered farms on this soil, but much of the terrain is too steep and rough for farming.

4. HOMESTEAD-KNIK ASSOCIATION is brown to grayish-brown, well drained, silty upland soil, shallow over gravel and sand. Hilly moraine, high terraces, and benchlike ridges bordering the mountain foot slopes make up this association in the eastern and northeastern parts of the Valley. Knik soils generally are at slightly lower elevations than Homestead soils. There are a few scattered farms on this soil, but much of the terrain is too steep and rough for farming.

5. HOMESTEAD-JACOBSEN ASSOCIATION consists of brown, well-drained, silty upland soils that are shallow or very shallow over gravel and sand; and dark-gray, very poorly drained stony soils in depressions. This association is the most extensive in the area and forms a broad belt that extends from the vicinity of Wasilla westward. Homestead soils, which are dominant, or on nearly level to steep, irregular hills and ridges. They formed in 5 to 15 inches of loess over gravelly material. The very stony, poorly drained Jacobsen soils are common along streams and drainageways and in low-lying sites bordering muskegs. Scattered fields and clearings are common on the well-drained, nearly level to rolling soils, which are generally best suited to crops that require only shallow tillage. Dense forests of slow-growing black spruce are common on poorly drained sites, including some muskegs.

6. HOMESTEAD-NANCY ASSOCIATION. Brown to reddish-brown, well-drained, silty upland soils that are shallow or moderately deep over gravel and sand, this association occurs in the northwestern part of the Valley. Most of this Association is forested, but there are a few homesteads along the roads. The few fields are used mainly for hay or pasture. Much of the acreage is too sloping, too shallow, or too poorly drained for farming, but scattered tracts of Nancy soils are nearly level to rolling, and are suitable for crops grown in the area.

7. KNIK-COAL CREEK ASSOCIATION are grayingbrown, well-drained, silty upland soils that are shallow over sand and gravel; and dark-gray, poorly drained in depressions.Nearly all of the land in this association is privately owned around many of the Valley lakes, such as Wolf Lake, Kings Lake, Finger, Wasilla and Lucille Lakes. Many of the early homesteads have made way for subdivisions and summer cabins, but some hay and vegetables still come from the area.

8. NAPTOWNE-SPENARD ASSOCIATION upland soils are brown and dark-gray, well-drained and somewhat poorly drained, and silty, moderately deep to very shallow over glacial till. They occur mainly on the west side of Cook Inlet and in the Lost and Twin Island Lakes area, as well as around the lakes southeast of Houston. The well-drained Naptowne soils, which are dominant, are on undulating to moderately steep, irregular slopes. In places they are stony near the surface. The somewhat poorly drained Spenard soils are in broad drainageways and in nearly level and gently sloping areas bordering muskegs. Much of the land is too steep, stony, or wet for cultivation, and fields that have been cleared are confined mostly to the less strongly sloping areas of Naptowne soils, which are generally suitable for crops, though stony in places.

9. SALAMATOF-JACOBSEN ASSOCIATION is very poorly drained, deep peat; and stony, very poorly drained on flood plains. It occurs in places along Goose Creek west of Knik and along the Little Su southwest of Houston and is not suitable for crops grown in Alaska. Except in isolated places, the vegetation is not even suitable for grazing, but is useful as food and cover for wildlife.

10. and 11. These two associations, the **Torpedo Lake-Homestead** and **Tidal Marsh-Clunie** soils are not suitable for farming. The first occurs in elevations from 500 to 1500 feet, and the latter made up of nearly level, low, almost treeless tidal plains bordering Knik Arm.

12. SUSITNA-NIKLASON ASSOCIATION occurs near the outlets of the Matanuska and Knik Rivers south of Palmer, as well as along Willow Creek. The soils are dark-gray, well-drained, silty or fine and sandy, that are shallow or moderately deep over coarser sediments on alluvial plains. Areas of these soils that escape flooding are suitable for cultivation, and all of the crops adapted to the area can be grown on them. Average yields are slightly lower on the Niklason soils, which are shallower than the Susitna soils and tend to be droughty. The areas that are flooded are suited to perennial grasses.

Susitna Valley

The knowledge of the make-up of the Susitna Valley soils is especially helpful in light of new farm areas to be opened. U.S. Soil Conservation Service and the Cooperative Extension Service in Palmer should be contacted for more detailed information.

1. RABIDEUX-SALAMATOF ASSOCIATION is dominantly nearly level to steep, well-drained silt loam that is shallow and moderately deep over sand or gravelly sand on uplands; and nearly level, very poorly drained, fibrous peats in muskegs. Rabideux soils make up about 50 percent of the association, Salamatof soils about 20 percent, and minor soils about 8 percent. It occurs along Moose Creek west of the Big Su, and in the Montana-Answer-Birch Creek area east of the Susitna River. Rabideux soils are on terraces and moraines. They formed in 15 to 30 inches of silt loam underlain by very gravelly sand or fine sand. These soils are well drained and are very strongly acid and strongly acid. Salamatof soils are in muskegs, where drainage is very poor and the water table is seasonally high. These soils were derived chiefly from sphagnum moss and are extremely acid. Among the minor soils are Chulitna and Nancy soils on terraces and Moose River, Killey and Kalifonski soils in depressions and on bottom lands along streams. The principal crops at this time are perennial grasses, barley, oats, potatoes and hardy vegetables.

2. NANCY-KASHWITNA ASSOCIATION. Dominantly nearly level to steep, well-drained silt loams that are moderately deep and shallow over sand or gravelly sand on uplands. This association covers a large area on both sides of the Susitna River and from Red Shirt Lake north to Trapper Lake and Montana. Nancy soils are on terraces and moraines and formed in 15 to 0 inches of silt loam underlain by very gravelly sand. Kashwitna soils are mainly on terraces. They formed in silt loam 10 to 18 inches thick over gravelly sand. Both of these soils are well drained, and are strongly to very strongly acid. Most of this association is wooded and is used as wildlife habitat, but a few tracts have been cleared and are used as cropland for perennial grasses, barley, oats, potatoes, and hardy vegetables.

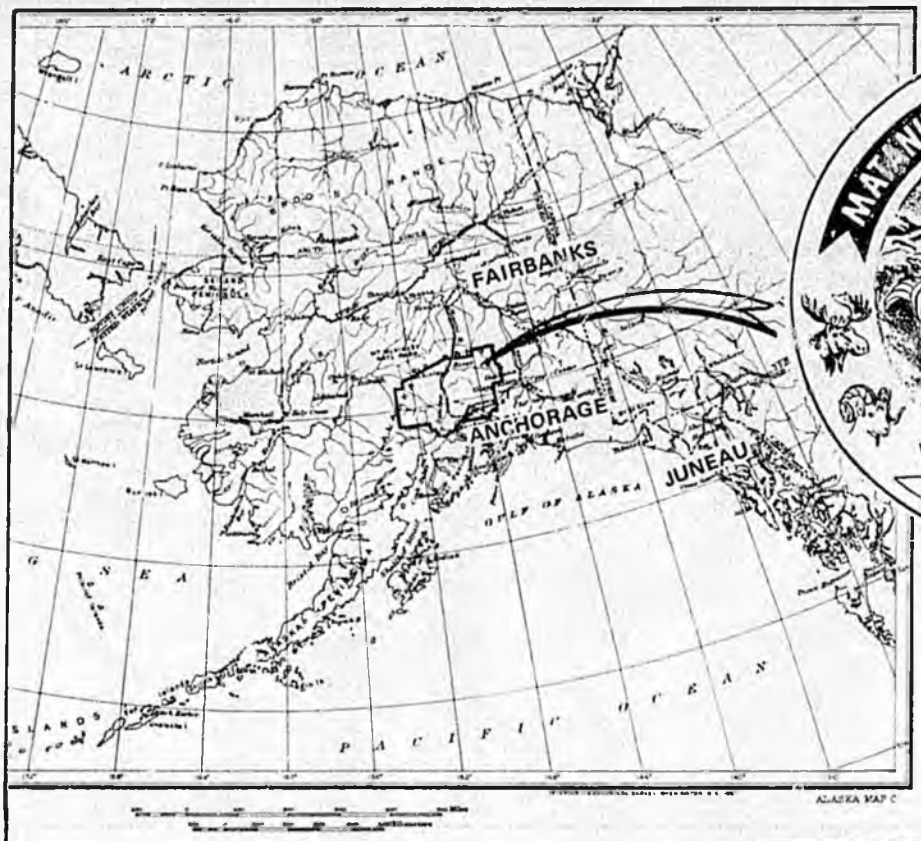
3. NANCY-DELYNDIA ASSOCIATION. These dominantly nearly level to steep, well-drained and somewhat excessively drained silt loams ae moderately deep and shallow over sand or gravelly sand on uplands. They occur along the Little Susitna River, Maguire Creek, and in the Flat Horn Lake and Fish Creek area. Most of the acreage is nearly level and undulating, but a few areas are rolling to moderately steep. Homesteaders near Flat Horn Lake and the settlement of Susitna have cleared a few acres for growing garden vegetables in the past few years. Otherwise, most of this association is wooded and used mainly as wildlife habitat, though a few trees are harvested for fuel and for logs.

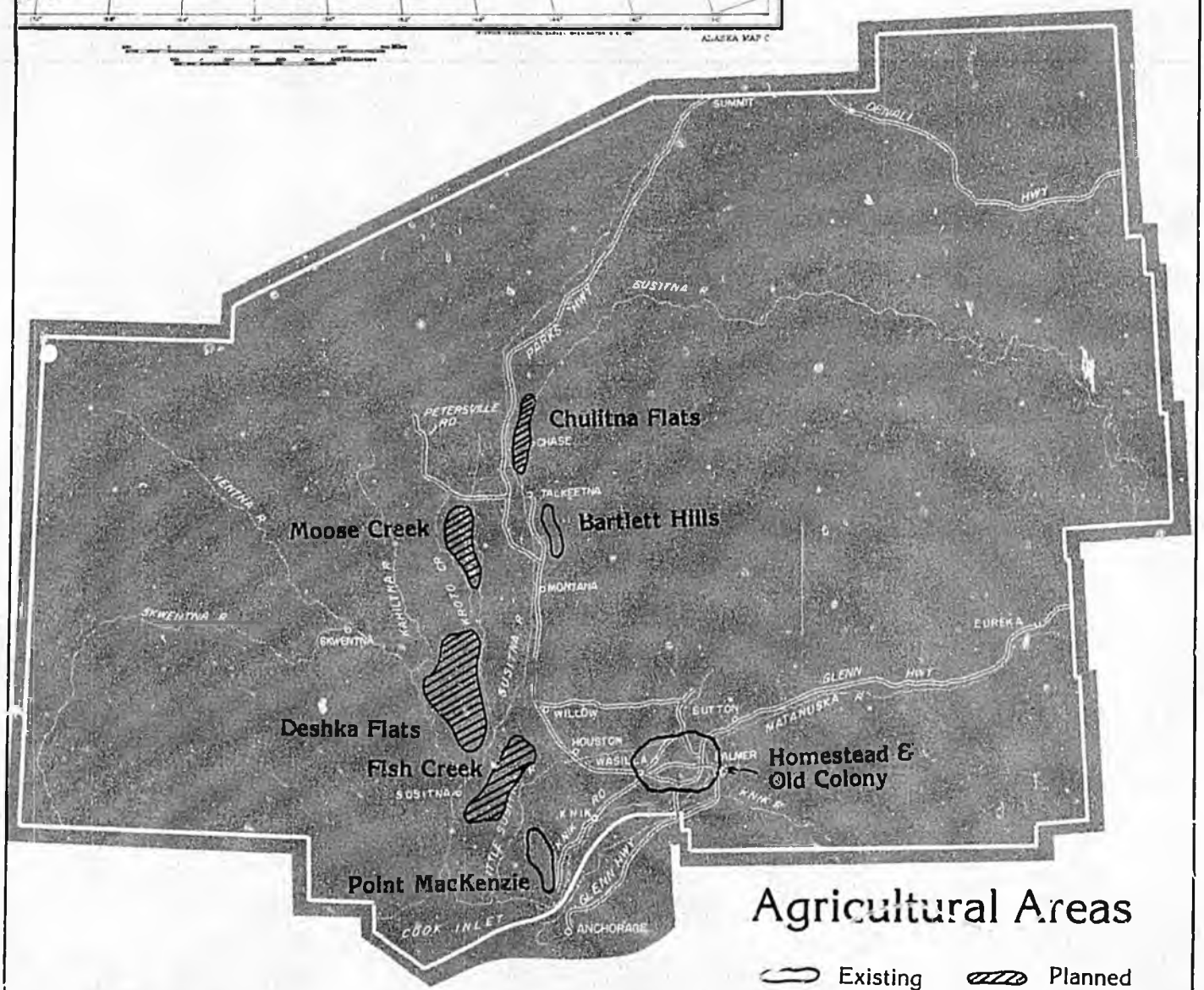
4. KASHWITNA-HOMESTEAD ASSOCIATION. Dominantly nearly level to steep, well-drained silt loams that are shallow and very shallow over gravelly sand or gravelly sandy loam; on uplands. This association occurs mainly east of the previous soil. Kashwitna soils are nearly level and undulating and are on outwash plains. They formed in 10 to 18 inches of silt loam underlain by very gravelly sand. These soils are strongly to very strongly acid, as are the Homestead soils. The Homestead soils are dominantly rolling to steep, but a few areas are nearly level. They formed in 5 to 10 inches of silt loam underlain by gravelly material. The areas so far have mostly been used as wildlife habitat and cabins for recreational purposes. Some trees have been harvested for logs and fuel.

5. SUSITNA-SCHROCK ASSOCIATION consists of dominantly nearly level, well-drained, stratified fine sandy loams and silt loams that are deep over sand or gravelly sand on alluvial plains. They occur in the northern part of the borough, and some of them are along the major streams and on large islands near the Susitna River. Many of the areas are dissected by secondary stream channels and oxbow sloughs. Homesteaders have cleared a few places along the roads for use as cropland, growing barley, bromegrass, potatoes, oats and peas for silage, as well as hardy vegetables.

6. CLUNIE-TIDAL MARSH ASSOCIATION In this area, as well as in the Matanuska Valley, is dominantly nearly level, very poorly drained, fibrous peats and poorly drained, clayey sediment, occuring on tidal plains, and almost bare of vegetation.

7. SALAMATOF-JACOBSEN ASSOCIATION occurs in various parts of the Susitna Valley and is dominantly nearly level, very poorly drained, fibrous peats in muskeg; and nearly level, very poorly drained, very stony silt loams along the edges of muskeg. The vegetation is mostly sphagnum moss, sedges, and low shrubs, but black spruce grows in a few areas.





Agricultural Areas

Existing Planned


Schrock Road
Palmer - Wasilla Hwy
Bogard Rd.
WASILLA
Trunk Rd.
Parks Highway
Loop
Fairview
Knik Road (To Point MacKenzie)
Glenn Highway

Old Colony & Homestead Areas

1978 BLM Photography
Scale approx. 1" = 2 miles

AGRICULTURAL AREAS

TESTING GROUND FOR ALASKA'S FUTURE

Old Colony & Homestead

The majority of the borough's farm products comes from the Old Colony and Homestead areas. The Homestead area is that part of the Valley that had been settled and farmed since the early years of the century. "Old Colony," as the name implies, is the area that has been farmed since the colonists came to the Valley in 1935. Much of the Old Colony land is part of the Homestead land, as many of the homesteads had been bought by the Alaska Rural Rehabilitation Corporation to be divided into smaller tracts for the colonists.

Farms along Trunk Road, Farm Loop Road, Fishhook, Springer Loop, Palmer, on Lazy Mountain and in the Bodenburg Butte area represent "Agriculture in the Valley."

". . . it will be a material help to the natives here to get them to raising gardens, as game seems to be getting scarcer every year, and unless the Government gives them some assistance they will, before long, have a hard time to live."

G.W. Palmer at Knik
to C.C. Georgesson
1898

Bodenburg Butte

This area is the location for the largest vegetable producer in the state, and is the home of the State of Alaska Plant Material Center. The Center selects and raises varieties of cereal grains, grasses, and oil-producing plants that can be adapted for Alaska. Some of the revegetated dunes in Iceland have been the recipient of seed from the PMC.

A large farm in the Bodenburg Butte area is being used for certified Alaskan seed production, mainly barley and grasses. The certified Alaska barley seed provides a much higher yield locally and in Delta than imported seed.

It is here that new strains of crops adapted to Alaska have been developed and tested. Had it not been for an innovative farmer in the Butte area who demonstrated that barley could be grown and marketed economically in Alaska, the incentive for the Delta Barley Project might have been lacking. Rapeseed was tested successfully in the Butte area as part of the same effort. This same farmer also was quick to see an opportunity when native grass seed was needed for revegetation of the trans-Alaska pipeline and road building projects. He started gathering, planting and harvesting grass native to Alaska, such as Nugget Bluegrass and Arctared Fescue, as well as Iceland Poppy for the beautification of Alaska roadsides.

The Valley's only commercial slaughter house and packing plant is in this area. A large Mormon welfare farm provides vegetables to members and non-members and maintains a vegetable storage and canning facility.

According to a US Army Corps of Engineers 1968 report, farming is the highest and best use of the land in the Bodenburg Butte area, as several of the farm lands had been flooded repeatedly since the turn of the century, and because of a high water table. A minor inconvenience is the absence of the sun for several weeks due to the proximity to Pioneer Peak. However, the area is sheltered from the fierce Matanuska winds in the winter, which means that the snowcover stays in place and winter kill is prevented

Lazy Mountain

Lazy Mountain was first homesteaded around 1912. This area yields mostly grain, hay and potatoes.

One of the larger greenhouse operations for bedding plants is located at its base, and is also a favorite spot for Anchorage pick-it-yourselv'ers. There is some cattle range on the mountain. Because of its terrain and greater distance from Anchorage, residential encroachment does not threaten farming there as much as it does in the flatlands of the Valley.

Palmer & Springer Loop

Vegetables and hay are the main crop for the areas near Palmer and Springer Road system. Most of the dairy farms are along the Springer Loop roads, as well as the state's largest egg producer. This is also home for the Alaska State Fair, Inc., where agricultural exhibits and horse shows are statewide attractions.

The University of Alaska Extension Service and Experiment Station, the US Soil Conservation Service, The State Division of Seafood and Animal Industries and Pesticide Department are in Palmer and have long given support to the surrounding farm community.

Vegetable growers use innovative techniques and extend the growing season, both early and late, to increase production. At the same time they increase employment opportunities for young people during the summer.

This area has attracted much residential development lately, a trend which is expected to continue.

Old Wasilla Highway & Trunk Road

The Old Wasilla Highway and the Trunk Road area especially can be considered one of the birth places of Alaskan agriculture, since the US Department of Agriculture established the Experiment Farm in 1915. This area boasts a large horse population, riding and boarding stables, horse breeders, and one of the major potato farms.

Farm Loop & Fishhook

The Farm Loop-Fishhook area is under heavy development pressure. Dairy, hay and horses, nurseries for ornamentals and berries, greenhouses for bedding plants and tomatoes have long been raised in this area. One of the newer ventures, sheep raising for wool and meat, provides most of the starter stock for 4-H and Future Farmers of America enterprises.

Fairview Loop

An agricultural outpost even during Colony days is the Fairview Loop area. Besides hay, its lands are being used for nursery stock research and propagation, production of berries, ornamentals and a variety of crops by a researcher-turned farmer, whose offspring has been in fierce competition with the "largest-cabbage-establishment" at the annual Fair. It is a favorite location for horse owners, and boasts the largest hog farm, among others, in the Valley.

ACRES HARVESTED IN MATANUSKA VALLEY
1941 - 1981

1941	*4,500
1948	*6,000
1965	8,775
1966	9,865
1967	10,294
1968	9,750
1969	8,740
1970	8,603
1971	8,842
1972	10,620
1973	10,889
1974	11,910
1975	11,281
1976	11,319
1977	9,859
1978	11,041
1979	10,928
1980	10,071
1981	7,150

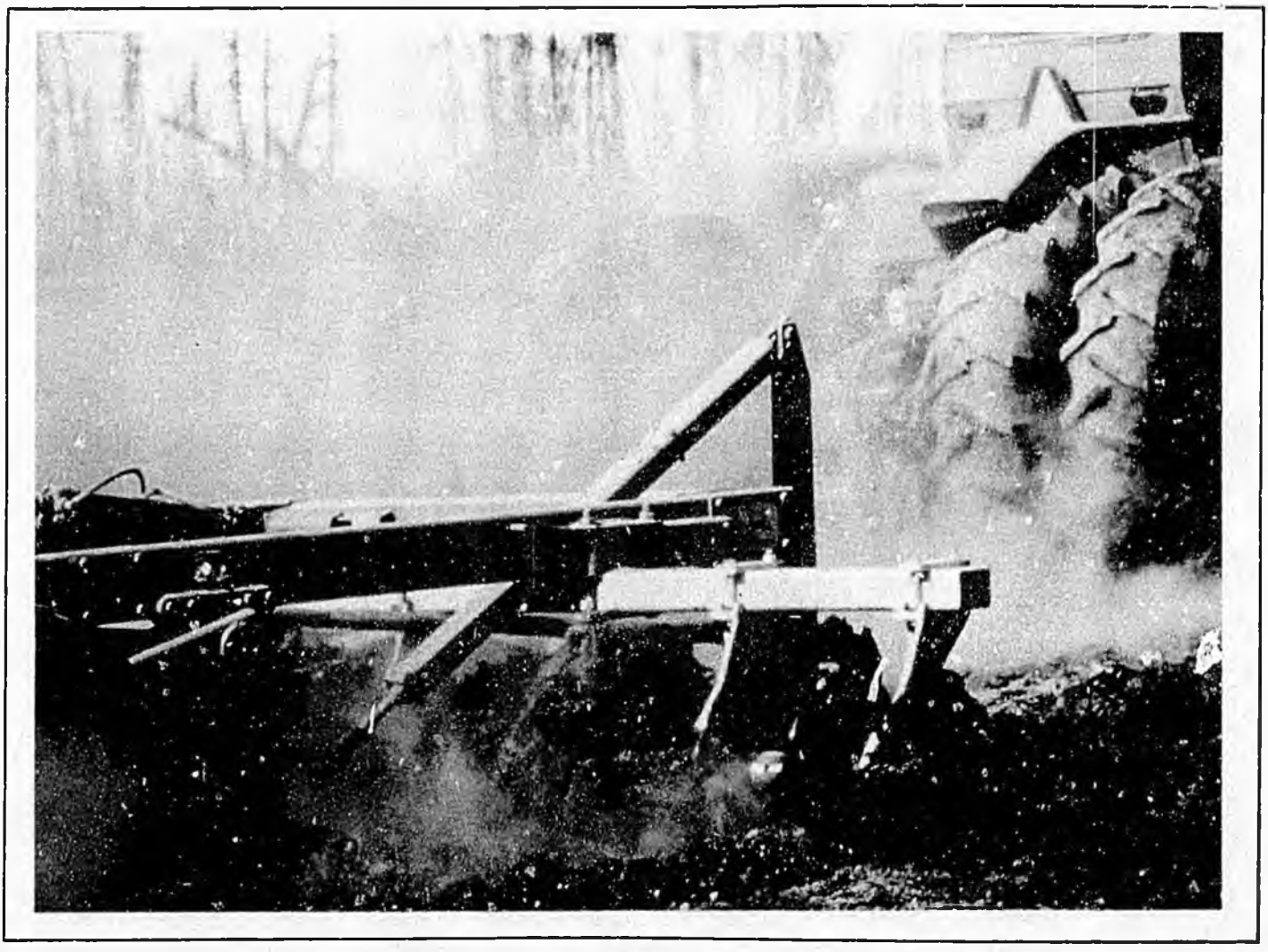
*This could possibly have included planted areas.

Agriculture Projects

Land that has been made available to the public through state or borough sales or lotteries in recent years as "agricultural," and large blocks of land with identified good soils are considered "new lands."

These lands might be better described as "frontier lands." It is raw land, mostly inaccessible by road, whose fertile soils have to be cleared and worked for many years, before anything but forage and grain can be grown successfully.

For Alaska to become less dependent on imported food, and for agriculture to succeed as an industry, these new lands need to be added to the existing producing land. With a purposeful state and borough program for making more farm land available, production can be increased to meet the accelerating demand for Alaska grown food.



Existing farm areas that have road access are:

	acres
Homestead & Old Colony	10,000
Borough Sales	7,000
Point MacKenzie	15,000
	32,000

Projects that are considered for road access in the next several decades are:

Fish Creek	18,000
Bartlett Hills	8,000
Moose Creek	10,000
Deshka Flats	10,000
Chulitna	10,000
	56,000

. . . "Alaska is the only place in the world that still has 20 million acres of potential farmland. The oil's going to be gone, but the potential for agriculture's always going to be there."

—Pat Mulligan
President
Alaska Farmers/Stockgrowers Assn.

Part of the Point MacKenzie agriculture project from the air in the winter of 1981. At that time, the project was stalled and awaiting court action.

Point MacKenzie

This 15,000 acre agricultural project is south of the Big Lake area, immediately east of the Little Susitna River and 10 miles northwest of Anchorage as the crow flies.

About 900 acres at the northwest corner were owned by the borough, until the borough sold two dairy farms at the state lottery in 1981. The remaining 13,900 acres were sold in September of 1982 as 29 farm sites. Parcels were awarded by lottery with a payment of about $125 per acre being required, 5 percent down, 12 percent interest, and the remaining balance being paid off in nineteen annual installments. Approximately 60 percent of the parcels, or 17 farms, are classified as dairy parcels and approximately 40 percent, or 12 farms, are classified as non-dairy. All winners must clear and plant 40 percent of Class II and III soils on their parcel by late 1985 and 75 percent by 1988. Farmers who won dairy parcels are required to milk about one cow for every three acres of forage, besides meeting clearing deadlines.

The Point MacKenzie Project is a State of Alaska Agricultural Action Council project and the terms and conditions for the sale were similar to Action Council terms used at Delta.

The Mat-Su Borough has built 16.5 miles of farm-to-market roads within the project area at a cost of $912,000 in state road monies. In addition, access to the agricultural site is provided by a high standard road from the end of Knik Road to the project area, which will later become a major road to a Knik Arm crossing from Anchorage.

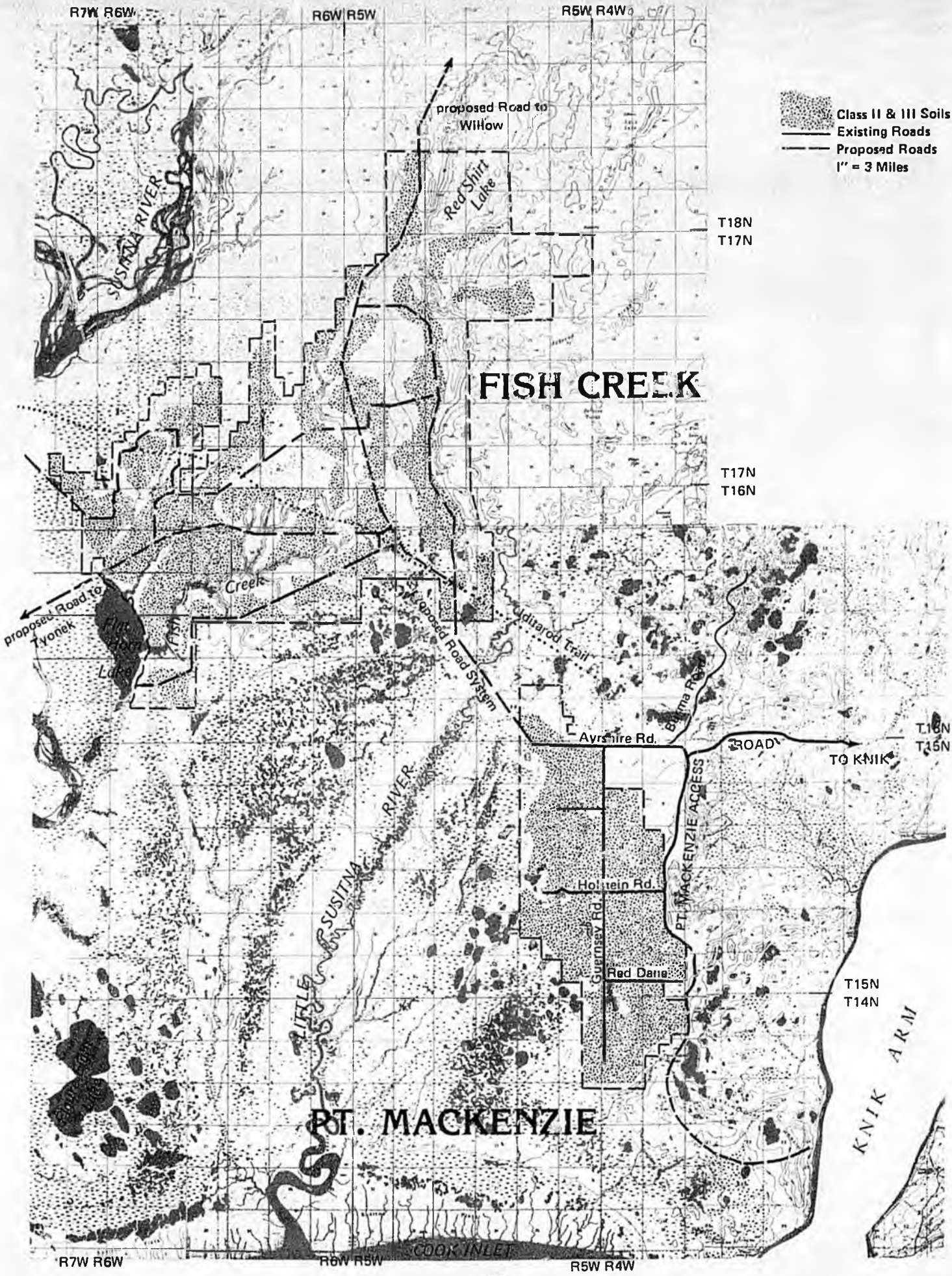
Fish Creek

This project is also called "Point MacKenzie Project No. 2." The borough assembly has asked the state to add Fish Creek as an Agricultural Action Council project.

This area is about 15 miles northwest of the Point MacKenzie project. It has about 18,000 acres, of which 14,000 are Class II and III agricultural soils. The entire project area comprises about 45,000 acres. The soils in this area are generally deeper and better than Point MacKenzie soils. The state owns about 8,000 of these acres and the borough owns about 10,000 acres.

The area has been tentatively broken up into farm parcels and greenbelt areas along streams which are not to be cleared. Road corridors and a corridor for the Iditarod Trail have been identified. Arterials, collectors and farm-to-market roads have been located leading to and within the project area.

The Fish Creek project will not be developed as an agricultural project until road access is provided either from the north from the Nancy Lakes direction along a moraine just west of the Little Susitna River, or from the southwest, from the Point MacKenzie project, where an existing extension of the agricultural road to a State Division of Parks wayside would bring a road almost to the Little Susitna River. The crossing at this southerly location is expensive because of the wide flood plain and could cost as much as $4,000,000. A southern crossing would provide much quicker access than a northern route. Any northern access might develop through progressive logging operations southward from the Nancy Lake area.


R7W R6W
R6W R5W
R5W R4W
proposed Road to Willow
Red Shirt Lake
SUSITNA RIVER
T18N
T17N
FISH CREEK
T17N
T16N
proposed Road to Tyonek
Fish Creek
Flat Horn Lake
Proposed Road System
Iditarod Trail
Burma Road
Ayrshire Rd.
ROAD
TO KNIK
T16N
T15N
PT. MACKENZIE ACCESS
SUSITNA RIVER
Holstein Rd.
Guernsey Rd.
Red Dane
LITTLE
T15N
T14N
PT. MACKENZIE
KNIK ARM
COOK INLET
R7W R6W
R6W R5W
R5W R4W
Class II & III Soils
Existing Roads
Proposed Roads
I" = 3 Miles

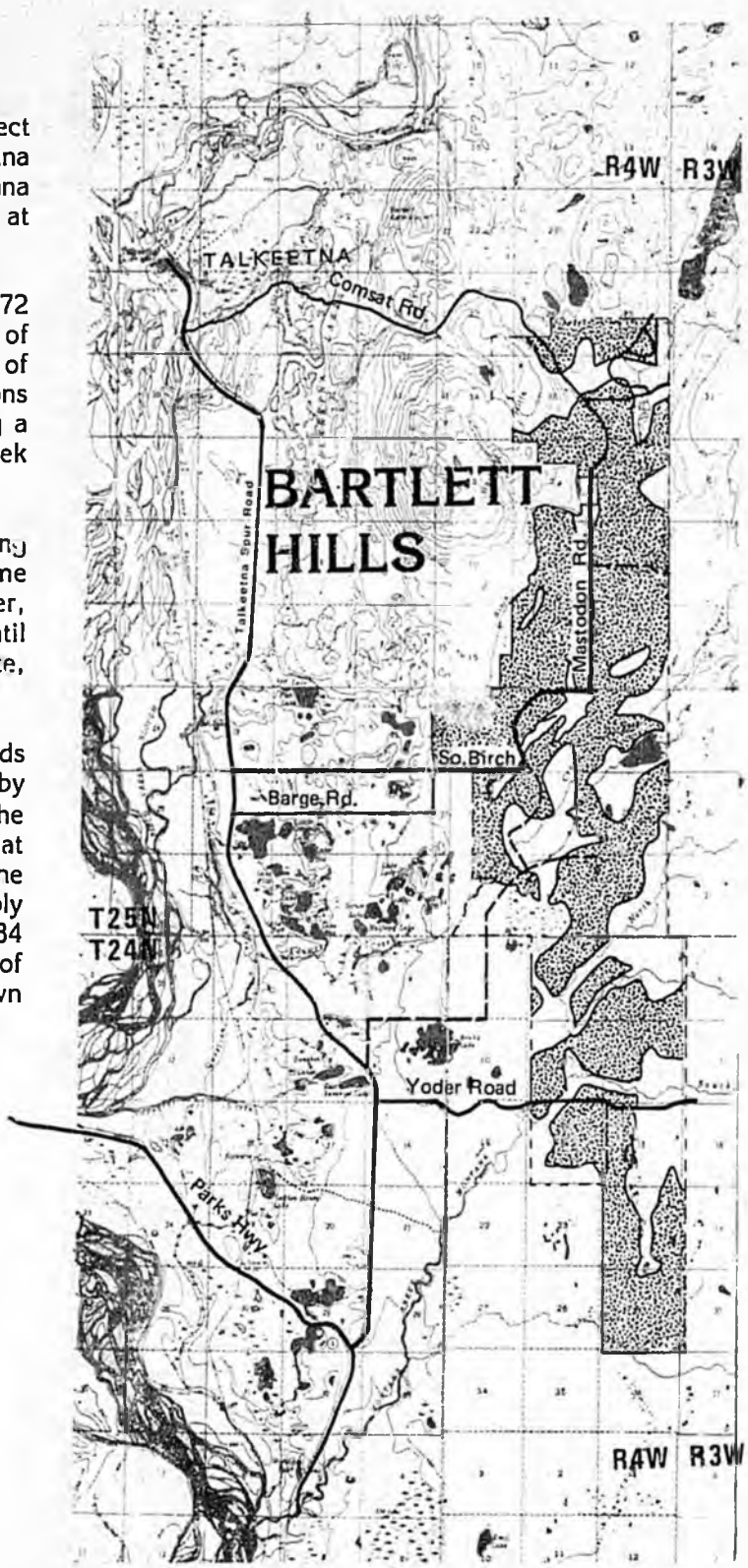
Bartlett Hills

Bartlett Hills is a long narrow agricultural project parallel to and about three miles east of the Talkeetna Spur Road. It runs from approximately Montana Creek at the south end to just south of Larson Lake at the north end.

In 1979 the State of Alaska sold about 8,172 acres of land as farms, with an average farm size of 320 acres. In addition, there are a number of five-acre recreation and homesite lot subdivisions along the eastern fringes of the project, including a subdivision project just upstream of Montana Creek Falls.

Persons obtaining farms are required to bring their farms under cultivation within a certain time period described in individual farm plans; however, they are not required to begin their farm plans until road access is provided to the area, which, to date, has not been done.

The borough has designed a system of farm roads for this area, which features access from the south by way of Yoder Road, from Talkeetna Spur Road by the Question Lake Road, from Talkeetna by Comsat Road, and a north-south road running through the middle of the project. The borough assembly included a request for $761,000 in its 1983-84 legislative priorities for construction of certain of these roads, particularly the north-south road down tthe middle of the project.



Class II & III Soils
Existing Roads
Proposed Roads
1" = 2 3/8 Miles

Moose Creek

There are at least 10,000 acres of Class II and III soils between Kroto Creek and Moose Creek just south of Moose Creek and just south of Oilwell Road. This is a long north-south area between two north-south streams. Oilwell Road heads south of Petersville Road a few miles west of Trapper Creek. A bridge has been designed for the crossing, which would cost $900,000 to build with approaches.

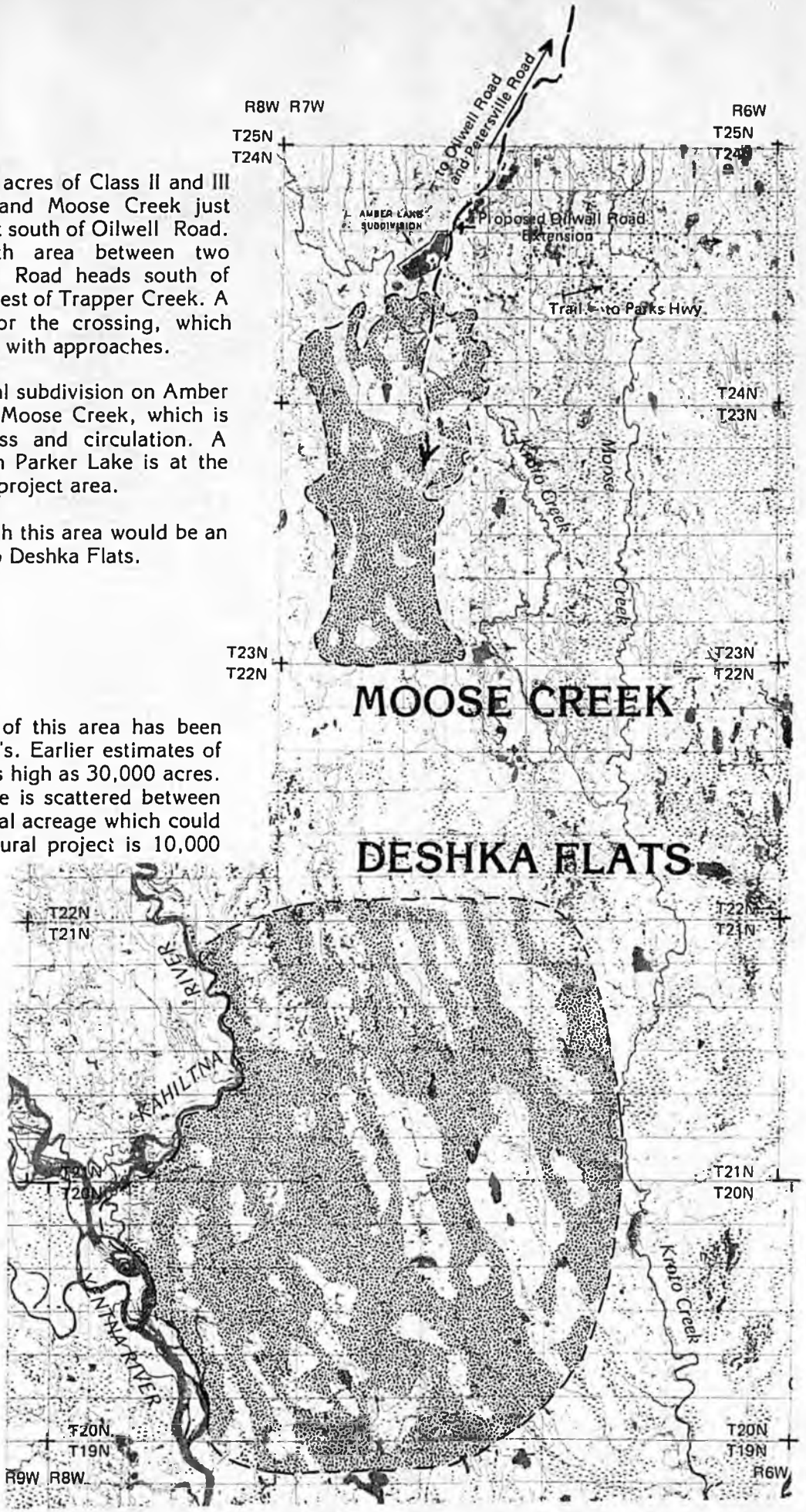
There is a major state rural subdivision on Amber Lake, several miles south of Moose Creek, which is designed for vehicular access and circulation. A proposed state subdivision on Parker Lake is at the southern end of this possible project area.

A north-south road through this area would be an initial leg of an access road to Deshka Flats.

Deshka Flats

The agricultural potential of this area has been discussed since the early 1960's. Earlier estimates of good Class II and III soils ran as high as 30,000 acres. However, much of this acreage is scattered between streams. A compact agricultural acreage which could be included within an agricultural project is 10,000 acres.

Deshka Flats is south of Moose Creek lands and is between the Deshka River, also called Kroto Creek, and the mouth of the Kahiltna River. The first part of the access road to these new lands would be the same as for Moose Creek. There are a number of small streams south of Moose Creek. None of these would be expensive to cross; however, the cumulative cost of crossing these streams would be high.



Class II & III Soils
Existing Roads
Proposed Roads
1" = 3½ Miles

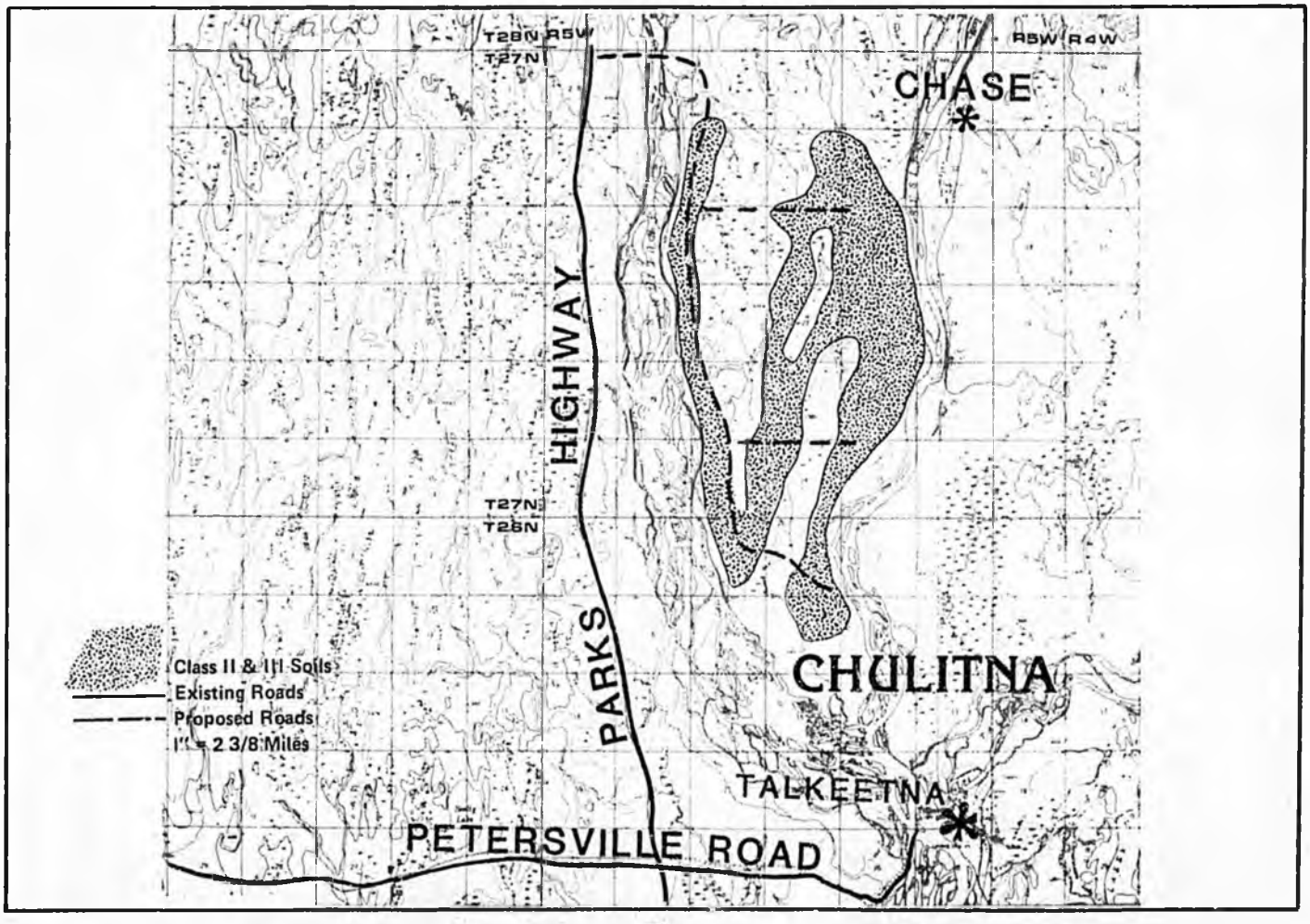
Chulitna Flats

There are at least 10,000 acres of Class II and III soils between the Chulitna River and the Susitna River just northwest of Talkeetna. This area, like Bartlett Hills and Moose Creek, includes land within a narrow north-south rectangle. In this case the eastern boundary is the flood plain of the Susitna River and the western boundary is the flood plain of the Chulitna River.

The agricultural development of Chulitna Flats might be fairly distant, because a fairly long access road would have to be built south from the Parks Highway along the east side of the Chulitna River. This road would probably follow the original proposed alignment for the Parks Highway before the alignment was shifted from the Talkeetna side of the Susitna River to the Trapper Creek side.

". . . Nor is there any reason why Alaska should not produce all the butter and cheese consumed in the Territory. All that is required for the develpoment of these resources is (1) the immigration of a hardy, industrious class of people who can readily adjust themselves to the conditions, and (2) adequate transportation facilities."

A.C. True, Director
Office of Experiment Stations,
U.S. Department of Agriculture
1899



THE FARMER

There are numerous families in the Valley with decades of farming experience. Most of the dairy farmers have persevered in the dairy business for at least thirty years.

In addition, there is a new breed of farmers who are willing to stake their future on agriculture. Both categories of farmers are experimenting with new strains, new techniques and new marketing approaches.

The Point MacKenzie agricultural lottery held by the State of Alaska in September of 1982 attracted over 10,000 applications by 345 applicants for 29 parcels. At another agricultural lottery for parcels in the Mat-Su Borough up to 160 applications per tract were received.

Why such an increased interest in farming? The sales are for agricultural rights only. Carrying out the farm plan requires an enormous commitment of man hours, equipment, planning and financial resources. The new farms at Point MacKenzie call for an unusual dedication of an individual's resources. A minimum investment in a dairy — most of the Point MacKenzie farms are dairy farms — is about $300,000. An amount in excess of one million dollars can easily be invested in a 500-acre dairy farm.

This new interest in farming is partly brought on by the belief that Alaska has a ready market for home grown products. This new interest in farming is also a testimony to the accomplishments of the early homesteaders, colonists, their descendants and others who chose to become farmers in the Valley — the pioneers who showed the way for an agricultural industry in Alaska. They set the example; but they also made the mistakes that those following in their footsteps won't have to repeat.

Most of the Valley farmers live on their own farm and work their land. In addition, they often lease acreage. Some farmers operate under a lease agreement, or work on a share basis; one providing the land and the other the equipment and labor.

Leased farm land costs from $25 to $65 an acre, which is an insufficient return on property worth $2,000 - 4,000 per acre, but is an adequate return for land valued at its agricultural use. The disadvantage for any grower that has to lease his land, even though it is inexpensive, is that the lessee usually only has a short-term agreement, as some of the land is held for speculative purposes and future subdivision.

ECONOMICS

> ". . . Understanding of the markets will help us ensure that the money we spend to encourage development is spent wisely."
> Bill Sheffield, Governor
> State of Alaska

Marketing

The Valley farmer has a product to sell that is in many ways, not just flavor, superior to shipped-in food. Many insects, diseases and some weeds associated with vegetable production in the lower 48 states are not present in Alaska.

Alaskan producers face strong competition from the Lower 48 in all areas of agricultural production.In spite of transportation charges, producers from the Lower 48 capture 95 percent of the local market. This is generally due to lower production and shipping costs, and a highly organized marketing structure.

With the exception of dairy farmers, the Valley farmer has to market his own products. All eight Grade A dairies are affiliated with one of the two milk distributors in Anchorage, who also process the local milk in combination with shipped-in milk and dairy products from outside of Alaska.

The farmer receives an average of $21.50 per 100 lbs. of milk (or approximately $1.50 a gallon). The customer pays from $3.29 to 3.79 for a gallon of fresh local milk at the store.

One of the two largest hog farmers also operates the only slaughter facility, and offers his own and the meat products of others to the public. Pork and beef is mainly offered "on the hoof," slaughtered at the packing house, and sold to retailers, or to private parties cut, wrapped and frozen. Seattle market price for #1-2 hogs in October of 1982 was around $60.00 per cwt., for pork loins, also wholesale, $140 for a hundred pounds.

Vegetable growers make their crop available either by the "pick-your-own" method, at roadside stands, by individual contacts with fruit stands, restaurants and supermarkets, or through Palmer Produce in Palmer, the only vegetable buyer and wholesaler in the borough.

Success in marketing in most cases has been dependent on the ingenuity of the producer in finding markets, and servicing those markets.

Much of the marketing is done through advertising in the daily and weekly papers. One farmer mentions in the classifieds when he is about to harvest his peas, takes bulk orders, which are then ready to be picked up by customers at a specified time. Other farmers make the rounds of restaurants or stores to sell their products. Once they have proven that they can deliver a continuous supply, they may have a steady market. Veal has been raised on order for one hotel, and the fresh-processed potatoes now available have proven to be a timesaver to several large restaurants, and a treat for their customers.

Seed and grain producers also have to rely on their own resourcefulness to find markets.

It is difficult for Valley farmers to compete in providing a wide range of fully processed food to Alaskan consumers at competitive prices, particularly where many customers have acquired store and brand preferences.

Most retailers are also locked into Seattle-based suppliers, where it is easier for them to order through their regular channels rather than depend on the sometimes unpredictable supplies from Alaskan farmers.

If Valley products are to be successfully marketed in Anchorage, a sustained and sophisticated program will be required to assure Anchorage wholesalers and retailers with the reliability and quality of the supply, and to acquaint the Anchorage consumer with the advantages of the home grown product.

Potential Markets

An estimated present demand exists for the railbelt area in excess of 25 million pounds table-ready beef and veal, including more than six million pounds of frozen, boned beef, based on a US per capita consumption of 109.6 pounds per year.

Pork is consumed at the rate of 70.2 pounds per person annually, for a total of 16.3 million pounds in the railbelt area. The railbelt area includes the Anchorage bowl, Matanuska-Susitna Borough, and the area up the railroad including Fairbanks.

If Mat-Su farms were to supply the existing railbelt market at the present population (in excess of 230,000 in 1981), the demand for some finished vegetable products would exceed 2,000 tons per year of frozen french fries and other potatoes, 300 tons of frozen peas, and 400 tons of other frozen vegetables commonly grown in the Valley.

Export Markets

Several vegetable and grass seed varieties have been exported over time. The Mat-Su Valley developed grass seed varieties, Nugget bluegrass and Arctared fescue, are now receiving considerable attention. Nugget is being used in the U.S., Canada, Great Britain and Scandinavia and is being tested for registry in the European Common Market countries.

The Alaska Crop Improvement Association is participating in a proprietary agreement with a stateside seed company to extend production and marketing of Nugget bluegrass worldwide.

Few other products have been exported because of the inability to stage exportable quantities at a given time.

Foreign buyers have expressed interest in Alaska beef for several years.

There exists an interested, but undetermined foreign market of considerable scope for pork. Japanese import markets for pork have expanded significantly in recent years. Canada's pork producers are supplying a large share of this demand.

"For every dollar of cattle sales, poultry sales, dairy sales, you generate another two dollars of economic activity somewhere in the economy."

Dr. T.L. Wallace
Professor of Ag. Economics
Univ. of California, Berkeley
—1982 in Anchorage

Financing

Commercial farming is big business. Financial solvency is a must. There are several major sources of financing for farmers: The State of Alaska Agricultural Revolving Loan Fund, the USDA Agriculture Stabilization & Conservation Service, The Alaska Rural Rehabilitation Corporation (ARRC), the Alaska Commercial Fisheries & Agriculture Bank (CFAB), the Alaska Renewable Resources Corporation, Farmers Home Administration (FHA), Federal Land Bank Association, and the Spokane Bank for Cooperatives.

Capital Costs

DAIRY — The cost to an established dairy farmer in the Valley in 1979 per cow was $2,636 according to the Alaska Crop & Livestock Reporting Service. The figures for 1982 are not available, but with inflation should have reached the $3,000 mark per cow. This would bring the value of an existing 100-head dairy to $300,000, a figure considered low. It is estimated that the per-cow investment for a dairy farm at Pt. McKenzie is $5,000, in addition to the approximate purchase cost of $100 per acre, plus the clearing cost of $270 per acre.

MEAT — Capital investment for a meat processing plant, equipped to handle 300 hogs and 100 head of beef a week for the wholesale market, will be around $2 million. This is the amount that was loaned by the State Agriculture Action Council in March, 1983, for the construction of the facility to be located in the Mat-Su Valley.

BEEF CATTLE FEEDLOT — Initial investment for a 1,000-head beef cattle feedlot including trench silos, 3-sided feed bunks, watering equipment, building, tractors and hauling carts was estimated at $750,000 in 1981. Not included in the cost figure was a waste management system and the cost of shipping feeder calves from outside Alaska.

VEGETABLE PRODUCTION — Development of agricultural land for vegetables includes the initial cost of land clearing, draining, leveling, fertilizing and the capital cost of buildings, machinery and equipment. Initial costs for large scale vegetable production (120 acres of potatoes or peas), excluding storage facilities, was estimated to exceed $250,000 in 1981.

VEGETABLE PROCESSING. The development of a vegetable processing industry has been thwarted by limited production and a limited market in the past. If Mat-Su farms were to try and supply the existing railbelt market, with a need for 1,800 tons a year of frozen french fries, 200 tons of frozen peas, and 300 tons of other frozen vegetables, a vegetable freezing plant is a necessity.

A 1981 study commissioned by the borough estimates capital costs of $2,000,000 with labor requirements at 34 full-time and part-time line and semiskilled workers plus managerial personnel. This number is based on staffing a facility large enough to supply fifty percent of the railbelt market. The plant would enable vegetable growers to market their crop year-round.

Production Cost

VEGETABLE & POTATO Growers have a high production cost per acre. Based on a 10-acre irrigated cabbage field, the cost per acre is $1,595, for lettuce it is $1,434. Irrigated potatoes, based on 40 acres, cost $1,735 per acre, non-irrigated the farmer has to invest on the average $1,480.

HAY — If 30 acres are in hay, the per-acre cost for irrigated hay is $461, non-irrigated $342. These costs may vary depending on the prices for fertilizer and equipment available to the individual farmer. Non-irrigated barley on a 240-acre field comes to $174 an acre; for 1,000 acres it is $167 per acre.

The farmer's costs as they are computed in the above figures are shown to give an example of what's involved in producing one acre of hay without irrigation on a 30 acre field. Using the amount of fertilizer noted, and with the weather and all other factors cooperating, this acre should yield 2.5 tons of hay.

ESTIMATED PRODUCTION COST FOR 2.5 TONS OF HAY
from 1 Acre on 30-Acre Field
Non-Irrigated

CATEGORY	UNITS	PRICE	QUANTITY	VALUE	TOTAL
Operating Inputs:					
10-20-20 Sulphate	lbs.	$0.17	400 lbs	$68.00	
Urea	lbs.	$0.12	150 lbs	$18.00	
Brome Seed	lbs.	$1.50	4 lbs	$ 6.00	
Seedbed Prep.	Acre	$6.00	1 lb	$ 6.00	
Tractor Fuel & Lube	Acre			$12.25	
Tractor Repair Cost	Acre			$ 1.62	
Equip. Fuel & Lube	Acre			$ 2.17	
Equip. Repair Cost	Acre			$ 5.35	$119.39
Labor Cost:					
Machinery Labor	Hour	5.28	$9.75	$51.48	
Other Labor	Hour	1.00	$9.75	$ 9.75	$61.23
Capital Cost:					
Tractor & Equipment	Acre			$51.74	$51.74
Ownership Cost :(Depreciation, Taxes, Insurance)					
Tractor & Equipment	Acre			$74.71	$74.71
Land Charge or Rent:					
Land Rent	Acre			$35.00	$35.00
Returns to Land, Overhead, Risk & Management					-$342.07

Prepared by Natural Resource Economics Division, Economic Research Service, Dept. of Agriculture, Anchorage, Alaska. This budget is not an official USDA cost of production estimate.

TRANSPORTATION & UTILITIES

Roads, Power & Other Facilities

Major highways are the Glenn going past Palmer to Glennallen, and the Parks Highway leading through Wasilla and north to Fairbanks. The established farm areas are served by many connecting roads, many of which have been paved in the last six years. Fishhook, Bogard, Trunk, Old Palmer-Wasilla, Old Glenn, Fairview Loop, Springer, Farm Loop and Bodenburg Loop have made all areas easily accessible.

The Matanuska-Susitna Borough built 12 miles of highway, constructed to state secondary highway standard, to the Point MacKenzie Agricultural Project, and 16.5 miles of Point MacKenzie farm-to-market roads, to conform to borough subdivision standards, in 1979-81.

A start was made by the borough to gain access to the Fish Creek Agricultural Project (Point MacKenzie No. 2) by clearing two miles toward the Little Susitna River. The road alignment was determined, and funding was asked for in Governor's budget request for FY 83-84. $3 million is required for stage I construction.

Plans, specifications and engineering was prepared for 30 miles of Bartlett Hills farm-to-market roads. $400,000 was appropriated for construction of main roads in 1983.

Access to the Moose Creek agricultural area is also being planned by the Borough. The bridge across Moose Creek at the end of Oilwell Road was designed and is ready for bid. Bridge construction with approaches, at about $900,000, has not been funded.

The Alaska Railroad's tracks extend as far as the Old Depot in Palmer, past the Palmer Industrial Park; and through Wasilla on its way to Fairbanks. The southern terminal for the Alaska Railroad is Seward.

The Mat-Su Borough is a short rail and truck distance from oceangoing transport via the Port of Anchorage, Seward and Valdez.

The Palmer Municipal Airport and the proximity to Anchorage International Airport puts the Mat-Su area as close to the national and international network as any agricultural area anywhere.

Electricity is provided by Matanuska Electric Association (MEA) to communities in and around Palmer and Wasilla, Bodenburg Butte, Big Lake, Houston, Willow, Montana, Sutton, Knik, Talkeetna, and Trapper Creek. MEA has not extended lines to the Point MacKenzie agricultural Project. Existing policies of the Alaska Public Utilities Commission do not allow for a utility advancing the cost of a major line extension at the expense of the rate payers. The State of Alaska did not make any provisions for including utility extensions at Point MacKenzie.

Matanuska Telephone Association (MTA) provides telephone service.

A comprehensive sewer and water system is in place within the City of Palmer, including the Palmer Industrial Park.

Wasilla's water system is in place in the core area of that city. A sewer system for the core is in the planning stage.

Farm Labor

The majority of smaller-scale farm labor is done by the farm owner and his or her family. The larger farms frequently have on-site resident help year-round. Temporary labor during the growing season includes high school children for cultivating and harvesting, as well as skilled operators for farm equipment. Most of the labor needs required by existing farmers and planned developments can be filled by borough residents.

The Department of Labor's Job Service office is in Wasilla.

THE COMMUNITY

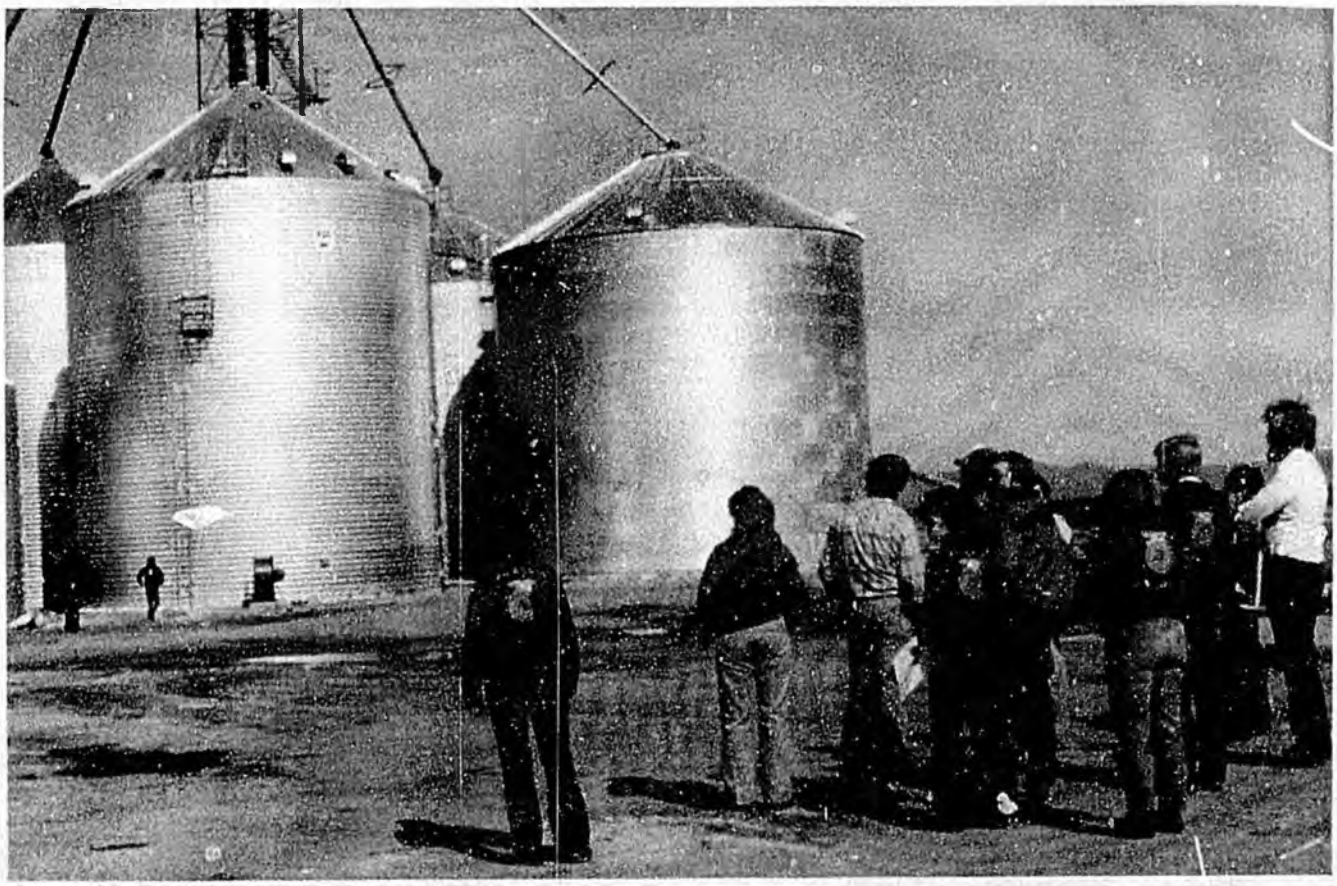
The Valley is a farming community. Many of the conditions for a successful agriculture exist.

Farm machinery dealers, service companies, farm stores, feed dealers and a feed mill are here, some fertilizer is being produced in-state, there is an existing labor force, and the interest of the young people and others is being encouraged by agricultural programs in the schools, the University of Alaska, and private organizations.

Private veterinary service, agricultural consultants, a slaughter house, and several nurseries also provide farm services within the borough.

Representatives from the borough serve on many statewide agriculture-related agencies. Active agricultural organizations include the Alaska Farmers/ Stockgrowers Association, the Mat-Su Valley Farmers' Association, the Grange, Future Farmers of America, and 4-H.

Alaska Future Farmers of America (FFA), and some of their national officers, on a tour of the Delta agricultural facilities.



Education

The Mat-Su Borough is unique by pioneering education in subarctic agriculture at secondary and post-secondary levels. Major strides have been made to create a long-needed educational ladder at high school and college levels. Construction of the new Vo-Ag greenhouse-lab-classroom facility at Palmer High School was completed in 1982. Vocational agricultural instruction and FFA programs, both in Palmer, and at Wasilla High School, emphasize crop and animal production, engineering, and farm records and economics. Follow-up programs are now available and in considerable demand at the University of Alaska Mat-Su Community College, where recently expanded facilities, staff, and curricula provide a broad array of academic and vocational courses. Latest scientific findings are presented by researchers in several disciplines at the Agricultural Experiment Station.

The Palmer area Grange gives scholarships to deserving high school graduates who embark on a career in agriculture.

The Alaska State Fair, in cooperation with the Future Farmers, 4-H, and buyers, developed a livestock program. Steers, hogs or lambs are raised by the young people, to be auctioned off to the highest bidder during fair time. The "Young Alaska Farmers Financing Cooperative," a branch of the Commercial Fisheries & Agriculture Bank, loans investment and operating funds to these junior farmers. In 1981, 34 entrants from the borough auctioned off $53,611 worth of livestock.

Agency Support

STATE DIVISION OF AGRICULTURE — This is one of nine divisions of the Department of Natural Resources. It promotes agricultural development in Alaska. The division is headquartered in Wasilla, with additional offices throughout the state.

Specific programs of the State Division of Agriculture include advice on farm development and conservation planning, farm land sales, regulatory programs of the plant industry section, marketing assistance, activities of the Plant Materials Center, and administration of the Agricultural Revolving Loan Fund.

State agricultural land sales are held through the Department of Natural Resources. Following these sales, the Division of Agriculture assists farmers with farm development and conservation plans, and monitors them for compliance. The division also provides administrative support to the Alaska Soil Conservation District Board.

The plant industry section is responsible for enforcing state and federal regulations on nursery stocks within Alaska. In addition, this section is responsible for the enforcement of shell egg regulations and grain inspection programs in the state.

The Division of Agriculture provides marketing assistance through publication of the "Agriculture Market Report," and by making information available on producing and marketing crops in Alaska.

PLANT MATERIALS CENTER — The Division of Agriculture Plant Materials Center was established in 1973 for seed testing, conservation plant evaluation, horticultural development, and foundation seed production. In the near future, it will be the first plant quarantine center in Alaska. The most extensive activity of the Plant Material Center is the production of foundation seed from selected varieties of cereal grains, grasses and oil-producing plants suitable for Alaska.

AGRICULTURAL REVOLVING LOAN FUND — The Agricultural Revolving Loan Fund promotes agriculture by low interest loans. Loans may be made for farm development, the storage and processing of farm produce, livestock and machinery purchase, and the development of processing plants for agricultural products.

STATE OF ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION — The Pesticide Division's resident officer instructs farmers on the proper use and application methods of pesticides and herbicides, and monitors compliance with environmental regulations. The Seafood & Animal Health offices and laboratories' concerns are with meat, milk, livestock and seafood processing inspections.

STATE AGRICULTURAL ACTION COUNCIL — The Agricultural Action Council handles agricultural projects such as Delta and Point MacKenzie.

In 1977, the state began specific agriculture projects in addition to its traditional agriculture programs. A thirty person Ad Hoc Agricultural Development Committee was appointed by the Governor to work with a special projects officer in the Governor's office. One of their first projects was the Big Delta Project which was partially funded in 1978. In 1979, the Ad Hoc Agricultural Development Committee was disbanded and a five-person State of Alaska Agricultural Action was created to handle special projects.

Funding for the Delta Agricultural Project has run at about $28 million appropriated, with approximately 22 million spent to date. Most of this money has been spent on agricultural loans, primarily for clearing, which will be repayed. Other money has been spent on road construction, electric service and administration.

On the Point MacKenzie Project, one million dollars was appropriated for roads within the project, which the borough constructed in 1980-81. Most of the remaining project money is comprised of $4,850,000 appropriation for clearing loans at an amount not to exceed $270 per acre.

US DEPARTMENT OF AGRICULTURE — This department's various agencies are located in Palmer. They include Science & Education Administrative offices, the Plant Science Research Division, Farmer's Home Administration, Soil Conservation Service, Federal Land Bank, Alaska Rural Rehabilitation Corporation and the Alaska Crop & Livestock Reporting Service. The latter agency provided most of the figures that were used as the basis for this report.

PALMER, WASILLA & TALKEETNA SOIL CONSERVATION DISTRICTS — working with the US Soil Conservation Service, assist landowners with conservation. Assistance ranges from hayland seeding, windbreaks and farm drainage to helping small landowners with homesite selections. Windbreak plantings and putting eroding fields into permanent grass are the major conservation practices completed during the early Eighties.

UNIVERSITY OF ALASKA — The University's Alaska Experiment Station administrative offices are located in Palmer, providing research service, a plant pathology laboratory, and economics and farm management advice. The Experiment Farm that houses a modern dairy, is located on Trunk Road.

THE MATANUSKA VALLEY BREEDERS ASSOCIATION was formed for upgrading and breeding of beef and dairy cattle through artificial insemination, in cooperation with the University of Alaska Experiment Station.

COOPERATIVE EXTENSION SERVICE — a cooperating agency of the University of Alaska and the US Department of Agriculture, has many programs to give the farmer a wide range of assistance and advice. The Extension Service publishes "Alaska Fresh," a guide to farm-fresh products.

THE ALASKA STATE FAIR in Palmer promotes agriculture. The growth of the Junior Market Livestock Auction is an example. They provide educational and commercial forums for displays and exhibits, offer premiums and encourage youth to participate in all levels of the Fair. New livestock and horticultural facilities conceived in the Fair's master plan call for additional educational displays, and will provide more facilities to showcase modern agricultural methods and products.

THE ENVIRONMENT

Climate

Crops grow faster in Alaska because of the great extension in daylight hours during the growing season. Longer hours of photosynthesis and rapid growth for longer periods with short rest periods each day result in higher stored sugar content in some vegetables. Also, some vegetables are particularly adapted to cool climate; they thrive well and produce better, with a higher quality product than in most other states.

Climate plays an essential role in successful agricultural production and development in the borough. Despite a cool and short growing season and an unequal moisture distribution, farmers and researchers have gained much experience in fitting crops and work schedules to the climate and have demonstrated excellent production capability for many crops.

The growing season in the Matanuska Valley ranges from 100 to 120 days. The season's limited rainfall is usually adequate because of low evaporation rates. Late summer rains hinder haying, but May and June have been historically dry, with exceptions of course. Harsh winter winds and spring runoff can cause erosion on unprotected land, but most of the farms are being operated with good soil conservation practices.

Knik winds usually in the summer, and Matanuska winds in the winter, adversely affect farm operations in the Palmer area, but are minimized by local conservation practices of special field layouts, shelter belts, and cropping patterns.

The length of the growing season is shorter in the Susitna Valley than in the Matanuska Valley, but long enough to mature crops, and the record shows a favorable absence of frosts during the growing season.

The Lower Susitna Valley is similar to the Matanuska Valley in soils and growing conditions. The Upper Susitna Valley has short frost-free seasons, with only 60-75 day growing periods in some areas.

On an areawide basis, the last spring frost usually occurs in the last two weeks in May, or occasionally the first week in June. In the fall the first frosts usually appear in the last few days of August or the first half of September. There is considerable variation from one area to another and from one season to another.

There is occasional winter kill of perennial crops which can happen in extreme cold where there is little or no snow on the ground, and formation of an ice layer on the ground due to unusually warm, wet periods in winter. Heavy winter snowpack in potential agricultural areas along the Susitna River should keep these areas relatively free of winter kill problems.

GROWING DEGREE DAYS IN THE MATANUSKA VALLEY

Crops grow because of sunshine, warmth and water. Growing degree days (GDD') is a common way of estimating whether the growing season is long enough and warm enough for a particular crop. This system is based upon the amount of average daily temperature that exceeds a selected "base temperature," such as 40° F. As the daily air temperature climbs above the base temperature, fewer days are required to reach a harvestable stage. Growing degree days before the planting date are subtracted. The Matanuska Valley has a comfortable growing season for many crops.

	Cumulative GDDs	No. of GDD from May 24	Number of Growing Days From May 24
May 24	223		
June 21	623	409	28
July 19	1106	883	57
August 30	1732	1509	99
September 6	1797	1574	106
September 13	1844	1621	113

May 24 is a late planting date for grasses and grains; it can be a little early for vegetables. August 30, September 6 and September 13 are common harvest dates depending on the year and crop. So, compare 106 growing days and 1574 GDDs to some typical experimental harvests:

	Plant	Harvests	Days	GDD
Barley (Edda)	5/18	8/29	103	1361
Oats (Golden Rain)	5/18	9/6	111	1483
Wheat (Grasser)	5/18	9/13	118	1535
Carrots	5/27	9/26	122	1646
Lettuce 1971	5/27	8/25; 9/ 9	90-105	1329-1496
Broccoli (seed)	5/28	8/13; 9/13	77-108	1131-1496
Broccoli (transplant)	5/27	7/13; 8/23	47- 88	658-1292
Cauliflowe (transplant)	5/27	7/11; 7/22	45- 56	800- 990

Water

Water for irrigation, which is often needed especially in the spring to help germinate seeds planted, is readily available over much of the present and potential farming areas of the borough. Irrigation facilities must be provided for successful vegetable production.

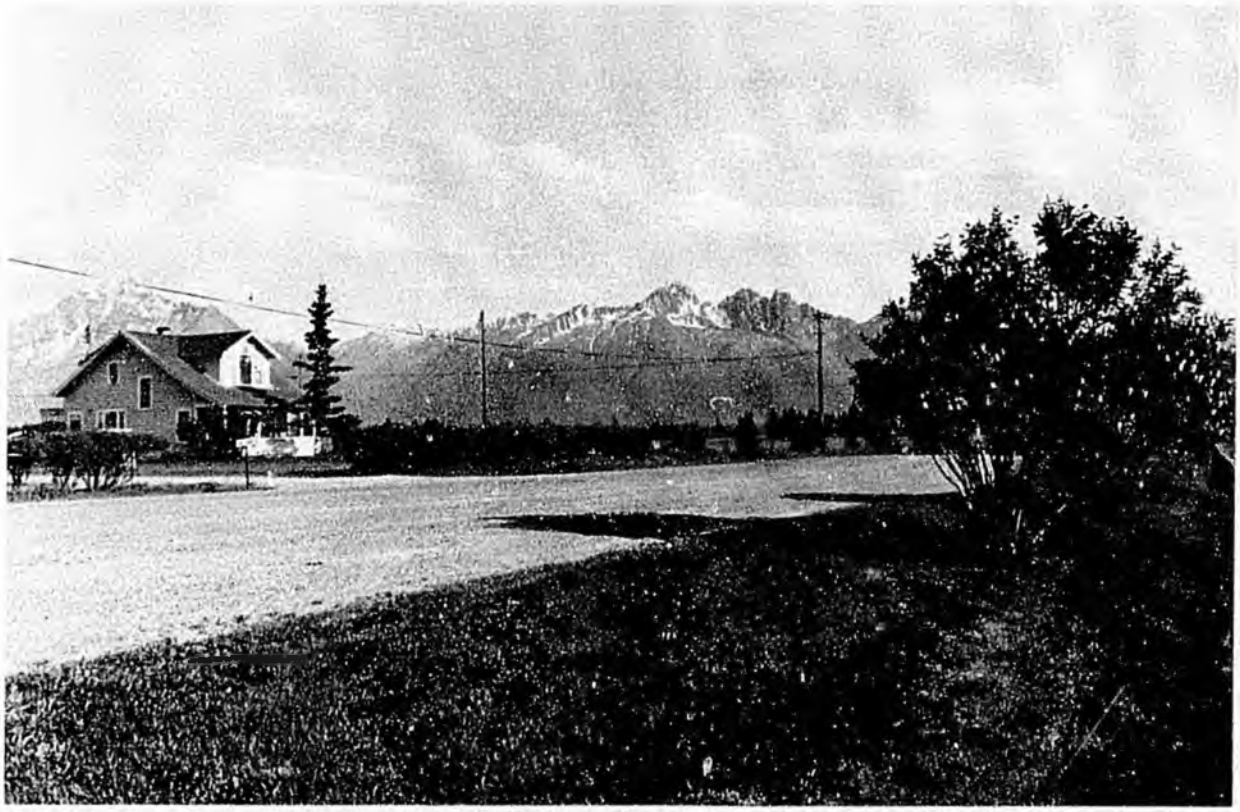
Water requirements for vegetable irrigation during a normal production year are up to 3.9 inches per acre. Water requirements for beef and swine operations, excluding a water-flush waste management system, are estimated at 20 gallons per head per day for beef and 5 gallons per head per day for hogs.

The ground water ranges in dissolved-solids content from 31 mg/l from a season spring at Sheep Mountain to 195 mg/l from a well drilled in Palmer. Most of the water is of the calcium bicarbonate type, typified by a well at Talkeetna having a dissolved-solids content of 111 mg/l. One well at Palmer, which is the deepest in the area at 624 feet, produces water of a sodium bicarbonate type having a dissolved-solids content of 195 mg/l. Water containing the highest dissolved-solids content is generally found in the eastern part of the area. Several wells sampled near Palmer reported yield water of high nitrate content. Near Palmer many of the wells and springs also contain considerable boron. The deep well at Palmer, for example, has the highest measured concentration of boron in the area, averaging about 2.5 mg/l. Boron in concentrations of more than 2 mg/l constitutes a problem in using ground water for irrigation. Concentrations in excess of this are not considered permissible by the USDA in irrigation-supplies for boron-sensitive crops such as barley.

Ground water temperature ranges from 34 to 38° F. (from 3 to 7° C.)

The water table averages 20 to 30 feet in the lowlands of the established farming areas, and 300 feet plus on mountainous lands.

On Trunk Road by the Experiment Farm



POLICIES TO ENCOURAGE AGRICULTURE

Public Attitudes

In 1980, the Matanuska-Susitna Borough commissioned an areawide survey to determine the kind of development residents would judge most beneficial for the area. Valley residents gave agricultural development the highest priority.

89.5 percent favored increased agricultural activity in general; 85.5 percent encourage an expanded red meat industry, and 83.4 percent would like to see more local milk production. Statewide, 75 percent of the respondents would like more agricultural resource development—an indication of the belief by the citizens of this state that more food should be produced for local consumption.

If there is a future for agriculture in Alaska, the Valley will play a key role in that future. If there is a constituency for agriculture in Alaska, the Valley will benefit from that constituency. If clear and practical goals are set, there should be public support in Alaska and in the Valley to realize those goals.

Gary Thurlow, Manager
Matanuska-Susitna Borough

Matanuska-Susitna Borough Policy

In 1975 the borough assembly adopted a policy of selling land with good agricultural soils for farm use only. Under the borough farm land ordinance, the Borough classifies as agricultural land any tract of 40 acres or more containing a minimum of 40 percent Class II and III soils, and will sell or lease "agricultural rights" only for these tracts unless there is some overriding consideration such as development of a port at Point MacKenzie.

The Borough Agricultural Advisory Committee, established by the Assembly in 1981, works with the Borough Land Management Division in identifying available land and recommending it for disposal as farms.

BOROUGH FARM LAND DISPOSAL — As of 1981, the Borough had disposed of approximately 46,000 acres of land, 19,000 of which contained Class II and III soils. Of these, 4,047 acres were restricted to agriculture use only. Of the 46,000 of land sold, a total of 1,000 acres has been cleared and applied to agriculture. Due to the agricultural restrictions placed upon 4,047 acres, it is expected that most of this acreage will be cultivated according to farm plans.

Since less than one-fourth of these 4,047 acres were cleared, with less than one-eighth being under production, or being grazed, the Borough in 1982 decided on a stricter development schedule for future agricultural disposals to ensure production. Starting with the agriculture-rights-only sale in October of 1982, the Borough required both clearing and production.

As of October 16, 1982, the Borough has sold 7,357 acres of restricted farm land; 3,215 acres restricted farm land in 1977; 832 acres in the Point MacKenzie Agricultural Project in 1981; and 3,400 acres in scattered parcels at the October 1982 land sale.

Terms and Conditions for Matanuska-Susitna Borough Farm Land Sale October 16, 1982

The Matanuska-Susitna Borough wants to insure that farm land is actually applied to farm use. These are the rules for the borough's October 1982 auction of 3,400 acres of farm land:

1. The lands are sold as a basic lease with option to purchase. The land may be purchased at the end of the sixth year with no further payments due if 50 percent of the purchase amount has been paid and if the minimum required acreage (no less than 70 percent of Class II and III soils) is in production according to the Farm Plan. This is a forgiveness of the remaining balance due. It is a type of "farmsteading." The lease payments are applied to the financing terms. If these minimum conditions have been met prior to the end of the sixth year, then the purchase option may be exercised at such time.

2. The lease term is for twenty years.

3. The bid price is the purchase price.

4. The lease payment is 8 percent of the purchase price and is the annual payment.

5. If the Farm Plan is not followed or if the required amount of land has not been cleared and brought into production by the end of the sixth year, the option to purchase will expire.

6. No later than the end of the third year, a review of progress will be required.

7. No later than the end of the fifth year, a letter will be sent to the farmer indicating that a minimum of 70 percent Class II and III soils must be under production and indicating the terms and conditions for exercising the purchase option, including compliance with the farm plan. The letter will also inform the farmer of possible lease termination if the farm plan has not been followed.

8. The successful bidder has 30 days from notification to present an acceptable Farm Plan. If the Farm Plan is rejected by the Agricultural Advisory Board, the reason will be given and an additional 30 days will be allowed for resubmission and/or appeal to the Matanuska-Susitna Borough Assembly.

9. If unforeseen circumstances render the completion of a Farm Plan impossible and consequently the exercising of the option to purchase, the farmer will be allowed to request from the Assembly an extension of time, not to exceed one year, for completion of the Farm Plan. In so doing, the farmer must show reasonable cause for the delay and reasonable diligence in attempting to meet all of the requirements. The burden of the proof will be on the farmer.

10. The farmer may elect to remain on a lease basis for the 20-year lease period. However, in such cases, the land will be revalued at the end of the sixth year and the lease payments will be adjusted accordingly. The 20 year lease period is allowed for purposes of amortizing the costs of capital improvements constructed on the land and the amortization of any farm loan obtained during the first six years of the lease.

Any adjacent farmer has preference rights to match the high bid on an adjacent parcel.

The Farm Development Plan must include the following as a minimum requirement for approval:

1. No specific amount of clearing is required for the first year;

2. A minimum of 70 percent of estimated Class II and III soils and the percentage of Class IV soils, as may be indicated on the Farm Plan, must be cleared and in production by the end of the sixth year.

3. The type of production i.e. whether dairy farming, grain production, hay production, hog farming, should be identified.

Some of the particulars of the Farm Development Plan are:

LAND CLEARING — means removing trees, stumps, and other vegetation from wooded areas. Cleared land shall be left in a condition that will facilitate its planned use and treatment, as identified by the approved farm plan.

LAND BREAKING — means the tillage of lands, following clearing, that are cropland use (including hay and pasture). Following breaking, the land must be in a condition so that conventional farm equipment can be used to carry on normal farming operations for the given site.

IN PRODUCTION — means the application of cleared land into planting of crops using good agricultural practices, such as grains, oil seeds, vegetables or grasses of commercial value at seeding rates recommended for the area by the University of Alaska such that the crops will harvest an annual yield which can be reasonably expected, based on Matanuska Valley statistics as prepared by the US Department of Agriculture. The term can also mean the application of the cleared land in a manner so as to produce a yield in animal units or animal products of commercial value within a range which can be reasonably expected for the area. Reasonable harvested yields may be determined by referencing the US Department of Agriculture, State Division of Agriculture, the State Agriculture Action Council and the University of Alaska. Only acreage which has been cleared and prepared for agriculture through land breaking can be included within the acreage claimed as being "in production." The term "production" may be further defined in the farm plan so long as the above requirements are satisfied.

The property conveyed shall be used only for agricultural purposes. Standing and other timber may be cut and sold, or otherwise used or disposed of, only if the stumps and roots of the cleared area are placed in orderly piles, berms or wind rows, or otherwise disposed of within 18 months of the clearing, and provided further, only if the roots are grubbed, raked or otherwise removed from the cleared area so as to render the cleared area suitable for cultivation within 24 months of the cutting of the particular area cleared, or otherwise to prevent waste as set forth in the approved Farm Plan for the subject property. The removal of timber, without removal of stumps, limbs, roots and other debris, is specifically declared to be waste and such waste is hereby prohibited.

Only those buildings and improvements which are reasonably required for the development of the property for agricultural purposes are permitted. This includes one homesite, attached or detached garage for the homesite and similar residential outbuildings, such as an outdoor toilet, smokehouse, sauna, upon a parcel no greater than five acres within the subject property. The owner shall identify such parcel, with sufficient information, so that the parcel can be described in a separate deed of trust, suitable for recordation. Improvements which would ordinarily be classified as being required for agricultural development are barns, wells, septic tanks, fences, pens, silos, garage for storage of farm equipment, and field roads. Not permitted are buildings or yards for commercial sale, repair or storage of equipment or supplies, areas and buildings for retail sales, other than of agricultural products; sale of sand and gravel for use off the subject property, except as permitted under a finding of the Assembly that such sale will contribute to the development of agriculture in the area. Home occupations within the residence, such as bookkeeping are permitted.

Waste of the property, such as removal of topsoil, is prohibited.

Further subdivision of the property is prohibited, except where the owner applies to the Assembly for such subdivision and where the Assembly finds that such subdivision, if permitted, could reasonably be expected to increase the agricultural production to be realized from the new parcel to be generated by virtue of the fact that it will be added to an adjacent farm, or a similar circumstance favorably contributing to the economics of agricultural production.

AGRICULTURAL RESTRICTIONS — Both the State of Alaska and the Matanuska-Susitna Borough offer new lands for agricultural use only. The borough sells lands in sizes of 40 acres or more with more than 40 percent Class II and III soils for agricultural purposes only.

The lands are made available either through a state lottery, as in the case of Point MacKenzie, by state auction or by borough auction.

The state relies primarily upon farm plans to bring agricultural lands into cultivation.

At Point MacKenzie, 40 percent of the farm is to be cleared in three years after the sale, and 75 percent within 6 years.

The borough has also relied on farm plans. However, due to difficulties in enforcing farm plans the borough requires stricter stipulations, including an increase in payments in the event of inadequate development, farm plans and recorded conditions, covenants and agricultural land use restrictions.

PROPERTY TAX DEFERRAL — This is a state-funded and borough implemented program. The State of Alaska repays the Matanuska-Susitna Borough the difference between the taxes which would have been collected on land assessed at fair market value and the taxes that are collected on the land assessed for agricultural purposes only.

Most of the producing agricultural land in the Old Colony area is classified "agriculture." To obtain reduced property taxes, the farmer puts his land under the program, under which he pays taxes on his land based upon its agricultural value. He pays about one-fifth to one-tenth of the taxes he would have paid if the property were taxed at full value.

If the farmer later converts the land to non-farm purposes, generally through subdivision development, he is required to repay the State of Alaska all or a portion of the deferred taxes. Approximately 11,000 acres of land in the borough are covered by the farm tax deferral program. Cost to the state in FY 1981-82 was $117,653 for lands in the borough.

The policy does not work well where the demand for new land development is strong or where the property taxes are low. With the sharp reduction in borough property taxes in the past five years, down from 13 mills in 1977 to 4.9 mills areawide in 1982, the property tax deferral program has become a weak tool for farm preservation.

PURCHASE OF DEVELOPMENT RIGHTS. The only sure way of preserving farm land is by purchase of development rights. This is an approach used by King County in the State of Washington and in other parts of the United States.

Under the typical program:

1) The state or county establishes a farm land program under which the state or county stands ready to purchase development rights from farmers that wish to continue using their farm land as farm lands. Very often, the value of the development right exceeds the value of the remaining agricultural rights.

2) The program is voluntary and depends on the farmer seeking permanent agricultural status for his land.

3) The purchase price for development rights is the difference between the value of the land in its agricultural status and the fair market of the land at the time development rights are bought.

4) Since money for acquisition of development rights is always limited, the entity making the decision to buy these rights has to establish priority for the acquisition of rights. Highest priority almost always goes to the most productive farm lands, the farm lands that are likely to become developed the soonest if development rights are not obtained and the farm lands which add to the value and attractiveness of non-farm lands, and particularly residential areas.

In the Matanuska-Susitna Borough the areas that would have first call on any available state monies would be the Old Colony area. This is the area with the best soils and the area most susceptible to early subdivision development. It is also the area where agriculture is a tourism destination.

Not all farmers wish to sell their development rights, and not every farm merits purchase of development rights. If about half, or 5,000 acres of the Old Colony and Homestead area were to be put under such a preservation program, it would cost the state approximately $15 million.

JUSTIFICATION FOR RETAINING FARM LANDS

Farms vs. Housing — The agricultural lands in the Old Colony area are in jeopardy. They are only 40-50 road miles from Anchorage and are inexpensive to develop. Large-lot, single detached residential land is nearly exhausted in Anchorage. The nearest source of additional land are the Old Colony farms.

The availability of new lands can cause a cavalier attitude toward existing farm land — if new farm land is available, then the reasons for preserving existing farm land disappear — or so it can be argued.

A state and borough policy to develop new farm lands in the Matanuska-Susitna Valley may accelerate the discontinuation of existing farms close to Palmer. The reason is that the existing farmer can sell his existing farm for development, take the capital gain, and invest it in a farm in a new area. He has the best of two worlds in that case—he has realized the full profit potential of the land he presently owns and he is better capitalized to start a fresh farming venture.

A shift from old to new lands, even though gradual, would irreparably damage existing agriculture and drive it out of the Palmer and Bodenburg Butte areas.

Once residential development takes hold on one farm, the farmer on the adjoining land would probably lose some of the land he leases, he may not be able to negotiate his equipment through subdivision roads or move irrigation pipe from one field to another.

It is also well known that once residential development takes place within a farming area, subdivision dwellers soon object to many of the sights, sounds and smells of farming. This leads to restrictions toward the farmer's operations, forcing him out of business eventually.

Soil Quality — The Old Colony soils are deeper and better than the relatively thin soils of Point MacKenzie. They are less acid and provide much better seed beds.

A higher yield can be obtained at lesser cost from Old Colony soils. Even if the soils were of comparable quality, it takes five to ten years working the soil until it is ready to yield commercial quantities of crops other than forage and grain. This investment in soils is lost once the land is converted to other uses.

Economics — The cost per acre to the state in farm subsidies for new land is generally much greater than commonly realized. Even though new farm land may sell at $100 to $300 per acre, the state investment in that same acreage through low interest, below-market agricultural loans can be as high as $2,500 per acre. These loan monies are being recouped by the state in the form of principal payments, but a major part of it, represented by interest subsidy, would not be recovered.

In many cases the state can, for a given dollar amount, retain in production more high-quality existing farm land, than it can bring into existence through development of new farm lands.

Some cleared and producing farm land has recently been purchased by a local farmer for $4,000 an acre. He figured that this was less than it would have cost him to bring new land into production. He also has the advantage of being close to transportation and market, and is not restricted to certain crops because the soils have been worked for a long time.

Tourism — The existing farms are a tourism destination. A major reason for visiting the Valley would be lost if the area around Palmer, Trunk Road and Bodenburg Butte took on the appearance of Fairview and Muldoon.

The answer to the question, "Can preservation of farm land be justified?" will probably follow the answer to, "Should agriculture be encouraged in Alaska?"

As long as there is justification for the State of Alaska to invest monies in new farms, there is an equal justification for investing state monies for retention of existing farm land.

State of Alaska Policies

In 1976, the governor of Alaska said that a major goal of state government was to encourage the development of renewable resources, including agriculture. The agricultural goals were:

1. Broaden the economic base of the state through expanded agriculture.
2. Stabilize real food costs by increasing local food supply.
3. Provide alternative job opportunities through expanded agriculture.
4. Improve rural life by developing an economic base through agriculture.
5. Assist in meeting national goals of increased food production for world needs.

The state has had an active program to encourage agriculture since territorial days, mostly in the form of farm loans and plant and animal experimentation.

Beginning in 1978, the state began to allocate large amounts of money to specific agricultural projects—Point MacKenzie and Big Delta being the first projects.

Unfortunately, the exact role of the state and of the various state agricultural agencies is not widely understood. A commitment to agriculture exists; the extent of the commitment to a specific project or to a specific program is sometimes uncertain.

ECONOMIES OF SCALE — Both the borough and the state expect that larger farm acreages will improve economics of agriculture.

Agricultural products can be produced, handled, shipped and marketed more cheaply per pound, quart or other measure with economies of scale. This is particularly true of beef cattle and dairy production where the investment supporting facilities such as creameries, slaughter houses and feeding lots is nearly the same for a small number of animals as for a larger number. There are certain minimum capital and fixed operating costs that have to be incurred regardless of the level of production.

There are other economies of scale: Farmers can buy fertilizer, lime and Alaska produced barley for animal feed at a lower cost if it is shipped to the Valley in quantity.

". . . Mining and agriculture, for example, are just starting to blossom and require continued state support and encouragement."

"And I want in this decade to see 2,000 jobs in agriculture — people growing barley, building truck farming businesses, and developing a red meat industry. This growth is critical if we are ever to reduce our dependence on imported food."

". . . We have enough money to finance millions of dollars worth of loans for college students, farmers, fishermen and businessmen. And that's what I propose we do."

Bill Sheffield, Governor
State of Alaska

STATE LAND SALES — Since 1979, the state has disposed of about 25,963 acres of restricted farm land. They are:

Bartlett Hills, near Talkeetna, 8,172 acres (27 parcels).

Talkeetna North, 1,158 acres (22 parcels).

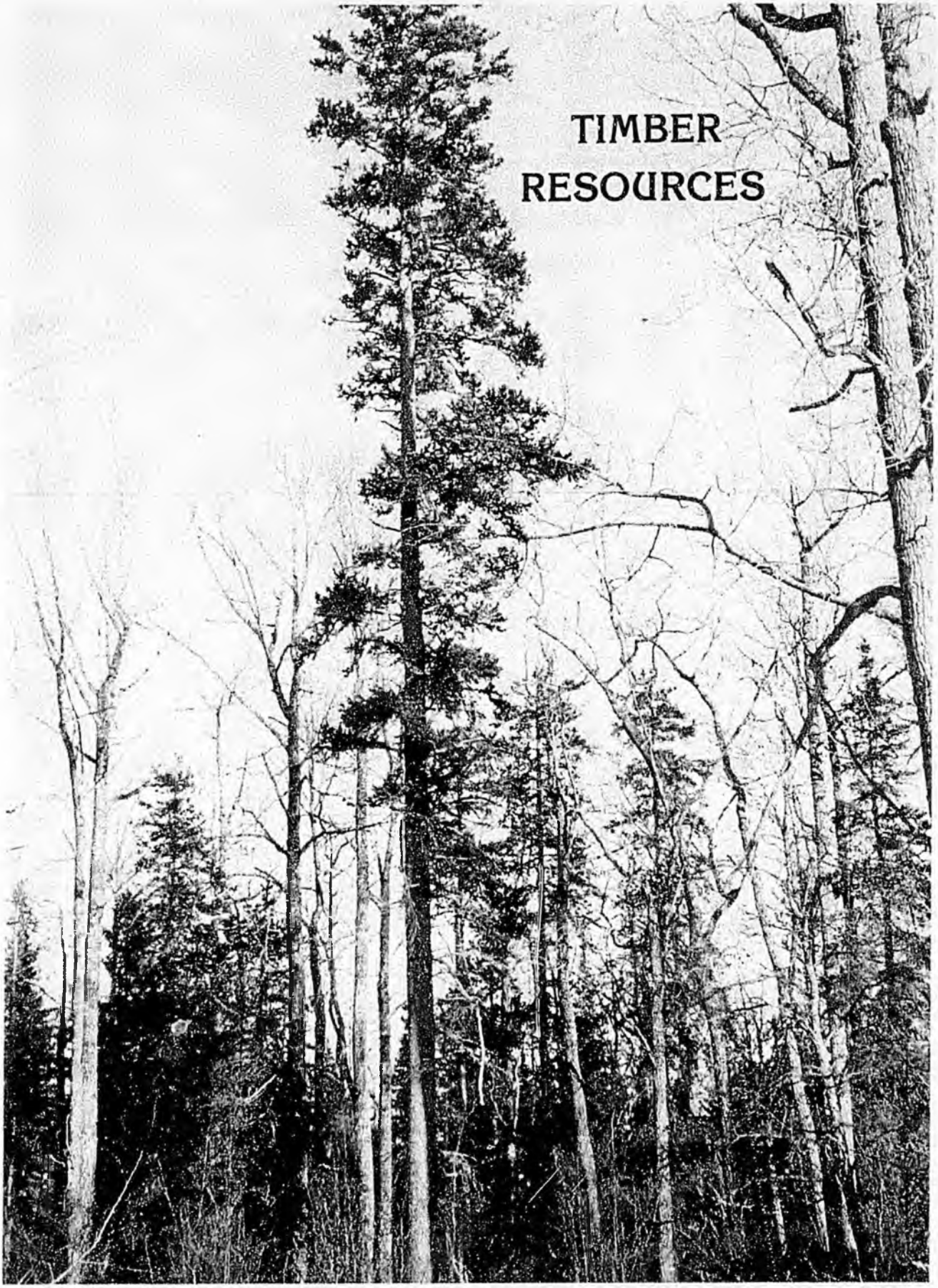
Talkeetna, 533 acres.

Scotty Lake near Trapper Creek, 2,160 acres (4 parcels).

Point MacKenzie, 13,940 acres (29 parcels). This does not include the two parcels sold by the borough in 1981.

This nearly exhausts the supply of state agricultural land for which road access exists. There is no road access to much of the Bartlett Hills project, and the new owners of the farm parcels are not required to begin their farm plans until road access is provided.

Most of the new land will be applied to livestock and forage uses. It would greatly increase meat and milk production in Alaska, and encourage more vegetable production on the deep, broken-in soils in the Old Colony and Homestead farms. Raw land in Alaska takes several years to grow crops other than forage and grain.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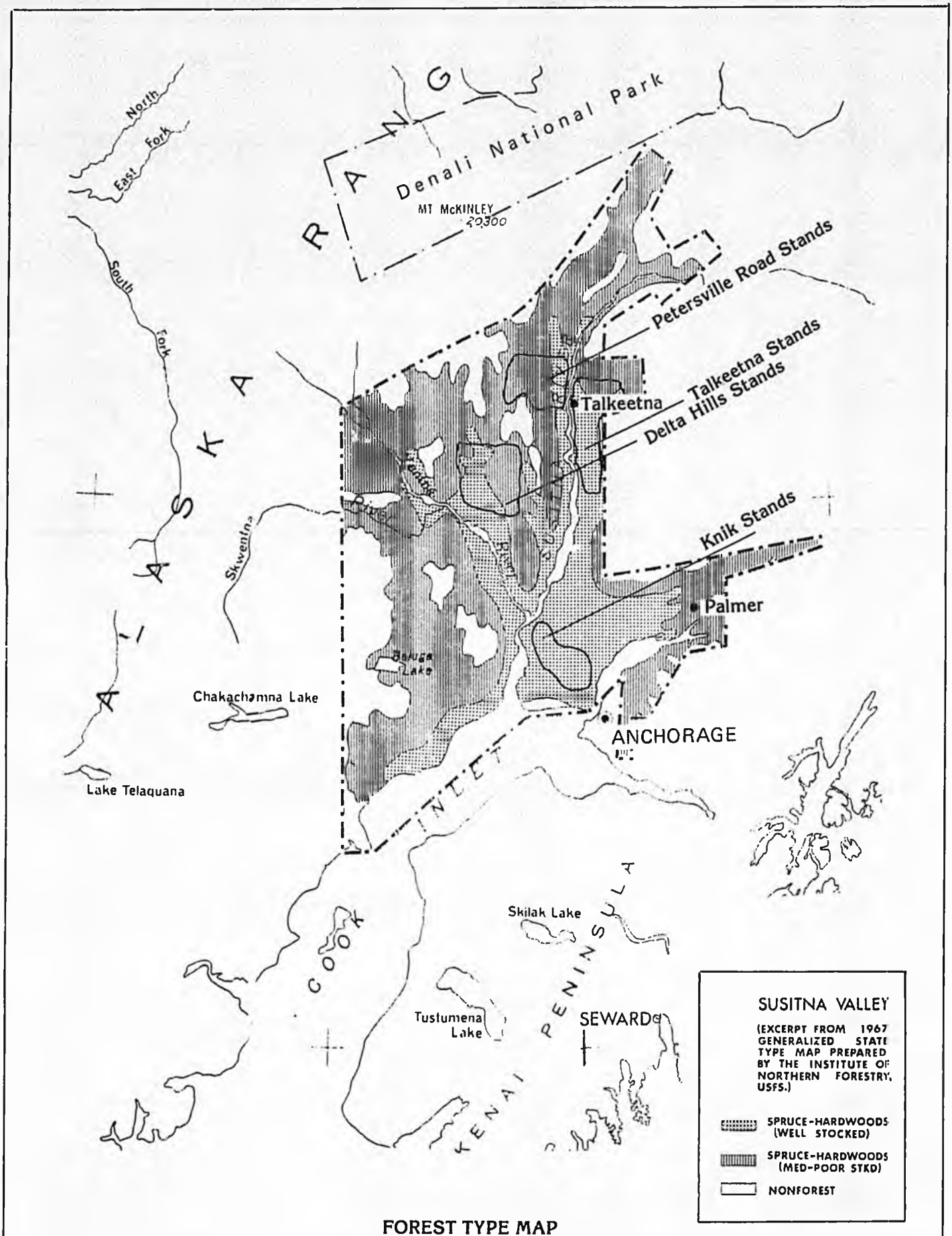
RESOURCES



FOREST TYPE MAP OF SUSITNA VALLEY

Forest Inventory

A 1970 inventory by the US Forest Service estimated forest land resources of the area as follows:

1,295,000 acres commercial forest
584,000 acres subcommercial
1,322,000 acres noncommercial

Of the commercial forests, 67 percent is classed as sawtimber; 22 percent as poletimber; 10 percent as seedling and sapling stands; and 1 percent is rated nonstocked.

Paper birch type occupies 64 percent of the commercial forest area; spruce 26 percent; balsam poplar-cottonwood 9 percent; and aspen 1 percent.

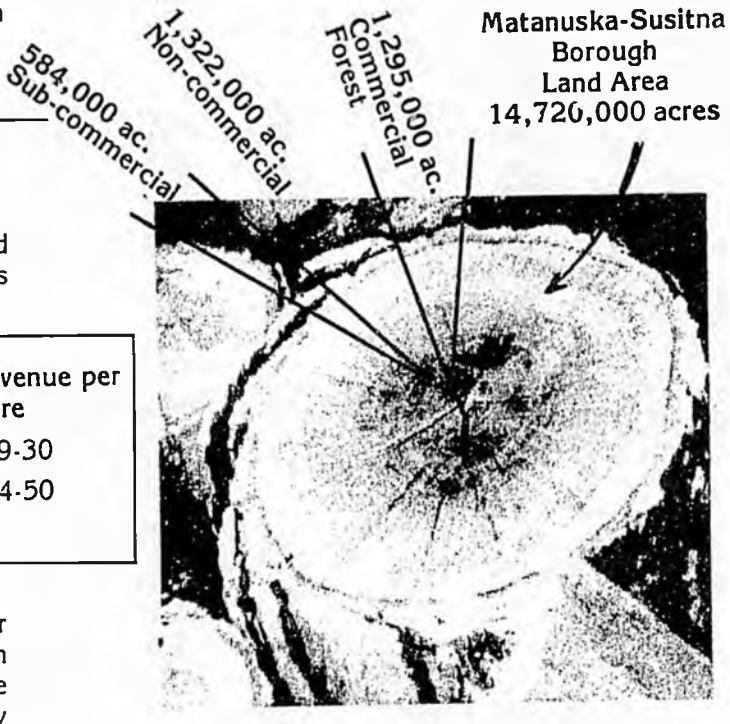
Net volume in growing-stock trees totals 1.4 billion cubic feet, or 4.1 billion board feet. An additional 58 million cubic feet of sound wood is in rough and salvable dead trees.

Cubic-foot volume distribution by species is: paper birch 42.5 percent; spruce 31.6 percent; cottonwood 24.4 percent; and aspen 1.5 percent.

Sawtimber-size trees have 67 percent and poletimber-size trees 32 percent of the growing-stock volume.

All commercial stands have a potential increment of 20 to 85 cubic feet per acre per year. Rough and rotten trees, inhibiting vegetation, and nonstocked areas occupy 36 percent of the commercial forest land.

Growth rates are low - total net annual growth is only 2.2 percent of net volume, but averages 25 cubic feet per acre per year.



Potential Harvests

The following are typical harvests for a mixed stand of birch and white spruce in an area such as Point MacKenzie or Fish Creek:

Yield	Price per Unit	Revenue per Acre
600-1,000 board feet of spruce 9" and larger	$15-30 per 1,000 mbf	$9-30
8-10 cords per acre - 8" and larger	$3-5 per cord	$24-50

A price of $15 per 1,000 board feet and $3 per cord is based upon a somewhat remote location, such as Fish Creek. Where there is good road access to the source of millable timber and cordwood, the property owner can sometimes obtain as much as $5 per cord and $30 per 1,000 board feet.

It is estimated that if logging went "full bore" in the borough, with every available acre being logged in a systematic manner, this would amount to an annual production of 1/20 to 1/40 of the annual production in southeast Alaska. The Ketchikan sawmill has been averaging about 250-300 million board feet a year. The sawmill at Wrangell and the sawmill at Sitka each average annually many times the 15-20 million harvestable board feet estimated for the 18,000 acres of the Fish Creek area.

Commercial Timber Stands

Timber stands of white spruce, birch and cottonwood of possible commercial potential are:

THE KNIK STANDS in the Point MacKenzie and Fish Creek area comprise about 65,000 acres. The Fish Creek project of about 18,000 acres agricultural lands should yield 15 to 20 million board feet.

THE DELTA HILLS STAND, also called Shell Hills is about 25 air miles west of Susitna River and approximately halfway between the Yentna River and the Petersville Road, comprises about 15,600 acres.

THE TALKEETNA STANDS of about 100,000 acres have an estimated annual cut potential of 4 million board feet.

PETERSVILLE ROAD STANDS of 100,000 acres with an as yet undetermined volume are estimated to compare in potential cutting volume with the annual cut rate of the Talkeetna stands.

COMMERCIAL TIMBER SPECIES

White Spruce

White spruce is the softwood species of greatest commercial value in the borough. White spruce is often interspersed with paper birch and aspen and is found on well drained land. Tree diameters in the best stands of white spruce range from 10 to 24 inches (at breast height) and heights approach 95 feet.

White spruce is generally a small tree with many limbs. Therefore, most trees cannot be used for high-quality lumber. Spruce wood dries easily, is moderately light in weight and easily worked. It is subject to moderate shrinkage and is moderately strong, stiff, tough, and hard.

The wood is commonly used as pulp wood, for framing structures, and for general millwork.

Paper Birch

Approximately 30 percent of the total volume of commercial timber in the borough is paper birch. Trees of this species are typically small both in height and diameter when compared to other birches.

Good sites produce stands of birch sawtimber 60 to 80 feet tall with diameters of larger trees ranging from 12 to 18 inches. The average diameter of trees in such stands is generally 8 to 9 inches.

Birch matures in 80 to 100 years and deteriorates rapidly after maturing. Trees with diameters of 15 to 18 inches are mature and are usually defective.

Commercially, birch is used as a pulp wood, for veneer and flooring, for small dimension lumber used in production of furniture, and for turned products such as spools, bobbins, and toys.

Cottonwood

The cottonwood stands in the borough are composed of two very similar species: balsam poplar and black cottonwood. Trees are generally of a high quality and compare favorably to cottonwood in other parts of the United States.

Trunks are straight and clear, and in areas of best growth trees are 80 to 100 feet tall and 24 inches in diameter or larger.

Some cottonwood is difficult to work with tools because of fuzzy surfaces.

The market for this wood is undeveloped and limited. However, it is being used for rough lumber, veneer, pulp wood, excelsior, and pallets. Cottonwood makes excellent house logs and is reported to be excellent as a filler or core stock for plywood. Good results have been achieved by a Wasilla mill manufacturing paneling and siding.

Aspen

Quaking aspen, like cottonwood, is one of the populus species.

A relatively small, rapidly maturing tree, aspen normally does not grow to diameters of over 10 to 14 inches. Stands with trees averaging only 6 to 8 inches in diameter are most common.

Without an established market for chips or pulping material, aspen has little commercial value.

Current Logging

For a number of years there have been several small logging and mill operations in the borough who have cut and processed timber for local uses, often on a part-time basis. These operations generally produce rough cut lumber and cabin logs. Undersized logs are sold as cesspool logs or shoring timber, and sawdust shavings are sold to local farmers. Edged slabs are marketed for fences, sheds and other farm needs.

Local logging operations are interested in borough lands being made available to them in a variety of ways, including clear cutting and selective logging where they can take out the larger trees of certain species.

Clearing for Agriculture

The offering of large agricultural tracts at forested Point MacKenzie has raised the question of how to best use timber on land that has to be cleared. The same question will have to be addressed on the 18,000 acre Fish Creek agricultural project (Point MacKenzie No.2).

Clearing costs should be kept at a minimum, both to the farmer and the state, since the farmer ordinarily seeks to borrow up to $270 per acre from the state. While the farmer would like to realize an income from the cleared timber, as would the logger, income will be much less than the $270 per acre currently estimated as the cost of clearing.

According to State Agriculture Action Council test results, chaining trees at Point MacKenzie in 1980-81 cost from $11 to $13 per acre. The chaining tips out the roots and stems, which means that there is no need to come back and bulldoze out stumps. The larger stems can then be cut into appropriate lengths for milling.

However, timber people do not like to see trees chained because there is some breakage of stems. Chaining alone does not imbed dirt and gravel into the wood,but the bulldozing of stems into berms and windrows does destroy the timber value. The logger would much prefer to go in and cut trees of nine inches in diameter or larger and then allow the farmer to come in later, chain down the smaller material and bulldoze out any stumps left by the logger. This is an expensive and time consuming approach, and can result in a $400-500 per acre clearing cost, as stumps have to be bulldozed.

Timber Proposals

Several companies have discussed harvesting the timber in proposed agriculture projects en masse, with the intent of manufacturing charcoal and chips.

Another proposal suggests a log concentration yard in the vicinity of agriculture projects. The purpose of the yard would be to avoid waste of wood that would otherwise occur during the course of clearing for the access roads and farms. Farmers who are clearing their lands in the Point MacKenzie and Fish Creek areas would decide individually how they want to handle the wood. Persons seeking firewood might want to cut up the wood into cords at the yard, or haul logs to Anchorage or some other location. If the wood piled up sufficiently, it might be feasible to chip wood for export.

A key factor in successful timber development is identification of those commercial operations which use lower quality wood. A multiple-product mill that handles different quality wood materials could prevent waste of timber resources.