Farming In Northern Minnesota

Opportunities And Requirements

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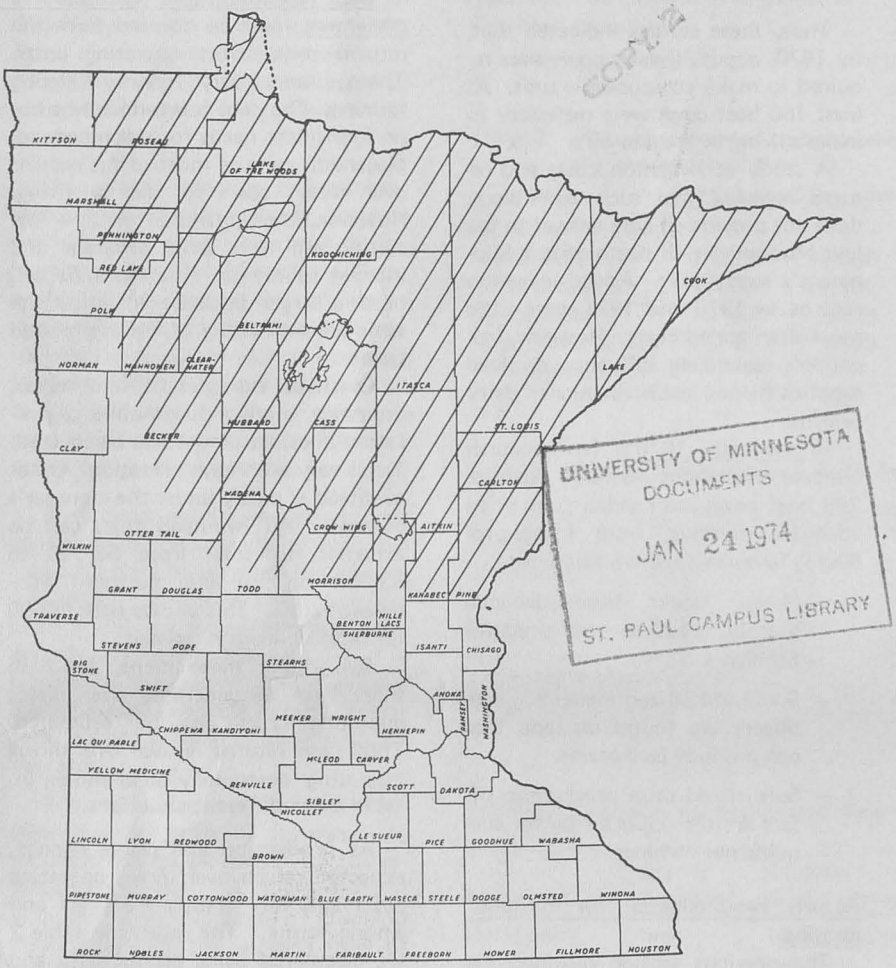

—By Paul R. Hasbargen*

What are the possibilities for a full-time farming operation in northern Minnesota? What about part-time farming? This publication provides facts and figures to help answer these questions.

Full-time farming

The resource mix used in farming has changed dramatically the past 30 years. Years ago, land and labor were the primary inputs. Today purchased inputs — machinery, fuel, fertilizer, concentrate feeds, etc. — make up about two-thirds of the costs. In 1940, an operator kept over half his total farm sales; today he keeps only 15 to 20 percent. About $35,000 gross income is now required to net $5,000. Equity influences this ratio. The farmer who owns his farm can still

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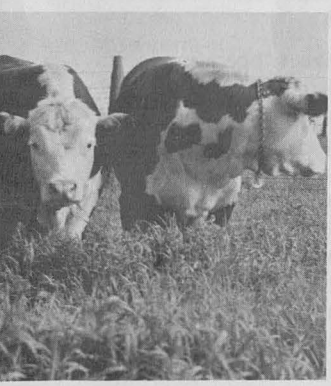
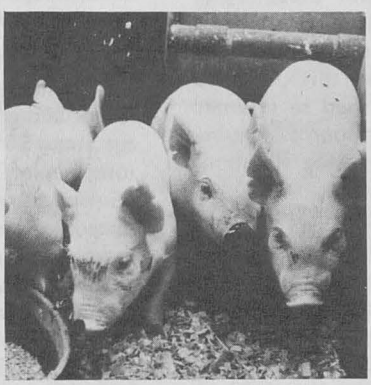
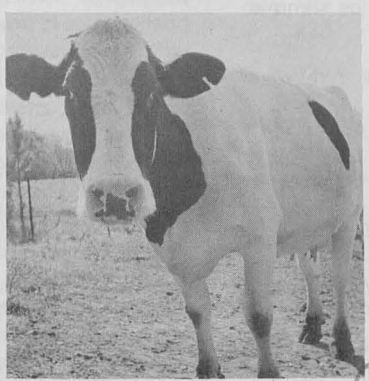
*Acknowledgment is given to two groups who have contributed to this publication: the many northern Minnesota farmers who have cooperated, now and in the past, in the extension farm management program; and northern Minnesota county extension agents who have helped prepare this publication.







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support a family on a gross income of less than $20,000. However, a farmer with limited capital and a heavy debt repayment schedule will require a gross income of at least $30,000.

Past requirements for full-time farming

In the late 1950's, 20 dairy cows were required to make a living. However, 15 high-producing cows were better than 25 poor-producing cows. In analyzing the progress of a group of farm management cooperators over a 5-year period, important factors were found to be (1) increasing quantity and quality of forage production; (2) increasing herd productivity; and (3) expanding herd size.[1]

Poultry and feeder pig production also contributed to the earnings of northern Minnesota farmers.

In the early 1960's, two farm types were viable full-time operations in north central Minnesota.[2] One was a dairy herd of about 25 cows. The other was a combination of 15-20 dairy cows plus a feeder pig enterprise. Analysis of the dairy-feeder pig farms indicated that the feeder pig enterprise was often more profitable than the dairy unless a Grade A market was available. But as farmers mechanized and expanded their operations, almost all elected to specialize in dairy rather than in feeder pig production. A major economic reason for this was the wide variation in feeder pig prices and subsequent farm earnings.

In the late 1960's, farm management studies compared beef and cash crop farms with dairy farms. The dairy group was divided into those with less than 30 cows and those with 30 or more cows. The ability of these different farm types to produce a satisfactory living might best be summarized as follows:[3]

- all beef farmers had their wives working in town;
- all crop farmers had their wives working in town;
- some of the small dairy farmers had their wives working in town;
- none of the large dairy farmers had their wives working in town (they were helping with the farm chores!).

Thus, these studies indicated that, by 1970, about 30 dairy cows were required to make an economic unit. At least 150 beef cows were necessary to make a living in the late 60's.

A study of irrigation costs and returns revealed that such technology does not provide an easy answer to the low productivity of north central Minnesota's sandy soils. Added irrigation returns in 1970 and 1971 were little more than added costs. However, irrigation's stabilizing influence on feed supplies helped maintain higher dairy returns.

In the early 1970's, farm records indicate that about 35 dairy cows or 200 beef cows are needed to provide adequate earnings from forage-producing farms in northern Minnesota.

- Sheep flocks have declined sharply because of predator problems.
- Some specialized feeder pig producers are found on land that can produce feed grains.
- Specialized crop production offers limited opportunity for adequate net earnings.

Future requirements for full-time farming

The previous section outlined the farm size growth needed – from 20 dairy cows in the late 50's to 35 cows in the early 70's. But, farm prices rose sharply in 1973. Will these higher prices make it possible to earn a living with fewer resources during the rest of the decade? To answer this, projected prices and costs are used to estimate business size and resource requirements for specific farming situations in northern Minnesota.

To determine the size of business needed, three variables have to be specified: (1) living needs: (2) debt repayment, machinery replacement, and overhead costs; and (3) return over direct operating costs expected from each unit of the planning enterprise.

Living "needs" may be an improper term since family spending is a function not only of family size but of income itself. High earning families usually spend more for family living. Some small farm families are still getting by on as little as $4,000. Others are spending over $10,000 per year. A suggested minimum for the late 70's is $8,000 for a family of four.

Debt repayment and machinery replacement must be covered from the returns over direct operating costs. These items vary greatly among farmers. The debt free farmer who has no immediate needs for machinery replacement can use most of the returns over direct costs for family living. However, the individual with a low equity will have large principal and interest payments. Therefore, he will need a larger business to enjoy the same level of living as the established farmer.

Overhead expenses of farm taxes, insurance, share of automobile, organization dues, etc., must also be covered. Taxes vary with farm valuation. Other overhead is partly under the manager's control. All overhead costs can be expected to total from $2,000 to $3,000 on full-time northern Minnesota farms. This allows about $500 for miscellaneous hired help.

By adding these items, the cash that must be generated over direct operating costs can be estimated. Total cash returns needed over direct operating costs may be as shown in table 1 for different situations.

As production and prices change, expected return over direct operating costs will vary greatly by years and among farms. The returns in table 2 are calculated using productivity and price levels expected during the remainder of the 70's: (Inflation will probably increase both prices and costs, keeping return over direct costs about as shown).

Additional direct operating costs will be incurred in the production of forage and grain. These costs will average about $6 per ton of hay equivalent (one ton of hay or 3 tons of silage); 75 cents per 100 pounds of grain produced (oats or corn); and about $10 per acre of cropland pasture. Feed requirements and expected crop operating costs are shown in table 3.

Resource requirements for full-time farming

The previous section estimated the resource requirements as they're listed

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[1] Paul R. Hasbargen, Minnesota Farm Business Notes, 1959.

[2] Annual Farm Business Analysis Reports for TVA Demonstration Farms, Paul Hasbargen and Truman Nodland, 1958-1964.

[3] Annual Farm Business Analysis of TVA Test Demonstration Farms, 1966-1970.

in table 4. The approximate land, labor, and herd size needed by an established farmer and a beginning farmer under typical efficiency levels are shown. The established farmer (high equity) is assumed to require a cash inflow of $16,000 over direct operating costs and the low equity farmer is assumed to require a cash flow of $25,000 except for beef cow farms. For these, cash requirements of $27,000 and $31,000 are assumed since total capital requirements are much greater.

Calculated resource requirements indicate that the low equity operator has few viable alternatives for full-time farming in northern Minnesota. Dairy or feeder pigs may be the only enterprises that will enable a man with limited capital to obtain enough resources to make a living. Dairying fits best on forage-producing farms. Feeder pig production fits well on farms that are suited for grain production.

Beef cows require more land and capital than the low equity man can finance unless he arranges for perpetual debt. The steer raising enterprise — buying calves at about 400 pounds and feeding them for 1 year — requires a large amount of operating capital and has variable returns. Therefore, it's not suitable to the low equity operator.

A combination beef cow-calf and steer raising program (cow-yearling program) would be logical for the established farmer. A 125-cow herd with less than 400 acres of cropland might meet an annual cash flow of $21,000.

Sheep fall between dairy and beef in land and capital requirements. This enterprise has potential for the man entering it on a large scale using good management.

The poultry enterprises — either laying flocks or turkey production — are not included in the table since they are based on purchased concentrate feeds. The further removed the operation is from a surplus grain producing area, the more prohibitably expensive they become. Also, unless a special local market is available, marketing costs will be excessive. Therefore, limited opportunity exists for large scale poultry operations in northern Minnesota.

Table 1. Total cash returns needed over direct operating costs.

	Dairy-livestock farm		Beef cow farm	
	Net worth $70,000	Net worth $25,000	Net worth $70,000	Net worth $25,000
Living needs	$ 9,000	$ 8,000	$ 9,000	$ 8,000
Real estate debt payments (P + I)	0	3,500	3,500	5,500
Nonreal estate debt payments (P + I)	0	5,000	9,000	11,000
Machinery & equipment replacement	5,000	5,500	3,500	4,000
Overhead expenses	2,000	3,000	2,000	2,500
Total cash needs	$16,000	$25,000	$27,000	$31,000

Table 2. Returns calculated using productivity and price levels expected during the remainder of the 70's.

	Dairy cow	Dairy cow	Beef cow	Feeder calf	Sheep	Feeder pigs
Number	1	1	1	1	10	2 litters
Production	10,000	14,000	85% crop	325 lbs.	145%	16 pigs
Value produced	$805	$1,100	$187	$95	$500	$426
Direct costs	$100	$125	$22	$32	$52	$112
Return over direct livestock costs	$705	$975	$165	$63	$448	$314

Table 3. Feed requirements and expected crop operating costs.

	Dairy cow	Dairy cow	Beef cow	Feeder calf	Sheep	Feeder pigs
Hay, tons	8	8	3	1.3	6.6	.3
Grain, cwt.	39	56	1.5	2	33.6	28
Pasture, acres	1.0	1.0	1.2	.4	2.5	.1
Direct costs	$83	$100	$25	$13	$90	$24
Return over all direct costs	$622	$875	$140	$50	$358	$290

Table 4. Resources needed for full-time farming.

Enterprise	Equity position[1]	At these production levels[2]	Number of animals	Acres of cropland[3]	Hours of labor
Good dairy	high	14,000 lbs. milk	18	120	3,000
	low	per cow	29	200	4,000
Average dairy	high	10,000 lbs. milk	25	160	3,600
	low	per cow	40	250	4,700
Beef cow	high	85% calf crop	190	425	4,800
	low		220	500	5,300
Raising steers	high	325 lbs. of gain	320	320	3,600
	low		500	500	5,300
Sheep	high	145% lamb crop	450	300	3,500
	low		700	460	5,000
Feeder pigs	high	8 pigs/litter	110 litters	85	2,200
	low		172 litters	130	3,300

[1]The high equity position assumes a net worth of about $70,000; the low equity position is $25,000.

[2]If production efficiencies are higher or lower than shown, resource requirements will move in the opposite direction.

[3]Cropland requirements are calculated assuming crop yields of 2.5 tons of hay or 10 tons of corn silage. More acres will be required if land is less productive.

Part-time farming

As capital requirements increased and more off-farm job opportunities opened up, more farmers shifted to part-time farming. More recently, as city traffic and pollution problems increased, more city dwellers are residing on small farms and engage in farm production to help pay for these farms.

To do this, the part-time farmer must keep two things in mind. First, he must select enterprises giving high returns per hour even though on a small scale. The dairy enterprise does not qualify because high production requires timely management.

Second, ownership of expensive machines must be avoided since small operations can't carry large overhead expenses. Harvest, for example, may best be done with custom hire. Or, cropland may be rented for a share of the crop or for cash.

Before tax returns, potential from 1,000 hours in a livestock enterprise and the number that can be handled are:

	Number	Returns over direct costs and equipment replacement
Beef cows	65	$5,000
Raising steers	150	3,800
Sheep	225	3,500
Litters of pigs	60	5,000

The labor required per head was assumed to be about 50 percent greater than for the full-time farmer. This is because smaller livestock enterprises have less labor saving mechanization and relatively greater overhead labor requirements. However, equipment replacement costs should be lower.

Steer raising becomes less desirable because the other three enterprises all have some tax-sheltered capital gain sales in the form of breeding stock. This shelter is quite significant for beef cows and of little significance for the ewe flock.

Thus from an economic standpoint, beef cows and sows offer the most potential to the part-time farmer. The cow-calf operation fits best on the forage-producing farm. The feeder pig-producing unit fits well on the farm which can produce feed grain.

Another aspect of part-time farming is the production of meat and vegetables for the family. Gardening and a few ducks, geese, chickens, hogs, or a beef animal can help reduce cash outlay for food. However, the time required to do these "chores" is significant, so the family should undertake only those which they enjoy doing.

Property selection suggestions

Land prices vary greatly in Minnesota's cutover timber region. This is because of recreational and urban influences as well as agricultural productivity differences. But the buyer interested in using land for agricultural purposes should be concerned primarily with soil productivity and local markets.

Information on soils, crop yield potentials, and markets can be obtained from the county extension office or the Soil Conservation Service in most county seat towns. The Agricultural Stabilization and Conservation Service office will have a history of cropland use and yields. The county tax assessor has a record of estimated market appraisals. These are updated about every 2 years. These public agencies should be contacted to help evaluate farms before buying.

The buyer who wants to retire or become a part-time farmer will put major emphasis on factors other than soil productivity. But, he will find that small acreages for rural living also vary greatly in price. The major price-determining factor is dwelling design and location. A large, well-built, modern, conveniently located house will greatly enhance the value of a small acreage. Accessibility to community services – such as water, sewer, schools and churches – should be considered. The retiring couple may be especially concerned about snow removal service and availability of medical care.

All property buyers will want to consider ownership and maintenance costs. What are the current taxes? Will there be special tax assessments? How much will repair and upkeep cost? What about snow removal and transportation? Can these annual costs plus annual principal and interest payments be met?

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