

# Analyzing and planning THE DAIRY-FARM BUSINESS

COOPERATIVE EXTENSION SERVICE

MICHIGAN STATE UNIVERSITY

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DAIRY, AND AGRICULTURAL ENGINEERING

Developing a successful dairy business calls for wise decisions about the use of land, buildings, equipment, labor, livestock, and other farming resources. Dairymen continually face opportunities for adopting new technologies, and increasing the use of some resources while curtailing the use of others. Analyzing the dairy farm business may point to certain changes or adjustments that will combine and utilize resources more effectively. The changes can result in more efficient production, increased net income, and other benefits.

If rules could be written prescribing successful dairying, outstanding managers would have little opportunity to exercise initiative in planning for superior results. Imaginative departures from average performance provide both opportunities and rewards. Yet, knowledge of typical performance rates on successful farms can provide a starting point for any dairyman who wants to develop effective ways of using his unique combination of resources in meeting his own personal objectives.

A farm operator needs such information when he is considering changes involving new investments, herd operations, or perhaps

starting in the dairy farming business. To aid in planning needs for building space, equipment, labor, and feed, typical performance standards are suggested below. These inputs are also expressed in money terms on a per-cow and per-acre basis.

For the established dairyman, comparisons with the typical performance rates of successful operators may suggest opportunities for improvement that will warrant careful study.

Remember, however, that increasing the output from any one kind of input may be accompanied by diminished output per unit of other inputs. Attaining maximum output per cow, for example, may result in lowering the output per unit of feed.

Thus the problem of economic balance is important if dairymen are to obtain maximum returns from whatever total combination of resources they control. Optimum dairy farm organization will have been achieved when no further improvement is possible--not when the operator has equalled or exceeded the performance of his relatively successful neighbors.

## TYPICAL PERFORMANCE RATES ON SUCCESSFUL MICHIGAN DAIRY FARMS

### Organization and Production Factors

	NORTHERN MICHIGAN			SOUTHERN MICHIGAN		
	Per Acre	Per Cow*	Per Man	Per Acre	Per Cow*	Per Man
Gross income	\$100-\$120	\$425-\$500	\$12000-\$15000	\$120-\$140	\$500-\$550	\$14000-\$18000
Pounds of milk						
Large breeds		10,000-12,000			11,000-14,000	
Small breeds		7,000-9,000			8,000-10,000	
Cows			20-25			23-30
Tillable acres		4-7			3-6	
Milk sales, lbs.			250,000			300,000
Crop value	\$40-\$50			\$55-\$70		

\*Includes \$60-\$80 cattle income per cow (cull cows, calves, heifers)

### Costs Per Acre and Per Cow

Item	NORTHERN MICHIGAN		SOUTHERN MICHIGAN	
	Per Acre	Per Cow*	Per Acre	Per Cow*
Labor	\$16-\$20	\$80-\$120	\$18-\$22	\$100-\$150
Machinery	15-17	75-100	18-22	90-110
Buildings & improvements	4-6	25-35	5-7	25-35
Crop	8-12	45-60	13-18	60-80
Feed	6-10	30-50	8-12	40-60
Taxes	2-3	10-15	3-5	10-20
Interest on investment 5%	12-16	60-80	15-20	80-110
Other costs	5-9	30-40	7-10	30-40
Total cost	\$80-\$100	\$400-\$500	\$110-\$130	\$450-\$550

\*Includes allowance for replacement animals

### Investment Per Acre and Per Cow

	NORTHERN MICHIGAN		SOUTHERN MICHIGAN	
	Per Acre	Per Cow*	Per Acre	Per Cow*
Land	\$75	\$300-\$400	\$175	\$600-\$750
Buildings and improvements (depreciated value)	\$75	\$300-\$450	\$100	\$350-\$500
Machinery (depreciated value)	\$40-\$50	\$200-\$240	\$50-\$60	\$240-\$350
Livestock	\$80-\$100	\$325-\$425	\$100-\$120	\$350-\$450
Feed	\$25-\$35	\$140-\$200	\$40-\$60	\$140-\$200
Total	\$300-\$325	\$1265-\$1715	\$465-\$515	\$1680-\$2250

\*Includes allowance for replacement animals

## FEED SUPPLY ESTIMATES

Item	Amount			
	Large Breed		Small Breed	
	With Pasture	Dry Lot	With Pasture	Dry Lot
<b>Cow Herd</b>				
Dry matter for 100 pounds body weight, lbs.	3 1/2	3 1/2	3 1/2	3 1/2
Pounds grain per pounds milk	1/3-1/2	1/3-1/2	1/3-1/2	1/3-1/2
Total grain per cow, tons	2-3	2-3	2-3	2-3
Hay equivalent, tons*	4-5	5.5-6.5	3.5-4	4.5-5.5
<b>Replacements</b>				
Grain (per mature cow), lbs.	500	500	500	500
Hay equivalent*, tons	1.9	2.7	1.3	1.9

\*Substitute hay for silage at rate of 1 to 3

## OTHER HERD MANAGEMENT RECOMMENDATIONS

% fall freshening	80%
Kind of breeding	Artificial
Days dry (herd average)	40-45 days
(individual cow)	55-65 days
Weight at breeding - Holstein	750 lbs.
Jersey and	
Guernsey	500 lbs.
Weight at calving - Holstein	1100 lbs.
Guernsey	850 lbs.
Jersey	725 lbs.
Calfhood vaccination	4 through 8 months

## FEED AND BEDDING STORAGE SPACE

	Average	Range
	cu. ft./ton	cu. ft./ton
Hay, baled	275	250-300
Hay, chopped--field cured	425	400-450
Hay, chopped--mow cured	325	300-350
Hay, long	500	475-525
Straw, baled	450	400-500
Straw, chopped	600	575-625
	lbs./cu. ft.	lbs./bu.
Ear corn	28	70
Shelled corn	44.8	56
Oats	25.6	32
Ground grain (mixture)	32	40

## DAIRY HERD HOUSING AND FEED STORAGE REQUIREMENTS

	Loose (Cold)		Warm (Stanchion)
	Free Stall - Built-up Pack		
<u>RESTING AREA</u> - sq. ft.			
Milk Cow	50 sq. ft.*	60 sq. ft.	72 sq. ft. (4' x 18'）**
Dry Cow	50 sq. ft.	60 sq. ft.	72 sq. ft. (4' x 18'）**
Young Stock-10 mos. to 2 yrs.	---	40 sq. ft.	54 sq. ft. (3 1/2' x 18'）**
Young Stock-6 wks. to 10 mos.	---	30 sq. ft.	35 sq. ft. (pen area)
<u>HOSPITAL</u>			
Maternity isolation	1 pen/10 cows 100 sq. ft./ pen	1 pen/10 cows 100 sq. ft./ pen	1 pen/10 cows 100 sq. ft./ pen
Calves under 6 wks.	25 sq. ft.	25 sq. ft.	25 sq. ft.
<u>PAVED (outside)</u>			
Milk Cow	100 sq. ft.	100 sq. ft.	50 sq. ft.
Dry Cow	100 "	100 "	50 "
Young Stock	40 "	40 "	25 "
<u>HOLDING PENS</u>	15 sq. ft.	15 sq. ft.	---
<u>FEEDING SPACE</u> - Limited (2 x's per day or less) for hay and silage			
Milk Cow	24 in.	24 in.	---
Dry Cow	24 in.	24 in.	---
Young Stock	12 in.	12 in.	---
	Free Choice (3 x's per day or more)		
Milk Cow	6	6	---
Dry Cow	6	6	---
Young Stock	3	3	---
<u>BEDDING REQUIREMENTS</u> - Straw			
Milking Cows	1/2 ton	1 1/2 ton	1 ton
Dry Cows	1/2 ton	1 1/2 ton	1 ton
Young Stock		1/2 ton	1/2 ton

\*Recommended cross section is 25' made up of 7 1/2 stall, 10' alley and 7 1/2' stall. 50 sq. ft. includes 4' x 7 1/2' stall and 20 sq. ft. of alley.

\*\*One half cross section of a 36' wide barn. Includes feed alley, gutters, managers and cow alley using a 4' width of stall.