



Costs of producing and distributing market milk in the Billings-Laurel area of Montana  
by Roy Blanch

A THESIS Submitted to the Graduate Committee in partial fulfillment of the requirements for the Degree of Master of Science in Agricultural Economics  
Montana State University  
© Copyright by Roy Blanch (1941)

Abstract:

Date on cost of production and cost of distribution of market milk were supplied by 26 operators located in the Billings-Laurel market area. These data were used to determine the per quart cost of producing and the per unit and per quart equivalent cost of distributing market milk for each operator. The average production cost of the 22 producers and the average distribution cost of the 11 distributors were also calculated. An analysis was made to determine the factors exerting the greatest influence in causing the wide variation in costs among individual operators.

The average cost of producing milk was 4.19 cents per quart and the range among individual operators was from 2.78 cents to 5.92 cents. Labor and feed were the largest costs, accounting for 40 per cent and 36 per cent respectively of the total cost.

The average cost of distributing market milk was 2.79 cents per unit of fluid sales and 3.82 cents per quart equivalent. The range among individual operators in these costs was from 2.01 cents to 5.24 cents per unit and from 2.63 cents to 6.25 cents per quart equivalent. The largest single cost of distributing market milk was for labor which accounted for about 60 per cent of the total cost. The costs of truck operation and of depreciation were the next largest costs, accounting for 12 per cent and 8 per cent respectively of the total cost.

The retail price of market milk in Billings was 11 cents per single quart and 10 cents per quart when four or more quarts were taken. The milk handled by the operators furnishing data, however, was sold both as market milk and as surplus milk. The latter was sold in the form of manufactured products at lower prices.

The factors exerting the greatest influence in causing the wide variation among individual operators in costs of producing and distributing market milk were found to be as follows: 1. Production per cow 2. Size of herd 3. Volume of milk handled during the year 4. Labor efficiency 5. Use of equipment to varying capacities 6. Lack of an organized credit system.

COSTS OF PRODUCING AND DISTRIBUTING MARKET MILK  
IN THE BILLINGS-LAUREL AREA OF MONTANA

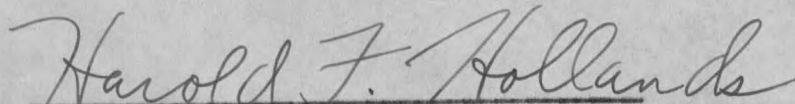
by

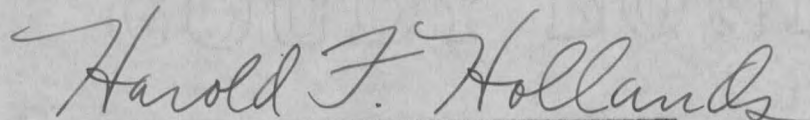
Roy Blanch

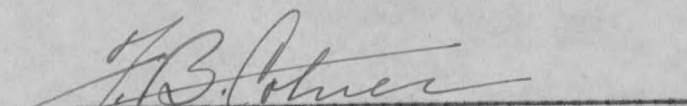
A THESIS

Submitted to the Graduate Committee  
in partial fulfillment of the requirements  
for the Degree of Master of Science  
in Agricultural Economics at  
Montana State College

Approved:

  
In Charge of Major Work

  
Chairman, Examining Committee

  
Chairman, Graduate Committee

Bozeman, Montana  
June, 1941

N378  
B59c

TABLE OF CONTENTS

	Page
LIST OF ILLUSTRATIONS.....	4
ABSTRACT.....	6
PART I: INTRODUCTION.....	7
<u>Purposes of the Study</u> .....	8
<u>Sources and Characteristics of the Data</u> .....	9
<u>Description of the Market</u> .....	12
<u>Government Agencies in the Market</u> .....	14
Montana Livestock Board.....	14
Montana Milk Control Board.....	17
<u>Definition of Terms</u> .....	18
<u>Method of Analysis</u> .....	20
PART II: PRODUCTION OF MARKET MILK.....	22
<u>Credits</u> .....	24
Value of Calves.....	24
Value of Manure.....	24
Cow Appreciation.....	24
By-products.....	24
<u>Costs</u> .....	24
Labor.....	28
Feed.....	30
Buildings and Equipment.....	34
Cow Depreciation.....	35
Hauling.....	37
Association Dues, Licenses, and Taxes.....	37
Miscellaneous.....	38
<u>Factors Affecting Production Costs</u> .....	39
Volume.....	39
Production Per Cow.....	41
Size of Herd.....	45

S 941 of Cattle (Shoes) of 2

	Page
Investment Per Cow.....	47
Distance From Market.....	47
 PART III. DISTRIBUTION OF MARKET MILK.....	 53
<u>Distribution Costs Classified</u> .....	56
<u>Factors Affecting Costs of Distribution</u> .....	62
Volume.....	64
Investment.....	70
Labor Efficiency.....	70
Truck Operation.....	80
Depreciation.....	80
Supplies.....	82
Repairs.....	82
Bad Debts.....	83
Bottles.....	84
All Other.....	85
<u>Summary and Conclusions</u> .....	86
 APPENDIX A: SUPPLEMENTARY TABLES.....	 88
 ACKNOWLEDGMENTS.....	 96
 LITERATURE CITED AND CONSULTED.....	 97

CONDY BRAND

LIST OF ILLUSTRATIONS

	Page
Figure 1. Map showing the location of Billings and Laurel, Montana.....	13
Figure 2. Map showing the location of producers and distributors cooperating in this study, 26 operators.....	15
Figure 3. Relation between labor cost per quart of milk produced and value of operator's labor per month, 22 operators.....	31
Figure 4. Relation between cost of alfalfa per quart of milk produced and total production cost per quart, 22 operators.....	33
Figure 5. Relation between cost of concentrates per quart of milk produced and total production cost per quart, 22 operators.....	33
Figure 6. Relation between total cost per quart of milk produced and, per quart investment in buildings and equipment, 22 operators.....	36
Figure 7. Relation between total cost per quart of milk produced and total volume of milk handled, 22 operators.....	42
Figure 8. Relation between labor cost per quart of milk produced and total volume of milk handled, 22 operators.....	43
Figure 9. Relation between total cost per quart of milk produced and, average production per cow, 22 operators.....	44
Figure 10. Relation between labor cost per quart of milk produced and, average production per cow, 22 operators.....	44
Figure 11. Relation between feed costs per quart of milk produced and, average production per cow, 22 operators.....	46
Figure 12. Relation between buildings and equipment cost per quart of milk produced and, average production per cow, 22 operators..	46
Figure 13. Relation between total cost per quart of milk produced and, average number of cows in the herd, 22 operators.....	49
Figure 14. Relation between labor costs per quart of milk produced and average number of cows in the herd, 22 operators.....	50
Figure 15. Relation between buildings and equipment costs per quart of milk produced and average number of cows in the herd, 22 operators.....	51

	Page
Figure 16. Relation between distribution costs per unit of fluid sales and total units of fluid sales, 11 operators.....	66
Figure 17. Relation between distribution costs per quart equivalent and total quart equivalents, 11 operators.....	66
Figure 18. Relation between delivery cost per unit of fluid sales and total units of fluid sales, 11 operators.....	67
Figure 19. Relation between delivery cost per quart equivalent and total quart equivalents, 11 operators.....	67
Figure 20. Relation between plant cost per unit of fluid sales and total units of fluid sales, 11 operators.....	69
Figure 21. Relation between plant costs per quart equivalent and total quart equivalents, 11 operators.....	69
Figure 22. Relation between total investment per unit of fluid sales and total units of fluid sales, 11 operators.....	71
Figure 23. Relation between total investment per quart equivalent and total quart equivalents, 11 operators.....	71
Figure 24. Relation between investment in delivery equipment per unit of fluid sales and total units of fluid sales, 11 operators.	72
Figure 25. Relation between investment in delivery equipment per quart equivalents, and total quart equivalents, 11 operators.....	72
Figure 26. Relation between labor costs per unit of fluid sales and total units of fluid sales, 11 operators.....	74
Figure 27. Relation between labor costs per quart equivalent and total quart equivalents, 11 operators.....	74
Figure 28. Relation between plant labor costs per unit of fluid sales and total units of fluid sales, 11 operators.....	75
Figure 29. Relation between plant labor costs per quart equivalent and total quart equivalents, 11 operators.....	75
Figure 30. Relation between delivery labor cost per unit of fluid sales and total units of fluid sales, 11 operators.....	76
Figure 31. Relation between delivery labor costs per quart equivalent and total quart equivalents, 11 operators.....	76
Figure 32. Relation between truck operators costs per unit of fluid sales and total units of fluid sales, 11 operators.....	81

COSTS OF PRODUCING AND DISTRIBUTING MARKET MILK  
IN THE BILLINGS-LAUREL AREA OF MONTANA

ABSTRACT

Data on cost of production and cost of distribution of market milk were supplied by 26 operators located in the Billings-Laurel market area. These data were used to determine the per quart cost of producing and the per unit and per quart equivalent cost of distributing market milk for each operator. The average production cost of the 22 producers and the average distribution cost of the 11 distributors were also calculated. An analysis was made to determine the factors exerting the greatest influence in causing the wide variation in costs among individual operators.

The average cost of producing milk was 4.19 cents per quart and the range among individual operators was from 2.78 cents to 5.92 cents. Labor and feed were the largest costs, accounting for 40 per cent and 36 per cent respectively of the total cost.

The average cost of distributing market milk was 2.79 cents per unit of fluid sales and 3.82 cents per quart equivalent. The range among individual operators in these costs was from 2.01 cents to 5.24 cents per unit and from 2.63 cents to 6.25 cents per quart equivalent. The largest single cost of distributing market milk was for labor which accounted for about 50 per cent of the total cost. The costs of truck operation and of depreciation were the next largest costs, accounting for 12 per cent and 8 per cent respectively of the total cost.

The retail price of market milk in Billings was 11 cents per single quart and 10 cents per quart when four or more quarts were taken. The milk handled by the operators furnishing data, however, was sold both as market milk and as surplus milk. The latter was sold in the form of manufactured products at lower prices.

The factors exerting the greatest influence in causing the wide variation among individual operators in costs of producing and distributing market milk were found to be as follows:

1. Production per cow
2. Size of herd
3. Volume of milk handled during the year
4. Labor efficiency
5. Use of equipment to varying capacities
6. Lack of an organized credit system.

COUDY BOND





















































































































































































































