SWRHL-40r

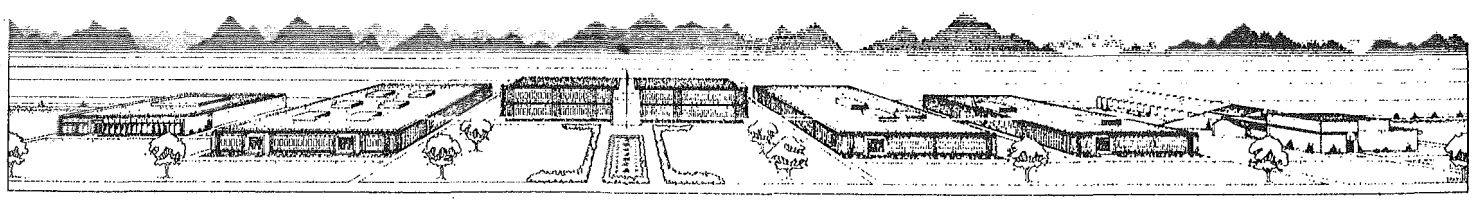
PASTURE AND GREEN CHOP FEEDING PRACTICES IN NEVADA WITHIN 300 MILES OF PAHUTE MESA IN THE 0^{o} - 60^{o} TRAJECTORY

by the
Milk, Food and Water Surveillance Unit
Environmental Surveillance
Southwestern Radiological Health Laboratory

Department of Health, Education, and Welfare
Public Health Service
National Center for Radiological Health

November 1968

This study performed under a Memorandum of
Understanding (No. SF 54 373)
for the
U. S. ATOMIC ENERGY COMMISSION



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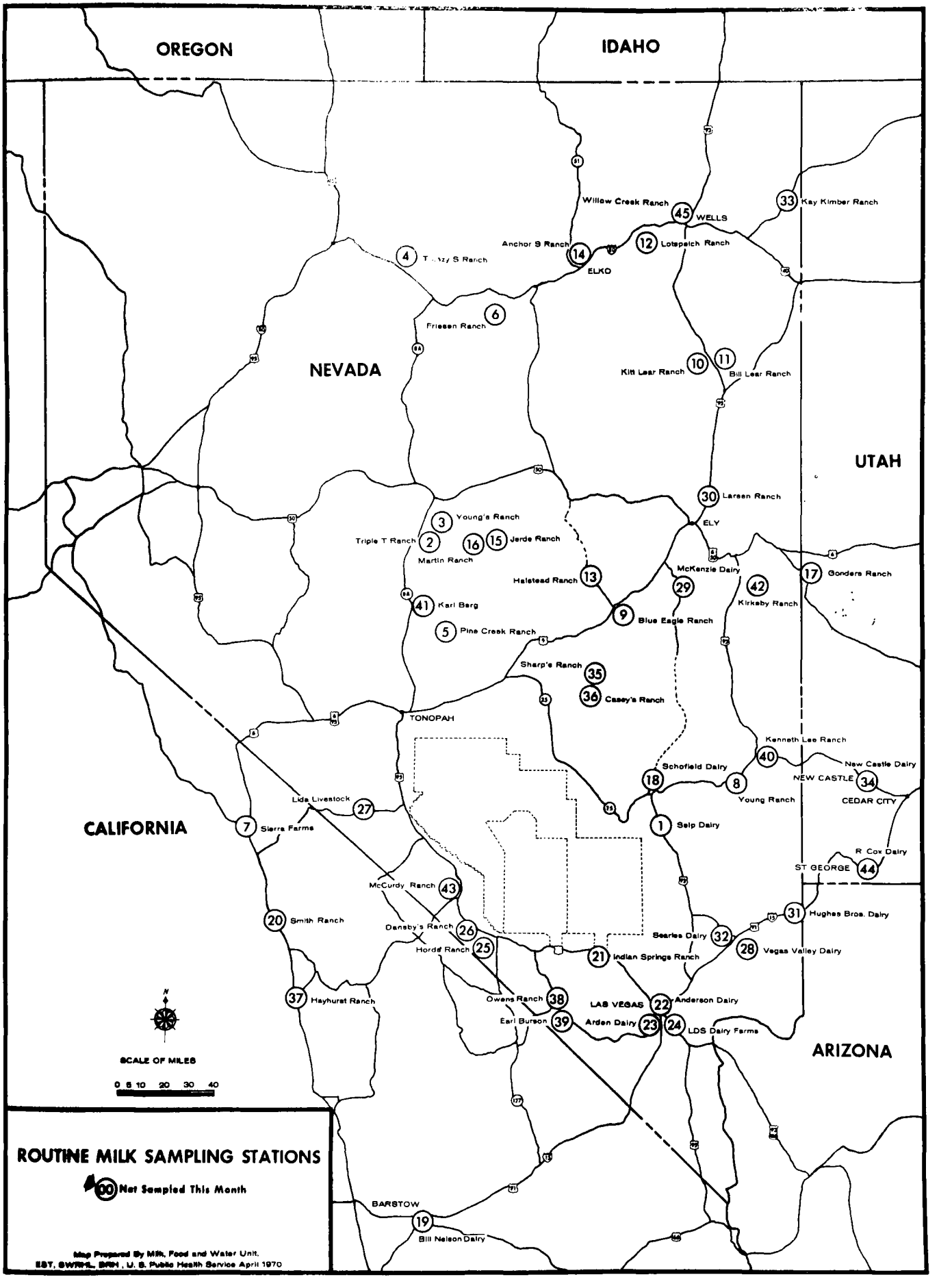
OREGON
IDAHO
NEVADA
UTAH
CALIFORNIA
ARIZONA
Willow Creek Ranch
45 WELLS
33 Kay Kimber Ranch
Anchor S Ranch
14 ELKO
12 Lotspeich Ranch
4 T Lazy S Ranch
6 Friesen Ranch
Kitt Lear Ranch 10
11 Bill Lear Ranch
30 Larsen Ranch
ELY
3 Young's Ranch
Triple T Ranch 2
16 15 Jerde Ranch
Martin Ranch
Halstead Ranch 13
McKenzie Dairy 29
42 Kirkeby Ranch
17 Gonders Ranch
41 Karl Berg
9 Blue Eagle Ranch
5 Pine Creek Ranch
Sharp's Ranch 35
36 Casey's Ranch
TONOPAH
Kenneth Lee Ranch 40
New Castle Dairy
Schofield Dairy 18
8 Young Ranch
NEW CASTLE 34
CEDAR CITY
Lida Livestock 27
7 Sierra Farms
1 Selp Dairy
R Cox Dairy
ST GEORGE 44
McCurdy Ranch 43
20 Smith Ranch
Dansby's Ranch 26
Hordé Ranch 25
31 Hughes Bros. Dairy
Searles Dairy 32
28 Vegas Valley Dairy
21 Indian Springs Ranch
37 Hayhurst Ranch
Owens Ranch 38
LAS VEGAS 22 Anderson Dairy
Earl Burson 39
Arden Dairy 23
24 LDS Dairy Farms
BARSTOW
19 Bill Nelson Dairy
N
SCALE OF MILES
0 5 10 20 30 40
ROUTINE MILK SAMPLING STATIONS
(00) Not Sampled This Month
Map Prepared By Milk, Food and Water Unit,
EST, SWRHL, BRH, U. S. Public Health Service April 1970

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ABSTRACT

This report indicates the feeding practices for milk cows within a specific trajectory in the State of Nevada. Graphs are presented to show that the number of cows fed on pasture increases rapidly during the month of April and decreases sharply during October. Also included is other information of interest such as milk production and distribution in Nevada and Utah.

TABLE OF CONTENTS

LIST OF TABLE AND FIGURES

I. INTRODUCTION

The purpose of this report is to provide information on milk cow feeding practices out to approximately 300 miles from Pahute Mesa, Nevada Test Site, in the 0^{o} - 60^{o} sector.

The report includes both Grade A producers, supplying milk to milk processing plants for pasteurization and distribution, and family milk cows kept primarily for production of milk for family use.

Within this study area, there are seven Grade A milk producers, all located at Lund, Nevada. The entire milk production at Lund is shipped to Salt Lake City, Utah for processing and distribution.

The feeding practices of milk cows in the state of Nevada vary from one area to another as well as from one farm or producer dairy to another.

In general, Grade A milk producers use dry lot feeding practices, but dry feed (hay, silage, dairy mix, etc.) may be supplemented with green chop (alfalfa, small grain or other green forage, cut and fed green) during certain months of the year, depending on their location and on the season. However, the seven producer dairies within the study area do not feed green chop, but one does use pasture beginning about May 15. Of the 329 cows in these Grade A herds, only 52 are placed on pasture. Normally, family milk cows are not fed green chop although many are placed on pasture during certain months of the year.

II. DISCUSSION OF TABLE AND FIGURES

The feeding practices of milk cows in the study area are shown in Table 1. The number of cows on pasture by month for each 50-mile increment is included and cows on dry feed year around are shown.

The total number of cows feeding on either dry feed (hay) and/or pasture in any mileage increment can be determined from Table 1 by adding the maximum number of cows feeding on pasture during the entire year in that particular mileage increment to the number of cows on dry feed year around in the same increment. An example would be 250-300 miles: 158 maximum number of cows on pasture + 13 cows on dry feed year around = 171 cows in this mileage increment.

The number of cows on pasture in Nevada within the study area is shown in Figure 1 as a function of time of year for various mileage increments from Pahute Mesa. Figure 2 shows distribution of cows on pasture for various distances from Pahute Mesa. Figure 3 indicates the total number of cows on pasture each month for the entire study area. Section III below contains an estimate of the cost of replacing contaminated milk or replacing contaminated feed.

These Figures show that pasture feeding practices increase during the month of April, reach a plateau during the summer months, and decrease rapidly during the month of October.

III. SOME POSSIBLE PROTECTIVE ACTIONS AND ESTIMATED COSTS

If contamination of an area reaches levels which require protective action, one solution would be to purchase uncontaminated hay for all milk cows. This would not constitute a great problem for the

Table 1. Feeding practices of milk cows in study area.

Increment	Monthly Distribution of Cows on Pasture												Cows on Dry Feed Year Around	Totals*
Miles	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
0- 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50-100	1	1	3	3	3	1	1	1	1	1	1	1	0	3
100-150	2	2	2	10	69	72	72	70	70	8	4	2	325	397
150-200	11	11	16	38	60	71	71	71	68	31	19	13	25	96
200-250	57	57	73	133	190	213	213	212	192	126	69	59	13	226
250-300	50	52	68	73	158	155	155	154	148	66	53	53	13	171
0-300	121	123	162	257	480	512	512	508	479	232	146	128	376	893

*Total cows in each increment obtained by adding maximum number of cows on pasture to cows on dry feed year around.

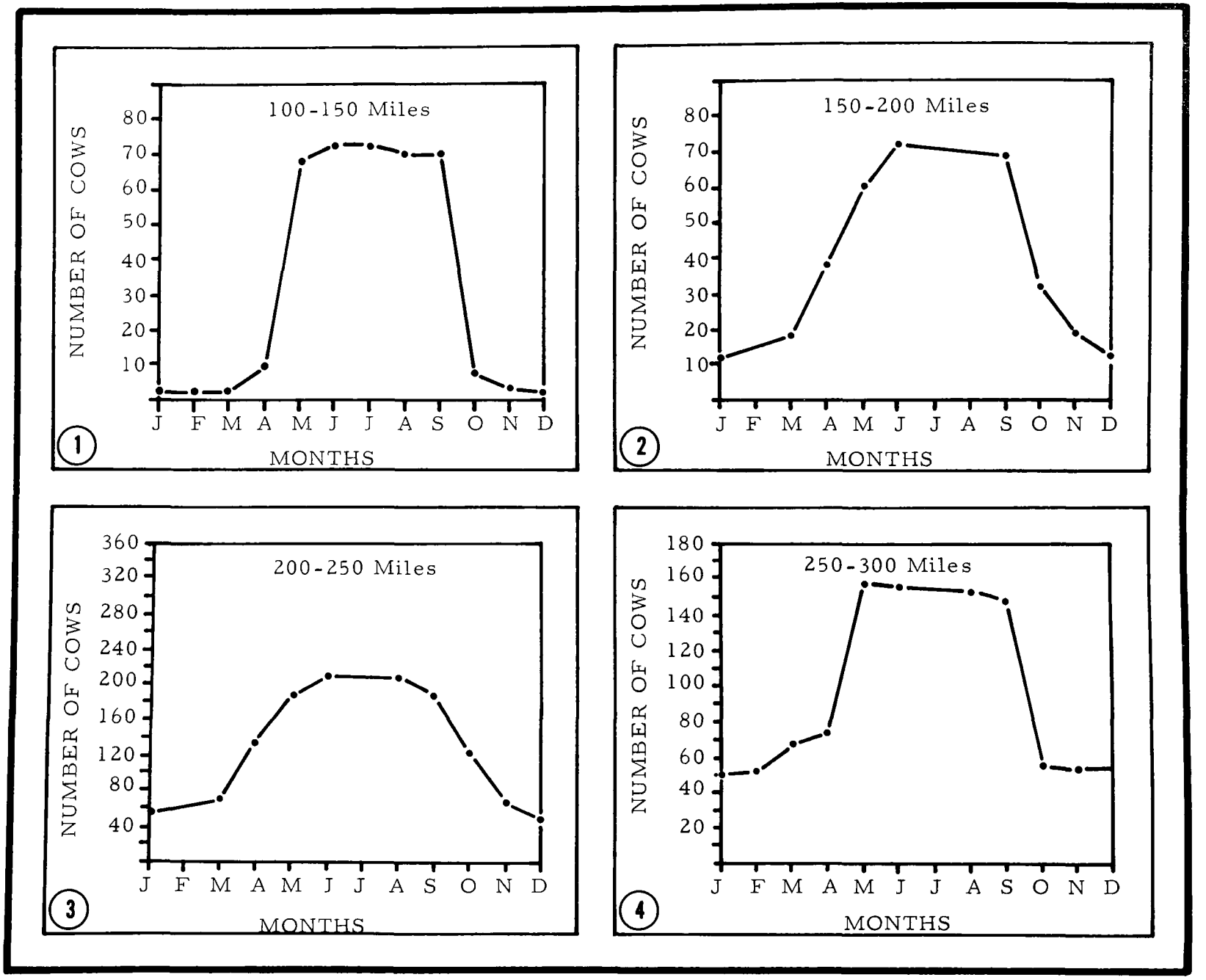


Figure 1. Cows on pasture in Nevada at indicated miles from Pahute Mesa in the 0°-60° trajectory as a function of time of year.

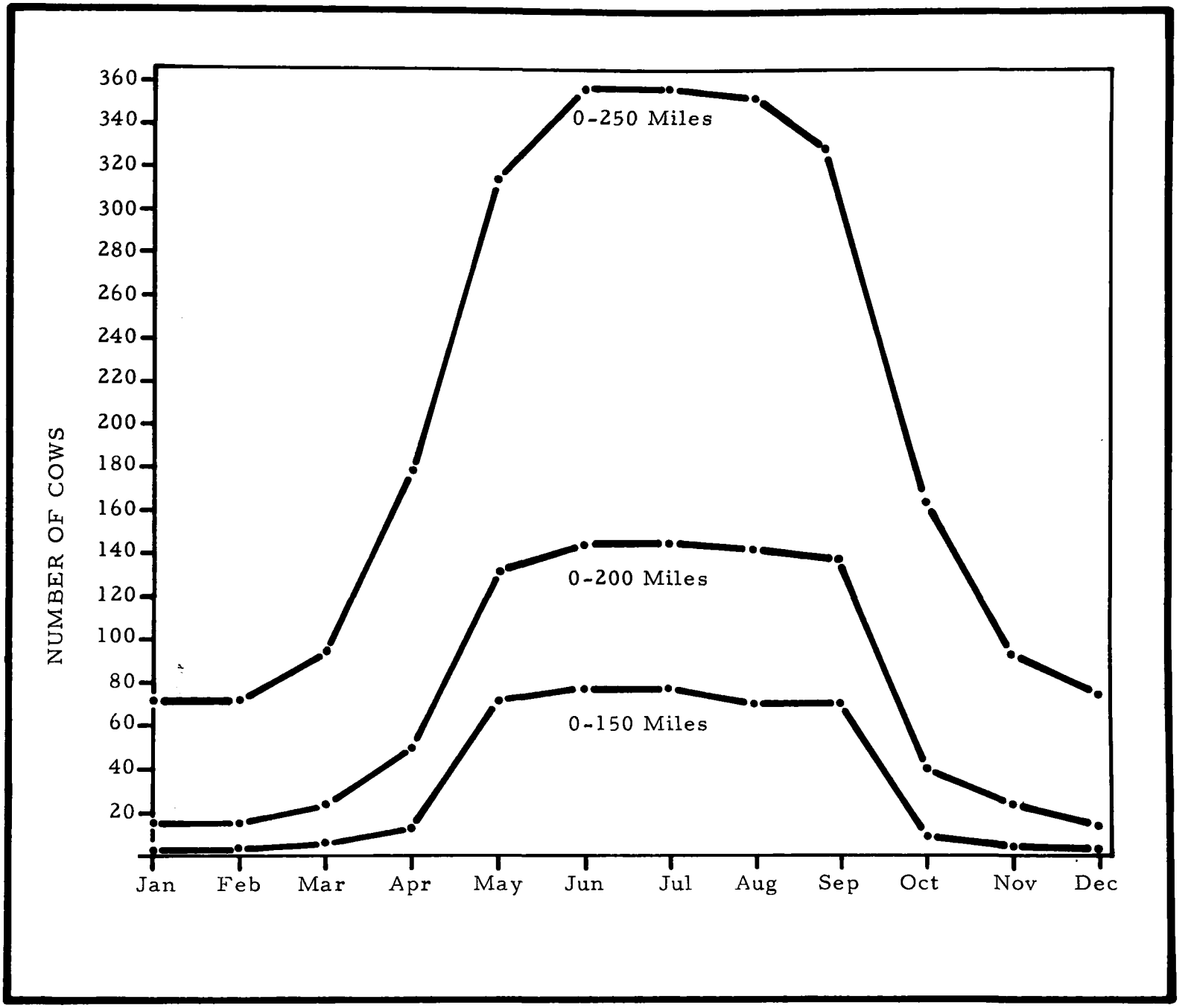


Figure 2. Cows on pasture in Nevada from zero to indicated miles from Pahute Mesa in the 0^{o}-60^{o} trajectory as a function of time of year.

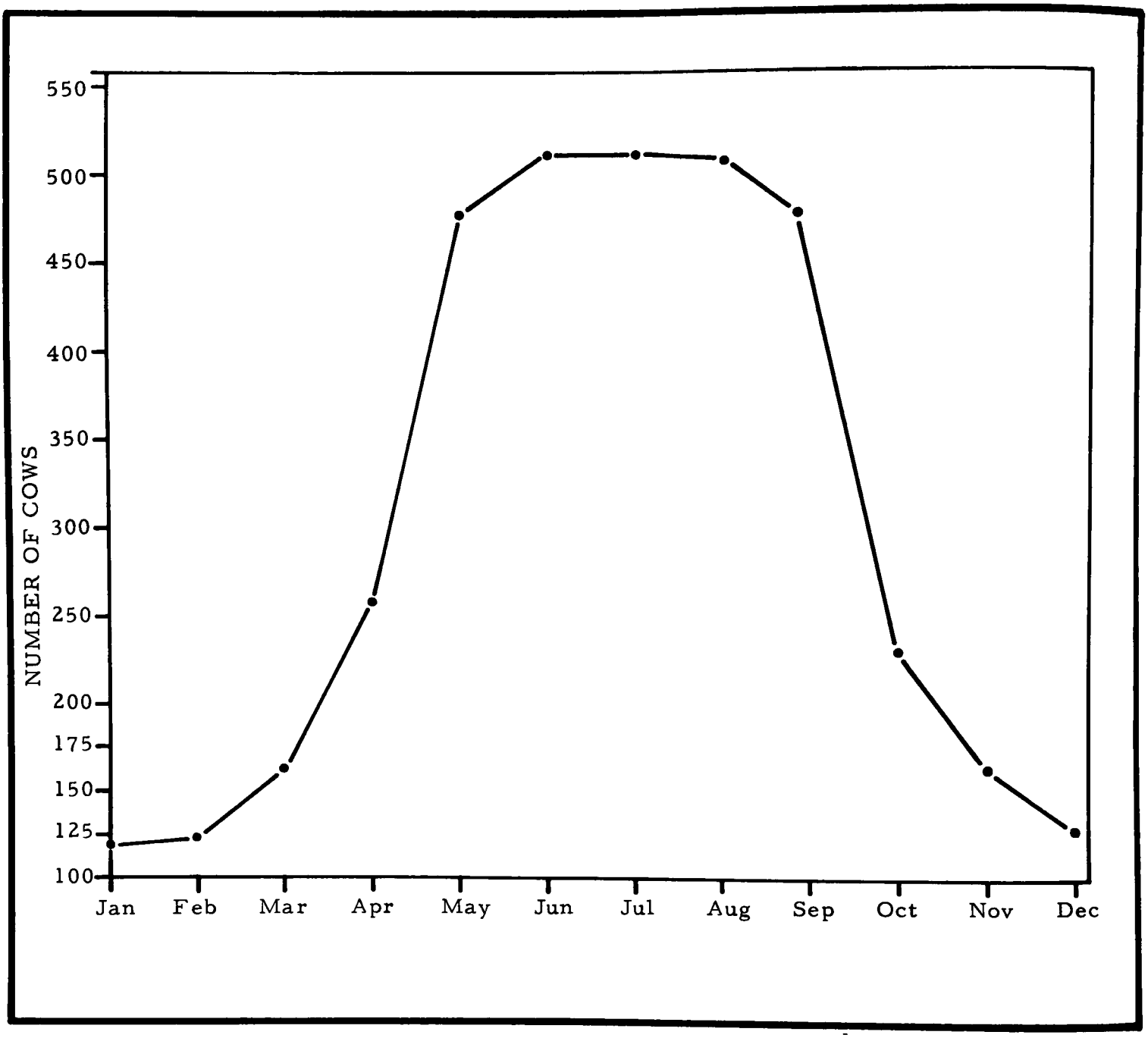


Figure 3. Total cows on pasture in Nevada at 0-300 miles from Pahute Mesa in the 0^{o}-60^{o} trajectory as a function of time.

Grade A dairy herds involved. On the other hand, it might be quite a problem to provide hay for family milk cows. An alternative would be to replace contaminated milk from family milk cows with uncontaminated milk processed in another area, but this would be much more expensive.

For example, if corrective action were necessary through the purchase of uncontaminated hay for all milk cows, the approximate cost would be as shown below by assuming that the price of alfalfa hay is approximately $40.00 per ton, a 1,200 pound milk cow consumes about 30 pounds of hay per day, and hay would have to be provided for 100 cows for a period of 30 days.

$$\frac{100 \text{ cows} \times 30 \text{ lbs/day} \times 30 \text{ days}}{2000 \text{ lbs/ton}} \times \$40.00/\text{ton} = \$1,800.$$

By comparison, if milk were purchased at a maximum cost of one dollar per gallon from 100 cows per day at 4 gallons per cow for 30 days, the cost could amount to $12,000. Additional estimated costs are shown in Figure 3. These estimates do not include the cost of transportation nor the personnel required in buying the hay and collecting the milk.

It is obvious that the effectiveness and cost of any particular protective action or countermeasure is a function of several variables such as location, time of year, type of feed, number of cows, ultimate disposition of milk, etc. For this reason no single solution can be applied to all cases. In this particular study sector, substitution of uncontaminated hay, milk exchange, or a combination of the two appears to be the most practical solution. The merit of covering feed supplies (such as hay stacks) during cloud passage is being investigated as still another possibility.

IV. ADDITIONAL STUDY AREAS

Although this study deals primarily with a section of Nevada, the feeding practices within this sector of Utah should also be mentioned. The study has shown that most of the Grade A dairy herds in Utah are on dry lot feed and supplemented with green chop from May 30 through October. Some dairies do use pasture, beginning about May 15 of each year.

Additional information concerning Nevada and Utah is given in the Appendix.

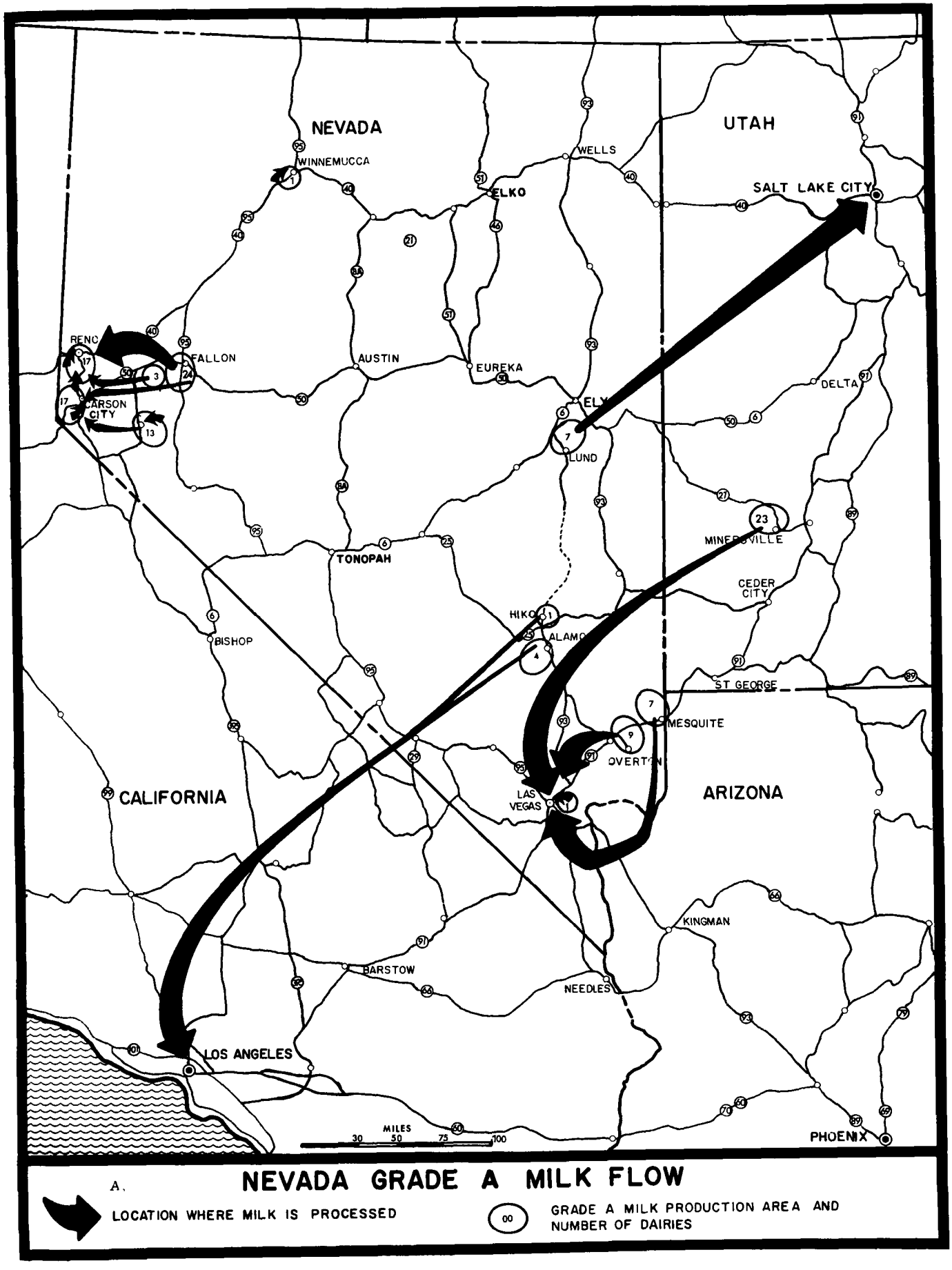
V. CONCLUSION

The Study shows that the number of milk cows feeding on pasture increases during the month of April and decreases rapidly during the month of October. Consequently, radioactive releases into the atmosphere during the April-October time period would subject more milk cows to contaminated feed (pasture), thereby increasing the probability of corrective action.

Two methods of corrective action are possible, but an additional study would be required to arrive at a more realistic cost figure than that presented.

APPENDIX

Additional information about Grade A milk production and distribution in the States of Nevada and Utah:



NEVADA GRADE A MILK FLOW

B. NEVADA GRADE A MILK PRODUCTION*

County	No. of Cows	Milk Production Gallons/Day
Churchill	2,600	11,102
Clark	3,607	14,190
Douglas	1,308	4,980
Humboldt	53	150
Lincoln	540	2,075
Lyon	1,242	4,660
Washoe	1,378	5,410
White Pine	329	1,005

*Source of Information: 1965 Population and Milk Cow Survey

NOTE: No Grade A milk produced in other counties.

C.

GRADE A MILK PRODUCTION AREAS IN THE STATE OF NEVADA SHOWING MONTHS COWS ARE USUALLY PLACED ON PASTURE OR GREEN CHOP

LDS Farm - Las Vegas	April 1 - November
Logandale - Overton Area	February 1 - November
Mesquite - Bunkerville Area	April 1 - October
Moapa Area	May 15 - November
Alamo Area	May 15 - November
Lund Area	May 15 - October
Fallon Area	May 15 - October
Yerington Area	March 15 - October
Gardnerville Area	March 15 - October
Reno Area	May 15 - October
Fernley Area	June 1 - August
3V Dairy, Winnemucca	None

Source of Information: Population and Milk Cow Census Records, County Agents and Grade A Milk Producers.

D. SALT LAKE CITY MILK SHED

Cache Valley Area	7,209 gal/day
Davis County	4,694 gal/day
Salt Lake County	11,797 gal/day
Tooele County	755 gal/day
Juab County	4,117 gal/day
Wasatch County	18,776 gal/day
Utah County	16,139 gal/day
Summit County	9,732 gal/day
Uintach Basin	8,139 gal/day
Sanpete County	7,908 gal/day
Carbon-Emery County	2,000 gal/day
Sevier County	4,601 gal/day
Beaver County	1,744 gal/day
State of Wyoming	2,035 gal/day
State of Nevada (Lund)	1,150 gal/day
Total	100,796 gal/day

Total No. of Cows 21,298

Source of Information: Wilbur C. Parkinson, Salt Lake City Health Dept.

E. NEVADA COUNTY AGENTS

Churchill	Charles R. York Box 590, Fallon 89406
Clark	Ferren W. Bunker Federal Building - Room 1-607 300 Las Vegas Blvd. So. 89101
Douglas	Gail Munk Courthouse, Minden 89423
Elko	Irving Hackett Federal Building, Elko 89801
Esmeralda-Nye-Mineral-S. Lander	James G. Jensen Federal Building, Tonopah 89049
Eureka-White Pine	A. Z. Joy Box 210, Ely 89301
Humboldt-N. Lander	J. Kirk Day Federal Building, Winnemucca 89445
Lincoln	Melvin Miller Box 338, Caliente 89008
Lyon	Fred C. Batchelder Federal Building, Yerington 89447
Pershing	Louie A. Gardella Federal Building, Lovelock 89419
Ormsby-Storey	Pete Marshall Box 1102, Carson City 89701
Washoe	John H. Pursel Box 1789, Reno 89505

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December 15, 1970

ESD:DWA

Grade A Dairy at Alamo, Nevada

Files

Frank Reed informed me, upon his return from his monitoring route, that the Alamo area has only one operating Grade A dairy at the present time. This is the Wright Dairy, code number 27-017-0140-080. This dairy has increased in size from 86 to approximately 165 cows as a result of purchasing cows from the dairies that have discontinued operation (Frehner Dairy - 90 cows, Seip Dairy - 120 cows). The Schofield Dairy at Hiko is still operating.

David W. Alton
Chief, Data and Reports Unit

cc:
G. Niles
D. Shipman
F. Grossman
C. Costa
F. Reed
R. Douglas