

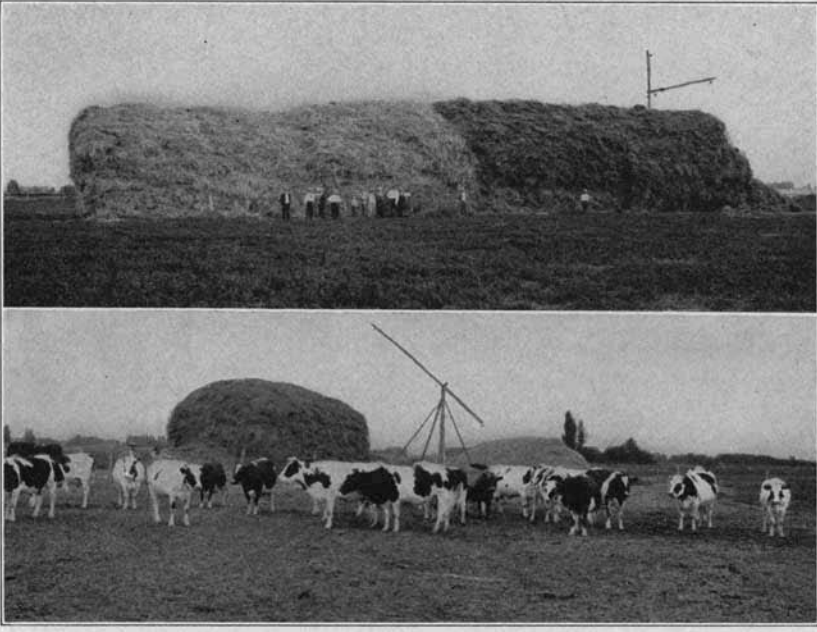
UNIVERSITY OF IDAHO
COLLEGE OF AGRICULTURE
EXTENSION DIVISION

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UNIV OF IDAHO

Suggestions for Profitable Dairying

By

D. L. FOURT, IVAN H. LOUGHARY, and J. B. RODGERS

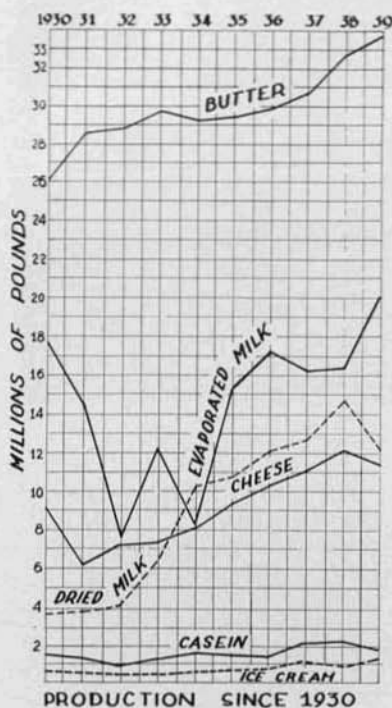
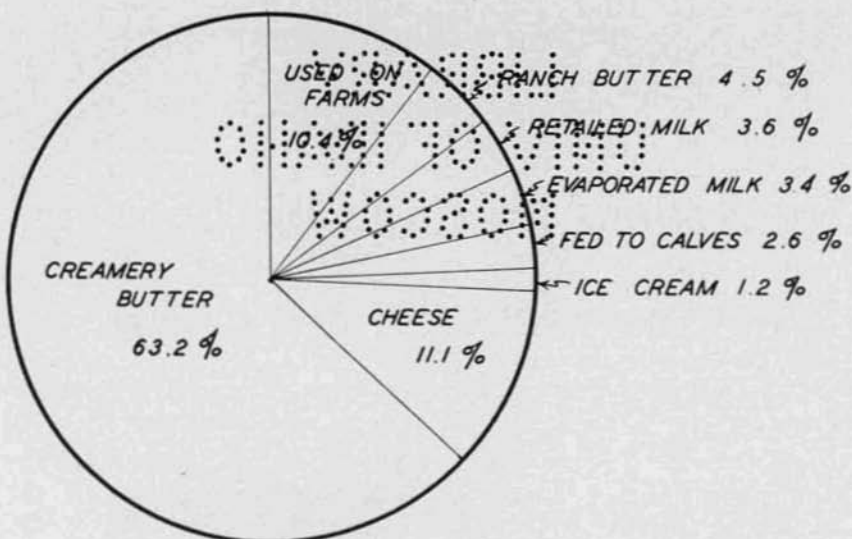


Idaho alfalfa hay and dairy cows are good business partners.

COOPERATIVE EXTENSION SERVICE IN AGRICULTURE AND HOME
ECONOMICS OF THE STATE OF IDAHO UNIVERSITY OF IDAHO
COLLEGE OF AGRICULTURE AND UNITED STATES
DEPARTMENT OF AGRICULTURE COOPERATING

DAIRY SECTION

HOW THE IDAHO MILK SUPPLY IS USED



PRODUCTION INCREASE 1930 TO 1939 INCLUSIVE STATE DEPT. OF AGRICULTURE REPORTS

BUTTER	30.6%
CHEESE	26.5%
EVAPORATED MILK	12.5%
ICE CREAM	70.6%
CASEIN	26.1%
DRIED MILK	226.1%

Suggestions for Profitable Dairying

By

D. L. FOUNT,¹ IVAN H. LOUGHARY,² and J. B. RODGERS³

Idaho's Dairy Industry

THE dairy industry has grown during the last 10 years into one of Idaho's most important industries. According to the reports of the Division of Agricultural Statistics, United States Department of Agriculture, gross income from milk ranked first among all agricultural commodities in the state in 3 of the last 10 years (1930-39). Milk ranked first in 1930, 1931, 1932 and was second in all other years except 1936, when potatoes and wheat outranked it. No other livestock enterprise approached the returns from milk in either farm value, gross income, or cash income.

Idaho exports large quantities of dairy products and is in competition with other states for the sale of her surpluses. California, particularly Los Angeles, is the primary market for Idaho dairy products. The future expansion of the dairy industry in this state will depend upon whether Idaho can successfully compete with other states in economy of production and quality of products. Idaho has more favorable conditions, such as feed and climate, than many of the other states with larger dairy industries. If the dairy farmers of Idaho will use efficient methods in production they will be able to compete successfully with other areas in cost of production. However, economical production is not all that is necessary. High quality products must be produced if Idaho dairymen are to find a ready market in competition with other sections.

Production of Dairy Products in Idaho 1930-39

Year	Butter	Cheese	Evaporated Milk	Ice Cream	Casein	Dried Milk
1930.....	26,013,000 lb.	9,025,000 lb.	17,907,000 lb.	685,000 gal.	1,580,000 lb.	3,777,000 lb.
1931.....	28,601,756 "	6,241,460 "	14,555,736 "	562,776 "	1,313,240 "	3,848,000 "
1932.....	28,918,429 "	7,289,162 "	7,807,560 "	366,497 "	946,992 "	4,164,940 "
1933.....	29,756,352 "	7,384,577 "	12,098,681 "	368,247 "	1,121,473 "	6,419,809 "
1934.....	29,317,401 "	8,224,889 "	8,278,972 "	565,189 "	1,691,760 "	10,379,097 "
1935.....	29,418,221 "	9,345,632 "	14,698,732 "	664,630 "	1,560,423 "	10,842,372 "
1936.....	29,917,267 "	10,333,553 "	17,048,631 "	853,939 "	1,373,124 "	12,197,132 "
1937.....	30,727,897 "	11,044,698 "	16,423,571 "	1,081,360 "	2,069,204 "	12,849,446 "
1938.....	32,964,647 "	12,114,057 "	16,432,693 "	984,914 "	2,285,877 "	14,776,285 "
1939.....	33,987,885 "	11,423,282 "	20,139,939 "	1,168,448 "	1,992,692 "	12,319,149 "

(Statistics from Idaho State Department of Agriculture Reports.)

1 Associate Dairy Husbandman, Idaho Agricultural Experiment Station.

2 Extension Dairyman, Idaho Agricultural Extension Service.

3 Assistant Agricultural Engineer, Idaho Agricultural Experiment Station.

Clean Milk and Cream Mean More Money

To produce milk—have these conditions:

1. Clean barns
2. Clean cows
3. Clean milker
4. Sterile utensils
5. Small top milk pail
6. Milk cooled to 50°
7. Clean milk house

Don't reduce your profits with:

1. Dirty barns
2. Dirty cows
3. Dirty milker
4. Unsterile utensils
5. Open top pails
6. Improper cooling
7. Dirty milk house

QUICK cooling of milk keeps down bacterial development and makes possible better quality of manufactured products. Cool the milk to 50 degrees F. within 2 hours. Utensils are some of the greatest sources of milk contamination. Sterile utensils are essential.¹

Sterilize All Dairy Utensils

Eighty per cent of the bacteria in milk comes from utensils.
Bacteria make milk sour.
Bacteria produce bad flavors.
Utensils are not clean unless sterilized.

How to sterilize:

1. Heat for 15 minutes at 170°, or for 5 minutes at 200° F.
2. Steam for 1 minute.
3. Immerse in water at 170° F. or more for 2 minutes.
4. Use proper chlorine sterilizer.

A tea kettle of hot water has three disadvantages:

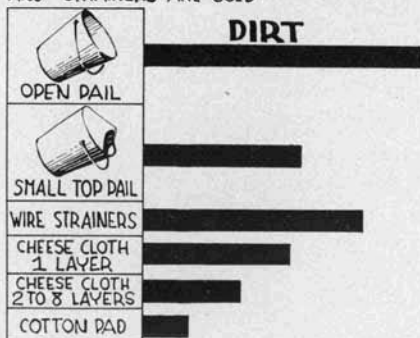
1. Does not supply enough boiling water.
2. Cools too rapidly.
3. Gives false security.

¹ For further information on sterilizing dairy utensils write for Idaho Agricultural Experiment Station Bulletin No. 183.

Basis of Quality Is Clean Milk

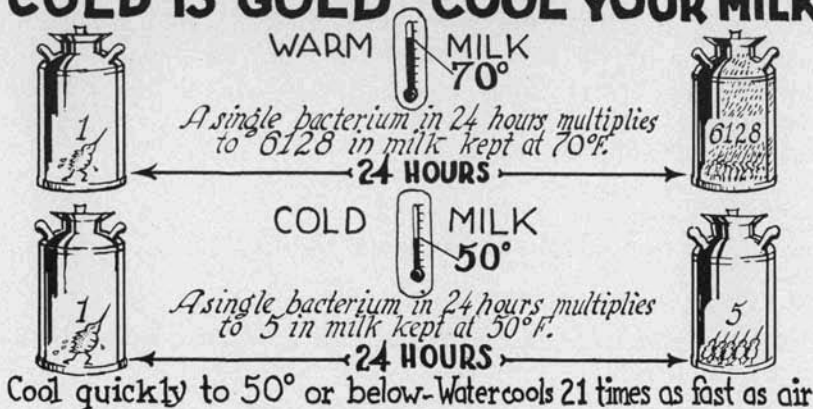
KEEP THE MILK CLEAN

THE BLACK LINES SHOW THE AMOUNT OF DIRT IN MILK WHEN DIFFERENT KINDS OF PAILS AND STRAINERS ARE USED



THE basis of high quality dairy products, whether it be butter, cheese, evaporated milk, or any other manufactured product, is clean milk. Clean cows, clean milkers, clean barns, small top milk pails, sterilized utensils, and a single service cotton strainer pad will get results.

COLD IS GOLD COOL YOUR MILK



THE MILK HOUSE THIEF
IS YOUR SEPARATOR HONEST?
 \$1,000,000 lost annually by Idaho farmers through inefficient separators
 ONE HALF OF THE SEPARATORS in Idaho are losing money
 Two-thirds of the separators in Idaho are NEVER CHECKED

STOP THESE LOSSES BY

- Separating only warm milk
- Turning at proper speed
- Using float in milk reservoir
- Keeping separator level
- Cleaning after using
- Testing skim milk each month
- Using plenty of separator oil

Idaho's Nearest Feed Market Is the Dairy Cow

DAIRYING affords a most effective way of marketing the large surpluses of feed on Idaho's irrigated farms. Shipment of the feed crops themselves is almost prohibited by their bulk and by the expense of transportation. Forty cars of hay can be condensed into one car of butter. The value of a car of hay is less than \$200, while the value of a car of butter is about \$10,000. The freight rate on \$1,000 worth of butter is only 4.5 per cent of the freight rate on the same value of hay. Idaho's distance from market demands condensed products of high unit value.

How to Feed for Profit

ECONOMICAL production requires the judicious selection of home-grown feeds in the proper mixtures and feeding in correct ratio to production. As long as green, leafy alfalfa hay is fed in unlimited quantities without succulence, almost any mixture of home-grown grains is satisfactory because of the large amount of protein in the hay. The entire feeding problem is changed when low quality alfalfa, beet pulp, potatoes, silage, etc., are added to the ration; when alfalfa hay is limited; or when non-legume hay is substituted. Such changes must be met by correcting the grain ration accordingly.

Suggested Rations

Select the one that meets specific conditions.

When the roughage consists of bright, green, leafy alfalfa alone, use the following mixtures:

Mixture No. 1

Barley or corn300 lb.
Wheat bran100 lb.

Mixture No. 2

Barley200 lb.
or
Barley100 lb. }
Wheat100 lb. } 200 lb.
Oats100 lb.
Bran100 lb.

Mixture No. 3

Wheat bran100 lb.
Wheat100 lb.
Oats100 lb.
Barley100 lb.

Mixture No. 4

Corn and cob meal.....100 lb.
Oats100 lb.
Wheat bran100 lb.

Rate of Grain Feeding

Breed	Producing Daily	Amount Grain To Feed Daily
Holstein	Less than 25 lb. (about 3 gallons) milk	No grain
Holstein	More than 25 lb. (about 3 gallons) milk	} 0.4 lb. grain for each lb. milk over 25 lb. or 3.5 lb. grain for each gal. milk over 3 gal.
Jersey or Guernsey	Less than 17 lb. (about 2 gallons) milk	
Jersey or Guernsey	More than 17 lb. (about 2 gallons) milk	} 0.5 lb. grain for each lb. milk over 17 lb. or 4.33 lb. grain for each gal. milk over 2 gal.

When alfalfa has been damaged by rain, is discolored, overcured, or stemmy, or when only half of the roughage is alfalfa, and fed with silage, wet beet pulp, potatoes, or grain hay, pea or bean straw, use the following mixtures:

Mixture No. 1

Wheat or barley100 lb.
Oats100 lb.
Pea meal or bean meal.....100 lb.

Mixture No. 2

Wheat or barley100 lb.
Oats100 lb.
Pea meal200 lb.
Wheat bran100 lb.

Mixture No. 3

Barley or wheat100 lb.
Oats100 lb.
Wheat bran100 lb.
Cottonseed meal 50 lb.

Mixture No. 4

Wheat100 lb.
Barley100 lb.
Oats100 lb.
Wheat bran100 lb.
Pea meal or bean meal.....100 lb.

Rate of Grain Feeding

Breed	Producing Daily	Amount Grain To Feed Daily
Holstein	Less than 20 lb. (about 2.5 gallons) milk	No grain
Holstein	More than 20 lb. (about 2.5 gallons) milk	0.4 lb. grain for each lb. milk over 20 lb. or 3.5 lb. grain for each gal. milk over 2.5 gal.
Jersey or Guernsey	Less than 12 lb. (about 1.5 gallons) milk	No grain
Jersey or Guernsey	More than 12 lb. (about 1.5 gallons) milk	0.5 lb. grain for each lb. milk over 12 lb. or 4.5 lb. grain for each gal. milk over 1.5 gal.

When the roughage contains no alfalfa, but is all low in protein (such as grain hay, timothy, alfalfa chaff, and succulence), use the following mixtures:

Mixture No. 1

Wheat	100 lb.
Wheat bran	200 lb.
Pea meal or bean meal.....	100 lb.
Cottonseed meal	50 lb.

Mixture No. 2

Wheat	100 lb.
Oats	100 lb.
Wheat bran	100 lb.
Cottonseed meal	100 lb.

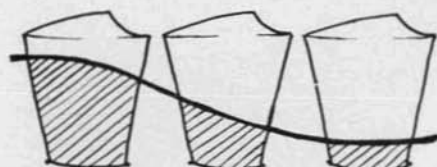
Mixture No. 3

Oats	100 lb.
Wheat bran	100 lb.
Pea meal or bean meal.....	100 lb.
Cottonseed meal	50 lb.

Rate of Grain Feeding

Breed	Producing Daily	Amount Grain To Feed Daily
Holstein	Less than 16 lb. (about 2 gallons) milk	No grain
Holstein	More than 16 lb. (about 2 gallons) milk	0.4 lb. grain for each lb. milk over 16 lb. or 3.5 lb. grain for each gal. milk over 2 gal.
Jersey or Guernsey	Less than 10 lb. (about 1.25 gallons) milk	No grain
Jersey or Guernsey	More than 10 lb. (about 1.25 gallons) milk	0.6 lb. grain for each lb. milk over 10 lb. or 5 lb. grain for each gal. milk over 1.25 gal.

Summer Suggestions



The Milk flow gets less



When the Grass gets less

More milk per acre is produced from good pasture than from any other feed.

Pasture grasses grow less in late summer—supplemental feeds are necessary.

Feed alfalfa hay once daily.

Heavy producing cows should have grain.

Feed minerals while cows are on pasture.

Supplemental Feeds

Tonics and Patent Medicines

Healthy cows do not need tonics.

Sick cows need specific medicines.

Tonic feeds cost too much and have little value.

Call a licensed veterinarian for sick cows.

Commercial Feeds

Ready-mixed feeds no better except they have greater variety.

Some mixed feeds good, some very poor.

Value of commercial feeds depends upon:

1. Digestible nutrient content
2. Cost per pound of nutrients
3. Kind and quality of ingredients
4. Adaptability of feed to community
5. Performance record

Proprietary mixed feeds are not recommended except for high producing cows.

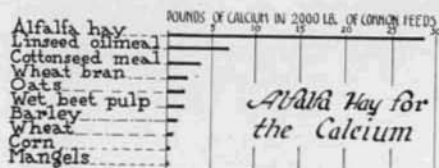
By-Products

Dairy cows convert low value by-products into valuable products.

Convert:

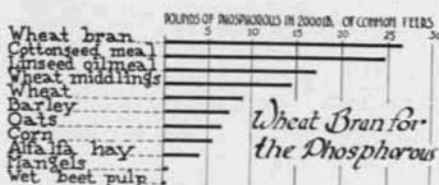
- Cull potatoes
- Wet beet pulp
- Beet molasses
- Cannery wastes
- Alfalfa and clover seed screenings
- Apple pomace
- Bean and pea by-products—into dairy products.

Minerals



*Alfalfa Hay for
the Calcium*

**Minerals Have a Definite
Function in Nutrition**



*Wheat Bran for
the Phosphorous*

They are not a cure-all for
all troubles.

They are not a substitute
for other feeds.

What and When Minerals Are Needed

Salt, iodine, calcium (lime), and phosphorous are minerals likely to be deficient.

Cows should have free access to fine dairy salt.

Block salt is not recommended because it is difficult for high producing cows easily to obtain the required quantity.

Iodine prevents goitre in calves. Feed iodized salt regularly instead of common salt.

Alfalfa hay usually furnishes sufficient calcium.

Wheat bran is a good source of phosphorous.

Low producing cows probably do not need minerals unless they have de-praved appetites indicated by eating bones, dirt, etc.

High producing cows may need minerals.

In southern Idaho phosphorous is more often deficient than calcium.

In northern Idaho both calcium and phosphorous are likely to be deficient, especially when the supply of alfalfa hay is limited.

Commercial Mineral Mixtures

Usually cost too much.

Often unjustifiable claims are made for them.

Sometimes contain unessential ingredients.

May not be adapted to region.

No better than cheaper home mixture.

Suggested Mineral Feed

200 lb. sterilized bone flour.

100 lb. iodized salt.

Mix and feed as 3 per cent of the grain mixture. Also keep before animals at all times.

Good Pasture Supplies Cheapest Dairy Feed

GOOD pastures are the foundation of successful dairying. When one half of the year's feed supply is pasture, only one fifth of the year's feed cost is pasture. Average yearly feed cost per pound butterfat is 20 cents. Feed cost while on pasture is 8 cents per pound, or less than half the yearly average cost.

Land producing good pasture, utilized by dairy cows, will return as much income per acre as from most other crops at less overhead and harvesting costs. Just open the gate and let the cows do the harvesting. Pasture is the only crop that can be harvested daily during a 6 months' period. Too often rough, untillable land is used as the only source of pasture, resulting in a shortage of feed during the summer months.

Pasture is nature's feed, and supplies a palatable, nutritious food that contains essential vitamins and food elements.

Pasture Is Nature's Cow Tonic

1. It helps prevent breeding troubles.
2. It helps prevent mineral deficiency.
3. It increases assimilation of mineral feeds.
4. It furnishes essential vitamins.
5. It helps correct winter feeding mistakes.
6. It stimulates milk flow.
7. It is ideal feed before the cow freshens.

Pasture Management

Proper pasture management is one of the most neglected practices among dairymen in the irrigated sections of southern Idaho. Lack of proper management of pastures results in reduced production and greatly increases the yearly feed costs.

Pasture mixtures listed below have proven satisfactory. Good pasture management in southern Idaho includes:

1. Frequent irrigation and removal of cattle while the land is being irrigated. Too many pastures suffer from lack of water.
2. A light covering of manure annually, and harrowing in the spring to scatter the droppings. Unscattered droppings cause rank, unpalatable patches of grass throughout the field. Much good pasture is wasted in these unpalatable patches.
3. Rotation of grazing. Divide the pasture into two or three fields and graze one field while the other is growing and being irrigated. This system greatly improves the quality of the pasture and increases the carrying capacity.

4. Delayed grazing until the grass gets a good start, and lack of overgrazing are important factors. Pasture grasses up to four inches in height are the most nutritious, furnish the greatest carrying capacity, and grow the most rapidly. Overgrazing tends to retard growth and greatly reduces the total nutrients available.

Cultivation has proven to be harmful to pastures. If weeds grow rank, clipping is desirable.

Reviving Old Pastures

Old pastures may be revived and carrying capacity increased by the methods suggested above for good pasture management. However, during the period when old pastures are being revived, additional temporary pastures should be provided. Sweet clover makes an excellent temporary pasture.

The following data in tabular form summarizes 2 years' results in pasture management studies at the Caldwell Branch Station of the University of Idaho agricultural experiment station. Field I was 8 years old and Field IV was 13 years old when the experiment started. The pastures were originally mixtures, but had been abused in so many ways that only bluegrass remained. The cows used in this experiment averaged a little less than one pound of butterfat per day.

UNIVERSITY OF IDAHO CALDWELL BRANCH STATION EXPERIMENTS (Old Bluegrass Pastures)

Treatment	FIELD I				FIELD IV			
	Light irrigation	Light irrigation and cultivation	Proper irrigation	Proper irrigation and cultivation	Light irrigation	Light irrigation and manuring	Proper irrigation	Proper irrigation and manuring
Daily carrying capacity (cows).....	1.19	1.02	1.42	1.39	1.15	1.45	1.35	1.71
Season milk production (pounds).....	5,289.6	4,405.6	6,151.1	5,738.3	4,709.3	6,057.8	5,731.9	7,158.6

Cultivation did not pay; in fact, it reduced the returns. Top dressing of manure with light irrigation more than equaled proper irrigation without manure. Manure and proper irrigation gave best returns. When milk production per acre can be increased 52 per cent it pays to study pasture management.

Idaho Pasture Mixtures

Southern Idaho Mixtures

Lower Snake River Valley Irrigated areas with abundance of water.

Tall or Meadow fescue	8 lb.
Orchard grass	6 lb.
Brome grass	4 lb.
Ladino or alsike clover	2 lb.
	20 lb.

Upper Snake River Valley

Tall or Meadow fescue	8 lb.
Orchard grass	6 lb.
Brome grass	4 lb.
White or alsike clover	2 lb.
	20 lb.

Limited supply of irrigation water

Brome grass	5 lb.
Crested wheat grass	5 lb.
Meadow fescue	4 lb.
Orchard grass	4 lb.
Alsike clover	2 lb.
	20 lb.

Northern Idaho Mixtures

Low Bottoms

Brome grass	6 lb.
Meadow fescue	3 lb.
Orchard grass	3 lb.
Red top	1 lb.
Alsike clover	2 lb.
Alfalfa	1 lb.
	16 lb.

Uplands and bench lands.

Tall oat grass	6 lb.
Brome grass	4 lb.
Orchard grass	2 lb.
Crested wheat grass	2 lb.
Sweet clover or alfalfa	2 lb.
	16 lb.

Diked Lands

Reed Canary grass	6 lb.
Alsike clover	2 lb.
	8 lb.

No nurse crop.

Seed early.

Use grass seeder followed by harrow and roller.

Do not pasture first year until September—then only lightly.

Give the Calf a Chance

What to Feed

First 3 to 4 days feed milk from dam. During first 2 weeks give 6 to 10 lb. whole milk daily according to size and condition.

Third week—gradually substitute skim milk for whole milk. Give all hay and grain calf will consume.

Fourth week to 4 or 6 months—10 to 20 lb. skim milk, according to age and supply of milk. Home-grown grain up to 2 lb. daily. Legume hay or good pasture. Plenty of pure water and salt.

Six months to 2 years—legume hay or good pasture. Two lb. home-grown grain daily. Plenty of pure water and salt.

Feed legume hay as a source of vitamin A as early as the calf will eat it.



The Danger Age

When Skim Milk Is Scarce Use 6 to 10 Pounds Whole Milk Daily for First 2 Weeks Then Any of the Following:

- Third week change to milk solution:
 - Dried buttermilk, 1 part to 9 parts warm water
 - Dried skim milk, 1 part to 9 parts warm water
 - Semisolid buttermilk, 1 part to 3 parts warm water
 Any one of these is satisfactory when fed in the same manner as skim milk.
- Third week change to dried milk solution; fourth and fifth weeks dried milk solution; sixth week milk solution gradually removed. Encourage calves to eat grain as early as possible. Grain mixture should be one third dried skim milk or dried buttermilk. Feed up to 4 lb. grain mixture daily. After sixth week no milk fed except in grain mixture.
- When no skim milk is available, continue whole milk feeding for 6 to 7 weeks, thereby giving calf a good start, then gradually change to dry calf meal containing one third dried skim milk or dried buttermilk. In all cases feed legume hay as early as the calf will eat it.



Six Month of Age Raised on Skim Milk, Grain, and Hay

Do

- Wash and sterilize buckets
- Feed according to condition
- Weigh or measure milk to each calf
- Feed calves individually in stanchions
- Feed skim milk direct from separator without foam
- Feed milk at uniform temperature
- Keep pens clean, well ventilated, and well lighted
- Treat sickness promptly

Don't

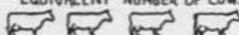






- Use dirty buckets
- Underfeed
- Overfeed
- Feed as groups
- Feed sour milk
- Feed cold milk
- Use dirty pens
- Neglect sickness



Well-grown Yearling

HIGH PRODUCING COWS MORE PROFITABLE

DAIRY HERD IMPROVEMENT ASSOCIATION FURNISH FACTS
7252 COWS IN IDAHO ASSOCIATIONS

LB. FAT PER COW	FEED COST	RETURNS OVER FEED COSTS	EQUIVALENT	NUMBER OF COWS	FEED COSTS PER LB. FAT	RETURNS FOR EACH DOLLAR SPENT
150	\$46	\$27	5		30.6¢	\$1.59
200	50	45	3		25.0	1.90
250	54	64	2.1		21.6	2.18
300	57	83	1.6		19.0	2.46
350	65	97	1.4		18.6	2.50
400	68	118	1.1		17.0	2.73
450	75	134	1.		16.0	2.80

Do Your Cows Produce 300 Pounds of Fat Each?

	Milk	Fat
Average production of all cows in Idaho	5,280	209
Average production of all cows tested in Dairy Herd Improvement associations in Idaho	8,111	334
Superiority of association cows	2,711	118

Information from These Associations Makes Possible:

Finding and eliminating low producing, unprofitable cows.
Determining the value of bulls and saving the ones with merit.
Stimulating improved methods of feeding and management.
Developing greater interest in dairying.

Checking inefficient separators.
Determining and developing heifers from the best cows.
Dairy Herd Improvement Associations are available to every dairyman.
See your Extension Agent.

Which Is the Best Herd?

22 cows, each producing 200 lb. fat, returning \$1,000 over feed cost
OR
12 cows, each producing 300 lb. fat, returning \$1,000 over feed cost
OR
9 cows, each producing 400 lb. fat, returning \$1,000 over feed cost
Answer—9 cows, each producing 400 lb. fat yearly.

Why?

Each herd returns \$1,000 over feed cost.

But

- The 22 cow herd produced 800 lb. fat, 22 per cent more than either of the other herds, which tends to build a surplus and depress prices.
- The 22 cow herd required 38 per cent more feed than the 12 cow herd and 58 per cent more than the 9 cow herd.
- The 22 cow herd required more time and labor and greater expenses in shelter and taxes than either of the other herds.
- The 12 cow herd produced butterfat at a feed cost of 24 per cent lower than the 22 cow herd.
- The 9 cow herd produced butterfat at a feed cost 32 per cent lower than the 22 cow herd.

It Pays to Keep Records

Records Give Light—Why Work in the Dark?

- | | |
|---|---|
| <p>I. Breeding records show:</p> <ol style="list-style-type: none"> 1. When to dry each cow and prepare her for next freshening. 2. Sire and dam of each animal. 3. Age of each animal. 4. Shy breeding and sterility of each cow and the bull. <p>II. Production records show:</p> <ol style="list-style-type: none"> 1. Profit or loss from each cow. 2. Amount to feed and when to change. | <ol style="list-style-type: none"> 3. Value of a sire through production of daughters. 4. Sale value of a cow and her calves. <p>III. Registration, transfer, and pedigree records:</p> <ol style="list-style-type: none"> 1. Insure confidence in breeding. 2. Increase sale value of cattle. 3. Assist in selling and advertising. |
|---|---|

A Tale of Two Herds

Same Community
Same Year
Same Market

Returns Above Feed Cost	
Herd A	Herd B
\$480.00	\$735.72

Why the Difference?

	Herd A	Herd B
Not the size of herd	16 cows	6 cows
Not the breed	Grade Holsteins	Grade Holsteins
Not feed cost per cow	\$52.53	\$86.23
It was		
Average production of fat	177.6 lb.	446.6 lb.

Note: Actual Dairy Herd Improvement Association records in the same community, the same year.

Your Future Herd Depends on Your Present Bull

Think This Over

A survey of 295 Idaho dairy farms showed:

- Less than one-half herd bulls registered.
- One fourth were just scrubs.
- Only 43 per cent of the farmers owned bulls.

Here Are Your Facts

	Cost of Bulls	Income Per Cow	Income Per Herd
Herds with registered bulls	\$95.42	\$92.70	\$954.81
Herds with unregistered bulls	44.68	79.57	819.67
Difference	\$50.74	\$13.13	\$135.14

A saving of \$50.74 in cost of bulls lost the dairymen \$135.14 yearly on each of their herds of 10.3 cows.

Methods of Selecting a Herd Sire

The successful breeder and dairyman considers everything.

1. Proved sire—Production and type of a bull's daughters are the best guide.

2. Pedigree—A bull's transmitting ability is indicated by the production and type of his half sisters. Make certain of the top half of the pedigree by selecting a son of a proved sire. The lower half of the pedigree should



be a succession of as many high record dams sired by proved sires as possible. Several successive generations of proved sires reduce the chances of a failure when selecting a bull by pedigree.



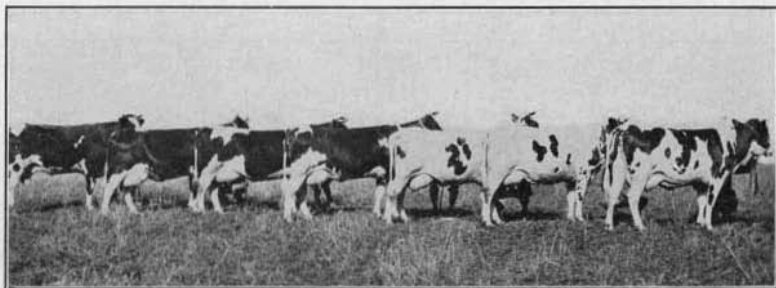
3. Type—Breed type is essential in breeding uniform cattle of highest value.

Consider not only the type of a bull, but the type of his ancestors as well.

What This Good Bull Did What Is He Worth?



The Bull
King Segis Matador Walker,
Owned by the University of
Idaho



These seven daughters of King Segis Matador Walker averaged 23,192 pounds of milk and 782 pounds of fat at 5 years 6 months 3 days of age.

Improvement of His Daughters Over Their Dams

	Lb. Milk	Lb. Fat	Age
12 daughters	13,243	454	2 yrs. 5 mos. 17 days
12 dams	8,526	303	2 yrs. 4 mos. 15 days
Increase (pounds)	4,717	151	
Increase (per cent)	55.3	49.8	

151 lb. fat \times 30c = \$45.30 yearly per cow. \$45.30 \times 12 daughters = \$543.60 yearly. \$543.60 \times 5 milking years = \$2,718.00 worth of fat from 12 cows in their lifetime due to a good bull.

Would You Buy a Dead Bull?

Many breeders wish they could buy back the bull that went to the butcher. Of 208 Idaho bulls that have been proved, 50.5 per cent were dead before their value was determined. Good bulls are too valuable to be eaten.

You Never Know—Until the Bull Is Proved

Of 208 bulls proved in Idaho

22.1 per cent decreased production an average of 60 lb. fat per cow.

11.6 per cent just about held their own—with 2 lb. decrease.

66.3 per cent increased production an average of 79 lb. fat.

Neighbors should exchange bulls and keep both alive until the daughters freshen.

Cooperative Bull Association Results

	Cost of Bull	No. cows bred	Bull cost per man	Bull cost per cow	No. of years bulls used	Bull cost per cow per year
Before organization	\$ 82.00	10.1	\$82.00	\$8.09	2	\$4.05
After organization	213.00	33.4	35.00	6.36	6	1.06

What Idaho Farmers Have Done Through Cooperative Bull Associations

Bought good bulls cooperatively.

Reduced bull costs \$47 per man.

Reduced bull costs \$3 per cow yearly.

Increased fat production 62 lb. per cow the first cross.

Improved type of cows.

Cooperated in disease control.

Established definite breeding program.

Standardized a breed in the community.

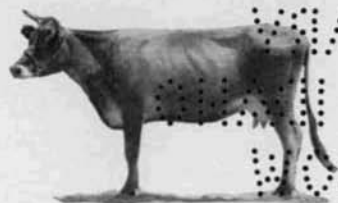
What Idaho Farmers Have Done Through Cooperative Dairy Stud Bull Service

- Bought high quality low cost bull service cooperatively.
- Eliminated mistakes of individual herd owner in bull.
- Provided bull service delivered to farm.
- Eliminated costs of feed and management of individually owned bulls.
- Reduced average total cost of bull service delivered to farm to \$3.31 per cow yearly.
- Reduced spread of disease by adopting definite management practices for both cows and bulls including a douche for the bull after each service.
- Established a definite breeding program.
- Made available choice of breed to herd owner.
- Provided a satisfactory breeding program to small herd owners.
- Increased the influence of a high quality bull over a greater area, to more dairymen, and to a greater number of cows.
- Reduced the traffic and the use of bulls of questionable quality.
- Improved the quality of the dairy herds.

Management of Herd Sire

1. Give him exercise—it helps prevent sterility and increases activity.
2. Furnish large pen at least 1800 square feet, or overhead or ground cable; safe-keeper breeding chute.
3. Do not use before one year old—limited service until 2 years. Allow cows only one service.
4. Do not let him run with cows. This overworks bull and is dangerous.
5. Use bell metal ring instead of light ring. Use Jensen halter where ring is torn out of nose.
6. Keep feet trimmed—lengthens usefulness of bull.
7. Feed
 - A 20-foot chain from horns or halter and through ring assists in catching bull and tends to quiet him.
 - limited amount of hay; do not allow large barrel to develop.
 - limited amount of grain mixture of oats and wheat—keep in good flesh, but not fat.
 - salt—fresh water.
 - green feed or grass occasionally.

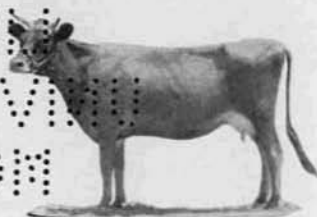
Good Breeding Pays



This is Daisy

172 lb. fat

Her owner milked her 600 times in a year for \$28.33 over feed cost
Not so good: But see her daughter



This is Daisy's Daughter

By a good registered bull—378 lb. of fat

The same dairyman milked her 600 times also, but got \$111.25 over feed costs—equal to four cows like her mother

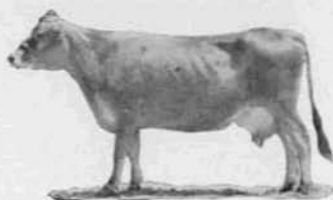
A good bull made the difference
Why use scrubs?



This is Polly

470 lb. fat

Polly's owner milked her 600 times in a year for \$128.85 over feed costs
A good cow—but see her daughter by a bull association sire

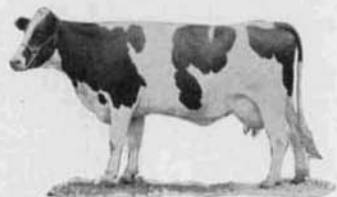


This is Polly's Daughter

691 lb. fat

The same dairyman milked her 600 times and got \$212.22 over feed costs

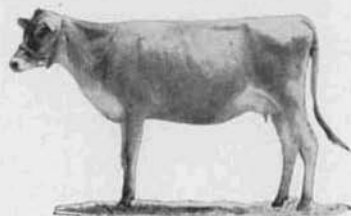
Good proved sires make a herd better
Don't let the profits backslide



The Most Expensive Cow in the World

The Scrub Purebred

In one year she produced only 5,538 lb. milk and 170 lb. fat
Her feed cost was \$46.55
She made only \$28.28 above feed cost
She did not pay expenses
Don't keep a scrub even though she is registered



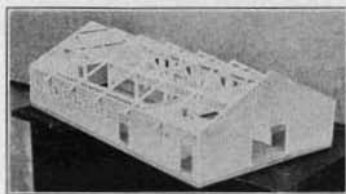
A Great Loss to Dairying

A Stunted Cow

This heifer was freshened at 14 months
A boarder now
A low producer always
Breed heifers to freshen at 24 months or over

Barns and Equipment

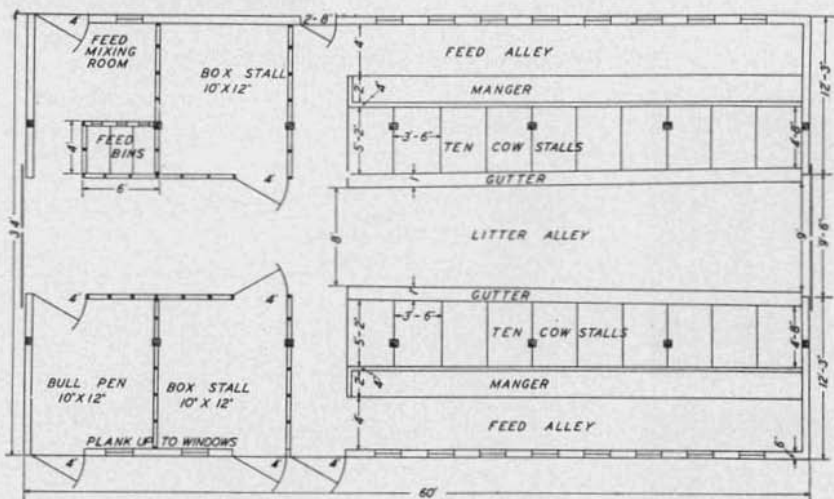
Type Influences Overhead and Labor Requirements¹



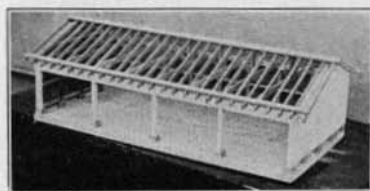
One Story Barn

when the cows are in only at milking time. If cows are kept in at night, the model stall or modified model stall is more comfortable and keeps cows cleaner.

LOW cost, good light, convenience, and minimum labor are some of the advantages of this milking barn. It is recommended to be used in connection with an open shed. The cows are turned in only for milking and grain feeding, then turned out into the open shed. The rigid wooden stallion is cheap and quite satisfactory



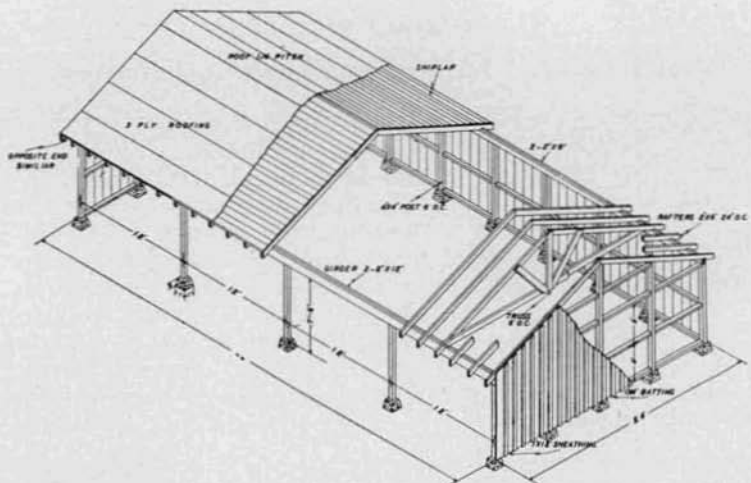
Plan for One Story Barn—File number 723-4



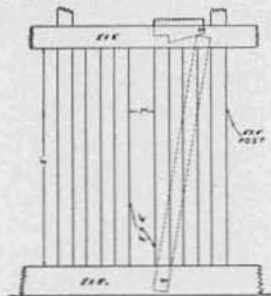
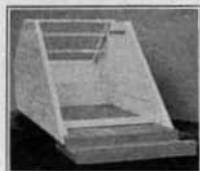
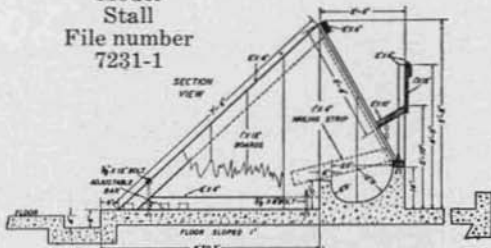
Shelter Shed

OPEN shed keeps cows comfortable, needs be bedded only two or three times a week, manure is preserved well, cows are clean, and hand labor is minimized. The essential thing in building a shelter shed is to have it low enough and deep enough (depth never less than 24 feet and in cold climates up to 30 feet; height not more than $7\frac{1}{2}$ feet) : 60 to 70 square feet per cow.

¹ The plans and descriptions given for dairy barns and equipment may be secured from the Department of Agricultural Engineering, University of Idaho, Moscow, at a nominal cost of printing and mailing. Order by file number.

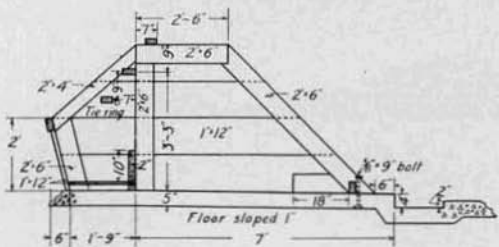


Plan for Shelter Shed—File number 721-8A

Rigid
StanchionPlan for
Rigid
Stanchion
File number
7231-4Model
StallPlan for
Model
Stall
File number
7231-1

Modified Model Stall

Plan for Modified Model Stall—File number 7231-2



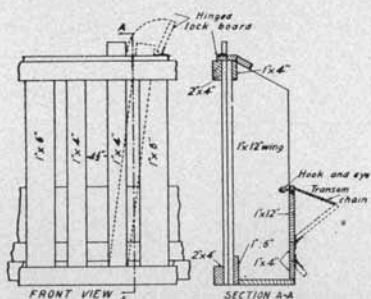
THE model stall and modified model stall are cheap, home-made, comfortable for the cows, require less bedding, keep cows clean, and reduce labor in cleaning barn and cows. Recommended where cows are kept in the barn and open shed system not used. The modified model stall does not obstruct the light in the barn as badly as the model stall, and the manger is better suited to feeding chopped hay. However, the stall partitions are not strong as in the model stall.

Dimensions for the model stall and modified model stall must be varied according to the breed of cattle handled as follows:

Holsteins—4 feet wide, 7 feet long, manger to gutter edge.

Guernseys or Ayrshires—3 feet 9 inches wide, 6 feet 6 inches long, manger to gutter edge.

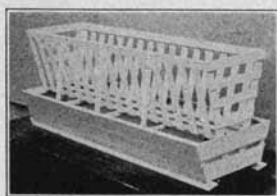
Jerseys—3 feet 6 inches wide, 6 feet long, manger to gutter edge.



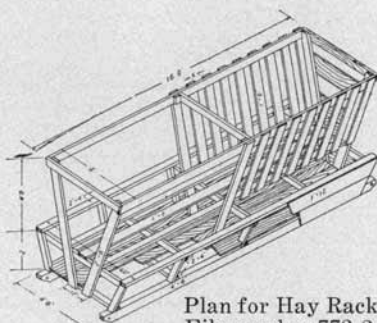
Plan for Calf Stanchion
File number 7231-3



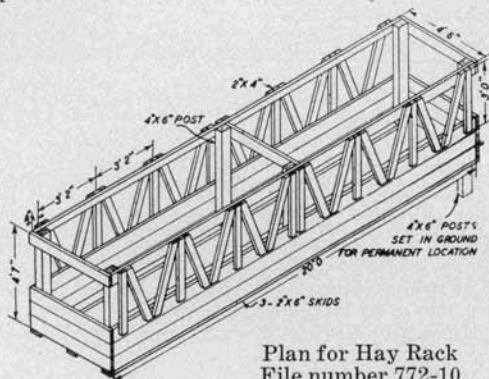
Calf Stanchion



Hay Rack



Plan for Hay Rack
File number 772-2



Plan for Hay Rack
File number 772-10

Idaho Publications on Dairying

FOLLOWING is a list of the dairy publications of the Agricultural Experiment Station and the Agricultural Extension Division of the College of Agriculture, University of Idaho, available for distribution. Any of these publications may be obtained free upon request. Write to the Agricultural Experiment Station, Moscow, or Agricultural Extension Division, State House, Boise.

Agricultural Experiment Station Bulletins

- No. 150 *Apple Pomace Silage for Milk Production.*
- No. 174 *Standardization of Milk with Skim Milk Powder for the Manufacture of Cheddar Cheese.*
- No. 182 *Sterilizing Dairy Utensils on the Farm.*
- No. 193 *Efficiency of Cream Stations in Cream Collection.*
- No. 203 *Bin Method of Mixing Feed.*
- No. 213 *Pea Meal as a Feed for Dairy Cows.*
- No. 212 *Effect of Various Phases in the Manufacture of Casein by the Natural Sour Method on its Physical and Chemical Properties.*
- No. 215 *Sunflower Silage for Milk Production.*
- No. 216 *Potatoes as a Feed for Dairy Cows.*
- No. 223 *Idaho Bull Associations.*

Agricultural Experiment Station Circulars

- No. 50 *Why Cream Tests Vary.*
- No. 61 *Operation and Care of the Cream Separator.*

Extension Division Bulletins

- No. 83 *Dairy Products for Health and Economy.*
- No. 97 *Suggested Program and Instructions for Idaho 4-H Dairy Clubs.*
- No. 130 *Factory Tests for Dairy Products.*

Extension Division Circulars

- No. 41 *Utilization of Home-Grown Grains and By-Products Feeds in Feeding Dairy Cattle.*
- No. 51 *Prevention and Control of Bang's Disease.*
- No. 61 *Why Milk Tests Vary.*
- No. 66 *Essentials for Producing Good Milk and Cream.*

Research Bulletins

- No. 12 *Distribution and Costs of Steam, Electrical Power and Labor in Representative Idaho Creameries.*
- No. 224 *Influence of Growth Temperature on the Thermal Resistance of Some Bacteria from Evaporated Milk.*

Research Papers

- No. 76 *Inheritance of Hernia in a Family of Holstein Friesian Cattle.*
- No. 83 *Vitamin A Content of Pasture Plants.*
- No. 88 *Influence of Different Starters on the Quality of Cheddar Cheese.*
- No. 93 *Technic in Chemical Analyses of Casein.*
- No. 102 *Influence of Type of Ration and Plane of Production on Water Consumption of Dairy Cows.*
- No. 106 *Influence of Homogenization on the Curd Tension of Milk.*
- No. 108 *Influence of Mastitis on the Curd Tension of Milk.*
- No. 109 *Water Requirements for Dairy Calves.*
- No. 110 *Effect of Bovine Digestion and Manure Storage on the Viability of Weed Seeds.*
- No. 119 *A Feed-Grinding, Elevating, and Mixing Installation Utilizing a Banner-type Feed Mill and Blower Elevator.*
- No. 132 *Inheritance of Wrytail in Jersey Cattle.*
- No. 133 *Portable Elevator as a Labor Saving Device on the Dairy Farm.*
- No. 136 *Vitamin A Content of Pasture Plants, II.*
- No. 137 *Vitamin A Content of Pasture Plants, III.*
- No. 138 *Vitamin A Content of Pasture Plants, IV.*
- No. 139 *Vitamin A Activity of Third Cutting Alfalfa Hay as Affected by Methods of Curing.*
- No. 154 *The Reliability of Selected Tests for the Detection of Mastitis.*
- No. 165 *A Skull-Defect in Cattle.*
- No. 170 *Sulfanilamide in the Treatment of Streptococcal Mastitis.*
- *The Influence of Certain Bacteria on the Ripening of Cheddar Cheese Made from Pasteurized Milk.*

The above list may be supplemented by the United States Department of Agriculture publications on dairying and related subjects. These are also available through the Idaho Agricultural Experiment Station or Agricultural Extension Division.