ALFALFA OR LUCERNE.

For the last five years the Utah experiment station has been carrying on a line of investigation to determine at just what time in its growth alfalfa should be cut for best results, composition, annual yield per acre and feeding value all being taken into account. In connection with this work the feeding value of such wellknown roughage crops as timothy hay, corn fodder and red clover has been compared with that of alfalfa. For this experiment a field of alfalfa was divided into three equal pieces, one being regularly cut when the first blooms appeared, the second when in full bloom, and the third when half the blossoms had fallen, these being denominated early, medium, and late cuttings respectively. Incidently there was made a comparison of the first, second and third crops.

The details of this investigation are reported in Bulletin No. 61 of the Utah station, a copy of which may be obtained by addressing the director at Logan. Below are given the more important facts, together with the conclusions that may be legitimately drawn from the results:

The largest annual yield of hay per acre is obtained by the method of early cutting and the lowest by the late, the average results standing as folows: early cutting 100, medium 92, and late 85.

The early cut alfalfa contains the highest per cent of protein and fat, the most valuable food constituents, and the lowest percent of crude fibre, the most indigestible portion. The former decrease constantly while the latter increases rapidly from early bloom to the full maturity of the plant.

The proportionate amount of leaves to the stem is greater at early bloom than at any subsequent time, and both leaves and stems contain a greater per cent of protein and a less per cent of crude fibre at this time than at any later period in the growth of the plant. The relative proportion of leaves to stems in the different cuttings is as follows: early, 42 to 58; medium, 40 to 60; late, 33 to 67.

Alfalfa leaves as compared with stems are very much richer in protein, fat and nitrogen-free extract, and they contain a much smaller proportion of crude fibre. The per cent of the protein and fat grows constantly less and that of the crude fiber greater from the time of early bloom to maturity. The average composition of all cuttings and crops shows the leaves to contain 150 per cent more protein than the stems, 300 per cent more fat, 35 per cent more nitrogen-free extract, and 256 per cent less crude fiber.

The more important nutriments, protein and fat, have the highest per cent of digestibility in the early cuttings, and it grows less and less with the age of the plant.

In the feeding tests the highest gains were made from the early cuttings and the lowest from the late, the results standing proportionately as follows: Early cutting, 100; medium, 85, and late, 75.

The variation in the amount of the different cuttings eaten per day was very slight, being the highest for the early cutting and the lowest for the late, but the quantity of dry matter and also of digestible matter required for a pound of gain was decidedly lowest for the early cutting and highest for the late, the relative amounts of dry matter standing as follows: Early cutting, 100; medium, 131; late, 166.

The annual beef product per acre was largest from the early cuttings, not only in the general average, but in each separate season's test, and that from the late cuttings was smallest, the proportional products standing as follows: Early cutting, 100; medium, 79½; and late, 69½.

Taking all points of comparison into consideration, both separately and collectively, including everything that pertains to the largest yield and highest feeding value, the tests favor cutting alfalfa for cattle feeding when the first blooms appear.

The first crop gave the largest yield in each of the five tests and in fourteen out of the fifteen cuttings, while the third crop gave the lowest for every test and in every cutting but one. The average acre-yields for the five years, including all cuttings, stand in the following relation: First crop, 100; second, 78; and third, 39; for the early cuttings alone, first crop, 100; second, 83; third, 66.

In the average composition of all cuttings for three years, the nutrients of the three crops vary but little. The second has slightly the highest per cent of protein and fiber; and the third the most fat and nitrogen-free extract.

The third crop has the largest proportion of leaves to stems; but the per cent of protein in the leaves is highest in the second crop, and next highest in the first. The leaves of the first crop contain the most fat and of the second the least.

The third crop produced a higher rate of gain in the feeding tests than the first or second, and also higher than any of the separate cuttings. The amount eaten daily was also highest of all, but the dry matter and digestible matter for a pound of gain were the lowest. In a pound per pound comparison the gains stand as follows: First crop, 100; second, 81; third crop, 126: dry matter for a pound of gain, first crop, 100; second, 115; and third, 69.

The beef product per acre, taking the average result of all cuttings for the five years, was very much the highest for the first crop and decidedly the lowest for the third, standing as follows: First crop, 100; second, 61; and third, 45. But taking the early cuttings alone they stand: First crop, 100; second, 80; and third, 69.

Pound per pound, taken as a whole, the results show the highest feeding value for the third crop and the lowest for the second.

The average annual beef product from early-cut alfalfa was 705.61 pounds per acre; it required 9,575 pounds of timothy to produce an equal eight; 11,967 pounds of red clover, and 10,083 pounds of shredded corn fodder.

There are, so to speak, a thousand and one things to be looked after on a fruit ranch, unless the owner has a specialty which will give him a hurry for a short time only. It is, however, considered best among small farmers who have their all embarked and not merely their surplus, to diversify their interests somewhat, and if there is a specialty, that there will be enough of other things to make a living assured.

While planting trees to take the place of the passing forest trees, why not put in some fruit and nut trees? The only disadvantage in having such trees near town is the trouble they make for the neighbors' boys sometimes, but if every neighborhood had the proper number of cherry, apple, pear, peach, chestnut, walnut, butternut and hickorynut trees there would be no temptation for boys to go upon marauding expeditions. And then it's a good plan to have enough of such things to let the boys and birds and squirrels have all they want. Be generous and decent with the boys, and the "toughest" of them won't be so bad.

Clipper Fanning Mills
Cypher's Incubators
Mann's and Dandy Bone Cutters
Wilbur's & Pratt's Poultry Food
Crushed Bones and Shells

We are the only exclusive seed house on the coast and can fill all order at lowest market price. Give us a trial order. Address

E. J. BOWEN, SEATTLE WASH.

CLOVER, TIMOTHY and all kinds of GRASS and GARDEN SEEDS strictly FRESH, PURE and TRUE to names.

Northern Pacific

Runs pullman Sleeping Cars, Elegant Dining Cars, Tourist Sleeping Cars, Free Colonist Sleepers to
ST. PAUL,
FARGO,
WINNIPEG,
MINNEAPOLIS,
GRAND FORKS,
DULUTH,
HELENA and
BUTTE,
CROOKSTON,
THROUGH TICKETS TO
CHICAGO, WASHINGTON,
NEW YORK, PHILADELPHIA,
BOSTON and
All Points East and South.
Through tickets to Japan and China via Northern Pacific Steamship Co.
For information, time cards, maps and tickets, call on or write
Gen. Agent, City Ticket Office, cor Yesler Way and First Ave.
Depot Ticket Office, Columbia st. and Western ave. A. D. CHARLTON,
Asst. Gen. Pass. Agt., 225 Morrison St. Portland, Ore.

FLY ON THE FLYER.
SEATTLE-TACOMA ROUTE.
Four Round Trips Daily, Except Sunday.
TIME CARD.
Leave Seattle 7:45, 11:15 a. m., 2:45, 6:15 p. m.
Leave Tacoma 9:30 a. m., 1:00, 4:30, 8:00 p. m.
SUNDAYS (Flyer or State of Washington).
Leave Seattle 7:30 a. m., 12:00 M., 5:00 p. m.
Leave Tacoma 9:30 a. m., 2:30, 7:30 p. m.
U. S. SEELEY, JR., AGT.,
Seattle Tel., Main 176. Tacoma Tel., 211.

BEE-HIVES SECTIONS, SHIPPING CASES
Everything used by bee-keepers Orders filled promptly. Send for catalogue.
Minnesota Bee-Keepers' Supply Mfg Co Island, Minneapolis, Minn.
CHAS. MONDENG, MGR.

LOUIS UDINE
DELICATESSEN.
Butter, Eggs, Cheese, Olive Oil, Maccaroni, Vermicille.
1319 Second Avenue. SEATTLE, WASH.

DUNGENESS SEED GARDENS
READY FOR SOWING
"Lingham's Giant Beardless Barley"
Valuable new white variety, hull-less and entirely free from beards. Fine for poultry, hogs and other stock. Can be sown in spring or fall.
"Golden Giant" and "Big Four" Oats
FOR SPRING SOWING. For prices on bushel lots and by the sack, address,
A. LINGHAM, Dungeness, Wash.

Christopher Nurseries
—A Full Line of—
General Nursery Stock
—Especially—
Good Winter Apple Trees
Of all the Leading Varieties. Magoon Strawberry, $1 00 per 100. Send for new catalogue.
JOHN A. STEWART, Proprietor
CHRISTOPHER, WASH.

Trees!
We have our own nursery and sell you trees that we guarantee to be
FREE FROM DISEASE AND TRUE TO NAME.
Nursery, 423 East Union; seed store and packing grounds, 1123 Second avenue.
Puget Sound Nursery & Seed Co.,
C. N. Sandahl, Mngr., Seattle.

SCALES
During the natural life of a Fairbanks' Scale, there is frequently weighed on it grain, stock and other merchandise of the value of $200,000.
A cheap scale may vary three per cent from actual weight, and then some one loses $6,000, using that cheap scale.
Geo. B. Adair & Son
State Agents for Fairbanks Scales, Seattle, Wash.

Well Drillers! Use LOOMIS' "Clipper" Driller.

The Standard of America!
Strongest! Takes least power! Carries heaviest tools! Drills much faster! Most convenient to handle! Will last longer and make the owner more money than any other Well Drill on earth.
We also make many other machines for drilling wells of all diameters and depths. Machines for Horse, Steam, and Gasoline Power. Write for full particulars.
LOOMIS & NYMAN, TIFFIN, OHIO.

CANCER CURED
WITH SOOTHING, BALMY OILS.
Cancer, Tumor, Catarrh, Piles, Fistula, Ulcers, Eczema and all Skin and Womb Diseases. Write for Illustrated Book. Sent free. Address
DR. BYE, Cor. 9th & Broadway, **Kansas City, Mo**

When writing advertisers always mention Ranch and Range.