HOME COURSE IN SCIENTIFIC AGRICULTURE

SEVENTEENTH ARTICLE. ALFALFA AS A FORAGE PLANT.

By R. A. MOORE of the University of Wisconsin Agricultural Experiment Station.

ALFALFA can truly be called the queen of forage plants. No other forage combines so many essentials of merit as alfalfa. No other plant has carried with it more gratification to the dairy farmer nor fills such a long felt want. No forage plant is more readily relished by farm animals or exercises a more beneficial effect upon the soil.

To determine how extensively alfalfa was grown by the Wisconsin Experiment association requests were sent to 500 to report on the acreage grown by them in 1911. A summary of 240 reports received shows that the

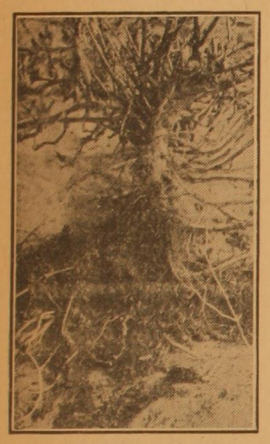

Photo by Long Island agricultural experiment station.

ALFALFA PLANT, SHOWING EXCELLENT ROOT SYSTEM WITH BACTERIA (NITROGEN) NODULES.

members reporting grew a total of 2,524 acres, or an average of 9.6 acres each.

For instance, twenty years ago alfalfa was practically a stranger in Wisconsin, but its introduction and dissemination have gone on at such a rapid pace that it seems safe to estimate that there are at least 25,000 acres now grown in the state.

Ex-Governor Hoard of Wisconsin was the first man in his state to recognize the great importance of alfalfa as a forage plant, and he has grown alfalfa and disseminated knowledge regarding it continuously for the past twenty years. It is safe to say that Mr. Hoard has grown more alfalfa than any other man in the state.

Alfalfa is noted for its high feeding value and the great fondness farm animals have for it. It belongs to the legume family, or leguminosae, to which the common red clover belongs.

Alfalfa through its large root growth exerts a beneficial effect upon the soil on which it grows and through its power to feed on the soil elements and secure moisture at great depth below the surface is able to stand severe droughts and maintain itself upon the soil for many years without the necessity of reseeding.

When it is desired to plow an alfalfa field the strong root growth of the alfalfa will severely interfere with the plowing unless the plowshare is kept sharp.

Except where alfalfa has become thoroughly established upon the farm, no attempt has been made to encourage a regular rotation with other crops. On account of the special care given to the selection and proper fitting of the field for alfalfa it has seemed advisable to leave the alfalfa on the same field as long as it produced well.

As soon as conditions are unfavorable and the field becomes patchy and crowded with June grass and white clover it is best to cut the alfalfa late in the season and then plow. The field the following season should be put into corn or some other cultivated crop and intensive cultivation practiced to subdue weeds. The year following the intensive cultivation the field can be sown to alfalfa to advantage.

The weight of green forage obtained per acre from alfalfa for the season is approximately double that of clover, three times the weight of timothy and five times the weight of brome grass. The proportions for hay are nearly as great in favor of alfalfa as in the case of green substance.

Alfalfa yields three times as much total protein per acre as clover, nine times as much protein as timothy and twelve times as much protein as brome grass.

At $20 a ton for the hay good alfalfa will yield forage valued at $100 an acre. Land that will grow alfalfa is readily worth $200 an acre. As alfalfa is a perennial plant, if established under the proper environments, it will continue to grow and give three or four cuttings a year for many years.

The seed is somewhat like red clover only a little larger and not so plump. It is yellow or an olive green. There are several varieties of seed, with a great variation in price according to the variety. Experiments at the Wisconsin station show that of all northern grown seeds not grown under irrigation methods the preference was for the seed showing best germination regardless of variety.

Caution should be exercised as to the location of the field. Alfalfa can be grown on a wide variation of soils, yet on its first trial on a farm it is best to sow on high, well drained land. A rich clay loam on top of gravel or limestone is the ideal location, but it will grow on all types of soil, varying from a heavy clay to a medium sandy loam, if other conditions are favorable. A gentle slope should be selected. On level land water will gather on the surface from rains or melting snow, and if freezing weather follows ice will form and smother the plants. The fields will then become patchy and should be plowed and reseeded. For the same reason a creek or river bottom that is subject to overflow should not be selected, as the alfalfa plants, if submerged for a few hours, will die from suffocation. Land that has the water line only two or three feet below the surface should be avoided, as the plant needs well drained soils.

The natural home for alfalfa is on limestone soils or soils that have a goodly supply of carbonate of lime in them. No matter how favorable other conditions may be, if the soil is sour and gives a strong acid reaction it will be necessary to neutralize the acidity to some extent before it will be possible to get the best results.

Acid land can occasionally be determined by plants such as sheep sorrel and mare's tail that thrive thereon. It can always be determined by testing with blue litmus paper which can be obtained from the druggist. Take some moist earth from a few inches beneath the surface of the ground and press it firmly over a strip of litmus paper. Do not handle the litmus paper when the hands are moist, as the perspiration from them may cause the paper to show an acid reaction when no acid is present in the soil. After the paper has remained in the soil for ten or fifteen minutes, if it has changed in color from a blue to a pink or red, the soil is acid, and this acidity should be corrected to a certain degree before alfalfa can be grown to advantage.

The beginner should sow only a small acreage until he has studied the conditions of the farm in relation to this crop. One or two acres are sufficient to start with. Land that has been in young sod the previous year and then run to potatoes, corn, peas or some root crop where clean culture was practiced is most suitable. This should be fall plowed seven or eight inches deep, so as to have a deep, mellow seed bed.

In the early spring run the disk over the land and then follow with a fine tooth harrow at weekly intervals until about June 1, so the weeds will sprout and be killed. The alfalfa seed is then sown without any nurse crop, using twenty pounds per acre. The practice of sowing alfalfa with a nurse crop is being displaced by the method of sowing the seed alone and with much better results. Where the land is extremely weedy it is advisable to summer fallow and sow to alfalfa the first week in August. If weedy the land should be plowed after the crop is removed and a fine tooth harrow run at intervals to kill weeds through the latter part of summer and early fall. For best results one ton of earth per acre should be scattered immediately preceding the sowing of the alfalfa seed. Occasionally the alfalfa will come into bud and hesitate to blossom. Sprouts will then immediately start at the base. It should be cut when those conditions prevail, even though no blossoms appear.

In the afternoon of the same day of cutting, if weather has been favorable, the alfalfa can be raked and put into small cocks. The cocks should not be left standing in the field more than two or three days during wet weather without moving or the alfalfa plants underneath the cocks will be partially or completely smothered. By running a pitchfork into a cock of alfalfa near the bottom one can easily move the pile. If alfalfa is exceedingly green when cocked or rainy weather sets in it will heat unless the cocks are opened every day or two. In favorable weather no more difficulty will be experienced in curing alfalfa than in curing heavy growths of clover. A much better quality will be secured if the crop is cured under hay caps.

The importance and popularity of the plant are such that the present acreage in Wisconsin will probably double in the next three years. For the past twelve years the department of agronomy of the Wisconsin experiment station has carried on experiments and issued bulletins bearing upon the culture of alfalfa. The call for information has been so great that the last bulletin is entirely exhausted, and necessity demands a new edition.

An association of select alfalfa growers and experimenters, known as the Alfalfa Order of the Wisconsin Experiment association, has been recently organized. The aim and purposes of the organization are to grow alfalfa and disseminate knowledge regarding it. The association is co-operating closely with the college of agriculture so as to secure information from numerous experiments and tests to benefit all alfalfa growers of the state. The organization now has a membership of 500, and sixteen tons of seed have been purchased by the members of the season of 1912. From the large numbers engaged in this co-operative work much useful information can be secured that will be of great benefit to the alfalfa growers in general.

LITTLE CINDERELLA

She Was Used as a Foil for a More Fortunate Cousin.

By H. N. EGBERT.

Cinderella was a foil for Beatrice. That, perhaps, was the real reason why Mrs. Lanham, who had never been known to do an unselfish act, surprised her intimates by asking her little orphaned niece to make her home with her after her brother's death.

Esther and Oliver Benton had grown up together in the same home in Ohio, and Oliver had supported his widowed mother and sister until Esther's brilliant marriage to a wealthy lawyer. The Lanhams had gone up in the world and when Mr. Lanham died he was one of the richest corporation lawyers in the country. Esther mourned her husband decently for a year; then she moved to New York and soon became a member of the rich and not very intellectual society that finds its doings recorded daily in the newspapers.

Why Mrs. Lanham should have taken little Cinderella—whose real name was Elizabeth—into her home was a mystery until Mrs. Bentham-Jenkins solved it.

"Why, my dear, the reason is perpectly obvious," she said to a friend. "It is only necessary to look at the children's faces. Did you ever see a more glaring contrast between beauty and homeliness? Beauty and the Beast, I should call it; and that charity child won't improve with years, either."

Elizabeth heard it and ran away to cry. But she had always known instinctively that the difference between herself and Beatrice was as that between darkness and daylight. Beatrice had an abundance of flaxen hair, merry blue eyes, a contagious laugh, and a figure which gave promise of that quality which is called "svelte." Elizabeth was thin and sallow and lanky, and nobody ever stopped to admire her as they did her cousin.

Perhaps this was partly due to the fact that Elizabeth wore Beatrice's cast-off dresses, after the trimmings had been removed and a certain dowdiness imparted by Mrs. Lanham's deft fingers. That excellent woman knew the value of a foil for her daughter,

Would Dress Herself in the Gown.

particularly now that Beatrice was of a marriageable age. Beatrice was kinder. Once she gave Elizabeth one of her cast-off ball gowns.

"Some day you may be invited to a ball,' she said, with innocent scorn, "and then you will be glad to have something to wear. But don't tell mamma or she will be angry.

She did not know that little Cinderella treasured in her room a pair of Beatrice's old slippers which she had rescued from the lumber room just as its contents were about to be thrown away. In the seclusion of her little attic chamber she would dress herself in the gown and in imagination she would be the belle of some ball, the admiration of all eyes. But nobody ever invited Cinderella to a ball; first, because she was only a sort of companion and never met anybody; secondly, because it was understood that after Beatrice's marriage she was to go out into the world and work for her living.

And that date, toward which Cinderella looked forward with rapturous anticipation, was likely to be long delayed, if one could believe in signs. Lester Martin had been a frequent caller at Mrs. Lanham's house of recent weeks. Martin was the son of old Roger Martin, the banker, but he was more than that, although it counted for less with Mrs. Lanham—counted for nothing at all, in fact. He was the most famous architect in America and was the man who had designed the new frieze for the state capitol. He was always very kind to Elizabeth, and because he was the only person who ever noticed her she longed for a sight of him. And one day something very surprising happened.

Lester was calling at the Lanham home, and Beatrice, having heard the news from her maid, was hurrying into her reception gown. Cinderella was all alone. She was just going upstairs—for Mrs. Lanham did not like her to receive her guests—when she met Lester at the door.

"Why don't I ever see anything of you, Miss Benton?" he asked, detaining her.

Elizabeth did not know what to say, so she said nothing.

"You dear little Cinderella," said Lester Martin, and bent down and kissed her.

How she got out of the room Elizabeth did not know, but she was in her room at last, and sobbing as though her heart would break. She cried wildly for hours, until Beatrice came in and found her there.

Beatrice was too much excited to notice Elizabeth's red eyes. She began chattering about Lester.

"Mamma thinks that he is in love with me," she said. "She says he wouldn't come here so much if he wasn't. And it will be such a fine match for me, for his father is worth a cool ten millions, and I shall have carriages and autos and go to Paris each year and—"

"Do you love him, Beatrice?" inquired Elizabeth.

"I don't know. I guess I could," said Beatrice, whirling about. "Mamma says you needn't come down tonight because we are having guests."

She came back presently. "Do you know old Roger Lester is giving a fancy dress ball next month?" she asked. "Yes, the invitations have just come. And, oh, I forgot to say that there is one for you. Mamma has written accepting for me and declining for you."

When she was gone the girl gave way to an access of unrestrained grief. For the first time rebellious thoughts came into her mind. Lester loved her. Else why had he kissed her? No man ever kissed her before. To kiss meant, in her simple view, to plight one's troth for ever. Or had he been playing with her? It was obvious that he meant to marry Beatrice; but then he must have had a passing affection for her. Suddenly an amazing plan took root within her. She would go to the ball. She had never been to a ball, but why should she not go once? It was to be a fancy dress and nobody would recognize her, masked and disguised. There was Beatrice's dress, but that had been altered and Beatrice had had so many dresses that she would never remember that one. And there were Beatrice's slippers.

She trod on air during the next four weeks. She went so happily about her duties that more than once she caught sight of Mrs. Lanham surveying her with amazed disapproval. At last the night of the ball arrived.

"You need not sit up for us," said Mrs. Lanham condescendingly. "We shall probably not be back until late, and you must be up early in the morning to accompany the parlor maid to the station to put her on the train. Poor Mary could never find her way about the streets alone."

Mary, the parlor maid, was going home to pay a visit to her sick mother.

But Elizabeth did not care, for her heart was beating wildly from sheer ecstacy. When the auto rolled away she hurried upstairs and slipped into the ball dress and slippers. Then, with her head and shoulders shrouded in her wrap she went into the street and entered a street car.

Nobody stopped her at the door. Masked, among a hundred other masked women, her presence excited no comment. She recognized Beatrice, in her creation of filmy white, and her aunt, seated among the chaperons and watching her daughter with an expression of admiration in her eyes. But nobody dreamed that Cinderella was there. It was ten o'clock. Two hours—and then she must go home as silently as she had left.

The music intoxicated her. Elizabeth could dance divinely. The little drudge was in heaven as one partner after another took her upon his arm and swung her out among the dancing couples. But when she saw Lester approach and gravely ask her, her head swam and her eyes filled with sudden tears.

"Shall we go into the conservatory?" he asked, when the music stopped. He offered her his arm. At the door of the ballroom they passed Beatrice and her mother. Their eyes rested on her, and with a sudden terror Elizabeth perceived that she was recognized.

Mrs. Lanham rose to her feet with an exclamation of anger, and, overcoming herself with an effort, scowled at her. Elizabeth trembled with fear. She had not calculated upon the aftermath.

"What is the matter?" Lester asked, as they sat down. "You are not feeling well? May I get you a glass of water?"

She shook her head. Lester placed his hand upon hers.

"Do you think I do not know who you are, Cinderella?" he asked, "for all that mask? See if I can guess. You are Miss Benton and you ran away to the dance because Gorgon would not let you go."

"And I can never go home," said Elizabeth in panic. "She recognized me. I had never been to a ball before and I could not bear not to just once. I don't know what I shall do."

"I'll tell you," said Lester. "You need never go home again if you will marry me."

He mistook the look in her eyes.

"O, Cinderella," he cried, stretching out his arms longingly, "I love you with all my soul. It was you I went to see, not Miss Lanham. I know all about your circumstances and your unhappy life. But, Cinderella, I want you for my own, and I know a clergyman over in Jersey who doesn't go to bed till twelve, and if we take a taxicab we can just make it. Will you come with me, Cinderella, dear?"

"Yes," sighed Cinderella happily, and that was the second time he kissed her.

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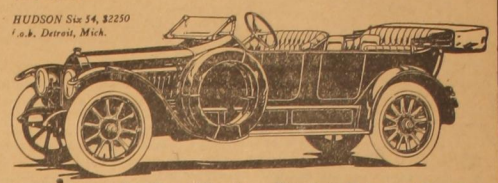

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Pontiac	5:45	8:30	10:35	1:15	3:20	5:20	7:20	9:35	10:35
Nolan	6:00	8:45	10:48	1:30	3:33	5:33	7:33	9:48	10:48
Cayuga	6:05	8:50	10:53	1:35	3:38	5:38	7:38	9:53	10:53
Interurban Park	6:15	9:00	11:00	1:45	3:48	5:48	7:48	10:03	11:03
Odell	6:21	9:06	11:05	1:51	3:54	5:54	7:54	10:10	11:10
Virden	6:22	9:13	11:12	1:57	4:01	6:01	8:01	10:17	11:17
Riling	6:35	9:20	11:18	2:05	4:08	6:08	8:08	10:23	11:23
Ar. Dwight	6:45	9:30	11:25	2:15	4:15	6:15	8:15	10:30	11:30

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Riling	7:37	9:37	11:32	2:22	4:22	6:22	8:37	10:27	11:37
Virden	7:42	9:42	11:37	2:27	4:27	6:27	8:42	10:42	11:42
Odell	7:50	9:50	11:45	2:35	4:35	6:35	8:50	10:50	11:50
Interurban Park	7:56	9:55	11:50	2:40	4:40	6:40	8:55	10:55	11:55
Cayuga	8:02	10:03	11:58	2:48	4:48	6:43	9:05	11:05	12:05
Nolan	8:07	10:08	12:03	2:53	4:53	6:53	9:10	11:10	12:10
Pontiac	8:20	10:25	12:18	3:10	5:10	7:10	9:25	11:25	12:25
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