

in composition at different stages, its fertilizing value, the vitality of Alfalfa seed, etc.

The conclusions reached are that Alfalfa is a suitable and excellent crop for a large variety of soils and climates, the most trying and fatal condition to its growth being a cold, wet winter, and poorly drained or water-logged soils. Analyses made of the leaves at different stages of growth, from the time the plant begins blooming until after blooming, show that the air-dried stems contained about 6.35 per cent. of protein and about 28 per cent. of nitrogen free extract (carbohydrates), while the air-dried leaves, up to the time the plant ceased blooming, contained all the way from 22 to 25.5 per cent. of protein, and from 40 to 45 per cent. of nitrogen-free extract. The leaves are also much richer in fat, but the stems contained four or five times as much crude fibre as the leaves.

The amount of fat contained in the leaves must be borne in mind when considering the question of making Alfalfa into hay, inasmuch as the leaves being brittle they are readily broken off in handling, and a considerable portion of them are thus left in the field. As to the different crops of Alfalfa (three in number) in the test, the average percentage of protein did not differ very greatly, although the protein was somewhat higher in the crop first cut. It was found that the hay cut just at the beginning of bloom is richer in this constituent than that cut later. From the beginning of bloom to half bloom the amount of protein seems to be nearly stationary and the crop is probably at its maximum. The crude fibre of the whole plant gradually increases as the plant matures.

A comparison of Alfalfa hay with Clover hay showed that 100 pounds of Clover hay contained 47.5 pounds of digestible food, of which nearly 7 pounds is protein, while 100 pounds of Alfalfa contained 54.5 pounds of digestible food, with over 11 pounds of protein.

Such experiments were made at the Colorado Station in making Alfalfa into silage, with good results. Cows ate it freely even while on green pasture. It kept in good condition, and an analysis showed it to be nearly twice as rich in protein as ordinary corn silage.

The amount of fertilizing material removed from the soil, in a ton of Alfalfa hay, is given as 44 pounds of nitrogen, 3.27 pounds of phosphoric acid, and 50.95 pounds of potash. Over 40 pounds of lime are also removed. As regards the nitrogen, however, Alfalfa derives its supply largely from the atmosphere, so that the soil is not a loser to any great extent.

In respect to the vitality of Alfalfa seed, the indications were that it was not materially affected by keeping for six years. The strange claim is made that screenings, or the poorer seed, gave as satisfactory results as prime seed.



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