

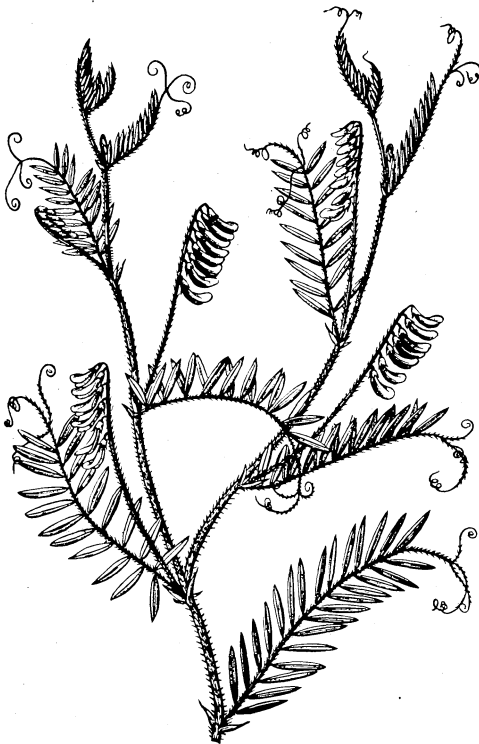
United States Department of Agriculture,

DIVISION OF AGROSTOLOGY.

HAIRY VETCH, SAND VETCH, OR RUSSIAN VETCH.

(*Vicia villosa*.)

This annual leguminous plant is a native of western Asia. It has been cultivated for about fifty years in some parts of Europe, especially southern Russia, Germany, and France, and was introduced into this country for the first time about 1847, under the name of Siberian



Hairy vetch (*vicia villosa*).

vetch. But its cultivation was lost sight of, and no thought was given to it until reintroduced about ten years ago. It has been tried in various parts of the United States. Excellent reports as to its drought-resisting qualities and its adaptability to our climate have been received from Washington, Nebraska, and Pennsylvania. It has been grown in the past season on the experimental grounds of the Department of Agriculture at Washington, and has proved to be thoroughly adapted to, and valuable for, this region. The seed was planted about the 25th of April; the plant commenced to bloom the middle of July, and continued in bloom until the end of

August. Hairy vetch withstands cold, heat, and drought, but it does not do well where there is an excess of water in the soil. It is one of the most promising fodder crops which has been brought into the United States in recent years.

Hairy vetches may be planted in autumn, from about the middle of August to the middle of September, or in spring, from the latter part of April to the middle of May. Sow broadcast at the rate of a bushel and a half of seed per acre, or plant in drills 2 to 4 feet apart. The latter method will require a less amount of seed. The seed is as yet very expensive in this country, about \$6 per bushel of 60 pounds. When the seed is put in broadcast, a bushel of rye, oats, or wheat, should be sown at the same time, so as to furnish a support for the vetches, and keep the vines up off the ground. If it is sown in drills in the latter part of August, it should be cultivated several times between the rows. It will furnish some forage in autumn, and where the winter is not too severe, will start to grow again in the spring, thus producing forage in late autumn and early spring, at the two periods when it is most needed.

Prof. S. M. Tracy in "Forage Plants for the South" (Farmers' Bulletin No. 18 of this Department) states that the seed of hairy vetch was sown at the Mississippi Agricultural Experiment Station in October, 1888, and since that time has given heavy annual crops on the same ground, although it has received no attention and the ground has not been plowed since the first sowing. Its seeds germinate with the first autumn rains and in favorable seasons cover the ground by the first of January, and then furnish good grazing until April or May. If the stock is taken off the field in March, the plants will mature and reseed the ground freely for the next year.

The great desideratum in our American farming is some crop or crops, either clovers, grasses, or other forage plants, which may be sown after the grain crop of the year is harvested, to provide green forage and pasturage and to prevent the washing of the soils in winter and early spring. If the land is allowed to lie bare, large amounts of the soluble, and hence the most valuable, mineral fertilizers are washed into the creeks and rivers. The agricultural soils in the newly settled portions of the continent have been cultivated as though their riches were inexhaustible. Crop after crop of grain, cotton, corn, or tobacco is taken from the field, and no effort is made to replace the potash, phosphoric acid, and nitrogen which they contain. The result of this robbing of the soil is that in 15 or 20 years the yield has very materially diminished. The loss in fertility which these lands sustain each year is about equally divided between that portion sold from the farm in the form of grain or other raw material and that which leaches out of the soil through washing after the crop has been removed from the field and the surface is no longer protected from the elements. Now, if some crop can be planted which will cover the ground in autumn and winter and early spring, and which will be ready to take off the ground in time for spring planting, at least half of this loss of

fertilizing material may be saved. Furthermore, if such a winter crop is planted, the land instead of losing organic and inorganic food elements is constantly acquiring them.

Analyses of hairy vetch made by Coudon in 1890 showed that this forage plant contains for every 100 parts of dry matter 22.78 per cent nitrogenous matter, or protein; 2.61 to 3 per cent of fats; 23.25 of cellulose, or crude fiber; and 39 per cent of nitrogen-free extract. Every ton of dry hay contains 45 pounds of nitrogen, 19 pounds of phosphoric acid, and 62 pounds of potash. The yield amounts to from 6 to 10, and sometimes on very rich soils 12 to 15, tons of green forage per acre. The nitrogen, potash, and phosphoric acid contained in a ton of vetch hay, if bought in the form of a commercial fertilizer at current prices would be worth about \$11. The yield of dry hay taken on this basis would amount to from $1\frac{1}{2}$ to 4 tons per acre, the yield depending much upon the fertility of the soil and the state of cultivation. These fertilizers, as produced by the vetch, are in the best form or combination to be used as food by the succeeding crop. A crop of hairy vetch plowed under about the first of May, would therefore place in the ground fertilizers that would cost from \$16 to \$45 per acre if purchased in the form of commercial fertilizers. The hairy vetch has as high a nutritive ratio as any forage plant, that has been analyzed, excepting the soja bean.

In proportion to its cellulose and nitrogen-free extract, which represent the contained starches, sugars, and like compounds, it has a very high per cent of protein and fat. To realize its fullest value as a soiling crop it should be fed mixed with corn fodder or timothy hay or roots, which are all rich in the carbohydrates but are deficient in protein. The two classes of foods need to be fed together to prevent loss of protein, which is that part of the food that becomes transformed into blood, bone, and muscle. The carbohydrates when digested go to produce heat and motion, and the surplus is stored up as animal fat.

Hairy vetch is eaten with relish by all kinds of farm animals. If properly cured it makes very fine hay, though on account of its habit of growth it is very difficult to cure. It has been tested in the silo in alternate layers with green corn and alone. The former method is the one to be used if the best ensilage is desired. It is a most excellent forage plant for soiling purposes. On account of the difficulty of curing it properly, it will give the most satisfactory results if fed green or ensilaged.

Hairy vetch, while it gives a fair crop on sterile soil, is most profitable as a forage plant on rich and well-tilled land. It needs considerable moisture during the first six weeks of its growth, but when once fairly established withstands drought and extremes of temperature.

SUMMARY.

Hairy vetch seed weighs 60 pounds per bushel. Spring prices, in New York, 1895, were \$6 to \$6.50 per bushel.

Sow broadcast or in drills, at the rate of $1\frac{1}{2}$ bushels to the acre from August 15 to September 15. Sow one-half bushel of winter wheat, winter rye, or winter oats with the vetches.

Hairy vetches sown in August may be fed in October or November. They will be ready to cut for soiling or hay from the 20th of April to the 1st of May.

For a summer crop, sow from the 20th of April to the middle of May. Cut when in full bloom.

Do not plant on land that is poorly drained.

To get the best results, feed with coarse fodder, hay, or root crops. Feed with corn fodder at the rate of four tons of corn fodder to one ton of hairy vetch.

Hairy vetch sown in autumn will cover the ground and prevent washing during the winter.

It is one of the best crops to turn under as green manure.

Do not commence to feed hairy vetches until they have begun to blossom. Like most of the bean and clover family they are somewhat diuretic if fed in large quantities before mature. Use caution in feeding until the animals have become accustomed to the change of food.

Approved:

CHAS. W. DABNEY, JR.,
Acting Secretary.

F. LAMSON-SCRIBNER,
Agrostologist.

WASHINGTON, D. C., *October 1, 1895.*