SILANI: A NEW COVER AND FORAGE CROP FROM THE PHILIPPINES.*

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During the early part of 1919 the writer first noted what to him was a new native legume, near Kawit, Zamboanga, and later a large patch of the same plant was found on the beach at the Patalon coconut plantation in the same province. Still later it was found in Basilan and in Dava and Cotabato. Herbarium specimens forwarded to Mr. E. D. Merrill, then botanist, Bureau of Science, were by him identified as *Vigna marina* Merr. According to Merrill it occurs throughout the tropics along the seashore. The plants noted were perennial, of vigorous growth and held their ground very well in competition with other native vegetation; on examination the vines were found to make roots quite freely, not only at the leaf axils, but on the stems between the leaves and the root system had a fairly large amount of nodules. Altogether the Silani appealed to the writer as a promising cover crop, and attention was called to its possibilities for this purpose in Bulletin No. 35, The Coconut Palm: Its Culture and Uses, 1920.

In 1919 seeds of the Silani were collected in Mindano and planted at the Lamao Experiment Station for further observation. It was found that the young seedlings were rather weak and required more care than ordinarily is given cover crops, such as the patani, *Phaseolus lunatus* L., or the different species of *Tephrosia* and *Crotalaria*, but that once established they made a vigorous growth and made a good cover.

By way of description it may be stated that the silani is a perennial, trailing, twining, branching, and, when given support, a climbing vine, glabrous throughout. The leaves are trifoliate, with petioles from 8 to more than 15 cm. long. The leaflets are broadly ovate to oblong-ovate, acute or rounded, 5 to 8 cm. long. The flowers are yellow and grow on

* Silani is a contraction of a long native name of *Vigna marina* in a Mindanao dialect which has been adopted as a convenient common name for everyday use.

erect stems in the axils of the leaves. The pods are cylinder shaped, slender and slightly curved, 4 to 7 cm. long and contain 3 to 8 seeds about 5 mm. long.

The pods are produced sparingly and it is difficult to obtain seeds in quantity. This defect would preclude the employment of the silani as a cover crop were it not for the fact that the plant can be propagated from cuttings like its relative the kudzu, *Pueraria thunbergiana* and the kamote, *Ipomoea batatas* L., which was demonstrated at Lamao.

Inasmuch as it has been found that horses and cattle eat the silani cut as green forage, a sample thereof was submitted to the Bureau of Science for analysis, which was made by Mr. F. Agcaoili, chief, section of food analysis, division of organic chemistry, and is shown in the following table, together with analyses of alfalfa, cowpea, velvet bean, Guinea grass and Napier grass for comparison.

Table showing analyses of Silani and other green forage plants.

Constituents	Silani	Alfalfa	Cowpea	Velvet bean	Guinea grass	Napier grass
Water	65·77	75·17	85·70	82·18	77·85	61 81
Protein	3·17	5·38	2·07	4·81	3·37	2·92
Carbohydrates	24 35	8·43	4·36	4·99	8·09	17·29
Sugar	—	—	1·25	0·58	—	—
Fat	0·83	0·70	0·59	0·94	·57	·29
Fibre	4·04	7·82	4·70	5·06	7·30	14·77
Ash	1·84	2·50	1·33	1·44	2·85	2·92

The nutritive value of the forages included in the foregoing table are as follows: Silani, 29·3; alfalfa, 15·3; cowpea, 11; velvet bean, 12·5; Guinea grass, 13·8; Napier grass, 20·8.

While the Silani is seen to have a lower protein content than the alfalfa and velvet bean it is so exceptionally rich in carbohydrates that it has nearly twice the nutritive value of alfalfa and comes near being three times as nutritious as its relative, the cowpea. It is true of course that no digestibility tests have been made with the silani, but considering its chemical analysis there is but little doubt that it has a high actual food value.

Dr. Stanton Youngberg, chief veterinarian of this Bureau, commenting on the value of the silani as a forage plant says: "On account of its high carbohydrate content this forage should be of special value for 'finishing off' cattle before taking them off the range and placing them on the market. Hitherto there has been no suitable forage for this purpose in these Islands. If the digestibility of the silani is reasonably good, there is no question but that this new forage will fill a distinct want and be a valuable addition to those we now have."

During the carnival in Manila in February, 1924, the writer met Mr. Fernando D. Luistro, in charge of a coconut plantation on the island of

Basilan, near Zamboanga, who stated that he had used the silani successfully as a cover crop for an area of about 20 hectares. Mr. Luistro stated that according to his experience the only objectionable feature of the plants was their climbing habit which necessitated frequent clearing of the vines from the young coconut trees.

The silani makes the best growth where the rainfall is of equal distribution throughout the year, but also made a good growth at Lamao during the rainy season, and during the following dry season with the aid of irrigation. Lacking rainfall, and without irrigation, the plants merely maintain themselves alive and make scarcely any growth, and it is questionable if this crop could be grown profitably where there is a prolonged dry season.

If the silani is of pantropic distribution there should be no difficulty in getting cultures thereof started throughout the tropics at least within reach of the coast.

As has previously been stated the silani is a sparse seeder and cuttings must be depended upon for planting the crop on a large scale. The planting should be done during the rainy season.

The cuttings should be made 40 to 50 centimeters long and should be well protected from drying out. Furrows should be opened about a meter apart and strong cuttings dropped therein about 30 centimeters apart which should be immediately covered by another furrow of soil so that the topmost leaf joint is about even with the surface of the ground. The last plough should be followed by a man with a hoe to adequately cover cuttings that have been insufficiently covered with soil, who then, as he passes on, should pack the soil firmly around the cuttings with his feet, for if the soil is not packed firmly around the cuttings many are apt to fail or to be slow in starting into growth. Once the plants are well established they make a rapid and vigorous growth and rapidly cover the ground and smother the weeds.

It is not known how long a cover crop of silani plants will persist after planting, but the writer has observed patches of wild plants maintaining a thick blanket for four years in full sun exposure. Being a strand plant, naturally adapted to a maximum of light, the silani probably would not maintain itself that long in a coconut or rubber plantation where the shade increases as the trees grow up.

The silani should undoubtedly be of value as a forage and cover crop plant in the moist districts of Hawaii and Porto Rico, but is unlikely to be of more than passing interest on the continental United States excepting possibly the southern part of Florida.

The hybridization of the perennial silani with its close annual relatives, the cowpea, *Vigna sinensis* Savi., and the sitao, *V. S. sesquipedalis* Fruw., should be of decided interest.—Sugar Central and Planters' News, Vol. V. No. 11.