

## THE CASHEW—A PROMISING SUPPORT FOR VANILLA

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The most widely used support tree in vanilla culture in Puerto Rico is the dwarf bucare (*Erythrina berteriana* Urban), which grows well under light natural shade and offers additional shade for the vanilla plant. However, when this tree is used in open sites where rainfall is scarce during a part of the year, as is the case in the western part of Puerto Rico (1) it has the disadvantage of shedding its leaves during the dry season, a time when the vanilla plant is in greatest need of protection from the direct rays of the sun.

Although the usual agronomic practice is to plant vanilla at the base of existing supports under natural shade, there is land available on open hill-sides in Puerto Rico which, with suitable shade, could be planted to vanilla. A tree that would serve as a support and at the same time provide adequate shade throughout the year would increase the areas available for growing this new crop.

The cashew (*Anacardium occidentale* L.) is a large spreading tree native to the American tropics and especially common in Brazil and the West Indies. This plant produces edible nuts rich in oil, and edible fruits high in vitamin "C." Because of its soft bark and constant shade, this tree was tested in the autumn of 1939 as a support for vanilla in comparison with bauhinia (*Bauhinia reticulata* DC.) and dwarf "bucare" (*Erythrina berteriana* Urban). A typical cashew tree as used in this test is shown in figure 1. On station property at Las Mesas, young seedlings were transplanted from pots to bench terraces constructed on a hillside having a western exposure entirely lacking additional shade or wind protection. Stands of bauhinia and dwarf bucare, both approximately 1½ to 2 years old, were already established under similar conditions on adjacent terraces.

Vanilla cuttings were planted under cashew in May 1941, when the trees were about 2 years old and 4 to 5 feet in height and had from 3 to 4 feet lateral spread of dense foliage. The planting under bauhinia was made approximately 4 months later, in September, while that under bucare had been made a year previously, in May 1940. Both of these support trees were about 4 years old, nevertheless, neither was so well developed as the cashew. Although the vanilla cuttings were planted at different periods, the data obtained in May 1943 pertaining to the vegetative growth of the vines showed a decided superiority in growth by the plants on cashew. These data are summarized in table 1.

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TABLE 1

*Vegetative growth made to May 1943 by vanilla cuttings planted on open hillside terraces utilizing three different support trees*

Support trees	Age of vanilla plants	Average stem growth per plant
	<i>months</i>	<i>feet</i>
Cashew.....	24	27.9
Bauhinia.....	18	6.3
Bucare.....	36	7.0



FIG. 1. Vanilla planted under a cashew tree about 4 years old. Note the good shade and framework of spreading branches well adapted to the training of vanilla vines.

The vines on cashew produced a large amount of vegetative growth per plant at the end of 2 years. The vines on the bucare produced only one-

fourth the amount of vegetative growth of those on the cashew at the end of 3 years. Those on the bauhinia produced a little over 6 feet but these vines were only 18 months old when the record was taken.



FIG. 2. Close-up of vanilla plant on cashew. Note the vigorous condition of the vine with its thick and long internodes and the various clusters of goodsized beans. Note also the fruit of the cashew. The upper portion is the apple while the lower is the nut or true seed.

The vines on the cashew were well developed, with thick, long internodes and large dark-green leaves, as shown in figure 2. The average diameter of the basal internode of these vines was 0.2 inch and of the uppermost well-developed internode 0.4 inch; which compared favorably with those of other plants grown under optimum shade conditions (2). The vines on the bauhinia and bucare supports were in poor condition characterized by short internodes and yellow-green leaves and were comparable to those of plants receiving excessive sunlight (2). To protect the lower part of the vines from



FIG. 3. Vanilla planted under bucare. Note the palm leaves necessary to protect the lower part of the vines from the direct rays of the sun.



FIG. 4. Vanilla vines planted under bauhinia. Foliage at the beginning of the rainy season was light, thus making it necessary to use palm leaves to protect the vines from the excessive sunlight.

severe injury by the direct rays of the sun, it was necessary to use palm leaves as shown in figures 3 and 4. The cashew shown in figures 1 and 2,

did not shed its leaves and provided, without additional shade or wind protection, a continuous quantity of light which contributed to the healthy development of the vines.

The flowering and fruiting of vanilla on the bucare, for the first 2 years has been practically negligible, and no flowers have been produced by those vines growing on bauhinia. In the first year of flowering on the cashew, a crop of 11 pounds and 13 ounces of green beans was obtained from 22 plants.

#### SUMMARY

Cashew (*Anacardium occidentale*) was superior to bauhinia (*Bauhinia reticulata*) and bucare (*Erythrina berteroana*) as a support tree for vanilla when used on open hillside having a western exposure and without additional shade or wind protection. The vines on cashew produced more stem growth with long, thick internodes and dark-green leaves as compared to the short, thin internodes and yellow-green leaves of those grown on bauhinia and bucare. This was attributed to the inadequacy of the foliage of these supports to protect the vines and to the shedding of this foliage during the dry season, which further exposed the vines to intense sunlight.

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#### RESUMEN

El anacardo (*Anacardium occidentale*) resultó ser superior a la bauhinia (*Bauhinia reticulata*) y al bucare (*Erythrina berteroana*), como árbol de sostén de la vainilla, al ser utilizado en una ladera al raso que daba al oeste, desprovista de sombra y que no estaba protegida contra el viento. Las enredaderas bajo la protección del anacardo lograron mayor crecimiento de sus tallos, desarrollando largos y gruesos internodios y hojas verdinegras, mientras que las protegidas por la bauhinia o el bucare mostraban delgados internodios y hojas verdegay. Se atribuyó esto a lo inadecuado del follaje de estos árboles, para proteger debidamente a las enredaderas y, además, a que perdieron sus hojas en la temporada de sequía, lo cual las expuso a los rigores del sol.

#### LITERATURE CITED

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