PROTECTING PAPAYA PLANTS FROM NEMATODES BY THE PLANTING OF CROTALARIA SPECTABILIS

GLENN BATES and DAVID FAIRCHILD, Coconut Grove

These observations were made by the late Glenn Bates of "Sandy Acres", Fort Lauderdale and communicated to Dr. Swingle and me during his last illness. As a souvenir of his long quiet life of observation on Florida fruits, I am submitting this brief note,—his last contribution to Florida Horticulture.

This paper was written before his death and submitted to him but too late for him to give it his critical attention. What is written is from his conversations during his last illness and is in his own words as nearly as possible.

"In common with many others I suppose, I planted **Crotalaria spectabilis** through my orchard and in particular in the sandy soil about my papaya plants. This was in the early days of the exploitation of this newly introduced cover crop. I do not recall the date. The papaya patch was one of the sandiest spots on the place and I had had considerable trouble from the nematode root disease which attacked the plants and stunted them. I planted the crotalaria quite thickly, using plenty of seeds. They made a good growth and shaded the ground well.

"It seemed to me that the papaya plants made an unusual growth, and my curiosity being aroused I examined the root systems of a number of plants and found them curiously free from the nematode galls. This observation caused me to continue planting crotalaria in the area where the papayas grew and each year I examined the roots of my papayas and found them free from the disease.

"I often talked about this observation to my friends and one day I mentioned it to Dr. W. T. Swingle and Dr. Fairchild when I was staying at "The Kampong" under the doctor's orders. I could offer no explanation of the phenomenon. It remained a puzzling fact which I thought might have considerable significance for the growers of the papaya.

"During his stay in Washington some days after I told him about the observation, Dr. Swingle had occasion to talk with Dr. G. Steiner, the principal Nematologist of the U. S. Department of Agriculture. Dr. Steiner told him that at Tifton, Georgia, his assistants had gotten some striking results in the peach orchard tests there through planting of **Crotalaria spectabiils** as a summer crop and oats as a winter crop. The conversation with me recurred to Dr. Swingle and he repeated it to Dr. Steiner. This exchange of information resulted in a letter to Dr. Fairchild from Dr. Steiner asking for more information and suggesting that Mr. A. L. Taylor of Tifton Experiment Station, who happened to be in Florida at the time making an inspection tour, might call upon me here in Sandy Acres. He called and I was able to go over the matter with him although unable to go out and show him my experiments.

"Naturally I was much interested in his account of experiments he had made at Tifton in which the effects of planting Crotalaria had been striking. I will not go into detail about his experiments, for they will be published by the Station no doubt, but this much I can say that is extremely interesting.

"It has been discovered that the roots of the **Crotalaria spectabilis** seem to attract the nematodes but contain some inhibiting substance which, while allowing the nematodes to encyst, prevents their eggs from

hatching out. The roots of the other Crotalarias I have growing here do not appear to contain this poison which acts as a trap for the nematodes and removes from the soil, or at least stops the activity of, innumerable individuals."

Note. When I was called to Glenn's bedside and found him failing rapidly I went at dawn into his orchard to be among the plants he had loved. It was a cool morning and both **Crotalaria spectabilis** and **striata** were in bloom. The flower clusters of the **striata** were covered with the semi-torpid, slowly travelling, large red ants, many of which appeared to have been sleeping among the bracts. As I breathed on them they became more active and scampered away. Plants of **Crotalaria spectabilis** were standing a foot or so away and were in bloom too, but although I searched around and found many plants of this large flowered species I was unable to find a single ant on any of them. It was a striking contrast and when I went in where Glenn was struggling with his oxygen tank I spoke to him about it. "The ants don't like it. It's poison," he whispered Then he added "Oh, there's so much to do, so much to be done; the white-sapotes and annonas; I wish you would cross the annona flowers." To the very end he was living among the phenomena of the world of plants—the world of horticulture.

THIRD REPORT OF THE AVOCADO VARIETY COMMITTEE

S. J. LYNCH, Secretary, Homestead

The avocado season just passed proved to be the most successful in the history of the avocado industry in Florida, both from the standpoint of production and returns to the growers. The heavy shipments during the fall and early winter months emphasized the shift which the industry is making in planting and topworking to varieties which mature during this period.

Among the West Indian varieties, Pollock during the summer and Waldin in the early fall both produced good crops. This is the first good crop from Pollocks in several years so there will be little incentive to increase the plantings of this variety. Waldin is being planted in small quantities but practically no topworking is being done to this variety. The last part of the Waldin crop can usually be held off the market until the heavy Cuban competition has passed so there is an incentive to keep the present trees of this variety with little tendency for topworking it to later maturing sorts. The extremely heavy crop of Waldins caused the leaning limbs to expose the fruits to the sun, resulting in much unmarketable sunburned fruit this past season.

Fuchsia, Simmonds and Trapp generally produced a light crop. This is in keeping with their previous performances and the plantings of these varieties are not being extended. There has been considerable topworking to late-maturing varieties of both Simmonds and Trapp. Peterson, planted only in small blocks, matured a heavy crop but from its past erratic record this variety can well be discarded as a commercial sort in favor of Waldin.

The hybrids were the outstanding producers for the fall and winter months. Booth 8 matured the heaviest crop in its history. The heavy set of fruit resulted in smaller sizes which in turn increased the returns per bushel. Booth 7 and Lula also matured good crops. The larger average fruit