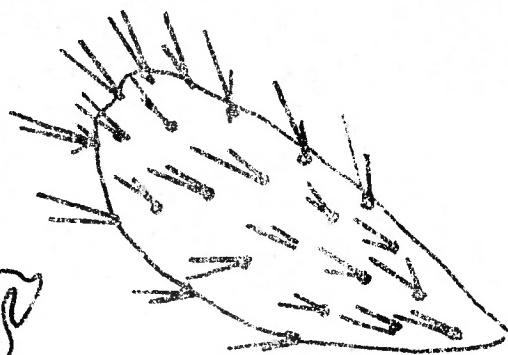


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OFFICIAL PUBLICATION OF THE SAN DIEGO CACTUS AND SUCCULENT SOCIETY

October, 1965

Vol. 1, No. 3

NATIONAL PRESIDENT FEATURED

Don B. Skinner, National President of the Cactus and Succulent Society of America, will give detailed information on the kinds and uses of soils at the Sat., Oct 2 meeting in the Balboa Park Floral Association Building at 2:00 p.m.

Mr. Skinner has worked 25 years for the Los Angeles City School District, in charge of the district Agricultural Center, growing plants for more than 60 school agricultural gardens. He developed and also ran annual institutes for city agricultural teachers, training them as specialists in their work.

Because of his long experience with the Los Angeles School District, he is well versed as a horticultural and floricultural expert, as well as being quite expert on a host of cacti and succulents.

LOOKING AHEAD

NOVEMBER: Plant sale conducted by Mr. Bud Crane.

DECEMBER: Christmas Social

LAST MEETING

Mrs. Alice Doby presented a color slide lecture entitled "Let Us Enjoy Cacti and Succulents". It included many plants in bloom at the Taylor's Cactus Garden, El Cajon. The slides had outstanding clarity and color brilliance, which attest to Mrs. Doby's considerable professional skill.

According to Mrs. Skinner, Don has always been plant conscious, even while attending college in Seattle, Washington. After moving to Los Angeles, he became friends with a nurseryman who, loving succulents, forced on him his first "cactus", *Echeveria hoveyi*. Mrs. Skinner states, "In no time Don was head over heels in love with the 'pesky things', cactus included."

After the Cactus and Succulent Society of America, Inc., was organized, he was soon active in it, has been an Executive Board member for many years, and is, at present, its President, and nominee for re-election. He is also a member and past president of the Los Angeles Cactus and Succulent Society, formerly The Southwest Cactus Growers.

He worked with the shows of the Society until they were discontinued, at which time he organized The Southwest Cactus Growers, February, 1935, with four people present at the first meeting.

Four months later, in June, 1935 the Southwest group put on a public show at the Manchester Playground, and they played to over 10,000 visitors. These shows were continued for several years until Mr. Skinner was employed by the Los Angeles School District.

He gradually enlarged his private collection extensively, but his particular loves were *Echeverias* and allied genera. He acquired (continued on page 2)

SOCIETY APPROPRIATES MONEY FOR PLANTS

Society members appropriated \$200 at the last meeting for the purchase of display plants to be distributed to members for grooming. Mr. Jack Ward was designated as chairman of plant purchases.

The plants will be kept potted and boxed, ready to be called for public displays. Acquisitions will include large specimen plants as well as young plants. Both common and rare plants will be represented.

It is planned to collect as many genera as possible, and to add additional specimen plants, especially rarer species, from year to year.

Plants will be distributed to the members to treat as their own plants, with the understanding and obligation that members are specifically grooming them for public display ready for call.

PRESIDENT DON SKINNER continued

and seriously studied as many of the Crassulaceae genera as he could add to his collection.

His knowledge of cacti and succulents kept step with his knowledge of immense numbers of other tropical and sub-tropical plants. He has been called on frequently to speak to groups on many subjects. He is also recognized as a capable judge, traveling as far as Oakland, California to judge at the Spring Flower Show.

Mrs. Skinner volunteered an amusing episode which occurred when Mr. Skinner first joined the Los Angeles schools. There was another Don Skinner (now a principal), who was a young coach in the district. Our Don Skinner was the only one listed in the telephone directory. Mrs. Skinner received numerous calls from amorous young women wanting to talk to "Don".

WORK PARTY

Remember the work party at the Balboa Park Cactus Garden on Saturday, Oct. 2, from 8:30 to 11:30. Bring tools and hoses.

INCOME AND RESPONSIBILITY

There is a feeling among some members that the Society is placing too much emphasis on the increase of income. Perhaps this is justified in comparison with the past.

However, when an organization assumes important responsibilities there is never too much income. During the past year, the Society elected to support singly the rejuvenation and maintenance of the Balboa Park Desert Garden. Any surplus income should be funneled into this project for acquisition of plants, weed and grass killers, sand, etc. in order to make it a really outstanding garden.

Also, the Society is approaching 100 members, which places a strain on the library. It is difficult to use many books because many members keep them more than one month. We need to acquire additional copies of some books, and we need to acquire new reading materials. This is an area in which we can always find good use for "surplus" income.

Another area in which we should spend more money is on educational programs. Outstanding programs will insure better membership attendance and participation.

Other areas in which we could usefully spend money are: acquisition of new and rare plants for distribution to members to groom for public displays; acquisition of a new duplication machine (this publication is not duplicated on the old one because it is cantankerous and difficult to operate); initiation of projects to strengthen the National Society.

ON VISITING GARDENS

Mrs. Edith Werner has proposed an excellent idea which would further the educational and fraternal aspects of the Society: "Why not have members visit each other's gardens?"

The Society could hold occasional meetings at the homes of members or, once or twice a year, conduct open house at selected private gardens, open to both members and the public.

Members could see what other members are doing and pick up ideas for their own collections. It would also increase appreciation and respect for collecting of cacti and succulents.

How many private collections of other members have you seen? No doubt, very few. Have you seen the following:

Mrs. Werner: Beautiful garden covering approx. $\frac{1}{3}$ acre, mostly cacti.

Mr. and Mrs. Bud Crane: Over 1000 rare cacti, aloes, agaves, etc. scattered over several acres and two greenhouses.

Mr. and Mrs. William Nelson: Hundreds of succulents, many in baskets.

PUBLIC DISPLAYS

Public displays help spread interest and appreciation of cacti and succulents.

The Society has taken a commendable step in appropriating funds for the acquisition of display plants to be distributed to members for grooming. Once that we have distributed the plants, we should take advantage of every opportunity to display them.

Two annual displays, the County Fair and the May Company Flower Show, reach a large number of people. These are well worth Society support.

LIBRARY PROBLEMS

It is a compliment to the members that they make good use of the professional library because it indicates both their interest in nomenclature and in educating themselves. However, there are some problems which need attention of the members.

The major problem is the circulation of books. Each book in the library can be circulated a maximum of 12 times during the year if each book is kept out for a minimum of one month per circulation. The Society has almost 100 members. Even considering married members, it would take at least five years to circulate any given book to every family.

Many books are checked out and kept out two months, three months, or more. Keeping books out longer than one month is unfair to other members who wish to use them.

One method by which we might correct the problem of delinquent books is to start imposing fines as does the public library. Another method would be to add duplicate copies of the books in most popular demand.

However, at the present time, an appeal is being made for members to observe the one-month rule on circulations. If a book is returned, and no one checks it out, it may be checked out again at the end of the meeting period.

There are other times we might display plants. Many garden clubs have annual displays which are opened to the public. In November or December of each year, the Society might put on a public display at the Floral Building where a patio area has been constructed to facilitate displays.

ODD SIGHT

The most startling sight in the drought stricken Balboa Park Desert Garden is two green and healthy bog plants. These are *Typha latifolia* (cat-tail) and *Papyrus cupresus*.

Apparently, they grew from stray seeds carried by birds, but they could not grow there if it were not for an underground water pipe leak which keeps the soil moist.

A large clump of *Opuntia robusta*, about seven feet away, also appears to be benefitting from the leak. It bloomed profusely this year, and looks very healthy.

REPORT ON ANNUAL BUSINESS MEETING

A large crowd turned out for the 12th Annual Business Meeting of the Cactus and Succulent Society of America at the Los Angeles County Arboretum, September 12, 1965.

Two excellent slide programs were presented by Dr. William L. Stewart, Director of the Arboretum and Dr. Paul C. Hutchison, University of Calif. at Berkeley. These programs will be reported in a later issue of this publication.

Nominated for National officers and National board members for election next year were:

Officers:

President - Don B. Skinner
Vice Pres. - Ed Gay
Secretary - Virginia Martin
Treasurer - Orva Bokarica

Board Members:

Harry Johnson, Sr.
Dr. Robert T. Craig
David Grigsby

Attending from San Diego were Mr. Bud Crane and Mr. and Mrs. Jack Ward.

Societies with the largest attendance at the meeting were Fresno and Los Angeles.

MONTHLY DISPLAY TABLE

A monthly display table might be of considerable interest to both the membership and the general public. Individual members, such as Mr. Bud Crane, have voluntarily brought display plants to past meetings, and these displays have been appreciated.

However, a monthly display would not only enlarge members' acquaintance with plants but would also be of value in attracting visitors. It would also make members more display conscious, and perhaps willing to lend plants at fair time.

If a particular genus is featured at a monthly program, we might call on members to display their species of that genus. For instance, if the lecture were on Euphorbias, members could bring potted Euphorbs for display.

Even when a genus is not featured in the program, we could still call for the display of a particular genus: one month *Senecio* the next month *Mammillarias*, the next *Aeoniums*, etc.

The displays would not become a bore because of the large number of genera available. In those genera where few species are available, we might call for a display of a whole family or several genera.

GREENWOOD SERVES AS VICE PRESIDENT

Mr. Walter Greenwood has been chosen to serve as Vice President and Program Chairman of the San Diego Society for the remaining part of 1965.

Mr. Greenwood takes the place of Mr. Burr Clouette who has departed from San Diego to take up residence in Georgia.

The November and December meetings of the Society are being arranged by Mr. Greenwood.

EXPERIMENTATION WITH GIBBERALLIC ACID

Would you like to see a normal four-inch cactus grow to double its size? Or perhaps your plant to produce twice as many blooms as normal? These things may be possible through the controlled use of gibberallic acid.

Gibberallic acid is the growth hormone found in all plants. Concentrated extracts of this chemical, when applied to plants, produces varying rates of growth, sometimes freakish.

It primarily influences stem growth rather than leaf growth. By using it, short stem plants may produce long stems; fruit plants may produce larger fruit in greater quantity, etc. For instance, a cabbage plant, normally two feet tall, shot up to twelve feet; a grape plant produced many more grapes than normal; an African Violet grew to three times normal size.

Some species of plants respond dramatically to gibberallic acid while others do not seem to be affected. The same plant may respond differently under different conditions. For instance, a plant in the sun may show little or no results while the same plant in a greenhouse may show outstanding effects.

I have not read accounts of experimentation on cacti with gibberallic acid; perhaps little has been done. If you wish to experiment, it may be possible for you to contribute a major piece of knowledge to gibberallic acid research and to culture of cacti and succulents.

Gibberallic acid may be purchased from the Nutritional Biochemicals Corps., Cleveland 28, Ohio, at \$3.00 for a one-gram bottle. A less concentrated form may be purchased from the Scientific Products Company, Inc., 1180 E. 63rd Street, Chicago 37, Ill. Enough concentrate to make one gallon of spray is \$1.75.

The materials needed are 1) gibberallic acid, 2) growing plants of the same and various species, and 3) an atomizer (perfume, nasal or throat) to spray the acid on leaves and stems. You also need to prepare data tables which include the name of experimental plants, number of control plants, number of plants given gibberallic acid, concentration of application, measurements of plant height and diameter at different intervals, number of blossoms, size of blossoms, and any unusual conditions or other data to make your experiment more complete.

Most cacti and some succulents grow very slowly, no matter how ideal the growing conditions. This is probably due to the limited production of growth hormones. Use of gibberallic acid may open new methods of forcing growth.

To have scientific merit and value, your experiments must be pursued methodically and with proper records. The following hints may help you:

1. Try to use enough plants of a single variety, growing under the same conditions, so you can leave some plants untreated, and so that you can use different concentrations of gibberallic acid on the others. You may wish to apply the acid in different ways. On some plants apply to the roots by working into the soil; on other plants apply to the stems only; on others apply only to the leafy part of the plant; on still others, apply to all three areas.
2. Be careful to devise a measuring system to check carefully the growth rates. Make your measurements at definite time periods.
3. Be sure that all plants are properly labeled and numbered so that you can accurately record the results.

EXPERIMENTATION WITH GIBBERALLIC ACID continued

4. Since plants are also affected by water, soil, sunshine, shade, etc., it is important to keep conditions for all control and experimental plants nearly identical. The only variable should be the application of gibberallic acid.

This is a long-time experiment. You cannot expect to get noticeable results immediately except with fast-growing young plants. Perennials require a comparatively long time to respond. Older woody plants may not respond at all, so it is better to use young plants. Also, it is unlikely that you will get extreme or freakish results.

If possible, take photographs to illustrate the comparative changes in growth.

ECONOMIC FACTS ABOUT AGAVES

Agaves have had two important commercial uses in Mexico. One was for the production of henequin and sisal fibers for rope; the other was for the production of Mescal, Tequila, and Pulque, all alcoholic beverages.

The first use, that for fiber production, is on the decline. According to Harold Jones in a recent article in the San Diego Tribune, 80,000 families in Yucatan are suffering economic hardship because of a decline in use of sisal for ropes. Competition from U. S. and European synthetic fibers is destroying the industry and bringing agricultural depression to Yucatan. To prevent mass economic ruin for the small producers, the Mexican government is subsidizing the market.

The second industry, the manufacture of alcoholic beverages, is on the rise. Tequila, Mexico (30 miles northwest of Guadalajara), is the center of Tequila-Mescal-Pulque distilling and production, but Guadalajara also has large distilleries.

Tequila is the same as Mescal, but claimed to be twice distilled compared to once for Mescal. Tequila has been the Mexican national drink (little wonder, considering the unreliability of the water) since Spanish colonial times. It is a colorless, or sometimes light amber-colored, fiery liquor, running from 30 to 40 per cent pure alcohol.

Several species of Agave are used, including Agave Americana. The hearts of the plant are cut out and crushed to pulp (Sometimes, the roots are also added). It is then allowed to ferment. After fermentation, it is called Pulque, and sold undistilled, much as beer. When the Agave mash is fermenting, it has an obnoxious heavy odor, resembling that of sour milk.

When the Pulque is distilled into a liquor it is then called Aguardiente, Mescal, or Tequila. All drinks derived from Agave have a distinct narcotic effect, in addition to the alcoholic punch, making them more potent than most alcoholic beverages. The person who drinks it is likely to wake up with a narcotic hangover even though he does not become intoxicated.

One popular way of drinking it is called a "Margarita" (at least you have been warned if you are ever offered one). The Mexicans dampen the rim of a glass, place the rim in a dish of salt so that a crust of salt covers the rim. They then pour straight undiluted Tequila into the glass, and work their way around the salt-frosted rim, drink by drink.

REPORT ON PLANT PURCHASES

It is with some trepidation that I make this report because the decisions I made may not have been what many members expected. Originally, my plans in the thinking stage were very different than their execution.

To begin with, I envisioned the purchase of large, mature, rare display plants. Anyone who has purchased such plants knows that the price may range anywhere from \$5 for the more common succulents to \$500, or more, for large rare cacti.

My dilemma was whether to purchase 10 to 15 large display plants with the \$200 appropriated, or to purchase a few large display plants and many immature plants. I decided to follow the second course in order to build for the future.

When we enter four displays at the County Fair our needs are for 300 to 350 plants. How far would 10 to 15 plants go? At that yearly purchase rate it would take us 20 to 30 years to fulfill our needs.

Since our objective was not just the acquisition of large display plants but also the acquisition of a large number of genera (both common and rare) and to involve the general membership in culture and grooming, I decided to spread the money as far as I could. Therefore, we have 70 plants representing 62 genera. Price per plant ranged from 35 cents for a small succulent to \$35.00 for a large cactus (*Cephalocereus senilis*).

Another problem which presented itself was how to house the plants in suitable containers. Many were purchased bare root, and most of the remaining were root-bound in very small containers. Every plant had to be potted or repotted. In order to insure a certain amount of uniformity and to insure that plants would be potted properly for growing and display, I purchased the containers, leaf mold and planter mix within the \$200 allowed. The two largest cacti should have been planted in redwood tubs but since those were so expensive, I used large clay pots.

The following genera have been purchased (a few donated) and will be distributed to members.

AGAVACEAE:

Agave victoria-reginae
Beschorneria yuccoides

APOCYNACEAE:

Adenium somaliense

ASCLEPIADACEAE:

Caralluma nebrownii
Ceropegia dichotoma
Dischidia rafflesiana
Duvalia namaquana
Echidnopsis serpens
Edithcolea grandis
Hoodia gordonii
Huernia schweinfurthii
Huerniopsis atrosanguinea
Piarranthus ruschii
Stapelianthus grandiflora
Tavaresia grandiflora
Trichocaulon keetmanshoopense

BROMELIACEAE:

Billbergia Santa Barbara X
Acanthostachys strobilaceae
Bromelia
Hectia texensis
Puya alpestris

COMMELINACEAE:

Tradescantia navicularis

COMPOSITAE:

Othonna capensis

CRASSULACEAE:

Adromischus clavifolia
Aeonium
Cotyledon ladismithiensis
Cotyledon wallichii
Cotyledon megastylis
Greenovia dodranthalis
Kalanchoe caudatum

REPORT ON PLANT PURCHASES continued

CRASSULACEAE:

Monanthes muralis
Pachyveria curtisii
Rochea coccinea
Sinocrassula yunnanensis

CUCURBITACEAE:

Xerosicyos danguyi
Xerosicyos perrieri

DIDIERACEAE:

Allmadia humbertii

DIOSCOREACEAE:

Testudinaria elephantipes

EUPHORBIACEAE:

Euphorbia horridus
Euphorbia obesa
Euphorbia xanti
Jatropha berlandieri
Monadenium coccineum
Pedilanthus tithymaloides

FICOIDACEAE:

Pleiospilos nellii

FOUQUIERACEAE:

Fouquieria macdougalii
Idria columnaris

LILIACEAE:

Beaucarnia recurvata
Chamaealoe africana
Gasteria disticha
Hesperaloe parviflora
Manfreda maculosa
Ornithocalum caudatum

OXALIDACEAE:

Oxalis peduncularis

PORTULACAEAE:

Anacampseros lanceolata
Anacampseros telephiastrum

CACTACEAE:

Ariocarpus lloydii
Cephalocereus senilis
Cleistocactus hylacanthus
Lophocereus schottii
Machaerocereus eruca
Mammillaria parkinsonii
Mammillaria winteri
Morawetzia doelziana
Notocactus mammillaris
Sclerocactus whipplei
Stenocactus crispatus
Tacinga funalis
Utahia sileri

VITACEAE:

Cissus quadrangularis

WANTED: CONTRIBUTORS
OF ARTICLES, INFORMATION

Thus far, very few have taken the opportunity to contribute to the Society publication.

Articles do not have to be very long or written as a scientific treatise. If you have anything which would be of interest or value to other members, please submit it.

Please mail all articles by the 20th of each month to Jack Ward, 823 Halecrest Drive, Chula Vista, 92010. Telephone short items by dialing 420-5513.

WANTED: BEAUTIFUL
DISPLAY PLANTS

The 12th Annual Business Meeting of the CSSA at Arcadia had displays of plants for viewing.

Plants on the following list were especially beautiful. If you would be willing to donate or to lend any of these plants during fair time, please inform Mr. Ward.

DESIRED PLANTS:

Cissus Juttae
Agave Utahensis
Didiera madagascariensis
Pachypodium geayii
Rehsteineria leucotricha
Senecio oxyriefolius
Testudinaria Montana

KNOW YOUR GARDEN ENEMIES: NEMATODES

After the last article, everyone has most likely thought of trying sugar as a cure for their nematodes. Even though sugar has been recommended by the USDA there are unconfirmed reports that local agricultural advisers say not to use it.

When you use it, experiment on a few plants or limited areas. The sugar cannot kill nematodes inside the roots, only those free in the soil. This applies to most chemicals as well. If you are treating an area it would be best to take up plants, treat the soil, cut off all the roots, and replant.

Even when the roots of plants are washed clean and appear to have no nematode infestation, it is possible that microscopic eggs may be clinging to the roots. If plant roots are placed in water at 125° F. for half an hour, the high temperature is supposed to kill nematodes inside the roots and any eggs attached to the roots.

Chemicals which are approved for use with live plants are Nemagon, DBCP, and V-C-13 Nemacide. These may be applied to infested soil without removing plants or harming them if directions are followed. Chemicals for treatment of fallow soil are: Tear gas (chloropicrin, pic-fume, larvacide); D-D Mixture; Dowfume #-85 (Ethylene dibromide); Dowfume MC-2 (Methyl bromide); Mylone; Telone, Vapam.

Actually, you are not fighting just one species of nematode, but dozens of different species. The root-knot nematodes make their presence obvious but there are many species which live in stems, bulbs, leaves, or buds. In addition to root knots, they may cause cysts, general yellowing, stunting, or dieback. Many of them pave the way for bacterial and virus entry which may desiccate or destroy the plant. Some of the Species which may affect your cacti and succulents:

Phylum: Nematoda

Class: Secernentea

Family: Criconematidae (Possible, but none reported)

Family: Hoplolaimidae:

Genus & Species:

Helicotylenchus nannus (Spiral Nematode)

Ectoparasitic; damages roots of Peperomia, Palms, Yuccas, Dracaenas.

Heterodera cacti (Cactus Root Cyst Nematode)

Partially endoparasitic; attached to the root by its neck only; it saps roots; body of mother becomes a true cyst containing eggs which remain alive for years inside the leathery cysts.

Heterodera marioni (Root-knot nematode)

This species has now been broken up into numerous species in the genera Heterodera and Meloidogyne. Almost all root-knot nematodes were formerly thought to be this species but most of the true root-knot nematodes have been transferred to the genus Meloidogyne, and the ones forming cysts to the genus Heterodera.

Meloidogyne arenaria (Peanut Root-knot Nematode)

Knots on roots; cause stunting, wilting, yellowing. Likes Wandering Jew, Cucurbitaceae, Peperomia, Cacti.

Meloidogyne hapla (Northern Root-knot Nematode)

Causes galls, reducing growth of main roots, and stunting. It likes Cucurbitaceae, Peperomia, Cacti.

Meloidogyne incognita (Southern root-knot Nematode)

Causes root knots, stunting of plant. Likes Coleus, Cucurbitaceae, Peperomia, Cacti.

Meloidogyne incognita acrita (Confused Root-Nematode)

Produces root knots, stunting. Causes roots to grow in abnormal pattern. Likes Cucurbitaceae, Cissus, Coleus, Cacti, and some Lilies.

Meloidogyne javanica (Javanese Root-knot Nematode)

Forms root knots, stunting, discoloring. Likes Cucurbitaceae.

Nacobus batatiformis (False Root-knot Nematode of Sugar Beets)

Sedentary endoparasite forming galls on roots. Likes Cacti.

Pratylenchus ninyus (Calif. Meadow Nematode)

Causes root lesions. Goes for Cissus.

Pratylenchus pratensis (Meadow Nematode)

Causes lesions with secondary fungus or bacterial infection. Likes members of the Lily family.

Pratylenchus penetrans (Meadow Nematode)

Causes root lesions, stunting and distorting roots; reduces plant vigor; plants produce small leaves. Likes Cucurbitaceae, some Lilies, and Peperomia.

Rhodophilus similis (Burrowing Nematode)

Endoparasite. Spends entire life cycle inside roots. Forms burrows in roots, leaving avenues of infection for fungi and bacteria. Infected plants have poor growth. Spreads rapidly, averaging about 50 feet per year. Likes a large variety of plants.

Rotylenchus reniformis (Reniform Nematode)

Partially endoparasitic, head and neck imbedded in rootlet. Has swollen body projected outside covered with gelatinous material. Causes symptoms similar to malnutrition and drought. Causes rootlets to shorten. Likes the Bromeliads.

Tylenchorhynchus claytoni (Tesselate Stylet Nematode)

Create mosaic pattern. Likes Cissus, Peperomia.

Family Tylenchidae (None Reported)

Class: Tylenchida

Family Aphelenchidae (None Reported)

Family Aphelenchoididae

Genus and Species:

Aphelenchoides fragariae (Spring Crimp Nematode)

Endoparasite which works way to flower buds, causing buds to die or be sterile. Causes dieback in some plants. Goes for Coleus, Crassulaceae, Lilies.

Class: Adenophora

Order: Dorylaimida

Family: Dorylaimidae

Genus and Species:

Trichodorus christiei (Stubby Root Nematode)

Shortens or dwarfs roots; emaciates the plant. Likes Lilies.

Xiphinema Americanum (American Dagger Nematode)

Migratory ectoparasite destroys feeder roots. May cause decline, wilt and sometimes winter kill; also may transmit mosaic virus. Feeds on large number of species.

Xiphinema Index (Calif. Dagger Nematode)

Feeds on root tips, causing terminal swelling and angling of main roots. Causes death of lateral roots on Cissus. Feeds on large number of species.

When you realize that there are over 5000 separate species of nematodes which feed on plants, the task looks very hopeless. New nematode species from abroad are constantly being introduced. Many are extremely adaptable or cosmopolitan. If their favorite plants are not available, they adapt to existing plants. It is now realized that they are the spreaders of many plant diseases and infections in addition to their role of debilitating the plant and stunting growth.