Disease severity on fern held in simulated transit conditions in Orlando were similar to fern arriving in Rotterdam. However, inoculated fern held at 21°C for 24 and 48 hours and subsequently held in simulated shipping conditions in Orlando had a higher disease level than similarly handled fern shipped to Rotterdam. During transit, temperatures in cartons were maintained close to mobile container thermostat setting of 2.7°C (*i.e.* 37 ± 3°F).

Discussion

Cylindrocladium heptaseptatum caused decay in cut fronds in simulated and actual handling and in-transit tests (Table 1, 2, and 3). Typical postharvest decay symptoms were similar to those reported earlier (2, 3). Initial infections were small irregular circular brown lesions visible 2 days after inoculation. The lesions enlarged, coalesced and the affected decayed area became bronze-brown with a water soaked appearance. The latter phase (bronze-browning) was the one most frequently observed in Rotterdam.

A postharvest fungicidal (benomyl and chlorothalonil) treatment controlled decay caused by *C. heptaseptatum* but a delay in fungicidal treatment to inoculated infected fern did not totally control decay. These data suggest that fern inoculated naturally with *C. heptaseptatum* in the nursery could develop postharvest decay even though they are treated (dipped) with a postharvest fungicide. Hence, additional research is needed to develop improved controls for *C. heptaseptatum* in the production nursery. We have observed decay in several containers of commercial fern arriving in Rotterdam (2). In 2 instances we have found *C. heptaseptatum* in the nurseries supplying the fern. Both nurseries used a postharvest fungicidal dip as part of their routine handling and packing procedures. *C. heptaseptatum* was originally reported in Honduras (8); but, this is the first instance it is reported in Florida.

Warm temperature (*i.e.* 21°C) after harvest is an environmental prerequisite for infection by *C. heptaseptatum* (2, 3). In the tests reported herein, fern inoculated and cooled immediately after harvest did not decay while inoculated fern held at warm temperature developed severe decay (Table 3). In Rotterdam, we have observed considerable postharvest decay in fern harvested and shipped during late spring and summer while fern shipped during the winter months had little decay. These observations suggest that *C. heptaseptatum* may be more prevalent in the nurseries in Florida in the summer. Also, during the summer cut ferns are exposed to higher postharvest temperatures than in winter.

These data indicate that postharvest control of decay should be initiated in the nursery. The arrival of a decay-free product is assured if fern is harvested free of *Cylindrocladium heptaseptatum,* dipped in a fungicide and immediately cooled.

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COMMERCIAL FOLIAGE PLANT GROWERS' CLINIC—TRENDS REPORTED FOR A FIVE-YEAR PERIOD[1]

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Abstract. **The commercial foliage plant growers' clinic was established in 1976 by central Florida extension personnel to assist growers and to reduce demand on the Agricultural Research Center-Apopka (ARC-A) personnel. The number of grower visits to the clinic has steadily declined from a high of 1605 in 1976 to a low of 963 in 1980, indicating that growers have obtained a better understanding of their overall production problems. As grower visits have declined, so have the number of soil samples submitted for determination of pH and total soluble salts. Of the 3000 plus foliage plant problems diagnosed over this five-year period, the majority were cultural in nature and indicated an upward trend of this type of problem. This was accompanied by a concurrent decline in number of organism related problems. In addition, the complexity of grower problems has also increased, resulting in a larger number of problems which have not been diagnosed.**

The commercial foliage plant growers' clinic has been in operation since January, 1976. The purpose of this clinic has been to assist growers with their production problems and to reduce demand on faculty and staff at ARC-Apopka. The clinic, operated every Wednesday afternoon from 1 p.m. to 4 p.m. at ARC-Apopka, is staffed by Commercial Horticultural Extension Agents from the central Florida area with assistance by the research personnel from the center.

During the past five years, the clinic concept has proven successful. This paper presents trends found in the data from information provided by the growers completing standard diagnostic forms and trends observed by the clinic staff from January, 1976 through December, 1980.

Commercial foliage grower visitations to the clinic reached 6694 during this five-year period (Table 1). The number of grower visits per year has steadily declined from a high of 1605 in 1976 to a low of 963 in 1980 representing a decline of 40%. This decline may indicate that growers are gaining a better understanding of their production problems.

Table 1. Central Florida grower participation at the Commercial Foliage Plant Growers' Clinic, January 1976 - December, 1980.

County	Number of grower visits					5 year total
	1976	1977	1978	1979	1980	
Orange	1368	1400	1185	975	815	5743
Lake	129	85	108	91	69	482
Seminole	39	41	46	52	55	233
Other	69	50	42	51	24	236
Total	1605	1576	1381	1169	963	6694

Soil samples submitted to the clinic for pH and soluble salts analyses (9601 total) were processed (saturated paste method) by the Orange County Extension Center, Orlando (Table 2). Results of the pH determinations indicated that 57% of these soil samples fell within a pH range of 5.5 to 6.5 (acceptable range for foliage plant production) with 15% below pH 5.5 and 28% above pH 6.5. There was a 20% increase in the number of samples with a pH range of 5.5 to 6.5 for this five-year period. Acceptable soluble salts levels of 500 to 1500 ppm were recorded for 62% of the soil samples received with 29% below 500 ppm and 9% above 1500 ppm. This ratio was fairly consistent during the five years. The number of soil samples received by the clinic increased from 1976 in 1976 to 2081 in 1978 and declined to a low of 1563 samples in 1980.

Foliage plant problems were identified as either cultural, pathogenic, phytotoxic or entomological in nature. The number of problems diagnosed, declined by approximately 50% during this five-year period with the high, 819, diagnosed in 1976 and the low 411, in 1980 (Table 3). Cultural-type problems represented 40% of all problems diagnosed during this period and has increased from 30% of all problems diagnosed in 1976 to 48% in 1980. Pathogenic problems decreased from a high of 32% in 1976 to a low of 24% in 1979 but increased to 30% in 1980. Phytotoxic problems also declined from a high of 18% in 1976 to a low of 6% in 1980. Entomological problems decreased from a high of 11% of all problems diagnosed in 1976 to a low of 6% in 1979, but increased to 10% in 1980. Problems which were of an unknown nature increased from 9% in 1976 to 22% in 1979 indicating that as the number of problems diagnosed through the clinic has decreased, the complexity of the problems has increased.

Table 2. Results of soil pH readings and total soluble salts determinations (saturated paste method), January, 1976 - December, 1980.

	1976	1977	1978	1979	1980	5 year total
pH						
<5.5	328	288	431	170	192	1409
5.5-6.5	919	910	1193	1428	1054	5504
>6.5	729	744	457	441	317	2688
Total soluble salts (ppm)						
<500	596	574	624	606	427	2827
500-1500	1198	1101	1275	1297	1006	5877
>15000	182	267	182	136	130	897
Total number samples processed	1976	1942	2081	2039	1563	9601

The clinic has proved to be successful in educating commercial growers since many have learned to recognize some of their own problems. In addition, the educational training of the growers visiting the clinic has improved over that of 5 years ago, again increasing the ability of the grower to diagnose and treat many of the common problems himself. Concurrently, more soil samples are analyzed by the grower since many nurseries have purchased the necessary equipment for these tests.

Most problems brought to the clinic are less easily answered than in the past. The availability of articles in Foliage Digest, Florida Foliage, ARC-Apopka Research Reports and handouts at foliage seminars have increased the likelihood of the grower diagnosing some of the more recognizable problems.

While statistics from the clinic definitely show a decline in use of the clinic, we must remember that fewer new businesses have started in the last 5 years than previously. In addition, many of the clinic problems are interrelated and, thus, difficult to separate and diagnose. These problems only emphasize the point that more research on foliage plant production is needed to elucidate these complexities.

Table 3. Foliage plant production problems diagnosed through the Commercial Foliage Plant Growers' Clinic, January, 1976 - December, 1980.

Year	Nature of problem					Total
	Cultural (%)	Pathogenic (%)	Phytotoxic (%)	Entomological (%)	Unknown (%)	
1976	245 (30)	261 (32)	148 (18)	93 (11)	72 (9)	819
1977	300 (42)	220 (31)	52 (7)	52 (7)	89 (13)	713
1978	265 (43)	193 (31)	37 (6)	45 (7)	80 (13)	620
1979	222 (42)	130 (24)	34 (6)	33 (6)	119 (22)	538
1980	194 (48)	124 (30)	26 (6)	42 (10)	25 (6)	411
Total	1226 (40)	928 (30)	297 (9)	265 (9)	385 (12)	3101