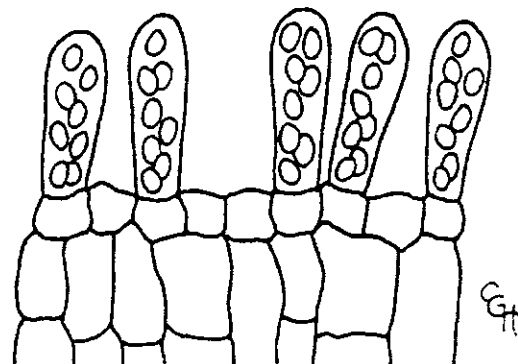
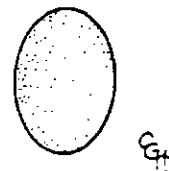
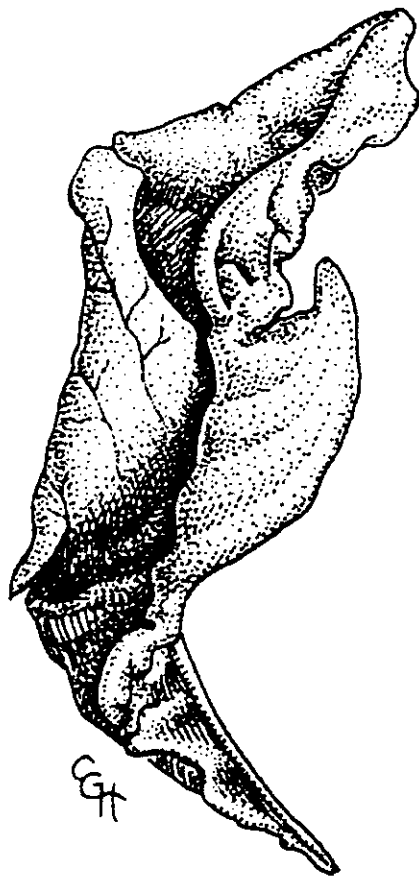
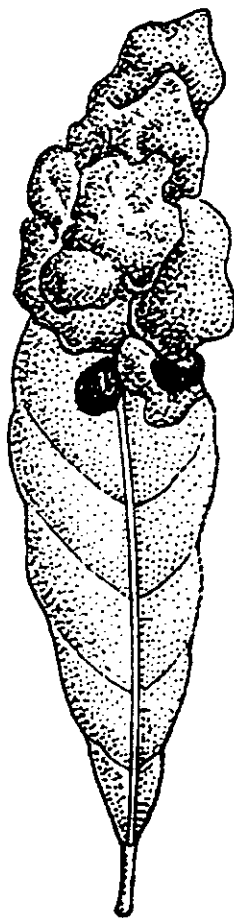


PD
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Diagnosics
Quarterly

March 1999
Volume 20, Number 1



Features:

Crossnore Hospitality
PDQ Turns 20!

On the Cover:

Peach Leaf Curl (*Taphrina deformans*): (clockwise from left) Leaf blister symptoms on peach leaves, mature ascospore, and asci on host leaf.

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Plant Diagnostics Quarterly (PDQ) is a nonprofit publication which serves plant pathologists in extension, regulatory and industrial clinical laboratories, private consultants, and other interested persons. PDQ is published four times a year.

Yearly Subscription Fees:

USA and Canada	\$15.00
Overseas	\$25.00

Back Issues in stock:

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Send manuscripts, announcements, and letters to the Editor: Stephan Briere, University of Wyoming, P.O. Box 3354, Laramie, WY 82071-3354.

FROM THE EDITOR

Dear PDQ Readers:

This issue is the 20th anniversary issue of PDQ. For those who have read PDQ from the beginning it must seem like yesterday, as for me I was just starting high school! Gail has supplied us with a portion of the 1st ever issue of PDQ and notes how little some things have changed in diagnostics over the years.

This month's feature article, authored by Larry Brown, is about Crossnore Hospitality. This article is intended as a historical piece on this event as well as an explanation of what Crossnore actually is. We have lost Mike Munster's "The Well Connected Diagnostician" column (good luck to Mike on his upcoming wedding and move to sunny Mexico) but I have started the Materials & Methods column. Please e-mail me with constructive comments so I can make it as useful as possible. Next month the feature article will be by Linda Haugen of the Forest Health Protection branch of the USDA Forest Service. She is putting together an article on Dutch Elm Disease control and management.

I am toying with the idea of adding a Readers Comments section in PDQ. This would mainly be driven by the readership with comments about recent news, events, moves, or just to get a topic out in the open for discussion. Please e-mail me any items you would like posted to this section to see if there is enough interest, thanks.

I am still looking for feature articles (>5 pages), short articles, or new columns, or new factsheets (250 copies) for inclusion in PDQ. Please remember that no topic is too trivial and is worth publishing.

Best Regards,



Stephan Briere, Editor
briere@uwyo.edu

Plant Diagnostics Quarterly

March 1999

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Guidelines to Contributors

Submission of articles:

Articles may be submitted in any of the following manners:

- 1) As a "document" or "note" attached to an email message. Send these articles to Stephan Briere at briere@uwyo.edu. I use Microsoft Word 97 but can accept documents from earlier versions of Microsoft Word or WordPerfect versions 5.1 or higher.
- 2) As a diskette (3.5") with PC formatting if possible.

Mail to:

Stephan Briere
 University of Wyoming
 P.O. Box 3354
 Laramie, WY 82071-3354

Please include a hardcopy of the article with the disk. Disks will be returned.

- 3) As a camera-ready hardcopy. Follow the manuscript guidelines shown below. Mail to Stephan Briere at the above address.

Information for the classified section (including job announcements and workshops) can be submitted in any of the above manners or as an email message.

Manuscript Format:

Titles: Center in Boldface; Author(s) and institution(s) should be centered below the title.

Margins: 1 inch (Top, Bottom, Left, Right)

Page Numbers: Do not include (although you may lightly pencil page numbers on any hardcopies that are sent)

Font: Something easy to read, such as Times New Roman, 12 point

Spacing: Single-spaced

Latin binomials: Italicized

References: Cite at the end of the article using a consistent format, such as that used in Plant Disease.

Printing: If sending a hardcopy, laser printed articles are preferred; type needs to be clear and dark enough to be reproduced well.

Enclosures:

Send 200 copies of fact sheets to be used as enclosures in the PDQ to:

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PDQ Deadline Dates For 1999

ISSUE:	MARCH	JUNE	SEPTEMBER	DECEMBER
Copy Due*:	2/19/99	5/21/99	8/20/99	11/19/99
Printing Date:	3/12/99	6/11/99	9/10/99	12/10/99

* - Date by which all information **must** be received.

REGIONAL REPORTS

NORTHEAST

Cheryl Smith

The first half of the winter in the Northeast has been relatively mild (a few bouts of sub-zero temperatures in January). There has also been little snowfall, but plenty of rain. We're all waiting to see what March brings, maybe a couple of Nor'easters? Most labs have been relatively quiet giving us a chance to catch-up on the paper work (Ha! wishful thinking).

I do have one clarification from my last report. It seems that Rich Buckley (NJ) and I had a mis-communication regarding the correlation between turf anthracnose and spikeless shoes. So I thought I'd quote him directly, "I meant to say that we have been seeing less anthracnose on golf greens this last summer ('98). Dave Otis at USGA seems to think that the anthracnose decline is due to the switch to spikeless shoes on many courses. Apparently, some researchers feel that anthracnose is predisposed by an injury process, like aerification or spikes. Personally, I think we had less disease because it wasn't scorching hot this last year. Dry, but not real hot - so the *Poa annua* held up better and remained disease free. (thanks Rich)

Woody Ornamentals

Anne Sindermann (MD) reported problems with some Christmas trees in December. There were complaints about cut trees with dropping needles, no diseases were detected - just lots of desiccation. She mentioned the weather had been very warm and dry. We've seen this problem in New England as well. No diseases were ever associated with the needle loss, but the problem always followed a warm, dry autumn. Dan Gillman also reported a drought-related case; Sphaeropsis tip blight on red pine from a droughty site with compacted soil.

Karen Sirois (NY) reported receiving a white pine sample that appeared to be infected with the needlecast fungus, *Carnavirgella banfieldii*. Symptoms include the formation of an elongated 'slit' or fruiting body on the needles that can be quite diagnostic. According to the literature, the occurrence of severely infected trees is uncommon. Often, only one tree in a planting is severely affected and spread to adjacent trees is usually limited. (note: this fungus was recently (1996) described by Merrill, et al. in Can. J Bot. 74: 1476-1481.)

Karen also received a couple of interesting nematode problems. Privet was infected with *Helicotylenchus* and *Pratylenchus* nematodes, and a Norway maple was infected with

numerous genera of plant parasitic nematodes. Other problems on woody ornamentals included -- Hypoxylon butt rot on white ash (MA), Kabatina tip blight on juniper (DE) and Chamaecyparis (MA), powdery mildew on *Euonymus japonica* (DE), leaf spots on Leucothoe caused by *Cercospora* and *Pseudomassaria leucothoes*. (PA), anthracnose on oak (NY), brown spot/Mycosphaerella needle blight on white pine (MA), Skimmia with tobacco ringspot virus (NY), Nectria Canker on boxwood (NY) and Tubakia leaf spot on oak caused by *Tubakia dryina* (NY). Phytophthora root rot was diagnosed on red twig, canaan and fraser firs in New York, and on juniper from a nursery in Pennsylvania.

Herbaceous Ornamentals and Greenhouse

Several problems were reported on Poinsettias. Karen Sirois received several samples with *Erwinia chrysanthemi* and another with Pythium and fungus gnats. Bob Mulrooney (DE) reported that he finally received his first poinsettia specimen with powdery mildew in December (welcome to the club Bob). Anne (MD) also reported powdery mildew on poinsettia received in December. Anne was still receiving powdery mildew samples on various hosts in November (for example on *Coreopsis verticillata* 'Moonbeam') She wasn't surprised since powdery mildew was widespread last fall on lots of plants.

Rich Buckley (NJ) reported a case of air pollution injury on ivy geranium and fuschia. The ivy's had early senescence of old leaves and stunted growth. The fuschia leaves were cupped and stunted. It seems that Modine propane heaters rust on the bottom very easily, allowing ethane to be released into the house.

Anne said that INSV was still a problem in various greenhouse situations in Maryland, and Karen (NY) reported a case on cyclamen. Bob (DE) reported two cases of foliar nematodes, one on garden peony and the other on Heucharella. Other problems reported were Fusarium infection in Trillium seed (NY), *Pythium* and anthracnose on orchids (NJ), bacterial leaf spot of geranium caused by *Xanthomonas campestris* pv. *pelargonii*. (NY), black root rot (*Thielaviopsis*) on *Alarum shuttleworthii* (DE), Rhizoctonia on lily grown for cut flowers (NJ) and lots of hollyhock rust in Delaware.

Turf

Karen Siorois (NY) reported high levels of root knot (*Meloidogyne*) and cyst (*Heterodera*) nematodes on turf from western NY, and Pythium and summer patch were diagnosed on samples submitted from New Jersey. Both diseases were also very common in NY this past year. Rich (NJ) reported receiving "the obligatory pink snow mold samples", a couple of yellow patch samples (*Rhizoctonia cerealis*), and some anthracnose basal crown rot from golf courses.

John Peplinski (PA) mentioned receiving turf samples through December with rust (*Puccinia coronata*). In addition, powdery mildew of turfgrass was more prevalent in Pennsylvania than usual. Gail Schumann (MA) didn't have any disease problems to

report. She said it stayed warm and dry so long, most people were worried about keeping drought away instead of fungi!

Vegetables

John (PA) received samples of pumpkin with fruit rots caused by *Alternaria* and *Fusarium sp.* He also reported potato tuber samples from storage with surface blemishes due to black dot (*Colletotrichum*) and silver scurf (*Helminthosporium solani*). Karen (NY) also reported problems on potato: pythium leak, fusarium wilt and an environment stress condition known as elephant hide. Other samples Karen received included cauliflower with alternaria leaf spot, onion with bacterial infection caused by *Burkholderia cepacia* and tomato with alternaria leaf spot and a potassium deficiency.

Field Crops

Bob Mulrooney (DE) reported purple seed stain on soybean seed caused by *Cercospora kikuchii*.

SOUTHEAST

Jackie Mullen

The winter months have been pretty mild in many parts of the Southeast this year. In Alabama in early February, Japanese magnolias were opening their buds and forsythias were getting ready to do the same. Subsequent sporadic occurrences of freezing temperatures have slowed spring's progress. Tom Stebbins in Tennessee commented on a few incredible tornadoes, one which demolished downtown Clarksville, just north of Nashville.

FIELD CROPS

Arkansas- Steve Vann.

Leaf rust (*Puccinia*) was recently been reported on wheat in the southwestern part of the state. This is the first report of rust this year, and this part of the state is often the first area to be affected by rust on wheat.

Tennessee- Tom Stebbins.

Sclerotinia crown rot on clover, powdery mildew on wheat, and reniform nematodes on cotton were reported.

South Carolina- Meg Williamson and Janes Blake.

Noteworthy field crop submissions were two barley samples with barley yellow dwarf virus.

Alabama- Jackie Mullen.

We received two wheat samples whose symptoms suggested barley yellow dwarf virus (BYDV) and possible soilborne wheat mosaic virus (SBWMV). Both samples gave negative results with ELISA testing. (The BYDV was tested at Auburn; the SBWMV was tested by Agdia.)

VEGETABLES

Arkansas- S. Vann.

Cercospora leaf spot was reported on turnip and mustard greens. This disease is common on these crops each season.

Kentucky- J. Beale.

Powdery mildew, gray mold (*Botrytis*), and leaf mold (*Cladosporium*) were noted on greenhouse tomatoes.

South Carolina- M. Williamson and J. Blake.

Black rot (*Xanthomonas campestris*) was found on both cabbage and collards. Broccoli was diagnosed with downy mildew (*Peronospora parasitica*).

Alabama- J. Mullen.

Cucumbers from the Mobile area had a good case of anthracnose (*Colletotrichum*) and downy mildew (*Pseudoperonospora*). Fusarium was diagnosed on sweet potatoes in storage.

Florida- Richard Cullen

One of the more interesting diseases diagnosed this quarter was powdery mildew of pepper (*Oidiopsis* sp., the conidial state of *Leveillulataurica*). This disease which is generally restricted to warm arid regions, such as the southwestern states, is rarely found in Florida. The sample came from a greenhouse grower in north central Florida.

Pam Roberts of the Southwest Florida REC reported tomato yellow leaf curl virus at low incidence (1-5%) in tomato production fields. In contrast, tomatoes in at least one field in Homestead (SE FL) had at least 50% disease incidence. Chemical rouging, whitefly control, and avoidance of transplants from production areas with high incidence are some of the control recommendations. Late blight (*Phytophthora infestans*) on potato was reported in January, and the first report on tomato occurred in February. Incidence was low to moderate. Target spot (*Corynespora cassiicola*), early blight (*Alternaria solani*), Fusarium crownrot (*Fusarium oxysporum* f. sp. *radicis-lycopersici*), and bacterial spot (*Xanthomonas campestris* pv. *vesicatoria*) have all been reported as problems on the spring tomato crop. Diseases were reported at low to moderate incidence levels. The environmental conditions were unseasonably warm with little to no rainfall, which probably contributed greatly to low levels of disease except for bacterial spot on pepper (*Xanthomonas campestris* pv. *vesicatoria*) which was epidemic in most fields. Races 1, 3, 4, 5, and 6 of the bacterium were all identified on pepper samples in the area. Severe

outbreaks of Phytophthora blight (*P. capsici*) occurred in February on pepper and squash. Loss of plants reached 80% in at least two fields and the producers elected to eliminate crops early by plowing the plants under.

Ken Prenezny reported the following interesting diseases: powdery mildew on greenhouse pepper; bacterial blight (*Pseudomonas syringae*) on cilantro; race 6 of *Xanthomonas campestris* pv. *vesicatoria* on pepper.

Bill Graves of the Tropical REC in Homestead reported perfect weather for Phytophthora, which was identified on zucchini and potatoes. These conditions may also have been responsible for the unusual condition on okra called warty pods, which has been observed not only in South Florida but in okra imported from Belize. Also, Bill reported that Sclerotinia white mold was causing serious losses to a minor herb crop, culantro which is not the same crop as cilantro or coriander.

Hank Dankers of the north Florida REC in Quincy reported Cercospora leafspot on turnips.

R. Cullen reports the Gainesville clinic processed many samples for virus determination this past quarter. The whitefly-transmitted geminiviruses, tomato yellow leaf curl virus, and tomato mottle virus, were frequently encountered, and bean golden mosaic virus was also present in south Florida. Other viruses diagnosed included: squash mosaic virus and watermelon mosaic virus in watermelon; tomato spotted wilt virus; Bidens mottle and tobacco etch virus in Bidens; and a potyvirus in mustard.

FRUIT

Alabama- J. Mullen.

Strawberry samples were received with anthracnose (*Colletotrichum*) and also *Phytophthora cactorum* and *Pythium* sp. crown and root rot.

TURF

Arkansas- S. Vann.

A low frequency of brown patch (*Rhizoctonia*) has been reported on St. Augustine and zoysia in the southern areas of the state. The clinic has observed a considerable amount of stressed turf due to a severe army worm outbreak during the preceding months of July and August.

Tennessee- T. Stebbins.

The following diseases were noted: Leptosphaeria leaf blight on bentgrass, Fusarium patch (pink snow mold) on bentgrass, Pythium patch on bentgrass, and sting nematodes isolated from bentgrass greens.

South Carolina- M. Williamson and J. Blake.

Dollar spot was diagnosed on St. Augustine in December, a rare occurrence any time of the year. Fusarium patch (*Microdochium nivale*) was diagnosed on fescue and on ryegrass. Rhizoctonia blight was seen on fescue.

Alabama- J. Mullen.

Brown patch was seen on centipede, St. Augustine, *Poa trivialis*. Take-all was diagnosed on St. Augustine. Pythium blight was noted on bentgrass, ryegrass, and *Poa trivialis*. An unusual find was Fusarium blight on bentgrass.

Florida- W. Graves.

Bill Graves of the Tropical REC at Homestead noted that St. Augustine grass seemed to be stressed for a variety of reasons. The stress made the turf more susceptible to take-all root rot, Rhizoctonia, rust, and Nigrospora blight.

Hank Dankers at the North Florida REC at Quincy reported gray leaf spot of annual ryegrass.

ORNAMENTALS

Arkansas- S. Vann.

Steve Vann reports isolated cases of freeze damage to euonymous, azalea, and boxwood in unprotected areas. The damage appeared as a marginal burning of the foliage with associated twig dieback of tender tips. Only a few days of freezing temperatures have been reported thus far in the area. Recently, the clinic has received a sample of Leyland cypress with *Cercospora* leaf blight where lower twigs were browning and defoliating.

Kentucky- J. Beals.

Most of the winter samples have been evergreens and white pine decline has been a fairly common problem. This is a decline and death of established white pines (12-15 years or more) planted in poor sites with heavy compacted clay soils. This is a frustrating situation for homeowners. We have also had a few cases of white pine root decline or *Verticicladiella* root rot on pines and one case on spruce. *Cytospora* canker on spruce, *Phytophthora* root rot on *Taxus*, and *Botryosphaeria* canker/twig dieback on both rhododendron and apple have been seen as well. In the greenhouse, we have seen bacterial spot (*Pseudomonas*) on primrose.

Tennessee- T. Stebbins.

Greenhouse or indoor Plant Problems. Fluoride toxicity of *Calathea leurostachys*, intumescence on ornamental sweet potato (this is a callus tissue growth mainly on the upper leaf surface which develops on some varieties under low light, high humidity, and probably other factors - See the Sweet Potato Compendium for more details), stem rot caused by *Gleosporium* spp. On *Philodendron* sp., *Alternaria* leaf spot on Verbena in a production greenhouse, powdery mildew on *Pedilanthus* spp. (Zigzag plant), powdery

mildew on *Fittonia* spp., root rot (*Pythium*) on Lantana, and potyvirus (Agdia sample) on *Brugmansia x candida*.

Other Ornamentals. Numerous plants are suffering from this past summer long drought throughout Tennessee. Especially hard hit were white pine, spruce, holly and azalea. Tom expects to see more damage this spring. Also seen were *Botryosphaeria* canker on carpet roses, *Seiridium* canker on Leyland cypress, *Phyllosticta* leaf spot on southern magnolia, pinewood nematodes isolated from white pine, and *Rhizosphaeria* needlecast on Norway spruce.

South Carolina- M. Williamson and J. Blake.

Cercospora spp. leaf spots continue to show up. Several of these diagnoses were angular leaf spot diseases, one on *Pittosporum* and two on *Raphiolepis*. We received azalea in January and wax myrtle in February with *Septoria* leaf spots. *Entomosporium* was active on *Photinia* in early February. Other interesting diagnoses included a rose with *Glomerella* dieback, a desert rose (*Adenium obesum*) with anthracnose (*Colletotrichum*), *Floridaleucothoe* (*Agarista populifolia*) with *Phytophthora* root rot, red maple with powdery mildew (nice *Uncinula* cleistothecia), and pachysandra with *Volutella* blight. An ice storm in early January seemed to initiate *Botrytis* crown rot on numerous flats of pansy at a retail nursery. Greenhouse submissions included a geranium with possible *Pelargonium* vein clearing virus (based solely on symptoms), New Guinea impatiens with INSV and TSWV, and variegated ivy with picture perfect bacterial leaf spot (*Xanthomonas hederae*)

Alabama- J. Mullen.

As usual, we received a variety of ornamental disease problems. A dramatic example of crown gall on rose came in from a municipal park. *Botryosphaeria* canker is doing well on our stressed Leyland cypresses and false cypress. *Cercospora* leaf spot on pansy and *Cercospora* blight on Leyland cypress were noted. *Cytospora* canker was noted on peach from two different areas of the state. *Volutella* was seen on dwarf English boxwood and hibiscus. Also, rust (don't know which one) was observed on Oxalis. *Phytophthora* root rot was reported on Blue Rug juniper, Leyland cypress, dwarf English boxwood. The Leyland cypress isolate was identified as *P. cinnamomi*. *Pythium* root rot was diagnosed on a variety of plants.

Florida- R. Cullen

Palm wilt (*Fusarium oxysporum* f.sp. *canariensis*) of Canary Island Date Palms continues to generate much interest in palm diseases. Palm disease diagnoses this quarter included bud rot (*Thielaviopsis paradoxa*), pink rot (*Gliocladium vermoeseni*), rachis blights (*Diplodia* sp. and *Serenomyces* sp.), *Cercospora* leaf spot, false smut (*Graphiola phoenicis*), *Ganoderma* buttrot and lethal yellowing (LY). Other diseases of interest from the Gainesville lab include; leaf spot of *Calathea roseopicta* (*Drechslera setariae*), aerial blight of *Pittosporum* (*Rhizoctonia solani*), leaf spot of pansy (*Cercospora* sp.), root rots & blight of petunia (*Rhizoctonia solani*, *Phytophthora* sp., & *Sclerotinia sclerotiorum*), and zonate leaf spot of angel's trumpet (*Alternaria solani*). Bill Graves of the Tropical

REC in Homestead reported that La Niña has produced an unusually mild winter with warm days, cool nights and plenty of dew. This is perfect weather for *Phytophthora*, which has infected both Dianthus and lilies. These environmental conditions may also be responsible for edema on Vriesea bromeliads. With sunflowers becoming a popular cut flower throughout the U.S., more acreage is being planted in south Florida. As a result of the increased acreage, *Alternaria helianthi* has become quite common on this crop. A new ornamental disease was found recently. Flowers of a new hybrid crown of thorns were infected with *Amphobotrytis ricini*. Hank Dankers of the North Florida REC in Quincy reported the following diseases of interest; Botrytis blight of Begonia, stem canker of rose (*Sphaceloma rosarum*), Fusarium crown rot of Gerbera daisy, and Thielaviopsis root rot and Sphaeropsis gall of holly.

OTHER CLINIC NEWS

Arkansas- S. Vann.

Digital Diagnosis Update. Arkansas is investigating a pilot program with several counties. Initially, the plans include equipping these offices with digital cameras. Based on a yearly questionnaire, most agents are very interested in this program and feel that it would benefit their programs. We are currently obtaining a list of equipment and prices to propose for such a pilot program.

South Carolina- M. Williamson and J. Blake.

Virtual Plant Problem Clinic. This year we are implementing a web-based 'Virtual Plant Problem Clinic' (VPPC) which will utilize electronically submitted information and images to diagnose plant problems, identify insects and plants, and provide controls as needed. The grant-funded system will begin operation starting in May of 1999. By this time next year, we will report on how this has impacted our clinic operations.

Florida- R. Cullen.

Eighth Annual Virus Inclusion Workshop. The Gainesville clinic hosted the eighth Annual Virus Inclusion Workshop this past January. Participants spent five days in this hands-on workshop. Twenty viruses across ten families were covered this year. Maize stripe virus, a tenuivirus of corn, was added to the other virus groups that we normally cover, i. e., potyvirus, tobamovirus, potexvirus, comovirus, tospovirus, geminivirus, cucumovirus, closterovirus, and furovirus. The differential staining technique used to distinguish the viral inclusions was also applied to detecting phytoplasma disease (aster yellows) and Xylella-caused disease (Pierce's disease). We are already making plans for the next year's bigger and better Ninth Annual Virus Inclusion Workshop.

CENTRAL Brian Hudelson

Activity in diagnostic clinics appears slow this quarter, not surprising considering the time of year and area of the country. Most of the diagnostics activity occurred in the southern-most states in the region or involved diagnosis of diseases of greenhouse plants.

Greenhouse vegetables and ornamentals exhibited a range of problems. Judy O'Mara (Kansas) reported tomato spotted wilt virus on tomato and *Pythium* root rot on chrysanthemums, geraniums and poinsettias. Sandra Gould (Minnesota) reported an increased occurrence of bacterial blight (*Xanthomonas campestris*) on geraniums this year compared to 1997. Sandra also mentioned seeing *Pythium* root rot and *Botrytis* stem rot on geranium, *Phytophthora* root rot on hibiscus, *Cercospora* leaf spot on pansy and Mandevilla, and *Myrothecium* leaf spot on New Guinea impatiens. Karen Rane (Indiana) also reported seeing bacterial blight on geraniums, as well as *Botrytis* canker on fuchsia and *Fusarium* bulb rot on Dutch iris. In Wisconsin, Brian Hudelson found impatiens necrotic spot virus in New Guinea impatiens, *Pythium* root rot of poinsettia and hydroponically grown mint, as well as *Fusarium* root rot and basal canker of tomato.

Another common theme among the diagnosticians was soil testing. Judy O'Mara (Kansas), Nancy Pataky (Illinois) and Ann MacGuidwin (Wisconsin's nematologist) all reported processing grower soil samples for soybean cyst nematode. Sandra Gould (Minnesota) has been busy testing soils from sugar beet fields for *Aphanomyces*. Likewise, staff in Wisconsin have been testing alfalfa and pea/snap bean soils for *Aphanomyces* and other soilborne pathogens.

On a more local front, Judy O'Mara (Kansas) reported that pine wilt (*Bursaphelenchus xylophilus*) activity has been high in the eastern third of Kansas and also reported detecting virus problems on several crops. These included wheat streak mosaic virus on wheat and bean pod mottle virus on soybeans. Sandra Gould (Minnesota) reported extensive testing of grain storage samples. In Wisconsin, Brian Hudelson continues to receive potato tuber samples with problems such as *Fusarium* rot, scab, silver scurf and black scurf. Finally in Illinois, Nancy Pataki is testing corn samples for Stewart's wilt.

SOUTHWEST

Tom Isakeit

ARIZONA, Yuma - Mike Matheron

The winter vegetable season is upon us. There have been reports of lettuce leaf drop caused by *Sclerotinia minor* and *S. sclerotiorum* and aerial infection of cabbage by *S. sclerotiorum*. Downy mildew has been observed in several broccoli, cauliflower and cabbage fields, whereas downy mildew in lettuce is sparse. The generally dry weather and above normal temperatures during January have helped fuel an epidemic of powdery mildew on lettuce. This disease is a serious concern to lettuce growers, as effective powdery mildew fungicides are not registered for use on this crop.

CALIFORNIA, South Central Coast (Santa Maria) - Franklin Laemmlen

Things are relatively quiet disease-wise right now (late Jan-early Feb). Some broccoli is affected with bead/pin rot caused by *Alternaria sp.* plus some *Pseudomonas sp.* This is a continuous low-level problem during our winter harvest period. The problem is that one strike per head keeps the head out of the box, so even a low incidence can cause some serious losses.

The late December freeze resulted in some major crop losses for Santa Barbara Co. The Ag. Comm. estimated \$9.5-10 million in crop losses countywide. Oranges, lemons, and avocados took a hard hit. Young broccoli, some cauliflower and some celery were lost. Outdoor grown seedlings did not escape. The seedling trays (medium and plants) were frozen solid at many locations. The celery that survived the freeze had an increased incidence of bacterial blight (*Pseudomonas syringae p.v. apii*), so we had a double whammy in that crop. If you've purchased any celery lately, which has the epidermis peeling off on the outer petioles, it's probably from the Central Coast.

CALIFORNIA, Central Coast - Steve Koike

The vegetable and strawberry crop cycles are just beginning in California's central coast counties, so there are few disease developments to note at this time. The rainfall level in late 1998 through early 1999 has been significantly lower than last year's El Niño season, so disease developments are expected to be less severe. The colder-than-usual temperatures have resulted in damage to young crucifer, spinach, and other vegetable plantings.

CALIFORNIA, San Diego - Patricia Nolan

Fall brought a lot of rust. We saw *Tranzschelia discolor* on almond, peach and plum. Fig rust caused by *Cerotelium fici* and rust on oregano caused by *Puccinia menthae* were new county records. The dratted chrysanthemum white rust, caused by *Puccinia horiana*, popped up in 3 new locations, all commercial cut flower growers.

NEW MEXICO - Natalie Goldberg

Two significant rain events in October 1998 provided excellent conditions for Botrytis soil-line rot of onion. During the final two weeks of October, the Mesilla Valley received nearly 3 inches of rain. After the rains, maximum relative humidity reached over 90% for over six weeks. This moisture coupled with cool temperatures provided optimum conditions for this disease. The disease was prevalent on onion transplants. The fungus was isolated from 4 different cultivars planted in four different locations throughout the valley.

TEXAS. Lower Rio Grande Valley - Tom Isakeit

Late blight appeared in at least two fields of potatoes in early February. It had not caused any damage yet, but its appearance was surprising, since the weather conditions have been on the warm and dry side. The growers were initially caught in a bind for control options. Curzate and Acrobat, which finally have a label, were not available in the state, and were several days away from being shipped in. There was a sufficient stockpile of Tattoo C in the Valley, but last year's section 18 had expired and there were no plans to issue a new one because a label for it was only weeks away. Furthermore, the Texas Dept. of Agriculture did not initially feel that getting a crisis exemption for Tattoo C was warranted, since Curzate and Acrobat were labeled. I spent one afternoon on the phone lobbying for a break and the folks at the TDA went back to the EPA, who relented and provided a section 18 on the spot. So the growers were in a position to legally treat their fields with Tattoo the day after late blight was confirmed. Two days later (Feb. 13) they got hit by a frost.

In some potato fields, plants were more than 50% damaged by the frost. Such plants would recover, but they would not make an economical yield. It was estimated that the frost killed 25% of planted cantaloupes, but since plants were not too old to begin with, it is possible that growers are still within a market window when they replant. Marvin Miller, the vegetable pathologist in Weslaco, reported heat damage to onion and cabbage leaves caused by the frost. That is, ice crystals on these plants were acting like a lens and leaves were burned when the sun came out.

PACIFIC NORTHWEST, INLAND NORTHWEST, AND UPPER GREAT PLAINS

Ellen Bentley

Forecasters predicted that the shift to La Niña would result in a severe winter. In eastern Washington (Ellen Bentley, WSU-Prosser) spring has arrived while we're still awaiting winter. Except for the pre-Christmas deep freeze it's been nothing but continual wind and mild temperatures. Perennials and bulbs are budding, growing and blooming.

Tree fruit buds are swelling and growers are preparing for a long frost protection season. Powdery mildews have successfully overwintered for the 3rd consecutive year which boads poorly for the hop, grape and cherry industries. Bacterial canker (*Pseudomonas sp.*) is already active as stone fruit pruning continues. Due to over production and poor returns many apple blocks have been pushed out or are being top worked to more profitable varieties. Wine grape acreage is exploding (they made \$\$ last year). Winter injured (1995-1996) trees are continually declining from basidiomycetous wood rots.

Some potato storages have melted due to storage rots and late blight. Planting should begin next week. Most winter wheat has little to no snow cover so no snow mold problems this year. All in all, a quiet "winter".

After a very hot and dry summer, even for western WA, (*Lindsey du Toit, WSU-Puyallup*), winter rains didn't start until late October. We were then showered with 11" of rain in November alone, which brought fungal and bacterial diseases (as well as a host of site/environmental problems) back with a vengeance. This has been the wettest winter on record. Highlights included: Ornamentals: black root rot (*Thielaviopsis*) on Daphne, smoulder (*Botrytis narcissicola*) and white mold (*Ramularia*) on mini daffodils.

Trees and shrubs: Typical for western WA wet winters, Phytophthora root rot abounded with positive diagnoses on boxwood, true firs, Douglas fir, and western hazelnut. Other problems included interior needle blight syndrome and Rhizosphaera needle cast on firs; the usual influx of maples with Verticillium wilt; Swiss needle cast (*Phaeocryptopus gaeumannii*) on Douglas fir; Armillaria root rot on cedar; and bacterial dieback on maple (*Pseudomonas syringae* pv. *syringae*). Herbs & vegetables: Botrytis gray mold on thyme
Tree fruits: cherry powdery mildew. Turfgrass: necrotic ring spot, net blotch (*Drechslera dictyoides*) and brown blight (*D. siccans*).

I know PDQ is meant for diseases not insect pests, but we had several interesting insect pest problems including a blue atlas cedar sample that turned out to be associated with eriophyid mite injury, and cyclamen mite injury on strawberries. We ended 1998 with a tally of 774 plant and insect samples diagnosed (excl. phone calls, email queries, and golf course samples). This was down slightly from 1997 (795), and half the sample load of 1996, but the WSU-Puyallup Plant and Insect Diagnostic Lab. was without a diagnostician from Oct. 1997 to June 1998. We will expect to see sample numbers back in the 1000's in 1999.

The Montana Clinic (*Martha Mikkelsen*) has been in its annual deep freeze, but the few samples that have trickled in include: confirmation and stunning pathogenicity tests of Bacterial Vascular Necrosis and Rot (*Erwinia carotovora* subsp. *betavasculorum*) on many sugar beet acres (last summer); *Sclerotinia* on alfalfa last summer (we are in the process of determining the species involved, but suspect *S. sclerotiorum*); Impatiens Necrotic Spot Virus on *Lobelia* and *Torenia* in a large commercial greenhouse; and Rhabdocline Needle Cast on Douglas fir.

Joy Jaeger (OSU-Hermiston) and *Stephan Briere* (UWYO) reported an unremarkable winter. *Melodie Putnam* (OSU-Corvallis) must be inundated given the record rainfall. Stay tuned for next quarter's report.

DIFFUSION

Melodie Putnam
Oregon State University

Natural infection of *Salvia uliginosa* with cucumber mosaic cucumovirus. G. E. Holcomb and R.A. Valverde (Dep. Plant Pathology and Crop Physiology, Louisiana State Univ.) have demonstrated that a strain of CMV causes chlorotic line patterns and ringspots in the perennial plant bog salvia. The virus was detected in the course of evaluating perennial salvia species for potential use in landscape plantings. The virus was identified using double-diffusion, electron microscopy, and double-stranded RNA analysis. *HortScience* 1998, **33**:1215-1216.

A distinct pathotype of *Ralstonia (Pseudomonas) solanacearum* race 1, biovar 1 entering Florida in pothos (*Epipremnum arueum*) cuttings. D. J. Norman and J. M. F. Yuen (Univ. Florida, Apopka) have documented for the first time the pathogenicity of *R. solanacearum* on pothos. Single-node cuttings imported from Costa Rica in 1996 failed to root when planted; the plants were chlorotic and the base of the cuttings rotted, with bacterial ooze evident. Isolations from infected cuttings yielded colonies on triphenyltetrazolium chloride medium that were typical of *R. solanacearum*. Forty isolates were collected from nurseries in two counties. All isolates were identified using standard biochemical tests, fatty acid analyses, metabolic profiles (Biolog), and species-specific probes using a polymerase chain reaction. Pathogenicity was tested on tomato, potato, pothos, tobacco, and banana. Metabolic profiles using Biolog were less conclusive regarding identification due to low similarity indices; this was attributed to the fastidious nature of the pothos strains. Inoculation onto pothos cuttings resulted in chlorosis, dark vein necrosis, wilt, and death; the pathogen was successfully isolated from inoculated cuttings. *Canadian Journal of Plant Pathology* 1998, **20**:171-175.

Two strains in the genus *Erwinia* cause galls on Douglas-fir in southwestern British Columbia. Galls on Douglas-fir have been reported previously as being caused by *Pseudomonas pini*, *Agrobacterium tumefaciens*, and *A. pseudotsugae*. Researchers in Canada (R.M. DeYoung, R. J. Copeman, and R. S. Hunt, Univ. British Columbia, Vancouver, BC) have collected and isolated from galls found on Douglas-fir trees in disturbed areas in southwestern BC. New galls were often located on the tips of branches on current year's growth. The galls were of two types. All but one were "typical" (globose, with a rough surface); one gall was termed "atypical" (globose, with a smooth surface that cracked and peeled with age). The bacterial strains from the typical galls were identified as a species of *Erwinia*. Bacteria from the atypical gall were identified as *Erwinia herbicola* supsp. *herbicola* (= *Pantoea agglomerans*). Identification was based on colony morphology, cell morphology, and fatty acid analysis. The three isolates from typical galls were not conclusively identified using FAME; the closest identification was to *Erwinia salicis* and *Hafnia alvei*; the latter is not considered a plant pathogen. Stab inoculations with bacteria from typical and atypical galls produced galls on Douglas-fir as well as other conifers. The bacteria were successfully reisolated from the galls.

Canadian Journal of Plant Pathology 1998, 20:194-200.

MATERIALS & METHODS

Stephan C. Briere
University of Wyoming

This is the first installment of my new Materials & Methods column. I guess it's not really new to PDQ. There have been similar columns before, such as one called "Techniques" which was put together by Cheryl Smith and appeared in the very first issue of PDQ.

I would like to make it a little broader than just a techniques section. I will try and include anything that will help diagnosticians do their jobs better and quickly. My goal is to keep it in point form, which will make it easier to browse and refer back to if needed.

I would like to include;

- techniques,
- diagnostic keys
- web sites (including links to Factsheets, hint, if you have a new online Factsheet let me know and I will include the link)
- new products
- anything of interest that I glean from the Diagnosticians Listserve
- input from the PDQ readership (Yes, please send it in and share with all of us!)

Therefore, if you have anything of interest that you would like to share please feel free to contact me by e-mail (briere@uwyo.edu) so I can include it in the next issue.

This first column will be a little light in content but I hope to add more meat to in over the next little while.

Lab Techniques

I have found and used an excellent procedure for making permanent sealed reference microscope slides. These slides have been kept in perfect condition by the original author for more than 30 years without and deterioration. It involves sandwiching round 18mm and square 25mm coverslips onto a glass slide. They are relatively simple to prepare and will last well into the next century!

Reference: Volkmann-Kohlmeyer, B. and Kohlmeyer, J. 1996. How to prepare truly permanent microscope slides. *The Mycologist*. 10: 107-108.

Diagnostic Keys

You may want to check out the new APS Press tittle by Richard T. Hanlin, "Illustrated Genera of Ascomycetes Volume II" and its accompanying book entitled "Combined Keys to the Illustrated Genera of Ascomycetes Volumes I & II". The latter combines all the keys from both volumes I and II into a small easy to use book. Richard Hanlin also states that he has included corrections and additional information for the 100 genera included in the first volume.

Web Sites

Here are a few web sites of interest which deal with Plant Disease Diagnostics.

<http://www.agdia.com/> (testing services and Diagnostic products)
<http://www.adgen.co.uk/> (makers of Adgen Diagnostic products)
<http://www.bioreba.com/> (makers of antibodies and kits for detecting pathogens)

New Products

New From Agdia: Test kit for Tomato Spotted Wilt Virus and Impatiens Necrotic Spot Virus QTA Tospo test. Agdia has developed a quick and easy-to-use test kit for the detection of both TSWV and INSV. This kit was designed to specifically help growers reduce production losses caused by tospoviruses. QTA Tospo uses a simple, but highly accurate, version of Agdia's proven lab testing technology. Simply follow the step-by-step instructions. Experience with ELISA is not necessary. Results can be determined easily by eye. Look at their web site for further information.

New From Adgen: SPOT CHECK Rapid on-site detection kits (15 - 20 minutes). Single test sealed reagent tray containing typically ready to use specific antibody probe, anti-species conjugate, wash buffer and substrate. The list of pathogens is always being expanded and includes many viruses (CMV, AMV, INSV, TSWV, PVX, etc.), *Acidovorax citruli*, Blackleg of Canola, etc. This product has a shelf life of 12 months at 4°-6°C. Look at their web site for further information.

Listserve Chat

Last summer Linsey du Toit posed a question as to where one could get samples tested for endophytes. She then compiled a short list which I have reproduced here.

From: Lindsey du Toit [dutoft@coopext.cahe.wsu.edu] Sent: Monday, July 27, 1998 2:49 PM
 To: diagnostics@agdia.com
 Subject: Endophyte testing resources in the USA Hello again,

Thank you all for rapid responses to my request for information on endophyte testing labs. Several people suggested I send a list of the endophyte testing labs

for publication in PDQ. Below is a list of the labs I was informed about in response to my original request. I would like to compile a more complete list for this article, so if you know of other labs, please email me with the information. Please provide information on prices, types of services/tests available, contact name/address/phone/fax/email, and any other information you think is pertinent to such an article for PDQ. (If any of the information below is incorrect or out of date, please let me know at briere@uwoyo.edu.)

ENDOPHYTE TESTING FACILITIES listed so far:

1) INDIANA: (AY-275 gives the details). Animal Disease Diagnostic Lab
Southern Indiana Purdue Agricultural Center 11367 E. Purdue Farm Road
Dubois, IN 47527-9666 Phone: 812/678-3401

Fee is currently \$25. Both fescue seed and fescue plant material can be tested for the level of infestation. Recommendations and interpretation of test results can be received by contacting Keith Johnson, Purdue University Forage Specialist, at 317/494-4800.

2) KENTUCKY: UK Regulatory Services Laboratory 103 Regulatory Services Bldg. University of Kentucky, Lexington, KY 40546-0275

Runs fescue samples for endophyte. 1-50 small clumps of grass is \$35. Take a random sample in a zigzag pattern covering the area to be tested.

3) OREGON: Testing for endophyte TOXINS
M. Craig Laboratory Attn. Karen Walker, College of Veterinary Medicine, Oregon State University, Corvallis, OR 97331-4802.
Lab phone number: 541/731,6541

Testing for both ergovaline (in fescues) and lolitrem (in perennial ryegrass). They provide an analysis of the amount present and whether it falls within toxic levels. The cost is \$35/sample/assay.

4) OREGON: OSU seed Testing Lab. Adriel Garay, Manager. Corvallis, OR 97331-3801 Tel: 541/737-4464 Fax: 541/737-2126 Fees in Dec.

1997 fees were as follows:

Endophyte seed stain test 50 seeds \$66.75 100 seeds \$100
Endophyte viability - 50 seedlings \$83.50 100 seedlings \$142 Plant analysis for presence of endophytes \$7.25 per plant examined (\$27 minimum charge)

5) ALABAMA: Auburn University Fescue Toxicity Diagnostic Center Plant Disease Laboratory Auburn University, AL 36849

6) NORTH CAROLINA: Betsy Randall-Schadel at 919-733-3930
or betsy_randall-schadel@mail.aqr.state.nc.us

Fescue Endophyte Testing Service Plant Industry Division, Seed Section North
Carolina Dept. of Agriculture PO Box 27647 Raleigh, NC 27611

Samples from out-of-state are charged at the following rates:

Tissue samples: \$25.00 New crop seeds: \$35.00 (They test 100 seeds per seed
lot submitted). Old crop seeds: \$45.00

FEATURE ARTICLE

Crossnore Hospitality

Miscellaneous Ramblings of Larry Brown

Florida Department of Agriculture and Consumer Services, Gainesville, FL 32608.

Crossnore the popular name for a biennial meeting of woody ornamental plant pathologists and entomologists began unofficially in 1974 as a woody ornamental orientation tour for Mike Benson, the recent employee of North Carolina State University (NCState), and arranged by Ron Jones (NCState) with the assistance of Wort Willis (VPI), Luther Baxter (Clemson Univ.), and Bob Lambe (VPI). Ron, too, was a recent (1970) addition to the NCState staff but steeped in the Southern tradition. Mike was not native to the region and therefore he was not yet well versed in ornamental pathology or Southern hospitality. The group probably saw Mike as an 'Ohio Yankee', laboratory trained at Colorado State University and tempered in California by studying cotton. Mike had no training in ornamentals but was building a reputation in the study of soil-borne pathogens. The manners Mike displayed were hospitable but the others were not sure he understood what it meant to be Southern. Ron has a deep Southern tradition as a native of Virginia, with a BS from the University of Florida, a MS from the University of Delaware, and a Ph. D. from VPI, and as an extension agent with Clemson University.

The tour for Mike started in Charleston, SC, which then was the center of woody ornamental production in South Carolina. It continued into North Carolina and ended at a nursery in Virginia just a few miles from Ron Jones' home place which was an unplanned but nice touch. The only reference we have of this un-official meeting is that it was cold.

Crossnore is a hospitable meeting because the founders started it that way and the organizers strive to keep it that way. A scientific meeting is hospitable when it is open, transparent, and useful for the attendees, while maintaining a high standard of integrity and honesty. The setting at the B.H. Corpening North Carolina Forest Service Training Center near the Blue Ridge Parkway in the mountains of North Carolina is comfortably rustic, with great food, and no distractions. Everyone has the time to talk to anyone they care to talk to because there are no phones, FAX machines, e-mails or administrators to make demands. My hope is that the following discourse will help you to understand what is meant by the Hospitality of Crossnore. Therefore, some more of the history of the Crossnore meeting is needed.

Ron Jones, Neil Lapp of North Carolina Department of Agriculture (NCDA), and Mike Benson, among others, officially started Crossnore in 1977 as a means to help extension, research, and regulatory scientists to work together to help the woody ornamental industry in the Carolinas, Tennessee, and Virginia. They got together at a lodge which was the only building at the Training Center at Crossnore, NC. A close fellowship of sharing scientific successes, disappointments, and questions followed because the setting was informal, beautiful, and removed from the daily demands of work. Each person shared in the cooking and housekeeping which helped them get to know one another.

By 1979, a geographic expansion happened when Dan Sweitzer (call 804-371-6558) from the Virginia Department of Agriculture (VDA) joined the group along with Jim McGuire (University of Arkansas) and John Hartman (University of Kentucky). The workshop had grown both in geographic range and diversity by the third meeting at Crossnore in 1982. Sue Spencer replaced Neil Lapp at the NC Department of Agriculture because he took a job with Merck, Inc. She was, at first, unfairly (and not

seriously) accused of messing up the Crossnore meeting but quite the opposite was true. A new dining and lodging facility helped by providing privacy. That year Sue, along with Ethyl Dutky (University of Maryland), Cheryl Kaiser (University of Kentucky), Jackie Mullen (Auburn University), and Rosemary Walsh attended.

With popularity came change. The reputation and hospitality of Crossnore were well established by this time. There were three phases in its development. What started as a small group of plant pathologists talking about regional issues in phase one, matured into an inclusive group of scientists (including entomologists) to talk about country-wide problems during stage two. Overwhelming growth that outstripped the facilities occurred with the addition of horticulturists for two workshops(1984 and 1986). The trend toward formalization, with all day nursery tours, large discussion sessions, and talk of having written proceedings reached its pinnacle when a joint meeting was held with the North Central Region-43 Project on woody ornamental diseases in 1984 and 1994.

The third phase was a reduction in the size, less formalized presentations, and no more talk of written proceedings. The focus once again became to guide the emerging generation of scientists into maintaining their intellectual growth within the hospitality and nurture of Crossnore. This is what has served the ornamental industry so well. Crossnore remains a place where science and free thought easily mixed to produce a synergy of activity.

What is Crossnore hospitality? Several people that had attended four or more years gave many descriptions. They felt that people were there to help them with their problems. In other words, they found out who their colleagues were. Many attendees said they had gained the confidence to interact with colleagues. A face was put to a name and a reputation. Many times this developed into friendships that could be relied on for

help. Networking has always been an integral part of Crossnore. Not only were people there to help but there was a nurturing forum to discuss new and unusual diseases, methods, and concepts. Everyone was given a chance to discuss successes, challenges, frustrations and failures. All this hospitality led to the scientific growth of the attendees, expansion of the data-based information for the ornamental industry, teaching ideas for the cooperative extension service, and collaboration to assist regulatory scientists in making science-based decisions and rules. Also there was time for walks alone or in small groups, personal side trips, the ever competitive and polite volley ball games (starting in 1986), and in 1998 the wonderful canoe trip down the New River.

Some of the many regional and national successes of the workshops have been the input and research generated about *Photinia* leaf spot, dogwood anthracnose and tomato spotted wilt virus. *Photinia* leaf spot was devastating to nurseries and landscapes because of the new popularity of *Photinia x fraseri* for planting at new construction sites that were blossoming in the Southeast. In 1984 Margery Daughtrey was a single voice in the wilderness 'crying out' about a new urban disease of dogwoods. By 1998 there was a pre-workshop meeting on dogwood anthracnose and other dogwood diseases that took a full day. Tomato spotted wilt burst on the scene in the mid-80's and quickly spread from Texas to Canada. The 1986 workshop was almost taken over with discussions of the virus. The resultant networking led to many projects.

Individual participants have benefitted immeasurably. Numerous slides and copious amounts of literature have been exchanged. Most personal libraries have been broadened and updated. Workshops have focused on improving the diagnosis of root rot, canker, and abiotic diseases (1977-1998). Every meeting has discussed the efficacy, testing standards and proper application of new and existing pesticides and the use of bio-control within a management plan (1984-1998). Tours of local nurseries have allowed researchers and regulators to practice and learn field investigative concepts (1974-1998).

In other words, what it means to approach problems within the limitations of economics and grower knowledge. Observing irrigation benefits and problems with run-off and recycling water led to discussions of chlorination and UV treatment of water and finding out which and where pathogens were in the water (1986-1998). More importantly, attendees learned how to innovate and move the industry forward.

The meeting is open to all but the space is limited by the size of the facilities. Also, when more than 125 people attend, the meeting becomes too formal. Therefore, when people hear about it they put their names in early because it is first come first learn. More importantly, attendees learned how to innovate and move the industry forward.

[I acknowledge Sue Spencer who has kept records for many of the meetings and compiled an archive that was extremely useful. I also had many useful conversations with many people that helped me maintain the facts of the Crossnore events. I take responsibility for any real or mythical deviation from the facts.]

Jones, R.K. and R.C. Lambe (eds.). 1982. Diseases of Woody Ornamental Plants and their control in Nurseries. North Carolina Agricultural Extension Service, AG-286, Raleigh, NC. 130 pp

Blast from the Past

by Gail Ruhl

Dept. of Botany and Plant Pathology
Purdue University

As the instigator and first editor of what we all now have come to know and love as PDQ, I thought that it might be fun for those of you who were not in the 'diagnostic business' in 1980, to see the very first issue of the Plant Clinic Newsletter. As you read this 'historic' document, you will note that some things never change. For instance, take heart Stephan, as you read, "I'm still waiting!", in the opening paragraph of Vol. 1, No. 1. Procrastination and missed deadlines are not personal. It is also interesting to note that as a group, we are still interested in similar types of Feature Discussion Topics yet fewer of us are willing to help coordinate the articles. Clinic news in the December 1980 issue (Vol 1.#3) featured the announcement that due to lack of sufficient funding the Illinois Clinic had been forced to institute a charge policy for everyone:

Noncultured sample-\$8

Cultured sample-\$12

Nematode sample-\$20

And who thought charging was a new issue?!!!!!!

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and the
U. S. DEPARTMENT of
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West Lafayette, Indiana 47907

Department of Botany & Plant Pathology • Lilly Hall of Life Sciences

PLANT CLINIC NEWSLETTER
March 1980 Vol. 1 No. 1

Well gang - ready or not - here it is! "Thanks" to all of you who have responded and "I'm still waiting!" to those of you who have yet to get in touch. Vol. 1 No. 2 awaits your input! I am pleased with the enthusiasm that the newsletter has created and hope that it will be a useful reference source and means of communication between clinics.

WHAT'S COOKING IN DIAGNOSTIC CLINICS?

The following paragraphs were submitted in response to my request for a short synopsis of each clinic set up. Responses were received from:

1. University of Kentucky - Plant Diagnostic Laboratory
2. University of Minnesota - Plant Disease Clinic
3. University of Maryland - Plant Diagnostic Clinic
4. University of Nebraska - Plant Disease Clinic
5. Purdue University - Plant Diagnostic Clinic
6. University of Wisconsin - Plant Disease Clinic

The U.K. Clinic is part of the Department of Plant Pathology. The laboratory is equipped with microscopes, reference materials, a transfer room, an autoclave, walk-in cold room, sinks and plenty of counter and storage space.

We received about 3370 specimens for diagnosis in 1979. Tobacco and ornamentals comprised the bulk of these samples. Generally, homeowner and commercial grower plant problems are sent to us through a county agent or extension specialist. Nevertheless, we do have some walk-ins. A Plant Disease Identification Form (in triplicate) accompanies each sample. We respond directly on this form and send one copy to the grower and one to the county agent. The third copy is kept for our files.

We have just started logging-in samples as they are received. Specimens are numbered chronologically beginning with 1 (one) each year. Later, the secretary adds a county number and the year to the form, but these additional numbers are not entered in the log book. Information including the specimen number, date-in, grower name and address, tests performed, diagnosis, who diagnosed the problem, consultation with another specialist and date-out are entered in the logbook. Referrals are noted under "Diagnosis".

We will soon be using a "quick response" post card to notify the county agent of a delay in diagnosis when a special test is required, or to let him know that the sample has been referred to another department.

Whenever we receive an inadequate sample or one with insufficient background information, we return the following memo and two copies of the diagnostic form to the county agent.

Plant Disease Diagnostic Laboratory
Department of Plant Pathology, University of Kentucky
Lexington, KY 40546

An accurate diagnosis of the plant problem was not possible because:

- _____ the specimen was inadequate.
- _____ the specimen arrived in poor condition.
- _____ there was insufficient background information accompanying the sample.

Please submit a fresh sample and include:

_____ roots _____ leaves _____ fruit
_____ stems _____

Complete another Plant Disease Identification Form, paying particular attention to any additional information which may be requested on your original form.

Generally our lab is used only by Plant Pathology. Plant problems which should be referred to another department are hand-carried to the appropriate specialist. Usually we rely strictly on Extension people, however, in the case of virus or nematode problems we work closely with the research faculty.

A graduate level diagnostic course is team taught by the three Plant Pathology specialists during the summer. As part of this course, each student is assigned a specific crop or group of crops. After a clinic sample has been diagnosed, the sample can then be handed to the appropriate student for her/him to examine.

Plant Disease Clinic; University of Minnesota; Laura E. Sweets

The Plant Disease Clinic of the University of Minnesota operates on a year round basis to diagnose plant diseases, to supply information on plant diseases, to supply information on plant disease control, to answer questions relating to plant disease development and prevention, and to provide training for plant pathology graduate and undergraduate students. The clinic is directed by Laura E. Sweets under the supervision of Dr. Ward C. Stienstra. Other clinic personnel include a clinic technician (full time during the summer and 1/4-1/2 time the remainder of the year) and two half time summer assistants (usually graduate students). All graduate students in the Plant Pathology Department are expected to work 20 hours each summer and students enrolled in the clinical Plant Pathology courses are in the clinic 20 hours a week for the 10 weeks of summer school. During the school year the clinic is in the extension laboratory, 104 Stakman Hall, and is open on a regular schedule (10-20 hours/week). From mid-June through September the clinic is open full time and is set up in rooms 103, 104, and 105 Stakman Hall. During the 1979 season the clinic handled a minimum of 10,074 contacts including 2,836 mail or walk-in samples and 7,238 phone calls. The host category with the greatest number of contacts in 1979 was the forest and shade tree category (44.2% of total contacts).

Plant Diagnostic Clinic; University of Maryland; Ethel Dutky

The Plant Diagnostic Clinic was started at the University of Maryland in May 1979. It is housed in a former teaching lab in the Department of Botany, which includes Plant Pathology. The Departments of Horticulture, Agronomy, Entomology and Zoology are nearby and helpful. Funding for salaries and equipment is provided by the Maryland Cooperative Extension Service. Space, equipment, secretarial help and administration are provided by the Botany Department. The staff consists of one full-time Clinic Director (B.S. Entomology, M.S. Plant Pathology) and hourly student help 40 hours a week in summer and less in winter. The Clinic serves extension agents, specialists and other University Departments (for example, Urban IPM programs sponsored by the Department of Entomology). Over 700 samples were processed in the first season. Most dealt with problems on ornamentals, with smaller numbers of fruit, vegetable and field crops.

Next season our staff will include an Entomologist several days a week. We will encourage agents to bring routine insect problems to the clinic. Graduate students may work in the clinic as a course option which would satisfy part of the departmental requirements for practical experience. I have not encouraged telephone inquiries or walk-ins from the public, and I plan to continue to politely discourage both.

The Nebraska Plant Disease Clinic is located on the fourth floor of the Plant Sciences Building at the Institute of Agriculture and Natural Resources of the University of Nebraska-Lincoln. We share the floor with the rest of the Plant Pathology department, giving extension and research direct access to respective developments. We are located immediately above Horticulture and Weed Science and within a short walking distance of Entomology, Forestry and Agronomy. In this way, each department is easily accessible to the others.

The clinic receives approximately 2500 samples by mail, through growers, extension agents or walk-in traffic. I process virtually all samples, occasionally referring to one or both of our two specialists for guidance. Samples are first examined in our spacious "dirty" lab and if needed are moved to the "clean" lab for microscope or culture work. Outstanding or unique samples are preserved in Riker mounts or specimen jars. The majority of samples are received from May-October, with ornamentals and field crops comprising the main portion. We presently have no graduate students assigned in the clinic.

My duties include extension work, writing a bi-weekly article entitled, "Plant Disease of the Week", assisting in writing fact sheets and eventually appearing on the public television program entitled, "Backyard Farmer". This program is aired twice weekly from April through September and consists of four panelists (Entomology, Plant Pathology, Horticulture, and Weed Science). Questions are asked by viewers who phone in live or mail inquiries the week preceding the program. The public response has been enthusiastic for many years.

The Nebraska Plant Pathology Extension Service consists of myself, Drs. John Watkins and David Wysong here at UN-L, and Dr. Ben Doupnik at Clay Center and Dr. Eric D. Kerr at the Scottsbluff Experiment Station. The latter two mentioned diagnose samples from their respective areas.

Plant Diagnostic Clinic; Purdue University; Gail E. Evans

The Plant Diagnostic Clinic at Purdue University was initiated in 1962 by Extension personnel in the Department of Botany and Plant Pathology. The clinic is located on the first floor of Lilly Hall of Life Sciences, room 1-337, in close proximity to the Extension Specialists. The purpose of the clinic is to provide accurate plant disease and weed identification and control recommendations to Extension agents and other interested people. Inquiries directed to the clinic are handled jointly by myself and the Extension faculty.

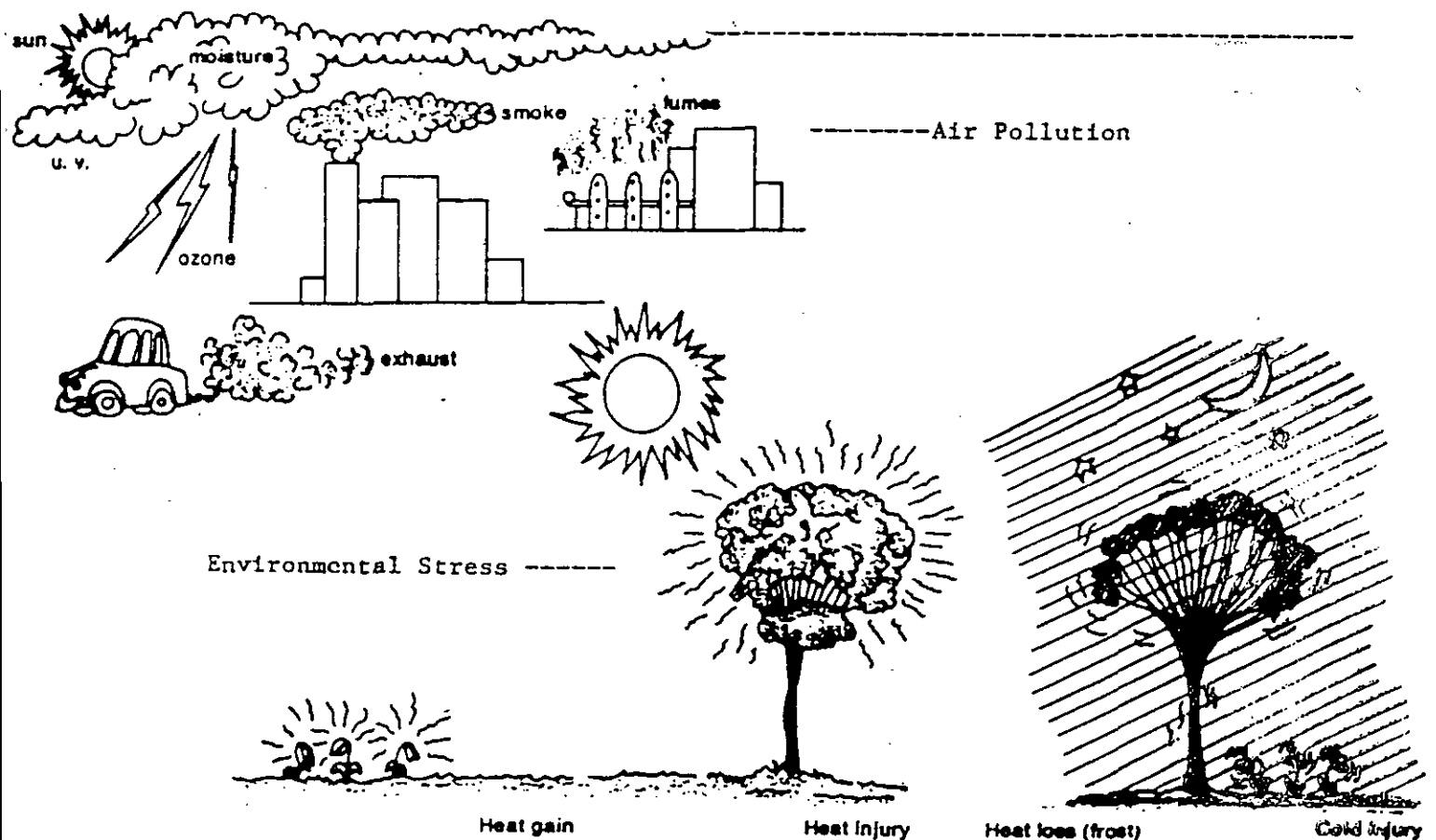
The clinic receives approximately 2000 samples each year. Of these samples, which are either mailed or walked in, about 60% fall in the categories of flowers, fruit, houseplants and ornamentals; 30% are field crops and forage and 10% are vegetables. As director of the clinic, I log each sample into a book under: Date In, Agent; County; Cooperator; Host; Symptoms; Test Run; Diagnosis; and Date Out. Specimen information is also logged into four card files under Reference Number; Host; Causal Agent and County Agent - for easy reference access. Specimens showing classical or unique symptoms are preserved as Herbarium specimens or in specimen jars containing FAA (formol-acetic-alcohol).

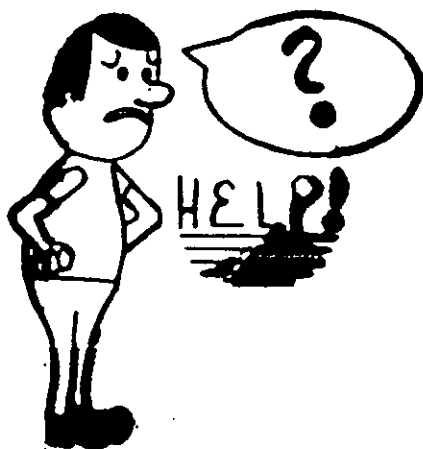
Approximately 70% of my effort is to be devoted to diagnostic services and 30% to the development of 4-H programs in the areas of Plant Pathology and Weed Science. I assist in the preparation of fact sheets and other extension aids useful in dealing with the public on matters relating to plant diseases and weeds. I also accompany the Extension Specialists to all Pest Clinics held in the state.

A graduate level diagnostic course is taught by Dr. Don Scott in the summer. As part of this course each student is required to spend a certain amount of time in the clinic. Otherwise, students, as of yet, do not function in the clinic.

Plant Disease Clinic; University of Wisconsin; Mary Francis Heimann, O.S.F.

(Sister) Mary Francis Heimann, O.S.F. functions as the diagnostician of the Plant Disease Clinic at the University of Wisconsin. Major crop responsibilities are divided up among four pathologists who have varying time percentages in Extension. Responsibilities are divided as follows: 1. Fruits, 2. Vegetables, 3. Field and Forage, and 4. Ornamentals and Turf. The diagnostician handles specimens in all of these areas and is usually the first to see them. She consults with the respective specialist if help is needed with diagnosis and for recommendation. The clinic is housed in a lab in the plant pathology section of Russell Labs on the University's Ag Campus. Approximately 1,700 specimens were handled in 1979. A greater percentage of them come in through the county agent's office although there are a good number of "walk-ins" especially in the summer. The highest ranking category of samples is ornamentals. At present, there is no charge for clinic services. The clinician has partial claim to the time of a secretary who handles correspondence, etc. but it cannot be claimed that the clinic has a secretary per se. Students do not function in the clinic except that one may be hired as summer part-time help. This, however, is totally apart from her/his function as a student. During the summer students have their own "clinic". They function by taking cases from the local county horticulture agent who sends them on "house calls". The clinician serves in an advisory capacity to the student in this project.





Does anyone have a recommendation for a quick diagnosis and confirmation technique for fireblight, by any means other than visual symptoms or host reference. W.L.W/NE.

JOB OPENINGS

Many of you thought that it would be useful to include a section on job openings in the newsletter - both for clinic seeking workers and job-hunters. So - if you hear of any jobs which may seem relevant to this newsletter audience - please let me know.

NEWSLETTER FORMAT AND DEADLINES

It was suggested that the editor establish deadlines for each issue, so as to establish some regularity as to when the newsletter comes out. I think that this is a good idea, however we must first decide on a feasible number of issues per year. I would like to see the newsletter as a quality rather than quantity publication. It is hard to predict just what form the newsletter will take, however I suggest a major quarterly publication, covering a Feature Discussion Topic and then either monthly or bimonthly updates, as needed, to report current job openings, new techniques, questions, epiphytotic situations etc...! Deadlines of the middle of the month would make it possible to get the newsletter out by the first of the next month. PLEASE LET ME KNOW WHAT YOU THINK OF SUCH A PROPOSAL.

DISCUSSION TOPICS FOR FEATURES

The following ideas are suggestions for Feature Discussion Topics. Please RATE these topics from 1 to 12 in terms of your interest and willingness to submit information for the newsletter. In addition, if one or more of the topics is especially interesting to you and you would like to help out as an associate editor for that Feature Topic (i.e. willing to help coordinate collected information and perhaps do some extra research on the subject) - please indicate (rate) your preferences next to the topic. I would greatly appreciate the help!

Willing to Help Coordinate? (Rate in terms of preference)	Interest in Topic (Rating)	<u>FEATURE TOPICS</u>
_____	_____	PHOTOGRAPHY - of specimens, spores or other microscopic structures (film, apparatus, etc.)
_____	_____	COMPUTERS - use in clinic situation to computerize records for information retrieval, diagnostic programs, "run-off" for text material etc...
_____	_____	PRESERVATION TECHNIQUES and SPECIMEN COLLECTIONS (dry and wet)
_____	_____	SELECTIVE MEDIA FOR CLINIC USE
_____	_____	INTEGRATION OF CLINICS
_____	_____	FUNDING
_____	_____	COURSES INVOLVING CLINICS - (both undergrad and graduate level)
_____	_____	GRAD ASSISTANTS IN THE CLINIC
_____	_____	NON UNIVERSITY AFFILIATED PLANT INFORMATION SERVICES (garden centers, private etc.)
_____	_____	RECORD KEEPING
_____	_____	LEGAL LIABILITY

TECHNIQUES

A Technique for the Rapid Diagnosis of Black Shank of Tobacco - Cheryl A. Smith

The need for rapid, accurate diagnosis of black shank (Phytophthora nicotianae f. parasitica) occurs when this disease is suspected in the plant bed. A grower may request confirmation of the presence of Phytophthora in his transplants prior to placing them in the field. Transplanting tobacco infected with black shank could result in the contamination of a field previously free of the pathogen. The following technique permits positive identification of the black shank organism within 24 hours.

Procedure:

1. Remove pieces of tissue from the margin of the lesion. Take several pieces from different areas.
2. Wash the tissue in water to clean the surface.
3. Add enough tap or distilled water to a petri dish to cover the bottom. Float the tissue pieces in the water. Cover
4. After 24 hours, examine under the microscope. Look first for coenocytic mycelium growing out of the tissue pieces. Then look for the lemon-shaped sporangia typical of Phytophthora.

This technique is also used when black shank is suspected in the field. The characteristic diagnostic symptoms (dead areas on the outer stem and disking within the stalk) can be confused with similar symptoms produced by other diseases, or even lightning damage. Accurate diagnosis, once again, depends on isolating and positively identifying the causal agent. In this case, however, time is not so critical since the only control recommendation is to plant a resistant variety the following year. Also, in field situations, race determinations need to be made, whereas this would not be important in the plant bed situation. The technique described above cannot be used to determine the race involved.

* Editors Note - Might this technique work for other Phytophthora species? Has anyone tried something similar? Might be an interesting side project this summer.

HOTLINE INFORMATION

Do you have hotlines, pest news alerts or other relevant bulletins coming from your department or other departments at your university? If so - please send me (Gail):

- 1) The name of the Bulletin
- 2) Address information - in order to be put on the mailing list

I will publish this information in coming newsletters so that we can all keep on top of the current Pest Situations in our region.

NEWSLETTER NAME

The only suggestion I have received is "The Prescription". Any other suggestions?

CLINIC NEWS

Have you read any journal/magazine articles or books lately that might be of interest or use to us clinic supervisors? Let's keep each other posted and note pertinent material!

REFERENCE BOOKS

Send me the names and authors of the reference sources most used in your clinic. I would like to compile a list of those reference books used in clinics for general "ready-reference" information purposes. This compilation will be published in the clinic newsletter as soon as I receive a majority of responses.

Well - as you have read - I have included some of my own ideas in this first newsletter - for lack of other material. I certainly do not intend this publication to be the "Gail Evans Forum on Diagnostic Clinics" - so do let me know what you want to hear about and how often you want to hear it!

Again - thanks to those of you who have responded. Hope to be hearing from all of you in the near future!

Respectfully yours,



Gail E. Evans
Assistant Extension Plant Pathologist

Send all correspondence to:

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