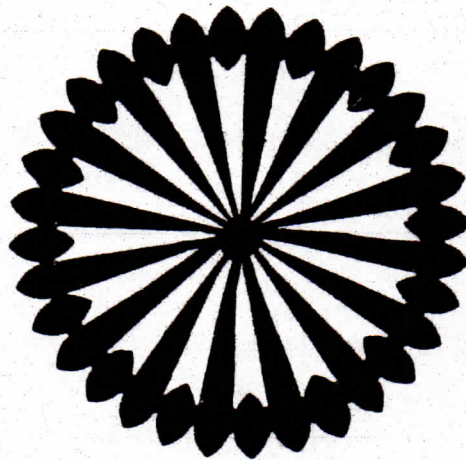


*The Pennsylvania State University, College of Agriculture, Department of Plant Pathology*

# *Plant Pathology Newsletter*

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1984





## GREETINGS

Dear Colleagues and Friends,

Greetings and best wishes for the New Year of 1985. We are looking forward to this year of activities that should keep us busier than the proverbial "one-legged duck scratching for food." Once again, in reference to the shoes I found under the desk on the day of my arrival, I'm down to wearing only three pairs of socks in order to fill them but the socks are still of the thick woolen kind.

Buckhout Lab has been examined from basement to rooftop and found to be ready and worthy (thank goodness!) of renovation. Laboratories and classrooms have been designed right down to the proper catalog numbers, and some of us have even cleaned offices in order to facilitate a possible move to other quarters during the renovation. The architects have drawings ready for bid and at last we see some light at the end of a long, long tunnel of expectation! Knock on wood for completion in '86 or early '87.

As noted in our 1984 Newsletter, we are pleased to have Dr. Barbara J. Christ as the newest member of our faculty. Barb leads our program in potato breeding and disease resistance research, and she is off to a great start building upon the excellent foundations established by Dr. Dave MacKenzie, who left us in 1983 to become Department Head at LSU. Barb has also become an active member of our Graduate Faculty.

During 1984, Mrs. Becky Peplinski took educational leave for seven months and completed the requirements for her B.A. degree in English, graduating at the end of the Fall Semester. Mrs. Susanne Hart filled in for Becky as Administrative Assistant to the Department with expertise and enthusiasm. Without doubt, we have a fine office staff to work for and with the programs of this department and I thank all for their enthusiasm.

Several notable awards were presented to our faculty in 1984 (these are written up elsewhere in this newsletter but appropriately should be included here as real highlights for 1984). Drs. Paul E. Nelson and T. A. Toussoun received the Faculty Scholar Medal of the University for their work in the Fusarium Research Center; Dr. Alan A. MacNab received the Pennsylvania Distinguished Service Award recognizing his outstanding contribution to Extension in Pennsylvania; Dr. William Merrill received the Award of Merit from the Northeast Division of APS for outstanding contributions in teaching undergraduates and graduates; Professor Emeritus Lester P. Nichols received the 1984 Award for Scientific Merit from the National Horticultural Society; and Dr. James Tammen (former faculty member and Department Head) received the Fellow Award of the APS for his contributions to the field and administration of Plant Pathology. In addition, Mr. Robert P. Long, Ph.D. candidate (D. D. Davis, advisor), received the Henry W. Popp Graduate Assistantship for his academic and research accomplishments. We all congratulate and take pride in these individuals for their outstanding work in their careers and for this Department. We're Penn State Proud!!

The year 1984 was filled with many important events . . . a new growing room at the Mushroom Research Center . . . a bequest from the Edgar G. Rex (1926 M.S. Plant Pathology) estate . . . an excellent Student-Industry Day . . . a tour of Wise/Borden potato chip plant . . . a large PSU alumni attendance at the Guelph APS meetings . . . an excellent season at our Rock Springs Research Farm . . . and a good first look at revisions to be made to our graduate courses and curriculum. Many other significant events took place within individual programs of our faculty and students.

In 1985 we look forward to further development in our renovations, participation in a major fund-raising effort to be known as The Campaign for Penn State, further modifications to our curriculum, and our CSRS review in the Fall.

We look forward to seeing you at the National and Divisional Meetings of our APS and elsewhere. Please always feel welcome to come and visit your Department.

Sincerely yours,

A handwritten signature in black ink, appearing to read "John", written in a cursive style.

John M. Skelly  
Professor & Head

## AWARDS

Drs. PAUL E. NELSON and T. A. TOUSSOUN were awarded The Pennsylvania State University Faculty Scholar Medal for Outstanding Achievement on April 29, 1984. Drs. Nelson and Toussoun, co-directors of the Fusarium Research Center (FRC), were honored for work in the area of life and health sciences and in recognition of their world-renowned work on the diseases, biology, and taxonomy of Fusarium. Especially noted among their achievements was their development of a comparative classification system for Fusarium. The Faculty Scholar Medal, established in 1980, recognizes scholarly or creative excellence, and consists of a medal and monetary award.

Dr. ALAN A. MACNAB received the Pennsylvania Extension Award for Distinguished Service during the 1984 Extension Workers Conference. The award, which is not presented annually, was made to recognize Dr. MacNab's outstanding contributions and service to the Extension Service as well as the clientele and vegetable industries of Pennsylvania. Dr. MacNab was cited for his record of accomplishments both statewide and nationally in vegetable pathology research and extension.

The 1984 Award of Merit of the Northeast Division of the American Phytopathological Society was presented to Dr. WILLIAM MERRILL in recognition of his significant contributions to teaching on the university and national levels. Dr. Merrill was recognized as a Master Teacher in 1976 when he received Penn State's Lindback Distinguished Teaching Award; he continues in this role of excellence through his service on committees evaluating teaching within the university and his involvement in many

APS efforts dealing with education. Professor Emeritus LESTER P. NICHOLS received the 1984 Scientific Citation Award of the American Horticultural Society in November. Professor Nichols was recognized for his work on disease resistance and performance evaluation of flowering crabapple cultivars across the United States. He is responsible for many of the cultivars now available in the nursery/ornamentals industry.

Dr. JAMES TAMMEN, former Professor and Head of the Department of Plant Pathology, was named Fellow of the American Phytopathological Society in 1984. Dr. Tammen was recognized for his distinguished career in research and academic administration and for his involvement in and many contributions to APS. Along with his service as President of the American Phytopathological Society, Dr. Tammen also was cofounder of the Intersociety Consortium for Plant Protection.

## ADJUNCT PROFESSORS APPOINTED

Dr. BARRY A. TOWERS (Ph.D. '65, Duke University) of the Pennsylvania Department of Forests and Waters, Division of Environmental Resources, joined our faculty as Adjunct Assistant Professor in June of 1984. Several major projects in the area of forest pathology and Christmas tree diseases are underway in cooperation with Dr. Bill Merrill. It is our pleasure to enthusiastically welcome Barry to an official role in our department.

Dr. JACK WILSON (Ph.D., '57, West Virginia University), Director of the USDA Pasture Research Laboratory, joined our faculty as Adjunct Professor effective December 1984. Dr. Wilson's participation in our departmental programs while he was Director of the Northeast Area Office, USDA/ARS, was substantial, and it is our pleasure to

welcome him to University Park and to our department.

## NEW GRADUATE STUDENTS

We also would like to welcome to the department several new graduate students. The group beginning their work at Penn State in 1984 is a small but diverse one. MARCUS JONES (B.S. '83 in Horticulture, Delaware Valley College) is working with Dr. Lukeziec on biological control of crown gall in small fruits. ROCIO RODRIGUEZ (M.S. in Horticulture, University of Puerto Rico) has come north to study different aspects of host-parasite relationships on forage crops with Dr. Leath. JEFF SMEENK (B.S., Michigan State University in soil science as well as botany, plant pathology) is studying under Drs. Bloom and Jaffee, investigating tomato ring spot virus and nematode vector interactions on peaches. CHARLIE HALBERT (B.A. in Biology, Kalamazoo College, Michigan) has travelled eastward to work with Dr. Schisler on fruiting control in mushrooms. On the side he is experimenting with interesting fungal food fermentations, his desk in Room 13 being a veritable mycologist's paradise!

## PROMOTIONS

Dr. DANIEL J. ROYSE was promoted to Associate Professor of Plant Pathology on July 1, 1984, and received academic tenure. Dan holds a split teaching/research/extension appointment.

Also in 1984, PATRICIA SANDERS was promoted to the rank of Associate Professor of Plant Pathology. Pat, who recently was awarded academic tenure, formerly served as Senior Research Associate in the department.

Dr. JOHN E. AYERS, Professor of Plant Pathology, has been named Project Manager for the Swaziland Cropping Systems Research and Extension Training Project. This half-time administrative appointment has taken John to Swaziland twice in 1984 to continue cooperative efforts in the university/USAID program in Swaziland.

## SABBATICALS

Several faculty have been awarded sabbatical leaves for 1985:

- Dr. PAUL E. NELSON will travel to Australia to visit with LESTER BURGESS and to the Union of South Africa to visit with WALLY MARASAS during two separate three-month leaves in 1985 and 1986 for purposes of Fusarium collection.

- Dr. DONALD D. DAVIS will travel to Sydney, Australia, for eight months (September 1985-May 1986) to conduct air pollution research in the field and identify major pollutants causing plant damage in Sydney and the agricultural Hunter Valley.

- Ms. PATRICIA L. SANDERS will travel to The Netherlands to study fungicide resistance; several tours to major producers and laboratories are planned.

## SPECIAL GRANTS

### Spawn Mate, Inc. Grant

Spawn Mate, Inc. presented a \$20,000 grant to the department to complete a new 48-tray production room at the Mushroom Research Center (MRC). The room will be used by all those in the department working in mushroom research. Projects anticipated include casing layer research, mushroom disease research, genetic studies, nutrition and physiology, and spawn line research--

in general, research encompassing the entire area of mushroom cultivation. Mr. Robert A. Moore, president of Spawn Mate, Inc., of San Jose, California, presented the check and said, in part, "We congratulate the faculty and staff at The Pennsylvania State University for their many accomplishments and contributions to the mushroom industry, and we look forward to all of the new tomorrows now in the making."

Faculty involved in research at the Center include MILLIE JODON, PETE ROMAINE, DAN ROYSE, LEE SCHISLER, and PAUL WUEST. The MRC is staffed by HARRY MUTERSBAUGH, Manager, ROXANNE LEASE, Research Technician, HAROLD GUMMO and JIM SPICER, Biological Technicians, and TOM RESIDES and GRETCHEN REBARCHAK, part-time technicians. During this past year three graduate students conducted all or part of their research at the center: GERRY BARCLAY, DOUG DIEHLE, and MARK WACH.

Spawn Mate, Inc. produces a delayed release mushroom nutrient under license of a patent invented at the MRC by A. DAVID CARROLL (M.S. '73) and his advisor, Dr. Schisler.

#### Monterey Mushrooms Assistantship

Monterey Mushrooms recently awarded a three-year, \$53,259 grant to establish the Monterey Mushrooms Research Assistantship for a Ph.D. candidate to study growth-related quality factors. The grant was presented to the department by Dr. William B. Raymer, Vice President of Operations, Research and Development, for Monterey Mushrooms. Dr. Raymer's statement accompanying the grant read, in part, "Monterey Mushrooms is totally committed to quality as a company. As a member of the industry, we feel that the consumer-perceived quality of our

product is the key to future success. Although post-harvest handling is extremely important to this most perishable of produce crops, basic mushroom quality is determined by the strains and growing practices used. Pennsylvania State University research and particularly the program of Dr. Lee Schisler has provided leadership to the industry in innovative ways to improve mushroom productivity. We feel that this program, as well as other physiological processes, are uniquely fitted to conduct research on growing-related aspects of mushroom quality. We are extremely pleased to be able to make this award of funds in support of the Monterey Mushroom Research Assistantship to study growing-related quality factors." Monterey Mushrooms is based in Santa Cruz, California. Dr. MARK WACH (Ph.D. '85) joined Monterey Mushrooms in early 1985.

#### Edgar G. Rex Bequest

A bequest from Edgar G. Rex was received by our department in June of 1984. Mr. Rex was a graduate of our department, receiving his M.S. degree with the class of 1926. His degree work was on clubroot of cabbage, and his career work was in shade tree diseases for the New Jersey Shade Tree Commission. His generous gift of \$5,000 will be used to support the programs of the department.

#### **STUDENT INDUSTRY DAY**

The fourth Student-Industry Development Day was held on April 17, 1984. The program, organized by LARRY JORDAN, proved very successful once again. Speakers for the 1984 program included Mr. WILLIAM R. BECK, Technical Representative of Sandoz, Inc.; Dr.

CARL P. DAVIS, Regional Technical Manager, Research and Development, of E. I. DuPont Co.; Ms. SUSAN J. WENDLER, Product Manager, Agricultural Chemicals Group, FMC Corporation; and Dr. HOMER MAZER, Regional Assistant Director, Western Region, of the Pennsylvania Cooperative Extension Service.

Following the formal program on April 17, students and faculty had an opportunity to meet with each speaker for informal discussions on the morning of April 18. This program continues to be of great benefit to our graduate and undergraduate students.

## SPECIAL ACTIVITIES

### Departmental Tours

Early in October 1984, nearly thirty members of our faculty, staff, graduate students, and Plant Science majors enjoyed the hospitality and plenty of samples provided by Wise/Borden Foods during a four-hour tour of their industry at Berwick, PA. Mr. Jim Watts of Wise/Borden Foods and BARB CHRIST organized and led the tour through storage facilities, the chip quality lab, chip processing plant, special products division (cornchips, etc.), product testing laboratory, and the packaging and shipping areas. Imagine a machine that handles 112 one-pound bags of chips a minute, and multiply by fourteen such machines and numerous others . . . it is quite a sight!!! A truly educational tour for all who attended.

### Social Events

Several activities were held in 1984. The summer picnic took place in spite of pouring rain. The faculty won the five-inning softball game 5-4 when fortunately the rain fell just hard

enough to call the game. Dr. LEATH then starred in a really fun volleyball game in the mud. Hopefully the 1985 picnic will be sunny. The October party, organized this year by JOE OMIELAN and LESLIE DELSERONE, with the excellent help of the farm crew, was, as usual, a great success. The Rustical Quality String Band inspired almost everyone to dance up a storm. The pig was contributed by JERRY STOVER's parents. Unfortunately, Jerry's father was ill and his absence was sorely missed at the party. BILL BROWN and MARK WACH walked away with the low scores at the Third Annual Plant Pathology Golf Tournament held at Nittany Country Club--Mark was scratch winner and Bill won the handicap prize. The year ended well with a good turnout at the Annual Christmas potluck luncheon and at the Christmas Party at John and Linda Skellys.

## VISITORS

Dr. SIEGFRIED FINK from the Institut Fur Forstbotanik und Holzbiologie, Albert Ludwigs Universitat, Freiburg, Federal Republic of Germany, visited our department in September to learn of research efforts being made in air pollution effects to forest trees. He spent time with Drs. Davis and Skelly touring the area looking for symptoms of O<sub>3</sub> injury and possible similar situations as seen in Germany's "Waldsterben" decline of spruce and fir. He was accompanied by his wife, Anne-Clair.

Dr. BERNARD PRINZ from the Landensanstalt fur Immissionsschutz, Essen, Federal Republic of Germany, visited Drs. Davis and Skelly and Ph.D. candidate Mr. Robert Long to discuss air pollution effects to forest trees with special reference to O<sub>3</sub> and acid rain. He also was interested in comparing symptoms of the "Waldsterben"



(decline) of the German forests and those induced by ozone in eastern United States. Dr. Prinz outlined current research and results pertinent to the Western European problem in his seminar, entitled "An Analysis of the Decline of the German Spruce Forests."

Dr. Alan MacNab hosted visitors interested in the computerized "FAST" fungicide scheduling program used for early blight control on tomatoes, with Dr. RON PITBLADO, Ridgetown College, Ontario, Canada, visiting in March, and Ms. LOUIS HSU of Cornell University visiting in June.

Professor ALBERT E. EICKER, Professor of Botany at the University of Pretoria, South Africa, spent three months in 1984 visiting with Dr. Paul J. Wuest. Generation of a reference booklet on the pathogens and weed fungi associated with commercial growing of Agaricus bisporus, in cooperation with Dr. Wuest, was the main goal of his visit; in addition, new cooperative efforts between his program in South Africa and ours at Penn State were begun. Dr. Eicker presented a seminar on his work entitled "Mushroom Growing and Research in the Republic of South Africa."

Dr. GAMAL ANTOUN, Assistant Professor and First Researcher, Agricultural Microbiology, of the Soils and Water Research Institute, Giza, Egypt, also visited the department for an extended period in 1984. Dr. Antoun spent ten months working with Dr. L. C. Schisler, on a project aimed toward determining types of mushrooms adaptable to Egyptian climatic conditions. Dr. Antoun's visit to the department was part of a three-year project that has been established to strengthen cooperation between American and Egyptian universities and research centers.

Other visitors to our mushroom program

included Ms. JUDY ALLAN, Mushroom Specialist, Biological and Chemical Research Institute, Rydalmere, N.S.W., Australia, who spent several days in September as guests of Drs. Royse, Schisler, and Wuest; Dr. JAN LELLEY, Director, Mushroom Research Station, Krefield, Federal Republic of Germany, who visited the mushroom group later that month; and Mr. ULI HAUSER of the Swiss American Spawn Company, Zurich, Switzerland, who was a guest in Dr. Royse's lab.

## SEMINARS

Many visitors were welcomed to the department this year to present seminars. Dr. ALEX L. SHIGO of the Northeast Forest Experiment Station, Durham, New Hampshire, spent several days on campus in March as a guest of the Departments of Plant Pathology and Entomology and the School of Forest Resources. His jointly sponsored seminar was entitled "What Really is a Tree and How do Defects Develop in Them."

This fall Dr. SUE TOLIN of the Department of Plant Pathology, Physiology, and Weed Science at Virginia Polytechnic Institute and State University spoke on "Biotechnology and Plant Pathology"; Dr. WILLIAM E. FRY, Head of the Plant Pathology Department at Cornell, spoke on "Host Resistance and Potato Late Blight"; and Dr. HOWARD E. WATERWORTH, National Program Leader, Plant Health, USDA/ARS-Beltsville, reviewed "Plant Pathology and Nematology Research Programs of the USDA/ARS."

Our annual seminar exchange program with the USDA Plant Disease Research Lab at Frederick, Maryland, continued this year, with Drs. PENNY HUNST and MATTHEW ROYER (Ph.D. '82) visiting University Park and Drs. F. E. GILDOW

and S. P. PENNYPACKER of the department traveling to Frederick. Dr. Hunst's seminar, presented in April, was entitled "Cytoplasmic Male Sterility and the Mitochondrial Genome of Petunia"; Dr. Royer spoke last October on "Current Studies on Kernal Bunt of Wheat."

The department's regular seminar program included presentations by many of our faculty. Drs. ROYSE, MERRILL, SCHEIN, LEATH, and McCARTHY reviewed current research programs; all agree that these seminars are a great way for graduate students and faculty alike to learn about our faculty members and their plant pathological interests.

## TRAVEL

Many countries of the world played host to members of our department in 1984. Faculty, staff, and graduate students formed a large group at the APS meetings in Guelph, Ontario, this past August. It seems that Ontario hosted many PSU alumni, as well, as evidenced by the large turnout at the Penn State Alumni Social.

In an effort to get acquainted with other plant pathology programs and to pursue possible areas of cooperative work, Dr. JOHN M. SKELLY visited Ohio State (Dr. C. R. Curtis, Head) and the University of Illinois (Dr. R. E. Ford, Head).

Internationally, Dr. JOHN E. AYERS traveled to Swaziland in connection with his duties as Project Manager of the cooperative Penn State/Swaziland effort. Dr. WINAND K. HOCK also traveled to Swaziland to conduct a series of pesticide management workshops for Swazi Extension agents. Prior to his arrival in Swaziland, Dr. Hock spent three and a half weeks in Kenya teaching in an International

Group Training Course in Nairobi sponsored by the Centre of Insect Physiology and Ecology.

Finally, Dr. PAUL J. WUEST traveled to Europe to present a paper at the International Symposium on Mushroom Substrates and Pleurotus Growing in Budapest, Hungary, and then later presented an invited seminar at the University of Koln, Republic of West Germany.

## FARM UPDATE

### Greenhouse Renovations

The Rock Springs greenhouse was recently renovated, with a completely new Tedlar covering installed over the outside. The E. I. DuPont Co. generously donated the Tedlar needed for the project; completion was due in large part to the efforts of Dr. GARY MOORMAN and LARRY JORDAN, JERRY STOVER and MIKE PECK. In addition to a new shell, roll-top benches are now being installed inside the greenhouse. These benches, which will provide an estimated 20 percent additional bench space, represent a major improvement to the facilities at the farm.

### Computer System Installed

Another major advancement at the farm is in progress. In December, 1984, a new computer system was installed that will enable Jerry Stover and Larry Jordan to easily maintain and access records on everything from hourly wages to fertilizer and pesticide applications. The software being used was designed specifically for a farm operation by Crop Data Management Systems, Inc., of Yuba City, California.

Dr. RAYMOND A. KRAUSE, former faculty member of the department, designed the program and has donated the program to the department. Dr. Krause continues to work with us in using the program, and all very much appreciate his contributions towards the farm's changeover to computerized recordkeeping.

#### Ag Progress Days

In 1984, the department again participated in Ag Progress Days (APD), an agricultural show sponsored each August by the College of Agriculture that attracts visitors and exhibitors from across the Northeast. In addition to extension exhibits on the APD grounds, the department showed its farm research plots to those who took bus tours of the Rock Springs facilities. Graduate students LESLIE DELSERONE, WENDY BAIR, and DIANE KARASEVICZ volunteered as guides on the tour buses.

#### Farm Visitors

Many others had the opportunity to view the Plant Pathology farm programs in addition to the Ag Progress Days visitors. Groups from the Pennsylvania Vegetable Growers Association and the Pennsylvania Co-Operative Potato Growers each spent a day as guests of the farm in conjunction with annual field days. A very special tour was also held this summer for members of the department. A fine turnout of faculty, staff, and graduate students spent a day at Rock Springs enjoying informative walking and wagon tours, and lunch provided by the department.

On a final note, we are sorry to report the passing on December 29, 1984, of Mr. Earl Harpster. Mr. Harpster had

leased acreage to the department for five years for research projects. Mr. Harpster was a long-time friend and associate of our department and will be missed.

## RESEARCH

#### Raspberries for Rock Springs

An acre of black raspberries was planted last spring at the Rock Springs Research Farm. The planting will be used by Dr. JIM TRAVIS to "fine tune" production practices and develop pest management for raspberries. Dr. Travis is working on bramble diseases in order to bring raspberries back into commercial fruit production in Pennsylvania. Investigations will concentrate on fungicide efficacy and timing, and the effect of cultural practices such as trellising and irrigation on disease management. A sister planting at the horticultural farm at Rock Springs is intended to evaluate varieties and test fertilizer programs and irrigation on yield and plant health. The new effort in bramble disease control is based on the availability of clean planting stock to growers. One of our former Plant Pathology graduates, WENDY OGLEVEE O'DONOVAN (M.S. '77), has been working for several years to remove viruses from commercial raspberry varieties. Dr. Travis believes that although the plants will not remain free of viruses, they will produce higher, better quality yields over a longer time period. Yields are expected to reach 7,000 to 10,000 quarts per acre with improved disease management and cultural practices. At \$2 to \$3 a pint that's a fair return. With all of this optimism for the future of raspberries, there are still several other diseases that can limit production. A survey conducted across the state in 1984

indicated that besides viruses, crown gall (Agrobacterium tumefaciens), orange rust (Gymnoconia interstitialis), and nematodes (Xiphinema, Pratylenchus) commonly occur.

#### Poinsettias-Fertilization Rates-Pythium Root Rot Susceptibility

Poinsettia samples submitted to the Plant Disease Clinic with Pythium root rot frequently have been determined to have high soluble salt concentrations in the potting mix. Dr. GARY W. MOORMAN has initiated experiments to determine whether high fertilization rates increase poinsettia susceptibility to Pythium root rot. During 1984 poinsettia cuttings were potted in one soil mix and three different "soiless" mixes and fertilized with 15 N-16 P-17 K soluble fertilizer at rates of 150, 300, 450, and 600 ppm N each time they required moisture. Most commercial poinsettia producers use this constant fertilization program employing a level of 300 ppm N. However, if insufficient liquid is applied, salt concentrations gradually increase in the potting mix. The conductivity readings established by using the four fertilizer rates are similar to those commonly encountered in growers' samples. Results strongly indicate that plants fertilized at levels above 150 ppm N are much more subject to mortality due to Pythium root rot than plants at the 150 ppm N level. In order to maintain high plant quality, however, growers must fertilize at about 300 ppm N. Approximately 1200 plants were used in the experiment, which was completed in November--just in time to distribute the "controls" to faculty, students, and staff for Christmas.

Similar work will be conducted on seedling geraniums and vegetatively

propagated geraniums. Preliminary studies indicate that the seedlings respond in a fashion similar to the poinsettias while vegetatively propagated ones do not.

#### Oak Biodeterioration

Dr. W. MERRILL and DIANE KARASEVICZ are in the second year of USFS-funded study of biodeterioration of red oaks that have died following defoliation by the gypsy moth. They are quantifying loss of merchantable volume versus time after death and also studying the succession of fungi and insects involved in the deterioration. Results to date indicate a large and diverse microflora associated with the deterioration; 175 different organisms have been found in materials dead one year. Initial stages of deterioration involve numerous staining fungi and some white-rotting fungi associated with insect infestations. The white rots soon dominate, although some pockets of brown rot occur occasionally. The insect fauna consists primarily of the Coleopteran engraver and ambrosia beetles, with some wood-boring Cerambycidae and Buprestidae. Most of the latter occur as larvae, making them extremely difficult to identify.

#### Development of Hybrid Mushrooms

Work by D. J. ROYSE, M. H. JODON, R. LEASE, G. REBARCHAK, and H. R. MUTERSBAUGH in the mushroom laboratories and at the Mushroom Research Center has led to the development of genetically enhanced mushroom lines. Patent applications have been filed on two newly developed hybrids of the common cultivated mushroom. A germ plasm enhancement program of the shiitake mushroom also has led to improvements in both size

and yield of this species on sawdust. The enhancement programs were made possible by the use of isozyme electrophoresis. The electrophoretic methodology allows the recognition of breeding stock homokaryons, confirmation of crosses, and genetic marking of new hybrids.

### Christmas Tree Research

The Christmas tree research program, conducted by W. MERRILL and NANCY WENNER, continues, with primary emphasis still on *Cyclaneusma* (=Naemacyclus) needlecast. Nearly two years of work last spring (including Nancy's thesis project) were lost when the major research plot was accidentally sprayed with pesticides from a helicopter. The one conclusion drawn was that application via helicopter provided excellent coverage! Merrill and Wenner have also been studying susceptibility of various ponderosa pine seed sources to *Endocronartium harknessii*, and are expanding this study to Scots and Virginia pine. They will be establishing a disease-garden for *Rhabdocline* needlecast on Douglas-fir at the Rock Springs plots and plan on beginning to evaluate resistance to this disease also. *Rhabdocline* was found in the School of Forest Resources plantings at University Park, so the danger of importing a "new" disease is no longer a problem. A number of ideas on approaches to some of these problems were gained after attending the IUFRO sessions on pine rusts and conifer needle diseases at Athens and Gulfport last October.

## TEACHING/EXTENSION

### Christmas Tree Pest Management Short Course

On January 7-8, 1985, 93 Christmas tree growers from Pennsylvania, Maryland, New Jersey, and Wisconsin attended the second Christmas Tree Pest Management Short Course in Buckhout Lab. The course featured lectures, discussion sessions, and hands-on laboratory sessions emphasizing diagnosis. The teaching cadre consisted of Dr. Paul Heller of Entomology (insects), Dr. Larry Kuhns of Horticulture (weeds, cover crops), and the following from Plant Pathology: Dr. WIN HOCK (pesticide regulations), Dr. BILL MERRILL, and Mrs. NANCY WENNER (disease and pesticide safety). They were assisted by graduate students Joe Boggs (Entomology), and DIANE KARASEVICZ and BOB LONG (Plant Pathology), and undergraduate Plant Science student ESTHER HOLCOMBE. This course promises to become a regular offering of the College.

### Tropical Problem Solving in Central Pennsylvania and "On Location"

An "applied tropical problem solving" course has been recently introduced in the College of Agriculture. The course is being taught by a team of three faculty with expertise in the animal sciences, plant sciences, and social sciences and who have had experiences in the tropics. Dr. F. L. LUKEZIC handles the plant science aspect of the course.

The objective is to allow students to apply what they have learned in earlier courses, and new knowledge gained in library research, to solve agricultural problems in diverse areas of the tropics. Students spend nine weeks in the classroom analyzing agricultural production in the tropics, specifically in six study locations in Puerto Rico. The students then have a two-week field trip to Puerto Rico to observe agriculture in these same

locations and to determine if the class recommendations could (or should) be put to work after discussions with Puerto Rican experts. Through this unique format, students learn to apply knowledge to real world situations, and find that knowledge gained in Central Pennsylvania can be used elsewhere.

Enthusiasm for the course runs high, as do student evaluations. Students consistently report that the course developed their ability to study independently, to apply subject material, and to integrate their disciplines with other subject matter areas.

## GRADUATE STUDENTS

The present situations of the 1984 graduates are encouraging to those of us still having to face the job hunt. KAREN KOONS has been working for Agrogenetics in Boulder, Colorado, in the area of cell and tissue culture. RICK RAID is continuing to work with Dr. Pennypacker on his Ph.D. degree on the epidemiology of corn rust. LARRY ZANG has earned a fellowship through US/AID and is presently working in the area of vegetable production at the University of Senegal in Africa. CAROL ARMY is now working as a technician for Randall Rowe at OARDC (Ohio Agricultural Research and Development Center at Ohio State University) in Wooster, Ohio. She is currently involved in two projects, the biological control of Pythium in radishes and early dying syndrome of potatoes. GREG HUNT is also working on potatoes, in the laboratory of John Hilgeson at the Department of Plant Pathology, University of Wisconsin, Madison. He is employing potato protoplast techniques and studying fusions and variations therein. JEAN-ROBERT PELLETIER (better known as "J.R.") has been working on his Ph.D.

degree in epidemiology with Bill Fry at Cornell University.

## UNDERGRADUATE STUDENTS

### University Scholars

The University Scholars program is a University-wide honors program. To be invited into the program, students must have a 3.6 gpa or higher. Upon approval of their advisor and the program director, these students may waive University, College, or major requirements. These students may take any course, regardless of term standing, and may take graduate courses for undergraduate credit. They must complete at least seven credits of honors courses per year and they must complete a senior thesis. Drs. MERRILL and SCHEIN serve as honors advisors for the Plant Science major.

Currently, two Scholars are doing independent studies in Plant Pathology. Ms. EMELIE SEIP is studying the protoplasting of potatoes and will be doing genetic studies of these materials. Ms. KAREN STANTON is studying the genetics of Phytophthora infestans with emphasis on inheritance of pathogenicity. Both are being co-advised by Drs. BARBARA CHRIST and W. MERRILL.

### Plant Science Major Update

The following Plant Science undergraduates were heard from:

1975

MILUS, Gene

Received his Ph.D. in Plant Pathology from Washington State in December 1984.

1977

GANOE, Kevin

Is Assistant County Agent, Erie County, PA.

1978

LOUGHNER, Dan

Now in charge of Rohm & Haas's Springhouse, PA agricultural chemical test facility.

WILLET, Laura SEYBERT

Laura and husband, Mike, became parents of 4,320 gram son (9 lb 8 1/4 oz). The family lives in Yakima, Washington, where Mike is Extension apple specialist.

1979

LEATH, Steve

Received his Ph.D. in Plant Pathology from Illinois in spring 1984; currently filling in at Illinois for a staff member on sabbatical leave.

WILMOTT, Dave

At last word, M.S. candidate in Agronomy at Illinois.

1980

HOUSER, Bill

Now working in Ag Communications at Penn State.

McCALL, Kathy

A full-time mother since giving birth to a daughter in November, 1984. Kathy and family live in Zelienople, PA.

KOWALSKI, Kathrin

Married and living in State College area.

1981

HALLIDAY, Chris

At last word, working at Epcot Center in Florida but contemplating graduate work.

1982

BRODICT, Steve

Reported to be at Epcot Center. Any confirmation?

GERHOLD, Dave

Now at University of Tennessee, still in genetics.

1984

HEFFNER, Sharon

Working for an interior landscaping firm in Philadelphia.

MILLER, Joan

Technician, Agronomy Department, Penn State.

YOCUM, Jenny

M.S. candidate at University of Delaware. Working at what?

#### Other News:

McDOWELL, Jean

(Fall '85) interned for six months with Dr. Ann Rhodes at Morris Arboretum. During her junior year she did an independent project on the distribution of Rhabdocline weirii and R. pseudotsugae in PA. A paper on this work has been accepted by Plant Disease.

POCHAPSKY, Rob

(Fall '85) currently is interning for six months with DuPont field-testing pesticides at Biglerville.

## CAMPAIGN FOR PENN STATE

We are about ready to kick off a major fund-raising campaign of private giving for the benefit of your Pennsylvania State University. It is purported to be the largest effort ever by a state university with a goal of \$250 million. Our department will be involved in these efforts and we obviously will be keeping you posted on our specific

plans. The Campaign will be managed at the Vice-Presidential level through to the College of Agriculture and to the various departments. We'd be interested in knowing your impressions or awareness of any potential major gift-oriented friends of Penn State.

## ALUMNI NEWS

We were unable to contact you in 1984 for news of the past year, due to Becky's absence from the office. Rather than delay the newsletter several months while gathering information, we decided to send along this edition without our usual alumni section.

We're still interested in your activities and you can be sure that we will contact you for next year's newsletter. Our apologies for this year's omission.

Thanks for this year's edition of the Plant Pathology Newsletter go to Peg Blair, Niki Jeschke, Larry Jordan, Becky Peplinski, and the many faculty who contributed articles.



## GRADUATE STUDENT ROSTER

<u>Name</u>	<u>Degree</u>	<u>Advisor</u>	<u>Research Interest</u>
ARNY, Carol	M.S.	E. J. Pell	Stress ethylene production in response to acid rain
BAIR, Wendy	M.S.	J. E. Ayers	Disease resistance to corn
BRETH, Deborah	M.S.	J. W. Travis	Studying the effect of lesser peach tree borer on the expansion rate of Cytospora canker on peach
DELSERONE, Leslie	M.S.	J. A. Frank	Effect of planting date on net blotch epidemics in winter barley and on the winter survival of barley
DIEHLE, Douglas	M.S.	D. J. Royse	Mushroom research
DRAGOESCU, Nicolae	Ph.D. (Genetics)	E. J. Pell	Inheritance of ozone tolerance in potato
FISCHER, Stacey	M.S.	S. P. Pennypacker/ A. A. MacNab	Cultural and chemical control of early blight on processing tomatoes
FREEBORN, Rita	M.S.	S. P. Pennypacker	Vegetables - extension/epidemiology
HALBERT, Charlie	M.S.	L. C. Schisler	Mushroom cultivation, especially fruiting control
HUFF, Crystal A.	M.S.	J. E. Ayers	Study of the inheritance of resistance in corn to gray leaf spot
IRELAND, Karen	M.S.	K. T. Leath	Verticillium wilt of alfalfa
JESCHKE, Niki	M.S.	P. E. Nelson	Toxigenicity of Fusarium species isolated from corn in PA
JONES, Marcus	M.S.	F. L. Lukezic	Bacterial diseases/vegetable crops
KARASEVICZ, Diane	M.S.	W. Merrill	Biodeterioration of oak trees killed following gypsy moth defoliation
LALANCETTE, Norman	Ph.D.	K. D. Hickey/ S. P. Pennypacker	Epidemiology/disease management of tree fruits

LONG, Robert	Ph.D.	D. D. Davis	Acid rain effects on forest productivity
MACZUGA, Steve	M.S.	H. Cole/ B. J. Christ	Modeling and forecasting of potato diseases
N'GUESSAN, Essoi	M.S. (Genetics)	J. E. Ayers	Genetics (plant breeding) and some aspect of plant disease resistance
OMIELAN, Joe	M.S.	E. J. Pell	Studying ozone tolerance using <u>in vitro</u> techniques
PEREZ, Julian M.	Ph.D.	S. P. Pennypacker	Effect of greenhouse and field conditions on survival of <u>Pseudomonas syringae pv. tomato</u> on symptoms development in Pennsylvania
RAID, Richard	Ph.D.	S. P. Pennypacker	Epidemiology of southern corn rust
RODRIGUEZ, Rocio	Ph.D.	K. D. Leath	Host-pathogen relationships and management of plant diseases, especially those caused by fungi
SIGULAS, Kristen	M.S.	J. E. Ayers	Disease resistance
SMEENK, Jeffrey	M.S.	J. R. Bloom/ B. A. Jaffee	Tomato ring spot virus detection in nematodes, Prunus stem pitting
SPADAFORA, V. James	Ph.D.	H. Cole/ J. A. Frank	Epidemiology and control of Septoria diseases of wheat
SRISKANTHA, A.	Ph.D.	C. P. Romaine	Polymerase activity associated with dsRNA viruses in mushroom; cloning the ssRNA of Bacilliform virus
THOMAS, Gar	Ph.D.	J. E. Ayers	Crop loss assessment and pest management in corn
TUTTLE, Margaret	Ph.D.	S. P. Pennypacker	Epidemiology and simulation modeling
WACH, Mark	Ph.D.	C. P. Romaine	Molecular biology of mycoviruses
WENNER, Nancy	M.S.	W. Merrill	Christmas tree diseases