Editorial

Training Extension Plant Pathologists

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What is the ideal graduate training program for extension plant pathologists? Should they have special training? Does going through the standard Ph.D. program train extension specialists for the job?

Traditionally, departments of plant pathology have offered graduate students an assistantship in teaching or research depending on the candidate's interests and the need to fill a "slot" within a department. A majority of our nation's 228 extension specialists were teaching or research assistants while in graduate school. Many of us drifted into extension. When I started in 1950, I didn't even know what the Cooperative Extension Service was!

A logical way to train future extension specialists is to provide "on-the-job" training as a graduate student, just as we train future teachers and researchers.

In the past 10–20 years, several states, including Illinois, Minnesota, and Nebraska, have offered extension assistantships to graduate students with an interest in extension. How we train these individuals at the University of Illinois is outlined here.

Selection. Students chosen are people-oriented, friendly, outgoing, good communicators of both the spoken and the written word, and interested in teaching and in plant disease diagnosis, control, and epidemiology. An undergraduate-graduate background that includes at least a beginning survey course in plant pathology; one or more courses in mycology, horticulture, and/or agronomy; courses in soils and soil fertility; several courses in botany, including plant physiology and morphology; plus experience in agriculture or economic entomology and weed science is highly desirable. Choosing a candidate involves attending a seminar prepared by that person, listening to coffee-time discussions, having personal talks with the individual concerning career and personal goals, and quizzing other students and professors. Selecting a person dedicated to helping others is critical.

Training. We start students in our integrated plant clinic. It is important that they work closely with experienced specialists, ideally sharing the same office and/or laboratory. It is not easy for a student who has studied only classic diseases, such as apple scab, potato late blight, stem rust of cereals, and clubroot of cabbage, to jump into a modern clinic where classic diseases appear only once or twice among thousands. The first specimen, and accompanying all-too-brief note, may call for a definite yes or no answer, eg, "Is this soybean root rot or the result of using herbicide _____?" Then there are the almost inexhaustible variations of weather stress and other abiotic problems, plus diseases of obscure ornamentals and turfgrasses that are not covered in formal courses or standard texts. Where do you turn for help? How do you phrase a letter realizing that it could be used later in court? A year of careful nurturing may make one reasonably competent in today's plant disease clinic. "Easy" problems are increasingly rare as our clientele becomes more and more proficient in recognizing common diseases and allied problems.

With plant clinic experience comes the task of updating disease control programs for fruits, vegetables, flowers, turfgrasses, trees, and shrubs plus the never-ending job of revising "Fact Sheets" and writing new ones. There are news releases to write, radio tapes to make, and the experience of doing live and taped TV shows. And don't forget speaking at a variety of field days on and off campus to numerous grower groups, preparing visual aids, and maintaining slide files. Other public contacts include telephone calls (up to 40 or more in one working day) and handling "walk-ins" with their bouquets of sick plants. Such training requires perhaps 2 years before one begins to feel competent. There are hundreds of disease-control chemical labels to become familiar with and check against current recommendations in extension publications. Very few Ph.D. candidates today know very much about what disease-control chemicals are available, their generic and trade names, toxicity, formulations, uses, and compatibility with other pesticides. This is a brand new world for the embryonic extension specialist. When spare time is available (?), there is an endless stream of trade magazines to digest. Why? Farmers and other growers read articles about new diseases, new chemicals, and equipment changes.

After 2 years of clinic work, fact sheets, and radio, TV, and other duties, the student is taken to some grower meetings—first to listen to the experienced plant pathologist, then to handle meetings alone, without backup to handle tough questions. About this time the person should become involved in writing an annual report or plan of work and perhaps attend a series of meetings accompanied by extension specialists in other disciplines. The graduate assistant is now ready to handle the job on his or her own.

Course work and research. The prospective extension specialist should take the *same* course work as any graduate student, including statistics and at least one computer science course. In addition, it might be suggested to audit classes in audiovisual equipment, agricultural communications, and pesticide equipment and calibration. Additional courses, depending on the student's interests and weaknesses, might be beneficial.

The person aiming for a career in extension should complete a conventional thesis problem. Ideally, the research is done in an applied area stressing control and/or epidemiology.

Extension specialists commonly move from full- or part-time extension to a teaching-research appointment; to agribusiness, such as the testing and development of new pesticides; or to private consulting. A person well grounded in diagnosis and control who can communicate on all levels has opportunities for foreign service, positions with state or federal governments in the areas of quarantine enforcement, certification of planting materials, and so forth.

An extension assistantship trains a person to do extension work and teach (extension *is* teaching), do research, and perform any job a plant pathologist may be called on to perform.

Dedication. The long hours and the need for dedication must be impressed on the beginning graduate extension assistant. Those who "just want to get by" should be eliminated from the program as soon as possible. A graduate student who works only 20 hours per week on an assistantship will never be much of an extension plant pathologist! We expect 40 hours or more per week from our assistants during much of the growing season, with the load reduced during the balance of the year. We try to compensate by paying their expenses to regional and national meetings and by encouraging them to play hard, too.

Does an extension assistantship pay off? Former extension assistants at Illinois now include a state project leader, three state specialists, two fungicide development project leaders for major corporations, the president of a seed company, plus a farmer-professor and past state project leader. Yes, an extension assistantship does pay off!