

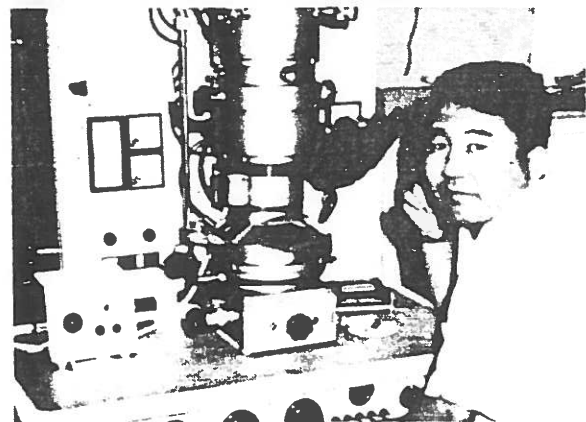


Aerial application of fungus spores gives control of northern jointvetch, a weed in rice fields

The Department



Above: Dr. Hewitt, first head of the department. Below: Controlling pathogens of forest trees



The electron microscope in the Virology-Biocontrol Lab, one of the centers of virology research

By D.A. SLACK, Head

Plant diseases are of prime concern to Arkansans, because they reduce both the quantity and quality of our food and fiber products. Since the establishment in the mid 1800's that plants, animals, and man can be infected by microorganisms such as bacteria and fungi and become diseased, a branch of science has developed to combat these problems. With this background, the Department of Plant Pathology was established at the University of Arkansas in 1909.

J. Lee Hewitt was named first professor of plant pathology and Head of the Department, a position he held until 1917. With Paul Heyhant he wrote the first bulletin concerned with plant diseases, published by the Agricultural Experiment Station in 1911. In 1917, Hewitt was named to head the newly created State Plant Board with the title Chief Inspector.

When Hewitt resigned, Dr. John A. Elliott came from the University of Illinois to assume headship. Under his direction, the program of research and teaching in plant pathology expanded. He pioneered the treatment of cottonseed for control of seedling diseases, and first described the *Ascochyta* disease of cotton in this country. Also he started the program of breeding disease-resistant crops with the selection of resistant germplasm and development of tomato lines resistant to *Fusarium* wilt. He suffered an untimely death in 1923.

Dr. Harry R. Rosen joined the department in 1918. Although Dr. Rosen contributed in immeasurable ways during his 40 years of service, he remains best known for the development of disease-resistant varieties of winter oats and for his research on roses and fireblight of apple.

Dr. V. H. Young accepted the position as Professor and Head of Department in 1923. Until his retirement in 1955, Dr. Young performed most of the teaching in plant pathology, while devoting most of his research effort to diseases of cotton.

In 1931 the appointment of Dr. E. M. Cralley completed a 3-man-department. As a result of his research on rice, he became an international authority on rice diseases and culture. He succeeded Dr. Young as Head of Department in 1953, and was named director of the Arkansas Agricultural Experiment Station in 1959, a position he held until he retired in 1973.

Dr. J. P. Fulton became a member of the department in 1947, and served as Head from 1959 to 1964. He is now a professor in the department. The strong virology program in Arkansas is a reflection of Dr. Fulton's leadership. Dr. D.A. Slack, who joined the department in 1952, was named Head in 1964.

During the 1950's and 1960's, the severity of disease problems of various crops and the need to provide more expertise in nematology, virology, forest pathology, and other areas resulted in expansion of the work into new programs of research and teaching. The department presently numbers 14 senior faculty and 20 research and graduate assistants. In addition 2 Extension plant pathologists are employed by the Cooperative Extension Service in Little Rock.

The department's present research program is concerned with plant pathogens, such as bacteria, fungi, mycoplasma, nematodes, and viruses. Work in these areas is of basic research interest and also oriented to solving problems in Arkansas, such as diseases

Plant Pathology

of cotton, corn and grain sorghum, oats and wheat, rice, soybeans, forest trees, and fruit and vegetable crops. This research is conducted under 37 projects approved by the Cooperative State Research Service, the coordinating agency for research at Land Grant institutions.

The excellence of the program in plant pathology is attested by over 750 scientific publications by the present faculty; more than 950 papers have been published by the department since its establishment. Graduate students, while earning Master of Science and Doctor of Philosophy degrees, contribute to the scientific production of the department. Former graduate students have earned enviable national and international reputations.

The sophisticated needs of today's technical agriculture require interaction and cooperation among professionals in various disciplines in coordinated or "team" research. Thus the development of disease-resistant crop varieties is a cooperative effort between plant pathologists and plant breeders. The excellence of this interaction has resulted in release of many varieties of alfalfa, barley, corn, oats, rice, soybeans, wheat, tomatoes, and other vegetable and field crops.

In our Virology-Biocontrol Laboratory, plant pathologists and

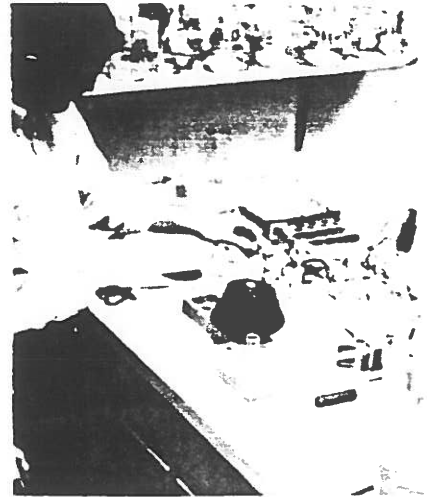
entomologists interact in research on insect viruses and use of these as biological-control agents. A new research program on biological control of weeds in rice developed as a cooperative program between the Department of Plant Pathology and ARS-USDA.

In addition to traditional sources of support for the Agricultural Experiment Station, the excellence of the research program in plant pathology has attracted grant funds from the National Science Foundation, Cooperative State Research Service and other USDA branches, and over 20 agricultural industries.

The role of plant pathology in maintaining the health of plants in Arkansas is sometimes overlooked. Without fungicides and nematicides, and programs for their application and safe use, many crops would be unproductive or of poor quality. The quality of seed produced in Arkansas is enhanced by measures that control plant diseases.

Certification, such as our program on virus-free strawberry plants, provides growers in Arkansas and other areas with disease-free plants to set out. Such cultural practices as rotation and water management in rice resulted from research on plant pathogens and their control. Knowledge of viruses and other plant pathogens gained in the research laboratory provides information for present and future programs of disease control.

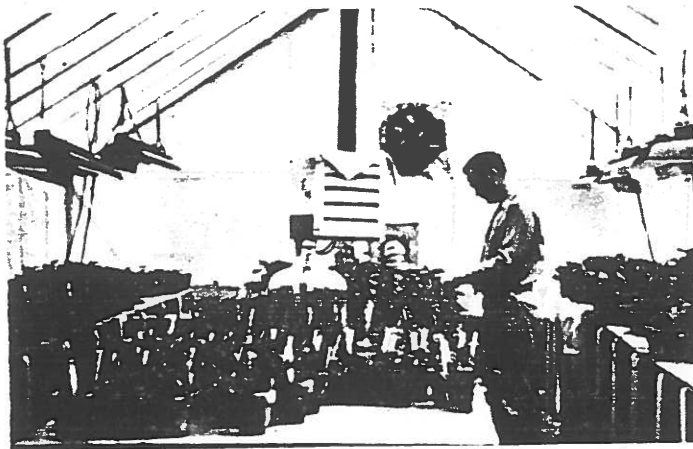
During the next 100 years even more input from research and technology will be needed if our farms and forests are to meet our needs for food and fiber. Plant pathologists are eager to accept this challenge as an integral part of the research, teaching, and extension programs of the Division of Agriculture.



Laboratory studies also are needed to develop methods for controlling viruses



Field studies are conducted on cotton diseases (above) and vegetables (below); work also is carried on in the greenhouse (below, left)



University of Arkansas Graduates Affiliated with
the Department of Plant Pathology

<p>1925 J.G. Horsfall, B.S.</p> <p>1926 O.D. Burke, B.S.</p> <p>1928 A.B. Groves, M.S. J.R. Large, M.S.</p> <p>1929 A.L. Smith, M.S. L. Shaw, M.S.</p> <p>1937 J.C. Dunegan, M.S.</p> <p>1938 R. Setzler, M.S.</p> <p>1939 J.R. Shay, B.S.</p> <p>1940 G.S. Pound, B.A.</p> <p>1941 G.W. Bruehl, B.S.A.</p> <p>1942 A.B. Wiles, M.S.</p> <p>1945 M.E. Gallegly, B.S.</p> <p>1949 H.E. Smith, B.S. N.D. Fulton, B.S.</p> <p>1950 E.A. Curl, M.S.</p> <p>1951 R.G. French, M.S. R.O. Hampton, B.S.</p> <p>1953 M. Orsenigo, M.S.</p> <p>1954 G.E. Templeton, M.S.</p>	<p>1955 L.V. White, M.S.</p> <p>1956 R.D. Riggs, M.S. O.J. Dickerson, M.S.</p> <p>1957 F.G. Rorie, M.S. A.E. Trujillo, M.S. J.M. McGuire, M.S.</p> <p>1958 R.W. Toler, M.S.</p> <p>1959 M.L. Hamblen, M.S. J.R. Montgomery, M.S.</p> <p>1960 J.W. Hendrix, M.S.</p> <p>1961 B.J. Moore, M.S.</p> <p>1962 J.A. Spencer, M.S. L.L. Black, M.S.</p> <p>1963 A. Worawisitthumrong, M.S.</p> <p>1964 C.A. Diaz, M.S.</p> <p>1965 O.W. Barnett, M.S.</p> <p>1966 J.P. Snow, M.S. G.W. Wagner, M.S. N.I. Sauer, M.S. P. Amatya, M.S.</p> <p>1967 R.M. Bramble, M.S. C.I. Grable, M.S.</p> <p>1968</p>	<p>J.M. Aist, M.S. S. Aist, M.S. S.J. McKown, M.S. V. Armentrout, M.S.</p> <p>1969 S.V. Corbin, M.S. N.L. Dodd, M.S. K.E. Damann, M.S.</p> <p>1970 S. Tontyaporn, M.S. D. Steirs, M.S. D.A. Rickard, M.S. K.S. Kim, Ph.D.</p> <p>1971 S.A. Slack, M.S. R. Browning, M.S. F.L. Wright, M.S. G. Herbaugh, M.S.</p> <p>1972 U. Dechmanni, M.S. E. Halk, M.S. R.S. Sanderlin, M.S. F.A.M. Lee, M.S. J. Daniel, M.S. K.E. Jackson, M.S. P. Surin, M.S. K.E. Spencer, M.S. B. Moore, M.S.</p> <p>1973 M.P. Grisham, M.S. S.H. Woodhead, M.S.</p> <p>1974 M.A. Smith, M.S. W.D. Gubler, M.S. R.E. Sterne, M.S. L.B. Douthit, M.S.</p> <p>1975 L.D. Smith, M.S. C. Shakespeare, M.S.</p>
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