

Progress—How Long Does It Take?

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Progress means different things to different people. Webster defines progress as "a forward or onward movement . . . : ADVANCE; gradual betterment." To those who do not comprehend—and thus fear—technological progress, it means a need for extensive regulations, and these actually suppress progress. Some categorize progress in the agricultural chemical industry in terms of time and money; for example, \$15 million and 7 years to introduce an agricultural chemical. To the plant pathologist and to workers

in related disciplines, the continuous expansion of our knowledge is progress. From this perspective, progress is a never-ending process.

Progress in the form of increased crop production is necessary to meet the need for food and fiber by the ever-increasing world population. Historically in the United States, crises have spawned determination for finding solutions, with dramatic progress the result. We are basically at this point today but seem to lack leadership. I feel solutions and progress require interdisciplinary action. The broadly trained plant pathologist is potentially one of the best qualified to exercise this interdisciplinary leadership.

Bold, unconventional approaches are needed to achieve the

most efficacious crop production systems. One excellent model is reflected in the California strawberry farmer's production record, which has increased over the past four decades from 3 to 22 tons per acre. This was accomplished with monoculture, moderate but optimal chemical use, breeding primarily for quantity and quality, and other novel agronomic and horticultural practices. The ingenuity of such innovations can best be described as integrated crop management (ICM). Research and progress directed toward ICM have the potential for increasing crop production, conserving resources, and reducing environmental concerns. Leadership of ICM programs requires broad comprehension, and a good plant pathologist has this capability.

If we are to look forward to a bright tomorrow, we must increase and improve our interdisciplinary research on specific ICM programs, with the objective of maximizing productivity in a manner consistent with economics, resources, and environmental concerns. Crop monocultures, generally regarded as "taboo" by agriculturists, have yielded some of the greatest increases in crop productivity. "Disease-suppressive" soils generally result from intensive cropping, frequently monocultures with specific crops. Symbiotic mycorrhizal fungi are being ignored by those who are best qualified to use them effectively—the plant nutritionists. The list of such examples is a long one.

We must not restrict our vision of what is possible. We must be bold in our research, unhampered by classical concepts. We must use ingenuity, be innovative and cooperative, and incorporate all research disciplines impacting on the health and productivity of plants. Let us be leaders. Our future depends on our progress—and how long it takes. PLANT DISEASE is well adapted for reporting such progress.