

A forward thinker who's a little out ahead

NEWARK, Del. — Agronomist William H. Mitchell retired Dec. 31, after more than 35 years of service as a teacher, researcher and extension specialist at the University of Delaware. Described by one long-time colleague as a "forward thinker who's always a little out ahead," Mitchell is well-known for his innovative approach to production problems and his willingness to adopt new agricultural technologies to solve them. A native of New England, he possesses a generous amount of that legendary commodity, Yankee ingenuity, too.

During his tenure at the university, the agronomist participated in many successful research and extension programs involving forage, turf, corn, and soybean production. He is probably best known for his work in the areas of crop nutrition, no-tillage and irrigation. He also was an inspired teacher with a knack for involving both undergraduate and graduate students in research. Many of his former students are now working in agriculture, particularly in the chemical industry.

As a boy growing up on a New Hampshire farm, Mitchell never dreamed that one day he would help educate other farmers. "If it hadn't been for an uncle who was a real scholar and taught in a private school all his life, I'd probably still be farming. He took a special interest in me and he's the one who encouraged me to go to college."

Mitchell's education was interrupted by the outbreak of World War II, which he spent in China as a pilot with General Claire Chennault's famed Flying Tigers. He also spent two years as herdsman on a 200-acre dairy farm in Connecticut, and two more as headmaster of a high school in Henniker, N.H.

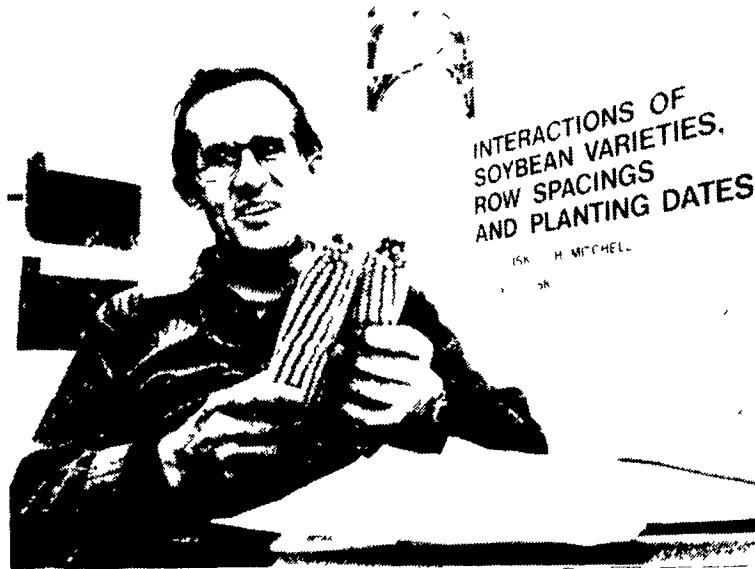
He joined the University of Delaware's College of Agricultural Sciences in 1949 as extension agronomist and researcher, and later received a teaching appointment as well.

One of the first things Mitchell got involved in after his arrival in Delaware was the extension sponsored Greener Pastures program. Modeled after a similar New England program, its purpose was to help local dairy farmers improve pasture and roughage quality through the adoption of new forage research and so improve milk production.

Another of Mitchell's major commitments during the 1950s was a joint extension/industry project called the "100 Bushel Corn Club." Many older farmers probably remember this educational effort, which was aimed at boosting corn yields through the application of new technology.

In the area of turf research, during the 1970s Mitchell introduced a method for speeding commercial sod production by incorporating plastic netting into the soil at planting time to serve as support for the young grass. With netting, sod can be harvested six months after seeding, rather than the usual two years. The technique, now in commercial use on some area sod farms, also saves valuable topsoil and gives a lighter, stronger, more manageable product. He also showed that, with proper management, sewage sludge and recycled solid waste can be used as growing mediums for sod.

As an agronomist, Mitchell did considerable work on the use of winter legumes as a nitrogen source, once a standard farming practice. As commercial nitrogen



Agronomist Bill Mitchell reminisces about his long career helping Delaware farmers. The former researcher, teacher and extension specialist retired Dec. 31 from the University of Delaware after 35 years of service.

supplies became more expensive, he encouraged growers to resume using these crops and demonstrated the overall benefits of leguminous covers in no-till corn production.

He was also one of the first scientists to point out the economies that financially hard-pressed farmers could realize by fertilizing crops on the basis of soil tests rather than habit and by taking advantage of the tremendous residual base of potassium and phosphorus in many Delaware soils. To help corn producers get maximum benefit from starter fertilizers, he conducted considerable research on the effects on seedling development and yield of various nitrogen forms and their placement in the seedbed.

Long a champion of irrigation, in the late 1970s Mitchell helped organize the extension service's First State Irrigation Program. This program was designed to help corn farmers obtain consistently higher yields under overhead sprinkler systems by identifying factors, other than water, which limit yield. The work involved looking closely at the corn plant's nutritional needs through periodic tissue analysis, then modifying cultural practices to meet these needs.

A few years later the agronomist conducted further studies on the effects of irrigation on crop performance, during a forage research project sponsored by the University of Delaware Research Foundation on the George Weymouth horse in farm in Middletown. Corn prices were severely depressed at the time and Mitchell and former extension farm management specialist W.T. McAllister decided to find out whether there was a profitable way farmers could grow hay as a cash crop for the state's then sizeable race horse industry.

"When we started the project, one of the first things we did was dig a 2 million-gallon pond and put sprinkler irrigation on 100 acres of red clover, timothy and alfalfa," Mitchell recalled. As a result of this project local breeders and trainers abandoned their prejudice against alfalfa hay and began feeding it to their horses.

Mitchell also studied horse preferences for different hays and found that chopping and pelleting made the less favored kinds more palatable. As a result, a substantial number of Delaware farmers went into hay production for the cash market.

Another of the agronomist's long-standing research interests was drip irrigation as a more efficient means of delivering

precious water to field crops. "In comparing trickle irrigation to overhead sprinkler systems, you just had to look down the road to the time when water would be in short supply, to realize drip irrigation would eventually have a place in row crop production," he said.

In the early 1960s, following the lead of a graduate student who had done research on the technique in Texas, Mitchell punched holes in some plastic tubing and set up a subsurface system for corn at the Georgetown substation. Results the first season were dramatic — 167 bushels an acre with subsurface drip irrigation versus 7 bushels without water. So many people came to look at the corn that they wore paths around the plots, he recalled.

"I was so impressed that I felt we should be using water in our test work so that it wouldn't be the limiting factor in yields. When we started using drip irrigation as the water source, we were very apologetic because people weren't irrigating then and they didn't think the results meant anything," he said.

Mitchell is currently writing up the results of a corn fertility study with subsurface drip irrigation, which he started 18 years ago on the University of Delaware's Newark research farm. A preliminary look at the results suggests this study will shed further light on the availability of phosphorus and potassium to corn grown on Delaware soils and the value of tissue analysis as a tool in managing crop fertility.

The agronomist said he feels it's just a matter of time before subsurface irrigation becomes accepted in the production of row crops like corn. Cotton farmers in the U.S. have already begun to use it, and as the technology improves, the practice should attract others.

"In extension educational work you never know when an idea will take hold," Mitchell said. "Economic reasons are often behind people's slowness to adopt an idea. You can't do a dang thing until the industry comes along with the equipment or — in the case of no-tillage — the chemicals. After you have the materials, you need someone who can put the package together. Given the right tools, there's no telling what people can accomplish."

Looking back, the most satisfying part of his work over the past 35 years has been helping people, he said. "It takes time before you know whether you've really helped them, but it's very gratifying to see young people come along and then become established farmers."

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