

Agricultural mid-west corn belt tours conducted

UNIVERSITY PARK — Several graduate students and staff members in soil chemistry and agronomy at Penn State took part in recent tours of the nation's mid-west corn belt in conjunction with national meetings of the American Society of Agronomy and Soil Science Society of America held recently in Fort Collins, Colorado.

The tours were conducted by Dr. Dale E. Baker, professor of soil Chemistry at Penn State, and covered 16 states in 15 days. Funds for the trip came from a teaching and research industrial grant.

"The tours were designed to relate soil chemistry and soil management problems to the use of agricultural land," Dr. Baker said, adding that "the findings made it very clear that crop production practices are governed by the land resources in various areas."

The touring group concluded that some soil conservation practices are

madequate for sustained agricultural production on valuable corn belt soils, according to Dr. Baker. Observations in areas with deep, wind-blown soils ranged from gully erosion in parts of Iowa to areas in Missouri with complete control of erosion by terracing.

At a meeting in Illinois two years ago, Dr. Baker had reported that 30 pounds of soil was lost from the Mississippi River Basin for every dollar received from exports of cereal grains and soybeans. At that time he questioned whether the U. S. could afford such a trade-off.

"Results of research conducted cooperatively by engineers, microbiologists, agronomists, and other scientists on no-till corn in Nebraska, Kentucky, Pennsylvania and other states offer the only approach to erosion control without terracing," he commented.

During the Colorado meetings, before and after

the tours, Dr. Baker organized three half-day symposia on "Chemistry in the Soil Environment." The Penn Stater is national chairman of the soil chemistry division of the Soil Science Society of America. Papers presented in these sessions stressed the need to relate fundamentals of chemistry, physics, and mineralogy to solve soil management problems.

Papers on research at Penn State were presented by Dr. Baker and Douglas Beegle of Roaring Spring and Jeffrey Risser of Leola. Beegle is a graduate student in Chemistry while Risser is a doctor of philosophy candidate in agronomy.

Other Penn Staters on the

tour included Michael Amacher of Bellefonte; Leon Marshall of Howard; Willie T. Doty, Christina Hunt, and Ann Wolfe of State College; Betsie Blumberg of Philadelphia; and Gary Lehrsch of Altoona.

Examining agriculture in Nebraska, the group found that an abundant supply of water for irrigation is providing a relative advantage in producing corn and alfalfa. On the other hand, newly established and large pivot irrigation systems on the semi-arid sand hills of Nebraska showed the need to study and define the trade-offs in using land and water resources.

In the lowland delta of the

Mississippi River, in the boot-heel section of Missouri, the group studied the intensive crop production for corn, cotton, and soybeans where 10-row equipment and 1600 acres per farm are now the typical operation.

"These operations are 100 times the acreage operated by sharecropper families farming here with mules as late as the 1940's," Dr. Baker pointed out.

At the Henderson Mine of Climax Molybdenum in Colorado, the group observed the successful program of establishing vegetation on old refuse or tailing ponds and slopes of the abandoned Urad mine.

About 1.5 million tons of rock from the Henderson mine were transported to the Urad site to stabilize the Urad tailings and provide parent material for soil development.

By adding wood chips and sewage sludge from Denver on the surface of the development rock, more than 60 vegetative and tree species were established to prevent erosion. While the cost of reclamation seemed tremendous, it was evident that scars of industry can be healed even at an elevation of 10,000 feet where the growing season is very short.

The tour impressed on the

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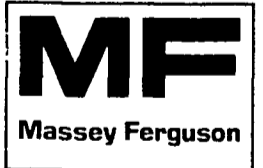
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