



## KNOWLEDGE IN THE MAKING

**IN RENEWABLE NATURAL RESOURCES**, Dr. Paul R. Krausman is monitoring mule deer and bighorn sheep populations near completed, but still dry, sections of the Central Arizona Project Canal. Deer from mountain areas 50 to 100 miles west of Phoenix get into the canal, and some do not get back out up the 16-foot, sloping concrete walls. This year, three have been found dead and three others nearly dead in the empty waterway. Temperatures at the bottom often reach 125 degrees F. When Colorado River water starts flowing through the canal towards Phoenix and Tucson, escape will be even harder for trapped animals. Phase One of Krausman's work is to identify the points along the canal where it is an obstacle to movements of deer or sheep. Phase Two will be design, construction and testing of structures at those points to help the animals cross safely. One type tested will be a 24-foot-wide bridge. This project was called for in the environmental impact study for the Parker-Phoenix canal. This fall, Krausman is expanding his research into the Picacho Mountains near the planned path of the Phoenix-Tucson leg of the canal.

**IN SOILS, WATER, AND ENGINEERING**, irrigation specialist Allan D. Halderman is pursuing two lines of work spurred by passage of Arizona's new groundwater law. Under the law, the State Department of Water Resources will establish the water duty, or the amount of water required to grow crops in groundwater Active Management Areas. The department will also prescribe water-measurement devices to be used on pumps in regulated areas. Halderman is refining the values of consumptive water-use for several crops. He is adapting earlier consumptive use studies to conditions in different parts of Arizona, and adjusting them to fit newer growing practices and crop varieties. Halderman and county agricultural agents will be demonstrating types of devices for measuring the volume of water pumped from wells. They plan to provide growers with information about measuring equipment appropriate to their individual needs. Halderman and the Extension agricultural agents in each county are helping to answer questions and distribute information about the new law.

**IN PLANT SCIENCES**, Dr. Albert K. Dobrenz, Dr. Dale Smith and Dr. Melvin H. Schonhorst are developing an alfalfa that will tolerate salt stress. They expect the stress tolerance to improve alfalfa yields even where salty irrigation is not a major problem, by strengthening plants against the minor stress conditions existing in any field. Also, a salt-tolerant alfalfa could help growers in Arizona and elsewhere who depend on high-salt groundwater for irrigation. In the agronomists' first generation of selection from the commercial variety Mesa-Sirsa, only one-tenth of one percent of the plants flourished under irrigation with water half as salty as the sea. Now, after four generations of selection for salt tolerance, 30 percent of the plants germinate and grow with that water. Yields from some of the salt-tolerant selections are high. One placed third in a yield test of 20 alfalfa varieties, using non-salty irrigation water. It outyielded commercial Mesa-Sirsa in the test.



**This mule deer, in weak condition, was found in the CAP canal near Belmont Mountains. The radio collar was put on afterwards.**

**IN AGRICULTURAL ECONOMICS**—Dr. Scott Hathorn, Extension farm management specialist, prepares a series of publications each year to help growers anticipate production costs for their specific area and crop. The crop budgets for eight counties, plus individual citrus budgets for Yuma and Maricopa counties, itemize production costs per acre in detail. Hathorn and the county agricultural agents who co-author the budgets get cost information from growers; farm machinery dealers; suppliers of seed, chemicals, energy and services; county and state governments; and sources of credit and insurance. Separate budget booklets are prepared for costs of operating machinery and pumping groundwater, though such costs are also tallied in the individual crop budgets. All these publications are designed to help growers make decisions about crop financing, machinery management and ownership, crop operations, and future changes in the size of the farm. They also aid bankers and investors making decisions about farm financing. The crop budgets are released in the spring. Hathorn plans to include new vegetable and pecan budgets in next year's series. The published budgets are available from county Extension Service offices and from Dr. Scott Hathorn, Department of Agricultural Economics, University of Arizona, Tucson 85721.

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## ARIZONANS YOU SHOULD KNOW

**Dr. Norma J. Redeker** became Home Economics Program director for the UA Cooperative Extension Service in June. She came here from Kansas State University, where she had been associate state leader of Quality Living Programs. Redeker grew up on an east Kansas farm and began her Extension career as a district specialist with farm and home management programs in south central Kansas. She has a masters degree in home management and family economics from KSU and a doctorate in adult educational program management from the University of Northern Colorado. The Extension Home Economics Program in Arizona includes 10 state specialists, 22 county home economists, 58 paraprofessional aides, plus support staff. Redeker will help the program emphasize the big issues of inflation and energy. "We are helping people make choices about styles of living that adjust to the new conditions we are all facing, especially in housing and transportation," she said. Another growing area in the Home Economics Program is nutrition and health.

Four Arizonans who have volunteered hundreds of hours to lead and help 4-H youths received leaders awards at the 1980 State 4-H Roundup in July. The Arizona County Agents' Association presented the awards to **Cindy Peterson** of Flagstaff, **Marge Bayless** of Phoenix, and **Roy and Millie Young** of Willcox. Peterson has led 4-H foods project groups for 14 years. She has been chairperson for the Coconino County 4-H Home Economics Committee, has been in charge of the 4-H Building for the county fair and has chaperoned delegations to the State 4-H Roundup in Tucson. Bayless, also in her 14th year as a home economics leader, has been horticulture superintendent for the Maricopa County Fair, adviser to the county 4-H Teen Council, and a leader in the Maricopa 4-H Development Corporation. She is now the 4-H representative on the county's Extension Advisory Board. The Youngs have been community 4-H leaders for several years in rural Kansas Settlement. Roy has led beef groups; Millie foods and public speaking. Both have helped plan county fairs and been officers in the Cochise County 4-H Leaders' Council. Roy has chaired the county Extension Advisory Board, and Millie has advised the county Junior Leaders' Council.

Pinal County Extension Agricultural Agent **Sam Stedman** has earned the 1980 Distinguished Service Award from the National Association of County Agricultural Agents. His citation makes special note of his strong weed-control program with Pinal County cotton growers. Stedman, a Yuma native, has worked with the Pinal County Extension Service since 1964. He is now county director, heading a staff of 19. He has UA degrees in entomology and weed science. In 1970, Stedman arranged the demonstration that introduced the cotton module builder in the county. Later, he helped organize the Pinal County Pest Management Program. Last year, he demonstrated the rope-wick applicator for Johnsongrass control.

**E.E. Ho Fung**, a UA doctoral student in nutritional sciences, will study in West Germany for a year as the recipient of the Alexander von Humboldt Scholarship. She was selected out of a field of applicants from throughout the United States. Her stipend from the Humboldt Foundation of New York City will be \$4,000, plus round-trip transportation. Fung plans to leave in January for a year at the Georg-August University at Gottingen, West Germany. Her studies in Arizona focus on methods of evaluating nutritional education. She looks for the relationship between increases in nutritional knowledge and changes in eating habits or health status.

**Larry Sullivan**, Cochise County agricultural agent since 1976, has received a national award recognizing accomplishments of county agents with less than 10 years of service. It is the Achievement Award from the National Association of County Agricultural Agents. Sullivan's work has helped Cochise County become the "corn capital" of Arizona, with about 35,000 acres in the crop, and average yields near 7,000 pounds per acre. He had a hand in demonstration plots to determine what corn varieties are best suited to local conditions, and in tests leading to recommendations for the control of the Southwest cornborer. Sullivan has worked with the UA Cooperative Extension Service since 1973, initially at Window Rock on the Navajo Reservation. He has UA degrees in animal science and biochemistry and nutrition.