Rising Costs of Raising Water Add to Conservation's Allure

Most industries can adjust the price of their product when production costs go up. Farmers, however, have little say in the price of their crops. The costs of much irrigation water in Arizona have been rising fast. When crop prices do not climb equivalently, farmers get squeezed.

That squeeze has been altering the status of water conservation. It is not just stewardship of natural resources for future users; for farmers paying high water costs, it is a simple economic necessity.

The 1980 Groundwater Management Act puts the force of law behind conservation. However, the force of economics, strengthened by the new law's pumpage fee, could effect many farmers more directly than the law's actual restrictions on water use. Also, measures that a farmer takes to meet those restrictions, such as installing a new irrigation system, must be affordable within the farmer's budget of total production costs and crop value.

The dropping water tables mapped on page 4 are one factor in rising costs. Increasing energy costs can take more of the blame. Prices for major Arizona crops have not kept pace with energy costs in the past decade (see Figure 9). For some central Arizona farmers who have long-term contracts for hydroelectricity, energy costs have not yet climbed steeply, but will when contracts expire in the next few years. Price increases are accompanying deregulation of natural gas for pumps burning that fuel.

About two-thirds of the energy used by irrigated agriculture in Arizona in 1978 was as electricity and natural gas used for pumping water, by USDA estimates.

In the five years following 1975, costs of water for growing alfalfa in the Queen Creek area southeast of Phoenix jumped from 54 percent of total variable costs of production to 65 percent. For growing cotton, water's share of variable costs rose from 35 percent to 40 percent. For wheat, from 46 to 58 percent.

Irrigation, including labor, takes 30 percent or more of the variable costs of growing cotton on typical farms in Pinal and Cochise counties, about 20 percent in Pima and Maricopa counties, and less in Graham and Yuma counties. These figures derive from crop budgets prepared by UA agricultural economist Dr. Scott Hathorn. For grains, irrigation costs are a bigger share of the total. For alfalfa, they surpass 50 percent in many areas.

Both law and economics mandate that Arizona farmers find ways to conserve water. The challenge to farmers is to do so without going broke in the process.

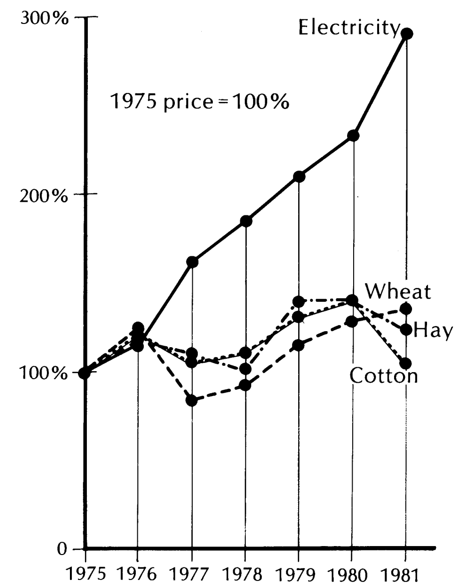

Figure 9: Price Trends for Electricity and Major Crops. The cost of electricity in Arizona has been rising much faster in recent years than the prices that Arizona farmers receive for their major crops. The difference affects farmers who use electrically pumped groundwater to grow those crops. Natural gas and diesel fuels for pumping have also increased in costs. Sources: Electricity costs for Arizona from **Agricultural Prices, Annual Summary, 1981,** USDA Crop Reporting Board. Crop prices from annual **Arizona Agricultural Statistics,** Arizona Crop and Livestock Reporting Service. Cotton prices are for upland lint. Wheat prices reflect annual proportions of durum and other wheat.