

Agriculture and Water Quality



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CALIFORNIA'S GROWTH has been closely coupled to the use and development of its water supply. Today its economy is integrally linked to a complex and interrelated water resources system.

Population growth has brought competing and rising water demands for residential, recreational, industrial, and agricultural uses. Growing requirements for electrical energy and the impetus to locate power plants away from coastal areas because of environmental concerns will mean that substantial additional quantities of water will be needed for plant cooling. As growth and development continue, the problems of maintaining good quality water are beginning to catch up with long-term problems of water supply and distribution. We are learning that clean water, like some other basic resources, cannot be taken for granted.

It is apparent that preservation of the quality of the state's water resources is intrinsic to the quality of life for all Californians. It is clear that emerging water quality problems in some areas threaten future production of food and fiber. And it is clear that preservation of water quality for the future involves more than just municipal and industrial wastewater treatment.

Agriculture has a large stake and a special responsibility in water quality control because it uses more than 85% of the state's water in the production of food and fiber. Irrigation is the key factor in turning California's semiarid land into one of the most productive agricultural areas on earth—more than 8 million acres are now under irrigation. But irrigation is also a factor in creating the state's most massive and difficult water quality problem—the matter of salt balance.

Agriculture has a special relationship to the water quality problem on several counts. Water used for industrial and municipal purposes is easier to control because it is maintained largely within closed systems and because the quantities involved are relatively small compared with the large volume used by agriculture.

On the other hand, water used for food and fiber production is spread over large open land surfaces and its fate is affected

by weather, soils, slope, vegetation, geology, and drainage. Because of the vast quantities used and the tremendous volume of salts involved, a solution for the water quality problem in agriculture is yet to be found.

Agriculture needs to be concerned about future water quality not only because it is the major user but because poor quality makes for lowered production and increased costs. As agricultural production is intensified because of land use pressures and rising food demands, the problems of agricultural pesticides, fertilizers, animal wastes, sediments, and salt accumulation will increase. These factors all make our job of maintaining good water quality in our downstream drainage basins increasingly difficult.

We have sufficient knowledge to achieve reasonable management or control of the first four possible problems. But the possibility of contamination of underground and surface water by salts is a particularly difficult problem because the concentration of salts in water and soils necessarily accompanies the growing of all plants.

The State Water Resources Control Board is in the process of preparing comprehensive water quality control plans for the 16 hydrologic basins in the state. This planning effort by the state requires answers to some very difficult technical questions. In response to requests, I appointed a special Committee of Consultants to make available the expertise of both Extension and Experiment Station personnel to answer questions raised by the planning engineers and the personnel of the regional and state water quality control boards.

The University's role has been to provide technical information, but the development of the plans is the responsibility of the consulting firms. Plans will be reviewed at workshops and public hearings now being scheduled for the next several months by the regional boards.

Our Cooperative Extension staff are and will continue to be active in educational programs concerning water quality planning. I urge those of you who are involved in agricultural production, and other concerned citizens, to follow these matters closely.