



Will Arizona have a water problem in the future?

by Sol Resnick, Director — U of A Water Resources Research Center

With ground water levels dropping in most of Arizona . . . for example, the ground water we are now drinking in Tucson is about 10,000 years old . . . one can certainly take a pessimistic view with regard to water for the future in Arizona.

But let us look at possible sources of additional water and water conservation programs that will furnish the water for Arizona's future needs.

Rain Making

After 35 years of research, it looks like in a few places in the world, the snowpack can be increased by 10 to 15%. Luckily for us, one of those places is the western slope of the Rocky Mountains, which furnishes about 95% of the flow of the Colorado River. This means that about 1.5 million acre feet per year of additional water would be available for a project like our Central Arizona Project (CAP).

Desalting

Many different methods of desalting, especially for brackish water, have been developed, but they are all expensive. The cheapest method to date for desalting water costs about 400 dollars per acre-foot, compared to 300 dollars per acre-foot of ground water delivered at the kitchen tap by the City of Tucson.

Importing Water

Bringing icebergs up from the Antarctica by means of ocean currents to provide water to Southern California looks very feasible both technically and economically. Do not be fooled by what you read concerning icebergs for

Saudi Arabia; as the high cost is due to the lack of suitable ocean currents, and they need to wrap the icebergs in six feet of plastic to prevent melting in the warm ports. Icebergs for California are good for us in Arizona as, presumably, if they get icebergs, which are fresh water, they will release their present quota of Colorado River water, which would become available for a project like the CAP.

And, of course, the CAP will eventually bring 1.2 million acre feet of water per year into Central and Southern Arizona for all uses.

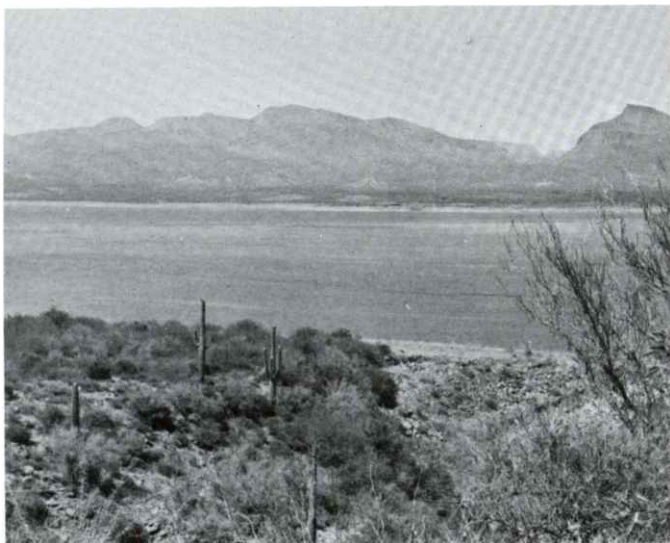
Increasing Irrigation Efficiency

Irrigated agriculture uses 89%, or seven out of eight million acre feet per year, of all the water used in Arizona. And this is used at about 50% efficiency. Since irrigation efficiency in Israel is at about 90%, the potential savings in water are great if the state ever gets the laws that will require the irrigators to use the water effectively.

Water Harvesting

With about an average 79 million acre feet per year of rain and snow over Arizona, we have a lot of opportunity to catch water for all uses. For example, one-half acre of plastic covered with gravel will provide enough water for about 100 head of cattle, if the water is stored in earth tanks that have a liner to prevent seepage and a plastic cover to prevent evaporation. Dr. C. B. Cluff of the Water Resources Research Center has developed a tractor-drawn device that provides a firm bed for plastic that is unrolled and then covered with gravel, all in one operation.

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Evaporation Control

Losses of water by evaporation is great in the hot, arid Southwest. For example, the estimated loss by evaporation from Lake Mead and Lake Powell, two lakes on the Colorado River, is about 1.5 million acre feet per year. Dr. Cluff has developed floating plastic rafts that will prevent evaporation, up to 100%, with a complete covering. Fish are affected when the covering is greater than 50%.

Seepage Control

Dr. Cluff has found that a plastic liner kept in place with old rubber tires, with both being covered with sand, is a

good method, although expensive, for preventing seepage from an earth pond.

Artificial Ground-Water Recharge

Storm runoff or treated sewage effluent can be conserved by artificial ground-water recharge using spreading, pit, or well recharge methods, depending namely on the geological conditions. Spreading is the lowest in cost but requires a deep layer of sands and gravels to the ground surface; recharge pits are satisfactory if there is a deep layer of sands and gravels near the surface of the ground; and recharge by means of wells is expensive as the water to be recharged requires a thorough cleaning.

Reuse of Water

The reuse of treated sewage effluent and industrial waters, such as, cooling water, should be an important consideration in any water conservation program. Each acre-foot of treated sewage effluent contains about five dollars worth of plant nutrients, hence, it is ideal for use in the irrigation of inedible ground crops or orchards. Cooling waters, although usually high in dissolved salts, can be generally used for irrigating landscape vegetation as well as for recreational lakes.

Spreading of storm runoff is an ancient, effective means of irrigating forage crops, and provides a side benefit in reducing the peak rate of flood flows.

Conclusion . . .

In view of the above possibilities for augmenting and conserving water resources, I am optimistic with regard to providing the water resources needed for future uses in Arizona. •

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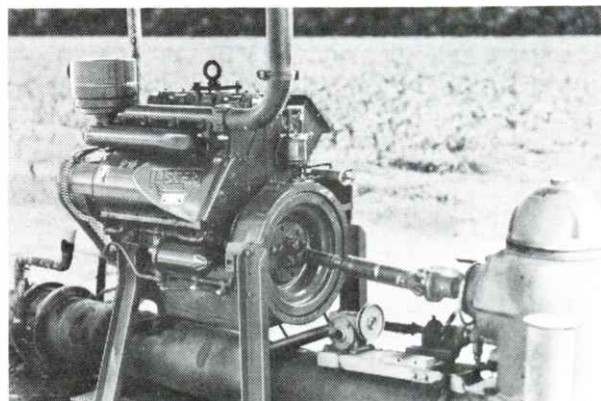
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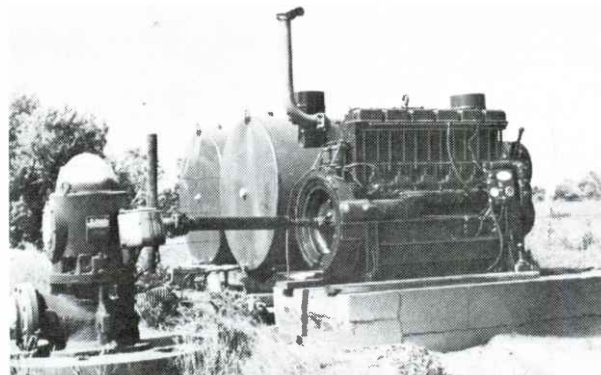
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Both photos taken before installation of shaft guards.

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ARIZONA CATTLE FEEDERS' DAY

The University of Arizona Department of Animal Sciences, headed by Dr. Richard W. Rice, held their annual Cattle Feeders' Day, May 4th at the Ramada Inn, Tucson. Dr. William H. Hale was program Chairman and Sam Benedict, President of Arizona Cattle Feeders, presided over the meeting.

The morning session was devoted to research reports and progress reports that have been carried on by the University since the meeting a year ago. The afternoon schedule covered the timely topic of energy costs and cattle production. A panel consisting of W. H. Hale, Carl Stevenson, Gerald Ward and Dough Williams carried out a lively question and answer period.

The attendance at the Feeders' Day was good but a number of cattlemen were conspicuous by their absence. The Department of Animal Science does a good job for the industry and they have an abundance of worthwhile information that warrants spending the day to be briefed on the latest developments.



Ray Cowden, Past President of both the Arizona Cattle Feeders' Assoc. and the Arizona Cattle Growers' Assoc., and Dr. Richard Rice (right) of the U of A.

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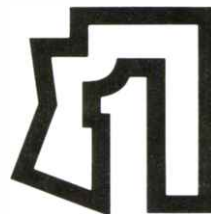
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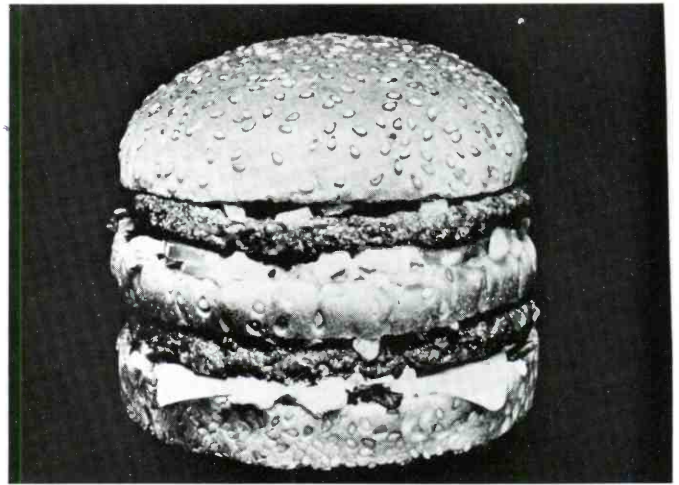
By Jerry Palen



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“Ronald’s Place”

by Beth Pesmen, OUTLOOK

“McDonalds is my kind of place . . .” Cattlemen consumers hear this tune over the radio and on television constantly. McDonalds is not only hitting the right spot concerning our stomachs, but it is quite a lucrative market of the beef industry as well.

According to McDonalds, they are the largest user of beef in the country, and each hamburger patty is 100% pure domestic beef. The Company assures us that its beef is free of chemical additives, salt, preservatives, and flavor enhancer. McDonalds does not use veal, heart, lungs, tripe, cheek or head meat, water, suet, ice or protein, additives, fillers, cereals, or imported beef.

“Ronald’s Place” uses only boneless lean processing beef with an addition of selected grain fed beef used in producing McDonald’s fresh and frozen hamburger patties. McDonald’s beef even contains less fat than is generally found in hamburger meat in the supermarket.

All beef used by McDonalds is processed in plants regulated and inspected by the United States Department of Agriculture. The typical meat supplier produces 540 beef patties per minute. Each patty must conform to strict shape, size, and weight specification and is cryogenically frozen at precisely controlled temperatures to preserve freshness, texture and taste.

Ray A. Kroc, founded the first restaurant in the McDonald’s chain on April 15, 1955, in the Chicago suburb of Des Plaines. 23 years later, with more than 4,700 restaurants and 1977 annual systemwide sales totalling \$3.7 billion, the Company is the largest food service organization in the world. The world headquarters of McDonald’s Corporation is located at McDonald’s Plaza, Oak Brook, Illinois 60521.

Contributing to the success of McDonalds has to be the fact that there is an international management training center, Hamburger University, Elk Grove Village, Ill., for McDonald licensees and managers — all of whom undergo a rigorous training program before assuming duties in their individual McDonald’s.

In addition to work experience in a restaurant, the university curriculum includes an intensive classroom program covering not only the everyday management of McDonalds, but also courses in business management, accounting, marketing, personnel management and community relations. Graduates earn a B.H. — Bachelor of Hamburgerology degree.

In February of 1978, the Company sold its 25th billionth hamburger, and the famed “billions served” sign changes about every four months. It is no small wonder that McDonalds is at the head of its class.