

Double Duty for Irrigation Water



*Aquaculture
team studies
feasibility
of raising fish
in irrigation
canals.*

Water is too precious and too expensive for Arizona farmers to use just once.

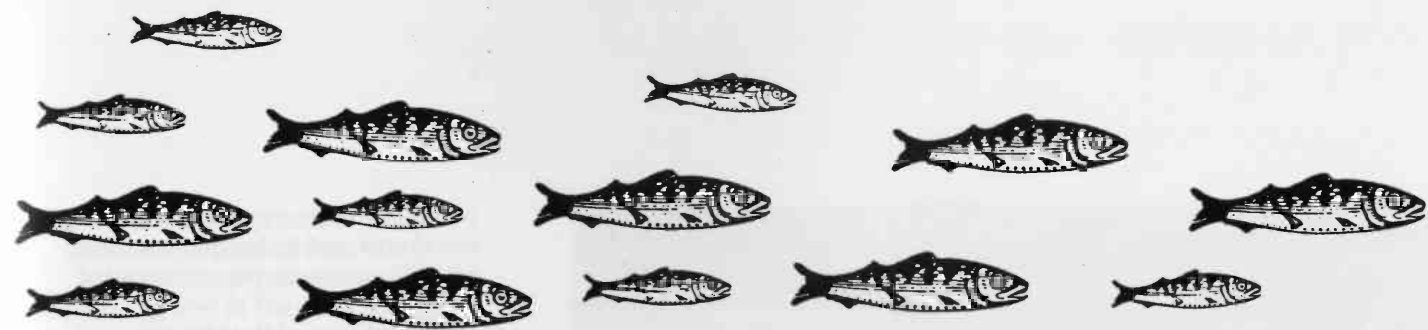
A team of University of Arizona researchers is investigating ways to help farmers produce two crops with the same water by growing fish in irrigation canals.

"We're trying to develop a system that will allow farmers who are interested in aquaculture to get multiple use of their water," says C.S. "Cy" Card, acting UA Cooperative Extension assistant director for agriculture and natural resources. "We want to determine if we can efficiently raise fish in existing ditches and canals without making major changes."

Card coordinates an aquaculture team that includes Eugene Maughan, leader of the UA Cooperative Fish and Wildlife Research Unit; Donald Lightner, UA aquatic disease specialist;



Catfish in irrigation canal at the UA Maricopa Agricultural Center.



George Brooks Jr., UA Cooperative Extension aquaculture specialist; and Jennifer Budhabhatti, a UA doctoral student working with caged fish. Tony Porti, an aquaculture research specialist, manages the 10-acre aquaculture facility at the UA Maricopa Agricultural Center near Maricopa.

A few Arizona entrepreneurs already raise tilapia, catfish and bait fish in cages, irrigation ditches and tanks, but many questions still exist, Card says.

Arizona fish farmers must deal with problems different from those of Southeastern farmers who grow catfish in large ponds. Since water evaporates quickly in a hot desert climate, ponds may be impractical.

Here, fish must adapt to warm, brackish water. Yet, brackish water reduces disease problems and enhances the growth of fish such as tilapia, which fare particularly well in Arizona, Lightner says. Water temperatures between 80 degrees and 90 degrees Fahrenheit, Brooks explains, "are great for fish farming."

Other questions remain.

Can crops and fish coexist? What happens to the cost of fish-raising when cotton irrigation is stopped in early fall and farmers must buy extra water? How will fish adapt to cement-lined canals? What happens to the quality of fish when pesticides, herbicides and fertilizers are used on the fields?

No one really knows, because most previous fish culture and management research was done with water devoted to fish exclusively, Maughan says.

And what size fish are most efficient for stocking in canals, and most profitable to harvest?

Ironically, marketing Arizona-grown fish may be difficult because



George Brooks Jr.

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Donald Lightner

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nearby markets are huge, and the quantities of fish produced by Arizona farmers are small.

"Buyers in Los Angeles demand a steady supply of thousands of pounds of fish every week, all year around," Maughan explains.

Another fish-related industry is worth examining, Card says. Since Arizona is isolated from other fish-growing areas, growers may find it easier to breed disease-free fingerlings for other fish farmers to raise to eating size.

"Arizona is in a good position to have a small, but economically sound, industry built around providing disease-free brood stock. That's where the money is," Card says. —By Lorraine B. Kingdon

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