

CAN CONCRETE BE IMPROVED TO PREVENT WEEDS, ALGAE AND MOSS IN CANALS?

Like many irrigation districts across the west, the Quincy-Columbia Basin Irrigation District is faced each year with prolific plant management challenges in their canals, laterals, drains, and wasteways. Aquatic weeds and algae rapidly grow in these waterways and reduce their carrying capacity, which decreases the ability to deliver water to farms. Invasive pests not only limit flow but also clog wateruser turnouts, pumps, siphon tubes, and sprinkler systems. Maintaining the functionality of this system is a major endeavor, in part due to the size of the district. The Columbia Basin Project is a network of approximately 2,300 miles of canals and laterals and 4,000 miles of drains and wasteways.

Aquatic herbicides are the primary tools used to control weeds, algae, and mosses in the district's irrigation canals. Each year the Quincy-Columbia Basin Irrigation District spends approximately \$1.3 million dollars on weed control. These pest control costs are passed along to landowners, who pay over \$5 for every irrigable acre on their assessments. Farmer, landowners and district managers are eager to find alternatives or compliments to aquatic herbicides that will reduce pest control costs.

Can the chemical and physical characteristics of concrete surfaces prevent weed, algae, and moss growth in irrigation canals? A cost-effective concrete-composite that is resistant to weed, algae, and moss growth would improve the resiliency of water delivery systems and be used to maintain, modernize, and extend the life of ageing infrastructure. Such benefits are numerous and include increased irrigation system reliability and efficiency, protection against invasive species, reduced pesticide use, improved water quality, improved water and energy conservation, and reduced operation and maintenance costs.

The Quincy-Columbia Basin Irrigation District has partnered with the United States Bureau of Reclamation's Research and Development Office to answer this question. The partners applied for a Reclamation-wide competitive, merit-based applied research and development grant and were awarded \$83,520 to investigate alternative concrete surfaces. The partners also secured \$160,000 in-kind support from supporting organizations. The project has widespread support from Washington, Oregon, and Idaho water user associations, irrigation districts, and from the Bureau of Reclamation.

Research efforts are underway and, after a concrete product is developed, field testing will occur within the Quincy-Columbia Basin Irrigation District. The project will include pouring concrete panels and evaluate their efficacy in existing irrigation canals. The project is expected to be complete by 2021 and updates on the findings will be shared in the future. Wish us luck!



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