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MSU CVM-LED INNOVATION LAB FOR FISH TO HELP PREVENT WORLD HUNGER

EARNING RESPECT BY EXCEEDING EXPECTATIONS

WITH MSU CVM AT THE TABLE, FISH TO HELP ALLEVIATE WORLD HUNGER

A full stomach is something most of us take for granted. However, in many parts of the world, hunger is a painful reality. Millions of people in third-world countries suffer or die of starvation each year. Little is more compelling than the image of a child dying of malnutrition, and scores of organizations, volunteers, and activists have made alleviating this atrocity priority one. Unfortunately, despite their best efforts—and although much has been accomplished—the devastating problem of world hunger remains. In reality, it's about much more than just food. It's a complex problem that requires a complex approach, and with the MSU CVM now at the table, there's a good chance that fish may help alleviate world hunger.

Last fall, MSU CVM professor and now former Associate Dean of Research and Graduate Studies Dr. Mark Lawrence was selected to lead an international initiative aimed at reducing poverty and improving the health of people in developing countries. Dr. Lawrence will oversee $15 million in funding from the U.S. Agency for International Development (USAID) and serve as director for the newly established Feed the Future Innovation Lab for Fish, led through the MSU Global Center for Aquatic Food Security, which is dedicated to addressing challenges facing aquaculture and finding solutions to meeting food security needs throughout the world.

The project will integrate expertise of numerous public and private organizations, research agencies, domestic and international universities, as well as associations within target countries. Not a specific laboratory site, the interdisciplinary program is actually a mechanism through which academic, private, and public entities work together to identify and implement solutions to reduce poverty, as well as improve the livelihood, nutrition, and food security in priority areas in countries in Africa and Asia and other developing regions.

According to Dr. Lawrence, fish are one of the most widely traded agricultural commodities in the world. It is rich in critical micronutrients and a global resource that can dramatically

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impact the health and economic growth and development of people in developing countries; however, research is needed to fully understand and capitalize on the potential of this valuable commodity.

"One of the major limiting factors to aquaculture in many countries is access to affordable, high-quality feed," Dr. Lawrence explained. "Some of our projects will be directed at improving feed access in target countries using innovative protein sources and local ingredients."

Lawrence said another challenge is that the role of women in aquaculture production has historically been overlooked or undervalued despite their significant contributions. "Over 60 percent of the world's hungry are women, and they often don't have access to credit or control of assets needed for aquaculture," he said, noting that because of the prevalence of hunger in women in developing countries, malnutrition is a leading cause of death for children.

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An expert in pathogenesis of bacterial diseases among aquatic animals, Dr. Lawrence joined the MSU CVM faculty in 1998 to further expand the University's efforts in addressing bacterial diseases and vaccine development for catfish farmers in Mississippi and throughout the United States. Since then, MSU President Dr. Mark Keenum's interest in and focus on increasing the University's international impact has led to global food security becoming a research priority at MSU.

"Faculty in the MSU College of Veterinary Medicine and from several other MSU colleges have for many years been focused on ensuring a safe supply of seafood, and our selection to lead this important initiative comes after a great deal of hard work on the part of many people," MSU CVM Dean Kent Hoblet said.

MSU CVM has a dozen specialized faculty in aquatic animal health, including a virologist, parasitologist, toxicologist, and molecular diagnostician, along with three pathologists, two immunologists, and three bacterial disease specialists dedicated to this specific area.

In addition to addressing problems in aquaculture production such as feed access and improving fish genetics, the MSU-led Fish Innovation Lab will also begin addressing fish diseases that have had devastating impacts on aquaculture worldwide. "Inclusion of projects to solve fish health problems in aquaculture is a new priority for the Feed the Future program, which is reflected by

the fact that, for the first time, a veterinarian will lead the Fish Innovation Lab," Lawrence said.

Joining these veterinary experts in the FIL are faculty members and scientists from universities across the U.S. Current partners are the University of Rhode Island, Washington University in St. Louis, Texas State University, and Texas A&M University, along with faculty from additional colleges at MSU.

"The overall goal of the FIL is conducting research that leads to real world impact. USAID expects much more than just published papers," Dr. Lawrence said. "True success will be measured by adoption of our findings and changes in practice, leading to an actual benefit to farmers, feed producers, and families."

Dr. Lawrence said this means the team will be working with families, small-scale farmers and fishers, farmer associations, private industries, extension specialists, scientists at universities and research institutes, and donor organizations to disseminate research findings and ensure the project has real-world impacts.

Another problem the Fish Innovation Lab will be working to solve is improving resilience of aquaculture. "Natural disasters, weather events, disease outbreaks, conflicts, and economic crises often have disastrous effects on aquaculture, and many times aquaculture producers don't recover," Lawrence said. "This can cause widespread food insecurity in a region. We must find ways to help producers overcome and recover from such challenges."

Accomplishing these things goes well beyond animals and involves much more than just veterinary medicine, according to Dr. Lawrence. "It requires the knowledge and expertise of those from a variety of different fields, including fish feed improvement, improved fish genetics, social science, nutrition, fish production, biosecurity, market access, food safety, and capacity development," he said. "I'm proud of the team we've established for this important research, and I know that working together we can play a vital role in reducing hunger and improving lives in Africa and Asia."

MSU will be releasing requests for applications for scientists to apply for research funding under the Feed the Future Innovation Lab for fish in each of the target countries within the next few months as well as engaging its own students in this endeavor in the future.

For additional information about the FIL, visit msstate.edu/newsroom/article/2018/09/msu-lead-new-usaid-feed-future-innovation-lab-fish/.