

Grad student wins grant to map genetic structure of chile

By Justin Bannister
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LAS CRUCES — What's the secret to disease resistant chile? The answer is probably hidden deep within the genetic code of the plant's DNA. Now, a graduate student researcher from New Mexico State University is preparing to head across the Pacific Ocean to work with other researchers in hopes of unlocking this mystery.

Greg Reeves is a master's student at NMSU, studying horticulture and specializing in plant genetics. He recently won a grant from the National Science Foundation's East Asia Pacific Summer Institute. The program selected students from across the U.S. to travel to various Asian countries, including China, Japan, South Korea, Australia, New Zealand, Singapore and Taiwan. Reeves is the only student doing this particular kind of research.



"The goal is to create a collaborative research relationship between U.S. and Asian researchers, building partnerships for research," Reeves said. "In Asia, chile is a huge crop, especially in places like China, Korea and Japan. That's why they are so interested in the kind of research."

From June 8 through Aug. 22, he'll work at Seoul National University in South Korea with professor Doil Choi, whose group is the first to sequence the genome of chile. There, Reeves will have the opportunity to use an Illumina Sequencer, a very expensive, incredibly advanced machine that only takes a few days to do the same amount of genetic processing work that previously took 600 ma-

chines 10 years to accomplish. Reeves said only a few universities have this kind of equipment.

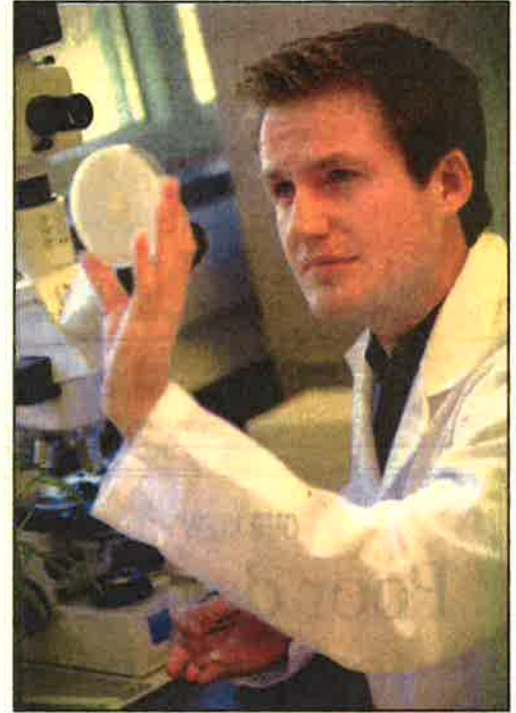
While examining the genetic structure of chile, Reeves will look for the specific markers that identify phytophthora resistance in chile. Phytophthora, which may look like a nondescript white mold in a Petri dish, actually means plant destroyer in Greek and is one of the leading problems for chile growers in the U.S. and abroad. Phytophthora attacks other plants as well, including oak trees and tobacco. The chile chosen to be sequenced first is CM334, which grows wild in Mexico.

"CM334 isn't a very good agricultural crop," Reeves said. "It actually has a really poor yield, but it is 100 percent phytophthora resistant. That's why it was chosen. Once we find the marker for the gene we're looking for, we should be able to use it to

find all the resistance genes that control phytophthora resistance, eventually. The ultimate goal would be to develop a commercial chile that has resistance. The marker possibly could be used in other crops as well to develop resistance, such as in tomato, potato, soy bean and others."

Reeves was born and raised in southern New Mexico. He earned a Bachelor of Science degree in genetics from NMSU and expects to graduate in 2013. He wants to pursue a Ph.D. and would eventually like to work for the U.S. Department of Agriculture, perhaps in the field of plant pathology, working to keep the U.S. agriculture system safe from pathogens.

"Eye on Research" is a weekly feature provided by New Mexico State University. This week's feature was written by Justin Bannister of University Communications.



NMSU PHOTO BY DARREN PHILLIPS

GREG REEVES examines a plant tissue specimen in a Skeen Hall laboratory. Reeves is an NMSU graduate student in plant and environmental sciences and will head to South Korea this summer to help researchers sequencing the chile genome.