



To Utah State University scientists and NASA, space farming doesn't mean growing the first tomatoes on Mars. However, astronauts who might venture there, and those who live and work in space now, need more than Tang to keep them going. They will be eating food grown aboard their spacecraft, some of it developed at Utah State University's Crop Physiology Laboratory with funding from NASA and the Utah Agricultural Experiment Station.



USU-Apogee wheat is the first crop developed specifically to grow in space where the light "sun" can shine 24 hours, where roots never touch soil, and room to grow is at a premium. USU-Apogee (named for the point in an orbit farthest from the Earth) was successfully grown aboard the International Space Station from April to June 2003, thriving in the unusual conditions because its seed heads emerge just 23 days after germination and it is only 40 cm (16 inches) tall, about half the height of terrestrial wheat.



During long space missions, crops grown in chambers, like those designed and built at USU's Space Dynamics Laboratory, can provide food for astronauts, purify water, and recycle carbon dioxide into oxygen. Launching seeds in place of additional packaged food also reduces the weight of supply payloads which reduces launch costs, an important consideration as the duration of NASA missions gets longer and astronauts

require more life support. Researchers say that although astronauts don't actually till earth while they orbit Earth, they may get a psychological boost from tending green, growing plants.



Since USU-Apogee's release, the Crop Physiology Laboratory team, under the direction of Bruce Bugbee, professor in the Department of Plants, Soils and Climate, has developed a related wheat variety, USU-Perigee (named for the point in an orbit closest to the Earth), and has turned its attention to producing and testing other food crops developed specifically to be grown in space. In the near future, astronauts may dine on "space salad" that includes lettuces and Micro-Tina tomatoes tested at USU. Other plant varieties being tested include Super Dwarf rice, Hoyt soybeans, Triton peppers and Earligreen peas.



The Crop Physiology Lab provides free samples of the space crop seeds to researchers and to school teachers around the world who use them to teach plant biology. Growing instructions and more information are available on line at www.usu.edu/cpl.

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