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## Headed to Mars? Be Sure to Pack the Utah Wheat

BY GREG LAVINE

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This time, the pioneers will be vegetarians.

While cattle helped 19th-century American settlers forge westward, livestock will miss the first trips to Mars. Beef stew will give way to sloppy Joes made of soybeans, and a 21st-century sweet potato drink might even give Tang a run for its money at the martian breakfast table.

For the six-month journey in the Red Planet, NASA's most advanced technology has not been able to replace the age-old tradition of crop growing.

Trust an old land-grant school like Utah State University to stand on the cutting edge of a nationwide effort to feed future space explorers. This summer, USU will

announce the release of its next generation of high-yield space wheat. Downsized crops, such as USU's dwarf wheat, will have to flourish in the confines of a spacecraft.

After all, said USU crop physiologist Bruce Bugbee: "You're not just going to have a trailer full of bag lunches behind you. You've got to have a trailer with a space farm in it."

And because there will be no animals aboard — they would compete with humans for scarce air, water and food — expect an almost exclusively vegetarian menu.

Agriculture will provide more than food for the first human residents of Mars. The plants will also produce oxygen, absorb carbon dioxide and filter water.

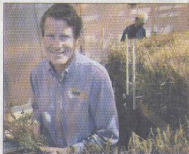
Today's scientists and engineers are working on life-support technologies even though NASA has no timeline for sending

humans to Mars. Russia recently proposed an international mission by 2015, but it's unclear whether Americans will be on board.

No matter when NASA sets out, the spacecraft will have to be completely self-contained, said Daniel Barta, a NASA researcher at the Johnson Space Center in Houston.

Early missions would probably feature a mix of plants and prepared foods. A Mars colony must be more self-sufficient than the International Space Station, since a supply ship would take at least six months to arrive. Even the first visit to the Red Planet could require a 20-month stay.

"Our chief goal is to develop technology that will enable us to have a longer presence



Bruce Bugbee/The Salt Lake Tribune

USU plant researcher Bruce Bugbee holds a batch of Apogee wheat, which has flown on the International Space Station. This dwarf wheat could help feed the first humans on Mars.

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