

# Re: food from space

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- *From:* BradGuth <[bradguth@xxxxxxxxxx](mailto:bradguth@xxxxxxxxxx)>
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On Apr 24, 4:05 pm, Willie.Moo...@xxxxxxxxxx wrote:

Nothing is stopping you from feeding the world by making the deserts bloom Brad. Go out and do it, and then come back and tell us how easy it was!

Fact is, humanity is doing all it can to grow as much food as it can with the resources at its disposal.

Most of humanity isn't doing 90% of what could be easily accomplished, that is if it were not for the corporate and faith-based restrictions of those intent upon keeping their off-shore bank accounts stuffed with our hard earned loot. Obviously you do not care how spendy food gets.

Since the productivity of farms in space are about 10x greater than the productivity of even the best run terrestrial farms, when the cost of surface area in space drops below the cost of land area on Earth, it will be cheaper to grow food on orbit than on Earth.

Nothing is stopping you from feeding the world by making the vacuum of LEO space bloom Mook. Go out and do it, and then come back and tell us how easy it was!

Since a satellite in polar orbit overflies every point on Earth twice a day, and since it takes less energy to deorbit a mass than to ship it even 100 miles, and since a satellite is easily hailed anywhere on earth by radio, and since very simple GPS guided articles can be precisely landed anywhere on the planet from a polar orbit, once you have farms and forests and factories on orbit, they will outclass any terrestrial facility in level of service and access to market. That is even if you could make the deserts bloom more cheaply than building

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farms on orbit – which you cannot – your economics would be ruined by the logistical nightmare of shipping your products to market before they rotted away.

Consider a head of lettuce grown in California and consumed in say New York. It takes a certain amount of time material and attention to grow well. Then it is picked cleaned packaged. Then it is transported and stored locally. Transported and stored centrally. Transported and stored near point of sale. Transported and displayed at point of sale. Transported and stored at home. Then, its made into a salad. The capital equipment associated with all the transport and storage facilities far and away exceeds the cost of the land, farm inputs to create the lettuce in the first place.

Now consider a head of lettuce grown in polar orbit and consumed at any point on Earth. It is grown in a facility that costs 1/10th per unit area that comparable land costs in California. It is grown with technology that is 10x more productive than terrestrial open air agriculture. The workers arrive tele robotically, instead of by automobile, using equipment that costs a fraction of what an automobile costs. Because the tele robots are especially built, and because of the unique environment, the capital cost of the equipment is 1/10th that typically associated with terrestrial farming. When the lettuce is ready for harvesting, its characteristics are entered into a database along with the satellite flight path and this is matched against ALL the people of Earth request for a head of lettuce in that time window, and an ejection window is assigned. The lettuce is harvested, cleaned and packaged in a propulsive aeroshell, and ejected directly to the end user who then uses it in a salad. The food – delivered – costs 1/100th to 1/1000th the cost of foods today. The unlimited availability of resources off-world provide unlimited scope for expansion – limited only by demand.

So, by getting rid of all those trucks, loading docks, dock workers, roadways, trains, refrigerated warehouses, even refrigeration in each home, the cost of actually getting food in your home is dramatically reduced and reliability is improved while time to market is measured in minutes instead of weeks.

Off-world growing of rad-hard food is technically doable and otherwise spendy as hell, but then so is surviving on Venus where there's no shortage of locally renewable energy or even water as easily taken from those acidic clouds. As Venus cools off it becomes more Earth like, so the geothermal forced environment is already going in the right direction.

Obtaining salty or fresh water while in LEO isn't going to be cheap or all the DNA friendly. Hauling tonnes of salt water from Earth to LEO at \$10,000/kg isn't going to get cheaper unless we utilize China or India CATS, and we both know that Mook isn't having anything to do

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with China or India.

In theory water sent to LEO will be 100% efficiently utilized (meaning no leakage). However, what's your best water efficiency cycle, of water sent up as opposed to produce that goes back down?

With a billion in USDs, how many acres of high tech greenhouse farms could be accomplished within India, where we can still get a 10 hour work shift worth of local labor for as little as a couple bucks (in some areas make that \$1)?

.. – Brad Guth

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