Team ID: LAHS72

School name: Los Alamos High School

Area of Science: Agriculture

Project Title: The Martian in Santa Fe

Is it possible to grow food in greenhouses such that a city like Santa Fe could become food independent? Like Matt Damon, in the movie *The Martian*, Santa Fe has limited water supplies and a harsh growing environment. Greenhouses conserve water, don’t use pesticides and can produce substantially higher crop yields. In Belgium they produce food on a massive scale to feed the country using modern greenhouse technology.

Can we have our own Martian experiment in Santa Fe?

With New Mexico’s limited resources, we want to model if a locally-based, greenhouse agriculture could feed a city like Santa Fe.

If New Mexico were able to optimize its agriculture, many things could happen. For one, water on a large scale would be conserved, which is great in this quickly drying state. Being used for thousands of years, water has been wasted in irrigation, and this would be a step in the right direction. Greenhouses also require no pesticides which means less damage to the environment.

 Another factor affected would be the decrease in agricultural imports and increase in exports, or at least the sustainability of New Mexico’s economy. Imports come from California and Mexico on a large scale.

On the downside, greenhouse can be very expensive.

 If we prove that New Mexico is able to grow any type of produce in large quantities without wasting water or having to import as much food then New Mexico food security would be improved.

**New Mexico annually imports more than $4 billion in food. (2010)**

**“Small-, medium-, and large-scale greenhouse production of crops sometimes produced locally and normally imported during winter months represents a substantial departure from traditional New Mexico agriculture. However, certain specialty products, such as leafy greens, microgreens, cucumbers, tomatoes, peppers, herbs, green beans, Swiss chard, squash, raspberries, and strawberries, all have significant market potential as locally produced fruits and vegetables in conventional retail outlets, restaurants, and, of course, farmers’ markets ”**

**-**[**http://aces.nmsu.edu/pubs/\_circulars/CR675/welcome.html**](http://aces.nmsu.edu/pubs/_circulars/CR675/welcome.html)

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