Introduction

Where is the best location to place a vertical farm within the Austin area? What factors are most important in making this decision?

The Austin area is among the fastest growing cities in the U.S. for the last several years. These changes have altered the potential food needs of the Austin area. Areas that are growing the fastest show potential for a good vertical farm location. This type of farming utilizes many aspects to provide the most food within the smallest footprint available, while attempting to minimize waste and provide high-end organic products. The ability to utilize space vertically allows for crop production within the city limits, within commercially rated buildings, or agricultural land near the city. With food production occurring within the city, customer to product distances are significantly reduced. These reduced distances save significant money on transportation costs associated with food distribution. Recent studies show that up to 30% of food produced is lost between the growing area and the customer. Much of this occurs because of the need to package food, and transport it through different environments to its location. Produce can be tightly packed causing bruising of fruit as well as loss of products due to environmental shock. Production at a vertical farm allows for food to be picked and distributed in a shorter and more time appropriate manner. Growing indoors or in confined greenhouses also allows for partial or total control of environmental factors. Crop loss due to infestations, disease and extreme weather are significantly reduced. When growing in an indoors commercial location, the farmer has the ability to grow crops that are exotic or out of season. Being able to provide a high value crop that may travel several states or internationally to find its way to Austin can be profitable because of the many costs associated with transporting produce. Locating in highly populated areas will help reassure consistent sales of crops.

* Objective: Determine “What is the best location for a vertical farm in Austin?”

This project will:

* Use data to define block population areas within Austin area
* The map will show the selections of locations within the designations of “commercial” or “undeveloped” land usage.
* Areas within the “commercial” and “undeveloped” will be further refined by block population selection. These areas will be limited to those with greater than 9004 people per block.

Methods of Analysis

1. Locate data types- Austin basemaps (landbase) through ESRI ArcGIS; Land usages for 2010 through <ftp://ftp.ci.austin.tx.us/GIS-Data/Regional/coa_gis.html> (City of Austin GIS data); Austin census tracts, blocks for 2010 <http://www.capcog.org/data-maps-and-reports/geospatial-data/>
2. Select by attribute- I assessed the attribute table for “land\_use\_2010” and decided to use commercial and undeveloped parcels as potential locations for a vertical farm
3. Select by location- Using the 2010 Austin, Tx census tracts, I determined areas with population greater than 9004. The populations per area ranged from zero to 16,495. Then using the select by location tool, I queried the commercial and undeveloped parcels for those with values greater than 9004.
4. This query provided me with the 741 potential spots to locate a vertical farm, defined by a minimum population value of 9004, and only areas within commercial and undeveloped land usage.





