

# Combined Plots of Atmospheric Carbon Dioxide and US Crop Production and Space Settlement

By Bryce L. Meyer

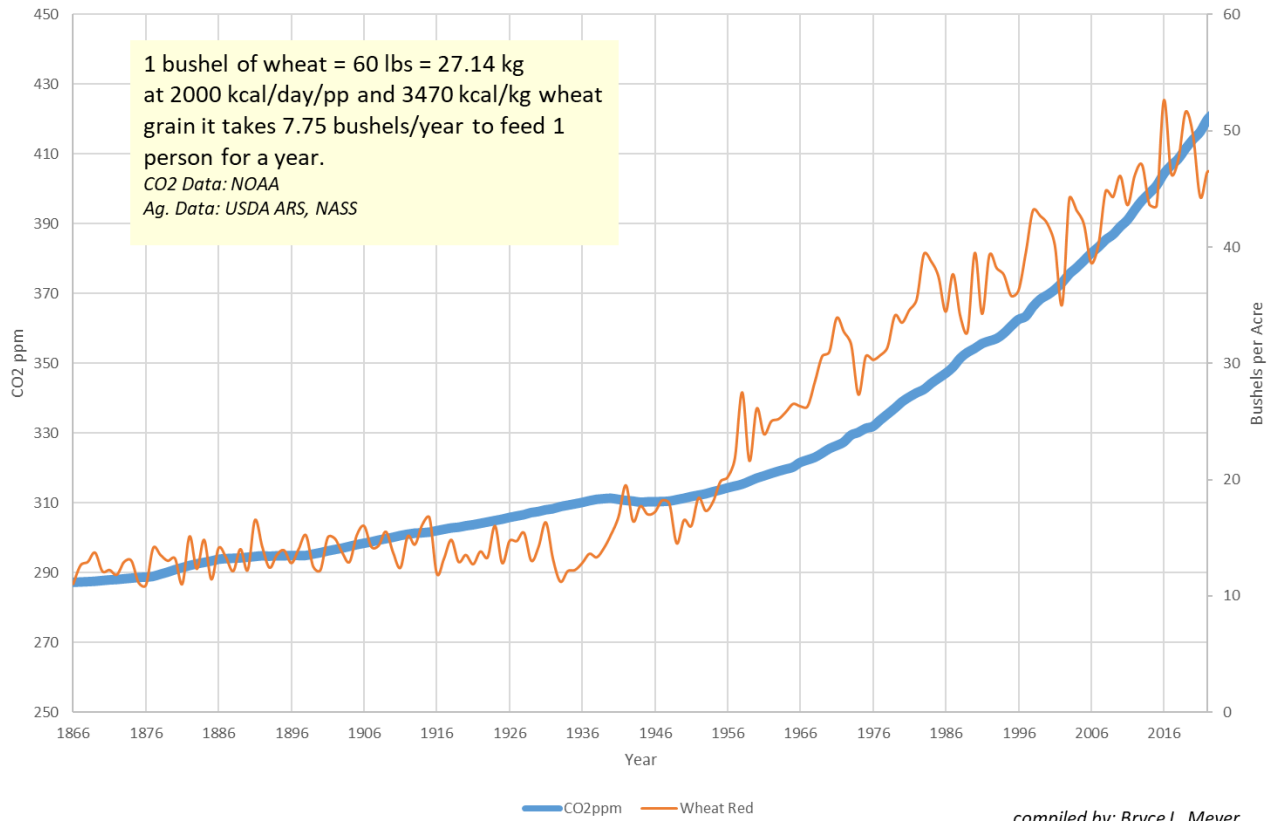
## Public Data Sources:

- Caloric Data: USDA Agricultural Research Service Food Data Central.
- Atmospheric Carbon Dioxide: US National Oceanic and Atmospheric Administration (NOAA) GML Data for Hawaii (with NOAA estimates for historical levels)
- Crop Harvest Data: USDA National Agricultural Statistics Service
- Assume 2,000 kcal/day is required per person.

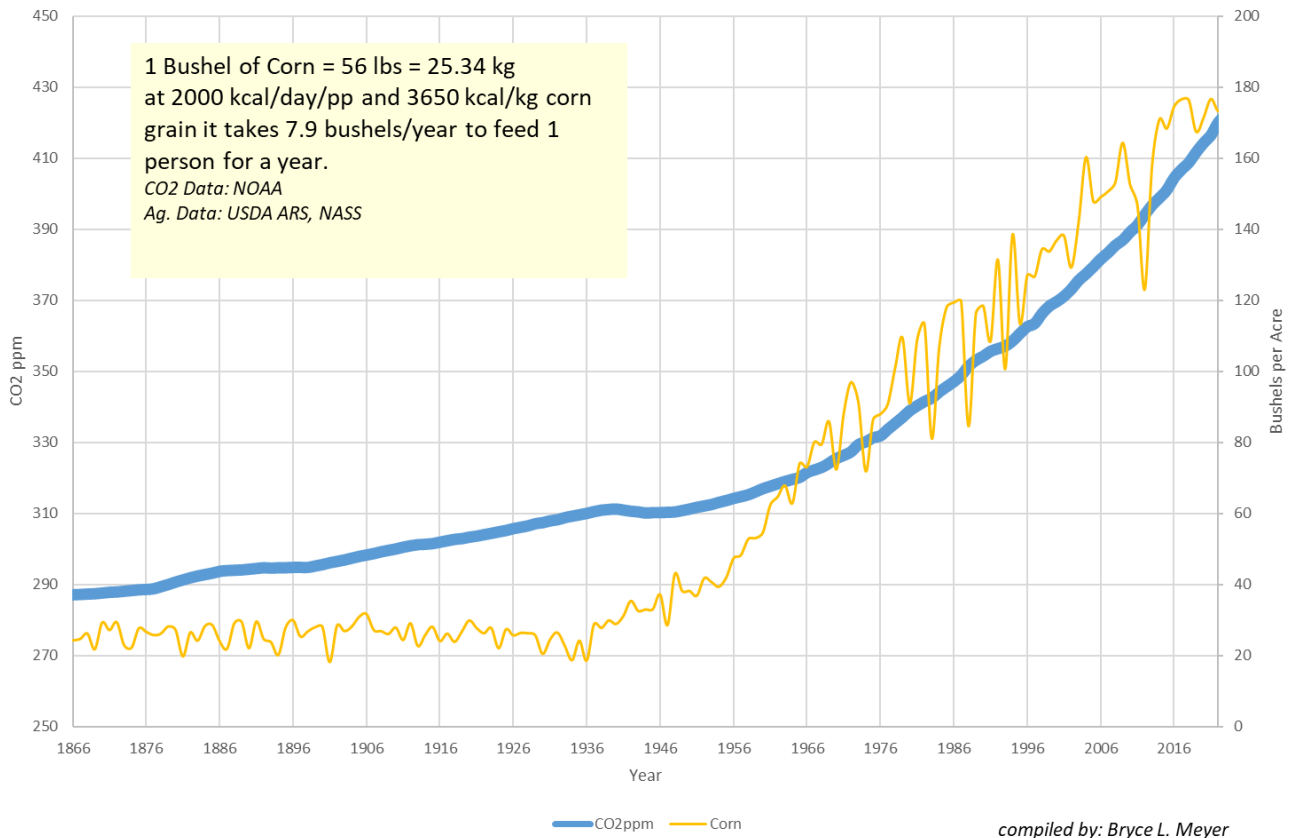
Increased crop production is a testament to the productivity of the American farmer and agricultural enterprise. Crop yields are nearly double for the same land area in the 1980's when NASA produced work on space settlement (G. O'Neill et al.). There is also a correlation between atmospheric carbon dioxide levels and increased crop production since 1960. This may be due to a variety of factors, including improved crop genetics, water management, fertilizer usage, and pest control, but it can also be hypothesized that crop photosynthesis now takes advantage of the higher carbon dioxide level. This hypothesis would be worth further study to determine how much carbon dioxide enrichment is productive. For space settlements, this indicates that carbon dioxide enrichment should be considered and studies from the 1980's should be updated given improved crops and methods.

Graphing carbon dioxide against crop yields gives the following charts:

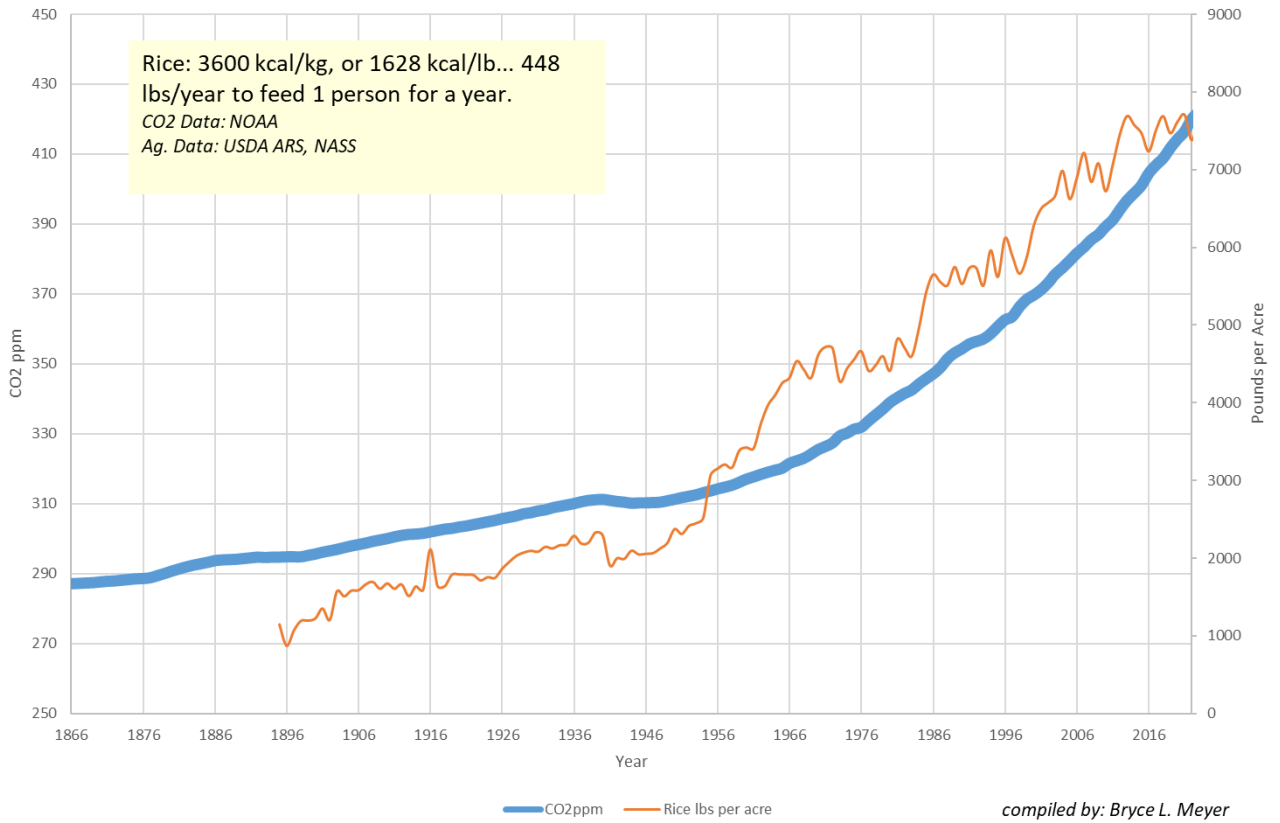
CO2 levels versus Wheat Production USA



CO2 levels versus Corn Production USA



CO2 levels versus Rice Production USA



CO2 levels versus Soybean Production USA

