**Climate Change Module Questions (10 points)**  **Name:**

1. What is the purpose of the control plots with no elevated CO2 at each FACE experiment?
2. Does the response of NPP to elevated CO2 relative to current CO2 appear to be general across different tree species? Explain your answer using patterns in Figure 2A.
3. Does the response of APAR to elevated CO2 relative to current CO2 appear to be general across different tree species? Explain your answer using patterns in Figure 2B.
4. In your own words, how is light used differently for biomass production in tree canopies that are sparse or dense with leaves (↓ or ↑LAI)? Use species-specific examples from Figure 3 in your answer.

**Synthesizing Your Knowledge**

1. As you have learned, photosynthesis is limited by the activity of the enzyme Rubisco. Rubisco is loaded with nitrogen and a large percentage of leaf nitrogen is dedicated to Rubisco. Thus, nitrogen is important for the Calvin cycle to fix carbon from CO2, which eventually is converted to biomass. Hypothesize how the feedback between nitrogen availability (in the soil), photosynthesis and elevated atmospheric [CO2] resulted in the findings (below) from the FACE experiment located in North Carolina.
2. We have also learned that fungi associations with the roots (mycorrhizae) are important for resource gain for both plants and fungi. Recently, scientists argue that the mycorrhizal association is the primary controller of a plants ability to increase NPP under elevated CO2. Based on what you know (and what you wrote for the previous question), do you agree with this argument?

**Find your Science Voice!**

Many scientific and government agencies advocate to plant a trillion trees to stop or slow down global warming. Based on what you have learned, make brief and concise argument why this proposal should or should not be a priority compared to just stopping human generated CO2 emissions. (Watch the attached video link for even more recent findings)