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Seed Count Model Explanations

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Seed Count ~ ΔT

\*\*\*\*ΔT = difference between the mean growing season temperature of the two previous years

1. Seed counts of Sugar Maple and American Beech explained by the mean **average** daily temperature for the growing season. Growing season defined as June, July, and August.
2. Seed counts of Sugar Maple and American Beech explained by the mean **maximum** daily temperature for the growing season. Growing season defined as June, July, and August.
3. Seed counts of Sugar Maple and American Beech explained by the mean **average** daily temperature for the growing season. Growing season defined as June, July, and August. Years after determined **mast years were removed** as it is unlikely to have back to back mast years.
4. Seed counts of Sugar Maple and American Beech explained by the mean **maximum** daily temperature for the growing season. Growing season defined as June, July, and August. Years after determined **mast years were removed** as it is unlikely to have back to back mast years.

\*\*\*\*We can note that the mean maximum daily temperature for the growing season is a better explanatory variable than the mean average daily temperature.

\*\*\*\*Removing post-mast years improves the relationship.

Seed Count ~ ΔT + Precipitation

1. Seed counts of Sugar Maple and American Beech explained by the mean **maximum** daily temperature for the growing season and the **sum of Precipitation** during the **concurrent** growing season. Growing season defined as June, July, and August. Years after determined **mast years were removed** as it is unlikely to have back to back mast years.

\*\*\*\*This model performed well for American Beech, and was slightly tweaked in model 7, with improved results.

1. Seed counts of Sugar Maple and American Beech explained by the mean **maximum** daily temperature for the growing season and the **sum of Precipitation** during the **previous** growing season. Growing season defined as June, July, and August. Years after determined **mast years were removed** as it is unlikely to have back to back mast years.

\*\*\*\*Masting years for the Sugar Maple was best explained by model 6.

1. Natural log of seed count of only **American Beech** explained by the mean **maximum** daily temperature for the growing season and the **sum of Precipitation** during the **concurrent** growing season. Growing season defined as June, July, and August. Years after determined **mast years were removed** as it is unlikely to have back to back mast years.

\*\*\*\*Masting years for the American Beech was best explained by model 7.

1. Natural log of seed count of only Sugar Maple explained by the mean **maximum** daily temperature for the growing season and the **sum of Precipitation** during the **previous** growing season. Growing season defined as June, July, and August. Years after determined **mast years were removed** as it is unlikely to have back to back mast years.

\*\*\*\*This model performed relatively poorly for Sugar Maple. **Values of 0 were changed to 1** in order to take the natural log.

Additional thoughts:

1. We may want to expand precipitation into the spring, in order to capture the importance of early growing season water availability.
2. We may want to try a ΔP explanatory variable, similar to that of ΔT.
3. The mean maximum ΔT is the best general explanatory variable for predicating mast years.