Activity 6: Mapping Seed Sources
Enrichment Exercise: Calculating Coefficient of Determination
Teacher Notes

Slide	Notes
1	These notes provide information that may help you comfortably use or know how to adapt this slide presentation. Additional background information can be found in Activity 2 of the module.
2	In one of the enrichment options of Activity 6, students are asked to calculate a coefficient of determination. This statistic tells us how well the model fits the data by indicating the strength of the linear association between two variables. In other words, it gives the proportion of variation in one variable that is explained by another variable. A high value of the coefficient of determination suggests that a large amount of variance in the data is explained by the independent variable—suggesting that the model is a good fit. Capital R squared (R^2) is the statistical symbol for the coefficient of determination. It is usually shown as a percentage between 0% and 100% or as a decimal between 0 and 100.
3	Microsoft Excel® can calculate the coefficient of determination for you. The following slides use data provided in Activity 6 for the East and West genotypes. The first step is to create two data tables. One table shows data values for survival and height for the East, represented by Families A, C, and E, for the three sites. The second data table shows the data values for the West. After locating the two data tables, create two scatterplots, one for each data table. First select the data from the "Survival" and "Height" columns in one data table.
4	Once you have selected the right data, click on the **Charts** tab, select the **Scatter plot icon**, and choose **Marked Scatter**. This creates a scatterplot for the East data table. Repeat this process for the West data.
5	Next, add a trendline to each scatterplot. Start with the East scatterplot and from the **Chart Layout** menu, click on the **Trendline** icon and select **Linear Trendline** from the pop-up menu. This creates a trendline on your East scatterplot.
6	Once you have the trend line created, return to the **Chart Layout** menu. Click on the **Trendline** icon again and select **Trendline Options** from the menu. In the **Format Trendline** box, choose **Options** and check both the **Display equation on chart** and **Display R-squared value on chart**. Repeat the trendline creation process for the West data. **SPOILER: The next slide contains the answers to the enrichment exercise. Do not show until after students have completed their attempts to calculate the answers.**
7	This slide shows the results of the trendlines for the East and West data. Note the values given for R^2 for each. Happy Graphing! You can return to the Activity 6 webpage for more resources to help you complete this activity with your students.