PROPOSAL 13 Supporting Evidence: Tomato Referee 2016

A national referee was conducted to determine the equivalency of agar as a germination media when compared to traditional AOSA approved media. This referee was conducted in the spring of 2016. 5 labs participated.

Hypothesis: Using Agar as a planting media will give germination results that are equivalent in germination tests performed on current AOSA approved media.

Protocol:

We are conducting a national referee on standard germination of *Solanum lycopersicum var. lycopersicum* (tomato) on agar media.   In your packet there should be 6 samples of tomato agar powder (if requested) and data forms.

For this referee you will perform a standard germination of 400 seeds using the AOSA rules on the current media used in your lab. You will also conduct a side by side 400 seed test within the same time duration and temperature constraints using agar as the germination media.   Attached are instructions for preparing the agar media. The concentration of agar is to your preference within a range of 0.8% to 1% concentration.

Samples were sent out early February with a quick turnaround of 4 weeks.   All data was received back by March 9, 2016.
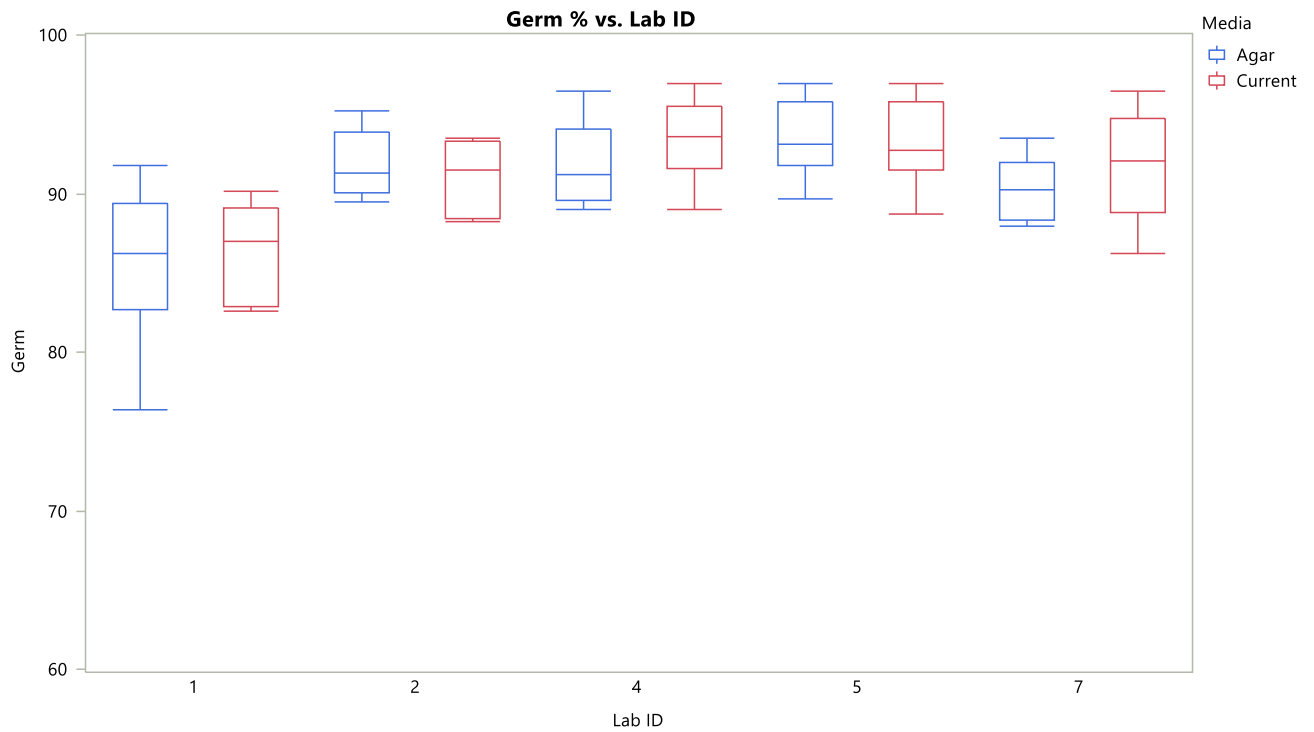
Analysis:

Data was analyzed by Anova and Student's t.

Results:

Data was compiled and analyzed for test to test tolerance. All samples were within test to test tolerance with the exception of Lab 1, sample 1 and Lab 7, sample 3. It was noted that sample 1 (lab 1) there was high instance of microbial growth and decay on the agar media that was not seen on the current method. This data point was seen in the analysis as an outlier. The Student's t test determined that the agar method is statically the same as current methods used by the participating laboratories. Of the 5 laboratories 4 used towel and 1 lab used blotter as their current method media.

Conclusion:

The results of the study support the use of agar media as an acceptable substrate for seed germination testing.

Germ % vs. Lab ID

LSMeans Differences Student's t

α= 0.050   t= 2.00958

Level		Least Sq Mean
Curren	A	91.203333
Agar	A	90.648333

Levels not connected by same letter are significantly different.

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	10	568.50083	56.8501	8.8875
Error	49	313.43662	6.3967	**Prob > F**
C. Tota	59	881.93746		<.0001 *