

## 2016 Proposal 12 Supporting Evidence

Tef on Agar Side by Side August 2015

This experiment was conducted to test the efficacy of agar as a viable media option for various seed types, in this case a very small grass species.

Seed used: AOSA/SCST Tef (*Eragrostis tef*) referee

Referee protocol: We are asking that the samples be germinated at 20-30C. Please do counts at 4, 7, 10, 14, and 21 days. At the 21 day final count please determine, the number of dead and abnormal as well as the number of normal. If you have the capability of checking for dormancy, at the 21 day final count please check the dead for dormancy and report in the additional dormancy line. The samples are completely randomized so A1 and B1, etc. may not be the same lot of seed.

Hypothesis: Using agar as a planting media will give germination results that are within tolerance of germination tests performed on current AOSA approved media.

Blotter was used for the standard method. Samples A1-A11 were planted on blotter wetted with 0.2% KNO<sub>3</sub> solution (AOSA Rules volume 1. sect 6.9.g.) Samples B1-B11 were to be planted on blotter wetted with water. In addition, samples A1-A11 were planted on 0.9% agar and 0.2% KNO<sub>3</sub>. Samples B1-B11 were planted on 0.9% agar. All A samples were planted and evaluated at the same time following the protocol. All B samples were planted and evaluated on the same days, also following the protocol. Sample sets A and B were planted 1 week apart.

Results: Final germination scores were calculated for all samples. Germination scores for each sample were compared to the corresponding agar sample. The agar results when compared to the corresponding blotter result had an R<sup>2</sup>=0.78 (Figure 1). It was noted during testing that 1 sample exhibited mold on the blotter that was not noted on the agar. This single data point did have an affect of the overall correlation. When this data point was removed due to the instance of mold, the correlation is R<sup>2</sup>=0.99.

Two samples on KNO<sub>3</sub> were out of test to test tolerance when comparing the blotter to agar. One of those samples exhibited mold. The average samples on water were similar to the average of the same samples on water agar. This was found to be true for the KNO<sub>3</sub> samples as well. (Table 1)

Conclusion: The data supports the hypothesis that the agar media gives comparable results for Tef germination regardless of the use of KNO<sub>3</sub> or plain water when compared to agar to blotter paper media.

Table 1: Samples averages across media

Wetting Agent	Blotter Average	Agar Average
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Water	64	61
KNO <sub>3</sub>	71	72

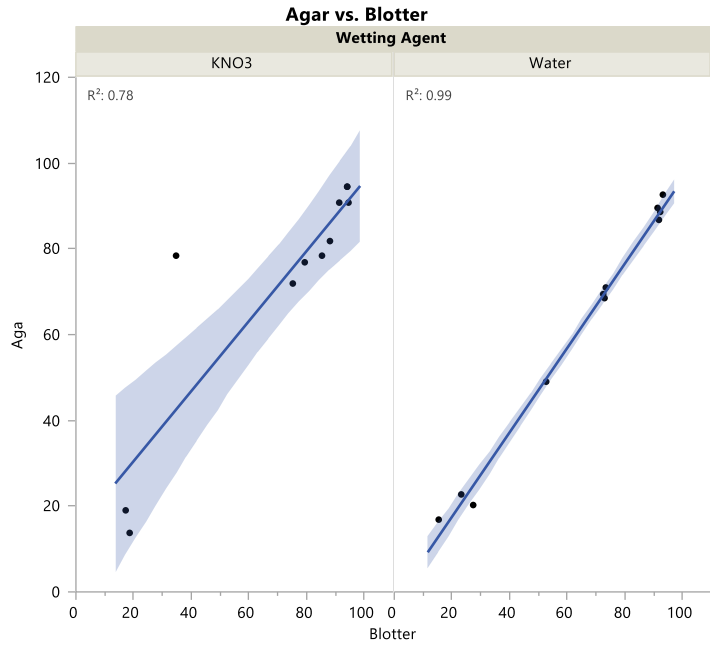


Figure 1 Comparison of Agar vs. Blotter, separated by wetting agent. (All data points)

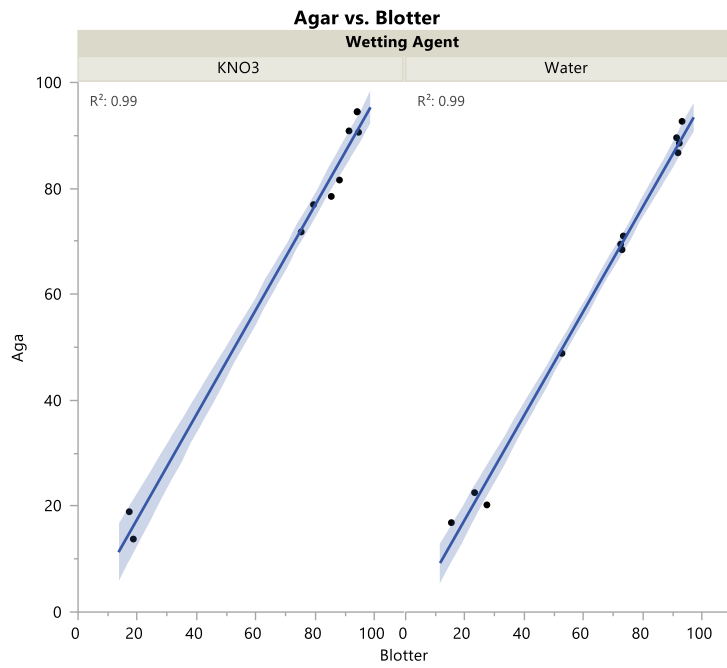


Figure 2 Comparison of Agar vs. Blotter, separated by wetting agent. (Outlier removed)

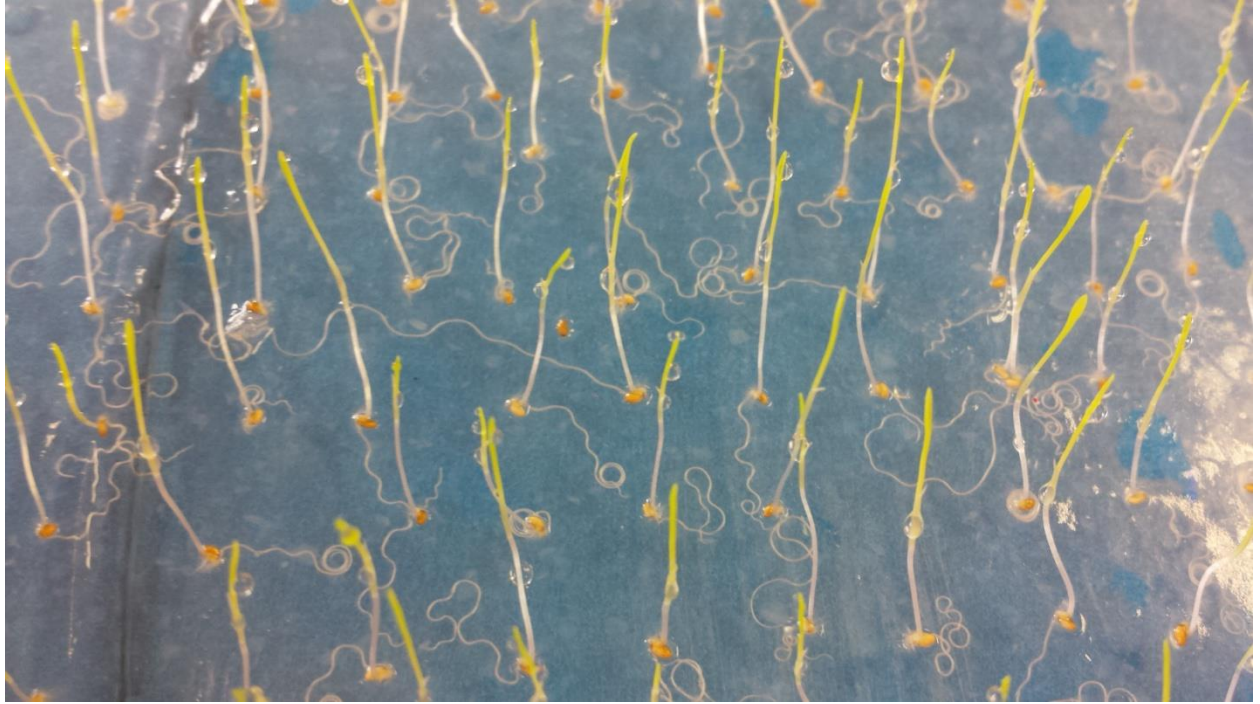


Figure 2: Tef on agar