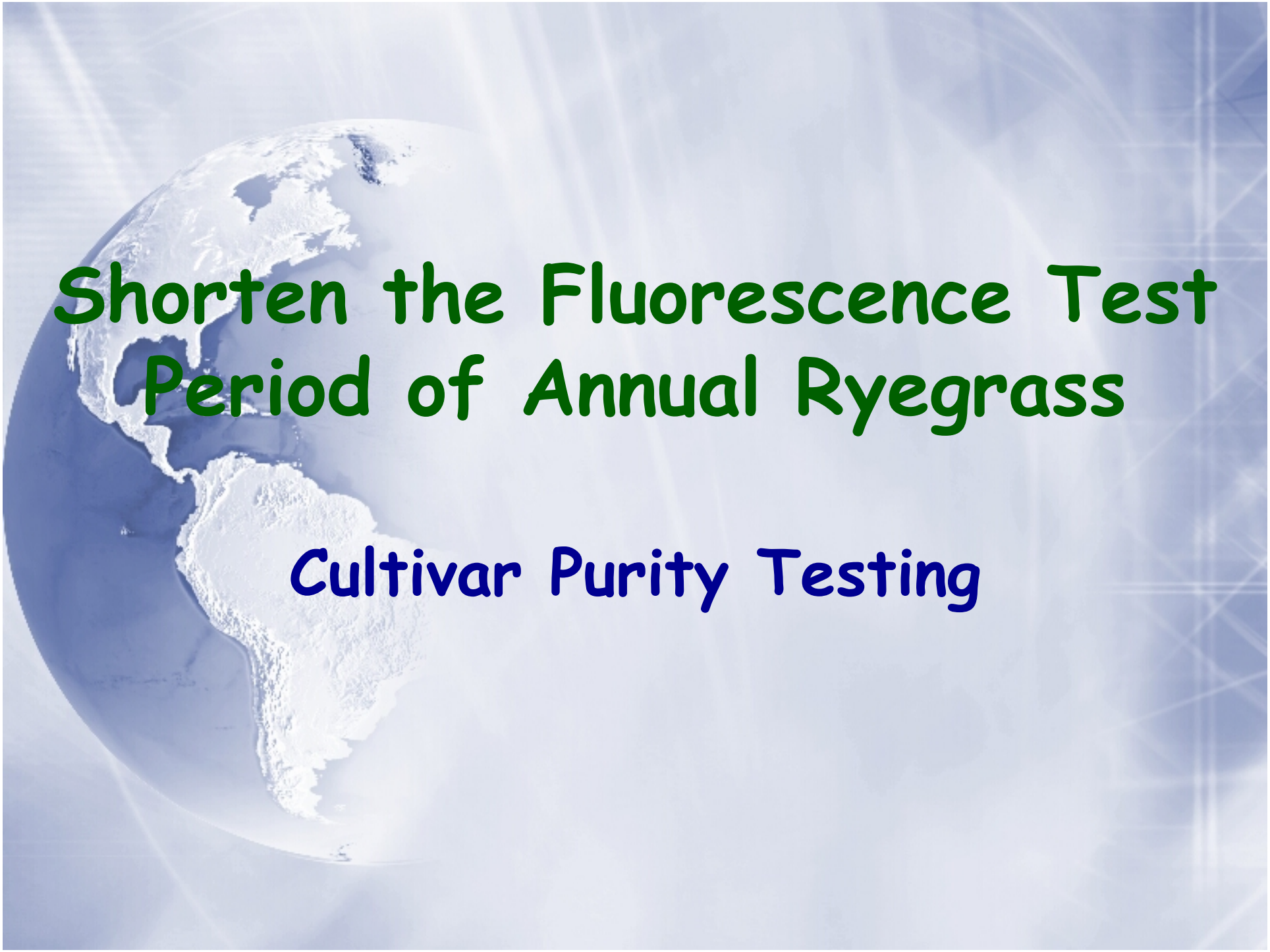

Shorten the Fluorescence Test Period of Annual Ryegrass
Cultivar Purity Testing

Rationale

- **The AOSA germination Rules allow seed analyst to end a germination test if he/she is positive that maximum germination of a sample has been attained; AOSA Rules for Testing Seeds Vol. 1. sec. 6.9d(3).**

- **The Cultivar Purity Testing Handbook (CPTH) states: "Do not remove non-fluorescent seedlings before the 14th day or before the end of the test when a longer period is required for dormant seeds."**
- **Many annual ryegrass samples reach maximum germ after one week, especially with prechill treatment.**

Rationale

Therefore, adding the following statement to the CPTH is appropriate:

"However, fluorescent test of annual ryegrass samples can be completed and reported before the 14th day if the analyst is positive that maximum germination of a sample has been attained [AOSA Rules for Testing Seeds sec. 6.9d(3)]" .

- **This statement is based on a study conducted on over 300 samples of annual ryegrass (ARG) tested within 4-8 weeks after harvest in 2010.**
- **Results were collected from three lab, OSU Seed Lab, Agri Seed Testing, and Tangent Seed Lab Int.**
- **The majority of samples reached maximum germination and fluorescence within 7 days, after prechill.**

Rationale

- In the current global seed industry, the value of a test such as germination or fluorescence is based not only on accuracy and uniformity, but also on delivering test results in a timely manner.
- Annual ryegrass harvest starts late in July, and seeds have to be cleaned, tested, labeled and shipped by the end of August in most cases.
- Missing deadline means missing sale opportunity.

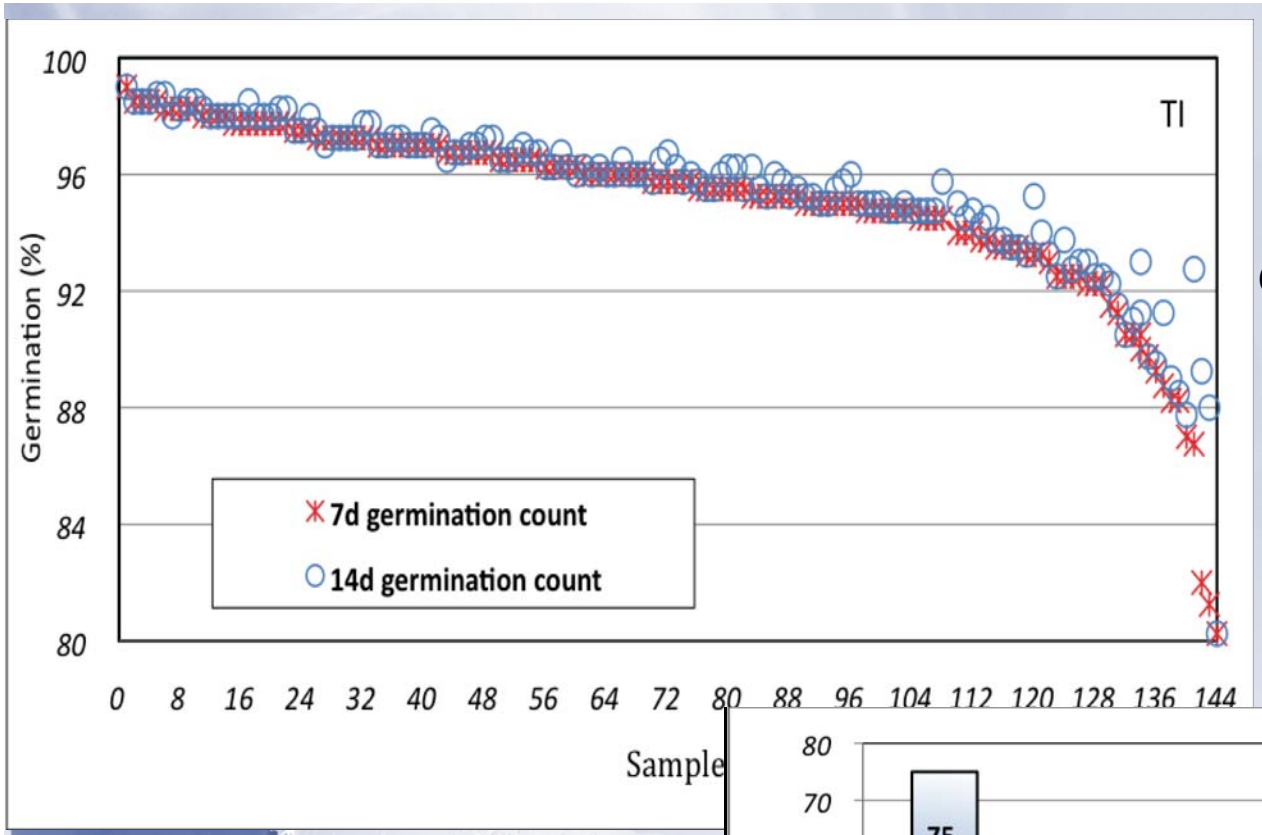
Research Objectives

- **Determine the germination and fluorescence results of 366 freshly harvested (dormant) annual ryegrass samples at 7 and 14 day counts.**
- **Determine the frequency of samples that reach maximum potential germination and fluorescence in 7 days.**

Materials and Methods

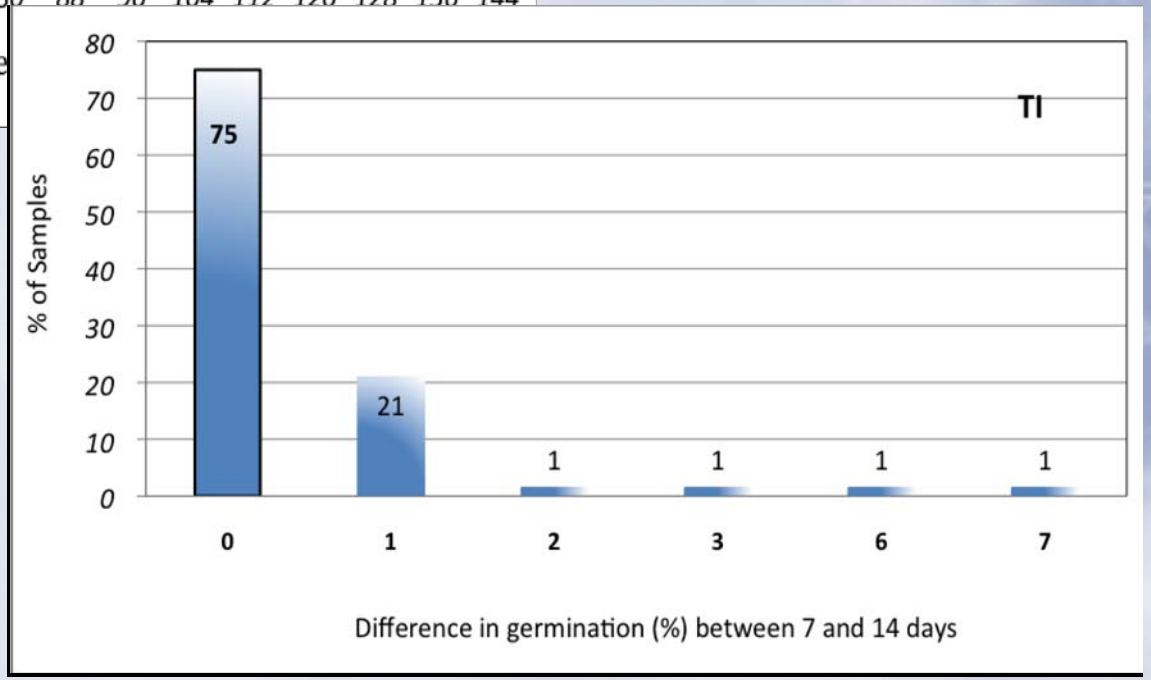
- **Over 366 ARG samples were tested in the summer of 2010 at Tangent Seed Lab International, Agri Seed Testing, and Oregon State Univ. Seed Lab.**
- **All samples were prechilled at 10C and germinated at 15-25C according to the AOSA Rules.**
- **The germination and fluorescence results were collected systematically at 7-day and 14-day counts.**

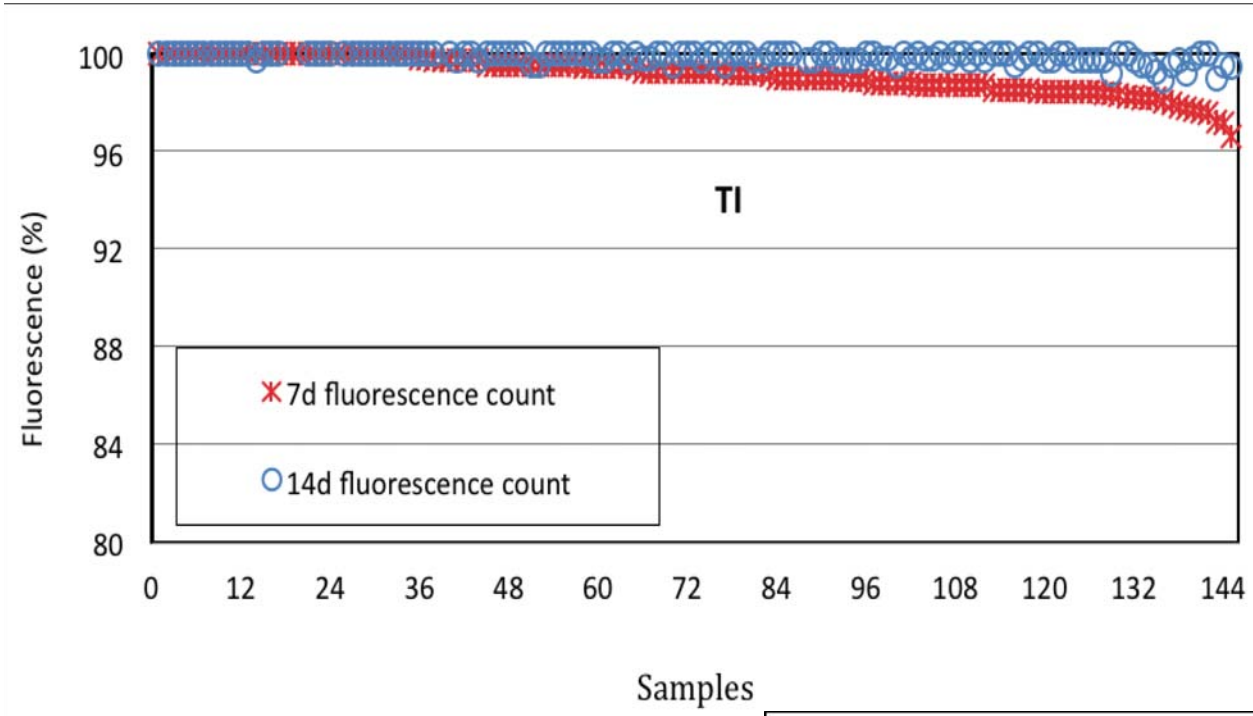
Results



Germination results of 7-day and 14-day counts of 145 annual ryegrass samples tested at Tangent Seed Lab Int.

Frequency of samples that reach maximum germination in 7 days compared to 14 days of 145 annual ryegrass samples tested at Tangent Seed Lab Int.

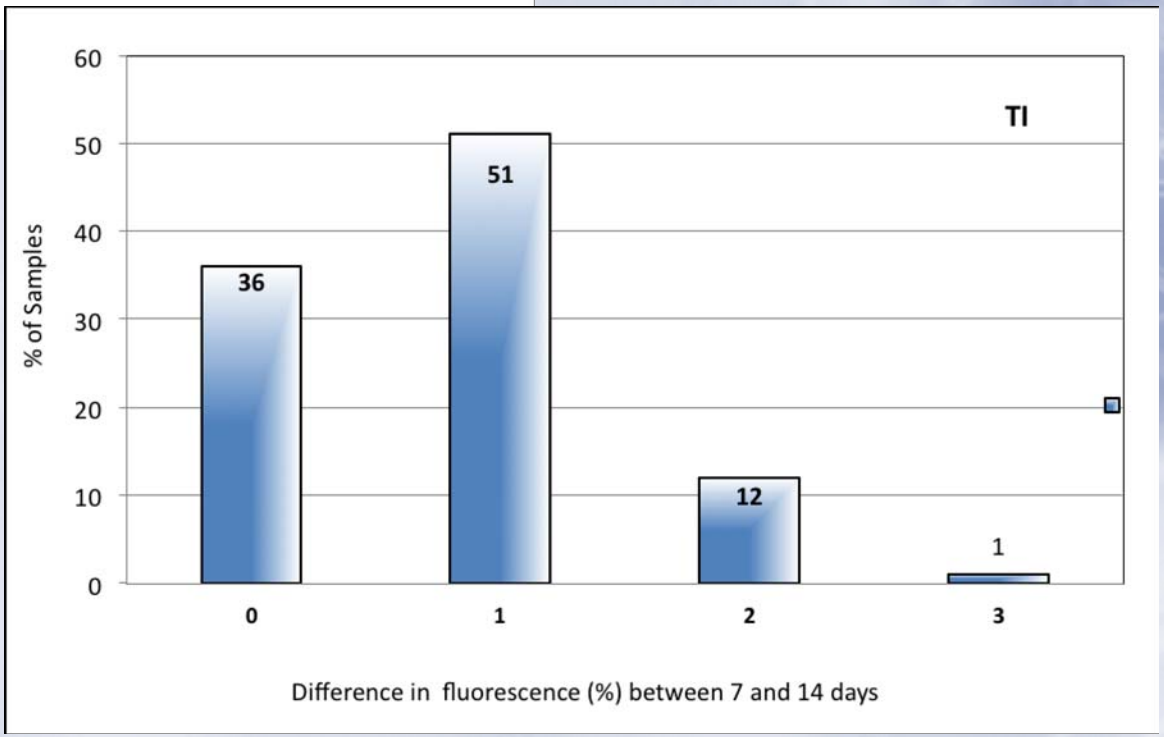


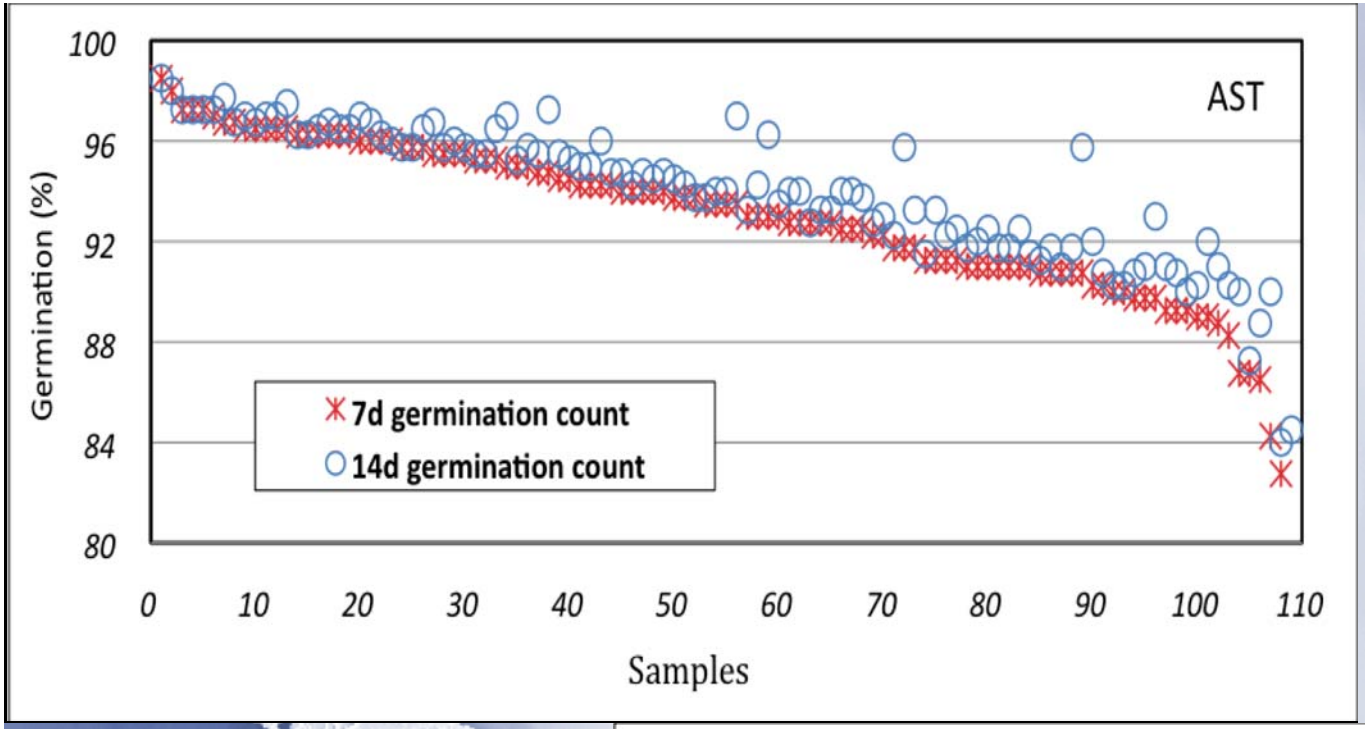


Results

Fluorescence results of 7-day and 14-day counts of 145 annual ryegrass samples Tested at Tangent Seed Lab Int.

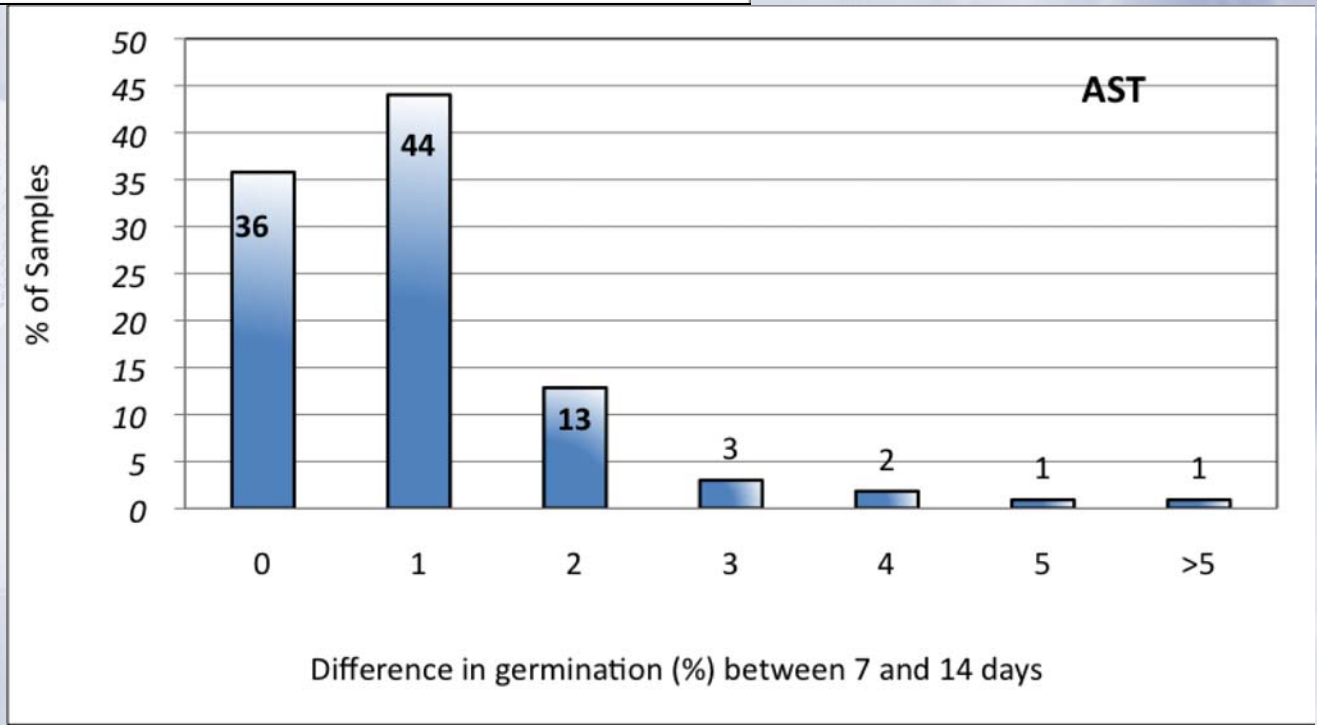
Frequency of samples that reach maximum fluorescence in 7 days compared to 14 days of 145 annual ryegrass samples tested at Tangent Seed Lab Int.

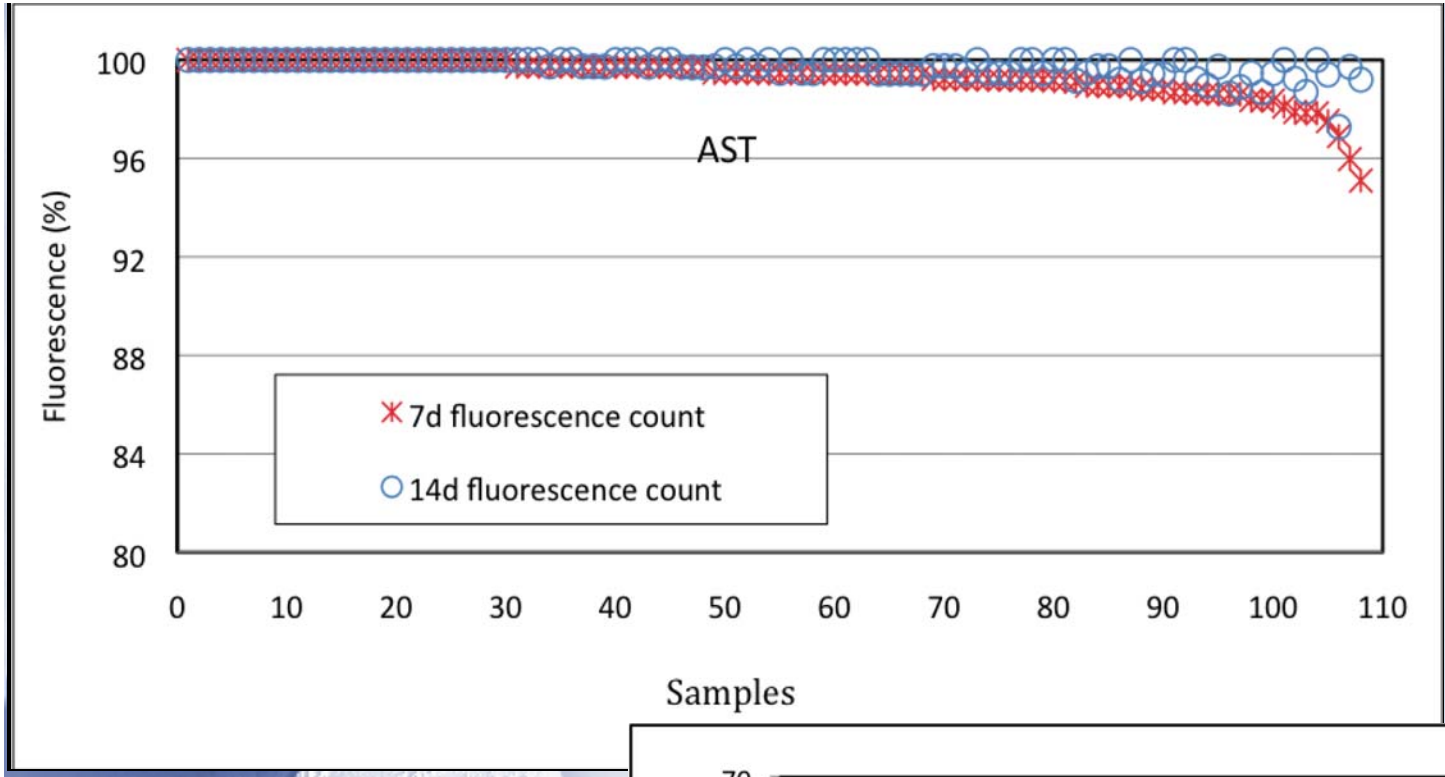




Germination results of 7-day and 14-day counts of 109 annual ryegrass samples tested at AgriSeed Testing.

Frequency of samples that reach maximum germination in 7 days compared to 14 days of 109 annual ryegrass samples tested at Agri Seed Testing

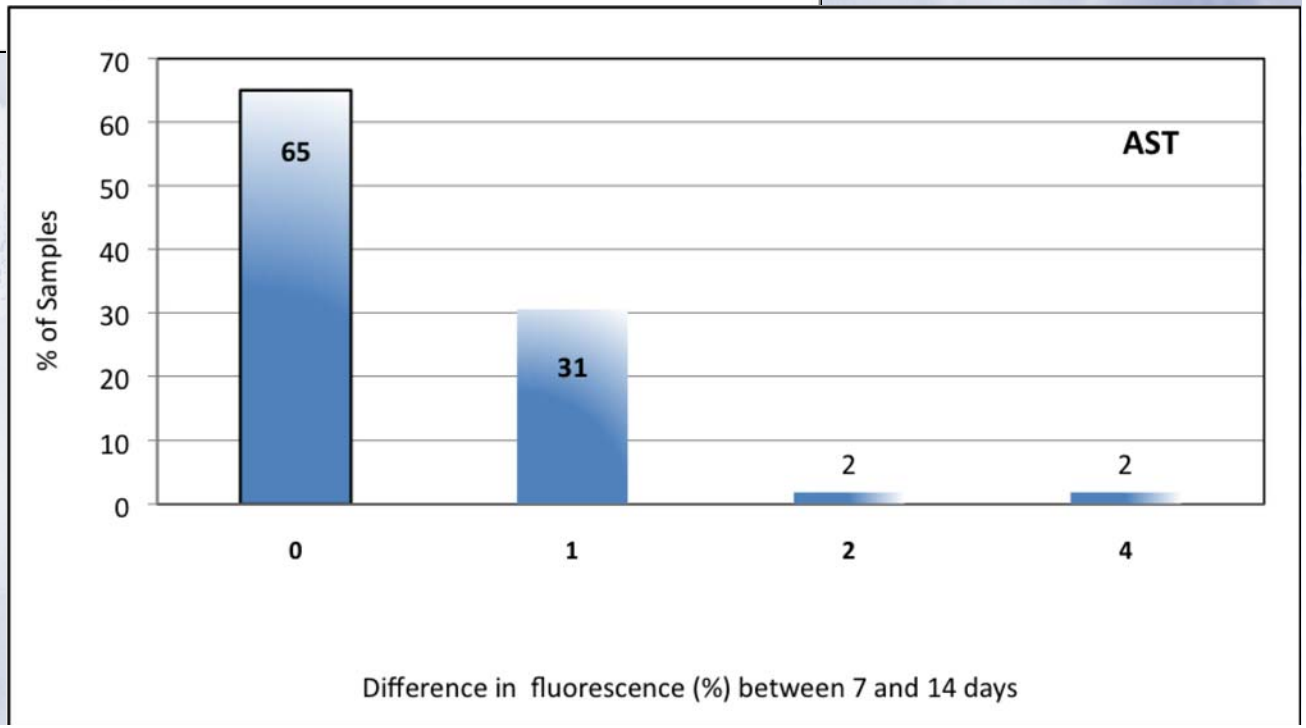


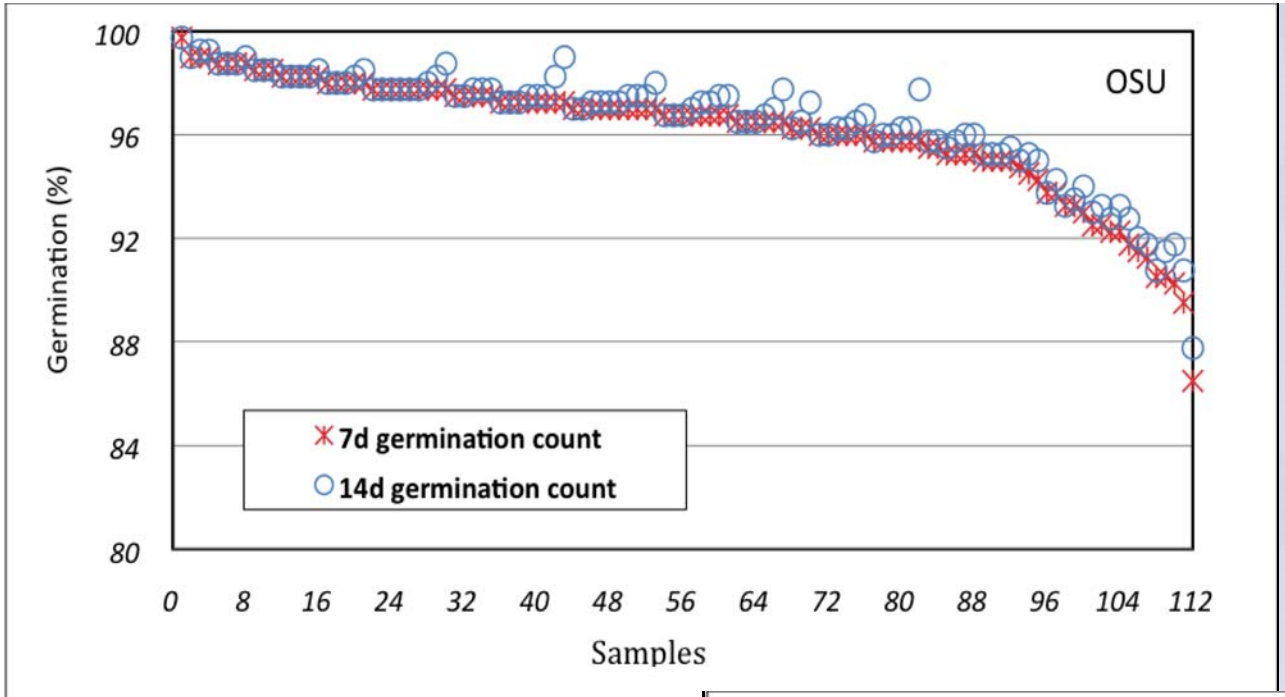


Results

Fluorescence results of 7-day and 14-day counts of 109 annual ryegrass samples Tested at AgriSeed Testing.

Frequency of samples that reach maximum fluorescence in 7 days compared to 14 days of 109 annual ryegrass samples tested at AgriSeed Testing

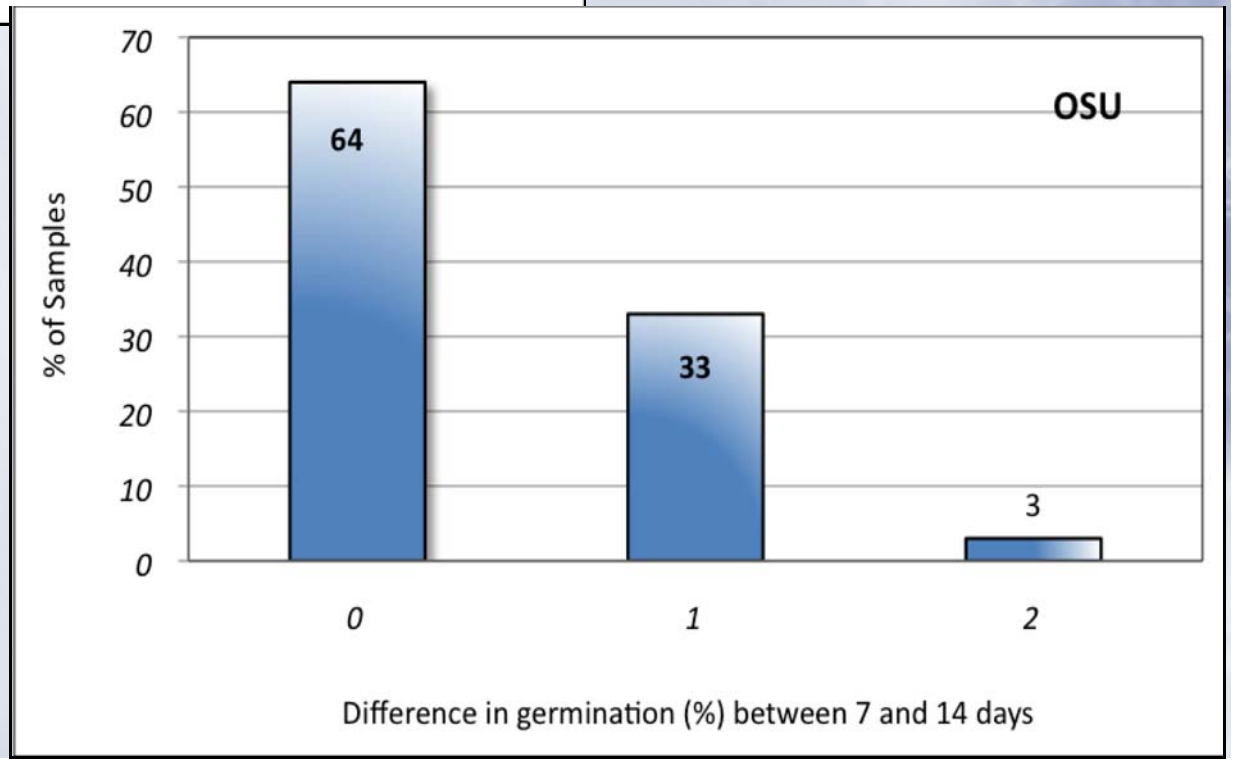


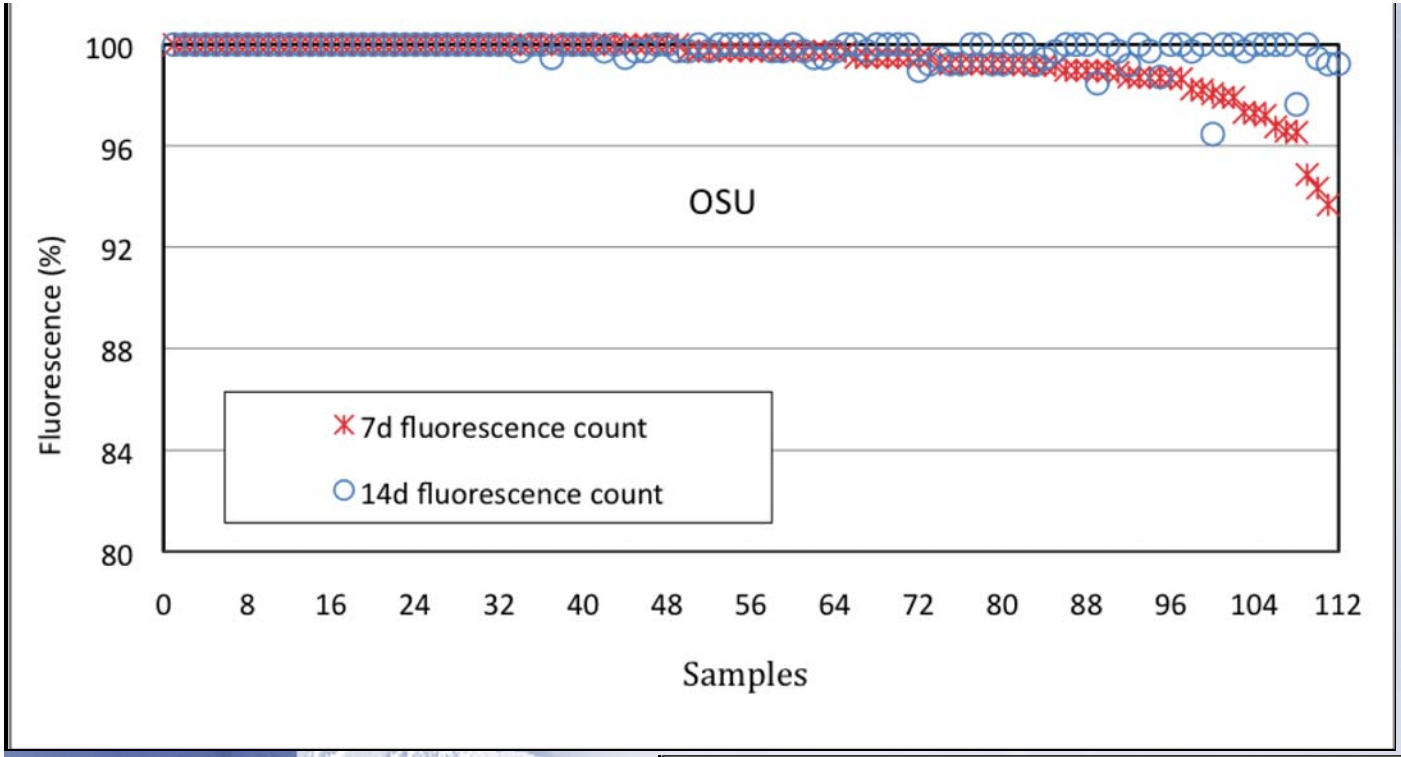


Results

Germination results of 7-day and 14-day counts of 112 annual ryegrass samples tested at OSU Seed Lab.

Frequency of samples that reach maximum germination in 7 days compared to 14 days of 112 annual ryegrass samples tested at OSU Seed Lab

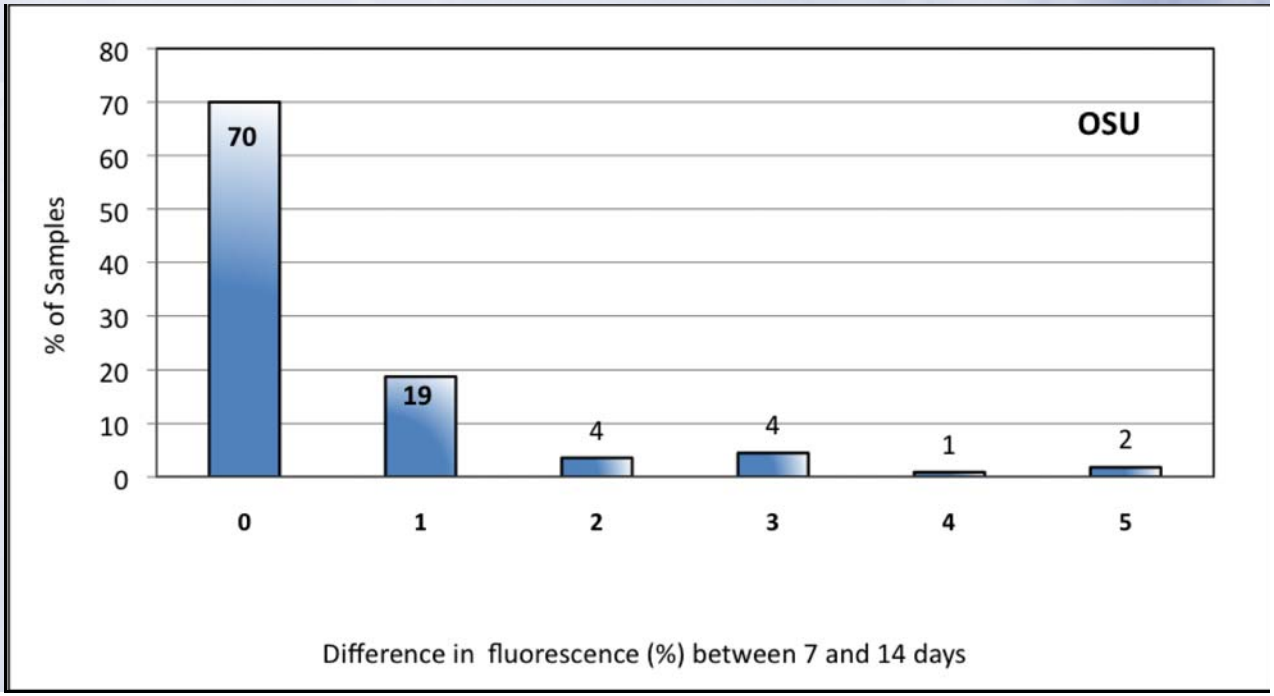




Results

Fluorescence results of 7-day and 14-day counts of 112 annual ryegrass samples Tested at OSU Seed Lab.

Frequency of samples that reach maximum fluorescence in 7 days compared to 14 days of 112 annual ryegrass samples tested at OSU Seed Lab



Conclusions

- **With pre-chilling treatment, the majority of annual ryegrass samples reached maximum germination and fluorescence in the first count or changed slightly (i.e. 1-2%).**
- **In such samples, the germ and FL tests can be ended in the first count, thus speed up the delivery of results without sacrificing accuracy.**
- **Samples that did not reach maximum germination in the first count will be left for full 14 days before ending the test.**