

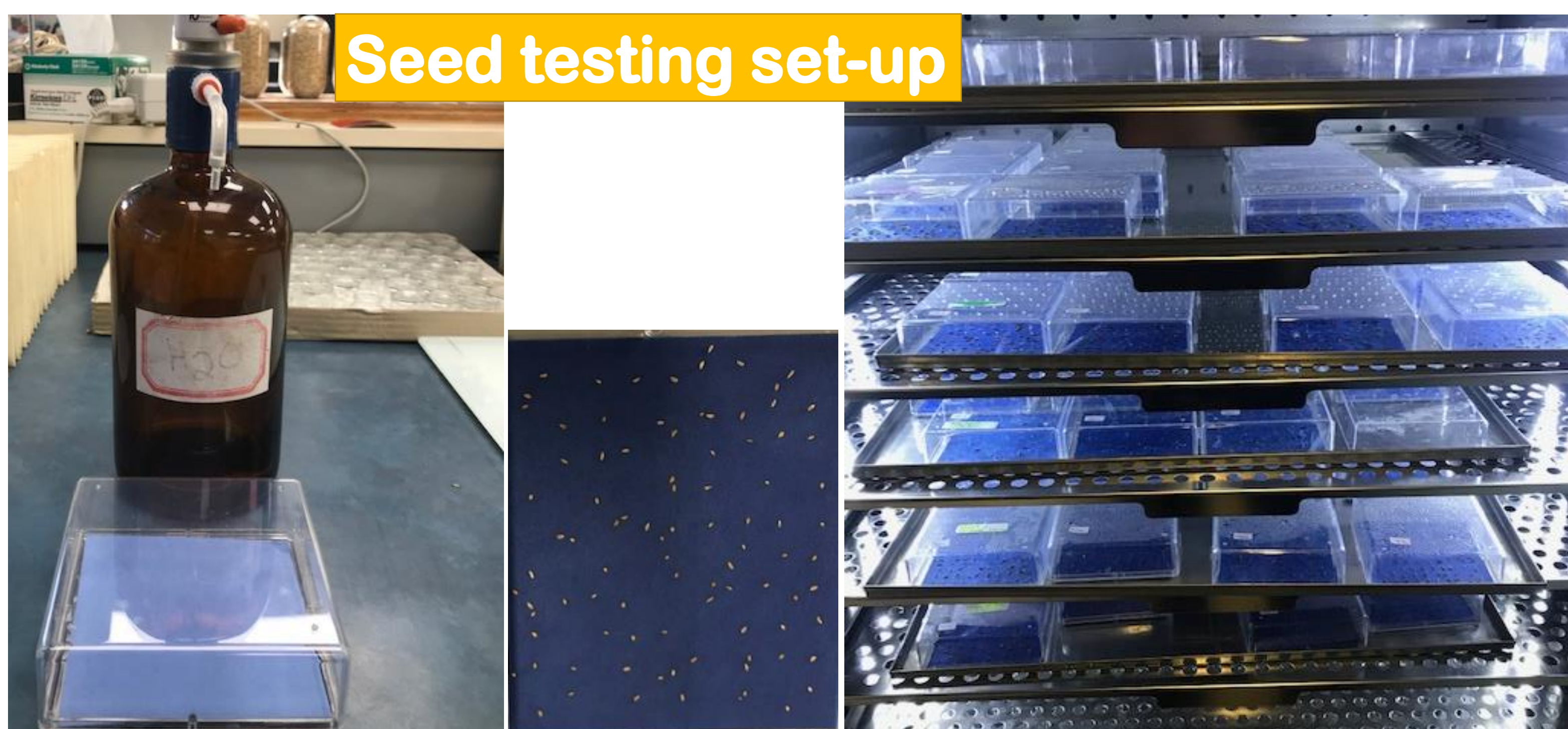
Do seed weight and germination timing of grass species relate to pre-harvest weather?

Introduction

- ❖ Seed harvest of forage grasses starts from mid-July (creeping red fescue) through late-July (bromegrasses) to mid-August (timothy) in the Peace region.
- ❖ Various management factors may affect seed quality attributes such as 1000-seed weight and germination.
- ❖ Prevailing weather conditions especially during reproductive stage may also affect these seed quality attributes.

Material and Methods

- ❖ **Species studied:** creeping red fescue, timothy and meadow bromegrass
- ❖ **Seed weight:** From clean seed samples, 1000 seeds were counted and weighed
- ❖ **Germination:** A sample of 100 seeds were placed on rows on a tray overlaid by moist blue blotting paper and put in a cold (4° C)-chamber for stratification for 72-120 hours. Then, the trays were transferred to seed germination chamber maintained at 25° C with 8 hours light and 15° C with 16 hour dark for germination. Seed germination was monitored in a standardized routine as follows:
 - Creeping red fescue: 7th, 14th and 21st day under germinating condition
 - Bromegrass: 7th and 14th day under germinating condition
 - Timothy: 7th and 10th day under germinating conditions



Seed testing set-up

Results

Table 1. Seed weight (1000 seed/g) and germination (%) of different forage grass species grown from 2011 to 2017 at Beaverlodge.

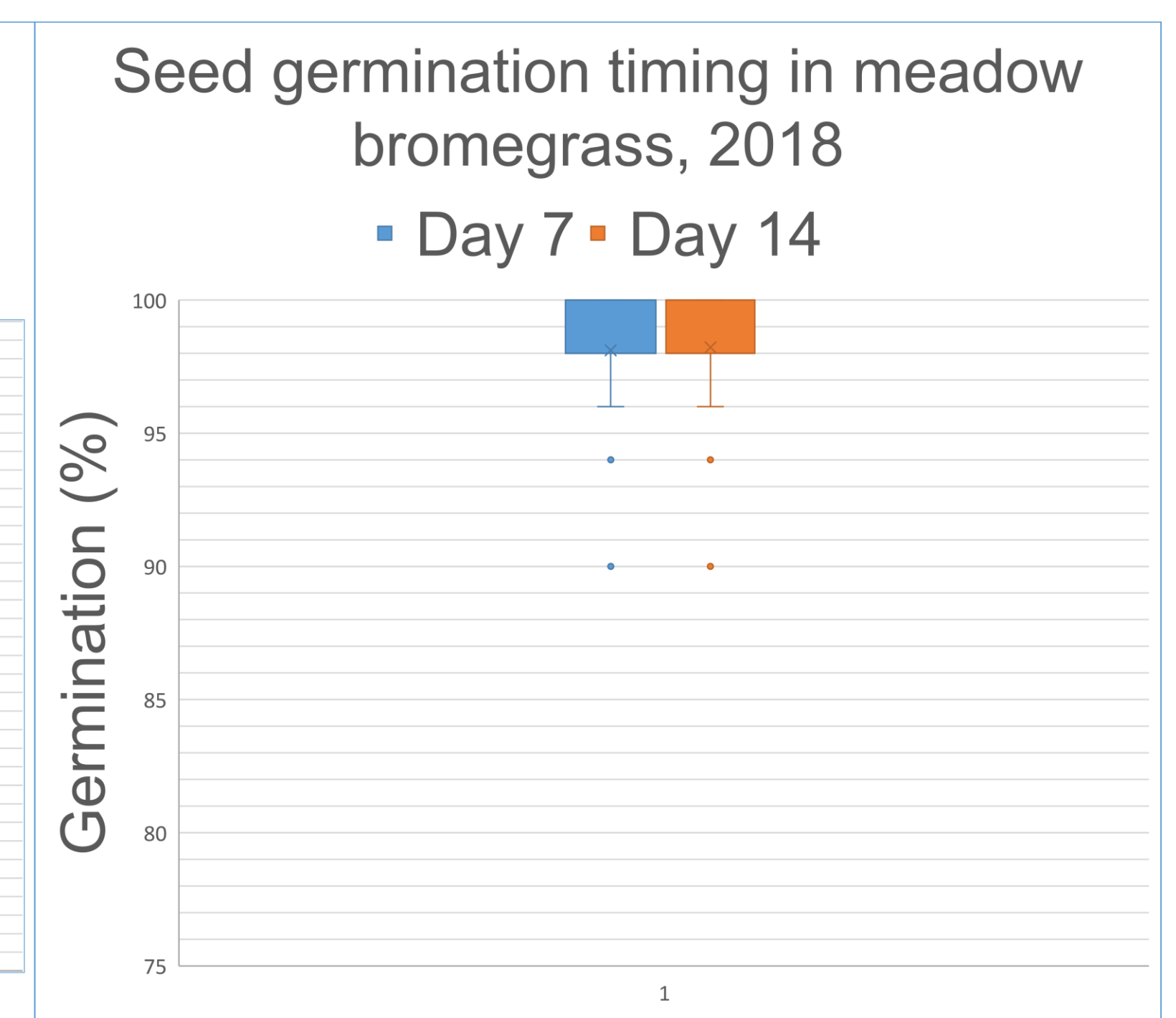
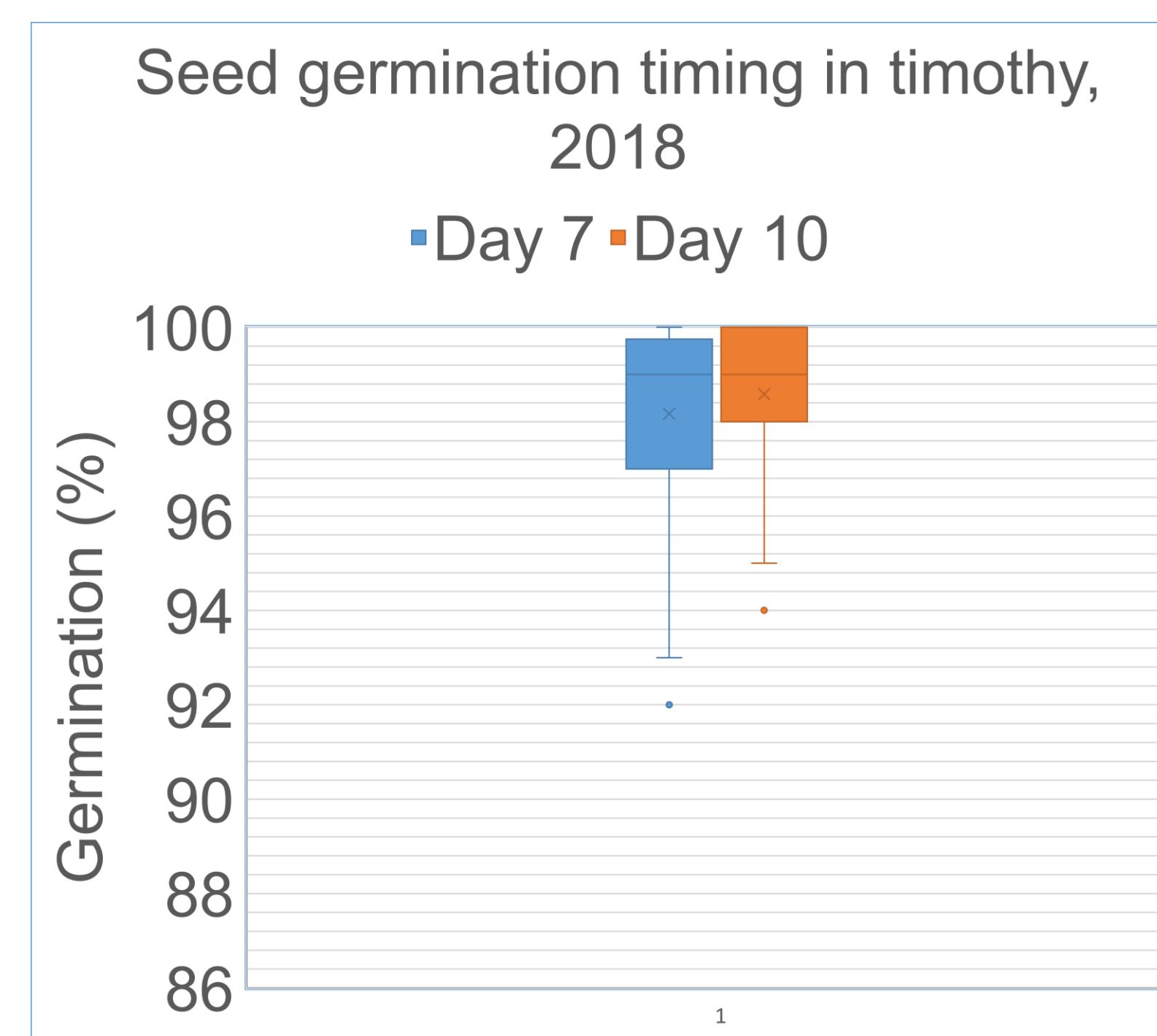
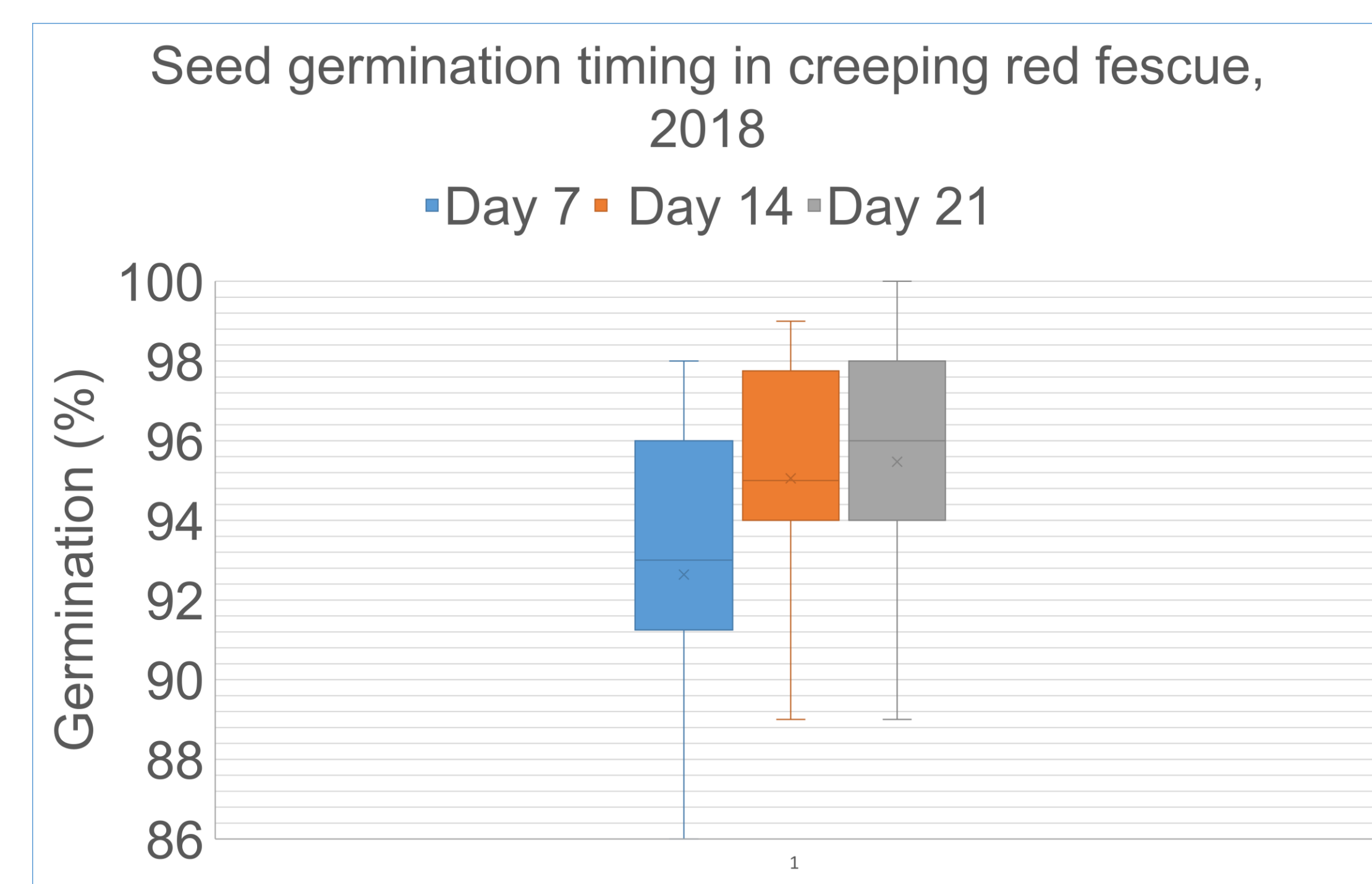
Values	1000 seed weight (g)			Germination (%)		
	CRF	MB	Timothy	CRF	MB	Timothy
Min	1.09	5.34	0.40	92.0	92.0	95.0
Max	1.59	5.99	0.67	98.0	98.0	99.0
Average	1.30	5.67	0.47	94.8	95.8	97.0

CRF = Creeping red fescue MB = Meadow bromegrass

Table 2. Pearson correlation coefficients of 1000-seed weight (g) and germination (%) with number of days with less than 8° C and total precipitation in the month of July from 2011 to 2017

Forage Species	1000-seed weight (g)		Germination (%)	
	Temperature	Rainfall	Temperature	Rainfall
CRF	-0.217	-0.100	0.681*	0.448
MB	-0.510	-0.656	-0.362	0.474
Timothy	0.077	0.352	-0.524	0.512

* significant at 10% level of significance (P ≤ 0.10)



Conclusions

- ❖ 1000 seed weights of grass species vary between the samples within and over the years.
- ❖ Mean germination after 7 days at 20° C is 93% for creeping red fescue, and 98% in both timothy and meadow bromegrass.
- ❖ Number of cold days (< 8° C) and total precipitation in the month of July have differential effects on seed weights and germination of grass species.

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