

Appendix A Effect of light on germination of *Echinochloa crus-galli* grains. Freshly-collected grains and half ones were incubated in an alternating photoperiod with 14 h light ($45 \mu\text{mol m}^{-2}\text{s}^{-1}$) and 10 h dark or continuous dark at 20°C for 30 d. A radicle length of 2 mm was used as the criterion for completion of germination. All values are means \pm SD of four replicates of 50 grains each.

	Germination (%)	
	Alternating light	Darkness
Whole grain	0.0	0.0
Half grain	9.8 \pm 4.6	10.6 \pm 3.8

Appendix B Effect of fluctuating temperature on germination of *Echinochloa crus-galli* grains. Freshly-collected grains and half ones were incubated in a fluctuating temperature of (25°C , 14 h/ 10°C , 10 h) or 20°C in an alternating photoperiod with 14 h light ($45 \mu\text{mol m}^{-2}\text{s}^{-1}$) and 10 h dark or continuous dark for 30 d. A radicle length of 2 mm was used as the criterion for completion of germination. All values are means \pm SD of four replicates of 50 grains each.

	Germination (%)			
	Alternating light		Darkness	
	25/15 $^\circ\text{C}$	20 $^\circ\text{C}$	25/15 $^\circ\text{C}$	20 $^\circ\text{C}$
Whole grain	0.0	0.0	0.0	0.0
Half grain	10.6 \pm 3.6	9.6 \pm 4.8	11.2 \pm 4.2	10.8 \pm 3.6

Appendix C Effect of GA_3 on germination of *Echinochloa crus-galli* grains. Grains freshly-collected and after-ripened for 150 d were incubated in an indicated concentration of GA_3 at 20°C and in darkness for 30 d. A radicle length of 2 mm was used as the criterion for completion of germination. All values are means \pm SD of four replicates of 50 grains each.

GA3 concentration (mM)	Germination (%)	
	Grains freshly-collected	Grains after-ripened for 150 d
0	0.0	73.0 \pm 4.0
0.0001	0.0	72.6 \pm 3.6
0.001	0.0	71.8 \pm 5.6
0.01	0.0	74.2 \pm 3.8
0.1	0.0	75.5 \pm 3.4
1.0	0.0	71.7 \pm 4.6

Appendix D Effect of 6-BA on germination of *Echinochloa crus-galli* grains. Grains freshly-collected and after-ripened for 150 d were incubated in an indicated concentration of GA_3 at 20°C and in darkness for 30 d. A radicle length of 2 mm was used as the criterion for completion of germination. All values are means \pm SD of four replicates of 50 grains each.

6-BA concentration (mM)	Germination (%)	
	Grains freshly-collected	Grains after-ripened for 150 d
0	0.0	73.0 \pm 4.0
0.0001	0.0	71.3 \pm 4.6
0.001	0.0	73.7 \pm 3.3
0.01	0.0	74.9 \pm 5.8
0.1	0.0	76.5 \pm 3.4
1.0	0.0	73.5 \pm 2.7