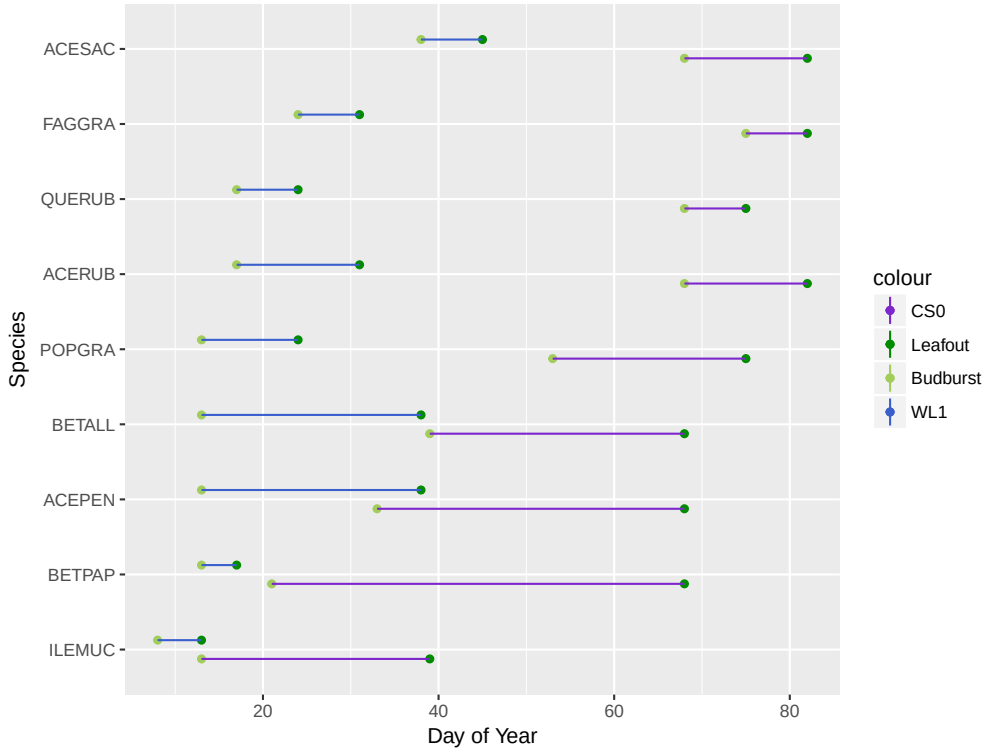
Chilling Experiment Figures

Figure 1: Day of budburst and the day of leaf out for native tree species in New England. Data was collected from a growth chamber experiment using any combination of two photoperiod treatments, two forcing treatments, and three chilling treatments. The standard deviation is represented in blue for budburst and green for leaf out.



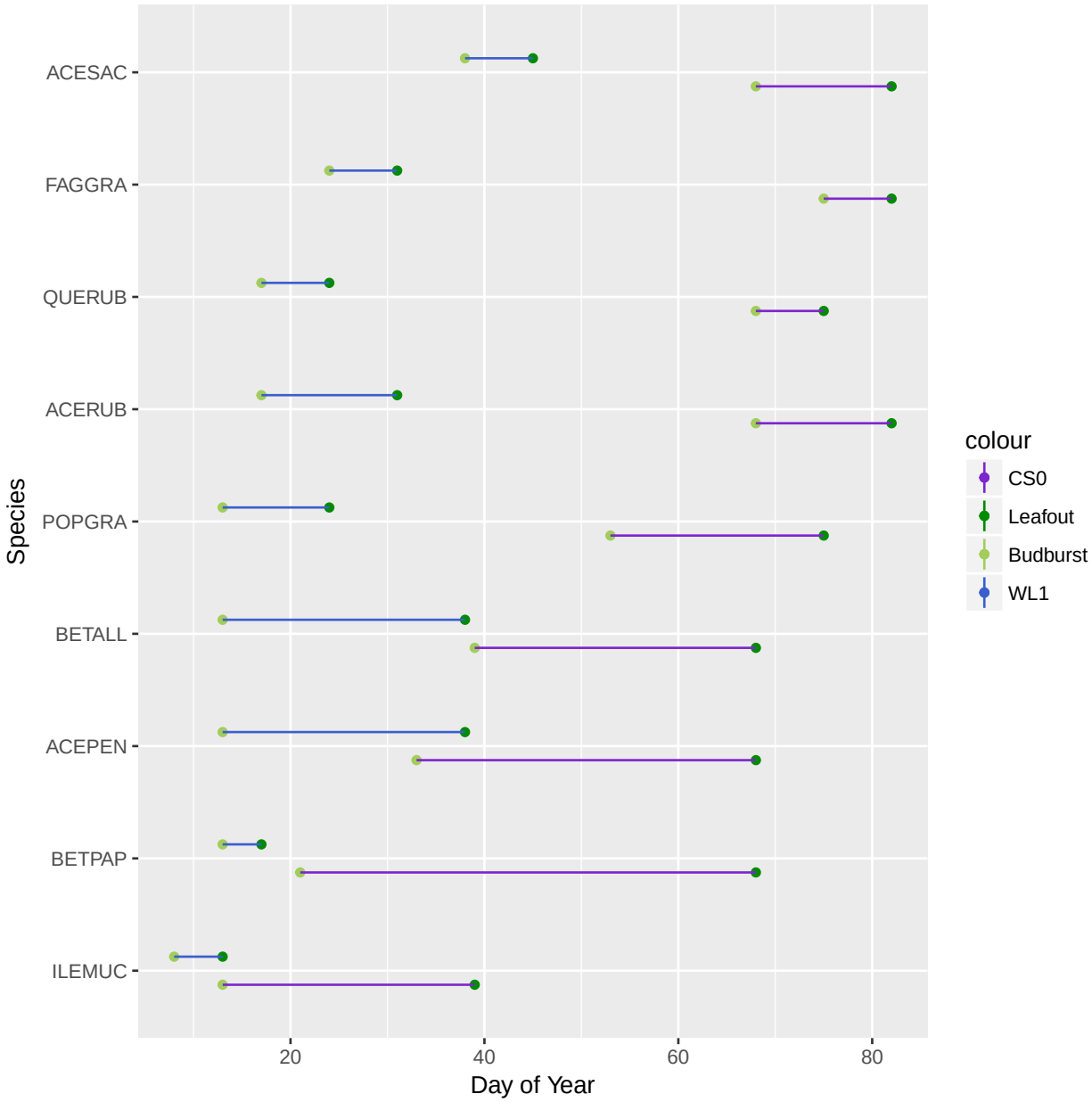


Figure 2: A scatterplot indicating FSI values from 2008 to 2014 for each methdology used in this study. PhenoCam FSI values are red, Observed FSI values are blue, and USA-NPN FSI values are green.

ACEPEN	Sum.Sq	Df	F value	Pr(>F)
chilling	149.41	2	1.20	0.30
forcing	4909.59	1	78.94	0.00
photoperiod	1309.59	1	21.06	0.00
Residuals	6654.56	107		

ACERUB	Sum.Sq	Df	F value	Pr(>F)
chilling	0.62	2	0.00	1.00
forcing	1731.00	1	25.92	0.00
photoperiod	462.78	1	6.93	0.01
Residuals	6611.17	99		

ACESAC	Sum.Sq	Df	F value	Pr(>F)
chilling	65.41	2	0.46	0.64
forcing	259.14	1	3.61	0.06
photoperiod	231.41	1	3.22	0.08
Residuals	4524.88	63		

BETALL	Sum.Sq	Df	F value	Pr(>F)
chilling	525.95	2	5.00	0.01
forcing	1463.30	1	27.81	0.00
photoperiod	632.83	1	12.03	0.00
Residuals	6944.50	132		

BETPAP	Sum.Sq	Df	F value	Pr(>F)
chilling	6.00	2	0.04	0.96
forcing	1776.23	1	21.47	0.00
photoperiod	1105.08	1	13.35	0.00
Residuals	10509.00	127		

FAGGRA	Sum.Sq	Df	F value	Pr(>F)
chilling	144.41	2	1.66	0.20
forcing	611.20	1	14.04	0.00
photoperiod	1.05	1	0.02	0.88
Residuals	2829.78	65		

ILEMUC	Sum.Sq	Df	F value	Pr(>F)
chilling	26.49	2	0.54	0.59
forcing	2262.34	1	91.61	0.00
photoperiod	1035.85	1	41.94	0.00
Residuals	3334.05	135		

POPGRA	Sum.Sq	Df	F value	Pr(>F)
chilling	54.63	2	0.39	0.68
forcing	2405.73	1	34.52	0.00
photoperiod	1019.78	1	14.63	0.00
Residuals	6760.98	97		

QUERUB	Sum.Sq	Df	F value	Pr(>F)
chilling	35.61	2	0.45	0.64
forcing	680.83	1	17.34	0.00
photoperiod	369.53	1	9.41	0.00
Residuals	4946.29	126		

ACEPEN	Sum.Sq	Df	F value	Pr(>F)
chilling	104.66	2	0.87	0.42
forcing	4745.38	1	79.18	0.00
photoperiod	1306.03	1	21.79	0.00
chilling:forcing	63.31	2	0.53	0.59
chilling:photoperiod	181.96	2	1.52	0.22
forcing:photoperiod	257.63	1	4.30	0.04
Residuals	6113.18	102		

ACERUB	Sum.Sq	Df	F value	Pr(>F)
chilling	1.53	2	0.01	0.99
forcing	1721.25	1	26.13	0.00
photoperiod	381.81	1	5.80	0.02
chilling:forcing	358.58	2	2.72	0.07
chilling:photoperiod	37.69	2	0.29	0.75
forcing:photoperiod	17.35	1	0.26	0.61
Residuals	6191.98	94		

ACESAC	Sum.Sq	Df	F value	Pr(>F)
chilling	65.78	2	0.45	0.64
forcing	204.31	1	2.83	0.10
photoperiod	267.24	1	3.70	0.06
chilling:forcing	76.27	2	0.53	0.59
chilling:photoperiod	164.28	2	1.14	0.33
forcing:photoperiod	0.05	1	0.00	0.98
Residuals	4194.28	58		

BETALL	Sum.Sq	Df	F value	Pr(>F)
chilling	526.41	2	5.57	0.00
forcing	1463.33	1	30.95	0.00
photoperiod	632.83	1	13.38	0.00
chilling:forcing	66.32	2	0.70	0.50
chilling:photoperiod	226.18	2	2.39	0.10
forcing:photoperiod	612.56	1	12.95	0.00
Residuals	6005.50	127		

BETPAP	Sum.Sq	Df	F value	Pr(>F)
chilling	6.07	2	0.04	0.96
forcing	1765.57	1	21.22	0.00
photoperiod	1101.18	1	13.24	0.00
chilling:forcing	71.38	2	0.43	0.65
chilling:photoperiod	62.92	2	0.38	0.69
forcing:photoperiod	233.62	1	2.81	0.10
Residuals	10148.80	122		

FAGGRA	Sum.Sq	Df	F value	Pr(>F)
chilling	145.37	2	1.64	0.20
forcing	595.26	1	13.40	0.00
photoperiod	0.42	1	0.01	0.92
chilling:forcing	39.45	2	0.44	0.64
chilling:photoperiod	83.56	2	0.94	0.40
forcing:photoperiod	35.33	1	0.80	0.38
Residuals	2665.38	60		

ILEMUC	Sum.Sq	Df	F value	Pr(>F)
chilling	28.03	2	0.60	0.55
forcing	2277.73	1	97.37	0.00
photoperiod	1033.49	1	44.18	0.00
chilling:forcing	16.09	2	0.34	0.71
chilling:photoperiod	106.28	2	2.27	0.11
forcing:photoperiod	171.89	1	7.35	0.01
Residuals	3041.00	130		

POPGRA	Sum.Sq	Df	F value	Pr(>F)
chilling	50.56	2	0.37	0.69
forcing	2390.66	1	35.16	0.00
photoperiod	1016.39	1	14.95	0.00
chilling:forcing	45.72	2	0.34	0.72
chilling:photoperiod	152.02	2	1.12	0.33
forcing:photoperiod	296.37	1	4.36	0.04
Residuals	6254.69	92		

QUERUB	Sum.Sq	Df	F value	Pr(>F)
chilling	35.70	2	0.46	0.63
forcing	668.59	1	17.39	0.00
photoperiod	364.39	1	9.48	0.00
chilling:forcing	174.11	2	2.26	0.11
chilling:photoperiod	110.91	2	1.44	0.24
forcing:photoperiod	15.92	1	0.41	0.52
Residuals	4652.62	121		