climate

MDPI

Supporting Information for "*Is drought increasing in Maine and hurting wild blueberry production?*"

Table S1. Pearson correlation analysis between average Enhanced Vegetation Index (EVI) of growing season (May-September) and different scales of SPEI from May to September at three different wild-blueberry study zones: Airport (Irrigated field, Deblois, ME), Baxter (Non-Irrigated field, Deblois, ME), and WH Counties, Maine.

	Airport					Baxter					Maine				
	May	June	July	August	September	May	June	July	August	September	May	June	July	August	September
SPEI_1	0.145	.448*	-0.09	0.307	0.055	0.109	.496*	-0.129	0.352	0.070	0.131	0.303	-0.123	0.296	0.197
SPEI_2	0.200	.460*	0.320	0.160	0.300	0.213	.462*	0.336	0.169	0.344	0.269	0.348	0.172	0.113	0.415
SPEI_3	0.094	.439*	0.337	0.417	0.210	0.103	.469*	0.326	.450*	0.231	0.192	0.405	0.223	0.276	0.258
SPEI_4	0.013	0.387	0.351	0.385	0.368	0.023	0.417	0.366	0.396	0.410	0.167	0.350	0.296	0.262	0.335
SPEI_5	0.087	0.275	0.290	0.387	0.366	0.103	0.309	0.304	0.416	0.391	0.262	0.314	0.235	0.317	0.329
SPEI_6	0.239	0.270	0.201	0.333	0.385	0.272	0.311	0.219	0.360	0.428	0.398	0.362	0.218	0.272	0.386
SPEI_7	0.193	0.411	0.227	0.254	0.337	0.253	.472*	0.255	0.286	0.381	0.363	.470*	0.293	0.258	0.352
SPEI_8	0.316	0.344	0.365	0.290	0.270	0.340	0.427	0.408	0.327	0.314	0.421	.433*	0.394	0.332	0.339
SPEI_9	0.319	.453*	0.318	0.399	0.291	0.365	.497*	0.381	.451*	0.344	0.381	.475*	0.380	0.406	0.398
SPEI_10	.437*	.446*	0.416	0.346	0.410	.497*	.508*	.453*	0.414	.475*	.488*	0.430	0.425	0.386	.473*
SPEI_11	.520*	.531*	0.389	0.419	0.360	.561**	.602**	.440*	.462*	.441*	.540*	.515*	0.372	0.411	.446*
SPEI_12	.646**	.589**	.474*	0.385	0.428	.656**	.642**	.534*	.443*	.481*	.669**	.549**	.455*	0.364	.460*
SPEI_13	.647**	.702**	.530*	.464*	0.401	.647**	.726**	.576**	.529*	.469*	.657**	.667**	.489*	.437*	0.417
SPEI_14	.583**	.698**	.645**	.525*	.472*	.604**	.713**	.664**	.577**	.547*	.642**	.654**	.604**	.476*	.477*
SPEI_15	.576**	.634**	.640**	.631**	.528*	.614**	.667**	.651**	.659**	.590**	.601**	.637**	.596**	.583**	.512*
SPEI_16	.563**	.626**	.587**	.629**	.633**	.612**	.673**	.615**	.648**	.672**	.589**	.601**	.588**	.576**	.616**
SPEI_17	.535*	.611**	.587**	.585**	.630**	.601**	.667**	.629**	.619**	.654**	.577**	.588**	.558**	.573**	.605**
SPEI_18	.583**	.586**	.579**	.586**	.580**	.637**	.657**	.629**	.631**	.617**	.680**	.578**	.552**	.542*	.595**
SPEI_19	.564**	.624**	.562**	.580**	.581**	.615**	.684**	.627**	.633**	.631**	.700**	.664**	.548*	.540*	.565**
SPEI_20	.542*	.607**	.597**	.570**	.577**	.594**	.664**	.652**	.638**	.636**	.730**	.688**	.634**	.544*	.563**
SPEI_21	.570**	.592**	.585**	.604**	.569**	.611**	.650**	.638**	.663**	.643**	.732**	.730**	.663**	.629**	.570**
SPEI_22	.621**	.616**	.569**	.594**	.605**	.654**	.665**	.622**	.651**	.670**	.748**	.731**	.700**	.657**	.650**
SPEI_23	.619**	.657**	.592**	.575**	.598**	.648**	.697**	.637**	.632**	.660**	.771**	.742**	.704**	.692**	.676**
SPEI_24	.631**	.654**	.634**	.604**	.584**	.658**	.691**	.671**	.653**	.645**	.779**	.762**	.713**	.702**	.713**
SPEI_25	.616**	.667**	.635**	.644**	.613**	.646**	.702**	.668**	.685**	.665**	.772**	.774**	.731**	.710**	.720**
SPEI_26	.624**	.651**	.648**	.641**	.647**	.644**	.688**	.681**	.678**	.691**	.782**	.767**	.747**	.725**	.726**
SPEI_27	.635**	.658**	.630**	.650**	.645**	.657**	.686**	.664**	.686**	.684**	.799**	.778**	.736**	.738**	.740**
SPEI_28	.623**	.670**	.634**	.630**	.656**	.640**	.698**	.658**	.667**	.695**	.808**	.795**	.743**	.726**	.753**
SPEI_29	.578**	.660**	.646**	.632**	.636**	.604**	.685**	.670**	.660**	.676**	.799**	.808**	.762**	.731**	.741**
SPEI_30	.601**	.624**	.638**	.645**	.639**	.620**	.656**	.659**	.673**	.670**	.815**	.804**	.776**	.750**	.750**
SPEI_31	.579**	.643**	.601**	.639**	.653**	.591**	.669**	.629**	.664**	.684**	.809**	.819**	.774**	.765**	.769**
SPEI_32	.545*	.624**	.621**	.605**	.647**	.572**	.644**	.644**	.637**	.675**	.786**	.813**	.789**	.766**	.785**
SPEI_33	.584**	.586**	.602**	.623**	.617**	.604**	.619**	.618**	.650**	.652**	.807**	.785**	.783**	.781**	.789**
SPEI_34	.598**	.621**	.564**	.603**	.631**	.614**	.647**	.594**	.625**	.661**	.810**	.804**	.756**	.775**	.801**

SPEI_35	.589**	.632**	.601**	.567**	.612**	.606**	.655**	.624**	.601**	.636**	.814**	.807**	.775**	.750**	.795**
SPEI_36	.612**	.624**	.611**	.600**	.573**	.644**	.647**	.631**	.629**	.609**	.825**	.811**	.780**	.766**	.764**
SPEI_37	.585**	.641**	.606**	.611**	.604**	.617**	.677**	.626**	.636**	.634**	.802**	.819**	.785**	.773**	.780**
SPEI_38	.574**	.616**	.626**	.608**	.617**	.605**	.653**	.659**	.632**	.643**	.797**	.799**	.795**	.779**	.786**
SPEI_39	.554**	.607**	.602**	.628**	.613**	.579**	.643**	.636**	.665**	.638**	.787**	.794**	.776**	.789**	.792**
SPEI_40	.542*	.592**	.596**	.607**	.630**	.576**	.623**	.629**	.644**	.668**	.788**	.787**	.774**	.772**	.800**
SPEI_41	.514*	.581**	.580**	.602**	.609**	.558**	.620**	.608**	.639**	.648**	.785**	.788**	.765**	.771**	.782**
SPEI_42	.521*	.556**	.571**	.586**	.603**	.572**	.604**	.607**	.618**	.642**	.780**	.784**	.766**	.762**	.781**
SPEI_43	.520*	.560**	.545*	.577**	.587**	.572**	.616**	.591**	.617**	.620**	.775**	.780**	.763**	.763**	.772**
SPEI_44	.550**	.557**	.548*	.554**	.580**	.600**	.613**	.601**	.603**	.620**	.787**	.772**	.759**	.761**	.773**
SPEI_45	.547*	.580**	.545*	.558**	.553**	.596**	.634**	.598**	.613**	.603**	.771**	.783**	.753**	.758**	.771**
SPEI_46	.559**	.578**	.567**	.555**	.559**	.612**	.630**	.617**	.611**	.616**	.775**	.768**	.763**	.753**	.769**
SPEI_47	.554**	.586**	.565**	.576**	.555**	.605**	.642**	.613**	.628**	.612**	.770**	.771**	.749**	.764**	.763**
SPEI_48	.555**	.582**	.575**	.575**	.576**	.598**	.637**	.627**	.626**	.630**	.777**	.766**	.753**	.751**	.774**

The numbers mentioned after "SPEI" indicate different scales of SPEI. (e.g., SPEI_16 from September represents the drought impact over past 15 months.) The shaded regions of this table indicate the most significant correlations as well as consistent trends repeating every 10-12 months. [Here the numbers indicate Pearson correlation coefficient values. $p < 0.001$***; $p < 0.01$**; $p < 0.05$*].

Table S2. Pearson correlation analysis between average yield per year and different scales of SPEI from May to September at three different wild-blueberry study zones: Airport (Irrigated field, Deblois, ME), Baxter (Non-Irrigated field, Deblois, ME), and WH Counties, Maine.

	Airport					Baxter					Maine				
	May	June	July	August	September	May	June	July	August	September	May	June	July	August	September
SPEI_1	0.11	0.16	0.16	0.13	0.17	0.30	0.26	0.26	0.48	0.31	0.23	0.68*	0.25	0.41	0.36
SPEI_2	0.04	-0.07	-0.07	-0.14	0.11	0.34	0.22	0.56*	0.86**	0.55	0.08	0.68*	0.65*	0.61*	0.47
SPEI_3	0.03	-0.12	-0.12	-0.23	-0.09	0.40	0.29	0.29	0.63*	0.45	0.18	0.52	0.68*	0.62*	0.54
SPEI_4	0.03	-0.16	-0.16	-0.12	-0.17	0.40	0.39	0.39	0.51	0.34	0.08	0.55	0.57	0.63*	0.65*
SPEI_5	-0.12	-0.13	-0.13	-0.16	-0.11	0.25	0.40	0.40	0.50	0.43	-0.01	0.48	0.51	0.56	0.67*
SPEI_6	-0.06	-0.25	-0.25	-0.20	-0.16	0.41	0.26	0.26	0.56*	0.49	0.00	0.28	0.44	0.51	0.61
SPEI_7	-0.14	-0.19	-0.19	-0.19	-0.22	0.39	0.40	0.40	0.57*	0.55*	-0.11	0.30	0.32	0.45	0.59
SPEI_8	-0.05	-0.24	-0.24	-0.25	-0.19	0.53	0.38	0.38	0.51	0.57*	-0.12	0.15	0.36	0.35	0.58
SPEI_9	-0.05	-0.13	-0.13	-0.19	-0.28	0.54	0.51	0.51	0.56*	0.50	-0.09	0.13	0.23	0.39	0.48
SPEI_10	-0.14	-0.12	-0.12	-0.23	-0.20	0.49	0.49	0.49	0.53	0.58*	0.08	0.14	0.22	0.26	0.53
SPEI_11	-0.15	-0.20	-0.20	-0.16	-0.24	0.38	0.44	0.44	0.62*	0.56*	0.29	0.29	0.21	0.25	0.40
SPEI_12	-0.10	-0.20	-0.20	-0.15	-0.16	0.43	0.35	0.35	0.58*	0.64*	0.33	0.43	0.35	0.23	0.36
SPEI_13	-0.17	-0.16	-0.16	-0.21	-0.15	0.34	0.39	0.39	0.53	0.60*	0.23	0.47	0.45	0.36	0.34
SPEI_14	-0.24	-0.22	-0.22	-0.22	-0.22	0.27	0.32	0.32	0.46	0.54	0.18	0.38	0.47	0.46	0.44
SPEI_15	-0.15	-0.28	-0.28	-0.19	-0.24	0.29	0.25	0.25	0.48	0.46	0.20	0.34	0.40	0.48	0.53
SPEI_16	-0.09	-0.20	-0.20	-0.25	-0.21	0.29	0.27	0.27	0.42	0.48	0.19	0.36	0.37	0.41	0.55
SPEI_17	-0.09	-0.13	-0.13	-0.29	-0.25	0.22	0.27	0.27	0.36	0.41	0.01	0.35	0.41	0.39	0.49
SPEI_18	-0.16	-0.13	-0.13	-0.22	-0.29	0.22	0.20	0.20	0.38	0.35	0.18	0.18	0.41	0.42	0.47
SPEI_19	-0.23	-0.20	-0.20	-0.16	-0.22	0.13	0.20	0.20	0.38	0.38	0.07	0.35	0.26	0.43	0.49
SPEI_20	-0.28	-0.26	-0.26	-0.16	-0.16	0.18	0.12	0.12	0.34	0.37	0.09	0.23	0.45	0.29	0.49
SPEI_21	-0.35	-0.31	-0.31	-0.21	-0.16	0.13	0.17	0.17	0.33	0.32	0.24	0.26	0.34	0.47	0.38
SPEI_22	-0.31	-0.37	-0.37	-0.26	-0.21	0.20	0.12	0.12	0.26	0.32	0.27	0.39	0.36	0.38	0.53
SPEI_23	-0.30	-0.33	-0.33	-0.31	-0.26	0.27	0.18	0.18	0.28	0.24	0.32	0.41	0.47	0.39	0.45
SPEI_24	-0.18	-0.33	-0.33	-0.36	-0.31	0.38	0.25	0.25	0.24	0.27	0.40	0.45	0.47	0.49	0.46
SPEI_25	-0.24	-0.21	-0.21	-0.33	-0.36	0.38	0.36	0.36	0.30	0.23	0.43	0.53	0.51	0.49	0.55
SPEI_26	-0.23	-0.27	-0.27	-0.32	-0.32	0.36	0.36	0.36	0.35	0.29	0.35	0.53	0.58	0.52	0.55
SPEI_27	-0.28	-0.25	-0.25	-0.21	-0.32	0.33	0.34	0.34	0.44	0.34	0.38	0.47	0.57	0.60	0.59
SPEI_28	-0.29	-0.30	-0.30	-0.27	-0.21	0.32	0.31	0.31	0.43	0.45	0.26	0.50	0.50	0.58	0.66
SPEI_29	-0.29	-0.30	-0.30	-0.25	-0.27	0.31	0.31	0.31	0.41	0.43	0.14	0.40	0.52	0.51	0.63
SPEI_30	-0.23	-0.31	-0.31	-0.30	-0.25	0.36	0.29	0.29	0.38	0.41	0.12	0.30	0.43	0.54	0.58
SPEI_31	-0.25	-0.25	-0.25	-0.30	-0.30	0.39	0.35	0.35	0.37	0.38	0.13	0.29	0.35	0.45	0.60
SPEI_32	-0.25	-0.27	-0.27	-0.31	-0.30	0.39	0.37	0.37	0.36	0.37	0.24	0.31	0.34	0.37	0.53
SPEI_33	-0.21	-0.26	-0.26	-0.25	-0.31	0.45	0.37	0.37	0.41	0.36	0.24	0.41	0.35	0.36	0.46
SPEI_34	-0.14	-0.23	-0.23	-0.27	-0.26	0.45	0.42	0.42	0.43	0.41	0.37	0.38	0.44	0.37	0.47
SPEI_35	-0.09	-0.16	-0.16	-0.26	-0.27	0.47	0.43	0.43	0.43	0.43	0.53	0.50	0.42	0.45	0.49
SPEI_36	-0.09	-0.11	-0.11	-0.23	-0.26	0.45	0.44	0.44	0.48	0.42	0.61	0.66	0.52	0.43	0.54
SPEI_37	-0.08	-0.12	-0.12	-0.17	-0.23	0.41	0.42	0.42	0.48	0.47	0.54	0.72*	.673*	0.53	0.52
SPEI_38	-0.07	-0.10	-0.10	-0.12	-0.17	0.42	0.39	0.39	0.49	0.48	0.56	0.66	0.75*	.682*	0.61
SPEI_39	-0.04	-0.10	-0.10	-0.12	-0.12	0.48	0.40	0.40	0.47	0.49	0.60	.682*	.696*	.756*	.763*
SPEI_40	-0.03	-0.07	-0.07	-0.11	-0.12	0.54	0.46	0.46	0.45	0.47	0.58	.726*	.726*	.709*	.816**
SPEI_41	-0.03	-0.07	-0.07	-0.11	-0.11	0.53	0.52	0.52	0.46	0.44	0.52	.718*	.747*	.743*	.781*

SPEI_42	-0.01	-0.06	-0.06	-0.08	-0.11	0.51	0.50	0.50	0.51	0.45	0.53	.674*	.743*	.761*	.815**
SPEI_43	0.02	-0.04	-0.04	-0.08	-0.08	0.51	0.49	0.49	0.56*	0.51	0.58	.709*	.715*	.759*	.841**
SPEI_44	-0.01	-0.01	-0.01	-0.07	-0.08	0.45	0.49	0.49	0.55	0.56*	0.59	.758*	.739*	.734*	.847**
SPEI_45	0.04	-0.03	-0.03	-0.06	-0.07	0.44	0.43	0.43	0.53	0.55*	.680*	.761*	.785*	.762*	.836**
SPEI_46	0.07	0.02	0.02	-0.03	-0.05	0.41	0.42	0.42	0.54	0.54	.750*	.818**	.738*	.812**	.871**
SPEI_47	0.10	0.04	0.04	-0.05	-0.03	0.44	0.39	0.39	0.48	0.54	.732*	.860**	.813**	.757*	.907**
SPEI_48	0.12	0.07	0.07	0.00	-0.05	0.45	0.41	0.41	0.47	0.47	.793*	.850**	.864**	.832**	.850**

The numbers mentioned after "SPEI" indicate different scales of SPEI. (e.g., SPEI_16 of September represents the drought severity scale of 16 consecutive months.) The colored regions of this table indicate the most significant correlations. [Here the numbers indicate Pearson correlation coefficient values. $p < 0.001$***; $p < 0.01$**; $p < 0.05$*]