



Supplement

The following supplementary materials are available for this article: Chiang, Y.-P., H.-Y. Tzeng, L.-S. Chou, A. Bain. 2021. Adaptation in a changing climate: The phenology of two closely related sympatric *Ficus* species in Taiwan. *Taiwania* 66(4): 561-568. Doi: [10.6165/tai.2021.66.561](https://doi.org/10.6165/tai.2021.66.561)

Table S1. Meteorological factors in Northern and Southern Taiwan during survey from April 2011 to April 2013. The minimum amount had removed the blank number and zero.

	Spring		Summer		Autumn		Winter		Survey period	
	North	South	North	South	North	South	North	South	North	South
Rainfall (mm)										
Average	10.43 ± 12.91	18.11 ± 35.78	23.25 ± 40.03	39.33 ± 81.06	10.37 ± 13.13	10.43 ± 16.37	10.37 ± 13.23	4.45 ± 6.79	13.52 ± 23.34	23.49 ± 58.15
Maximum	57	184.5	277.5	615	47	89.5	62.7	26.5	277.5	615
Minimum	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1
Solar radiation (MJ/m ²)										
Average	10.22 ± 6.38	18.60 ± 5.85	14.41 ± 5.20	19.04 ± 8.05	9.34 ± 5.56	16.30 ± 5.25	5.30 ± 4.42	13.33 ± 4.64	9.94 ± 6.32	16.90 ± 6.47
Maximum	23.52	30.08	24.09	30.9	20.77	26.64	15.27	22.92	24.09	30.9
Minimum	0.07	1.12	0.81	1.03	0.13	2.66	0.01	3.55	0.01	1.03
Temperature (°C)										
Average	22.17 ± 3.67	25.26 ± 2.18	29.33 ± 1.63	28.23 ± 1.08	24.52 ± 3.01	26.26 ± 1.57	17.02 ± 2.74	21.85 ± 1.74	23.24 ± 5.22	25.41 ± 2.84
Maximum	30.4	29.1	32.3	30.1	30.6	29.1	24	25.6	32.3	30.1
Minimum	12.8	19.3	24.5	25.1	15.7	21.9	10.2	17.4	10.2	17.4
DTV (°C)										
Average	7.39 ± 3.38	6.27 ± 1.76	7.82 ± 1.85	5.61 ± 1.41	5.62 ± 2.35	5.31 ± 1.60	5.04 ± 2.91	5.01 ± 1.85	6.51 ± 2.95	5.58 ± 1.73
Maximum	17	11.9	12.2	9.8	11.3	8.9	13.2	10.5	17	11.9
Minimum	1.5	2.1	2.3	1.9	1.1	1.9	1.2	1.6	1.1	1.6
LT (°C)										
Average	19.04 ± 3.31	22.58 ± 2.13	26.25 ± 1.26	25.75 ± 1.10	22.29 ± 2.76	23.97 ± 1.58	14.89 ± 2.34	19.67 ± 1.71	20.57 ± 4.84	22.98 ± 2.76
Maximum	25.9	27.4	29.8	29	27.9	26.6	21.3	23	29.8	29
Minimum	10.4	16.3	23.3	23.1	13.7	18.8	8.6	15.2	8.6	15.2
HT (°C)										
Average	26.43 ± 4.96	28.85 ± 2.58	34.08 ± 2.32	31.36 ± 1.48	27.91 ± 4.04	29.28 ± 2.12	19.93 ± 3.99	24.68 ± 2.35	27.09 ± 6.34	28.56 ± 3.22
Maximum	36.1	33.4	38.3	33.7	35.6	33.3	30.4	30	38.3	33.7
Minimum	13.7	21.5	26.4	26.6	17.8	22.9	11.6	19.5	11.6	19.5



Table S2. Correlation tests between plant development and average rainfall, total solar radiation, and average temperature through the Durbin–Watson test (d) and Rho (ρ) from the AR1 model. The tests using previous phenological data (Chiang et al. 2018) were reperformed for this study period. For the Durbin–Watson test (d), dL = 1.654, and dU = 1.694 for northern Taiwan; dL = 1.528, and dU = 1.601 for southern Taiwan, $\alpha = 0.05$. The bold words showed there were no evidence for positive correlation ($d > dU$), therefore the result of these correlation tests were simply showed in NS (non-significant) or * (significant at 5%), ** (significant at 1%). The others showed there were evidence for positive correlation would be analyzed by the AR1 model and showed Rho (ρ , autocorrelation coefficient) values, which less than 1 showed it was in the acceptable region for stationarity and to confirm it was suitable for using first-order autocorrelation, with or without significant asterisks in the table.

	Northern Taiwan						Southern Taiwan					
	Rainfall		Solar radiation		Temperature		Rainfall		Solar radiation		Temperature	
	d	ρ	d	ρ	d	ρ	d	ρ	d	ρ	d	ρ
<i>F. subpisocarpa</i>												
Phase A	1.779	NS	1.790	NS	1.780	NS	2.100	NS	2.112	NS	2.099	NS
Phase B	1.573	0.208	1.601	0.191	1.607	0.033	1.508	0.246	1.517	0.238	1.558	0.212
Phase C	0.610	0.686*	0.614	0.697	0.651	0.673	0.830	0.521	0.960	0.476	0.885	0.492
Phase D	0.695	0.654**	0.850	0.675	0.857	0.626	1.213	0.370	1.399	0.317	1.290	0.309
Phase E	0.966	0.536**	0.964	0.539	1.002	0.524	1.725	NS	1.719	NS	1.797	*
Total fig	0.450	0.762	0.472	0.761	0.452	0.763	0.874	0.527	1.056	0.506	0.874	0.517
Leaf flushing	0.377	0.778	0.379	0.777	0.365	0.794	1.679	NS	1.652	*	1.924	**
Yellow leaf	0.223	0.921	0.642	0.927	0.676	0.897	1.421	0.276	1.361	0.296	1.409	0.271
<i>F. caulocarpa</i>												
Phase A	1.689	0.151	1.781	**	1.774	**	1.935	NS	1.916	NS	1.945	NS
Phase B	1.294	0.258	1.290	0.269	1.318	0.250	1.799	NS	1.903	NS	1.846	NS
Phase C	0.546	0.717	0.569	0.718	0.553	0.721	0.802	0.594	0.805	0.592	0.843	0.572
Phase D	0.994	0.521	1.055	0.485	1.113	0.432*	0.845	0.573	0.824	0.582	0.861	0.565
Phase E	1.493	0.252	1.559	0.231	1.624	0.198	0.648	0.668	0.655	0.667	0.656	0.664
Total fig	0.302	0.849	0.284	0.849	0.285	0.848	0.748	0.625	0.742	0.635	0.835	0.592
Leaf flushing	0.217	0.923	0.613	0.924	0.728	0.892	1.140	0.435	1.244	0.430	1.192	0.396
Yellow leaf	0.292	0.858	0.335	0.861	0.295	0.854	0.688	0.652	0.687	0.652	0.737	0.632

NS, non-significant; * and **, significant at 5% and 1%



Table S3. Correlation tests between plant development and temperature-related meteorological factors through Durbin–Watson test (d) and Rho (ρ) from AR1 model. The meteorological factors including average diurnal temperature variation (DTV), weekly temperature variation (WTV), average lowest temperature (LT), and average highest temperature (HT). For the Durbin–Watson test (d), dL = 1.654, and dU = 1.694 for northern Taiwan; dL = 1.528, and dU = 1.601 for southern Taiwan, $\alpha = 0.05$. The bold words showed there were no evidence for positive correlation (d > dU), therefore the result of these correlation tests were simply showed in NS (non-significant) or * (significant at 5%), ** (significant at 1%). The others showed there were evidence for positive correlation would be analyzed by the AR1 model and showed Rho (ρ , autocorrelation coefficient) values, which less than 1 showed it was in the acceptable region for stationarity and to confirm it was suitable for using first-order autocorrelation, with or without significant asterisks in the table.

	Northern Taiwan								Southern Taiwan								
	DTV		WTV		LT		HT		DTV		WTV		LT		HT		
	d	ρ	d	ρ	d	ρ	d	ρ	d	ρ	d	ρ	d	ρ	d	ρ	
<i>F. subpisocarpa</i>																	
<i>F. subpisocarpa</i>																	
Phase A	1.780	NS	1.780	NS	1.779	NS	1.780	NS	2.110	NS	2.093	NS	2.099	NS	2.100	NS	
Phase B	1.596	0.193	1.603	0.192	1.607	0.189	1.604	0.190	1.561	0.211	1.554	0.214	1.558	0.212	1.558	0.212	
Phase C	0.605	0.682	0.605	0.682	0.652	0.681	0.642	0.677	0.933	0.491	0.902	0.490	0.890	0.497	0.879	0.488	
Phase D	0.839	0.647	0.707	0.645	0.847	0.626	0.880	0.636	1.296	0.337	1.172	0.386	1.273	0.321	1.318	0.295*	
Phase E	0.973	0.541	0.889	0.552	0.995	0.526	1.012	0.522	1.670	NS	1.662	NS	1.791	NS	1.795	*	
Total fig	0.466	0.759	0.453	0.763	0.966	0.766	0.454	0.761	0.977	0.520	0.889	0.539	0.865	0.526	0.886	0.510	
Leaf flushing	0.472	0.767	0.509	0.782	0.373	0.799	0.359	0.787	1.551	0.221*	1.688	NS	1.932	**	1.900	**	
Yellow leaf	0.341	0.934**	0.157	0.921	0.562	0.819**	0.701	0.922	1.399	0.269	1.393	0.272	1.407	0.269	1.401	0.271	
<i>F. caulocarpa</i>																	
Phase A	1.770	NS	1.713	NS	1.768	*	1.782	**	1.875	NS	1.936	NS	1.955	NS	1.937	NS	
Phase B	1.315	0.259	1.294	0.245	1.332	0.245	1.307	0.254	1.753	NS	1.808	NS	1.835	NS	1.858	NS	
Phase C	0.605	0.720	0.553	0.714	0.552	0.717	0.556	0.722	0.900	0.618	0.883	0.589	0.886	0.552	0.822	0.584	
Phase D	1.042	0.485	1.001	0.493	1.109	0.433*	1.114	0.434	0.938	0.552	0.897	0.581	0.864	0.562	0.850	0.572	
Phase E	1.507	0.262	1.498	0.251	1.624	0.188*	1.619	0.194	0.802	0.661	0.694	0.672	0.666	0.659	0.644	0.668	
Total fig	0.391	0.861	0.284	0.856	0.289	0.853	0.306	0.857	0.761	0.643	0.777	0.648	0.748	0.625	0.725	0.640	
Leaf flushing	0.327	0.848	0.329	0.850	0.289	0.848	0.283	0.848	0.825	0.601	0.795	0.611	0.851	0.579	0.820	0.610	
Yellow leaf	0.333	0.924	0.147	0.924	0.638	0.868**	0.725	0.908	1.365	0.422	1.267	0.385	1.202	0.390	1.191	0.403	

NS, non-significant; * and **, significant at 5% and 1%