

714 Appendix A Robustness Checks

Table A1: Robustness analysis with different elevations in Brazil

	Low ($\leq 600m$)	High ($> 600m$)	p-Value
Yield Deviation	-0.00045 (0.012)	-0.027** (0.013)	0.018
Blooming Stage			
GDD/1000	0.21** (0.10)	0.19** (0.075)	0.783
HDD	-0.0019*** (0.00036)	-0.0023*** (0.00050)	0.237
Rainfall (m)	0.038 (0.033)	0.12*** (0.027)	0.001
Precipitation CV	0.033*** (0.011)	0.0081 (0.012)	0.008
Fruit Bearing Stage			
GDD/1000	-0.17 (0.14)	-0.079 (0.11)	0.331
HDD	-0.00015 (0.00061)	-0.0016** (0.00077)	0.007
Rainfall (m)	0.096*** (0.033)	0.064** (0.029)	0.155
Harvesting Stage			
GDD/1000	-0.29*** (0.095)	-0.20** (0.095)	0.167
HDD	0.014*** (0.0024)	0.0065* (0.0033)	0.006
Rainfall (m)	-0.083 (0.081)	-0.24*** (0.082)	0.007
Pre-blooming Stage			
FDD	-0.018*** (0.0067)	-0.014*** (0.0054)	0.434
Dry Days	0.11*** (0.026)	0.046 (0.032)	0.009
Dry Days ²	-0.00053*** (0.00012)	-0.00024* (0.00014)	0.008
Constant	-4.68*** (1.45)	-1.05 (1.78)	
Observations	25837	24926	
Adjusted R^2	0.225	0.297	
State Trend	Linear		
FE	Municipality		

Standard errors, reported in parentheses, are clustered at the municipality and micro region x year

* $p < .1$, ** $p < .05$, *** $p < .01$

Table A2: Robustness analysis with different time-trend specifications

	Linear	Quadratic	Cubic
Yield Deviation	-0.014 (0.0093)	-0.015 (0.0093)	-0.015 (0.0093)
Blooming Stage			
GDD/1000	0.17*** (0.066)	0.15** (0.065)	0.15** (0.065)
HDD	-0.0017*** (0.00029)	-0.0017*** (0.00029)	-0.0017*** (0.00029)
Rainfall (m)	0.092*** (0.022)	0.073*** (0.022)	0.060*** (0.022)
Precipitation CV	0.023*** (0.0089)	0.023** (0.0088)	0.022** (0.0088)
Fruit Bearing Stage			
GDD/1000	-0.13 (0.096)	-0.21** (0.097)	-0.23** (0.097)
HDD	-0.00025 (0.00052)	-0.00013 (0.00053)	-0.00018 (0.00053)
Rainfall (m)	0.081*** (0.023)	0.065*** (0.024)	0.059** (0.024)
Harvesting Stage			
GDD/1000	-0.25*** (0.073)	-0.26*** (0.073)	-0.26*** (0.074)
HDD	0.012*** (0.0020)	0.012*** (0.0020)	0.012*** (0.0020)
Rainfall (m)	-0.15** (0.063)	-0.15** (0.063)	-0.14** (0.063)
Pre-blooming Stage			
FDD	-0.018*** (0.0046)	-0.018*** (0.0047)	-0.018*** (0.0047)
Number of Dry Days	0.096*** (0.020)	0.096*** (0.020)	0.093*** (0.020)
Dry Days ²	-0.00046*** (0.000090)	-0.00046*** (0.000090)	-0.00044*** (0.000090)
Constant	-3.82*** (1.12)	-3.59*** (1.12)	-3.33*** (1.12)
Observations	50763	50763	50763
Adjusted R^2	0.276	0.276	0.277
FE	Muni.	Muni.	Muni.

Standard errors, reported in parentheses, are clustered at the municipality and micro region x year

* $p < .1$, ** $p < .05$, *** $p < .01$

Table A3: Robustness analysis with different degree-day temperature thresholds

	GDD = 32	GDD = 30	GDD = 31	GDD = 33	GDD = 34
Yield Deviation	-0.014 (0.009)	-0.013 (0.0092)	-0.013 (0.0093)	-0.014 (0.0093)	-0.015 (0.0093)
Blooming Stage					
GDD/1000	0.17*** (0.066)	0.28*** (0.075)	0.22*** (0.070)	0.13** (0.063)	0.099 (0.060)
HDD	-0.0017*** (0.0003)	-0.0014*** (0.00021)	-0.0015*** (0.00024)	-0.0020*** (0.00035)	-0.0024*** (0.00044)
Rainfall (m)	0.092*** (0.022)	0.079*** (0.022)	0.086*** (0.022)	0.096*** (0.022)	0.099*** (0.022)
Precipitation CV	0.023*** (0.0089)	0.024*** (0.0088)	0.024*** (0.0089)	0.023** (0.0089)	0.023*** (0.0089)
Fruit Bearing Stage					
GDD/1000	-0.13 (0.10)	-0.17 (0.10)	-0.15 (0.10)	-0.11 (0.092)	-0.10 (0.090)
HDD	-0.0003 (0.0005)	-0.00017 (0.00032)	-0.00021 (0.00040)	-0.00036 (0.00071)	-0.00060 (0.00098)
Rainfall (m)	0.081*** (0.023)	0.080*** (0.023)	0.080*** (0.023)	0.081*** (0.023)	0.080*** (0.023)
Harvesting Stage					
GDD/1000	-0.25*** (0.073)	-0.33*** (0.075)	-0.29*** (0.074)	-0.21*** (0.072)	-0.18** (0.072)
HDD	0.012*** (0.0020)	0.0064*** (0.00097)	0.0087*** (0.0014)	0.016*** (0.0030)	0.022*** (0.0045)
Rainfall (m)	-0.15** (0.063)	-0.13** (0.063)	-0.14** (0.063)	-0.17*** (0.063)	-0.18*** (0.063)
Pre-blooming Stage					
FDD	-0.018*** (0.0046)	-0.018*** (0.0046)	-0.018*** (0.0046)	-0.018*** (0.0046)	-0.018*** (0.0047)
Dry Days	0.096*** (0.020)	0.10*** (0.020)	0.099*** (0.020)	0.094*** (0.020)	0.092*** (0.020)
Dry Days ²	-0.00046*** (0.000009)	-0.00048*** (0.000091)	-0.00047*** (0.000090)	-0.00045*** (0.000090)	-0.00044*** (0.000089)
Constant	-3.82*** (1.12)	-4.07*** (1.13)	-3.96*** (1.12)	-3.69*** (1.11)	-3.55*** (1.11)
Observations	50763	50763	50763	50763	50763
Adjusted R^2	0.276	0.277	0.277	0.276	0.275
FE	Muni.	Muni.	Muni.	Muni.	Muni.

Standard errors, reported in parentheses, are clustered at the municipality and micro region x year

* $p < .1$, ** $p < .05$, *** $p < .01$