Table A1. Correlated climate factors over four studying regions. The unique correlation relationships are marked in bold font.

Sites	**Reference factor**	**Positively correlated factors (Correlation > 0.4)**	**Negatively correlated factors (Correlation < -0.4)**
Alsace	NSR	PRE (Mar-Sep) SST (May-Aug) TMP (May-Aug) TRP (Mar-Sep)	CSW (Mar-Sep) CWE (Mar-Jun, Aug-Sep) PCT (Mar-Jun, Aug-Sep)
	TMP	HMD (Mar-Jul, Sep) SST (Mar-Sep) TRP (Mar-Aug)	
	PCT	CSW (Mar-Sep) CWE (Mar-Sep) RSM (Mar-May, Aug)	TRP (Mar-Sep) PRE (Mar-Sep)
	PRE	TRP (Mar-Sep)	CSW (Mar-Sep) CWE (Apr, Jun, Aug-Sep)
	HMD	SST (Mar-Sep)	WSP (May-Jul)
Champagne	NSR	PRE (Mar-Sep) SST (May-Aug) TMP (May-Aug) TRP (Mar-Jul, Sep)	CSW (Mar-Sep) CWE (Mar-Sep) PCT (Mar-Sep)
	TMP	HMD (Mar-Sep) SST (Mar-Sep) TRP (Apr-Jul)	**CSW (Apr-Jul)**
	PCT	CSW (Mar-Sep) CWE (Mar-Sep) RSM (Mar-Jun)	**SST (Apr, Jun-Jul)** TRP (Mar-Jul, Sep) PRE (Mar-Sep)
	PRE	TRP (Mar-Jul, Sep)	CSW (Mar-Sep) CWE (Mar-Sep)
	HMD	SST (Mar-Sep)	
Burgundy	NSR	TMP (Apr-Sep) SST (May-Aug) TRP (Mar-Jun, Sep) PRE (Mar-Jun, Aug-Sep)	CSW (Mar-Sep) CWE (Mar-Jun, Aug-Sep) PCT (Mar-Sep)
	TMP	HMD (Mar-Jul, Sep) SST (Mar-Sep) TRP (Mar-Jun, Sep)	
	PCT	CSW (Mar-Sep) CWE (Mar-Sep) RSM (Mar-Jun, Aug)	TRP (Mar-Jun, Sep) PRE (Mar-Jun, Jul-Sep)
	PRE	TRP (Mar-Jul, Sep)	CSW (Mar-Jun, Sep) CWE (Mar-Apr, Jun, Aug-Sep)
	HMD	SST (Mar-Jul, Sep)	WSP (May-Aug)
Bordeaux	NSR	PRE (Mar-Jun, Aug-Sep) SST (Apr-Sep) TMP (Apr-Aug) TRP (Mar-Jul, Sep)	CSW (Mar-Jun, Aug-Sep) CWE (Mar-Jun, Aug-Sep) PCT (Mar-Jun, Aug-Sep)
	TMP	HMD (Mar-Sep) SST (Mar-Sep) TRP (Mar-Jun)	**CSW (Apr-Jun)**
	PCT	CSW (Mar-Sep) CWE (Mar-Sep) RSM (Mar-Jun)	TRP (Mar-Jun, Sep) PRE (Mar-Sep) **SST (Apr-Jun)**
	PRE	TRP (Mar-Jun, Sep)	CSW (Mar-Sep) CWE (Mar-May, Jun-Sep)
	SST		**CSW (Apr-Jun)**
	HMD	SST (Mar-Sep)	WSP (Apr-May, Jul-Aug)

TABLE A2. Selected climate factors of 0.8 explaining level for each region.

			Alsace		**Burgundy**		**Champagne**	
Number of used variables			**19**		**15**		**17**	
Type	Layer	Abbre.	Coefficient		Coefficient		Coefficient	
			Positive	Negative	Positive	Negative	Positive	Negative
Temp.	Air	TMP	May	-	-	-	-	Jul
	Surface	SST	-	-	-	Aug	-	-
	Soil	ST1~4	-	-	-	Sep	Mar	-
Water	Air	PCT	-	-	-	Aug	-	Apr, Sep
	Surface	CSW	-	Jul	-	Sep	-	-
	Ground	BSE	Jun	-	-	-	-	-
		EVT	-	-	Mar	-	-	-
		CWE	-	-	Apr	-	-	-
	Plant	TRP	-	-	-	-	-	-
	Soil	RSM	-	-	-	-	-	-
		SM1~4	Mar	-	-	-	-	-
Atm.	Air	PRE	Mar, Jun, Jul	-	-	Aug	Aug	Jul
		HMD	May	Jun, Jul	-	-	May	Jul
		WSP	-	Jul, Sep	-	May, Jun	Mar, Aug	-
Radia.	Air	NSR	-	-	-	-	-	-
Other	Surface	ABD	-	Jun	-	Apr, Sep	May	Jul
Telec.	Air	AO	-	Apr, Dec	Oct	-	Mar	-
		NAO	Jul, Oct	Apr, May	Jun	May, Jul	Jun, Jul	May, Nov