

Supplementary Table 1. Coordinates of the testing locations of the Spanish National Barley Breeding Program and nearby meteorological stations used to collect long term climatic data.

Location	Latitude	Longitude	Meteorological station	Latitude	Longitude
Albacete (A1, A2)	38°59'N	1°51'W	Albacete	38°59'N	1°51'W
Artesa (L1)	41°33'N	0°42'E	Agramunt (Lleida)	41°47'N	1°06'E
Bell-lloc (L2)	41°37'N	0°46'E	Almacelles (Lleida)	41°43'N	0°26'E
Gimenells (L3)	41°39'N	0°23'E	Almacelles (Lleida)	41° 43'N	0° 26'E
Solsona (L4)	41°59'N	1°31'E			
Valladolid (V1)	41°38'N	4°43'W	San Miguel del Pino (Valladolid)	41°30'N	4°54'W
Villahoz ^x (V2)	42°04'N	3°54'W			
Ceinos (V3)	42°02'N	5°09'W			
La Espina (V4)	43°23'N	6°20'W			
Macotera ^x (V5)	40°49'N	5°17'W	Aldeaseca de Alba (Salamanca)	40°49'N	5°26'W
Sádaba (Z1)	42°17'N	1°16'W	Luna (Zaragoza)	42°10'N	0°52'W
Vedado (Z2)	41°51'N	0°39'W	EEAD-CSIC	41°43'N	0°48'W
Navarra ¹ (Z3)	42°49'N	1°38'W			

^xIn some cases, locations from neighbouring provinces were used, but they were grouped together with the locations of each reference province.