

Analysis of genotype × environment interaction and stability for grain yield and chocolate spot (*Botrytis fabae*) disease resistance in faba bean (*Vicia faba*)

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Supplementary Table 1. Interaction principal component axis (IPCA-1), scores for the 21 faba bean genotypes organized based on mean grain yield (t ha⁻¹) and GDS (%) evaluated in six environments.

Genotype ID	Genotype	Mean GY(t ha ⁻¹)	IPCA1	Mean GDS (%)	IPCA1
G1	FBColl-0001	3.405	-0.087	21.62	-1.039
G2	FBColl-0012	4.216	0.186	16.69	0.211
G3	ILB 4726	2.346	-1.615	2.13	-0.627
G4	FBColl-0030	4.413	0.051	7.56	-0.589
G5	FBColl-0025	4.02	0.225	12.29	0.289
G6	FBColl-0011	2.217	0.158	28.89	1.629
G7	FBColl-0002	3.216	-0.189	18.09	-0.429
G8	FBColl-0018	4.341	-0.632	9.64	-1.021
G9	FBColl-0035	3.444	0.403	10.32	0.709
G10	FBColl-0042	2.497	-0.04	22.66	2.672
G11	FBColl-0034	4.084	0.057	14.91	-0.726
G12	FBColl-0003	3.825	0.309	14.66	0.423
G13	Kasa	3.65	-0.31	24.76	-0.806
G14	FBColl-0055	3.84	0.093	12.95	0.079
G15	FBColl-0031	4.095	0.987	10.59	-0.236
G16	FBColl-0024	4.002	0.409	13.76	0.828
G17	FBColl-0039	3.663	0.11	10.96	0.543
G18	FBColl-0008	2.291	-0.424	27.58	0.342
G19	FBColl-0057	3.459	-0.142	7.73	0.179
G20	FBColl-0049	3.77	0.017	15.12	-1.629
G21	FBColl-0036	3.869	0.431	14.09	-0.801

Genotype ID: Genotype ID in the biplot; Mean GY: mean grain yield (t ha⁻¹), Mean GDS: Mean general disease severity score for chocolate spot (%)

Supplementary Table 2 .Description of the six locations and 21 faba bean genotypes tested across the six locations in Ethiopia.

Loc	Loc ID	Lat (° N)	Lon (° E)	Alt (masl)	Soil pH	Annual rain fall (mm)	Temperature(° C)		G ID	G name	G ID	G name	G ID	G name
							Min	Max						
Holetta	E1	9.04	38.03	2390	4.3 (EA)	760.8	6.4	24.4	G1	FBColl-0001	G8	FBColl-0018	G15	FBColl-0031
Adadi	E2	8.21	38.29	2050	7.3 (NU)	930.8	8.5	23.5	G2	FBColl-0012	G9	FBColl-0035	G16	FBColl-0024
Kulumsa	E3	8.01	39.09	2730	5.2 (SA)	634.1	10.59	23.66	G3	ILB 4726	G10	FBColl-0042	G17	FBColl-0039
Bekoji	E4	7.32	39.15	2803	4.5 (VSA)	734	14.5	20.78	G4	FBColl-0030	G11	FBColl-0034	G18	FBColl-0008
Assasa	E5	7.1	39.14	2366	4.9 (VSA)	871.3	6.77	22.37	G5	FBColl-0025	G12	FBColl-0003	G19	FBColl-0057
Kofele	E6	7.05	38.47	2669	4.4 (EA)	1078.4	1.99	19.26	G6	FBColl-0011	G13	Kasa	G20	FBColl-0049
									G7	FBColl-0002	G14	FBColl-0055	G21	FBColl-0036

Source: National meteorology agency Ethiopia (Annual rain fall & Temperature); ***Lat: Latitude; Lon: Longitude; Alt: Altitude; Min: minimum; Max: Maximum;** Soil PH denomination: VAA: Very Strong Acid, SA: Strong Acid; EA: Extreme acid; NU: Neutral. Soil pH was from soil sample of the experimental plot for respective sites. Loc: location; G ID: Genotype ID; G name: Genotype name