

Supplementary data

Table S1. The runner-bean (*Phaseolus coccineus* L.) accessions included in this morpho-agronomic characterisation from the 2017 growing season.

Country of origin	No. of accessions	Accession code	Accession name
Slovenia	44	SRGB00004	‘Emergo’
		SRGB00027	šurkovec
		SRGB00034	žohar
		SRGB00035	žohar
		SRGB00117	gril
		SRGB00118	gril
		SRGB00119	griljek
		SRGB00120	grilek
		SRGB00170	bobovec
		SRGB00171	pancar
		SRGB00173	kebrovjak
		SRGB00206	žohar
		SRGB00222	žohar
		SRGB00244	šorkuc
		SRGB00248	sorkuc
		SRGB00249	šorkuc
		SRGB00253	pasulj
		SRGB00268	kostanjevka
		SRGB00495	češpovc
		SRGB00495a	-
		SRGB00499	-
		SRGB00500	-
		SRGB00502	češpovc
		SRGB00504	-
		SRGB00505	kostanjevec
		SRGB00507	turški
		SRGB00508	-
		SRGB00511	-
		SRGB00513	-
		SRGB00788	turški
		SRGB00789	turški
		SRGB00790	turški
		SRGB00791	turški
		SRGB00792	turški
		SRGB00793	turški
		SRGB00817	žohar
		SRGB00827	šurkovec
		SRGB00828	vipavec
		SRGB00831	-
		SRGB00836	-
		SRGB00837	-
		SRGB00879	gril
		SRGB00921	tetuc
		SRGB00926	-

Bosnia and Herzegovina	10	GB00702	mnogocvjetni pasulj
		GB01089	mnogocvjetni pasulj
		GB01090	mnogocvjetni pasulj
		GB01207	mnogocvjetni pasulj
		GB01208	mnogocvjetni pasulj
		GB01209	mnogocvjetni pasulj
		GB01210	mnogocvjetni pasulj
		GB01212	mnogocvjetni pasulj
		GB01213	mnogocvjetni pasulj
		GB01214	mnogocvjetni pasulj
Serbia	9	PCOC01	NK12/13
		PCOC04	NK15/13
		PCOC05	NK16/13
		PCOC07	NK18/13
		PCOC08	NK19/13
		PCOC12	NK10/10
		PCOC13	NK11/11
		PCOC14	Igman
		PCOC15	Sarajevski smeđi
North Macedonia	64	MK0003	3
		MK0004	4
		MK0008/1	008/1brown
		MK0008/2	008/1cream
		MK0008/3	008/2
		MK0020	20
		MK0104	104
		MK0316/1	316cream
		MK0316/2	316dark brown
		MK0316/3	316grey brown
		MK0375	375crv
		MK0431	431
		MK0432/1	432crv
		MK0432/2	432bel
		MK0607/1	607/1dark purple
		MK0607/2	607/1purple
		MK0607/3	607/2
		MK0710/1	710crv
		MK0710/2	710red purple
		MK0710/3	710bel
		MK0711/1	711crv
		MK0711/2	711bel
		MK0714/1	714crv
		MK0714/2	714bel
		MK0714/3	714white
		MK0721	721
		MK0767	767
		MK0786	786
		MK0801	801
		MK0826	826
		MK0829/1	829crv
		MK0829/2	829cb
		MK0840/1	840dark purple
		MK0840/2	840purple

		MK0848	848
		MK0861/1	861crv
		MK0861/2	861cb
		MK1055	1055
		MK1083	1083
		MK1084/1	1084crv
		MK1084/2	1084bel
		MK1085/1	1085bel
		MK1085/2	1085cb
		MK1086	1086
		MK1087/1	1087purple
		MK1087/2	1087purple
		MK1088/1	1088crv
		MK1088/2	1088bel
		MK1089/1	1089cb
		MK1089/2	1089bel
		MK1089/3	1089crv
		MK1090	1090
		MK1091/1	1091dark brown
		MK1091/2	1091grey brown
		MK1092	1092
		MK1093	1093
		MK1094/1	1094crv
		MK1094/2	1094cb
		MK1097/1	1097cb
		MK1097/2	1097bel
		MK1133	1133
		MK1134/1	1134crv
		MK1134/2	1134cb
		MK1135	1135
Romania	12	SVGB13780	-
		SVGB13831	-
		SVGB14583	-
		SVGB14591	-
		SVGB14666	-
		SVGB14682	-
		SVGB14686	-
		SVGB14698	-
		SVGB14783	-
		SVGB15586	-
		SVGB15888	-
		SVGB15893	-
Slovenia	1	Commercial variety	‘Emergo’
Austria	1	Commercial variety	‘Bonela’
Bosnia and Herzegovina	1	Commercial variety	‘Darko’

Table S2. Morpho-agronomic traits included in the study [25].

Trait target	Descriptor	Code	Units	Measure/ rating
Inflorescences	Days to flowering	DAYSBLOS	days	Days from sowing to 50% flowering
	Colour of flower standard	BLOSVEX		1 White; 2 Greenish; 3 Lilac; 5 White with red stripes; 6 Dark lilac with purple outer edge; 8 Carmine red; 99 Other
	Colour of flower wings	BLOSWING		1 White; 3 Lilac; 4 White with lilac edge; 6 Dark lilac with purple outer edge; 8 Carmine red; 99 Other
Leaves	Leaf shape	LEAFSHAPE		1 Triangular; 2 Quadrangular; 3 Round
	Leaf colour for anthocyanins	LEAFANTHO		0 Absent; 9 Present
	Leaflet length	LEAFLNGTH	cm	Length of the upper-middle leaflet of the third fully developed trifoliate leaf (n = 6)
Plants	Plant growth habit	TYPE		1 Determinate bush; 4 Indeterminate climbing
	Plant height	HEIGHT	cm	Plant height (n = 3)
Pods	Pod colour of the fully expanded immature pods	PODCOLIMM		3 Purple striped on green; 5 Pale red striped on green; 7 Normal green; 8 Shiny green; 9 Dull green to silver grey
	Pod suture strings	STRING		3 Few strings; 5 Moderately stringy; 7 Very stringy
	Pod colour at physiological maturity	PODCOLMAT		4 Yellow; 5 Pale yellow with coloured mottling stripes; 6 Persistent green
	Pod length	PODLENGTH	cm	Pod length at physiological maturity (n = 6)
	Pod width	PODWIDTH	mm	Pod width at physiological maturity (n = 6)
	Pod cross-section at physiological maturity	PODCROSS		1 Very flat; 2 Pear-shaped; 3 Round elliptic; 4 Figure of eight
	Pod curvature at physiological maturity	PODCURV		1 Straight; 5 Slightly curved; 7 Medium curved
	Days to maturity	MATURITY	days	Days to 90% maturity
	Number of locules per pod	PODLOCULES	n	Number of locules per pod (n = 6)
	Number of seeds per pod	PODSEED	n	Number of seeds per pod (n = 6)
Seeds	Seed coat colour	SEEDCOLOR		1 White; 2 Cream; 4 Brown; 5 Pink; 6 Red; 7 Purple violet; 8 Black
	Seed coat pattern	SEEDPATCHAR		0 No pattern; 2 Striped; 3 Speckled; 4 Spotted
	Brilliance of seed	BRILLIANCE		3 Dull; 5 Medium; 7 Shiny
	Seed length	SEEDLENGTH	mm	Seed length was measured as the highest parallel to the hilum (n = 10)
	Seed height	SEEDHEIGHT	mm	Seed height was measured as lowest parallel to the hilum (n = 10)
	Seed width	SEEDWIDTH	mm	Seed width was measured from hilum to the opposite side (n = 10)
	Longitudinal seed shape	SEEDSHAPE		2 Circular; 3 Oval; 4 Kidney shaped; 5 Markedly truncate
	Colour of seed hilum	SEEDHILUM		1 White; 2 Beige
	Colour of seed hilum ring	SEEDHILUMRING		1 White; 2 Beige; 4 Brown; 7 Violet; 8 Black
	100-seed weight	SEEDHKM	g	Weight of 100 seeds in grams to the first decimal place at a moisture content 12% to 14%

Table S3. Summary data for morpho-agronomic traits according to the countries of origin of the three commercial varieties included in the study.

Trait	Code	Data for commercial varieties according to country of origin														
		'Emergo'					'Bonela'					'Darko'				
		Slovenia	BiH	Serbia	North Macedonia	Romania	Slovenia	BiH	Serbia	North Macedonia	Romania	Slovenia	BiH	Serbia	North Macedonia	Romania
Inflorescences	DAYSBL0S (days)	49	40	46	45	62	49	39	56	69	70	49	/	45	45	70
	BLOSVEX	1	1	1	1	1	8	8	8	8	8	8	/	8	8	8
	BLOSWING	1	1	1	4	1	6	6	8	6	6	8	/	8	8	6
Leaves	LEAFSHAPE	1	1	2	1	3	3	1	3	1	1	3	/	3	3	3
	LEAFANTHO	0	0	0	0	0	0	0	0	9	0	0	/	0	9	0
	LEAFLENGTH (cm)	12.7 ±1.5	6.3 ±2.1	8.0 ±1.8	11.7 ±2.0	10.0 ±1.9	12.3 ±1.8	5.9 ±0.7	8.0 ±1.4	10.0 ±2.4	10.0 ±1.4	10.5 ±1.3	/	7.0 ±1.7	11.9 ±2.2	9.5 ±1.9
Plants	TYPE	4	1	4	4	4	4	1	4	4	4	4	/	4	4	4
	HEIGHT (cm)	210 ±30	70 ± 20	220 ±40	500 ±80	295 ±30	210 ±30	190 ± 30	220 ±40	170 ±20	320 ±70	210 ±30	/	220 ±40	500 ±80	280 ±40
Pods	PODCOLIMM	7	7	9	7	7	7	7	7	9	7	7	/	8	8	7
	STRING	5	5	7	7	5	5	5	7	7	5	5	/	7	7	5
	PODCOLMAT	6	6	4	4	6	6	6	5	5	6	6	/	4	4	6
	PODLENGTH (cm)	17.9 ±3.3	16.2 ±3.1	16.9 ±2.6	17.2 ±3.6	15.9 ±2.1	12.0 ±2.8	11.1 ±1.9	14.3 ±2.7	8.3 ±2.0	12.8 ±3.7	10.2 ±2.6	/	9.7 ±3.1	11.2 ±2.1	11.2 ±3.4
	PODWIDTH (mm)	15.6 ±1.3	14.2 ±2.0	13.8 ±1.7	16.9 ±2.2	15.6 ±1.4	18.7 ±2.3	15.3 ±2.1	15.2 ±1.4	14.6 ±1.1	13.7 ±2.2	17.8 ±1.3	/	16.2 ±1.4	18.9 ±2.0	17.8 ±1.8
	PODCROSS	2	2	2	3	3	2	2	2	3	3	2	/	1	2	2
	PODCURV	5	5	5	7	5	5	5	5	7	5	5	/	7	7	5
	MATURITY (days)	133	133	137	110	157	138	132	147	156	157	131	/	138	104	170
	PODLOCULES	7 ±1	6 ±1	7 ±1	5 ±1	7 ±0	3 ±2	3 ±2	5 ±1	3 ±1	5 ±1	4 ±1	/	4 ±1	3 ±3	4 ±1
	PODSEED	6 ±1	5 ±2	5 ±1	2 ±3	6 ±1	3 ±1	3 ±2	4 ±2	1 ±3	3 ±2	3 ±1	/	4 ±0	2 ±1	2 ±2
Seeds	SEEDCOLOR1	1	1	1	1	1	7	8	7	7	7	8	/	7	7	7
	SEEDCOLOR2						8	7	8	8	8	7	/	8	8	8
	SEEDPATCHAR	0	0	0	0	0	4	4	3	4	2	4	/	4	4	4
	BRILLIANCE	7	5	5	7	5	7	7	7	5	7	7	/	7	7	7
	SEEDLENGTH (mm)	22.3 ±1.1	21.7 ±2.0	21.9 ±1.9	21.4 ±2.2	22.8 ±0.5	26.9 ±0.8	25.0 ±0.5	24.6 ±1.0	19.8 ±2.2	20.7 ±1.4	22.0 ±1.0	/	21.5 ±0.9	21.6 ±2.0	21.9 ±1.5
	SEEDHEIGHT (mm)	7.8 ±0.9	7.6 ±0.7	9.8 ±1.1	9.2 ±0.8	9.7 ±0.6	10.3 ±0.7	9.8 ±0.9	10.3 ±1.1	9.3 ±0.7	10.1 ±0.9	8.9 ±0.6	/	9.0 ±0.7	8.4 ±0.4	8.9 ±0.6
	SEEDWIDTH (mm)	11.9 ±0.3	11.2 ±0.9	13.2 ±0.5	12.0 ±0.7	14.9 ±1.0	15.2 ±1.2	14.3 ±0.5	12.9 ±0.7	11.5 ±0.7	13.9 ±0.4	14.1 ±0.7	/	14.0 ±1.2	13.6 ±0.9	15.4 ±0.9
	SEEDSHAPE	4	4	4	4	4	4	4	4	4	4	3	/	4	4	4
	SEEDHILUM	1	1	1	1	1	1	1	1	1	1	1	/	1	1	1
	SEEDHILUMRING	1	1	1	1	1	8	8	8	8	1	4	/	8	8	1
	SEEDHKM (g)	118.1	155.5	120.0	103.8	81.8	193.1	165.3	175.9	112.7	106.8	147.3	/	130.0	108.5	94.2

BiH, Bosnia and Herzegovina.

Table S4. Summary statistics for the 12 quantitative characteristics in the 139 accessions (and three varieties) of runner bean (*Phaseolus coccineus* L.) as the individual country evaluations.

Trait assessed	Code	Units	Country of evaluation	Range	Mean $\pm$ SD	CV (%)
Inflorescences	DAYSBLOS	days	Slovenia	42-58	50 $\pm$ 3	6.3
			BiH	36-41	48 $\pm$ 2	4.1
			Serbia	36-56	42 $\pm$ 6	13.1
			North Macedonia	45-69	55 $\pm$ 6	10.1
			Romania	45-70	61 $\pm$ 6	11.3
Leaves	LEAFLENGTH	cm	Slovenia	9.4-14.0	11.9 $\pm$ 1.0	8.7
			BiH	4.0-8.3	6.4 $\pm$ 1.3	20.0
			Serbia	6.0-10.0	8.0 $\pm$ 1.1	13.3
			North Macedonia	6.4-12.3	9.8 $\pm$ 1.3	12.9
			Romania	7.0-12.0	9.5 $\pm$ 1.3	13.6
Plants	HEIGHT	cm	Slovenia	210.0	210.0 $\pm$ 0	0
			BiH	70.0-200.0	147.0 $\pm$ 36.7	25.0
			Serbia	220.0	220.0 $\pm$ 0	0
			North Macedonia	170.0-500.0	465.0 $\pm$ 81.0	17.3
			Romania	260.0-330.0	294.0 $\pm$ 22.0	7.6
Pods	PODLENGTH	cm	Slovenia	8.7-17.9	10.2 $\pm$ 1.4	13.3
			BiH	4.5-16.2	7.6 $\pm$ 3.2	42.5
			Serbia	6.9-16.9	10.8 $\pm$ 3.2	29.3
			North Macedonia	6.8-18.5	10.8 $\pm$ 2.2	20.5
			Romania	6.9-15.9	10.4 $\pm$ 2.2	21.3
	PODWIDTH	mm	Slovenia	15.2-19.9	17.2 $\pm$ 1.1	6.2
			BiH	12.0-22.9	15.3 $\pm$ 3.0	19.8
			Serbia	13.8-20.3	17.5 $\pm$ 2.1	12.1
			North Macedonia	13.6-22.9	18.4 $\pm$ 1.6	8.7
			Romania	11.9-19.1	15.8 $\pm$ 2.0	12.5
	MATURITY	days	Slovenia	113-143	124 $\pm$ 7	5.6
			BiH	128-134	131 $\pm$ 2	1.5
			Serbia	129-147	136 $\pm$ 6	4.6
			North Macedonia	101-156	124 $\pm$ 12	9.3
			Romania	155-170	160 $\pm$ 7	4.1
	PODLOCULES	n	Slovenia	3-7	4 $\pm$ 1	21.0
			BiH	2-6	3 $\pm$ 1	37.2
			Serbia	2-7	4 $\pm$ 2	41.0
			North Macedonia	2-5	4 $\pm$ 1	19.0
			Romania	3-7	4 $\pm$ 1	26.7
	PODSEED	n	Slovenia	1-6	3 $\pm$ 1	38.6
			BiH	1-5	2 $\pm$ 1	46.9
			Serbia	2-5	3 $\pm$ 1	38.4
			North Macedonia	1-4	2 $\pm$ 1	23.9

Seeds	SEEDLENGTH	mm	Romania	2-6	3 ±1	28.8
			Slovenia	16.9-27.2	20.7 ±2.3	11.3
			BiH	16.7-25.0	20.0 ±2.2	11.1
			Serbia	15.5-24.6	20.5 ±2.4	11.5
			North Macedonia	16.4-23.9	20.5 ±1.7	8.2
	SEEDHEIGHT	mm	Romania	18.7-23.3	20.7 ±1.74	6.8
			Slovenia	7.8-10.9	8.9 ±0.6	7.1
			BiH	6.7-9.8	8.1 ±0.9	11.3
			Serbia	6.9-10.3	8.5 ±1.1	12.6
			North Macedonia	6.8-15.5	8.8 ±1.2	13.9
	SEEDWIDTH	mm	Romania	7.7-10.1	8.9 ±0.7	8.0
			Slovenia	10.9-16.5	12.8 ±1.2	9.6
			BiH	10.7-14.3	12.3 ±1.0	8.0
			Serbia	10.6-14.0	12.6 ±0.9	7.5
			North Macedonia	10.8-16.2	13.2 ±1.1	8.9
	SEEDHKM	g	Romania	11.2-15.4	13.2 ±1.1	8.6
			Slovenia	90.9-193.1	124.6 ±21.9	17.6
			BiH	63.6-165.3	115.7 ±33.2	28.7
			Serbia	61.9-175.9	105.2 ±31.5	30.0
			North Macedonia	72.2-203.3	126.0 ±23.4	18.6
			Romania	81.8-109.0	96.1 ±7.1	7.4

SD, standard deviation; CV, coefficient of variation; BiH, Bosnia and Herzegovina.

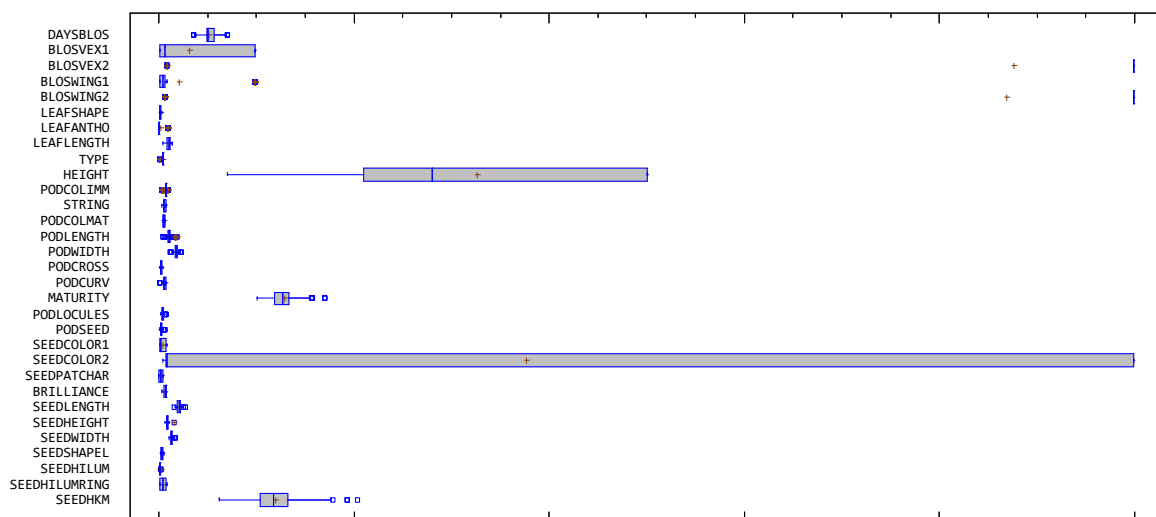


Figure S1. Box and whisker plot for the 28 morpho-agronomic traits of this runner-bean (*Phaseolus coccineus* L.) collection from south-eastern Europe.

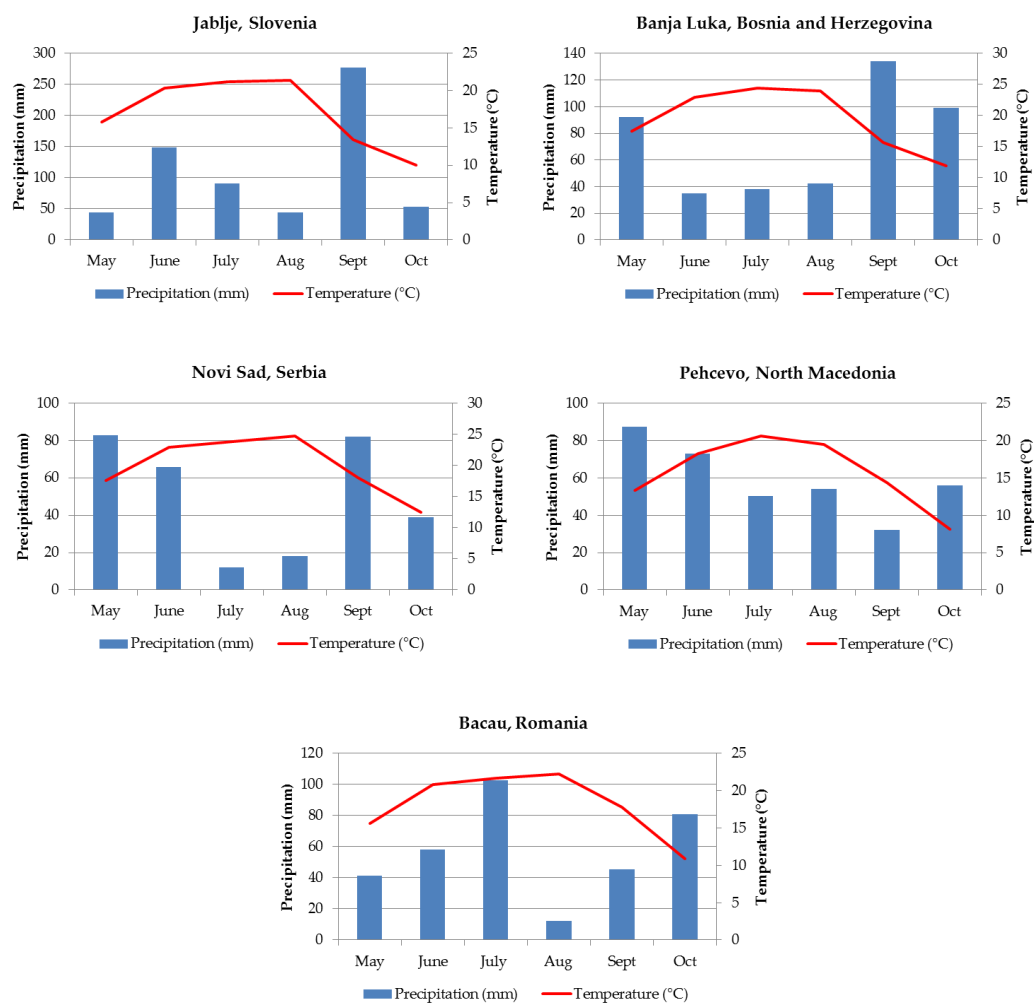


Figure S2. Climate conditions at the five experimental sides during the growing season in 2017, as obtained from the national meteorological data services.