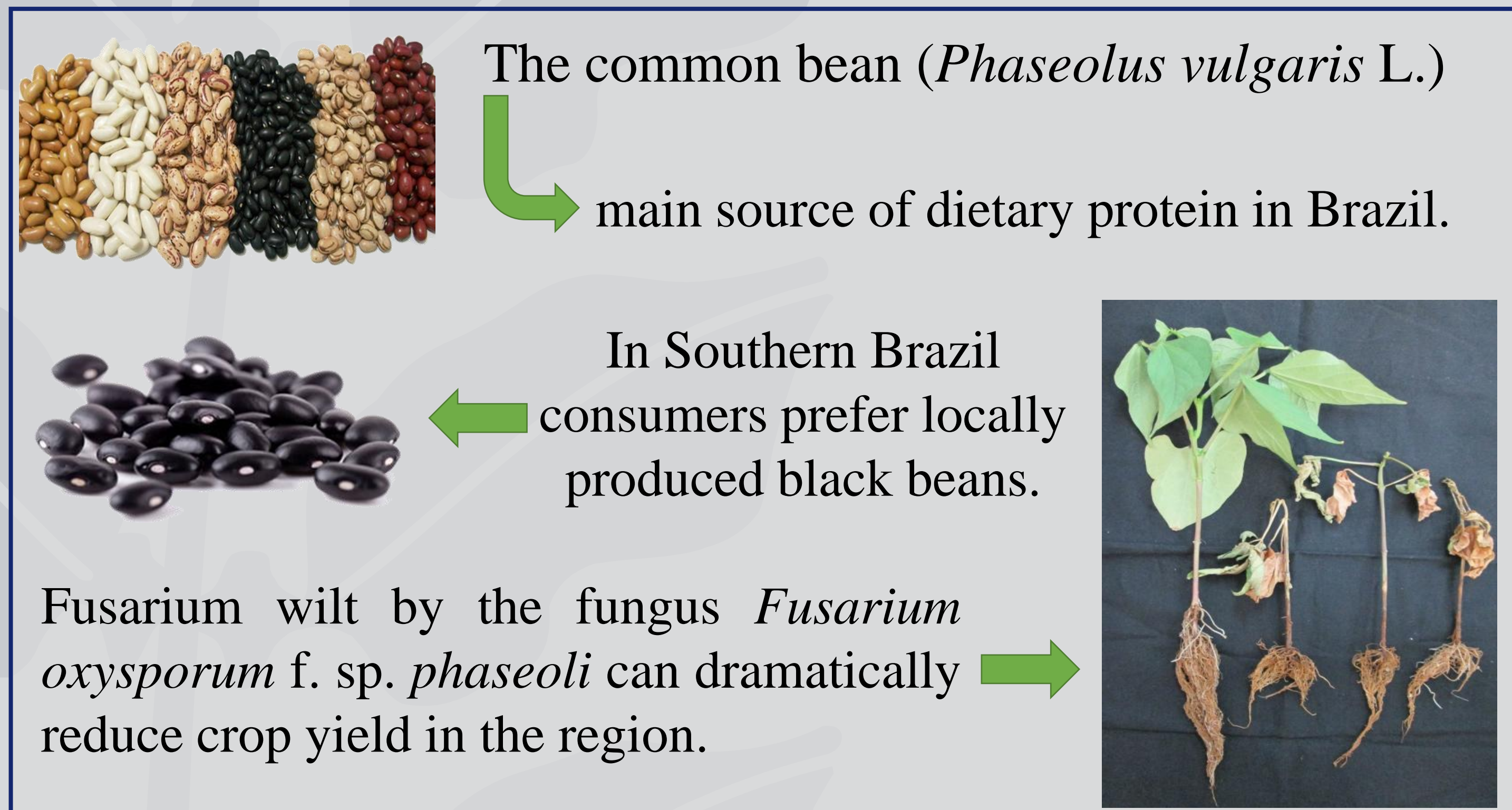


Resistance Evaluation of Black Bean Germplasm to the Fusarium Wilt Disease

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BACKGROUND



This scenario offers a big challenge for breeding programs searching for resistant cultivars with high yield without losing focus on local market.

OBJECTIVE

- To evaluate the reaction of 17 black bean genotypes to *Fusarium oxysporum* infection

MATERIAL AND METHODS

Outdoor pot assays during spring 2012 and 2013.



Figure 1: Bean plants growing in 20-L plastic pots containing substrate infested with *Fusarium oxysporum* f. sp. *phaseoli* (1.3×10^3 colony forming units g^{-1} of soil). Incidence of wilt and dead plants were assessed at pod filling stage (63 days after sowing) in order to classify the resistance of genotypes.

RESULTS

- 35% of genotypes were resistant (R). No disease symptoms
- 65% of genotypes showed disease incidence between 12% and 88% and were considered susceptible (S) or highly susceptible (HS).

Table 1: Incidence of wilting and dead plants at the pod filling growth stage, and resistance reaction of 17 bean genotypes (*Phaseolus vulgaris* L.) grown outdoor in a soil infested with *Fusarium oxysporum* f. sp. *phaseoli*.

Genotypes	Fusarium wilt (%) ^{a,b}	Dead plants (%)	Reaction ^c
AL 9021332	0.0 c	0.0 c	R
Becker Bela Vista	0.0 c	0.0 c	R
CF 128	0.0 c	0.0 c	R
CP 9310635	0.0 c	0.0 c	R
TB 9401	0.0 c	0.0 c	R
UFSC-01	0.0 c	0.0 c	R
UFSC-02	12.5 b	0.0 c	S
LP 97-04	31.2 b	0.0 c	S
CF 22	31.2 b	6.2 b	S
Sogro Daniel	37.5 b	0.0 c	S
Negro Bola	37.5 b	6.2 b	S
MD 841	50.0 a	18.8 b	HS
CHP 97-04	50.0 a	31.2 a	HS
FT 991159	56.2 a	37.5 a	HS
cv. Uirapuru	62.5 a	12.5 b	HS
CI 96712V	62.5 a	43.8 a	HS
FT 84113	87.5 a	43.8 a	HS
Overall mean	47	25	
C.V. (%)	49	66	

^a Data were obtained from the average of two independent experiments, each one with four replications.
^b Means followed by same letters in the column do not significantly differ (Scott Knott's test, $P \leq 0.01$).
^c Reaction was classified according to Fusarium wilt incidence (FWI) as resistant = R (FWI = 0), susceptible = S (FWI = 12.5 to 37.5), and highly susceptible = HS (FWI = 50.0 to 87.5).

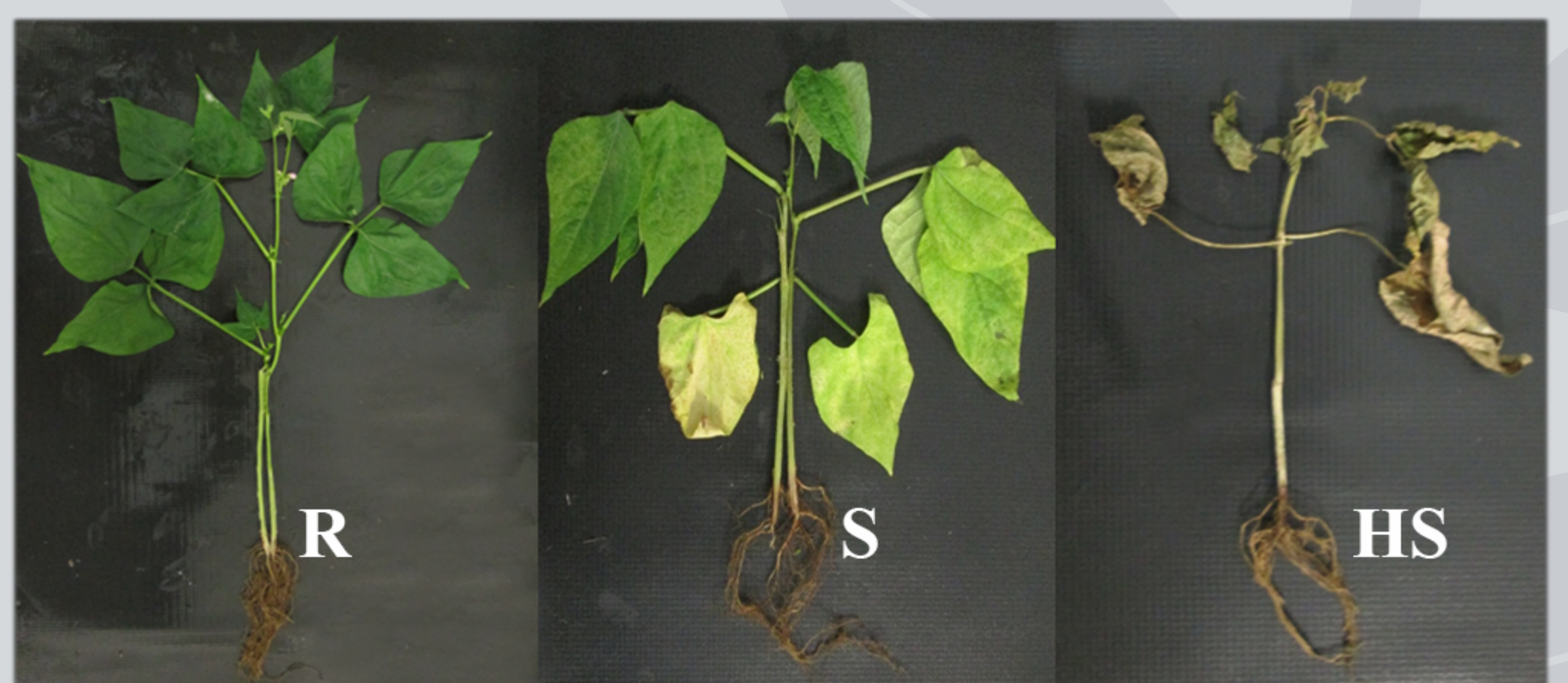


Figure 2: Reactions of common bean plants to *Fusarium oxysporum* f. sp. *phaseoli* infection: resistant (R), susceptible (S), and highly susceptible (HS).

CONCLUSIONS

- Finding resistance genes against *Fusarium oxysporum* f. sp. *phaseoli* in local germplasm is possible and makes feasible future breeding programs.