



# Reaction of common bean genotypes to plant parasitic nematodes

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## INTRODUCTION

Brazil is the world's largest producer of common bean (*Phaseolus vulgaris* L.), a basic dietary protein food source. Ecoregion characteristics and soil infestations by plant parasitic nematodes are among the main factors that interfere with the productivity and grain quality of the common bean. Among the efficient strategies to manage plant parasitic nematodes, the use of resistant cultivars stands out for being frequently the easiest, sustainable and least expensive approach that can be adopted by farmers. However, few sources of resistance have been identified so far. This study was conducted to assess the reaction of 81 common bean genotypes to the most abundant and harmful plant parasitic nematode species in Brazilian crop fields.

## METHODS



Figure 1 – (A) Experiments conducted in a greenhouse and (B) typical symptoms of nematodes in beans and soybeans.

The reproduction of each nematode spp. on common bean genotypes was evaluated in separate experiments, in a greenhouse environment at Embrapa's Experimental Station. The seedlings were inoculated by deposition of the suspension on the soil, close to the plant root, of 4,000 eggs (*H. glycines*), 500 juveniles and adults (*P. brachyurus*), or with 5,000 eggs (*M. incognita* and *M. javanica*). The incubation period varied according to the species, 28 days for Hg, 60 days for Pb, and 50 days for root-knot nematodes, Mi and Mj. The reaction was inferred from an index named relative reproduction factor (RRF), ratio between the reproduction factor (RF) of that nematode species on the genotype, and the corresponding RF on the susceptible standard. The RF is the ratio between the estimated mean of individuals recovered from the plant and the number of individuals inoculated.

## CONCLUSIONS

We found genotypes resistant to all tested nematodes: 7 to *Heterodera glycines*, 2 to *Pratylenchus brachyurus*, 15 to *Meloidogyne incognita*, and 8 to *M. javanica*. This work serves as a reference to indicate common bean genotypes resistant to the more important nematodes for the culture, for sowing in infested areas in Brazil.

## RESULTS

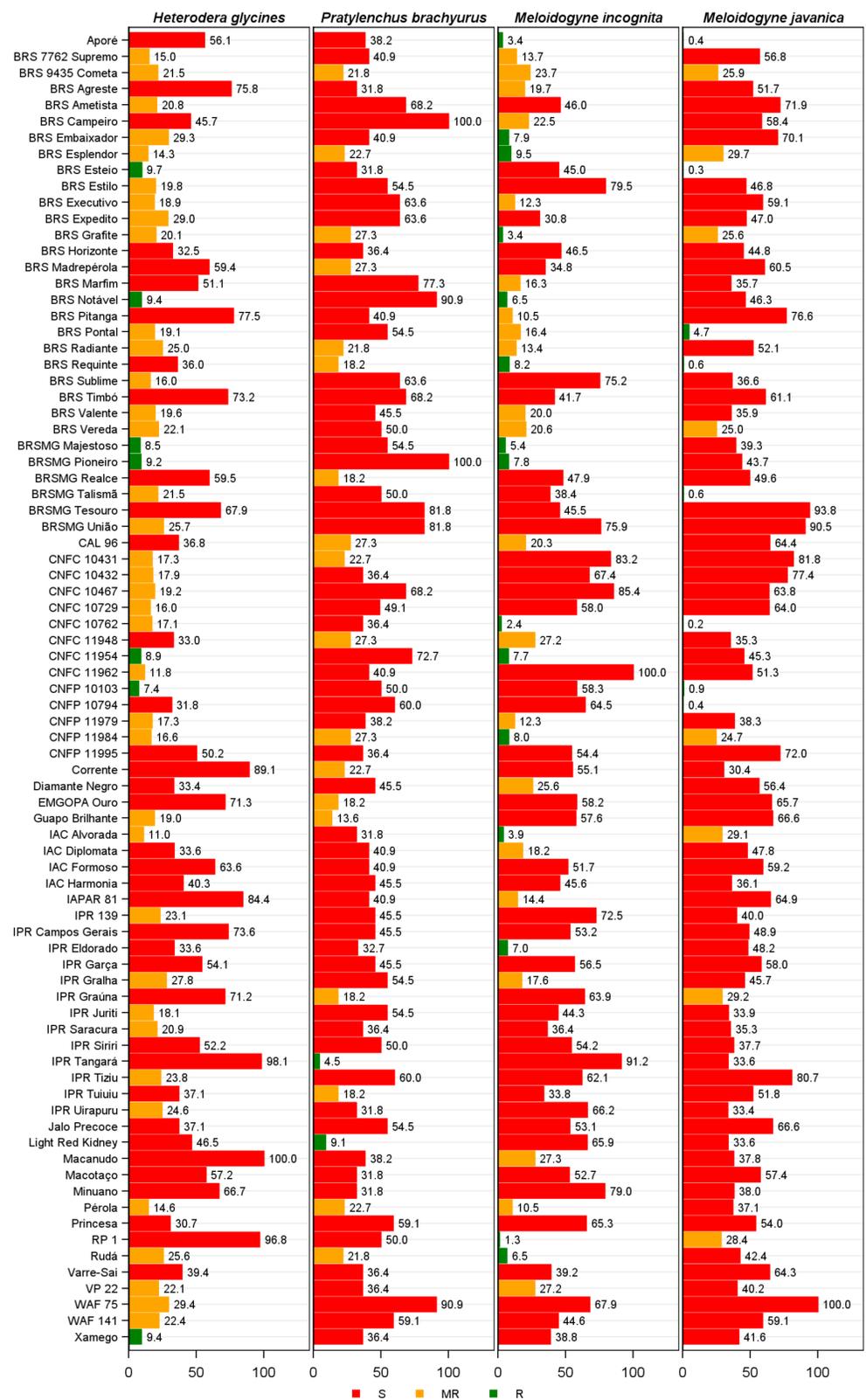


Figure 2 – Female index (*Heterodera glycines*) and relative reproduction factor (*Meloidogyne javanica*, *Meloidogyne incognita* and *Pratylenchus brachyurus*) and reactions of 81 common bean genotypes to the above nematodes species. Susceptibility standards have FI or RRFs equal to 100.