

PRODUCTIVITY LOSSES AMONG DIFFERENT COMMON BEAN GENOTYPES CAUSED BY COMMON BACTERIAL BLIGHT

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INTRODUCTION

Productivity losses caused by plant diseases may reach 100% of the production, depending on the pathogen aggressiveness. Common bacterial blight (CBB), incited by *Xanthomonas axonopodis* pv. *phaseoli* (*Xap*), is among the diseases that may lead to significant losses of productivity to common bean (*Phaseolus vulgaris*), depending on the prevailing environmental conditions. This plant pathogen is widespread in almost all producing regions of Brazil.

MATERIALS AND METHODS

A field experiment was carried out to compare 52 common bean genotypes, inoculated at 30 days after sowing. Previous sand spraying was performed aiming to cause injury in the plants and, after that bacterial suspensions (10^8 FUC ml⁻¹) of four different *Xap* isolates were sprayed. The experiment was performed in a randomized block design and three replicates. Severity evaluation was performed in two lines of two meters at 30 days after inoculation, for which was applied a note scale varying from 1 to 9. Grain yield was performed for all treatments and the percentage of productivity loss was determined with basis on data of inoculated and non inoculated plants. Data were submitted to a variance analysis and mean treatments were compared by Scott-Knott test at 5% of significance by the software SISVAR.

RESULTS AND DISCUSSION

Among the non inoculated genotypes, BRS Pontal, CNFC 10762 and BRS Marfim showed the greatest grain yield with 1546, 1589 and 1604 kg ha⁻¹ respectively, while BRS Executivo, WAF 75 and BRS Embaixador showed the lower ones, 487, 703 and 729 kg ha⁻¹ respectively (Table 1). However, when it were compared loss of productivity and severity notes data of inoculated and non inoculated genotypes, it was possible to verify that BRS Pontal and CNFC 10408 genotypes were the most resistant ones, showing loss of productivity of 4.8 and 9.2%, respectively. On the other hand, BRS Supremo and BRS Embaixador were the most susceptible genotypes, showing loss of productivity of 20.7 and 40.7%, respectively. It was observed significant Pearson correlation ($R^2 = -0,33^{**}$) between the severity notes and grain yield, in which high severity notes indicates significant decrease in grain yield. In spite of the interesting results, field experiments should be repeated in several environmental conditions to ensure the reliability of our results.

CONCLUSIONS

BRS Pontal and CNFC 10408 genotypes showed the greatest resistance to common bacterial blight and, BRS Supremo and BRS Embaixador showed the lower ones.

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Table 1- Disease note, loss of productivity and grain yield of common bean genotypes inoculated and non-inoculated with *Xap*.

Genotypes	Note	Loss of productivity (%)	Grain yield of the inoculated plant	Grain yield of the non inoculated plant
BRS Pontal	3.7 b*	4.8	1556 a	1634 a
CNFC 10408	3.8 b	9.2	1384 b	1524 a
BRS Requite	5.3 d	10.1	1383 b	1539 a
BRSMG União	4.6 c	10.1	862 b	959 d
CNFC 10762	5.4 d	11.2	1684 a	1896 a
BRS Expedito	5.2 d	12.8	1120 c	1285 b
WAF 75	7.2 e	17.2	703 e	849 d
BRS Marfim	5.0 d	19.0	1628 a	2010 a
BRS Valente	4.2 c	19.6	1155 c	1437 b
CNFC 10467	5.1 d	19.6	855 d	1061 c
BRS Executivo	4.2 c	20.6	487 e	613 e
BRS Supremo	5.6 d	24.7	858 d	1140 c
BRS Embaixador	6.8 e	40.7	729 e	1228 c

*- Values in the same column followed by the same letter are not different by Scott-Knott test (p<0.05%)