

Possibilities of Use of Mexican and Central America Stock
in Brazilian Bean Production

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Following a travel done by the author to several American countries, by the end of 1966, many bean varieties were introduced at IPEACO (Regional Midwest Institute).

After the stock increasing and preliminary evaluation of agronomic and market characteristics of the introductions, two yield tests were launched in February 1968, in counties representing physiographic regions of Minas Gerais State. Both places have tropical climate and well-delimited wet and drought periods during the year. Patos de Minas test was located 100 meters higher than Uberaba 750 altitude. Red latossoil enriched by basic rock decomposition was the kind of soil used in the tests.

Accordingly to the market preference of many states, the majority of the varieties included in the tests are black (sub-lined).

Several Brazilian-grown varieties (12) were included as testers. The following are known to have foreign origin: Rico 23 (Costa Rica), Venezuela 350, Costa Rica, and Oax 55 B (Mexico).

The results obtained indicate that thirteen varieties out of twenty-five entries ranked first in Patos de Minas trial, comparing to two Brazilian ones, while in Uberaba test the score was eleven foreign varieties to five native.

In regard to colored varieties, only two of the six present in the test produced as much as black varieties.

Yield Table in Kilograms per Hectare

Varieties	Patos de Minas	Uberaba
<u>S 182 N</u>	1.184	-
<u>Comp. 23 - S. Fernando and Jamapa</u>	1.180	1.294
<u>Porrillo n° 1</u>	1.171	1.492
<u>ST 19 N</u>	949	1.579
<u>Preto G 1 (t)</u>	1.133	1.544
<u>Turrialba 1</u>	1.126	1.428
<u>San Fernando</u>	1.111	1.402
<u>Mecentral</u>	1.096	556
<u>Rico 23 (t)</u>	1.096	1.262
<u>Col 123 N</u>	1.093	1.240
<u>Venezuela 350 (t)</u>	1.060	950
<u>Preto 143 (t)</u>	1.060	1.258
<u>Jamapa</u>	1.031	1.222
<u>Col 123 N</u>	-	1.060
<u>Veranic 2</u>	1.022	1.362
<u>S 562 P</u>	1.013	870
<u>Rico</u>	904	1.244

Varieties	Patos de Minas	Uberaba
<u>Preto Marico</u> (t)	890	1.249
Comp. Chimaltenango	876	573
<u>Costa Rica</u> (t)	853	1.552
<u>Preto Uberabinha</u> (t)	533	1.376
Jalinho (t)	778	1.284
<u>Preto Catarinense</u> (t)	773	1.148
Roxao (t)	354	676
Mulatinho Paulista (t)	658	573
Oax 55 B (t)	902	629
	Significance	.01
	C. of Variation	15.0%
	LSD	243
		.01
		18.7%
		357

*testers

Genes for Resistance to Bean Common Mosaic
and Strains of the Virus

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The occurrence of different strains of bean common mosaic virus complicates the breeding of resistant beans. In 1960 three very virulent strains were isolated in the Netherlands from three bean varieties, described as immune or extremely resistant at the time they were selected. These strains have been indicated as 'Michelite', 'Great Northern' and 'Imuna' strain in conformance with the names of the American dry field bean varieties 'Michelite' and 'Great Northern U.I. No. 123' and the German dwarf snap bean variety 'Schreiber's Imuna', respectively. The relationships of these strains to those described in other countries are not yet clear.

Several bean varieties with recessive a and i genes exhibited the bean common mosaic syndrome after infection with one or more of the three strains in question. Moreover, at temperatures not exceeding 20 C often a heavy interveinal chlorosis or yellow banding along the veins was visible in this case. Therefore, it might be doubtful whether such varieties are immune or tolerant to other 'common' strains. In my opinion, they are not immune to those other strains but show an extreme tolerance, in this respect, at temperatures exceeding 25-30 C.

In varieties with dominant A and I genes, the 'Michelite' strain was able to cause black root symptoms already at 20 C and the 'Imuna' strain at 25 C, while the 'Great Northern' strain normally did not induce this type of reaction below 30 C. At 20-25 C already three to four days after inoculation