

University Field Station. A  $\frac{1}{2}$ -acre field plot infested with Rhizoctonia solani, Fusarium solani f. sp. phaseoli, Pythium spp., and Thielaviopsis basicola was selected for the long-range study, especially with respect to inoculum potential, propagule survival, disease development, weather conditions, and soil environmental factors. Soil samples are collected from 28 sites of the field and brought to the laboratory once a month for analyses. Analyses of various kinds are also performed in the field. The data will be analyzed by computer for possible correlations.

The highest inoculum density of R. solani was observed in July and August immediately after plowing under the bean tissue from the first harvest. Rhizoctonia root rot of beans is usually more pronounced during the second bean planting (about the beginning of July) than during the first planting in May. Inoculum density of this pathogen was at its lowest point in March and April, 1-2 months before the first bean planting. Similar results were obtained in a Beltsville plot artificially infested with R. solani in the spring of 1970.

Soil samples were collected at various depths down to 12 inches from various points of the Salisbury plot and analyzed for Rhizoctonia inoculum. The entire activity of the pathogen was confined to the upper 2 inches of soil (Table 1). No Rhizoctonia was found below 2 inches in depth in any point examined.

Table 1. Saprophytic Activity of Rhizoctonia solani at Various Soil Depths (Salisbury, Md.)

Depth (inches)	Sampled Areas			
	A6	B5	C6	E5
Surface	12	18	18	46
2	2	2	4	4
4	0	0	0	0
6	0	0	0	0
8	0	0	0	0
10	0	0	0	0

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PRELIMINARY REPORT ON THE INHERITANCE OF INTERLOCULAR  
CAVITATION IN F<sub>1</sub> CROSSES IN SNAP BEANS

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Interlocular Cavitation (IC), an internal defect seen in developing snap beans (Phaseolus vulgaris) pods, is characterized by rupture of the succulent parenchyma tissue between the seed locules, and is caused



IC rating based on sum of 5 pods by a 1 to 5 system where 1=no IC and 5=most severe IC.

Means followed by the same letters do not differ at the 5% level according to Duncan's New Multiple Range Test. Parents and F<sub>1</sub>'s were analyzed as separate groups.

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Sprite, Asgrow Resistant Valentine and Harvester, all having some resistance, seem to differ in their behavior in these crosses. Sprite seems to confer relatively more resistance to the F<sub>1</sub>'s in this greenhouse study. We suspect that results from the field may change the interpretation somewhat. It should also be noted that under field conditions BBL 274 appears to have a higher level of resistance than in the greenhouse.

In 1972, an additional 20,000 pods from plants of various generations were individually examined in the main study. Data analysis is under way.

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ABNORMALITIES ARISING IN INTRA-SPECIFIC CROSSES  
OF PHASEOLUS VULGARIS

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Many discordant growth patterns were found in the F-1 and BX-1 progenies from recent crosses between a vigorous climber of the culinary seed type favored by the Italians and a locally developed bush variety. Crossing itself was a relative failure, with many early abortions, just on 50% of all crossing failures involved the Italian runner type.

15% of these hybrids produced dwarf sterile plants,  
28% produced normal sized runners,  
while 57% produced dwarf or determinate bushes.

Parental uniformity was high, and frequently sister F-1 seeds in the one pod produced plants which varied exceedingly in habit, from very short determinate bushes to vigorous twining climbers.

This behaviour pattern was often reversed in the field grown F-2 or BX-1 plants, but not always, the F-2 being more consistent in their runner dominance.

In the case of the BX-1 plants derived from the unusual F-1 habit, there were seldom enough seeds to justify any segregation assumptions.

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