
Organic Farming Green Bean Variety Trial

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Introduction

Four varieties of pole beans (one variety was a half-runner) and five varieties of bush beans were grown on the Organic Research Farm at West Virginia University in Morgantown, West Virginia in the 2002 and 2003 season. Three plots were assigned to a variety trial of green beans in an organic production system. The purpose of this variety trial was twofold. First, most vegetable varieties are tested for yields and other traits in conventional production systems. Thus, there was a need to test the suitability of these varieties in an organic production system. In addition, some vegetable crops are more popular in Appalachia than in other regions of the country, and little information exists on the relative performance of the many varieties of those crops.

Materials and Method

Soil type: Dormont and Guernsey silt loam

Experimental Design: Randomized complete block with 3 replications

Planting Method: Direct-seeded, 6 seeds per foot of row, inoculated with rhizobial bacteria before planting. A trellis supported the pole beans. For each variety of pole bean a trellis was built using two 8-foot wooden poles driven into either side of the plot about 8 feet apart. Another wooden pole was nailed horizontally across the top between the two poles. String was tied to the horizontal pole to hang down and allow the pole beans to crawl up the string.

Plot size: 25' x 8'

Planting dates: The pole beans were planted on May 30, 2002, and June 26, 2003. The bush beans were planted later (July 4) in the 2002 season and on June 26, 2003.

Fertilizer: 10 tons/acre composted cow manure (dry weight).

Irrigation: None

Weed Management: Hand-weeding and stirrup hoe

Insect Management: Mexican bean beetle was the predominant insect pest in these bean plots. Control was done by hand, picking individual eggs, juveniles, and adults from the plant two times during the 2002 season. Although this process was laborious, it proved effective. Other biological measures can be taken to control for this insect such as a beneficial wasp *Pediobius foveolatus* (<http://www.mda.state.md.us/plant/mex.htm>).

Prevention includes removing garden debris after harvest to destroy overwintering habitats. These insects can be very destructive as seen in the second year (2003) when the beetles were not hand-picked. The larvae are yellow and fuzzy and grow to look like a copper to yellow-colored ladybeetle at the adult stage. For more information visit the Web (http://www.hdra.org.uk/pdfs/international_programme/TPC10-Mexican_bean_beetle.pdf).

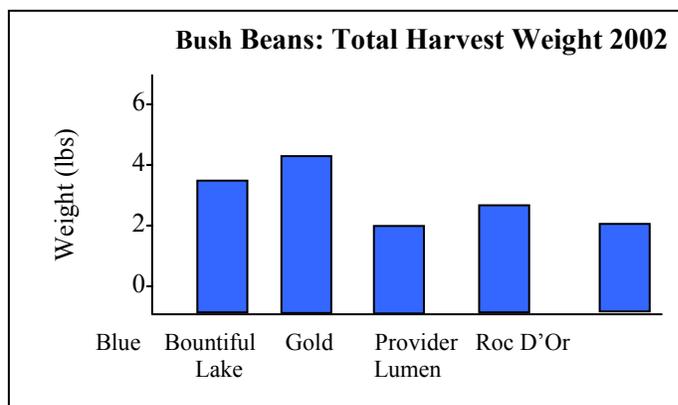
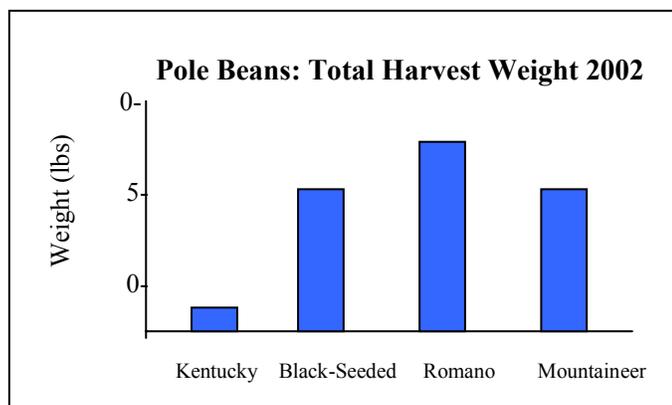
Disease Management: None.

Beans were picked by hand when mature (approximately 1-2 times per week).

Variety and Description

Bean Variety	Growing habit	Description	Source
Kentucky Wonder	Pole	Heirloom, Snap	Seeds of Change
Black-Seeded Blue Lake	Pole		Seeds of Change
Romano	Pole		Seeds of Change
Mountaineer	Half-Runner	Half-Runner	Southern States
Blue Lake	Bush		Seeds of Change
Bountiful	Bush	Heirloom	Seeds of Change
Gold Lumen	Bush	Wax	Seeds of Change
Provider	Bush		Seeds of Change
Roc D'Or	Bush	Yellow wax	Seeds of Change

For more information visit <http://www.seedsofchange.com>



Pole Bean Harvest Dates and Weights (lbs)

Variety: Pole	7/22/02	7/29/02	8/5/02	8/8/02	8/20/02	8/29/02	Total Weight
BLACK-SEEDED	--	0.43	2.00	0.38	3.60	0.90	7.31
KENTUCKY	--	0.21	--	--	--	1.00	1.21
MOUNTAINER	2.23	0.37	1.52	0.43	1.30	0.93	6.78
ROMANO	0.17	0.80	2.72	0.92	4.17	0.26	9.04

Bush Beans Harvest Dates and Weights

Variety: Bush	8/29/02	9/3/02	9/10/02	Total Weight
BLUE LAKE	0.92	2.96	0.43	4.31
BOUNTIFUL	2.69	1.17	0.82	4.68
GOLD LUMEN	0.52	2.34	0.56	3.42
PROVIDER	1.60	1.82	0.67	4.09
ROC D'OR	2.52	--	0.70	3.22

The 2003 bean yields were not put into graph form because there was only one harvest from Kentucky and Mountaineer in the pole beans category, and one harvest from each bush bean. Bountiful had the highest harvest, before becoming devastated by the Mexican bean beetle. The bush beans did the best under heavy insect pressure although none of the beans harvested were marketable. This year (2003) was not a good season for beans due to the wet weather and the heavy insect damage.

The year 2002 was a better indicator of the differences in yields. Romano was the highest-yielding pole bean variety. The Mountaineer half-runner and black-seeded blue lake pole bean varieties were second highest yielding. Kentucky, which is an heirloom variety, did the worst in 2002. However, it was one of only two varieties that had any beans in 2003.

All bush bean varieties had similar yields in 2002. Comparing yields between the pole and bush beans was not possible because the bush beans were planted much later than the pole beans, shortening their growing season. These results may change depending on season and area where the varieties are grown. It may serve an organic farmer to conduct his or her own variety trial to find the right bean cultivar for the situation.

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