

# Growers listen to latest on bean rots

**HERSHEY** — Bean root rots and pod rots are the two most important diseases on beans in Pennsylvania, according to Alan MacNab, of Penn State's Plant Pathology Department.

Bean root rots, characterized by root discoloration and rotting, can result in plant stunting, yellowing and dying of leaf margins, up to a 30 percent yield reduction, poorer quality pods, and a 30 percent increase in time required to grade harvested beans.

Bean root rots are caused by three fungi that may affect plants separately or in combination.

Disease is most severe when beans are cropped continuously in the same field, a practice that allows buildup of the fungi in soil, and when conditions promote slow seed germination and plant growth such as poor drainage, wet soil, nutrient imbalance.

Much research has been conducted to develop varieties with root rot resistance, with the ability to produce high yields and with high quality primarily by three researchers: M. Dickson, New York; D. Hagedorn, Wisconsin, and Silbernagel, Washington.

Line 767, developed by Dickson, has good root rot resistance and produces good yield. Three newer New York lines (528, 543, and 547) are thought to have good quality.

Wisc. (RRR) 46, developed by Hagedorn, is the third and best of three lines (following #83 and 77) developed in Wisconsin. It has good root rot resistance and has the potential of producing high yields.

Some plant breeders believe varieties with useful root rot resistance soon will be available for commercial use.

Present controls include:

- Rotate beans with other crops.
- Use well-drained soil.
- Seed as shallow as possible.
- Treat seed with thiram or captan.
- Use Demosan as an additional

seed or soil treatment

—Provide adequate and balanced fertility levels.

—Avoid close cultivation that breaks roots.

—Do not return unnecessary refuse to fields.

—Plow under refuse soon after harvest.

Bean white mold pod rot, caused by the fungus *Sclerotinia sclerotiorum*, is a serious problem in wet seasons, reported MacNab. The fungus causes a wet rot on plant stems and on pods; during wet conditions, a dense white mold develops on rotted areas.

Harvested beans are acceptable for processing only if less than 5 percent of pods are affected. Above 5 percent, removal of rotted pods is not economically feasible.

During wet conditions, white mold can develop very rapidly. A field with an acceptable level of white mold one day frequently can have an unacceptable level the following day.

Early harvests may help avoid white mold problems. However, harvesting before most beans are mature results in lower yields.

Benlate sprays are labeled for control of white mold on snap beans, he pointed out.

Trials were conducted in commercial fields in 1979 and 1980 to help determine whether the spray program is effective and economical to use. Sprays were applied with a boom sprayer equipped with three D4-25 hollow-cone Tee-Jet nozzles per row, one nozzle over the row and drop nozzles at each side of each row.

Disease occurred in 1979, a year with rainfall levels slightly above average, but not in 1980, a year with rainfall levels much below average. The recommended fungicide program resulted in a significant reduction in stalk rot (from 31.3 to 2.8 percent) and pod rot (from 2.3 to 0.1 percent), and a significant increase in yield (from

2.2 to 2.6 T/A)

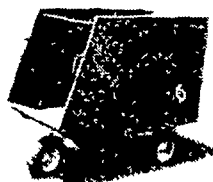
The grower-cooperators compared cost of the spray program with value of increased yield associated with the spray treatment. Assuming: Benlate cost \$12/pound, two applications would be made at the rate of 1 pound per

acre, application cost is \$4 per acre per application, price per ton of beans is \$165, and yield is 2 tons per acre, it appears that a grower should spray to increase yield 0.2 tons per acre on 100 percent of the acreage, increase yield 0.5 tons per acre on 40 percent of the

acreage, increase yield 1.0 tons per acre on 20 percent of the acreage; or prevent loss of beans (by rejection) from 10 percent of the acreage, concluded MacNab.

"Our present recommendation for white mold control is to apply Benlate 50% WP at 1 lb./A when first blossoms open, and at 1 lb./A about 7 days later. Accurate timing and coverage are essential," he said.

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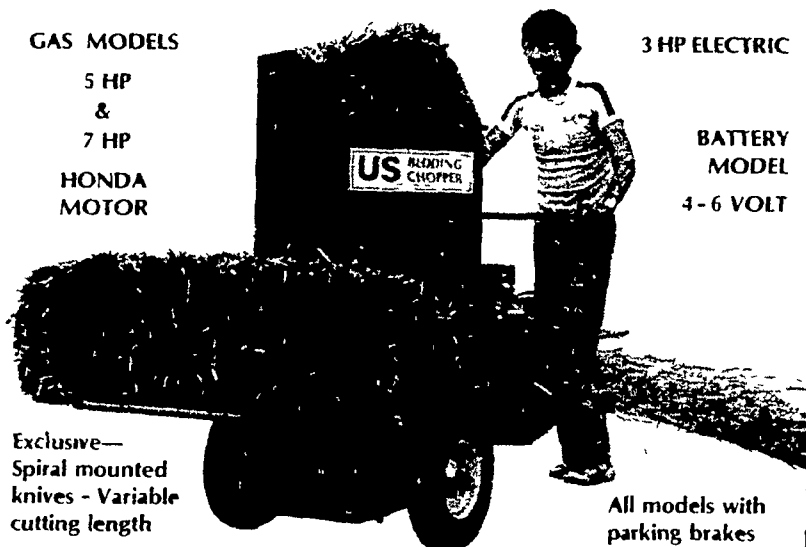
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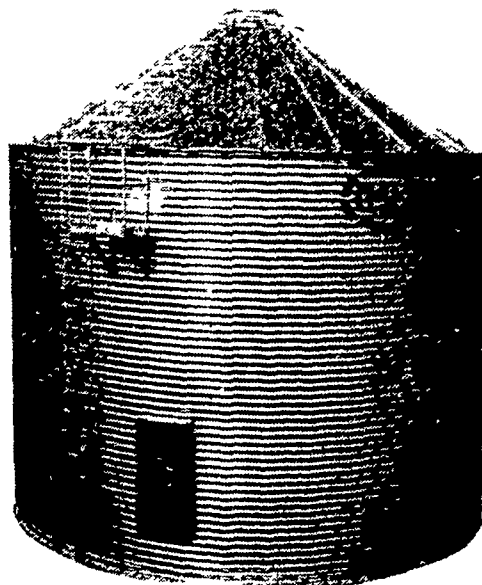
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