



# Extension FactSheet

Plant Pathology, 2021 Coffey Road, Columbus, OH 43210-1087

## Gummy Stem Blight and Black Rot of Cucurbits

Sally A. Miller, Randall C. Rowe, and Richard M. Riedel  
Department of Plant Pathology  
The Ohio State University

**G**ummy stem blight is an important disease of squash, pumpkins, cucumbers, watermelons and other field-grown cucurbit crops. It can occur at any growth stage, from seedlings to mature plants. This disease on fruits, in the field or in storage, is called black rot. The disease also can cause extensive damage to all above-ground parts of greenhouse-grown cucumbers.

### Symptoms

Gummy stem blight occurs on all plant parts except roots. Leaf symptoms appear as dark yellow or reddish-brown lesions in various shapes (Figure 1). Lesions begin at leaf margins and extend rapidly back into the leaf blade, causing curling, shriveling, and death of the entire leaf. Pimple-like structures (pycnidia) may be found in leaf lesions by close inspection with a hand lens.

Fruit symptoms vary among crops. Winter squash (Hubbard, butternut, etc.) are likely to show symptoms primarily on fruit or older leaves. Black rot symptoms appear as a brown to black rot of the rind, flesh, and seed cavity accompanied by heavy



Figure 1. Symptoms of gummy stem blight on pumpkin leaves. Note marginal necrotic lesions.

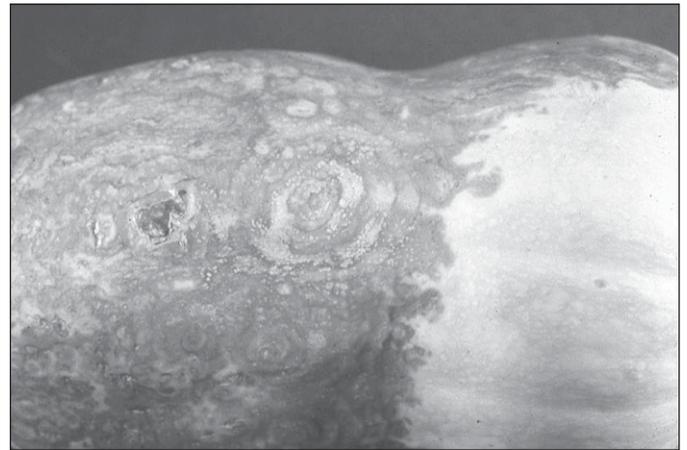


Figure 2. Black rot symptoms on butternut squash fruit showing irregular ring patterns and water-soaked areas.

white and black fungus growth. Lesions may develop anywhere on the fruit, first as water-soaked areas dotted with pycnidia that ooze yellowish masses of spores. On Hubbard-type squash, the brownish-black rot extends down into the flesh and seed cavity. Seeds often become dotted with small black pycnidia. On butternut squash, lesions are brown with irregular ring patterns and are superficial over the skin surface, not penetrating into the flesh or seed cavity (Figure 2). Infection usually occurs in the field, causing water-soaked, cracked, brownish cankers on the vines. A reddish gum may develop in these cracks, although this alone is not a diagnostic sign. (*Fusarium* and scab may also produce a reddish gum.) Fruit may decay at the site of attachment as a result of the fungus invading the stem. Butternut squash and gourds may develop black rot before harvest, but Hubbard squash are resistant during growth and do not show symptoms until the storage period. Fruit rot on greenhouse cucumbers usually begins at the blossom end of immature fruit. Lesions are firm and become dark brown to black when cut open. Occasionally, lesions develop on one side of a fruit, causing it to hook as it grows.

## Causal Organism

Gummy stem blight is caused by the fungus *Didymella bryoniae*. The pathogen can be seed-borne or can survive on organic debris from previously infected cucurbits or on wild or volunteer cucurbits. The gummy stem blight fungus produces two types of spores. Windblown ascospores are likely to start the disease in a field. Later, pycnidiospores are released in a gummy substance that makes them adaptable for short distance spread by splashing water. Spore production and infection are influenced by moisture and temperature. A moisture film from dew, rain, or overhead irrigation is necessary for spore germination. Optimum temperature for infection is 61 to 75 degrees F. Low night temperatures, particularly in greenhouses, may cause water droplets to exude from leaf points and condensation to form on leaves, favoring infection by the fungus at those

points. Infection of fruits commonly occurs through harvest wounds or through dying flowers.

## Management

1. Use only disease-free seed produced in arid western locations.
2. Plow crop refuse deeply to reduce survival of the fungus as soon as crop is harvested.
3. Practice crop rotation with non-cucurbit crops so that cucurbits are grown only every 3 to 4 years.
4. Apply foliar-protectant fungicides on a routine basis. See the Ohio Vegetable Production Guide (OSU Extension Bulletin No. 672) for current fungicide recommendations.
5. Avoid wounding fruit during harvest and store fruit at 45 to 50 degrees F to prevent postharvest fruit rots.
6. Resistant cultivars are not currently available.

This publication contains pesticide recommendations that are subject to change at any time. These recommendations are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. Due to constantly changing labels and product registration, some of the recommendations given in this writing may no longer be legal by the time you read them. If any information in these recommendations disagrees with the label, the recommendation must be disregarded. No endorsement is intended for products mentioned, nor is criticism meant for products not mentioned. The author, The Ohio State University and Ohio State University Extension assume no liability resulting from the use of these recommendations.

Visit Ohio State University Extension's web site "Ohioline" at:  
**[ohioline.osu.edu](http://ohioline.osu.edu)**

All educational programs conducted by Ohio State University Extension are available to clientele on a nondiscriminatory basis without regard to race, color, creed, religion, sexual orientation, national origin, gender, age, disability or Vietnam-era veteran status.

Keith L. Smith, Associate Vice President for Ag. Adm. and Director, OSU Extension  
TDD No. 800-589-8292 (Ohio only) or 614-292-1868