Gray Mold of Strawberry

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Importance
Several fungi can cause developing and ripe strawberries to rot. In Kentucky the most common and economically important of these diseases is gray mold, caused by the fungus *Botrytis cinerea*. Also called Botrytis rot or ash mold, it is an ever-present threat to strawberries both in the field and after harvest. It can be particularly devastating because the disease strikes after investments in the crop have been made, but before returns have been fully realized.

Causal Organism and Disease Development
*B. cinerea* is both very common and well adapted for survival. It occurs on a wide range of hosts and overwinters in dead leaves and decaying plant tissue. As the temperatures warm in the spring, infective spores are produced and disseminated to susceptible strawberry tissue by air currents, splashing rain or insects. When these spores contact water, they germinate and infect plants within hours. *B. cinerea* has an advantage over many pathogens in that it has the ability to colonize either living or dead tissue. Many times, the fungus first becomes established in dead or dying tissue and then moves into healthy tissue. Fruit infection is often most severe in shaded and protected areas under the canopy of plants where air movement is poor and humidity high. Also, fruit resting on the soil or touching other diseased berries are commonly affected. The fungus often first colonizes deteriorating floral parts. From there, infections may quickly destroy the developing berry, or less often remain latent until fruit are well ripened or even harvested. Fruit infections usually appear as soft, light brown areas on the fruit surface. These areas spread rapidly throughout the berry until it is completely destroyed. Rotted berries retain their general shape and become tough and dry. Little or no leak is associated with the disease. As the berries dry out, they become covered by a distinctive gray, dusty-appearing growth of the fungus, from which the disease gets its name. Though *B. cinerea* is active over a wide range of temperatures and humidities, optimum conditions for infection and disease development occur between 60 and 70°F, and at relative humidities above 90%. Under these conditions, gray mold can explode in an unprotected berry patch and produce a severe epidemic in as little as 28 hours. As the disease becomes more and more established in a particular field, it becomes proportionally harder to control.

Cultural Control
Certain cultural practices help control gray mold by promoting faster drying of foliage and fruit while other practices reduce exposure to fungal inoculum.

- Select a planting site with good soil drainage and air circulation.
- Expose planting to full sun.
- Orient plant rows toward the prevailing wind.
- Apply appropriate nitrogen levels to prevent excessive foliage from developing.
- Mulch plants with straw to reduce fruit contact with soil.
- Pick fruit frequently.
- Call out and remove diseased berries from the planting.
- Handle berries with care to avoid bruising and refrigerate harvested fruit promptly at 32-50°F (0-10°C).

Chemical Control
Gray mold control can be aided by applying protective fungicides beginning at or before bloom and continuing until harvest. Where gray mold has been a significant problem before, applications should begin at the white bud stage of flower development. Also, where frost has damaged a planting and a marketable crop remains, great care should be taken to maintain a strict fungicide spray program.

To reduce the possibility of fungicide-resistant strains of *Botrytis* developing, apply the systemic fungicides as a tank mix or alternating with nonsystemic fungicides not likely to produce resistance problems. For specific information regarding chemicals available and use rates, consult ID-94, *Kentucky Commercial Small Fruit & Grape Spray Guide*, available at your County Extension office.