

## Penicillium on stored garlic (Blue mold)

### Cause

*Penicillium hirsutum* Dierckx (syn. *P.corymbiferum* Westling)

### Occurrence

*P. hirsutum* seems to be the most common and widespread species occurring in storage. The correct name remains in dispute, *P. allii* Vincent & Pitt is used by Valdez. This disease occurs at harvest and in storage.



*Penicillium* sp. causing a blue-green rot of a garlic head  
Photo by Melodie Putnam

### Symptoms

In storage, initial symptoms are seen as water soaked areas on the outer surfaces of scales. This leads to development of the green-blue, powdery mold on the surface of the lesions. When the bulbs are cut, these lesions are seen as tan or grey colored areas. There may be total deterioration with a secondary watery rot.



*Penicillium* sp. on garlic clove  
Photo by Melodie Putnam



Close-up of *Penicillium* sp. on garlic head  
Photo by Melodie Putnam

### Disease Cycle

*Penicillium* survives in infected bulbs and cloves from one season to the next. Spores from infected heads are spread when they are cracked prior to planting. If slightly infected cloves are planted, they may rot before plants come up, or the seedlings may not survive. The fungus does not persist in the soil.

Air-borne spores often invade plants through wounds, bruises or uncured neck tissue. In

storage, infection on contact is through surface wounds or through the basal plate; the fungus grows through the fleshy tissue and sporulation occurs on the surface of the lesions. Entire cloves may eventually be filled with spores.

## Management

- Cure bulbs rapidly at harvest
- Avoid wounds or injury to bulbs at harvest, and separate those with insect damage
- Plant cloves soon after cracking heads
- Eliminate infected seed prior to planting
- Store at low temperatures (40° F prevents growth and sporulation), with low humidity and good ventilation

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