

Post Harvest diseases of **Apple and pear**

1. Apple scab : *Venturia inaequalis*
2. Blue mould / Green mould : *Penicillium italicum*
3. Grey mould : *Botrytis cinerea*
4. White rot : *Botryosphaeria dothidea*

Bitter rot : *Glomerella cingulata*

Alternaria rot : *Alternaria alternata*

Brown rot : *Sclerotinia frunctigena*

Apple scab

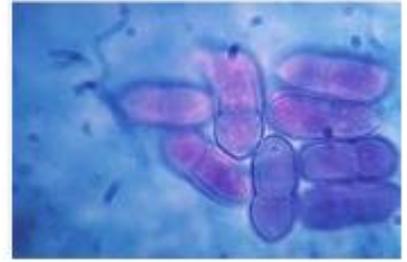
Pathogen: *Venturia inaequalis*

Symptoms

- Small, rough, necrotic olive-green or brown/ black colored circular lesions on their skin and become sunken.
- Affected fruits rot due to secondary infection late in season
- Scab noticeable after harvest apples in storage.



- . Ascus is slightly spatulate in shape
- . Ascospores are 2-celled, yellowish with the upper cell shorter and somewhat wider than the lower cell, oval shaped



Spore of the pathogen



Environmental conditions

Low temperatures of 4 and 8°C favours for the development of disease.

Management:

- Infected spurs (branches) and cankers should be pruned during summer.
- Affected fruits whether on trees or fallen on the ground should be collected and buried in the soil.
- Diseased mummies should be ploughed into the soil.
- Pre-harvest sprays of **Mancozeb**. Last spray should be 15-20 days before harvest.

Blue mould / Green mould rot: *Penicillium italicum*

Blue mold

Blue mold (primarily *Penicillium expansum*) is a very common post-harvest fungal disease on apples worldwide.

This disease is of economic concern to both the fresh-fruit industry and the fruit-processing industry because some strains produce the mycotoxin patulin, which can rise to unacceptable levels affecting the quality of apple juice.



Symptoms

- It occurs on fruits during storage and transit.
- Affected rind of the fruits become watery.
- Watery spot increases and then entire fruit rots and emits bad smell
- Blue fungal growth is seen on the surface of the fruits.



Blue mold originating from infection of wound on fruit; decayed area brown, soft and watery, with a sharp margin; blue-green spore masses visible.



Blue mold decayed tissue completely separable from the healthy tissue.



Blue mold originating from infection of wound on a Granny Smith fruit; spore masses formed at the infection site.



Calyx-end blue mold on a Fuji fruit; usually associated with drenched fruit.

Management:

- Benomyl, Thiophanate-methyl
- Pre storage dip in **Thiabendazole** TBZ (500ppm) for 2-3 minutes.

Grey mould: *Botrytis cinerea*

Symptoms:

- Infected fruits turn slightly brownish.
- The fungus advances into the inner flesh resulting in a soft, watery mass of decayed tissue contained in a slightly intact, brown skin.
- The pathogen sporulates on the surface of fruit and the typical, powdery, grey mould stage.



Gray mold

Gray mold (*Botrytis cinerea*) is a common post-harvest disease on apples worldwide



Gray mold originating from infection at stem or stem bowl; gray spore masses may be visible at the diseased area under high humidity



Gray mold commonly originating from infection of wounds on the fruit; decayed area brown, spongy to firm; decayed tissue may become soft at a very advanced stage.



Gray mold originating from infection of the calyx of a Red Delicious; white to gray mycelium and gray spores may cover the decayed area under high humidity conditions.

Spread

This fungus has the ability to spread from decayed fruit to surrounding healthy fruit through fruit-to-fruit contact during storage.

Because of this, significant losses as high as 20-60% are not uncommon after an extended period of storage, particularly on fruit that were not treated with fungicides prior to storage.

Management:

- Chemicals
- Grey mould can be controlled by prompt cooling.

White rot: *Botryosphaeria dothidea*

Symptoms:

- One type -rot the fruit from the inside outward.
- Entire apple becomes soft but retains its shape and takes on a light brown color.
- Second type - white rot is small, brown, circular sunken spots surrounded by red halo on the fruit.



Management:

- Eliminating dead wood, including current season's fire blighted twigs, and avoiding stub cuts is important for disease prevention.
- Make pruning cuts properly and cut just outside of the bark ridge and collar tissue to promote rapid wound closure and healing.
- Pre-harvest sprays of **Carbendazim** 2-3 times starting six weeks before harvest do provide good control of this rot.

T. A.