

## 2. Chemical damage caused by fungi and vegetable parasites

### a. Fungi that cause structural rot and decay

These attack the cell wall structure, not just the living cells of the wood.

- Brown rot (German *Braunfäule*) - attacks cellulose, brown lignin survives. The wood has a charred appearance. Also called dry rot fungus.
- White rot - attacks both cellulose and lignin, leaving a white stringy cellulose residue.
- Root rot, butt rot on spruce, and wet rot fall into this category.

Decay fungi species:

- Dry rot fungus - *Serpula lacrimans* - (German *Echter Hausschwamm*) rust-brown, crust like surface fungus. It can attack relatively dry wood as it produces water as a digestive byproduct; it can also transport water 30' or more via strands; thus the name 'dry-rot' fungus. Attacks coniferous wood. Causes a brown rot.

Wet-rot fungi species:

- Cellar fungus - *Coniphora puteana*. Causes a brown rot. Requires very high moisture content.
- White spore or mine fungus - *Amyloporia xantha*, *Fibroporia vaillantii*, *Poria placenta*. Fruiting bodies are white to cream color; produces a brown rot.
- White rot - *Phellinus contiguus*, *Donkioporia expansa*, *Asterostroma* spp.
- Brown rot - *Paxillus panuoides* - produces a vivid yellow discoloration
- Oyster fungus - *Pleurotus ostreatus*

It is not unusual for spruce trees to have rot in the core of the tree. This does not affect the tonewood value of the undamaged wood.

Red stripes on wood indicate the beginning of stock rot, caused by fungi. This can happen if the wood is not stored properly. The discoloration is caused by a change in cell content.

### b. Fungi that cause surface molds or wood staining

- Molds live on the surface of the wood.
- Stains invade the parenchyma cells in the sapwood, and can cause a variety of color changes. Blue or red stain fungus is common. The fungus changes the cell contents and the discolored wood can be either stronger or softer.

Neither molds nor stains cause actual wood rot (destruction of the cell walls) but they can kill the living wood cells and make the wood unsuitable for use. They can also open the door to further attack by decay-causing fungi. Water- and oil-soluble liquids can provide protection for the wood.

Non-rotting fungi species:

*Penicillium* spp., *Aspergillus* spp., *Cladosporium* spp.

Slime molds: *Myxomycetes* spp. - eat bacteria in damp wood

Blue stains : *Aureobasidium pullulans*, *Sclerophoma pithyophilia*, *Diplodia* spp, *Cladosporium* spp. Stain deeply penetrates the wood and cannot be removed.

Fungus requires food, oxygen, moisture, and a suitable temperature to grow. Removing any of these will protect the wood from fungal growth.