

BOX ROT OF PRUNES

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Three research objectives were outlined for 1978. These were to determine:

1) Length of time between harvest and dehydration for the establishment of molds on fresh prunes, and their importance in box rot development, 2) the role of Aspergillus glaucus (group) fungi in the decay process before and after dehydration, 3) the effect of treating fresh fruit before dehydration for decay control.

We also attempted to determine what effects sunburn, mechanical damage, and size had on fruit drying. Prunes for the experiment were harvested from the University of California field plots at Davis and dried commercially at a dehydrator in Fairfield.

The most significant result was that box rot only occurred on prunes left for 48 hours or more before drying. In one case box rot was correlated with brown rot infections. However the experiments were designed to determine if Aspergillus glaucus group fungi were responsible for box rot and the treatments involved inoculations with these fungi. Aspergillus chevalieri was the primary fungus that developed on the dried fruit and almost 100% of the dried fruit were infected. Treatments with K-sorbate and steam did not stop the infections but development of this fungus in the dried fruit did not lead to box rot. In two cases, 2% potassium sorbate reduced box rot. It appears that Aspergillus chevalieri infects dried prunes but does not grow in them unless the moisture content of the fruit is higher than 25%. Fruit that was injured, sunburned, or damaged dried as well as or better than healthy fruit. However when fruit were separated according to size, the extra-large fruit remained at a moisture content potentially susceptible to mold attack. Fruit picked from the ground had a high incidence of box rot especially the larger fruit. At this time it appears that the most important form of box rot is that caused by fungi on the fruit left 2 days or more before drying. Future experiments should be focused on treatment of harvested fruit to prevent this infection. Since at the present time it is not practical to size the fruit before drying, large dried fruit having high moisture contents will be mixed in the bins. Experiments to monitor box rot and determine specifically when dried fruits should be turned could control this type of box rot.