



University of Idaho
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Bitter Pit of Apples

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Bitter pit of apples is a physiological disorder that causes brownish spongy or corky spots or pits in the flesh just under the skin of the fruit. The pits generally appear at the blossom end but in severe cases may appear anywhere on the apple. Because these pits have a bitter taste, the disorder was named bitter pit. Bitter pit doesn't hurt the keeping quality of apples. It does spoil their appearance, however, and makes the fruit less appealing to the consumer.

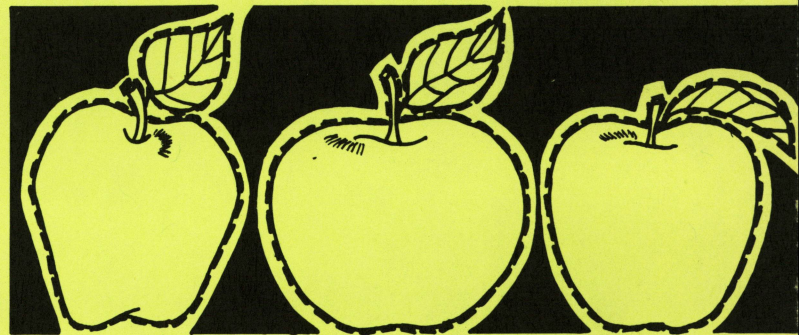
Golden Delicious is the variety most susceptible to bitter pit. Winesap, Delicious and Yellow Newton are other commonly affected varieties.

At one time, orchardists believed that two types of bitter pit occurred — one on fruit before harvest and one appearing after storage. These are now described as different manifestations of the same disorder. The bitter pit that develops on the tree is relatively easy to sort out in packing. But bitter pit which develops after the fruit has been graded, packed, and even marketed is more serious. This sometimes means repacking and other costly problems.

Heavy pruning — whether mold and hold pruning, conventional pruning, or pruning by mechanical tree toppers — may induce bitter pit. The disorder is related to calcium nutrition in the tree. Heavy pruning encourages fast shoot growth and this growth in turn takes a high percentage of the calcium that should go to the fruit.

Heavy fertilization with nitrogen also makes apples more susceptible to bitter pit. And heavy thinning is likely to cause bitter pit. These practices all promote shoot growth. Moderation in all these practices will help reduce the incidence of the disorder.

Bitter pit is not caused by boron deficiency and therefore cannot be corrected by addition of boron.



Calcium Sprays

In the apple-producing sections of Washington, spray applications of 5 pounds of calcium nitrate per 100 gallons of water have reduced the incidence of bitter pit 35 to 50 percent. Generally three sprays are applied — one the middle of June, the second the middle of July, and the third the middle of August. More sprays have been used sometimes on young vigorous trees with a history of bitter pit. These sprays should not be applied later than mid-August.

Since research shows calcium does not move readily from the leaves to fruit or from one side of the apple to the other, both the leaves and the fruit must be uniformly covered with the spray.

Sprays of calcium nitrate can increase fruit russetting, especially on Golden Delicious, if weather conditions are favorable. Reduce the hazard by not spraying during cool, moist weather or during the evening. Fruit russetting is less likely with rapid drying conditions.

Calcium nitrate will increase the amount of nitrogen, but will not greatly influence tree vigor.

Calcium nitrate sprays have not been used enough in Idaho to recommend them without qualification. Generally, however, Idaho climatic conditions are similar to those of the Yakima Valley where the spray has been used successfully. The spray program appears worthy of trial in southwestern Idaho, especially in orchards having a history of bitter pit.

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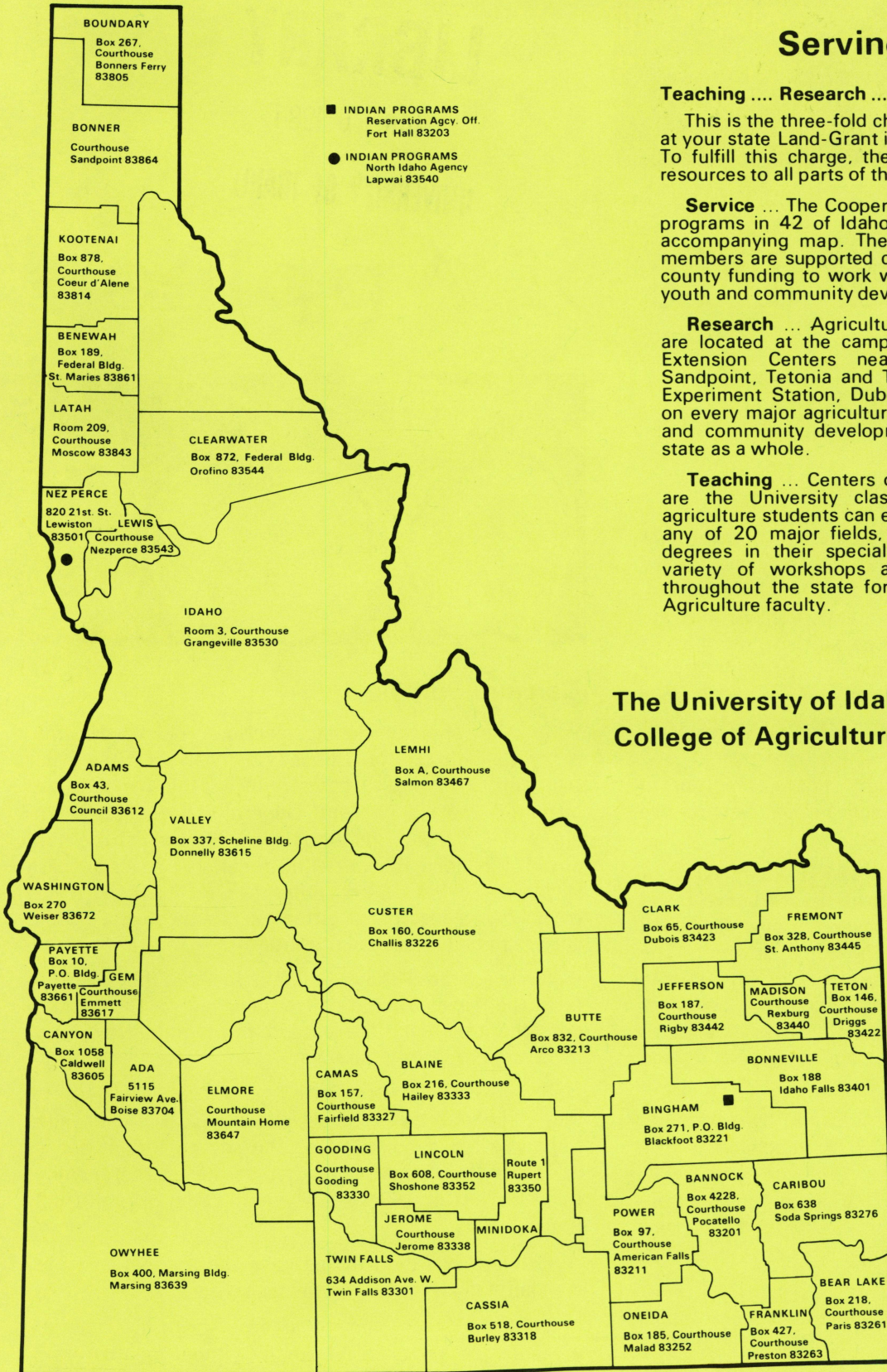
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