

large trees. It is generally worse in trees exposed to strong cold winds. The injury is thought to be due to freezing of the sap-wood, this causes a dark discoloration; hence the name Black-Heart. The cambium layer, however, is not injured and continues to form new layers of sap-wood. In course of time, if the injury is repeated, the injured sap-wood may decay and this often weakens the trunk or branches to such an extent that they break down or die.

KILLING OF BARK ON BRANCHES.

The bark on the larger branches was often found to be affected very much the same as that on the trunks.

KILLING OF FRUIT SPURS.

The fruit spurs on many apple and some pear trees in the colder sections were frequently killed back to the branch on which they were borne. Some pear trees were observed where the spurs were killed as described and from near the base of the spur strong vigorous shoots had started to grow, when seen in June.

KILLING OF FRUIT BUDS.

This form of injury is not uncommon, especially on peaches and cherries. The buds are killed by extreme cold or through starting into growth in mild weather and being subsequently frozen in cold snaps.

KILLING BACK.

The terminal growths on young and old trees are occasionally killed by severe freezing. Injury of this kind is generally confined to the previous season's growth but during the past winter it often extended into the older wood. Peaches and some varieties of apples trees are quite susceptible to this form of injury.

FACTORS WHICH PRE-DISPOSE FRUIT

TREES TO WINTER INJURY.

The question may properly be asked, what are the factors which pre-dispose our tree fruits to damage by low temperatures. As is well known the primary cause of winter killing is a very low temperature but along with this there are several factors which may directly or indirectly increase the degree of injury. These are given herewith:

1. COLD RESISTANCE OF VARIETIES.

It is a well known fact that there is a great difference in the hardiness of varieties, when grown in the same soil and under the same conditions. The past winter has shown more clearly than ever before, that certain varieties are more resistant than others. In Ontario the hardiest varieties are mostly those which originated in either Russia, Canada or the Northern States. The unfortunate thing in connection with those of Russian origin, is that while they are very hardy there are really no first-class apples amongst them. The good varieties of Canadian Origin while hardy enough for most winters are not sufficiently hardy to stand exceptional winters such as the past one.

2. EXPOSURE TO STRONG COLD WINDS.

Trees growing on the sites exposed to strong cold winds were invariably injured to a greater extent than those growing in well protected areas. Examples were seen in Norfolk, Prince Edward, and in York Counties.

3. LATE CULTIVATION.

Orchards which were cultivated late in the season were generally more severely injured than other orchards in the same localities where cultivation was discontinued early or where but very little cultivation was given. Late cultivation causes the trees to grow late in the season. In such cases the wood does not ripen