

WHY A CULL APPLE IS A CULL

By H. P. GASTON

On the average, only about half of the commercial apple crop in Michigan meets the requirements of the A-grade. The remainder is inferior fruit that must be branded as such and placed on the market at a lower price than that obtained for an A-grade product. The result is greatly diminished total returns to growers. That this situation is not entirely beyond the control of the grower, however, is proved by the fact that those who employ the best methods produce fruit more than 70 per cent of which meets the requirements of the A-grade.

WHAT CULLS COST THE GROWER

Figure 1 shows the average return per bushel to the grower in Michigan in 1924 and 1925 for ten leading varieties. The differences in returns for the different grades are also shown. Probably the most

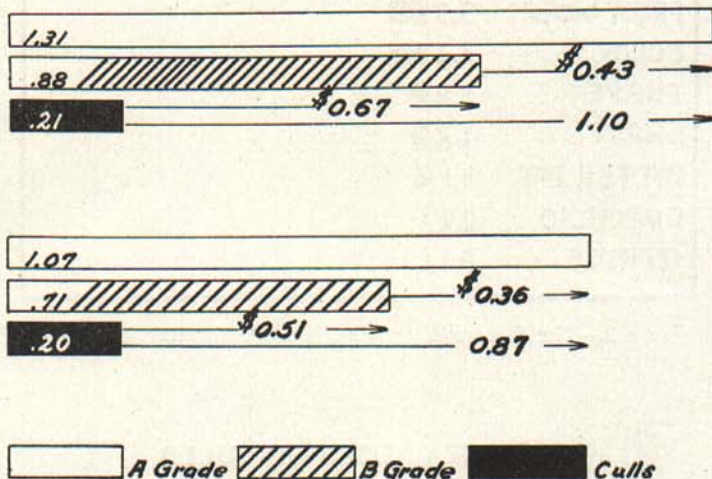


Figure 1.—The differences in returns from different grades of fruit are shown for 1924 (above) and 1925 (below). The returns for the ten varieties are averaged.

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striking thing about these figures is the great differences in returns for the different grades. In 1924, the average bushel of B-grade fruit brought 67 cents more than the average bushel of culls, and the average bushel of A-grade brought \$1.10 more than the average bushel of culls. These differences emphasize the importance of reducing the percentage of culls to the minimum.

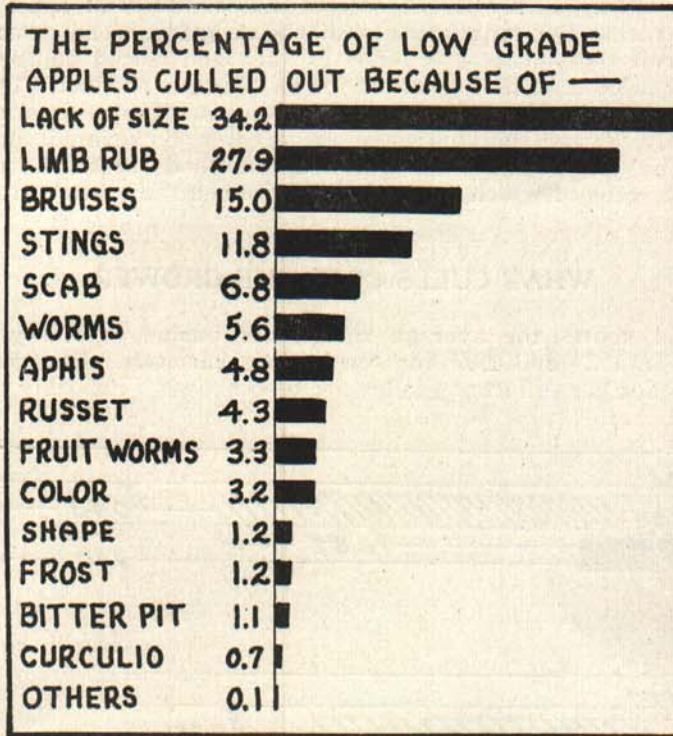


Figure 2.—The factors directly responsible for low grade fruit.

DIRECT CAUSES OF CULLS

Figure 2 lists in the order of their average importance the 14 major causes of low grade apples. Lack of size, limb rub, handling bruises, stings, and scab are, in the average year, the factors of greatest importance.

Attention is directed to the fact that more than one-third of the apples are culled out because of lack of size. Limb rub, a factor regarded rather lightly by most growers, accounts for 27 per cent of the off grade apples. These two factors together explain why, in the average season, more than 60 per cent of the low grade apples are so graded.

INDIRECT CAUSES OF CULLS

Most of the blemishes and deficiencies which appear as the fruit is run over the sorting table are due to what has or what has not been done in the orchard. Growers should observe their fruit at harvest time and after determining the direct causes of poor fruit try to discover and correct the practices which are responsible for the lowering of grade.

Soil. Lack of size, has been mentioned as the defect of outstanding importance. Producers who have been harvesting rather small fruit from trees growing in shallow, infertile, or droughty soils can well afford to consider the practicability of such changes in soil management methods as will increase both available nutrient and moisture supply. This may take the form of fertilization or cultivation.

Thinning. Size can generally be improved by thinning. It may not pay to thin all varieties but there is considerable evidence which indicates that if trees are inclined to bear heavy crops of under-sized apples it will pay to thin them.

Nitrogen-carrying fertilizers tend to cause a heavy setting of fruit. Naturally, the apples which come from trees bearing these heavy loads are often lacking in size. Though nitrogen-carrying fertilizers are used in many orchards, seldom is the application followed by thinning.

Pruning. Lack of size and limb rub are responsible for more than half of the low grade fruit. It is generally believed that both of these defects can be reduced by proper pruning, though on account of other variable factors, it is rather difficult to determine just how much can be accomplished in this direction. There is, however, little doubt that some improvement in size and some decrease in the amount of limb rub can be effected by judicious pruning.

Spraying. The control of scab obtained by a grower in a "scab year" is a good index to the effectiveness of his spraying. In 1924, a "scab year," 11 per cent of the B-grade fruit and 16 per cent of the cull fruit was placed in those grades because of scab. However, some growers produced fruit less than one per cent of which was affected by this disease. This proves that commercial control is possible and indicates that many growers are falling short when it comes to effective spraying. This ineffectiveness is due in many cases to poor equipment. It seems likely that money spent for more adequate equipment would in many cases return big dividends. In other cases it is due primarily to lack of timeliness in application.

Care in Handling. An alarmingly high percentage of the apples brought to the market shows handling bruises. It was found that careful handling will reduce the percentage of bruised fruit to practically nothing. Some growers are now employing methods which are very effective in this respect. Careful handling will enable the average grower to improve materially his grade without greatly increasing his production costs.

DISCUSSION

A considerable percentage of the fruit now going into B- and cull grades can be grown and handled so as to meet A-grade specifications and this can be done with profit. In brief, those factors that together account for about half of the culling that is done are almost completely under the individual grower's control, and the improvement in grade that can be effected through these means adds little to production costs. The margin of profit which may be obtained by greater attention to orchard management details is considerable. Growers can well afford to study their own orchards from this point of view and modify or adjust their growing practices and harvesting operations accordingly.

Note:—This bulletin presents in more condensed form the more important points covered in detail in Special Bulletin No. 160 of the Michigan Agricultural Experiment Station. A copy may be had upon request.