

## MORE CAREFUL HANDLING OF APPLES

(By Prof. W. S. Blair)

When it comes to the matter of harvesting the apple crop, some orchardists are very careless in this branch of orchard management. It is really too bad that after good fruit has been produced, it should be as roughly handled as it often is. True, there is but a short time in which to gather the crop; still, this is no excuse to offer for the way many of our apples are handled.

**Picking.** When picking, the apple should be given a slight twist and an upward or downward pull, disengaging it without pulling out the stem, or without injury to the fruit spur. The apple should be placed in the basket and not dropped into it. The first serious jolt the apple receives is given at this time and in too many cases each subsequent movement is an added jolt, so that when the fruit really reaches the consumer it is sick from the treatment. I do not see that the lining of the fruit basket helps very materially in preventing bruises when picking. The apples which come in contact with the lining certainly are protected, but the majority of the apples picked, fall upon one another in the basket, so that in careless picking each apple generally has two or more bruises on it. I am sure if we could get away from the stupid method generally followed and hold every apple in the hand until it reaches its resting place in the basket, we would be making a great step in advance.

**Emptying Into Barrel.** You, like myself, when wishing to locate pickers in an orchard, stop to determine where they are working. The bombardment of apples shot into the barrel tells at once, even if they are half a mile away. Every fruit grower knows this is wrong. You tolerate it, however, and you are losing money as a result. This dumping heavily is unnecessary, for with the swinging handle the basket can be placed within the barrel and with a slow, careful motion the apple will roll out without any appreciable damage or noise. Everything considered there does not appear to be any picking receptacle better than the wood splint basket lined with burlap. The picking bag and similar canvas containers, if not very carefully handled, offer much greater possibility of bruising the fruit.

**Ladders.** More care is necessary in handling ladders when picking. Too often we have very little regard for fruit spurs and the number stripped off from this case is greater than is necessary. After come pickers get through, the ground under the tree presents a sorry sight from fruit spurs removed when picking. The aptitude of some men for the work of picking from ladders and their skill in the proper handling of the ladder is well known, and such pickers should be paid a premium. There are some men who should never be allowed to handle an orchard ladder. The work of picking can usually be divided so that the man with the least capacity for ladder work may pick from the ground or from a stepladder. The stepladder can be employed more than it is and thus eliminate some of the present loss. The lower part of the tree should be thoroughly cleaned up before the picking from above is undertaken.

**Removal From the Orchard.** It is not always convenient to do so, but the fruit should be removed from the orchard soon after it is picked, to as cool a situation as possible. I think that if we had more open sheds with a free circulation of air except from the south, in which to place our fruit, as soon as it is picked, we would have much better results than we now do. The head should not be put in until the fruit is thoroughly cooled. There is a great loss from the manner of orchard heading practiced by some growers. When heading for transportation to the warehouse the barrel should be racked thoroughly on a stout plank with padded header, and be filled level with the slave end before placing the head, and pressing in with a regular apple heading press. This will give a tight barrel when landed at the warehouse and overcome the loss resulting from the jolting of the fruit in barrels when going over rough roads. It would be very much better if at all possible to transport apples on a spring wagon, thus eliminating the necessity, when orchard heading, for such a firm pack. The pressing does result in some bruising but not comparable with that of the loose packed on many of our rough roads. When delivering to the warehouse without heading a spring wagon thus is best by all odds. You have noticed fruit delivered in a truck as compared with that on a wagon. Out springs, the difference is very great, and all in favor of better transportation methods from farm to warehouse. The distance of haul, condition of roads (sandy roads are very favorable) are matters that will determine the methods likely to give best results. There should be more care in handling the barrels not to give the severe jars so often in evidence. They should be landed easily and not roughly. These may seem to be small matters but they are important, nevertheless.

**Packing Houses.** Whether rightly or not, the feeling prevails among many growers that there is little use in handling the fruit carefully, because of the treatment it receives later in the packing house. This in many cases is only an excuse. On the other hand, one need not spend very much time in a packing house to learn that there is not the care exercised there that one would expect. This is due largely to the incompetent, or indifferent help which may happen to be employed, and because the warehouse manager, like the orchardist, is unable to follow up every detail during every minute of the day. There are, however, some warehouse managers who apparently do not notice the indifferent manner with which the work is being done, and consequently it goes on to the detriment of all growers. It is pretty well up to the grower to see to it, that this is remedied. You can certainly take time to tell the manager what you think. He in turn will likely tell you what he thinks of your fruit, and both will be helped because of this heart-to-heart talk. The fault is not all in one place and if everyone makes up his mind to handle fruit a little more carefully than now, I am convinced a mighty change for the better will come to our fruit business.

**Maturity of Fruit.** When an apple is removed from a tree, growth ceases, but the life processes, which result in ripening, go on more or less rapidly, depending upon the temperature at which the fruit is carried. The minimum ripening is possible at a temperature uniformly low consistent with safety from freezing. The earlier the fruit is placed where a low temperature obtains the less the possibility of "scald" and the longer will be the life of the fruit.

Decay in fruit may be due to a fungous or bacterial organism in the tissue of the fruit, or it may be physiological due to the life activities of the fruit having ceased. All fruit not destroyed by fungi or bacteria, eventually decay physiologically, when it has passed through certain natural changes. You have therefore two conditions to consider; first, conditions best calculated to retard the ripening processes after the fruit is gathered (the ideal cold storage at 32 degrees, Fahrenheit), and, second maturity of the fruit as related to its possible duration of life after being harvested. It is this latter phase of fruit handling that I wish particularly to direct your attention.

You know quite well that overmature fruit will not keep as well as mature fruit. Fruit left on the tree to attain maximum colour is often overmature and under these conditions much more care is necessary to put such fruit on the market, without loss, than is necessary if the fruit is just at proper maturity. We can, therefore, for a consideration of this problem, make three harvesting classes: first, overmature; second, mature; and third, immature fruit. It is possible to have fruit in all these classes on the one tree at the same time. This is particularly noticeable in the early ripening varieties, where fruit may be found in all stages from overmaturity to immaturity, and it is consequently exceedingly difficult to determine the most suitable single time to harvest the entire crop so that the greatest uniformity in maturity may be obtained.

My reason for bringing this matter to your attention at this time is to set forth the possible fact, that our greatest loss in the handling of fruit may be due to the fruits having been picked when immature. I am confident that much of the sad appearance of our fruit when it reaches the English market would be done away with, were it possible for us to pick our fruit at proper maturity. Avoiding overmaturity at harvest is the great concern of the Western fruit men, ours on the other hand should be to avoid harvesting immature fruit. In casts the mature fruit is what is wanted, and the product gathered at proper maturity will, it is found, reach the market in better condition than the immature or overmature fruit. In the case of the overmature fruit as already indicated, the life processes are shortened even if no fungi are present, and physiological or old age decay, even in good storage is bound to come sooner than with fruit picked at maturity. In the case of immature fruit "scald" which starts in storage and increases rapidly after the fruit is removed from storage or when exposed for sale is accountable for the most serious loss; while in its earlier stages the value of the fruit for general use may be materially lessened, yet because of the dull, unattractive and decidedly unpleasant appearance of the fruit the loss is bound to be great.

Scald is a skin blemish due evidently to the skin of the immature fruit being undeveloped and weak, and therefore breaks down quickly in storage. It is not, apparently, associated with any decay organism, but it weakens the skin of the fruit so that physiological decay results, or that a point of entrance is possible for decay fungi. Scald is a brownish or blackening of the skin that does not extend into the flesh, but gives the fruit a scalded appearance. The amount and severity of scald in fruit picked when immature is often enormous while with more mature and better coloured fruit the frequency of the trouble decreases, until with properly

mature fruit the scald is very light, and confined to those fruits which have grown in the shade on the tree. The only remedy apparently is to allow the fruit to mature properly before picking. The red part of an apple is apparently immune from scald. It appears also, from what information is available, that apples placed at once in good cellar storage at a low temperature are much less liable to scald than fruit subjected

to high temperature before storage. Scald is apparently greater in air-cooled storage than in cold storage and this is what we might expect.

You quite naturally ask the question: when are apples at proper maturity? It is very difficult to make a definite statement applicable to all seasons and conditions. You know it is not when the apple is in the best condition for eating, for an apple in good eating condition is overmature for general marketing. The colour of the seed gives some indication; the blush or red colour is a guide of value; the separating of the fruit from the fruit spur easily is of help in determining maturity, but probably the most reliable indication is when the leaf green which underlies the blush or red colour, is showing signs of being replaced by a light yellow colour.

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