United States Department of Agriculture Page

Bulletins and Special Articles of Interest to the Northwest, Issued by the Government; Suggestions Covering a Wide Range of Activities; Results of Federal Investigations, Etc.

Placing Apples In Cold Storage

Interference With European Market Makes Advisable Prolonged Marketing Period.

IN VIEW of the interference with the European market and the large production of American Apples this season, specialists of the Department of Agriculture call the attention of apple growers to the advantages of cold starage for steadying the market at harvest and for lenghtening the selling period.

Glutting of the market will result, it is feared, in many thousands of barrels of good apples rotting in the orchard or being disposed of at prices which figure a net loss to the grower.

The following are the directions given by the apple handling specialists of the Department for using cold storage successfully in handling apples:

The proper function of cold storage is to retard the ripening processes of the fruit and the development of decay organisms and skin blemishes. The first responsibility for the keeping quality of his fruit rests with the grower, since it is his growing and handling methods that largely determine its vitality, freedom from disease, and general condition when stored. Cold storage is not a remedy, or a restorative for poorly developed, weak, imperfect fruit, but is the most effective method of preserving the quality, flavor and appearance possessed by the fruit at time of picking.

Healthy Fruit Necessary.

The first step in successful cold storage of apples has been found to lie in the practice of such cultural, spraying and pruning methods as insure production of sound, healthy, well colored fruit, free from disease. Assuming this as the first requisite, the following factors have been found to most influence the keeping quality of the fruit, and furnish best conditions for long storage:

1. Proper maturity at time of picking.
2. Care in all handling operations.
3. Prompt storage after picking.
4. A proper storage temperature.

Maturity Tests.

Careful and extensive investigations have demonstrated that fruit picked at full maturity can be held for a longer period in storage, and is less affected by scald and decay than that picked when somewhat immature. Two important commercial varieties, Rome Beauty and Winesap, have been found to be especially susceptible to scald during storage, if picked prematurely. There is no doubt that several thousand dollars are lost to the industry each year through the improper picking of these two varieties alone. The results emphasize strongly that more care and attention should be paid to this detail of the harvesting operations than is usually the case.

By full maturity, however, is not meant over maturity, which may cause fully as heavy losses as immaturity. Each grower should study his own fruit and his own conditions in order to determine the proper picking stage. Probably the most reliable single indication of maturity is the whitening or slight yellowing of the "ground color" of the fruit. This is the color underlying the blush or red color and should not be confused with the latter.

Careful Handling.

Care in all handling operations is the second important requisite of successful storage. A class of fungi, of which the common blue mold is an example, are known to be unable to attack and cause decay of healthy, uninjured fruit. In spite of this fact, very serious rots both in storage and in transit to market are the work of fungi of this type, and the largest contributory cause in all cases is bruising or skin breaking suffered by the fruit in the picking and packing operations. Microscopic bruises and breaks in the skin are large enough to afford entrance to the pores of these fungi and the necessity for the utmost care in all operations connected with the handling of the fruit to avoid bruising and mechanical injuries is more urgent than most growers realize.

Prompt Storage.

There is a marked difference in condition between fruit stored promptly after picking, say not more than two days later, and otherwise comparable lots of which the storage is delayed ten days or two weeks. Such delay is especially injurious during a period of warm, humid weather. The delayed fruit at withdrawal from storage is riper, yellower and duller than the corresponding "immediate," stored fruit and in addition develops more serious scald and decay. The importance of eliminating all avoidable delay in storing cannot be too strongly emphasized.

Thirty one to thirty-two degrees Fahrenheit is the standard storage temperature for apples, and this has been found to be the best for long keeping of the fruit. Higher temperatures permit the ripening of the fruit to advance more rapidly than at 31 to 32 degrees Fahrenheit, with the result that the fruit at these temperatures reached the end of its storage life much sooner. In addition the lower temperature retards most effectively the development of fungus decays and skin blemishes. For a short storage period higher temperatures may be used without serious trouble, especially with the better keeping varieties, but for long keeping, 31 to 32 degrees Fahrenheit will best maintain the color, quality and texture of the fruit.

Apples should be withdrawn from storage while still firm, and in this condition can be held on the market in satisfactory shape for several days or weeks. If allowed to become excessively overripe in storage, however, they will break down very fast on withdrawal. Apples from 32 degrees Fahrenheit will as a rule hold in better condition after withdrawal from storage than will comparable lots from higher temperatures.

There are several other factors affecting the behavior of apples in storage, but those discussed have been found to be of greatest importance, and their proper control will solve a large percentage of present, serious storage difficulties.

Crude Drug Market Uncertain

Inexperienced Grower of Drug Plants Not Likely to Succeed; Poor Policy to Hope Profit From the War in This Line.

THE cessation of the harvesting and shipping of crude drugs because of hostilities in Europe has caused a sharp advance in their market price. As a result many individuals and firms have written the U. S. Department of Agriculture inquiring about the possibilities of the American farmer growing drug plants profitably. The Department's specialist in charge of drug-plant investigations has written a number of these correspondents that, although it is probable that a number of important drug plants could be grown profitably here if the present high prices continue, nevertheless there is a possibility of the early restoration of shipping facilities, and in any event the inexperienced grower of drug plants would be more liable to meet with failure than with success.

Some medicinal plants, says the Department's specialist, may be grown as easily as ordinary garden crops; others, however, require the special knowledge and skill of a practiced gardener. There are many varying factors in the commercial production of drug plants. The constituents of many of them vary in quantity according to the time of gathering and methods of drying, and a knowledge of proper methods of harvesting and curing is absolutely essential for the production of drugs of high quality.

Special Knowledge Needed.

Even if the prospective grower possessed some knowledge of drug plants, beginning now, he could scarcely hope to harvest a crop before the late summer of 1915. In the case of some varieties he might even have to wait until the end of the second or third year after planting. Therefore, the farmer who began at once might not find himself with a supply of crude drugs on hand until after prices had returned to their former level.

In any case, the quantity of crude drugs required by the market is relatively small as compared with fruits, vegetables, or staple crops. Therefore, numerous or extensive plantings by the individuals throughout the country might easily result in overproduction, which would cause a decline in the market price independent of the conditions abroad.

For successful production of drug plants on a commercial scale there must an available market. Its accessibility must be considered above all things, by the successful grower. The cost of production must be carefully estimated and to this must be added the cost of packing and shipping to this market. The packing and shipping expenses might easily make the enterprise unprofitable.

Drug plants to be profitably grown should yield returns at least equal to those from other crops which may be grown on the same land. The farmer must be determine that this is the case. The fact that much hand work is necessary in the production of most drugs is liable to make the cost of labor high.

Many Drug Plants Will Not Grow Here.

Among the inquiries regarding drug plants addressed to the Department have been requests regarding plants which cannot be produced in this country at all. Others that might be grown here are also produced in South America and other localities not involved in the war, where they can still be produced more cheaply than here.

There are, nevertheless, certain drug plants now produced chiefly in Europe which under suitable conditions may be grown in parts of the United States. Among these are the following:

Althea, anise, belladonna, burdock, calamus, caraway, coriander, danuelion, digitalis, elecampane, fennel henbane, horehound, marjoram, sage, thyme and valerian.

Seeds of many of these plants may be obtained from the large seed houses. Even the above-mentioned, however, need peculiar conditions in order to thrive, for drug plants very widely in their relations to soil and climate. Satisfactory yields can only be expected when the requirements of these plants are understood and met.

Of course, well-established companies, already engaged in similar work, and with gardeners possessing training and experience, could undoubtedly meet with more success in growing drug plants than the inexperienced individual. These companies would understand at the beginning many essential details regarding soil, climate, and desirable varieties. They would, however, have to prepare for unexpected changes in market values, and remember that the principal reason certain plants have not been previously raised here is that under normal conditions they can be more cheaply grown in Europe.