

The next point that requires special attention is the actual manipulation of the plant at the beginning of the storage season, in a manner that these temperatures may be secured, this being the time when flesh-collapse is most likely to be set up. The excellent work of the Department of Scientific and Industrial Research, of Cambridge, has afforded us definite information as to the effects of high temperatures at the commencement of cool storage. It shows that at 50° apples packed in an airtight hold are liable to be damaged by flesh-collapse after two or three days. Now, our apples will arrive at the cool store with a flesh-temperature between 50° and 60°, and the first problem is to reduce that temperature, for the lower the temperature of the apple-flesh the slower does it consume oxygen, and the less likelihood, then, is there of suffocation and flesh-collapse. If adequate ventilation could be provided apples could remain in a mean temperature of 50° for months (as is done when they are stored in an ordinary shed), or they might be exposed to a temperature of as low as 20° for several hours, without subsequently developing flesh-collapse. With this proviso, it is therefore not essential that the initial apple-flesh temperatures of 50° to 60° shall be reduced to 32° in two or three days, but it is nevertheless highly desirable to do so, for, as the temperature comes down, the risk of a deficiency of oxygen becomes less and less.

I would further suggest that cool rooms should be thoroughly cooled before the admission of the fruit, and the flesh-temperature of the apples reduced to about 40° by the end of the first twenty-four hours, and to 32° by the end of the next twenty-four hours. Where fruit is being received into a large cool room over a long period special attention will be required at those parts of the room where warm fruit has been stacked previously. At first, owing to there being very little fruit in a large store, or, later, owing to the addition of large quantities of warm fruit on the same day, or to the actual time occupied in the receipt and stacking of fruit, it may be difficult with some plants to secure the required drop in apple-flesh temperature in the required time without exceeding the minimum discharge temperature. When, for instance, fruit is being received it may not be possible to work the full twenty-four hours a day, and even if it were possible it is desirable in some cases to leave some time for ventilation and defrosting battery-pipes. In such cases it is advisable to place no more warm fruit in a cool room than can be satisfactorily treated. If, therefore, the introduction of warm fruit is carried on until it is seen to be interfering with the cooling programme that has been decided on, then it would be better to hold any excess of fruit over in the packing-shed until the next day, rather than risk the safety of the main bulk already in store.

The beginning of the storage season calls for much greater efficiency in the plant than does any other time, and it is advisable that the outfit be capable of securing the requisite drop in flesh-temperature working much less than twenty-four hours a day. If under the various awkward conditions that confront the engineer at the beginning of the storage season this reduction in apple-flesh temperature cannot be accomplished, then the question arises as to whether the fans should not be increased in size and rendered capable of at least two speeds—one being greater than the existing speed. By this means