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ROF. HARTMAN REPORT ON VALLEY PEARS

PROBLEMS CONFRONT GROWERS ARKET COMPETITION GAINS; Y HELD IMPORTANT FACTOR

ent report is based investigations carried ork and other eastern the past two years. igations were author- anced by growers and the Rogue River val- their official repre- e Medford Winter ttee, Inc., the person- is: D. R. Wood, presi- rd Carpenter, Harry J. C. Barnes, W. F. ge B. Dean, and J. E. ork had to do large- blems relating to the transportation and pears. It was in no keting survey, nor was t to promote the sale e author, throughout tions, adhered strict- ics of research. e of the data were se- observations of com- ments, a considerable information was ob- controlled experiments at harvest time and rried on through the storage periods. is made to give a full e report at this time. tables are largely nd only a summary of en. nd shippers of pears in a highly competi- l'ears on the market to compete not only selves, but they must bid for favor against roducts that are now red to the consumer ome and attractive establishing standards r pears, therefore, it to take into account ls of quality already other fruit industries. uality and appearance the market needs be apparent even to the ver. It cannot be de- its such as the apple, and the grapefruit are delivered to the con- comparatively better nd better eating qual- pears. Lack of quality attractiveness are still cles to the successful tribution of pears. not necessarily to the wers and shippers of ess diligent in their to the fact that pears e serious problems of r a n s p ortation and do other fruits. ate purchaser, how- ot take this into ac- dges the product and with other products, e basis of value re- the difficulties asso- the handling of pears me by minor changes nt methods, by more e of the equipment d, and by application already in existence. r hand, some of the pecially those occas- ansportation and by ge diseases, are fun- character. The solu- may require years of ether with close co- all agencies involved expenditure of con- s of money. arent that the price uction is not always a quality in pears. Fac- an quality often af- prices and because heet shows a high re- s not always follow pper has delivered a lot of pears to his xamples of this have n during the past two c pears which brot prices in January y often scalded and otal loss before they consumer. n is still being done industry by the sale t has been kept its ge life, and that has latible and unfit for mption. Among stor- les, it is recognized ave a rather definite life. When they are in cold storage, they n properly upon re- flesh remains hard, alds" or turns brown, wn may develop, and r receives a worthless may be true of fruit hard and green and normal appearance at removal from cold

AUCTION PRICES NOT INDEX UPON PEAR QUALITY

Storage Life

Just how long pears can be held in cold storage depends upon several factors. The treatment at harvest time, the inherent keeping quality of the fruit, and the conditions prevailing during transit, all affect the length of life of pears. As a result of several years of observation and experimentation, however, it is now possibe to establish in a general way, the limits for the various sorts. With proper handling, Medford Bartlett pears upon arrival in the East can be held in cold storage for 30 days and still yield a satisfactory product. Bosc can be held until the Christmas holidays, Comice until January 15th or February 1st, Anjou until the last of March and possibly until April 15th, in the case of exceptional fruit. Winter Nelis can be held until April 30th, and in some cases as late as the middle of May.

It should be emphasized here, however, that under the methods of handling now in vogue, only a small portion of the pear crop can be held to the foregoing dates.

Sales of pears that were held beyond their normal storage life were common during the past season. In New York, for example, several cars of Bartlett pears were sold at auction as late as November 7th, and one car was sold on November 17th. A car of Bosc was sold on April 4th, and a car of Flemish Beauty was sold on April 9th. In chicago, a car of Bartlett was sold on December 5th, and several cars of Bosc were sold between April 15th and April 25th. Needless to say none of this fruit reached the consumer in an edible condition.

The situation created by late sales of Bartlett was serious to say the least. At the time when Bosc and other fall varieties should have been on the market, the fruit stands were still jammed with Bartlett pears. These, for the most part, were of poor quality an dundoubtedly did much to turn people away from pears.

Distributors Blameless

The large distributors have recognized that pears held too long are a menace to the industry and these distributors are not responsible for the situation that prevails. The New York Pear committee, during the past two seasons, planned its program of sales so that cars of pears in their possession would go to the trade in proper time. Their plans were upset, however, by the fact that some shippers held the fruit too long, and that some buyers who had purchased on an f. o. b. basis, held pears without regards for their natural keeping quality.

Heavy Tonnage Factor

In considering the length of time that each variety of pears should be held, it is necessary to consider the matter of sale and distribution. If the entire pear crop could be consumed within a few weeks of harvest time, the problem of delivering a satisfactory product to the consumer would be greatly facilitated. With the large tonnage that is now being offered, however, and that will be offered in the future, it is obvious that each variety must be kept on the market as long as the fruit can be maintained in a satisfactory condition. Only in this manner can the crop be disposed of without serious congestions of the market. It is highly essential, therefore, that the crop be handled in such a manner as will insure maximum storage life for a considerable tonnage of each variety.

In this connection it should be emphasized, also, that no one variety can hold the market to itself for any length of time. While it is desirable that each variety should predominate during its season, it would be unwise to exclude all other varieties from the market for the time being. Retailers, as a rule, like to offer more than one kind to their customers. Some customers will buy Anjou and other clear-skinned pears, but will not buy russet sorts such as Bosc and Winter Nelis. Some dealers want several varieties to add color and diversity to their displays. Aside from this, there is always a considerable portion of the stock, that, because of condition, must be moved regardless of season. Winter Nelis pears, which have been abused at harvest time, are often ripe long before Anjou that have been properly handled. Then, too, some districts are naturally earlier than others. The season for Bosc pears from the Placerville district of California, for example, is several weeks ahead of that for Medford and the northern districts.

Work by the Oregon Experiment station and by the United States department of agriculture has thoroughly established the fact that temperature after picking is the most important single factor relating to the keeping of pears. This work has shown that at temperatures around 70 degrees F., pears ripen approximately 10 times as rapidly as they do at 30 to 32 degrees F. Under ordinary circumstances, then, pears picked and left in the orchard or packing house deteriorate as much in one day as they do in ten days of cold storage. Tests with Bosc pears have shown that a delay of seven days at 65 degrees F., was responsible for a reduction of 60 days in the possible cold storage life of the fruit. Once started, the ripening process in pears cannot be effectively checked no matter what after-treatment is given. This being true, pears may be seriously damaged if held even for short periods at temperatures above 30 to 32 degrees F.

As the pear crop is now handed, delays after picking and unfavorable temperature conditions during transit are common. In some cases, the fruit remains in the orchard two or three days after picking and often lays around two or three days more before it is packed. During warm weather, temperatures of 38 to 48 degrees F., and even higher, are often encountered in transit, and fruit intended for storage may arrive in the east with the top boxes showing color and giving indication that the ripening process is already well under way.

It should be emphasized, in this connection, that pears attached to the tree ripen at a much lower rate than pears picked and allowed to stand in the orchard. In case pears cannot be placed under refrigeration immediately, they should be allowed to hang on the trees. It is a serious mistake for growers to assume that their crop is safe as soon as the fruit has been placed in boxes.

Precooling Aids

It has been clearly shown that the practice of precooling immediately after picking prolongs the life of pears. In fact, precooling seems to be almost indispensable in the case of pears intended for the "long route" on the market. Precooling, however, is a costly practice and there are times when the matter of economics enters in.

Aside from the matter of keepability, precooling when applied to pears has other advantages. Pears that have been precooled are usually free from wilt upon arrival at eastern terminals and ripen in a more uniform manner than those that have not been precooled.

Cool Weather Prolongs Life of Pears

Data collected from experimental lots and from commercial shipments during the past two years, show that part of the trouble resulting from transit during hot weather can be avoided by storing the fruit for a month or so at the point of origin, and, shipping in late October or early November when lower temperatures prevail. Pears shipped at this time of the year often travel at practically storage temperatures, and the difference in temperature between the tops and bottoms of cars are hardly apparent. While this method of handling might not be practical for the entire crop, it at least offers possibility for lots of fruit intended for long keeping.

Observations of the past two seasons indicate that pears held at 30 to 31 degrees F., keep better than those held at 32 degrees F., or higher. The core temperatures of pears in storage are usually 1½ degrees higher than that of the storage room itself. Pears do not freeze unless subjected to temperatures below 28 degrees F., for a considerable period of time, and at 30 to 31 degrees F., they are safe so long as the refrigeration is properly distributed within the rooms.

In the case of plants using the direct expansion system of refrigeration, fans in the rooms are necessary to insure air movement. This is desirable since both cold and warm air pockets are apt to be formed unless the air is kept constantly in motion.

Relative humidities of at least 78 percent are necessary to prevent wilting of pears in storage.

Pears in cold storage should be stacked in a manner that permits air circulation around each box. Space should be left between each stack, and, whenever possible, each tier should be cleated. Ample space should be left between the top tiers and the ceiling of the rooms.

The matter of improving the grade and pack of pears is, to a large extent, a grower problem. It is known among all horticulturists, that pear trees as compared to other fruit trees produce a relatively large percentage of inferior fruits. At the same time, the pear industry has practically no by-products to utilize such fruit, and as a consequence nearly all of the fruit that sticks to the trees in spring ultimately finds its way into the fancy extra fancy grades.

With the increased competition that pears must face in the future, it appears certain that pear growers will have to adopt a system of thinning that will insure, not only more desirable sizes, but, that will eliminate, to a large extent, the misshapen and imperfect specimens. When properly done, thinning results in no decrease of tonnage and adds practically nothing to the cost of production. Certainly it costs no more to clip off the imperfect specimens in spring, than it does to pick them by hand in the fall and pay the cost of running them over washing machines and packing tables.

Growers and shippers are generally aware of the fact that pears often fail to keep upon arrival at Eastern terminals. Anjou and Winter Nelis, in particular, often ripen and give evidence of breakdown long before their normal season is over. During the season of 1929-30, for example, at least 50 percent of the Anjou pears held in New York City were ripe and had to be moved in January regardless of market conditions. The situation was considerably improved during the season of 1930-31, but even in this case, many pears gave evidence of premature ripening.

Many reasons have been advanced for the failure of pears to keep upon arrival in the east. It has ben claimed, for example, that, in some years, pears lack in inherent keeping quality. Experimentation over a period of years, however, has shown that pears when properly handled, keep well regardless of season and that inherent keeping quality is only of secondary importance.

The claim that eastern storage plants are responsible for the situation, likewise, is not substantial if all the facts are taken into account. When a storage concern maintains satisfactory temperatures, satisfactory humidities, together with some circulation of the air in the rooms, it can hardly be blamed for the failure of fruit to keep. There have been individual cases in past seasons when improper storage did contribute to premature ripening, but, it cannot be said that this is the general cause of the difficulty.

Picking at the wrong time may influence the situation, but it is inconceivable that this factor alone is responsible for the trouble.

Apparently two factors are largely responsible for the premature ripening of pears at eastern terminals: (1) delays in getting the fruit under refrigeration at harvest time; and (2) unfavorable transit conditions.

To determine the condition of Bosc pears as they are being sold to consumers in New York City, surveys of retail establishments were made at intervals of about 10 days throughout the fall months of 1929. These included about 80 establishments such as fancy-fruit stands, out-door stands —subway stands, push-carts, public markets, and grocery stores, located in various parts of the city.

Bosc Did Not Ripen In Cold

The data collected in the above manner showed that during October and early November, while the prevailing temperatures were fairly high, about 90 percent of the Bosc pears offered for sale were ripe and in good condition for eating. After November 10th, however, when the weather became cool, most of the Bosc pears offered for sale were hard and immature. The figures show that over 91 percent of the Bosc sold during this period were practically inedible. A few establishments such as the fruit stands in the subway stations, where the temperature is always fairly high, offered ripe Bosc pears throughout the season. A few fancy-fruit dealers, who conditioned the fruit, also, offered good Bosc pears during most of the time, but these constitute only a small percentage of the retail trade of New York City.

The situation was somewhat better in 1930. Weather conditions during the late fall months were more favorable for ripening and a considerable number of cars were conditioned. Even in this case, however, the situation was far from satisfactory.

These observations emphasize, in a practical way, the results of experimental evidence to the effect that Bosc pears require fairly high ripening temperatures. They will not ripen in cold storage or at low prevailing temperatures. It is true that this variety often takes on color at low temperatures, but the color change in such cases is not accompanied by mellowness or increased juiciness. It is only when ripening temperatures of 55 to 65 degrees F., are supplied that color and actual maturity develop simultaneously.

Jobbers and Retailers Not Prepared

Obviously the jobbers and retailers of New York and other eastern cities are not in position to condition Bosc pears. Practically none of these operators have storage space, and what little space they do have is usually subject to out-of-door temperatures and is, therefore, unsuited for the purpose. Then, too, this space is generally used for the storage of other products and heating is out of the question.

It must be remembered, also, that an unusually large number of individuals are engaged in the jobbing and retail trade, and even if space for ripening was available, it would be a tremendous task to teach this vast army the proper methods of conditioning Bosc pears.

Consumers Not Ripeners

The possibility of educating the consumer to ripen Bosc pears before they are eaten offers some promise, but it must be admitted that many obstacles lie in the way of this program. When the average city consumer takes fruit home, he generally expects to use it immediately and when he buys apples, grapes, bananas, and other fruits, he usually finds them ready to eat at the time of purchase. Space is at a premium in the supply of foodstuffs can be kept supply of food stuffs can be kept on hand. Then, too, conditions in the average city home or apartment are not ideal for the ripening of Bosc pears. Food stuffs as a rule, are kept in ice boxes or under mechanical refrigeration and Bosc pears will not ripen under these conditions. A program of education urging consumers to keep Bosc pears in their living rooms until ready to eat might accomplish results, but it must be admitted that this would be a tremendous task.

Banana Ripening Roms Not Available

The possibility of conditioning Bosc pears in the ripening rooms now used for bananas was given attention in the course of these investigations. It was found, however, that these rooms are now being used to full capacity and that they are generally unsuited for pears. In New York City, these are located in the jobbing district, some distance from the piers, and trucking to and from them prior to the auction sale is impossible under the present regulations and methods of handling fruit.

Conditioning Rooms Should Be On Main Routes of Travel

It now appears that ripening or conditioning rooms for Bosc pears in New York City should be located on the main lines of travel, between the classification yards and the piers. The large cold storage plants on the Jersey side of the Hudson river, seem to be the logical locations for such rooms. Not only can space and proper ripening conditions be provided at these places, but it is desirable that refrigeration space be within easy reach of the conditioning rooms. Owing to market or other conditions it may be necessary, at times, to return the fruit to cold storage after it has gone through the ripening process. This would be practically impossible if the conditioning rooms were located on the piers or at some distance from the cold storage plants.

Difficulties Encountered

Many difficulties are encountered when one attempts to condition Bosc pears in carload lots at eastern terminals. While some headway has ben made, it must be pointed out that many obstacles are still in the way and that much work remains to be done before the conditioning process is finally reached.

The first difficulty encountered is lack of suitable space. When operations began in New York City, in 1929, there was no space that could be given over to the ripening of pears. At the present time, however, space is available in New York and elsewhere, the storage concerns having spent considerable sums of money in equipping rooms for the purpose.

A second obstacle is the attitude of the trade toward pears that have been conditioned. At present there is a distinct prejudice against pears that are ripe or that show signs of softening. In the case of Bosc, the trade desires color but it desires the fruit to be hard. This prejudice must be overcome before conditioned Bosc pears will meet with full approval. A change of attitude on this matter can come only after dealers have learned that Bosc pears properly conditioned still have carrying quality and that sales are greater when the consumer receives a pear that is fit to eat.

Lack of uniformity in the stock is also a serious obstacle to conditioning, in that some of the fruit in a car ripens and takes on color, while the remainder of the fruit stays green and hard. Several factors probably contribute to this condition. It is known, for example, that fruit in the top of the cars usually travels at a higher temperature than that in the bottom or other parts of the car. Fruit from the top tiers, therefore, would ripen faster in the ripening room than that from the lower tiers.

Lack of uniformity in the stock may also result from the fact that fruit picked in the morning while cool, may travel in the same car with warm fruit picked in the afternoon. Difference in temperature from this cause usually persist for some time in transit and naturally cause differences in the time of ripening at the receiving end. Trouble from this cause, however, can be eliminated to a considerable extent by prompt and efficient precooling shortly after picking.

Lack of uniformity may result from variations in the treatment given after picking. It often happens, for example, that fruit from several growers is shipped in the same car. One grower's fruit may have stood around for several days before it is packed and shipped, while another grower's fruit may have been packed immediately. Even within the same grower's lot there may be wide variations in maturity due to the treatment given at harvest time.

While differences in maturity

(Continued on Page Four)

MARKET HIT BY LATE SALES OF 1930 BARTLETT

TEMPERATURE IN CTORAGE AFFECTS KEEPING QUALITY

THINNING AIDS PACK AND SALE BETTERS GRADE

RIPENING PROBLEMS MANY ORGANIZED EFFORT NEEDED TO REMOVE OBSTACLES

BOSC PEAR CONDITION DISCUSSED

Ripening of Fruit Before Reaching Consumer Is Urged, With Changes in Present Methods Difficulties Encountered.

RECOMMENDED PICKING PRESSURES FOR ROGUE RIVER VALLEY PEARS
(specimens unpared)

	Pressure Tests Oregon Tester Lbs.	U. S. Tester Lbs.
	33 to 26	23 to 20
	23 to 20	16 to 14
	27 to 24	22 to 20
	28 to 24	18 to 16
	24 to 19	19 to 15
	19 to 16	14 to 12
	28 to 24	18 to 15

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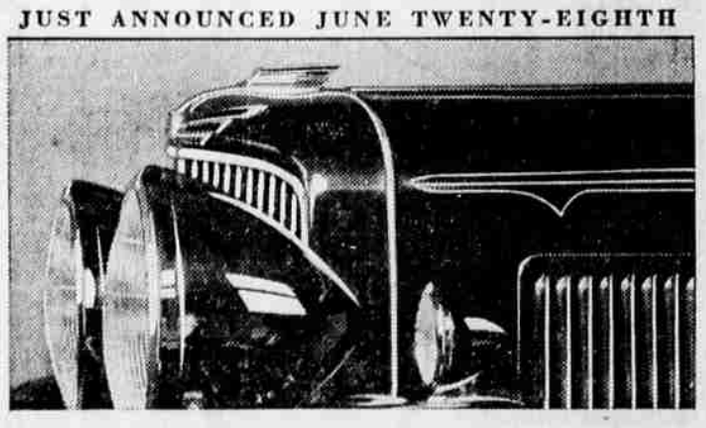

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