Further Investigations on the Harvesting, Storing, and Ripening of Pears from Rogue River Valley



Agricultural Experiment Station
Oregon State Agricultural College
CORVALLIS

OREGON STATE BOARD OF HIGHER EDUCATION

| Hon. C. C. Colt | Portland |
|--|---|
| Hon. B. F. Irvine | Portland |
| Hon. C. L. Starr | Portland |
| Hon Albert Rusch | Medford |
| Hon, E. C. Pease | .The Dalles |
| Hon. F. E. Callister | Albany |
| Hon. Albert Burch. Hon. E. C. Pease. Hon. F. E. Callister. Hon. F. E. Watzek. Hon. Herman Oliver. | Portland |
| Hon. Herman Oliver | |
| STAFF OF AGRICULTURAL | L EXPERIMENT STATION |
| W. J. Kerr, D.Sc., LL.D | President |
| W. J. Kerr, D.Sc. LL.D. J. T. Jardine, B.S. E. T. Reed. B.S., A.B. | Director |
| H P Barce A B S M Plant Dathologist | A. M. McCapes, D.V.M Asst. Veterinarian |
| F. D. Bailey, M.S., Asst. Pathologist, Insec- | G. R. McGinnis, M.SField Ag't in |
| H. P. Barss, A.B., S.MPlant Pathologist F. D. Bailey, M.SAsst. Pathologist, Insec- ticide and Fungicide Bd., U. S. D. of A. R. S. Besse, M. SAssociate in Farm | Entomology |
| R. S. Besse, M. SAssociate in Farm | M R McKay M.S. Plant Pathologist |
| Management P. M. Brandt, B.S., A.MDairy Husband'n P. Brierley, M. SAssistant Pathologist, United States Department of Agriculture A. G. Bouquet, B.S | J. F. Martin, B.SJr. Agron. U. S. D. A. G. A. Mitchell, B.SAssistant to Superin- |
| P. Brierley, M. SAssistant Pathologist, | G. A. Mitchell, B.S Assistant to Superin- |
| United States Department of Agriculture | tendent Pendleton Field Sta., Pendleton E. B. Mittelman, Ph.D. Associate |
| A. G. Bouquet, R.S. Horticulturist | Agricultural Economist |
| E. N. Bressman, M.SAssoc. Agronomist | Agricultural Economist Don C. Mote, Ph.DEntomologist in Clig. M. N. Nelson, Ph.DAgricultural |
| E. N. Bressman, M.SAssoc. Agronomist G. G. Brown, B.SHorticulturist, Hood River Branch Exp. Station, Hood River W. S. Brown, A.B. M.SHorticulturist | M. N. Nelson, Ph.DAgricultural |
| River Branch Exp. Station, Hood River | Economist O M Nelson BS Animal Husbandwan |
| in Charge | R. K. Norris, B.SAssistant to Superin- |
| D. E. Bullis, M.S. Assistant Chemist | tendent of S. Or. Br. Exp. Sta Talent |
| in Charge D. E. Bullis, M.S | O. M. Nelson. B.SAnimal Husbandman R. K. Norris, B.SAssistant to Superin- tendent of S. Or. Br. Exp. Sta Talent A. W. Oliver, M.SAssistant Animal |
| Farm Management | Husbandman M. M. Oveson, B.SAsst. to Supt., Sher- |
| River Branch Exp. Station. Hood River | man Br. Sta., Moro |
| G. V. Copson, M.SBacteriologist | man Br. Sta., Moro E. L. Potter. M.SAnimal Husbandman |
| A. S. Burrier, M. S. Assistant in Farm Management Leroy Childs, A.B. Superintendent Hood River G. V. Copson, M.S. Bacteriologist H. K. Dean, B.S. Superintendent Umatilla Branch Exp. Station, Hermiston E. M. Dickinson, D.V.M. Assistant Poultry Pathologist | in Charge |
| F. M. Dickinson, D.V.M. Assistant | F E Price RS Agricultural Engineer |
| Poultry Pathologist | F. C. Reimer, M.S Superintendent Sou- |
| C. R. Donham, M.S. D.V.M. Assistant | in Charge W. L. Powers, Ph.D. Chief, Dept. of Soils F. E. Price. B.S. Agricultural Engineer F. C. Reimer, M.S. Superintendent Sou- thern Oregon Br. Exp. Station, Talent G. S. Ridgley. Laboratory Technician, Paultus Pathbasict |
| | Poultry Pathologist |
| W. H. Dreesen, Ph.D | R. H. Robinson, A.B., M.SChemist |
| T. P. Dykstra, M.SAssistant Plant | C. V. Ruzek, B.S. Assoc. in Soils (Fert'y) |
| Pathologist, U. S. Dept. of Agriculture | H. A. Schoth, M.SAssociate Agronomist, |
| handman Fast Ore Br Erb Sta Ilman | R. H. Robinson, A.B., M.S |
| A. E. Enghretson, B.S. Superintendent | (Pomologv) |
| John Jacob Astor Br. Exp. Sta., Astoria | H. D. Scudder, B.SChiet in Farm |
| Pathologist II S Department of Agric | Owen Season B.S. Technician, Vet Med |
| bandinan, East. Ore. Br. Exp. Sta., Union A. E. Enghretson, B.SSuperintendent John Jacob Astor Br. Exp. Sta., Astoria L. N. Goodding, B.A., B.S Junior Plant Pathologist, U. S. Department of Agric. W. V. Halversen, Ph.D | Management Owen Searcy, B.STechnician, Vet. Med. H. E. Selhy, B.SAssociate in Farm |
| | Management |
| J. R. Haag, Ph. D. Chemist H. Hartman. M.S. Horticulturist (Pom.) | O. Shattuck, M.SSuperintendent Harney |
| E. M. Harvey, Ph.D | J. N. Shaw. D.V.M Asst. Veterinarian |
| | J. E. Simnions, M.SAsst. Bacteriologist |
| D. D. Hill, M.S | O. Shattuck, M.SSuperintendent Harney Valley Branch Experiment Sta., Burns J. N. Shaw. D.V.MAsst. Veterinarian J. E. Simmions, M.SAsst. Bacteriologist B. T. Simms, D.V.MVeterinarian in Chg. D. E. Stephens, B.SSuperintendent Sherman County Branch Exp. Station, Moro R. E. Stephenson, Ph.DAssociate Soils Specialist |
| Seed Lab., U. S. D. of A. (Seed Anal't) | man County Branch Exp. Station, Moro |
| Seed Lab., U. S. D. of A. (Seed Anal't) C. J. Hurd. B.SAssistant Agricultural Engineer | R. E. Stephenson, Ph.DAssociate Soils |
| Engineer D. F. Hutchinson, D.S. Assistant to Subt | Specialist G. I. Sulerud, M.S. Asst. Ad'l Economist. |
| R. E. Hutchinson, B.S | G. L. Sulerud, M.S |
| G. R. Hyslop, B.SAgronomist | E. F. Torgerson. B.SAssistant in Soils |
| W. T. Johnson, B.S., D.V.MPoultry | (Soil Survey) |
| | Fastern Oregon Br. Exp. Station. Union |
| J. S. Jones, M.SChemist in Charge | C. F. Whitaker, B.S Assistant Chemist |
| R. Jones, Ph.D Assoc. Dairy Husband'n J. S. Jones, M.S | E. H. Wiegand, B.SHorticulturist |
| Management M.SAssistant in Farm | Inseph Wilcox, M.S., Asst in Entomology |
| E. S. Larrabee, B.SDairy Specialist, In | Maud Wilson, B.S |
| Cooperation with U. S. Dept. of Agric. M. R. Lewis, B.SDrainage Engineer, | Gustav Wilster, Ph.DAssociate in |
| M. R. Lewis, B.SDrainage Engineer, Cooperation Bureau of Public Roads | Dairy Manufacturing Poht Withycomba R S Superintandant |
| A. G. Lunn, B.SPoultry Husbandman in Charge | Eastern Oregon Br. Exp. Station, Union |
| in Charge | E. F. Torgerson. B.S |
| | |
| | |

CONTENTS

| | Pages |
|--|-------|
| Summary | 4 |
| Introduction | 7 |
| General Methods | 8 |
| Presentation and Discussion of Results | 8-23 |
| Time of Picking | 8-9 |
| Storing Tests | 10-11 |
| Ripening Tests | 11-23 |

SUMMARY

- (1) Time of picking affects materially the dessert and keeping quality of all varieties of pears.
- (2) The length of the period during which pears of first-class quality can be harvested from any given orchard varies considerably with varieties.
- (3) Of the several tests of maturity considered, the so-called pressure test proved to be the most reliable for all varieties.
- (4) The desirable pressure range for each of the chief varieties of the Rogue River Valley and suggestions for the use of the pressure test are given.
- (5) The order in which the chief varieties of the Rogue River Valley should be harvested so as to obtain the best dessert and storage quality is given attention.
- (6) Temperature after picking is the most important single factor affecting the keeping of pears. When long keeping is desired, immediate refrigeration is essential.
- (7) Pears ripen less rapidly on the trees than they do when picked and left out of doors at the prevailing temperatures.
- (8) It is obvious from the results of these tests that pears have a rather definite storage life. They can be held in cold storage for a limited period and then must be removed and disposed of. When they are kept in cold storage beyond their normal storage life, they do not ripen properly upon removal. While they may appear to be in good condition, upon removal to warm temperatures the skin "scalds" or turns brown, the flesh remains hard, a foul odor is developed and core breakdown may occur.
- (9) The approximate length of time each variety may be safely held in cold storage is given.
- (10) Storage humidities varying between 78 and 85 percent are necessary to prevent excessive loss of weight or wilting, if the fruit is to be in storage for any length of time.
- (11) Pears are sensitive to odors and should not be stored in the same room with strong-smelling products.
- (12) Pears do not ripen properly under normal cold storage conditions and attempts to ripen them at cold storage temperatures may result in serious losses. To obtain quality, the fruit should be removed from cold storage and allowed to ripen at living-room temperatures. These tests have shown that temperatures varying between 60° and 70° F. are satisfactory for the ripening of pears.
- (13) Pears ripen quickly at temperatures between 60° and 70° F. The length of time the fruit has been in cold storage apparently has but little influence on the time required to ripen at the higher temperatures.
- (14) With a combination of prompt cold storage and ripening at high temperatures as the occasion demands, the marketing season of most varieties of pears can be extended over a comparatively long period of time.

Further Investigations on the Harvesting, Storing, and Ripening of Pears from Rogue River Valley

Ву

HENRY HARTMAN, F. C. REIMER and R. K. NORRIS

INTRODUCTION

Scope of investigations. Studies relating to the harvesting, storing and ripening of pears from the Rogue River Valley were undertaken by the Oregon Experiment Station in 1917 and have been in progress since that time. Reports have been published from time to time, but the present bulletin deals with new data obtained during the seasons of 1926, 1927, and 1928, on such varieties as Anjou, Comice, Bartlett, Seckel, Howell and Winter Nelis. Results on Bosc are not included, since data from similar tests with this variety were given in Oregon Experiment Station Bulletin 228, entitled, "Investigations on the Harvesting and Handling of Bosc Pears from the Rogue River Valley."

Although many factors relating to the handling of pears received attention during these investigations the present report is confined largely to (1) the influence of time of picking, (2) the determination of maturity, (3) the influence of temperature and humidity on pears in storage, (4) the maximum storage life of the various sorts, and (5) the conditions of ripening under which pears develop quality. The data presented are derived from more than 1,600 lots of Rogue River Valley pears.

Cooperation received. The Fruit Growers' League of the Rogue River Valley cooperated closely with the Oregon Experiment Station in carrying on the work reported here. To make the work possible this organization, together with the Medford Precooling and Cold Storage Company, constructed at their own expense several experimental rooms in which temperature and humidity conditions could be controlled. Individual growers and shippers also made valuable contributions, often at considerable expense to themselves.

Terminology. In reporting upon the various phases of these experiments a number of terms are employed that may require explanation. This is true particularly of some of the expressions used in describing quality and condition. The term "prime condition" as employed here refers merely to that stage of maturity when the fruit is ready for eating. It is not used to describe quality. The term "very good" is used to designate maximum flavor and aroma and is applied only to the lots that possess full quality for the variety. The term "good" is used to describe fruit that is marketable but that is slightly less desirable than that which is "very

Fig. 1. Storage scald in Howell pears. This disease occurs in all varieties of pears when the fruit is kept in cold storage beyond its normal storage life. Even though pears in storage may appear to be in good condition, they will scald upon removal if the cold storage period is extended too long. Since "scalded" pears are practically worthless, scald is the most serious menace of pears in storage.

good." "Fair" refers to fruit that is generally unsuited for dessert use but that may be of some value for culinary purposes, while "poor" implies that the product is practically worthless.

GENERAL METHODS

Time-of-picking tests. Comprehensive time-of-picking tests were conducted in the course of these investigations. Fruit of each variety was gathered at intervals of five days throughout the picking season. From seven to ten pickings were made of each variety each year and during this range of harvesting the fruit passed from a state of comparative immaturity to one somewhat beyond the optimum picking stage. To reduce error as much as possible, care was exercised in the selection of the samples. The fruit was gathered from carefully-selected trees of full bearing age and an attempt was made to have each picking represent a cross-section of the entire crop on the tree at the time the picking was made.

Pressure-test determinations were made shortly after picking with both the Oregon and the U. S. pressure testers, the Oregon tester being equipped with a plunger 7/16 of an inch in diameter and the U. S. tester with a plunger 5/16 of an inch in diameter.* About 10 specimens were used for each test and determinations were made on both pared and unpared surfaces.

Fruit from each picking was placed in a ripening room at a temperature of 65° F. and a relative humidity varying between 78 and 80 percent. Records were kept of (1) the dessert and storage quality of each lot, (2) the length of time required to ripen, (3) the amount of core break-down and scald present, and, (4) the keeping quality of the fruit after it attained prime condition.

Storage and ripening tests. For the storage and ripening tests, three or four pickings were made of each variety each season. Pressure-test determinations were made at the time of picking and representative lots were stored immediately at a temperature of 31° to 32° F. and a relative humidity varying between 78 and 85 percent. Removal dates were so arranged that fruit from each picking was removed from cold storage at intervals of 30 days throughout the storage period. Upon removal from the cold room the fruit was allowed to ripen at a temperature of 65° F. Records were kept of (1) the condition of the fruit upon removal from cold storage, (2) the number of days required to reach prime condition, at 65° F., (3) the amount of core break-down and scald present, (4) the dessert quality and (5) the keeping quality of the fruit after it reached eating condition.

PRESENTATION AND DISCUSSION OF RESULTS

TIME OF PICKING

That time of picking affects materially the ultimate dessert and keeping quality of pears was again shown by these investigations. This was true for all the varieties under observation. When picked prematurely the

^{*}Previous data on the pressure test are given in Ore. Sta. Bul. No. 186, Ore. Sta. Bul. No. 206, and Ore. Sta. Bul. 228.

fruit was undersized and often shriveled in storage. It lacked in sweetness and flavor; it was unusually susceptible to "storage scald," and at times broke down quickly after reaching prime condition. When picked too late, on the other hand, the fruit ripened quickly and usually lacked in juiciness. It was often gritty in texture and was subject to break-down at the core.

Determination of maturity. The difficulty of determining time of picking, especially in the winter varieties, was emphasized by these studies. Such common indicators of maturity as size of the fruit, color of the seeds, ease of separation from the spurs, and even the color of the skin proved to be unreliable indexes to maturity in pears.

Of the several tests of maturity considered none proved the equal of the so-called pressure test. It will be noted from tables III to XVI that there is a close relationship between maturity and pressure-test determinations made at the time of picking. It is clear from this work, however, that while the pressure test is a valuable guide to time of picking for all varieties of pears, it is of little value unless used with reasonable care. It is by no means "fool proof" and should only be applied by some one who has made a study of the factors involved.

Making the pressure test. In selecting samples for the pressure test only normal, average specimens should be used. Fruits that are blemished, wormy, or over-colored do not give a fair average. The test, so far as possible, should be made on turgid fruit. Wilted specimens are unsatisfactory. Fruits from the inside of the tree on the larger branches are usually more turgid than those from the outer portions. Specimens for testing should be picked early in the morning and the test should be made as soon after picking as possible. From 10 to 12 fruits with three determinations on each are necessary to give a representative test.

While both the Oregon and the U. S. testers may be used, the Oregon tester has generally given the most satisfactory results under Rogue River Valley conditions. The method of testing through the skin has proved to be satisfactory for all pears and apparently nothing is gained by removing the epidermis prior to the application of the tester.

Picking pressures. A study of the data presented in tables III to XVI inclusive shows that pears from the Rogue River Valley have usually developed their maximum dessert and storage quality when picked within the following pressure ranges as indicated by the Oregon tester: Bartlett, (Table I) has usually developed its best quality when picked at pressures between 33 and 26 pounds, Seckel between 23 and 20 pounds, Howell between 27 and 24 pounds, Bosc between 28 and 24 pounds, Anjou between 24 and 19 pounds, Comice between 19 and 16 pounds, and Winter Nelis between 28 and 24 pounds. Since pears undergo a rather marked increase in size during the harvest period it is usually unwise to pick the entire crop as soon as the fruit has reached the upper limits of the desirable pressure range. Rather, harvesting should be so distributed that the last of the fruit will be picked about the time the tester registers at the lower limits of the desirable pressure range.

Succession of varieties as to time of picking. From the data acquired during these studies it is possible to arrange, in a general way, the order in which the chief varieties of the Rogue River Valley should be harvested so as to obtain the best dessert and storage quality. Table II, which gives

the picking dates on which the best quality for the various sorts was obtained in 1928, is typical of the average, and illustrates the order in which the various sorts should succeed each other throughout the season. It will be noted that Bartlett, the first in order, gave its best quality when harvested on August 13 and 18. Seckel and Howell, the varieties next in the order of succession, developed their best quality from the pickings of August 23 and 28. Bosc came next in order and developed its best quality when picked on September 2 and 6, while Anjou developed its best quality when picked on September 6 and 12. Comice gave its best quality when picked on September 22 and 27, while Winter Nelis, the last in order, developed its best quality in the pickings of October 2 and 10.

Obviously, with the varieties grown in the Rogue River Valley, a long harvesting season is possible in normal years. Beginning with Bartlett and ending with Winter Nelis, it appears that picking can be distributed

over a period of at least 70 to 75 days.

Length of picking season varies with varieties. It is apparent that the length of the period over which fruit of good quality can be harvested from any given tree varies considerably with varieties. In the case of Bartlett, Anjou and Howell the desirable picking range covers a comparatively long period of time while in the case of Bosc, Seckel and Comice it is comparatively short. In any event, however, the length of the picking season is influenced considerably by the amount of fruit that is on the tree. Trees with heavy crops ripen their fruit at a faster rate than do the trees that have only moderate or light loads. Removal of part of the crop during the harvest season tends to retard the ripening of the portion that remains on the tree.

Orchards vary as to time of picking. As shown by these investigations the fruit in the various orchards of the Rogue River Valley does not all reach the proper picking stage at the same time. The orchards situated in the lower part of the valley on the lighter types of soil are more advanced than are those on either the "sticky" or "free" soils at the higher elevations. In normal seasons the orchards at the lower elevations may be ready for harvest at least a week before those of the higher portions. The age of the trees, cultural treatment, and the amount of crop may also affect the time of ripening.

Time of picking varies with the seasons. Time of picking obviously varies considerably from year to year. In 1926, for example, the picking season during which the best fruit of Anjou was harvested from the Barnes orchard dated from August 21 to September 10, while in 1927, the best fruit from this orchard was picked between September 9 and October 1. Other varieties showed corresponding differences in time of picking during these seasons. There is considerable evidence to show that maturity is more or less associated with the time of blossoming and the time growth begins in the spring. It can be assumed, in the main, that early springs lead to early maturity.

Increase in size. Pears of all varieties undergo a marked increase in size during the harvest period. This increase is noticeable not only during the early part of the period but is usually still in progress at the close. Evidently the fruit continues to increase in size and weight for some time after the optimum time of picking has been reached, and it appears that when full dessert and keeping quality are desired pears cannot be left on the trees until all growth has ceased.

STORAGE TESTS

The influence of temperature. As in the case of most fruits the behavior of pears in storage is influenced by several factors. Experimental evidence as well as practical experience has shown that the storage life of pears is affected more or less by time of picking, time of storage, temperature, humidity, decay organisms, style of packages and the conditions under which the fruit was grown. It is generally recognized, however, that temperature is the most important single factor affecting the keeping of pears. The present experiments have shown that pears generally respond to temperature according to the Vant-Hoff law. Within certain limits their rate of ripening is accelerated by increases in temperature and retarded by decreases in temperature. Tests with several varities have shown that a delay of seven days at 65° F. after picking was responsible for a reduction of as much as 60 days in the possible cold storage life of the fruit. For practical purposes it can be assumed that pears picked and left in the orchard or in a warm packing house deteriorate as much in one day as they do in ten days of cold storage.

When long keeping is desired, pears should be stored at cold storage temperatures immediately after picking. In case the fruit is to be consumed within a few weeks of picking time, immediate refrigeration is of less importance.

Pears ripen less rapidly on the trees than they do when picked and left out of doors at the prevailing temperatures. When the fruit, for some reason or other, can not be handled promptly it will deteriorate less if left on the trees than if kept in boxes in the orchard or in packing houses.

Maximum storage life of pears. It is obvious from the results of these tests that pears have a rather definite storage life. Pears can be held in cold storage for a limited period and then must be removed and disposed of. When pears are kept in cold storage beyond their normal storage life, they do not ripen properly upon removal. Even though they may appear to be in good condition, the flesh remains hard, the skin "scalds" or turns brown, a foul odor is developed and core breakdown may occur.

While the storage life of pears may be influenced by several factors, it is now possible to predict in a general way the length of time each variety can be safely held in cold storage. According to the data presented in tables XVII to XXXI inclusive, the leading varieties of the Rogue River Valley, when picked at the proper time and when subjected immediately to cold storage conditions, can be held for at least the following periods of time: Bartlett from 40 to 50 days; Bosc, Comice, and Seckel from 90 to 100 days; Howell from 100 to 120 days; Anjou from 150 to 180 days, and Winter Nelis from 160 to 180 days. While exceptional lots can, doubtless, be held in cold storage for longer periods, it appears unwise to hold the average run of pears very much beyond the foregoing limits. Delays in handling, and transportation during the harvest season when prevailing temperatures are still high, will probably reduce somewhat the possible cold storage life of all varieties.

Storage humidities. The humidity of storage rooms is of considerable importance in pear storage. The present tests have shown that humidities varying between 78 and 85 percent are necessary to prevent excessive loss of weight or wilting, if the fruit is to be in storage for any length of time.

Odors in storage rooms. Pears are very sensitive to odors and should not be stored in the same rooms with strong-smelling products. The odors of vegetables, meats, etc., are readily absorbed by pears and may persist after storage to the extent that they are detectable in the ripened fruit and even in the cooked or canned product.

RIPENING TESTS

High temperatures essential. Unlike many other fruits, pears require special ripening treatment if the best of quality is to be obtained. They do not ripen properly under normal cold storage conditions. In fact, such sorts as Bosc and Bartlett seldom ripen at all if kept constantly at 30° to 32° F. These tests have shown that temperatures between 60° and 70° F. are essential to the development of full quality in pears. While they may be held in cold storage for the periods of time already indicated, they should be removed and ripened at fairly high temperatures before they are consumed. Serious losses may be sustained unless this is done.

Time required to ripen. Pears ripen quickly at temperatures between 60° and 70° F. Over the three seasons covered by these experiments (tables XVII to XXXI) the average length of time required for Bartlett to attain prime condition at 65° F. after removal from cold storage was 8.3 days, while Seckel required an average of 12.0 days, Howell 9.1 days, Bosc 9.6 days, Anjou 10.1 days, Comice 7.3 days, and Winter Nelis 11.4 days. The length of time the fruit has been in cold storage apparently has but little influence on the time required to reach prime condition at the higher temperatures. In the case of Comice in 1928, for example, the various lots held in cold storage for 30 days required an average of 7.7 days to reach prime condition at 65° F. Those which had been in cold storage for 60 days also required 7.7 days to reach prime condition at 65° F, while those which had been in cold storage for periods of 90 and 120 days required an average of 7.5 days to become fully ripe at the same temperature.

The length of time necessary for the various sorts to ripen after cold storage varies somewhat with the seasons. The various lots of Anjou in 1926, for example, required an average of 7.5 days to ripen at 65° F. but in 1927 the lots of this variety required an average of 11.5 days to ripen at this temperature.

Long market season possible. With a combination of prompt cold storage and ripening at high temperatures as the occasion demands, it is apparent that the market season of most varieties of pears can be extended over a comparatively long period of time. By this system it is possible to have Bosc pears in good condition for eating from the first of October to at least the first of January. Comice can be had from October 15 to February first, and Anjou from the first week in October to March and possibly April. Winter Nelis placed in cold storage at the time of picking can be ripened at any time between November first and April or May.

TABLE I. RECOMMENDED PICKING PRESSURES FOR PEARS FROM THE ROGUE RIVER VALLEY
(Specimens unpared)

| | Pressur | |
|--------------|---------------|-------------|
| Variety | Oregon tester | U.S. tester |
| | lbs. | lbs. |
| Bartlett | 33 to 26 | 23 to 20 |
| Seckel | 23 to 20 | 16 to 14 |
| Howell | 27 to 24 | 22 to 20 |
| Bosc | 28 to 24 | 18 to 16 |
| Anjou | 24 to 19 | 19 to 15 |
| Comice | 19 to 16 | 14 to 12 |
| Winter Nelis | 28 to 24 | 18 to 15 |

TABLE II. SUCCESSION OF VARIETIES AS TO TIME OF PICKING IN 1928

| Variety | Picking dates when best quality was obtained |
|---|--|
| Bartlett Seckel Howell Bosc Anjou Comice Winter Nelis | September 2 and 6 September 6 and 12 September 22 and 27 |

TABLE III. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF

BARTLETT PEARS

Ripened at 65° F.

| | Bear | Creek Orchard | Rip | | | |
|---------|-----------------|----------------------------|-------------------------------------|-------------------------|---|----------------|
| Lot No. | Date of picking | Oregon tester (Unpared) | e test——— U.S. tester (Pared) | Date of prime condition | No. of days to reach prime condition | Quality rating |
| | | lbs. | Ibs. | | | |
| 1 | 8/5 | 35.2 | 23.3 | 8/20 | 15 | Fair to good |
| 2 | 8/10 | 33.7 | 22.9 | 8/22 | 12 | Good |
| 3 | 8/15 | 31.0 | 20.8 | 8/27 | 12 | Very good |
| 4 | 8/20 | 30.9 | 20.5 | 8/31 | 11 | Very good |
| 5 | 8/25 | 29.6 | 19.9 | 9/5 | 11 | Very good |
| 6 | 8/30 | 26.9 | 17.3 | 9/8 | 9 | Very good |
| 7 | 9/5 | 26.2 | 17.9 | 9/14 | 9 | Good |
| 8 | 9/9 | 25.0 | 17.4 | 9/16 | 6 | Good |
| 9 | 9/14 | 24.5 | 16.9 | 9/20 | 6 | Fair |

TABLE IV. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF
BARTLETT PEARS
Rear Creek Orchard, 1928. Ripened at 65° F.

| | Bear Creek Orchard, 1928. | | | | | renard, 1928. Riperied at 65 F. | | | | |
|------------|---------------------------|-------------------|--------|----------------------------------|------|---------------------------------|--|-------------------|--|--|
| Lot No. | Date of picking | Óregon Unpared | tester | re test— U.S. te Unpared , | ster | | No. of days to reach prime condition | Quality rating | | |
| | | lbs. | lbs. | 1bs. | lbs. | | _ | | | |
| 1 | 8/3 | 34.7 | 32.5 | 25.1 | 20.3 | 8/18 | 15 | Good | | |
| 2 | 8/8 | 31.0 | 28.7 | 23.6 | 18.7 | 8/21 | 13 | Very good | | |
| 3 | 8/13 | 29.0 | 27.1 | 23.0 | 18.1 | 8/25 | 12 | Very good | | |
| 4 | 8/18 | 29.2 | 26.6 | 18.8 | 16.8 | 8/29 | 11 | Very good | | |
| 5 | 8/23 | 25.8 | 23.1 | 19.6 | 15.5 | 9/1 | 9 | Very good | | |
| 6 | 8/28 | 25.3 | 23.7 | 18.8 | 15.3 | 9/6 | 9 | Very good | | |
| 7 | 9/2 | 25.2 | 23.5 | 18.1 | 15.3 | 9/10 | 8 | Good to very good | | |
| 8 | 9/7 | 24.8 | 23.4 | 17.8 | 15.3 | 9/14 | 7 | Fair | | |

TABLE V. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF SECKEL PEARS

| | Leonard | Leonard Carpenter Orchard, 1927. Riper | | | | F. |
|-----------------------|------------------------------------|--|--|--------------------------------------|---|--|
| Lot No. | Date of picking | | are test—— er U.S. tester (Pared) | Date of prime condition | No. of days to reach prime condition | Quality rating |
| 1 2 3 4 5 | 8/25 8/30 9/5 9/9 9/14 | lbs. 28.8 25.5 22.7 21.4 18.5 | lbs. 19.0 17.5 16.1 14.1 13.0 | 9/16 9/19 9/21 9/22 9/23 | 22 20 16 13 9 | Fair Good Very good Very good Good to very good |

TABLE VI. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF SECKEL PEARS Leonard Carpenter Orobard 1999

| | Leonard Carpenter Orchard, 1928. | | | | | R | ipened | at 65° F. |
|-------------|----------------------------------|-------------------|------|-------------------------------|---------------|---|---|--------------|
| Lot No. | Date of picking | Oregon Unpared | | re test U.S. te Unpared | ster Pared | Date of prime condi- tion o | No. of days to reach prime conditio | |
| | | lbs. | lbs. | lbs. | lbs. | | | |
| 1 | 8/14 | 25.0 | 23.3 | 18.8 | 15.4 | 9/4 | 21 | Fair to good |
| 1 2 3 | 8/18 | 24.3 | 18.7 | 16.5 | 13.1 | 9/5 | 18 | Very good |
| 3 | 8/23 | 22.0 | 20.0 | 15.7 | 13.0 | 9/6 | 14 | Very good |
| 4 5 | 8/28 | 21.4 | 20.2 | 16.1 | 12.9 | 9/10 | 13 | Very good |
| 5 | 9/2 | 19.3 | 18.2 | 14.0 | 11.7 | 9/17 | 15 | Very good |
| 6 | 9/6 | 18.3 | 16.4 | 14.9 | 11.9 | 9/21 | 15 | Good |

TABLE VII. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF HOWELL PEARS S. G. Nye Orchard, 1927. Ripened at 65° F.

| | | <u>, , , , , , , , , , , , , , , , , , , </u> | | No. of days | | | | |
|---------|--------------------|---|------------------------------------|-------------------------|--------------------------------|----------------|--|--|
| Lot No. | Date of picking | Oregon tester (Unpared) | e test—— U.S. tester (Pared) | Date of prime condition | to reach prime condition | Quality rating | | |
| | | lbs. | lbs. | | | | | |
| 1 | 8/26 | 30.0 | 21.8 | 9/16 | 21 | Fair to good | | |
| 2 | 8/31 | 29.5 | 20.8 | 9/20 | 20 | Good | | |
| 3 | 9/5 | 26.8 | 20.2 | 9/22 | 17 | Very good | | |
| 4 | 9/9 | 24.1 | 18.5 | 9/24 | 15 | Very good | | |
| 5 | 9/14 | 24.7 | 18.9 | 9/27 | 13 | Very good | | |
| 6 | 9/19 | 24.7 | 18.3 | 10/2 | 13 | Very good | | |

TABLE VIII. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF HOWELL PEARS

| | S. | G. Nye | Orchard | , 1928. | | R | ipened a | t 65° F. |
|---------------------------------|---------|--------|---------|--------------------------------|------|------|--|----------------|
| Lot No. | Date of | | | re test— U.S. te Unpared | | | No. of days to reach prime condition | Quality rating |
| | | lbs. | lbs. | lbs. | lbs. | | | |
| 1 | 8/14 | 28.0 | 25.8 | 22.4 | 17.2 | 9/2 | 19 | Good |
| 2 | 8/18 | 26.3 | 23.0 | 21.5 | 16.0 | 9/5 | 18 | Very good |
| 3 | 8/23 | 27.0 | 24.6 | 23.3 | 16.9 | 9/8 | 16 | Very good |
| 4 | 8/28 | 25.6 | 23.6 | 21.5 | 15.6 | 9/10 | 13 | Very good |
| 5 | 9/2 | 24.6 | 22.3 | 20.3 | 15.5 | 9/13 | 11 | Very good |
| 1 2 3 4 5 6 7 | 9/7 | 23.7 | 21.9 | 20.3 | 15.1 | 9/18 | 11 | Good |
| 7 | 9/12 | 23.6 | 20.3 | 18.8 | 12.8 | 9/23 | 12 | Good |

TABLE IX. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF ANJOU PEARS

J. C. Barnes Orchard, 1926. Ripened at 65° F. Date No. of of days to prime reach Date of Óregon tester condi- prime Lot Ño. picking Unpared Pared Unpared Pared tion condition Quality rating lbs. lbs. lbs. lbs. 9/2 9/4 9/7 9/12 9/18 9/24 9/24 10/1 Fair to good Good to very good 8/11 26.2 23.7 20.1 15.2 1234567 21.2 20.2 17.7 19.0 17.4 16.7 24.4 22.4 20.1 8/16 8/21 19.8 17.2 14.9 19 17 17 13.5 8/26 8/31 9/5 9/10 16.1 15.5 12.2 13.0 20.1 20.1 19.0 18 12.5 19 10.6 17 15 18.3 12.6 10.9 8 9/16 16.6 15.4 15.3 12.0 10.3 9/21 13.7 10.6 10/5 14 Good

TABLE X. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF ANJOU PEARS

J. C. Barnes Orchard, 1927. Ripened at 65° F. No. of days Oregon tester U.S. tester (Unpared) Date of to reach Date of prime prime Lot No. Quality rating picking condition condition lbs. lhe 8/25 8/30 9/5 9/9 9/14 9/19 9/25 9/25 9/26 9/30 10/5 31 26 21 21 29.9 19.4 Poor 1 2 3 4 5 28.6 25.4 24.3 24.0 Poor Good Very good 18.8 17.5 16.4 21 20 Very good Very good 16.1 15.8 6 21.3 21.2 10/9 9/24 14.9 10/12 18 Very good Very good 8 9/30 19.8 14.7 10/16 16

TABLE XI. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF
ANJOU PEARS

I. C. Barnes, Orchard, 1928. Ripened, at 65° F.

| Lot | Date of | Óregon | tester | re test— U.S. te | ster | Date of prime condi- | | Ovality actions |
|-----|---------|---------|--------|---------------------|-------|-------------------------------|-----------|------------------|
| No. | picking | Unpared | Pared | Unpared | Pared | tion o | condition | Quality rating |
| | | lbs. | lbs. | lbs. | lbs. | | | • |
| 1 | 8/18 | 26.2 | 24.1 | 21.6 | 17.2 | 9/9 | 22 | Fair to good |
| 3 | 8/23 | 24.6 | 22.8 | 20.0 | 15.1 | 9/13 | 21 | Good to very goo |
| 3 | 8/28 | 23.5 | 22.1 | 18.6 | 15.2 | 9/16 | 19 | Very good |
| 4 | 9/2 | 22.3 | 20.4 | 18.0 | 13.9 | 9/21 | 19 | Very good |
| 5 | 9/6 | 21.8 | 20.1 | 17.4 | 14.0 | 9/26 | 19 | Very good |
| 6 | 9/12 | 23.8 | 21.5 | 16.2 | 14.0 | 10/1 | 19 | Very good |
| 7 | 9/17 | 22.8 | 21.6 | 16.7 | 13.8 | 10/5 | 18 | Very good |
| 8 | 9/22 | 20.4 | 18.5 | 15.7 | 11.9 | 10/8 | 16 | Very good |

TABLE XII. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF COMICE PEARS

Gold Range Orchard, 1926. Ripened at 65° F. Date No. of days to —Pressure test— tester U.S. tester Pared Unpared Pared prime reach condi- prime Date of Oregon tester picking Unpared Pared Lot Date of No. tion condition Quality rating lbs. lbs. Fair Very good Very good Very good Very good Very good Very good Good 8/31 9/3 9/7 9/12 9/20 9/24 9/26 8/11 8/16 8/21 8/26 8/31 9/5 9/10 14.9 14.4 15.1 22.3 19.2 19.1 16.4 10.2 10.6 20 1234567 18 17 17 17.7 15.6 10.4 17.3 14.9 14.1 10.1 17.3 17.3 16.7 15.0 13.7 9.5 20 14.5 14.0 13.3 11.8 8.8 19 8.9 16 16 11.4 11.7 10/2

TABLE XIII. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF COMICE PEARS

| | Hollywoo | od Orchard, 192 | Ripened at 65° F. | | | |
|-----------------------|---|---------------------------------------|------------------------------------|--|---|--|
| Lot No. | Date of picking | Pressur Oregon tester (Unpared) | | Date of prime condition | No. of days to reach prime condition | Quality rating |
| 1 2 3 4 5 | 8/26 8/31 9/6 9/10 9/15 9/20 | lbs. 24.7 24.3 23.2 21.6 18.2 18.6 | lbs. 15.8 14.3 14.9 12.7 12.8 12.8 | 9/27 9/28 9/27 9/29 10/3 10/8 | 31 28 21 19 18 | Poor Fair Fair Good Very good Very good |

TABLE XIV. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF COMICE PEARS

| | Ho | llywood C | rchard, | 1928. | | Ripened at 65° F. | | | | |
|---------------|-----------------|-------------------|---------|--------------------------------|------|-------------------|--|-------------------|--|--|
| Lot No. | Date of picking | Oregon Unpared | tester | re test— U.S. te Unpared | | | No. of days to reach prime condition | Quality rating | | |
| | | lbs. | lbs. | lbs. | lbs. | | | | | |
| $\frac{1}{2}$ | 8/23 | 21.5 | 18.1 | 16.3 | 12.4 | 9/11 | 19 | Fair | | |
| | 8/28 | 20.3 | 16.2 | 13.0 | 10.0 | 9/14 | 17 | Fair to good | | |
| 3 | 9/2 | 19.7 | 16.8 | 13.5 | 10.5 | 9/18 | 16 | Good | | |
| 4 | 9/7 | 18.5 | 16.0 | 13.6 | 10.5 | 9/26 | 19 | Very good | | |
| 5 | 9/12 | 17.1 | 14.8 | 13.0 | 9.1 | 9/30 | 18 | Very good | | |
| 6 | 9/17 | 16.9 | 14.3 | 13.0 | 9.4 | 10/2 | 15 | Very good | | |
| 7 | 9/22 | 14.8 | 13.0 | 12.4 | 8.6 | 10/8 | 16 | Very good | | |
| 8 | 9/27 | 15.9 | 13.0 | 9.8 | 8.0 | 10/12 | 15 | Good to very good | | |
| 9 | 10/2 | 16.1 | 13.3 | 9.7 | 7.4 | 10/16 | 14 | Good | | |

TABLE XV. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF
WINTER NELIS PEARS
Gold Range Orchard, 1926
Ripened at 65° F

| | | old Kange | Orchar | a, 1926. | | к | ipenea . | at 65° F. |
|------------|-----------------|-------------------|--------|--------------------------------|------|-------|--|-------------------|
| Lot No. | Date of picking | Óregon Unpared | tester | re test— U.S. te Unpared | | | No. of days to reach prime condition | |
| | | lbs. | lbs. | lbs. | lbs. | | | |
| 1 | 8/26 | 31.3 | 24.8 | 19.6 | 17.2 | 9/12 | 17 | Fair |
| 2 | 9/10 | 26.3 | 24.1 | 17.2 | 15.0 | 9/27 | 17 | Very good |
| | 9/16 | 24.8 | 23.0 | 17.2 | 14.4 | 9/30 | 14 | Very good |
| 4 | 9/21 | 25.4 | 21.5 | 15.6 | 13.7 | 10/5 | 14 | Very good |
| 5 | 9/26 | 21.7 | 18.8 | 15.4 | 13.4 | 10/12 | 16 | Very good |
| 6 | 10/4 | 21.8 | 20.0 | 14.8 | 12.7 | 10/16 | 12 | Good to very good |
| 7 | 10/11 | 20.2 | 18.5 | 14.2 | 12.3 | 10/22 | 11 | Good |
| 8 | 10/18 | 20.5 | 20.0 | 11.8 | 11.2 | 10/29 | 11 | Good |

TABLE XVI. THE INFLUENCE OF TIME OF PICKING ON THE QUALITY OF
WINTER NELIS PEARS

Lames G. Love Orchard, 1928
Ripened at 65° F.

| | Jan | les G. Lo | ve Orch | ard, 1928. | | | Стрепец | at 05 F. |
|------------|-----------------|-------------------|---------|--------------------------------|------|-------|--|--------------|
| Lot No. | Date of picking | Óregon Unpared | tester | re test— U.S. te Unpared | | | No. of days to reach prime condition | |
| | | lbs. | lbs. | lbs. | lbs. | | | |
| 1 | 9/12 | 30.3 | 27.7 | 21.1 | 16.7 | 9/28 | 16 | Fair to good |
| 2 | 9/17 | 28.5 | 24.7 | 18.7 | 16.1 | 10/3 | 16 | Good |
| 3 | 9/22 | 26.5 | 23.7 | 17.5 | 15.6 | 10/8 | 16 | Very good |
| 4 | 9/27 | 26.3 | 23.6 | 17.2 | 15.0 | 10/12 | . 15 | Very good |
| 5 | 10/2 | 25.7 | 22.8 | 16.1 | 14.8 | 10/16 | 14 | Very good |
| 6 | 10/7 | 23.1 | 21.5 | 16.3 | 14.3 | 10/19 | 12 | Very good |
| 7 | 10/12 | 23.0 | 21.2 | 15.0 | 13.6 | 10/23 | 11 | Very good |
| 8 | 10/17 | 22.7 | 20.3 | 14.2 ' | 12.8 | 10/28 | 11 | Very good |
| 9 | 10/22 | 22.2 | 20.1 | 14.2 | 13.0 | 11/3 | 12 | Very good |

TABLE XVII. THE INFLUENCE OF TIME OF PICKING AND TIME IN STORAGE ON THE QUALITY OF BARTLETT PEARS Rear Creek Orchard, 1927 Stored immediately at 32° E. Rinened at 65°

| Bea | r Creek | Orchar | d, 1927. | St | ored i | mmediately at | 32° F. | Ri | pened at 65° F. |
|---------|---------------------------------|-----------------------------|-------------|--------------------------------|-----------------------|--|-----------------------------|--|---------------------------|
| Lot No. | Date of picking and storing. | Oregon testerd (Unpared) | U.S. tester | Date of removal from 32° F. | No. of days at 32° F. | Condition upon removal from 32° F. | Date of prime condition. | No. of days to reach prime condition at 65° F. | Quality rating |
| | | lbs. | lbs. | | | | | | |
| 1 | 8/10 | 33.7 | 22.9 | 9/10 10/10 11/10 | 30 60 90 | Firm, green Firm, green Some scald | 9/21 10/20 11/20 | 11 10 10 | Very good Good Poor |
| 2 | 8/15 | 31.0 | 20,8 | 9/15 10/15 11/15 | 30 60 90 | Firm, green Firm, green Some scald | 9/25 10/25 11/23 | 10 10 8 | Very good Good Poor |
| 3 | 8/20 | 30.9 | 20.5 | 9/20 10/20 11/20 | 30 60 90 | Firm, green Firm, green Some scald | 9/30 10/29 11/29 | 10 9 9 | Very good Good Poor |
| 4 | 8/25 | 29.6 | 19.9 | 9/25 10/25 11/25 | 30 60 90 | Firm, green Firm, green Some scald | 10/4 11/4 12/4 | 10 9 9 | Very good Good Poor |
| 5 | 8/30 | 26.9 | 17.3 | 9/30 10/30 11/30 | 30 60 90 | Firm, green Firm, green Some scald | 10/10 11/10 12/9 | 10 10 9 | Very good Good Poor |

TABLE XVIII. THE INFLUENCE OF TIME OF PICKING AND TIME IN STORAGE ON THE QUALITY OF BARTLETT PEARS

| Bea | г Сгее | k Orch | ard, 19 | 28. | Sto | red imn | nedia | tely at 32° F. | | Rip | ened at 65° F. |
|---------|--------------------------------|--------|----------------------|--------------|--------------|--------------------------------|----------------------------|---|-------------------------------|--------------------|--|
| Lot No. | Date of picking and storing | _ | Pressur in tester | | Pared | Date of removal from 32° F. | No. of days at 32° F. | Condition upon removal from 32° F. | Date of prime condition | ach ndit | 65° F. Quality rating |
| 1 | 8/8 | lbs. | lbs. 28.7 | lbs. 23.6 | lbs. 18.7 | 8/23 9/8 10/8 | 15 30 60 | Firm, green Firm, green Firm, green | 9/2 9/13 10/13 | 10 5 5 | Very good Very good Good to very good |
| 2 | 8/13 | 29.0 | 27.1 | 23.0 | 18.1 | 8/28 9/13 10/13 | 90 15 30 60 90 | Firm, green Firm, green Firm, green Firm, green Firm, green | 9/6 9/20 10/20 11/20 | 6 9 7 7 | Fair Very good Very good Good to very good Fair |
| 3 | 8/18 | 29.2 | 26.6 | 18.8 | 16.8 | 9/3 9/18 10/18 | 15 30 60 | Firm, green Firm, green Firm, green Firm, green | 9/8 9/27 10/25 11/26 | 5 9 7 8 | Very good Very good Good to very good Fair |
| 4 | 8/23 | 25.8 | 23.1 | 19.6 | 15.5 | 9/8 9/23 10/23 11/23 | 15 30 60 90 | Firm, green Firm, green Firm, green Firm, green | 9/13 10/1 9/30 12/1 | - 5 8 7 8 | Very good Very good Good Fair |

TABLE XIX. THE INFLUENCE OF TIME OF PICKING AND TIME IN STORAGE ON THE QUALITY OF SECKEL PEARS

| Leo | nard Ca | rpenter | Orchard | , 1927. | Sto | ed immediately | at 32° F | . Ri | pened at 65° I |
|---------|---------------------------------|------------------------------|------------------------|--------------------------------|-----------------------|---|-----------------------------|---|--------------------------------|
| Lot No. | Date of picking and storing. | Oregon tester d (Unpared) | U.S. tester as (Pared) | Date of removal from 32° F, | No. of days at 32° F. | Condition upon removal from 32° F. | Date of prime condition. | No. of days to reach prime condition at 65° F. | Quality rating |
| | | lbs. | lbs. | | | | | | |
| 1 | 8/30 | 25.5 | 17.5 | 9/30 10/30 11/30 | 30 60 90 | Firm, green Firm, green Firm, green | 10/17 11/15 12/12 | 15 | Good Good Fair |
| 2 | 9/5 | 22.7 | 16.1 | 10/5 11/5 12/5 | 30 60 90 | Firm, green Firm, green Firm, green | 10/18 11/17 12/17 | 12 | Very good Very good Fair |
| 3 | 9/9 | 21.4 | 14.1 | 10/9 11/9 12/9 | 30 60 90 | Firm, green Firm, green Firm, green | 10/22 11/21 12/20 | 12 | Very good Very good Fair |

| TABLE XX. | THE INFLUENCE OF TIME OF PICKING AND TIME IN STORAGE |
|-----------|--|
| | ON THE QUALITY OF SECKEL PEARS |

| Leo | nard C | arpente | Of er Orch | | | | | SECKEL Pi ediately at 3 | | Rip | ened at 65° F. |
|------------------|---------------------------------|--------------------------------------|----------------------------|--------------|--------------------------------|---------------------------------|--------------------------------|--|--|-------------------------------|---|
| Lot No. | Date of picking and storing | | Pressur n tester | | Pared | Date of removal from 32° F. | No. of days at 32° F. | Condition upon removal from 32° F. | Date of prime condition | No. of days to reach prime | 65° F. Quality rating |
| | | lbs. | lbs. | lbs. | lbs. | 0/19 | 30 | Firm green | | 13 | Very good |
| 1 | 8/18 | 24.3 | 18.7 | 16.5 | 13.1 | 9/18 10/18 11/18 12/18 | 60 90 | Firm, green Firm, green Firm, green Firm, green | n 10/29 n 11/29 | 11 11 11 | Very good Very good Good |
| 2 | 8/23 | 22.0 | 20.0 | 15.7 | 13.0 | 9/23 10/23 11/23 12/23 | 30 60 90 120 | Firm, green Firm, green Firm, green Firm, green | n 11/3 n 12/3 | 12 10 10 11 | Very good Very good Very good Good |
| 3 | 8/28 | 21.4 | 20.2 | 16.1 | 12.9 | 9/28 10/28 11/28 12/28 | 30 60 90 120 | Firm, green Firm, green Firm, green Firm, green | n 11/8 n 12/10 | 12 10 12 11 | Very good Very good Very good Good to very good |
| TAI | BLE X | XI. TH | IE INF | LUE | NCE C | F TIME | E OF | PICKING . OWELL P | AND TI | MEI | N STORAGE |
| <u>S. C</u> | . Nye | Orchar | d, 1927 | | Ste | ored imn | 1ediat | ely at 32° F | ·, | Rip | ened at 65° F. |
| Lot No. | Date of picking and storing. | Oregon tester 4 (Unpared) | U.S. tester | | Date of removal from 32° F. | No. of days at 32° F. | Condition upon removal from | 32° F. | Date of prime condition. No. of days to reach prime | condition at 65° F. | Quality rating |
| 1 2 3 4 | 8/26 8/30 9/5 9/9 | lbs. 30.0 29.5 26.8 24.1 | 21. 20. 3 20. | 8 8 2 | 9/26 9/30 10/5 10/9 | 30 F 30 F 30 F | irm, į irm, į irm, į | green l green l | 0/10 1 0/15 1 | 10 10 | Fair to good Good Very good Very good |
| S. G | | | II. TH TORAC d, 1928 | GE O | N THE | QUAL | ITY | IE OF PIC OF HOWE ely at 32° F | LL PEA | ARS | TIME IN ened at 65° F. |
| Lot No. | Date of picking and storing | | Pared tester | | Pared ass | Date of removal from 32° F. | No. of days at 32° F. | Condition upon removal from 32° F. | Date of prime condition | No. of days to reach prime | 65° F. Quality rating |
| 1 | 8/23 | lbs. 27.0 | lbs. 24.6 | lbs. 23.3 | lbs. 16.9 | 10/23 11/23 12/23 1/23 | 60 90 120 150 | Firm, green Firm, green Firm, green Firm, green | n 12/1 n 1/1 | 9 9 9 | Very good Very good Very good Fair to good |
| 2 | 8/28 | 25.6 | 23.6 | 21.5 | 15.6 | 10/28 11/28 12/28 1/28 | 60 90 120 150 | Firm, green Firm, green Firm, green Firm, green | n 12/5 n 1/6 | 8 8 9 | Very good Very good Very good Fair to good |
| 3 | 9/2 | 24.6 | 22.3 | 20.3 | 15.5 | 11/3 12/3 1/3 2/3 | 60 90 120 150 | Firm, green Firm, green Firm, green Firm, green | n 12/12 n 1/12 | 8 9 9 | Very good Very good Very good Fair to good |

TABLE XXIII. THE INFLUENCE OF TIME OF PICKING AND TIME IN STORAGE ON THE QUALITY OF ANJOU PEARS

| J. C | Вагл | es Ord | chard, 1 | 926. | Sto | ored im | media | tely at 32° F | <u>'- </u> | Rip | ened a | t 65° F. |
|---------|--------------------------------|------------|----------------------|------|-------------|--|--------------------------------|---|--|-------------------------------|--------------|---------------------------------|
| Lot No. | Date of picking and storing | Unpared as | Pressur on tester | | Pared Pared | Date of removal from 32° F. | No. of days at 32° F. | Condition upon removal from 32° F. | Date of prime condition | No. of days to reach prime | | Quality rating |
| | | lbs. | lbs. | lbs. | lbs. | 11/16 | 90 | Firm, green | 11/24 | 8 | Very | good |
| 1 | 8/16 | 24.4 | 21.2 | 19.8 | 14.9 | 12/16 1/16 2/16 3/16 | 120 150 180 210 | Firm, green Firm, green Firm, green Firm, green | 12/23 1/24 2/23 2/22 | 7 8 7 6 | Vегу Vегу | good good good |
| 2 | 8/21 | 22.4 | 20.2 | 17.2 | 13.5 | 11/21 12/21 1/21 2/21 3/21 | 90 120 150 180 210 | Firm, green Firm, green Firm, green Firm, green Firm, green | 11/29 12/29 1/28 2/28 3/29 | 8 7 7 8 | Very Very | good good good good |
| 3 | 8/26 | 20.1 | 17.7 | 16.1 | 13.0 | 11/26 12/26 1/26 2/26 | 150 | Firm, green Firm, green Firm, green Firm, green | 12/5 1/3 2/3 3/4 | 9 8 8 6 | Very Very | good good good to very |
| | | | | | | 3/26 | 210 | Firm, green | 4/2 | 7 | Good | _ |

TABLE XXIV. THE INFLUENCE OF TIME OF PICKING AND TIME IN STORAGE ON THE QUALITY OF ANJOU PEARS

| J. C | . Barne | s Orcha | rd, 1927. | S | stored | immediately at | 32° F. | Ri | pened at 65° F. |
|---------|------------------------------|------------------------------|------------------------|--------------------------------|-------------------------|--|-------------------------------|---|--|
| Lot No. | Date of picking and storing. | Oregon tester d (Unpared) | U.S. tester as (Pared) | Date of removal from 32° F. | No. of days at 32° F. | Condition upon removal from 32° F. | Date of prime condition. | No. of days to reach prime condition at | Quality rating |
| 1 | 9/9 | lbs. 24.3 | lbs. 16.4 | 12/9 1/9 2/9 3/9 | 90 120 150 | Firm, green Firm, green Firm, green Firm, green | 12/21 1/21 2/20 3/21 | 12 12 11 | Very good Very good Good to very good Poor |
| 2 | 9/14 | 24.0 | 16.1 | 12/14 1/14 2/14 3/14 | 90 120 150 180 | Firm, green Firm, green Firm, green Firm, green | 12/26 1/25 2/25 3/26 | 12 11 11 12 | Very good Very good Good Poor |
| 3 | 9/19 | 21.3 | 15.8 | 12/19 1/19 2/19 3/19 | 90 120 150 180 | Firm, green Firm, green Firm, green Firm, green | 12/31 1/30 3/2 3/30 | 12 11 11 11 | Very good Very good Good Poor |

TABLE XXV. THE INFLUENCE OF TIME OF PICKING AND TIME IN STORAGE ON THE QUALITY OF ANJOU PEARS

J. C. Barnes Orchard, 1928. Stored immediately at 32° F. Ripened at 65° F.

| ٠. ر | . Dain | ics Of | naid, i | 920. | 310 | orea imi | neura | itely at 32 F | • | Kıþ | ened at 65 F. |
|---------|--------------------------------|--------------|---------------------|--------------|-----------|-------------------------------|--------------------------|--|------------------------------|----------------------|---|
| Lot No. | Date of picking and storing | | Pressur n tester | | Pared 135 | Date of removal from 32° F. | No. of days at 32° F. | Condition upon removal from 32° F. | Ε, | | 65° F. Quality rating |
| 1 | 8/23 | lbs. 24.6 | lbs. 22.8 | lbs. 20.0 | lbs. | 12/23 1/23 2/23 3/23 | 150 180 | Firm, green Firm, green Firm, green Firm, green | 1/3 2/5 3/6 4/4 | 11 13 10 12 | Good Good Good Good |
| 2 | 8/28 | 23.5 | 22.1 | 18.6 | 15.2 | 12/28 1/28 2/28 3/28 | 150 180 | Firm, green Firm, green Firm, green Firm, green | 1/10 2/9 3/10 4/9 | 13 12 10 12 | Very good Very good Very good Very good |
| 3 | 9/2 | 22.3 | 20.4 | 18.0 | 13.9 | 1/3 2/3 3/3 4/3 | 120 150 180 210 | Firm, green Firm, green Firm, green Firm, green | 1/15 2/15 3/15 4/15 | 12 12 12 12 | Very good Very good Very good Good to very good |
| 4 | 9/7 | 21.8 | 20.1 | 17.4 | 14.0 | 1/8 2/8 3/8 4/8 | 120 150 180 210 | Firm, green Firm, green Firm, green Firm, green | 1/19 2/19 3/18 4/18 | 11 11 10 10 | Very good Very good Very good Good to very good |

TABLE XXVI. THE INFLUENCE OF TIME OF PICKING AND TIME IN
STORAGE ON THE QUALITY OF COMICE PEARS
Gold Range Orchard, 1926. Stored immediately at 32° F. Ripened at 65° F

| | | sc Oic | nard, 19 | 20. | 310 | i ea imi | ncuia | tely at 32 P | • | Кір | ened a | 1 03 1 |
|---------|--------------------------------|--------|-----------------------|------|-------|--------------------------------|-----------------------|--|---------------------------|------------------|------------------------------|----------------|
| Lot No. | Date of picking and storing | | Pressure on tester | | Pared | Date of removal from 32° F. | No. of days at 32° F. | Condition upon removal from 32° F. | Date of prime condition | 45. <u>5</u> | 65° F. | Quality rating |
| | | lbs. | lbs. | lbs. | lbs. | 11/21 | 90 | Firm, green | 11/27 | 6 | Verv | good |
| 1 | 8/21 | 17.7 | 15.6 | 15.1 | 10.4 | 12/21 1/21 2/21 | 120 150 | Firm, green Badly scalded Badly scalded | 12/26 1/27 1/27 | 5 6 6 | | good |
| 2 | 8/26 | 17.3 | 14.9 | 14.1 | 10.1 | 11/26 12/26 1/26 2/26 | | Firm, green Firm, green Badly scalded Badly scalded | 12/3 1/3 2/3 3/2 | 7 7 7 6 | Very Very Poor Poor | good good |
| 3 | 8/31 | 17.3 | 15.0 | 13.7 | 9.5 | 11/31 12/31 1/31 2/28 | 90 120 150 | Firm, green Firm, green Badly scalded Badly scalded | 12/8 1/7 2/7 3/8 | 8 7 7 8 | | good good |

TABLE XXVII. THE INFLUENCE OF TIME OF PICKING AND TIME IN STORAGE ON THE QUALITY OF COMICE PEARS

| Klamath Orchard, 1927. | | | | Sto | red in | mediately at 32 | Ripened at 65° F. | | | |
|------------------------|---------------------------------|---------------------------|------|--------------------------------|-----------------------|---|-----------------------------|--|--------------------------------|--|
| Lot No. | Date of picking and storing. | Oregon tester & (Unpared) | | Date of removal from 32° F. | No. of days at 32° F. | Condition upon removal from 32° F. | Date of prime condition. | No. of days to reach prime condition at 65° F. | Quality rating | |
| | | lbs. | lbs. | 12/10 | 90 | Firm, green | 12/19 | 9 | Good to very | |
| 1 | 9/10 | 21.6 | 12.7 | 1/10 | 120 | Firm, green | 1/18 | 8 | good Good to very good | |
| | | | | 2/10 | 150 | Firm, green | 2/18 | 8 | Poor | |
| 2 | 9/15 | 18.2 | 12.8 | 12/15 1/15 2/15 | 90 120 150 | Firm, green Firm, green Firm, green | 12/22 1/23 2/23 | 7 8 8 | Very good Very good Poor | |
| 3 | 9/20 | 18.6 | 12.8 | 12/20 1/20 2/20 | 90 120 150 | Firm, green Firm, green Firm, green | 12/27 1/27 2/26 | 7 7 6 | Very good Very good Poor | |

TABLE XXVIII. THE INFLUENCE OF TIME OF PICKING AND TIME IN STORAGE ON THE QUALITY OF COMICE PEARS

| Hol | lywood | i Orch | ard, 192 | 8. | Sto | Stored immediately at 32° F. | | | | | Ripened at 65° F. | | |
|---------|--------------------------------|--------|----------------------|------|-------|--------------------------------|------------------------|--|--------------------------------|------------------|---|--|--|
| Lot No. | Date of picking and storing | | Pressur on tester | | Pared | Date of removal from 32° F. | No. of days at 32° F. | Condition upon removal from 32° F. | of prime | reach prime | G 2 | | |
| 1 | 9/2 | lbs. | lbs. | lbs. | lbs. | 11/3 12/3 1/3 2/3 | 60 90 120 150 | Firm, green Firm, green Firm, green Firm, green | 11/13 12/12 1/10 2/12 | 10 9 9 | Very good Very good Very good Fair to good | | |
| 2 | 9/7 | 18.5 | 16.0 | 13.6 | 10.5 | 11/8 12/8 1/8 2/8 | 60 90 120 150 | Firm, green Firm, green Firm, green Firm, green | 11/14 12/15 1/15 2/15 | 6 7 7 7 | Very good Very good Very good Fair to good | | |
| 3 | 9/12 | 17.1 | 14.8 | 13.0 | 9.1 | 11/13 12/13 1/13 2/13 | 60 90 120 150 | Firm, green Firm, green Firm, green Firm, green | 11/21 12/20 1/20 2/20 | 8 7 7 7 | Very good Very good Very good Good | | |
| 4 | 9/17 | 16.9 | 14.3 | 13.0 | 9.4 | 11/18 12/18 1/18 2/18 | 60 90 120 150 | Firm, green Firm, green Firm, green Firm, green | 11/26 12/26 1/24 2/24 | 8 7 7 | Very good Very good Very good Fair to good | | |

TABLE XXIX. THE INFLUENCE OF TIME OF PICKING AND TIME IN STORAGE ON THE QUALITY OF WINTER NELIS PEARS

| Gol | d Rang | ge Orc | hard, 19 | 926. | Sto | Stored immediately at 32° F. | | | | | | Ripened at 65° F. | | |
|---------|--------------------------------|--------|-----------------------|------|-----------|--------------------------------|-------------------------|--|-------------------------------|-------------------------------|--------------|------------------------------|--|--|
| Lot No. | Date of picking and storing | | Pressure on tester | | Pared sat | Date of removal from 32° F. | No. of days at 32° F. | Condition upon removal from 32° F. | Date of prime condition | No. of days to reach prime | | Quality rating | | |
| | | lbs. | lbs. | lbs. | lbs. | 11/21 | -00 | Pi | 12/12 | 12 | V | ~d | | |
| 1 | 8/31 | 28.1 | 26.2 | 18.2 | 16.1 | 11/31 12/31 2/3 3/1 | 90 120 150 180 | Firm, green Firm, green Firm, green Firm, green | 12/12 1/12 2/13 2/13 | 12 | Vегу Vегу | good good good good | | |
| 2 | 9/11 | 26.3 | 24.1 | 17.2 | 15.0 | 12/11 1/11 2/11 3/11 | 90 120 150 180 | Firm, green Firm, green Firm, green Firm, green | 12/22 1/24 2/24 3/23 | 13 | Very Very | good good good good | | |
| 3 | 9/16 | 24.8 | 23.0 | 17.2 | 14.5 | 12/16 1/16 2/16 3716 | 90 120 150 180 | Firm, green Firm, green Firm, green Firm, green | 12/26 1/28 2/27 3/26 | · 12 | Vегу Vегу | good good good good | | |

TABLE XXX. THE INFLUENCE OF TIME OF PICKING AND TIME IN STORAGE ON THE QUALITY OF WINTER NELIS PEARS

| Jar | James G. Love Orchard, 1927. | | | | | d immediately a | Ripened at 65° F. | | | |
|---------|---------------------------------|------------------------------|------------------------|--------------------------------|--------------------------|--|------------------------------|---|---|--|
| Lot No. | Date of picking and storing. | Oregon tester d (Unpared) | U.S. tester as (Pared) | Date of removal from 32° F. | No. of days at 32° F. | Condition upon removal from 32° F. | Date of prime condition. | No. of days to reach prime condition at 65° F. | Quality rating | |
| | | lbs. | lbs. | 1 /20 | 120 | T: | 0.410 | 1.2 | XX | |
| 1 | 9/30 | 26.7 | 19.3 | 1/30 2/28 3/30 4/30 | 120 150 180 210 | Firm, green Firm, green Firm, green Firm, green | 2/12 3/12 4/11 5/12 | 12 12 | Very good Very good Very good Good | |
| 2 | 10/5 | 25.9 | 17.7 | 2/5 3/5 4/5 5/5 | 120 150 180 210 | Firm, green Firm, green Firm, green Firm, green | 2/18 3/18 4/17 5/17 | 13 12 | Very good Very good Very good Good | |
| 3 | 10/10 | 25.7 | 16.5 | 2/10 3/10 4/10 5/10 | 120 150 180 210 | Firm, green Firm, green Firm, green Firm, green | 2/23 3/23 4/22 5/22 | 13 12 | Very good Very good Very good Good | |

TABLE XXXI. THE INFLUENCE OF TIME OF PICKING AND TIME IN STORAGE ON THE QUALITY OF WINTER NELIS PEARS

James G. Love Orchard, 1928. Stored immediately at 32° F. Ripened at 65° F. of picking storing Date of removal from 32° F. Condition upon removal from 32° F. No. of days to reach prime condition at 65° F. Pressure test ä Date of prime condition Quality rating days Oregon tester U.S. tester Unpared Unpared No. of 6 Pared Pared Date and Lot] lbs. lbs. lbs. lbs. 1/18 120 2/18 150 3/18 180 1/27 2/27 3/26 Very good Very good Very good Very good Firm, green Firm, green Firm, green Firm, green ģ 9/17 28.5 24.7 18.7 16.1 3/18 180 4/18 210 8 1/23 120 2/23 150 3/23 180 4/24 210 2/4 3/5 4/4 5/3 Firm, green Firm, green 11 Very good Very good Very good Very good 10 11 9/22 26.5 23.7 17.5 15.6 Firm, green Firm, green 1/28 120 2/28 150 3/28 180 4/28 210 2/9 3/10 4/9 5/8 Very good Very good Very good Very good Firm, green 12 Firm, green Firm, green 10 12 9/27 26.3 23.6 17.2 15.0 Firm, green