Directions for Grading and Packing Illinois Peaches

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Heavy Crop Means Discriminating Market

In years of heavy crop such as Illinois promises to have the present season (1929) it is especially difficult to sell peaches unless they are carefully graded. When supplies are abundant the market becomes very discriminating and is likely to ignore all peaches not meeting its fancy. Uniformly large peaches, free from blemishes, may sell very well, while small or slightly blemished peaches go begging on the same market.

Not all peaches suitable for shipment are sufficiently uniform in size, color, and freedom from blemishes to sell to the best advantage if packed together. Certain classes of trade call for extra-fine table peaches, and such peaches command a premium over the less highly finished product, tho the latter may be well suited to canning and other uses. The more nearly uniform the peaches in a given lot, the better they will sell. Often the second grade, packed alone, will sell nearly as well as a mixture of first and second grades. And the first grade sells very much better by itself than if even a few inferior specimens are included in the package.

Grading according to a definite, recognized standard greatly facilitates the sale of peaches thru wholesale channels. Growers will find it to their advantage to pack according to the U. S. grades for peaches, which are well known in the trade and have been adopted as official for Illinois.

When the peach crop is large, only the better grades should be shipped to the city markets. Cull peaches (the No. 3 grade) should never be packed for shipment. The small peaches of all grades and the No. 2 grade in all sizes should be sold locally if possible. If the packing shed is located near a hard road, a large quantity of peaches may be sold to persons coming in autos or auto trucks.

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Directions for Grading and Packing Illinois Peaches

By J. W. Lloyd, Chief in Olericulture

THREE factors must be considered in the grading of peaches, namely, maturity, blemishes, and size; and in case a fancy pack is to be made, color also is concerned. If peaches are picked too green, they must be culled; if so ripe as to be easily bruised in handling, they are unsuitable for shipment but may be sold locally for immediate use. In reference to blemishes and size, if each grower grades according to his own ideas without regard to what others are doing, many variations in grade will result, and each lot of peaches must be seen by the buyer before a sale can be made. On the other hand, if all growers graded according to some definite, recognized standard, it would be possible to make sales by wire without personal inspection by the purchaser. This would greatly facilitate the handling of a large crop.

U. S. Grades Adopted for Illinois Peaches

The U. S. Department of Agriculture has published definite grade specifications for peaches, and these grades have been adopted by the Illinois State Department of Agriculture as the official standards for the state of Illinois. Since peaches from various other states are being graded according to these standards, the trade is familiar with them, and Illinois peaches graded on the same basis can be handled thru the trade with much less difficulty than peaches graded according to any other standards.

The recognized standard grades of peaches, officially established for Illinois, are given below.

Ill.-U. S. No. 1 shall consist of peaches of one variety which are firm, mature, and well formed, free from growth cracks, cuts, skin-breaks and worm holes and from damage caused by dirt, scab, scale, hail, disease, insects or mechanical or other means.

In order to allow for variations incident to proper grading and handling, not more than 10 percent, by count, may be below the requirements of this grade, but not to exceed a total of 5 percent shall be allowed for defects causing serious damage, and not more than $\frac{1}{5}$ of this amount or 1 percent shall be allowed for decay.

Ill.-U. S. No. 2 shall consist of peaches of one variety which are firm and mature and free from worm holes and serious damage caused by growth cracks, disease, insects, hail or mechanical or other means.

In order to allow for variations incident to proper grading and handling not more than 10 percent, by count, of any lot may be below the requirements of this grade, and not more than $\frac{1}{5}$ of this amount or 1 percent shall be allowed for decay.
Ill.-U.S. No. 3 shall consist of peaches which do not meet the requirements of the foregoing grades.

**Marking Requirements for Size.** The minimum size, numerical count, or description of pack of the peaches in any package shall be plainly labeled, stenciled or otherwise marked on the package.

"Minimum size" refers to the diameter (as hereinafter defined) of the smallest peach. It shall be stated in terms of whole and quarter inches as 2" min., 2¼" min., 2¾" min., and so on, in accordance with the facts. In order to allow for variations incident to proper sizing, not more than 10 percent, by count, of the peaches in any package may be below the minimum size specified.

Ill.-U.S. Fancy No. 1 is provided for the use of those who wish a special grade for the superior peaches which meet its requirements. The marking requirements for size shall be the same as those for the foregoing grades.

Ill.-U.S. Fancy No. 1 shall consist of peaches of one variety which are firm, mature, and well formed, and which are free from dirt, growth cracks, hail injury, cuts, skin-breaks, disease, insect or mechanical injury, and other blemishes or defects.

Each peach shall meet the following color requirements which are expressed in terms of the percentage of the surface covered with characteristic red color.

- 50 percent or more: Carman, Red Bird, and similar varieties.
- 25 percent or more: Elberta, J. H. Hale, and similar varieties.
- 15 percent or more: Champion, Slappy, and similar varieties.

In order to allow for variations incident to proper grading and handling, not more than 10 percent, by count, of any lot may be below the prescribed color requirements. In addition, not more than 10 percent, by count, may be below the requirements of this grade, but not to exceed a total of 5 percent shall be allowed for defects causing serious damage, and not more than ½ of this amount or 1 percent shall be allowed for decay.

**Meaning of Grading Terms**

As used in these grades:

- **Firm** means mature but not soft or overripe.
- **Mature** means having reached the stage of maturity which will insure a proper completion of the ripening process.
- **Well formed** means having the shape characteristic of the variety.
- **Free from damage** means that the peach shall not be injured to an extent readily apparent in the process of proper grading and handling.
- **Serious damage** means decay or any deformity, or injury which causes breaking of the skin, or which seriously affects the appearance but well healed growth cracks, not over ½ inch in length, or scab spots thinly scattered over not more than one half of the surface of the fruit shall not be regarded as serious damage.
- **Diameter** means the smallest diameter, measured thru the center of the peach, at right angles to a line running from the stem to the blossom end.

**Method of Grading Depends on Amount of Fruit**

It is perfectly feasible for any grower to grade his peaches according to the standards above described, if he has given his orchard proper care so that the crop is of fairly good quality as it arrives at the packing shed.
For expeditious grading, proper facilities must be provided. The product of a small orchard may be graded by hand from a padded packing table; but if any considerable volume of fruit is to be handled, a mechanical sizer equipped with grading belts may be used to advantage. A machine made especially for handling peaches is preferable to one designed primarily for apples, since it is capable of sizing the peaches more accurately.

No. 1 Elberta or Hale peaches should be packed at a 2¼-inch minimum rather than any smaller size. In case of a heavy set of fruit, rigid thinning is required to produce a crop that can be packed to advantage at that minimum.

Bushel Basket Standard Package for Illinois Peaches

Altho the four-basket tomato flat was formerly used for packing Illinois peaches, and the six-basket carrier has occasionally been used, the standard package at the present time is the bushel basket. Both the round-bottom bushel basket and the straight-sided “tub bushel” are used. The latter is the more rigid package, and has gained much favor with the trade during the past few years. It is slightly more expensive than the round-bottom bushel.

A new package, built like an egg case, with a separate compartment for each peach, has been tried in an experimental way the past few seasons for the handling of fancy table peaches that have been allowed to remain on the tree until they have developed full flavor. Each peach is wrapped in tissue paper and is thus protected from bruising. Both the package and packing are expensive. This method of handling, therefore, is adapted only to strictly fancy stock.

Three Ways to Pack Bushel Baskets

Three ways of packing a bushel basket or tub bushel with peaches are recognized. These may be designated as the jumble pack, ring pack and ring-face pack.

Jumble Pack. The jumble pack is least desirable and is often referred to as a “farmer pack.” In this method the peaches are placed indiscriminately into the basket until it is slightly more than level full. Then, without any attention being given to the arrangement of the peaches in the top layer, the cover is put on the basket. This is the most rapid and most slovenly method of packing, and the peaches do not arrive in market in the most presentable condition. The package is likely to appear slack on account of the settling of the fruit during shipment, and the absence of any regular arrangement of the specimens in the top layer gives the package an unfinished appearance. When the market is discriminating, lack of the finishing touches in packing results in poor sales.

Ring Pack. In ring packing, the peaches are arranged in concentric rings, beginning at the bottom of the basket and working upward until the facing layer is finished. Each fruit is placed accurately by hand in the exact position in which it is expected to remain until the package is opened on the market. The facing layer is crowned nicely to give the package a
well-filled appearance. A greater weight of peaches can be packed in a bushel basket by this method than by any other. It is an extremely solid pack, and there is no chance for the facing layer to be shaken out of place.

**Ring-Face Pack.** In the ring-face pack, the peaches are placed indiscriminately in the basket until the package is nearly level full, the exact height of the fruit in the basket depending upon the size of the specimens. Then a padded metal disc about the size and shape of a bread-pan cover is placed in the basket on top of the fruit. The basket is placed on a rigid foundation of convenient height, such as a heavy packing table; the packer grasps the edges of the basket in both hands, while his forearms rest firmly upon the metal "shaker," his elbows being just inside the basket on the opposite side from his hands. The basket, while held in this position, is shaken sharply three or four times, then given a quarter-turn, and again shaken as before. This treatment settles the fruit in the basket, and gives a nearly level surface, slightly crowned, for receiving the facing layer. Care should be taken to have the fruit at just the right height, so that when the facing layer is put on the basket it will be properly filled, yet not so full as to result in crushing of the fruit when the cover is put on. In the facing layer, the fruits are carefully placed in concentric rings, beginning next to the rim of the basket and working toward the center.

With skilful persons to do the facing, this method of packing results in a pack almost equal in appearance to the solid ring pack, and it is a much more rapid method of packing, especially when mechanical graders are used, since the peaches are discharged directly from the sizing machine into the basket, and the only specimens placed in the basket by hand are those in the facing layer.

**Upside-Down Ring-Face Pack.** The upside-down method of packing the ring-face pack which has been adopted in many Illinois packing sheds involves the use of the regular type of round-bottom bushel basket or tub bushel, together with packing forms, paper liners, and facing forms. The use of the forms saves time in facing the baskets, since an even surface of metal is provided on which to place the facing layer rather than a slightly irregular surface of fruit. After the facing layer is completed, the rest of the fruit is placed indiscriminately in the packing form in which the proper paper lining has previously been adjusted. After the packing form has been completely filled, an empty basket is inverted over it, and then the form is pulled out, in the case of one type of packing equipment. In another type, the metal form is taken off before the basket is put on. In this case the cone-shaped paper liner holds the fruit until the basket is slipped over it. The basket is then turned over and the cover put on. A special machine has been designed for turning the baskets.

It is claimed that with the aid of these types of packing equipment unskilled labor can be employed for the facing. However, even when the forms are used, there is a great difference in the packs turned out by different workmen. Unless care is used to place the fruits properly in the facing layer and to fill the packing forms to exactly the right height, the face will not present a good appearance, and the package may be too full or too slack. These devices hasten the packing but do not result in a better pack than can be put up by skilful workmen using the "shaker" method previously described.

**Well-Arranged Packing Shed Simplifies Work**

No matter what method of packing is employed, the work will be facilitated and time saved by proper arrangement of the packing
shed. The main principle involved is that the fruit should be received at one side of the shed, and be gradually worked across the shed during the various steps in the process of grading and packing until it is finally removed from the opposite side to be loaded for shipment. When the fruit is handled in this way, each detail of grading, packing, facing, lidding, stenciling, etc., is given proper attention at the right time and place by the proper person, and the work progresses smoothly and rapidly.

**Size of Shed**

The size of the shed will depend upon the method of grading and packing and the amount of fruit to be handled. More space is required for machine grading than for hand grading. In any case the width of the shed should be sufficient to allow plenty of space for efficient operation. A shed is more likely to be too small than too large for the amount of fruit it is expected to handle. When a grading machine is employed, there should be a clear space at least 10 feet wide at the receiving side of the shed extending the entire length of the building for accommodating the fruit as received from the orchard and awaiting grading. For hand-packing from a padded table, the table is often placed at the extreme edge of the shed where it is protected by hinged shutters which form the side of the building when let down. The fruit is poured on to the table from the outside of the shed. With such an arrangement there must be sufficient packing force to keep up with the pickers, since there is no space provided for unpacked fruit to accumulate. At the opposite side of the shed from that at which the fruit is received there should be ample space for stacking a reasonable quantity of packed fruit, in case there should be any delay in removing the fruit from the shed for loading. However, since the fruit should be loaded promptly into refrigerator cars, the space at this side of the shed will not usually be taxed to capacity. But it may be needed badly at times.

Taking everything into consideration, a packing shed for handling peaches over a grader should be at least 50 feet wide for efficient operation. Furthermore, it should have a length of at least 50 feet for each grading machine; that is, a shed for two graders should be 100 feet long, and a shed for three graders, 150 feet long.

The capacity of a grader varies with the type, but also, in actual operation, depends to considerable extent upon the number and length of the discharge belts. The greater the number and length of the belts, the more fruit can be handled over one machine in a day. In general, the capacity of graders varies from 3 to 10 car-loads of peaches a day.

If possible, there should be storage space in the packing shed for a supply of empty packages sufficient to keep the shed in operation
for one week. If such a quantity were on hand at the beginning of
the season, plenty of packages would be available to keep the shed
operating, even if there were some delay in delivery of packages
during the season. The most feasible way of providing storage
space for empty packages is to build a loft in the packing shed.

**Care Necessary in Handling Peaches**

The peach is a tender fruit and every possible precaution should
be taken to avoid injury while it is being prepared for market.
Pickers and packers should be required to keep their finger and
thumb nails closely trimmed to avoid puncturing the fruit; padded
baskets should be used for picking; the fruit should be hauled by
careful drivers on spring wagons or trucks from the orchard to the
packing shed as well as from the packing shed to the railway siding,
in case the shed is not located at the siding. In pouring the fruit
from the field baskets or crates on to the padded sorting table or
the hopper of the sizing machine, care should be taken to prevent
the peaches from dropping. The hand and forearm should be held
over the top of the container while it is slowly turned upon its side
and then gently pulled away from the fruit. The rule should be
made and observed that no fruit is to be dropped, tossed, or thrown;
each specimen must be gently laid or placed where it is wanted.
Corrugated paper pads should always be used under the basket
covers, in order to prevent the top layer of fruit from being injured
by the cover. These pads should be placed with the smooth side
next to the fruit. The 19-inch pads are superior to the old style
16-inch pads, since they extend over the rim of the basket and pre­
vent the rim of the cover from cutting the peaches in the outside
ring of the facing layer.

If in addition to crimping the wire handles by means of pliers,
wire clips are used to fasten the covers to the sides of the baskets,
the covers will be held more securely in place. Such clips should
always be used on express shipments, and will also be of material
assistance in maintaining a rigid pack during the hauling and load­
ing of carlot shipments. After the cover is put on, it should be stenciled as neatly as possible to show the variety, grade, and size of
fruit and, if desired, the name and address of packer or shipper.

**Rapid Handling Essential at Every Step**

Peaches should be loaded into a refrigerator car as promptly as
possible after they are packed. In fact, promptness should charac­
terize each and every step in the handling of the peach crop. The
fruit should be picked just as soon as it reaches the right stage of
ripeness. It should be hauled from the orchard to the packing shed
as fast as it is picked. There should be no delay in its passage thru
the packing shed or to the refrigerator car.