



**United States
Department of
Agriculture**

Topped Carrots

**Agricultural
Marketing
Service**

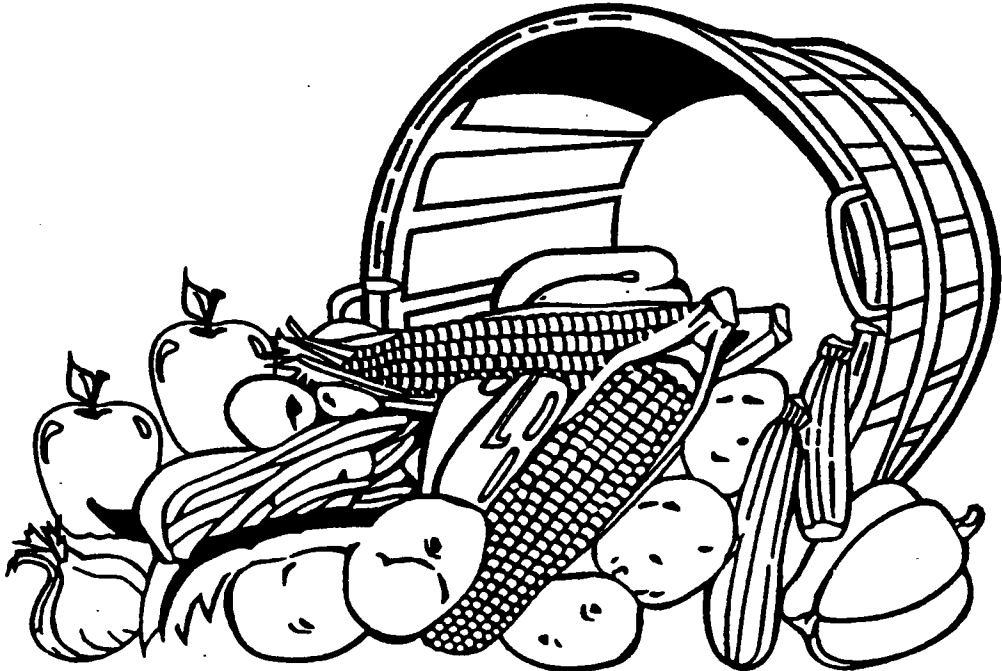
Market Inspection Instructions

**Fruit and
Vegetable
Programs**

**Fresh Products
Branch**

April 2004

**Previously
April 1966**



Market Inspection Instructions For Topped Carrots

These inspection instructions are specifically developed by the Fresh Products Branch to assist officially licensed inspectors in the interpretation and application of the U.S. Standards for Grades of Topped Carrots, Section 51.2360.

These instructions do not establish any substantial rule not legally authorized by the official grade standards. This publication supersedes any previously issued inspection instructions.

Refer to the General Inspection Instructions for additional information pertaining to date, inspection point, carrier, condition of carrier, lading, etc. that is not covered in this handbook. Reference to "General Inspection Instructions" in all Fresh Products Branch publications refers to any one or all of the following - General Shipping Point Inspection Instructions, General Market Inspection Instructions, or Fresh Fruit and Vegetable Certificate Writing Handbooks.

Any portion of these instructions beginning with the section number §51.--- and followed by **bold** print are sections or portions of sections copied directly from U.S. standards. The U.S. Standards for Grades of Topped Carrots are printed in the appendix of this handbook. All U.S. standards are available on the Internet under the USDA homepage.

April 2004

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*This replaces Market Inspection Instructions for Topped Carrots dated March 1956.
Reformatted October 2002, previously April 1966.*

Factors noted with **(Q)** are considered quality only. Factors noted with **(C)** are considered condition at market. Factors noted with **(Q or C)** may be quality or condition depending on the circumstances. Factors not designated do not pertain to either category.

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REPRESENTATIVE SAMPLING

The importance of obtaining representative samples cannot be over emphasized. Accurate certification is possible only if the samples examined are truly representative of the entire lot or accessible portion. All portions of a lot or load should receive the same attention in sampling regardless of the difficulty involved in reaching all layers or parts of a lot or load. Anytime the entire lot requested is not accessible for sampling, the inspection and certificate must be restricted to the accessible portion.

Size of Sample

The tolerances in the U.S. Standards for Grades of Topped Carrots are determined on the basis of count.

Each sample shall consist of **50 carrots**, regardless of the size of the package.

When individual packages contain at least 50 carrots, the 50-carrot sample is drawn from one package. When individual packages contain less than 50 carrots (such as 1 to 3 lb. consumer packages), a sufficient number of adjoining packages are opened to form the 50-carrot sample. For example, it may be necessary in the case of 1-lb. packages packed in master containers to open as many as 5 or 6 of the 1-lb. units within the master container to obtain the 50-carrot sample. If five 1-lb. units are opened and found to contain only 47 carrots, then 3 carrots will be taken out of the sixth. Follow the same procedure (obtaining each sample from a different master container) until a sufficient number of samples are examined.

Number of Samples

As a general rule a minimum of 1% of the lot must be examined. For lots of less than 300 packages a minimum of 3 samples must be examined. It is the inspector's responsibility to examine additional representative samples when the quality, condition, or size in samples is decidedly different to ensure an accurate description of the lot.

TOLERANCES AND APPLICATION OF TOLERANCES

§51.2365 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by count, are provided as specified:

(a) Defects -- (1) U.S. Extra No. 1 grade. Ten percent for carrots in any lot which fail to meet the requirements of this grade: *Provided*, That not more than one-half of this amount, or 5 percent, shall be allowed for defects causing serious damage, including therein not more than 1 percent for carrots affected by soft rot.

(2) U.S. No. 1 and U.S. No. 1 Jumbo grades. Ten percent for carrots in any lot which fail to meet the requirements of the grade: *Provided*, That not more than one-half of this amount, or 5 percent, shall be allowed for defects causing serious damage, including therein not more than 2 percent for carrots affected by soft rot.

(3) U.S. No. 2 grade. Ten percent for carrots which fail to meet the requirements of this grade, including therein not more than 2 percent for carrots affected by soft rot.

(b) Off-size. (1) Five percent for carrots in any lot which are larger than the specified maximum diameter; and

(2) Ten percent for carrots in any lot, which are smaller than the specified minimum diameter or shorter than the specified minimum length.

Application of Tolerances

§51.2366 Application of tolerances. Individual samples shall not have more than double the tolerance specified: *Provided*, That not more than one carrot which is frozen or affected by soft rot may be permitted in any package weighing approximately 3 pounds or less: *And provided further*, That the averages for the entire lot are within the tolerances specified for the grade.

Thus, for consumer units of 3 lbs. or less, there are restrictions on both the sample and the package when soft rot or freezing is a factor. Since not more than one carrot affected by soft rot or freezing is allowed in any package, it will be necessary to examine the contents of consumer units individually before making up the 50-carrot sample.

The tolerance for soft rot in the U.S. No. 1 grade is 2 percent. Individual samples (50 carrots) may not contain more than 4 percent soft rot (or 2 carrots). For example, let us say that it takes five 1-lb. bags to make up the 50-carrot sample. One

carrot affected by soft rot is found in each of two of these bags (or 4 percent for the sample). This lot could average within tolerance.

However, if these two carrots were found in the same consumer unit the lot would not grade U.S. No. 1, regardless of the average for the lot. In the example above, the lot tolerance was not exceeded, but the package tolerance was exceeded.

NOTESHEET AND CERTIFICATE

Entries on the notesheet and certificate must be kept in a legible and accurate manner. It is mandatory that all information which appears on the certificate be supported by information on the notesheet. It is the responsibility of the inspector to ensure that all information is properly recorded. Notations shall be recorded so that anyone familiar with inspection procedures can interpret them and write a certificate. Also remember that notesheets and certificates are prima facie evidence and must be able to withstand legal scrutiny.

Detailed instructions pertaining to date, inspection point, place of inspection, type of carrier, lading, etc., which are not covered by these instructions may be found in the General Inspection Instructions. Additional information and instructions may be given by your supervisor.

Product

The common name Topped Carrots, shall be used to describe this commodity in the product heading. Type may be reported in the "Lot ID" section on the market notesheet and certificate.

It is permissible (only at applicant's request) to show the carrots, as being of a certain type if the inspector is sure that such a statement is true.

Long type. The principal difficulty in determining type is distinguishing between the long type represented by the Emperor variety and the half long type, such as Chantenay and Danvers Half Long. Whenever the lot as a whole is found to be distinctly long or distinctly half long, it will be satisfactory to report as "Long type" or "Half-long type" in accordance with the facts. In many lots the roots may not be distinctly of one type or the other but range from long to half long with all intermediate degrees. Such variation is not unusual, and no attempt should be made to describe type in such a situation though the variation in shape may be described if specifically requested by the applicant.

Short type carrots such as the Oxheart variety can usually be distinguished, as they are distinctly shorter and broader than the long or half long types.

Number/Type of Containers

The number of containers shall always be reported. In the market and at shipping point locations for stationary lot certification, the inspector shall always verify the container count provided by the applicant for each lot and report it as the "inspector's count." If the number of containers available for inspection does not match the application it is the inspector's responsibility to confirm that the amount presented for inspection constitutes the lot. If an accurate count cannot be determined the inspector may report the count at someone else's authority. However, the reason for doing so must be reported on the notesheet (e.g., numerous pallets with mixed product.)

Topped carrots are usually packed and shipped in 50 pound cartons, 25 and 50 pound film bags, and 1, 2 and 5 pound consumer bags in master cartons or film bags.

When consumer units are packed in master containers, it is necessary to give a brief description of both the consumer unit (film or mesh) and the master container.

Brands/Markings

The brand, variety, size, count, grade, weight, point of origin and other important information appearing on the container should be reported on the notesheet in the "Brands/Markings" section. Only the brand name and other key markings necessary to properly identify the lot for certification should appear in this section on the certificate.

Origin

The inspector should not make a positive statement on their own authority, but when container markings list the state or country of origin, it should be quoted in the appropriate space on the notesheet and the certificate. If origin is not marked, it is the inspectors responsibility to make an effort to obtain this information from the applicant. This policy is necessary because some firms may use one mark on the same product packed in several states. The inspector can certify only to the marks and has no means of verifying what state or country the carrots are grown.

CONDITION OF PACK

When the carrots are packed loose in cartons, boxes, baskets, etc., use the terms "well filled," "fairly well filled" or "slack" as defined in the General Market Inspection Instructions. If these packs are faced this fact should be mentioned.

When the product is in sacks or film bags (including consumer size film bags packed in any type of master container) this heading on the notesheet should be deleted.

TEMPERATURE OF PRODUCT

Inspectors would not normally determine or report temperatures at shipping point. However, due to the importance of the pulp temperature of fresh fruits and vegetables when in transit or at destination, it is essential that the inspector accurately determine and report the temperature or range in temperatures on each lot. Pulp temperature should be reported regardless of the location of the product, whether in the carrier, warehouse, or stacked on the platform. Remember to pre-cool the thermometer in order to obtain true readings. Report all temperatures to the nearest whole degree.

A minimum of three temperatures for each lot must be taken and recorded on the notesheet. More temperatures must be taken if the lot is abnormally cold, heated, or there is a specific request for temperature, and these must be reported in greater detail specifying location in lot or load.

SIZE

U.S. Extra No. 1 Size Requirements:

This grade requires the diameter of each carrot to be not less than 3/4 inch or more than 1-1/2 inches, and the length to be not less than 5 inches. It is permissible to specify diameters within the 3/4 to 1-1/2 inch range, and lengths of more than 5 inches. For example: "U.S. Extra No. 1, 7/8 inch minimum diameter, 1-1/4 inches maximum diameter" or "U.S. Extra No. 1, 7/8 inch minimum diameter, 6-1/2 inches minimum length." Diameters outside of the 3/4 inch to 1-1/2 inch range, and lengths less than 5 inches may not be specified.

U.S. No. 1 Size Requirements:

The sizes for this grade are the same as the U.S. Extra No. 1 except that any other size may be specified. It is permissible to specify sizes both within and outside of the 3/4 inch to 1-1/2 inch range, and lengths either longer or shorter than 5 inches.

U.S. No. 1 Jumbo Size Requirements:

The minimum and maximum diameter requirements for this grade are 1 and 2-1/2 inches, respectively; the minimum length is 5 inches. It is permissible to specify diameters within the 1 to 2-1/2 inch range, such as "U.S. No. 1 Jumbo, 1-1/4 inches minimum diameter, 2 inches maximum diameter;" and lengths of more than 5 inches such as "U.S. No. 1 Jumbo, 7 inches minimum length." Diameters outside of the 1 to 2-1/2 inch range, and lengths less than 5 inches may not be specified.

U.S. No. 2 Size Requirements:

In this grade the minimum and maximum diameter requirements are 1 and 3 inches, respectively; the minimum length is 3 inches. Any of these sizes may be otherwise specified.

Tolerances For Off-Size

The tolerance of carrots larger than specified maximum diameter is 5 percent. The tolerance for carrots shorter than the specified minimum length or smaller than the specified minimum diameter is 10 percent (the full tolerance may be applied to undersize length or undersize diameter, provided the combined total does not exceed 10 percent).

Certifying Size Only

Since size is a grade requirement of the topped carrot standards, it is permissible to certify "Size Only" on the certificate when specifically requested to do so.

Standard Sizing

Standard sizing may be specified in connection with the grade when the product is in packages weighing approximately 2 pounds or less. The carrots in individual packages may not vary more than 3/8 inch in diameter or 2-1/2 inches in length. Not more than 10 percent of the packages may fail to meet the requirements for standard sizing.

DEFECTS (QUALITY AND CONDITION)

Statements pertaining to freshness, maturity, shape, color, the amount and type of defects, and the amount of decay are shown under the appropriate headings.

Factors noted with **(Q)** are considered as **QUALITY** only (**Quality**, sometimes referred to as "**permanent**" defects), means defects which do not change during storage or shipment (shape, scars, etc.).

Factors noted with **(C)** shall be reported as **CONDITION** on market certificates. (**Condition defects** are defects which are subject to change during shipment or storage, including but not limited to bruising, discoloration, shriveling and decay.)

Those factors noted with **(Q or C)** may be considered as **QUALITY** or **CONDITION**, depending on the circumstances.

Bacterial Blight (Q)

Bacterial Blight affects roots, leaves, flower stalks and flower heads of carrots in the field. On the leaves, it will appear as irregular necrotic spots and on the stems and petioles as brownish streaks. On the roots it appears as constrictions where the infection has been earlier. Again, it may appear as narrow bands of brown or black, later to become raised or scabby and then coalesce. These types are scored on the basis of appearance and waste, but chiefly on appearance, under the definition of damage. Describe as "blight scars."

Cleanness, Staining or Smearing (Q)

The following terms are to be used to describe cleanness:

Clean means that the individual carrot is practically free from dirt and other foreign matter. Carrots that can be classed as clean practically always have been washed. However, the fact that a carrot has been washed does not necessarily mean that it is clean. Only a slight amount of dirt is permitted on the individual carrot. "Clean" is a requirement of the U.S. Extra No. 1 Grade.

Fairly Clean means that the individual carrot is reasonably free from dirt and other foreign matter. The maximum aggregate area of caked dirt allowed for "fairly clean" is 11/16 of an inch (the size of a dime) on a carrot 1 inch in diameter and 6 inches in length. Allow lesser or greater amounts on smaller or larger carrots. "**Fairly clean**" is the minimum requirement of the U.S. No. 1 Grades.

Dirty is not defined in the carrot standards but may be used to describe carrots that are not "fairly clean" but are not so dirty that they are "seriously damaged" by dirt. Carrots described as "dirty" or "damaged by dirt" are passable as U.S. No. 2.

Serious Damage by Dirt applies to carrots whose appearance is seriously affected by dirt. Individual carrots with more than 1/2 of their surface caked with mud or dirt (lesser amounts when the dirt is thick or dark) are seriously damaged by dirt, and fail to meet the requirements of any U.S. Grade.

Staining Or Smearing:

Staining or smearing normally is scored on the basis of appearance of the individual carrot. Allow a slightly greater area than that permitted for caked dirt. However, there may be lots containing an appreciable percentage of smeared or stained carrots and, although not scorable individually, their presence would affect the general appearance of the sample. Use general terms to describe such lots. For example: "Most samples dirty, many fairly clean" (not U.S. No. 1), or "Most samples seriously damaged by dirt (or staining), many samples dirty, few samples fairly clean" (not U.S. No. 2).

Color (Q)

Use the following terms to describe color:

Well Colored is not defined in the standards but may be used to describe carrots which are well above the minimum requirements for "fairly well colored." Use this term (when applicable) to provide a better description of the lot.

Fairly Well Colored means that the carrot has an orange, orange red, or orange scarlet color, but not a pale orange or distinct yellow color. **All grades except U.S. No. 2** require carrots to be at least fairly well colored. Although the U.S. No. 2 grade has no color requirements, it may be reported if specifically requested.

Poorly Colored carrots are defects of the U.S. Extra No. 1 and the U.S. No. 1 grades.

In case carrots show a mottled color, as they sometimes do following heavy rains, the average color should be considered. Frequently the lower portion of the root will be poorly colored, while the upper part will be fairly well colored. In cases of this nature, when the lower portion is decidedly light in color, the carrot must be considered poorly colored.

Cracks (Q or C)

Growth Cracks (Q)

Deep or rough growth cracks are considered as damaged but growth cracks, which are smooth and shallow, shall not be considered as damage if they do not materially affect the appearance of the carrot. Specimens that have several growth cracks or very deep and long cracks sufficient to seriously affect the appearance would be scored against the U.S. No. 2.

Fresh Cracks (C)

"Fresh cracks" are unhealed, narrow, and usually deep; they may occur or progress in transit, as the result of jarring while the root is cold and brittle.

Score as damage when:

1. The air crack exceeds $1/5$ (20%) the length of the carrot; or,
2. The crack is more than $1/8$ inch wide; or,
3. The crack is more than $1/4$ inch deep.

Score as serious damage when:

1. The air crack exceeds $1/2$ (50%) the length of the carrot; or,
2. The crack is more than $1/4$ inch wide; or,
3. The crack is more than $3/8$ inch deep.

Carrots that show a combination of fresh cracks and other defects, neither or which is sufficiently severe to score without the combination, should be scored against the condition and reported under the "Condition" heading as fresh cracks.

Discolored Or Water Soaked Roots (C)

Black discoloration affecting thread-like terminal roots of carrots should never be scored as damage. However, discoloration occurring on other portions of the carrot should be scored on the basis of appearance. Score more severely if areas are slick or sticky. Do not report discolored, water soaked, slick or sticky areas as soft rot.

Firmness Of Roots (C)

The carrot grades all specify the roots shall be "firm" which is defined as meaning "that the carrots are not soft, flabby or shriveled." Firmness should be described by the following terms:

Firm means that the carrots are not soft, flabby or shriveled.

Fairly Firm means that the carrots are slightly wilted, soft or flabby. (Fails to meet requirements of all grades.)

Flabby and Wilted means that the carrots are badly wilted, flabby, soft, limp or rubbery.

The range and average percentage of flabby and wilted roots and fairly firm roots should be reported. The location in the container and in the car should be shown, as this has an important bearing on indicating whether wilting occurred prior to packing or during the transit period due to lack of adequate refrigeration.

Form (Shape) (Q)

Use the following terms to describe shape: well formed; fairly well formed, misshapen and seriously misshapen.

Well Formed means that the carrot is not forked, or misshapen to the extent that its appearance is more than slightly affected. Well formed is a requirement of the U.S. Extra No. 1 Grade.

Fairly Well Formed means that the carrot is not forked, or misshapen to the extent that its appearance is materially affected. **Fairly well formed is the minimum shape requirement for the U.S. No. 1 Grades.**

Misshapen means that the carrot is forked, or twisted, curved or, otherwise ill-formed to the extent that the appearance is materially affected. Such carrots are passable only as U.S. No. 2.

Seriously Misshapen means that the carrot is misshapen to the extent that the appearance is seriously affected. Such carrots are scored against all grades.

Refer to the official photographs for guidance in determining shape (Topped Carrot, C-1, Shape and Smoothness). Waste is not a factor in scoring shape. Describe the shape of the lot as completely as possible. For example, when certifying

on the basis of U.S. No. 1 which requires "fairly well formed," it would not be correct to show the lot as only "fairly well formed" when there is an appreciable percentage of "well formed" carrots in the lot. "Mostly well, some fairly well formed" (or any applicable general quantity term) gives a much better description of the lot.

Insect Injury (Q)

Wireworm and nematode are the most common insects affecting carrots. Nematodes may cause the root to be rough, or cause enlarged tips of carrots or the secondary rootlets to have enlarged nodules resulting in a rough appearance sufficient to score against grade. Since such roughness may be due to other causes, such carrots should be scored as rough. See paragraphs concerning "Smoothness."

The extent of the injury caused by wireworm is difficult to determine. Although the standards permit 5% waste before scoring as damage, this defect normally will be scored on an appearance basis, because the appearance ordinarily will be materially affected without causing 5% waste. The same applies for serious damage.

Mechanical Damage (Q)

Mechanical damage includes stock, which is bruised, cut or broken, caused by rough handling. If only a small portion of the tip is cut off, broken or bruised or a small portion of the crown cut off on topped carrots and not sufficient to materially affect the appearance of the carrot, it should not be scored as damaged. However, if any material portion is bruised, broken or cut off sufficiently to damage the appearance, it must be scored. While the term "mechanical damage" is not fully descriptive, it can be used in cases where there are small percentages of cuts, bruises and broken carrots which can be grouped under this term without giving the longer description that would be necessary if each type of defect were enumerated. Refer to the guide illustrating broken tips.

Oil Spray (Q)

Oil spray damage may occur when fields are sprayed with an oil spray for weed control. If the application of oil spray is made while the carrots are very young, no damage will result. To determine oil damage, observe the carrot(s) for signs of oil residue. If the oil residue is readily noticeable, the carrot(s) should be scored against all grades. Make no attempt to certify such a lot until advice has been received from your supervisor.

Pithiness (Q)

Pithiness is probably the result of unfavorable growing conditions or frost injury resulting in the texture of the roots being fibrous and spongy. In order to determine pithiness the roots that show indications of sponginess should be cut or broken so a

cross section may be viewed, as well as observing the crispness of the carrot while cutting or breaking. Roots that are definitely spongy and porous should be scored as damage.

Secondary New Top Growth (C)

The U.S. Extra No. 1 Grade requires that the carrots be free from secondary new top growth. Therefore any evidence of new top growth is scorable against the U.S. Extra No. 1 Grade, regardless of the length of the growth. Secondary new top growth is defined as new leaves or clusters of leaves, which have developed outside the original cluster of leaf stems. This condition may be encountered near the end of the storage season. In the U.S. No. 1 Grades new top growth is scored on an appearance basis. When in excess of 1 inch in length the appearance of the individual carrot is materially affected and must be scored as damage.

Seed Stems (Q)

Seed stems in carrots may be the result of volunteer growth from the previous crop or develop late in the season when tops are inclined to make rank growth. Seed stem growth materially affects the flavor and eating quality of the carrots and when readily noticeable, the root should be scored as damage. Any carrot showing that the seed stem has been removed should be scored, for the seed stem has affected its "edible quality." Seed stems may also cause serious damage to the carrots.

Smoothness (Q)

All grades except U.S. No. 2 require the carrots to be fairly smooth. In determining smoothness, the roughness of the surface as well as the presence of any secondary rootlets should be considered. The official photographs (Topped Carrot folder C-1) illustrate degrees of smoothness without the presence of secondary rootlets. Therefore, if secondary rootlets are present, a stricter interpretation of surface roughness than that shown in the photographs is necessary. Use the following terms to describe smoothness:

Smooth means that the carrot has a fairly even surface, not ridged, grooved, lumpy, and is practically free from secondary rootlets.

Fairly Smooth means that the carrot is not rough, ridged, or covered with secondary rootlets to the extent that the appearance is materially affected. **"Fairly Smooth" is the minimum requirement of U.S. Extra No. 1, U.S. No. 1, and U.S. No. 1 Jumbo Grades.**

Rough means that the carrot is ridged, grooved, lumpy or covered with secondary rootlets to an extent that the appearance is materially affected. Such carrots are U.S. No. 2.

Excessively Rough means that the carrot is rough or ridged to the extent that the appearance is seriously affected. "Excessively rough" carrots are scored against all grades.

Sunburn (Q)

Sunburn, which causes a loss of more than 5%, shall be considered as damaged, except that superficial light green color at the stem end, which does not materially affect the appearance of the root, shall be permitted. The superficial green or purple color at the crown, which does not penetrate into the carrot sufficiently to cause internal greening, should not be counted in determining waste or damage.

In determining waste, the top of the carrot should be cut off as in the ordinary preparation for use, after which any additional cutting necessary to remove the green discolored area should be considered in determining the percentage of waste. Only that portion of the carrot in which the green predominates over the orange or yellow color should be considered as discoloration in determining waste. Inspectors should cut suspicious appearing carrots to determine if greening extending into the core causes more waste than permitted by the grade.

Ordinarily a cut a half inch below the top of the crown will constitute from 3 to 5% waste, depending on the length and diameter of the carrot. On a long type carrot the 1/2 inch will be about 3%, and on the shorter type, the 1/2 inch will be about 5%. If the discoloration is confined to one side, the equivalent of 1/2 inch on both sides should be permitted.

Trimming (Q)

All grades require the carrots to be well trimmed. "Well trimmed" means that the tops are cut back to not more than 1 inch in length, except that new leaves developing within the original central cluster of leaf stems, or occasional uncut leaves or leaf stems, exceeding this length which do not materially affect the appearance of the individual carrot shall be permitted. Carrots may have tips of roots cut or broken off; provided, that these cuts or breaks are small and fairly smooth and do not materially affect the appearance of the individual carrot. Refer to the guide illustrating broken tips.

Trimming is concerned with the deliberate cutting of the carrot, so that the tops are not more than 1 inch in length. Also, tips of the carrots may be cut or broken in order to cut carrots to a certain length or cut away a defect. Oftentimes carrots may be broken or cut due to rough handling (see mechanical damage). Since it is often difficult to determine whether a carrot was cut due to trimming or mechanical damage, unless the inspector is certain that the defect was caused due to trimming score as mechanical damage.

Woodiness (Q)

Carrots that have been growing for a long time often develop woody cores. Carrots that are planted in the fall and harvested in the spring are more apt to show this condition. Woody cores are very tough and fibrous. A test for determining woody cores is to cut the carrot at right angles to the longitudinal axis with a sharp knife. If the core is woody to the extent that the knife will require appreciably more force to cut it than is required to cut the surrounding layer of flesh it is usually woody enough to score. If any tissues are woody enough to score as damage they usually will be sufficiently woody to score as serious damage.

Decay (C)

Decay Affecting Roots

Decay affecting roots is to be separated into two classes: dry rot and soft rot.

Dry Rot:

Dry rots such as Fusarium Rot or Black Rot must not be reported with soft rot. They should be scored on the basis of appearance and waste under the general definitions of damage or serious damage and scored against the tolerances for general defects.

Soft Rot:

Soft rot must be reported separately from other defects as the grades provide that carrots must be free from soft rot. If no soft rot is found the certificate should state "No soft rot." The tolerance for soft rot affecting roots is 1% for U.S. Extra No. 1, and 2% for all other grades.

Decay Affecting Leaf Stems

Although the U.S. Standards do not specifically provide for this, it has been administratively ruled that decay affecting leaf stems shall be scored against the 5% restricted tolerance for serious damage in the U.S. Extra No. 1 and U.S. No. 1 grades. In no case can the combined total of decay affecting leaf stems and soft rot affecting roots exceed 5%. For example, if the lot showed 4% decay affecting leaf stems and 2% soft rot affecting roots, the lot could not grade U.S. No. 1.

Instructions for Scoring Cut or Broken Tips of Carrots

Cut or broken tips of carrots shall be scored on an appearance basis. Broken or cut tips shall be scored according to the type of carrot and the relationship of the diameter of the break or cut to the length of the remaining root.

Long and Half Long (Slender) Type Carrots: As a guide allow a fairly smooth cut or break $\frac{1}{2}$ inch in diameter for each 5 inches of root remaining.

Short (Stocky) Type Carrots: As a guide allow a fairly smooth cut or break $\frac{5}{8}$ inch in diameter for each 5 inches of root remaining.

Carrots having rough or jagged cuts or broken tips are permitted provided they do not detract from the appearance of the carrot to a greater extent than the allowance for fairly smooth broken or cut tips.

Figure A
CARROTS: LONG OR HALF LONG:

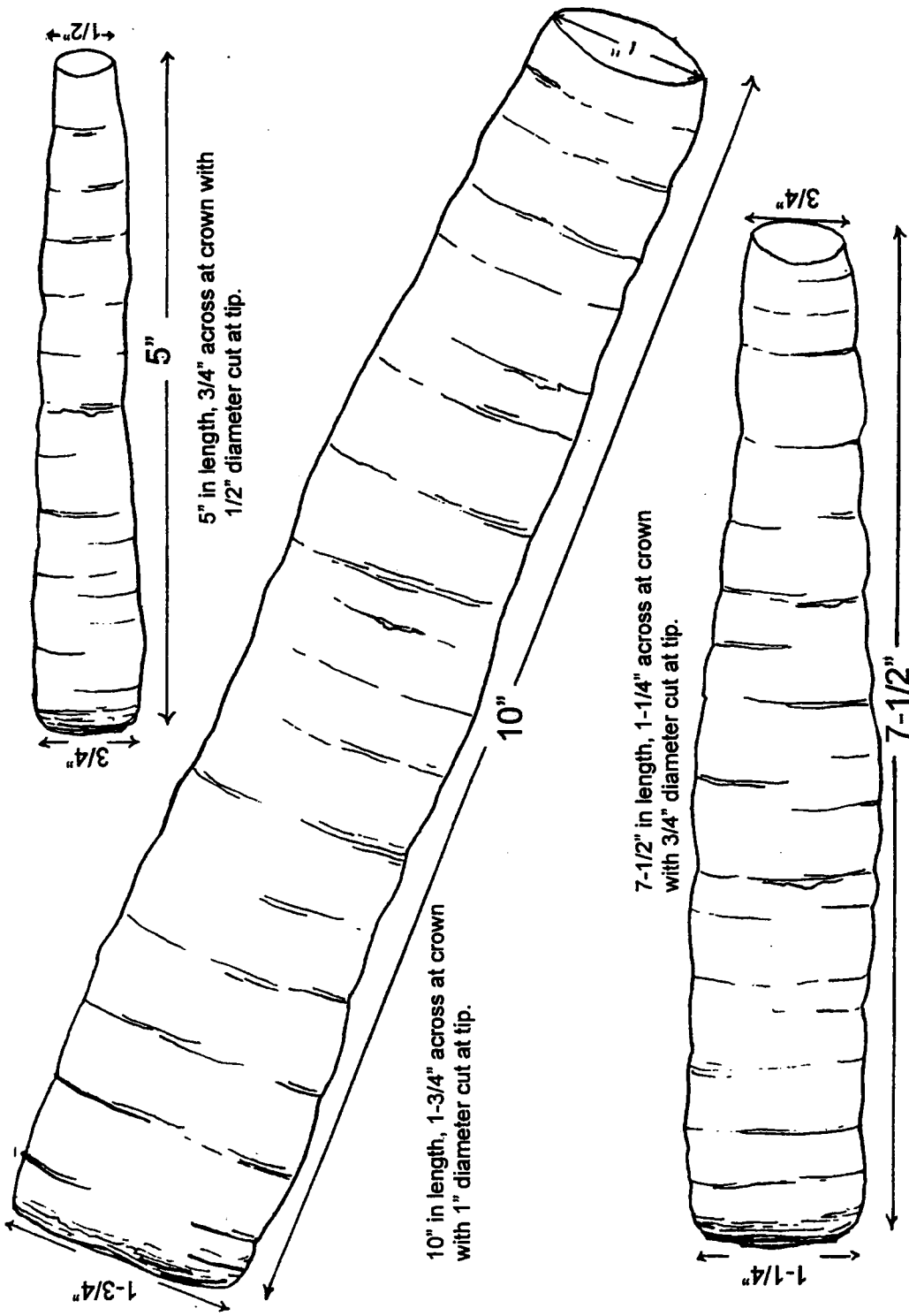


Figure B
CARROTS

- Stocky (blunt) types:
- (1) 7-1/2" in length, 2" across at crown with a 7/8" cut at tip.
 - (2) 5" in length, 1" across at crown with a 5/8" cut at tip.

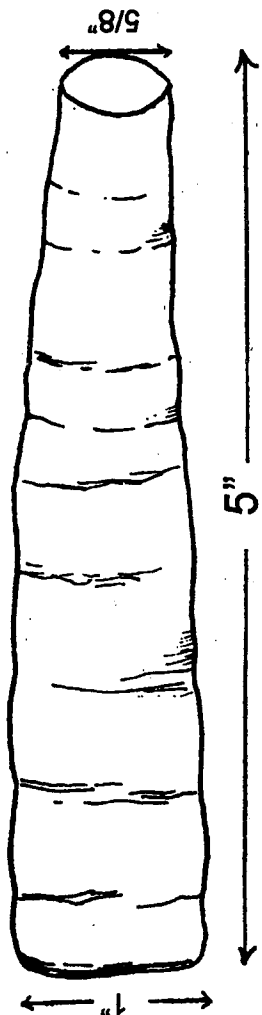
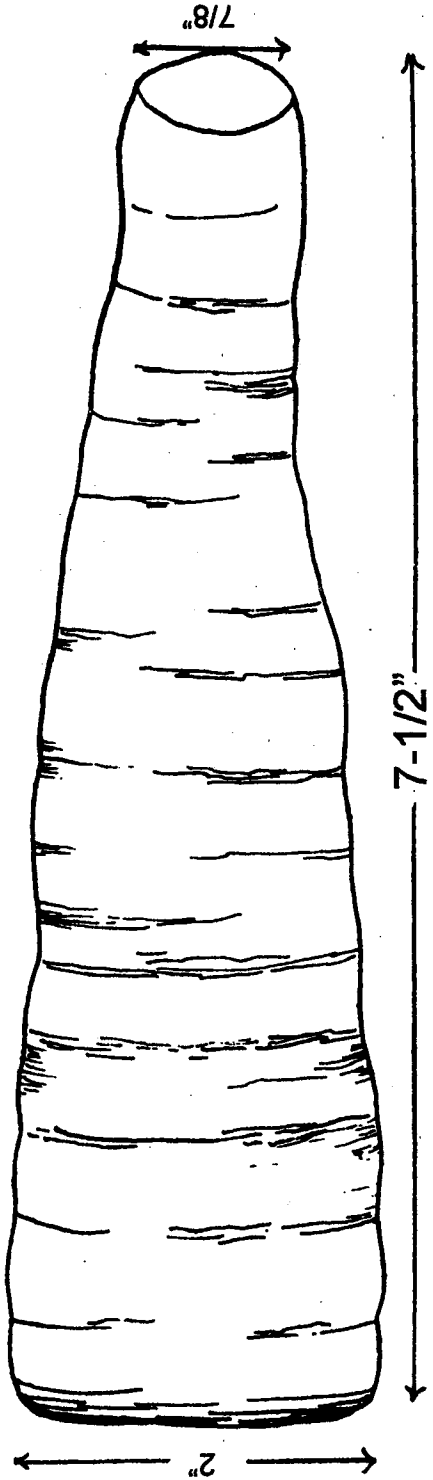
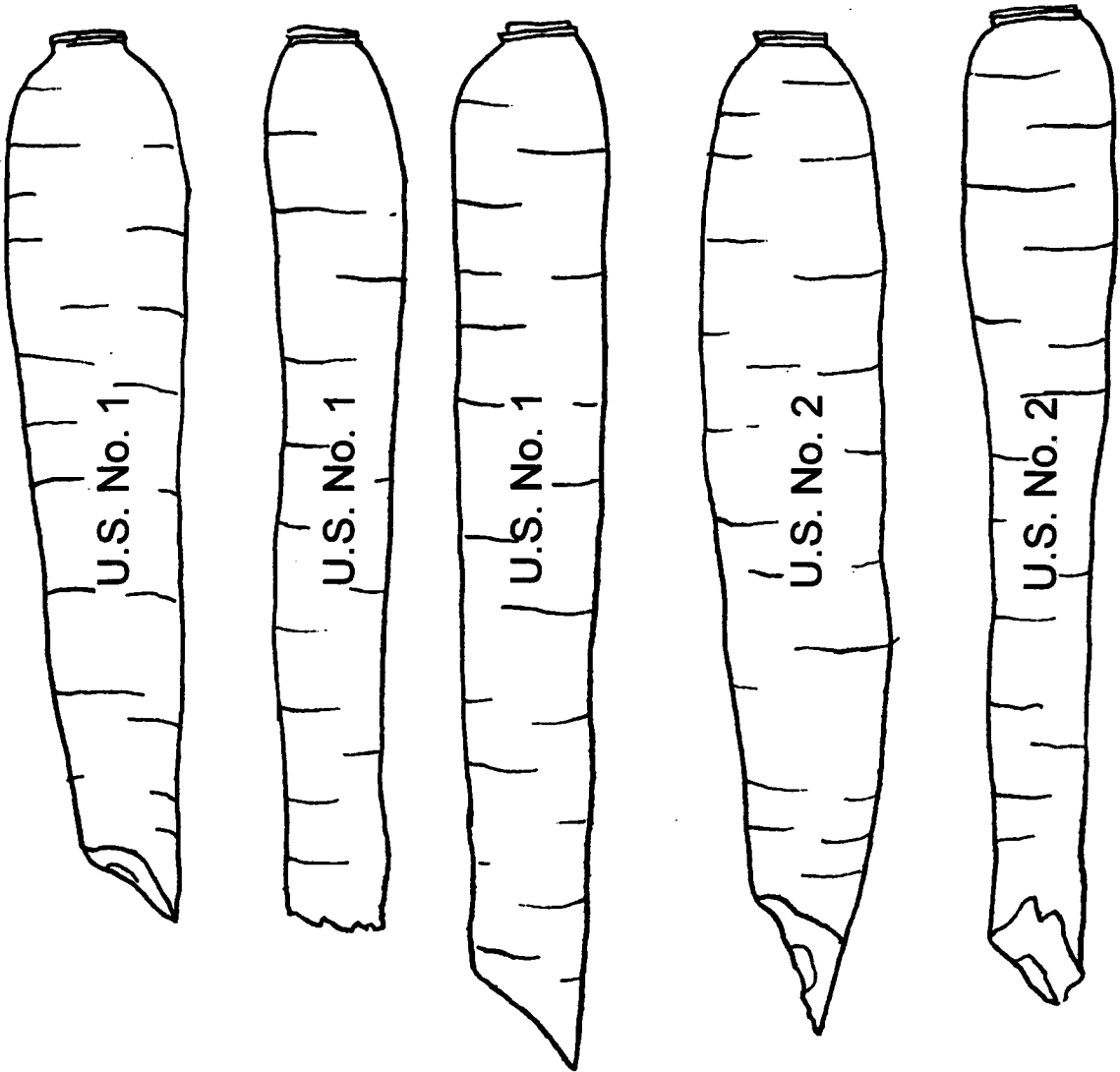
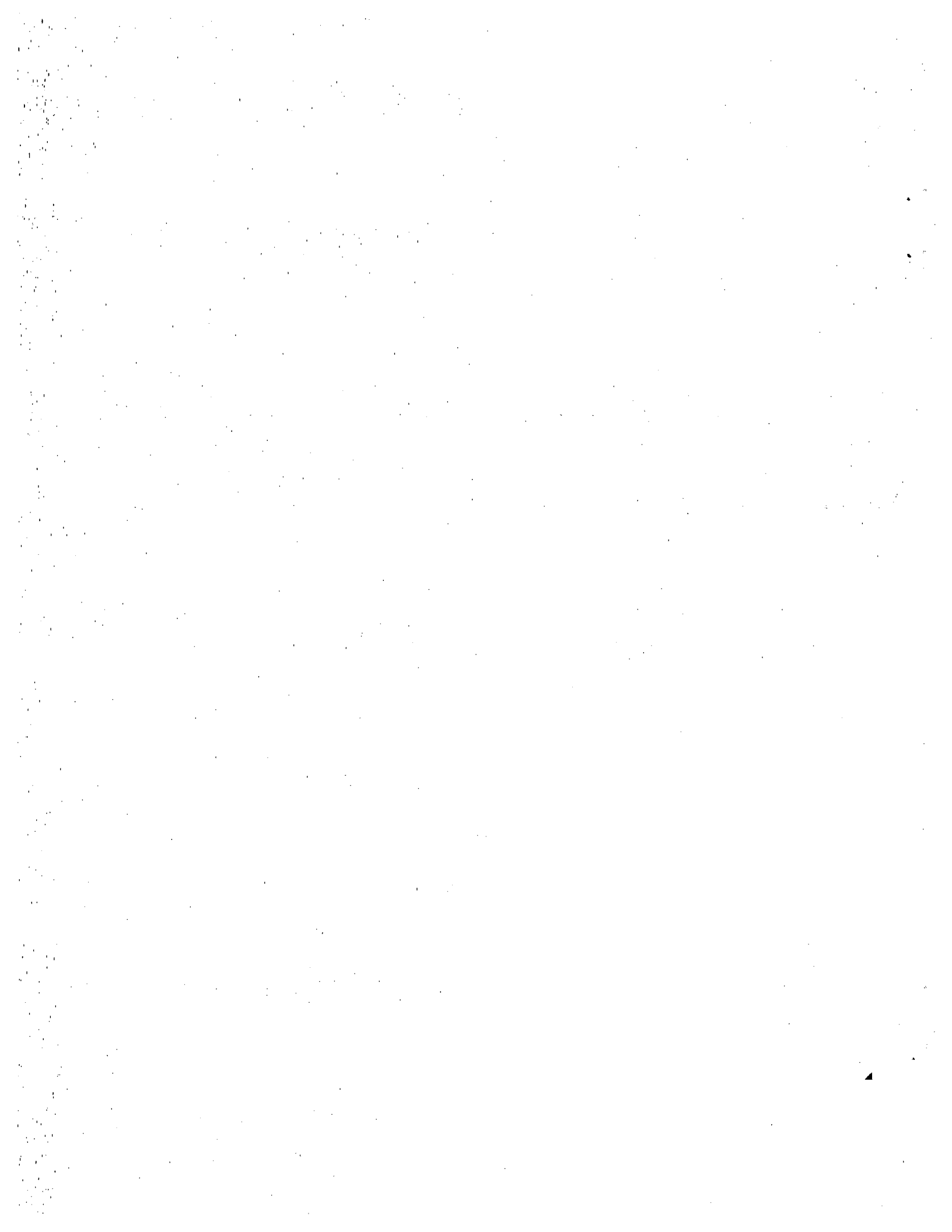


Figure C
CARROTS

Rough or Jagged Broken Tips





Appendix I -- U. S. Grade Standards

United States Standards For Grades Of Topped Carrots¹

Effective December 20, 1965

Grades

51.2360 U.S. Extra No. 1.

51.2361 U.S. No. 1.

51.2362 U.S. No. 1 Jumbo.

51.2363 U.S. No. 2.

Unclassified

51.2364 Unclassified.

Tolerances

51.2365 Tolerances.

Application of Tolerances

51.2366 Application of tolerances.

Sample for Grade Determination

51.2367 Sample for grade determination.

Standard Sizing

51.2368 Standard sizing.

Definitions

51.2369 Similar varietal characteristics.

51.2370 Well trimmed.

51.2371 Firm.

51.2372 Clean.

51.2373 Fairly well colored.

51.2374 Fairly smooth.

51.2375 Well formed.

51.2376 Secondary new top growth.

51.2377 Damage.

51.2378 Diameter.

51.2379 Length.

51.2380 Fairly clean.

51.2381 Fairly well formed.

51.2382 Excessively rough.

51.2383 Seriously misshapen.

51.2384 Serious damage.

Grades

§51.2360 U.S. Extra No. 1.

"U.S. Extra No. 1" consists of carrots of similar varietal characteristics which are well trimmed, firm, clean, fairly well colored, fairly smooth, well formed; which are free from secondary new top growth and soft rot, and free from damage caused by freezing, growth cracks, sunburn, pithiness, woodiness, internal discoloration, oil spray, dry rot, other disease, insects or other means. (See §51.2365.)

(a) **Size.** The diameter of each carrot is not less than 3/4 inch or more than 1-1/2 inches, and the length is not less than 5 inches. (See §51.2365.)

¹Compliance with the provision of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug and Cosmetic Act, or with applicable State laws and regulations.

§51.2361 U.S. No. 1.

"U.S. No. 1" consists of carrots of similar varietal characteristics which are well trimmed, firm, fairly clean, fairly well colored, fairly smooth, fairly well formed; which are free from soft rot, and free from damage caused by freezing, growth cracks, sunburn, pithiness, woodiness, internal discoloration, oil spray, dry rot, other disease, insects or other means. (See §51.2365.)

(a) **Size.** Unless otherwise specified, the diameter of each carrot is not less than 3/4 inch or more than 1-1/2 inches, and the length is not less than 5 inches. (See §51.2365.)

§51.2362 U.S. No. 1 Jumbo.

"U.S. No. 1 Jumbo" consists of carrots which meet all requirements of the U.S. No. 1 grade except for size. (See §51.2365.)

(a) **Size.** The diameter of each carrot is not less than 1 inch or more than 2-1/2 inches, and the length is not less than 5 inches. (See §51.2365.)

§51.2363 U.S. No. 2.

"U.S. No. 2" consists of carrots of similar varietal characteristics which are well trimmed, firm, not excessively rough, not seriously misshapen; which are free from soft rot, and free from serious damage caused by dirt, freezing, growth cracks, sunburn, pithiness, woodiness, internal discoloration, oil spray, dry rot, other disease, insects or other means. (See §51.2365.)

(a) **Size.** Unless otherwise specified, the diameter of each carrot is not less than 1 inch or more than 3 inches, and the length is not less than 3 inches. (See §51.2365.)

Unclassified

§51.2364 Unclassified.

"Unclassified" consists of carrots which have not been classified in accordance with any of the foregoing grades. The term "unclassified" is not a grade within the meaning of these standards, but is provided as a designation to show that no grade has been applied to the lot.

Tolerances

§51.2365 Tolerances.

In order to allow for variations incident to proper grading and handling in each of the foregoing grades, the following tolerances, by count, are provided as specified:

(a) **Defects -- (1) U.S. Extra No. 1 grade.** Ten percent for carrots in any lot which fail to meet the requirements of this grade: **Provided**, That not more than one-half of this amount, or 5 percent, shall be allowed for defects causing serious damage, including therein not more than 1 percent for carrots affected by soft rot.

(2) **U.S. No. 1 and U.S. No. 1 Jumbo grades.** Ten percent for carrots in any lot which fail to meet the requirements of the grade: **Provided**, That not more than one-half of this amount, or 5 percent, shall be allowed for defects causing serious damage, including therein not more than 2 percent for carrots affected by soft rot.

(3) **U.S. No. 2 grade.** Ten percent for carrots which fail to meet the requirements of this grade, including therein not more than 2 percent for carrots affected by soft rot.

(b) **Off-size.** (1) Five percent for carrots in any lot which are larger than the specified maximum diameter; and

(2) Ten percent for carrots in any lot, which are smaller than the specified minimum diameter or shorter than the specified minimum length.

Application of Tolerances

§51.2366 Application of tolerances.

Individual samples shall not have more than double the tolerance specified: **Provided**, That not more than one carrot which is frozen or affected by soft rot may be permitted in any package weighing approximately 3 pounds or less: **And provided further**, That the averages for the entire lot are within the tolerances specified for the grade.

Sample for Grade Determination

§51.2367 Sample for grade determination.

Each sample shall consist of 50 carrots. When individual packages contain at least 50 carrots, the sample is drawn from one package; when individual packages contain less than 50 carrots, a sufficient number of adjoining packages are opened to form a 50 carrot sample.

Standard Sizing

§51.2368 Standard sizing.

(a) Packages of carrots containing 2 pounds or less may be certified as "standard sizing," provided the variation in diameter of the carrots in any individual package is not more than three-eighths inch and the variation in length is not more than 2-1/2 inches.

(b) Not more than 10 percent of the packages in any lot may fail to meet the requirements for "standard sizing."

Definitions

§51.2369 Similar varietal characteristics.

"Similar varietal characteristics" means that the carrots in any lot are of the same general type. For example, carrots with a short, but blunt growth like the Oxheart variety, shall not be mixed with long or half-long carrots like the Emperor or Danvers varieties.

§51.2370 Well trimmed.

"Well trimmed" means that the tops are cut back to not more than 1 inch in length, except that new leaves developing within the original central cluster of leafstems, or occasional uncut leaves or leafstems, exceeding this length which do not materially affect the appearance of the individual carrot shall be permitted. Carrots may have tips of roots cut or broken off: **Provided**, That these cuts or breaks are small and fairly smooth and do not materially affect the appearance of the individual carrot.

§51.2371 Firm.

"Firm" means that the carrot is not soft, flabby, or shriveled.

§51.2372 Clean.

"Clean" means that the individual carrot is practically free from dirt and other foreign matter.

§51.2373 Fairly well colored.

"Fairly well colored" means that the carrot has an orange, orange red, or orange scarlet color, but not a pale orange or distinct yellow color.

§51.2374 Fairly smooth.

"Fairly smooth" means that the individual carrot is not rough, ridged, or covered with secondary rootlets to the extent that the appearance is materially affected.

§51.2375 Well formed.

"Well formed" means that the individual carrot is not forked, or misshapen to the extent that the appearance is more than slightly affected.

§51.2376 Secondary new top growth.

"Secondary new top growth" means new leaves or clusters of leaves which have developed outside the original central cluster of leafstems.

§51.2377 Damage.

"Damage" means any specific defect described in this section; or an equally objectionable variation of any one of these defects, any other defect, or any combination of defects, which materially detracts from the appearance, or the edible or shipping quality of the individual carrot or the appearance of the sample as a whole, or which cannot be removed without a loss of more than 5 percent, by weight, in the ordinary preparation for use. The following specific defects shall be considered as damage:

(a) Growth cracks which are not shallow or not smooth, or which materially detract from the appearance of the individual carrot;

(b) Sunburn which causes a loss of more than 5 percent, by weight, in the ordinary preparation for use, except that superficial light green color at the stem end which does not materially detract from the appearance of the carrot shall be permitted.

§51.2378 Diameter.

"Diameter" means the greatest dimension of the carrot measured at right angles to the longitudinal axis.

§51.2379 Length.

"Length" means the greatest dimension of the carrot measured from the crown to the lowest point which is not less than one-fourth inch in diameter.

§51.2380 Fairly clean.

"Fairly clean" means that the individual carrot is reasonably free from dirt and other foreign matter.

§51.2381 Fairly well formed.

"Fairly well formed" means that the individual carrot is not forked, or misshapen to the extent that the appearance is materially affected.

§51.2382 Excessively rough.

"Excessively rough" means that the individual carrot is rough or ridged to the extent that the appearance is seriously affected.

§51.2383 Seriously misshapen.

"Seriously misshapen" means that the individual carrot is forked or misshapen to the extent that the appearance is seriously affected.

§51.2384 Serious damage.

"Serious damage" means any defect, or any combination of defects, which seriously detracts from the appearance, or the edible or shipping quality of the individual carrot or the appearance of the sample as a whole, or which cannot be removed without a loss of more than 20 percent, by weight, in the ordinary preparation for use.

Conversion Table

Inches	Millimeters (mm)	Inches	Millimeters (mm)
1/8	= 3.2	1	= 25.4
1/4	= 6.4	1-1/4	= 31.8
3/8	= 9.5	1-1/2	= 38.1
1/2	= 12.7	1-3/4	= 44.4
5/8	= 15.9	2	= 50.8
3/4	= 19.0	3	= 76.2
7/8	= 22.2	4	= 101.6