

United States Department of Agriculture

Agricultural Marketing Service

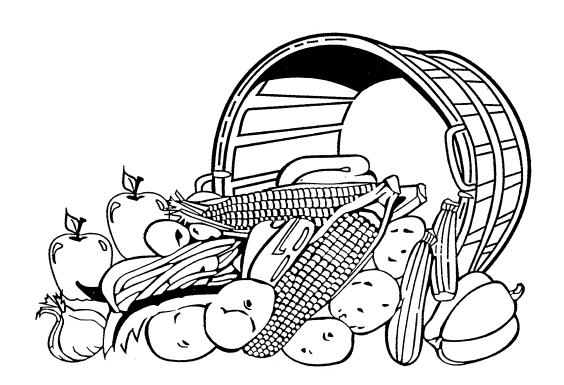
Fruit and Vegetable Programs

Fresh Products Branch

May 2002

Cabbage

Shipping Point and Market Inspection Instructions



Shipping Point and Market Inspection Instructions for Cabbage

These inspection instructions are specifically developed and designed by the Fresh Products Branch to assist officially licensed inspectors in the interpretation and application of the U.S. Standards for Grades of Cabbage, Sections 51.450.

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 General Inspection Instructions for additional information pertaining to date, inspection point, carrier, condition of carrier, lading, etc. not covered in these instructions. (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 a section number such as 51.--- and followed with **bold** print is material copied directly from the U.S. standards. The U.S. Standards for Grades of Cabbage are printed in the appendix of this instruction. All of the U.S. standards are available on the Internet under the USDA homepage.

May 2002

This replaces Market Inspection Instructions dated June 1970 and Shipping Point Inspection Instructions dated November 1973.

This publication may be duplicated without authorization from USDA.

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.

Table of Contents

REPRESENTATIVE SAMPLING	1
SIZE OF SAMPLE	1
BULK SHIPMENTS.	
Number of Samples	
TOLERANCES AND APPLICATION OF TOLERANCES	
Size	
APPLICATION OF TOLERANCES	
NOTESHEET AND CERTIFICATE	3
Product	4
Number/Type of Containers	
Brands/Markings	5
Origin	
CONDITION OF PACK	5
CONDITION OF 1 ACIC	
TEMPERATURE OF PRODUCT	6
SIZE	6
Marking as to Count	
DEFECTS (QUALITY AND CONDITION)	
ALTERNARIA LEAF SPOT/BLACK LEAF SPECK (C)	7
BLACK ROT (C)	
Bruising (C)	8
BURST HEADS (Q OR C)	
CLEANNESS (Q)	
Color (Q)	
FIRMNESS (Q)	
FRESHNESS (C)HOLLOW STEMS (Q)	
INSECT AND WORM DAMAGE (Q OR C)	10 10
APHIDS	
THRIPS INJURY OR EDEMA	
WORM INJURY	
LIVE WORMS (LARVAE)	
MECHANICAL DAMAGE (Q)	
SEEDSTEMS (SEED STALKS) (Q)	

Revised, August 2006, HU-151-2(b) Page iii, Cabbage, Shipping Point and Market Inspection Instructions, May 2002

SIMILAR VARIETAL CHARACTERISTICS (Q)	
Sunscald (Q)	
TIPBURN (C)	
TRIMMING (Q)	
YELLOWING AND DISCOLORATION (C)	
FREEZING AND FREEZING INJURY (C)	
Soft Rot (C)	
APPENDIX I U.S. GRADE STANDARDS	2
United States Standards for Grades of Cabbage	2
APPENDIX II	20
Example 1 Inspection Notesheet	20
EXAMPLE 1 INSPECTION SCORESHEET	
EXAMPLE 1 INSPECTION CERTIFICATE	

Cabbage



Domestic Type



Danish Type



Savoy Type



Pointed Type

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.

Size of Sample

The tolerances in the U.S. Standards for Grades of Cabbage are determined on the basis of weight. The entire contents from each container must be examined. If individual containers do not indicate a specified weight, each container must be weighed. For shipments of cabbage in bulk bins, or in bulk trailers, the sample shall be a minimum of 50 pounds.

Bulk Shipments

Approx. Weight of Bulk	Minimum No. of
Load/Lot	Samples
Up to 4,000 lbs. 4,001 to 10,000 lbs. 10,001 to 18,000 lbs. 18,001 to 26,000 lbs. 26,001 to 34,000 lbs. Over 34,000 lbs.	3 4 5 6 7 8

For these purposes, 1 bulk bin equals approximately 1,000 pounds.

Number of Samples

Due to potential variations in size, quality and condition, no definite rule can be provided as to a required number of samples. It is the inspector's responsibility to examine enough samples to ensure an accurate description of the entire lot.

TOLERANCES AND APPLICATION OF TOLERANCES

§51.450 *U.S. No. 1.* (b) In order to allow for variations, other than excess number of wrapper leaves, incident to proper grading and handling, not more than a total of 10 percent, by weight, of the heads in any lot may fail to meet the requirements of this grade, but not more than one-fifth of this amount, or 2 percent, shall be allowed for soft decay. In addition, not more than 10 percent, by weight, may not meet the requirements as to number of wrapper leaves. (See §51.454.)

§51.451 *U.S. Commercial.* (b) In order to allow for variations, other than excess number of wrapper leaves, incident to proper grading and handling, not more than a total of 25 percent, by weight, of the heads in any lot may fail to meet the requirements of this grade, but not more than two-fifths of this amount, or a total of 10 percent, shall be allowed for defects causing serious damage, but not more than 2 percent shall be allowed for soft decay. In addition, not more than 10 percent, by weight, may not meet the requirements as to number of wrapper leaves. (See §51.454.)

U.S. No. 1

Excessive wrapper leaves	10%
Defects, other than excessive wrapper leaves	10%
including soft decay	2%

U.S. Commercial

)

<u>Size</u>

§51.453 Size. (a) In order to allow for variations incident to proper sizing, not more than a total of 15 percent, by weight, of the heads in any lot may vary from the size specifications, but not more than 10 percent may be either above or below the size specified. This tolerance is in addition to the tolerance for grade defects. (See §51.454.)

Total Offsize (*when specified*) 15% *Including* undersize **or** oversize 10%

Size is **not** a requirement of the U.S. grades; this tolerance is provided for instances in which size is specified. (Refer to Size section).

Application of Tolerances

§51.454 Application of tolerances. The contents of individual containers in the lot, based on sample inspection, are subject to the following limitations, provided the averages for the entire lot are within the tolerances specified:

- (a) When a tolerance is 10 percent or more, individual containers in any lot shall have not more than one and one-half times the tolerance specified, except that at least one defective and one off-sized cabbage may be permitted in a container.
- (b) When a tolerance is less than 10 percent individual containers in any lot shall have not more than double the tolerance specified, except that at least one defective and one off-sized cabbage may be permitted in a container.

NOTESHEET AND CERTIFICATE

Entries on the notesheet and certificate are to 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. When the inspection is complete, it is the responsibility of the inspector to ensure all information is properly recorded. Notations shall be recorded so that anyone familiar with inspection procedures can interpret them and write a certificate.

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

"Cabbage" shall be used to describe this commodity in the product heading. Type may be reported in conjunction with "Cabbage" or may be reported in the "Product/Variety" section on the shipping point inspection certificates or in the "Lot ID" section on market notesheet and certificate.

For commercial and inspection purposes cabbage is generally one of the following types: **Danish, Domestic, Pointed, Red**, and **Savoy**. The outstanding characteristics of each type are given below.

Danish Type - This is a late-maturing, solid-headed type used mainly for late fall market and storage. It has smooth tight leaves with a smooth circular outline on horizontal cross section. The heads can range from oval or balloon shaped to round or slightly flat. They are hard and compact with the leaves tight and broadly overlapped.

Domestic Type - This is largely produced as an early or midseason crop. Heads are usually identified by wrinkling and folding of leaf margins over the basal half of the head when the outer leaves are removed. Another distinct feature is the angular outline of the head on the horizontal cross section. The heads are usually hard.

Pointed Type - This type has an oblong, conical or pointed shape head. The surface is smooth and the leaves are greenish in color. The heads tend to be somewhat smaller than Danish or Domestic cabbage.

Red Type - This type is readily identified by its red or purple color. The shape of the head can be round, flattened or sometimes pointed. The dark red or purple varieties are normally as hard as Danish type. The light red varieties are firm, or comparable in this respect to Domestic type.

Savoy Type - This type is identified by its unusual crinkling of the leaf tissues throughout the heads and leaves. The heads are yellowish green in color and reasonably hard.

Number/Type of Containers

The number of containers shall always be reported. In the market the inspector shall always verify the container count provided by the applicant to the maximum extent possible and reported as "inspector's count." If the number of containers available for inspection does is 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 determine 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.) At shipping point locations the applicant generally provides a manifest for count and it is acceptable to use this for the number of containers.

Cabbage is usually packed and shipped in wirebound crates, cartons, sacks, bulk bins, or bulk trailers.

Brands/Markings

The brand, variety, size, count, 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 pertinent information 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. 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 cabbage is grown. If packages are not marked, or if the cabbage is in bulk, refer to the General Inspection Instructions.

CONDITION OF PACK

The following terms shall be used to describe the tightness of pack:

Very Tight. This means the heads are packed so tightly that it usually results in injury.

Tight. This is the most desirable pack and means that the container is sufficiently filled and that the heads are placed tight enough so that there is no movement within the container.

Fairly Tight. This pack allows for slight movement within the container, but not enough to cause bruising under normal handling conditions.

Slack. The container is not sufficiently full and free movement of the heads occurs. The amount of slackness shall be reported in inches or fractions of an inch.

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.

A minimum of three temperatures for each lot must be taken and recorded on the notesheet. More temperatures shall be taken if the lot is abnormally cold, heated, or there is a specific request for temperature.

SIZE

Size is **not** a requirement of the U.S. grades. However, size must be determined and reported on notesheets. Report a general range in weight of heads using quarter pound increments. Additionally, if there is a wide range in size, a "mostly" statement should be reported. The standards allow for instances in which size may be specified.

§51.453 Size. The minimum size or minimum and maximum sizes may be specified in connection with the grades as "U.S. No. 1, 1 pound min.," or "U.S. No. 1, 2 to 4 pounds," or any lot may be classified as Small, Medium, Large, Small to Medium, or Medium to Large in accordance with the facts.

Small	Medium	Large
Pointed, under 1-1/2 lbs.	1-1/2 to 3 lbs	Over 3 lbs.
Danish and domestic, under 2 lbs.	2 to 5 lbs	Over 5 lbs.

When size is specified, it must be reported in connection with the grade. Additionally, report the overall size in the "Description of Product" section on shipping point certificates and in the "Other" section on market certificates. For example, a lot of domestic cabbage specified as medium size would be reported as "U.S. No. 1 Medium." An example of the size statement would be "Generally 2 to 5 lbs, mostly 2 to 4 lbs." Keep in mind that since size is not a requirement of the grade a lot can fail the size specification and still meet the requirements of the U.S. grade. The grade

statement would be as follows: "U.S. No. 1. Fails to meet the requirements of small size classification," or in the case when specifying a maximum size it would read "U.S. No. 1. Fails to meet 2 to 4 pound specified size account of excess oversize."

The U.S. standards provide a total tolerance of 15% for offsize with a maximum of 10% for either undersize or oversize when size is specified (see tolerances and application of tolerances section).

Marking as to Count

When containers are marked to count and **do not** conform to count, report in the "Description of Products" section on shipping point certificates and in the "Other" section on market certificates. Report the range and the average of heads per container as well as the percentage of containers not conforming to count. Also, report the general range in weight. For example, "Count ranges from 10 to 14, average 12 heads per carton; 50% of cartons fail to meet count as marked. Generally 1 to 3 pounds, mostly 2 to 3 pounds." This may be a misbranding violation. For further instructions, see <u>PACA Ruling on Grade and Size Markings</u> in the General Inspection Instructions.

However, it must be remembered that **percentages (including size)** must be determined on a **weight basis** and should not, under any circumstances, be by count even though uniformly sized.

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

Alternaria Leaf Spot/Black Leaf Speck (C)

It is extremely difficult to distinguish Black Leaf Spot and the early stages of Alternaria Leaf Spot from one another. Therefore, it is best to describe the injury rather than classify it. The description "numerous black sunken discolored areas" or brown to black or tan to brown, etc. will usually be sufficient.

Revised, March 2006, HU-151-2(c) Page 8, Cabbage, Shipping Point and Market Inspection Instructions, May 2002

Scoring Guide

Score as damage when the appearance of two head leaves, or when any portion of the third head leaf is materially affected. Score as serious damage when more than 3/4 the area of the crown is affected by concentrated, but not coalesced spots.

**** Black Rot (C)

Though it is not a soft rot, this disease is one of the most serious diseases in cabbage. The first symptoms are yellow to light brown spots or patches at the margins of the leaves. The veins in affected leaves appear as a black, conspicuous network and in the midribs there is a dark shadow running through the center.

Scoring Guide

Score as serious damage when present in any amount.

Bruising (C)

This defect may result from the product being improperly packed or from rough handling during transit. Bruising can result in the product being either chaffed or shredded.

Scoring Guide

Score as damage when materially affecting the appearance of three or more head leaves. Score as serious damage when bruising seriously affects the appearance of five or more head leaves.

Burst Heads (Q or C)

Heads are described as "burst" when they are split, cracked, or broken open. This defect usually occurs at the crown, but it can also occur at the base. Generally, this defect is a quality factor, but if it is believed that the injury occurred in transit, report it as a "condition" defect and report it as "fresh burst heads."

Scoring Guide

As a guide, score as damage when affecting five or more head leaves. Score as serious damage when affecting nine or more head leaves.

Cleanness (Q)

The U.S. grades for cabbage do not reference cleanness. However, cleanness should be described on the notesheet using the following terms: clean, fairly clean, and slightly dirty.

Scoring Guide

Cabbage is considered damaged when dirt or mud is badly smeared or caked on the head leaves or on the wrapper leaves. Cabbage would rarely be dirty enough to be scored as serious damage as it would have to be extremely caked with dirt. Loose ****

dirt around the basal portion of the head or slightly smeared on the wrapper leaves should be ignored.

Color (Q)

The U.S. grades for cabbage have the following requirements for color:

U.S. No. 1: Green and U.S. Commercial Green: Fairly good green.

When describing color refer to the outer leaves regardless of whether they are head leaves or wrapper leaves. The following terms should be used to describe color: good green, fairly good green, light green, and white.

Firmness (Q)

The U.S. grades for cabbage have the following requirements for firmness:

U.S. No. 1: Reasonable solidity.

U.S. Commercial: Reasonably firm.

Definitions:

§51.456 Reasonable solidity. "Reasonable solidity" means fairly firm for pointed type cabbage and southern Domestic type cabbage. Northern Domestic type cabbage and Danish or Hollander type cabbage shall be firm. "Reasonable solidity" as applied to Savoy cabbage means not soft or puffy; Savoy type cabbage is characteristically loosely formed and rather light in weight.

§51.463 Reasonably firm. "Reasonably firm" means that the head is not soft and is of reasonable weight for its size but may have considerable open spaces between the leaves in the lower portion of the head.

The expression "Reasonable Solidity" and "Reasonably Firm" is not to be used on the notesheet or certificate as they are defined differently for different types of cabbage and are indicative of the minimum firmness permitted. Red cabbage should be classed the same as Domestic with respect to solidity. The following terms shall be used to describe firmness:

Hard - The heads are solid, compact, and unyielding to moderate pressure.

Firm - The heads are closely formed and substantial but not as solid as those described as "Hard." Firm heads yield somewhat to pressure.

Fairly firm - The heads are distinctly formed and possess some degree of solidity, yielding considerably to pressure, but are not soft or puffy.

Soft and Puffy - Heads are loosely formed with large air space in central portion. They lack firmness and are very light in proportion to its size.

Freshness (C)

The U.S. grades for cabbage have the following requirements for freshness:

U.S. No. 1 and U.S. Commercial: Not withered.

Cabbage with slightly wilted wrapper leaves would still be considered "not withered" as long as the head as a whole has normal succulence.

Hollow Stems (Q)

This defect is thought to be caused by extremely cold weather during the growing season. It will appear as a hollow opening at the stem extending up through the head.

Scoring Guide

Score as damage when the stem of a 2-pound cabbage has an opening that is materially discolored or dirty, which is 3/4 inch in diameter and extends 1-1/2 inches into the head. Hollow stem would rarely be considered serious damage. (Allow greater or smaller areas on larger or smaller heads.)

Insect and Worm Damage (Q or C)

Insect damage may be caused by several types of insects. The damage may be found on the wrapper leaves or the compact portion of the head. Three of the most common types of insects causing injury to cabbage are aphids, thrips and worms.

In transit or at destination, if damage is fresh, or if live insect(s) are present or a combination of live and dead, report as a condition factor. Report as a quality factor when the damage is old or if the insect(s) are dead.

Aphids

Aphids, also called plant lice, are sometimes present either dead or alive in sufficient quantities to affect the general appearance or marketability of cabbage.

Scoring Guide

Score as damage when 11 or more aphids are on the compact portion of the head. Also, score as damage when the wrapper leaves are badly infested (having sufficiently scattered aphids or clusters of aphids readily noticeable and seriously affecting the appearance of the head).

Thrips Injury or Edema

These small insects are barely visible to the naked eye. Leaves are damaged when the insects feed and cause blemishes to appear on the affected area. Thrips puncture and rasp off the epidermis, then extract juice from the injured tissue. On areas where extensive feeding has occurred, the surface of the leaves will have a yellowish-brown scarred appearance as the injured tissues dry. These insects often work up through open spaces between the head leaves and as a result of feeding cause injuries that apparently stimulate proliferation of the epidermal cells so that an edema type (raised or swollen area) of growth develops. Thrips appear to be constantly associated with this edema type of development between the basal head leaves as well as the scarred rusty patches on the outer leaves. Report the injury from either Thrips or Edema as "Insect Injury."

Scoring Guide

On a 3 lb. head: score as damage when the aggregate area exceeds the **equivalent area** of a 2 inch circle on two head leaves and as serious damage when the aggregate area exceeds the **equivalent area** of a 2-1/4 inch in diameter on three or more head leaves. (Allow greater or smaller areas on larger or smaller heads.)

Worm Injury

Injury caused by the larvae of cabbage moths occurs as holes of irregular size and shapes. There are instances when the excreta or frass of the worms is present in sufficient quantities to be conspicuous and sometimes the entire outer leaves will have a shredded appearance. Ordinarily worm injury occurs in the field and does not take

place in transit. However, injury can occur while in transit. This can occur when shipments are made in warm weather and over an extended period of time, thus allowing worms which are minuscule in size (or possibly only the eggs are present at time of shipment) to develop and cause damage sufficient to be objectionable at destination. Report it as a condition factor when the damage occurs in this manner.

Scoring Guide

§ 51.459 *Damage...*Worm injury on the outer head leaves or wrapper leaves which materially affects the appearance of the head or worm holes which extend deeply into the compact portion of the head shall be considered damage.

Worm holes which penetrate three or more head leaves shall be considered to "extend deeply."

§ 51.464 Serious damage...Worm injury on the outer head leaves or wrapper leaves which seriously affects the appearance of the heads, or worm holes which seriously affect the compact portion of the head shall be regarded as serious damage.

Worm holes which penetrate six or more head leaves shall be considered as "seriously affecting the compact portion of the head."

**** <u>Live Worms (Larvae)</u>

Scoring Guide

One live worm (larva) on the compact or outer head leaves or if more than one is present on wrapper leaves shall be scored as damage. Score as serious damage when more than one is present on head leaves; however, serious damage shall not be scored when more than one is present on wrapper leaves.

Mechanical Damage (Q)

This is usually the result of careless handling in the field or during packing. In some cases, farm workers accidentally slice the head during harvesting.

Scoring Guide

Score as damage when the cut is more than 2 inches in length and deeper than three head leaves. Score as serious damage when the cut is more than 4 inches in length and deeper than five head leaves. If the cut is different in proportions but equally objectionable, it should also be scored.

**** Seedstems (Seed Stalks) (Q)

Cabbage that has seedstems is often referred to by the trade as "seeders." This means the cabbage seed stalks is showing or the formation of seed stalks has plainly begun. However, only the term "seedstem" should be used on the certificate. In early stages of development, the seed stalks may cause the head to be deformed or slightly misshapen. When necessary, cut heads to determine whether the bulge is caused by a seed stalk.

Scoring Guide

§51.458 Seedstems. "Seedstems" means those heads which have seed stalks showing or in which the formation of seed stalks has plainly begun.

Score the head or seedstem when the head has a seed stalk showing or in which the formation of seed stalks has plainly begun. Report it against the total tolerance of the grade.

Similar Varietal Characteristics (Q)

The U.S. grades for cabbage require that heads be of one variety in the container. Heads that are dissimilar from the other heads in the container would be scored as dissimilar varietal characteristics. Dissimilar varietal characteristics shall be scored as a quality defect against the total tolerance for the grade.

§51.455 Similar varietal characteristics. "Similar varietal characteristics" means that the cabbage in each container shall have the same general characteristics.

Sunscald (Q)

Sunscald occurs only on the top of the head. The first symptom is a watersoaked area or blistered appearance of an irregular shape. As the sunscald progresses the affected area begins to dry out. The result is a bleached, papery, or parchment-like area surrounded by healthy tissue.

Scoring Guide

Score as damage when the affected area exceeds more than 1/4 the area of the crown or penetrates more than two head leaves. Score as serious damage when the affected area exceeds more than 1/2 of the crown or penetrates more than three head leaves.

Tipburn (C)

Tipburn is a physiological disease caused by growing conditions. It starts as small spots or narrow lesions along the edge of a leaf that are bleached light yellow to off-white. Later the affected areas usually enlarge and turn yellowish-brown to brown.

Scoring Guide

Score as damage when present on more than three head leaves or when the aggregate area exceeds that of a 1x2 inch rectangle. Score as serious damage when present on more than five head leaves or when the aggregate area exceeds that of a rectangle 1x4 inches.

Trimming (Q)

The U.S. grades for cabbage have the following requirements for trimming:

- U.S. No. 1 and U.S. Commercial: Well trimmed, unless otherwise specified.
- U.S. No. 1 Green, U.S. Commercial Green, U.S. No. 1 New Red and U.S. Commercial New Red: Fairly well trimmed.

In addition, all grades require the stems to be cut so they do not extend more than one-half inch beyond the point of attachment.

Definitions:

- §51.460 "Well trimmed" means that the head shall not have more than four wrapper leaves.
- §51.461 "Fairly well trimmed" means that the head shall not have more than seven wrapper leaves.
- §51.462 "Wrapper leaves" means leaves which do not enfold the head fairly tightly more than two-thirds the distance from the base to the top.

The U.S. grades allow for the trimming to be "otherwise specified." This means the amount of wrapper leaves may be otherwise specified. When this is the case, it must be reported in connection with the grade. For example, "U.S. No. 1, 5 to 10 wrapper leaves."

The grades provide an additional 10 percent tolerance for heads that have more wrapper leaves than is specified in the grade. Remember that the 10 percent additional tolerance is for excessive wrapper leaves only and not for those heads with long stems. When stems are excessively long score against the total tolerance for the grade.

Keep in mind "fairly well trimmed" is a minimum requirement for the U.S. No. 1 Green, U.S. Commercial Green, U.S. No. 1 New Red, and U.S. Commercial New Red. Therefore, a lot of "well trimmed" cabbage may be certified as U.S. No. 1 Green, U.S. Commercial Green, U.S. No. 1 New Red, or U.S. Commercial New Red, provided the lot meets the requirements of the grade.

Yellowing and Discoloration (C)

Yellowing can be the result of several factors, including aging and exposure to heat. It can be scored as damage or serious damage when it affects the wrapper leaves, head leaves, or a combination of both the wrapper and head leaves. Report the defect as "yellowing."

Report discoloration, other than Alternaria Leaf Spot or Black Leaf Speck, as "Discoloration" with a description of the color such as "Brown discoloration." (See Alternaria Leaf Spot or Black Leaf Speck section).

Scoring Guide

On a head with <u>four wrapper leaves</u>; score as damage when the **wrapper leaves** are affected by discoloration more than the area equivalent in size to the smallest wrapper leaf; or, when the **head leaves** are affected by discoloration that materially detracts from the appearance of the head. Also, score as damage when the combination of discoloration on the wrapper leaves and head leaves exceeds the guideline for either. Score as serious damage when the **wrapper leaves** are affected by discoloration more than the area equivalent in size to the two smallest wrapper leaves; or, when the **head leaves** are affected by discoloration that seriously detracts from the appearance of the head. Also, score as serious damage when the combination of discoloration on the wrapper leaves and head leaves exceeds the quideline for either.

Allow smaller or larger areas to be affected on heads with fewer or greater wrapper leaves, respectively.

Freezing and Freezing Injury (C)

The term "frozen" is only to be used when ice crystals are present. Frozen cabbage or portions of the head in a frozen state will be darker and glassy in comparison to the rest of the head, with a distinct line of demarcation between the affected and the unaffected portion.

"Freezing injury" is the term that should be used when it is evident that the cabbage has been frozen, but is not in a frozen condition at the time of inspection. The affected cabbage may be soft, discolored and watersoaked in appearance.

- Record the pulp temperatures taken at various locations.
- Determine and record extent of the injury in the load.
- Determine and record extent of the injury in the containers.
- Determine and record degree to which individual specimens are affected.
- Describe the **pattern** of freezing or freezing injury in clear, concise terms.

When the location of injury indicates where or when the freezing occurred this is to be stated. For example, "freezing injury so located as to indicate it occurred after packing but not in present location."

Soft Rot (C)

There are various types of decay that affect cabbage, such as Bacterial Soft Rot, Gray Mold Rot and Watery Soft Rot. The type of decay is not to be reported on the certificate. However when the decay is in excess of the tolerance report the stage of advancement; early, moderate or advanced. All soft rot is scored against the 2% restricted tolerance for soft decay. However, report the amount affecting the wrapper leaves or butts in the "Other" section on market certificates and in the "Description of Products" section on shipping point certificates. For example, "Soft rot is in early stages with 1% affecting the wrapper leaves, remainder affecting the head."

Appendix I -- U.S. Grade Standards

United States Standards for Grades of Cabbage¹

Effective September 1, 1945

Grades

51.450 U.S. No. 1.

51.451 U.S. Commercial.

Unclassified

51.452 Unclassified.

Size

51.453 Size.

Application of Tolerances

51.454 Application of tolerances.

Definitions

51.455 Similar varietal characteristics.

51.456 Reasonable solidity.

51.457 Puffy.

51.458 Seedstems.

51.459 Damage.

51.460 Well trimmed.

51.461 Fairly well trimmed.

51.462 Wrapper leaves.

51.463 Reasonably firm.

51.464 Serious damage.

Grades

§51.450 U.S. No. 1.

U.S. No. 1 shall consist of heads of cabbage of one variety or similar varietal characteristics, which are of reasonable solidity, and are not withered, puffy, or burst and which are free from soft rot, seedstems, and from damage caused by discoloration, freezing, disease, insects or mechanical or other means. Stems shall be cut so that they do not extend more than one-half inch beyond the point of attachment of the outermost leaves.

(a) Unless otherwise specified, each head shall be well trimmed. However, cabbage which has fairly good green color and is specified as "U.S. No. 1 Green," and red cabbage which is specified as "U.S. No. 1 New Red" need be only fairly well trimmed.

(b) In order to allow for variations, other than excess number of wrapper leaves, incident to proper grading and handling, not more than a total of 10 percent, by weight, of the heads in any lot may fail to meet the requirements of this grade, but not more than one-fifth of this amount, or 2 percent, shall be allowed for soft decay. In addition, not more than 10 percent, by weight, may not meet the requirements as to number of wrapper leaves. (See §51.454.)

§51.451 U.S. Commercial.

U.S. Commercial shall consist of heads of cabbage which meet the requirements for U.S. No. 1 grade except for the increased tolerance for defects specified below, and except that the heads shall be reasonably firm.

¹Compliance with the provisions 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.

- (a) Unless otherwise specified, each head shall be well trimmed. However, cabbage which has fairly good green color and is specified as "U.S. Commercial Green," and red cabbage which is specified as "U.S. Commercial New Red" need be only fairly well trimmed.
- (b) In order to allow for variations, other than excess number of wrapper leaves, incident to proper grading and handling, not more than a total of 25 percent, by weight, of the heads in any lot may fail to meet the requirements of this grade, but not more than two-fifths of this amount, or a total of 10 percent, shall be allowed for defects causing serious damage, but not more than 2 percent shall be allowed for soft decay. In addition, not more than 10 percent, by weight, may not meet the requirements as to number of wrapper leaves. (See §51.454.)

Unclassified

§51.452 Unclassified.

Unclassified shall consist of cabbage which has not been classified in accordance with 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 definite grade has been applied to the lot.

Size

§51.453 Size.

The minimum size or minimum and maximum sizes may be specified in connection with the grades as "U.S. No. 1, 1 pound min.," or "U.S. No. 1, 2 to 4 pounds," or any lot may be classified as Small, Medium, Large, Small to Medium, or Medium to Large in accordance with the facts.

Small	Medium	Large
Pointed, under 1-1/2 lbs.	1-1/2 to 3 lbs	Over 3 lbs.
Danish and domestic, under 2 lbs.	2 to 5 lbs	Over 5 lbs.

(a) In order to allow for variations incident to proper sizing, not more than a total of 15 percent, by weight, of the heads in any lot may vary from the size specifications, but not more than 10 percent may be either above or below the size specified. This tolerance is in addition to the tolerance for grade defects. (See §51.454.)

Application of Tolerances

§51.454 Application of tolerances.

The contents of individual containers in the lot, based on sample inspection, are subject to the following limitations, provided the averages for the entire lot are within the tolerances specified:

- (a) When a tolerance is 10 percent or more, individual containers in any lot shall have not more than one and one-half times the tolerance specified, except that at least one defective and one off-sized cabbage may be permitted in a container.
- (b) When a tolerance is less than 10 percent individual containers in any lot shall have not more than double the tolerance specified, except that at least one defective and one off-sized cabbage may be permitted in a container.

Definitions

§51.455 Similar varietal characteristics.

"Similar varietal characteristics" means that the cabbage in each container shall have the same general characteristics.

§51.456 Reasonable solidity.

"Reasonable solidity" means fairly firm for pointed type cabbage and southern Domestic type cabbage. Northern Domestic type cabbage and Danish or Hollander type cabbage shall be firm. "Reasonable solidity" as applied to Savoy cabbage means not soft or puffy; Savoy type cabbage is characteristically loosely formed and rather light in weight.

§51.457 Puffy.

"Puffy" means that the heads are very light in weight in comparison to size, or have excessive air spaces in the central portion. They normally feel firm at time of harvesting but often soften quickly. They are known as "Balloon Heads" in certain sections.

§51.458 Seedstems.

"Seedstems" means those heads which have seed stalks showing or in which the formation of seed stalks has plainly begun.

§51.459 Damage.

"Damage" means any injury or defect which materially affects the appearance, or the edible or shipping quality. Worm injury on the outer head leaves or wrapper leaves which materially affects the appearance of the head or worm holes which extend deeply into the compact portion of the head shall be considered as damage.

§51.460 Well trimmed.

"Well trimmed" means that the head shall not have more than four wrapper leaves.

§51.461 Fairly well trimmed.

"Fairly well" trimmed means that the head shall not have more than seven wrapper leaves.

§51.462 Wrapper leaves.

"Wrapper leaves" means leaves which do not enfold the head fairly tightly more than two-thirds the distance from the base to the top.

§51.463 Reasonably firm.

"Reasonably firm" means that the head is not soft and is of reasonable weight for its size but may have considerable open spaces between the leaves in the lower portion of the head.

§51.464 Serious damage.

"Serious damage" means any injury or defect which seriously affects the appearance, or the edible or shipping quality. Cabbage which is affected by soft rot or which is seriously puffy, badly burst, or seriously injured by seedstems, discoloration, freezing, disease, insects, mechanical or other means shall be considered as seriously damaged. Worm injury on the outer head leaves or wrapper leaves which seriously affects the appearance of the heads, or worm holes which seriously affect the compact portion of the head shall be regarded as serious damage.

Appendix II

Example 1 -- Inspection Notesheet

O'ARRIER O: TOTSUENTIFICATIO Carrier Type / Name: Refrigeration Unit: ON OFF Condition of Carrier:	Coder 1 0 Cry Union 6 U Union 6 U Linker 1 U	INSPECTION NOTESHEE CERTIFICATE NUMBERS INSPECTION STATE of a d d d d d d d d d d d d d d d d d d	0,2 0,7:1 y y Hour 0,2 0,8:3 3 PRODUCE BURGH PX	Ma. AIP J A M Min. AIP B O A M
" APPETEAST	8 WARRACOST	COLTL	400 N.Y.	
A: PRODUCTO MESTIC HAMBER W CONTINUENS: 280 SACKS Y YELLOWARD STICE B: PRODUCTO MESTIC			PRINTED "PRODUCTO,	FUSA
CABBAGE	INIPE BO	DOND CE	ATER	
HUMBER of CORTANERS; NSP. COUNT	WINZ	CK	(120	1
150 CRATES Y	NO BODA	DS OF MA	PVIAIL 8	
35-38 C: PADDUCT:	STAMPED			
· ·				
NUMBER of CONTANERS: NSP. COUNT				
TEMPERATURES:				
D: PRODUCT:				
				1
MUMBER of CONTAINERS : NSP. COUNT				
TEMPERATURES:				
Condition of Load & Containers: (L) STACKED ON PALLETS AT ABOVE	LOGATION (INTACT THROUGH L	OAD () PART	LY UNLOADED
				1
FORM EV. 200-N (2-93)				

Example 1 -- Inspection Scoresheet

	Α		-		В	-			(٠ د			•	D	, '	
PACK:		_	PACK:	7	-		T	ACK:				PAC	K:			
SZE:			SIZE:	/												
m)-	- <u>L</u>		SEE:	Ŋ) -	4		s	SZE:				SIZE	Ē:			
sco		неет		Q		T	5		72			T -			1	101
PLI Number	Other I D.	TEMP.	Sample	0	50		2		20	50					TPI	nn
NONE	_	35	48.25	a	10	1	0		3.5		1	1	1	t	1	4.
KONE	_	37	4950		0		0	(7)	0	0						5.
NONE		36	51.00		30		3.5		a	0						(
NONE	_	37	48.75	5.0	0		0		4.0	0						3.0
			_				1	_								
			-	(4)	X	<u> </u>	(2)		(4)	4		_	_	-	-	(4
			-			1	3-7	<u> </u>			20		211	in	ـــــ	_
			-	8,10,	1	 	FAEL	4			GE.	10	FIR	11	-	-
				8023 4840	-	 	TAC	12		-	1-0	6	1,	-/-	11	-
				TE41	12_	1	1 F F		-	_			147	-6K		├-
		-		-	 		110	AD.	-		-	-	-	-	-	+-
		-	-		 	-	140				<u> </u>	-	 		1	97
														WEL	1	E11
				/	5								1	LEC		//
NONE	_	36	520C	6.0	彩		0									(
NONE	_	35	5/50	4.8	20		0									6
NONE	_	36	5/50 1950	8.5	0		0									0
NONE		38	ωœ	5,8	0		0			/	=16	M	_			0
											<u> </u>	,			_	L
				12						GE	W.		ļ		ļ	X
			1	0-1 UR	7			-			1.0	2.7	200	1	-	_
			41	011	FRIP	//			-		1/22	y !	BOC	12		-
				000				-		81	RR	V C	1000	1		-
		-	000	204											-	-
			-			-		-					-		-	-
					-	-							-			-
					_			-					 			-
															-	_
																-
				,												
REMARKS / F	ESTRICTI	ONS / SP														
CARLOT =				pcn	ORIEN Y	o M	101	0		17	NSPEC	ED BY	<i>r</i> :			
CARLOT Basis				DATE	/ لا	1/2	7 C	re: Q	10 A	,]"	131	4	MA.	eri	N	
TRAVEL Time				REO	UESTED	V 2	7112	0-10X	7	4	SSIST	D RY				
Lypenoco				1			176	./0					-			

21

Example 1 -- Inspection Certificate

make of pa	2 m		0 K A D E					- Constant	ıwar	с	-		((B)	, wan	quun	(: ٥٠; رح: تا	Ö	Ω	œ	>		62//10	0	2007
WARNING: Any person who knowingly shall fall make, issue, alter, lorge, or counterfelt this certificate, or participate in any such actions, is subject to a fine of not more than \$1,000 or impresonment for not more than one year, or both,	AXS:	107	E: 107									12	00	12	10	02	40	40	VERKGE) EFECTS			35	5	O. COLLEGE SERVICE	147907	2018 X 23 3 4 6 1 1 1	
Any pe r, lorge, si, 000 c \$1,000 c		B	A	\$* 	* *	* ×	1		8	<i>\$</i> .∵	* *3	% OO	Š.	0	0	. 02	00	00	SEL DAN	O.	<u>6</u>	6 3 S	4. 1. 1. 1. 1.	A ATURES	N a.m.	1 5	0
rson whor counts actions, imprise		FAI	05	 } 	- よ:	\$ \$	 - 	3,	**	3	8	2) %	* *	ا ا ا	2 %	2	*/	*				्र म	P P	01		P Z Z) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1
Any person who knowingly shall falsely orge, or counterfelt this certificate, such actions, is subject to a fine ,000 or imprisonment for not more oth.		128,	NO			400004	******						K				K		Series of			DOME	DOMEST			by Additional	
gly shall condition or not m		706	7	*		* *	1,0	3.0	2	or.	**	<u>()</u>	*) []	\mathcal{C}	35	<i>y</i>	<u>0</u>				577C	DOMESTIC	0		- E-3	7
lfalsely ate, ne nore		GEAL							,			4EC	OFT	DALI	4PC	FT	5220	DALI			\	DOMESTIC CABBAGE"	C 3			100	1040
L the under		J 20								1		V80	(to)	YV.	1501	POT	OWIN	TYI				MEE	PABBAGE	010100			30.
signed, a di ed, sample Signature;		1.5. N										10		DEFE	V	(0,	Ġ.	CFE				ON	TAC	d	<u>}</u> :	\$ 2	
the undersigned, a duty authorized happerior of the United States Department of Agricultura, do hearby centify that at the request of the applicant and on the alle bolisated, samples of the hermin described product were inspected and the quality and/or condition as shown by said samples were as herein stated, nepected Egnature; BILL MARTIA		10.1												CT3		078		e73	5,440	١		BEA	くくのと	TKIS GOUL	Address COETLAND	Shippor	
MARTIA		BEL												101	1	04	٢ ,	(Be				, artable	UFR	20	30	1/7	DEIN
of the Units of product we		W.												0179				BURST	ZE DE			_	MS "	HEANT	erci	13/60	>
d States De		Acc											/~	only	0.			HEADS	LOBECT			100 201	// //	W715	920	rech	S
partment of d and the o		NOBBBI												TFA				105)	5				*************	MAIN	:	` `:	000
Agricultura, uality and/o		176											,	1664								6088N	Tracelline	E	NY	A	\mathcal{O}
do hereby r condition s		CAZ												6000						-	-	8	7	FSOOF			
Harried V		177																7:								1	
CHE THE PARTY		DE,						BREEN	GEN	707		777	DE	SOLO COLOR		COLCR	MOSTLY	97		1	-	$\setminus \mid$	St. Co. influence in the control of	0410	E EL E E	NSPE	¥3.54 €.54
I the request of the applicant and y said started were at herein a trition.		FEC	s .							, E		1707	6	900		٠,		A: 6			\	`\	Gertsenskelden	0/		SPECTION	
plicant and a herein size		73						colo		FIP,		2001	7	BUEST		JUS	FAIRLY	ENC	0.7				<u></u>	0		O CEF	E SAXOTE
								. 2	2	Wo		200	72 W.	STALE		SOME LICHT GREEN	1/6	KITHADNASS	OTHER:	\		50	280 34023	20	37	INSPECTION CERTIFICATE Frample 1	ACHOCHEN OF ACHOCHEN
ESTIMATED \$								+	19		ŀ		(Y S	EADS		- (X)	000	- 1	3 (S)	\		CEATES	2	7.	the our	ATE	m fr
1 11									600			WEAD.	TAG	۲		SPLE	(500) CELL	FIRM			\	168	€.	15	3 5		
ΤΟΤΑΙ									2				U			5	5						∠ §	M	<i>2</i> ,		