



United States Department of Agriculture

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Marketing and  
Regulatory  
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Agriculture  
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Service

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Specialty  
Crops  
Inspection  
Division

# Equipment Catalog for Fresh and Processed Products Inspections

September 2017

Contained within the following pages is a list of equipment and visual aids approved for use in ascertaining grades of fresh and processed fruits and vegetables. To order, complete an order form from [here](#) and email, fax or mail to the Equipment & Forms Depot. The price and availability of any of the equipment and aids are subject to change without notice.

If you have any questions, please contact:

**Equipment & Forms Depot**  
USDA, AMS, SCP, SCI  
831 Mitten Road, Room 200  
Burlingame, CA 94010  
Phone: 650-552-9073 \* Fax: 650-552-9147  
[FVSupplyDepot@ams.usda.gov](mailto:FVSupplyDepot@ams.usda.gov)

Further information as to the interpretation or application of these aids in accordance with the U.S. grade standards and copies of the grade standards are available from:

**Chief, Standardization Branch**  
USDA, AMS, SCP, SCI  
100 Riverside Parkway, Suite 101  
Fredericksburg, VA 22406  
Phone: 540-361-1120 or 202-720-5021 or 202-720-5870

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# **FRESH FRUITS, VEGETABLES, NUTS, AND SPECIALTY PRODUCTS**

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## Equipment

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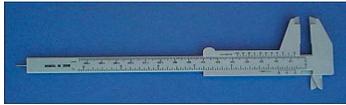


### Apple Corer

All-purpose corer with peeler and a pointed, serrated blade which cuts a 3/4" diameter core.

Price: **\$5.00**

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### Caliper I

6" adjustable plastic, jaw length 1-1/2", 1mm and 1/16" graduations.

Price: **\$3.00**

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### Caliper II

6" adjustable plastic composite, jaw length 3-1/8", one fixed & one sliding jaw with brass tightening screw. Inch scale: 1/16" graduation; and cm scale.

Price: **\$27.00**

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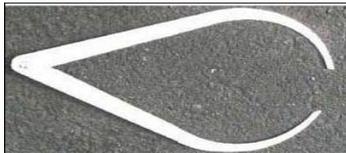


### Nut/Bolt Set for Caliper II

Replacement nut/bolt set (stainless steel, solid brass) for Caliper II, above.

Price: **\$3.00**

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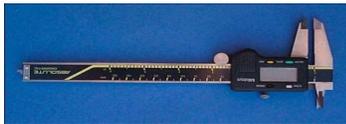


### Caliper III

12" aluminum Kemper, for accurate inside or outside measuring.

Price: **\$12.00**

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### Caliper, Digital

Mitutoyo Model 500-196, CD-6" CS. Electronic LCD display, measuring range 0-6 inches (0-150 mm). On/off switch, zero switch, in/mm switch, origin button. Includes silver oxide battery (SR441.5V), approximate life is 3-1/2 years, plastic carrying case and instructions. Specifications— Resolution: 0.01 mm/0.0005"; Accuracy:  $\pm 0.02$  mm/  $\pm 0.001$ "; Repeatability: 0.001 mm/0.0005".

Price: **\$145.00**

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**Canvas Bucket**

Olive Drab Canvas Bucket - Made From 100% Heavy Weight Cotton Canvas. Collapsible. Dimensions: 13" x 11"

Price: **\$13.00**

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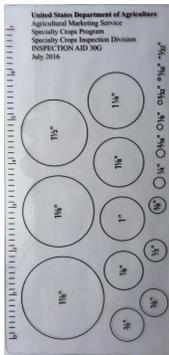


**Crate Opener**

Metal hammer and nail puller/band cutter at opposite end, 8" long.

Price: **\$20.00**

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**Area Gauge, IA #30G**

4 x 8 plastic measurement guide for measuring defects in fruits and vegetables. Clear plastic gauge with 15 diameter circles from 1/32" to 1-7/8" and a 7" ruler on one edge. July 2016 edition.

[Care and Use Guide](#)

Price: **\$5.00**

Supplier: Equipment & Forms Depot

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**Garlic Press**

Metal-hinged press, 7/8" deep with 1-1/2" oval press/strain basin and removable screen for easy cleaning.

Price: **\$9.00**

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**Grading Table**

USDA inspection table, minimum 0.090" aluminum. Table has a lamp, locking swivel and rigid casters, tube stand with hook for hanging scale, a shelf that will hold up to 200 lbs., rod to hang sorting bags and a storage compartment. Approximate dimensions: 32" wide x 52" long x 36" high; weighs approximately 99 pounds. Assembly required. Shipped FOB origin. **Special Order.**

Price: **Price when manufactured**

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**Knife I**

4-3/4" long with single retractable 3-3/4" blade (Schrade razor stainless blade) and white plastic handle.

Price: **\$26.00**

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**Knife II**

5-1/2" long with single retractable 4-3/4" blade (Schrade razor stainless blade) and white plastic handle.

Price: **\$29.00**

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**Knife III**

12" long, stain-free, high carbon steel blade with easy-grip plastic watermelon handle for cutting watermelons. Includes plastic safety edge guard.

Price: **\$46.00**

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**Knife III Edge Guard**

Replacement plastic safety edge guard for Knife III, above.

Price: **\$5.00**

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**Peanut Trier**

Nickel-plated steel, 13" long. Outside diameter is 1-1/2" at large end; slot is 7 3/8" long with a top slot width of 1-1/4" tapering down to 1/4". Includes a protective sheath.

Price: **\$125.00**

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**Pressure Tester I**

Penetrometer—Model FT 011 fruit pressure tester with 8 mm & 11 mm stainless steel plunger tips, splash plate, fruit peeler, manual and carrying case. Capacity: 11 lb. x 1/8 lb. Application/use: citrus, melons, plums, and other soft fruits.

Price: **\$240.00**

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**Pressure Tester II**

Penetrometer—Model FT 327 fruit pressure tester with 8 mm & 11 mm stainless steel plunger tips, splash plate, fruit peeler, manual and carrying case. Capacity: 28 lb. x 1/4 lb. Application/use: apples, peaches, pears, avocados, kiwi, and other firm fruits.

Price: **\$240.00**

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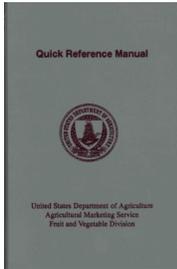


### **Fruit Peeler for Penetrometer**

Replacement fruit peeler for pressure testers above.

Price: **\$20.00**

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### **Quick Reference Manual**

Revised June 2008 – Six-ring vinyl notebook includes a diameter gauge. Designed for on-the-job use by USDA market inspectors. Contains information pertaining to size, quality and condition. Also includes tolerances for most commonly used grades and assorted helpful hints, such as average freezing point and storage requirements for selected commodities. Dimensions: Height 7-1/4”, width 4-1/2”, thickness 1”.

Price: **\$117.00**

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### **Refractometer**

ATAGO 2351 MASTER-53a, water resistant, streamlined body, comfortable grip and rich carbon/fiber texture. Automatic temperature compensation feature which allows for accurate measurements. 10° to 30° C compensation range, Brix 0.2% minimum scale, Brix 0.0 to 53.0% measurement range and Brix ± 0.2% accuracy.

Price: **\$370.00**

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### **Snips**

Midwest P6717S with hot drop-forged molybdenum alloy tool steel straight cut, unbreakable blades. Accurately controlled heat treating assures longer lasting cutting edge. Top and bottom serrated blades are designed to grip metal for easier, even cutting. Cuts 18 gauge and lighter sheet metal with a cutting length capacity of 1 3/8”. Polished finish. Spring lasts for lifetime of snip. Snips have a center pivot adjustment bolt, a soft copolymer ergonomic grip for cutting comfort and a safety latch. Measures 9-3/4” long and weighs 14 oz. Made in USA.

Price: **\$20.00**

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### **Texan Nut Sheller**

Easy to use aluminum, with red vinyl covered handles and nut holder. Dual blades clip off the ends and sides of the nut, keeping most of the nut kernel whole and outside of the cutting jaws. Use to shell pecans, Brazil nuts, walnuts, filberts, almonds, and other nuts.

Price: **\$20.00**

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**Texan Nut Sheller Replacement Kit**

Two replacement blades and spring for Texan Nut Sheller.

Price: **\$5.00**

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**Digital Thermometer**

Taylor 1" pocket, waterproof, instant read, with stainless steel heavy duty stem, on/off buttons and carrying case. Automatic shut off after 10 minutes if there is no change in temperature. Includes alkaline battery. Recalibratable with a range of -40 to 450 °F.

Price: **\$16.00**

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**Scales and Check Weights**

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**2 Pound Capacity Scale**

Chatillon barrel, 1/2 oz. graduation.

Price: **\$75.00**

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**4 Pound Capacity Scale**

Chatillon barrel, 1 oz. graduation.

Price: **\$75.00**

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**6 Pound Capacity Scale**

Chatillon barrel, 1 oz. graduation.

Price: **\$75.00**

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**25 Pound Capacity Scale**

Chatillon barrel, 4 oz. graduation.

Price: **\$75.00**

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**60 Pound Capacity Scale**

Chatillon barrel, 8 oz. graduation.

Price: **\$135.00**

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**32 Ounce Capacity Scale**

Accu-Weigh dial tabletop, 1/8 oz. graduation, Model M-28PK with dashpot. Dimensions: Top 7-1/2" x 7-1/2", base 7-1/4" x 10-7/8", height 10-1/2".

Price: **\$150.00**

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**70 Pound Capacity Scale**

Accu-Weigh dial platform, 4 oz. graduation, Model M-74PK. Dimensions: Top 9-3/4" x 9-3/4", base 8-1/2" x 11-1/4", height 10-1/2".

Price: **\$200.00**

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**5 Pound Capacity Scale**

Pelouze electronic digital, Model SP5. Large, easy-to-read LCD digital readout. Weighs in 0.1 oz./1 gm increments (5 lb./2.2 kilogram capacity). Features tare weight and auto-off. Uses 9-volt battery (not included). Scale dimensions: 6" x 9 1/2" x 1 3/4"; platform dimension 6".

Price: **\$57.00**

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**Metal Check Weight Set (Pounds)**

Cast iron, painted. Set of 1, 2, 5, 10 and 25 pounds.

Price: **\$450.00**

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**1 Pound Check Weight**

Cast iron, painted.

Price: **\$60.00**

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**2 Pound Check Weight**

Cast iron, painted.

Price: **\$65.00**

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**5 Pound Check Weight**  
Cast iron, painted.

Price: **\$75.00**

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**10 Pound Check Weight**  
Cast iron, painted.

Price: **\$100.00**

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**25 Pound Check Weight**  
Cast iron, painted.

Price: **\$150.00**

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**Metal Check Weight Set (Grams)**  
Stainless steel, cylindrical. Set of 50, 100, and 200 grams.

Price: **\$145.00**

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**50 Gram Check Weight**  
Stainless steel, cylindrical.

Price: **\$42.50**

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**100 Gram Check Weight**  
Stainless steel, cylindrical.

Price: **\$48.00**

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**200 Gram Check Weight**  
Stainless steel, cylindrical.

Price: **\$54.50**

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## Sizers (Plastic & Metal)

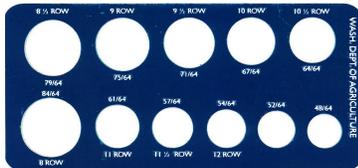
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### California Cherry Sizer

California Dept. of Food and Agriculture, revised 2016, black plastic, with measurement for 3/8" and 12 diameters: 8 Row (84/64"); 8-1/2 Row (79/64"); 9 Row (75/64"); 9-1/2 Row (71/64"); 10 Row (67/64"); 10-1/2 Row (64/64"); 11 Row (61/64"); 11-1/2 Row (57/64"); 12 Row (54/64"); 12-1/2 Row (51/64"); 48/64," and 40/64."

Price: **\$22.00**



### Washington Cherry Sizer

Washington Dept. of Agriculture, 2011/undated, blue plastic, with 11 diameters: 8 Row (84/64"), 8-1/2 (79/64"), 9 (75/64"), 9-1/2 (71/64"), 10 (67/64"), 10-1/2 (64/64"), 11 (61/64"), 11-1/2 Row (57/64) and 12 Row (54/64), 52/64", and 48/64".

Price: **\$12.00**



### Cranberry Sizer

USDA, 2009, green plastic, with 6 diameters: 9/32", 13/32", 14/32", 18/32", 20/32" and 22/32".

Price: **\$10.00**



### General Purpose Sizer

6-blade set, aluminum or better alloy; screw and lock nut fastened (4" long and wide, 1/2" thick, blades minimum 0.060" thick) Each blade stamped with sizes and USDA: Blade 1: 7/8", 1-3/4", 1-7/8"; Blade 2: 3/4", 1-1/2", 2"; Blade 3: 3/16", 1-1/4", 2-1/4"; Blade 4: 1/8", 1", 2-1/2"; Blade 5: 3/8", 5/8", 2-3/4"; Blade 6: 1/4", 1/2", 3".

Price: **\$66.00**



### Grape Sizer

12-blade set, anodized aluminum, on split ring holder, 9/16, 10/16, 11/16, 12/16, 13/16, 14/16, 15/16, 1, 1-1/16, 1-1/8, 1-3/16, and 1-1/4 inch diameters. Each blade stamped with measurement. First blade stamped USDA.

Price: **\$71.00**



#### **Florida Grapefruit Sizer**

4-blade set, aluminum or better alloy; screw and lock nut fastened (12 1/2" long, 6 1/2" wide, 5/8" thick; individual blades minimum 0.07" thick) Stamped USDA and with these sizes: Blade 1: Sizes 23 and 18 (4 25/32", 59/32"); Blade 2: Sizes 32 and 27 (4-1/4", 4-9/16"); Blade 3: Sizes 40 and 36 (3-15/16", 4-1/8"); Blade 4: Sizes 56 and 48.

Price: **\$90.00**

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#### **Potato, Special Sizer**

4 x 4 single blade, aluminum or better alloy with three diameters: 3/4", 1" and 1-5/8". Stamped with measurements and USDA. **Special order only.**

Price: **\$20.00**

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#### **Potato/Onion Sizer**

5-blade set, aluminum or better alloy; screw and lock nut fastened (7 1/2" long, 5" wide, 1/2" thick; individual blades minimum 0.060" thick) Stamped USDA and with these sizes: Blade 1: 2-3/4", 3"; Blade 2: 1", 2-1/2", 3-1/4"; Blade 3: 1-1/4", 2-1/4", 3-1/2"; Blade 4: 1-3/4", 1-7/8", 3-3/4"; Blade 5: 1-1/2", 2", 4".

Price: **\$80.00**

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#### **USDA Tomato Sizer**

4-blade set, aluminum or better alloy, screw and lock nut fastened (7 1/2" long, 4" wide, 1/4" thick; individual blades minimum 0.060" thick) Stamped USDA and individual blades stamped as follows: Small 2-4/32" – 2-9/32"; Medium 2-8/32" – 2-17/32"; Large 2-16/32" – 2-25/32"; Extra Large 2-24/32".

Price: **\$55.00**

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#### **Florida Tomato Sizer**

3-blade set, aluminum or better alloy; screw and lock nut fastened (First blade: 4" by 4"; blades 2 and 3: 7-1/2" long, 4" wide; set 1/4" thick individual blades minimum 0.060" thick) Set arranged as follows: Blade 1: 5 x 6, 2-25/32"; Blade 2: 6 x 6, 2-17/32" and 2-29/32"; Blade 3: 6 x 7, 2-9/32" and 2-19/32". Each blade stamped FL TOM sizer and USDA 2000.

Price: **\$40.00**

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**Individual Sizing Blades  
(1/16" thick blades)**

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**Individual Sizing Blade (4 x 4 single blade)**  
1-1/4", 1-1/2", 1-5/8", 1-3/4", or 1-7/8"

Price: **\$10.00**

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**Individual Sizing Blade (single blade)**  
2", 2-1/8", 2-1/4", 2-3/8", 2-1/2", 2-5/8", 2-3/4", or 2-7/8"

Price: **\$11.00**

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**Individual Sizing Blade (4 x 5 single blade)**  
3" or 3-1/8"

Price: **\$12.00**

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**Individual Sizing Blade (5 x 6 single blade)**  
3-1/4", 3-1/2", 3-3/4", 3-7/8", or 4"

Price: **\$13.00**

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**Individual Sizing Blade (6 x 7 single blade)**  
4-1/4", 4-1/2", 4-3/4", or 5"

Price: **\$14.00**

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**Individual Sizing Blade (7 x 8 single blade)**  
5-1/4" or 5-1/2"

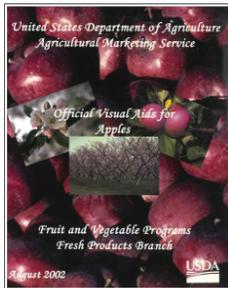
Price: **\$15.00**

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## Visual Aids

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### Apple Color Guide

Revised August 2002 – Official Visual Aids for Apples (AP-CC-1 A through E). Includes minimum good shade of striped red color, minimum compensating color and not to be considered as a color for (A) Red Delicious, Empire and Red Rome; (B) Winesap and Rome; (C) Delicious; (D) McIntosh and Cortland; and (E) Jonathan, Idared, Stayman, and York.

Price: **\$38.00**

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### Cherry, Sour Color Comparator

Color comparator for red sour cherries for manufacture minimum color U.S. No. 1 (March 2013). USDA Visual Aid PL-1-RSP.

Price: **\$10.00**

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### Cherry, Sweet Color Comparator

Color comparator for sweet cherries minimum color for Bing and other similar varieties (July 2012). USDA Visual Aid PL-1.

Price: **\$10.00**

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### Cucumber Color Comparator

Color comparator for cucumber medium green (August 2011). USDA Visual Aid CC-1.

Price: **\$10.00**

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### Lime Color Comparator

Color comparator for Persian limes, minimum color considered "good green" (July 2000). USDA Visual Aid LIM-CC-1.

Price: **\$10.00**

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### Lettuce Color Comparator

Color comparator for Lettuce, minimum light buff color for scoring Tipburn (August 2013). USDA Visual Aid LT-CC-1.

Price: **\$10.00**



### Onion I Color Comparator

Color comparator for BGG onions, dark green and light to medium green (Sept 01). USDA Visual Aid ONS-CC-1.

Price: **\$10.00**



### Onion II Color Comparator

Color comparator for Northern onions, medium green (Sept 01). USDA Visual Aid ONS-CC-2.

Price: **\$10.00**



### Peanut I Color Comparator

Color comparator for brown, gray, blue-gray and purple skin discoloration on peanuts (Revised 2010). USDA Visual Aid PN-1.

Price: **\$13.00**



### Peanut II Color Comparator

Color comparator for minimum light yellow color for scoring flesh discoloration (April 2014). USDA Visual Aid PN-CC-1.

Price: **\$10.00**

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PURPLE FLESH DISCOLORATION



Maximum allowed before minor.  
PNT-CP-9  
July 2000

**Peanut III Visual Aid**

Visual aid for purple flesh discoloration, maximum allowed before minor (July 2000). USDA Visual Aid PNT-CP-9.

Price: **\$10.00**

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GREEN FLESH DISCOLORATION



Maximum allowed before minor.  
PNT-CP-10  
February 2003

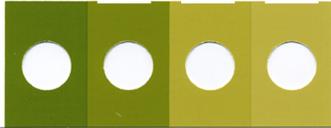
**Peanut IV Visual Aid**

Visual aid for green flesh discoloration, maximum allowed before minor (February 2003). USDA Visual Aid PNT-CP-10.

Price: **\$10.00**

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PEARS  
USDA  
GROUND COLOR  
REVISED 1999



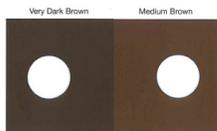
**Pear I Color Comparator**

Color comparator for green, light green, yellowish green and yellow ground color on pears (Revised 1999). USDA Visual Aid PR-1.

Price: **\$13.00**

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DARK SKIN DISCOLORATION ON PEARS  
USDA  
REVISED 2012



**Pear II Color Comparator**

Color comparator for very dark brown and medium brown skin discoloration on pears (Revised 2012). USDA Visual Aid PR-2.

Price: **\$13.00**

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**Pecan Color Comparators**

Color comparators for minimum medium shade of gray for scoring internal flesh discoloration, minimum medium shade of brown for scoring internal flesh discoloration, and minimum dark shade for scoring internal flesh discoloration (March 2016). USDA Visual Aid PEC-PL-1.

Price: **\$30.00**

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**Pistachio Color Comparator**

Color comparator for maximum brown color allowed for light staining on pistachios (November 2011). USDA Visual Aid PIS-CC-1.

Price: **\$10.00**

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### Potato I Color Comparator

Color comparator for brown center and hollow heart with discoloration in potatoes (1/98). USDA Visual Aid POT-CC-1.

Price: **\$10.00**

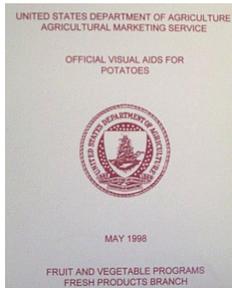
POT-CC-2  
4/2008



### Potato II Color Comparator

Color comparator for scoring of internal black spot in potatoes (4/2008). USDA Visual Aid POT-CC-2.

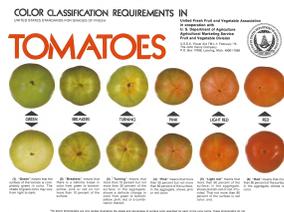
Price: **\$10.00**



### Potato Visual Aid Book

Revised May 1998 – Official Visual Aids for Potatoes (POT-L-1). Includes 143 lithograph photos of basic requirements for potatoes and identification and classification of various disorders and defects. Three-ring vinyl notebook; 11-1/2” long, 10” wide, 1-1/2” thick. Includes updated pages 31, 32, 33, 34, and 35.

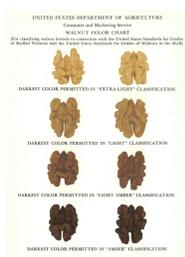
Price: **\$180.00**



### Tomato Color Chart

Color chart for classification requirements of surface color for tomatoes described as green, breakers, turning, pink, light red, and red (February 1975). USDA Visual Aid TM-L-1.

Price: **\$13.00**



### Walnut Color Chart

Pictorial reference for classifying walnut kernels with U.S. Standards for grades of shelled walnuts and walnuts in the shell (1967).

Price: **\$13.00**



### Watermelon I Color Comparator

Color comparator for minimum color for mature red-flesh varieties of watermelons (March 2000). USDA Visual Aid WAT-CC-1.

Price: **\$13.00**



USDA WAT-CC-2  
Watermelons: Medium Brown  
This is the minimum brown  
color for scoring Transit Rubs.  
August 2014

**Watermelon II Color Comparator**

Color comparator for minimum brown color for scoring transit rubs (August 2014). USDA Visual Aid WAT-CC-2.

Price: **\$10.00**

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**2 x 2 Slides**

Various visual aids for identification or scoring of factors in the U.S. grade standards.

Price: **\$3.75 each**

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**8 x 10 Black and White Photographs**

Various visual aids for identification or scoring of factors in the U.S. grade standards.

Price: 1 to 50: **\$10.00 each**  
51 or more: **\$6.50 each**

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**8 x 10 Color Photographs**

Various visual aids for identification or scoring of factors in the U.S. grade standards.

Price: 1 to 50: **\$18.00 each**  
51 or more: **\$12.00 each**

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Refer to the [Index of Official Visual Aids](#) for a listing of visual aids and 2 x 2 slides, both those that are currently available and those which are not available, but still applicable.

# **PROCESSED FRUITS, VEGETABLES, AND SPECIALTY PRODUCTS**

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## Color Standards

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### **Apple Butter**

USDA color standards in the form of two bi-colored laminated vinyl chips. The USDA canned apple butter color standards represent minimum color requirements as specified in the U.S. Standards for Grades of Canned Apple Butter, U.S. Grade "A" and "C". August 2002.

#### [Care and Use Guide](#)

Price: **\$85.00**

Supplier: Equipment & Forms Depot (Federal Offices Only)  
Visual Color Systems (Public Purchase)

Visual Color Systems  
PO Box 93  
Mountaindale, NY 12763  
Telephone: (845) 434-2646  
[www.visualcolorsystems.com](http://www.visualcolorsystems.com)



### **Beans, Canned Lima**

USDA color standards in the form of a bi-colored laminated vinyl chip. Represents both lima bean green and lima bean white. For use in classifying color as specified in the U.S. Standards for Grades of Canned Lima Beans. August 2005.

#### [Care and Use Guide](#)

Price: **\$75.00**

Supplier: Equipment & Forms Depot (Federal Offices Only)  
Visual Color Systems (Public Purchase)

Visual Color Systems  
PO Box 93  
Mountaindale, NY 12763  
Telephone: (845) 434-2646  
[www.visualcolorsystems.com](http://www.visualcolorsystems.com)



### **Beans, Frozen Lima**

USDA color standards in the form of a bi-colored laminated vinyl chip. Represents both lima bean green and lima bean white (thin-seeded). For use in classifying color as specified in the U.S. Standards for Grades of Frozen Lima Beans, U.S. Grade "A", "B", and "C". June 2002.

#### [Care and Use Guide](#)

Price: **\$75.00**

Supplier: Equipment & Forms Depot



### Cherries, Frozen Red Tart

USDA color standard in the form of a laminated vinyl chip. The USDA frozen red tart cherries color standard represents minimum red color requirements as specified in the U.S. Standards for Grades of Frozen Red Tart Pitted Cherries, U.S. Grade “A”. May 2003.

#### [Care and Use Guide](#)

Part No. **424442** Price: **\$66.75**

Supplier: Equipment & Forms Depot (Federal Offices Only)  
X-Rite, Inc. (Public Purchase)

X-Rite, Inc. - Munsell Color Services  
4300 44<sup>th</sup> Street SE  
Grand Rapids, MI 49512  
Telephone: (877) 888-1720  
[www.xrite.com](http://www.xrite.com)



### Honey

Two metal comparator racks with plastic color standards representing water white, extra white, white, extra light amber, light amber, and amber as specified in the U.S. Standards for Grades of Honey. Sample bottles are included. September 2003

#### [Care and Use Guide](#)

Price: **\$156.00**

Supplier: Equipment & Forms Depot



### Molasses, Sugarcane

Metal comparator rack with plastic color standards representing No. 1, No. 2, and No. 3 as specified in the U.S. Standards for Grades of Molasses. Sample bottles are included. September 2003.

Part No. **423404** Price: **\$130.00**

Supplier: Equipment & Forms Depot (Federal Offices Only)  
X-Rite, Inc. (Public Purchase)

#### [Care and Use Guide](#)

X-Rite, Inc. - Munsell Color Services  
4300 44<sup>th</sup> Street SE  
Grand Rapids, MI 49512  
Telephone: (877) 888-1720  
[www.xrite.com](http://www.xrite.com)



### **Mushrooms, Canned**

USDA color standards in plastic 2x3 inch color chips. Colors 1, 2, 3, 4, and 5 representing cap and gill color, applicable to the U.S. Standards for Grades of Canned Mushrooms, white or cream type, U.S. Grade "A" and "B." Available as a set. June 2002.

#### [Care and Use Guide](#)

Price: **\$115.00**

Supplier: Equipment & Forms Depot

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### **Olives, Canned Ripe**

USDA color standards in the form of a bi-colored laminated vinyl chip. Depicts the two appropriate USDA composite color standards. For use in classifying color for canned ripe olives. March 1994.

#### [Care and Use Guide](#)

Part No. **M90056** Price: **\$65.75**

Supplier: Equipment & Forms Depot (Federal Offices Only)  
X-Rite, Inc. (Public Purchase)

X-Rite, Inc. - Munsell Color Services  
4300 44<sup>th</sup> Street SE  
Grand Rapids, MI 49512  
Telephone: (877) 888-1720  
[www.xrite.com](http://www.xrite.com)

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### **Orange Juice (Processed)**

USDA color standards in the form of six plastic tubes. The USDA colors 1, 2, 3, 4, 5, and 6 represent processed orange juice points of reference corresponding to the color scores 40 points through 36 points, respectively. The six tubes are available as a set in the 1963 edition.

#### [Care and Use Guide](#)

Part No. **314087** Price: **\$315.00**

Supplier: Agtron, Inc.

Agtron, Inc.  
9395 Double R Blvd.  
Reno, NV 89511  
Telephone: (775) 850-4600  
[www.agtron.net](http://www.agtron.net)

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### **Peaches, Canned Clingstone**

USDA color standards in laminated tri-color vinyl chip. Applicable to the U.S. Standards for Grades of Canned Clingstone Peaches, U.S. Grade "A," "B," and "C". January 2011.

#### [Care and Use Guide](#)

Price: **\$60.00**

Supplier: Equipment & Forms Depot (Federal Offices Only)  
Visual Color Systems (Public Purchase)

Visual Color Systems  
PO Box 93  
Mountaindale, NY 12763  
Telephone: (845) 434-2646  
[www.visualcolorsystems.com](http://www.visualcolorsystems.com)



### **Peanut Butter**

USDA color standards in plastic 2 x 3 inch color chips. Colors 1, 2, 3, and 4 are available as a set as specified in the U.S. Standards for Grades of Peanut Butter, U.S. Grade "A" and "B". June 2002.

#### [Care and Use Guide](#)

Price: **\$106.00**

Supplier: Equipment & Forms Depot



### **Peas, Frozen**

USDA color standards in the form of six laminated vinyl chips. Applicable to the U.S. Standards for Grades of Frozen Peas. Colors 1, 2, 3, 4, 5, and 6 are available as a set. April 2000.

#### [Care and Use Guide](#)

Price: **\$110.00**

Supplier: Equipment & Forms Depot



### **Pimientos, Canned**

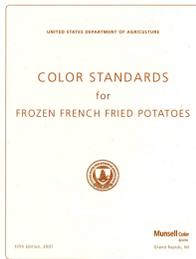
USDA color standards in the form of a bi-colored laminated vinyl chip. The color standards represent both pimiento red and pimiento reddish-yellow as specified in the U.S. Standards for Grades of Canned Pimientos. May 1996 and June 2003.

#### [Care and Use Guide](#)

Price: **\$75.00**

Supplier: Equipment & Forms Depot

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### Potatoes, Frozen French Fried

USDA color standards in the form of a printed one –page leaflet. This leaflet depicts a series of seven french fried potato units in graduated shades of ‘fry’ color. 5<sup>th</sup> edition 2007.

#### [Care and Use Guide](#)

Price: **\$45.00**

Supplier: Equipment & Forms Depot



### Pumpkin/Squash, Canned

USDA color standards in the form of a bi-colored laminated vinyl chip. The USDA canned pumpkin and canned squash color standards represent minimum color requirements as specified in the U.S. Standards for Grades of Canned Pumpkin and U.S. Standards for Grades of Canned Squash, U.S. Grade “A” and “C”. November 2002.

#### [Care and Use Guide](#)

Part No. **424434** Price: **\$66.75**

Supplier: Equipment & Forms Depot (Federal Offices Only)  
X-Rite, Inc. (Public Purchase)

X-Rite, Inc. - Munsell Color Services  
4300 44th Street SE  
Grand Rapids, MI 49512  
Telephone: (877) 888-1720  
[www.xrite.com](http://www.xrite.com)





### Sauerkraut, Canned

USDA color standards in the form of textured plastic disks. The USDA color standards for canned sauerkraut include limits for the predominating characteristic color and brightness of the product. The slightly greenish color in U.S. Grade B is represented by No. 1B, (Serial No. 12150) and the darkest limit of cream to light straw in U.S. Grade B is represented by No. 2, (Serial No. 12151). October 1957 edition.

#### [Care and Use Guide](#)

Price: **\$52.50**  
Supplier: Agtron, Inc.

Agtron, Inc.  
9395 Double R Blvd.  
Reno, NV 89511  
Telephone: (775) 850-4600  
[www.agtron.net](http://www.agtron.net)



### Tomatoes, Canned

USDA color standard in the form of a laminated vinyl chip. The USDA canned tomatoes color standard represents minimum red color requirements as specified in the U.S. Standards for Grades of Canned Tomatoes, U.S. Grade "C" or better. September 2002.

#### [Care and Use Guide](#)

Part No. **423904** Price: **\$66.75**  
Supplier: Equipment & Forms Depot (Federal Offices Only)  
X-Rite, Inc. (Public Purchase)

X-Rite, Inc. - Munsell Color Services  
4300 44th Street SE  
Grand Rapids, MI 49512  
Telephone: (877) 888-1720  
[www.xrite.com](http://www.xrite.com)



### Tomato Products

#### (Tomato Juice, Tomato Puree, Tomato Paste, and Tomato Catsup)

USDA color standards in the form of two bi-colored laminated vinyl chips. Represents selected minimum red color for U.S. Standards for Grades of Tomato Juice, Tomato Paste, Tomato Puree, and Tomato Catsup for U.S. Grades "A" and "C". A spinner is not required to use this version of the tomato products color standards. December 2000.

#### [Care and Use Guide](#)

Part No. **M90066** Price: **\$66.75**  
Supplier: Equipment & Forms Depot (Federal Offices Only)  
X-Rite, Inc. (Public Purchase)

X-Rite, Inc. - Munsell Color Services  
4300 44th Street SE  
Grand Rapids, MI 49512  
Telephone: (877) 888-1720  
[www.xrite.com](http://www.xrite.com)

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## Photo Guides

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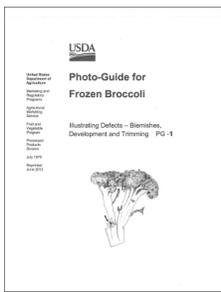
### Beans, Green & Wax

PG-2; Photo Guide for Frozen Green & Wax Beans depicting defects and character. October 2001.

[Care and Use Guide](#)

Price: **\$70.00**

Supplier: Equipment & Forms Depot



### Broccoli, Frozen

PG-1; Photo Guide for Frozen Broccoli illustrating defects, blemishes, development, and trimming. Reissued May 2012.

[Care and Use Guide](#)

Price: **\$100.00**

Supplier: Equipment & Forms Depot



### Carrot, Frozen

PG-10; Photo Guide for Frozen Carrots illustrating color and defects. April 2005.

[Care and Use Guide](#)

Price: **\$85.00**

Supplier: Equipment & Forms Depot



### Corn, Canned and Frozen Whole Kernel

PG-12; Photo Guide for classifying "cut" and "pulled" kernels canned and frozen whole kernel corn. Reissued September 2009 and January 2012.

[Care and Use Guide](#)

Price: **\$35.00**

Supplier: Equipment & Forms Depot



### **Corn, Canned**

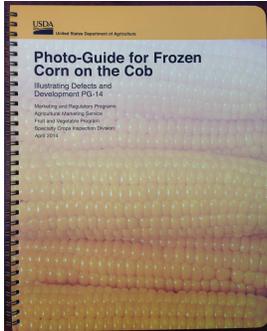
PG-13; Interpretive guide illustrating discolored kernels or pieces of kernels in canned corn. Reissued September 2009 and September 2011.

[Care and Use Guide](#)

Price: **\$35.00**

Supplier: Equipment & Forms Depot

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### **Corn on the Cob, Frozen**

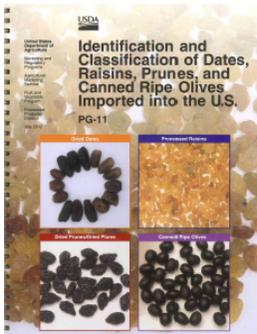
PG-14; Photo Guide for Frozen Corn on the Cob illustrating color and development. April 2014.

[Care and Use Guide](#)

Price: **\$72.00**

Supplier: Equipment & Forms Depot

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### **Dates, Raisins, Prunes, and Canned Ripe Olives**

PG-11; Photo Guide for identification and classification of dates, raisins, prunes, and canned ripe olives imported into the U.S. July 2012.

[Care and Use Guide](#)

Price: **\$90.00**

Supplier: Equipment & Forms Depot

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### **Peanut Butter**

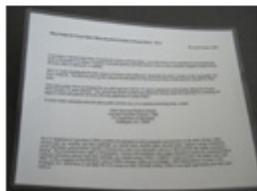
PG-4; Photo Guide for peanut butter illustrating dark particles in peanut butter. Reissued January 2008.

[Care and Use Guide](#)

Price: **\$35.00**

Supplier: Equipment & Forms Depot

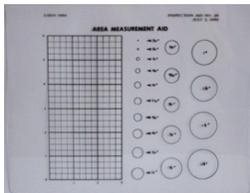
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## Other Guides & Inspection Aids

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**Area Measurement Guide, 8 x 10 in English Units, IA#30A**  
8 x 10 plastic measurement guide for measuring defects in fruits and vegetables. Available for measuring in English units. July 1990 edition.

[Care and Use Guide](#)

Price: **\$5.00**  
Supplier: Equipment & Forms Depot

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**Area Measurement Guide, 8 x 10 in Metric Units**  
8 x 10 plastic measurement guide for measuring defects in fruits and vegetables. Available for measuring in Metric units.

[Care and Use Guide](#)

Price: **\$5.00**  
Supplier: Equipment & Forms Depot

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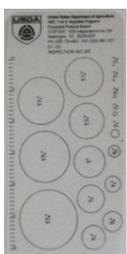


**Area Measurement Guide, IA #30B**  
4 x 8 plastic measurement guide for measuring defects in fruits and vegetables. This guide is available for measuring in English grids. January 2002 edition.

[Care and Use Guide](#)

Price: **\$5.00**  
Supplier: Equipment & Forms Depot

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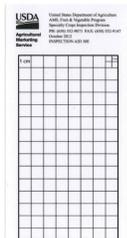


**Area Measurement Guide, IA #30C**  
4 x 8 plastic measurement guide for measuring defects in fruits and vegetables. This guide is available for measuring in English circles. May 2016 edition.

[Care and Use Guide](#)

Price: **\$5.00**  
Supplier: Equipment & Forms Depot

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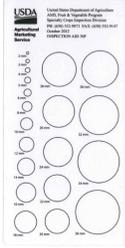


**Area Measurement Guide, IA #30E**  
4 x 8 plastic measurement guide for measuring defects in fruits and vegetables. This guide is available for measuring in Metric grids. October 2012 edition.

[Care and Use Guide](#)

Price: **\$5.00**  
Supplier: Equipment & Forms Depot

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### Area Measurement Guide, IA#30F

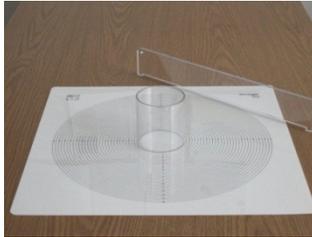
4 x 8 plastic measurement guide for measuring defects in fruits and vegetables. This guide is available for measuring in Metric circle. October 2012.

[Care and Use Guide](#)

Price: **\$5.00**

Supplier: Equipment & Forms Depot

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### Canned Applesauce Test Kit, IA#105

USDA flow sheet, cylinder, and scraper. A flat chart with defect and flow measurement areas defined on the surface; a clear hollow cylinder; and a clear scraper, with 3/16 inch-depth cut-out all made of polycarbonate material. For use in testing the consistency of applesauce and measuring defects applicable to the U.S. Standards for Grades of Canned Applesauce. Available as a set. September 2012.

[Care and Use Guide](#)

Price: **\$130.00**

Supplier: Equipment & Forms Depot

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### Canned and Frozen Asparagus Sizer, IA#109

This inspection aid is an official device used to make objective measurements for size of canned and frozen asparagus. October 2003.

[Care and Use Guide](#)

Price: **\$30.00**

Supplier: Equipment & Forms Depot

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### Citrus Concentrate, Guide for Scoring Hesperidin, IA#82

This inspection aid is a guide to determine the maximum amount of Hesperidin allowable in the Grade A classification of concentrated citrus USDA grade standards. December 1985.

[Care and Use Guide](#)

In development – not available

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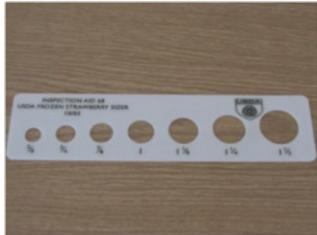
**Citrus Juice, Guide for Scoring Dark Specks, IA#90**

This inspection aid provides a visual guide for the presence of dark specks in the juice and illustrates lower limits of such specks for each grade. This aid includes suspended and precipitated black specks. September 1970.

[Care and Use Guide](#)

In development – not available

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**Frozen Strawberry Sizer, IA#68**

This inspection aid is an official device used to make objective measurements for size of frozen strawberries. October 2003.

[Care and Use Guide](#)

Price: **\$23.00**

Supplier: Equipment & Forms Depot

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**Headspace Gauge**

Plastic device used to measure headspace in canned foods for the determination of fill of container. Increments measured in 1/16 inch.

[Care and Use Guide](#)

Price: **\$22.00**

Supplier: Equipment & Forms Depot

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**USDA Bean Sizer, IA#108**

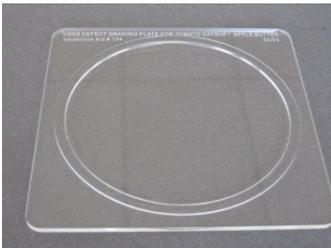
This inspection aid is an official device used to make objective measurements for size of canned and frozen round type green and wax beans. October 2003.

[Care and Use Guide](#)

Price: **\$22.00**

Supplier: Equipment & Forms Depot

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**USDA Defect Grading Plate for Tomato Catsup and Apple Butter, IA#104**

A plastic plate used to evaluate products for defects, seeds, and peel present in a specific volume. Applicable to the U.S. Standards for Grades of Tomato Catsup and U.S. Standards for Grades of Apple Butter. February 2002.

[Care and Use Guide](#)

Price: **\$85.00**

Supplier: Equipment & Forms Depot

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**USDA Metric Sizer, IA#110**

This inspection aid is an official device used to make objective measurements for size of canned ripe olives. October 2003.

[Care and Use Guide](#)

Price: **\$28.00**

Supplier: Equipment & Forms Depot

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**USDA Pea Sizer, IA#107**

This inspection aid is an official device used to make objective measurements for size of canned and frozen peas. October 2003.

[Care and Use Guide](#)

Price: **\$24.00**

Supplier: Equipment & Forms Depot

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**Universal Sizer, IA#106**

A plastic device used for the inspection of commodities with a specific size requirement. Sizes for measuring frozen and canned lima beans, peas, cherries, canned white potatoes, frozen strawberries, onions, dried figs, processed raisins, and prunes. Available as a set. Set arranged as follows: Blade 1: cover; Blade 2: 9/32", 10/32", 11/32", 12/32", 13/32", 14/32", 15/32", 16/32", 17/32", 18/32"; Blade 3: 19/32", 20/32", 23/32", 24/32", 28/32"; Blade 4: 15/16", 1", 1-1/16"; Blade 5: 1-1/8", 1-3/16"; Blade 6: 1-1/4"; Blade 7: 1-5/16"; Blade 8: 1-3/8"; Blade 9: 1-1/2"; Blade 10: 1-9/16"; Blade 11: 1-5/8"; Blade 12: 1-7/8"; Blade 13: 14 mm, 25 mm, 38 mm; Blade 14: 15 mm. January 2003.

[Care and Use Guide](#)

Price: **\$110.00**

Supplier: Equipment & Forms Depot

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# **CARE AND USE GUIDES**

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## **Color Standards**

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### **General**

Clean surfaces with a soft non-abrasive cloth using warm water and a mild soap solution and dry with a soft cloth. Avoid prolonged immersion in water. Store the standards in their envelope, away from heat and light, when not in use.

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## Honey

The color comparator for classifying color on the basis of the United States Standards for Grades of Extracted Honey consists of two metal boxes measuring approximately 11 x 2<sup>3</sup>/<sub>4</sub> x 1<sup>7</sup>/<sub>8</sub> inches divided into five equal compartments, each having two viewing apertures approximately 1<sup>3</sup>/<sub>16</sub> inch square. The new comparator, dated September 26, 2003, replaces the smaller previously distributed version. The three lighter color standards are mounted in the comparator box labeled Water White, Extra White, and White in compartments 1, 3, and 5. The three darker standards are mounted in a similar manner in the second comparator box labeled Extra Light Amber, Light Amber, and Amber. The bottle containing the sample of honey is placed in the appropriate comparator in compartment 2 or 4 so that it will be between adjacent color standards. Three square bottles similar to the sample bottles, filled with distilled water and referred to as “blanks”, are placed in the compartments behind the color standards.

To assist in the classification of the color of samples of honey which are appreciably turbid, three bottles containing suspensions of diatomaceous earth in varying degrees of turbidity are used. These are used interchangeably with any one of the clear blanks to reduce the brightness of the color standard to a level near that of the honey to be classified. Instructions for making up the cloudy suspensions are found in the grading manual for Extracted Honey.

The following procedure is used in classifying the color of extracted honey with these color comparators:

1. The clear blanks or the cloudy suspensions are placed behind the plastic standards in compartments 1, 3, and 5 of one or both of the comparators.
2. The sample of honey to be classified, which must be free of granulation, is poured into a clean dry bottle. The bottle is then placed in compartment 2 or 4 of either comparator box.
3. The comparator is held at a convenient distance from the eye and viewed using an approved light source. The color classification of the honey is then determined by comparison of the sample with the standards. Switching the sample from compartment 2 to 4, or vice versa, interchanging the clear blanks and the appropriate cloudy suspension, and in some cases shifting to the second comparator or using both comparators, may be necessary. If the sample is equal to the Water White color standard or lighter in color, the color is classified as Water White. If darker in color than the Water White color standard, but not darker than the Extra White color standard the color is classified as Extra White, and so on.

Many types of honey are appreciably cloudy because of the presence of air bubbles and fine suspended matter. In such cases, the brightness of the sample will be lowered and its color classification may be difficult to determine, particularly if its hue is near that of one of the color standards. When this is the case, the color classifications will be more easily determined if the clear blank is replaced by one of the cloudy suspensions. Although these cloudy suspensions are designed as aids in the classification of the color of honey, they may also serve as aids in evaluating the factor of clarity in ascertaining the grade of the product.

The color standards can be cleaned, when necessary, with a non-abrasive cotton cloth to avoid damage to the plastic material. The table below shows the USDA color standards, with scale readings on the Pfund wedge comparator, and spectral absorbance of caramel-glycerin solutions corresponding to the standard scale readings.

USDA Color Standards	Pfund Wedge Scale, mm	Caramel-glycerin Solutions, Absorbance* at 560 mμ	
		10 mm	31.5 mm
Water White	8	0.0300**	0.0945
Extra White	17	0.0600**	0.189
White	34	0.119**	0.378
Extra Light Amber	50	0.189	0.595
Light Amber	85	0.441	1.389**
Amber	114	0.979	3.008**

\* Absorbance (optical density) = log<sub>10</sub> (100/percent transmittance) measured versus an equal thickness of glycerin.

\*\* Calculated values.

## Sugarcane Molasses

The comparator for Sugarcane Molasses consists of:

1. Three plastic color standards comprised of three translucent plastic tiles,
2. A metal box measuring approximately 11 x 2-3/4 x 1-1/9 inches, divided into five equal compartments, and
3. Six sample bottles

The comparator is used with two sample containers having an internal opening of 1/8 inch in width.

Mount the three color standards from the lightest shade of amber to darkest shade into the 1st, 3rd, and 5th compartments, respectively. The 1st, 3rd, and 5th compartments of the comparator box are labeled “No. 1,” “No. 2,” and “No. 3.” Be careful to keep the plastic color standards clean and free of fingerprints or scratches.

To assist in the classification of the color of samples of molasses which are appreciably cloudy, three bottles containing colorless liquid of varying degrees of cloudiness are used. Instructions for the preparation of cloudy suspensions are found on page 2. These are referred to as “Cloudy A,” “Cloudy B,” and “Cloudy C,” and are used interchangeably in compartments 1, 3, and 5 to reduce the brightness of the color standard to a level near that of the molasses to be classified.

The following procedure is used in classifying the color of sugarcane molasses with these color comparators:

1. Partially crystallized sugarcane molasses is liquefied by heating to approximately 54.4 °C (130 °F) and cooled to approximately 20 °C (68 °F) before ascertaining the color.
2. With the aid of a small beaker, place the sample of sugarcane molasses into the opening of a clean, dry sample container.
3. The comparator is held at a convenient distance from the eye and viewed using an approved light source. Use diffused north daylight or an artificial source (e.g., the MacBeth Examolite Daylight models - 7500 Kelvin or equivalent) of a quality equal to natural daylight. The color classification is then determined by comparison of the sample with the standards. Switch the sample from the second compartment to the fourth compartment, or vice versa, and interchange the clear “blanks” for the appropriate cloudy suspension, as needed.
4. If the sample is equal to, or not as dark as the “No. 1” in hue, the color is classified as “U.S. Grade A (or U.S. Fancy);” if the color is perceptibly darker than “No. 1,” but not darker than “No. 2,” the color is classified as “U.S. Grade B (or U.S. Choice);” if the color is perceptibly darker than “No. 2,” but not darker than “No. 3,” the color is classified as “U.S. Grade C (or U.S. Standard);” if the color is darker than “No. 3,” the color is classified as “Substandard”.
5. If the sirup is appreciably cloudy, its brightness will be lowered and its color classification may be difficult to determine, particularly if the hue is near that of one of the standards. In such cases the color classification is more easily determined if the clear “blanks” are replaced by the cloudy suspensions. If the color is as cloudy as suspension B, the quality shall be graded “U.S. Grade B.” If the color is as cloudy as suspension C, the quality shall be graded “Substandard.”
6. If the sample is appreciably cloudy in appearance, place a suspension of comparable cloudiness (Cloudy A, Cloudy B, or Cloudy C) behind the permanent glass color standard to facilitate color classification. The bottles should be shaken after prolonged standing to bring about the proper suspension of diatomaceous earth.

### Preparation of Cloudy Suspensions

This procedure is for the preparation of one liter (1000 ml) each of cloudy suspensions A, B, and C.

**Note:** An acceptable cloudy suspension can be prepared by using distilled water and diatomaceous earth (DE) alone. See steps 1, 4, 5, and 7 below. The bottles containing the preparation should be thoroughly shaken before use and allowed to stand until all the air bubbles have been eliminated.

To obtain more stable cloudy suspensions, use the following procedure:

1. Measure 1.5 liters (1,500 ml) of warm water (about 140 °F)

2. Add 1.5 grams sorbic acid and mix with a stirrer until dissolved.
3. Gradually add 1.5 grams of carboxymethylcellulose (cellulose gum) to the warm solution. It may take several hours to dissolve.
4. Divide the stock solution into three equal 500 ml portions.
5. Add the following amounts of a food-grade diatomaceous earth (DE) for each suspension:

Cloudy A – 100 mg (0.10 grams)

Cloudy B – 200 mg (0.20 grams)

Cloudy C – 400 mg (0.40 grams)

6. Add 500 ml of glycerine to each suspension. This will result in a final volume of one liter for each cloudy suspension.
7. Transfer the suspensions to the square glass bottles and label them

The glycerine serves to prevent freezing; it also helps to slow the rate of settling out of the diatomaceous earth. The carboxymethylcellulose serves to raise the specific gravity and to prevent settling, while the sorbic acid acts as a preservative. These cloudy suspensions can be used with other sugar comparators (i.e., maple sirup and honey.)

The color standards can be cleaned with a non-abrasive cotton cloth to avoid damage to the plastic material.

## Tomato Products

This instruction provides for use and care of the Tomato Products Color Standards, 2000 Edition. USDA color standards come in the form of two bi-colored laminated vinyl chips. Represents selected minimum red color for USDA composite color standards as specified in the U.S. Standards for Grades of Tomato Juice, Tomato Paste, Tomato Puree, and Tomato Catsup for U.S. Grades “A” and “C.” A spinner is not required to use this version of the tomato products color standards. The color standards may be used if an approved colorimeter is not available.

Lower limits of color are prescribed in the U.S. standards for grades of various tomato products partially in terms of the color produced by spinning a combination of colored discs. The colors used according to the Munsell Color Notation are:

Red (5R2.6/13) (Glossy finish)  
Yellow (2.5YR/12) (Glossy Finish)

Black (N1) (Glossy Finish)  
Grey (N4) (Mat Finish)

The color standards simplify the grading of tomato products, give equivalent results when compared to the Munsell version of segmented discs, and replace the Magnuson version of the composite color standards (ABL and ABG).

**Exception: These color standards cannot be used for tomato juice scoring 25 points** under the special rule for canned tomato juice, concentrated tomato juice, and tomato juice from concentrate, because they do not cover 14% Grey or 19% Grey for Grades “A” and “C”, respectively. Use the original Munsell discs: 59% Red, 24% Yellow, 16.5% Black or Grey, or 8.25% Black and 8.25% Grey, instead.

To use the color standards, select the color standard plate that most nearly matches the sample. Put the prepared sample into the grading cup and place both the color standard and sample side-by-side, into the color-viewing booth or under approved lighting, if a booth is not available. The samples should be viewed against a neutral grey background with approved lighting, at approximately 7500 Kelvin color temperature. Observe the standard and sample at a 45-degree viewing angle from a distance of 24 inches from the product. **No spinning or special rack is required.**

If the product appears more red than either color on the plate, score accordingly. If the product appears less red than either color, it should be scored at the appropriate lower grade.

Use the following table as a guide for tomato products:

	Catsup		Sauce		Puree and Paste		Concentrated Juice		Juice	
	Color	Score	Color	Score	Color	Score	Color	Score	Color	Score
Sample is as red or redder than A1 or A2	Good color	21-25 points	Good color	21-25 points	Good color	45-50 points	Good color	26-30 points	Good color	26-30 points
Use Special Disc*	—	—	—	—	—	—	Fairly good color	25 points	Reasonably good	25 points
Sample is as red or redder than C1 or C2	Fairly good color	17-20 points	Reasonably good	17-20 points	Fairly good color	40-44 points	Fairly good color	23-24 points	Reasonably good	23-24 points

\*Use original Munsell discs: 59% Red, 24.5% Yellow, 16.5% Black or Grey, or 8.25% Black and 8.25% Grey.

These color standards are to be treated with care and kept in the envelope when not in use. Clean by using mild soap and warm water and dry with a soft cloth or towel.

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## **Photo Guides**

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### **General**

Promptly remove product from the guides to prevent damage to the laminate. The pages may be cleaned by gently wiping with a soft non-abrasive cloth using warm water and a mild soap solution and dried with a soft cloth. Do not immerse or soak these inspection aid. Store the guides away from heat and light when not in use.

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## **PG-12: Canned and Frozen Whole Kernel Corn**

The “Photo-Guide for Classifying ‘Cut’ and ‘Pulled’ Kernels in Canned and Frozen Whole Kernel Corn” was developed to assist in the uniform interpretation and application of the standards when evaluating cut and pulled kernels in the following products:

- Canned Whole Kernel (Whole Grain) Corn;
- Canned Cream Style Corn; and
- Frozen Whole Kernel (or Whole Grain) Corn.

The cutoff point for scoring pulled kernels has been established between kernel 4 and 5 of guide. Below are the proper interpretations (i.e., scored or not scored), for the seven kernels pictured in the photo-guide.

- Kernel 1 – Not scored as “pulled.”
- Kernel 2 – Not scored as “pulled.”
- Kernel 3 – Not scored as “pulled.”
- Kernel 4 – Not scored as “pulled.”
- Kernel 5 – Scored as “pulled.”
- Kernel 6 – Scored as “pulled.”
- Kernel 7 – Scored as “pulled.”

Care should be exercised when using the photo-guide. Promptly remove all product residues from the guide to prevent damage to the laminate. The page may be cleaned by gently wiping with a soft non-abrasive cloth using warm water and a mild soap solution and dried with a soft cloth. Do not immerse or soak this photo-guide. Store the guide away from heat and light when not in use.

### **PG-13: Interpretive Guide Illustrating Discolored Kernels or Pieces of Kernels in Canned Corn**

The Photo-Guide “Interpretative Guide Illustrating Discolored Kernels or Pieces of Kernels in Canned Corn” was developed to assist in the uniform interpretation and application of the grade standards when evaluating discolored kernels for the following products:

- Canned Whole Kernel (Whole Grain) Corn; and
- Frozen Whole Kernel (or Whole Grain) Corn.

This photo-guide does not show all types and degrees of discoloration found in canned or frozen corn. However, other types and degrees of discoloration may be compared with these illustrations with respect to appearance and may be classified accordingly.

The visual aid is divided into the following three categories:

#### Insignificantly Damaged Kernels (Insignificant Discoloration)

Kernel numbers 1 and 2 illustrate a slight discoloration of the glume (membranous bract at base of kernel) often referred to as “blackheads.” This type of discoloration is more often found in frozen corn than in canned corn. Kernel numbers 3 and 4 illustrate kernels with other “insignificant discoloration.” Kernels in this classification, numbers 1 through 4, display small areas with very slight darker color. These should be disregarded in scoring unless they are present in such quantities that the appearance of the product is more than slightly affected.

#### Damaged Kernels (Minor Discoloration)

Kernel numbers 5 through 8 illustrate discolorations which are scored as “damaged kernels” in accordance with the U.S. standards for grades. Number 5 illustrates the minimum amount in this category and there is a gradation in severity until number 8, which illustrates the maximum amount of discoloration that is permitted for “damaged kernels.”

Kernel number 8 is typical of the near maximum limit for minor discoloration. Other discoloration — of varying degrees and intensities — may differ in appearance but would also be scored as “damaged kernels” if the overall effect on the kernel is comparable.

It is not practical to illustrate every possible example of maximum discoloration for “damaged kernels.” Therefore, those discolored kernels, which appear to be only slightly worse (darker in color, etc.) than numbers 5 through 8 may be considered as “minor discoloration,” provided they do not appear to be as seriously affected as those in numbers 11 through 14.

#### Seriously Damaged Kernels (Brown or Black Discoloration)

Kernel numbers 9 and 10 illustrate brown or black discolored pieces of kernels, which are scored as “seriously damaged.”

Numbers 11 through 14 illustrate kernels with different degrees brown or black discoloration. “Seriously damaged kernels” of this nature are covered by the Food and Drug Standards of Identity for Canned Corn (21 Code of Federal Regulations §155.130) as “brown or black discolored” kernel(s) or pieces of kernel(s).

Kernels (or pieces of kernels) showing the degree of discoloration shown in this category must be scored as “seriously damaged.”

Care should be exercised when using the photo-guide. Do not allow it to come into direct contact with water or product. Do not immerse or soak this photo-guide. Store the guide in a plastic page protector, away from heat and light when not in use.

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**Inspection Aids**

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Clean by using mild soap and lukewarm water and dry with a soft cloth or towel. Do not use abrasive or strong cleaning agents on this inspection aid. Do not soak for extended periods of time.

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