

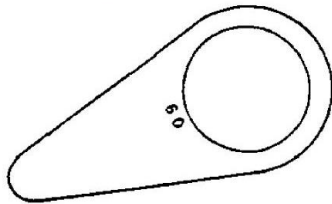
## SIZING RINGS

**Introduction:** Fresh produce is sometimes graded into different sizes, depending upon the market price offered by size, or to meet the requirements of a buyer. Automated sizing machines are expensive and can cause more mechanical damage than gentle manual handling during postharvest operations. Simple sizing rings can be used to classify round shaped fruits or vegetables into small, medium and large sizes.

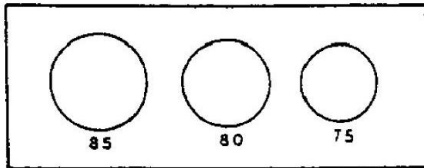
### Design Options & Materials Needed

**Flat blade style sizing rings:** Single or multiple size hand held sizing blades can be purchased readymade for \$5 to 10 each or fashioned as needed from sheet metal, 3mm flexible plastic or thin solid wood sheet (about 1/8<sup>th</sup> inch thick). The size of the holes should be determined by the type of fruit or vegetable to be graded by size.

Single size hand held sizing ring:



Multiple size rings:



Typical sizes found for the inside diameter of sizing rings include 60mm, 75mm, 85mm and 100mm. USDA has compiled a document on inspection tools.

<https://www.ams.usda.gov/sites/default/files/media/Fresh%20and%20Processed%20FV%20Products%20In>

**Wire rings:** Medium gauge wire (10g to 12g copper solid core coated wire or aluminum wire) can be used to make sizing rings of any size needed for \$1.00 each or less. The strong wire can be cut to length, and using pliers and a round fixed object as a mold, twisted to make the shape shown below. This simple style sizing ring can be easily grasped with two fingers and used to assess the size of many types of produce. A small piece of PVC pipe or a soup can make inexpensive molds, and are readily available in 60mm, 70mm, 85mm and 100mm outside diameter widths.

### Making sizing rings:

Materials and tools list

Heavy gauge wire

Ruler or measuring tape

Wire cutters

Pliers

Cylinder to use as mold (round, in the desired size)

Template (see illustrations on page 2) with basic pattern for wire wrapping

USDA size grades for Bermuda-Granex-Grano type onions:

Small less than 57mm in diameter

Medium: 57 to 82mm

Large: minimum 76mm

Colossal: minimum 95mm

Size standards for many horticultural commodities can be found on the USDA website:

<https://www.ams.usda.gov/grades-standards/vegetables>

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## Examples

Small ring: use 12 inches (26.5cm) of wire to make a ring 50mm wide

Medium size ring: use 14 inches (33cm) of wire to make a ring 70mm wide

Large size ring: use 18 inches (43cm) of wire to make a ring 100mm wide

## Costs & Benefits

Whenever prices increase as size increases, it can make good economic sense to sort and grade produce into size categories. The following simplified example shows how the benefits can outweigh the cost of the added labor and quickly pay for an investment in sizing rings.

Price for ungraded mixed load of onions: \$0.50 per kg

Price for one ungraded load of 1000 kg = \$500

Prices for: small \$0.30/kg; medium \$0.50/kg; large \$0.70/kg; colossal \$1.00/kg.

Costs for hand sorting/grading 1000 kg: 1 sizing ring @\$2.50 plus 5 hours @ \$9.50/hour = \$50 (costs)

Price for one graded 1000 kg load of 10% small; 30% medium; 50% large; 10% colossal = \$630

Price difference for size graded load versus ungraded load = \$630 - \$500 = \$130 (benefits)

Benefits - Costs = \$130 - \$50 = \$80

The farmer who grades onions by size prior to packing and sale can gain an extra \$80 profit per 1000kg load.

USDA order form:

<https://www.ams.usda.gov/sites/default/files/media/FV380%20Equipment%20Order%20Form.pdf>

Postharvest Innovations LLC <http://www.postharvestinnovations.com>

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