

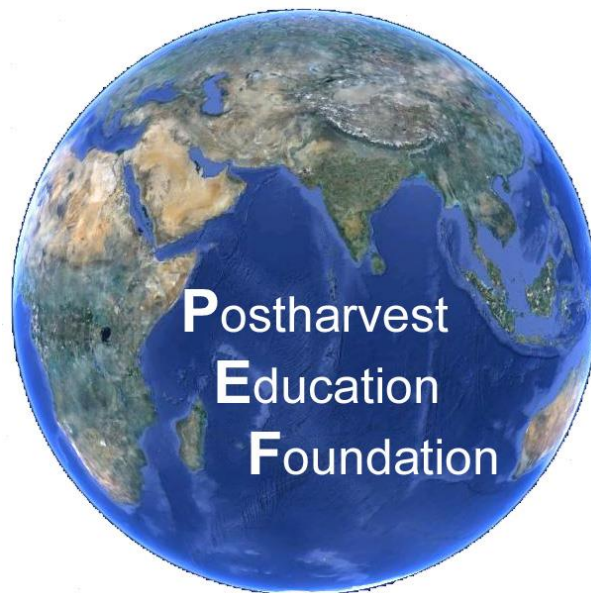
# **Creating Fruit and Vegetable Postharvest Technology Videos**

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Diane M. Barrett  
Dept. of Food Science & Technology  
University of California, Davis

**The Postharvest Education Foundation**

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## **Creating Fruit and Vegetable Postharvest Technology Videos**

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## Creating Fruit and Vegetable Postharvest Technology Videos

### Introduction

Advantages of videos over other educational formats

One of the fastest and most effective means of conveying a new idea may be through use of a video. A picture, and better yet, a video, is understandable regardless of the language students speak or what part of the world they live in. Today's technology allows short videos to be viewed on a portable device, such as a mobile phone, which are available now even in relatively poor countries.

Over the past 50 years, Cooperative Extension Specialists such as myself, working at land grant institutions in the U.S, have utilized 1-5 day short courses to educate members of the fruit and vegetable industry. Attendance at these programs is becoming increasingly difficult due to travel costs and restrictions and the industry is requesting more on-line education. The development of short 1 to 6 minute long videos to supplement these distance programs is highly desirable.

Current use of videos in postharvest technology education

Short educational videos are available on-line from various sources, but relatively few of them focus on the best methods for handling fruits and vegetables after harvest. Instructions on how to quantify losses in both yield (weight) and quality and on how to process fruits and vegetables to extend shelf life would be very useful. The Postharvest Technology Center (PTC) at the University of California, Davis, has an excellent video library at this link: <http://postharvest.ucdavis.edu/libraries/video/> and most of the videos listed are posted at the following YouTube channel: <http://www.youtube.com/user/ucdpostharvest>.

These videos are organized under 7 general topic areas:

- Harvest and postharvest handling systems
- Produce food safety
- Handling and nutrition
- Sensory Evaluation
- Small-scale postharvest handling
- Transportation
- Flowers and ornamentals

The videos, if short enough, may be used during the PTC's short courses, or viewed independently. Indicated on the video library page is the year when the video was created. Older videos were often

created in a format of a longer classroom lecture, with slides and narration, while more recent videos may be shorter in length (4-20 min) and feature a head shot of the speaker and video.

The International Programs Office under the College of Agriculture at UC Davis also created many short YouTube videos for extension teaching activities as part of their e-Afghan program: <http://www.youtube.com/user/ucdpostharvest>. These videos are short (less than 6 minutes), intended for remote audiences, and are formatted with simple text overlaid on the video and music in the background. The use of text rather than narration allows for easy translation into other languages, and the video itself is understandable in all languages!

One group called Scientific Animations Without Borders (SAWBO), based at the University of Illinois, uses animation and narration: <http://sawbo-illinois.org/main.htm>. They are creating videos on topics ranging from postharvest grain storage to hand washing and disease prevention.

### **Creation of a Database of Existing Videos**

Before starting to create new videos, it was important to carry out a 'video search' to view what was already available, and in what format. Over 60 videos were viewed, including those from the UC Davis Postharvest Technology Center, the International Programs Office, and others on the topics of:

- 1) Fruit and vegetable postharvest
- 2) Fruit and vegetable quality
- 3) Preservation

We created an Excel database of existing videos, which included columns for the descriptors: subject matter, creator, website address, short description, scale and audience, video type (video, narration, text and music), length and year produced. Many of the videos we reviewed were formatted with narration only, or perhaps narration with text overlaid on the video. Most of the videos were less than 10 minutes in length, but there were some exceptions that were 30-60 minutes. Not all the videos we reviewed were included, just those that we felt to be the most informative and not overly commercial. This Excel database is available at the link: [fruit and vegetable videos](#).

### **Examples of Existing Videos**

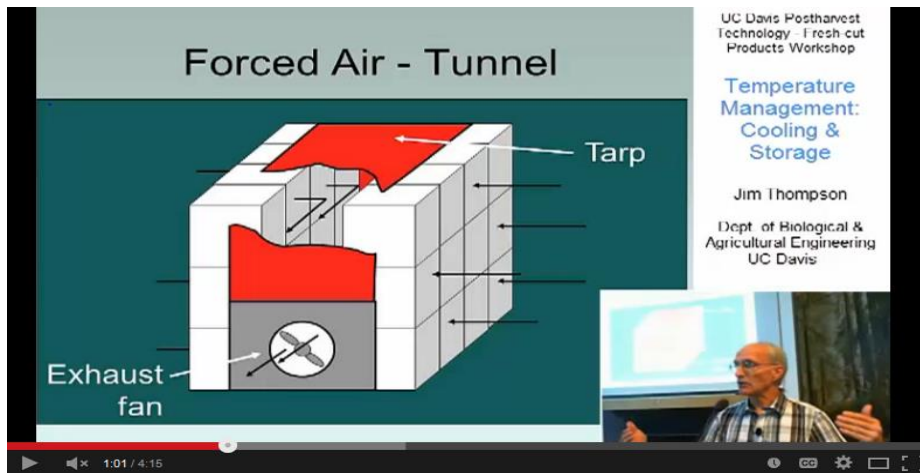
We have uploaded the over 60 videos in the database to the following website: <http://www.fruitandvegetable.ucdavis.edu/Fruit - Vegetable Videos/> where they are organized into the 3 topic areas mentioned above. Examples of videos in each of these areas are mentioned below.

#### **Fruit and Vegetable Postharvest Handling**

There are 33 videos in this topic area located at the link above. An example of how the videos appear in the Excel database appears below. The entire database has also been added as an Appendix to this paper.

Subject Matter	Creator	Website Address	Scale (Target Audience)	Video Type	Length	Year
Small Scale Postharvest Practices	UC Davis, Postharvest Technology Center	<a href="http://www.youtube.com/watch?v=i2GQJx99yU4">http://www.youtube.com/watch?v=i2GQJx99yU4</a>	small/medium scale	Slides and narration.	9:28	2008
Postharvest management - fruits & vegetables	Indira Gandhi National Open University, India	<a href="http://www.youtube.com/watch?v=95RRdoySdjA">http://www.youtube.com/watch?v=95RRdoySdjA</a>	small/medium scale	Video, music, narration	21:45	2009
Prevention of PH grain losses	Scientific Animations Without Borders, Univ. Illinois	<a href="http://www.youtube.com/watch?v=T9NnWcEfxY&amp;feature=player_embedded">http://www.youtube.com/watch?v=T9NnWcEfxY&amp;feature=player_embedded</a>	small/medium scale; farmer, trader	Animation	5:30	2012

The Postharvest Technology Center at UC Davis has videotaped lectures from some of our short courses. An example is one on forced air cooling by Jim Thompson, an emeritus Agricultural Engineer: <https://www.youtube.com/watch?v=0SfolbclGUA&feature=youtu.be>. This video was made in Camtasia and captures a head shot of the speaker, as well as slides. In this presentation, methods of temperature management are covered and a description of how to assemble a forced air cooler with a fan to evacuate air in the middle of stacked crates of produce is reviewed.



## Fruit and Vegetable Quality Evaluation

There are only 7 videos in the database for this topic, which illustrates a need for more “How to” videos on quality evaluation. A short list from this part of the database appears below.

Subject Matter	Creator	Website Address	Scale (Target audience)	Video Type	Length	Year
Demonstration of use of Refractometer	University of California - Davis International Programs Office	<a href="http://afghanag.ucdavis.edu/other-topic/postharvest/postharvest-videos/refractometer">http://afghanag.ucdavis.edu/other-topic/postharvest/postharvest-videos/refractometer</a> <a href="http://www.youtube.com/watch?v=x4HXq2E2KZw&amp;list=UUlypm44LLvbQNuz7JZCpssw">http://www.youtube.com/watch?v=x4HXq2E2KZw&amp;list=UUlypm44LLvbQNuz7JZCpssw</a>	medium/large	Video and text	1:25	2013
Using a Psychrometer - Measuring Relative Humidity	University of California - Davis International Programs Office	<a href="http://afghanag.ucdavis.edu/other-topic/postharvest/postharvest-videos/psychrometer-measuring-relative-humidity-video">http://afghanag.ucdavis.edu/other-topic/postharvest/postharvest-videos/psychrometer-measuring-relative-humidity-video</a>	medium/large	Video and text	2:08	2013
How to use a fruit hardness tester (Penemetro para fruta)	InfoAgro (Infoagro.com)	<a href="http://www.dailymotion.com/video/xb0s09_how-to-use-a-fruit-hardness-tester_tech">http://www.dailymotion.com/video/xb0s09_how-to-use-a-fruit-hardness-tester_tech</a>	medium/large	Video and text	0:58	2009

The International Programs Office at UC Davis has developed some excellent videos with music and text overlaid which describe methods of agricultural production, as well as a few methods for evaluation of fruit and vegetable quality. One example is below, in the “How to Use a Refractometer” video (above) at the following link: <http://afghanag.ucdavis.edu/other-topic/postharvest/postharvest-videos/refractometer>. In this video, a step-by-step illustration of how to use a refractometer is given. Fruit is squeezed through cheesecloth to extract the juice, and the percentage of Brix (soluble solids) is read off a grid, then the refractometer is cleaned and dried until the next use.



## Fruit and Vegetable Preservation

There are almost 40 videos on fruit and vegetable preservation in the Excel database. Examples of some of these are in the table below, and the entire database is an Appendix to this paper.

Subject Matter	Creator	Website Address	Scale	Video Type	Length	Year
Canning at different altitudes	National Center for Home Food Preservation	<a href="http://nchfp.uga.edu/multimedia_videos.html#video">http://nchfp.uga.edu/multimedia_videos.html#video</a>	home/small	Illustrations and text	0:28	1990
Cassava flour detoxification	Scientific Animations Without Borders, Univ. Illinois	<a href="http://www.youtube.com/watch?v=T9NnWcEfxY&amp;feature=player_embedded">http://www.youtube.com/watch?v=T9NnWcEfxY&amp;feature=player_embedded</a>	home/small	Animation	3:00	2012
Juice - Safer Processing	California Dept. Public Health, U.S. FDA, CDC, UC Davis	<a href="http://ucfoodsafety.ucdavis.edu/Food_Processing/Fruit_and_Vegetable_Juices/">http://ucfoodsafety.ucdavis.edu/Food_Processing/Fruit_and_Vegetable_Juices/</a>	Medium/large	Interviews	2:36	2010

The U.S. National Center for Home Food Preservation has many videos on home canning, freezing and dehydrating on its website: [http://nchfp.uga.edu/multimedia\\_videos.html#video](http://nchfp.uga.edu/multimedia_videos.html#video). These are all less than 3 minutes and describe safe methods of food preservation. The screen shot below, for example, is from a video about 'Hot pack for vegetables' which provides a step-by-step description of the process used for canning vegetables with a pH > 4.6.



#### **Prioritized Needs for New Videos in the Postharvest Area**

After viewing these existing videos, the format using just video with short, simple overlaid text was felt to be the easiest to translate and understand from the largest variety of audiences. Short videos of less than 6 minutes appear to be the most popular. In terms of the three topic areas reviewed, e.g. fruit/vegetable postharvest handling, quality evaluation and preservation, the fewest videos available were on the topic of quality evaluation. Creation of additional videos on this topic would be desirable from the point of view of the mission of The Postharvest Education Foundation, because the graduates of our e-learning program ([http://www.postharvest.org/postharvest\\_elearning\\_programs0.aspx](http://www.postharvest.org/postharvest_elearning_programs0.aspx)) receive a 'postharvest toolkit' with many tools that can be used to document postharvest losses in quantity and quality. Creation of a 'How to Use...' video for each tool would allow them to easily understand its use.

The first video created was entitled "How to Use a Color Chart to Increase Market Value" and is posted at the following YouTube channel: <http://www.youtube.com/channel/UC4Z7Gf-Tf8UsUkxyu54PeKw>. Also created was a "Technical Note" including the following: objectives, key concepts, materials required, background material, how learning will be reinforced/evaluated, references and discussion questions. This technical note is available here: [http://www.fruitandvegetable.ucdavis.edu/Fruit\\_Vegetable\\_Videos/](http://www.fruitandvegetable.ucdavis.edu/Fruit_Vegetable_Videos/). In the coming months, we hope to complete the 'How to Use....' series for all of the toolkit items.





Video: "How to Use a Color Chart to Increase Market Value"

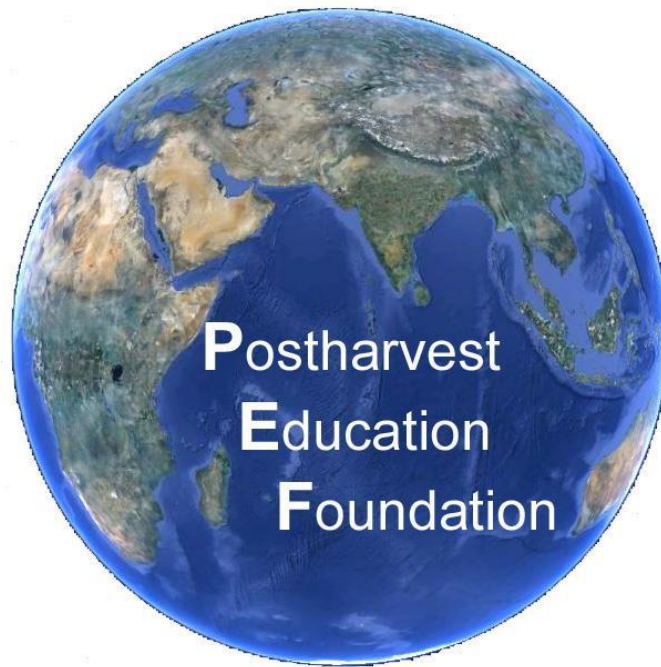
**Appendix:** Database of Existing Videos (as of November 2014)

Not all the videos we reviewed are included in the database, just those that we felt to be the most informative and not overly commercial. This MS Excel database, with three categories of videos and hotlinks, is available online at the link: [fruit and vegetable videos](#).

Fruit and Vegetable Postharvest Handling

Fruit and Vegetable Quality Evaluation

Fruit and Vegetable Processing



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