

Lesson Plan B

Course: Fruits and Vegetables Galore – Helping Kids Eat More

Module I: Quality Food for Quality Meals

Lesson B: Purchasing and Protecting Fresh Fruits & Vegetables

Lesson Length: 60 minutes

Lesson Equipment and Materials

Equipment

Overhead projector or Power Point
Flip chart easel

Visual Aids

V-B1 *Product Options*
V-B2 *Determine What to Buy—and How Much*
V-B3 *Develop Quality Standards*
V-B4 *Sample Quality Standard*
V-B5 *Grading Standards for Processed Fruits...*
V-B6 *Complete the Purchasing Task*
V-B7 *Receive Safely*
V-B8 *Store Safely*
V-B9 *Answers to Fruit and Vegetable Storage Chart*

Supplies

Flip chart and markers
Copy of *USDA's Food Buying Guide*
Two (different varieties) cleaned apples per group
Paring knife per group
White paper plate per group

Participant Materials

H-B1 *Apples*
H-B2 *Buying for Quality*
H-B3 *It's A Gas*
H-B4 *Ideal Storage Temperatures*
H-B5 *Fruit and Vegetable Storage*
H-B6 *Increasing Fruits and Vegetables in Meals – A Plan for My School*

Lesson Preparation

1. Read the entire Lesson Plan B.
2. Reproduce all Participant Materials for Lesson B.
3. Post performance standards for Lesson B. Use flip chart or blank transparency.
4. Post six flip chart pages on wall in training room prior to start of lesson.
5. The term School Nutrition Program (SNP) will be used for school foodservice or Child Nutrition.

Lesson Outcome

On completion of the lesson, the learner will become actively involved in ensuring that the SNP increases the variety and consumption fruits and vegetables based on the following **performance standard**:

- Evaluate product options and factors that influence amounts and cost of produce that is purchased.
- Determine quality standards for a selection of fruit.
- Identify safe receiving and storage practices for fresh produce.

Lesson Instruction

◆ Setting the Stage

Focus learner's attention (**10 minutes**).

- ▷ Ask each participant to introduce themselves by saying...
 1. where they work,
 2. what they do,
 3. the name of a fruit or vegetable that starts with the same letter as their first name (or last name if they have a difficult letter such as “V”),
 4. Whether or not they like the fruit or vegetable they named.

◆ Relate to Past Experience

- ▷ Making quality food begins with purchasing quality ingredients. **How many of you are responsible for purchasing food for your school? How many of you can influence the purchasing decisions by giving feedback on which products you do and don't think are good? How many of you buy fruits and vegetables to use at home? Oh good.** Then you can all gain something from this lesson
- ▷ You are a school foodservice professional. This means you want to serve nutritious meals, satisfy your customers, and keep them coming back for more. You also want to give them opportunities to learn how to eat for good health. This includes introducing them to new foods and encouraging them to eat more fruits and vegetables. To start the process, you need to **purchase quality food—and then keep it safe** from the time you receive it until you serve it.

◆ Today's Lesson...

- ▷ This lesson will provide you with the information you need to purchase quality food and keep it safe.
- ▷ **Instructor Note:** Provide participants the following information about this course regarding **Hazard Analysis Critical Control Points (HACCP) and Standard Operating Procedures (SOPs)**.
- ▷ This course will highlight various **SOPs** and **HACCP** principles for fruits and vegetables as outlined in the guidance manual distributed by the ND Department of Public Instruction titled *Guidance for School Food Authorities: Developing a School Food Safety Program Based on the Process Approach to HACCP Principles, United States Department of Agriculture, Food and Nutrition Service, June 2005*.

- ▷ This manual serves as USDA guidance for the implementation of HACCP-based food safety programs in schools participating in the National School Lunch Program (NSLP) or the School Breakfast Program (SBP).
- ▷ **HACCP: is a food safety program designed to reduce the risk of foodborne hazards by focusing on each step of the food preparation process—from receiving to service.** In other words, it is a food safety system that focuses on **food**. It is different from other food safety systems in a facility because of this focus. For example, let's compare HACCP with sanitation and personal hygiene programs. Sanitation programs focus on equipment and the facilities. Personal hygiene programs focus on employees. HACCP, however, **focuses on food**. All of these programs are necessary for a good food safety program, and all complement each other. HACCP prevents food safety problems before they happen by identifying and controlling possible hazards that can contaminate food as it flows through a facility.
- ▷ Every facility should identify and document in writing all menu items according to the Process Approach to HACCP.
- ▷ **SOPs: written instructions for a foodservice task that reduce food safety hazards.** SOPs are a very important factor in developing an effective food safety program. Their role is to serve as a basic food safety foundation and to control hazards not outlined specifically in the HACCP plan. For example, soiled and unsanitized surfaces of equipment and utensils should not come into contact with raw or cooked (ready-to-eat) food. Proper procedures to prevent this occurrence should be covered by an SOP.
- ▷ Every facility should develop, document in writing, and implement SOPs.
- ◆ **You Will Be Able To...**
 - ▷ Evaluate product options and factors that influence amounts and cost of produce that is purchased.
 - ▷ Develop quality standards for a selection of fruit.
 - ▷ Identify safe receiving and storage practices for fresh produce.
- ◆ **Identify the Purpose**
 - ▷ Healthy children.

Performance Standard

The learner will:

- Evaluate product options and factors that influence amount and cost of produce that is purchases.
- Develop quality standards for a selection of fruit.
- Identify safe receiving and storage practices for fresh produce.

◆ Lesson Content

▷ **How to Purchase Quality Fruits and Vegetables.**

▷ Fruits and vegetables can be purchased in six different forms and you probably use at least five both at home and at school. Show ***V-B1 Product Options***. There are advantages and disadvantages of using each and you need to consider these each time you make a decision to purchase.

▷ **Activity – Product Options (15-20 minutes):** Have six flip chart pages posted around the room. Divide participants into six groups. Assign each group one of the product options. Have each group suggest advantages and disadvantages for their product (give examples of each product option as listed below in bold print). As each group reports their issues, try to include the following:

1. Fresh (e.g. bananas, kiwi, heads of lettuce, celery sticks)

- Contains the most nutrients
- Often better quality
- Maintains quality better while being held (for longer periods of time)
- Can be time consuming to prepare

--Shorter shelf-life (requires more frequent deliveries)

--Not always available (due to season or lack of suppliers)

2. Fresh-cut (e.g. baby carrots, bags of salad mix)

--Close to fresh in quality and nutrient content (if stored and prepared correctly)

--Yield and appearance of product is more consistent than fresh (could be an advantage or disadvantage depending on whether the students prefer uniform vs. homemade appearance)

--Shelf-life often longer than fresh but shorter than other forms

--Less time to prepare (lower labor costs)

--Higher food cost

3. Frozen (e.g. berries, cauliflower, potato products)

--Long shelf-life

--Quick and easy to prepare

- Do not hold as well or as long after being cooked
- Lower nutrient content
- Good variety
- 4. **Canned (e.g. peaches, corn, peas, tomato products, beans)**
 - Long shelf-life
 - Quick and easy to prepare
 - Lower nutrient content (than fresh)
 - Some vegetables have less than desirable quality
 - Comparatively inexpensive
- 5. **Dried (e.g. raisins, dried apples, banana chips, sun-dried tomatoes)**
 - Usually nutrient packed but sugar-packed too
 - Chewy texture is not always well accepted by students
 - Better used in small quantities or as snacks
- 6. **Liquid (e.g. orange juice, V-8, lemon juice)**
 - Fewer nutrients and fiber than alternative forms
 - Often higher in sugar
 - Read labels carefully to purchase 100% juice

▷ **What to Buy—and How Much.** Discuss *V-B2 Determine What to Buy—and How Much*. One of the first steps in the process is to determine what and how much to buy. Your answers to the following questions will help:

1. **The menu** – What will you be serving?
2. **The recipes** – How much of each ingredient will you need?
3. **Product on hand** – What is already on site? Review storage areas or inventory records before you order.
4. **Product on order** – Are orders already in place?
5. **Product yields** (use the Food Buying Guide)—How many servings will each item produce? If your recipe call for 6 lbs of fresh, sliced bananas, you'll need to purchase about 9 lbs 6 oz because only about 64% of a banana is edible.
6. **Average meal consumption rate**—How much product is usually consumed? Use past production records to find consumption rate. If orange smiles are on the menu and you have an Offer vs. Serve program, you have to think about how many students usually take them before you can determine how much to buy.
7. **Volume and type of storage available**—How much dry and refrigerated storage can you use for additional product? If carrot coins are on the menu but your freezer has broken down or is simply too full, you might need to buy fresh or canned carrots this time.

8. **Preparation space and equipment**—Which space and equipment will be used to prepare product? If fruit salad is on the menu but the one nice big counter in your kitchen is needed for cinnamon rolls that day, you might need to substitute some canned fruits for the fresh you had planned.
9. **Labor**—Do you have enough people to do the work? This is one of the biggest issues for most schools and, probably more than anything else, it determines whether a school or district primarily uses fresh or primarily uses pre-prepared products. **How many of you make a lot of menu items from scratch using fresh ingredients? How many of you use a lot of convenience products?**
10. **Production schedule**—Are there conflicting demands? You have to consider the other menu items and where the labor will be needed. If you're making meatballs and cookies from scratch that day, you might want to buy prepared carrots and canned fruit cocktail rather than slice fresh carrots and make a fresh fruit salad.
- ▷ Reviewing these factors will help you pinpoint the items and **quantity** you need. The next step is to determine the **quality** of product you want.
 - ▷ **When you go to the grocery store to buy fresh apples, how do you decide which ones to get? What do you look for? Do you choose a certain kind or color? Why? Do you grab the closest apple or do you pick up a few before you find one you want to keep? What is wrong with the ones you put back?** Writing a quality standard for the fruits and vegetables you purchase at school is very similar.
 - ▷ **Activity (10 minutes) – Quality Standards:** Have two cleaned apples of different varieties; one of the variety should be Red Delicious and the other variety should be one of the following possibilities: Granny Smith, Gala, Fuji, Jonagold, Braeburn, Winesap, Rome Beauty, Criterion, or Golden Delicious. Provide a paper plate and a paring knife to each group of participants. Have each group slice each cleaned apple into bite size samples. Keeping the variety name a secret. Have each participant taste the samples and have each group decide which apple they would select to serve at their school. Have participants report their selection. Reveal the variety name for each sample.
 - ▷ **Develop Quality Standards for Fresh Produce.** (Instructors read *Quality Food for Quality Meals* pp.8-14). Display ***V-B3 Develop Quality Standards.***

- ▷ This is the **most difficult** step in the purchasing process. It is also one of the most important, and it can be **time consuming**. To get the quality you need and want, you have to know how to ask for it.
- ▷ So you must provide a detailed and **specific list** of the characteristics you want in a food product. Then, when you receive the order, you have to make sure the food meets your descriptions and is in good condition.
- ▷ There are three valuable tools that can assist you in the purchasing process: *USDA’s Food Buying Guide*. The USDA sent one of these to each of your schools (show copy of manual). If you can’t find it, go to www.fns.usda.gov to order another copy.
- ▷ The **Agricultural Marketing Service (AMS)** www.ams.usda.gov/fqa/cids.htm is another resource. They have hundreds of descriptions for commercial products. Refer to *H-A2 Fruit and Vegetable Galore Web Addresses*.
- ▷ The third resource is using **Food Product Sheets** (can be found in *Fruits and Vegetables Galore -Quality Food for Quality Meals, or First Choice*).
- ▷ To get a sample of the information provided and how to use it, let’s look at *H-B1 Apples*. Food product sheets provide examples of the kind of information to include as quality indicators and how to format information to communicate clearly. They do not present all of the possible combinations of quality indicators. They contain information on: **forms, sizes, grades, popular varieties, how packed, in season, purchasing tips, receiving, storing, standard of identity reference, grade standard reference, and sample descriptions**.
- ▷ Most of the Product sheets include a category called “Grades”.
- ▷ **Grading and Standards**—Review grade standards on *H-B1*. Very few fresh fruits and vegetables in the US are graded. They are termed “ungraded” or “unclassified.” However USDA has established “grade standards,” and these can help you make wise purchasing decisions, communicate with vendors, and check for quality when you receive deliveries. By referring to grade standards in your product descriptions, you communicate in very specific terms what you want and what you expect to receive. Most standards are Federal but some of the main growing states have established their own standards. The best possible Federal grade is U.S. Fancy. Followed by U.S. No. 1-3.
- ▷ Distribute *H-B2 Buying for Quality*. Look over this example: then compare it to the actual product sheet (*H-B1*) for “Apples, Fresh.” Find the sample description at the end of the actual product sheet. Notice how it’s written and think about how you would write your

own description for apples. This will help you write product descriptions that will best meet your needs.

- ▷ Have participants write a sample quality standard for Gala Apples. Ask a few to read their standard that they have written. Show **V-B4 Sample Quality Standard**.
- ▷ **Using Fresh-Cut Produce.** (Instructors read *Quality Food for Quality Meals* pp. 15-17). Fresh-cut (or pre-cut) produce is any fresh fruit or vegetable or combination that undergoes further processing from its original state. The labor and packaging required to process pre-cut fresh produce adds value to the end user; both also add to the cost.
- ▷ **Advantages of Fresh-Cut.** The buyer gains convenience and other advantages. Have participant groups think of three advantages to fresh-cut produce. Have each group report and develop a list of advantages on a flip chart. Include the following:
 - Portion control and consistent yield
 - Labor savings
 - Reduced waste
 - Reduced storage space
 - Product uniformity
 - Reduced delivery frequency
 - Consistent supply, quality, price
 - Reduced training requirements
 - Reduced equipment
 - Time
- ▷ **Cost Comparison.** Buying pre-cut produce is a shift from the traditional bulk purchasing and in-house processing of fresh fruits and vegetables and requires a careful analysis of the costs and benefits. Although the purchase cost of this produce is higher, it may prove more cost effective in the long run. To do an accurate cost comparison, you must determine true portion cost of pre-cut versus bulk. This means taking into account not only raw food product cost, but also labor cost, indirect costs, and yields.
- ▷ **Shelf life.** What is the remaining shelf life of a product once it reaches your school? As the following example shows, this can be considerably less than the initial shelf life quoted by the vendor.
Example: (Use flip chart to show example.) A vendor quotes a shelf life of 14 days and a maximum shipping time of 3 days. The distributor keeps the product in inventory a maximum of 3 days. The school gets Monday and Thursday delivery. The school's maximum inventory time is 4 days. Using this formula as follows:

- 14 days shelf life
- 3 days shipping
- 3 days distributor's inventory time
- 4 days school's inventory time
- =4 days maximum remaining shelf time

It is important to note that if the product is exposed to warm temperatures, its maximum shelf life can be further reduced by 50 percent—in this example, 2 days.

- ▷ **Buying Processed Fruits and Vegetables.** (Instructors read *Quality Food for Quality Meals* pp. 18-20). USDA has set quality standards for most processed fruits and vegetables. Like fresh produce, grading is not required. However, some buyers of processed fruits and vegetables choose to pay for a USDA inspector to grade the product. This is worth it to large buyers such as restaurant chains but in schools, we recommend that instead of requiring a graded product, you specify in your specifications (specs or quality standard) that you want the equivalent of a USDA graded product (by using the phrase “to be packed to” and then specify the desired grade level. Example: (“packed to USDA Grade B”).
- ▷ **Private labels** are also generally acceptable. These are terms specific to each distributor but, regardless of the exact names and logos each company uses, they are equivalent to the USDA's 1st, 2nd and 3rd level grade standards. Just ask your distributor to explain their terms so that you know what to specify when you order their product.
- ▷ Each standard (or grade) for canned or frozen fruits or vegetables is based on flavor, odor, color, uniformity of size, number of defects, texture, and other characteristics specific to the food.
- ▷ Display *V-B5 Grading and Standards for Processed Fruits and Vegetables*. This shows USDA's grade standard levels on the left. For processed fruits, the best grade level is called U.S. Grade A or U.S. Fancy. Different distributors will have different names but they will have a category that matches the criteria for USDA's Grade A. USDA refers to the second quality level of processed fruits as U.S. Grade B or U.S. Choice and so on.
- ▷ Knowing the grade category that the product falls into is a good guide when deciding what to purchase but you ultimately have to decide what is and is not acceptable quality for your program. “Can cutting” is a term used to describe one effective way to do this. **What other methods might you use to evaluate the quality of a processed**

product? *Taste test among staff and/or students, surveys, plate waste studies, etc.*

- ▷ **Follow the Rules for Purchasing.** When deciding where to get your fruits and vegetables, there are rules to follow. Because your food is paid for in part with federal funds (reimbursement money), you are required to compare prices. You can do this formally with sealed bids or informally, for example by calling vendors to check prices. Since processed fruits and vegetables can be held longer, you are more likely to use formal procedures for them. Since the price of fresh produce can change frequently, it is probably better to call vendors once a week to check prices.
- ▷ Fresh items can be purchased on a cost plus a fixed handling fee. The fee must be fixed though, not a percentage of sales, so that you can compare it with other vendors.
- ▷ You are not required to buy the cheapest product but you are required to document the reasons for your decisions.
- ▷ Show and discuss ***V-B6 Complete the Purchasing Task.*** Discuss the information on the visual also include the following: *If products received do not meet your specifications, be as tough as possible.*
 - Refuse to accept it and demand the correct product or by it elsewhere.
 - Ask for the correct product but accept the substitution if needed.
 - Accept it but let the delivery person know that it is not exactly what you asked for.
 - Document the situation and how it was handled.
- ▷ **How to Protect Fruits and Vegetables.** (Instructors read *Quality Food for Quality Meals* pp. 25-26).
- ▷ **Receiving** - Fresh produce should be delivered to the school in enclosed refrigerated trucks. Discuss ***V-B7 Receive Safely.***
 1. Inspect deliveries as soon as possible.
 2. Look for blemishes, bruise and broken skin.
 3. Evaluate the aroma, color, and firmness.
 4. **HACCP Principle** - refrigerated produce should have an internal temperature of 33 to 41 degrees F. Use a stem-type thermometer to be sure the temperature is **41 degrees F or below**. If the temperature probe damages the produce, use that package first. If the temperature of the product is too low or too high, follow the school district's procedure for receiving and rejecting produce.
 5. Refuse unacceptable products and document the issues.

- ▷ Show ***V-B8 Store Safely*** and discuss the following:
- ▷ 1. All potentially hazardous food (including all fresh cut melons) and all other produce must be marked for date received. Use FIFO (First-In, First-Out) storage method. This ensures that you use the lettuce that arrived on Monday before the lettuce you received on Wednesday.
- ▷ 2. Produce should not be washed before being stored (but should be washed or rinsed just before being eaten).
- ▷ 3. Produce should not be washed before being stored (but should be washed or rinsed just before being eaten).
- ▷ 4. Ready-to-eat foods such as fresh produce should never be stored under the cooler fan or anything else that might leak.
- ▷ 5. Produce and ready-to-eat foods should be stored above poultry, meat, fish, dairy and other potentially hazardous foods. Produce that will not be cooked before being eaten (such as mangos, kiwi, grapes, and lettuce) should be placed above or beside (but preferably not below) items that will be cooked (such as corn, cauliflower and carrots) or those with thick rinds that will not be eaten (such as cantaloupe).
- ▷ Distribute ***H-B3 It's A Gas***. Fruits and vegetables that produce ethylene gas (such as mangos, kiwi and cantaloupe) should be separated from those that are particularly sensitive to ethylene (such as lettuce, carrots and cauliflower). Those that don't produce it and are not damaged by it (such as grapes and corn) can be stored near either.
- ▷ Separation of those fruits and vegetables that give off odors. These items—for example, onions, garlic, shallots, green onions—may be placed in plastic bags or stored outside of the refrigerator.
- ▷ Distribute ***H-B4 Ideal Storage Temperatures***. *The produce that requires the lowest temperature should go on the bottom shelf and in the back of the refrigerator.*
- ▷ *Produce that tolerates a warmer temperature can be stored closest to the door.*
- ▷ **Cold storage – (Lower than 41 degrees F. - HACCP Principle)** in all types of refrigerators that include walk-ins, reach-in, and pass-through. Allow enough room for air to circulate.
- ▷ **Cool dry storage – (60 -70 degrees F. - HACCP Principle)** A cool storage room or area should be used to store produce such as bananas, tomatoes, potatoes, and dry onions. It should be a dark, dry, and well-ventilated area. Produce must be stored at least 6 inches off the floor

for proper ventilation. As with refrigerators, cool storage temperatures should be monitored several times a day and documented in a temperature log sheet. The first-in First-out (FIFO) method should be used to ensure that older items are used first (assuming they are still safe to eat).

- ▷ **Activity (5 minutes) – Proper Storage of Fruits and Vegetables.** Distribute *H-B5 Fruit and Vegetable Storage*. Instruct participants to arrange the fruits and vegetables according to the temperatures needed to maintain quality. Use *V-B9 Answers to Fruit and Vegetable Storage Chart*.

◆ **Performance Check**

- ▷ *H-B6 Increasing Fruits and Vegetable in Meals –A Plan for My School*. The instructor should read each statement aloud under the **purchasing** and **protecting** sections. Have participants should check “yes” if the procedure is in place or “no” if the procedure needs to be monitored more closely in their facility.

◆ **Closure**

- ▷ Whether you purchase food directly or your district does the buying, you want the highest quality products at the best price.