

A Farm to School Procurement Calculator for Specialty Crop Producers and School Food Service Staff¹

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Introduction

Florida Farm to School programs are designed to connect producers with schools (K–12). Schools purchase farm-fresh foods, particularly fresh fruits and vegetables, and incorporate those items in their menus. The objectives of Farm to School programs are to serve healthy meals in school cafeterias; improve student nutrition; provide agriculture, health, and nutrition education; and support Florida producers. Undoubtedly, Farm to School programs will differ by state, region, or even county due to an area's size, production capabilities, seasonality, and volume requirements. As a result, distribution models may vary in order to successfully connect local farms with schools. However, regardless of these differences, local farms and schools must be able to easily and effectively communicate their production capabilities and serving requirements in terms of volume and price.

Producers and school food service staff need tools that will help them through the Farm to School procurement process. Decisions about quantity and price in regards to production volume and school food servings are of particular interest to participants in the Farm to School distribution model. However, producers and school food service staff do not sell or buy products in the same units. When school food service staff make their purchasing decisions, they speak in terms of servings whereas producers pack their products by weight in a wide variety of container sizes, depending on the commodity or the needs of their customers. Producers field pack or pack large quantities of commodities which are quickly cooled and stored (Slama and Diffley 2010). While there are some general calculators and guides designed for national Farm to School programs, there are few resources designed specifically for Florida's diverse production of fresh fruits and vegetables. This publication serves as a procurement calculator and guide for producers and schools that participate in Florida Farm to School programs. To download the calculator please click the following link: [F2S Procurement Calculator](#).

Literature Review

Farm to School Programs have existed for a relatively short period of time. In 1996 and 1997, the first Farm to School pilot programs were established in California (Santa Monica-Malibu USD and The Edible Schoolyard, Berkeley) and Florida (New North Florida Marketing Cooperative). In 2004, the National Farm to School Program was authorized in-statute. The 2008 Farm Bill included provisions that allowed food service directors to prioritize local products (USDA Food and Nutrition Service 2011).

As noted earlier, various guides and calculators are available to help producers and schools effectively conveying their production capacities and serving needs. Researchers at Oklahoma State University developed a produce calculator template for determining the pounds of produce needed for a 1/4 or 3/8 cup servings (Holcomb and Vo 2013). While this tool provides the user with a general framework for purchasing typical commodities found in schools nationally, it does not consider products specific to the state of Florida. The tool is also limited in the information it provides the user. While it does give the user weight requirements in terms of pounds needed for a given amount of servings, it does not provide the user with specific information such as field pack unit size, gross package weight, and unit and total cost.

Methodology

This calculator is designed to aid producers and school food staff in the procurement process of fresh fruits and vegetables for Farm to School programs. Produce purchased in bulk directly from farms typically is packed in a variety of wholesale formats and with minimal processing, depending on the customer's needs and the desired commodity. School food staff are concerned with feeding children and per-meal cash reimbursements provided by the USDA, both of which depend on the number of servings. This calculator is intended to provide producers and school food staff with a variety of information required when making food purchases for Farm to School Programs. Users can quickly calculate useful information such as net weight of as purchased product and its edible portions. The user can also identify

the number of servings per unit (1/4, 1/2, and 1 cup servings), AP servings, price per serving and per pound, the cost per commodity, and total cost.

Definitions

Commodity—A raw material or primary agricultural product that can be bought and sold.

Unit—A quantity chosen as a standard in terms of which other quantities may be expressed.

Serving—A quantity of food suitable for or served to one person.

As Purchased (AP)—Used to cost an ingredient at the purchase price before any trim or waste is taken into account.

Edible Portion (EP)—Used to cost an ingredient after trimming and removing waste so that only the usable portion of the item is reflected.

Net Weight—Refers to the weight of the product alone, discounting the weight of its container or packaging.

Gross Weight—Refers to the total weight of a product and its packaging.

Percentage Trim—Ratio of inedible portions to commodity as purchased.

How to Use

It is the hope of the authors that users will find this calculator intuitive to use. The following steps show how to use the calculator:

Step 1: Enter the quantity of units as purchased in the Number of Units AP column (Column D).

Step 2: Enter the current wholesale market price for a given Unit Cost (Column E).

Step 3: Review the information.

Once Steps 1 and 2 have been completed, the calculator will automatically update the spreadsheet and provide the user with information such as servings per unit, servings as purchased, cost per serving, cost per pound, commodity cost, and the total commodity cost.

The conversion factor values for this calculator were found in the USDA's Food Buying Guide for Child Nutrition Programs (2013). This value converts the amount of product in pounds as purchased (AP) to the number of edible portions (EP) in pounds. A list of the commodities and their conversion factors as well as additional information such as the net weight of edible portions,

percentage trim, number of units per hundredweight and servings per pound EP is provided in Table 1.

Equations

The equations below explain how the various calculations were performed in the spreadsheet and for the additional descriptive information for each of the commodities.

$$\text{Number of Units per Hundredweight} = 100 / (\text{Net Weight AP})$$

$$\text{Servings per Unit} = \text{Net Weight AP} * \text{Servings per Pound EP}$$

$$\text{Servings AP} = \text{Number of Units AP} * \text{Servings per Unit}$$

$$\text{Net Weight EP} = \text{Estimated Net Weight AP} * \text{AP} - \text{to} - \text{EP Conversion Factor}$$

$$\text{Cost per Pound} = (\text{Total Cost}) / (\text{Number of Units AP} * \text{Estimated Net Weight AP})$$

$$\text{Cost per Serving} = (\text{Unit Cost}) / (\text{Servings per Unit})$$

$$\text{Percentage Trim} = 1 - \text{Conversion Factor}$$

References

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Table 1. Recommended Commodities and Conversions for National School Meal Programs

Commodity	AP*-to-EP** Conversion Factor	Net Weight EP** (lbs.)	Percentage Trim	Number of Units per cwt (100-wt)	Serving Size per Meal Contribution (cups)	Servings per Pound EP
Beans, Green	1.00	25.00	5.0%	4.00	0.25	22.00
Blueberries	0.96	4.32	4.0%	22.22	0.25	11.90
Broccoli	0.81	15.39	19.0%	5.26	0.25	19.90
Cabbage	0.87	43.50	13.0%	2.00	0.25	17.70
Cantaloupe	0.47	18.80	53.0%	2.50	0.25	5.73
Carrots	0.70	33.60	30.0%	2.08	0.25	10.30
Cauliflower	0.62	15.25	39.0%	4.00	0.25	12.30
Celery	0.83	49.80	17.0%	1.67	0.25	12.20
Collard Greens, Fresh	0.57	13.68	43.0%	4.17	0.25	6.20
Cucumbers	0.98	39.20	2.0%	2.50	0.25	11.10
Eggplant	0.81	20.25	19.0%	4.00	0.25	6.70
Kale	0.73	17.52	27.0%	4.17	0.25	35.70
Lettuce, Fresh Leaf	0.76	38.00	24.0%	2.00	0.25	22.20
Lettuce, Iceberg	0.66	13.20	34.0%	5.00	0.25	21.70
Okra	0.87	21.75	13.0%	4.00	0.25	9.70
Onions, White	0.88	44.00	12.0%	2.00	0.25	9.30
Onions, Yellow	0.88	44.00	12.0%	2.00	0.25	9.30
Oranges, Naval	0.76	34.20	24.0%	2.22	0.25	2.90
Oranges, Satsumas	0.76	34.20	24.0%	2.22	0.25	2.90
Peas, Field Varieties	1.00	11.00	0.0%	9.09	0.25	4.00
Peppers, Bell	0.80	20.00	20.0%	4.00	0.25	9.70
Potatoes, Red	0.80	40.00	20.0%	2.00	0.25	9.88
Potatoes, Sweet	0.61	24.40	39.0%	2.50	0.25	6.60
Radishes	0.94	23.50	6.0%	4.00	0.25	12.80
Spinach	0.88	15.84	12.0%	5.56	0.25	30.70
Squash, Yellow	0.95	19.00	5.0%	5.00	0.25	7.30
Squash, Zucchini	0.95	19.00	5.0%	5.00	0.25	11.90
Strawberries	0.88	7.04	12.0%	12.50	0.25	10.50
Sweet Corn	0.34	19.04	66.0%	1.79	0.25	1.67
Tomatoes	0.87	21.75	13.0%	4.00	0.25	7.60
Tomatoes, Cherry	0.99	24.75	1.0%	4.00	0.25	12.10
Watermelons	0.61	33.55	39.0%	1.82	0.25	6.10

*AP (As Purchased): Used to cost an ingredient at the purchase price before any trim or waste is taken into account.

**EP (Edible Portions): Used to cost an ingredient after trimming and removing waste so that only the usable portion of the item is reflected.

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