

PART ONE.

FOOD AID COMMODITIES AND FACT SHEETS

CONTENTS

Section I – Commodities

- I. Commodity Availability
- II. General Commodity Characteristics
- III. References

Section II – Food Commodities Fact Sheets

Section III – Storage and Shelf Life

- I. Storage Specifications
- II. Storage Inspection Checklist
- III. Shelf life of Agricultural Commodities
- IV. References

Section IV – Controlling Damage to Food Commodities

- I. Cleaning and Inspecting
- II. Insect Control
- III. Rodent Control
- IV. Reference Chart for Controlling Damage to Food Commodities
- V. References

PART ONE. SECTION I: Commodities

TABLE 1.1
Commodities Provided by the
United States Food Aid Programs
in FY 1997

	Thousand Metric Tons
BEANS	26
BULGUR	68
CORN	269
CORN SOY MASA FLOUR	1
CORN SOY BLEND	211
CORNMEAL	24
COTTON	6
LENTILS	20
PEAS	30
RICE	218
NONFAT DRY MILK	1
SORGHUM	44
SOY BEAN MEAL	108
SOY BEANS	10
Soy-Fortified BULGUR	60
Soy-Fortified CORNMEAL	43
Soy-Fortified SORGHUM GRITS	14
TALLOW	2
VEGETABLE OIL	184
WHEAT	1,329
WHEAT FLOUR	161
WHEAT SOY BLEND	9
WHOLE DRY MILK	3
TOTAL:	2,841

In FY 1997, P.L. 480 Title II distributed a total of 1.66 million metric tons, valued at \$821 million, to 43 million people in 53 countries. Title II accounted for approximately 58% of the entire P.L. 480 program.

(Source: USDA/FAS/ 11-18-97)

This Section provides general characteristics of food commodities used in P.L. 480 Title II Program (Food for Peace Program). The commodities are inexpensive food staples used to provide basic nourishment to populations in extreme food security emergencies as well as for development activities designed to address food security goals.

I. COMMODITY AVAILABILITY

While the Secretary of the United States Department of Agriculture (USDA) determines the total supply of commodities, USAID's Office of Food for Peace of the Bureau for Democracy, Conflict and Humanitarian Assistance (USAID/DCHA/FFP) coordinates the eligibility, procurement, allocation, and delivery of commodities with the USDA. USAID also coordinates the development and implementation of project procedures of cooperating sponsors, including private voluntary organizations (PVO), non-governmental organizations (NGO), international agencies, and the World Food Programme (WFP).

The legal provisions for determining commodity eligibility for P.L. 480 were revised in the Federal Agricultural Improvement and Reform (FAIR) Act of 1996. Section 401(a) of this Act stipulates that all agricultural commodities are essentially eligible for programming under P.L. 480. The only exception being when the Secretary of Agriculture determines that the inclusion of a commodity under P.L. 480 would reduce its domestic supply so that it does not meet domestic requirements (including commercial exports) or provide for an adequate carryover. Under prior legislation, the Secretary of Agriculture used similar criteria to determine the specific commodities and the quantity of those commodities that were available for P.L. 480 programming.

Under Section 401(a) of the FAIR Act, the Secretary of Agriculture continues to have the authority to determine if some portion of a commodity in short supply can be made

available to address the urgent humanitarian purposes of this Act. For example, during fiscal year 1997, corn was defined as being in short supply and therefore not available for P.L. 480, yet

the Secretary of Agriculture determined that up to 700,000 metric tons of corn would be available to meet urgent humanitarian needs under P.L. 480, Title II.

Commodity availability for P.L. 480 is also determined by the Bill Emerson Humanitarian Trust Act. This Act provides for a reserve of funds or up to 4 million metric tons of eligible commodities including wheat, rice, corn and sorghum. These commodities may be released to meet unanticipated emergency needs under the P.L. 480 Title II program or when the domestic supply of eligible commodities is so limited that commodities in the reserve cannot be made available under the provisions of P.L. 480, Section 401(a).

II. GENERAL COMMODITY CHARACTERISTICS

A brief review of the general commodity characteristics is provided here to facilitate the selection process. The commodities provided under P.L. 480 Title II programs generally fall into two categories: A) *non-processed foods*, such as whole grains and pulses (legumes) and B) *value-added foods*, which are processed foods that are manufactured and fortified to particular specifications for the P.L. 480 Title II program on an as-needed basis. This category includes: milled commodities, soy fortified processed commodities, blended commodities, and fortified refined vegetable oil.

A more detailed fact sheet for each commodity is provided in Section II.

A. NON-PROCESSED FOODS

These commodities are whole grains and pulses (legumes) which have been cleaned but not ground, milled or heated. They have a long shelf life if stored under cool conditions and low humidity.

1. Whole Grains. Whole grains are considered unprocessed. They are readily available and relatively inexpensive. They are recommended for use primarily in regions that are familiar with processing and cooking these types of commodities. Whole grains normally need to be ground prior to use in cooking or baking.

Corn (Maize): This is whole-grain yellow corn. In some corn-consuming parts of the world, large-kernel white corn is preferred but yellow corn can be substituted for it. Due to its abundance, low price and widespread acceptance, whole corn is widely used in emergency programs, both by relief agencies and recipient country governments.

Sorghum: This unprocessed whole grain is used as a staple in parts of Asia and Africa. It has limited utility as it can present problems of digestibility in areas where the population is not familiar with how to process it.

Wheat: Wheat is widely accepted but requires more processing than the other whole grains to be converted into food. It can be either soft or hard in texture and white or red in color. Soft wheat is often closer to the type of wheat used in most recipient countries and is the easiest to process into flour at home. Hard red wheat is prized for use by commercial mills to

make into bread flour. Hard wheat and durum wheat is used by mills to produce semolina for use in couscous and pasta.

2. Pulses (Legumes). Dry beans, peas and lentils fall into the category of pulses (or legumes). There are many varieties grown in the United States that can match local preferences. Pulses are high protein foods and good natural sources of fiber, B vitamins and minerals. They generally have a good market value locally. Taste and variety preferences vary significantly within and between countries. Pulses can be used in all categories of food aid programs.

The combination of pulses and cereals, such as rice and beans, provide the diet a better quality of protein than either one consumed separately. Pulses need to be cleaned to remove any debris prior to preparation. Cooking times and water and fuel requirements vary based on size and age (smaller, fresher varieties cook faster). Most beans and whole peas need to be soaked in water prior to preparation.

Dry Beans: White, red/pink, and other colored varieties are grown in the United States. Beans are eaten throughout the world. Central/Latin America and the Caribbean and the Great Lakes Region of Africa are bean-eating regions. Taste, size and color preferences differ widely. For example, Black Beans are eaten in most of Brazil while Small Reds are preferred in Nicaragua. Title II programs historically have used about ten varieties: Black Beans, Dark Red Kidney Beans, Great Northern Beans, Light Red Kidney Beans, Navy Beans (Pea Beans), Pink Beans, Pinto Beans, and Small Red Beans. Other varieties are available. Specific variety and acceptable alternates should be specified when ordering.

Dry Whole and Split Peas: Dry Peas (Green Peas, Split Green Peas, Yellow Peas, Split Yellow Peas) are used in many P.L. 480 Title II programs, as inexpensive protein sources. Peas are dried naturally by the sun. Split peas have shorter cooking times than beans and do not need to be soaked. Whole peas need to be soaked overnight. Specific variety and acceptable alternates should be specified when ordering.

Lentils: Lentils are preferred throughout Asia, where color and taste preferences are local. They are easy to prepare, as they require no soaking, have shorter cooking times and need less fuel requirements than most beans and whole peas. The most common type used in P.L. 480 Title II programs is the U.S. Regular Lentil. Other types grown in the U.S. are Red Chief, Pardina, Eston, Crimson and Grande Lentils.

B. VALUE ADDED COMMODITIES

1. Milled Commodities. Many raw commodities are ground and refined in order to make them more acceptable and easier to prepare and consume. This often results in a decrease in micronutrients from their whole-grain equivalent, but they are usually fortified with calcium and iron and enriched with four B vitamins (i.e. B1, B2, niacin, and folic acid) to restore some of the lost nutrients. In addition, vitamin A is added to the following milled commodities: wheat flour, cornmeal, bulgur, sorghum grits, and soy fortified varieties. Vendors are mandated to meet

minimum standards for vitamin A of 8800 IU per pound of fortified grain (equivalent to 1955 IU per 100 grams). (Sources: http://www.fsa.usda.gov/daco/eod_notices/eod61.pdf and http://www.fsa.usda.gov/daco/eod_notices/eod64.pdf).

Corn Masa Flour: Corn soy masa flour is made from lime-treated whole corn. It is primarily intended for use in the preparation of tortillas and similar products but may also be used to make gruel.

Cornmeal (Maize or Mealy Meal): Ground, degermed, yellow cornmeal can be used to make porridge, ugali or baked items. It is fortified with iron, calcium, vitamin A and four B vitamins.

Rice: White rice is processed from long, medium or short grain rough rice by removing the hull and bran layers. Parboiled rice is precooked with a steam-pressure process that gelatinizes the starch and ensures a firmer, more separate grain. The kernel in the process absorbs some of the fiber and minerals from the bran layer as well. Rice has high acceptability and market value in many parts of the world. White rice provided under this program is not fortified with vitamins and minerals.

Sorghum Grits: Degermed and dehulled sorghum grain can be prepared similar to rice or employed as a baking ingredient. It is used mainly in Africa and parts of Asia.

Wheat Bulgur: Bulgur is made from cleaned, cracked, debranned, partially precooked whole wheat. It is often accepted as a substitute for rice and prepared in a similar manner. Bulgur is fortified with minerals and vitamins to same levels as in cornmeal.

Wheat Flour: All-purpose flour made from hard wheat can be used in a variety of applications including bread making. It is fortified with iron, calcium, vitamin A and four B vitamins.

2. Soy-Fortified Processed Foods. Soy flour is added to cereals because it greatly improves their protein content and quality. Soy fortified processed foods are used as staples in all categories of P.L. 480 Title II programs. They have been formulated to resemble as much as possible the appearance and taste of similar unfortified foods.

Corn Soy Masa Flour, Instant: Corn soy masa flour is made from lime-treated whole corn, fortified with 5% soy flour, plus vitamins and minerals. It is primarily intended for use in the preparation of tortillas and similar products but may also be used to make gruel.

Soy-Fortified Bulgur: Cracked, debranned, and partially precooked bulgur wheat is fortified with 15 percent soy grits and vitamins and minerals. It is often accepted as a substitute for rice and is generally used to make porridge. Soy-fortified bulgur is also fortified with minerals and vitamins to same levels as bulgur and cornmeal.

Soy-Fortified Cornmeal: Degermed cornmeal is fortified with 15 percent soy flour and vitamins and minerals. Soy-fortified cornmeal can be prepared the same way as plain cornmeal.

Soy-Fortified Sorghum Grits: Soy-fortified sorghum grits is degermed and dehulled grain sorghum that has been fortified with 15 percent soy grits. They are a good replacement for rice in rice-consuming areas of the world.

3. Blended Foods. Blended foods consist of a granulated mixture of partially precooked cereal flour, soy flour, vegetable oil, and vitamins and minerals. (See Table 1.2 for composition.) Blended foods are nutrient-dense due to their fortification with protein and a full range of 11 vitamin and 6 minerals, as shown in Table 1.3. They require minimal cooking (only five to seven minutes), are easily digestible and are widely accepted, making them usable in Maternal and Child Health programs and emergency programs. They retain stability during storage for at least one year at 77°F.

Blended foods or formulated cereal foods, as they also are called, were introduced into the program in August 1966. They were intended to be a substitute for nonfat dry milk and to serve as a high quality protein source for weaning-age children, older preschool-age children, pregnant women, and other malnourished individuals. The vitamin and mineral fortification levels make blended foods a good vehicle to boost micronutrient intakes in vulnerable populations. If blended foods are used as the primary component of the diet, sugar or vegetable oil should be added to increase their energy density. Two examples of blended foods are Corn Soy Blend (CSB) and Wheat Soy Blend (WSB). Venders are mandated to meet minimum standards for vitamin A and iron in CSB and WSB blended foods. The minimum requirement for vitamin A is 8400 IU per pound (equivalent to 1850 IU per 100 grams) and the minimum for iron is 14.7 milligrams per 100 grams (equivalent to 66.2 milligrams per pound) of final product. (Sources: http://www.fsa.usda.gov/daco/eod_notices/eod61.pdf and http://www.fsa.usda.gov/daco/eod_notices/eod64.pdf).

Corn Soy Blend (CSB): Corn soy blend has a bland flavor and tan color and has been widely used in P.L. 480 Title II programs, especially in India for MCH programs. CSB is a blend of partially cooked cornmeal, soy flour, salt, vegetable oil, plus vitamins and minerals. It is often used for weaning-age children in the form of a thin, drinkable gruel. The only preparation necessary is to mix CSB with water in the appropriate proportions and boil for 5 to 7 minutes. Many other preparations are possible. Vitamin A and C retention is improved if prepared into a thick paste, or *ugali*. Additional salt, sugar and other ingredients may be added for flavor.

Wheat Soy Blend (WSB): WSB is a blend of partially precooked wheat or bulgur flour, wheat protein concentrate, and soy flour. It is supplemented by oil, salt, vitamins and minerals. Unlike the bland taste of CSB, WSB has a distinctive wheat-type flavor and a darker color. It produces a thicker paste than CSB with the same level of added water and can be formed into dumplings. It is quite versatile and used in many programs.

4. Fortified Refined Vegetable Oil (EDIBLE Vegoil). Fortified refined vegetable oil is made from refined, deodorized, and bleached vegetable oil that is then further purified, filtered, fortified with vitamin A, and packaged. Normally, it is derived from soybean oil, although, based on availability, corn oil, sunflower oil, cottonseed oil, peanut oil, or rapeseed oil, individually or in combination may be utilized.

Unless otherwise specified in the request, all refined vegetable oil must be fortified with vitamin A to a level of 60 to 75 IU/g (<http://www.fas.usda.gov/excredits/pl480/commodities/vegoil.htm>). Edible vegoil has a high caloric density, provides essential fatty acids and aids in the absorption of fat-soluble vitamins. It increases the fluidity of cereal foods, making it an important component of feeding programs for young children. Vegetable oil is used as an ingredient in cereal dishes, such as porridge or rice, and is used as a cooking medium for frying and sautéing foods.

Table 1.2 Composition of Blended Commodities Provided under P.L. 480 Title II

Ingredient	CSB	WSB
Cornmeal, processed	69.9 %	
Soy flour, defatted, toasted	21.8 %	20.0 %
Bulgur flour		52.9 %
Wheat Protein Concentrate		20.0 %
Soybean oil	5.5 %	4.0 %
Vitamin premix	0.1 %	0.1 %
Tricalciumphosphate	2.0 %	2.0 %
Salt/Mineral premix	1.0 %	2.7 %

Table 1.3 Micronutrient Addition Level Standards for Fortified Blended Foods Provided under P.L. 480 Title II*

Micronutrient	Units per 100 g	Current CSB/WSB levels added**
Calcium	mg	775
Calcium d Pantothenate	mg	2.76
Folic acid	mg	0.20
Iodine	ug	57
Iron	mg	14.7
Magnesium	mg	82.5
Niacin	mg	4.96
Pyridoxine HCl	mg	0.17
Riboflavin	mg	0.39
Salt	g	0.81
Thiamin	mg	0.28
Vitamin A	IU	1,850
Vitamin B12	ug	3.97
Vitamin C	mg	40.1
Vitamin D	IU	198
Vitamin E	IU	7.5
Zinc	mg	3.98

*WFP has other nutrient level specifications, which are lower in all cases except Riboflavin, Vitamin C and Zinc.

**Venders are mandated to meet minimum standards for vitamin A and iron in CSB and WSB blended foods. The minimum requirement for vitamin A is 8400 IU per pound (equivalent to 1850 IU per 100 grams) and the minimum for iron is 14.7 milligrams per 100 grams (equivalent to 66.2 milligrams per pound) of final product. (Source: http://www.fsa.usda.gov/daco/eod/eod_notices/eod61.pdf and http://www.fas.usda.gov/daco/eod/eod_notices/eod64.pdf)

III. REFERENCES

1. *U.S. International Food Assistance Report 1997*. USDA/FAS/ 11-18-97.
2. *Title II P.L. 480 Commodities List*. USAID/DCHA/FFP/POD. <http://www.usaid.gov>.
3. USDA/FSA/PDD/EOB. December, 1997. <http://www.fas.usda.gov/>.