

Soy At Home Series No. 2

Make Your Own Soymilk

International Soybean Program
National Soybean Research Laboratory



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Soymilk is a nutritious drink made from dry (mature) soybeans. The solid residue that remains after the soymilk is poured off is okara, a high-fiber food with many uses. It is easy to make soymilk and okara in a home kitchen.

Basic Preparation of Soymilk

The directions below yield approximately 44 fluid oz. (1250 ml) of soymilk and around 2 cups of okara (625 ml).

Ingredients

water

1½ cups (7 oz. or 200 g) whole, mature soybeans, sorted and cleaned

2 pinches baking soda (divided use)

3 Tbsp. (45 ml) sugar, or as desired

scant ½ tsp. (2 ml) salt, or as desired

vanilla or other flavorings, as desired

Method

1. **Blanch the beans twice:** Bring 4 cups (1 liter) of water to a boil on the stove. Add 1 pinch of baking soda. Drop the whole soybeans directly into the boiling water and blanch for 5 minutes. Drain and rinse the beans with hot water. Repeat this process so that the beans are blanched twice.
2. **Grind the beans:** Grind the blanched beans with 8 cups (2 liters) of hot water for 3 minutes using a blender on high speed. (If the blender is not large enough, do this in two batches.) Work carefully and be sure the lid is on tight as this is hot.
3. **Strain the mixture:** Cool the mixture until it is just warm to the touch and filter it by squeezing it through a cheesecloth. Reserve the solids (okara) for another use.
4. **Simmer:** Simmer the filtered liquid on the stove for 20 minutes. Stir occasionally. If desired, add sugar, salt, and/or other flavorings to taste.

Note: To fortify soymilk with calcium, stir in approximately 1½ teaspoons calcium carbonate powder per quart of soymilk. Stir well before each use as the powder tends to settle out.



Storage

Soymilk and okara are both highly perishable and should be kept refrigerated. Use the refrigerated soymilk and okara within several days. Okara may be frozen for later use.

Soymilk Fruit Smoothie

Okara Cornmeal Patties

1 cup soymilk
¼ cup chopped or mashed fruit (fresh or frozen)
sweetener to taste (optional)

1. Put the soymilk and fruit in a blender container. Blend until smooth.
2. If desired, add sweetener and blend again.

Makes 1¼ cups
Per serving (1¼ cups): 156 calories, 11 g protein, 19 g carbohydrate, 5 g fat (0.6 g saturated), 4.0 g dietary fiber



2 cups cornmeal
1 cup okara
2 tsp. salt
2 Tbsp. finely chopped onion
¼ tsp. black pepper
water to make consistency to shape patties (about 1 cup)
2 Tbsp. oil

1. Combine all ingredients except the oil and mix well. Use a scant cup of water when mixing together and add more if needed. Form into 8 patties.
2. Heat the oil in a frying pan over moderately high heat and cook the patties, turning occasionally, until brown on both sides.

Makes 8 patties
Per serving (1 patty): 169 calories, 3 g protein, 29 g carbohydrate, 4 g fat (0.5 g saturated), 3.2 g dietary fiber

Variation: Okara-Vegetable Patties – Add ½ to 1 cup finely chopped vegetables (such as green pepper, onions, carrots) to the patty mixture.

Winter Squash Soup

- 2 Tbsp. vegetable oil
- 1 large onion, chopped
- 1 medium tomato, peeled, seeded, and chopped
- 2 cloves garlic, minced
- 1 fresh jalapeño pepper, seeded and minced*
- 1 small butternut squash, peeled, seeded, and cut in 1" cubes (about 4 cups)
- 4 cups vegetable broth
- ¼ tsp. ground black pepper
- 1 cup plain soymilk
- 1 lime, cut into wedges (optional)

1. Heat the oil in a pot over medium heat. Sauté the onion, tomato, garlic, and minced jalapeño pepper in the oil until the onion is quite soft.
2. Add the cubed squash, vegetable broth, and pepper and bring to a boil. Reduce heat and simmer uncovered 20 to 30 minutes, until the squash begins to fall apart. Using a potato masher or big spoon, coarsely mash the soup against the bottom or sides of the pot so that it retains some texture.
3. Stir in the soymilk and heat through over low heat; taste and adjust seasonings. If desired, serve with lime wedges for diners to squeeze into their soup.

Makes 5 cups

Per serving (1 cup): 188 calories, 6 g protein, 30 g carbohydrate, 7 g fat (0.7 g saturated), 4.7 g dietary fiber

*Be sure to wear rubber gloves when chopping hot peppers. Substitute chopped, canned chilies if you prefer.

Okara Bread

- 2 Tbsp. dry yeast
- 1 to 1¹/₃ cups warm water, divided
- 6 cups bread flour, more if needed
- ¼ cup sugar
- 2 tsp. salt
- 1 ½ cups okara
- ¼ cup butter, margarine, or shortening, melted

1. Dissolve the yeast in 1/3 cup warm water and let set about 10 minutes, until bubbly.
2. Mix together 6 cups flour, the sugar, yeast, and salt. Stir in the okara, melted shortening, yeast mixture, and about half the remaining water. Mix to make a soft, smooth bread dough. Add more water or flour if necessary. (The exact amount needed will vary depending on the moisture content of the okara.)
3. Turn the dough out onto a lightly floured surface and knead for 5 to 10 minutes, until the dough is smooth and elastic. Form the dough into a ball and place in a greased bowl. Cover the bowl loosely and let the dough rise in a warm place until double in size, 1 to 1½ hours.
4. Punch down the dough. Divide into two pieces and let the dough rest, loosely covered, for 20 minutes. Shape each piece into a loaf and place in a greased bread pan. Cover and let rise again, about 45 minutes.
5. Bake the loaves in a preheated 375° F oven for about 30 minutes, until loaf sounds hollow when tapped on the bottom. Remove bread from the pan and cool thoroughly before slicing.

Makes: 2 loaves (12 slices each)

Per serving (1 slice): 157 calories, 5 g protein, 28 g carbohydrate, 3 g fat (1.3 g saturated), 1.4 g dietary fiber

Using Soy Milk and Okara

Soy milk can be used just as you would use cow's milk. It makes a refreshing drink, either plain or with added sweeteners or other flavorings. It can be used in cooking to make cream sauces or soups, or used as the liquid in baking breads, cakes, or other baked goods. Soy milk can also be used to make non-dairy versions of ice cream and yogurt. Remember that soy milk is not an infant formula.

Okara is high in fiber and contains the nutrients from the soybean that do not end up in the soy milk. It can be added to soups, stews, mashed potatoes, cream sauces, hot cereals, and bread dough. Mixed with cottage cheese and chopped vegetables, it makes a tasty spread for bread or crackers. Okara also works well as a meat extender. Mix it with ground meat before preparing meatloaf, meatballs, sausages, or burgers. It can also be a base for making vegetarian patties.

Nutrients

Soy contains high quality ("complete") protein. In addition to traditional nutrients, soy is also rich in phytochemicals like isoflavones, saponins, and sterols that offer many health benefits.

1 cup soy milk (unfortified):

127 calories
11 g protein
12 g carbohydrate
5 g fat (0.6 g saturated fat)
3.2 g dietary fiber
93 mg calcium

Source: USDA Nutrient Database

1 cup okara:

94 calories
4 g protein
15 g carbohydrate
2 g fat (0.2 g saturated fat)
5.0 g dietary fiber
98 mg calcium

Source: USDA Nutrient Database