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pH and Acid Content of Fruits and Vegetables for Home Canning and Preserving - Alphabetized Master List

The pH and/or acidity of a food is generally used to determine the safe home canning methods and conditions. The term "pH" is a measure of acidity; the lower its value, the more acid the food. The equipment used for determining pH was generally pH meters. [Canning methods are described on this page](#). Some liquids, like lemon juice, lime juice and vinegar, are used as acidifiers, to help lower the pH of foods to increase safety. [See this page for an explanation](#). Understand that in presenting this information, we are not encouraging anyone to invent their own canning recipes - they would still require lab testing to determine their safety. But this may help with simple substitutions. [Canning directions and recipes that are based on this information and tested in a lab are provided here](#).

The approximate ranges of pH values for many common fresh and processed foods are listed below. Keep in mind that considerable variation exists between varieties, condition of growing and processing methods, etc. The data presented is applicable to the edible portion of foods in their normal and natural state, unless otherwise designated. The FDA would like your input to this matter. This list will be updated when new information is available.

Acid foods are foods that contain enough acid to have a pH of 4.6 or lower. They include fruits, pickles, sauerkraut, jams, jellies, marmalades, and fruit butters. Acidic foods can be processed safely in a boiling water canner, usually without added acid (lemon juice, vinegar or citric acid). This is necessary to control botulinum bacteria. Acidity may be natural, as in most fruits, or added, as in pickled food. Low-acid canned foods are not acidic enough to prevent the growth of these bacteria. Acid foods contain enough acid to block their growth, or destroy them more rapidly when heated. The acidity level in foods can usually be increased by adding lemon juice, citric acid, or vinegar, although this by itself, does not mean the recipe is safe.

Low-acid foods have pH values higher than 4.6 up to 6.9. (non-acidic, or alkaline foods have pH values of 7.0 or greater) .They include red meats, seafood, poultry, milk, and all fresh vegetables except for most tomatoes. Most mixtures of low-acid and acid foods also have pH values above 4.6 unless their recipes include enough lemon juice, citric acid, or vinegar to make them acid foods.

In using this table, bear in mind that considerable variation exists between varieties, condition of growing and processing methods, etc. Data is presented for the edible portion of foods in their normal and natural state, unless otherwise designated. Where the research found a range of values due to variability in the samples, the range is provided. Where a single consistent value was determined, that value is provided.

If you would like to see the table broken down by categories, see these links:

- [pH of fresh fruits](#), acidic and low acid
- [pH of Vegetables](#)
- [pH of meats, fish, eggs, dairy](#)
- [pH of some processed foods](#)

Item	Approximate pH
Ackees	5.50
Aloe vera	6.10
Aloe Juice	6.00 - 6.80
Apple Juice	3.35 - 4.00
Applesauce	3.10 - 3.60
Apple, baked with sugar	3.20 - 3.55
Apple, generic, eating	3.30 - 4.00
Apples, Red Delicious	3.90
Apples, Golden Delicious	3.60
Apples, Jonathan	3.33
Apples, McIntosh	3.34
Apples, Winesap	3.47
Apricots, fresh	3.30 - 4.80
Apricots, Canned	3.40 - 3.78
Apricots, Dried, stewed	3.30 - 3.51
Apricot Nectar	3.78
Apricots, Pureed,	3.42 - 3.83
Artichokes	5.50 - 6.00
Artichokes, canned, acidified	4.30 - 4.60
Artichokes, French, cooked	5.60 - 6.00
Artichokes, Jerusalem, cooked	5.93 - 6.00
Asparagus	6.00 - 6.70
Asparagus Buds	6.70
Asparagus Stalks	6.10
Asparagus, cooked	6.03 - 6.16
Asparagus, canned	5.00 - 6.00
Asparagus, frozen, cooked	6.35 - 6.48
Asparagus, green, canned	5.20 - 5.32
Asparagus, strained	4.80 - 5.09
Avocados	6.27 - 6.58

Item	Approximate pH
Baby corn	5.20 -
Bamboo Shoots +	5.10 - 6.20
Bamboo Shoots, preserved	3.50 - 4.60
Bananas	4.50 - 5.20
Bananas, red	4.58 - 4.75
Banana, yellow	5.00 - 5.29
Barley, cooked	5.19 - 5.32
Basil pesto	4.90
Beans (generic)	5.60 - 6.50
Beans, Black beans	5.78 - 6.02
Beans, Boston style	5.05 - 5.42
Beans, Kidney	5.40 - 6.00
Beans, Lima	6.50
Beans, Soy	6.00 - 6.60
Beans, String	5.60
Beans, Wax	5.30 - 5.70
Beans, pork & tomato sauce, canned	5.10 - 5.80
Beans, refried	5.90
Beans, vegetarian, tomato sauce, canned	5.32
Beets	5.30 - 6.60
Beets, cooked	5.23 - 6.50
Beets, canned, acidified	4.30 - 4.60
Beets, canned	4.90 - 5.80
Beets, chopped	5.32 - 5.56
Beets, strained	5.32 - 5.56
Blackberries, Washington	3.85 - 4.50
Blueberries, Maine	3.12 - 3.33
Blueberries, frozen	3.11 - 3.22
Bluefish, Boston, filet, broiled	6.09 - 6.50
Breadfruit, cooked	5.33

Item	Approximate pH
Broccoli, cooked	6.30 - 6.52
Broccoli, frozen, cooked	6.30 - 6.85
Broccoli, canned	5.20 - 6.00
Brussels sprout	6.00 - 6.30
Buttermilk	4.41 - 4.83
Cabbage	5.20 - 6.80
Cabbage, Green	5.50 - 6.75
Cabbage, Red	5.60 - 6.00
Cabbage, Savoy	6.30
Cabbage, White	6.20
Cactus	4.70
Cantaloupe	6.13 - 6.58
Capers	6.00
Carp	6.00
Carrots	5.88 - 6.40
Carrots, canned	5.18 - 5.22
Carrots, chopped	5.30 - 5.56
Carrots, cooked	5.58 - 6.03
Carrots, pureed	4.55 - 5.80
Carrots, strained	5.10 - 5.10
Cauliflower	5.60
Cauliflower, cooked	6.45 - 6.80
Caviar, American	5.70 - 6.00
Celery	5.70 - 6.00
Celery, cooked	5.37 - 5.92
Celery Knob, cooked	5.71 - 5.85
Cereal, strained	6.44 - 6.45
Chayote (mirliton), cooked	6.00 - 6.30
Cherries, California	4.01 - 4.54
Cherries, frozen	3.32 - 3.37

Item	Approximate pH
Cherries, black, canned	3.82 - 3.93
Cherries, Maraschino	3.47 - 3.52
Cherries, red, Water pack	3.25 - 3.82
Cherries, Royal Ann	3.80 - 3.83
Chicory	5.90 - 6.05
Chili Sauce, acidified	2.77 - 3.70
Chives	5.20 - 6.31
Coconut, fresh	5.50 - 7.80
Coconut milk	6.10 - 7.00
Coconut preserves	3.80 - 7.00
Congee	6.40
Corn	5.90 - 7.30
Corn, canned	5.90 - 6.50
Corn Flakes	4.90 - 5.38
Corn, frozen, cooked	7.33 - 7.68
Corn, Golden Bantam, cooked on cob	6.22 - 7.04
Crab meat	6.50 - 7.00
Crabapple Jelly, corn	2.93 - 3.02
Cranberry Juice, canned	2.30 - 2.52
Crabmeat, cooked	6.62 - 6.98
Cream, 20 per cent	6.50 - 6.68
Cream, 40 per cent	6.44 - 6.80
Cream of Asparagus	6.10
Cream of Coconut, canned	5.51 - 5.87
Cream of Potato soup	6.00
Cream of Wheat, cooked	6.06 - 6.16
Chrysanthemum drink	6.50
Cucumbers	5.12 - 5.78
Cucumbers, Dill pickles	3.20 - 3.70
Cucumbers, pickled	4.20 - 4.60

Item	Approximate pH
Curry sauce	6.00
Curry Paste,acidified	4.60 - 4.80
Dates, canned	6.20 - 6.40
Dates, Dromedary	4.14 - 4.88
Eggplant	5.50 - 6.50
Eggs, new-laid, whole	6.58
Egg White	7.96
Egg Yolk	6.10
Eell	6.20
Escarolle	5.70 - 6.00
Enchalada sauce	4.40 - 4.70
Fennel (Anise)	5.48 - 5.88
Fennel, cooked	5.80 - 6.02
Figs, Calamyrna	5.05 - 5.98
Figs, canned	4.92 - 5.00
Four bean salad	5.60
Fruit cocktail	3.60 - 4.00
Garlic	5.80
Gelatin Dessert	2.60
Gelatin, plain jell	6.08
Gherkin	
Ginger	5.60 - 5.90
Ginseng , Korean drink	6.00 - 6.50
Gooseberries	2.80 - 3.10
Graham Crackers	7.10 - 7.92
Grapes, canned	3.50 - 4.50
Grapes, Concord	2.80 - 3.00
Grapes, Lady Finger	3.51 - 3.58
Grapes, Malaga	3.71 - 3.78
Grapes, Niagara	2.80 - 3.27

Item	Approximate pH
Grapes, Ribier	3.70 - 3.80
Grapes, Seedless	2.90 - 3.82
Grapes, Tokyo	3.50 - 3.84
Grapefruit	3.00 - 3.75
Grapefruit, canned	3.08 - 3.32
Grapefruit Juice, canned	2.90 - 3.25
Grass jelly	5.80 - 7.20
Greens, Mixed, chopped	5.05 - 5.22
Greens, Mixed, strained	5.22 - 5.30
Grenadine Syrup	2.31
Guava nectar	5.50
Guava, canned	3.37 - 4.10
Guava Jelly	3.73
Hearts of Palm	5.70
Hominy, cooked	6.00 - 7.50
Honey	3.70 - 4.20
Honey Aloe	4.70
Horseradish, freshly ground	5.35
Huckleberries, cooked with sugar	3.38 - 3.43
Jackfruit	4.80 - 6.80
Jam, fruit	3.50 - 4.50
Jellies, fruit	3.00 - 3.50
Jujube	5.20 -
Kale, cooked	6.36 - 6.80
Ketchup	3.89 - 3.92
Kumquat, Florida	3.64 - 4.25
Leeks	5.50 - 6.17
Leeks, cooked	5.49 - 6.10
Lemon Juice	2.00 - 2.60
Lentils, cooked	6.30 - 6.83

Item	Approximate pH
Lentil Soup	5.80
Lettuce	5.80 - 6.15
Lettuce, Boston	5.89 - 6.05
Lettuce, Iceberg	5.70 - 6.13
Lime Juice	2.00 - 2.35
Lime	2.00 - 2.80
Loganberries	2.70 - 3.50
Loquat (May be acidified to pH 3.8)	5.10
Lotus Root	6.90 -
Lychee	4.70 - 5.01
Mangoes, green / unripe	3.40 - 4.80
Mangoes, ripe	5.80 - 6.00
Mangostine ?	4.50 -5.00
Maple syrup	5.15
Maple syrup, light (Acidified)	4.60
Matzos	5.70
Mayhaw (a variety of strawberry)	3.27 - 3.86
Melba Toast	5.08 - 5.30
Melon, Casaba	5.78 - 6.00
Melons, Honey dew	6.00 - 6.67
Melons, Persian	5.90 - 6.38
Mint Jelly	3.01
Molasses	4.90 - 5.40
Muscadine (A variety of grape)	3.20 - 3.40
Mushrooms	6.00 - 6.70
Mushrooms, cooked	6.00 - 6.22
Mustard	3.55 - 6.00
Nata De Coco	5.00
Nectarines	3.92 - 4.18
Okra, cooked	5.50 - 6.60

Item	Approximate pH
Olives, black	6.00 - 7.00
Olives, green, fermented	3.60 - 4.60
Olives, ripe	6.00 - 7.50
Onions, pickled	3.70 - 4.60
Onions, red	5.30 - 5.80
Onion white	5.37 - 5.85
Onions, yellow	5.32 - 5.60
Oranges, Florida	3.69 - 4.34
Oranges, Florida "color added"	3.60 - 3.90
Orange Juice, California	3.30 - 4.19
Orange, Juice Florida	3.30 - 4.15
Orange, Marmalade	3.00 - 3.33
Oyster mushrooms	5.00 - 6.00
Palm, heart of	6.70
Papaya	5.20 - 6.00
Papaya Marmalade	3.53 - 4.00
Parsley	5.70 - 6.00
Parsnip	5.30 - 5.70
Parsnips, cooked	5.45 - 5.65
Pate	5.90
Peaches	3.30 - 4.05
Peaches, canned	3.70 - 4.20
Peaches, cooked with sugar	3.55 - 3.72
Peaches, frozen	3.28 - 3.35
Peanut Butter	6.28
Peanut Soup	7.5
Pears, Bartlett	3.50 - 4.60
Pears, canned	4.00 - 4.07
Pears, Sickle cooked w/sugar	4.04 - 4.21
Pear Nectar	4.03

Item	Approximate pH
Peas, canned	5.70 - 6.00
Peas, Chick, Garbanzo	6.48 - 6.80
Peas, cooked	6.22 - 6.88
Peas, dried (split green), cooked	6.45 - 6.80
Peas, dried (split yellow), cooked	6.43 - 6.62
Peas, frozen, cooked	6.40 - 6.70
Peas, pureed	4.90 - 5.85
Pea Soup, Cream of, Canned	5.70
Peas, strained	5.91 - 6.12
Peppers	4.65 - 5.45
Peppers, green	5.20 - 5.93
Persimmons	4.42 - 4.70
Pickles, fresh pack	5.10 - 5.40
Pimiento	4.40 - 4.90
Pimento, canned, acidified	4.40 - 4.60
Pineapple	3.20 - 4.00
Pineapple, canned	3.35 - 4.10
Pineapple Juice, canned	3.30 - 3.60
Plum Nectar	3.45
Plums, Blue	2.80 - 3.40
Plums, Damson	2.90 - 3.10
Plums, Frozen	3.22 - 3.42
Plums, Green Gage	3.60 - 4.30
Plums, Green Gage, canned	3.22 - 3.32
Plums, Red	3.60 - 4.30
Plums, spiced	3.64
Plums, Yellow	3.90 - 4.45
Pollack, filet, broiled	6.72 - 6.82
Pomegranate	2.93 - 3.20
Potatoes	5.40 - 5.90

Item	Approximate pH
Mashed	5.10
Prunes, dried, stewed	3.63 - 3.92
Sweet	5.30 - 5.60
Tubers	5.70
Potato Soup	5.90
Prune Juice	3.95 - 3.97
Prune, pureed	3.60 - 4.30
Prune, strained	3.58 - 3.83
Puffed Rice	6.27 - 6.40
Puffed Wheat	5.26 - 5.77
Pumpkin	4.90 - 5.50
Quince, fresh, stewed	3.12 - 3.40
Quince Jelly	3.70
Radishes, red	5.85 - 6.05
Radishes, white	5.52 - 5.69
Raisins, seedless	3.80 - 4.10
Rambutan (Thailand)	4.90
Raspberries	3.22 - 3.95
Raspberries, frozen	3.18 - 3.26
Raspberries, New Jersey	3.50 - 3.82
Raspberry Jam	2.87 - 3.17
Razor shell (sea asparagus)	6.00
Rattan, Thailand	5.20 -
Red Ginseng	5.50
Red Pepper Relish	3.10 - 3.62
Rhubarb, California, stewed	3.20 - 3.34
Rhubarb	3.10 - 3.40
Canned	3.40
Rice (all cooked)	
Brown	6.20 - 6.80

Item	Approximate pH
Krispies	5.40 - 5.73
White	6.00 - 6.70
Wild	6.00 - 6.50
Rolls, white	5.46 - 5.52
Romaine	5.78 - 6.06
Salsa	
Sauerkraut	3.30 - 3.60
Scallion	6.20 -
Shallots, cooked	5.30 - 5.70
Spinach	5.50 - 6.80
Spinach, chopped	5.38 - 5.52
Spinach, cooked	6.60 - 7.18
Spinach, frozen, cooked	6.30 - 6.52
Spinach, pureed	5.50 - 6.22
Spinach, strained	5.63 - 5.79
Squash, acorn, cooked	5.18 - 6.49
Squash, Kubbard, cooked	6.00 - 6.20
Squash, white, cooked	5.52 - 5.80
Squash, yellow, cooked	5.79 - 6.00
Strawberries	3.00 - 3.90
Strawberries, California	3.32 - 3.50
Strawberries, frozen	3.21 - 3.32
Strawberry Jam	3.00 - 3.40
Straw mushroom	4.90
Sweet Potatoes	5.30 - 5.60
Swiss Chard, cooked	6.17 - 6.78
Tamarind	3.00 -
Tangerine	3.32 - 4.48
Taro syrup	4.50
Tea	7.20

Item	Approximate pH
Three-Bean Salad	5.40
Tofu (soybean Curd)	7.20
Tomatillo (resembling Cherry tomatoes)	3.83
Tomatoes	4.30 - 4.90
Tomatoes, canned	3.50 - 4.70
Tomatoes, Juice	4.10 - 4.60
Tomatoes, Paste	3.50 - 4.70
Tomatoes, Puree	4.30 - 4.47
Tomatoes, Strained	4.32 - 4.58
Tomatoes, Wine ripened	4.42 - 4.65
Tomato Soup, Cream of, canned	4.62
Truffle	5.30 - 6.50
Turnips	5.29 - 5.90
Turnip, greens, cooked	5.40 - 6.20
Turnip, white, cooked	5.76 - 5.85
Turnip, yellow, cooked	5.57 - 5.82
Vegetable Juice	3.90 - 4.30
Vinegar	2.40 - 3.40
Vinegar, cider	3.10
Walnuts, English	5.42
Wax gourd drink	7.20
Water Chestnut	6.00 - 6.20
Watercress	5.88 - 6.18
Watermelon	5.18 - 5.60
Yams, cooked	5.50 - 6.81
Yeast	5.65
Yangsberries, frozen	3.00 - 3.70
Zucchini, cooked	5.69 - 6.10
Zwiebach	4.84 - 4.94