

# Chapter 14

## Nuts and Seeds

How Baking Works

# Words, Phrases, and Concepts

- Tree nut
- Legume
- Seed
- Shelled
- Blanched
- Anaphylactic shock
- Nut butter
- Nut paste
- Nut flour
- Gianduja
- Hulled (dehulled)
- ALA omega-3

# Introduction

Most nuts grow on trees.

- Examples of tree nuts: Almonds, cashews, hazelnuts, macadamias, pine nuts, pecans, pistachios, walnuts.

Peanuts grow underground.

- Are classified as legumes.
- Like beans, peas, and other legumes, are contained in pods.

Seeds are smaller than nuts and are not contained in hard shells.

- Examples: Sesame, poppy, sunflower.

# Introduction

Nuts provide:

- Flavor.
  - Especially when toasted.
- Texture.
  - Crunchy when toasted.
- Visual appeal.
- Nutrients and health benefits.

Most nuts and seeds are interchangeable.

- Chestnuts are the exception.

# Composition

Nuts are encased in hard shells.

- Shelled nut: nut removed from shell.
  - Sometimes called kernel or nutmeat.

Thin skin (seed coat) protects kernel.

- Skin is brown, astringent, and healthful.
  - Darker skin has stronger flavor.
- Blanched nut: nut with skin removed after boiled in hot water or toasted.

# Composition

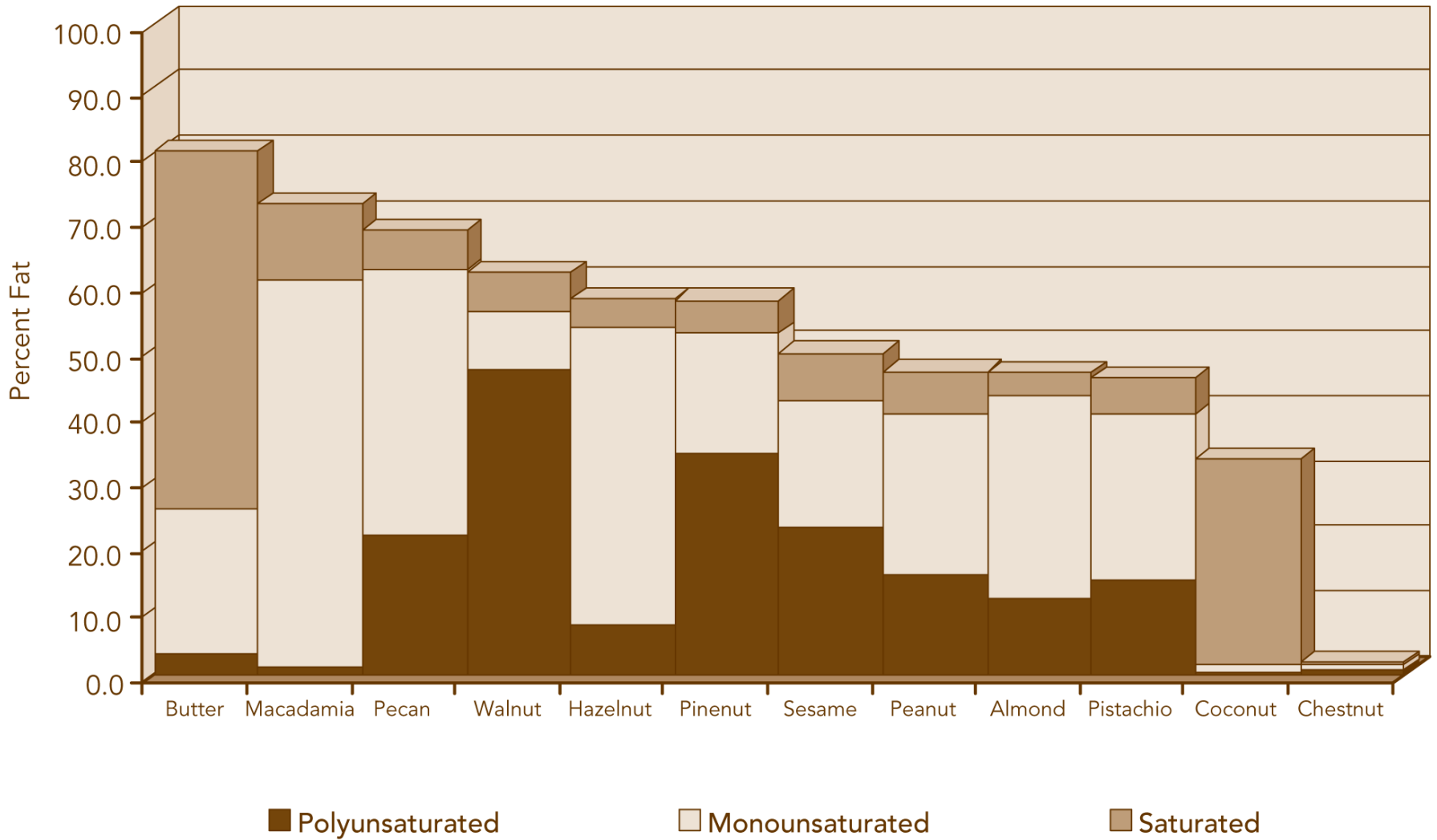
Nuts are a good source of:

- Protein, vitamins, minerals.
  - Because they contain the plant's embryo.
- Healthful fiber and polyphenolic compounds.
  - Especially in the skin.

Nut are high in fats and oils.

- 50-65% is typical range.
  - Exceptions: macadamia nuts, chestnuts.
- Fatty acids are mostly healthful unsaturated.
  - Exception: coconuts are high in saturated fat.

# Composition



# Composition

Some people are allergic to one or more nuts or to sesame seeds.

- Reaction can be mild or severe.
  - Mild symptoms include red rash, swelling around mouth, nausea, runny nose, itchy eyes.
  - Severe reaction is called anaphylactic shock.
    - Symptoms include shock and swelling of air passages.
    - Can lead to death, sometimes within minutes.
- Be sure to inform customers of the presence of nuts in an item.
  - Also, garnish top of product with nut, as a visual cue.



# Cost

Nuts are expensive; price depends on:

- Type of nut.
  - Pine nuts and macadamia nuts are most expensive, peanuts least expensive.
- Difficulty in processing.
  - Walnut halves are difficult to remove intact from shells; more expensive than broken pieces.
- Crop year
  - Weather affects crop size of natural agricultural products like nuts.
- Type of packaging and size of purchase.

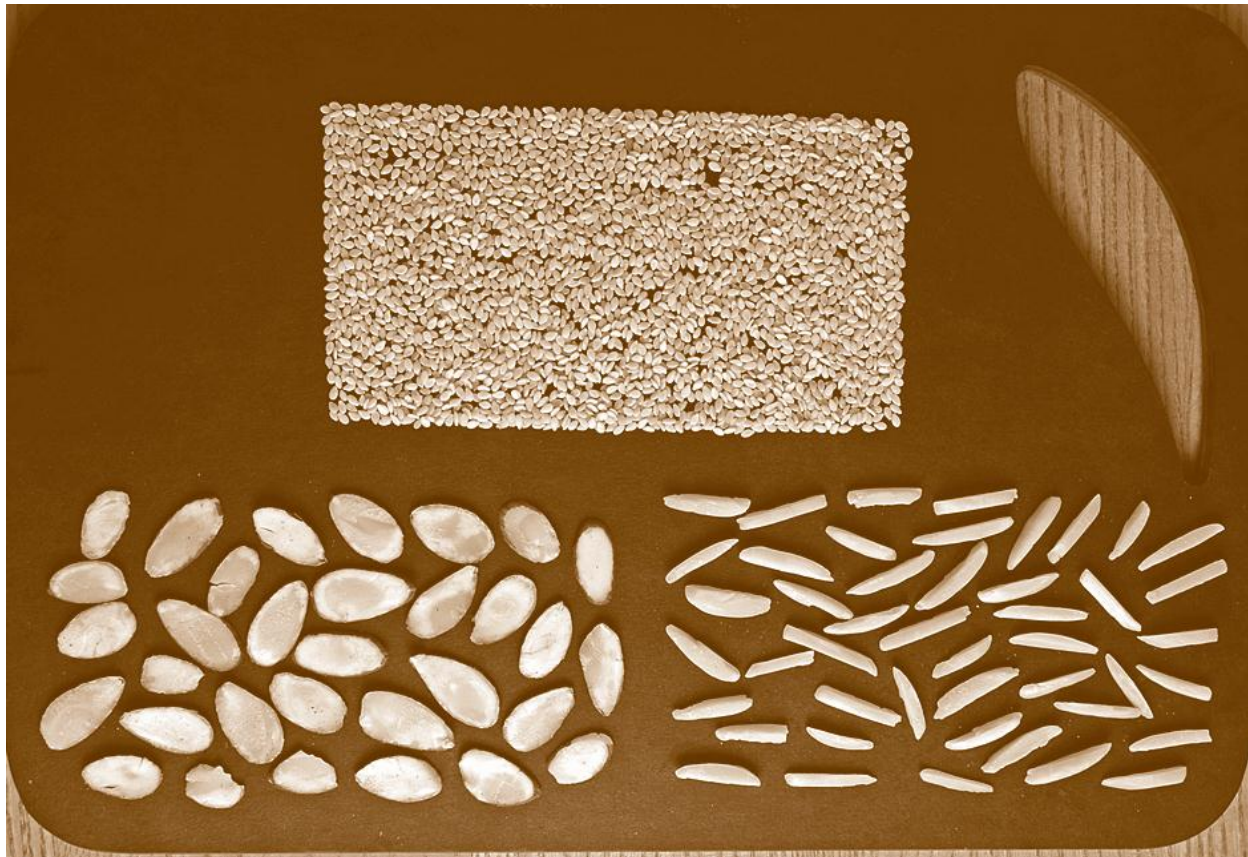
# Cost

Visual impact changes with size and shape.

- Get greater coverage and visual impact when nut or seed is:
  - Lighter, less dense.
  - Thinly sliced.
- This affects consumer's perceived value of product.

# Cost

Which appears to have more almonds:  
– thinly sliced on left or slivered on right?



# Nut Butters, Flours, and Pastes

## Nut butter:

- Does not contain butter.
- Often called nut paste when sugar is added.
- Made by grinding toasted nuts until smooth.
  - Use food processor; can add oil, salt, syrup.
  - Most common nut butters: peanut and almond.

## Nut flour:

- Also made in food processor.
- To prevent release of oils and formation of paste:
  - Pulse food processor.
  - Add granulated sugar.
- Use in pastry doughs and flourless cake batters.

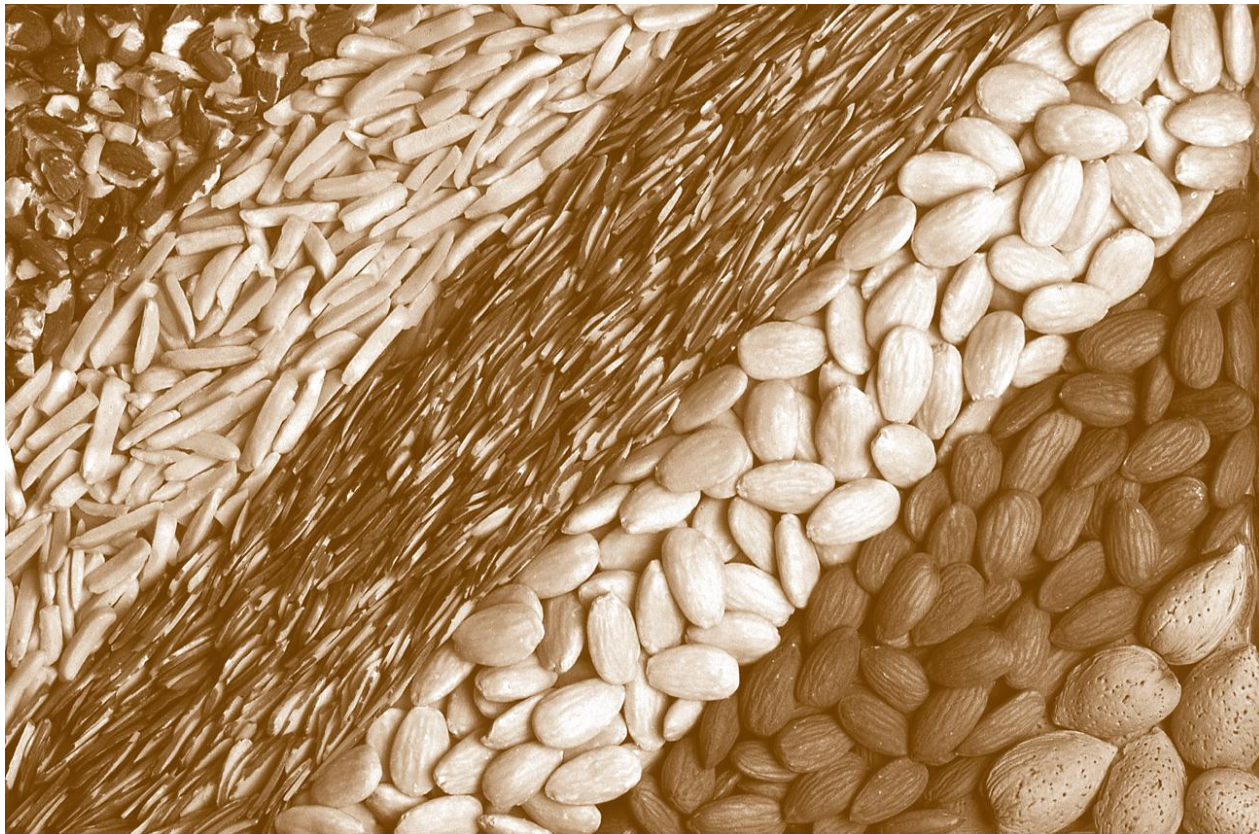
# Common Nuts, Kernels, Seeds

## Almonds

- Bitter almonds.
  - Used for flavoring only.
  - In almond extract, amaretto liqueur, almond paste.
- Sweet almonds.
  - Most common nut in bakeshop.
  - California is larger producer.
  - Mild-flavored, but toasting develops flavor.
  - Natural (with brown skin) or blanched (skin removed).
    - Brown skin provides color contrast, slight astringency.
- Almond paste: Blanched almonds finely ground to paste with sugar, flavored with almond extract.
- Marzipan: Almond paste and sugar, mixed into a pliable dough.

# Common Nuts, Kernels, Seeds

Almonds come in many forms, making them highly versatile in the bakeshop.



# Common Nuts, Kernels, Seeds

## Cashews

- Kidney-shaped ivory-white nut; mild and sweet.
- Produced in Vietnam, Brazil, India, and other tropical climates.
- Traditionally eaten as a snack.
- Use in confections, especially brittles, and baked goods, such as cookies, is growing.
- Difficult to remove from shell, so historically an expensive nut.
  - Low labor costs in Vietnam and other producing countries has kept prices down.
- Cashews soaked in water and blended into smooth cream can be used as a mild-tasting replacement for dairy cream in vegan products.



# Common Nuts, Kernels, Seeds

## Chestnuts

- Very low in oil, high in moisture and starch.
  - Not interchangeable with other nuts.
- Cooked before use; have a soft, mealy texture.
- Fresh chestnuts available fall and early winter only.
- Purchase frozen or canned, whole or pureed.
  - Refrigerate after opening, to prevent mold growth.
- Also available dried, ground, or candied (marrons glacés).



# Common Nuts, Kernels, Seeds

## Coconuts

- Grows in tropics; very high in saturated fat.
- Sold in many forms, cut to various sizes.
  - Finely-cut flakes are referred to as macaroon coconut.
- Desiccated/dried coconut.
  - Concentrated source of coconut flavor.
  - Water reduced from 50% to 5%; longer shelf life.
- Sweetened coconut.
  - Cooked with sugar before drying.
  - Often contains additives to keep it soft and white.
- Coconut water: clear liquid from center of coconut.
- Coconut milk.
  - Grated coconut mixed in hot water and squeezed through a filter, such as cheesecloth.

# Common Nuts, Kernels, Seeds

## Hazelnuts

- Also called filberts.
- Grown in Mediterranean region and in Oregon.
- Popular in Europe.
- Often paired with chocolate.
  - Gianduja: hazelnuts and chocolate ground to a smooth paste.
- As with almonds,
  - Come whole, diced, or sliced.
  - With or without skins.
  - Toasting develops flavor.

# Common Nuts, Kernels, Seeds

## Macadamia nuts

- Native to Australia; widely grown in Hawaii.
- Highest in oil of all common nuts.
- One of the most expensive nuts:
  - Because shell is hard to crack.
  - Use sparingly in baked goods, and only those with upscale image and higher price.

# Common Nuts, Kernels, Seeds

## Peanuts

- As a legume, higher in protein than tree nuts.
- Grown and used more in North and South America than Europe.
- One of the most inexpensive nuts.
- Toast before use, to develop flavor and remove raw beany flavor.
- Often paired with chocolate.

# Common Nuts, Kernels, Seeds

## Pecans

- Native to North America.
- Fancy pecan halves are more expensive than pieces.
- Traditional uses: pecan pie, Southern pralines, butter pecan ice cream.

## Pine Nuts

- Small mild-tasting cream-colored seeds.
- Also called pignoli or piñon nuts.
- From the pine cone of a low-growing pine tree.
- Traditionally used in Mexico, in Italy, and in other Mediterranean and Middle Eastern countries.

# Common Nuts, Kernels, Seeds

## Pistachios

- Small green-colored nut.
- Native to the Middle East, but widely grown in California.
- Traditionally a snack nut in North America.
- Leave untoasted or only lightly toast, to preserve delicate green color and distinctive flavor.
- Common uses: ice cream, biscotti, baklava, garnish on cannoli.

# Common Nuts, Kernels, Seeds

## Sesame Seeds

- First cultivated in India thousands of years ago.
- Ancient flavor in Asia, Middle East, Mediterranean.
- Tiny tear-shaped seeds that grow in pods.
  - Mild creamy-colored white seeds are most common.
  - Black and other colors available.
- Seeds protected in thin, edible hulls.
  - Natural seeds: sold in hull.
  - Hulled (or dehulled) seeds: hull removed; more common.
- Used as garnish on breads, bagels, crackers, cookies.
  - Seeds toast during baking; develop flavor and crunch.
  - Benne wafers: thin crisp sesame seed cookies in Southern U.S.
- Can be an allergen in a small number of individuals.

# Common Nuts, Kernels, Seeds

## Walnuts (English or Persian)

- Originated in Iran; California is largest producer.
- Fancy walnut halves are more expensive than pieces.
- Strong flavor; not always toasted before use.
- Darker nuts have stronger, more astringent flavor.
- Highest of nuts in healthful ALA omega-3 fatty acids.
- Commonly used in brownies, quick breads, cookies, coffee cakes.

## Black walnuts are native to North America.

- Strong-flavored and expensive (hard to remove from shell).
- Used in black walnut ice cream.



# Toasting Nuts

Nuts are toasted to:

- Develop flavor from Maillard browning and other chemical reactions.
- Improve flavor of slightly stale nuts.
- Darken color.
- Crisp texture.

To toast nuts:

- Spread in single layer on sheet pan.
- Toast in oven at 325–350°F (160–175°C) for 5-10 minutes or longer.

# Storage and Handling

## Shelf life of most nuts:

- Limited by oxidative rancidity of oils.
  - Nuts take on unpleasant rancid or stale aroma; become less sweet, more bitter.
  - Exception: fresh chestnuts and fresh coconuts are high in moisture; get microbial growth.
- Can be predicted by looking at the amount of polyunsaturated fatty acids in each nut.
  - The more polyunsaturated fatty acids, the more easily the nut's oils will oxidize and the shorter its shelf life.

# Storage and Handling

Which nut would you predict will turn rancid fastest and have the shortest shelf life?

## **HELPFUL HINT**

*The following is a list of common nuts and the average amount of polyunsaturated fatty acids present in 1 ounce (30 grams) of each. Because the rate of oxidative rancidity is mostly related to the amount of polyunsaturated fatty acids, this chart is helpful in understanding which nuts will likely undergo rancidity rapidly. This, in turn, can help you decide on quantities to purchase at one time or how to best store certain nuts.*

Walnuts	13 grams
Pine nuts	9 grams
Pecans	6 grams
Peanuts	4 grams
Pistachios	4 grams
Almonds	3 grams
Hazelnuts	2 grams
Cashews	2 grams
Macadamias	1 gram

# Storage and Handling

To minimize oxidative rancidity in nuts:

- Limit purchase to 2–3 months' supply.
- Practice FIFO: first in, first out.
- Keep nuts whole until ready to use.
- Toast nuts just before use.
- Store nuts at low temperatures.
- Cover, to keep out light and moisture.
  - Also keeps out insects, rodents, and strong odors.
- Can purchase nuts in vacuum packaging or with added antioxidants.