



## Understanding and Making Sauerkraut

### Did you know...

- Sauerkraut, German for “sour herb” or “sour cabbage,” actually originated in China. It was introduced to Eastern Europe, and has become most associated with German cooking.
- During preparation, proper sanitation practices must be followed to prevent contamination by spoilage or harmful microorganisms. This includes proper hand washing as well as using clean equipment, utensils, and surfaces throughout all preparation steps.
- The bacteria needed for fermentation are on the cabbage; a starter culture is unnecessary.

### *What is Sauerkraut?*

Sauerkraut is a naturally fermented cabbage product made with cabbage and salt. It is most commonly used as a condiment, but can also be used in recipes—from main dishes to desserts. Sauerkraut is a source of dietary fiber and vitamin C and when consumed raw (has not been heat treated), it is known to be rich in healthful bacteria.

### *How is sauerkraut made?*

The bacteria needed for fermentation are on the cabbage; a starter culture is unnecessary. The fermenting bacteria convert carbohydrates in the cabbage to lactic acid, which creates the sour taste, and carbon dioxide, which produces the bubbles seen in the first few days of fermentation

### *Ingredients:*

- Cabbage, red and/or green: Start with fresh, whole cabbage to limit contamination. Seasonal variations may impact cabbage size and quality.
- Salt: Use non-iodized salt with no added anti-caking agents for best quality. Salt helps form the brine and acts as a preservative. Salt causes the cabbage cells to release fermentable sugars and inhibits growth of undesirable yeasts, molds, and bacteria. The bacteria needed for safe fermentation tolerate higher concentrations of salt.

The best way to determine the amount of salt to use is to weigh the cabbage and calculate 2–2.5% salt by weight—approximately 3 Tbsp. of salt per 5 pounds of shredded cabbage.

### *Equipment:*

- Shredding equipment. Any of the following can be used: large sharp knife and cutting board, food processor, mandolin, or kraut cutter.
- Kitchen scale. Use to weigh prepared cabbage.
- Measuring spoons.
- Large mixing container. Use a non-reactive bowl or container, such as glass, food-grade plastic, or stainless steel.
- Food-grade fermenting container(s). Use clean ceramic crocks, wide-mouth glass jars, or plastic buckets that will hold the amount of sauerkraut being prepared. Do NOT use metal or containers with cracks or chips.
- Cover and weight. Choose one of the following to keep cabbage submerged under the brine and away from oxygen: a commercially made airlock system; a brine-filled food-grade plastic bag; a plate that fits inside the container; or plastic wrap smoothed over the top and along sides of container. (A plate or plastic wrap may need to be weighed down—use a clean weight such as a small jar or brine-filled food-grade plastic bag.) For a brine-filled bag, dissolve 6 Tbsp. salt in 1 gallon boiled water. Cool before using.



- Lid or cloth. Secure a clean fine—weave towel, paper coffee filter, or non—airtight plastic container lid over container to limit contamination from dust, insects, and undesirable microorganisms.
- Wooden tamper (optional).
- Food—grade plastic disposable or reusable gloves (optional).

*During preparation, proper sanitation practices must be followed to prevent contamination by spoilage or harmful microorganisms. This includes proper hand washing as well as using clean equipment, utensils, and surfaces throughout all preparation steps.*

### *Ingredients: (to make about 1 gallon of sauerkraut)*

- 1—3 heads cabbage, to total 5 pounds when clean/trimmed/shredded
- 3 Tbsp. salt (non—iodized, no added anti—caking agents)

### *Procedure:*

#### *1. Prepare cabbage:*

1. Discard outer leaves, then rinse heads under cold water and drain.
2. Cut away any spoiled or damaged spots, then cut heads into quarters and remove core from each quarter.
3. Slice or shred cabbage into uniformly—sized pieces. This increases surface area and releases natural sugars for efficient fermentation.

#### *2. Salt cabbage:*

1. Layer cabbage with salt in large mixing container.
2. Using clean hands (and gloves, if desired) thoroughly mix cabbage and salt.
3. Allow salted cabbage to sit 5—10 minutes to begin wilting and pulling out juices.

4. Using clean hands, massage vigorously, pressing down on the chopped cabbage until it gets soft and a large amount of juice is drawn out of the cabbage. The juice, along with salt, will help form the brine used to cover the cabbage.
5. Create enough brine to cover the sauerkraut by at least one inch once packed.

#### *3. Pack container:*

1. Using clean hands or optional tamper, pack a handful of the cabbage into the fermenting container(s). Pack it down as tightly as you can to minimize air bubbles. Repeat this procedure, layer by layer, continuing to draw out brine, until cabbage is about 2—4 inches from the top of the container.
2. Pour remaining brine over cabbage and make sure cabbage is completely covered with at least 1 inch of brine. Keep at least 1 inch of air space above brine. If there is not enough brine from the cabbage, add boiled and cooled brine as needed (1 1/2 Tbsp. non—iodized salt to 1 quart of water).
3. Cover and weigh down the cabbage using a method listed under 'Equipment.'

#### *4. Ferment:*

1. Place packed container on a tray or plate to catch liquid that may leak out during fermentation due to carbon dioxide bubbling. If liquid leaks out, do NOT pour leaked juice back in, but clean immediately to limit potential contaminants.
2. Place container in a well—ventilated location (it will have a sour odor) with a relatively constant temperature of 68—72°F, for about 7—14 days. Sauerkraut will ferment faster in warmer temperatures and slower in cooler temperatures.
3. After bubbling stops (usually about 2—3 days) check that the cabbage is fully submerged under brine. If needed, with clean hands, push cabbage down to draw out more brine. If there is not enough brine to cover the cabbage, stop fermenting at room temperature and refrigerate.

4. A white or pink yeast scum can appear on the surface at any point in the sauerkraut fermentation process which can be removed and discarded. The sauerkraut below is still edible.
5. Sample the sauerkraut after about 7 days, store or continue fermenting, as desired.

*5. Store:*

1. Sauerkraut is perishable but can store long—term if maintained safely. Oxygen exposure, contamination from handling, or warm temperatures will decrease the safety and quality of the product.
  1. In jars: Remove cover and weight, tighten lid, wipe the outside of the jar, and store airtight in refrigerator.
  2. In crock or bucket: If the surface of the sauerkraut is not exposed to air, it can be stored in a cool storage area. Keep covered and weighted down after removing portions. A small amount of spoilage may occur and can be skimmed off.

*6. Enjoy!*

Serve sauerkraut with brats or in a Reuben sandwich, or use it to add crunch and a unique flavor to other sandwiches, salads, entrées or desserts, such as chocolate sauerkraut cake!

