

Pickle Fact Sheet

FOUR BASIC PICKLE PRODUCTS

1. BRINED OR FERMENTED PICKLES require three weeks or longer to cure. Cucumbers change from a bright green to an olive or yellow green. The interior becomes uniformly translucent.

Salt is added at the beginning of the process to interfere with the growth of microorganisms other than the lactic acid bacteria. Vinegar is also used to create an acid environment which discourages growth of microorganisms other than the lactic acid bacteria. The salt in the original brine is quite concentrated and draws liquid out of the cucumbers. The liquid drawn from the cucumbers contains carbohydrates which serve as food for this bacteria.

As the lactic acid bacteria multiply, they produce lactic acid which makes brine even more acidic. This acid reacts with the chlorophyll of the cucumbers causing it to become an olive-green.

A scum usually forms on the surface of the brine as yeast and mold grow. It is important to keep their population down by removing the scum daily.

2. FRESH PACK OR QUICK PROCESS are made by combining ingredients (with or without heating) and water bathing right away. As a rule of thumb, recipes should call for at least as much vinegar (5% acid) as water. **Use only reliable up-to-date recipes** and follow them carefully. Do not alter vinegar, food, or water proportions.
3. FRUIT PICKLES are made of whole fruits simmered in a spicy, sweet-sour syrup.
4. RELISHES are made from chopped fruits or vegetables with seasonings.

UTENSILS

Do not use zinc, copper, brass, galvanized metal, or iron utensils. These metals may react with acids or salts and cause undesirable color changes in the pickles or form undesirable compounds.

INGREDIENTS MAKE A DIFFERENCE

Vegetables or Fruits

- Select tender vegetables and firm fruits that are free from blemishes.
- For best results, use cucumbers within 24 hours of picking. Use a variety of cucumbers grown especially for pickling. Good quality pickles are not made from immature "slicing" cucumbers.
- Use light skinned cucumbers that are attractively warted, not more than 2 inches in diameter and young enough so the seeds have not matured.

- Commercially waxed cucumbers should not be used for fermented pickles or whole pickles. Pickling liquid cannot penetrate into the waxed cucumbers.
- Wash all vegetables and fruits thoroughly in cold water. Do not use if moldy.
- Remove blossom ends of cucumbers. They may contain enzymes which cause softening in pickles.

Salt

Recommended

- PICKLING AND CANNING SALT are pure, granulated salts containing no anti-caking agents, and no iodine. Do not alter salt concentration in fermented pickles or sauerkraut. Proper fermentation depends on correct proportions of salt and other ingredients.
- Non-iodized TABLE SALT can be used. It may cause a cloudy brine, but this does not harm the pickles.

Not Recommended

- SEA SALT is essentially iodized table salt with a different name for sales purposes. Salt labeled "sea salt" is not suitable for pickling because it contains mineral impurities which may also cause pickle discoloration.
- ICE CREAM SALT or ROCK SALT might contain unsafe impurities so it is not recommended.
- SOUR SALT is a small tablet containing citric acid and salt that is used in the commercial canning of sea food. At retail level, it is marketed as a water softener. The salt in the tablet removes ions of calcium and magnesium, while the citric acid renders the iron in the water unavailable. This type of salt, due to its tablet form and mixture, is not suitable for pickling purposes.
- SALT SUBSTITUTES (such as potassium chloride) cannot be used to make satisfactory pickle products. The pickles will be crisp and crunchy, but will not have the characteristic salty pickled taste. Potassium has a bitter taste and the pickles generally taste terrible. See SP 50-533 Low Salt Pickles.
- FLAKED SALT varies in density, so is not recommended for use in pickled and fermented foods.
- KOSHER SALT, a coarser salt, is not recommended unless recipe calls for it.

Vinegar

- Use vinegar with 5% acidity.
- White distilled vinegar has a sharp pungent acid taste and is desirable when light color is important such as pickled onions, cauliflowers and fruits.
- Cider vinegar has a milder flavor but may discolor some pickle products.

- Do not use homemade vinegar or brands with an unknown acidity. The percent acidity must be known for successful pickling.
- If a less sour product is desired, add sugar to the pickling solution rather than reducing the amount of vinegar. Vinegar is important for safety reasons.

Spices

- Use whole spices. Powdered spices may cause the product to darken and become cloudy.
- Use fresh spices. Last year's supply will have lost much flavor.
- Pick dill as soon as the flowers begin to open.
- Dill seed can be substituted for fresh dill, but may not have as good flavor. (3 dill heads = 1 Tablespoon seeds = 1 - 3 drops dill oil).

Garlic

- Use fresh, mature garlic. Immature or old garlic sometimes turns pink or blue as anthocyanins (coloring pigment) react to acid.

Water

- Moderately soft water makes the best brine for pickles. Hard water may cause cloudiness and iron and sulfur may cause off-colors.
- If only hard water is available, boil and let sit for 24 hours and skim off scum. Water should be used from the top of the container without disturbing any sediment on the bottom.

Sugar

- Either white or brown may be used.
- Brown sugar may give a darker color to the brine.
- Corn syrup and honey may be too strong flavored.

Firming Agents

- Alum may be safely used to firm fermented cucumbers. However, it is not necessary and is not included in most up-to-date recipes.
- Lime, called slake lime, lime hydrate, or hydrated lime, is really calcium hydroxide. If used, it should be food grade. Soaking fresh cucumber slices in a lime-water solution for 12-24 hours before pickling improves firmness. Excess lime absorbed by the cucumbers must be removed to make safe pickles. Drain, rinse, and then re-soak cucumbers in fresh water for 1 hour. Repeat the rinsing and soaking steps two more times.

- Another option for quick pickles is a calcium chloride product. Add to filled jars before applying lids. Follow manufacturer's directions.

PROCESSING PICKLES

Both microorganisms and enzymes can cause spoilage of pickled products. Processing will prevent these problems. Follow recommended methods for traditional water bath processing or low temperature pasteurization. **NOTE:** low temperature pasteurization is **only** recommended for cucumber pickles – not reduced sodium or other vegetable pickles. **DO NOT PROCESS FERMENTED PICKLES BEFORE THEY DEVELOP AN ACIDIC TASTE.**

STORING PICKLES

Cool Extreme fluctuation of temperature can cause a breakdown of the texture. Pickles stored at warm temperatures could start fermenting again and cause the jars to break.

Dark Light often causes products to fade and become less appetizing. This does not necessarily produce spoilage.

Dry Continuous moisture may cause closures to rust and eventually produce spoilage.

REMOVE jar rings. If liquid is lost during processing and rings are not removed, it will cause corrosion and the rings will be hard to remove. This is especially true for pickles due to their high acid and salt content.

AFTER OPENING: Store pickles in the refrigerator with the pickling liquid covering the fruits or vegetables.

Source: OSU Master Food Preserver Program