

A photographer from the Daily Interlake was present--apparently ESP will be featured in a future issue of the paper, perhaps November 22?

### **Lacto-Fermentation Introduction**

Catherine led an introduction on lacto-fermentation, one of the oldest methods of food preservation. Some common lacto-fermented foods include:

- yogurt, cheese, kefir, sourdough, Greek olives, old-fashioned pickles, sauerkraut.
- Old-fashioned ketchup (not the modern variety) and chutney.
- Salt-cured meats and sausages, smoked meats, and salted fish.
- Beer and wine also involve lacto-fermentation; however in this case the primary product is alcohol rather than lactic acid.

What is lacto-fermentation, and how does it work?

- Lactic acid-producing bacteria are present nearly everywhere, including on all foods. The most well known are acidophilus and bifidus.
- During the fermenting process, they digest primarily the sugars present in the food to produce short-chain fatty acids: lactic, acetic, propionic and butyric acid; they can also produce alcohol if the conditions are right.
- What makes them important for food preservation is that they also produce antibiotics that go after the bad bugs that would otherwise cause the food to rot.

Since it takes awhile for enough lacto-bacteria to build up, we add salt at the beginning. The bad bugs don't like salt, and thus avoid salty foods. The salt also helps move moisture out of the food, to provide a good growing medium for the lacto-bacteria.

Why is lactic acid important? The body uses lactic acid in the cellular process to produce energy. The liver uses lactic acid (and other short-chain fatty acids) in its detox processes. Many 'bad' bugs cannot survive in the acidic medium.

### **How to Make Sauerkraut**

Melanie explained her equipment:

- ✓ large bowl (stainless steel, but glass is also good) for mixing cabbage and salt
- ✓ scale for weighing the cabbage
- ✓ tablespoon measure to measure salt
- ✓ kraut board for grating the cabbage (or a good knife and chopping board)
- ✓ stoneware crock, for fermenting the cabbage (or glass jar for smaller batch)
- ✓ dinner plate and heavy rock to keep cabbage submerged in fermenting liquid
- ✓ cheesecloth
- ✓ towel

Two rules:

- I. Always use fall cabbage. Someone mentioned that Flat Dutch is the best variety of cabbage to use. It is a late season variety.
- II. Never use iodized salt. Sea salt is good, even though it contains iodine--it's not the same type of iodine as that added to iodized salt. But do not use "iodized" sea salt, as it has the wrong kind of iodine.

Melanie uses the method in the Ball canning book, but this is also the method taught by her Grandmother.

1. Prepare the cabbage in 5-pound increments (use a kitchen scale to weigh the cabbage).
2. Grate 5 pounds cabbage into large bowl. Add 3 tablespoons of non-iodized salt.
3. Mix salt and cabbage using your hands. The cabbage will begin to wilt.
4. When mixed, scoop into the crock.
5. Push down on the cabbage with your hands (or pound with a wooden pounder). The action of the salt causes a liquid to seep out of the cabbage. Keep pounding until the cabbage is covered with the liquid. Every batch of cabbage is different, so there is no set length of time for this step.
6. Let the cabbage rest in the crock while you grate another 5 pounds of cabbage and mix in 3 tablespoons salt. Add this to the cabbage in the crock and pound again. Keep repeating this process using 5 pounds grated cabbage and 3 tablespoons salt, until you have used all your cabbage.

It takes about 70 pounds of cabbage to fill her large crock, and makes enough sauerkraut to fill 23 quart jars.

7. If the cabbage is not finely grated, it is harder to work out enough moisture to cover the cabbage. In this case, you can add water to make a brine with the salted cabbage, enough to cover. You can also add liquid whey (from cow's or goat's milk, etc.), which provides more lacto-bacteria to jump-start the fermentation process.
8. When finished with the cabbage, and it has liquid to cover, place a piece of clean cheesecloth over the mixture, then a dinner plate or wooden lid (that just fits inside the crock) upside down on top. Place rock or other weight on top, to weight down the plate. Cover the whole thing with a towel, and keep in cool place.
9. Each day, rinse rock, plate and cheesecloth with fresh water; replace on the kraut.
10. After 3 days or so, taste the kraut. You will know when it is done by the taste. Average curing time is 6 weeks, but every batch is different.
11. When it's ready, you can leave it in the crock, or transfer to jars. Store in a cool place. Or you can process in a hot water bath.

Canning the kraut:

Do not pre-heat the kraut. Simply put into jars, leaving 1/2 inch headroom. Thoroughly wipe rim and threads of jar with damp cloth to remove all traces of salt. Place lid on jar and screw on the ring. Process in boiling water bath (keep covered with boiling water), for 20 minutes. Begin timing once the water returns to a boil after the jars are placed in the canner. See Hot-Bath Home Canning Flyer for more detail.

Whether or not to can the kraut:

The heat of canning destroys the enzymes and some of the natural vitamins in the sauerkraut. To preserve the enzymes and vitamins, you want to store it without canning. It should keep indefinitely as long as the cabbage is always covered by the liquid, and it is stored in a cool place (refrigerator, root cellar, cold storage).

Adding other flavors:

You can add other vegetables, seeds or spices to your kraut for a different flavor.

Further Discussion:

Some recipes do not allow air flow, but keep the fermenting mixture sealed from room air. Does anyone know why the difference?

**Sources:**

See Lacto-Fermentation flyer for internet sources of crocks and other equipment. someone mentioned that Gardner's Auction had crocks of different sizes at a great price, but doesn't know if they are still available.

See Hot-Bath Canning flyer for sources of canning equipment.

**Discussion of future event topics:**

Several topics were suggested for future gatherings:

- Beer and/or wine making (Brenda Woolhouse, [bbaldi@centurytel.net](mailto:bbaldi@centurytel.net), will send information on "Don" from farmers' market who could do a wine demo)
- Ginger beer, ginger ale, etc.
- Yogurt, kefir and cheese making (Catherine can do yogurt and kefir; perhaps Gayle Prunhuber would do cheese).
- Medicinal herbs and herbology (Amy Baldi, [montanamy@bresnan.net](mailto:montanamy@bresnan.net), could do this presentation; Zena Pirone, [zena@montanasky.net](mailto:zena@montanasky.net), could also discuss medicinal herbs)
- Dehydrating foods without electricity
- Making a solar water heater

## 10/22/08 Gathering: Lacto-Fermentation and Sauerkraut

- Spinning and weaving (Linda Christensen, [rayzee@centurytel.net](mailto:rayzee@centurytel.net), could help us find someone)
- Making sourdough starter (Steve Eisenberg said he 'might' do this, but is not volunteering).
- Raising chickens (for eggs and/or for meat)
- Fruit and vegetable dehydration; fruit leathers (Perhaps Zena?)
- Meat jerky