Lacto-Fermenting Sauerkraut
Kungund Benehonig aka Carly Alcorn (krakekind@gmail.com)

Lacto-fermenting is simple! Various strains of Lactobacillus are present on the surface of produce, so there's no need to add any additional yeast or starter culture. You just need a clean jar, chopped vegetables, non-chlorinated water, and an adequate amount of salt. Lacto-fermentation occurs when the naturally occurring Lactobacillus bacteria consumes sugar and produces lactic acid, creating an inhospitable environment for other bacteria and preserving the vegetable.

Use enough salt. It's a good idea to weigh the salt, as different types and brands of salt will have different shaped crystals, leading to inconsistent measurements. The correct amount of salt inhibits the growth of harmful bacteria, while allowing lactobacillus to flourish. A 2-3% brine solution is good for most vegetables, including cabbage, onion, garlic, green beans, radishes, beets, carrots, celery etc.… See the attached brine solution chart for more recommendations with various vegetables.

Create a 2% brine solution by adding 5g salt to 250mL water.

When salt is added to fresh grated cabbage (approximately 7g per pound of cabbage) and the mixture is massaged and squeezed by hand, the cabbage releases water and creates brine. Usually, no additional water is necessary. Occasionally you might find your cabbage and salt mixture is frothy and foamy. This means your produce was dehydrated. Stop massaging immediately and add 2% brine. If additional liquid is needed after filling the jars, add 2% brine to completely submerge the vegetables. Vegetable bits left above the brine will mold and invite other bacteria to spoil your ferment.

The basic supply list:

- Non-porous vessel, like a glass jar
- Non-iodized salt
- Non-chlorinated water
- Vegetables
- A "weight" to keep veg below the brine (a cabbage leaf works well, but a non-porous weight will stay submerged and keep vegetables submerged)
- Knife and cutting board
- Measuring cup for liquid
- scale

The Basic How-To

- Sanitize your fermenting vessels and tools.
- Prepare your vegetables by shredding, slicing etc.
- Pack your jar, leaving one inch of head space
- Mix your brine, and fill to the neck of the jar.
- Close your jar and store at room temperature away from direct sunlight.
- Check twice daily to release pressure if necessary and monitor brine levels.
- Fermentation time varies depending on vegetable chosen and thickness of vegetable pieces. See notes for indicators of a finished ferment.

Sauerkraut

1 medium green cabbage
7 grams non-iodized salt per pound of cabbage (weighed after being sliced)
Non-chlorinated water
2 Tbsp Caraway seeds (optional)

1. **Ensure that all of your tools are clean.**
2. **Prepare the cabbage.** Remove the outer leaves. Slice the cabbage into quarters and remove and discard the core from each piece. Slice each quarter into thin ribbons. Set a large mixing bowl on the scale and use the tare function. Add the sliced cabbage to the bowl and note the weight.
3. **Add salt and massage.** Measure salt appropriately (7g/lb cabbage). Sprinkle the salt over the shred cabbage and begin mixing, squeezing and massaging by hand. The salt will cause the cabbage to soften and release water, creating the brine. This process can take 5-10 minutes. Add caraway seeds and stir to distribute.
4. **Pack the jars.** Pack your cabbage mixture into clean jars, pressing down to remove air bubbles and maximize space. Stop 1 inch below the neck of the jar and add glass weight. Add enough brine to completely submerge the weight.
5. **Cover. You can use a metal jar lid with a ring, or an airlock.**
6. **Allow to ferment out of direct sunlight, and monitor diligently!** Check twice daily to make sure your vegetables and weight are staying below the brine. Vegetable bits left above the brine will mold and invite other bacteria to spoil your ferment. Begin tasting after 7 days. Review “signs of a finished ferment” below.

Kringle Kraut

1 medium purple cabbage
Zest of 1 orange
Dried cranberries
1-2 tart, firm apples (Granny Smith work well)
7 grams non-iodized salt per pound of cabbage (weighed after being sliced)
Non-chlorinated water

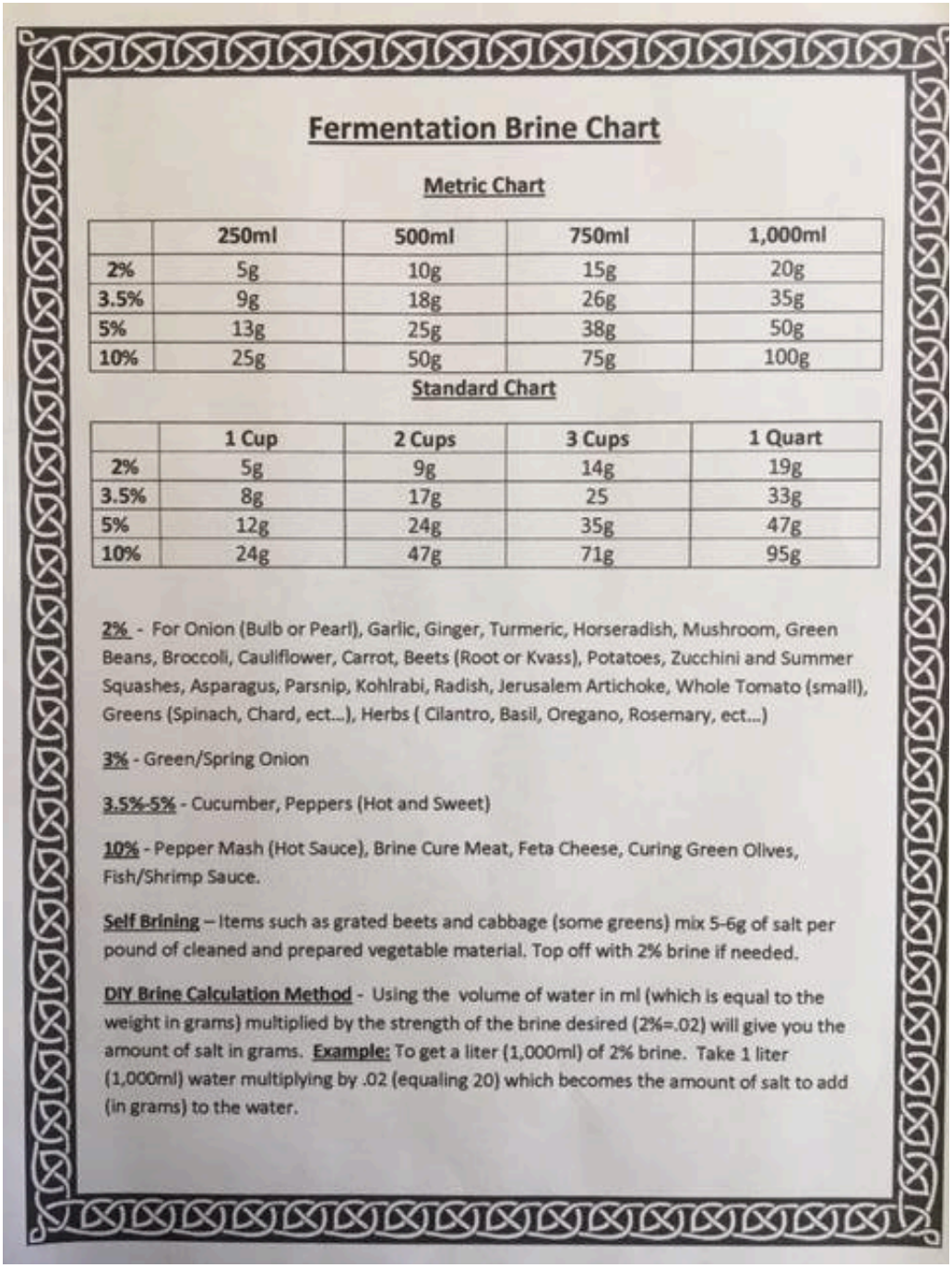
7. **Ensure that all of your tools are clean.**
8. **Prepare brine.** Mix 5g salt with 250 mL water.
9. **Prepare the cabbage.** Remove the outer leaves. Slice the cabbage into quarters and remove and discard the core from each piece. Slice each quarter into thin ribbons. Set a large mixing bowl on the scale and use the tare function. Add the sliced cabbage to the bowl and note the weight.
10. **Add salt and massage.** Measure salt appropriately (7g/lb cabbage). Sprinkle the salt over the shred cabbage and begin mixing, squeezing and massaging by hand. The salt will cause the cabbage to soften and release water, creating the brine. This process can take 5-10 minutes.
11. **Wash and zest the orange.** You'll need approximately 1 TBSP of zest. Add to cabbage. Note the weight if desired.
12. **Prepare the apple.** If you would like to line your jar with apple slices, you need to cut thin slices (⅛ inch-¼ inch) across the core. This cut shows the beautiful star shape of the core. The slices are also edible, of course! One pint sized jar needs approximately 3 slices. Cut the appropriate amount of slices and set them aside. Grate the rest of the apple and add to the cabbage. Note the weight if desired.
13. **Add ½ cup of dried cranberries to the cabbage, and stir.** You can add more or less cranberries. I like to have at least one cranberry in every spoonful of kraut. Note the weight if desired.
14. **Pack the jars.** Pack your cabbage mixture into clean jars, pressing down to remove air bubbles and maximize space. Stop 1 inch below the neck of the jar and add glass weight. Add enough brine to completely submerge the weight.
15. **Cover. You can use a metal jar lid with a ring, or an airlock.** If you use a regular lid (not an airlock) be sure to burp the jars twice a day.
16. **Allow to ferment out of direct sunlight, and monitor diligently!** Check twice daily to make sure your vegetables and weight are staying below the brine. Vegetable bits left above the brine will mold and invite other bacteria to spoil your ferment. Begin tasting after 7 days. Review "signs of a finished ferment" below.

What “monitor diligently” means, and other helpful tips:

- Check twice daily to make sure your vegetables are staying beneath the brine. If your vegetables are exposed, you can:
    - Add more 2% brine. Mix 250 mL non-chlorinated water with 5g of non-iodized salt. Add enough brine to keep your vegetables submerged.
    - Scoop out one or two spoonfuls of vegetable matter. This can occur often with sauerkraut. Be sure to check back as the days pass and add more 2% brine if necessary
    - The vegetables may be rising due to the build-up of carbon dioxide gas. You can press down on the center of your weight using a plastic utensil to release some of the gas. You want to avoid introducing oxygen to the fermenting vegetable matter. Don’t stir it.
- Place your jars in a rimmed container, like a baking sheet. The brine may overflow, and this will contain the mess.
- If you are using a canning lid and ring, be sure to release the ring twice a day to release pressure. Open the jar over the sink or in a dish to catch any overflow.
- If it grows mold, dump it, sanitize your jar, and try again. If it grows a white film, it’s likely kahm yeast which will not harm you but has a funky taste.
- Start tasting after 5-7 days. If it’s ready, remove the weight and refrigerate! Once in the refrigerator, continue to monitor the brine level, adding more if the brine level falls below the vegetables.

Signs of a finished ferment include: Bubbles, Sour tangy smell, sour pleasant flavor with firm crunchy texture.

- Bubbles indicate active fermentation. Hooray! Bubbles may form in pockets around clusters of vegetable sticks, and they may form throughout a chopped vegetable mixture like sauerkraut. As fermentation continues, the gases created will push the liquid in the jar up and may cause your jars to overflow a little.
- Sour Aroma – the smell should be tangy and sour, but not unpleasant. This seems like a totally subjective measure, but there's a true difference between good stinky sauerkraut, and rotten cabbage.
- Flavor - Once it's bubbly and smells tangy and sour, it will also taste sour with a firm crunchy texture.



Fermentation Brine Chart

Metric Chart

	250ml	500ml	750ml	1,000ml
2%	5g	10g	15g	20g
3.5%	9g	18g	26g	35g
5%	13g	25g	38g	50g
10%	25g	50g	75g	100g

Standard Chart

	1 Cup	2 Cups	3 Cups	1 Quart
2%	5g	9g	14g	19g
3.5%	8g	17g	25	33g
5%	12g	24g	35g	47g
10%	24g	47g	71g	95g

2% - For Onion (Bulb or Pearl), Garlic, Ginger, Turmeric, Horseradish, Mushroom, Green Beans, Broccoli, Cauliflower, Carrot, Beets (Root or Kvass), Potatoes, Zucchini and Summer Squashes, Asparagus, Parsnip, Kohlrabi, Radish, Jerusalem Artichoke, Whole Tomato (small), Greens (Spinach, Chard, ect...), Herbs (Cilantro, Basil, Oregano, Rosemary, ect...)

3% - Green/Spring Onion

3.5%-5% - Cucumber, Peppers (Hot and Sweet)

10% - Pepper Mash (Hot Sauce), Brine Cure Meat, Feta Cheese, Curing Green Olives, Fish/Shrimp Sauce.

Self Brining – Items such as grated beets and cabbage (some greens) mix 5-6g of salt per pound of cleaned and prepared vegetable material. Top off with 2% brine if needed.

DIY Brine Calculation Method - Using the volume of water in ml (which is equal to the weight in grams) multiplied by the strength of the brine desired (2%=.02) will give you the amount of salt in grams. **Example:** To get a liter (1,000ml) of 2% brine. Take 1 liter (1,000ml) water multiplying by .02 (equaling 20) which becomes the amount of salt to add (in grams) to the water.