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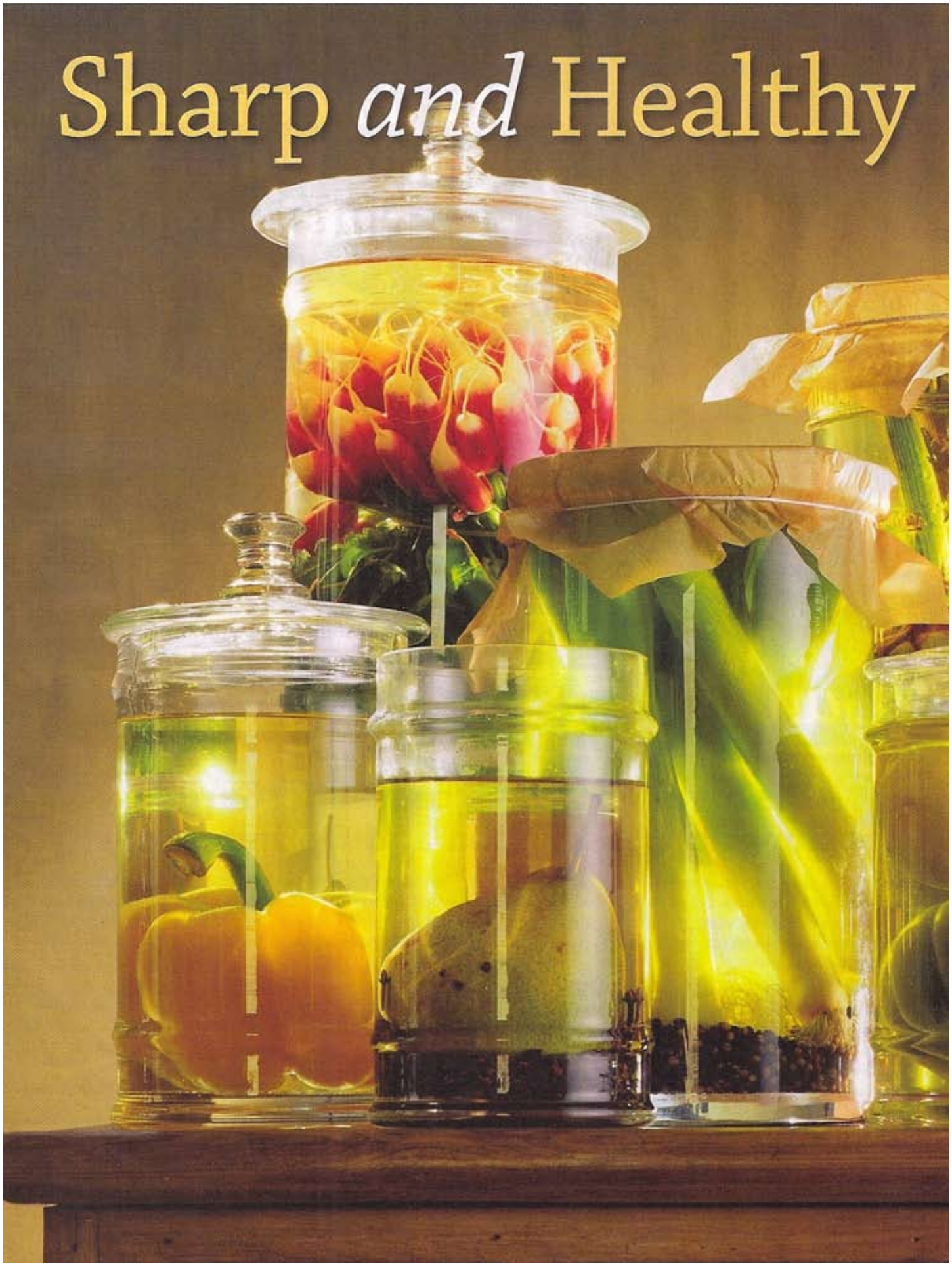

FERMENTED FOODS ADD ZIP TO MEALS WHILE SUPPORTING PROPER DIGESTION.

BY CORINNE GARCIA

MONTANA FARMER and rancher Jenny Sabo keeps a jar of homemade sauerkraut or kimchi on the table at all times. As an extreme locavore—someone who tries to eat as locally as possible—Sabo grows or trades for most of her family's vegetables, but the fermented specialties she creates are family favorites. (No fermented food is more popular in the US than the ubiquitous pickle.) Not only are they easy to make, but for her the health benefits make the effort worthwhile.

"Our family loves the sauerkraut from nutrient-dense cabbage that is a year old or more," Sabo says. "You can tell you have

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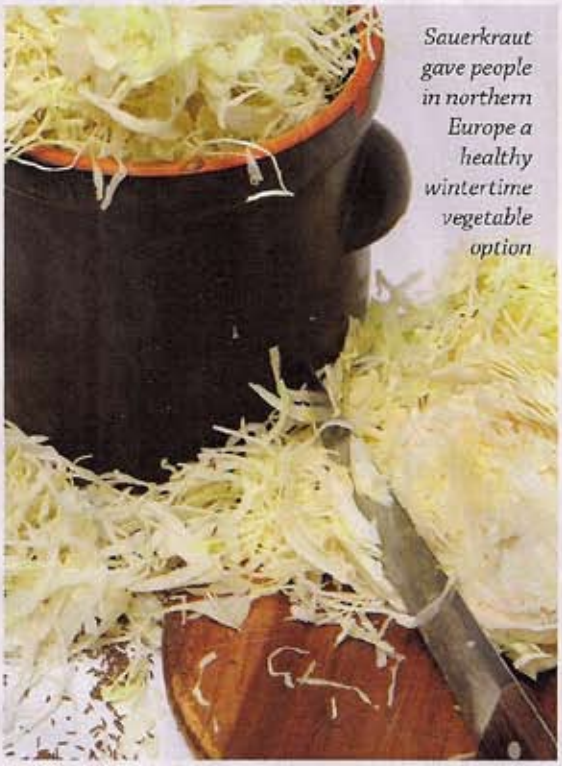
good cabbage if it stays crisp in the jar as it ages. This is a potent probiotic food that has been used for winter health in northern countries for hundreds of years."

They may not be eating fresh greens in the depth of a Montana winter, but the Sabos are following in the footsteps of traditional homesteaders. Fermentation preserves their harvest and gives the family a healthy dose of vitamin C and probiotics.

Back before supermarkets displayed an endless selection of vegetables no matter the season—and before we could simply toss food into the fridge to keep it fresh—food preservation was a constant struggle. Keeping vegetables on the table throughout the year involved creativity, and for many cultures fermentation was the key.

Sauerkraut, pickled vegetables, kimchi—each culture has its own twist on traditional fermented flavors. The recipes differ from place to place, but most share common fermentation methods as well as the many health benefits. (The modern supermarket pickle lacks live cultures and contains preservatives instead.)

Fermentation techniques have been around since ancient times. The practice came into existence through a process of trial and error to preserve foods and enjoy alcoholic beverages. It preserved the bounty of the season, and the vitamins it provided prevented some deadly diseases, such as rickets and scurvy.



Sauerkraut gave people in northern Europe a healthy wintertime vegetable option

THE FERMENTATION PROCESS

Most people tend to fear bacteria and toss out anything tinged with mold. But coaxed and coerced properly, bacteria and mold is the culinary traditionalist's friend. By using active cultures, or lactic acid bacteria, one can encourage what one food scientist describes as "pure culture fermentations."

"Fermentation occurs when microorganisms convert carbohydrates in foods to alcohol or acids," says Joanne Slavin, PhD, RD, a professor with the Department of Food Science and Nutrition at the University of Minnesota. "Nearly all food fermentations are the result of more than one microorganism, either working together or in a sequence, usually growth initiated by bacteria, followed by yeasts and then molds – smallest to largest."

The trick is getting the beneficial bacteria, mold and yeast to grow, instead of the harmful ones that result in food poisoning. Foods will simply not spoil in an acidic environment, so when fermentation is done properly, preservation occurs as does a tangy flavor. (Although fermented foods don't require it, refrigeration does help slow the fermentation process.)

As fast food was introduced to our fast-moving society, pure culture fermentation left many kitchens. But today a number of health benefits has drawn it back in. Even those with refrigerators on hand have revived traditional fermentation techniques. "Old-world fermentation was used to preserve food when other methods were not available," Slavin says. "Now there's new interest in the potential health benefits."

FERMENTED HEALTH

Microbiologists in the 19th century discovered microbes in the gastrointestinal tracts of healthy individuals that diseased individuals lacked. These organisms were referred to as *probiotic*, meaning "for life." Today, these probiotic bacteria are known to promote digestive health (and are available in supplemental form).

Probiotics in fermented foods have many health benefits. Slavin says, "In 1994, the World Health Organization deemed probiotics to be the next-most important immune defense system when commonly prescribed antibiotics are rendered useless by antibiotic resistance." She adds that fermented foods improve the nutritional value of foods by increasing vitamin creation, especially of vitamin C, and nutrient digestibility.

Other studies have credited fermented foods with reducing certain kinds of cancers (*Journal of Dairy Science* 6/10) and serving as an immune system booster (*Critical Reviews in Microbiology* 1/3/09). Probiotics are also under investigation as a way to help fight colitis, constipation, diarrhea, gas, gastric reflux, heartburn, Crohn's disease, gum disease and high cholesterol, and for possible beneficial effects on autism and obesity. There have also been some negative findings regarding a carcinogenic byproduct of fermented foods. However, according to Slavin, the benefits of fermented foods most likely outweigh the risks. "Most foods contain compounds that have some link to cancer," she notes.

R.J. Ruppenthal, author of *Fresh Food from Small Spaces: The Square-Inch Gardener's Guide to Year-Round Growing, Fermenting and Sprouting* (Chelsea Green Publishing), explains

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that some foods, such as tomatoes and spinach, do contain small doses of toxic compounds. "They have something the body has to deal with along with the good stuff. But people have been eating fermented foods for thousands of years, and it seems to work well," he says.

Photo by Envision/Corbis

Kimchi is a staple in Korean kitchens

BACK TO TRADITION

In Korea, whether it's in the middle of a congested city or far out in the country, just about every family has a big crock of *kimchi*, or pickled vegetables, fermenting outside their door. Korean housewives used to process cabbage in the fall or early winter by burying earthenware crocks in the ground just below freezing level for weeks. To this day, traditional flavors added to kimchi, aside from the cabbage and salt, include hot peppers, garlic and ginger, which together give it a spicy zing.

Northern European countries had their own taste for fermented flavors, leaving out the spiciness. Instead, they fermented cabbage in brine, resulting in a flavorful sauerkraut. And Chinese sauerkraut was traditionally made by fermenting the cabbage in rice wine.

Today's fermenters, using the same basic principles as traditionally used in Asian and European cultures, can play with flavors. "Garlic, ginger, chili pepper—you can add and experiment," Ruppenthal says. "Recipes are a good starting point. Once you get used to the quantities, you can adapt to your taste."

Ruppenthal is a modern fermenter and a passionate gardener. He includes fermentation in his book because it's a simple technique that people can do anywhere. He has heard of the health benefits, but thinks there are other reasons that people have fermentation back into their kitchens. "Part of it is eating more fresh food," he says. "You might not eat a head of cabbage otherwise, but hey, sauerkraut is salty and tangy and tastes pretty good."

Ruppenthal believes a renewed taste for traditional foods and the new locavore lifestyle has helped fermented foods rise again. "I think there's been a real resurgence," he says. "People's interest in locally grown organic foods has skyrocketed. There have been enough scares about what's in our foods lately."

Cabbage, in the form of kraut or kimchi, isn't the only thing you can play around with. Other tough vegetables will work, such as cucumbers, radishes, turnips and carrots. "You can't use things that are soft and would break down quickly," Ruppenthal warns. "If you tried to culture a tomato, there wouldn't be much left in a couple days."

Modern-day fermenters such as Sabo and Ruppenthal are drawn to the health benefits but also to the tradition that fermentation offers.

"It's a fun project to learn, and I got addicted because of how cool it is," Ruppenthal says. "You're really farming those good guys that are quite beneficial to digestion. I was thinking about trying zucchini pickles next." ❖

Resources for Home Food Preservation

Canning, Pickling & Preserving: Tools, Techniques & Recipes to Enjoy Fresh Food All Year-Round by Kimberley Willis and Viktor Budnik (Knack)

The Complete Guide to Food Preservation: Step-by-Step Instructions on How to Freeze, Dry, Can and Preserve Food by Angela Williams Duea (Atlantic Publishing Group)

How to Store Your Home-Grown Produce: Canning, Pickling, Jamming and So Much More by John Harrison and Val Harrison (Skyhorse Publishing)

Put 'em Up!: A Comprehensive Home Preserving Guide for the Creative Cook, from Drying and Freezing to Canning and Pickling by Sherri Brooks Vinton (Storey Publishing)