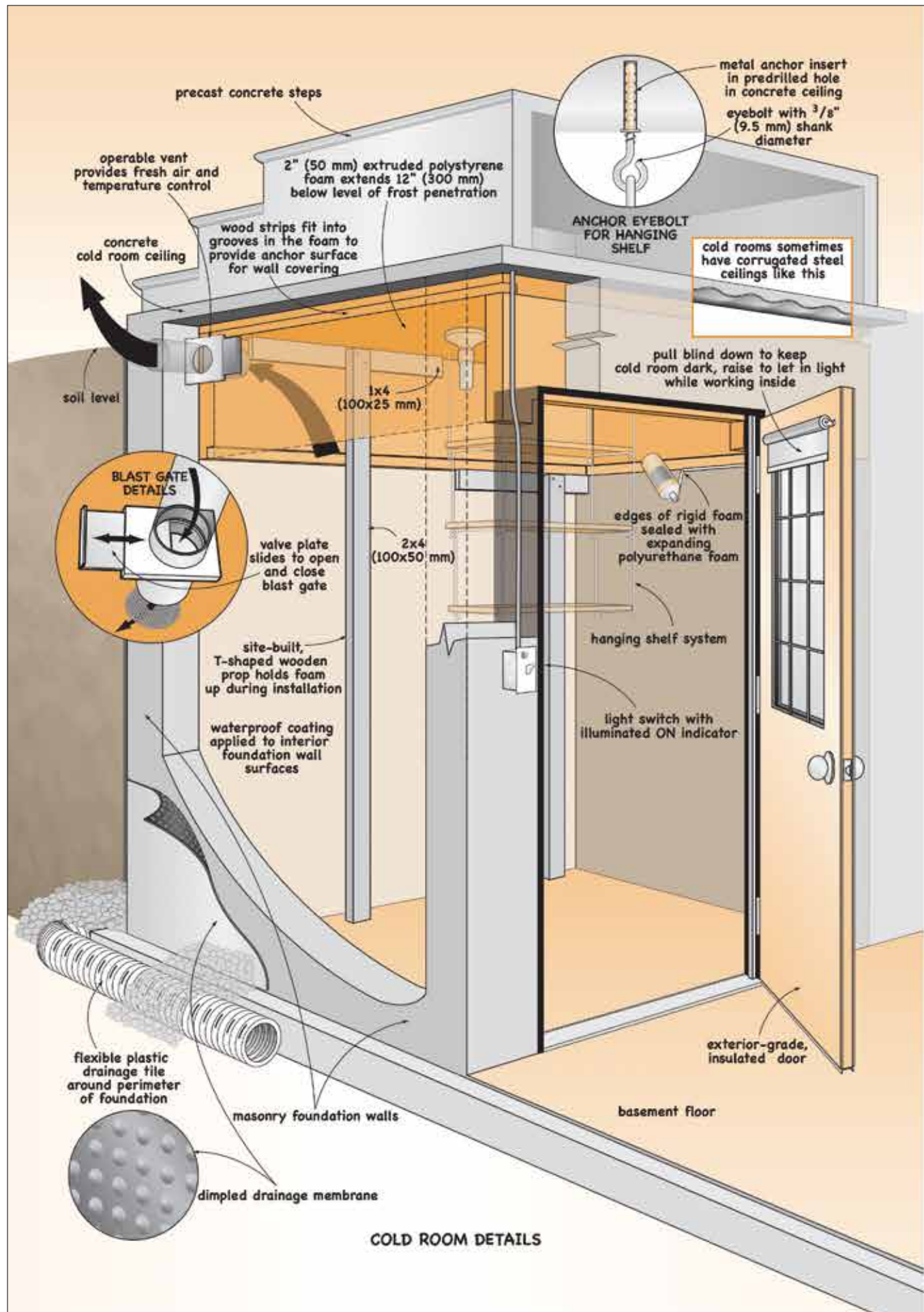




THE COMPLETE  
**ROOT  
CELLAR  
BOOK**

.....  
**Building Plans,  
Uses and  
100 Recipes**

.....  
**Steve Maxwell and  
Jennifer MacKenzie**



## Tuning Up Your Cold Room

Our growing desire to have a basic basement food storage zone, even if we live near a grocery store, hasn't gone unnoticed. Homebuilders realize that the call for space to keep at least a few bags of potatoes isn't going to disappear, and that's why they usually include a cold room in new home designs. Or at least, they try to. Few of these modern cold rooms, typically located underneath a set of concrete stairs at the front of the house, actually work the way they're supposed to — at least, not without some serious souping up. While even a fully functioning cold room won't be able to maintain the 32°F to 40°F (0°C to 5°C) temperatures and 80% to 90% relative humidity levels that are the ideal conditions for certain vegetables, renovating a cold room so that it functions as a cold room is still worth the effort. This is especially true if you don't have a lot of food storage space in other parts of your house.

If you have an under-the-front-porch cold room, you probably know all too well that it has some limitations. Poor cold-weather performance tops the list of troubles in many standard-issue cold rooms, especially in regions where wintertime temperatures drop below 15°F (-10°C). Cold rooms are typically way too cold in winter. Most designs sit high enough out of the soil that frost penetrates at least the top 25% and sometimes even 50% of the structure. Besides making the cold room too cold, inadequate soil buffering also leads to the formation of frost on the interior walls and ceiling as internal masonry surfaces drop below freezing. On its own, frost on walls might not seem like a disaster, but when it melts and runs onto the floor, it comes close. Besides soaking the floor, the added moisture can boost airborne humidity high enough to promote mold and mildew. Not good.

Poor warm-weather performance usually goes hand in hand with a cold room that's ineffective in winter. This is problem number two. Without the moderating effects of enough soil around the structure, cold room temperatures are likely to get much too high in the summer for effective root cellaring of any kind.

Water leakage into under-the-steps cold rooms is the third most common cold room headache. It has two sources. Water can seep in through the walls of the structure or down from the top, through or around the precast steps. Despite their solid appearance, ordinary concrete blocks and poured concrete aren't fully waterproof. Often they're not even close.

While wide swings in cold room temperatures are a more common problem than water leaks, and temperature problems are easier to fix, water leakage is a more serious problem because a wet space can never function as a cold room. Water

It takes less than two days' work for an average homeowner to modify a typical cold room so that it functions as intended.

Most basement water leaks are caused by water pooling against the building.

Transpiration is the loss of moisture from living plants, and the process continues even after produce has been harvested. Root cellars preserve food by reducing the rate of transpiration as much as possible with high humidity, though you do need to be careful. Transpiration can raise humidity too high, especially when produce is sealed in closed containers.

To prevent ethylene from spreading from apples to other produce, you can store apples in sealed plastic bags, with one pinhole in the bag per pound of fruit inside (two or three pinholes per kilogram).

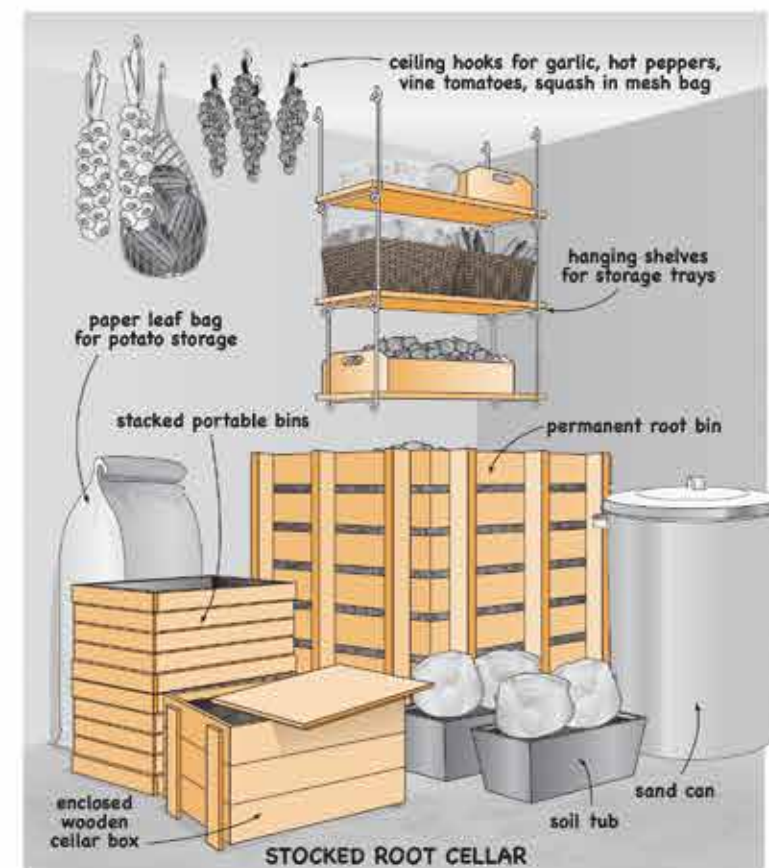
need it. Sealable containers such as sand cans (see page 98) and wooden boxes with lids (see page 99) allow you to achieve the high-humidity (90% to 95%) storage conditions required for the best preservation of beets, carrots and other root crops. Layer the produce with damp sand, sawdust or peat moss as you pack it away, then either close the lids or leave them partially open to control humidity. The damp packing and the transpiration of the fruit or vegetables themselves create a moist microclimate inside the container, even in a cellar that is considerably drier than ideal.

If your cellar gets too humid, boost ventilation if the outdoor air is cool and dry enough. After increased ventilation, if the ambient air is too moist to lower relative humidity, place open containers of hydrated lime in the cellar. This white powder absorbs many times its weight in moisture. When the lime stops working, or you don't need it anymore, sprinkle it on soil or compost piles — it contains a lot of calcium and reduces soil acidity.

Another good reason to store each type of crop separately is the issue of produce personality. Some fruits and vegetables simply don't sit well next to each other. In some cases, this is a matter of flavor transfer (who wants apples that taste like onions?), but it's also a chemical thing. Some ripening fruits, including apples, avocados, bananas, melons, peaches, pears and tomatoes, give off a colorless, odorless gas called ethylene, which causes neighboring produce to ripen and spoil prematurely. Broccoli, cabbage, cauliflower and leafy vegetables all go bad much more quickly in the presence of ethylene, because it signals them to drop their leaves in a process called abscission — just one of nearly two dozen different plant responses to ethylene. Ripe apples, a prolific producer of ethylene, also cause potatoes to sprout and get soft. Depending

on the size of your cellar, how much fruit you are storing in it and how much ventilation you have, it may be enough to keep ethylene producers on the other side of the cellar from ethylene-sensitive foods. If not, you'll need to find a separate place to store ripe fruit.

An 85% ethylene, 15% oxygen mix was historically used as an anesthetic for surgery. In concentrations as low as one part in 10 million, ethylene acts as a fruit-ripening hormone.



### Crop-Specific Storage Containers

Regardless of what foods you are cellaring, you will need containers to keep them organized and in good condition. The type of containers you choose will have a huge effect on your experience of root cellaring.

#### Portable Bins

The bulk of root cellar storage happens in some kind of bin, and most traditional bin designs are permanently installed in the cellar (see Permanent Bins, page 94). While this approach works, in 1991 Steve developed a system of interlocking, build-it-yourself portable wooden crates. He calls them win-win storage bins, and the instructions for building one are on page 96. The design includes short legs that interlock with the bin below, making stacks more stable. As many as four bins can be safely stacked on a hard, flat floor.

### Cellar Division

Since the range of ideal temperature and humidity conditions for various foods is wider than you can expect to achieve in a single cellar space, dividing your cellar into two or three sections makes sense. This allows you to store things like avocados, bananas, garlic and onions in cool and dry conditions, while giving beets, carrots, eggplants, potatoes and turnips the cold and very moist conditions they need. The process is simple: create an insulated wall and door to divide one section from the next. Make sure each section has a separate controllable vent to the outdoors. If your floor plan allows it, it's nice to have a door from the basement into each section so you don't have to walk through one zone to get to another. Before building your cellar, consider its layout and location, then orient it so that the part you want to be coldest has the most exposure to subterranean wall surfaces.

Introduction: Why a Root Cellar?

## **PART 1: ROOT CELLARING IN THE 21ST CENTURY**

### **OPTION 1: MAKING A STANDARD COLD ROOM WORK**

A Short History of Basements  
Tuning Up Your Cold Room

### **OPTION 2: BUILDING A WALK-IN BASEMENT ROOT CELLAR**

Location, Location, Location  
Designing Your Cellar  
Installing Vents  
Building the Interior Walls  
Installing a Root Cellar Door

### **OPTION 3: THE WALK-IN, STAND-ALONE, UNDERGROUND ROOT CELLAR**

Location, Location, Location  
Design Decisions  
Step 1: Dig In  
Step 2: Build Footings  
Step 3: Raise the Walls  
Step 4: Backfill the Soil  
Step 5: Add the Roof and Gable Walls  
Step 6: Roofing, Siding, Doors and a Vent

### **OPTION 4: OUTDOOR ROOT CELLARING**

Storing Crops Right in the Garden  
The Hole-in-the-Ground Cellar Pit  
The Garbage Can Cellar

### **OPTION 5: ROOT CELLARS FOR CONDOS, TOWNHOUSES AND WARM CLIMATES**

Location, Location, Location  
Building an Electric Cellar with Structural Insulated Panels  
Technology to Make Things Cold

### **FINISHING TOUCHES FOR YOUR ROOT CELLAR**

Electricity  
Plumbing  
Flooring  
Wall Treatments  
Work Tables  
Shelving

## **PART 2: STORING FOOD IN YOUR ROOT CELLAR**

### **STORAGE OPTIONS**

Graded Storage  
Separation  
Crop-Specific Storage  
Containers

### **SELECTING AND PREPARING FOODS FOR STORAGE**

Using Frost to Your Advantage  
Harvesting or Purchasing Produce  
Organic Produce  
Corning Meat in the Root Cellar

Storing Wine in the Root Cellar

Emergency Preparedness

### **STORING FRUITS AND VEGETABLES**

How to Achieve Ideal Cellar Conditions

Optimal Storage Conditions

### **PEST CONTROL**

Rodents  
Insects

## **PART 3: ROOT CELLAR RECIPES**

### **SOUPS**

Vegetable Stock  
Chicken Stock  
Classic Leek and Potato Soup  
Chili Potato Soup  
Roasted Butternut Squash and Apple Soup with Sunflower Ravioli  
Curried Sweet Potato and Lime Soup  
Wild Mushroom and Barley Soup  
Cauliflower Soup with Spiced Pear Crisps  
Root Cellar Medley Soup  
French Onion Soup  
Roasted Onion and Potato Soup  
Carrot and Ginger Soup  
Classic Borscht  
Jerusalem Artichoke Soup  
Parsnip and Pear Soup

### **SALADS AND APPETIZERS**

Coleslaw for a Crowd  
Broccoli and Apple Slaw  
Warm Bulgur and Red Cabbage Salad  
Sweet and Tangy Beet and Carrot Salad  
Beet and Mixed Grain Salad  
Steve's Balsamic Beets  
Warm Fennel and Shiitake Mushroom Salad  
Marinated Celery Root Salad

Dilled Cucumber and Belgian Endive Salad  
Spinach Salad with Apples, Celery and Coriander Seed Vinaigrette  
Roasted Squash Salad with Dried Cranberries  
Caramel-Roasted Apple and Blue Cheese Salad  
Pear, Blue Cheese and Belgian Endive Canapés  
Herbed Mushroom and Garlic Pâté  
Roasted Squash and Onion Hummus

### **SIDE DISHES**

Barley and Beet Risotto  
Roasted Squash Risotto  
Wild Rice Gratin  
Golden Potato and Roasted Red Pepper Dauphinois  
Two-Potato Dauphinois  
Classic Scalloped Potatoes  
Chipotle Cheddar Mashed Potatoes  
Fennel Seed Mashed Potatoes  
Golden Puffed Potato Puddings  
Potato and Rutabaga Mash  
Perogies  
Royal Sea Salt and Malt Oven Fries  
Beet and Sweet Potato Fries with Three-Pepper Mayo  
Sweet Potato Rösti  
Bulgur with Cumin-Scented Sweet Potatoes  
Green Beans with Shiitakes and Onions  
Brussels Sprouts in Browned Butter with Pine Nuts  
Wilted Cabbage with Pan-Roasted Garlic and Almonds

Sweet and Sour Red Cabbage  
Sesame-Sautéed Carrots  
Sage Butter Parsnip Sauté  
Spice-Roasted Turnip and Beet Batons

### **MAIN COURSES**

Turkey Breast with Apple Sausage Stuffing  
Quick Chili-Roasted Chicken and Vegetables  
Garlic and Herb Roasted Chicken with Sweet Onion Gravy  
Chicken and Olive Ragoût with Dijon Potatoes  
Sear-Roasted Steaks with Caramelized Cabbage and Onions  
Prime Rib Roast with Plenty of Onions  
Classic Beef Pot Roast  
Maple Mustard Pork Roast with Two Potatoes  
Chorizo and Potato Torta  
Roasted Fish Fillets with Warm Fennel Slaw  
Hearty Vegetable Pot Pie  
Farfalle with Hearty Greens  
Penne with Caramelized Onions and Winter Squash  
Stuffed Acorn Squash

### **DESSERTS AND BAKED GOODS**

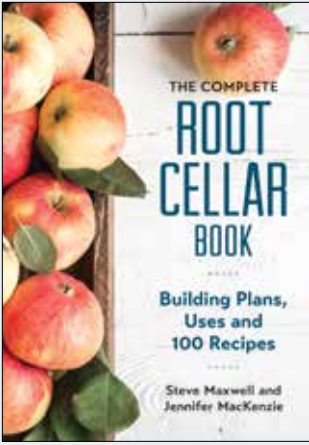
Easy-as-Pie Pastry  
Pear Almond Galette  
Lattice-Topped Apple Cranberry Pie  
Maple Pecan Crumble Apple Pie  
Pear, Cherry and Ginger Crumble  
Classic Apple Crisp  
Apple Pear Cobbler

Walnut and Orange Baked Apples  
Caramelized Apples with Cinnamon Sugar Twists  
Poached Pear, Brie and Pecan Napoleons  
Chocolate Citrus Trifle  
Pear Upside-Down Cake  
Classic Carrot Cake  
Double Apple Coffee Cake  
Rhubarb Streusel Coffee Cake  
Ginger Streusel Coffee Cake  
Double Ginger Pound Cake  
Sweet Lemon Parsnip Loaf  
Spiced Pumpkin Loaf  
Apple Oat Muffins  
Pear Ginger Muffins  
Carrot Bran Muffins

### **CONDIMENTS**

Pickled Ginger  
Quick Carrot Pickles  
Barrel-Fermented Dill Pickles  
Classic Sauerkraut  
Preserved Lemons  
Preserved Oranges  
Preserved Limes  
Three-Onion Relish  
Red Onion Marmalade  
Pear, Sweet Onion and Almond Chutney  
Pumpkin Orange Chutney  
Roasted Garlic  
Rhubarb Ginger Compote  
Spiced Pear Butter  
Honeyed Apple Butter  
All-Purpose Homemade Applesauce  
Rumtopf

Resources  
Acknowledgments  
Index



ISBN(S): 978-0-7788-0243-3 / 0778802434

PUBLICATION DATE: Available

LIST PRICE: \$27.95 CA / \$24.95 US / £16.95 UK

FORMAT/TRIM: TP / 7" X 10"

PAGE COUNT: 264

WORD COUNT: 92,729

ILLUSTRATIONS: 25 technical illustrations

SUBJECT/CATEGORY: Cooking

RIGHTS: World

## ABOUT THE AUTHORS

**Steve Maxwell** is a cabinet-maker, builder and award-winning home improvement author. He is also a photographer, videographer and seminar leader. Over the past two decades, Steve's magazine and newspaper articles have appeared in publications across North America.

**Jennifer MacKenzie** is a professional home economist and author with 15 years of experience in recipe development, testing and editing.

# THE COMPLETE ROOT CELLAR BOOK

Building Plans, Uses and 100 Recipes

*Root cellars are nature's way of storing fruits, vegetables and preserves*

Whether as a way to manage challenging economic times or to retain a garden bounty, root cellars are making a big comeback. This book takes a fresh look at the art and science of building, stocking and living well with a root cellar. It includes detailed and illustrated construction guides for making four different kinds of root cellars, including never-before-seen models for apartment- and condo-dwellers and homeowners without a basement.

Must-know information on how to choose, store and manage a supply of vegetables, fruits and preserves is included, as well as 100 recipes that incorporate your stored produce into both classic and innovative dishes, with a focus on good nutrition.

There's truly no better or more natural way to store food than in a root cellar. Everything you need to know about this time-honored tradition can be found within the pages of this book.