

## **Teaching Organic Farming & Gardening: Resources for Instructors** **Overview of Revisions, Updates, and Additions, January 2015**

The units that make up the “core” apprenticeship curriculum (tillage, greenhouse/prop skills, transplanting, irrigation, cover crops, composting, weed management) have had substantial new materials added in the form of narrative supplements and new appendices, along with updated lecture material, to better reflect how these topics are taught and to make available new and updated information for the apprentices and others using the manuals. Supplemental materials on topics such as climate change, GMOs, and the effects of erosion were also added to enhance discussions of broader social issues as they relate to organic farming and gardening.

### ***Part 1: Organic Farming and Gardening Skills and Practices***

#### **Unit 1.1 – Managing Soil Health**

The two lectures in this unit were substantially revised (and the unit retitled) to focus on soil health (not just soil fertility).

Two new narrative Supplements were added: 1) A Soil Primer with Sustainable Management Strategies, and 2) The Global Socio-Environmental Effects of Soil Erosion.

#### **Unit 1.2 – Tillage and Cultivation**

The lecture material was updated and expanded to include additional information on mechanical field-scale cultivation and tillage.

Four narrative supplements were added: 1) The Goals of Soil Cultivation, 2) Origins of the French-Intensive Methods, 3) Tillage and Bed Formation Sequences for the Small Farm, and 4) Field-Scale Row Spacing.

Appendices on the French-Intensive and Side Forking techniques, and Tillage and Planting Implements were updated with new illustrations; two new appendices were added: 1) Tractors and Implements for Mixed Vegetable Operations Based on Acreage, and 2) Tillage Patterns for Offset Wheel Disc.

#### **Unit 1.3 – Propagation, and Greenhouse Management**

All of the lecture material was updated and expanded, with a new lecture added on Heating, Cooling, Lighting, Irrigation, and Climate Control Systems. The Resources section was also updated and expanded, with an extensive list of seed and equipment companies added.

Four narrative supplements were added: 1) Examples of Cool- and Warm-Season Greenhouse Management Practices, 2) Conserving Water and Protecting Water Quality in the Greenhouse, 3) Low-Cost and Sustainable Alternatives to Greenhouse Propagation, and 4) Growing Your Own Seedlings vs. Buying in Transplants.

Two new appendices were also added: 1) Characteristics of Open-Pollinated (OP) and Hybrid Seeds, and 2) Environmental Impacts of Soil/Plug Trays.

#### **Unit 1.4 – Transplanting and Direct Seeding**

A new lecture on Transplanting and Direct Seeding was developed for this unit (it had previously been comprised of demonstrations only). The two demonstrations were updated.

A narrative supplement on Genetic Engineering and Seed Diversity was added.

Seven new appendices were added: 1) Field-Scale Transplanting Guide, 2) Common Transplant Spacings, 3) Common Seeding Rates and Thinning Distances, 4) Garden Direct Seeding Log, 5) Garden Transplant Log, 6) Field Direct Sowing Log, and 7) Field Transplanting Log.

### **Unit 1.5 – Irrigation: Principles and Practices**

The lecture material was updated, expanded and split into two lectures, with additional information included on soil moisture sensors and distribution uniformity at the garden and field scale.

Five narrative supplements were added: 1) Evapotranspiration (ET) and the Factors that Affect ET Rates, 2) Overview of “Water Budget” Approach for Efficient Irrigation Management, 3) Soil Moisture Sensing Instruments Commonly Used for Irrigation Scheduling, 4) Nitrate Contamination of Groundwater, 5) Overview of Dry Farming on California’s Central Coast.

Eight new appendices were added: 1) Water Cycling Terms (illustrated), 2) Units of Water Measurement (illustrated), 3) Calculating Distribution Uniformity (illustrated), 4) Critical Periods for Soil Water Stress by Crop, 5) Irrigation for Various Vegetable Crops, 6) Soil Auger and Soil Probe (illustrated), 7) Irrigation System Components (illustrated), 8) Sample Sprinkler and Drip Tape Application Rate Calculations

### **Unit 1.6 – Selecting and Using Cover Crops**

The lecture material was updated and divided into two lectures.

A new hands-on exercise was added: 1) Calibrating a Seed Drill

Three narrative supplements were added: 1) Cover Cropping and Other Agroecological Practices Benefit Farms in the Face of Climate Change, 2) Cover Crop Selection, Planting Tips, Tools, and Techniques for Small-Scale Organic Vegetable Farms on California’s Central Coast, and 3) Cover Crops for the Garden.

One new appendix was added: 1) Cover Crop Seeding Rates and Depth Chart

### **Unit 1.7 Making and Using Compost**

The lecture was updated and expanded to include additional information on types of composting systems, benefits of compost, and field-scale composting. The demonstrations were updated.

Three narrative supplements were added: 1) Making Quality Compost on a Garden Scale, 2) Field-Scale Compost Production: A Case Study, and 3) The Good Food Revolution at Growing Power.

One illustrated appendix was added, 1) Compost Time/Temperature Curve.

### **Unit 1.8 – Managing Arthropod Pests**

The lecture material was updated and divided into two lectures. The two demonstrations were updated.

### **Unit 1.9 – Managing Plant Pathogens**

The lecture material was updated and illustrations added.

A narrative supplement was added: The Importance of Farmer-to-Farmer Social Networks.

### **Unit 1.10 – Managing Weeds**

All lecture material was updated.

One narrative supplement was added: 1) Strategies for Improved Weed Management on Small-Scale, Diverse Farms.

Two illustrated appendices were added: 1) Planting to Moisture, and 2) Pre-Irrigation to Minimize Weed Pressure.

### **Unit 1.11- Reading and Interpreting Soil Tests**

Now finalizing updates to lectures and exercises.

## ***Part 2: Applied Soil Science***

### **Units 2.1-2.3: Soil Physical, Chemical, and Biological Properties**

All lectures were reviewed and updated. In some cases topics were rewritten to make information more readily understandable and relevant for beginning farmers and gardeners.

All demonstrations and exercises were reviewed and updated.

All illustrations were updated and all tables reformatted to improve ease of use.

## ***Part 3: Social and Environmental Issues in Agriculture***

Unit 3.1 – The Development of U.S. Agriculture

Unit 3.2 – Social Issues in Modern Agriculture

Unit 3.3 – Environmental Issues in Modern Agriculture

Unit 3.4 – Introduction to Sustainable Agriculture

All references have been updated with current information.

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## **Teaching Direct Marketing & Small Farm Viability: Resources for Instructors** **Overview of Revisions, Additions, and Updates, January 2015**

### **Unit 1 – Small Farm Economic Viability**

The information in this unit was condensed and updated with more current statistics.

### **Unit 2 – Overview of Produce Marketing**

This unit was substantially updated to reflect what current main stream markets look like – grower/packer/shippers in particular. Information was also update regarding farmer’s markets and CSA (though more briefly). The author added a new section on choosing a marketing strategy – which offers guidelines for farmers to think about how to structure their own mix of marketing outlets.

### **Unit 3 – Community Supported Agriculture (CSA)**

This unit was updated with information about how CSAs are operating now. The original unit focused on the original CSA model structure - of a farmer being supported by a community (with shared risk and upfront seasonal payment). However, this has changed substantially, as a substantial number of CSAs don’t run in this manner anymore. The additions to this unit details how the newer models tend to function – such as a subscription model or box scheme. Further additions include research on how farms are doing and the extent to which they are meeting their

goals, updated characteristics of farms, information on accepting SNAP benefits, outreach strategies for the subscription model as well as the more traditional membership/share model.

#### **Unit 4 – More Direct & Intermediate Marketing**

This unit was substantially updated with information on marketing opportunities through retail stores, food hubs, eCommerce, Agritourism, and working with faith-based communities. The information on collaborative efforts and institutions was completely revised so it's more applicable to the new farmer (the previous version had written these sections towards food system activists, not the beginning farmer). The farmer's market and roadside stand section, and getting into restaurants, was updated with current information. In particular, we have included information on taking vouchers, SNAP and other electronic forms of payment. We also included how to apply to get into a farmers market and certification information. The Restaurant and Retail chapters – added information on getting into retail, how to be prepared for your first meetings with chefs/buyers, what to bring with you, and maintaining relationships with chefs/buyers.

The faith-Based Options section of lecture 4.3 discusses how faith-based groups provide an opportunity for marketing – as there are often values of these groups that complement the local food movement/social justice movements. These groups sometimes run schools, retreat centers or camps which all need to purchase food. Similarly, churches can provide an ideal drop-off site for CSA's, or even contract with a farmer to contract with a farmer in a more traditional CSA style to grow for participating members of the congregation. This section ends with a case study of a situation where a congregation contracted with a farmer for its members.

Agri-tourism section explores what it is, what to think about if you are interested in doing it, and what are elements of a successful operation. The eCommerce section discusses selling food online, including the advantages, disadvantages, and unique issues faced using this marketing method. Several case examples are offered.

#### **Unit 5 – Marketing Basics**

This is a new unit. It was added to get at the basics about the marketing function – how to communicate what you do and who you are to potential clients. It covers the standard 4 P's of marketing: Product, Place, Price and Promotion. It offers the steps for communicating who you are. It starts by asking farmers to think about their desired market channels and target audience – who do they aim to serve and through what means? It then covers some brief steps for evaluating the demand for your product. It spends the majority of the time discussing how to develop a brand and value proposition, and how to communicate that to the target customer segment (including basic instructions on developing a website and using social media).

#### **Unit 6 Building resilience: Small farm planning and operations**

This unit was substantially overhauled. The focus is on business planning for building resilience. A section was added on using social media and on-farm events as a method for building community and resilience. It also added more information on book keeping and farm taxes, and updated the information on cash flow planning. Several templates are still available for the business plan, cash flow spreadsheet, as well as a new time planning excel worksheet.

### **Unit 7 – Food Safety**

This is a new chapter on food safety, which did not exist before.

### **Unit 8 - Farm Employees and Alternative Models for Interns and Apprentices**

This unit is new, and covers the basic information about having employees. While most beginning farmers will start out by using just their own labor, as they expand they will need to bring in help. This lecture describes the employee protections under federal and CA state labor laws, and reviews the basics that are required for doing taxes and complying with other regulations. Additionally, this unit outlines different types of working relationships often used by farmers, such as hiring contractors, interns and apprentices. In CA, apprentices are treated as employees by the laws, but the unit discusses how to legally set up an apprenticeship program.

### **Unit 9 – Land Tenure Options**

Information about different land tenure options, particularly alternative models, has been updated. We also added information on how to find land – how to get clear on what qualities you want, and strategies for finding it. Since leases are common way new farmers get onto land, steps for signing a list are also included. This includes how to research sample leases, understanding what lease rates are based on and describes elements of a good lease.

All references have been updated with current information.