



# The Sustainable Agriculture Skills Workbook



A Passport to Mastering and Managing  
the Risky Business of Farming

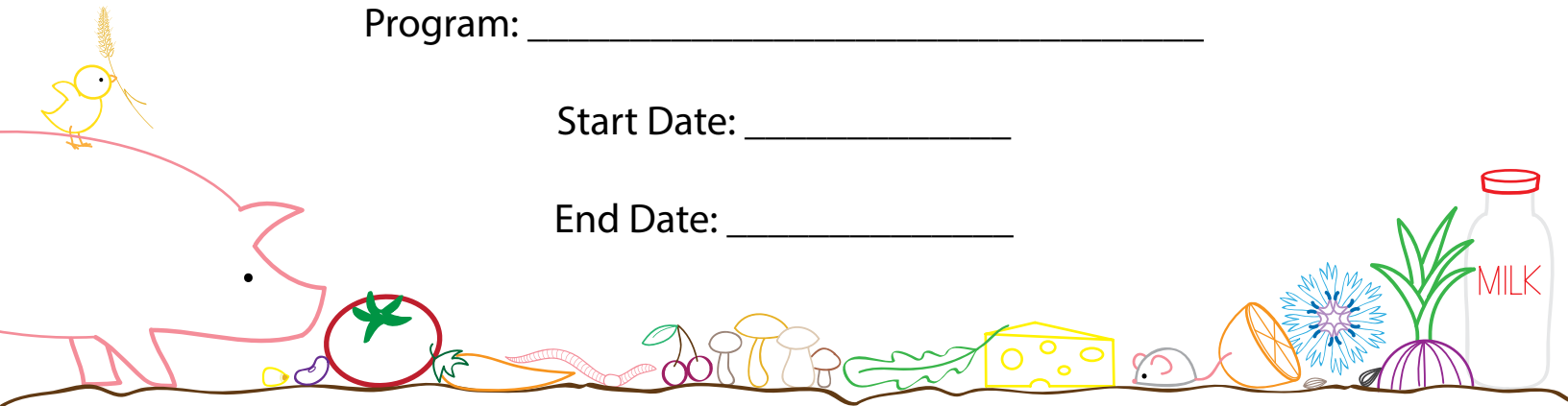


Trainee Name: \_\_\_\_\_

Program: \_\_\_\_\_

Start Date: \_\_\_\_\_

End Date: \_\_\_\_\_



# Table of Contents

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Credits	4
Introduction	5
How to Use This Tool	8
Topic A: Defining Principles	10
Topic B: Farm Business Planning	14
Topic C: Setting Up Your Business	20
Topic D: Maintaining Equipment & Facilities	27
Topic E: Seasonal Crop Production Planning	36
Topic F: Soil Maintenance	42
Topic G: Propagation	52
Topic H: Irrigation	61
Topic I: Maintaining Crop Health	66
Topic J: Dealing With Environmental Variables	75
Topic K: Managing the Harvest	83
Topic L: Raising Livestock	91
Topic M: Getting Your Product to Market	102
Topic N: Managing Labor	108
Topic O: Regulatory Compliance	119
Topic P: Marketing	125
Topic Q: Farm Administration	134
Topic R: Professional Development	142
Topic S: Practicing Conservation	149
Appendix I: Qualification Table	158
Appendix II: Learning Contract Template	164

# Credits

The creation of this tool would not have been possible without the hard work of many farmers and farm educators who previously came together at venues across the country to develop comprehensive lists and training tools for sustainable agriculture. This Workbook was developed by synthesizing ideas and excerpts from many of those landmark projects and publications including:

The Specialty Crop Grower Apprentice Checklist by the Center on Education and Training for Employment at The Ohio State University<sup>1</sup>

The Northeast Small Scale “Sustainable” Farmer DACUM Occupational Profile by the New England Small Farm Institute<sup>2</sup>

Teaching Organic Farming & Gardening: Resources for Instructors<sup>3</sup> and Teaching Direct Marketing and Small Farm Viability: Resources for Instructors<sup>4</sup> by the UC Santa Cruz Center for Agroecology and Sustainable Food Systems

The Farms Next Program curriculum by Rogue Farm Corps<sup>5</sup>

The Vermont New Farmer Project by the University of Vermont Extension Center for Sustainable Agriculture<sup>6</sup>

The Organic Vegetable Apprentice Reader by Penn State Extension<sup>7</sup>

The Farm Business Planning Course at the New Entry Sustainable Farming Project<sup>8</sup>

<sup>1</sup> Center on Education and Training for Employment. N.d. Specialty Crop Grower Apprentice Checklist. The Ohio State University. Accessed June 2012. <http://ocdc.osu.edu/>

<sup>2</sup> New England Small Farm Institute. 2000. Northeast Small Scale “Sustainable” Farmer DACUM Occupational Profile. Accessed June 2012. [http://www.smallfarm.org/main/for\\_service\\_providers/tools\\_and\\_resources\\_for\\_working\\_with\\_new\\_farmers/nesfi\\_tools\\_and\\_resources/dacum\\_occupational\\_profile/](http://www.smallfarm.org/main/for_service_providers/tools_and_resources_for_working_with_new_farmers/nesfi_tools_and_resources/dacum_occupational_profile/).

<sup>3</sup> Miles, A. & Brown, M., eds. 2005. Teaching Organic Farming & Gardening: Resources for Instructors. UC Santa Cruz Center for Agroecology and Sustainable Food Systems. Accessed May 2013. <http://63.249.122.224/education/instructional-resources/teaching-organic-farming-gardening>.

<sup>4</sup> Miles, A. & Brown, M., eds. 2008. Teaching Direct Marketing and Small Farm Viability: Resources for Instructors. UC Santa Cruz Center for Agroecology and Sustainable Food Systems. <http://casfs.ucsc.edu/education/instructional-resources/teaching-direct-marketing-and-small-farm-viability>

<sup>5</sup> Rogue Farms Corps. 2013. Farms Next Program Description. Accessed May 2013. [http://roguefarmcorps.org/?page\\_id=43](http://roguefarmcorps.org/?page_id=43).

<sup>6</sup> The University of Vermont. 2013. Vermont New Farmer Project. Accessed May 2013. <http://www.uvm.edu/newfarmer/>.

<sup>7</sup> Penn State University Cooperative Extension. 2012. Introduction to Organic Vegetable Production: Apprentice Reader. Accessed May 2013. <http://extension.psu.edu/business/start-farming/apprentices-mentors/organic-vegetable-apprentice-reader/view>

<sup>8</sup> New Entry Sustainable Farming Project. 2013. Farm Business Planning Course. Accessed May 2013. <http://nesfp.nutrition.tufts.edu/training/farmbusiness.html>

# Introduction

The need to grow a new crop of farmers in the United States is well documented.<sup>9,10,11,12,13,14</sup> Agriculture Secretary Tom Vilsack recently set a goal to add 100,000 new farmers to agricultural communities around the country over the next few years.<sup>15</sup> The question now is how to do so successfully. It is imperative that beginning farmers receive the training and support they need to create viable agricultural enterprises, gain respect as professionals, and advance sustainability in the field.

Amidst a surge of sometimes poorly defined internships and apprenticeships, many new farmers are not having their educational needs met. The repercussions can be devastating. The bar must be raised in farmer training for both trainees and their trainers, as well as the network of people supporting them.

**The sustainable agriculture sector needs a tool that will increase the accessibility of a rigorous and comprehensive training experience, the transparency of learning objectives and teaching methods, and the accountability of both trainees and their trainers. The Sustainable Agriculture Skills & Competency Workbook is that tool.**

The Workbook presents a universal curriculum for farmer training programs in the United States and an organized, standardized way to progress through it. The curriculum is divided into nineteen “Topics,” each one with a different focus. Each Topic contains a set of relevant skills to master, and each Skill requirement is satisfied by fulfilling three Practices of the concept or task. This way, it is sort of like a report card for learning how to farm. The application of this Workbook as a journal or record-keeping tool for trainees is just as valuable as its application as a learning framework for trainers.

<sup>9</sup> U.S. Department of Agriculture, National Agricultural Statistics Service. 2007. Census of Agriculture: Farmers by Age, 2007. Accessed March 12, 2013. [http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/Fact\\_Sheets/Demographics/farmer\\_age.pdf](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Fact_Sheets/Demographics/farmer_age.pdf)

<sup>10</sup> Economic Research Service. 2013. Beginning Farmers and Ranchers at a Glance 2013. U.S. Department of Agriculture. Accessed March 14, 2013. <http://www.ers.usda.gov/media/988138/eb-22.pdf>.

<sup>11</sup> Ahearn, M. & Newton, D. 2009. Beginning Farmers and Ranchers. U.S. Department of Agriculture, Economic Research Service. Accessed March 14, 2013. [http://www.ers.usda.gov/media/156049/eib53\\_1\\_.pdf](http://www.ers.usda.gov/media/156049/eib53_1_.pdf).

<sup>12</sup> Shute, L. L. et al. 2011. Building a Future with Farmers: Challenges Faced by Young, American Farmers and National Strategy to Help Them Succeed. Accessed March 12, 2013. <http://www.youngfarmers.org/newsroom/building-a-future-with-farmers-october-2011/>

<sup>13</sup> Economic Research Service. 2012. Beginning Farmers and Age Distribution of Farmers. U.S. Department of Agriculture. Accessed March 14, 2013. <http://www.ers.usda.gov/topics/farm-economy/beginning-disadvantaged-farmers/beginning-farmers-age-distribution-of-farmers.aspx#.UUKa1dFAT58>

<sup>14</sup> U.S. Department of Agriculture. 2012. 2007 Census of Agriculture: New Farms, New Farm Operators. National Agricultural Statistics Service. Accessed April 15, 2013. [http://www.agcensus.usda.gov/Publications/2007/Online\\_Highlights/Fact\\_Sheets/Farm\\_Numbers/new\\_farms.pdf](http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Fact_Sheets/Farm_Numbers/new_farms.pdf)

<sup>15</sup> National Sustainable Agriculture Coalition. 2010. Vilsack: Farm Bill Should Emphasize Beginning Farmers. Accessed April 2013. <http://sustainableagriculture.net/blog/vilsack-beginning-farmers/>

Subjects covered include principles of sustainable agriculture, business planning, equipment and facility maintenance, crop planning, plant and soil health, livestock, pest and disease management, marketing, labor management, government regulation, conservation, and more. A list of links to “Learn More” is provided at the end of each Topic section, featuring some of the best books, articles, websites, and tools for delving further into the subject matter.

The Workbook is more of an outline and note-taking tool that can be customized for a specific curriculum rather than a set of lesson plans. Users or administrators can select which Topics and Skills are relevant to their selected learning program. The tool presents a comprehensive list of what can be taught, not what will be taught or how that will be executed. Every farm and training program is unique, and each can use the Workbook as a framework and data tracker.

## Intended Audience

The Workbook’s adaptability makes it well suited for use by a diverse farmer training audience, from strongly curriculum-based programs at accredited universities to informal internships or apprenticeships on privately owned and operated farms. Its breadth and depth make it useable for instructors and learners at any operation, whether large or small; fruit, vegetable, grain, livestock, or mixed; wholesale or direct market. It can also be used by individuals doing self-directed learning. There is a strong focus on environmentally sustainable practices, economic stability, and human and animal welfare.

## Vision Statement

This tool may serve as a standard of skill qualification across farmer training programs in the country. In time, it could become a respected certification credential for individuals who have completed the Workbook, and help agriculturally focused businesses and organizations recognize excellent candidates during the hiring process. Perhaps equally as valuable, it also provides users with a consolidated list of their skill qualifications and most important notes regarding those skills.

## Working Definitions

**Beginning Farmer** – Clearly defined by the USDA as an individual who has not been farming or ranching for more than ten years, and “will materially and substantially participate in the operation of the farm or ranch.”<sup>16</sup>

<sup>16</sup> U.S. Department of Agriculture. 2010. Limited Resource Farmer and Rancher – Beginning Farmer Program Definition. Accessed March 12, 2013. [http://www.lrftool.sc.egov.usda.gov/BFRP\\_Definition.aspx](http://www.lrftool.sc.egov.usda.gov/BFRP_Definition.aspx)

**Farmer Training Program** – This is an umbrella term for any formalized educational experience pertaining to agriculture skills, usually with a focus on sustainability.

- **Certificate Program** – A program in which the trainee receives a certificate from an institution upon successful completion of a determined curriculum and a set number of supervised experiential learning hours. Certificate programs typically require payment of tuition.
- **Apprenticeship**<sup>17</sup> – A legally binding agreement in which a specific number of the apprentice’s labor hours are exchanged for a specific amount of instruction in the agricultural trade. Apprenticeships are usually paid, though some may be unpaid.
- **Internship**<sup>18</sup> – A position of understudy to a farm employee in which the labor performed is similar to supervised practical training that would be given in an educational environment and is expressly for the educational benefit of the intern. Internships are rarely paid.
- **Courses** – Either a single or a series of classes provided by a university, community college, extension program, government program, or non-profit organization that pertains to a specific skill or set of sustainable agriculture skills. Courses may require payment of fees.

**Trainer** – In this context, refers to the individual responsible for the majority of teaching and instruction of the Skills. The Trainer administers the Workbook to the Trainee, is responsible for keeping the Trainee on track, and determines whether the Trainee’s completion of the Workbook is satisfactory for Qualification. Trainers may be considered farmers, mentors, instructors, teachers, professors, etc.

**Trainee** – In this context, refers to the individual being taught and instructed in the Skills. The Trainee is the proprietor of the Workbook, and responsible for completing it to his or her own satisfaction and the satisfaction of the Trainer. Trainees may be considered students, interns, apprentices, etc.

**Supervisor** – In this context, refers to the individual overseeing a training program’s logistics. In many cases this may be the same person filling the role of Trainer, for example on a small farm with only two apprentices. In other cases, a Supervisor may fill an administrative role at a training program at a university where there are multiple Trainers and a larger student body of Trainees.

<sup>17</sup> U.S. Department of Labor. n.d. Apprenticeship. Accessed April 30, 2013. <http://www.dol.gov/compliance/topics/wages-apprenticeships.htm>  
<sup>18</sup> U.S. Department of Labor. 2010. Fact Sheet #71: Internship Programs Under the Fair Labor Standards Act. Accessed April 30, 2013. <http://www.dol.gov/whd/regs/compliance/whdfs71.htm>

# How To Use This Tool

This tool is designed to help Trainers and their Trainees track their progress as they move through the curriculum. “Trainer” refers to the farmer, mentor, instructor, teacher, professor, etc.; and “Trainee” refers to the student, intern, apprentice, etc. “Supervisor” refers to the individual overseeing the program’s logistics, and in many cases may be the same person filling the roll of Trainer.

First, the Trainer will check off the boxes for which “Topics,” and “Skills” within each Topic, are required for successful completion of the given training program.



The Workbook is then entrusted to the Trainee for the duration of the learning period. Each Skill requirement will be satisfied by fulfilling three “Practices” of the concept or task. What constitutes a Practice should be defined by the Supervisor for each Skill. A Practice can consist of observation, discussion, group or individual skill application. While the three Practices need not occur on three separate days, each should stand as a separate event from the others.

For example, in order to be signed off as “Qualified” in something as specific as Topic F, Skill #2 Prepare soil samples for testing, the Trainee could collect and prepare soil samples for testing on three different sites. In another example, in order to be signed off as “Qualified” in something as broad as Topic B, Skill #6 Secure access to land, the Trainee could attend a farmland matching event, sponsored by a land trust, speak with a bank representative on the subject of loans, and observe a meeting with a potential seller.

Every time a Practice is completed, a description of the activity and the date should be recorded in the designated spaces. Once all three Practices have been completed, the Supervisor and Trainee must initial the designated spaces in the Qualification Table in Appendix I in order for the Trainee to be officially “Qualified” in the skill.

The Comment area provides space for taking down notes, contact information, links, or anything else relevant to the Skill and Practices.

## Example

### Skill #7 Direct Sow Into Fields

<b>1st Practice</b>	Description: <u>Hand sowed carrots in Beds 3-6</u>	Date: <u>3/15/13</u>
<b>2nd Practice</b>	Description: <u>Planted arugula in kitchen garden using Earthway seeder</u>	Date: <u>3/22/13</u>
<b>3rd Practice</b>	Description: <u>Planted corn using tractor grain drill</u>	Date: <u>4/17/13</u>
<b>Comments</b>	<u>Watch that seeds are dropping from the hoppers at the beginning!</u> <u>Check for adequate soil coverage.</u> <u>Good source for garden-scale seeding equipment: <a href="http://www.johnnyseeds.com">www.johnnyseeds.com</a></u>	

## Learn More Boxes

### Learn More

These boxes are found on each Topic’s title page.

They contain active hyperlinks to some of the best publications, websites, and tools relevant to the Topics.

## Learning Contracts

Before engaging in a training program, it is imperative that both the trainer and the trainee establish a mutually agreeable set of learning objectives and expectations. This is often best accomplished through a learning contract. The purpose of such a document is to ensure that all parties are on the same page regarding what will be taught, how it will be taught, when and where it will be taught, the physical, mental and emotional requirements of the program, and the proposed outcomes of the program. The learning contract should stand on its own from any labor contract that a program might entail. See Appendix II for a learning contract template.



# Topic A

## Defining Principles<sup>6,8</sup>

Before embarking on the path of learning to farm, it is important to step back and examine your philosophical and literal positions in the agricultural world. Where are you now, and where do you hope to be in five, ten, twenty years? Why do you want to farm? What does it mean to farm sustainably? What values drive your ambition? What are your personal, professional, and family goals in pursuing this lifestyle and career? Once you have answered these questions, it is easier to understand the relevance to you of each skill and concept outlined in this tool.

### Learn More

- Explore Farming! Course  
by New Entry Sustainable Farming Project
- Exploring the Small Farm Dream Course and Workbook  
by New England Small Farm Institute
- Sustainable Vegetable Production from Start-Up to Market  
by Vernon P. Grubinger
- Making Your Small Farm Profitable  
by Ron Macher
- Holistic Management: A Whole-Farm Decision Making Framework  
by Preston Sullivan



### ○ Skill #1 Define sustainable agriculture

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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### ○ Skill #2 Define personal and professional values

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

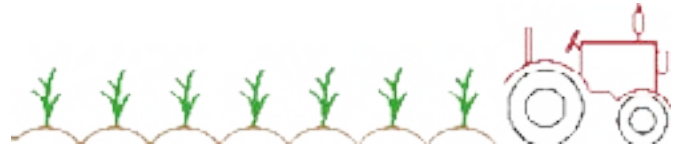
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○ Skill #3 Define personal and professional mission

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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\_\_\_\_\_  
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○ Skill #4 Set short- and long-term farming goals

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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\_\_\_\_\_  
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○ Skill #5 Establish physical, mental, and emotional health and safety guidelines

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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\_\_\_\_\_  
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○ Skill #6 Identify action steps for moving toward goals while staying true to values and guidelines

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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\_\_\_\_\_  
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# Topic B

## Farm Business Planning<sup>2,8</sup>

The idea of getting your hands dirty, spending time in nature, working with soil, plants, and animals to produce food for people has enormous appeal, especially since most people are several generations removed from the farming lifestyle. But if you intend to sell any of your bounty, it is important to get past the romantic idyll of farming and do some research to see how feasible your ideas are. The business plan is where all of the moving parts of the farm come together, measured in words, numbers, and time.

If your farm start-up will require a loan, you will need to have a solid business plan in place in order to obtain it. Even if you are self-financing your operation, it is a really good idea to have at least an outline of a plan, to demonstrate the feasibility of your idea. Even if your farm will not be your primary income source, the sooner you learn to think of it as a business, the more successful you are likely to be.

### Learn More

#### Farm Business Planning Course

by New Entry Sustainable Farming Project

#### Business Plan Templates

by the Northeast Beginning Farmer Project at Cornell University

#### Farm Management Resources

by the University of California Small Farms Program

#### Land Access and Tenure Toolshed

by University of Vermont Extension

#### Building a Sustainable Business: A Guide to Developing a Business Plan for Farms and Rural Businesses

by the Minnesota Institute for Sustainable Agriculture

#### The Organic Farmer's Business Handbook: A Complete Guide to Managing Finances, Crops, and Staff-and Making a Profit

by Richard Wiswall



- Skill #1 Assess overall needs (e.g. physical, capital, human; skills, experience, time, land, equipment, profitability)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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- Skill #2 Assess available resources (e.g. physical, capital, human; skills, experience, time, land, equipment, profitability)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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○ Skill #3 Conduct market research and competitive analysis (e.g. research potential competition, markets, customers, and strategies)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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○ Skill #4 Prepare enterprise budgets and select enterprise(s)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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○ Skill #5 Prepare financial plan (e.g. annual budget, expense and sales forecasts, cash flow projections, breakeven analysis, capitalization plan)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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\_\_\_\_\_  
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○ Skill #6 Secure access to land

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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\_\_\_\_\_  
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○ Skill #7 Assess site (e.g. map and analyze soils, topography, water, drainage, infrastructure, climate and microclimates)

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



○ Skill #8 Research legal requirements (e.g. zoning, business structure, liability, tax abatement options, development rights)

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



○ Skill #9 Determine management style

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments  
\_\_\_\_\_  
\_\_\_\_\_  
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○ Skill #10 Assemble whole farm business plan (e.g. mission statement, objectives, timelines, budgets, labor, equipment, infrastructure, supply sourcing, crop plan, marketing plan, one year, five year, and long term plans)

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments  
\_\_\_\_\_  
\_\_\_\_\_  
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# Topic C

## Setting Up Your Business<sup>2</sup>

Once a plan is in place, there are many steps in translating it to physical reality – from financing to getting insured to recordkeeping. It can be surprising and even frustrating to face all of the office-related tasks that farming requires when all you really want to do is get your hands into the soil and fresh food onto the table. But a sound business structure is the strongest foundation there is for a successful farm.

### Learn More

- The Guide to Financing the Community Supported Farm  
by University of Vermont Extension
- The U.S. Small Business Administration
- The Risk Management Agency of the USDA
- Record-Keeping Software for Small Farms  
by Ag Squared



### ○ Skill #1 Obtain necessary financing (e.g. family, banks, grants, other)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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### ○ Skill #2 Establish farm legal structure (e.g. sole proprietor, partnership, corporation, cooperative)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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○ **Skill #3** Establish farm management team (e.g. create management and professional job descriptions; hire lawyer, accountant, and others; hire non-labor employees; establish service contracts)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



○ **Skill #4** Establish farm policies (e.g. visitor, safety, personnel)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ **Skill #5** Obtain necessary licenses, permits and certifications (e.g. federal employer ID#, fuel storage, farm labor camp, tax exemption, organic certification, certified kitchen)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ **Skill #6** Open business bank accounts

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #7 Purchase liability and property insurance

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #8 Establish credit with key suppliers

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #9 Obtain necessary office equipment and supplies

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #10 Set up bookkeeping system (e.g. cash journal, asset ledger, payables and receivables; by hand or on computer)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #11 Set up filing and record-keeping systems

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
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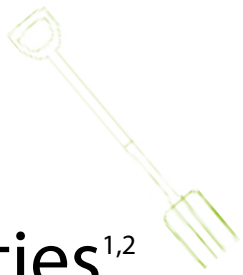
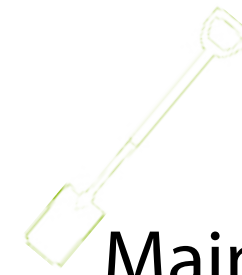
○ Skill #12 Provide for farm family security (e.g. purchase life and health insurance, establish retirement plan)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
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# Topic D Maintaining Equipment & Facilities<sup>1,2</sup>

It is easy to let the care of farm tools and infrastructure fall behind at the beginning or end of a long day in the field. However, small daily investments add up to immense value over time. Sharpening your snips in the morning makes for cleaner, faster cuts that are less susceptible to disease. Brushing soil off your spade before hanging it up lengthens its lifespan by reducing the risk of rust. Cleaning the tractor with compressed air after use reduces the risk of spreading weed seeds around the property. Weather-stripping the greenhouse door will increase energy efficiency and reduce drafts that stress seedlings. Being a good farmer means being a good caretaker of your assets – whether it is a harvest knife, a tractor, or an entire building.

### Learn More

- Information on How to Buy, Rent and Choose Equipment for Farm Start-ups  
by Penn State Extension
- Equipment and Tools for Small-Scale Intensive Crop Production  
by Andy Pressman
- From Tinkering to Torquing: A Beginner's Guide to Tractors and Tools  
by Roger Welsch
- High Tunnels: Using Low-Cost Technology to Increase Yields, Improve Quality and Extend the Season  
by Ted Blomgren and Tracy Frisch



○ Skill #1 Inspect production equipment and facilities

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #2 Adhere to federal, state and local legal and regulatory requirements (e.g. zoning, permits, building codes, fuel and pesticide storage)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #3 Build/install infrastructure

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #4 Create farm signage (e.g. promotional, safety, traffic, posting)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #5 Establish preventive maintenance schedule for infrastructure

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #6 Establish parts and supplies inventory

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #7 Repair production facilities

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #8 Repair production equipment

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #9 Upgrade inefficient equipment

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #10 Acquire necessary tools, equipment, and supplies

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #11 Calibrate production equipment

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #12 Perform routine equipment service (e.g. sharpening blades, changing oil, greasing equipment, cleaning tractor)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #13 Clean production equipment

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #14 Clean harvest containers

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #15 Calibrate product scales

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #16 Store tools, equipment and supplies (e.g. safely, in good order)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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# Topic E

## Seasonal Crop Production Planning<sup>1,3,4,5,7</sup>

A crop plan describes in great detail what, where, when, how, and how much will be planted. It is closely tied to your marketing plan and cash flow analysis. A good plan instills confidence that everything you raise is worth your investment. It also serves as a record to refer back to in the future to inform changes. If you observe that one carrot variety grows better than the others, you will know to focus on it in next year's crop plan. If you bring in more money from peppers than okra at the farmers market, you will know to devote more space to peppers and less to okra next year. While crop planning may seem arduous and complicated at first, it gets easier with each season of experience.

### Learn More

[Crop Production Topics Webinars](#)

by University of Vermont Extension

[Crop Planning for Organic Vegetable Growers](#)

by Frederic Theriault and Daniel Brisebois

[Crop Rotation on Organic Farms: A Planning Manual](#)

by Charles L. Mohler and Sue Ellen Johnson, editors



### ○ Skill #1 Review past production records

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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### ○ Skill #2 Develop crop plan with other farmers

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #3 Establish crop planting schedule and record keeping system

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
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3<sup>rd</sup> Practice  
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○ Skill #4 Design field layout (e.g., succession planting, crop rotation, roads and walkways, borders)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
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○ Skill #5 Establish multi-year crop rotation plan

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
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3<sup>rd</sup> Practice  
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○ Skill #6 Select plant varieties

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
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○ Skill #7 Review pest and weed management options

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #8 Order field supplies (e.g. labels, stakes, trellises, twine)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #9 Plan for crop breeding and seed saving

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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# Topic F

## Soil Maintenance<sup>1,3,5,7</sup>

Some say that a farmer's greatest asset is his or her soil. The farm is nothing if its soil cannot support healthy, productive plants and animals. You must understand its physical structure, its biology, its chemistry, and its relationship to you and your crops. All that is taken from the soil in the forms of organic matter and nutrients must be not only restored but improved under your management. This involves regular testing, interpretation, observation, incorporation of amendments, water management, and appropriate tillage.

### Learn More

**The Nature and Properties of Soil**

by Nyle C. Brady and Ray R. Weil

**Building Soils for Better Crops**

by Fred Magdoff and Harold van Es

**Soil Test Interpretation Guide**

by D.A. Horneck, D.M. Sullivan, J.S. Owen, and J.M. Hart

**Soil & Compost Resources**

by the National Sustainable Agriculture Information Service

**Soil Resources**

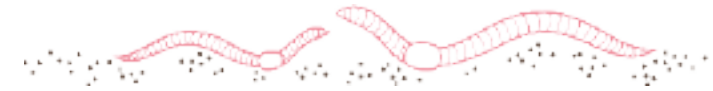
by Penn State Extension

**Using Organic Nutrient Sources**

by Penn State Extension

**Cover Crop Topic Room**

by Sustainable Agriculture Research and Education (SARE)



### ○ Skill #1 Understand the physical, biological, and chemical properties of soil

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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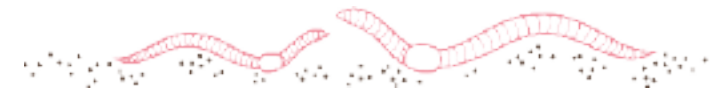
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### ○ Skill #2 Prepare soil samples for testing

1<sup>st</sup> Practice

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2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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### ○ Skill #3 Read and interpret soil test results

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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### ○ Skill #4 Classify soil texture and type

1<sup>st</sup> Practice

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2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

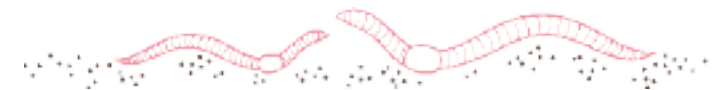
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### ○ Skill #5 Develop fertility program and record keeping system

1<sup>st</sup> Practice

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2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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### ○ Skill #6 Select and acquire cover crop varieties

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #7 Select and acquire soil amendments (e.g., compost, minerals)

1<sup>st</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #8 Build and maintain certified compost piles

1<sup>st</sup> Practice

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2<sup>nd</sup> Practice

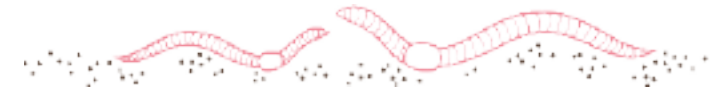
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3<sup>rd</sup> Practice

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○ Skill #9 Manage soil pH

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

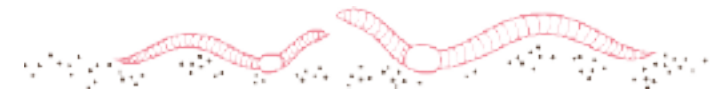
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3<sup>rd</sup> Practice

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○ Skill #10 Implement ongoing fertility management

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #11 Manage cover crop in fields

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #12 Assess appropriate soil moisture levels for tillage (e.g. 50 to 75% field capacity)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #13 Lay out beds

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #14 Understand the basic functions, safety features, and operations of a tractor and its implements

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #15 Hitch implements and drive tractor

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #16 Do primary tillage (e.g., plow, rototill, double dig)

1<sup>st</sup> Practice

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2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #17 Do secondary tillage (e.g. disc, spader, rake)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #18 Shape beds

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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# Topic G

## Propagation<sup>1,3,5,7</sup>

Every plant starts with a seed, tuber, bulb, corm, rhizome, or cutting. Much care is involved in supporting new plant life, from providing an adequate germination environment to monitoring seedlings for pathogens. The period of time between germination and planting out into the field is one of the most vulnerable, but also one of the most exciting to witness.

### Learn More

Starting Seeds Indoors

by Michael N. Dana and B. Rosie Lerner

Potting Media and Plant Propagation

by Penn State Extension

Plug and Transplant Production for Organic Systems

by Lane Greer

Grafting and Propagating Fruit Trees

by Penn State Extension



○ Skill #1 Learn about different types of propagation facilities (heated vs. passive solar greenhouses, high tunnels, etc.)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #2 Develop greenhouse seeding calendar and schedule

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #3 Develop labeling system

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #4 Prepare propagation medium mixes

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #5 Acquire appropriate growing containers

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #6 Start seeds in containers

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #7 Direct sow into fields

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #8 Plant bulbs/tubers

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #9 Take cuttings for asexual propagation

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #10 Root or graft cuttings

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #11 Monitor seedling development

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #12 Maintain seedlings (e.g., moisture, temperature, fertility, thinning, potting up, pests, hardening off)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #13 Manage propagation facility

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #14 Acquire transplants

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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## ○ Skill #15 Transplant into field

### 1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

### 2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

### 3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

### Comments

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# Topic H Irrigation<sup>1,3,5</sup>



Once all the plans are written, all the seeds are sown, and all the chicks are peeping, a complex dance of daily physical tasks begins. Each variety of crop or animal has its own set of needs. Leeks must be hilled; carrots must be thinned; tomatoes need deep irrigation; and everything needs to be weeded constantly. Keeping a log of daily activities and the time devoted to each one will help improve your planning and management of them as time goes on.

### Learn More

[Irrigation for Fruit and Vegetable Production](#)  
by Penn State Extension

[Irrigation Management Basics](#)  
by Chip Bubl

[Irrigation Overview](#)  
by Clemson University Extension

[Water Quality, Conservation, Drought and Irrigation Resources](#)  
by the National Sustainable Agriculture Information Service



○ Skill #1 Recognize signs and effects of water stress

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #2 Assess soil moisture and irrigation needs in planted beds

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #3 Consider costs and benefits of different irrigation systems

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #4 Acquire and set up irrigation system

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #5 Maintain water quality

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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○ Skill #6 Determine irrigation needs and create schedule

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #7 Keep good records of irrigation activity

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

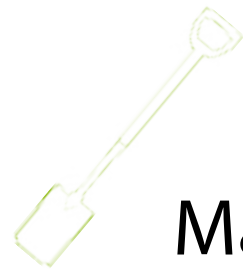
3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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# Topic I

## Maintaining Crop Production<sup>1,2,3,7</sup>

Once all the plans are written, all the seeds are sown, and all the chicks are peeping, a complex dance of daily physical tasks begins. Each variety of crop or animal has its own set of needs. Leeks must be hilled; carrots must be thinned; tomatoes need deep irrigation; and everything needs to be weeded constantly. Keeping a log of daily activities and the time devoted to each one will help improve your planning and management of them as time goes on.

### Learn More

**Steel in the Field: A Farmer's Guide to Weed Management Tools**

by Greg Bowman

**Training and Pruning Fruit Trees**

by North Carolina Cooperative Extension Service at  
North Carolina State University



### ○ Skill #1 Replant or reseed failed plants

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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### ○ Skill #2 Practice manual and mechanical cultivation methods

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #3 Identify and remove weeds

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #4 Apply appropriate fertilizers

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #5 Hill crops (e.g. potatoes, leeks)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #6 Thin crops (e.g. carrots, salad mix)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #7 Assess fertility requirements

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #8 Mulch crops

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #9 Construct and install supports (e.g. fences, trellises, stakes)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #10 Prune Plants

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #11 Train plants

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #12 Tip plants

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #13 Provide supplemental pollination

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #14 Adhere to federal, state and local regulations (e.g. Animal and Plant Health Inspection Service, pesticide regulations)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ **Skill #15** Keep good records (e.g. planting and harvest dates, inputs, yields, crop health)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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## Topic J

# Dealing With Environmental Variables<sup>1,3,7</sup>

As if there was not already enough to stay on top of, the environment brings surprises all the time. Too much rain, too little rain, hail, frost, and all manner of critters can wreak havoc. A farmer must always be planning ahead, monitoring the forecast and the fields, and be ready to respond around the clock. Part of the beauty of farming is the inherent risk of being inextricably linked to the natural world.

### Learn More

[Pests of the Garden and Small Farm: A Grower's Guide to Using Less Pesticide](#)

by Mary Louise Flint

[Manage Insects on Your Farm: A Guide to Ecological Strategies](#)

by Miguel A. Altieri and Clara I. Nicholls with Marlene A. Fritz

[Pest Management Resources](#)

from the National Sustainable Agriculture Information Service

[Season Extension Topic Room](#)

by Sustainable Agriculture Research and Education (SARE)



○ Skill #1 Monitor growing environment

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #2 Check weather forecast and create response plan

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #3 Scout for pests (e.g. microfauna, macrofauna, diseases, weeds)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #4 Evaluate pest damage

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #5 Determine protective measures for crops

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #6 Apply row covers

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #7 Install protective structures (e.g. wildlife fences, bird netting, root cages)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #8 Install rodent traps

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #9 Apply pesticides

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #10 Release beneficial insects

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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3<sup>rd</sup> Practice

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○ Skill #11 Apply frost protection measures

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #12 Install high/low tunnels

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #13 Identify and implement season extension methods

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

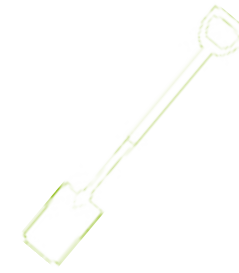
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3<sup>rd</sup> Practice

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# Topic K Managing the Harvest<sup>1</sup>

There is a lot to coordinate when it comes to getting your crop out of the field and ready to go to the farmers market, CSA, or wholesale account. You must keep up with harvesting at appropriate intervals, handle crops and livestock properly to ensure quality, package them appropriately, and maintain good records of the process.

### Learn More

- [Guidelines for Harvesting Vegetables](#)  
by Cornell Cooperative Extension
- [Plain Language Guide to Harvesting Your Crops](#)  
by New Entry Sustainable Farming Project
- [Post-Harvest Handling of Fruits and Vegetables](#)  
by Janet Bachmann and Richard Earles
- [Food Safety Webinars](#)  
from University of Vermont Extension



○ Skill #1 Determine crop maturity

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #2 Understand the requirements and implications of food safety

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #3 Determine harvest requirements

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #4 Provide harvest aids (e.g., knives, buckets, scissors)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #5 Hand-harvest crops

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #6 Provide sun protection to harvested crops

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #7 Field pack crops

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #8 Rinse harvested crops

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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### ○ Skill #9 Grade harvested produce

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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### ○ Skill #10 Bunch harvested produce

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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### ○ Skill #11 Maintain harvest records

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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### ○ Skill #12 Pre-cool harvested produce

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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### ○ Skill #13 Process or add value to crops

#### 1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

#### 2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

#### 3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

#### Comments

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## Topic L Raising Livestock<sup>2,5</sup>



Even though most of this Workbook focuses on crop production, raising animals for food is just as involved. The difference between raising animals as a hobby and raising them as a farm enterprise is like the difference between keeping houseplants and running a market garden. You'll have to do a lot more than just keep the animals alive if you want to make any profit. Keeping your animals healthy is essential, of course, but it's also the easy part. The hard part is figuring out how to make your livestock or poultry enterprise profitable—tracking and controlling your costs, figuring out how to improve your animals' productivity without sacrificing their health or too much of your labor, and using creative marketing to get the best returns for the end product.

### Learn More

#### Livestock Resources

from Penn State Extension

#### Livestock Webinars

from University of Vermont Extension

#### Livestock Production and Grazing Information

from University of Vermont Extension

#### Livestock Production Resources

from Oregon State University Small Farms Program

#### Pasture Management Resources

from the Oregon State University Small Farms Program

#### Poultry Processing Resources

from New Entry Sustainable Farming Project



○ Skill #1 Prepare annual livestock and animal products production plan (e.g. stocking, rotation, feeding and grazing, health, production goals)

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #2 Obtain stock (e.g. breed on farm or buy in)

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #3 Provide stock with appropriate housing, shelter and protection from predators

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #4 Establish flock or animal ID system

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #5 Assess space, heat, nutrient, and behavioral needs of animals

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #6 Establish grazing system plan that maintains soil health and biodiversity

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #7 Manage pastures

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #8 Obtain feed and supplements (e.g. produce on farm or buy in)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #9 Balance feed rations

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #10 Establish schedule for feeding and watering animals

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #11 Monitor animal health and wellbeing

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #12 Meet all animal health and veterinary needs

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #13 Study the processes of gestation and birth

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #14 Manage waste products (e.g. litter, manure, livestock mortalities )

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #15 Harvest animal products (e.g. milk, eggs, fleece, honey)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #16 Slaughter meat animals

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ **Skill #17** Perform post-harvest handling and processing tasks (e.g. pasteurize, bottle, wash, process, butcher, package, freeze, store)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ **Skill #18** Add value to animal products if required by marketing plan

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ **Skill #19** Adhere to federal, state and local regulations (e.g. slaughtering and processing, manure)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

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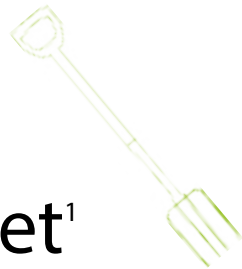
○ **Skill #20** Keep good records (e.g., herd or flock ID numbers, purchase and sales, general health, feed and supplements, breeding, processing, treatments [parasite control, medications])

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

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# Topic M

## Getting Your Product to Market<sup>1</sup>

Successful coordination and delivery of your farm’s product involves many well-planned steps. You don’t want all of your hard work to be for nothing by showing up at a restaurant’s door with lettuce that is wilted or the wrong variety or the wrong quantity. Once all the lettuce is in from the fields, washed, and packed, where will it go? How will you keep it at a proper temperature and moisture until it reaches its destination? In what order will you pack the delivery vehicle to reduce the amount of box shuffling at each stop? What is the most efficient route to travel? If you are taking it to the farmers market, how will you keep track of what you do not sell?

### Learn More

[Recommendations for Maintaining Postharvest Quality](#)  
by UC Davis Postharvest Technology

[Transporting Produce Safely](#)  
by University of Georgia Cooperative Extension, Clemson Cooperative Extension, and Virginia Cooperative Extension



### Skill #1 Determine packing order

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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### Skill #2 Pack product

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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○ Skill #3 Cold store product prior to delivery

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #4 Establish delivery times and pickup points

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #5 Load products

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #6 Plan delivery route

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #7 Deliver products

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #8 Maintain return inventory

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #9 Total sales

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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# Topic N

## Managing Labor<sup>2</sup>

Managing people is wildly different from managing plants. First, you must find the right people to hire. Second, you must make sure that you are following all state and federal rules and regulations that accompany employment. Third, you must provide a safe and efficient work environment and adequate instruction. Fourth, you must communicate expectations and develop a functional schedule. Finally, you must consistently observe, evaluate, critique, reward, and resolve issues. Many farms hire managers specifically for the crew because the human labor component is so complex in itself that it can consume more time than an owner or operator can devote. This depends greatly on the size of the farm, the size of the labor force, the level of mechanization, and the various duties for which the owner or operator is responsible.

### Learn More

[Labor Management in Agriculture: Cultivating Personnel Productivity](#)  
by Gregory Encina Billikopf

[Positive Practices in Farm Labor Management: Keeping Your Employees Happy and Your Production Profitable](#)  
by the California Institute for Rural Studies and the National Center for Appropriate Technology

[Labor on the Farm: Running a Successful Farm Business](#)  
by Washington State Department of Agriculture

[Farm Safety Webinars](#)  
from University of Vermont Extension



- Skill #1 Prepare farm labor plan (e.g. self, family, hired, volunteer, CSA work-share, other)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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- Skill #2 Write job descriptions

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #3 Fill out necessary state and federal labor forms

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #4 Recruit labor (e.g. word of mouth, email, online databases, etc.)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #5 Establish labor contract

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #6 Develop policies and procedures

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #7 Remove safety hazards

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #8 Conduct farm orientation (e.g. health and safety issues, "where things are")

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #9 Develop staff work schedule

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #10 Assign daily tasks

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #11 Train farm workers (e.g. fieldwork, efficiency, equipment safety and care)

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #12 Supervise farm workers

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
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3<sup>rd</sup> Practice  
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○ Skill #13 Provide staff incentives

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2<sup>nd</sup> Practice  
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3<sup>rd</sup> Practice  
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○ Skill #14 Evaluate staff work performance

1<sup>st</sup> Practice  
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3<sup>rd</sup> Practice  
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○ Skill #15 Conduct regular staff meetings

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #16 Resolve employee issues

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

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○ Skill #17 Provide bathroom, hand-washing facilities, access to clean water and shade

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #18 Maintain First Aid and CPR certification

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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- **Skill #19** Adhere to all state and federal labor regulations (e.g. employment laws; farm property tax abatements programs; volunteer protection; product and general liability; risk management)

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

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- **Skill #20** Keep good records (e.g. time sheets, labor reports, records of disputes & injuries)

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

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## Topic O Regulatory Compliance<sup>1</sup>



There are a lot of rules to follow to protect yourself and others. The business of farming involves risks in employing workers, handling large machinery, handling various chemicals, handling animal waste, generating noises and odors, food safety, and more.

### Learn More

- Organic Certification Information  
from the USDA
- Good Agricultural Practices (GAP) Food Safety Manual  
by UMass Extension
- Best Management Practices (BMPs) for Environmental and Water  
Resources  
by UMass Extension
- Regulation Webinars  
from University of Vermont Extension



○ Skill #1 Obtain scale certification

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #2 Provide workman's coverage

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #3 Maintain auto insurance policies

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #4 Maintain pesticide applicator license

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #5 Maintain third-party quality certifications (e.g. organic, certified naturally grown)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #7 Obtain food assistance certification for sales (e.g., SNAP, WIC)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
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3<sup>rd</sup> Practice  
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○ Skill #6 Provide personal protection equipment (PPE)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #8 Participate in good agricultural practice (GAP) training

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #9 Follow Best Management Practices (BMPs)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

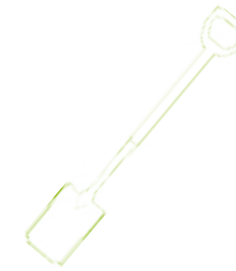
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3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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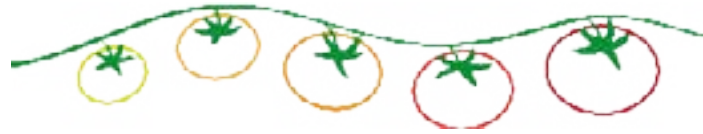
# Topic P Marketing<sup>1,2,4</sup>



Growing gorgeous beets and raising the finest bacon are valuable skills. But the moment you decide to make your livelihood depend on them, they are only worthwhile if you can sell them. As a farmer you must stake out a place for your products in the marketplace. This involves analyzing what others are selling, what prices can be fetched, designing a brand for your products, promoting your farm in the public eye, growing relationships with customers, and gaining a good reputation in your community. As marketing methods have evolved from word of mouth to print to the internet, you must determine what balance is right for you.

### Learn More

- [Marketing, Business & Risk Management Resources](#)  
from the National Sustainable Agriculture Information Service
- [Marketing Toolshed](#)  
from University of Vermont Extension
- [Marketing Strategies for Farmers and Ranchers](#)  
by the Sustainable Agriculture Network
- [Small Farm Social Media](#)  
by Amy Sprague



○ Skill #1 Conduct competitive analysis

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

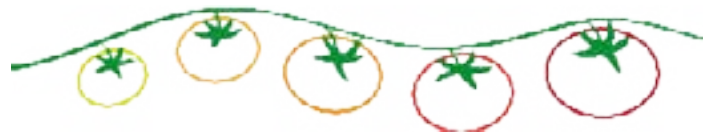
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #2 Develop marketing plan

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #3 Set prices for products

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

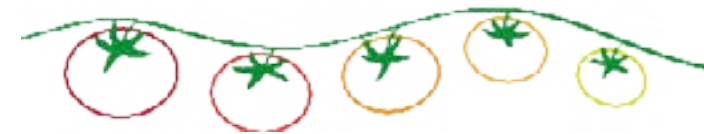
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #4 Identify customers and target market

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #5 Develop brand and logo

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

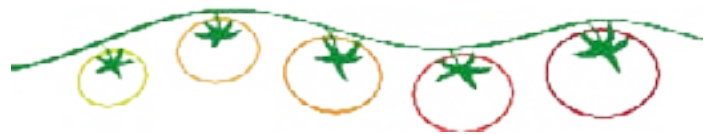
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #6 Maintain website

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #7 Prepare flyers and brochures

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

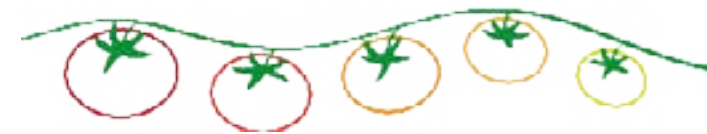
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #8 Identify funding mechanisms (e.g., loans, memberships, grants)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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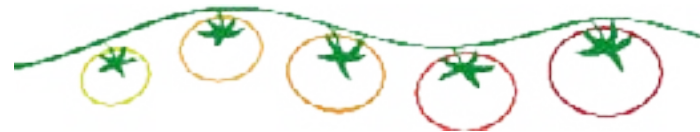
○ Skill #9 Conduct outreach activities (e.g., displays, public speaking events, recipe cards)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #10 Prepare newsletters (e.g., educational, promotional, and informational)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
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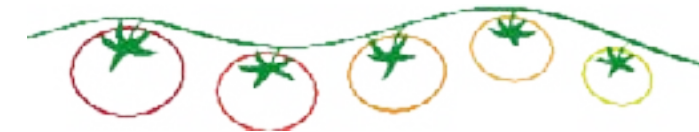
○ Skill #11 Maintain email/contact database

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #12 Develop promotional materials (e.g., signs, magnets)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #13 Create social networking presence

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

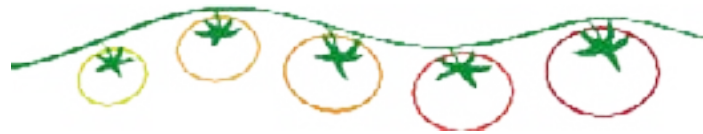
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #14 Provide product samples

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #15 Keep good records (e.g. customer comments, competition, price changes, sales, promotional activities)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

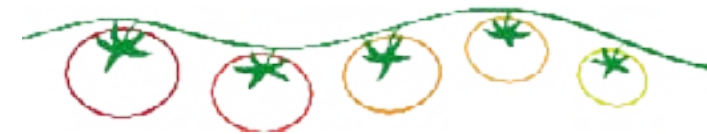
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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# Topic Q

## Farm Administration<sup>2</sup>

At the other end of writing a farm business plan lies keeping all the gears turning once the plan has been implemented. Bills must be paid, customer feedback must be collected, and insurance must be maintained. This part of farming is decidedly less romantic, but absolutely essential. If this kind of management is not for you, consider hiring an office manager.

### Learn More

Vegetable Farm Budgets and Recordkeeping: Real Examples  
by University of Vermont Extension



### ○ Skill #1 Update product listing and prices

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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### ○ Skill #2 Update packing and delivery orders

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #3 Develop office forms (e.g., applications, liability waivers)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #4 Coordinate customer billing

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #5 Process invoices

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #6 Prepare bank deposit

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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### ○ Skill #7 Balance checkbook

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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### ○ Skill #8 Process payroll

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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### ○ Skill #9 Process reimbursements

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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### ○ Skill #10 Analyze customer surveys and feedback

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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Skill #11 Maintain computers (hardware, software)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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Skill #12 Maintain insurance policies

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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Skill #13 Maintain operating budget

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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# Topic R

## Professional Development<sup>2</sup>

A farmer is never done learning. You can stay keen by continually engaging in conversations with other agricultural professionals; maintaining a mentor relationship with someone; reading books, periodicals, blogs, and scientific studies; attending workshops, field days, and conferences; and in some way recording your own experiences. Methods, practices, and opinions change frequently in agriculture.

### Learn More

- Sustainable Agriculture Research and Education (SARE)
- National Sustainable Agriculture Information Service (ATTRA)
- Ecological Farming Association (EcoFarm)
- Northeast Organic Farming Association (NOFA)
- Pennsylvania Association for Sustainable Agriculture (PASA)
- Midwest Organic and Sustainable Education Service (MOSES)



- **Skill #1** Obtain basic knowledge of plant, soil, and animal sciences, ecology, meteorology, business, finance, and accounting

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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- **Skill #2** Find a farmer-mentor

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #3 Observe your farm daily

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

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3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #4 Keep a farm journal

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #5 Read agricultural literature (e.g. books, journals, catalogs)

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

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○ Skill #6 Visit other farms

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #7 Establish relationships with local institutions and organizations

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
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○ Skill #8 Attend classes, conferences, workshops and tradeshows

1<sup>st</sup> Practice  
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2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

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○ Skill #9 Consult with local experts (e.g. extension agents)

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
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○ Skill #10 Dialogue with customers

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
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○ Skill #11 Keep posted on current events and trends

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



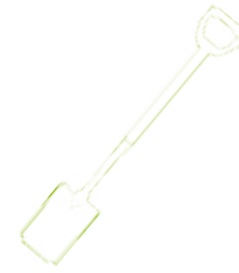
○ Skill #11 Learn from experience (e.g. frequently compare actual outcomes to farm plan and adjust day-to-day operations accordingly)

1<sup>st</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
 Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments  
 \_\_\_\_\_  
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# Topic S Practicing Conservation<sup>2,3,5</sup>



This Workbook examines all aspects of farming through a lens of environmental, economic, and social sustainability. But it is worth it, at the end, to look back upon each skill and ask, “How have I applied the theories and practices of conservation to this task or idea?”

**Learn More**

[Natural Resource Conservation Service of the USDA \(NRCS\)](#)





○ **Skill #1** Prepare conservation and land use plan (e.g. research programs and regulations; timeline and budgets for: infrastructure development, conservation practices, irrigation/water projects; update maps)

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



○ **Skill #2** Implement conservation practices and measures (e.g. crop residue, conservation tillage, buffer strips, field borders, wildlife habitat improvement, waterway protection)

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



○ **Skill #3** Build soil health, structure, and productivity

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



○ **Skill #4** Prevent soil and nutrient loss

1<sup>st</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice  
Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



○ Skill #5 Monitor weather and climate

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



○ Skill #6 Manage pests and diseases

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



○ Skill #7 Manage crop and livestock rotations

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



○ Skill #8 Conduct trials of new animal breeds, crop varieties, products, and techniques

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



○ Skill #9 Irrigate for conservation

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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○ Skill #10 Examine whole-farm system from an ecological perspective

1<sup>st</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

2<sup>nd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

3<sup>rd</sup> Practice

Description: \_\_\_\_\_ Date: \_\_\_\_\_

Comments

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# Appendix I

## Qualification Table

Topic	Skill	Date Qualified	Supervisor Initials	Trainee Initials
A Defining Principles	#1: Define sustainable agriculture			
	#2: Define personal and professional values			
	#3: Define personal and professional mission			
	#4: Set short- and long-term farming goals			
	#5: Establish physical, mental, and emotional health and safety guidelines			
	#6: Identify action steps for moving toward goals while staying true to values and guidelines			
B Farm Business Planning	#1: Assess overall needs			
	#2: Assess available resources			
	#3: Conduct market research and competitive analysis			
	#4: Prepare enterprise budgets and select enterprise(s)			
	#5: Prepare financial plan			
	#6: Secure access to land			
	#7: Assess site			
	#8: Research legal requirements			
	#9: Determine management style			
	#10: Assemble whole farm business plan			
C Setting Up Your Business	#1: Obtain necessary financing			
	#2: Establish farm legal structure			
	#3: Establish farm management team			
	#4: Establish farm policies			
	#5: Obtain necessary licenses, permits, and certifications			
	#6: Open business bank account			
	#7: Purchase liability and property insurance			
	#8: Establish credit with key suppliers			
	#9: Obtain necessary office equipment and supplies			
	#10: Set up bookkeeping system			
	#11: Set up filing and record-keeping systems			
	#12: Provide for farm family security			

Topic	Skill	Date Qualified	Supervisor Initials	Trainee Initials
D Maintaining Equipment & Facilities	#1: Inspect production equipment and facilities			
	#2: Adhere to federal, state, and local legal and regulatory requirements			
	#3: Build/install infrastructure			
	#4: Create farm signage			
	#5: Establish preventive maintenance schedule for infrastructure			
	#6: Establish parts and supplies inventory			
	#7: Repair production facilities			
	#8: Repair production equipment			
	#9: Upgrade inefficient equipment			
	#10: Acquire necessary tools, equipment, and supplies			
	#11: Calibrate production equipment			
	#12: Perform routine equipment service			
	#13: Clean production equipment			
	#14: Clean harvest containers			
	#15: Calibrate product scales			
	#16: Store tools, equipment and supplies			
E Seasonal Crop Production Planning	#1: Review past production records			
	#2: Develop crop plan with other farmers			
	#3: Establish crop planting schedule and record keeping system			
	#4: Design field layout			
	#5: Establish multi-year crop rotation plan			
	#6: Select plant varieties			
	#7: Review pest and weed management options			
F Soil Maintenance	#8: Order field supplies			
	#9: Plan for seed breeding and saving			
	#1: Understand the physical, biological, and chemical properties of soil			
	#2: Prepare soil samples for testing			
	#3: Read and interpret soil test results			
	#4: Classify soil texture and type			
	#5: Develop fertility program and record keeping system			
	#6: Select and acquire cover crop varieties			
#7: Select and acquire soil amendments				
#8: Build and maintain certified compost piles				

Topic	Skill	Date Qualified	Supervisor Initials	Trainee Initials
F Soil Maintenance, continued	#9: Manage soil pH			
	#10: Implement ongoing fertility management			
	#11: Manage cover crop in fields			
	#12: Assess appropriate soil moisture levels for tillage			
	#13: Lay out beds			
	#14: Understand the basic functions, safety features, and operations of a tractor and its implements			
	#15: Hitch implements and drive tractor			
	#16: Do primary tillage			
	#17: Do secondary tillage			
	#18: Shape beds			
G Propagation	#1: Learn about different types of propagation facilities			
	#2: Develop greenhouse seeding calendar and schedule			
	#3: Develop labeling system			
	#4: Prepare propagation medium mixes			
	#5: Acquire appropriate growing containers			
	#6: Start seeds in containers			
	#7: Direct sow into fields			
	#8: Plant bulbs/tubers			
	#9: Take cuttings for asexual propagation			
	#10: Root or graft cuttings			
	#11: Monitor seedling development			
	#12: Maintain seedlings (e.g., moisture, temperature, fertility, thinning, potting up, pests, hardening off)			
	#13: Manage propagation facility			
	#14: Acquire transplants			
	#15: Plant transplants in field			
H Irrigation	#1: Recognize signs and effects of water stress			
	#2: Assess soil moisture and irrigation needs in plant beds			
	#3: Consider costs and benefits of different irrigation systems			
	#4: Acquire and set up irrigation system			
	#5: Maintain water quality			
	#6: Determine irrigation needs and create schedule			
	#7: Keep good records of irrigation activity			

Topic	Skill	Date Qualified	Supervisor Initials	Trainee Initials
I Maintaining Crop Health	#1: Replant or reseed failed plants			
	#2: Practice manual and mechanical cultivation methods			
	#3: Identify and remove weeds			
	#4: Apply appropriate fertilizers			
	#5: Hill crops			
	#6: Thin crops			
	#7: Assess fertility requirements			
	#8: Mulch crops			
	#9: Construct and install supports			
	#10: Prune plants			
	#11: Train plants			
	#12: Tip plants			
	#13: Provide supplemental pollination			
	#14: Adhere to federal, state, and local regulations			
	#15: Keep good records			
J Dealing With Environmental Variables	#1: Monitor growing environment			
	#2: Check weather forecast and create daily/weekly response plan			
	#3: Scout for pests			
	#4: Evaluate pest damage			
	#5: Determine protective measures for crops			
	#6: Apply row covers			
	#7: Install protective structures			
	#8: Install rodent traps			
	#9: Apply pesticides			
	#10: Release beneficial insects			
	#11: Apply frost protection measures			
	#12: Install high/low tunnels			
	#13: Identify and implement season extension methods			
K Managing the Harvest	#1: Determine crop maturity			
	#2: Understand the requirements and implications of food safety			
	#3: Determine harvest requirements			
	#4: Provide harvest aids			
	#5: Hand-harvest crops			
	#6: Provide sun protection to harvested crops			
	#7: Field pack crops			



Topic	Skill	Date Qualified	Supervisor Initials	Trainee Initials
K Managing the Harvest, continued	#8: Rinse harvested crops			
	#9: Grade harvested produce			
	#10: Bunch harvested produce			
	#11: Maintain harvest records			
	#12: Pre-cool harvested produce			
	#13: Process or add value to crops			
L Raising Livestock	#1: Prepare annual livestock and animal products production plan			
	#2: Obtain stock			
	#3: Provide stock with appropriate housing, shelter and protection from predators			
	#4: Establish flock or animal ID system			
	#5: Assess space, heat, nutrient, and behavioral needs of animals			
	#6: Establish grazing system plan that maintains soil health and biodiversity			
	#7: Manage pastures			
	#8: Obtain feed and supplements			
	#9: Balance feed rations			
	#10: Establish schedule for feeding and watering animals			
	#11: Monitor animal health and wellbeing			
	#12: Meet all animal health and veterinary needs			
	#13: Study the processes of gestation and birth			
	#14: Manage waste products			
	#15: Harvest animal products			
	#16: Slaughter meat animals			
	#17: Perform post-harvest handling and processing tasks			
	#18: Add value to animal products if required by marketing plan			
	#19: Adhere to federal, state, and local regulations			
	#20: Keep good records			
M Getting Your Product to Market	#1: Determine packing order			
	#2: Pack product			
	#3: Cold store product prior to delivery			
	#4: Establish delivery times and pickup points			
	#5: Load products			
	#6: Plan delivery route			

Topic	Skill	Date Qualified	Supervisor Initials	Trainee Initials
M Getting Your Product to Market, continued	#7: Deliver products			
	#8: Maintain return inventory			
	#9: Total sales			
N Managing Labor	#1: Prepare farm labor plan			
	#2: Write job descriptions			
	#3: Fill out necessary state and federal labor forms			
	#4: Recruit labor			
	#5: Establish labor contract			
	#6: Develop policies and procedures			
	#7: Remove safety hazards			
	#8: Conduct farm orientation			
	#9: Develop staff work schedule			
	#10: Assign daily tasks			
	#11: Train farm workers			
	#12: Supervise farm workers			
	#13: Provide staff incentives			
	#14: Evaluate staff work performance			
	#15: Conduct regular staff meetings			
	#16: Resolve employee issues			
	#17: Provide bathroom, hand-washing facilities, access to clean water and shade			
	#18: Maintain First Aid and CPR certification			
	#19: Adhere to all state and federal labor regulations			
	#20: Keep good records			
O Regulatory Compliance	#1: Obtain scale certification			
	#2: Provide workman's coverage			
	#3: Maintain auto insurance policies			
	#4: Maintain pesticide applicator license			
	#5: Maintain third-party quality certifications			
	#6: Provide personal protection equipment (PPE)			
	#7: Obtain food assistance certification for sales			
	#8: Participate in GAP training			
	#9: Follow Best Management Practices			
P Marketing	#1: Conduct competitive analysis			
	#2: Develop marketing plan			
	#3: Set prices for products			
	#4: Identify customers and target market			

Topic	Skill	Date Qualified	Supervisor Initials	Trainee Initials
P Marketing, continued	#5: Develop brand and logo			
	#6: Maintain website			
	#7: Prepare flyers and brochures			
	#8: Identify funding mechanisms			
	#9: Conduct outreach activities			
	#10: Prepare newsletters			
	#11: Maintain email/contact database			
	#12: Develop promotional materials			
	#13: Create social networking presence			
	#14: Provide product samples			
	#15: Keep good records			
Q Farm Administration	#1: Update product listing and prices			
	#2: Update packing and delivery order			
	#3: Develop office forms			
	#4: Coordinate customer billing			
	#5: Process invoices			
	#6: Prepare bank deposit			
	#7: Balance checkbook			
	#8: Process payroll			
	#9: Process reimbursements			
	#10: Analyze customer surveys and feedback			
	#11: Maintain computers			
	#12: Maintain insurance policies			
	#13: Maintain operating budget			
R Professional Development	#1: Obtain basic knowledge of plant, soil, and animal sciences, ecology, meteorology, business, finance, and accounting			
	#2: Find a farmer-mentor			
	#3: Observe your farm daily			
	#4: Keep a farm journal			
	#5: Read agricultural literature			
	#6: Visit other farms			
	#7: Establish relationships with local institutions and organizations			
	#8: Attend classes, conferences, workshops, and tradeshow			
	#9: Consult with local experts			
	#10: Dialogue with customers			
	#11: Keep posted on current events and trends			
	#12: Learn from experience			

Topic	Skill	Date Qualified	Supervisor Initials	Trainee Initials
S Practicing Conservation	#1: Prepare conservation and land use plan			
	#2: Implement conservation practices and measures			
	#3: Build soil health, structure, and productivity			
	#4: Prevent soil and nutrient loss			
	#5: Monitor weather and climate			
	#6: Manage pests and diseases			
	#7: Manage crop and livestock rotations			
	#8: Conduct trials of new animal breeds, crop varieties, products, and techniques			
	#9: Irrigate for conservation			
	#10: Examine whole-farm system from an ecological perspective			

# Appendix II

## Learning Contract Template

### Apprenticeship Learning Contract

Start Date: \_\_\_\_\_

End Date: \_\_\_\_\_

#### Farm

- Name: \_\_\_\_\_
- Address: \_\_\_\_\_
- Phone Number: \_\_\_\_\_

#### Trainee

- Name: \_\_\_\_\_
- Role on Farm: \_\_\_\_\_
- Home Address: \_\_\_\_\_
- Phone Number: \_\_\_\_\_
- Email Address: \_\_\_\_\_

#### Trainer

- Name: \_\_\_\_\_
- Role on Farm: \_\_\_\_\_
- Home Address: \_\_\_\_\_
- Phone Number: \_\_\_\_\_
- Email Address: \_\_\_\_\_

#### Shared Learning Objectives (to be completed together by the Trainee and Trainer)

- 1.
- 2.
- 3.
- 4.
- 5.

#### Trainee's Educational Goals for Self

- 1.
- 2.
- 3.
- 4.
- 5.

#### Trainer's Educational Goals for Trainee

- 1.
- 2.
- 3.
- 4.
- 5.

#### Trainee's Responsibilities to Trainer

- 1.
- 2.
- 3.
- 4.
- 5.

#### Trainer's Responsibilities to Trainee

- 1.
- 2.
- 3.
- 4.
- 5.

#### Signatures

Trainee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Trainer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

