

You have made the decision to put in a commercial orchard, start a flower farm, or market vegetable operation. Congratulations, you are about to become a small-scale grower! But where do you start?

As a new grower, you have numerous decisions to make before you even plant a crop: how much time, money, and property to invest in your enterprise; what to grow, how much to grow, how, where, and to whom you will market your crops, what kind of cropping management techniques you will use, among others. If you are a newcomer to the agricultural world, it can be difficult to navigate the maze of organizations and regulations that you need to understand in order to succeed as a commercial grower. This publication is intended to help you find your way through the process.

First Steps - Planning & Market Research

One of the most common mistakes new growers make is to view themselves as producers and not as marketers and business people. Currently, most small-scale growers cannot survive selling their produce on the wholesale

market. Land and production costs are too great to make wholesale prices economically feasible. In order to succeed, your primary markets need to be at or close to retail prices. This generally means direct marketing.

Market Research

Given this reality, before you plant anything, you must know who is going to buy it, where they are, and what they want.



Growing what you like can be a good thing, but only if you also have clientele who like it and are willing to pay a fair price.

Just as in any business, market research is essential. Before you plant anything you need to answer these questions:

- Who are your customers?
- Where are they?
- How will they find out about you and your product?
- What is your product?
- How is your product different than others of the same type?
- Why should a customer want to buy your product instead of someone else's?

If you don't know who is going to buy your product, you will not succeed at selling it.

Planning

Start planning early, at least a year before you want to sell. Visit the local farmers' markets (see resource section). Concentrate on what isn't there, but also note products that sell well and seem to be in short supply. Talk to the growers. Go to market early, observe what sells quickly and what customers buy. Collect ideas and take notes.

After visiting local farmers' markets, go to larger more distant markets and compare what is sold there to what is in local farmers' markets.

Visit local produce stores such as Newcastle Produce or Briar Patch and take notes. Use the annual market wish list, intended to help growers diversify production and fill gaps in local markets. Talk to managers of the local farmers' market associations (see resource section) for ideas.

Assessing your Resources

In addition to researching market demand for specific crops, You will need to assess the resources of your property and decide whether your preferred crop is suitable for your particular soil, water availability, and microclimate.

Soils

You will need to find out what kind of soil you have, whether it is clay or sandy, how well it holds water, its native fertility, and for which crops it is suitable. You also need to know what underlies the topsoil – the subsoil and parent materials.

Your local Natural Resources Conservation Service (NRCS) office, a US Department of Agriculture (USDA) agency, can help. You can use the NRCS Web Soil Survey at websoilsurvey.nrcs.usda.gov/

Or NRCS offices have copies of the soil survey and can help you. They can explain what your soil descriptions mean and print out topographical and soil maps of your property from your assessor's parcel number.



Nevada County NRCS and RCD

113 Presley Way, Grass Valley
530.272.3417

NRCS Placer County

Auburn Ravine Road, Auburn
530.823.6505

Placer County Resource Conservation District (RCD)

530.217.6257

Soil testing

In addition to finding out the basic characteristics of your soil, you need to have your soil tested for its chemical properties. You

should have your soil tested by a commercial lab that will give you accurate information for a baseline. Your amendment and fertilizer program will be based on the results of your soil tests. UC Cooperative Extension does not do soil testing.

Nearby labs include:



A & L Western Ag Labs, Inc.

1311 Woodland Avenue Suite 1
Modesto, CA 95351
Phone: 209.529.4080
<http://www.al-labs-west.com/>

Fruit Growers' Lab

563 E. Lindo
Chico CA 95926
530.343.5818
<http://www.fglinc.com/>

Sunland Analytical Lab

11419 Sunrise Gold Cir #10,
Rancho Cordova, CA 95742
916.852.8557
<http://sunland-analytical.com/>

Labs often have a specific protocol they want you to use for sampling your soil, so call and ask before mailing off samples. Focus on sampling the areas that you intend to plant. Generally you will sample an area several times and mix the samples. If some areas of your property have visibly different soil or vegetation, you may need to do separate soil samples. If so, do not mix the samples, it may give you misleading information.

You will need a number of soil tests to provide a baseline for managing your soil. Most labs

have a basic package, which is fine to start with.

Use a California lab to get accurate information. If you tell the lab before they do the testing what crops you intend to grow, for a small fee, they will provide recommendations on the nutrients or amendments needed. Most labs will also give guidance on organic amendments, if you specify that it is an organic farm. For more information on organic amendments, look for the UCCE information sheet 72C on Using Organic Amendments.

Beyond a general soils map and soil testing, you need to find out how deep your soil is and whether you have a hard pan or not. This can only be done by digging some 6-8 ft. holes in the proposed planting area and looking at what is there. This is especially important for perennial crops such as trees or vines.

Land Preparation

Before you put in an orchard or vineyard you will need to do extensive land preparation, such as ripping, especially on heavy clay or if you have a hardpan of some kind. If possible, add amendments such as lime or compost before ripping so as to incorporate them.

Some growers have not done adequate soil preparation, which might be considered "penny wise and pound foolish". Your orchard

or vineyard and the quality of your fruit is likely to suffer in the long run from the lack of soil preparation.

Once your soil is prepared, establish a cover crop, especially if you are not planting immediately. A cover crop will protect your soil from erosion in winter rains. Cover crops are essential to maintaining the limited soil resource we have.



Water and irrigation

Water availability is critical to foothill agriculture. Our soils are generally too shallow to store much rainfall, and slopes mean that much of it runs off, so dry farming is rarely possible. Perennial crops require water throughout the year. If winter rainfall is inadequate, they may require irrigation in the winter.

Ground water from wells is available in a few areas. Most agriculture relies on “ditch water”, delivered through a series of canals and ditches that are remnants of our mining heritage. Water delivery is measured in miner’s inches, a flow rate of 11.22 gallons per minute or 0.0248 (approx. 1/40) acre-inch per hour. You will need ½ to 1 miner’s inch per acre of crops, depending on the intensity and type of crop.

The irrigation canals and ditches are managed by a number of

irrigation districts. You will have to pay for the infrastructure to deliver water to your farm.

- **NID**, Nevada Irrigation District serves Nevada County and Placer County west of I-80 and east of Highway 65
- **PCWA**, Placer County Water Agency serves most of Placer County
- **San Juan Water District** serves Granite Bay and Roseville
- **Camp Far West/South Sutter Irrigation District** serves a small portion of western Placer County

Most irrigation water users buy water seasonally, from April 15th to October 15th. In some areas, winter water is available. If it is available, buy ½ to 1 miner’s inch, as you will need winter water for perennial crops most years.

Nevada Irrigation District

1036 W Main St.
Grass Valley, CA 95945
530.273.6185
Placer County 1.800.222.4102

Placer County Water Agency

144 Ferguson Road
Auburn, CA 95604
530.823.4850

San Juan Water District

9935 Auburn-Folsom Road
Granite Bay, CA 95746
916.791.0115

Once you have water, you will need to decide what kind of irrigation system you need. As a

result of the scarcity of water, most growers use microirrigation systems, delivering water in small amounts. These systems include a variety of drip, microsprinkler, and other low volume irrigation systems. You will need a filtration system for most low volume irrigation systems.

Almost as much frost protection can be obtained from microsprinklers as overhead sprinklers, with significantly less tree damage. With the scarcity of water and regulations regarding runoff from agricultural land, overheads are a poor choice for foothill agriculture.

Local plumbing and irrigation suppliers have experience in designing and installing irrigation systems. Free assistance with agricultural irrigation is also available from your local NRCS and Resource Conservation District (RCD) offices.

Microclimate

Microclimate is influenced by elevation, slope, aspect (direction the property faces) and exposure. As a result of the varied topography of the foothills, you may have a very different microclimate than your neighbor just down the road. In addition, you need to start collecting weather data on your property.

Temperatures

A good start is to place maximum-minimum thermometers around your property, at different

elevations, recorded on at least a weekly basis. Max-min thermometers are available in low-tech versions – a simple thermometer with two columns of alcohol and a peg on each side that will stop at the high and low temperatures recorded since you last reset it. These cost \$5-\$10 each and are available at most hardware stores and nurseries and a full weather station will provide you with all the data you could possibly want for \$400 to \$3,000, with many options in between.

You will need to record temperatures throughout the year if you considering a perennial crop. Knowledge of winter lows is critical if the potential crop is cold sensitive. Keeping track of chilling hours can be important if you are in a borderline area for crops which require winter chilling for fruit or flower production. Records of spring temperatures will help you determine when to plant or transplant annual crops. Summer temperatures may be important as well for heat sensitive crops. Keeping records of the weather on your property is important for many other aspects of growing including pest management, irrigation scheduling, and the timing of other operations. The sooner you start, the better.



Cold Air Drainage

Slope can be an important factor in microclimate as it may affect cold air drainage, and the amount of sunlight your property receives. Cold air runs downhill like water, so lower areas will be colder, often significantly colder. If you are planting a crop that may be sensitive to cold, avoid planting in the areas where cold air sits. If you are planting in a canyon or area shaded by other topography, you may not get sunlight until mid-morning and it may disappear by mid-afternoon. The number of hours of sunlight can be critical for many crops. Most fruiting and flowering crops require at least 6 to 8 hours of sunlight per day for production. Aspect and exposure determine how much sun your crop will receive and ambient temperatures as well.

If you are considering a cold-sensitive crop such as citrus, a S-SW exposure is critical. Most fruit crops do best on south or southwest-facing slopes so they get adequate sunlight for good fruit quality and frost or freeze damage is minimized.

Crop Selection

There are a wide variety of crops, from temperate to sub-tropical, that grow well in Placer and Nevada Counties, including citrus, apples, blueberries and caneberries, stone fruit, warm and cool season vegetables, annual and perennial cut flowers,

Christmas trees, and herbs.

Factors to consider in crop selection

Environmental factors:

- Farm Location
- Elevation
- Exposure
- Soil depth
- Slope and frost potential
- Distance to market for highly perishable crops

Costs & Business Planning

Initial capital costs may include:

- Infrastructure such as fencing, trellising, irrigation, etc.
- Soil preparation & amendments
- Plants or seeds

Ongoing costs may include:

- Water
- Fuel and electricity
- Inputs such as amendments, fertilizers, and pesticides
- Labor
- Taxes, etc.

The University of California, Davis publishes cost of production studies for a number of crops grown in California. Look at the studies for information on costs to establish a crop, the operations and equipment involved, and potential yield and profits. The studies are available at <http://coststudies.ucdavis.edu/>.

Lack of business planning is why many new farming operations fail. There are many different resources, but one of the best, tailored to farming is *Building a Sustainable Business*, a workbook

guide developed by the Minnesota Institute for Sustainable Agriculture. It is available online for purchase or download at: <http://www.sare.org/publications/business.htm>.

Other Considerations

Placer/Nevada has a very limited labor pool and skilled labor can be particularly difficult to find.

Time to production for perennial crops is a critical factor because it means that the return on your investment comes a long time after your initial capital costs. It may make sense to start out with a mix of annual and perennial crops to allow some income during the non-bearing period of your perennial crops.

The availability of planting stock may also factor into your planning. For new or specialty varieties, planting stock may need to be ordered a year or more ahead of time.

For small scale growers, finding planting stock at reasonable prices may be difficult because many large nurseries have minimum orders and may not be willing to sell small numbers of plants. Network with other growers to see if you can share an order, if this is the case.



Regulatory Requirements

There are some regulations with which all farmers must comply. UCCE Placer/Nevada publication *145C Farm and Ranch Rules & Regulations Checklist* is available on the Foothill farming website to help you navigate the regulations.

Commercial farming is defined by the act of selling the produce of your farm. If you sell anything produced on your farm, you are subject to regulations. Produce is defined as articles produced from or grown in the soil, usually sold fresh. This includes fruits, nuts, vegetables, herbs, cut flowers, and nursery stock, among others.

You do not need a license to grow and sell agricultural produce from your farm, unless you are selling rooted live plants. If you are selling live plants, you need a nursery license from the State of California, which is applied for through your county ag commissioner's office. The license fee is based on sales, and it is fee exempt for the first \$1000 dollars of sales, if sold in the county where they are grown. You will need a business license to sell Christmas trees.

If you use any pesticides on produce for sale, you must obtain a pesticide identification number and report pesticide use on a monthly basis to the Agricultural Commissioner. Pesticides include any material

that is intended to kill, repel, or check the development of an insect, weed, disease, or other organism damaging your crops. If the product has an EPA number on the label, any use must be reported.



Certified Farmers' Markets

A Certified Farmers' Market (CFM) is a market authorized by the county's ag commissioner to sell produce directly to consumers. The market certifies that the products in the market are produced by the growers selling them.

If you wish to sell produce in a Certified Farmers' Market, you will need to obtain a Producer's Certificate. Apply for the producer's certificate through your County Ag Commissioner's office. You will need to fill out an application listing each type and variety of crop grown, approximate acreage or number of plants, and estimated production. The ag department staff will inspect your farm in order to certify that you are producing what you intend to sell. Allow several weeks for this process.

If requested, the grower should be able to demonstrate that fruit and vegetables meet the state's maturity standards, usually determined by % Brix or sugar concentration. This is particularly

important for fruit. Growers may try to push the season, and end up selling green fruit. This is not good for either the grower or the customer. Repeat customers are the backbone of grower clientele. If you sell poor quality or unripe fruit, customers will not buy from you again. Especially as a new grower, it is important to establish a reputation for quality produce.

Resources for getting started!

University of California Cooperative Extension (UCCE) (Farm Advisor's Office) Provides producer information and advise, referrals to other resources, and training on crop selection, production practices, pest management, marketing, farm business, and other topics.

Placer County office

11477 E Avenue, Auburn
530.889.7385

Nevada County office

255 So. Auburn Street, Grass Valley 530.273.4563

Nevada County Ag Department

530.470.2690 Chris de Nijs,
Agricultural Commissioner

Placer County Ag Department

530. 889.7372. Josh Huntsinger,
Agricultural Commissioner

Contact your county ag department for assistance with:

- Certified Grower's Certificate
- Pesticide Identification Number
- Pesticide Use Reporting

- Organic Certification

Local Farmers Markets

Foothill Farmers' Markets

Markets in Auburn, Rocklin, Roseville, Tahoe City, Truckee
P.O. Box 3343
Auburn, CA 95604
530.823.6183
info@foothillfarmersmarket.com

Nevada City Farmers' Market

<http://ncfarmersmarket.org/>
Saturdays, 8:30 AM to 12:30 PM

Nevada County Certified Growers' Market

Markets in Grass Valley, Penn Valley, and Nevada City
P.O. Box 2477
Grass Valley, CA 95945
530.265.5551
<http://thegrowersmarket.com/>

For other farmers' market locations in California, go to <http://www.farmersmarketonline.com/fm/California.htm>

Grower Associations

Mountain Mandarin Growers Association

<http://www.mountainmandarins.com/>

Sierra Wine & Grape Growers Association

<http://www.swgga.org/>

Placer County Wine & Grape Association

<http://pcwga.org/>

Placer County Vintners Association

www.placerwine.com/

Information Resources

UCCE Placer/Nevada Foothill Farming Website <http://ucanr.edu/sites/placernevadasmallfarms/> or <http://ucanr.edu/foothillfarming>

University of California Publications and Resources

UCCE Placer/Nevada information sheets online at the Foothill Farming Website <http://ucanr.edu/sites/placernevadasmallfarms/Resources/OSA/>

UC Division of Agriculture and Natural Resources Publications <http://anrcatalog.ucdavis.edu/>

UC Davis Extension ag classes <http://extension.ucdavis.edu/>

Small Farm Information <http://www.sfc.ucdavis.edu/>

NCAT Appropriate Technology Transfer for Rural Areas – sustainable ag <https://attra.ncat.org/>

Oregon State University Small Farms program <http://smallfarms.oregonstate.edu>

Cornell Small Farms Program <http://smallfarms.cornell.edu/>

Penn State Alternative Crop Publications <http://extension.psu.edu/business/ag-alternatives>

National Organic Program Information <http://www.ams.usda.gov/AMSV1.0/nop>