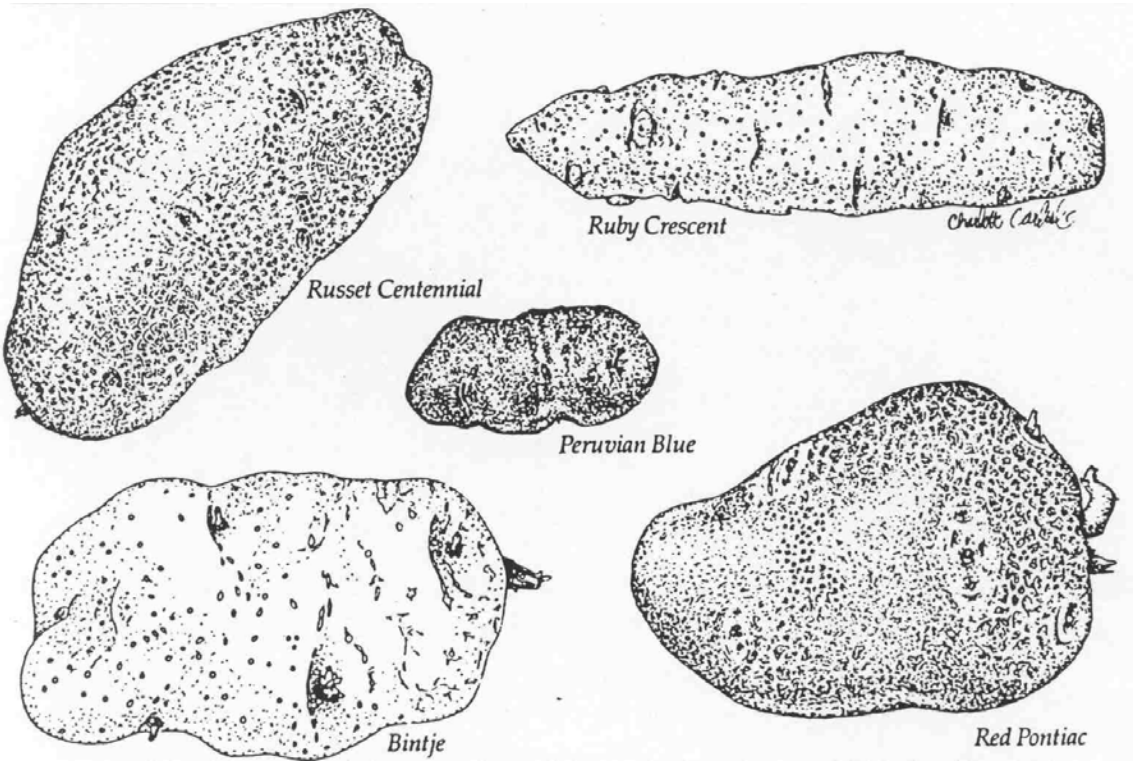
Growing Potatoes Organically
Basics From Seed To Storage

By Dave Hollingsworth



UCSC Agroecology Program

Note: Dave Hollingsworth, an undergraduate student at UC Santa Cruz, wrote this primer based on a variety trial he conducted in 1987 at the UCSC Agroecology Program Farm. (Use of product names does not constitute endorsement by the UCSC Agroecology Program or the University of California.)

Introduction

This primer grew out of a variety trial, which gave me an opportunity to grow an assortment of potato varieties, comparing commercial and specialty varieties for vitality, yield, and general quality and flavor. The project was also an opportunity to use a number of biointensive techniques (including use of compost and manure, fairly close spacing, raised beds, and overhead watering) at the Agroecology Program Farm on the University of California, Santa Cruz campus. Along the way, the idea of writing a basic guide to growing potatoes organically was formed. I found that although many of the books and sources available were useful, their information was often incomplete for my purposes. But in the course of the project, I was able to talk to a wide variety of experienced and interested potato growers, including gardeners, farmers, students, agricultural agents, and, by lucky chance, one of the founders of the International Potato Institute in Lima, Peru. This allowed me to compile a collection of information, which I hope will be of value to home gardeners and small growers. As a small family can easily eat 500 to 1000 pounds of potatoes in a year, successfully growing a good quantity can be a key to self-sufficiency.

This primer presents the sequence of steps involved in potato culture, including soil preparation and management; finding, obtaining and keeping seed; planting; pest management; irrigation; and harvesting and storage. All will emphasize techniques and materials readily and cheaply available to the home gardener. In describing my project, I will point out what practices worked for me, and where I see potential for improvement. Comparative data on the dozen varieties I grew, and a summary and description of each variety are also included. The reader can add to this from personal experience with these and other varieties.

Why the Potato?

The potato is a key world food crop: produced in 130 nations (more than any other crop but corn), it is grown from sea level to 13,000 feet, and its edible dry matter accounts for a higher volume of the food consumed in the world than fish and meat combined. It is high in vitamin C and potassium, very high in protein for a vegetable, and is nearly fat free, More potatoes are consumed by the world's population than any other vegetable.

Additionally, the potato can be grown on fairly marginal soil, in relatively high, cold areas of low population pressure. It stores for up to six months or more under good conditions, and per unit of land and time, produces more calories and protein than any other food crop. It gives prodigious yields--over 10,000 pounds per acre even in "underdeveloped" agricultural situations.

The potato's incredible variety, as well as its high-Andean origin, make it a fascinating crop to study. I believe it has much potential for sustainable, non-chemical farming, fits in well with many crop rotations, and does very well with natural fertilizers. And anyone who has dug fresh potatoes, especially in a multitude of colors and shapes, knows that it is one of the most exciting and rewarding experiences in gardening.

Soil Management--Fertilizers

Loose, well-drained soil high in organic matter is ideal for potatoes. In addition, potatoes thrive on large quantities of both nitrogen and potassium, and love acid conditions (as low as 4.8 pH). Double digging (or at least deep cultivation) is highly beneficial to potato culture, especially if they are going into a heavy soil. John Jeavons (1974) explains the double digging process in detail.

For my variety trial I had the good fortune of working with soil that had been carefully tended for years, and "double dug" more than once. The history of the actual area that I planted showed that it had received periodic dressings of manure and compost, and had hosted a variety of crops. The soil pH was close to neutral, and I assumed, per advice of farm personnel, that it was fairly low in nutrients. Therefore, I proceeded on the idea that a potato crop would be greatly helped by an addition of natural fertilizers and manure.

Beds were first cleared of weeds by scraping with a sharp spade. The soil was loosened with a fork down to a depth of fifteen inches, and the beds top-dressed with two wheelbarrows of aged poultry manure and one wheelbarrow of aged horse manure per average bed (approx. 180 square feet). The manure is useful for lowering the pH, conditioning the soil, and adding small amounts of nutrients. Rows approximately 10" wide and 10" deep, spaced 2 feet apart, were dug in the beds, and the soil piled on each side to use later for hilling up the potato plants. Two rows placed within a four- to five-foot wide raised bed is an ideal arrangement.

I developed a fertilizer program based on soil at "low" nutrient levels (Jeavons 1974), using the following widely-available, fairly inexpensive amendments:

Per 40' row:
8 lbs. cottonseed meal (4-2-1): adds nitrogen, increases soil acidity

2 lbs. bone meal (3-20-0): supplies a high proportion of phosphorous

3 lbs. greensand (0-1-7): supplies potassium and conditions soil (granite dust, is an even cheaper source)

3/4 lb. kelp meal (1-0-8): supplies additional potassium, as well as many trace minerals, which can significantly aid in nutrient uptake. Don't use more than a pound per 50' of row, as it contains natural fungicides and growth hormones.

It cost less than $30 to fertilize 400 feet of rows, but the cost was easily made up for through increased production. Because I grew many unusual or "gourmet" potatoes, which wholesale for $0.50 to $1.00 or more per pound, an increase in production of less than 1096 in this experiment would have paid for all the fertilizer used. In plots of any size, a well-fertilized, fast-growing crop is far more likely to repay your investment of time, money, and energy.

Another highly effective practice for enriching and aerating the soil is to grow a cover crop, or green manure. Plant cover crops in the fall, using legumes (such as bell beans, or vetch in colder areas) that will fix nitrogen for your potato crop. Dig the cover crop in during early spring (you can also add some aged manure), and plant a month or so later.

Seed

Use of quality seed potatoes (small, whole potatoes) in good condition is a key to successful potato culture. Certified seed has been specially grown and maintained, and is guaranteed disease free. You can, however, use your own homegrown seed if it is undamaged and free from disease. Over half of the varieties in my trial, including some of the highest yielders, were grown from homegrown seed.

The ideal seed size is around two to four ounces (a little larger than a golfball). Larger seed wastes potato, and this extra quantity may rot underground. If the seed is too small, it may not be able to supply maximum energy to the new planet before the plant gets established. Seed is best kept quite cold (as low as 3.3 deg. C, 38 deg. F) and in complete darkness to discourage sprouting. A few weeks before you plan to plant, it is ideal to "chit" the seed by placing them one layer deep in moderate warmth and diffuse light, to hasten sprouting. When planting, you may want to remove all but a few sprouts if there are very many. Try to plant before the sprouts get too long, but if they do, lay them horizontally in your trench when planting, being careful not to break them off.

The trial included 11 varieties: 4 commercial--Red Pontiac, Russet Burbank, Russet Centennial, and White Rose; and 7 specialty- -Bintje, Green Mountain, Rose Fir, Ruby Crescent, Irish Cobbler, Peruvian Blue, and Sangre. I used whole seed potato, potato sets (small chunks of potato, often coated with fungicide), and spud buds, a Park Seed innovation using tiny seed tubers. Based on my experience, I strongly recommend using whole seed potato. They grew into stronger plants earlier, had higher yields, and seemed to sustain significantly less gopher damage. Some recommend cutting larger potatoes into small chunks, but this may invite disease. Planting supermarket potatoes may not work, as many of them have been treated with growth inhibitors.

Seed potato is available from a variety of sources, including nurseries and food stores. Be careful when you buy to avoid any seed that has long sprouts, or shows any sign of mold or rot. The California Department of Food and Agriculture annually publishes a list of certified seed potato growers. Be sure to order seed early, as many companies will not ship to California after early spring. Below are a few sources of varied seed:

Seeds Blum
Idaho City Stage
Boise, Idaho 83706
Seeds Blum carries an excellent selection of varied seed, including All Blue, Ruby Crescent, Bintje, Urgenta, Green Mountain, and others. As they are expensive ($3.00-$5.00 a pound), it may be best to buy a small amount and grown them out for the next year.

Gurney's
Yankton, South Dakota 57078
Gurney's sells a large and varied selection of sets, including Norland, Viking, Kennebec, Irish Cobbler, Butte, Lady Finger, and All Blue. Most varieties cost about $3.00 per 30 sets.
Park Seed
Cokesbury Road
Greenwood, South Carolina 29647
Park's collection includes Sangre and Russett Centennial, as well as spud buds and Homestead true potato seed. Seed potato costs approximately $1.00 a pound.

Peaceful Valley Farm Supply
11173 Peaceful Valley Road
Nevada City, California 95959
Peaceful Valley sells only common commercial varieties (Red Pontiac, White Rose, and Russet Burbank), but the price is right at only $0.20 to $0.40 a pound.

The following seed companies offer at least six different varieties of potato seed. Write for more details:

Farmer Seed and Nursery
818 NW 4th St.
Faribault, Minnesota 55021

Henry Field Seed and Nursery Co.
Dept. 87, Box 277D
Shenandoah, Iowa 51602

L.L. Olds Seed Co.
PO Box 7790
Madison, Wisconsin 53707

Earl May Seed and Nursery Co.
205 Elm St. Shenandoah, Iowa 51603

Planting

The fertilizer mix described earlier should be spread evenly in the trench for the length of the row, then twisted in with a digging fork. If you have compost available, spread it a few inches deep on top of the fertilizer mix, and twist it in. Spread potatoes out along the row, with the sprouts pointed up; most varieties should be placed 12 to 15 inches apart, but smaller "finger" varieties (such as Ruby Crescent and Rose Fir) can be planted 9 to 12 inches apart. Each seed potato should then be covered with three to four inches of compost-soil mix.

Compost is especially valuable at this stage of the growth process because of its ability to hold moisture. Integrated pest management techniques (described in IPM for Potatoes, University of California, 1986) strongly suggest avoiding irrigation between planting and sprout emergence. This has been found to reduce a variety of potato diseases, and to noticeably increase crop yield. Thus it's a good idea to fully irrigate a few days before planting, and to retain soil moisture as long as possible through the use of compost or other mulch. However, don't carry this too far; if the soil feels dry a few inches down, it's time to irrigate.

Irrigation

The variety trial was watered with high-quality Gardena sprinklers (about $12.00 each), which evenly and gently spread the water. Getting all the vegetation wet on a potato plant is not particularly desirable, but sprinklers use less water than furrow irrigation, and are one of the few practical ways of watering on 'a large scale. People I talked to who had tried drip systems found them unsatisfactory; they not only tended to clog, but also resulted in small yields of tubers too close to the surface. A more recent innovation, known as "leaky pipe" (actually a porous hose which can be placed above or below ground) may hold more promise. If you try this product, be sure to deliver enough water to adequately moisten your rows; you may need three lengths of "pipe" for every two rows.

Many potato diseases, especially late blight (which is nearly inevitable in a moist coastal climate) thrive in wet conditions. Thus successful potato culture is much more difficult in areas with heavy fog. If you overhead water, it is best to irrigate close to midday, when it is warmest and driest. The leaves will have time to dry, and water will not be standing by the time the cooler, moister evening arrives.

It works well to set your sprinklers up off the ground (e.g., on an overturned five-gallon pot) to help distribute the water. Use enough sprinklers to fully cover the area, and water deeply (1 1/2 to 2 inches), which from a typical Gardena sprinkler will take about 2 1/2 hours. You can set some paper cups on the ground the first few times to measure the amount of water delivered.
Check the soil regularly to determine when to water; when it feels dry a few inches down, and you begin to notice slight wilting on a few plants (even in the morning), it is probably time to water. In the summer of 1987, with typical coastal warm days and cool evenings, I irrigated about every seven to nine days. Take care not to let the plants dry out too much. This is especially important the second month, when the plants are initiating tubers underground. Overly dry conditions at this stage will definitely reduce your yield because plants will initiate fewer tubers.

Another good idea is to feed the plants fish emulsion through the sprinklers with a siphon injector (about $10.00) during the first couple of irrigations. According to Warren Schultz (1982), potatoes require about 7596 of their nitrogen in the first month, during major vegetative growth, and prior to tuber initiation. Fish emulsion supplies this in a readily available form, and your crop will get a major boost through its use. I used about 48 ounces of emulsion concentrate during each of the first two irrigations (check product label for dilution instructions).

Pest Management

I found two keys to pest management in the variety trial. First, have an extremely vigorous, well-fertilized crop, growing aggressively in proper if not ideal conditions. This can be facilitated by using quality seed, good fertilization, and careful irrigation. Both diseases and insects thrive on weak, sickly plants grown in poor conditions. For instance, although March can be an ideal month to plant potatoes on California's central coast, in a wet year the soggy, saturated ground will prevent strong early growth and encourage disease problems, such as rot or blight. It's better to plant later if necessary to avoid potential setbacks and maintain vigorous growth.

Second, do all that is possible to encourage a diverse, balanced insect community. The presence of a wide variety of plant types, and especially a wide variety of flowering plants, will provide habitat for many beneficial insects. One of the major drawbacks of chemical pest management is that it destroys the natural balances of the insect world, particularly by killing beneficial predators and parasites.

Many of the specific approaches for pest management in potatoes have already been mentioned. These include using quality, undamaged seed, avoiding pre-emergence irrigation, and watering at appropriate intervals, always during the driest part of the day, or using a system such as leaky pipe that does not wet the vegetation.

Hilling up is another crucial aspect of potato pest management. As the plants grow (many in my trial were nearly chest high), use the soil piled by the sides of the trenches to hill up. Simply push the soil toward the base of the plants, where the potatoes will form at about the same depth as you planted your seed. This is best done early in the day, when the plants are standing very straight. You can begin hilling up early in the growth of the crop, even when the plants are only six inches tall--just don't cover the very top leaves. Continue hilling up until all the excess

soil is used, and one high ridge covering the developing tubers has replaced the two ridges that formerly ran down each side of the row.

The practice of hilling up protects the potatoes in a number of ways. First, it will keep out light, which will turn your potato skins green and toxic. Also, spores of various diseases, which may be present on the leaves, will be harmlessly washed off onto the ground, where most will die, unable to come into contact with the tubers. Late blight is a very common disease that can be minimized this way. Late blight generally appears as brownish splotches on the leaves, especially between the veins, and as it spreads the leaves will brown, curl, disintegrate, and drop off: Prior to hilling up, cut off any infested leaves with a razor blade, and remove from the plot. After removal, hill up as normal, and you will reduce the spread of the disease, which unchecked could spread throughout your plot. I found this practice to be quite successful in my trial, and the blight which appeared never spread dramatically.

Although a variety of both weeds and insects appeared in my plot, neither ever caused significant problems. It is advisable to weed the area a few times early in the growth of the crop to reduce weed competition (especially if you use fish emulsion). Thereafter, the potato plants should be large and vigorous enough to inhibit most competitors. Snails were a slight problem during the trial, but they congregated under a few boards laid between rows, and were easily removed.

In growing potatoes without chemical controls, it is crucial to move your crop each year to prevent disease buildup. A potato plot should not be used for potatoes again for at least two years, and preferably four or five, although the experts still differ on this issue. In any case, a variety of crops in rotation between potato crops will help reduce disease buildup.

Gophers love potato plants and tubers; watch carefully for their small; U-shaped piles of freshly turned earth, which will lead you to a small tunnel underneath. McAbee wire snap traps are a very effective control method, and although trapping takes some practice, it is well worth the effort. To use the snap traps, follow the small tunnels until you locate main runs, usually about six inches in diameter, which will be amply wide enough to house the trap without obstruction. Rub an onion or other strong-smelling plant on the traps to hide your smell, and put two traps in the main runs, facing in opposite directions. Attach them to a stake so that a trapped gopher cannot pull them deep underground. Cover with a board and fill in with vegetation and soil to exclude all light. Trapping is -preferred over poisons, which are dangerous to other animals, and over repellant plants, which seem to work only part of the time.

A small plot will usually have only one or two gophers active in it, but when you eliminate one, it is often quickly replaced. Gophers are territorial, and usually cover their entire run daily. Thus if you have no action at a trap after about 36 hours, you can be pretty sure that you put the trap in a now-unused portion of the run. Be sure that you're placing the trap in main runs, and not in the narrow side runs.

Harvesting and Storage

It is advisable (and enjoyable!) to dig up a portion of your potato crop at intervals during the season. This will tell you a lot about their progress and about soil conditions underground, will familiarize you with the stages in their evolution, and will provide you with some delicious new potatoes. I did trial digs at two months and three months, before the main harvest at just under four months.

Be aware of the approximate growing season of each variety that you grow. The vegetation of some varieties can be allowed to die back naturally, but for many types this practice may result in highly oversized tubers. When a test digging indicates that a variety is at the size you prefer for harvest, it is time to prepare the potatoes for storage. The goal of this process is to cure and thicken the skin, and to slow the respiration of the tubers by closing the lenticels (the breathing openings on the potato skin). Most varieties, when cured properly, will store for months. New, uncured potatoes, with their delightfully thin skins, will not keep, but are delicious if eaten soon after harvesting.

To begin curing the potatoes, give them a last complete watering. A day or two later, cut off all the vines at ground level--they will already very likely show signs of aging and decay. Remove the vines from the field, and let the potatoes begin curing. Removing the vines reduces the chance that spores or infection on the leaves will come in contact with the tubers; disease-causing organisms will generally dry out and die on the now-exposed soil surface.

Test dig some potatoes eight to ten days after you remove the vines; the skins should be quite tough by then. If not, give them a few more days.

Before digging the main crop, you may wish to irrigate again, to make digging easier and to break up clods that can skin or bruise the tubers. Dig the potatoes when the soil is workable a few days later. Digging is easiest with two people; one carefully and gently turns over the soil with a fork or spade, while the other grabs the exposed potatoes and lays them to the side.

Do not attempt to store potatoes that have been seriously damaged; they will invite disease that might spread to other potatoes in storage. Instead, eat them right away. Put the undamaged potatoes in a flat or cardboard box, one layer deep, allowing them plenty of air space for a few days. After that, they can be packed more densely in boxes.

Potatoes store test in a cool, moist (not wet) environment, with reasonable air movement and very little light. A temperature in the forties (and even a little cooler for seed potatoes) is optimal. These exact conditions may be difficult to achieve with low technology, but the cool temperatures of the late fall and early winter on the California coast will suffice. Keep the potatoes in ventilated boxes, out of the light, in a cool and moist sheltered area such as a porch or basement. You should have delicious spuds for the holidays, and some little survivors for next year's seed.

Summary of Research Results

Yield Comparisons: Specialty varieties demonstrated an ability to yield as heavily as commerical varieties under test conditions. Bintje, a waxy yellow specialty potato, was the highest yielder per foot of row. Full size potatoes yielded higher than "finger" varieties, although in my test the fingerling Ruby Crescent yielded quite well. Home gardeners should find that most specialty varieties can yield as much as commercial varieties.

Seed Type Comparisons: There were clear differences between production from various seed types. Both sets and spud buds produced smaller, less prolific plants than did whole seed. The sets seemed especially prone to gopher damage. The Red Pontiac spud bud yield was only a little more than half the yield of Red Pontiac seed potato.

Different Planting Dates: Two varieties were planted on different dates to test comparative yields. One, Red Pontiac, yielded identically (3.8 lbs. per foot of row planted), even though the second group was planted three weeks later, and harvested at the same time. The later planting off Ruby Crescent (the other variety planted on different dates) produced a slightly lower yield, probably because it is a slow-maturing variety, and was in the ground three weeks less than the early planting. A sample planting of Sangre planted in mid June yielded very well, despite being in the ground for only 95 days.

1987 Variety Trial Yield Data (yield expressed in pounds per foot of row)

Variety	Yield	Variety	Yield
Commercial		*Specialty*	
Russet Burbank	4.2	Bintje	4.3
Red Pontiac Seed	3.8	Green Mountain	2.4
White Rose	2.9	Ruby Crescent	2.3
Red Pontiac Spud Bud	2.3	Rose Fir	1.2
*Sample Planting**			
Sangre	2.8		
Irish Cobbler	2.0		
Russet Centennial	1.7		
Peruvian Blue	1.3		

*Not enough seed to plant 40-foot rows

Variety Descriptions

Commercial Varieties

Red Pontiac: A red boiling potato, common in gardens and grown for the fresh market. It is an excellent yielder, and will grow very large potatoes if left unchecked. Spud buds, a Park Seed innovation, did not yield as well as the whole potatoes, but did create a nice harvest of very uniform small potatoes. A good choice for red potato fans.

Russet Burbank: The most common commercial potato, with a brown, russeted skin. The standard baking potato, it is reputed to store well, and is used for fresh market and chipping. It matures late (120-140 days), although it was first to flower in this trial. It yielded very well for me, but seemed especially susceptible to disease. Some soft rot occurred in the ground, causing a smelly mush as entire tubers would rot away. It was also prone to storage disease, probably from black leg. Russet Burbank was also the only variety to show clear signs of regrowth, where a potato begins to close off (because the soil gets too dry), and then begins expanding again. I don't recommend this variety for the home gardener, partially because it is so readily available and cheap.

Russet Centennial: Similar in flavor to Russet Burbank, with the same heavy skin. Mine weren't in the ground long enough to fully develop, but appeared to be a moderate yielder. If you want a russet, I would recommend this variety over Burbanks.
White Rose: An early-to-medium white (100-120 days), by far the most commonly grown variety in California. It is considered heat tolerant, and stores moderately well. This is a commonly used frying potato. It yielded quite well in the trial, with large tubers that tended to become oversized; one giant weighed over 2 1/4 pounds. Be sure to test dig so that you can do vine kill at the desired size. Good flavor.

Specialty Varieties

Bintje: Beautiful waxy yellow skin, buttery yellow flesh, great for baking or steaming. Bintje is coarse textured and unique in flavor. The most commonly grown potato in Holland and Brazil, it was introduced to the US in 1910. Considered disease resistant, it grew very tall, aggressive plants in the trial. A great yielder--pull vines unless you want huge potatoes. Highly recommended.
Green Mountain: A very early, white-fleshed variety, known for its reliable yields when other varieties fail. It yielded a good quantity of large, round potatoes. Pleasant flavor and texture.

Ruby Crescent: A large finger variety, with a beautiful, shiny, deep pinkish-orange skin and yellow flesh. It is great either steamed, baked, or fried, and was definitely one of the most popular in an informal taste test. It yielded very well for a finger variety, and kept well. Keep extra soil on hand to hill up, as the tubers form very close to.the surface. Highly recommended.

Rose Fir: An interesting little finger potato, cream colored with a unique nutty flavor. It was introduced to Santa Cruz by Alan Chadwick in the late 1960s, and is versatile, disease resistant, and a gourmet's delight. Yield was low, but this is a true heirloom variety, worth growing. Plant them close together, and leave them in the ground for at least four months. Recommended, if you can find the seed.

Sangre. An interesting red potato; good yielder, very uniform in size. Sangre is a very early potato, and gave impressive yields in only 95 days. It kept well, and has a very unique flavor and texture--very firm and sweet, like a tropical fruit. Highly recommended.

Irish Cobbler: A supposedly high-yielding, very early white. I planted this variety in sets, which did not do very well, and as for flavor, you'll have to ask the gophers.

Peruvian Blue: These came to me at the last moment from a fellow student; they were very small for seed potatoes, and were planted quite late. However, they did very well, grew extremely tall and long-lived plants, and seemed impervious to disease or pests. Their roots were very aggressive; I kept finding tiny blue potatoes in other rows. They formed tubers very late, and would probably have yielded quite well if given six months in the ground. The flesh was a bright lavender, and the texture when cooked was similar to that of a cooked pinto bean. With a flavor a

little like that of corn, they are truly a product of the Americas. They would be highly recommended, but seed may be difficult to find. All Blue are similar, and are available commercially.

Acknowledgements

I would like to give very special thanks to Orin Martin of the UCSC Agroecology Program Garden, who was a major inspiration for this project, and who generously supplied seed, equipment, labor, advice, and encouragement. Jan Allison, research coordinator for the Agroecology Program, helped greatly with getting this project started, and with editing and suggestions for this paper. Martha Brown, the Program's publications coordinator, was also very helpful in producing this paper. Many thanks also to Stephen Gliessman, Agroecology Program director, who sponsored the project, and to others at the Farm, especially Olivia Boyce Abel (horticulturist) and Jim Nelson (Farm manager), who were very generous with their time, advice, compost, manure, and garden space. It seemed like I was constantly cornering someone with questions about gopher control, weed or disease identification, or irrigation or harvesting techniques--this paper owes much to their collective knowledge.

Bibliography and Sources

Jeavons, John. How to Grow More Vegetables. Berkeley, CA: Ten Speed Press. 1974.

Kahn, E.J., Jr. The Staffs of Life. New Yorker, November 12, 1984.

Rhoades, Robert E. The Incredible Potato. National Geographic, May 1982.

Schultz, Warren J. Great Taste in Potatoes. Organic Gardening, June 1982.

Seymour, John. The Self Sufficient Gardener. New York: Dolphin Books. 1980.

Sunset Book Editors. New Western Garden Book. Menlo Park, CA: Lane Publishing Co. 1979.

Western Regional IPM Project. IPM for Potatoes. Berkeley, CA: University of California. 1986.

Zamula, Evelyn. Potatoes: Delicious, Nutritious, Almost Fat Free. FDA Consumer. Washington, DC: Government Printing Office. March 1984.

Augmented by innumerable interviews with gardeners, farmers, teachers, and agricultural agents, and by a variety of material from California Agricultural Extension.