

GROW GOOD FOOD

BY

PAUL REVERE LADD, JR.

Acknowledgements:

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Grow a Garden and be Self-Sufficient
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TO EVA MARIA

A garden, with her, became paradise.



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PREFACE

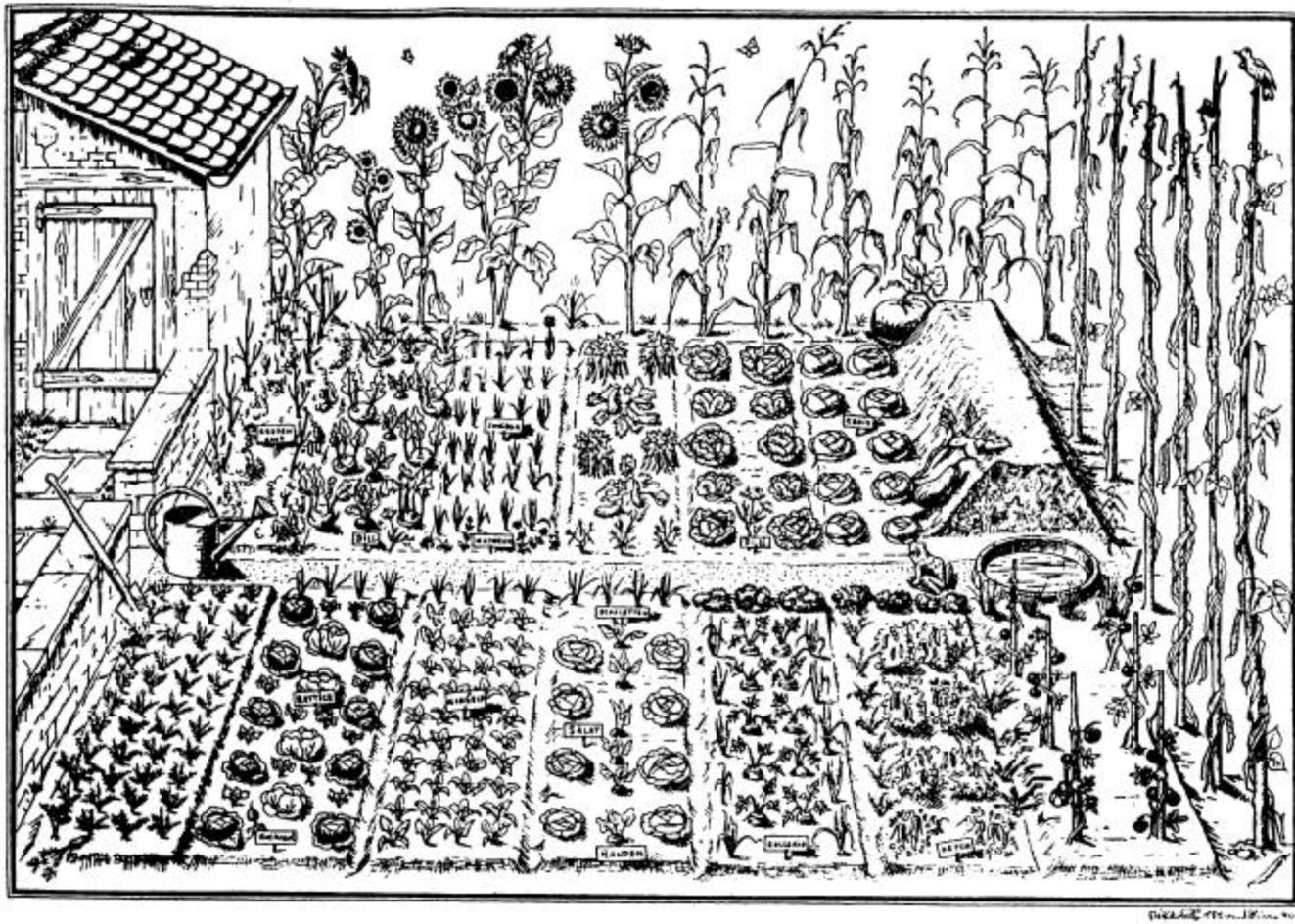
For over fifty years we have grown most of our own food. This is the story of how we do it. The book is highly personal. It does not give an account of every possibility. Rather, it makes recommendations based on our experience.

My earliest remembered dream is of walking through a garden. I know now that this garden was the primordial paradise. Later, Eva entered the picture. We decided to grow our own food. After our marriage in a Quaker ceremony (eventually followed by ten children and twenty-five grandchildren) a Jewish friend told us to get a statue of St. Fiachra, the Irish patron saint of gardeners, to subscribe to The Catholic Worker which advocated self sufficient farming and gardening, and to write to the National Catholic Rural Life Conference for practical information, all of which we did.



The National Catholic Rural Life Conference sent us an Anthroposophic Bio-Dynamic publication entitled Grow a Garden and be Self-Sufficient by Ehrenfried Pfeiffer and Erika Riese. (The Swiss edition, I learned recently, is charmingly entitled The Delightful Vegetable Garden.) In that book was this picture, which by good fortune, became our model.

Shown here are traditional ways of doing things, tested through many hundreds of years of experience, practical, productive, efficient, little known in America. These will be discussed in detail on the pages that follow.



WHY GROW FOOD?

Growing your own food saves thousands of dollars. Delving in the soil, working in fresh air, wind, rain and sun, creating a little paradise, is more fun than getting a second job to pay for food from the supermarket. Wholesome fresh food and wholesome exercise are a recipe for good health.

The proverbial German pun "Mann ist was er isst" (Man is what he eats) is of course an incomplete description in addition to being politically incorrect, but it contains truth. A good-looking, healthy body requires good food, food that contains, in the right quantities, everything that the body needs, without adulterants, without poisons. Healthy people, healthy animals, require healthy plants grown on healthy soil.

Trees delve into the subsoil where nutrients from the surface may have leached. Tree roots penetrate crevices in bedrock, and with the assistance of mycorrhizal organisms, extract the trace minerals needed by all protoplasm. The fruits and seeds and foliage of trees should be important links in our food chain. Deep-rooted hay and pasture plants like alfalfa can nourish animals better than shallow rooted grasses grown in depleted or incompletely fertilized soils. Shallow-rooted vegetables and small fruits should be in soil to which organic nutrients, including leaves, are returned or added.

When organic materials are added to garden soil, earthworms magically appear. These wonderful animals burrow deep during the day, selecting and eating nutrient rich particles of soil. At night (as "night crawlers") they return to the surface, eat dead vegetation such as leaves, and in their digestive systems soil particles and dead vegetation are ground together, to produce, in

their "castings", the perfect plant food. Earthworms can produce two to four tons of castings per year in an acre of land. Many species of ants do comparable work, bringing nutrient rich materials from the subsoil to the surface layers. Ordinary "NPK" fertilizers, containing nitrogen, phosphorus and potassium, lack other elements needed for good health. And, at the rates with which they are frequently applied, they kill earthworms. Earthworms with an organic mulch for food will burrow to great depths, aerate, and make friable, hard clay soils.

It matters very much what happens to food before we eat it. Food should be as fresh as possible. This means more essential vitamins such as C, not to mention better taste. Processing should be minimal to save vitamins and minerals. For example, eat an apple, with its vitamin-rich skin, instead of apple pie, which is rich in refined sugar, white flour and saturated fats. Plus, crispness is good for your teeth. Wholeness is important. Eat whole grains, the vitamin-rich skins of most fruits including tomatoes, the skins and roasted seeds of winter squash. Unless you produce your own food, it is likely to contain additives and pesticides, fungicides, herbicides, bactericides, preservatives, cosmetic applications like wax, or whatever will give it long shelf life and good appearance.

MAKING A GARDEN

The ideal garden is close to the kitchen, has sun most of the day, and is slightly inclined toward the south or southeast. The soil should be deep, rich in organic matter, and well drained. We have never had such a combination of good qualities. Our onetime Vermont neighbor Scott Nearing grew a famous kitchen garden on a steep slope with terrace walls of stone and concrete. An Italian friend, as a young man, bought a steep, rocky hillside for a very low price, built terrace walls with the rocks, filled behind the walls with mud dredged from a pond and from roadside ditches, planted grapes, and created family prosperity.

Almost any soil can be made productive. If the only available place is wet, drainage ditches may be dug around it. Perforated drainage pipes can be laid under it. Both of these practices are commonplace in Europe. Sandy or gravelly soils must be watered. A nearby hose connection is a necessity. Wet, clayey soils and sandy soils can both be redeemed, made friable and absorbent by adding organic matter. Wood chips, sawdust, and leaves are very helpful, but if vegetables are to be grown right away, their application must be accompanied by a source of nitrogen, such as manure. There is a common belief that oak leaves, especially, and wood chips create an acid soil. Research at the University of Vermont indicates that the effect is short term, and that the long-term benefits are very great.

An elegant, widely publicized way of preparing garden soil is called double digging: digging a trench a foot deep at one side of the garden, setting aside the soil, loosening the subsoil with a spading fork, filling the first trench with material from a second, adjacent trench, loosening the subsoil under it, filling the second trench with material from a third, and so on, and finally

transferring the soil from the first trench to the last, may give you a more friable earth. Results should be better if compost is spread at the bottom of each trench before filling it. Twenty years ago a garden writer told his readers that I double dig my garden twice every year. I don't. Some years ago I did double dig an area four feet by twenty-five feet. That area has never since been as productive as the rest of the garden. My explanation is that the extremely complex ecology of the top few inches of soil was disturbed.

With time, patience, and a rototiller, we recently converted a newly cleared area into a perfect garden spot. Friends in the lawn care business dumped leaves a foot or two deep over the whole area. Earthworms in abundance and decay organisms did their work. A year and a half later, in the spring, cow manure was spread, followed by ground limestone, and the whole tilled in. Buckwheat was sown thickly, tilled in late summer, and followed by winter rye mixed with hairy vetch. The following spring these crops were tilled in. Presto! Perfect garden soil.

One of the best bits of advice I can give the beginning gardener is to start small, and do it well. I have known countless well-intentioned people who plowed up a quarter acre, enthusiastically planted, and two months later, confronted by a sea of weeds five feet tall, gave up gardening forever. Begin with two or three tomato plants, a pepper plant, a few short rows of carrots and spinach and lettuce. Hoe between the rows, pull the weeds, admire your handiwork, and enjoy the harvest. Then, if you will, grow more the next year.

Are you determined to plant a modest, but larger area? Our priorities for a garden of modest size are peas, spinach, lettuce, carrots, and Chinese cabbage planted early, typically in April,

beans and tomatoes after danger of frost in May. Onion aficionados may want to plant a pound of small onions called "sets". Get the Stuttgart variety, and plant four or five inches apart for big onions. A cabbage of the small Early Jersey Wakefield type occupies a bit more than a square foot of space. Ditto for a pepper plant. Potatoes are cheap. Wait until you have enlarged the garden. Don't plant cucumbers, melons, zucchini or winter squash in a small area. They will take over much of the garden. Winter squash vines, in mid summer, grow a foot a day. Corn will tempt you. Is an ear per square foot worth the space?

Do you want to grow all the vegetables for a family of four? Are you prepared to put in a lot of time until you have learned to be efficient? Try to get a space of 2,500 or so square feet, look at all the pictures and mouth-watering descriptions in the seed catalog, order what you want to try, and continue to read this book.

GARDENING WITH A BED SYSTEM



The bed system is the norm in Europe and in the Orient. The idea is to have paths about four feet apart (the length of a hoe handle), and to cram as much food production as possible into the beds between. Using this system, we produce five or six times as much food in a given space as is the rule in American agriculture.

Without treading between individual rows, there is less soil compaction, and therefore better aeration and drainage, and it is easier to pull root crops out of soil that remains friable.

With paths four feet apart, one can reach everywhere in the beds for planting, weeding, harvesting and planting new crops alongside those that will be harvested early. Close inter-planting shades the earth. This is good for the earth, and there is less weed growth.

Another very important advantage of the bed system is psychological. It is easy to go out after work or after supper and weed one bed. To see a garden in the process of becoming a continuous homogeneous chaos of weeds and overripe zucchini is paralyzing.



Beds in Grindelwald, Switzerland



Grindelwald, Switzerland



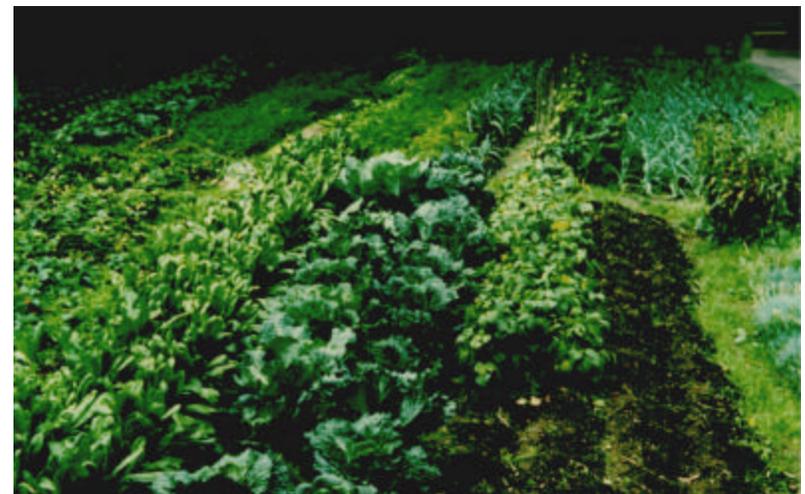
Wengen, Switzerland.
Tomatoes wrapped in
anticipation of frost.



Lauterbrunnen, Switzerland



Sable sur Sarthe, France



Soissons, France



Near Larochette, Luxembourg

A word about raised beds. If you have heavy clay soil not yet mellowed by the incorporation of organic matter, if you live in an area with a great deal of rainfall, raised beds may be justified. They require a lot of work. If you have a well-drained sandy or gravelly soil not yet made spongy by the incorporation of organic matter, or if you live in a low rainfall area without the possibility of abundant irrigation, don't waste your time making raised beds. They will dry out. Another factor: sloping edges of raised beds reduce the area available for food production. Planting in a 45-degree inclination doesn't work in practice. Boxed beds look nice, but in addition to the time needed to build and fill them, composting, manuring, and spading individual beds is painstaking hand labor. We have never had the luxury of endless time to spend in the garden, and for efficiency's sake I gave up the making of raised beds long ago. We spread compost, manure, and lime over the whole garden and rototill it as a whole, with no boxes or bricked paths for obstacles.



Berlin, Germany, in April

FERTILITY

Seaweed is a perfect fertilizer. The sea, and seaweed contain everything living things needed by living things including trace elements that are often absent in soils. Seaweed spread on the garden and tilled in, will not, as you might guess, make the soil too salty. Vegetables fertilized with seaweed are healthier and more resistant to insects and disease.



“Gathering the Seaweed”, painted by Marcus Waterman of Providence, RI in 1864



Block Island, RI a hundred years

MANURE



The next best soil amendment is cow manure, preferably aged a few months. Fresh manure can force vigorous, coarse vegetative growth, but delays blossoming, fruit set and ripening until too late in the season. However, if a soil is already rich in humus, an application of fresh manure will swiftly mellow. Horse manure is often free for the asking. Because the digestive system of the horse is simpler than that of the cow, more weed seeds pass through undigested. Be warned that horse manure means more hoeing later. Ideally manure should be spread in the fall and immediately tilled in to prevent valuable nitrogen-rich ammonia from escaping into the atmosphere.



MINERAL SUPPLIMENTS



Chicken manure, once universally available when everybody had a back yard henhouse, is very strong, rich in nitrogen. Used straight, it can kill plants. If spread in moderate amounts in the fall and tilled in, it is an excellent fertilizer.

Many American soils are low in lime, or calcium, and somewhat acid. In the East, acid rain has become a significant influence. I must admit that I have never made a soil test, or even made a pH measurement, but every few years we buy a quantity of bagged ground limestone, rich in calcium, with the power to neutralize acidity, gently and harmlessly. We spread this with shovels in our garden. Improved plant growth is very apparent.

The Chernobyl disaster and other nuclear misadventures have left us with traces of radioactive strontium 90 in our soils. Plant roots will assimilate this unless adequate amounts of calcium are present. This is an important reason for liming soil.

Wood ashes are rich in potassium, an essential nutrient; they should not be wasted. Spread them in the garden before tilling. New England soils, and many others, are low in phosphorus. Spreading ground phosphate rock makes this important nutrient slowly available over a five to ten year period. We have added it to our soil at such intervals.

COMPOST

Compost making is an art, like the making of cheese, or wine or sauerkraut. The ingredients are kitchen wastes and table scraps, garden wastes and weeds, lawn clippings and leaves, prunings that are not too coarse, and prunings that have been run through a shredder or chipper. For table scraps that contain meat, a dog-proof container is essential. We put such wastes, periodically sprinkled with earth, into a bottomless steel drum (sitting on bare earth) with a removable steel top. Earthworms invariably enter in large numbers and convert the contents into beautiful compost. Other bulky wastes go into compost heaps.

For many years we alternated between the Bio-Dynamic method of compost making which requires purchased inoculants, and the Indore method developed and publicized by Sir Albert Howard. Both methods work well.

To make Indore compost, gather enough organic material to make, all at once, a pile about five feet wide, at least five feet long, and about five feet high. Necessary internal heating requires such dimensions and forbids gradual accumulation. If you don't have enough material, pile it nearby until you do. Have available some nitrogenous material such as manure (chicken manure is especially good), fish waste, blood meal or bone meal, a small quantity of ground limestone or wood ash, and a source of water. A shady spot is best.

Put down a layer, a foot or a foot and a half thick, of coarse organic wastes. Moisten now, and moisten regularly as you continue to build.





Add a thin layer of manure or other nitrogen-rich material. Moisten.



Sprinkle ground limestone or wood ashes.



Sprinkle some earth, any kind of soil will do, to inoculate the pile with microorganisms.



Another layer of organic waste.



Another layer of manure. Moisten.



Lime or wood ashes.



Inoculate with earth. Repeat the sequence until the pile is four to six feet high. Finish with a top covering of earth and trample on the middle to make the top somewhat concave to retain rainfall or added water during a dry spell, one or the other being necessary for proper fermentation.



Down through the middle of the pile, or if it is a long one, every four or five feet, plunge a metal bar or stout pole and wiggle it back and forth, making a hole to admit air to the interior. This favors the desirable aerobic fermentation.



Remember: an Indore compost pile, or a five foot section of a pile, should be built all at once. If it is, it will have an internal temperature of 140 or 150 degrees Fahrenheit within a day or two. This heat, the result of biological activity, destroys weed seeds, disease organisms, and many harmful insects. In a couple of weeks there will be much internal fungal growth, which breaks down tough fibers. A pile built as a gradual accumulation has great value, but will not cook weed seeds, and will decompose more slowly. In either case, decomposition is speeded up if at intervals of a month or two the pile is turned, or rebuilt, with the coarser materials inside. It is important to add moisture during the turning process. The best tool for building or turning a compost pile is a five or six tine manure fork, though a pointed shovel or four-tine spading fork will do.



Bad Homburg, Germany



Narragansett, Rhode Island

A neat way to make compost as a gradual accumulation is to make two side-by-side bins, each three to six feet square and three to five feet high. When one is filled, it ferments while the other is being filled. Regular sprinkling with earth and lime or wood ashes is helpful. Regular watering, if there is no rain, is essential. Discarded pallets make good bins. Scott Nearing and many of his followers made bins of saplings laid Lincoln Log style.



Weisbaden, Germany



If we want compost right away, we run a rototiller over the top of the pile.



Spread thickly in the garden and tilled in, this compost, primarily leaf mold, produces phenomenal crops, especially tomatoes. My impression is, that for some vegetables, it is as good a fertilizer as cow manure.

PREPARATION FOR PLANTING

If an established sod is to be cultivated, it should be plowed or tilled in the fall, and harrowed or tilled again in early spring. Before apple blossom time, manure, compost, and other soil amendments should be spread, and the garden given a final tilling before planting.

Tillers can be rented, and there are entrepreneurs who do custom plowing and custom tilling. (Though the last one we engaged plowed our neighbor's yard before he was reminded of his mistake!) If you buy a tiller, get a rear tine model with an eight or ten horsepower engine. Little forward tine models are not as good as a sharp hoe, and a lot noisier.



LAYING OUT BEDS

We make a furrow with a corner of a garden hoe, directly under a garden line, down the middle of the garden. Children are told, “this is the path - walk here.”



Two, three-foot metal stake with an old fishing reel, complete with a cord, mounted one stake, makes a very practical garden line.



At right angles to the central path, furrows are drawn at intervals of four feet, the length of a hoe handle. These are the paths between beds

PLANTING



To plant, or to replant for a second or third crop, I make, within a defined bed, furrows drawn freehand, a couple of inches deep using the corner of a sharp hoe.



Moving slowly along each furrow, I jiggle an opened seed packet, stepping only in the designated paths, carefully watching the seeds as they emerge. With practice gained from shaking sand out of an old envelope, you can learn to sow at the appropriate rate, typically one to five seeds per inch.



Once the bed is planted, a hoe is drawn as a miniature bulldozer between or alongside the planted rows, and with practice, soil will spill past the edge of the hoe in sufficient quantity to bury the seeds half an inch to an inch deep.



A final, necessary series of steps, toe to heel, on top of each planted row, presses soil firmly against the seed so that germination will begin promptly without waiting for the next rain. The whole process, as illustrated, plants a four foot by twenty-five foot bed in four or five minutes.



INTERCROPPING AND SUCCESSION PLANTING

There are many traditional patterns for getting big production from a small garden. Native Americans did, and still do, inter-plant beans and corn, and corn and squash.

Here is a tradition we have used for many years: Three furrows about a foot apart are made in a bed. Carrot seed is sown.

In the same furrows dill seed, about a foot apart and radish seed, four to six inches apart is, sown. The three furrows are covered with soil about half an inch deep and the soil compressed by walking on it. Midway between the planted rows, two furrows are made. In these, open head or leaf lettuce is sown, the seed covered a half an inch deep, and compressed by footsteps.



Quick-growing, emerging radish seedlings break soil crust, temper the rain and wind, shelter from scorching sunlight and otherwise protect the slowly germinating, delicate carrot seedlings.



In three to five weeks the radishes must be pulled. Left too long, they become woody, and their vigor will overwhelm the carrots. In another week or two, lettuce can be harvested. Once the lettuce is gone (don't let it go to seed), carrot foliage will spread out nicely.



Bad Homburg, Germany

By midsummer, the dill umbels will be aloft to cut for salad, or later for seed, their shade so insignificant that it doesn't effect carrot growth. A number of authors have suggested that dill has a negative effect on carrots. I have planted carrot beds simultaneously in different parts of our garden, with and without dill. I have seen no difference.

This may not be the end of the story. You may pull the carrots in midsummer and replant the bed with a fall crop, like kale, turnip, lettuce or spinach. Or, you may plant a fall crop between carrot rows in July and harvest large carrots in September, permitting the succeeding crop to take over the bed. If the final crop is spinach or kale, it may last all winter and into the spring. Managed in this way, the bed will have produced five crops.

What follows is really the heart of this book:
examples, seen and tried, of intercropping and succession planting.



Butterhead lettuce,
about to be harvested,
with strawberries which
will soon fill the entire bed.

Grindelwald, Switzerland



Lettuce between onions. There is no competition.
Lettuce shades the ground and inhibits weeds.



Summer onions curing in the sun,
followed by spinach for fall and winter use



A good practice is to assign most of the space to long-season crops, and to use fast-growing , early crops as fillers.



Leeks inter-planted with lettuce



Peppers inter-planted with Butterhead lettuce



Peppers with loosehead lettuce



Cabbages with lettuce, including inter-planting in the paths, soon to be removed



Peppers with spinach between



Eggplants with red lettuce between



Cabbage with spinach



Cabbage with early beans



Potatoes with spinach



Potatoes with early peas



Potatoes with early beans



Unstacked tomatoes, mulched. Spinach in the paths.



Spinach being harvested
from the paths

Early corn with beans



Corn with early peas



When hot weather arrives, iceberg lettuce and spinach both do better in partial shade, supplied here by two-row beds of corn.



Between double rows of staked tomatoes, Early Wakefield cabbage, Iceberg lettuce and cauliflower thrive. Without such shelter from summer sun, Iceberg lettuce goes to seed, and cauliflower often refuses to form heads bigger than two inches in diameter. Early broccoli makes bigger heads in such partial shade.



Corn, planted in early May, winter squash planted in mid-June. After corn picking, squash vines occupy the whole area.



Melons, mulched, temporarily flanked by lettuce.



Peas growing on brush, spinach ready for harvest. In June, watermelon seed is planted on either side, at the base of each row of peas.



After spinach harvest and pea picking, watermelon vines climb onto, and have their spread restricted by the brush.



Peas and spring greens
planted in April



Winter squash planted in mid-June will occupy
the whole area, climb, and be restricted by the
brush fences after peas are picked.

FOOD GROWING IN THREE DIMENSIONS

During all of recorded history, pigs have been fattened on acorns in oak forests, and on fallen chestnuts in chestnut groves. Multiple crops in three dimensions are an old idea, little known in America. Traditional agriculture everywhere in Europe produced, simultaneously, food at tree level and at ground level. Some examples we have observed:

Potatoes and beets under apple trees.
Bad Homburg, Germany



Potatoes, wheat in the distance, all under apple trees.
Bad Homburg, Germany



Beets under apple trees,
Bad Homburg, Germany



Corn under apple trees,
Bad Homburg, Germany



Apples with wheat. Bad
Homburg, Germany



Dwarf apples with inter-crops,
Bad Homburg, Germany



Grapes under apples. St. Benoit Sur Loire, France



Currants under apples. St. Benoit Sur Loire, France



St. Benoit Sur Loire, France

The typical European garden has, surrounding it and in it, fruit trees, carefully pruned so their shade is not excessive. Food is produced at more than one level. Sun and wind are tempered.



St. Benoit Sur Loire, France



Detztl, Austria



Bressanone, Italy



A pole eight or ten feet high can produce two or three bushels of beans on a square foot of garden space.



One staked tomato plant, occupying about the same area, can produce half a bushel of fruit, given fertile soil.

Most of America is tropical during the summer months, and partial shade is beneficial to many food crops. Adequate spacing of tall growing plants is very important and requires careful planning. We plant tall and low growing plants in alternate beds.





With sufficient spacing of pole beans, staked tomatoes, fenced peas, fenced cucumbers, and beds of corn, casting shadows that move with the sun, ground-hugging vegetables have always done wonderfully well for us.





Our garden in Wickford, Rhode Island



Our garden in Wakefield, Rhode Island

CARE

WATER: Don't do a little watering. Roots seek water, growing toward it, wherever it is. Soak deeply so the roots will grow down, not toward a drying surface layer. A short sprinkle is worse than no water at all. We have always used a perforated plastic hose the length of a garden bed when irrigation is needed, often leaving the water on overnight.

MULCH: A layer of straw, salt hay, leaves, or lawn clippings can reduce the weed problem, as well as helping to conserve moisture. Hay mulches may contribute weed seeds. To be honest, we rarely mulch. The time needed to mulch between closely spaced plants is something we have never had. And it is true that our kind of intensive planting shades most of the soil, preventing it from drying, and inhibiting weed growth. Probably we should have established a habit of mulching our paths. This would minimize soil compaction and contribute, by decaying, to the organic content of the soil.

Nitrogen supply to roots is temporarily reduced by the multiplication of decay organisms in mulch. Don't mulch heavily unless you know there is adequate nitrogen in the soil. Given adequate nitrogen, tomatoes are more productive when mulched. Another caution: Mulches provide habitat for slugs, a serious problem in some places.

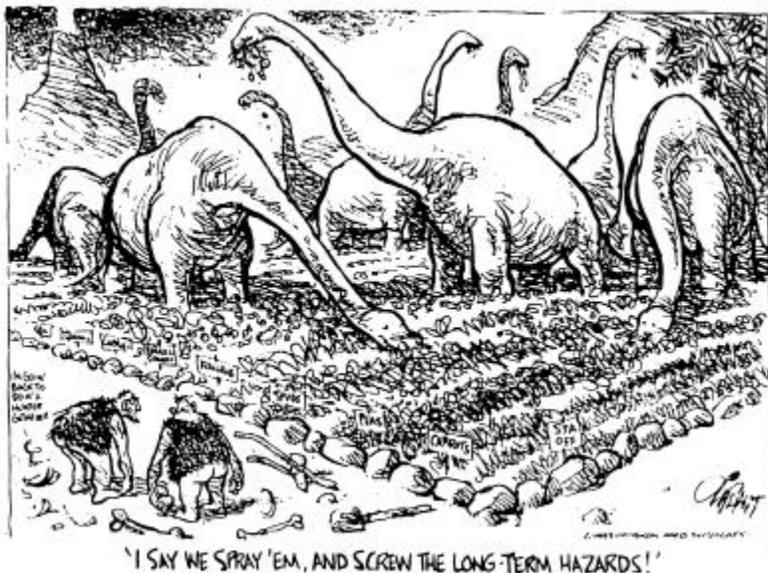
A confession: I have never taken advantage of black plastic mulch, highly effective as a weed control, quite simply because I don't like its looks.



WEEDS: Sharpen the edge of your hoe. When weeds are small they are quickly eliminated by hoeing. When they are tall, it can take days to get rid of them. Hoeing is best done on a bright day, early, so several hours of sunlight will dry and kill displaced weeds. Scraping the surface provides a valuable bonus: a thin layer of loosened soil, capillary action interrupted, becomes a barrier to the evaporation of water.

If you must pull a large weed, press the soil around any adjacent vegetable with the fingers of one hand. Pull the weed slowly and gently at first, shaking it slightly to loosen the grip of its roots. Mature weeds produce millions of seeds. The key to a weed-free garden is preventing weeds from going to seed. There have been a few occasions when we used clippers on head high lambs' quarters. The only remedy for weeds in the planted row is to painstakingly pinch them out.

BUGS AND BEASTS



MEXICAN BEAN BEETLES: Hand picking may work. If it doesn't, you have no choice but to spray or dust with an organic bug killer like rotenone or rotenone-pyrethrum mix. There are questions about toxicity, but these natural substances oxidize quickly into carbon dioxide and water. One year we let a hen have free access to the garden prior to the ripening of tomatoes, and we never saw a bean beetle, or for that matter, any other kind of bug. Several authors recommend planting nasturtiums and dwarf French marigolds near beans to repel beetles. Repeated controlled experiments made by me have demonstrated clearly that beans with these companions had as many bean beetles as beans without such companions.

COLORADO POTATO BEETLES: Absent some years, very bad other years. Rotenone dust or rotenone-pyrethrum spray will kill them. Partial control may be had with a spray containing Bt, San Diego Strain, a disease specific to the soft larval stage. With a small planting of potatoes, hand picking may control the bugs. Drop them into a jar containing alcohol or a strong detergent solution. Keep watch over your eggplants. Potato beetles like them.

Many years ago, while we were grading apples, Everett Harwood of Bennington, Vermont told me the following story: "During the great blizzard of 1888, a door-to-door salesman knocked on the kitchen door. After being given a chair by the stove and a cup of coffee, he made his sales pitch and made one sale, a product labeled "A Death To Potato Bugs, Price One Dollar, Results Guaranteed or Your Money Back, Do Not Open Until Ready to Use". When potato bugs appeared the following summer, the package was opened. It contained three items: a little wooden block, a little wooden mallet and an instruction sheet..."

IMPORTED CABBAGEWORM: Easily controlled by a once-a-summer spraying or sprinkling with Bt, *Bacillum Thuringiensis* to use correct Latin rather than "New Latin".

CORN EAR WORMS: Also easily controlled with Bt applied to the silk as the ears are maturing, with an oil can, or with a pinch of the powdered form. We grow Early Sunglow and Seneca Chief corn, both of which are only slightly affected by this pest.

EUROPEAN CORN BORER: After harvest, till affected plants into the soil.

CUTWORMS: May clip many transplants. Often the villains may be found buried an inch or so in the soil near the cut plants. Surround the stems of your replacements with cylinders made of three by five index cards pressed an inch into the soil.

HTEFLIES: Out of control , these can devastate tomato plants. As soon you see the tiny white insects on, and flying around, foliage, spray with Safer's Insecticidal Soap. It is cheap, effective, and absolutely nonpoisonous.

BIRDS: Birds like strawberries, and are best excluded with floating row covers such as Reemay. We have solved the problem by growing enough strawberries to feed the birds and our family.

CROWS: Despite many creative efforts, we have not found scarecrows to be effective.



On a small scale, the first corn plantings may be saved by covering each hill with an inverted plastic container, or a milk jug with the bottom cut off. Later in the season, birds and squirrels may dig under the caps. When this has happened, I have replanted with seed covered with Stanley Crow Repellent. It works. Other brands don't. Perhaps the best insurance is covering the beds with Reemay until the corn is six inches high.



WOODCHUCKS AND RABBITS: Can usually be excluded with a four foot fence of heavyweight chicken wire or the equivalent, with the bottom ten inches buried. Electric fences are effective, but diligent mowing and weeding around and under them are required to prevent the electric charges from leaking to the ground.

Woodchuck burrows can be "bombed" with firecracker-like smoke cartridges sold in farm supply stores, but they are tricky to use and not always effective. I have had excellent success with a six foot length of flexible steel automotive tail pipe. I fit one end over the exhaust pipe of a lawn tractor, insert the other end into the woodchuck hole, and run the engine for a couple of minutes. Carbon monoxide causes no pain.



Another way to keep out rabbits and woodchucks.
Helen Nearing's garden in Harborside, Maine

RACCOONS: If you are visited by these corn lovers, there is probably no remedy other than an electric fence.

SQUIRRELS: These animals also love corn. An electric fence of the New Zealand "woven" type may work, if there are no overhanging branches.

DEER: I have read in books that deer won't eat tomato plants. The deer have not read these books. Hungry deer now eat Christmas wreaths off front doors.

So far our four foot high chicken wire fence has protected us. Some people rely on a high, bright orange electric fence.

Two writers to different gardening magazines have said that deer will not jump over two parallel four-foot fences four feet apart.

Eliot Coleman has found that a dark nylon mesh fence draped on surrounding brush intimidates deer. Two people have both recommended a light colored electrified strand 'four feet above the ground with bits of peanut butter applied at intervals. Deer, it seems, are irresistibly attracted to lick the peanut butter, and, having done it once, they don't come back.

SLUGS AND SNAILS: We have been fortunate. I have never seen a land snail, and we have never been seriously bothered by slugs. The usual recommendations are to leave saucers of beer in the garden. Slugs are attracted and drown in the beer. Scraps of lumber, left here and there, provide daylight shelter for slugs. Inspect regularly and drop the creatures into a jar filled with alcohol. Should we have a serious slug invasion, I would try dusting the affected area with rotenone, reputedly lethal to invertebrates.

WHAT TO DO EACH MONTH

JANUARY: Order seeds. Put the packets in alphabetical order in a shallow tray or box.

FEBRUARY: Start seedlings. **Spanish onions** such as **Utah Valencia**, to be transplanted as early as the garden can be prepared will produce enormous bulbs by fall. (Unfortunately they are not good keepers.) **Pixie tomatoes** sown indoors in February and transplanted in early May have ripened fruit in late June, earlier than twenty nine other varieties I have tested. **Celeriac** has become one of our favorite vegetables, used sparingly in marvelous soups. We start our own plants because in America no one sells them. Very slow to germinate, transplant almost anytime for late fall harvest. No pests. **Early peppers** are best started in February, as are **leeks**.

We sow in shallow boxes filled with garden soil, keep these in the cellar near the furnace where there is a constant temperature of 70 until germination and then, promptly, move them to our solar porch where temperatures fluctuate between 55 and 80.

MARCH: Prepare the garden. Apply compost, manure, seaweed if you can get it, and lime. Till in promptly. We sow **Dwarf White Sugar**, the earliest of the "snow" or **edible podded peas** along the fence at one end of the garden. Main crop **tomatoes, pepper, eggplants, celery, early cabbage, broccoli, and cauliflower** can be started indoors.

APRIL: Mark garden paths and beds with a stretched cord and a corner of your hoe. Plant: **Garden cress**. Delicate, pungent, ready in ten days. **Mustard**. Almost as quick. We like the oriental red kinds. Add the leaves to ham or cheese

sandwiches. **Radish. Early Scarlet Globe** and **White Icicle** are ready in three weeks. Lettuce: **Oakleaf** is the earliest. **Buttercrunch** is our reliable favorite for quality. **Green Ice** has high quality at any time A of the year. Thinnings are available in three weeks. Spinach: We like **Tyee** and **Melody**. Thinnings are ready in three weeks. **Onion seedlings** can be transplanted. **Spanish onions** become huge if set six inches apart. Close planting will yield small onions for early use.



The most practical onion for home gardens is **Stuttga**, sold as "sets". Unlike onions planted as seeds, these grow faster than weeds. Set them four or five inches apart, an inch deep. They mature in midsummer, may be followed by another crop, and they keep well all winter.

Scallions or **Japanese Bunching Onions** are worthwhile for a steady supply of fresh onion greens. Sown at an untilled edge of the garden, they will continue producing for years, and they are available during the winter. They transplant beautifully at any time, and can be put in a pot in a window. **Parsley** may be planted as early as the garden can be worked. Very hardy, usually over winters. Very slow to germinate. **Parsnips** need early planting if the roots are to become large.





A hilling attachment saves a lot of hoeing and weeding

Peas. The earlier they are planted the better, in quality and quantity. For more than fifty years, our earliest picking and eating has been **Dwarf White Sugar**, an edible podded or "snow" pea. Our favorite main crop variety, grown on the fence that edges our garden, is **Mayfair Telephone**, alias **Alderman**, peas grow six to eight feet high on brush, nylon netting, or bamboo. They are impressively productive, easy to pick and shell, and of very high quality.

Beans and corn. In mid-April we plant a bed with two rows of **Early Sunglow** corn and a row of **Provider** beans between the rows. Most years we get early harvests. In case of frost, small seedlings can be covered. A Vermont neighbor, anticipating frost, would hoe earth over each seedling, and when the danger was past, remove the earth by running a rake along each. After a killing frost, we have replanted, having gambled and lost some seed.

EARLY MAY: Frosts are uncertain in May. Whether you do things early or late in the month should depend on local experience. **Beans**, which are frost sensitive, should be chanced. **Provider**, mentioned above, is a good choice for early picking. We grow **Kentucky Wonder** and **Romano** on ten-foot poles, five or six seeds to a pole, for enormous crops. **Scarlet Runner** beans on poles or sown along the fence at one side of the garden are very beautiful, attract hummingbirds, are immune to most insects and diseases, and produce delicious dry beans at the end of the season. **Corn**, also frost sensitive, is worth chancing. We make plantings every ten days or so of **Early Sunglow** and **Seneca Chief**. We prefer these to the high sugar types, but unlike the high sugar types, they must be eaten immediately after picking to avoid loss of quality.

One old rule is, "get the water boiling, pick the corn, and run, don't walk to the kitchen." **Carrots** can safely be planted. We like the cylindrical **Nantes** types. The shorter, conical **Chantenay** is better in clayey soil. **Cabbage** and its relatives, early **Broccoli**, early **Cauliflower**, and **Brussels Sprouts**, should be sown in a special, temporary seed bed for later transplanting, or sown in the planned locations with a pinch of seeds every foot and a half or two feet, to be thinned later. For summer use we like **Early Jersey Wakefield** cabbage. Sam Ogden, an excellent Vermont gardener, used nothing else for successive sowings until August, and, from his final sowing, winter keeping. Best quality, fast growth, disease resistant. **Bravo** cabbage has proved to be the most disease free, reliably heading winter keeper for us **Beets**. **Detroit Dark Red** for summer use. **Winter Keeper** for fool proof, large, sweet, most delicious roots for winter storage, or for that matter for eating at any time. Thinnings make good greens. **Celery**. Set out transplants.

MID OR LATE MAY:

Cucumbers. Ideally trained on an inclined fence of netting, but they will produce on the ground, occupying a bed about eight feet wide. They do especially well planted at the edge of a compost pile. Be sure to try some of the slender, early oriental types. **Summer squash.** Plant four or five seeds in a hill, spacing hills four or five feet apart. Don't plant too many. There is a limit to how many zucchinis your neighbors will accept.



Tomatoes. We usually set two rows of eight-foot stakes two feet apart in a four foot bed. Holes for the stakes are punched with a five foot steel crowbar.

Firm the soil around each transplant with two thumbs and two forefingers equally spaced an inch and a half from the stems, thus avoiding damage to the roots. If done properly, this leaves a cuplike depression to catch and hold water. Give each plant a cup of water, or, better, a tea made of rotted cow manure and water. If your plants are taller than twelve inches, bury, horizontally, all but the top few inches. Buried stems will quickly sprout roots and give you vigorous growth.

Staking produces earlier and better fruit, as well as more fruit per square foot. Regular pruning and tying are required. At the base of each tomato leaf a "sucker", potentially a new stem, will grow. Each must be pinched off or bent back and forth until it breaks off. Prune to one or two stems per plant and tie stems to stakes every foot or two. We use discarded binder twine cut into eight inch lengths. By September, in fertile soil, the plants will have grown to the tops of eight foot stakes, and they will continue setting fruit until frost. Our preferred main crop tomatoes are **Big Boy** and **Better Boy**. One plant bearing small fruit, like **Super Sweet 100**, is fun for the children. At the ends of two beds, tied to the same stakes as main crop tomatoes, I always set two plants of **Pixie** and two of **Early Girl** for first fruits.

Peppers should be set out at the end of May or the beginning of June, a foot and a half or two feet apart in rows two feet apart. The best and most productive peppers we have ever grown are **Green Boy** eggplant the same spacing as peppers. We have had the best results with the **Classic** variety.

Watermelons and **Muskmelons** will fill an area eight feet square if you plant five or six seeds in the middle. **Winter Squash**, from five or six seeds planted in a hill, will send runners twenty five or thirty feet in every direction. This means

careful planning. The best kinds, incomparably better than others, are **Waltham Butternut** and **Burgess Buttercup**.

Sweet Potatoes. Ordered from the South, cuttings are delivered for warm weather planting. Space them a foot apart in the middle of a four foot bed. We grew excellent sweet potatoes in southern Vermont. **Okra.** For soup, we grow a few plants along our central garden path.

JUNE:

Lettuce. Sow every two or three weeks to keep salad lovers happy. **Oak Leaf, Green Ice,** and **Summertime** for heads in hot weather are idiot proof. **Corn.** Plant every ten days until the end of June for continuous harvest. Seedlings of **Cabbage, Broccoli, Cauliflower** and **Brussels Sprouts** should be thinned or transplanted when they are six inches high, spaced a foot and a half or two feet apart. Transplant in the afternoon or evening and water. **Celeriac.** Transplant when they are four or five inches high. Set a foot apart in rows two feet apart. **Rutabaga.** Thinly sow in rows two feet apart. Thin to a foot apart.

JULY:

Bush Beans. A final planting for fall use. **Lettuce.** Continue planting every ten days to two weeks. **Corn.** Make a final planting for fall. Fall **Broccoli.** Sow in July for large heads in October. Thin or transplant to grow two feet apart. For big heads we grow **Waltham. Potatoes.** The vines of early potatoes wither in late July. Pull the tubers out sideways with a potato hook (alias a clam rake).



Pea picking time



Onions. The tops of **Stuttgart** sets will begin to wither and turn brown. When they do, knock them down with a hoe or the back of a rake. Pull them within a week and cure them in the sun or spread in a thin layer in a warm dry place. We store them in apple boxes until the following summer.



AUGUST Tomatoes. By the first of August the harvest of main crop tomatoes is in full swing. Canning, or to use the more accurate British term, bottling, begins. We freeze, too, because it is quicker and easier, but we prefer the quality of the canned product. **Peppers** in quantity we freeze. Good quality demands blanching before freezing.





Turnips. Plant now for winter storage. Sow very thinly in rows two feet apart and thin to six inch spacing. **Kale.** May be planted for fall, winter, and, with luck, overwintered greens. Plant lots of **Winter Bloomsdale Spinach** for fall, winter, and spring greens. **Chinese Cabbage.** Mid-August planting yields excellent fall heads.



SEPTEMBER

Cabbage. Inspect for cabbage worm damage. If necessary spray, sprinkle or dust with Bt. Plant more **lettuce**. **Green Ice** is again at the top of our list. **Buttercrunch** is top quality, but may be injured by frost. If you didn't plant **spinach** in August for wintering over, do so now. If any bed are emptied by harvest and not replanted to greens, gather up plant residues for composting, hoe to discourage weed seedlings, scatter winter rye seed for a cover crop, and rake it in.

OCTOBER

Time to harvest **sweet potatoes** and cure them in the sun or a warm, dry place. Time to dig late, main crop **potatoes**. Bring in **pepper** , **eggplants**, **green beans**, late **corn**, and **tomatoes**. Green **tomatoes**, carefully selected, should be spread out to ripen in a warm, dry place. (They will rot in cool storage).





Carrots. It is usually prudent to harvest this crop in October. Freezes soften protruding tops, with the result that they rot in storage. Carrots in heavy soil should be loosened with a four tined spading fork. If a hard freeze is expected and you haven't time to bring the carrots in, spread a tarpaulin or any other cover over the bed. We have tried leaving carrots in the ground all winter with a thick blanket of leaves and hay. This usually prevents alternate freezing and thawing from spoiling the roots, but harvesting when there is a foot of snow is not easy.

Winter squash should be brought into a warm, dry place before a freeze. 28 degrees may cause rot later. When a hard frost (20 degrees) is expected, harvest **turnips, beets, celeriac, broccoli** and **cabbage**.

NOVEMBER

Brussels sprouts. Cut off the top of each plant. This favors the quick development of good, big sprouts. **Garlic.** In a place that will not be tilled plant cloves six inches apart, root end down, cover with one to two inches of soil and a thick mulch. Ready for harvest the following July. Pick dry **beans**. **Parsley, scallions, leeks, kale** and **spinach** remain in the garden for winter use. **Parsnips** and **Jerusalem Artichoke** remain in the ground until spring. Their flavor is improved by freezing.

DECEMBER Pick **Brussels sprouts**. Or you can take in the whole plant and pick later.



STORAGE

DRYING: Except for herbs, we don't do it because of vitamin loss. **APPLES:** Usually kept in apple boxes in an unheated bedroom. Defective fruit is canned for spring and early summer. **CANNING:** Apples are canned in chunks with their vitamin-rich skins.

CABBAGE and ROOT VEGETABLES: Since we don't have an unheated root cellar, ours go into the outside "bulkhead" entrance to the cellar. Scott and Helen Nearing tried a "controlled" experiment. Some of their carrots were stored unprotected, in boxes with occasional moistening. Some were stored in sand, some in sawdust, some in moist leaves. They decided moist leaves were best. Watch for rodents. You may need a rat-proof, ventilated container such as a perforated steel drum or an enclosure made of hardware cloth. Carrots in an unventilated, unused freezer rot. Selected carrots in a paper bag in the back of a refrigerator keep into the following summer.

POTATOES: We keep in apple boxes in a cool, usually dark laundry room. **ONIONS, WINTER SQUASH and TOMATOES** for December ripening keep on our solar porch better than anywhere else.

Tomatoes are also canned in chunks with their vitamin-rich skins.

FREEZING: We freeze peas, beans, spinach, chard, corn, tomatoes, peppers, broccoli, cauliflower, Brussels sprouts, celery, and, of course, strawberries, raspberries and blueberries. **JUICES:** Of late, very large quantities of our fruit have become juice. We became concerned about additive laden "reconstituted" supermarket juices which grandchildren were consuming in large quantities. They now drink homemade juices from unsprayed apples, pears, grapes, currants, gooseberries, strawberries, raspberries and blackberries. My favorite juice is from Wagner apples. All of these are made in a Finnish juicer obtainable from Gardeners' Supply Co., 128 Intervale Rd., Burlington VT 05401, or Lehman's Hardware, 4779 Kidron Rd., Kidron OH 44636.

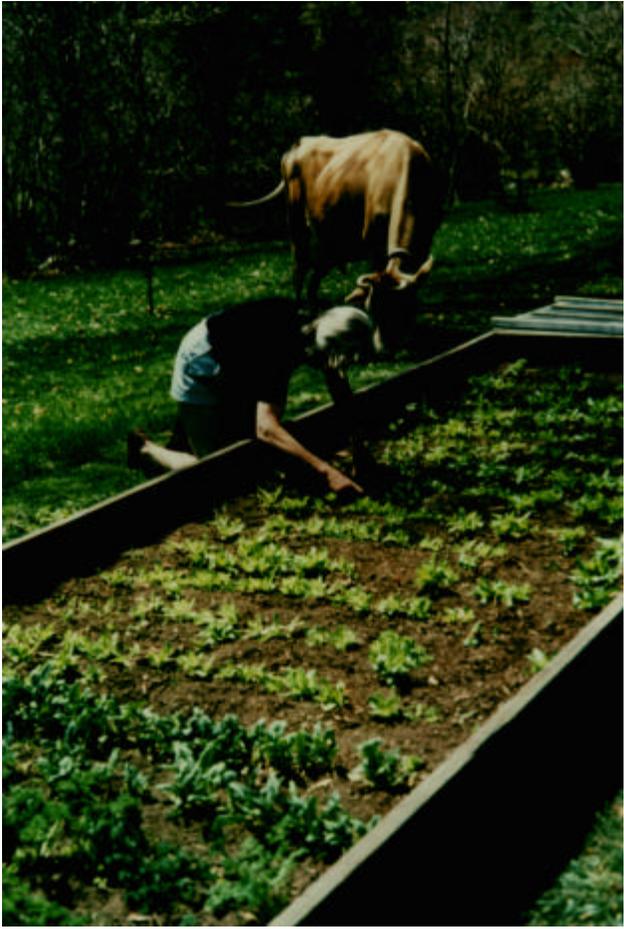


WINTER CROPS

Scott and Helen Nearing accidentally discovered that Oak Leaf lettuce seedlings left in an unheated greenhouse survived winter cold. We, who were their neighbors at the time, immediately experimented with a coldframe, and we have enjoyed fresh salad greens all winter long ever since. Many experiments, many years ago, convinced us that Oak Leaf lettuce was the most worthwhile winter green. Recent experiments showed that Green Ice lettuce is better. In September or October, we transplant and plant in our six foot by eighteen foot cold frame rows of lettuce and Winter Bloomsdale Spinach about ten inches apart. At one end we transplant two rows of parsley, trimming the tops to avoid transplant shock.



Before cold weather we weed and sow between these rows for the best early spring greens.



Tending to lettuce in the coldframe





Ready for winter. Dwarf pear trees and the solar porch behind. Of absolute importance: a sash or two must be propped up a few inches in the middle of a sunny day to prevent overheating.

Oak leaf lettuce a day after the thermometer read 20 below zero.





Oak leaf lettuce
two weeks later.



Wintered over greens
have a big head start
over those in the garden.



Pixie tomatoes on our
sun heated porch



Polyethylene tunnels formed over heavy wire or plastic arches are a neat, low cost way to extend the growing season by forcing growth in March and April and to protect frost sensitive crops like beans in the fall.

Murren, Switzerland



Weisbaden, Germany

PERENNIAL CROPS

ASPARAGUS At one side of the garden, or in its own specially prepared place, asparagus will produce year after year for many years. Unless there is crabgrass, which will kill it. It is advisable to prepare the area a year or two in advance, manuring, composting, liming, sowing and tilling in at least two successive crops of buckwheat, which kills crabgrass.

Set asparagus plants in rows four to six feet apart, in trenches ten inches to a foot deep and fourteen inches wide. Scatter compost or well rotted manure in the trenches and set plants crown up and centered with the roots spread out. Cover lightly with earth. As the plants grow, you can gradually hoe earth into the trenches. If there is no rain, water. Buy plants of the all male strains recently developed at Rutgers University. They out-produce two to four times the older Washington strains. Weed diligently. Don't let weeds go to seed.

RHUBARB Rhubarb is another perennial which greets the spring as early as asparagus. Don't overdo it. You shouldn't ingest too much oxalic acid. Set roots, which may be divided, into holes measuring about a foot each way, fill the holes with a mix of soil and rotted manure or compost. Water thoroughly.

HORSERADISH Horseradish is another perennial in effect though not in fact. Any fragment of a root, not harvested, grows into a new horseradish plant. So give it its own private, permanent abode. Dig the roots in late fall or early spring, put them through a meat grinder or into a blender, add vinegar and a touch of salt, pack in jars and refrigerate or freeze to retain maximum strength.



Rhubarb appears. An early sign of spring.

HERBS

Our practice has been to grow herbs and flowers at the ends of our four foot wide beds, alongside and giving charm to the central path. **Sage** goes into our homemade cheese. Though we are not of the gourmet persuasion, we grow **basil, dill, summer savory** and **rosemary**. One rosemary plant is potted each fall for a kitchen window.

GRAIN

Home grown grain, nourished by fertile soil can be an important part of a healthful diet. **Corn**: Old fashioned "flint" varieties taste better and are much higher in protein content than newer, more productive "dent" corns. Our favorite is **Garland Flint** obtainable from Johnny's Selected Seeds, Albion, Maine 04910. We are fortunate to have an old corn sheller and a small motorized grinder. Both are sold by Lehman Hardware, 4779 Kidron Rd., Kidron, Ohio 44636, a reliable supplier to the Amish. **Wheat**: Hard spring wheat is the best kind for home breadmaking. A poison-free supply can be had with simple, primitive methods. A scythe or sickle can, on a small scale, substitute for the traditional cradle. The ripened stalks can be placed on a tarpaulin and flailed with two stout sticks, each tied to the other at one end. Separated grain and chaff are winnowed – poured from one container into another, outside, when there is enough wind to blow the lighter chaff away from the heavier grain.

Boiled wheat with a bit of butter and salt is delicious. The same small motorized grinder that we use for corn meal makes whole wheat flour. From the beginning of our marriage we have made our own bread. I cannot recall ever buying a loaf of bread.

STRAWBERRIES

Strawberries are easy to grow; in almost any soil they will produce an abundance of fruit a year after planting. Set plants as early as the soil can be worked, a foot or two apart in rows four feet apart. The crowns (between roots and leaves) should be half buried. Weed diligently. The word "strawberry", we have learned from experience, says something significant. A mulch of straw between rows results in more and better berries. Strawberry varieties are regionally sensitive. Get local advice. We are very happy with **Earlyglow**. After the second picking season, in the autumn when runners have occupied the paths, rototill the middle of each original bed, leaving new young, more productive plants to carry on. This renewal process can be repeated to keep a bed in production for many years. If birds become a problem, spread Reemay or other floating row covers.

RASPBERRIES

Raspberries will produce a crop the second year. Set out plants a foot apart in rows eight or ten feet apart. Keep the area between mowed. In winter or early spring cut out dead canes, thin to strong canes about a foot apart and shorten canes that are taller than five or six feet. Taylor is the tastiest July bearer. **Fall Gold** is the best tasting of all raspberries but is a shy bearer. It produces midsummer and fall crops, like **Heritage**. **Heritage** is very productive of large, firm red berries, sweet and very delicious.

BLUEBERRIES

Blueberries are our pride and joy. We made our soil more hospitable to berries by tilling in a large quantity of leaf mulch and compost. Small rooted cuttings were set five feet apart in rows ten feet apart. Stakes protected the plants by making them more visible. Space between was cultivated and used for vegetable production for several years. Once berry production began in earnest, we put the cultivated areas into grass and kept them mowed. Of the varieties we grow, my favorites are **Blueray**, **Berkeley**, **Herbert** and, best of all, **Darrow**. Try to get local recommendations.



Heritage raspberries in July



Heritage raspberries in September



Blueberries, marked by stakes, vegetables inter-planted.





Thirty years later

GRAPES

Grapes grow well in almost any soil, including gravel. Set plants eight feet apart in rows eight to ten feet apart. Make fences with posts every sixteen feet and stout wires at the three foot and six foot levels. Place a four foot stake beside each plant to train it into vertical growth. The stakes may be removed later. In early spring of the third year, select two to four vigorous canes three to five feet above the ground, shorten them to two to four feet, and tie them to the horizontal wires. Select, at about the same height, two to four other vigorous canes and shorten each to two buds. These generate grape bearing canes for the following year. Other growth should be removed. For an abundance of juice (we have never taken the time to make wine), grow **Buffalo**. Wonderfully vigorous and productive. Among the French-American seedless hybrids, our favorite, so far, is **Canadice**. We solved the Japanese beetle problem, years ago, by distributing milky spore disease culture among the grapes and raspberries, the principal victims.

CURRENTS and GOOSEBERRIES

Preferred varieties: **Red Lake currant, Pixwell gooseberry**. So many stems cling to the fruit, we use most of the fruit for juice.

BLACKBERRIES

For twenty years we cared for impressive canes of "improved" blackberries without ever getting so much as one blackberry. Our eldest son supplied us with canes he had found in the wild. Now we have an abundance of delicious fruit, growing in the shade of an oak tree, trained to an eight foot high trellis of horizontal wires stapled to ten foot posts.

TREE FRUITS

Follow European practice and plant dwarf fruit trees in and around your garden. They bear early and are easy to prune and pick. When you plant be sure that the union where tree and dwarfing rootstock join is not buried, or even in contact with earth. Dwarf trees may break off at this union. Tie dwarf trees with nylon or polyester to fences or metal stakes. Apple varieties that we recommend include **Empire, Spigold, Golden Delicious** and **Jonagold**. Our best very early apple is **Quinte**. **Peach** recommendations: **Reliance, Golden Jubilee, Elberta**. Dwarf **pear** trees are a treasure, relatively free of pests other than squirrels. Try **Beurre Bosc, Beurre D'Anjou, Comice**, and, of course, **Bartlett. Cherries? Windsor** and **Emperor Francis**.

For all tree fruits east of the Rockies, the Plum Circulio is the worst of pests, causing the loss of entire crops. The late Senator George Aiken of Vermont, who was among other things an authority on fruit, told me that the Circulio problem is solved if chickens run under the fruit trees. The Circulio and the codling moth, the larvae of which make tunnels in apples, can be fairly well controlled by spraying with Rotenone just after blossoming and again a week or two later.

Pruning fruit trees: The old saying, "The best time to prune fruit trees is when the saw is sharp" can be bad advice. You need to see the tree structure for major pruning, and that limits you to the dormant period. Cut off all dead branches first, so you can see clearly the living structure. Eliminate branches that grow in toward the center of the tree. If two branches cross and rub one another, eliminate one. Thin the growth at the top to let sun in, but don't overdo it. Remove slender, vertically growing "suckers". Strive for a structure with relatively few strong, well-spaced horizontal branches. Young trees should have their trunks surrounded by metal or hardware cloth cylinders a foot or two high to prevent rodents from eating bark at ground level, girdling and killing the trees.

NUTS

If you have some unused land and want to do something important, join the ranks of experimenters who are developing **Filbert** and **Chinese Chestnut** hybrids for the North. Lists are available from the Northern Nut Growers Association, 9870 South Palmer Rd., New Carlisle, OH 45344.

Blight resistant Chinese chestnuts normally don't survive New England winters, but one tree that I planted in Warner, NH is producing nuts fifty years later.

BEEES

Bees and honey have always been an important part of our subsistence economy. A hive of bees for pollination may be all you want. Honey production is something else. Beekeeping is a complex, fascinating art which requires doing the right thing at the right time. Serious beekeeping is best learned from a beekeeper. Honey production requires a considerable investment which may be justified by the sixty to a hundred pounds of honey produced by each colony in a year.

Two imported pests, varroa mites and tracheal mites have become a very serious problem in recent years, and it may be that an entrance into the world of beekeeping should be postponed until more adequate controls and resistant strains of bees are developed.

POULTRY

Chickens, in my youth, were in every back yard. Roosters greeted every sunrise. Since then cholesterol has had bad press, but recent reports differ from older ones on the matter of "good" cholesterol versus "bad" cholesterol. Several recent investigations have reversed the condemnation of eggs. One thing has become clear. The cholesterol content of eggs is dependent on what the hens are fed. These things are still being argued. Stay tuned. Another thing that is absolutely clear: Home grown chicken tastes amazingly much better than chicken from the supermarket.

A small hen house, with four square feet of floor space per bird, sawdust or shavings or hay or straw on the floor, a feed container made so hens can't stand on it, a plastic bucket of water and a horizontal pole two feet off the floor for a roost, and a wooden box full of hay for a nest, can yield fresh eggs with deep orange yolks, rich in vitamins A, C, and D, tasting incomparably better than those from the store.

GOATS

Goat milk can be a very important part of a healthy diet. A goat needs space plus a place for a dozen bales of hay. Fencing must be excellent. Running free, a goat will kill trees by stripping and eating the bark. Running free, a goat is into and on everything including the roof of your car.

In the early 1950's I taught in a Vermont one-room school. One of my students submitted the following "essay":

"My grandmother walked into the kitchen, and there was the goat, standing on the kitchen table eating the butter she had just made. My grandmother grabbed a broom, and the goat bolted through the door into the front hall and ran up the stairs, with my grandmother, broom in hand, after her. At the top of the stairs was an open window; the goat leapt through it onto the porch roof. My grandmother was so angry she shut the window. After catching her breath, she went down the stairs, walked into the kitchen, and there was the goat, standing on the kitchen table, eating the butter she had just made."

Our goat demanded more attention than I was willing to give. Also, she would turn her head back and try to drink out of the pail into which I was milking.

I put a classified advertisement in the Brattleboro Reformer:

"Goat for Sale, Nubian doe. Best blood lines from Carl Sandberg's herd. Gives enough milk to feed a few cats and spoil your coffee. We got a cow, God bless her. If you want the goat, she's yours for \$30."

The goat found a happy buyer the next day.

COWS

A cow gives lots of real milk with real cream that rises to the top. From it, we make butter, buttermilk, yogurt, real whipped cream, cottage cheese, cheese and ricotta.



The milk doesn't contain added BGH, antibiotics, synthetic vitamins, or estrogen. The milk is not homogenized, and therefore its fat globules will not squeeze between the cells of intestinal villi to be causative agents of arterial clogging. The milk isn't watered to bring it into conformity with a butterfat standard. The vitamin D is real because the cow spends time in the sun.

Commercial milk may be stored in a stainless steel tank on the farm for a week, spend a day being transported in a tank truck, spend a week in the processing plant, a day being transported to the store, and a week on the store shelf. Plus time in your refrigerator. It must be pasteurized to control bacterial growth. A small cow requires a ton of hay during a New England winter, and an acre or two of pasture. She doesn't have to be stuffed with expensive grain because you don't need or want sixty quarts of milk a day. When she has lived her life, ten years, perhaps, she has given you half a dozen calves, one for replacement, the others to be raised for meat. With a diet primarily of hay and grass, her meat, and that of her calves, is low in fat and cholesterol.

Housing? We have kept two cows and a calf comfortably and cozily in an old potting shed about sixteen feet by twelve feet. An old hen house of the same size holds a winter's supply of hay.



“Vache”



“Bossie”. The hat was her idea.