Installing a Backyard Composting Demonstration Garden

A summary of the process of installing the Ojai Community Demonstration Garden in Ojai, California

November 2, 1993

by Lorraine Timmons
Ventura County Solid Waste Management Department
5275 Colt Street, Suite 1 • Ventura, CA 93003 • 805/648-9226
Table of Contents

Introduction ......................................................... iii
A. Description ..................................................... 1
B. The Project Team .............................................. 1
C. Developing a Plan .............................................. 2
   1. Location .................................................. 2
   2. Design ..................................................... 3
D. Planning/Approval Procedures ............................... 4
E. Budget .......................................................... 4
   Table of Partial Project Budget ............................. 5
F. Signs .............................................................. 5
G. Brochures ........................................................ 5
H. Creative Funding ............................................... 6
   1. Grants ....................................................... 7
   2. Donations of Funds ........................................ 7
   3. Donations of Materials .................................... 7
   4. Donations of Services ..................................... 7
I. Using the Garden ............................................... 8
J. Maintenance ..................................................... 8
K. Summary ........................................................ 9

Appendix A: Signs ................................................. 11
Appendix B: Promotional Materials ............................. 51
Appendix C: Brochures ............................................. 71
Introduction

The Ojai Community Demonstration Garden was conceived in March of 1992 when an application was filed with the Environmental Protection Agency for a $5000 Environmental Education Grant. The Ventura County Solid Waste Management Department and the City of Ojai, the grant applicants, had in mind a quick, small-scale project. By the time of the grand opening celebration in September of 1993, the original garden plan had changed dramatically. The original size of the garden quadrupled, and tens of thousands of dollars worth of donations in materials and services were added to the initial project budget. The result is one of the finest composting demonstration facilities in the nation.

The purpose of the garden is to provide a forum for educating residents about landscape management techniques which reduce waste, while also conserving water. These techniques include composting, mulching, correct pruning, grasscycling, appropriate plant selection, drip irrigation, and soil preparation. Techniques for reducing the use of hazardous yard care products are also demonstrated through the organic vegetable garden.

The garden will be used by a wide range of residents in the City of Ojai and the Ojai Valley, including those with interests in composting, water-efficient landscaping, organic gardening, and native plants, as well as by students of all ages. The level of involvement can range from a casual educational stroll through the garden, to participating in a two-hour class, to becoming an educator of composting through the Master Composter program.

This report summarizes the process of installing the garden so that others may benefit from our successes achieved and failures suffered. Installing a landscape is generally not in the job description of solid waste planners. Many sleepless nights could have been avoided had we had some kind of blueprint to follow. We hope this is helpful to others. We've included copies of the signs and brochures used in the garden, as well as the garden plan. We would be happy to provide other agencies with more information, or masters of the signs and brochures for reproduction.
Installing a Backyard Composting Demonstration Garden

A. Description

The Ojai Demonstration Garden is unique both for its large size and for its inclusiveness. The one-acre site in the arid town of Ojai contains over 900 plants, drip and other low-output irrigation systems, an organic vegetable garden, 13 different composting systems, and an impressive garbage art sculpture.

The use of reused materials is demonstrated extensively throughout the garden: hefty benches made from telephone poles and planks from the Navy Base; sign posts made from 6x6s from the landfill; blue trash cans made from 55 gallon plastic containers with the tops cut off; and artistic cobblestone work with broken concrete, blocks, bricks and bottles.

A large, colorful sign kiosk stands in the center of the garden and orients visitors with information on the waste stream, different methods of reducing waste in the landfill, and general composting information. More comprehensive signs throughout the garden discuss everything from mulching to turf substitutes to composting with worms. A brochure rack and bulletin board near the entrance provide visitors with free literature and upcoming class schedules.

Besides offering self-guided tours, the garden has an open classroom area for teaching classes on backyard composting, as well as water-efficient landscaping and organic gardening.

A barn-like shed is on site for storing landscaping tools, extra irrigation supplies, compost bins for sale at classes, sign cleaning supplies, gopher traps and fertilizer. On the back of the shed is a bulletin board with a list of the maintenance tasks for everyone who works at the garden.

B. The Project Team

The demonstration garden was coordinated primarily by one staff member of the Ventura County Solid Waste Management Department, and one from the City of Ojai, but with considerable help from the local community, businesses, and other city and county staff.

The concept of the garden was formed in the process of writing an EPA Environmental Education Grant. After receiving word that we had been awarded the grant, we sought out a local architect to donate a landscape plan for the project. As donations go, it took a couple tries before we found a landscape architectural firm that was serious about helping (for a reduced fee). Once we had the conceptual, professional-looking plan in hand, we felt ready to present the idea to the community to drum-up interest.

A news release and copy of the plan was sent to local papers, and individual letters were sent to local landscapers, builders and horticultural groups inviting them to join in the project. (See Appendix B for copies of letters and news releases.)

The word got out, and eventually we had a core group of volunteers helping with the project. Most of these volunteers assisted with the project through the entire six month process. This group consisted of two landscape designer/contractors, two landscapers, an herb grower, an organic gardening instructor, and a husband. Some volunteers primarily contributed their expertise, while others gave of their time and sweat.

An entire organic vegetable garden was added to the project, adjacent to the rest of the demonstration garden, because a woman who teaches organic gardening thought it would be a great
spot to teach classes from. She took charge and installed the entire garden almost single-handedly. It is an excellent addition to the project, because those people who are interested in gardening tend to also be interested in composting, and vice versa. This would not have happened if the community hadn't been involved in the planning stages.

The practical advice we received from this dedicated group of local landscapers was priceless. For example, with the heat in Ojai, our compost piles would dry out within hours of watering, so a volunteer suggested hooking the piles up with microspray heads to the automatic irrigation system. A terrific idea! But one which we'd never seen in any of the literature, and would not have thought of on our own. The volunteers also had contacts within the community which they called upon for donations of money, plants, rocks, technical drawings, manure, and labor.

In addition to the core group of volunteers, other individuals gave as they could. Numerous local people stopped by and worked for a day or two; or donated a few plants, or equipment, or expertise.

The benefit of involving the community in this way cannot be emphasized enough. Those who helped with the garden now have a sense of pride and ownership in it. They've been bringing friends by, telling their yoga students about it, and so on. We've created a community resource that will be well used and cared for. If in the end we had hired expensive contractors to come in and build it, we would be faced with a long process of trying to stimulate community interest. Spending the time to generate that interest up front can end up saving significantly on the project installation costs, and helps ensure the project is immediately and lovingly embraced by the community.

The volunteers who worked on the Ojai garden have even formed an Advisory Committee to look after the garden and provide advice on the maintenance of it.

C. Developing a Plan

1. Location

Things to consider in selecting a site include cost, size, visibility, accessibility, sun/shade availability for plants, availability of water and electrical hook-up, potential for vandalism, parking space, site contour (will grading be required?), soil conditions, and the potential for pest (gopher) problems.

The Ojai site is located on city-owned land behind and adjacent to Ojai city hall. It is on a relatively quiet street, but still close to high-traffic areas, such as Libbey Park, the Ojai Valley bike trail, downtown, and the city hall. During the six months of installation, we left tools and expensive materials out on the site, and never had any theft or vandalism.

We did experience several significant problems with our site. First, there was no electrical or water service to, or within, the site. Getting the hook-ups to the site, while expensive, was no comparison to the headache of installing the lines within the site. Three-foot deep trenches had to be dug, with a monstrous piece of equipment, throughout the site, in soil that consisted primarily of river rock. A substantial amount of hand shoveling was involved in refining the trenches and then covering them up again. And then, of course, considerable expertise is needed to lay electrical and irrigation lines. A site that already has electricity and irrigation available is definitely preferable.

A second problem with the site is that it is home to quite a few gophers. This may not have been avoidable, but it does present a troubling problem to a project that isn't budgeted for a lot of maintenance, and one that is trying to demonstrate non-hazardous yard care.
alternatives. We've lost numerous plants, and the battle continues.

A final problem with the site was its large size. The focus of the garden is on waste reduction in the landscape. We wanted to demonstrate water conserving plants and maintenance techniques because practicing water conservation in the landscape naturally results in reduced landscape waste. Because we had such a large site in need of landscaping, we ended up spending too much time and effort on the plants, which should have been a secondary focus. On the other hand, many of our volunteers got involved because of their interest in having a xeriscape demonstration. And, now that it is finished, the size of the garden greatly adds to its impressiveness.

2. Design

Unless the composting demonstration isn't going to involve much plant material, consulting with a professional landscape architect or designer is a good idea. They are knowledgeable about codes and regulations, appropriate plant materials for the area, soil, and light conditions, they can group plants according to color, height and texture, and they are experienced at visualizing the final aesthetics of the site. Beware, however, that architects—who don't have to install the project—can design projects a bit out of scale to your pocketbook.

Such was the case with the Ojai garden. Our site sloped down gradually at one end, and then fell off into a barranca lined with trees. The architects decided this was the best viewscape of the site, and that an amphitheater type seating arrangement—which made use of the slope—should face this way. Well, they were right, it is the nicest view, but the work involved in reshaping the slope to make the seating area was hardly worth it. Because all pathways need to be wheelchair accessible, we had to use massive tractors to cut the path down the slope at precisely the right angle. A bunch of work could have been avoided had we left that slope alone and stayed on flat ground.

Making the site handicapped accessible is definitely something to consider in the planning stages. Pathways must be of a certain width (7' 2") and slope, and the surface must be of a material that stays hard when wet. We used decomposed granite with a stabilizer added. It is expensive, and requires heavy equipment and expertise to install. Another thing to consider is toilet facilities: the costs of a handicapped port-a-potty were three times that of a standard.

We took the conceptual plan from the architects to our volunteer landscapers from the area, and had them fill in the exact plants to be used, the quantities, and sizes. They also made practical changes to the plan, such as removing many of the trees which would have cast too much shade. Our criteria in plant selection were that they must be low-water using, low-maintenance, easily available for the average person, they couldn't be highly invasive species, and we wanted to include a good selection of natives. We also had theme areas, including: cacti/succulents, flaxes, herbs, perennials, Australian varieties, sages, and grasses. Before we chose the specific plants, we had a local soil laboratory donate a soils analysis, so we could be sure our plant selections were compatible with the soil type.

Once we had the planting plan, we took a copy to a local irrigation supply store, where the owner donated the irrigation plan. The plan included nine valves on an automatic timer, with mostly drip and micro-spray irrigation.

Other plans that were needed were an electrical plan, and a plan for the kiosk—a six sided structure for displaying large signs.

Additional things to consider in the design of the site are parking (including handicapped
and bicycle) which doesn't get mucky in the rain, and incorporating used materials. We employed old telephone poles for sign posts and bench posts, and all the lumber used for compost bins and other uses was secondhand (from the landfill—we also got wheelbarrows, shovels, brooms, and rakes from the landfill). We also included bottles, broken blocks and bricks and other miscellaneous items in an attractive cobblestone-like arrangement around water spigots and benches.

A brilliant, seven-foot sculpture of daisies, made from hub caps, fan blades, and other used metal occupies a central position in the Ojai garden. A Garbage Art contest, geared at teenagers, was conducted to acquire a piece for the site. (See Appendix C for a copy of the contest flier.)

Finally, plan for plenty of signs. Ideally the garden should provide a self-guided tour, so that a person can walk through on their own and leave feeling like they've learned enough to start composting successfully.

D. Planning/Approval Procedures

If developing a new project, keep in mind that there may be planning and building procedures to follow. Parks Commissions, Planning Commissions or other appointed bodies may have review and approval authority over plans on public property, construction of structures, signs and landscaping. Certain structures, plus electrical and irrigation systems may need approval from the building department, public works department, or other reviewing entity. Permits for these items may also be required. The American Disability Act (ADA) must also be met: anything provided for non-handicapped people must also be provided for the handicapped. We suggest you meet with the planning department, public works and/or parks department prior to commencing any work on a selected site.

E. Budget

It is difficult to come up with an accurate budget for the Ojai project, since such a significant amount of time and materials were donated. Table 1 provides a partial project budget, including quantifiable donations. Besides staff time and travel expenses, the County SWMD only expended a few hundred dollars for miscellaneous materials. The City of Ojai, which contributed a bit less staff time, expended about $1,600 on materials. The monthly utilities and maintenance expenses will of course be ongoing costs of the garden.

F. Signs

Because a key goal of a demonstration garden is to provide for self-guided educational tours, the signs are one of the most important elements. Signs in the Ojai garden primarily address techniques of landscape waste reduction. The environmental benefits of practicing these techniques, including groundwater protection and water conservation are also discussed.

When designing signs, aim to make your point in as few words as possible, with full use of illustrations and other graphic elements. Since children are one of the target audiences, keep them in mind when choosing text. Keep it simple.

We designed our signs on PageMaker and provided the sign maker with 8.5" x 11" masters.

The Ojai garden has a central kiosk with six large signs (3' x 4') illustrating the following:

- Garden Legend (& how to use garden)
- What's in our Garbage
- Methods of Handling Yard Trimnings (landfill vs. central processing vs. backyard composting)
- Greens & Browns
- Composting & Mulching Methods
- Compost Critters

These signs are made of a specially treated
<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Conservation Corps (labor for four weeks)</td>
<td>10120.00</td>
</tr>
<tr>
<td>Plant materials</td>
<td>3737.00</td>
</tr>
<tr>
<td>Water hook-up</td>
<td>2500.00</td>
</tr>
<tr>
<td>Electrical hook-up and installation of service in garden</td>
<td>2000.00</td>
</tr>
<tr>
<td>Landscape plan</td>
<td>3365.00</td>
</tr>
<tr>
<td>Equipment rental (including port-a-potty for several weeks)</td>
<td>1416.00</td>
</tr>
<tr>
<td>Mulch, soil, amendments &amp; fertilizer</td>
<td>1656.00</td>
</tr>
<tr>
<td>Irrigation equipment</td>
<td>2193.00</td>
</tr>
<tr>
<td>Storage shed</td>
<td>1200.00</td>
</tr>
<tr>
<td>Lumber, hardware, paint</td>
<td>1924.00</td>
</tr>
<tr>
<td>Sign painting &amp; lexan</td>
<td>2768.00</td>
</tr>
<tr>
<td>Soil analysis</td>
<td>98.00</td>
</tr>
<tr>
<td>Decomposed granite &amp; concrete</td>
<td>1294.00</td>
</tr>
<tr>
<td>Composting bins</td>
<td>212.00</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td>$34,483.00</td>
</tr>
<tr>
<td><strong>AMOUNT EXPENDED:</strong></td>
<td>$1,931.00</td>
</tr>
<tr>
<td><strong>AMOUNT DONATED:</strong> (includes $9,175 in cash and $23,377 in materials and services)</td>
<td>$32,552.00</td>
</tr>
</tbody>
</table>

Many items are not included in this table because the value is unknown or unquantifiable, such as: the irrigation plan design; the kiosk design; the site and grading plans; the construction of the kiosk, benches, compost bins, and bike rack; use of volunteer's equipment; the scavenged telephone poles, lumber, tools, and rocks; the garbage art sculpture; and the many hours of volunteer help with design, plant installation, mulch spreading, and troubleshooting.

**Table of Partial Project Budget**
plywood (called medium density overlay, or MDO), entirely hand painted, and covered with a clear sealer.

Six large signs (17" x 22") discuss the following:
- Open-Air Composting
- Closed-Air Composting
- Composting with Worms
- Organic Gardening
- Drip Irrigation
- Compost Benefits and Uses

These signs are 8.5" x 11" computer print outs, enlarged by a blueprint service 100%, and then laminated (10 ml), covered with a sheet of lexan and mounted on plywood.

Each compost bin has a sign (8.5" x 11") summarizing its particular benefits and drawbacks. Each bin will also eventually have a clipboard (plastic with wax pencil) for keeping track of when materials were added, turned, etc.

Signs of the same size also discuss:
- Low-Maintenance Ground Covers
- Pruning Guidelines
- Automatic Irrigation Controller
- Water-Saving Plants
- Landscape Planning
- Reused Lumber

These signs are laminated computer print outs mounted on plywood, and covered with lexan.

Other signs in the garden include a large sign listing all the sponsors, an entrance sign, signs on a nearby bike path and at city hall pointing people towards the garden, and we've made a preliminary attempt at describing each plant type (name, water & sun needs, etc.). (See appendix A for examples of all the signs.)

Kids visiting the garden will also be able to become a worm, leaf or bacteria. Members of the citizens advisory committee will soon be making large, colorful cutouts of compost related "characters," with head-shaped holes cut out for kids to put their heads through.

Many of our signs are mounted on telephone poles. The benefit of using telephone poles is that the wood is already treated with creosote. The creosote is also a drawback because it is a carcinogen, and there are limits to its use for construction. Telephone poles are also very heavy and hard to work with.

We acquired a pallet of 6 x 6s from the landfill, treated the bottoms, and used them for some of our sign posts. We also used redwood and treated fir.

G. Brochures

A central brochure rack is stocked with "how to" brochures on composting, an upcoming class schedule, and a flyer promoting the Master Composter program. A kids activity sheet/tour guide will also soon be developed for elementary aged kids. In addition three of the compost bins have design sheets showing exactly how to build the bin and what materials are needed. (See Appendix C for copies of the brochures.)

H. Creative Funding

The Ojai Demonstration Garden was funded through grants, donations, the Ventura County Solid Waste Management Department (staff time) and the City of Ojai. Donations covered a significant amount of the installation costs.

Acquiring donations in the midst of a deep recession took a little extra work, but it was surprising how much we were able to get. All sponsors of the project are listed on a large sign at the garden's entrance (see Appendix A).

Sponsors received a letter, signed by the Mayor of Ojai and the Board of Supervisors member from that area, thanking them for their participation in the project, and sponsors were also recognized at the grand opening celebration (see Appendix B).
1. Grants

- **US EPA Environmental Education Grant**

The EPA annually awards grants to organizations and institutions to support projects which design, demonstrate, or disseminate practices, methods, or techniques related to environmental education and training. The SWMD and City of Ojai were awarded $5,000 for the demonstration garden. Although larger awards are available, those projects requesting $5,000 or less have a much greater chance of being awarded. The reporting requirements for this amount of money were significant.

- **California Integrated Waste Management Board (CIWMB) Sponsored Labor Through California Conservation Corps**

In 1993 the CIWMB made available funding for public projects which utilize the labor of the California Conservation Corps (CCC). The Board was looking for short-term projects which demonstrate the hierarchy of waste management practices (reduce, reuse and recycle) and that meet the CCC’s objectives to provide youth education and work opportunities which benefit the economy and environment. The demonstration garden was awarded two weeks worth of labor, consisting of crews of ten youth. This grant program may or may not be funded in the future.

- **California Conservation Corps**

The CCC also has a certain number of weeks each year which they can donate to projects out of their own budget. Towards the end of the project, the garden was granted two more weeks directly from the CCC.

It was interesting to work with the CCC and their help was invaluable. Because a significant amount of their work day is spent in training and with personnel issues, and because these are youth with beginning skill levels, projects using the CCC should allocate extra time for accomplishing tasks.

2. Donations of Funds

Funds were solicited primarily through direct mail to individuals and groups. We had a low number of positive responses, but did raise $4,175. This funding was received from the local civic association, a gardening club, a wealthy philanthropist, a coalition that had successfully fought the construction of a landfill in the area, and one individual. (See Appendix B for examples of solicitation letters.)

3. Donations of Materials

Material donations were also solicited by direct mail, followed up by phone calls. Over $7,390 worth of materials were received from wholesale and retail nurseries and seed distributors; wholesale and retail irrigation equipment suppliers; soil and rock products distributors; a shed distributor; lumber and hardware stores; individuals; other agencies; a compost bin distributor; and others.

4. Donations of Services

The donation of services is one of the most difficult to quantify, because it involves people’s time, but it was one of the most important. Over $5,700 worth of professional services, which were relatively easy to quantify, were received. This does not take into account the days, weeks, and even months of time donated by individuals to the project. The professional services donated included the water hook-up to the site, electrical hook-up and installation within the site, the landscape plan, tool and equipment rental, kiosk design and construction, site and grading plan, site grading, sign painting, and soil analysis (some of these services were provided at a discounted price).

Labor provided by work release crews was also used on this project and will play an important role in the maintenance of the
garden. The Ventura County Corrections Services Agency allows other public agencies to take work release crews to help with public projects. These adults are only incarcerated during the day and go home at night—drunk driving is a typical offense. These crews were used on a number of occasions, and for the most part were productive. The drawback however is that they have to be back by 3:30 each day, so it makes for a short work day.

The County's Juvenile Restitution Program (JRP) offers a similar arrangement for public agencies. They will send out a crew of about 10 youths with a supervisor, for a days work at no cost. They only work on weekends however. This program worked very well for us because the kids work for an entire day and they are supervised. Use of the JRP has continued, with an arrangement for them to work at the garden at least one day a month doing maintenance tasks such as weeding, spreading mulch and turning compost piles.

I. Using the Garden

The demonstration garden offers something of interest to a wide range of audiences.

Ever since the garden started taking shape, it has had drop-in visitors, and the numbers of daily visitors are growing.

The garden is an ideal site for small, garden or environmental-related, meetings.

Tours of the garden are scheduled for local students as well as recycling coordinators throughout the state.

Composting classes have already begun at the site, and will continue on a regular basis.

Master Composter training is scheduled to begin soon. In this program a group of volunteers receives extensive training in composting techniques and community outreach skills, and then conducts 40 hours of composting education in their community. The Master Composters will use the garden as a training grounds.

Local schools will make use of the garden in a number of different ways. One local junior high school has set up a program where students who have detention, Saturday school, or need to make up citizenship points, can instead spend a day working at the garden. Local schools have also been invited to take field trips to the garden. One of the Master Composter projects will be to develop activity sheets for students to use while touring the garden.

In addition, a local church regularly uses the organic garden as a teaching grounds for ecology and other life lessons for kids.

J. Maintenance

The Ojai garden, especially because it is so large, will require a considerable amount of maintenance. Keeping the weeds under control while the plants grow in has already proven to be quite a task. Neither the County nor the City can afford staff time for the garden's maintenance, therefore a number of resources will be used.

The County's Juvenile Restitution Program will be providing a crew of kids one day a week to help with weeding, turning compost, raking leaves, spreading mulch, restocking brochures, cleaning signs, and other tasks.

The Citizens Advisory Committee has agreed to give one day each season to the garden for pruning and major clean-up. Members of this group have developed a maintenance plan, and will even be rotating the task of weather monitor (for adjusting the irrigation system).

Once the Master Composters are trained, part of their duties will be demonstration site maintenance. And once a month students from a local junior high school will work off "offenses" at the garden. So as it stands now, garden maintenance will be handled by a number of different groups
of people, with the City, County, and Citizens Advisory Committee providing guidance and oversight.

Other jurisdictions, such as Alameda County, have hired special staff strictly for maintaining demonstration sites, giving tours and presentations, and providing local promotion. Alameda's small demonstration sites each receive 15 hours per week of paid staff time for these tasks. If at all possible, paid staff for maintenance should be pursued. Volunteer and free labor takes effort to coordinate, and the quality of the work is harder to control.

K. Summary

The Ojai Community Demonstration Garden provides an invaluable education tool for reaching a broad spectrum of residents about important waste reduction opportunities. The installation of the garden was an exercise in resourcefulness and community involvement, which had significant payoffs. This type of creative project funding and implementation is becoming increasingly important at a time when budgets are being cut and staffs reduced. As witnessed by the significant donations of materials and contributions of time and expertise received on this project, solid waste planners can no longer afford to omit "the community" from the list of team players implementing projects.

Installing a composting demonstration garden can be as involved as installing a city park, and project planners should consult with professionals as much as possible during the planning stages.

The Ventura County Solid Waste Management Department (805/648-9226) and the City of Ojai (805/640-9225) are glad to answer questions of other jurisdictions pursuing similar projects.
Appendix A
Signs
Open-air composting

is done in piles or bins open to the air. This method is primarily for composting yard trimmings, and can be done quickly (hot composting) or more slowly and with less effort (slow composting). The temperature in open-air compost piles can get very high – killing weed seeds and soil diseases.

Closed-air composting

is done in closed containers. This method is good for composting kitchen scraps – because the closed bin is safe from pests – and yard trimmings. Less water needs to be added to closed bins, as moisture is recycled through condensation, and turning the pile is not necessary.

Worm bins

are dark, closed boxes filled with redworms, moist shredded newspaper (or other bedding material), food scraps and yard trimmings. Worms thrive in this environment and continuously produce worm castings, a high quality soil amendment. This method is good for apartment dwellers or others with little space.

Grasscycling

is the natural recycling of grass clippings by leaving them on the lawn when mowing. This easy technique substantially reduces waste. Grasscycling also reduces a lawn's fertilizer needs and increases biological activity near the soil surface, resulting in a healthier lawn.

Mulching

involves grinding yard trimmings and applying them directly to soil surfaces without the breakdown of the material by microorganisms. Mulches help reduce evaporation of moisture from the soil, control weed growth, and can serve as a soft "paving" for paths or play areas. Mulches also provide an attractive groundcover for exposed soil while new plantings grow together.
A handful of compost contains more decomposer organisms than there are people on the planet! These amazing little organisms make the whole composting process happen.

**Microorganisms**, the main workers of the compost pile, are too small to see. They are on everything you throw into the compost pile.

**Macroorganisms** are big enough to see. They usually enter the compost pile from the surrounding landscape in the later stages of decomposition.
Open-Air Composting

Open-air composting is done in piles or bins open to the air. Compost can be produced quickly with the hot method, or more slowly and with less effort with the slow method.

Building the Pile
- Place the bin or pile in a shady location out of the wind to reduce evaporation, and on soil so water can drain down and decomposing organisms can come up.
- Chop or grind large yard trimmings into smaller pieces.
- Use roughly half browns (such as dry leaves and twigs) and half greens (such as grass clippings and manure) when adding materials to the pile.
- Add water when building the pile, and keep the pile moist to the touch—that's pretty wet for a dry climate like ours!
- In a hot compost pile, enough materials are added to create a 3' x 3' x 3' pile all at once. The pile is moistened and left to "cook." In about three days, the temperature in the pile should rise considerably (up to 140°F)—a sign that the microorganisms are busy! Then the temperature will drop, a sign the pile needs to be turned and moistened again. This process should be repeated several times, turning about once a week, until a rich compost is produced.
- In a slow compost pile, materials are added as they are generated, rather than all at once, and the high temperatures of a hot pile may not be realized. The pile should be turned as often as possible, ideally once a week. Don't worry, the materials in your pile will eventually compost even if never turned.

Harvesting
- The compost is ready when it is dark, crumbly and has a fresh earthy smell. Sift the finished compost and return uncomposted materials to the pile.
- In a slow pile, the compost on the bottom may mature first. Till the bin to harvest this finished compost.

Containers
- Open-air composting can be done in homemade bins, store bought bins or free-standing piles.
- Containers should be at least one cubic yard, and have spaces for air to enter.
- Multiple piles, bins or compartments are recommended to allow for different stages of composting.

Don't Use
- Food wastes, especially those containing animal fat
- Large branches (unless shredded)
- Feces from meat eating animals, such as cats and dogs
- Diseased plants or plants with severe insect attack
- Weeds with seeds
- Invasive plants and weeds (unless dried in the sun first)
- Charcoal ashes
- Plants recently treated with herbicides
Closed-Air Composting

Closed-air (anaerobic) composting is composting in the absence of oxygen. This is a low-maintenance technique good for composting kitchen scraps because the closed bin is safe from pests. Yard trimmings can also be composted in closed-air systems.

Building the Pile

- Locate the bin in a sunny position on soil that will allow drainage and the entry of beneficial organisms.
- Chop or grind large kitchen scraps and yard trimmings into smaller pieces.
- Add materials to the compost bin once or twice a week (keep the lid closed as much as possible).
- Use roughly half browns (such as dry leaves and twigs) and half greens (such as grass clippings and food scraps).
- After each 6-8 inch layer of material, cover with a sprinkling of soil or finished compost.
- Add water if necessary to keep the compost moist.
- Mixing the materials when adding them to the pile is helpful, but in general, you do not need to turn or aerate the contents of the bin.
- Continue adding materials until the bin is full. The materials will reduce significantly in volume as the composting process takes place.

Harvesting

- When the bin is full, cover the compost with a thin layer of soil and allow it to sit for 12-16 weeks.
- The compost on the bottom will mature first, so some bins have a bottom opening to harvest this finished compost. Others require the bin to be pulled up over the compost.

Containers

- Closed-air containers need tight-fitting lids to maintain a high moisture content.
- Barrels of at least 55 gallon capacity and without bottoms are recommended.
- Containers should be thick and durable so they won’t crack in the sun.
- Another technique is to cover a compost pile with a black plastic tarp and seal the perimeter with bricks or rocks (don’t include food scraps in this system).

Don't Use

- Fatty foods (meat, bones, oils & dairy products)
- Large branches (unless shredded)
- Feces from meat eating animals such as cats and dogs
- Diseased plants or plants with severe insect attack
- Weeds with seeds
- Invasive plants and weeds (unless dried in the sun first)
- Charcoal ashes
- Plants recently treated with herbicides
Composting with Worms

Worms bins are simply dark, closed boxes filled with redworms, moist shredded newspaper (or other bedding material) and food scraps and yard trimmings. The worms digest organic matter and produce worm castings, high quality soil amendment.

Preparing the Worm Bin

- Locate the worm bin where it won't get hot and where there is good ventilation.
- Fill the bin with moist bedding, such as thinly shredded newspaper or cardboard, brown leaves, or cool manure (leach first).
- Add redworms (about 1 pound worms for every 2 people in household).
- Feed the worms very little for the first few weeks as they adjust to their new environment.
- Chop or grind large kitchen scraps and yard trimmings into smaller pieces.
- Feed the worms as regularly as is convenient, rotating the placement of the scraps in the bin, and burying with a small amount of bedding. Use a garden fork to avoid killing any worms.
- Keep the worm's environment moist but not soggy.

Harvesting

- In 1 - 2 months, move all the compost and worms to one side of the box, add new bedding to the vacant half, and begin burying your scraps in the new bedding.
- When most of the worms have moved to the new bedding in search of food, sift the compost on the original side, returning large undigested materials to the worms.

Containers

- Use a container with solid sides and drainage holes. Plastic makes a durable bin.
- The bin should either have a tight fitting lid or be covered with black plastic to keep out light.
- Bins should be no more than 1-1/2 foot deep, and no less than eight inches deep.

Don't Use

- Meat, bones, fatty foods, and dairy products
- Branches or twigs (unless shredded)
- Feces from meat eating animals, such as cats and dogs
- Diseased plants or plants with severe insect attack
- Weeds with seeds
- Food seeds (melon, tomato, etc.)
- Invasive plants and weeds (unless dried in the sun first)
- Charcoal ashes
- Plants treated with herbicides
Compost Benefits and Uses

Benefits

The main benefit of compost is to improve the "structure" of soil.

Soil Structure

In loose sandy soils, compost helps to bind unconsolidated particles together to retain water and nutrients that would normally wash right through. Added to a clay or silt soil, compost breaks up the small tightly bound particles, allowing water to drain and air to penetrate.

| Sandy soil has quick drainage and is low in nutrients. | Clay soil can store many important nutrients, but is difficult for roots and water to penetrate. |

Nutrient Content

Compost is considered a soil conditioner, rather than a fertilizer, but it can contain a good range of plant nutrients. Of special importance are the micronutrients in compost. They are needed in small doses by plants, yet micronutrients are often absent from commercial fertilizers. Further, the nutrients in compost are released slowly at a rate which the plants can use best.

Drought Protection

Soil improved with compost holds more moisture (100 pounds of humus can hold 195 pounds of water).

Erosion Control

Compost helps to build good soil structure.

pH Buffer

Compost can help plants overcome soil pH levels that are either too acidic or too high alkaline.

Beneficial Soil Life

The rich soil life—redworms, centipedes, sow bugs, bacteria, and others—in compost helps to control diseases and pests that might otherwise overrun a more sterile soil lacking natural checks against their spread.

Reduces Dependence on Energy-Intensive Chemical Fertilizers

The chemical system of gardening and agriculture depends extensively on the use of nonrenewable energy reserves which are increasingly tied to geopolitical issues. Using compost and organic gardening practices will help us achieve energy independence.

Uses

- Spread compost 1-4 inches thick over the garden area and work into the top 4 inches of soil. Add twice a year, ideally a month before planting.
- Once or twice a year, loosen the top few inches of soil in your annual and perennial beds and work into it an equal quantity of compost.
- Use as a mulch, 2-3 inches deep around plants, to prevent water loss through evaporation and to smother weeds.
- Every spring, use an aerator on your lawn and then spread a mixture of fine finished compost and bonemeal.
- Sift compost and add to household potting mixes. To rejuvenate the soil in indoor plant pots, scratch an inch or so of compost into the surface twice a year.
- Use sifted compost in seed germinating mixes.
Drip Irrigation

Ventura County has a semi-arid climate. Water is very scarce here. Therefore, landscapes should be watered as efficiently as possible.

Drip irrigation, used in this garden, is a method of applying slow applications of water to the specific root zone of each plant. There are many benefits of a drip system:

- Delivers water at a rate the soil can absorb, thus avoiding wasteful run-off.
- Conserves water by wetting only the root zone—where the water can be used by the plant.
- Reduces weed growth, as areas between plants are not watered.
- Water is not wasted through misting or evaporation or by blowing away.
- Conserves water and improves plant health by matching water output with individual plant needs.
- Is economical to install.

The illustrations below show the irrigation equipment used in this garden. There are many, variations of this equipment, for gardens large and small, and in every price range. Even a simple soaker hose, for under $30 attached to your existing hose bib is a good start towards a drip system.

Backflow Device

Backflow devices prevent potentially contaminated irrigation water from backing up into the potable (drinking) water supply.

Valves

Each irrigation valve controls the irrigation of a separate section of the landscape. This allows each section to be watered according to its specific needs. Low voltage wires run from each valve to the automatic controller so they can be turned on and off automatically.

The valves in this garden are above ground for viewing. The common residential valve is an anti-siphon valve which must be placed 6” higher than the highest sprinkler.

Pressure Regulators

Most drip systems are designed to run best between 20-30 pounds per square inch (psi) of pressure. But household lines generally range from 50-100 psi or higher. The pressure regulators reduce the pressure to a rate that won’t blow the system.

Filters

Since low-flow rates are controlled by very small holes in emitters and microsprinklers, filters are required to prevent clogging of these holes.

Tubing

¼” polyethylene tubing is used to distribute water. Flexible and easy to cut, it can be connected without glue or clamps. The tubing rests on the soil surface and can be covered with a mulch.

Emitters

Emitters deliver water from the polyethylene distribution line to the plants. Emitters can either snap directly into the poly distribution line, or into ¼ inch microtubing if more distance is required from the main line.

Drip emitters are best for watering individual plants.

Multi-outlet emitters, such as that demonstrated in the herb bed, have up to 12 emitters per head. Screwed into PVC risers, they use microtubing to distribute water.

Mini-spray emitters spread water over a wider area, but still operate at low flow rates and low pressure. They come in various spray patterns, and are good for low growing plants, such as ground covers and vegetables.

Irrigation equipment used in this garden was donated by: Aqua-Flo Supply, Hardie - Turf Division, Hardie - Ag Division, Weather-Mat Industries, Olson Irrigation Systems, Agri-Film Irrigation Products, Inc. Amlad, U.S.A., L.R. Nelson, Inc. and Superior Controls Co.
Organic Gardening

Organic gardening is the art of raising food and other plants without the use of petrochemical pesticides, herbicides and fertilizers.

Managing Pests

The garden is part of a complex ecosystem in which plants, animals and insects interact on many levels. When you try to eliminate one particular weed or insect, your actions also affect other living species. Pesticides can kill bees and other helpful insects, birds, and earthworms, and contaminate water supplies.

There are many effective strategies for preventing and minimizing pest damage without using toxic chemicals. Keep in mind, however, that the complete elimination of pest damage is not realistic or even desirable.

- Learn about your plants—their requirements and their potential pests—and take the time to design a garden which gives the plants what they need, discourages pests, and encourages natural predators.
- Healthy plants are less susceptible to insect attack. Grow plant varieties well adapted to your climate, soil, and light levels. They will be more vigorous than species which have to struggle to survive.
- Plant a variety of different kinds of vegetables and flowers so that no single pest can destroy your garden.

There is no truly safe disposal method for unused pesticides. When disposed of in traditional landfills, they threaten groundwater supplies. The legal method of disposal is extremely expensive, involving burial in specially designed landfills.

- Rotate your crops in the garden on a regular basis. Some insect pests and plant diseases can be greatly reduced if you do not plant the same crop in the same place year after year.
- Birds are an important predator of insect pests. Encourage birds to visit your garden by providing shelter and water for them.
- Keep garden beds covered with a thick layer of mulch, such as straw or compost, to suppress weed growth.
- The least toxic chemical control for most garden insects is a soap mixture. Insecticidal soap is available in any nursery. Don’t forget to spray the undersides of the leaves—this is where most of the insects are.

Fertilizing Organically

Chemical fertilizers gradually kill off the biological activity in the soil and ruin its structure. Eventually, few organic nutrients remain, leaving crops completely dependent on fertilizer.

Chemically dependent plants in turn have lowered resistance to insects and disease.

Fundamental to organic gardening is the building of healthy organic matter in the soil through the use of such materials as compost and manure.

Compost contains naturally occurring macro- and micronutrients which are released slowly at a rate at which the plants can best use them. Compost also improves the soil structure, which enables soil to retain nutrients and moisture.
Automatic Irrigation Controller

This box is the "brains" of the automatic irrigation system, it is also called a timer. Low-voltage wires connect the irrigation valves (on/off switches) in the landscape to this mini computer.

Automatic irrigation controllers regulate frequency, duration, and starting times for each valve. They help save water in the landscape in several ways:

- They can be set to irrigate each type of planting according to its specific water needs, for instance, frequent watering for flower and vegetable gardens, and occasional soakings for deep-rooted trees.

- They allow irrigation to always be done in the cool hours of the day to reduce evaporation.

- Some systems offer multiple repeat cycles: dividing one long irrigation period into a series of shorter periods, with time in between to let the water soak into the ground—an extremely important feature for minimizing runoff, especially when watering slopes with clay soils. Most of our soils cannot absorb water as fast as our irrigation systems throw it out.

- Irrigation can be adjusted according to the seasons.

Similar automatic controllers are available for home use. Setting up a controller system is fairly simple and can usually be done by someone without any electrical experience. Costs range from $50 - over $1,000.

This controller donated by Hardie - Turf Division, and Aqua-flo Supply.
Pruning Guidelines

Besides creating excessive waste, overpruning can also increase water demand. Most pruning should only be to remove dead or damaged limbs and to enhance structural strength.

Observe how your trees, shrubs and hedges respond to pruning. If the plant consequently throws out vigorous sprouts or heavy new growth, you probably trimmed too much or at the wrong time. Try to time your pruning to periods of limited growth. (It is best to research the specific pruning requirements of each type of plant.)

Each plant has its own natural structure and seeks to achieve its destined size in competition with nearby plants. When adding new plants to the landscape, be sure to select plants whose size at maturity is appropriate for the particular location. This way, little or no pruning will be required, and plants can grow to their destined size.
Low-Maintenance Ground Covers

Traditional lawns generate enormous amounts of clippings, are very thirsty, and demand a considerable amount of time for mowing and other maintenance tasks. In areas where your lawn is not being used for play or entertaining—such as the front yard—consider replacing it with low-maintenance ground covers.

The chamomile, thyme, and Korean grass featured here can take foot traffic, are low-water using, and require minimal maintenance. There are many other examples—with different textures, colors and heights—to choose from.

Did you know  \( \frac{1}{3} \) of the average household's trash is yard trimmings, with grass clippings often making up a large portion of that?

Did you know about \( \frac{1}{2} \) of the water used around the home is used outdoors, with the lawn typically getting most of that water?

Ground covers in this garden were donated by Katsuda and Mitsuwa Nurseries.
Water-Saving Plants

This demonstration garden features examples of water-efficient plants appropriate to Ventura County's dry climate.

As you can see, water-thrifty plants can be lush and colorful and come in every shape and size. Even plants with normal watering requirements do remarkably well with reduced irrigation once they have developed extensive root systems and are heavily mulched.

Fall is the best time to plant. Keep in mind that even low water using plants require extra water during the first several months while they become established.

In addition to reducing water consumption, these plants also help reduce waste because they tend to grow slower and require less maintenance, such as mowing and pruning.

Landscape Planning

By giving a little extra thought to landscape planning, you can greatly reduce waste as well as water consumption.

- Give plants enough growing space, otherwise plants may have to be severely pruned or removed in the future.
- Leave space for compost piles and brush chipping.
- Only plant turf where it will be used, such as for play or entertaining.
- Group plants according to their water needs, and water accordingly.
- If you include thirsty plants in your landscape, plant them on the cooler side of the house.
- Consider incorporating used materials in the landscape whenever possible, such as broken concrete, used lumber, or railroad ties.
- Amend the soil thoroughly and deeply with organic matter before planting from your compost pile.

This landscape was designed by Stiles-Johnson Partnership, Tucker Adams, Kathy Rilling, Steve Beckman, and Lorraine Timmons.
Reused Lumber

Hundreds of tons of wood are thrown away in Ventura County each year. A surprising amount of this wood is perfectly good, and could be reused.

This bench is made from used lumber salvaged at the landfill, and used telephone poles. Used lumber can be obtained from demolition contractors, or from construction projects (with permission). In some areas, you can also purchase like-new, remilled lumber from recycled-lumber yards.

Most used lumber is low in moisture content and very stable, two good qualities in wood. However, if the wood has been exposed to the weather for too long, it may be very hard to saw or hammer a nail into. Look for used lumber that is as "fresh" as possible, and always avoid lumber which is oil soaked, smells of chemicals, or is coated with lead paint.

Be very careful when working with used lumber, as it can still have metal in it, sometimes broken off and hidden below the surface.

This garden also demonstrates the use of other used materials in the landscape, such as broken concrete, bricks, and cinder blocks.
Wood & Wire

Open-air composting bin made from wood and wire mesh. Costs around $60 to build using new materials, less if built with used lumber.

- Holds large volume.
- The wire mesh provides extra ventilation.
- Can be easily moved to turn piles or to harvest finished compost.
- The wire mesh sides and lack of a lid can result in rapid moisture loss.
- Requires construction—a design sheet is available to make construction easy.
Designer Bin

Open-air composting bin made from landscape timbers or railroad ties. Costs about $230 to build with new materials, much less if built with used materials.

+ • Attractive design can be made to match architectural features of the home.
+ • Holds extra large volume.
+/- • Large size makes turning & harvesting the compost easy.
+ • Wood sides help retain moisture.
+/- • Requires construction.
Open Pile

Purchasing or building a compost bin is not necessary to produce high quality compost. A simple pile will do. Cost is free!

+ • Volume of pile not constrained by number of, or size of, compost bin(s).
+ • Easy access for turning & harvesting compost.
- • Lack of sides can result in rapid moisture loss.
3-Bin System

Open-air composting system made from wood and wire mesh. Costs about $150 to build using new materials, less if built with used lumber.

- Holds extra large volume.
- Multiple bins make turning & harvesting the compost easy.
- Wire mesh provides extra ventilation.
- Convenient secure lid helps deter rodents and holds in moisture.
- Requires construction—a design sheet is available to help make construction easy.
Worm Box

Box for composting with redworms, made from used lumber. Worm kits, which include a plastic box, 2 pounds of worms, and 15 gallons of bedding are available from worm distributors for about $60. A pound of redworms costs about $12.

- A wooden box requires construction.
- Can be set up outside, in the garage, or even in the house.
- Plastic boxes are more durable than wooden worm boxes.
- Plastic boxes tend to be quite small, while wooden boxes can be built to any size.
The best to my mind is the "Home Computer" by
Smith & Nephew

Railroad tie bin 100" x 60" approx.

Wire mesh has holes 2" x 4" & hinges 3" x 3"
Wire Mesh

Open-air composting bin made from wire mesh or hardware cloth. Costs about $15 to build.

- Holds large volume.
- Wire mesh provides extra ventilation.
- Can be easily moved to turn piles or to harvest finished compost.
- Easy to construct—a design sheet is available.
- Wire mesh sides and lack of a lid can result in rapid moisture loss.
Gedye

Closed-air composting bin made from 100% recycled plastic. Costs about $88.

- Easy to install.
- Made from thick, durable plastic.
- Holds large volume.
- Convenient, secure lid.
- Bin easily lifts off finished compost.
Wooden Pallets

Open-air composting bin made from used pallets. Slightly damaged pallets can often be obtained for free.

- Easy to assemble.
- Holds extra large volume.
- Spaces between boards provide good air circulation.
- Easily modified: can be expanded to a two bin or three bin unit, and the front pallet can be removed to make a three-sided bin.
- The open side allows easy access to compost for turning and harvesting.
Presto

Open-air composting bin made in part from recycled plastic. Costs around $13 (less at our composting workshops).

- Easy to assemble.
- Large holes provide good ventilation.
- Plastic sides help retain moisture.
- Can be easily moved to turn piles or harvest finished compost.
- Holds small volume because of the 30" height.
Biostack

Open-air composting bin made in part from recycled plastic. Costs around $99 (less at our composting workshops).

- Easy to assemble.
- Stacking sections allow easy access to the pile for turning and harvesting.
- Air slits provide good ventilation.
- Lid holds in heat and moisture (but may blow off in strong winds).
- Holds small volume because of 27" width, but bin can expand upwards.
City Gardener

Closed-air composting bin made in part from recycled plastic. Costs around $80.

- Easy to install.
- Convenient, secure lid.
- Bin easily lifts off finished compost.
- Holds small volume.
Block Bin

Open-air composting bin made from used cinder blocks. A three-sided bin can be built for about $45 with new blocks.

- Easy to assemble.
- Holds extra large volume
- Space can be left between blocks for extra ventilation.
- Easily modified: can be expanded to a two bin or three bin unit, and a wooden hinged lid or doors can be added.
- The open side allows easy access to compost for turning and harvesting.
- Portable if not mortared together.
Toro

Open-air composting bin made from 100% recycled plastic. Costs about $80.

- Easy to assemble.
- Special mixing slots provide access for easy turning.
- Holds small volume.
- Air slits provide good ventilation.
- Plastic sides help retain moisture.
- Bottom doors on each end provide easy access to finished compost.
- Special lid design captures rain.
Earth Machine

Open-air composting bin made in part from recycled plastic. Costs around $99.

- Easy to install.
- Convenient, secure lid.
- Air slits provide good ventilation.
- Plastic sides help retain moisture.
- Bottom doors provide easy access to finished compost.
- Holds small volume.
Herbs

Sages

Cacti & Succulents

Grasses
Established sun. Can endure much drought once.

Some: Grows to 6' wide, 18" tall. Full sun growing plant. Clusters of yellow blossoms unremoved to grow to taller feathery soft, pliable tur- substitute, or leaf. Perennial which can be moved to form

Achillea taygetea 'Moonshine'

Yarrow

Draned soils.

but thrives with summer water in well-go without water in normal-rainfall years. Berries: Prefers full sun/high shade. Can clusters of white blossoms and showy red small tree, up to 10' wide and 15' tall. Which grows to a large dense shrub or which is a small shrub to a tree:

Heteromeles arbutifolia

Toyson

Prunus lyonii

Catalina Cherry

Summer:

must. Large black cherry fruits mature in late-normal rainfall years. Good drainage a normal sun. Can go without water in 30' tall. Full sun. Grows to 40' wide, white blossom spikes. Grows to 40' wide, California native shrub to tree. Showy

Sweet Bay

Laurus nobilis

Medium sized evergreen shrub to tree.

Laurus nobilis
This community garden would not have been possible without the time, sweat and donations of many individuals and businesses. Space does not permit listing everyone who helped, but following are the major contributors. Thanks to everyone!

A few special, devoted people gave many laborious hours to the creation of this garden:
Steve Beckman, Environmental Creations
Ron Timmons, Husband Extraordinaire
Tucker Adams, Landscape Design
Kathy Rilling, Rockrose Horticultural Service
Lynn Malone, Organic Gardening Instructor
Lorraine Timmons, Ventura County Solid Waste Mgmt Depl.
Eileen Laber, Aqua-Flo Supply
Greg Koler, Assistant Rock Layer
Marilyn Miller, City of Ojai
Charles Raabe, General Property Services
Sandy Messori, Rivendell

SPONSORUS MAXIMI
U.S. Environmental Protection Agency, Environmental Education Grant • California Integrated Waste Management Board • California Conservation Corps, Camarillo Service District • Aqua-Flo Supply • International Brotherhood of Electrical Worker’s Local 952 & Ventura County National Electrical Contractor’s Association • Ojai Civic Association • Southern California Water Co. • Stiles-Johnson Partnership, Landscape Architects • Dump Weldon Coalition

DONORUM GENEROSUMA
R & R Gardening Service • Norman’s Nursery • California Wood Recycling • Native Son’s Nursery • Katsuda Nursery • Ojai Garden Club • Hi-Mark Nursery • Ken Kendzior, Plastering Service • Timberrill Storage Barns of Ventura • Dronye Construction • L.A. Thompson Soil & Rock Products • Terry Lumber Co. • Hines Nurseries Inc. • Gould Family Trust • San Marcos Growers • Hardie - Turf Division • Hardie - Ag Division • Creative Endeavors

GIVUS KINDOSA
Performance Nursery • Desert Images • Weather-Matic Ind. • Home Depot, Oxnard • Olson Irrigation Systems • Chris & Wendy Hilgers • John Taft • Agri-Fim Irrigation Products, Inc. • Coast to Coast, Ojai • Glenn Hawks • Nick Torrence, Carpenter • Fruit Grower’s Laboratory • Barbara Cunningham • Agromin Horticultural Soils • Amlad, U.S.A. • L.R. Nelson, Inc. • Superior Controls Co. • Richard Carelli • Elaine Ferguson, Designer • Ojai Valley Horticultural Society • Ventura Regional Sanitation District • Port Hueneme Naval Construction Battalion • American Wholesale Nursery • Jo O’Connell, Australian Native Plants • Western Farm Service • Anne Boydston • Dorothy Lutes • Don and Jean Garcia • Baron Brothers’ Nursery • Harmonious Technologies • Jeff Rains • Ojai Valley Farms Equestrian Center • CHP Steel • Mitsuwa Nursery • Ojai Concrete • Albright Seed Company • Daniel Quezada • Builder’s Mart • S & S Seeds
OJAI COMMUNITY DEMONSTRATION GARDEN

- BACKYARD COMPOSTING
- WATER CONSERVATION
- ORGANIC GARDENING

Behind City Hall on Ventura Street
Appendix B
Promotional Materials
December 30, 1992
For Immediate Release

Residents Invited to Help With Community Garden

The City of Ojai and the County of Ventura are planning a Backyard Composting and Water Conservation Demonstration Garden on city hall grounds to teach residents about composting and other yard waste reduction techniques and water-efficient landscaping. The plan calls for an outdoor demonstration facility for hands-on classes, as well as a self-guided interpretive tour. The garden is scheduled to be completed by early summer.

The goal is to create a park-like community space that will be enjoyed by residents with a variety of interests, from composting, to xeriscaping, to organic gardening. Since the garden is intended to be a community resource, the city and county want to involve the community as much as possible in designing, constructing and maintaining it. In fact, at a time when public funds are extremely scarce, the success of the garden is dependent upon contributions from the community.

Needs for the garden include plant material, soil amendments, lumber, cement, benches, irrigation equipment, a drinking fountain, and labor to help with installation. Cash donations are, of course, also welcome. With waste reduction the central theme of the garden, the garden planners want to incorporate as much used or recycled materials in the construction as possible. Gardeners, contractors, philanthropists, and others with material, equipment, expertise, funds or time are encouraged to get involved.

Anyone interested in participating is invited to attend a community planning meeting on Saturday, January 9, 1993, from 10:00 a.m.-12:00 p.m., at the future garden location, 415 S. Ventura Street (behind city hall). Those who wish to help but cannot attend the meeting should contact Marilyn Miller at 805/640-2555.

# # #

For more information contact:
Lorraine Timmons
(805) 648-9226
FOR IMMEDIATE RELEASE

VOLUNTEERS NEEDED FOR DEMONSTRATION GARDEN

The City of Ojai is seeking volunteers next week to help in the City of Ojai/County of Ventura Demonstration Garden under construction behind City Hall. On Wednesday and Thursday from 9 to 5 a crew will be busy planting the many native species given to the project by local nurseries. Anyone interested in learning about drought tolerant plants and proper planting techniques, or anyone just wanting to get their hands into the earth, is invited to contribute to this worthwhile effort.

The project, organized with donations and support from many County businesses and individuals, will be used to demonstrate composting, drought tolerant landscaping and low-water using irrigation systems. Work on the site has been ongoing for the past few weeks and the crew is now ready to plant and install the irrigation system. Marilyn Miller, the City's recycling coordinator, encourages everyone who is interested to put in a few hours. "This is when the fun starts and the project really begins to take shape. The intention is to create a community garden in a park like setting to support the City's efforts to reduce yard trimmings going to the landfill and to help residents learn to use water efficiently. We are pleased with the project so far and hope the community support continues to grow."
In conjunction with the demonstration garden, an organic garden has been planted adjacent to the site to promote the use of compost and natural gardening techniques. Organic gardening classes will be available through the Recreation Department this summer.

Contact the City of Ojai at 640-2555 to volunteer or to get your questions answered.

###
February 19, 1993

Randy Baldwin  
San Marcos Growers  
P.O. Box 6827  
Santa Barbara, CA 93160

Dear Mr. Baldwin:

The City of Ojai and the Ventura County Solid Waste Management Department are planning a Backyard Composting and Water Conservation Demonstration Garden behind Ojai City Hall. The purpose of the demonstration garden is to educate residents of the City of Ojai, the Ojai Valley, and surrounding areas, in the practices of backyard composting and water-wise gardening. While our primary objective is to promote waste reduction through backyard composting, the garden also focuses on water conservation because water conservation and waste reduction complement one another: the landscaping techniques which reduce water also reduce waste.

The demonstration garden will be quite large, and conveniently located behind Ojai City Hall. Our goal is to create a park-like community space that will be enjoyed by residents and students with a variety of interests, from composting, to xeriscaping, to organic gardening. The garden will consist of several types of composting systems, attractive water-efficient vegetation, low-output irrigation equipment, and mulches. Descriptive signs—addressing techniques, landscape materials, and plants varieties—will be placed throughout the site to provide a self-guided educational tour. With seating to accommodate over 50 people, the site will also serve as a classroom for workshops on composting, water conservation, gardening, and other topics desired by the community.

Similar demonstration gardens in Seattle, Alameda, and San Francisco have been very popular. The enthusiastic responses from the public and increasing requests for more information and training, have sent a clear message that demonstration gardens are effective educational outreach tools.

The enthusiasm for this garden is extremely high, with many local people and businesses demonstrating a willingness to contribute. Landscape architects, irrigation equipment suppliers, the local water company, the electricians union, and local landscapers have contributed their time and expertise to the project.

It would help the project considerably if San Marcos Growers, as a well known supplier of plant material, would consider providing some of the plants needed for this important community garden.

Dedicated to Recovering and Recycling our Natural Resources
Our plant list consists of quite a variety of low water using species. We want to show people that low water using plants can be lush, colorful and attractive; and give them many examples to choose from. We also want the plants we feature to be readily available and relatively easy to take care of. Attached is the plant list we’ve come up with for the garden. We’ve highlighted some of the plants that we’d specifically like you to consider donating. This list is just a guide, however, and we will be appreciative of any low water using plants, in any quantity, that you are able to contribute.

Installation of the vegetation is scheduled for the week of April 19-23, therefore we’d like to have the plants at the site by the week prior. If you can make a donation of plant material to the project, we can try to make arrangements to have them picked up, or you can deliver them to the site at 415 S. Ventura Street, in Ojai.

We expect the garden to be complete in May, 1993. At that time local officials, the media, the local community, and project sponsors will be invited to a grand opening celebration. Classes will begin immediately, local schools will be invited to use the demonstration garden as an educational classroom, and gardening groups and others will be welcome to use the garden as well.

Sponsorship of the demonstration garden by San Marcos Growers will be recognized in all printed material as follows:

- All advertising and press releases;
- Feature story in local newspaper; and
- Sponsor list on the kiosk located in the center of the garden.

This is a wonderful opportunity to create a beautiful community garden that will be used to educate the public for years to come. We hope you find this project as exciting as we do and will consider assisting us in the acquisition of the plant material.

I look forward to discussing this project with you. I can be reached at (805) 648-9226.

Sincerely,

Lorraine Timmons
Resource Recovery Analyst
October 29, 1992

Nicholas Construction
Ojai, CA 93023

RE: City/County "Composting and Water Conservation Demonstration Garden"

The County of Ventura and the City of Ojai have received a grant from the Environmental Protection Agency (EPA) to build a permanent "Composting and Water Conservation Demonstration Garden." This $5000.00 grant is enough to begin the project, but as you know this amount only goes so far. The plans for the site include building benches to seat 50 people, demonstration compost bins and worm boxes, and water conserving landscaping.

We are contacting all contractors and landscapers in the Ojai Valley to ask for help with this project. Ojai is known for being a community that reaches out to help one another. The County and City are asking you to take part in this community project. Any type of materials that may help us complete this project are welcome. All volunteers interested in planning and/or building the site are invited to get involved. Please fill out the response letter and return it to the City as instructed. Thank you for your continued support of the Ojai community. All volunteers and donors will be recognized on our sponsor sign. We look forward to working with you!

Sincerely,

David A. Langer
Assistant Recycling Coordinator

Encl.
RESPONSE LETTER

Yes, I want to help the City of Ojai with the "Composting and Water Conservation Demonstration Garden."

Name: ____________________________________________

Company: __________________________________________

Address: __________________________________________

Phone: ____________________________________________

Fax: ______________________________________________

I am willing to help in the following areas:

___ Installing signs
___ Building benches
___ Overseeing the construction and planting of the garden
___ Other______________________________

I can donate the following materials:

___ Fresh scrap lumber
___ Plant materials
___ Mulching materials
___ Landscaping pavers
___ Green and yard waste on a regular basis
___ $$
___ Other______________________________

Comments_________________________________

_____________________________________

_____________________________________

_____________________________________

Tri-fold, staple and mail back. Thank you!
July 27, 1993

Board of Directors  VIA TELEFAX
Coalition to Dump Weldon Canyon  646-1333
c/o Angela Stasse  646-7404-H.T.

Re: Ojai Valley Demonstration Garden
   Request for Financial Assistance

The City of Ojai and the County of Ventura Solid Waste Management
Department are in the final stages of constructing a demonstration

garden behind Ojai City Hall. The site incorporates back-

yard composting, drought-tolerant landscaping, low-water using

irrigation, and organic gardening into a park-like setting. The
design includes a stage/seating area perfect for conducting
classes, but it is also laid out so that a self-guided, informa-
tional tour through the garden and compost bin areas is possible.
Signs throughout the garden provide information on thirteen
different types of composting systems, the use of mulch and
compost in the landscape, low-water using plant materials, water-
efficient irrigation systems, the utilization of used materials
in the landscape, and more. The site will be open to the public
at all times.

As you probably already know, yard debris is a large portion of
the residential waste stream. According to the waste charac-
terization study performed for the City in 1991, residential yard
waste makes up 23 percent of the total generation. Keeping this
material out of the landfill could go a long way toward helping
us meet the AB 939 goals, as well as reducing the need for future
landfill space. Backyard composting is the best method for
diverting this valuable material. Once residents learn to turn
their yard clippings into valuable soil amendment on their own
property, they not only divert it from the landfill, but also
avoid the cost of having it picked up and hauled off in any
curb-side green material program the City may implement.

Additionally, using drought-tolerant landscaping and low-water
using irrigation cuts the amount of yard waste generated on
residential property. Low-water using and native plant mater-
ials, with the proper amount of water, do not have to be pruned
as often. Use of less turf results in fewer grass clippings
thrown into the trash. Native plants also bring native birds and
insects into our back yards.
Board of Directors, Coalition to Dump Weldon Canyon

July 27, 1993

Finally, teaching backyard gardeners how to grow vegetables without chemicals reduces the amount of hazardous waste poured into our soils, waterways, and landfills.

This comprehensive project has received the support from many members of the community as well as local businesses. First of all, we received a small grant from the U.S. Environmental Protection Agency which got the project off the ground. Cash donations were also received by local individuals and community groups. Labor has been donated, both in the planning and installation, by the local horticulture club and other devoted individuals. The California Conservation Corp. spent a total of four weeks working on the site; their services a donation from the California Integrated Waste Management Board. Much of the lumber used in the project was salvaged from the local landfill. And, irrigation planning and hardware, plant materials and soil amendments, and equipment and labor has been donated by businesses from throughout the county and beyond. The overwhelming community support for this project is evidence of a strong commitment within this valley to reducing waste pollution.

The Dump Weldon Coalition, now that Weldon Canyon Landfill has been withdrawn, has expressed a desire to support new and ongoing programs which will reduce the need for more landfills in the County. The Ojai Valley Demonstration Garden, by teaching Valley residents about waste efficient yard care and organic gardening, does just that. The garden itself is a valuable asset to the community which can be utilized not only by local government agencies but also by community groups, schools, and individuals for years to come. The project is unique in that it not only addresses the issue of yard waste, but includes education on source reduction, recycling and household hazardous materials at the same time.

The project is nearing completion. However, there are several items that remain unfinished and for which we ask your financial assistance. These are itemized by priority below with an approximate cost for each.

Decomposed Granite: Materials were purchased some time ago. Volunteers can be used, however, it is important that this task be done correctly the first time. Labor cost for professional installation of pathways, including forms. $ 2,000

Maintenance: Community volunteers and crews of juvenile offenders serving community service time are available, but a tenuous sources of labor. A
Board of Directors, Coalition to Dump Weldon Canyon

July 27, 1993

paid staff person, about 4 hours a week for a six month period, would ensure the garden is maintained until firmly established. $1,000

Plants: Thus far, all plants have been donated. We were unable to obtain several varieties which are important to the design and educational value of the garden. 400

Brochures: Numerous handouts will be made available in the garden on composting, bin construction, and safe substitutes for hazardous lawn and garden products, as well as other waste reduction opportunities and programs. Some of these are available for free, others we will have printed. 500

Lighting: Provisions was made for lighting installation at a later time. At a minimum, two lights to illuminate the entrance sign are desired. 300

We appreciate your consideration of our request. Your contribution to the Demonstration Garden will be acknowledged on our sponsor sign to be displayed in the garden. Also, the City and County will promote the opening of the garden with press releases and a grand opening. If you have any questions please feel free to call me at 640-2555, or Lorraine Timmons with the County Solid Waste Management Department at 648-9226.

Marilyn Miller
Recycling Coordinator
August 23, 1993

Kathy Rilling
Rockrose Horticultural Service
340 Avenida de la Vereda
Ojai, CA 93023

Dear Ms. Rilling:

The Ojai Community Demonstration Garden is finished and it’s time to thank everyone who made it possible! The City of Ojai and the Ventura County Solid Waste Management Department (SWMD) would like to invite you to attend the grand opening celebration at the Demonstration Garden at 415 S. Ventura Street, on Saturday, September 11, from 10:00 a.m. to 12:00 noon. The morning will be used to recognize those who gave to this project, to enjoy some refreshments, and to tour the finished garden.

Countless individuals, businesses and local groups contributed to the creation of this wonderful garden, which will be used to educate residents about backyard composting and other methods of landscape waste reduction, as well as water conservation, organic gardening and more. Descriptive signs throughout the park-like garden allow for self-guided educational tours, providing information on everything from water-efficient irrigation systems, to the growing habits of the plants, to 13 different types of composting systems. A stage and seating area will be used for teaching classes of all types.

The community response to the Demonstration Garden has been extremely supportive. It could not have been done without your contribution. Please join us on Saturday, September 11 to celebrate the completion of this wonderful garden and community asset. If you have any questions, call Marilyn Miller at the City of Ojai at 805/640-2555 or Lorraine Timmons at the Ventura County SWMD at 805/648-9226.

Sincerely,

Steve Olsen
Mayor, City of Ojai

Maggie Kildee
Ventura County Supervisor, District 3
Please join us for the

GRAND OPENING CELEBRATION!

of the

OJAI COMMUNITY
DEMONSTRATION GARDEN

Saturday, September 11
10:00 A.M. - 12:00 P.M.
Ojai Community Demonstration Garden
415 S. Ventura Street, Ojai

- Commendations by Local Officials
- Tours of the Garden
- Refreshments

A project of the City of Ojai and
the Ventura County Solid Waste Management Department.
Resolution
Commending the Contributions of Steve Beckman
to the Ojai Community Demonstration Garden

Whereas, the Ojai Community Demonstration Garden could not have been built without the contributions of volunteers;

Whereas, Steve Beckman has been the most persistent and reliable volunteer to work on the Garden, from the first planning meetings and through thick and thin;

Whereas, Steve has achieved great notoriety as the Zen Master of rock selection and placement;

Whereas, Steve’s van has endured considerable abuse from hauling load upon load of river rocks to the Garden, as well as pulling Lorraine’s truck out of the dirt at odd hours of the evening;

Whereas, the slope leading down to the barranca behind the Garden shall never wash away thanks to Steve’s meticulous terracing, planting and gopher eradication;

Whereas, Steve’s insistence on discussing Murphy and his famous Law at every juncture pained his fellow gardeners, yet saved their derrieres every time;

Whereas, we are indebted to Steve for coordinating an advisory committee of local horticulturalists to help ensure proper maintenance of the Garden;

Whereas, Steve’s cigar smoking, carnivorous, tell-it-like-it-is demeanor added a nice contrast to the otherwise monotonous group of vegetarian, earth-friendly, over-polite workers;

Whereas, Steve has acquired at least one specimen of cacti and succulent from every resident within Ojai and the Ojai Valley;

Whereas, Steve and friends have perfected the art of cobblesstoning with used and recycled materials;

Now, therefore be it resolved that the special character of the Ojai Community Demonstration Garden is owed in large part to the extraordinary contributions of Steve Beckman, and the citizens of the City of Ojai, the County of Ventura and the Ojai Valley declare their gratitude for his dedication to Ojai’s beautification.
The City of Ojai
Commends
Tucker Adams
for
Your Exceptional Contribution
to the
Ojai Community Demonstration Garden
September 11, 1993
Appendix C
Brochures
FREE

Backyard Composting Workshop
For residents of the City of Ojai & the Ojai Valley

Saturday, October 23, 1993 • 10-noon
Rain or shine

At the Ojai Community Demonstration Garden
(Behind Ojai City Hall on South Ventura Street)

Workshop Topics:

- Composting Basics (methods for every lifestyle)
- Waste & Water-Efficient Yard Care
- Worm Composting
- Pest & Odor Control
- Mulch & Compost Use in the Landscape

Yard trimmings make up 30% of what we commonly throw away. By learning to compost, you can help save precious space in local landfills and create a valuable soil amendment for your landscape. This workshop will be participatory, so wear appropriate clothes.

Compost bins will be available at below-retail prices.

For more information 805/648-9226 or 805/640-2555

A joint project of Ventura County Solid Waste Management Department and City of Ojai

Printed on recycled paper
Waste-Efficient Yard Care

composting and more...
Waste-Efficient Yard Care

Most solutions to Ventura County's solid waste management problems are very expensive. In contrast, backyard composting and other methods of waste-efficient yard care offer County residents inexpensive and environmentally sound ways to substantially reduce the amount of waste going to local landfills.

The recycling of organic material is a process that constantly occurs in nature. In a landfill, however, decaying organic matter is permanently entombed. The methods outlined in this brochure merely speed up the return of plant materials to the soil, thus completing the natural cycle.

This brochure describes the following methods of waste-efficient yard care.

Reducing Yard Waste In the First Place

Techniques that reduce the generation of unnecessary yard waste and save water while reducing maintenance.

Hot Composting

Produces compost in as little as four weeks; kills weed seeds, insect eggs and pathogens; is relatively odorless; and produces rich organic matter. Requires a fair amount of attention and plenty of raw material.

Slow Composting

A low-maintenance technique that requires less attention to the details of materials used and the environment provided for them. Yard wastes are slower to decompose, taking from six months to four years.

Closed-Air Composting

A low-maintenance technique especially good for composting kitchen scraps, as well as yard wastes, in a container safe from pests. Requires the purchase or construction of a closed-air compost bin; can be smelly; and lime or dolomite may be needed.

Worms

A neat, easy, relatively odorless way to recycle kitchen and yard wastes that results in a high-quality fertilizer; particularly good for apartment dwellers or others with little space. Requires the purchase of worms and the purchase or construction of a worm bin, and takes a month or two for the worms to become established.

Mulching

Produces an excellent material which decreases the loss of moisture from the soil, controls weeds and protects soil from erosion. Mulches can also serve as a soft "paving" for paths or play areas. Requires the use of equipment to shred yard wastes.

Grasscycling

An easy maintenance technique that reduces a lawn's fertilizer needs and increases biological activity near the soil surface, resulting in a healthier lawn. A mulching mower or attachment may be needed; requires the removal of excessive thatch.
Reducing Yard Waste in the First Place

Reduce, Reuse, Recycle. The three R’s of the 90’s. Before we reuse and recycle our yard wastes, much can be done to reduce the generation of yard waste in the first place. Fortunately, the landscaping techniques that reduce the amount of yard waste produced, also reduce the amount of water consumed.

Limit Lawn Size
Lawns are thirsty, time consuming, and generate a considerable amount of waste. Plant a lawn only where it will be used for play or entertaining.

Irrigate Efficiently
Over-watering promotes rapid growth, generating more yard waste. Over-watering is also a common cause of lawn and plant disease. Use water-efficient irrigation equipment, such as drip and low output sprinkler heads, and water each plant according to its specific needs.

Use Mulches Around Trees and Shrubs
A couple inches of mulch will deter weeds and reduce evaporation. The best place to find mulch materials is in your own yard. Use shredded yard trimmings, compost or leaves.

Plant Water-Efficient and Low-Maintenance Vegetation
Water-efficient plants tend to grow slower and require less maintenance (i.e., pruning). There are many lovely, colorful plants available. Plants should be chosen whose size at maturity is appropriate for a particular site.

Improve Soil
A good soil is very important to the success of water-efficient plants. The best way to improve either a sandy or clay soil is by adding organic amendments, and the best place to get these amendments is from your own compost pile.

Limit Fertilization
Excessive applications of fertilizer – particularly high nitrogen fertilizer – promote vigorous growth and increased water use. Moderation is the answer.

Plan and Design
When planning the landscape, give plants enough growing space, otherwise plants may have to be severely pruned or removed in the future. Also leave space for compost piles and brush chipping.

Prune Conservatively
Observe how your trees, shrubs and hedges respond to pruning. If the plant consequently throws out vigorous sprouts or heavy new growth, you probably trimmed too much or at the wrong time. Try to time your pruning to periods of limited growth. Most pruning should only be to remove dead or damaged limbs.

Using Compost
Compost is an ideal addition to all soils. Compost adds organic matter to the soil, which helps make clay soils less compact and better drained, and helps sandy soils hold valuable nutrients and water. Compost is classified as a soil conditioner rather than a fertilizer, but it can contain a good range of major and minor plant nutrients plus trace elements essential for healthy plant growth.

Common uses of compost:
- Spread compost about 4 inches thick over the entire garden area and work into the top 8 inches of soil. If you have time, allow the soil to sit and rest for several weeks before planting. Add compost once or twice a year.
- Use as a mulch, 2-3 inches deep around plants, to prevent water loss through evaporation and to smother weeds.
Hot Composting

The compost pile is really a teeming microbial farm. Microorganisms, such as bacteria and fungi, are naturally present on food and yard trimmings added to the pile. These organisms decompose organic materials into rich, earthy-smelling organic matter.

The hot compost method depends on heat loving and heat generating bacteria. In order for these bacteria to thrive, the pile must be of correct size, have the proper temperature, and have the proper balance of food, water, and air. If these conditions are met, the microorganisms will raise the temperature of the pile to 140° F or more, hot enough to burn your hand! The heat from this rapid decomposition is enough to kill most weeds and disease-causing organisms.

Proper Balance of Food

Just about anything that was once alive can be composted. Carbon and nitrogen, from the cells of dead plants and microorganisms, fuel the activity of the decomposing organisms. The ratio of carbon to nitrogen (C:N) is important to a hot compost pile. It helps to think of materials high in nitrogen as “greens,” and carbon-rich material as “browns.” See left panel.

Getting the right balance of greens to browns takes experience. For beginners, a good guide is to use roughly half browns and half greens when building your pile. A pile that is too high in browns will stay cool and sit a long time without breaking down. A pile too high in greens can get slimy and have a foul odor.

Other household organic wastes such as wool, cotton, dust, vacuum sweepings, hair clippings, and pet fur can also be composted.

Materials Not to Use:

- Food wastes of any kind*
- Large branches or logs (unless shredded)
- Plastics or synthetic fibers
- Manure from carnivorous (meat eating) animals
- Diseased plants or plants suffering from severe insect attack
- Weeds with seeds
- Invasive plants and weeds (ivy, succulents, Bermuda grass, morning glory, mallow)
- Plants that have been treated with herbicides
- Charcoal ashes

*Although food wastes are compostable, Ventura County does not recommend adding these materials to an open compost bin, as they may attract pests. Some kitchen wastes can be added to closed containers, such as used in closed-air composting or worm bins.

Building the Compost Pile

1. Locate the compost pile in a shady location out of the wind to decrease water loss through evaporation. Multiple piles are recommended for different stages of composting. Loosening the soil under the pile will help drainage.

2. Stockpile enough green and brown materials to make a pile that is at least one cubic yard in size. Piles smaller than 3 feet cubed will have trouble holding heat, while piles larger than 5 feet cubed don’t allow enough air to reach microorganisms at the center. While stockpiling the materials, keep them dry.

3. The more surface area the microorganisms have to work on, the faster the materials will decompose. Cut or bruise yard wastes with a shovel or machete, or put them through a chipper or shredder. Some materials may be run over with a rotary lawn mower. The harder or the more woody the tissues, the smaller they need to be chopped.

4. Alternate layers of green and brown materials. Begin with a thick layer of coarse, bulky material, such as sunflower stalks or flowers, to allow air to circulate in the pile. Then layer carbon-rich materials and nitrogen-rich materials and mix the layers together. It’s best to keep the layers thin. Continue mixing greens and browns until the pile is 3-4 feet high. Once the pile starts to “cook,” do not add more materials.
5. Keep the pile moist. The compost material should be moist to the touch, but yield only a drop or two of liquid when squeezed. Moisten dry materials when adding them to the pile. A layer of straw, plastic or carpet scraps on top of the pile helps keep its outer edges moist.

6. Turn the pile. Ideally, the compost should cook along at 140°F or higher for at least three days. (Long thermometers are available to keep track of compost temperature.) When the pile cools, turn it. If a moveable compost bin is being used, remove it from the pile, place it nearby, and move the compost into it with a pitchfork or shovel. If a multiple bin unit is being used, move the compost into the next bin. In two to seven days, the pile will heat up a second time, though probably not to as high a temperature as the initial build-up. After the pile has cooled, in about a week, it should be turned a third time. As you turn it, move any uncomposted materials to the active center of the pile. After the pile has cooled once more, turn it a final time.

7. Once the pile begins to drop below lukewarm, and most of the bulky material has decomposed, the compost is ready. Sift large chunks out of the finished compost for further composting.

Containers
Hot compost can be made in special bins or free-standing piles. Homemade bins can be constructed out of many materials such as wire mesh, scrap wood, a combination of wood and wire, or concrete blocks. A barrel composter can be built out of a 55 gallon barrel, with holes and a loading door cut out. Enclosed containers must have spaces for air to enter. Bins can have one, two or three compartments for compost in different stages of decomposition. There are many pre-made compost bins on the market. If you’re after a hot compost, be sure the bin has an interior volume of at least one cubic yard.

Slow Composting
In the slow composting method, yard wastes are composted in simple holding units or compost heaps. Bacteria and fungi that function at mild temperatures are the actors here. Earthworms, centipedes, beetles, millipedes and other organisms are also involved in the breakdown process.

Materials to Use
Use the same ingredients as the hot compost pile, though a higher carbon to nitrogen ratio is acceptable. Be sure to keep out the kitchen scraps, because compost heaps can attract critters of the rodent persuasion.

Building the Compost Heap
1. Locate the compost heap in a convenient spot out of the wind and direct sunlight. It is helpful to have two heaps, one to use for fresh wastes while the other is maturing. Composting piles should always be located directly on the soil.

2. Add yard wastes as they are collected. Mixing the green and brown materials and keeping the heap damp (but not soggy) will help keep the composting process going. Occasionally adding a layer of soil adds beneficial organisms and helps to keep nutrients and moisture in the pile.

3. Since materials are continually added to the heap, the more finished compost will be located at the bottom. To harvest the ready compost, remove the holding unit from the compost heap and place it next to the heap. Then shovel materials from the top of the old heap into the bottom of the empty holding unit until rich compost is found.

Containers
For slow compost piles, you can use a simple heap in the corner of the yard, or holding units made out of many different materials, including wire mesh, wooden pallets, scrap wood, a combination of wood and wire, or concrete blocks. Make sure to leave spaces for the air to get through. There are also many pre-made holding units on the market.
Closed-Air Composting

Closed-air (anaerobic) composting is composting in the absence of oxygen. Anaerobic microorganisms produce some end-products which can smell like rotting eggs but the smell is contained within the bin. In closed-air bins, water is continuously recycled as condensation which drips back to the mass from the interior of the lid. This helps the contents of the bin stay damp.

Materials to Use

Use the same ingredients as the hot compost pile; with closed-air composting, however, kitchen scraps can be added. It is recommended that meat, bones, oils, fatty foods and dairy products be excluded.

The Closed-Air Composting System

1. It is important to locate the compost bin in a sunny position to utilize the “glass house effect,” which encourages the entry but not the loss of heat. It is best to have two compost bins; while the first is maturing the second can be filled.

2. Bins should be placed on soil that will allow drainage and the entry of earthworms and other beneficial organisms. Some closed-air systems require the bin to be placed over a hole 6-12 inches deep.

3. Chop or grind large kitchen scraps and yard wastes into smaller pieces, to hasten the composting process.

4. Add materials to the compost bin once or twice a week. Try to avoid more frequent opening of the bin, and keep the lid on tight. Vary the layers of material, or mix them together when adding to the bin. After each 6-8 inch layer of material has been added, cover with 1-2 inches of good soil or finished compost to assure a supply of the proper microorganisms.

5. It is very important that the composter’s contents do not dry out. Add water if necessary to keep the compost moist. If the compost becomes sloppy, add dry ingredients.

6. You do not need to turn or aerate the contents of the bin.

7. Continue adding materials to the bin until it is full. The materials will reduce significantly in volume as the composting process takes place. When the bin is completely full, cover the compost with a thin layer of soil and allow it to sit for 12-16 weeks.

8. The compost on the bottom of the pile will mature first, so some bins have a bottom opening to harvest this finished compost. Others require the bin to be pulled up over the mature compost.

Containers

Closed-air containers must have tight-fitting lids to maintain a high moisture content, reduce odors and discourage scavengers. Barrels of at least 55 gallon capacity and without bottoms are recommended. Containers must be very thick and durable so they won’t crack in the sun, and so heat is distributed evenly within the bin.

Anaerobic composting can be achieved without a bin by covering a compost pile with a black plastic tarp and sealing it around the perimeter with bricks or rocks. If this method is used, do not include kitchen scraps.
“It may be doubted whether there are many other animals which have played so important a part in the history of the world as the lowly earthworm.”

Charles Darwin

Worms

Worm bins (also known as vermicomposting systems) are simply dark, closed boxes which employ redworms, moist shredded newspaper (or other bedding material) and food and yard wastes. If the correct environment is maintained, the worms will thrive and continuously produce worm castings, a high quality soil amendment.

Materials to Use

Feed your worms kitchen scraps, excluding meat, bones, fatty foods, dairy products and citrus rinds. Yard wastes can also be fed to worms depending upon the size of your worm bin.

Setting Up the Worm Bin

1. Locate the worm bin where it won’t get hot (above 80° F) and where there is plenty of ventilation. Keep the bin dark so the worms stay near the surface. Since the worm bin creates no odors, a convenient place for the bin is the garage or patio.

2. Fill the bin with bedding, such as thinly shredded newspaper or corrugated cardboard, peat moss or brown leaves. Manure can be used, but don’t add worms to hot manure. Immerse the bedding materials in water for several minutes, or until thoroughly wet, and then wring out excessive water. If manure is used, it should be leached in this manner for several days. Little, if any water should leak from the holes in the bottom of the bin.

3. Add redworms. The amount of worms necessary varies with the volume of wastes generated, use approximately two pounds of worms for a two person household, four pounds for a four to six person household. Feed your new worms manure or coffee grounds for a month or two to build up the population.

4. Feed the worms as regularly as is convenient, rotating the placement of the scraps throughout the worm bin. Chopping the scraps into smaller pieces will decrease the time it takes the worms to break them down. Either place the scraps on top of the bedding, or bury them with a small amount of bedding (an inch or so). Use a garden digging fork to avoid killing any worms. Leave the compost as undisturbed as possible. Worm bins can be overloaded, so add only as much food as the worms seem able to handle.

5. Keep the worm’s environment moist but not soggy.

6. In two to six months (depending upon the size of the materials added), the worms will have turned the wastes and bedding into a dark, rich humus material known as worm castings.

Containers

Use a container with solid sides and drainage holes. The bin should either have a tight fitting lid or be covered with black plastic to keep out light. You can use shallow wooden boxes of any length or width, but no more than one foot deep, and no less than eight inches deep. The bigger your household, the bigger the bin you’ll need. Generally, one square foot of surface is required for every pound of food waste to be composted per week. A 2’ x 3’ by 1’ deep bin is adequate for two or three peoples kitchen scraps. Weather-stripping on the lid will keep out flies. Sticky substances, such as those used to keep bugs from crawling up fruit trees, can be spread around the base of the bin if ants are a problem.
Mulches are materials used on top of the soil to suppress weeds, hold moisture, prevent erosion and provide an attractive ground cover.

Mulching

Mulching involves grinding yard trimmings and applying them directly to soil surfaces without the breakdown of the material by microorganisms.

Materials to Use

Most yard wastes are suitable for mulching. Non-woody materials (nitrogen-rich "greens") are best in flower and vegetable gardens because they break down quickly and can then be turned under without competing with plants for the nitrogen in the soil. If fresh grass clippings are used, do not use layers thicker than one inch. Woody yard wastes and leaves (carbon-rich "browns") can also be used, but should be pulled aside when tilling, or balanced by adding high nitrogen source such as bloodmeal when turning them under. Shredded woody yard wastes make excellent paths and play areas. Avoid mulching with plant materials recently treated with herbicides.

Mulching Yard Wastes

1. Yard wastes up to 1/2 inch diameter can be mulched by running over them with a rotary mower - a mulching mower or attachment will perform best. This is best managed by blowing the materials against a wall.
2. Chippers and shredders for home use can be purchased. Shredders are best for brush, leaves and stalks; chippers are required for tree and shrub branches. Many machines have both shredding and chipping capabilities.
3. Chippers and shredders can be rented from many rental stores and home improvement centers, by the hour or day.

Grasscycling

Grasscycling is the natural recycling of grass clippings by leaving them on the lawn when mowing. Successful grasscycling requires only the kind of attention all lawns should have on a regular basis.

Grasscycling

1. Remove excessive thatch before leaving clippings on the lawn. Although 1/2 inch of thatch is no problem, a thick layer will keep clippings from reaching the soil.
2. Mow when your grass is dry and at the upper recommended cutting level for your type of turf: 1 inch for Bermuda or other fine-leaved subtropical grasses and 3 inches for cool-season turfs such as fescues and ryes.
3. A sharp blade and frequent mowing mean finer clippings that will decompose quickly. A mulching mower, or a mower with a mulching attachment, is preferable.
4. Avoid over-fertilizing your lawn. If it becomes too dense with growth, your clippings won't reach the soil to decompose.

The art of composting is really an art of living, a conscious decision to give back to the earth that which we take.
Waste-Efficient Yard Care
Questions and Answers

Why should I compost? Why shouldn’t organic wastes go to the landfill?
Organic materials are a valuable resource when composted or used as mulches in the yard. Organic materials improve soil and plant health, prevent erosion, and hold moisture and nutrients in the soil. In a landfill, decaying organic materials create methane gas that pollutes the air and poses an explosive danger. Yard wastes in landfills also combine with other materials and create toxic leachate that may contaminate groundwater. Backyard composting is also much less expensive than sending wastes to the landfill or centralized composting facilities.

What is the easiest way to compost?
Slow composting is the easiest way to compost yard wastes.

What is the difference between compost and mulch?
Compost is decomposed organic material that can be mixed with soil to improve it. Mulches are materials used on top of the soil to suppress weeds, hold moisture, prevent erosion and as an attractive groundcover. Compost and shredded yard waste make excellent organic mulches.

If you compost weeds with seeds, will they survive and re-sprout?
It is best to compost weeds before they go to seed. Some seeds can survive temperatures up to 140°F, and even a well-made hot compost pile may not reach these temperatures uniformly throughout the pile.

How are weeds such as morning glory, crab grass, buttercup, ivy roots, and blackberries composted?
Plants that propagate vegetatively should be very thoroughly dried in the sun and then used as a compost ingredient. Or they should be composted alone and covered with black plastic to sit for as much as two years.

Can vacuum dust be composted?
Yes. However fibers from synthetic carpeting will not decompose (but they will probably not be noticeable in the finished compost).

Should diseased materials be used to make compost?
As a general rule, it is best to not compost diseased plant materials because of the chance of re-infecting your garden.
Is it a good practice to add wood ashes while making a compost pile?
Most soils in California have a basic pH and since wood ashes are basic, they probably should not be added to the compost pile. However, if mostly high nitrogen material is used especially in a closed-bin system, the composting mass is likely to become acidic, and wood ashes can be added to help neutralize the compost.

Can pet wastes be composted?
We recommend against composting pet wastes because of potential disease and parasite transmission.

Can bones and meat scraps be composted? Can fish bones be buried?
There is too much potential for pest problems, so we do not recommend composting or burying these materials.

Can fleece be composted?
Natural fibers including fleece, cotton, hemp and burlap may all be composted.

Can yard wastes of unknown origin be safely composted without concern over potential herbicides?
No. Lawn clippings with herbicides on them may kill garden plants if used as a mulch or “young” compost. If herbicide use is suspected, materials should be thoroughly composted in hot piles and allowed to cure for several months before using in the garden.

What kind of wood chips/sawdust is best for composting?
The chips or dust of deciduous, hardwood trees are best for making compost. Cedar can have inhibitory substances and the sawdust from pressure-treated, pressed wood or plywood contains various toxic materials. We do not recommend their use in compost.

Can coffee filters and tea bags be composted?
Yes. Any untreated paper product may be composted. Worms love coffee grounds and filters, as well as tea bags. Don’t try to compost treated papers such as glossy magazines or photographs, waxed paper, and certain copy papers.

Can you compost if you just have kitchen wastes, no yard wastes?
Yes. Kitchen wastes can be composted in worm bins and closed-air composting bins.

Can newspaper be composted?
Yes, if shredded and mixed well with other materials. Shredded newspaper can also be used as a bedding for redworms.

Should pine needles be composted separately?
No. Pine needles break down slower than many other wastes, but they do not pose any problems in the compost or the garden.
Are slugs a problem? What is their role in composting?
   They are not a problem for the composting process—they actually contribute to the process by feeding on decaying and fresh wastes. Their proximity to the garden can, of course, be a problem.

How do you deal with rat problems as a result of composting?
   - Stop using food wastes in the pile and keep the pile well mixed.
   - Cover the pile with a layer of soil or plastic.
   - Bait the pests with traps - peanut butter is a favorite.

What do you do if the pile is attracting flies?
   Turn the pile frequently (larvae die at high temperatures). Do not include any foods in the pile, and cover with a layer of dry soil, peat moss or straw.

Are bugs in my worm box OK?
   Many other decomposer organisms may be at work in your worm bin—sow bugs, spiders, centipedes and slugs are all common. They are not a problem. Fruit flies may be a problem though. Try covering the bedding with plastic, or putting weather stripping on the lid to exclude flies. Sticky substances, such as those used to keep bugs from crawling up fruit trees, can be spread along the base of the box if ants are a problem.

How long will a worm box last?
   A box made of treated wood should last 10-15 years or more. Untreated lumber may rot in 4-5 years because of the moist conditions encountered in a worm box.

Are earwigs bad? What is their composting role?
   Earwigs are rarely a serious threat to crops and they can be an aid to the composting process as scavengers. They prefer cooler piles.

Do compost “tumblers” work?
   Compost tumblers work efficiently if wastes are chopped, moistened and contain adequate nitrogen. Tumblers with flat sides or internal baffles are recommended as they mix and aerate materials more thoroughly than those with smooth sides.

How can kitchen scraps be kept from rotting while storing them for composting?
   Alternating 3-4 inch layers of sawdust between layers of food scraps in a sealed bucket will keep food wastes from rotting too quickly. Kitchen scraps can also be stored in the freezer.

What do I do if the compost becomes soggy?
   Turn the pile, adding dry absorbent material, such as sawdust.

Will piles of grass clippings heat up and explode?
   Not likely in a home situation. Very large piles (50 cubic yards) of hay do spontaneously combust.
What tools can be used to chip woody wastes? How do you know what size to use?

- Machete: green or woody vegetable stalks.
- Lawn Mower: leaves and twigs up to 1/8" diameter.
- Electric Shredder: leaves and twigs up to 1/2" diameter.
- 5 H.P. Gas Shredder: twigs and branches up to 2" diameter.
- Commercial Shredder (8+ H.P.): branches over 2" diameter.

How do you use a rotary mower to shred materials?
Rotary mowers work best on dry materials that are not too woody. It is best to use it on a hard, level surface and blowing the materials against a wall works well.

Do I need to add fertilizer to my garden if I use compost?
Compost is classified as a soil conditioner rather than a fertilizer, but it can contain a good range of major and minor plant nutrients plus trace elements essential for healthy plant growth. Some methods of composting produce a more nutrient rich material than others.

Should I wear gloves when handling compost?
As long as pet wastes are excluded, gloves are not necessary for handling composted yard or kitchen wastes.

Do I need a bin to make compost?
No. Yard waste compost can be made in open piles. However, bins help keep piles neat, retain heat better and are appropriate for many urban situations.

What do you do about a neighbor who complains about composting even though it doesn’t smell?

- Set a good example by keeping your compost system as neat as possible.
- Explain the benefits of composting every chance you get. Tell them why you do it and how it works for you—they’ll catch on sooner or later.

How do you know when compost is finished?
When it has become dark, loose and crumbly; and if in a hot pile, when it doesn’t re-heat upon turning. Sift out unfinished material if aesthetics are important.

What should I do if my compost smells like ammonia?
An ammonia smell can be caused by several factors, including too much nitrogen, too much alkalinity, and too much moisture. Turn the pile and add absorbent, high carbon material ("brows"), especially acidic materials such as sawdust or dry oak leaves.
**Question and Answers**

**Specifically for Hot Composting**

What can be done about a smelly pile?
Smelly piles are most often caused by poor aeration. The bacteria which live in such “anaerobic” piles produce a rotten egg smell. Smelly piles should be turned to introduce air and encourage “aerobic” bacteria. Wet, compacted areas should be broken up with a pitchfork, and coarse, dry materials such as sawdust or dry leaves may be mixed in to aid drainage, absorb moisture and create air spaces.

**How do you know when you have the proper carbon to nitrogen (C:N) ratio?**
Experimentation is the best way to get a good sense of the carbon to nitrogen ratios in different materials. Books on composting have tables which give these C:N ratios. Generally, materials high in carbon (“browns”) tend to be more woody and drier, and materials high in nitrogen (“greens”) tend to be more soft, moist and fresh. Use brown and green materials in approximately equal proportions, and this will come close to yielding the proper 30:1 C:N ratio. Although the 30:1 C:N ratio is ideal for yielding a quick, hot compost, wide variations from this ideal will yield fine compost in a longer period of time.

**How do you compost when you have too many materials high in nitrogen?**
- Store high carbon materials (sawdust, dry leaves, shredded newspaper) and use them when needed.
- Buy peat moss and combine with the materials high in nitrogen.

**How do you gauge the proper moisture content for composting?**
Materials should feel like a wrung out sponge; when squeezed in your hand no more than a drop or two of water should come out. Some very dry materials (straw, dry leaves and others) may need prolonged soaking to reach adequate moisture levels.

**What should I do if the compost is moist, but isn’t hot or decomposing?**
Relatively fresh materials will heat up if turned (with proper moisture and bruising or shredding). Piles with lots of older “brown” materials should have a high nitrogen material (fresh grass clippings, fertilizer or manure) added when they are turned. Adding liquid nitrogen fertilizer to a pile will help speed decomposition and generate heat also.

**Should soil be added to compost piles?**
Soil is not necessary in a compost pile, however it can be beneficial by adding additional microorganisms to help in the breakdown process.
Construction Details:

Build Dividers - Cut two 31 1/2 inch and two 36 inch pieces from each 12 foot 2x4. Butt end nail the four pieces into a 35 inch by 36 inch square. Repeat for the other three sections. Cut four 37 inch long sections of hardware cloth across each frame, check for squareness of the frame and staple the screen tightly into place every 4 inches around the edge.

Set Up Dividers - Set up dividers parallel to one another 3 feet apart. Measure and mark centers for the two inside dividers. Cut four 9 foot pieces out of the two 18 foot 2x4 boards. Place two 9 foot base boards on top of dividers and measure the positions for the two inside dividers. Mark a center line for each divider on the 9 foot 2x4. With each divider, line up the center lines and make the base board flush against the outer edge of the divider. Drill a 1/2 inch hole through each junction centered 1 inch in from the inside edge. Secure baseboards with carriage bolts, but do not tighten yet. Turn the unit right side up and repeat the process for the top 9 foot board. Using the carpenter’s square or measuring between opposing corners, make sure the bin is square, and tighten all bolts securely. Fasten a 9 foot long piece of hardware cloth securely to the back side of the bin with staples every 4 inches around the frame.

Front Slats and Runners - Cut four 36 inch long 2x6s for front slat runners. Rip cut two of these boards to 4 3/4’ wide and nail them securely to the front of the outside dividers and baseboard, making them flush on top and outside edges. Save the remainder of rip cut boards for use as back runners. Center the remaining full width boards on the front of the inside dividers flush with the top edge, and nail securely. To create back runners, cut the remaining 2x6 into a 34 inch long piece and then rip cut into 4 equal pieces, 1 1/4 inches by 2 inches. Nail the back runner parallel to the front runners on the side of divider leaving a 1 inch gap for slats. Cut all the 1x6 inch cedar boards into slats 31 1/4 inches long.

Fiberglass Lid - Use the last 9 foot 2x4 for the back of the lid. Cut four 32 1/2 inch 2x2s and one 9 foot 2x2. Lay out into position on the ground as illustrated on the front page and check for squareness. Screw in corner braces and T-braces on the bottom side of the frame. Center the lid frame, brace side down on the bin structure and attach with hinges. Cut wiggle board to fit the front and back 9 foot sections of the lid frame. Predrill wiggle board with 1/8 inch drill bit and nail with 8d casement nails. Cut the fiberglass to fit flush with the front and back edges. Overlay pieces at least one channel wide. Predrill fiberglass and wiggle board for each nail hole. Nail on top of every third hump with gasketed nails.
Ventura County Solid Waste Management Department
5275 Colt Street, Suite One
Ventura, CA 93003