



There are many ways to reduce the amount of household trash you produce and many alternatives to dispose of the waste you make. This chapter helps you examine your current waste disposal practices and how they may affect air and water quality on your property. It covers:

1. Reducing the amount of trash you produce

- ◆ Shopping to reduce waste (“enviro-shopping” and “recycling”)

2. Creative methods to deal with wastes

- ◆ Reusing
- ◆ Recycling
- ◆ Composting

3. The hazards of waste disposal on your property

- ◆ Alternatives to on-site dumping and burning

Chapter 2. Managing Household Trash: Preventing Waste, Reusing, Recycling and Composting

Why should you be concerned?

As the U.S. population increases, the amount of trash produced each year also increases. Not only are there more people, but each person is producing more waste than people did in the past. Studies estimate that in 2005, each person produced around 4.5 pounds of waste each day, compared with 2.7 pounds in 1960. Surveys also found that most consumers do not realize what is in their own trash. Many think they throw away more plastics—by weight—than they really do, or that disposable diapers are the major problem. Figure 1 shows what is really in the mountain of solid waste thrown away by Americans each year. What would you find if you examined unwanted wastes from *your* household over a year’s time?

How many words for trash?

What do you call the stuff you want to get rid of—trash, garbage, solid waste, recyclables, refuse or junk? Here’s how we define it for this assessment.

Trash and waste - two terms that refer to all items and materials that are no longer wanted.

Reusables - items that are used again by a different user or for a different purpose but not reprocessed. An example is a hand-me-down-jacket or a peanut butter jar used for storing nails.

Recyclables - materials such as glass, metal, plastic, paper, even refrigerators, that are processed back into raw materials and made into new products.

Compostables or compost materials - organic matter (primarily yard and food wastes) that decomposes and returns to the earth as nutrients and a soil conditioner.

Garbage - stuff that gets truly thrown away by being taken to a landfill or incinerated.



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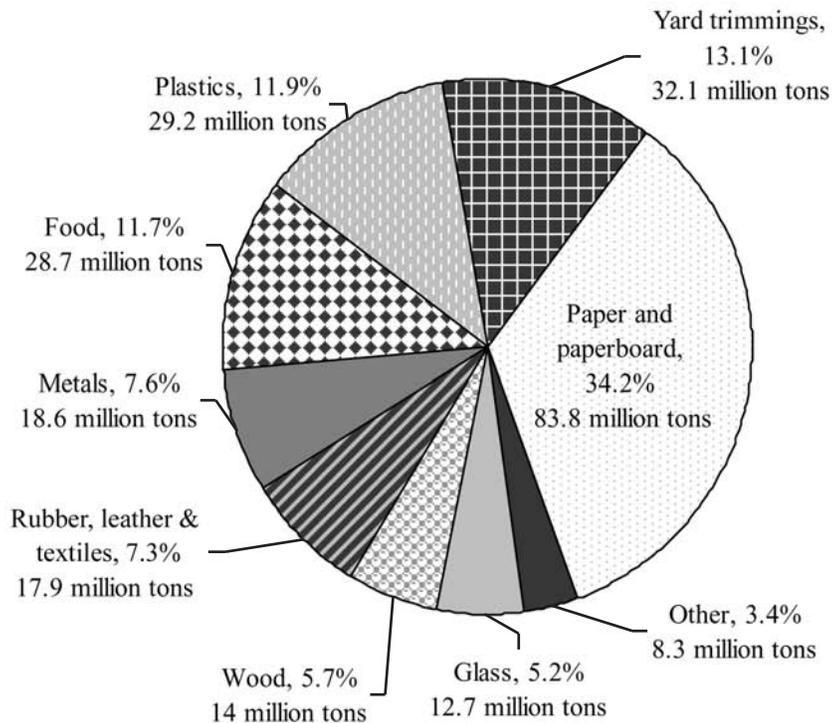


Figure 1: Annual amount of solid waste from U.S. households. EPA, 2005.

The problem with waste

Landfills and incinerators are the destination of most of our trash. In Michigan, yard waste is not allowed in landfills or incinerators because it can be composted. A list of other wastes that cannot be landfilled can be found on the Department of Environmental Quality (DEQ) website (see “Resources” at the end of this chapter). Environmental laws have closed poorly managed dumps, improving the safety of remaining landfills and incinerators. Garbage has become a serious transportation, environmental and economic issue for consumers and municipalities. The good news is that these problems have caused Americans to look for new ways to deal with their trash. Producing less waste, reusing, recycling and composting not only save taxpayer dollars but protect air and water quality and the health of people and wildlife.



Part 1 – Minimizing and Preventing Waste

If you don't produce trash, you won't need to get rid of it—it's that simple. But we all generate some trash, so we need to think about ways to make less. Part 1 helps you examine your potential for cutting the amount of waste you produce and for preventing some kinds of waste completely. At the end, fill out the assessment table to determine your waste potential, using the information below to help answer the questions.



Figure 2: Light bulb comparison. Compact fluorescent bulbs—even though they cost more—last 10 times longer than ordinary bulbs. In the long run, they cost much less to operate.

Can you become a waste-conscious shopper?

You make purchasing decisions every day, and each purchase involves a certain amount of waste. Whether you're buying groceries, toys, furniture or appliances, your selections determine the type and volume of waste that must someday be discarded. But if you buy with the environment in mind—that is, if you use your purchasing power to minimize your impact on the environment—you will select products that produce a minimum of waste. **Precycling** and **enviro-shopping** are terms that refer to this kind of purchasing. The following questions are ones typically asked by an enviro-shopper before a purchase is made.

How much do you need?

Among other things, enviro-shopping means buying only what you need. A good price or a bulk package may tempt you to buy a larger amount of paint, food or household cleaner than you really need. But what may seem like a good deal when buying often ends up wasting money because the unused or spoiled product is eventually thrown away. Make sure you can use what you buy or know someone who can use the leftovers.

Are your purchases long-lasting and reusable?

In our throwaway society, it is sometimes hard to find good quality products at an affordable price. Although durable products may be more expensive, they are usually a better investment in the long run (Figure 2). Look for products that can be repaired when broken. Children's toys that are held together with screws, for example, often can be more easily taken apart and repaired than toys that are glued. Long-lasting products make good hand-me-downs, too. Products and materials that can be reused—passed along or used for other purposes—save money and conserve resources. If you have fabric scraps, for example, they can be sewn into attractive, reusable gift bags that can reduce your need to buy wrapping paper. In a world with increasing numbers of disposable and single-use products, it is a real challenge to avoid waste when shopping.

How much trash do you make each day?

This project is for the truly adventurous: carry a large plastic bag for 1 to 3 days and put all your daily trash inside. Pick a typical week, and don't change your buying habits. At the end of the experiment, weigh the bag. If you carried your bag for 3 days, divide the total weight by 3 to get the daily amount. You might want to keep wet wastes in plastic zip-top bags so things don't get too messy. Then analyze your trash. How much of the material is paper? How much is recyclable? How much is hazardous? How much could have been avoided? How many pounds of trash would you produce in a *year*?

Is the package recyclable?

Many product containers and packaging materials are potentially recyclable, such as cardboard boxes, glass and many plastic bottles. To promote recycling, many manufacturers use the international chasing arrows “recyclable material” symbol (see Figure 3). But be careful—the symbol only means the product is made from materials that are *suitable* for recycling *if* your local recycling program will take them. If it cannot be recycled locally, then the product package is not truly recyclable, at least not where you live. The list of materials that your local program will accept changes over time, so you will need to keep up-to-date. If you can't recycle locally, you might be able to take some of your recyclables to a neighboring community that will accept them. Much information can now be obtained online; see “Resources” at the end of this chapter.

Is the product or its packaging made from recycled materials?

A surprising variety of products are made from recycled material—everything from carpets to salad dressing bottles. Once materials are recycled, they will be made into new products or packaging only if there is a market for them. As a consumer, you can use your buying power to support and encourage markets for recycled-material products. This is sometimes called “closing the loop”—when you recycle and buy recycled. This ensures that materials are cycled again and again. Each year, for example, billions of aluminum beverage cans are melted down and made into new cans. On product packaging, look for the words “made from recycled materials” and especially for “made from postconsumer recycled materials.” Postconsumer means that all or part of the packaging is made from materials that have been recycled by consumers in community recycling programs. Instead of words, some packaging materials (such as corrugated cardboard) use the chasing arrows symbol in solid black or in a black background (see Figure 3). This means that packages or products are made entirely or predominantly from recycled materials.

Do I buy products with the least amount of packaging?

In America, we produce more trash per person than people anywhere else in the world. About a third of the paper, plastic, glass, cardboard and metal we throw away comes from packaging. Packaging serves many useful purposes—such as preventing food spoilage and keeping products clean—but much is unnecessary, wastes natural resources and soon after purchase ends up as garbage. Good enviro-shopping means choosing products having the least amount of wrapping (as long as safety is assured). Buying bulk foods and items that you know will be used in a timely manner and selecting concentrated packaged products are examples of ways to minimize waste from packaging.

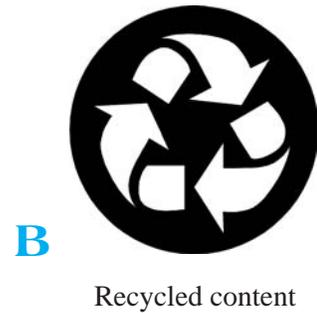


Figure 3: Recycling symbols.

A. Recyclable material symbol – container or package is *potentially* recyclable.

B. Recycled content symbol – container made from recycled materials.



If your packaging selections are limited, tell the store manager what you want and write or call the product manufacturer about your community’s solid waste situation and your preference for minimally packaged products.

✓ Assessment 1 – Minimizing and Preventing Waste

Use this assessment to identify areas where you can minimize waste. Write your waste potential level (low, medium or high) in the column labeled “Your waste potential.” Although some choices may not correspond exactly to your situation, choose the response that best fits. Refer to the information above to help you answer the questions.

	Low waste potential	Medium waste potential	High waste potential	Your waste potential
Packaging purchased	I usually select packaging that minimizes waste.	I sometimes consider packaging when selecting products.	I never consider packaging that minimizes waste.	
Ability to recycle packaging	I regularly purchase containers/packaging that can be recycled locally.	I sometimes consider whether packaging is recyclable when making purchases.	I never consider whether packaging is recyclable before buying.	
Quantities purchased	I purchase only what is needed and avoid accumulating unused products.	I sometimes buy more product than I can use.	I often purchase more product than I can use.	
Products purchased	I try to purchase items made from recycled content.	I rarely consider products made from recycled content.	I do not seek products made from recycled content.	
Product durability and potential for reuse	Products are selected on the basis of durability, ease of repair and potential for reuse.	I sometimes select products on the basis of durability, ease of repair and reuse.	I never consider durability, ease of repair or reuse.	

Responding to your waste potential

Your goal is to reduce the amount of waste you produce—especially waste that ends up in a landfill or incinerator. Turn to the Action Checklist at the end of this chapter to record the high and medium waste potentials you identified in the assessment above. Use the ideas in Part 1 to help you become an enviro-shopper.

Part 2 – Reusing, Recycling and Composting

Once you make waste, it has to go somewhere. Part 2 reviews three ways to keep materials out of the landfill or incinerator. For each item of trash, there are three questions to ask:

1. Is it reusable?

Reuse should be your first objective because it typically causes the least amount of environmental impact. By taking canvas or net shopping bags to the store or mall, you will be avoiding bringing paper or plastic bags home. Reusable bags not only reduce waste but can be cleaned and are stronger than disposable bags.

Sharing old clothes and used furniture is a common form of reuse. If you can't share with friends or family, try to donate usable items to local charities. Holding a neighborhood yard sale is a good way to eliminate unwanted possessions *and* make a little money. You can usually find uses for more materials than you realize. Give your packaging foam "peanuts" to a local gift shop, for example, or see if neighbors can use your excess paint, lumber or empty plastic pails. Consider donating or selling at a recycle store, or try listing available materials on a postcard and posting it on a local community bulletin board. You might find success posting on the Web using one of the sale sites. Remember the expression "One person's junk is another's treasure." Often reuse is limited only by the imagination.

2. Is it recyclable?

Even though recycling is a good idea, it still requires the input of energy and other resources, and it produces some waste and pollution. For example, aluminum beverage containers can be recycled into new cans. They must be collected and returned to the factory, where they are melted and formed into new cans. The new cans are then trucked to a beverage company to be filled and taken to stores. An aluminum can makes a complete recycling circle in as little as 60 days (*Earth911.org*). A recycling success story!

Studies have shown that more than half of all household wastes are recyclable. Remember to keep current about what your local recycling program will accept. Find your local program using the clickable map at www.michigan.gov/deqreswastecontacts. Plastic milk jugs, for example, are usually recyclable, but wax-coated paper milk cartons can be recycled in only a few areas. A growing number of communities require recycling by law. You should not limit recycling to typical grocery store-purchased materials such as aluminum cans, cardboard, glass bottles and cans. Local scrap dealers or industrial salvage yards may want your broken appliances, junk vehicles, wood wastes, other metals, doors, windows and so on. A number of items such as motor oil and car batteries are banned from disposal in Michigan. Local landfills may have rules that ban other items as well. For more information, see the brochure "Talking Trash" by going to www.michigan.gov/deq and entering "banned landfill materials" in the search bar.



Electronic waste

Computers, personal media players, cell phones, televisions, data assistants and other wonders of modern technology are filling our lives and our garbage cans. We rely on them daily to communicate, conduct business and educate, but what happens to this equipment when it's worn out or replaced by an updated version?

Many electronics contain hazardous materials, such as lead in solder, cadmium in circuit boards and mercury in batteries. Most older computer display screens and televisions contain cathode ray tubes (CRTs). CRTs contain leaded glass to protect the user from the x-rays inside the tubes. Lead is a hazardous material that can cause environmental and health damage if not managed safely. Lead in CRTs causes computers to be considered hazardous waste when disposed by regulated generators in Michigan. Residents are encouraged to recycle their electronic waste rather than have it end up in their local landfill or municipal solid waste incinerators with the potential of leaching or emitting lead and other heavy metals into the water or air.

Donating these items is becoming a common practice for extending the life of working electronics and reducing their placement in landfills. Before donating or recycling your old computer or other electronic device, make sure that the data on it is completely deleted. Reformatting the hard drive or deleting files may not be enough to protect you from identity theft. You need to *completely* destroy the data on your hard drive. In 2006, the U.S. EPA developed two fact sheets that provide information about donating electronic equipment and a list of free software you can use to delete information from your computer. See "Do The PC Thing for Consumers" at <http://www.epa.gov/epaoswer/osw/conserve/plugin/pdf/pcting-con.pdf>.

Many Michigan communities have started electronic collections programs to deal with the growing e-waste. Check with your local community or waste hauler to see if and when a collection is available. Recycling options for Michigan residents are available at www.michigan.gov/deq. Enter "electronic waste management" into the search bar. A national resource for recycling information is Earth911. By using your zip code, you can call or go online to find recycling opportunities near you. Call 1-800-CLEANUP or go to www.Earth911.org.

3. Can it be composted?

Yard and food wastes typically make up over 30 percent of the waste stream. The amount of yard and food wastes that your home generates depends on your eating and gardening habits, size of yard and region. Since 1995, Michigan has banned yard clippings (leaves, grass clippings, vegetable or other garden debris, shrubbery, tree trimmings) from disposal in Michigan solid waste landfills because of its large volume, high moisture content, and potential to contribute to landfill gas and groundwater problems. Composting—nature's recycling—is a much more effective way to handle organic waste. As an alternative to landfill disposal, many communities have established yard waste composting programs with convenient drop-off sites or curbside pickup.

Composting is a natural process that, with the help of microbes, earthworms and fungi, turns kitchen and yard wastes into a high-quality soil amendment. Many common materials can be composted in your own backyard: leaves, grass clippings, plant trimmings, straw, kitchen scraps (but not animal waste such as fat or bones), manure (except that of dogs, cats and other household pets) and even paper. The final product is dark brown, crumbly compost that has a clean, earthy scent. It can be spread on lawns or mixed with garden soil as an excellent soil amendment.

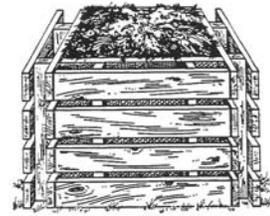
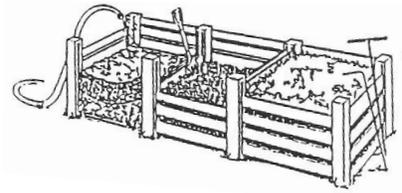


Figure 4: Examples of compost bins.

Many compact and efficient composting bins are on the market for home composting, or you can build your own (Figure 4). For more information on composting, see Chapter 9, “Caring for the Yard and Garden.”

✓ Assessment 2 – Reusing, Recycling and Composting

Use this assessment to identify preferred methods to keep waste out of the landfill. Write your waste potential level (low, medium or high) in the right-hand column. Although some choices may not correspond exactly to your situation, choose the response that best fits. Refer to the information above to help you answer the questions.

	Low waste potential	Medium waste potential	High waste potential	Your waste potential
Reuse	I reuse as many household wastes as possible.	I reuse when convenient.	I never reuse or recycle.	
Waste recycling	I always recycle all materials that centers accept.	I recycle materials when convenient.	I occasionally or never recycle materials.	
Composting	All yard wastes and kitchen scraps are composted at home or in a city program.	Some yard or kitchen wastes composted.	I never compost.	

A boxed risk level indicates level required for Residential Environmental Assurance Program certification.

Responding to your waste potential

Your goal is to reduce waste or find the best alternatives for dealing with it. Turn to the Action Checklist at the end of this chapter to record the high and medium waste potentials you identified above. The information in Part 2 can help you plan changes.

Part 3 – The Trouble with On-site Trash Disposal

Disposing of household trash by burning or dumping on private property is widely practiced but can pose threats to your health and the environment. Although many rural areas have used these disposal methods for decades, local and state laws are becoming more restrictive. At the end of this section, complete the table to determine your risks, and consider alternatives to on-site disposal methods.



Smoke from burning trash may contain:

- Arsenic
- Benzene and other solvents
- Cadmium
- Carbon monoxide
- Chromium
- Dioxin
- Formaldehyde
- Hydrochloric acid
- Lead
- Nitrogen oxide
- Polyaromatic hydrocarbons
- Sulfuric acid

Do you burn your trash?

Many rural residents use burn barrels to get rid of many household wastes. When paper, plastics, printing inks, batteries and other common materials are burned, a noxious mix of chemicals is released into the air. Some of these—such as lead or mercury—can be hazardous to breathe. Eventually, most byproducts from burning are removed from the air by rain or snow and are deposited on land or water. Because of concerns about such releases of hazardous air pollutants, most states and localities have passed laws to restrict what you can burn. In some areas, especially urban and suburban settings, open burning has been banned.

The ash residue from burning also contains hazards, including heavy metals and other toxic substances. If this ash is dumped on your property, it can contaminate soil and water. To find out about burning restrictions that apply to your property, check with your local fire department or township office. More information about open burning can be found on the DEQ website at www.michigan.gov/deq. Enter “open burning” in the search bar.

Do you dump household trash on your land?

Trash dumped on your property is not only unsightly—it may contain harmful chemicals and disease-causing organisms that can leach out and contaminate groundwater or be spread by wind and rain. Discarded paint, for example, may contain lead or mercury. If not properly rinsed, pesticide containers will contain toxic residue, and used oil filters usually hold petroleum products and harmful metals. These pollutants can soak into the soil, pollute well water, and find their way into nearby lakes, streams or wetlands. If your trash contains hazardous substances—even in small quantities—they can cause problems.

Dumping, burying or burning trash on your property may also cause difficulties when you want to sell your property. Prospective buyers may require you to clean it up as part of the purchase offer.

Which wastes are hazardous?

By reading product labels, you can generally tell which ones have hazardous ingredients. Look for words such as DANGER, FLAMMABLE, POISON, FATAL IF SWALLOWED, CAUTION or WARNING. Use these products according to their label instructions. For more information on dealing with hazardous wastes, see Chapter 3, “Managing Hazardous Household Products.”

Especially for homes served by street drains and storm sewers, any solid or liquid wastes exposed to the weather—including pet wastes—can wash directly into lakes and streams. Storm sewers, remember, are rarely connected to wastewater treatment facilities. Some materials, such as foam peanuts and other plastic debris, can be transported by storm runoff to open water, where they may be mistaken for food and eaten by fish or birds, killing or injuring them. Another wildlife problem is caused by discarding tires that provide a haven for mosquitoes. Find your local household hazardous waste, recycling or composting program on the clickable map at www.michigan.gov/deqreswastecontacts or call the Michigan DEQ Environmental Assistance Center at 1-800-662-9278 with questions about proper waste management.

What do you do with unwanted medications?

Unwanted or unused medications can be a problem to the environment when poured down the drain, flushed down the toilet or thrown out. Medications have been found in groundwater and surface water and are a growing concern nationally and internationally. They should not be burned in the trash or disposed of on-site.

The following are suggestions for getting rid of medications:

- ◆ Check to see if the local pharmacy is taking back unwanted drugs. Some drugstores accept expired medications for disposal. Pharmacies cannot legally accept controlled substances from citizens.
- ◆ Find special collections for unused and expired drugs. Check with your household hazardous waste collection or recycling program coordinators to see if anything is available in your area. A list of contacts is at www.deq.state.mi.us/documents/deq-ess-p2-recycle-countycontacts.pdf
- ◆ If a collection program is not immediately available, follow the handling suggestions in the drug disposal section of the drug label/insert.

✓ Assessment 3 – Waste Disposal on Your Property

The following assessment can help you examine potential risks due to on-site waste disposal. Choose the statement that best fits your situation and put the appropriate risk level (low, medium or high) in the column labeled “Your risk.” Refer to the information above in Part 3 to help you respond.

Responding to risks

Your goal is to reduce your risks. On the following Action Checklist, write your high and medium risks. Use the ideas in Part 3 to help plan actions you can take.



	Low risk/ recommended	Medium risk/ potential hazard	High risk/ unsafe situation	Your risk
Burning trash	No household trash is burned on site.	Paper and cardboard are burned. Burning done in approved container and guidelines followed.	Burning conducted. Burning guidelines ignored.	
On-site dumping	Only organic wastes (leaves, grass clippings, food, wood chips, etc.) are disposed of on your property.		Household trash and liquids, appliances, tires and other junk are discarded on site. Hazardous and other wastes are improperly discarded down sewer system, septic system or storm drains.	
A boxed risk level indicates level required for Residential Environmental Assurance Program certification.				

✓ Action Checklist

Go back over the assessments and look for all medium and high waste or high risk potentials you identified. Write them below. For each item listed, write down the improvements you plan to make. Use recommendations from this chapter and other resources to decide on actions you are likely to complete. A target date will keep you on schedule. You don't have to do everything at once, but try to eliminate the most serious problems as soon as you can. Often it helps to tackle the inexpensive actions first.

Write all high and medium risks here.	What can you do to reduce the risk?	Target date for action:
Example: Products purchased without considering if packaging is recyclable.	Find out about town recycling programs and try to buy products whose packaging can be recycled locally.	One week from today: May 15

Resources

Recycling, composting and waste disposal information

Contact your local health or sanitation department, recycling center or Michigan State University Extension office. Get the latest list of what is recyclable, how to identify it and how to prepare it for recycling. Ask for information on composting and other disposal alternatives.

List of local recycling programs:

Use clickable map at www.michigan.gov/deqreswastecontacts.

If no local recycling program:

www.1800cleanup.org or call 1-800-CleanUp.

Electronic waste:

For information about industry-sponsored electronics recycling or disposal (computers, televisions, cell phones, etc.), contact the manufacturer. Many national electronics manufacturers and major retailers have sponsored collections and offer low- or no-cost recycling programs. Information can be found about these programs by searching their corporate websites or asking about them where you purchase your electronic products. You may also contact your local Goodwill store.

For more information about electronics recycling in Michigan:

www.michigan.gov/deq - Enter “electronic reuse and recycling” in the search bar.

Prescription drug disposal:

www.deq.state.mi.us/documents/deq-ess-cau-rxbrochure.pdf

Wastes that cannot be landfilled:

www.michigan.gov/deq-ess-p2tas-BannedLandfillMaterials.pdf

Local regulations on burning and dumping

Contact your local township, city or county government office to find out what waste management options are allowed and available. If you still have questions, contact the Michigan Department of Environmental Quality (DEQ) Environmental Assistance Center at 1-800-662-9278 or the DEQ Waste and Hazardous Materials Division or Air Quality Division District staff. You can find your district office by going to www.michigan.gov/deq. Click “contact DEQ” at the top of the page, and then click the District Office Locations link.

Books

The green consumer supermarket guide. 1991. Makower, J. Penguin Books, New York, N.Y. ISBN: 0140147756

Rubbish! The archeology of garbage. 2001. Rathje, W., and C. Murphy. University of Arizona Press, Tuscon, Ariz. ISBN: 9780816521432

This Home*A*Syst chapter does not cover all potential issues or risks related to solid waste management that could affect health or environmental quality. It is meant to serve as a starting point for identifying and addressing the most apparent risks. Other Home*A*Syst chapters on a variety of topics can help homeowners examine and address their most important environmental concerns.

This chapter was written collaboratively by Shirley Niemeyer, Extension specialist, University of Nebraska-Lincoln; Michael P. Vogel, solid waste specialist, Montana State University Extension Service at Bozeman, and Kathleen Parrott, Virginia Polytechnic Institute and State University at Blacksburg. It was adapted for Michigan by Terry Gibb, Roberta Dow and Jim Bardenhagen, Michigan State University Extension. Updated in 2008.