

Chapter 6

Managing Production Waste: Reduce, Reuse, Recycle, and Compost

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There are many ways to reduce solid wastes and many alternatives for disposing of the waste you make. This chapter will help you examine your current waste disposal and consumption practices and how they may affect not only food safety, but also the air, soil, and water quality on your property or in your home or community. It covers the following:

1. *Reducing and Preventing Waste*—How can I choose products and services to reduce waste (“precycling” or “enviro-shopping”)?
2. *Reusing, Recycling, and Composting*—What creative ways can I use to decrease wastes?
3. *Managing Waste and Disposal*—How can I prevent food contamination and what are alternatives to on-site dumping and burning? What is hazardous waste and how can I handle it?

Why should you be concerned?

Any business generates wastes and has costs for clean up associated with it—this includes food pro-

duction on the farm. The types of wastes start with purchased containers of chemicals and supplies through organic wastes like manure or plant debris. While some wastes can be converted into an asset through composting, other wastes only accumulate to become vermin habitat and an eyesore. Even if waste disposal is on the farm in a well-managed legal manner, time and equipment costs are involved. Every action taken to reduce waste (and the need for disposal) equals savings in time, labor, and money.

What would you find if you examined wastes from *your* operation over a year’s time? Could you find ways to purchase less trash—perhaps buy materials in smaller quantities you will use up quickly, or in compostable paper containers? Are some items recyclable so that you don’t have to pay someone to haul them away? Have you considered composting all organic wastes—even paper? Finding ways to reduce waste is like finding money.

Figure 1.

DEFINING PRODUCTION WASTE

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 terms for this chapter:

1. “Trash” and “waste” refer to items and materials that are no longer wanted—anything discarded or useless.
2. “Reusables” are items that are used again by a different user or for a different purpose, like a hand-me-down jacket or a jar used for a cup. They are not reprocessed into raw materials.
3. “Recyclables” are materials like glass, metal, paper, and even refrigerators that are collected, separated, processed back into raw materials, and made into new products.
4. “Compostables” are primarily organic and food wastes that can decompose and return to the earth as nutrients or soil.
5. “Garbage” is generally food waste or wet food either of animal or plant origin.
6. “Municipal Solid Waste” (MSW) is household waste combined with commercial, business, and institutional waste.
7. “Hazardous waste” is defined and regulated by EPA and the **Kansas Department of Health and Environment (KDHE)**. Check the **Material Safety Data Sheet (MSDS)** that comes with the chemical to see if the management instructions refer you to an agency for disposal; if so, the material is likely to be considered hazardous. It is best to contact KDHE at (785) 296-1600 with your questions.

The problem with waste

Producing less waste and finding creative alternatives for dealing with waste not only saves dollars but also helps protect air, soil, and water quality and the health of your family and livestock. Protecting your land and environment also protects your investment. In addition, accumulations of waste provide attractive habitat for rodents and insects. These vermin are known to carry disease and are considered a food safety problem. Proper waste management is critical for food protection. Improperly handled waste can create pollution on your land, resulting in potential health concerns as well as a lower value at sale.

PART 1—Reducing and Preventing Waste

If you do not produce waste, you will not need to get rid of it—it's that simple. But since we all generate at least some waste, we need to think about ways to make less. By making thoughtful choices when we buy products and plan activities, we can consciously decrease the waste we produce.

Can you find ways to buy and sell that reduces waste produced?

You make purchasing decisions every day, and each purchase involves a certain amount of waste production and use of natural resources. Whatever is being purchased, your decision to select a certain product or no product at all will determine the type and volume of waste that you must someday discard. If you buy with disposal costs in mind, you will select products that produce a minimum of waste, last longer, and use fewer natural resources. "Precycling" and "enviro-shopping" are terms that refer to this kind of purchasing. Perhaps you can encourage your customers to bring containers back for you to re-use appropriately.

An "enviro-shopper" typically asks the following questions before making a purchase:

1. *How much do I need?* Among other things, enviro-shopping means buying only what you need so that there is no waste to throw away. A good price or bulk packaging may tempt you to buy more paint or cleaner than you may really need. But what may seem like a "good deal" may end up wasting money and natural resources, because the unused or spoiled product will eventually have to be thrown away. Make sure you can use what you buy, or find someone who can use your leftovers. Remember that latex paint and many pesticides are time and temperature sensitive, so that **storage under low temperatures renders many of them worthless**. Check the label for storage instructions and "use by" dates.

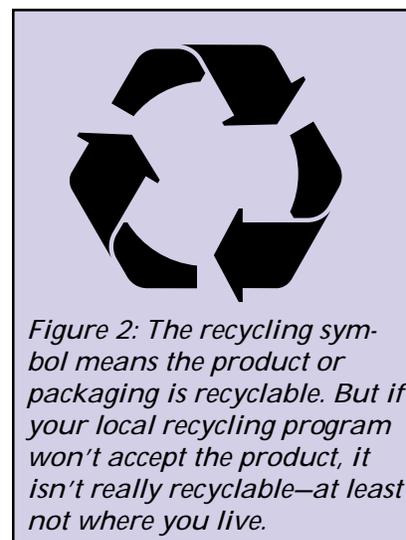
2. *Are my purchases long lasting, repairable, and reusable?* In our "throw-away" society, it is sometimes hard to find good quality products at an affordable price. Although durable products may be more expensive, they are usually a better investment in the long run. Look for equipment that can be fixed when broken. Long-lasting products are a good choice; not only is the initial cost spread over a longer time, but reliability saves downtime. Also, select products that are energy-efficient for even greater savings.

Products, packaging, and materials that can be reused—passed along to someone else or used for other purposes—save money and conserve resources. For example, you can purchase supplies that come in plastic buckets that can be used for other purposes. One caution is that chemical containers must never be used for holding food.

3. *Is the product package recyclable?* As a producer, are you using materials that are recyclable? Many product containers and packaging materials are potentially recyclable—such as glass bottles, paper, plastic bags, and cardboard boxes. To promote recycling, many manufacturers use a chasing-arrows recycling symbol (Figure 2). But be careful; your local recycling program may not take them. If a product cannot be recycled locally, then the product packaging is *not* truly recyclable—at least not where you live. The list of materials that your local recycling program will accept probably changes over time, so call first. Your county Noxious Weed Department is the local contact for recycling options.

If you cannot recycle something locally, you might be able to take it to a close neighboring community that will accept it. But do not waste more natural resources (such as gasoline) than you will save by recycling. Combine trips to recycling facilities with other tasks. Neighbors can cooperate in recycling by taking turns transporting everyone's recyclables to the center.

4. *Is the product or its packaging made from recycled materials?* There is a surprising variety of products made from recycled material: everything from carpets to



detergent bottles. On product packaging, look for the words “made from recycled materials” or, even better, “made from *post-consumer* recycled materials.” Each year, for example, billions of recycled aluminum beverage cans are melted down and made into new cans. But remember—just because you see a chasing arrow, do not assume that the product or packaging can be recycled locally.

5. *Do I buy and produce products with the least amount of packaging?* About a third of the paper, plastic, glass, cardboard, and metal we throw away comes from packaging. Look for ways to buy less trash. Buying in bulk (if the item will not be wasted) and selecting concentrated products are examples of minimizing waste from packaging.

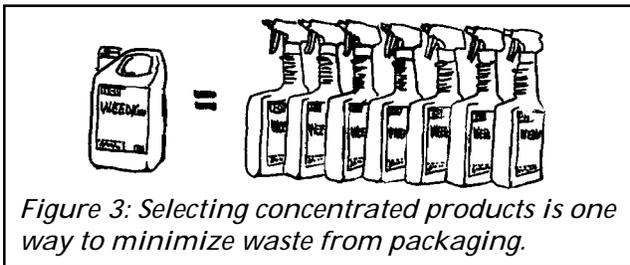


Figure 3: Selecting concentrated products is one way to minimize waste from packaging.

HOW MUCH WASTE DOES YOUR OPERATION PRODUCE EACH DAY?

This project could be called “garbology.” Designate an area and some large containers located close to your processing area(s). For one day, simply separate and collect the waste by type: metals, paper, plastics, wet (compostable) waste, and other. Don’t throw anything away...yet.

At the end of the workday, look at what you have collected, and analyze your waste: How much of the total weight or volume is paper? How much is recyclable, and how much is potentially hazardous? How much could have been avoided?

Think about how much it costs for your waste disposal in a year. Don’t forget to count your time spent hauling and disposing of the waste. Many businesses have found cost benefits in reducing waste production.

ASSESSMENT 1—Reducing and Preventing Waste

Part 1 will help you examine your potential for cutting the amount of waste you produce and preventing some kinds of waste completely. Fill out the assessment table below to determine your **waste potential**—to identify areas where you can minimize waste. Indicate your waste potential in the right-hand column.

Although some choices may not correspond exactly to your situation, choose the response that best fits.

	LOW	LOW-MEDIUM	MED-HIGH	HIGH	YOUR WASTE POTENTIAL
Quantities purchased	I only buy what I can use and avoid accumulating unused products.	I sometimes buy more product than I can use, but I use up the remainder quickly or store it safe from vermin.	I sometimes buy more product than I can use and leftovers are thrown away.	I often buy more product than I can use and leftovers are thrown away.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Product durability and potential for reuse	I select products based on their durability, ease of repair, and potential for reuse.	I sometimes consider durability, ease of repair, or potential for reuse.	Occasionally I consider durability, ease of repair, or potential for reuse.	I never consider durability, ease of repair, or potential for reuse.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Type of packaging for supplies	I regularly purchase containers/packaging that are small or compostable or can be recycled locally.	I sometimes purchase supplies with waste disposal in mind.		I never consider waste disposal when purchasing.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High

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 on Page 6-10 to record the high and medium-high waste potentials you identified in the assessment table. Use the ideas in this section to help reduce your waste potential.

Part 2—Reusing, Recycling and Composting

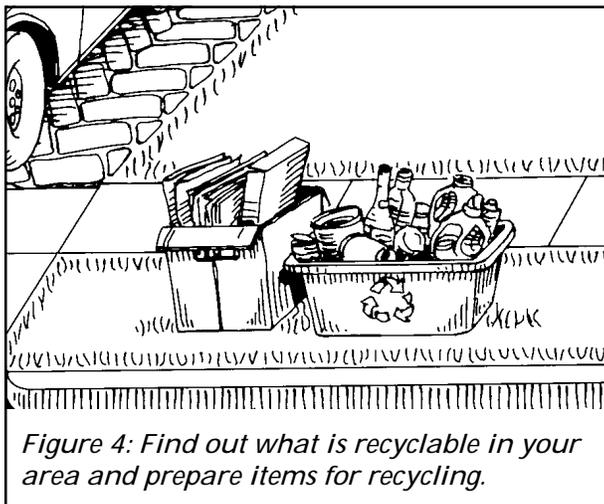
Once you make waste, it has to go somewhere. Part 2 reviews three ways to keep materials out of a landfill or incinerator.

For each item of waste, there are three questions to ask:

First, is it reusable? Reuse should be your first objective, as it typically is the easiest. Often, reuse is limited only by the imagination—you can usually find uses for more materials than you realize. Sharing old clothes and used furniture is a common form of reuse. See if neighbors can use your excess paint, lumber, or empty plastic pails—if the items can be reused safely.

When accumulating reusables, store them so that they remain useful and do not create habitat for vermin. For example, keeping stacks of display trays on the floor of a shed provides sheltered breeding areas for mice. If mouse urine contaminates the trays, they become unfit for use and must be discarded.

Second, is it recyclable? Any time you can dispose of waste for free, you lower your costs. Check with your city or county agencies, trash haulers, and local or area recycling business to see what is recycled in your area, where items are recycled, and how to prepare items for recycling. Plastic containers are marked with a number, usually inside the recycling symbol. Numbers 1 and 2 are most easily recycled, and should be your first choice in plastic packaging.

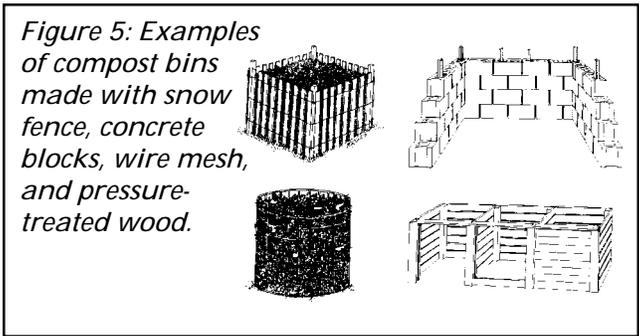


Again, storage of recyclables should be for short times, and managed so as not to attract insects and rodents. Plastic containers holding rainwater are ideal for mosquito breeding. Piles of wood make fine rodent homes.

Third, can it be composted? Organic wastes like produce culls and trimmings and animal manure, can be composted with minimal trouble. The amount of such wastes you generate depends on your food product, the processes used in your operation, the climate, and the type of plant or animal. Composting—or “nature’s recycling”—is an effective way to handle organic waste with the compost produced becoming an extra benefit. In Kansas, if composting operations involve more than simple yard waste composting bins, the Kansas Department of Health and Environment, Bureau of Waste Management must be contacted. Simple registration of the operation is appropriate for sites smaller than one-half acre; larger composting operations will be permitted. Call (785) 296-1121 for further information.

It is important to place the composting site where it will be well separated from any food processing areas. If properly managed, animals will not be attracted to the compost, but to be sure, allow at least 100 feet between the composting site and any food processing areas. Placement should also be distanced from nearby waterways or water bodies. When an exposed composting operation is located on a slope or stream bank, rainfall washes off chemical residues before they can be deactivated. In addition, the nutrients that make compost so valuable may leach out and be carried off by storm water to the nearest water resource, where water quality and fish habitat are compromised.

Composting is a natural process that (with the help of microbes, earthworms, and fungi) turns organic processing wastes into a high-quality soil conditioner. Many common materials can be composted on site: food waste, leaves, grass clippings, plant trimmings, straw, and even shredded paper. The final product is a dark brown, crumbly compost that has a clean, earthy scent. It can be spread on cropland or mixed with garden soil as an excellent natural soil conditioner. Properly sited and managed, animal wastes like manure (except pet manure), offal, and even carcasses can also be composted. Your county K-State Research and Extension office will be able to provide specific information to help you compost the wastes from your operation. Figure 5 shows some examples of small composting operations.



ASSESSMENT 2—Reusing, Recycling, and Composting

Use the table below to identify preferred methods to keep waste out of the landfill. Indicate your waste potential level in the right-hand column. Although some choices may not correspond exactly to your situation, choose the response that best fits.

	LOW POTENTIAL	LOW-MED POTENTIAL	MED-HIGH POTENTIAL	HIGH POTENTIAL	YOUR POTENTIAL
Reusing	I reuse as many items as possible.	I reuse most items.	I reuse items when it is convenient to do so.	I never reuse items.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Storage of recyclable items	I store for less than a month & protect from contamination.	I store for a few months & protect from contamination.	I store for up to a year & usually protect from contamination.	I store indefinitely & items are unprotected.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Recycling	I recycle as many wastes as possible.	I recycle some, but not all recyclable wastes.	I recycle when it is convenient to do so.	I never recycle.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Storage of hazardous materials (see definition Page 6-8)	None stored—no leftovers.	Stored in locked area separate from food processing areas, in accordance with label.		Storage not locked—or— not separate from food processing areas—or— not as labeled.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> High
Composting	I compost and manage all organic wastes onsite at least 100 feet from processing areas.	I compost most organic wastes; the site is at least 50 feet from processing areas.	Sometimes organic wastes are composted; the site is between 20 and 50 feet from processing areas.	I never compost, or the site is less than 20 feet from the processing areas.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High

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 on Page 6-10 to record the high and me-

dium-high waste potentials you identified above. The information in this section can help you plan improvements.

PART 3—Managing Waste and Disposal

Your goal in managing waste is to handle and dispose of it so that you can market a safe product and protect your farm's environmental resources. How you manage the processing waste from your operation can affect the safety of your food product through cross-contamination. This occurs in various ways such as:

- Splash or drips or drainage from waste located near the food or processing operation
- Vectors (insects, rodents) that are attracted to and congregate around the waste
- Personnel activities bringing debris into the facility

Disposing of processing waste by burning it or dumping it on private property can compromise food safety and pose threats to your health and the environment. Although these disposal methods have been used in many rural areas for decades, local and state laws are becoming more restrictive. Many counties ban dumping or burning of waste in order to protect soil, water, and air quality. At certain times of the year or during a drought, burning is only allowed with a permit or prohibited due to wildfire hazard.

Do you control cross-contamination?

After you have made every effort to reduce the waste associated with production and processing, you will need to consider disposal. Where and how you do it can affect the safety and quality of your food product.

Insects and rodents (vectors) are to be expected around human activity, but by following some simple guidelines, their presence can be limited. The use of poisons is **not** the first step in control. Unless carefully used, poisons can contaminate the food you are trying to protect. It is far safer to control by eliminating the habitat or by using traps. Should baits become necessary, use non-toxic formulations. Poison-type baits should never be used in areas where food is stored or processed.

Understanding that disease vectors (rodents and insects) need food, water, and shelter helps you see changes you can make. Just as people avoid deserts where these things are unavailable, removing accessibility to water, food, and shelter will discourage vectors. Piles of waste may provide all three; therefore, reducing the amount of waste and making it inaccessible by removal or containment will help control these undesirable animals. If daily removal is not possible, leak-proof, heavy walled containers with tight-fitting lids are best for holding waste; garbage bags are suitable only for lining containers or temporary collection prior to removal.

Within the processing area, adequate containers should be readily available where ever waste is generated. The containers should be placed so that waste is deposited without dripping or splashing on food products or on the surfaces where they might be processed. In open-air conditions, it is a good idea to have some means to cover the waste can when it is not in use. At the end of the day, all waste should be collected and removed from the facility for proper disposal or vermin-proof storage.

Figure 6.

BYPRODUCTS OF OPEN BURNING

Smoke, particles, or ash from burning waste may contain some of the following pollutants:

Arsenic from some wood preservatives or pesticides

Benzene and other solvents from some paint or varnish strippers

Cadmium from nickel-cadmium batteries and plastics such as PVC

Carbon monoxide from incomplete combustion

Chromium from colors in some colored paper and paints

Dioxin from byproducts formed when chlorine-containing products such as some plastics are burned

Formaldehyde from some particle board and fabric treatments

Hydrochloric acid from some mixed waste paper

Lead from some paint on old boards, batteries, and PVC plastics (lead is used as a stabilizer in PVC)

Mercury from some batteries, paints, plastics, and fluorescent lights

Nitrogen oxide from some colors and inks

Sulfuric acid from some chemicals, dyes and pigments, rayon, and film

NOTE: Some of these chemicals have burning points higher than a burn barrel will reach. However, they might end up in ash on the ground or as floating particles.

The waste holding area outside should be at a distance from the processing area and follow the same guidelines as locating a composting site. (Location of composting operations has been discussed in Section 2.) Should vectors be attracted to the holding area, separation makes it less likely that they will also enter the facility. Distance also decreases the possibility of people inadvertently carrying the waste into the processing area on shoes or with supplies.

Do you burn the waste from your operation?

In the past, some businesses used burn barrels to get rid of waste. When paper, plastics, printing inks, batteries, and other common materials are burned, a noxious mix of chemicals can be released into the air (See figure 6 on Page 6-6). Some of these—such as lead or mercury or even the byproducts given off when plant debris is burned—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 in water. Due to concerns about such depositing of hazardous air pollutants, laws exist that restrict if, or what, you can burn. Generally, open burning of waste has been banned. Always check with local authorities before burning.

Do you dump waste on your land?

With the exception of personal domestic waste in agricultural areas, it is generally illegal to dispose of waste on your land. Waste dumped on your property is not only unsightly, it may contain harmful chemicals that can leach out and contaminate groundwater (Figure 7), or be spread by wind and rain. Discarded paint, for example, may contain lead or mercury. Pesticide containers may contain toxic residue, and used oil filters usually harbor 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

waste contains hazardous substances—even in small quantities—it should be disposed of in a properly constructed and regulated hazardous waste landfill. Discarded tires, which provide a haven for mosquitoes, are another concern.

Lending institutions are commonly requiring an environmental assessment before they will consider loaning money on rural property. Property owners should be prepared to disclose environmental information such as known dumpsites or other hazards on the property being sold. So if you have a dump or burn site, such as an oil or pesticide dumpsite, be prepared to tell potential buyers.

For more information about disposing of waste on your property, contact your local environmental or health department, codes department, or a licensed landfill operator.

Do you dump waste down a drain or storm sewer?

Especially for operations served by street drains and storm sewers, any solid or liquid wastes exposed to the weather—including animal wastes, motor oil spills, solvent spills, solvent-based paints and products, and other product spills—can wash directly into lakes and streams. Storm sewers, remember, are rarely connected to wastewater treatment facilities. ***It is illegal in most places to dispose of waste in storm drainage systems.*** Never dump waste onto the ground or into a water body, stream or river.

Some materials, like 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.

Dumping potentially hazardous substances down a drain that leads to a septic system or sewer system can also cause problems; see Chapter 5, Wastewater Management, for more information.

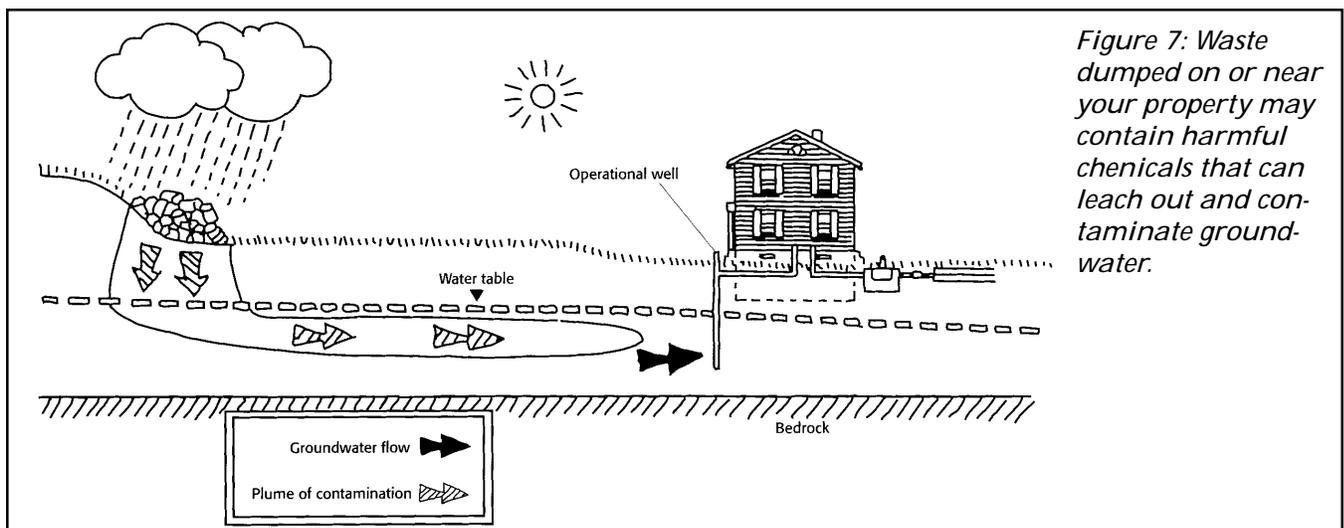


Figure 7: Waste dumped on or near your property may contain harmful chemicals that can leach out and contaminate groundwater.

Figure 8.

WHICH WASTES ARE HAZARDOUS?

By reading product labels, you can generally tell which ones have hazardous ingredients. Look for words like *WARNING, CAUTION, DANGER, FLAMMABLE, POISON, VAPOR HARMFUL, or FATAL IF SWALLOWED*. These are clues that a substance in the product is potentially hazardous to your health and the environment.

Carefully dispose of such products—especially if unused portions of the product are in liquid form. Although dry chemicals can be hazardous, liquids can more easily injure waste haulers, react with other discarded chemicals to start fires or create deadly gases, or seep through soils and into water sources. The best approach for dealing with these products is to use them up, if it is safe and legal to do so, so nothing is left to discard. *Check with your county Noxious Weed program to see if your community has implemented a Household Hazardous Waste collection program.*

Always read the MSDSheet or label for disposal recommendations, or contact the manufacturer. Remember that empty pesticide containers are considered hazardous waste.

ASSESSMENT 3—Managing Waste and Disposal

Complete the table below to determine your risks and consider alternatives to on-site methods of disposal. Choose the statement from the right-hand columns that best fits your situation. Refer to the information in Part 3 to help you respond.

	LOW RISK	LOW-MEDIUM RISK	MEDIUM-HIGH RISK	HIGH RISK	YOUR RISK
Avoiding cross-contamination	Waste is in proper containers with lids, removed daily; held at least 100 ft. from open-air processing areas.	Waste is in proper containers with lids, less than 100 ft. from open-air processing areas, no vectors seen.	Waste is in bags; holding area is 20-50 ft. from open-air processing areas; vectors seen occasionally.	Waste is uncontained, accumulates for several days, less than 20 ft. from processing areas; vectors are common.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Vector control	Habitat not conducive to vectors, no bait required.	Non-hazardous bait or traps used.	Toxic baits used only in out-buildings, not in food-processing areas.	Toxic baits used in food processing areas.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High
Burning waste	No waste is burned on site.	Only non-toxic materials are burned. If burning is legal, burning guidelines are strictly followed.	Sometimes mixtures of waste are burned with legally burnable materials.	Mixtures of waste (including paper, solvents, batteries, and plastics) are commonly burned. Burning when it is illegal.	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> Med-High <input type="radio"/> High

	LOW RISK	LOW-MEDIUM RISK	MEDIUM-HIGH RISK	HIGH RISK	YOUR RISK
On-site dumping (Excluding properly managed composting sites.)	No waste is dumped on my property or on public property.	Only non-toxic wastes are dumped on-site—in an approved, properly designed site.		All wastes and liquids, appliances, tires, and other junk are dumped on-site. Dumping onsite when it is illegal	<input type="radio"/> Low <input type="radio"/> Low-Med <input type="radio"/> High
Dumping near water ways or down storm sewers or drains	No hazardous materials are discarded in a sewer system, septic system, or storm drain.		Some runoff carries spills and chemicals away; runoff occasionally flows into waterways or storm sewers.	Hazardous and other wastes are discarded in a waterway, sewer system, septic system, or storm drain.	<input type="radio"/> Low <input type="radio"/> Med-High <input type="radio"/> High

Responding to risks

Your goal is to reduce your risks. On the Action Checklist on Page 6-10, write all high and medium risks you identified. Use the ideas in this section to help plan your actions.

ACTION CHECKLIST

Managing Production Waste: Reducing, Reusing, Recycling, and Composting

Go back over the assessment tables to ensure that all medium-high and high waste potentials and risks you identified are listed in the Action Checklist on the following page. 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 help 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.

<i>Write all high and medium-high waste-making potentials and risks below.</i>	<i>What can you do to cut waste or reduce the risk?</i>	<i>Set a target date for action.</i>
<i>Sample:</i> Products are purchased without considering whether the packaging is recyclable.	Find out about our area's recycling program and try to buy products with packaging that can be recycled locally.	One week from today: March 8

For More Information

Recycling, composting, and waste disposal

Contact your local environmental, health, or sanitation department, recycling center, fire department, city office, or your county K-State Research and Extension Office. Get the latest list of what is locally recyclable and how to prepare items for recycling. Ask for information on composting and other disposal alternatives and a schedule of hazardous waste collection days. Find out where to take used motor oil, batteries, and appliances.

Local regulations on burning and dumping

Most communities ban dumping and/or burning waste on your land. Check with local zoning or environmental health agencies for regulations in your area.

Internet resources

<http://www.oznet.ksu.edu/> Kansas State University Research and Extension; most publications are available through this site.

http://www.cfe.cornell.edu/compost/composting_homepage.html Cornell University; information on carcass composting.

<http://www.kdhe.state.ks.us/waste.html> Kansas Department of Health and Environment; offers information about waste disposal, hazardous waste, and regulations.

Publications

These bulletins are available from your county K-State Research and Extension Office or by calling K-State Extension Agronomy, (785) 532-5776:

Considerations for Direct Land Application of Organic Waste Products. MF-2224 (8/98)

Disposing of Pesticide Containers. EP13 (5/95)

Making and Using Compost. MF1053

Guide for Community Yard Waste Composting in Kansas. MF-2275

Sustainable Agriculture Composting dead livestock: A new solution to an old problem. Iowa State University, Extension Publication #SA 8 (rev. Nov 99).

Composting Manure and Other Organic Residues in the North Central Region. North Central Regional Extension Publication #600.

Lund, Herbert F., ed. *The McGraw-Hill Recycling Handbook*, New York: McGraw-Hill, Inc. 1993.

Rathje, William and Cullen Murphy. *Rubbish! The Archaeology of Garbage*. New York: Harper Collins. 1992.

Wackernagel, Mathis and William E. Rees. *Our Ecological Footprint: Reducing Human Impact on the Earth*. Philadelphia: New Society Publishers. 1996.

[Kansas Food**A**Syst Helps Ensure Your Safety](#)

This *Kansas Food**A**Syst* handbook covers a variety of topics to help you examine and address your most important food safety and environmental concerns. See the complete list of chapters in the table of contents at the beginning of this handbook. The end of each chapter lists resources and other useful information. For more information about topics covered in *Food**A**Syst*, or for information about laws and regulations specific to your area, contact your local environmental health or county K-State Research and Extension office.

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