After the Flood

What to do next........

Livingston County Extension Office
306 Wilson Avenue – P.O. Box 189
Smithland, KY 42081

For more information call 270-928-2168 or 1-800-928-2168
for Ledbetter and Grand Rivers residents.
Resources Available in Livingston County

For more information on:

**Cleaning up after the flood:**
- Livingston County Extension Office……………………………….……………..270-928-2168
- Livingston County Health Department…………………………………………..270-928-2193

**Food and Clothing Distribution:**
- Livingston County Helping Hands………………………………………………270-928-3383
- Pennyrile Allied Community Services………………………………………..270-928-2827
- Salem Baptist Clothes Closet………………………………………………………270-988-2033

**Well Disinfection Kits:**
- Livingston County Health Department…………………………………………..270-928-2193

**Shelter:**
- Tri County Shelter, 1526 Park Avenue, Paducah………………………………270-217-9587

**Paducah Chapter of the American Red Cross**…………………………………..270-442-3575
(serving Ballard, Livingston and McCracken Counties), 232 N. 8th St. & Monroe in downtown Paducah), Paducah, KY 42001
- **Disaster Assistance (FEMA)**……………………………………………………1-800-621-3362
  TDD  1-800-462-7585

**“Creating A Healthy Home; A Field Guide for Clean-up of Flooded Homes” available upon request from the Livingston County Extension Office: 270-928-2168.**

**References:**
- Center for Disease Control........................................www.bt.cdc.gov
- FEMA..............................................................................www.fema.gov
- eXtension.................................................................www.extension.org
- University of Kentucky, College of Ag.......................www.ca.uky.edu
- LSU Ag Center.................................................................www.lsuagcenter.com
- Energy and Environment Cabinet,
- Dept. for Environmental Protection......................www.water.ky.gov
- American Red Cross......................................................www.redcross.org
- North Dakota State University, Extension........www.ndsu.edu/disaster/
- Center for Healthy Housing.................................www.centerforhealthyhousing.org
- Alabama Cooperative Extension System........www.aces.edu/dept/edres/floods/#kids
- University of Minnesota Extension.....................http://septic.umn.edu
- UK Healthcare.................................................................http://ukhealthcare.uky.edu
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Flooded Feelings
A Flood of Emotions

Water causes more than property damage in North Dakota. It is bringing a flood of emotions. How we deal with the emotional flood may affect how well North Dakotans recover from this natural disaster.

- Emotional Responses

Most people are very quick to take care of what needs to be done: sandbagging, packing, and helping neighbors. "Let's take care of what can be done." At the same time people experience disbelief: "This can't possibly be happening!" This emotional duality allows people to keep working for survival. But there may be a sense of unreality during the disaster.

Other powerful feelings may surface:

- Panic/feeling out of control
- Anger
- Generosity toward others
- Despair
- Anxiety/uncertainty
- Disorientation
- Cooperation/teamwork

At times, flood preparations can pull whole neighborhoods together by working, sandbagging, and preparing. There is a sense of teamwork. It can be an experience that helps people get to know each other in a special way.

The full force of the emotional flood will hit after the floodwaters recede. That's when exhaustion sets in. As people look at their real losses, they may experience grief, desperation, and depression. People need to be prepared to pay more attention to their emotional reactions and to the reactions of friends and neighbors once the emergency crews go home.

- Coping

One of first things people can do is pull together and don't hesitate to ask for assistance! Many people are around who want to help and will help. They just need to know what to do that will be most helpful right now.

Another important coping strategy is taking care of your physical and emotional needs. Eat a balanced diet to fuel your energy. As much as possible, get enough sleep. Fatigue will slow you down during an emergency. As you prepare, pack,
sandbag or check your crops, talk with others about your feelings. Listen to theirs. Together, look for the positives in the situation.

- **Talking Can Ease The Pain**

Floodwaters will subside, but the emotional stress may keep rising for people who have experienced losses. Pain from loss and tough times can be eased when people keep talking with each other. Friends and neighbors, parents and children, and couples need to talk about what they are feeling.

When people **stop talking** with others who have suffered loss or who are facing financial trouble, they send the message that they don’t care. Rather than feeling indifference, friends and neighbors may be caught up in their own losses, uncertainties, and problems. Those who were not hurt directly by the floods may feel guilty and not know what to say.

Children especially need help in regaining a sense of security. They may see changes in their parents and think that they are somehow to blame for increased tension. Talking together and being honest yet reassuring about problems the family faces can help children feel more in control.

If money is tight, parents can ask children to help think of ways the family can work together to keep expenses down. Parents need to be sure children don’t blame themselves for tough economic times.

Couples who are facing losses may find that each spouse copes differently with the stress. No one reaction is right. The important thing is to keep talking things over and to show love and affection toward each other.

What matters most as people put their lives back together is friends, neighbors and families making themselves available for each other.

It can be harder to be a good listener than to provide the immediate kinds of help that have brought neighbors and strangers together in the crisis. Keeping in touch with the people who are hurting doesn’t mean you have to have the answers. Just giving someone a chance to talk about the problem can be an important step in rebuilding.

- **Helping Others**

As much as possible, provide practical help during the flooding. Help friends or family pack. Furnish meals. Store their belongings; provide them with a place to stay. Parents may be very busy; offer to spend some time with children to play and to listen to their concerns.
Listen. When others talk about their experiences and feelings, their emotional load seems lighter to bear. One of the best ways you can help is to just listen. You don't have to come up with solutions or answers. It's OK if your neighbor needs to break down and cry. Others will ask, "Why me?" They are not really looking for an answer but expressing their hurt.

Show by words and actions that you care. A friendly arm around troubled shoulders or a few words of support and encouragement can help in times of crisis. Small, kind deeds and sincere expressions of affection or admiration also will mean a lot.

- **How Family Members Can Be More Supportive of One Another**

  Tell family members when they have done a good job. Laugh! Laughter can help relieve tension. Be considerate of other family members. Express love and concern often.

- **Neighboring in Times of Trouble**

  - Offer specific types of help or ask how you can help.
  - Go ahead and act. Don't be afraid of saying or doing the wrong thing.
  - Go ahead and help. Your friend won't resent you if you aren't facing flood danger yourself.
  - Keep helping. The danger may continue for some time. Recovering may take even longer. Your friends or family members will need regular, small acts of kindness to maintain their morale and to put their lives back together.

For emotional support, contact the Mental Health Association in North Dakota through the 24-hour statewide HELP-LINE at 211.

*Source: NDSU Extension Service* - [http://www.ag.ndsu.edu/disaster/flood/floodofemotions.html](http://www.ag.ndsu.edu/disaster/flood/floodofemotions.html)

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For residents of Ballard, Calloway, Carlisle, Fulton, Graves, Hickman, Livingston, Marshall, and McCracken Counties, Four Rivers Behavioral Health Crisis Line phone number is 1-800-592-3980.
HELPING CHILDREN COPE AFTER A DISASTER

Children may require special attention after experiencing a disaster. Four common fears children have are death, darkness, animals and abandonment. In a disaster children may experience any or all of these. You should encourage children to talk about what they are feeling and to express this through play, drawing or painting.

A child's reaction to a disaster may vary depending on age, maturity and previous experience. In all cases it is important to acknowledge what happened and take time to talk with children about their fears.

Some behaviors you may find children exhibiting after a disaster include:

- Being upset at the loss of a favorite toy, blanket, teddy bear, etc.
- Hitting, throwing or kicking to show their anger and frustration.
- Fear of the disaster coming again.
- Fear of being left alone or sleeping alone. They may want to sleep with another person.
- Behaving as they did when they were younger, including wetting the bed, sucking their thumb, wanting to be held, etc.
- Exhibiting symptoms of illness such as nausea, fever, headaches, not wanting to eat, etc.
- Becoming quiet and withdrawn.
- Becoming easily upset.
- Feeling that they caused the disaster in some way.
- Feeling neglected by parents who are busy cleaning up or rebuilding.
- Refusing to go to school or to be out of the parent's sight.

Parents and other adults can help children come to terms with their feelings in several ways.

- Let children know you love them and they can count on you.
- Reassure them that they are not responsible for what occurred.
- Talk with your children about your own feelings.
- Give simple, accurate answers to children's questions.
- Hold them. Close contact assures children you are there for them and will not abandon them.
- Let children grieve for a lost toy or blanket that was special to them. It will help them cope with their feelings.
- Provide play experiences to relieve stress.
- Repeat assurances and information as often as you need to; do not stop responding.
- Spend extra time putting children to bed at night.
- Listen to what children say. Repeat their words to clarify what they are feeling.

If additional help is needed for adults or children, contact a community resource such as a counseling center, minister or mental health agency.

Provided by Alabama Cooperative Extension System; www.aces.edu/dept/edres/floods/#kids
After a Flood
After a Flood

The following are guidelines for the period following a flood:

- Listen for news reports to learn whether the community’s water supply is safe to drink.
- Avoid floodwaters; water may be contaminated by oil, gasoline, or raw sewage. Water may also be electrically charged from underground or downed power lines.
- Avoid moving water.
- Be aware of areas where floodwaters have receded. Roads may have weakened and could collapse under the weight of a car.
- Stay away from downed power lines, and report them to the power company.
- Return home only when authorities indicate it is safe.
- Stay out of any building if it is surrounded by floodwaters.
- Use extreme caution when entering buildings; there may be hidden damage, particularly in foundations.
- Service damaged septic tanks, cesspools, pits, and leaching systems as soon as possible. Damaged sewage systems are serious health hazards.
- Clean and disinfect everything that got wet. Mud left from floodwater can contain sewage and chemicals.

Provided by FEMA; [www.fema.gov/hazard/flood/fl_after.htm](http://www.fema.gov/hazard/flood/fl_after.htm)
Floods: First Entry of a Flooded Home - Precautions

**Structural Integrity**

When first returning to a flooded home, you may face many threats to life and health. The first and most obvious issue: is the building structurally sound? Only a structural engineer or other building official can answer this with any certainty, but some warning signs include:

- Is the building shifted off its foundation?
- Is the foundation itself damaged?
- Is the building racking – no longer square, but leaning to one side?
- Is the building partly destroyed – missing a wall, for example, or partially crushed?
- Is the roofline out of position?

If any of these are true, then the building may collapse at any time. It must not be entered unless a qualified official has declared it safe. Don’t take any chances!

Is the basement flooded? If so, then make sure ground water has receded before pumping it out. Basements that are pumped out while the ground is still soaked may collapse as the outside water pressure is no longer balanced by pressure inside the basement.

**Site Hazards**

Beware of debris piles:

- They may shift or collapse at any time.
- They may harbor rodents, snakes or other vermin.

Beware of walking through flooded areas; there may be holes or dropoffs that you can’t see.

**Other Hazards**

**Electrical hazards:**
Is the electricity turned off? Do you know this for certain? If you are not certain:
- Do not enter the basement if it is flooded.
- Do not touch any electrical devices especially if you are standing in water or in contact with the earth.

**Combustible or explosive gases:**
When flooding is severe, gas lines are often broken if the building has shifted or if major appliances have moved about. Open all windows when first entering a building. If you smell gas or hear it escaping:
- Don’t smoke or light matches.
Don’t use cell phones or regular phones.
Don’t operate any electrical switches, which may spark.
Don't create any other source of ignition.
Exit the building immediately, leaving doors and windows open.
Do notify emergency authorities.

**Carbon monoxide:**

Carbon monoxide (CO) is a colorless, odorless gas that is produced when any fuel is burned. High concentrations can kill!

When coming back to a house that is wet, cold and without heat or power, it is tempting to use an electric generator, or an improvised heater, such as a BBQ or camp stove. Do not operate these devices indoors. (Opening windows is not sufficient to prevent CO buildup.) Make sure gas-powered electric generators are outdoors (or, if indoors, properly vented) and away from windows or other air intakes. Fuel-fired, unvented space heaters can be used if manufacturers’ directions are carefully followed. Note that these devices produce large amounts of moisture as fuel is burned, so their drying ability is quite limited.

Do check chimneys and flues for blockage by debris before using furnaces, hot water heaters, wood stoves, etc.

**Mold:**

Mold and other organisms, such as bacteria and viruses that thrive in wet environments can trigger negative health effects. These range from irritation, coughing and headache to asthma attacks and possibly life-threatening infections.

Here are a few of the most important things that you should know about mold:

- There is an association between exposure to mold spores and debris from mold cells and health problems.
- Mold that is killed can still cause health problems; killing mold, with bleach for example, does not make it harmless.
- Some people are especially sensitive to mold, and react strongly to levels that don’t bother others.
- There are likely to be large amounts of mold in the air after a flood, both inside and outside.
- Disturbing dry moldy materials can release large amounts of spores and debris into the air.
- Common “dust masks” do not give needed protection against mold. The minimum needed is a mask with an “N 95” designation. Stronger protection - N 100 masks or toxic particle respirators along with goggles and other protective gear - will be needed for high levels of mold exposure.

*Provided by eXtension;* [www.extension.org/pages/13238/floods](http://www.extension.org/pages/13238/floods)
Floods: First Entry of a Flooded Home -
What to do: Document and Protect

*Before you try to enter or fix things in a flooded house, first take a look at “Precautions on First Entry” for some important safeguards. Be safe. Be aware of the many hazards in and around a damaged building.*

There are two things that need to be done as you start repairing damage from a flood:

1) Make a record of damage and losses.
2) To the extent that you are able, prevent further damage to the building.

If you are not sure how to do any of these things, ask. In most communities, shortly after a flood or similar disaster, there are lots of experts who have helpful information arriving to the area to assist residents.

**MAKING A RECORD OF LOSSES AND DAMAGE:**

*Take photos.* Do this inside and out. You can’t have too many pictures. Pictures should show any structural damage to the building and furnishings, and any items of particular value. Record the serial numbers of any appliances or equipment that is thrown out.

This information is valuable for filing insurance claims and for documenting losses for other purposes, such as tax deductions.

Insurance after natural disasters such as flooding is a complicated, difficult and often frustrating issue, and is dealt with in more detail in the section on risk management or elsewhere (see, for example, the Louisiana State University Storm Recovery Guide, Chapter 6). One important point to remember is that the insurance company will try to settle a claim for as little money as possible, and their adjusters work towards that goal. For this reason, consider hiring your own adjuster to deal with the insurance company. You can find independent adjusters listed in the Yellow Pages. Look under "Adjusters." These individuals are skilled at negotiating with insurers, and their fee is usually based on a percentage of the recovery that is received from the company.

**PREVENT FURTHER DAMAGE:**

*Remove floodwaters, mud and silt.* Open doors to allow water to exit. Arrange to have basement pumped out. *Only do this when you are certain that the earth around the building is no longer saturated!* Otherwise, water pressure may collapse basement walls as the basement is drained.

If water is running from broken pipes, shut off the water supply to the house. Usually, there is a valve at the meter. If you cannot find this, contact the water company.
Allow the building to dry out. This can reduce or prevent mold growth, but must be done quickly, usually in 48 hours or less. Open doors and windows, and open up wall cavities if walls have gotten wet. Remember that these measures will only be effective if outside humidity is low. In high moisture conditions, a heat source or some sort of mechanical drying equipment will be needed. Remove mud and silt. Be sure to use personal protection against mold and other harmful pollutants. This is especially important if mold has dried out, and also very important if floodwaters are contaminated.

You may also need to secure the building from looters when you are not present. Doors and windows should be locked, or secured with plywood, if possible. Portable valuables should be removed to a secure location.

Prevent further water damage. If the roof or walls have been damaged, temporary or permanent repairs should be arranged as soon as possible.

Salvage valuable items first. These include such things as cash, jewelry, important documents and family treasures. Clean off the mud and allow items to dry. If items like photos and books cannot be immediately dried, clean off the mud, place in plastic bags and find a friend with an operating freezer. These items can be frozen and dried later.

Discard items that cannot be salvaged. The general rule is that hard materials and building components that are not damaged by water can be dried out and salvaged, although if mold is involved, cleaning may require more labor than the item is worth. Since flood waters are considered to be contaminated, generally absorbent materials should be discarded. Rugs or other items that can be laundered or thoroughly cleaned may be salvaged. Unless absorbent materials can be dried out within 48 hours (longer if temperatures are cool or sooner if temperatures are warm), mold growth may make cleaning impossible. Heirlooms and items of special value can be saved by the use of specific treatments and procedures, if available. Contact local or area museums or search the Web sites provided below. Paper records can be spread out and air-dried, preferably on blotting paper. Papers that can’t be dried in 48 hours can be put in a freezer until it is possible to dry them.

While it may be possible to salvage household appliances, heaters, etc., it can be very difficult to dry and remove mud and silt from their inner workings so these are often discarded. This is especially true for saltwater flooding.

Service damaged septic tanks, cesspools, pits and leaching systems as soon as possible. These can be serious health hazards.

TAKE CARE OF YOURSELF

Flooding and other disasters are highly stressful for all involved. Keep the family together for mutual support. Discuss problems with others - friends and neighbors can offer mutual support, too. Rest often and eat well. Set manageable goals. Take care of, and comfort, your kids. If problems seem overwhelming, seek professional help. Such feelings are common after disasters, and talking to a professional can help a lot.

Provided by eXtension; www.extension.org/pages/13243/floods
Protect Yourself and Others From Electrical Hazards After a Disaster

After a hurricane, flood or other natural disaster you need to be careful to avoid electrical hazards both in your home and elsewhere.

- *Never* touch a fallen power line. Call the power company to report fallen power lines.
- Avoid contact with overhead power lines during cleanup and other activities.
- Do not drive through standing water if downed power lines are in the water.
- If a power line falls across your car while you are driving, stay inside the vehicle and continue to drive away from the line. If the engine stalls, do not turn off the ignition. Warn people not to touch the car or the line. Call or ask someone to call the local utility company and emergency services. Do not allow anyone other than emergency personnel to approach your vehicle.
- If electrical circuits and electrical equipment have gotten wet or are in or near water, turn off the power at the main breaker or fuse on the service panel. Do not enter standing water to access the main power switch. Call an electrician to turn it off.
- Never turn power on or off yourself or use an electric tool or appliance while standing in water. Do not turn the power back on until electrical equipment has been inspected by a qualified electrician. All electrical equipment and appliances must be completely dry before returning them to service. Have a certified electrician check these items if there is any question.
- If you see frayed wiring or sparks when you restore power, or if there is an odor of something burning but no visible fire, you should immediately shut off the electrical system at the main circuit breaker.
- Consult your utility company about using electrical equipment, including power generators. Do not connect generators to your home's electrical circuits without the approved, automatic-interrupt devices. If a generator is on line when electrical service is restored, it can become a major fire hazard and it may endanger line workers helping to restore power in your area.

If you believe someone has been electrocuted take the following steps:

1. Look first. Don't touch. The person may still be in contact with the electrical source. Touching the person may pass the current through you.
2. Call or have someone else call 911 or emergency medical help.
3. Turn off the source of electricity if possible. If not, move the source away from you and the affected person using a nonconducting object made of cardboard, plastic or wood.
4. Once the person is free of the source of electricity, check the person's breathing and pulse. If either has stopped or seems dangerously slow or shallow, begin cardiopulmonary resuscitation (CPR) immediately.
5. If the person is faint or pale or shows other signs of shock, lay him or her down with the head slightly lower than the trunk of the body and the legs elevated.
6. Don't touch burns, break blisters, or remove burned clothing. Electrical shock may cause burns inside the body, so be sure the person is taken to a doctor.

*Provided by the CDC (Center for Disease Control):* [www.bt.cdc.gov/disasters/electrical.asp](http://www.bt.cdc.gov/disasters/electrical.asp)
CLEANING UP AFTER A FLOOD SETTING PRIORITIES

- Priorities will vary with the kind and seriousness of damage. Buildings may not be habitable during repair.

- Examine building structure. Check foundations for settling, cracking or undermining. Examine walls, floors, doors and windows to determine what repairs are necessary. You may want to repair only temporarily until extensive work can be done.

- If basement is flooded, start pumping the water in stages. Pump about one-third of the water each day.

- Get the electrical system in operation. If the switch box is in a flooded basement, do not turn electricity back on until water has been pumped out. Take electrical appliances to a serviceman as soon as possible.

- Get the water system in operation. Disinfect wells and water system.

- Shovel out mud and silt before it dries.

- Before they dry, wash down flooded walls and floors with a hose. Start at upper limit of flooding and work downward. Scrub and disinfect walls and floors.

- Start the heating system if possible to speed up drying. Before operating it, the heating system may need to be cleaned, dried and reconditioned. Make sure chimneys are clean before starting system.

- Dry out walls and floors. If necessary for proper drying, strip walls open up to water level. Drill holes in exterior siding. Complete drying may take months. Repair buckled walls and floors.

- Clean and dry household items, furniture, carpets, clothing, dishes and bedding. Disinfect when necessary. Treat items for mildew as needed.

- Care for damaged trees, shrubs and lawn.

- Repaint, repair, refinish as necessary.

Provided by Alabama Cooperative Extension System; www.aces.edu/dept/edres/floods/#kids
Salvaging After Flooding

Absorbent Materials; Belongings

Floodwater is considered to be contaminated with biological and chemical contaminants.

As a general rule, soft absorbent materials must be dried out within 48 hours (this period may extend to 72 hours in cooler conditions and may be shortened in warmer temperatures.) This has to do with mold growth. Mold cells reproduce quickly, often doubling in a matter of hours. This process goes faster when temperatures are warmer.

Carpet: Since flood water is contaminated, salvaging flooded carpet involves more than drying. Carpeting can sometimes be saved if it can be cleaned by a professional.

Mattresses: It is unlikely that mattresses can be adequately dried.

Upholstered furniture: It is unlikely that upholstery can be adequately cleaned and dried soon enough. It may be possible to salvage the frame and re-upholster the piece, but first decide if the piece is worth salvaging.

Wood furniture: Solid wood furniture can often be saved if it is not severely damaged. It may be necessary to disassemble and re-glue. Refinishing may also be necessary. Cleaning and drying are essential first steps. Further repairs can be done at a later time. Veneered furniture repairs involve considerable time and skill and are best left to professionals unless damage is slight. Replacement may be the better choice unless the piece has special monetary or sentimental value.

Hard, Non-Absorbent Goods

These can usually be cleaned, dried, and salvaged.

General Rules - Electrical Appliances:

1) Be extremely cautious! Plugging in an appliance that has not completely dried can deliver a fatal shock. Opening up some appliances, such as TV sets, can pose a shock hazard even when the device is not plugged in.

2) Unplug the appliance before working on it; make sure that power to the house is off before unplugging or touching the appliance. Before power is turned back on, unplug all appliances that have gotten wet. Flooding can cause short circuits that can later deliver a fatal shock.

3) Appliances that have been submerged generally cannot be salvaged. It may be possible to repair those that have gotten wet by rainwater but were not flooded.

4) Small appliances — or older, large appliances — are generally not worth salvaging.
5) Electronic appliances — TV sets, audio equipment, media players and so on -- generally cannot be salvaged.

Restoration of an appliance involves two basic steps: cleaning and drying the device itself and cleaning and drying the motor, switches and controls. Cleaning and drying will be complicated if fibrous insulation (such as fiberglass, found in some stoves, refrigerators, etc.) has gotten wet. Motors and other components will need to be disassembled. All repaired appliances must be tested by a qualified individual before being put back into service.

Provided by eXtension; www.extension.org

CLEANING FLOOD-SOILED PILLOWS AND MATTRESSES

Mattresses

1. A good innerspring mattress should be sent to a commercial renovating company. Renovation is too difficult to do at home. Ask about the cost of the work. It may be less expensive to buy a good reconditioned or new mattress.

2. If a mattress must be used temporarily, scrape off surface dirt and expose mattress to sunlight to dry as much as possible. Cover mattress with a rubber or plastic sheet or mattress cover before using it.

3. If you decide to keep a flood-soiled mattress, it should be sterilized. This must be done at a sterilizing plant such as a mattress company or a state hospital. Ask your local public health department or county Extension agent for information on mattress sterilizing plants in your area. Have mattresses as dry as possible before taking them to a sterilizing plant. Use crop drying fans or household fans to speed up the drying process.

Feather Pillows

1. For feather pillows, if ticking is in good condition and does not contain red or yellow stains, wash feather and ticking together. Brush off surface dirt. Wash in machine or by hand in warm (not hot) suds 15 to 20 minutes. Use a disinfectant, following product directions for use. If using an automatic washer, wash no more than two pillows at one time. If washing by hand, rinse at least three times in clear warm water. Spin off water or squeeze out as much water as possible. Do not put pillows through a wringer. Dry in an automatic dryer at moderate heat setting. Put several bath towels in the dryer with the pillow to speed up drying. Allow about 2 hours. Or dry pillows in a warm room on a sweater drying rack with a fan on them. Shake and turn pillows occasionally to fluff feathers and hasten drying. Or hang pillows on a clothesline by two corners. Change position end to end and shake occasionally to fluff feathers and speed drying.

2. If ticking is not in good condition or is stained with red or yellow mud, wash feathers and ticking separately. Find or make a bag of light weight, firmly woven fabric such as muslin. The bag should be two to three times larger than the ticking. Open one edge of the ticking. Pin the open edges of the ticking and the bag together. Shake feathers from ticking into bag. Sew seam in bag to close it. Wash and dry the bag of feathers, following directions for washing feathers and ticking together. Wash the ticking, using a disinfectant in the first wash. Follow product directions for use. Repeat washing until
stains have been removed. Difficult red and yellow stains may need to be bleached or treated with rust remover.

3. Avoid drying the ticking with heat until all stains have been removed. Transfer clean feathers to clean ticking, using the same method as for emptying the ticking. Sew seam in ticking to close it. Feathers will slide into the ticking more easily if ticking has been starched and ironed.

4. If pillows have been badly soaked with flood water, it may not be possible to remove all objectionable odors.

Polyester Fiberfill Pillows

1. Brush off surface dirt.

2. Wash in machine on gentle cycle or by hand in warm (not hot) suds, using a disinfectant. Follow product directions for use. If washing by hand, flush water through the pillow by compressing it. Do not wring or twist. Repeat if all stains are not removed.

3. If washing by hand, rinse three times in clear, warm water.

4. Spin off water or press out as much water as possible by hand.

5. Follow directions for drying given for feather pillows.

Foam Rubber or Urethane Pillows

1. Brush off surface dirt.

2. Follow manufacturer's directions if available. Otherwise, wash in machine on gentle cycle or by hand in warm (not hot) suds, using a disinfectant. Follow product directions for use. If washing by hand, use a bathtub or large sink. Wash by pushing down on the pillow, releasing and pushing down again. Rinse the same way. Do not wring or twist.

3. Rinse well with lukewarm water.

4. Gently squeeze or spin out excess water. Blot with towels.

5. Dry away from heat or sunlight. Pillows may be tumbled in an automatic dryer on "air only" setting. Do not use heat. Or air dry on a flat surface, turning regularly. Pillows may dry very slowly in the air.

Provided by Alabama Extension System; www.aces.edu/dept/edres/floods/#kids
CLEANING FLOOD-SOILED BLANKETS, QUILTS, COMFORTERS, LINENS

Wash only one blanket, quilt or comforter at a time. Shake and brush to remove surface dirt. Follow manufacturer's laundering directions if available. Otherwise follow the directions below.

Wool Blankets, Quilts and Comforters

1. Soak for 15 to 20 minutes in lukewarm water. Use a bathtub or large sink. Turn two or three times during soak period. Drain off water. Several soak periods may be needed if the blanket is very soiled.

2. Wash in lukewarm water with mild detergent and disinfectant appropriate for fiber content.

Follow product directions for use. Immerse blanket and work suds through gently, using as little agitation as possible. If necessary, repeat washing procedure.

• Rinse in clear water three or four times.

• Gently squeeze out water. Hang blanket over two or more clotheslines. Let blanket droop between lines to distribute weight evenly. Or use automatic dryer set on low heat or air only. Remove blanket from dryer while it is still damp and hang over clotheslines to finish drying. Gently stretch blanket into shape as it dries.

• Brush blanket on both sides to raise nap. Steam press binding, using a synthetic setting. Quilts and comforters do not need brushing or pressing.

Cotton and Synthetic Blankets (Not Electric)

1. Machine wash on gentle cycle in warm (not hot) water with detergent and disinfectant. Follow product directions for use. Repeat if necessary. Use bleach or rust remover to remove red or yellow stains. Test before use because some bleaches and rust removers may remove or change the colors.

2. Dry in automatic dryer on moderate heat. Add several towels to speed drying. Or air dry on a clothesline.

3. Press binding if needed.

Electric Blankets

1. Avoid twisting, crimping and wringing the wiring.

2. Machine wash on gentle in warm (not hot) water no more than 5 minutes. Dissolve detergent in wash water before putting blanket in machine. Disinfect, following product directions. Do not use chlorine bleach as the disinfectant. Evenly distribute the blanket in the machine. Use cold rinse. Do not put blanket through a wringer.

3. Machine dry by preheating dryer at a moderate or warm setting. Add the blanket and allow it to tumble for ten minutes. Remove blanket while still damp and hang over two or
more clotheslines to finish drying. Straighten and shape blanket as it dries.

4. If washing by hand, follow directions for wool blankets. Electric mattress pad and foot-warmer pads may be washed like electric blankets.

Sheets, Towels, Linens

1. Brush and shake off as much loose dirt as possible.

2. Soak or rinse mud-stained fabric in cool water in washing machine to remove some of the soil.

3. Wash in warm suds and disinfectant several times if necessary. Follow product label directions for use. Do not use hot water or dry with heat until all stains have been removed.

4. If stains remain after several washings, bleach with sodium perborate or chlorine bleach. Rust remover may remove red or yellow stains. Test these use because they may remove or change colors.

Provided by Alabama Extension System; www.aces.edu/dept/edres/floods/#kids
Cleaning FLOOD-SOILED Clothing

Flood water may be contaminated with sewage waste that contains harmful bacteria. If your clothes come into contact with flood water, normal laundering with detergent and water is not enough to kill the bacteria that may be present. The bacteria from floodwater can remain alive in fabrics for a long time. Thus, it is important that flood-soiled clothing and textile items be thoroughly clean and disinfected before using. Be sure to wear rubber gloves and protective clothing when handling flood-soiled clothing. Proper sorting, washing or dry-cleaning, drying, and storing flood-soiled clothes will reduce the number of harmful bacteria and prevents contamination of clean clothes.

SORTING

To prevent the bacteria of flood-soiled clothes from contaminating clean clothes and surfaces:

- Do not sort flood-soiled clothes with uncontaminated clothes.

- Do not shake flood-soiled clothes near clean, uncontaminated laundry or near surfaces that will later be used for sorting and folding clean laundry. Shaking contaminated clothes releases bacteria which then settle on nearby surfaces.

- Sort dirty clothes on a table or in an area where you will not fold clean clothes, or cover the table or the work area with clean paper, plastic sheeting, or any other clean material before working with clean clothes.

- Cover canvas-bottomed carts with clean paper or plastics before loading them with clean laundry. Such precautions are especially important when laundry facilities are shared.

Cleaning Flood-Soiled Clothing

Check the garments’ care labels to determine whether the garments are drycleanable or washable. If you have a choice between washing or drycleaning, washing garments with a disinfectant may be more effective in reducing bacteria than drycleaning.

DRY-CLEANING

Take dry-clean only garments to a professional dry cleaner. Tell the cleaner that the items have experienced flood damage. The professional drycleaning process can reduce harmful bacteria to safe levels due to the flushing action and the steam used in finishing. Steam at 325° F. will kill bacteria. However, the temperature of the steam used will vary depending on the fiber content of the garment, pressure of the boiler, the distance from which the garment is steamed and whether or not the garment will be ironed. The steam is particularly effective in killing bacteria, so do not use a coin-operated dry cleaner for disinfecting, because steam is not used in the finishing process.
Before you take clothes to be dry-cleaned:

- Allow garments to dry slowly at room temperature inside or line dry outdoors. *Do not* hang garments near a warm stove or radiator. Be sure garments are dry before you take them to the cleaners.

- Shake and brush clothes well outside to remove as much dirt as possible.

- Tell the cleaner the fabric's fiber content, if this is not apparent, along with the cause of any known stains, and that the garments are flood-soiled.

**MACHINE WASHING**

- Make sure your wash water is safe to use before washing clothing. [Flood waters may have impacted your water source.]

- Wash flood-soiled clothing as soon as possible to prevent mildew. If this cannot be done, shake out or brush off excess soil outdoors. Rinse items several times in cool water; then air dry.

- Even if you do wash right away, rinse clothes several times in cool water to remove as much mud as possible before washing. A cold water soak with an enzyme product like Bix or Axion may help. Do not soak flood-soiled clothes with rust stains in hot soapy water as hot soapsuds will set rust-colored stains. If there are rust or rust-colored stains, use a commercial rust removal product.

- When no more dirt can be rinsed out, machine wash using the highest water level possible. Use the hottest water and longest agitation period appropriate for the clothing (many more bacteria survive cold water laundering than they do either hot or warm water laundering). *For effective cleaning, do not crowd clothes in the machine.*

- Add a disinfectant to the wash water. For disinfecting, use only products that display an EPA Registration Number on the label. This assures that the product has met EPA requirements for disinfectants. When using any disinfectant, follow label directions. Most disinfectants, other than chlorine bleach, are effective only on hard surfaces so make sure the disinfectant that you use has laundry directions on the label. Liquid chlorine bleach is the most accessible, cheapest, and easiest disinfectant to use. It effectively kills bacteria in warm, hot, or cold water. *Follow the directions on the label for disinfecting.* Amounts of chlorine bleach will differ depending on desired results, fiber content, and color.

A disinfectant like chlorine bleach reduces the number of bacteria to a safe level. Ordinary laundry detergent and hot water are not enough.

A disinfectant in the wash water prevents harmful bacteria from being transferred from one article of clothing to another during the wash cycle, or from remaining on the inner surface of the washing machine and being transferred from one load of clothes to the next. In fact, not only should you use a disinfectant when treating flood-soiled clothing, but also when there has been an illness in the family or when using a coin-operated washing machine.
HOW MUCH BLEACH

Follow the recommended amounts given on the product label. However, if that is not available the following guidelines can be used. Depending on desired results, fiber content, fabric color, and item use, the following amounts of bleach:

- To sanitize clothing, 2 tablespoons of liquid chlorine bleach per washer load effectively kills bacteria.

- Chlorine bleach is harmful to certain fibers, such as silk, wool, and spandex, and to durable press fabrics and generally should not be used on them. However, research indicates that a sanitizing amount of 2 tablespoons liquid chlorine bleach per washer load will kill bacteria without substantially damaging clothes. Do not use more than 2 tablespoons per washer load. Such disinfection should not be done on a regular basis.

- Brightly colored fabrics that may fade when chlorine bleach is used at higher levels, generally can be successfully sanitized with 2 tablespoons of liquid chlorine bleach per washer load without significant color loss.

- For stain removal or heavily soiled items ½ to 1 cup of liquid chlorine bleach per washer load is generally needed. Check directions on bleach container for the specific amount to use. NOTE restrictions for certain fibers and brightly colored items above.

DRYING

More bacteria are killed by drying clothes in an automatic clothes dryer than by line drying. Both methods, however, will reduce the number of bacteria. Survival of bacteria varies with the size of the load, the drying temperature, and drying time. Do not dry fabrics in a dryer unless you are satisfied with the results. Drying in a dryer can set stains, making them impossible to remove.

- Select the hottest drying temperature and longest drying time safe for the fabric.

- Make sure the exhaust of the dryer is vented to the outdoors so that bacteria released from fabrics will not be dispersed into the room, basement or other living area.

- Line drying is most effective on a sunny day because the sun's ultraviolet rays help destroy harmful bacteria.

IRONING

Ironing will also help kill germs on cottons and cellulosic type fabrics such as rayon. Steam pressing will kill germs in items that require air drying away from the sun, such as washable wools.

STORAGE AREA

Before putting away clean clothing, make sure you have disinfected the storage area. (Check Home Furnishings materials for how-to.)
CLEANING FLOOD-SOILED LEATHER SHOES

Remove mud before it dries on shoes. Mud may stain leather and the longer it stays on, the worse the stain may be. To clean shoes:

- Scrape off moist mud as soon as possible.
- Wipe leather with soft, damp cloth.
- Stuff shoes with soft, crumpled paper to help them hold their shape and to absorb moisture on the inside. Shoe trees may stretch the leather out of shape.
- Dry shoes at room temperature. Too much heat will ruin leather. An electric fan will help the drying process.
- As shoes dry, clean with saddle soap (which can be purchased at shoe store or grocery).
- When shoes are thoroughly dry, polish with a good paste or cream.
- Don't wear shoes until they are thoroughly dry. Wet leather is soft, pulls out of shape easily, tears and wears out quickly.

Where trade names are used, no endorsement is intended, nor criticism implied of similar products not named. Revised 2/94 BJD

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Revised by Dr. Linda M. Heaton
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Food, water & other household goods
What do I need to do to keep food safe after a flood?

When in doubt, throw it out” is good advice when dealing with food that has been exposed to floodwater. Floodwater may carry silt, raw sewage, oil, or chemical waste that makes water-damaged foods unsafe to eat. If floodwater has covered, dripped on, or seeped into a package of food, discard it.

Consider these additional tips for food safety after a flood.

**Foods**

* Discard a food item that is moldy or has an unusual look or odor. Keep in mind, however, that color and odor are not always sure ways to test a food’s safety. Some foods may look and smell fine, but if they have been warm too long, they may contain food poisoning bacteria in quantities that can cause illness. Never taste food to determine its safety.

* Frozen foods that have partially thawed but are still partly coated with ice crystals may be safely refrozen. Most previously frozen foods may be cooked and eaten immediately after thawing if their temperatures haven't exceeded 40°F for more than two hours. The foods also can be refrozen after cooking.

* Canned food that is neither dented nor rusted can be saved if handled correctly before opening. For added safety, boil the canned food at least 10 minutes before consuming it.

* Take care to wash and sanitize undamaged containers before opening. To disinfect the cans, remove paper labels and wash the containers with a strong detergent solution, brushing to remove dirt and silt. This is important because paper can harbor bacteria. After rinsing is completed, re-label the cans with a permanent marker.

* Thorough removal of dirt and silt is especially important because they can undermine the next step—application of a chlorine solution. Immerse clean, rinsed cans in a lukewarm (75° to 120°F) chlorine solution for two minutes. The solution should be composed of two tablespoons of 5 percent chlorine bleach per gallon of water.

A word of caution: Chlorine loses its effectiveness when it is in a solution and open to air or when it comes in contact with unclean materials. As a result, the solution should be changed frequently. Wear rubber gloves for protection during the disinfection process, as strong detergent and bleach solutions can damage bare hands.

After exposure to this solution, the cans should be air-dried before opening or storage. Because of their susceptibility to rust, disinfected cans should be used as soon as possible.
**Dishes and Utensils**

* Dishes and utensils should be washed in and brushed with hot, soapy water to remove dirt. The same solution used with undamaged cans should be used to sanitize glass, ceramic, and china dishes; glass baby bottles; and empty canning jars.

* Dishes with deep cracks should be thrown away.

* Metal pans and utensils can be disinfected by boiling for 10 minutes.

* Iron kitchen utensils will be prone to rust, though this can be removed through scouring with steel wool. Follow this with disinfection with a bleach solution and with re-seasoning using a light coat of unsalted fat or oil. The utensils should then be placed in a 350°F oven for approximately an hour.

Food poisoning can be serious and even deadly. This is the reason why proper handling is essential in cases where kitchen appliances, foods, and utensils have been exposed to floodwater.

If you are unable to clean and disinfect canned items, utensils, and dishes, it's best to throw them away.

If you have questions or concerns about food safety issues, contact your local Cooperative Extension office.

*Provided by eXtension; [www.extension.org](http://www.extension.org)*

**What should you do with food, cosmetics, and medicines that have come in contact with flood waters?**

If they have been exposed directly to flood water, the general guideline is "if in doubt throw them out". This is because the items have potentially been exposed to contaminated water and should not be used. Some food in sealed containers can be salvaged following the guidelines provided in the question referenced as a supplement to this question.

*Provided by eXtension; [www.extension.org](http://www.extension.org)*

**FLOODED FOOD RECOVERY**

Flood waters may carry contaminants such as silt, raw sewage or chemical waste. Disease bacteria in the water also can contaminate any food it touches. If you have experienced flood conditions, follow these guidelines:

- Save undamaged commercially canned foods (except as noted later).
- Do not use home-canned foods that have been covered with flood water.
- Commercial glass jars of food are safe if the containers are sanitized (except as noted later).
- Remove the labels from jars and cans and mark the contents on can or jar lid with indelible ink.
To sanitize jars, cans, dishes and glassware, wash in a strong detergent solution with a scrub brush. After washing, immerse them in a solution of 2 teaspoons chlorine bleach per gallon of room temperature water. Air dry before using. If needed, clean empty glass also may be sanitized by boiling in water for 10 minutes. To sanitize metal pans and utensils, boil in water for 10 minutes.

Discard wooden and plastic utensils, baby nipples, pacifiers and any other porous nonfood items that are used with food.

Discard the following foods:

- Meat, poultry, fish and eggs
- Fresh produce
- Preserves sealed with paraffin
- Unopened jars with waxed cardboard seals such as mayonnaise and salad dressing
- All foods in cardboard boxes, paper, foil, cellophane or cloth
- Spices, seasonings and extracts
- Home-canned foods
- Opened containers and packages
- Flour, grain, sugar, coffee and other staples in canisters
- Dented, leaking, bulging or rusted cans

Provided by Alabama Extension System; www.aces.edu/dept/edres/floods/#kids
Your home after a flood
CHECKING FLOOD-DAMAGED BUILDINGS

1. Use extreme caution when entering any damaged building.
2. If you must enter at night, carry a flashlight or other light.
3. If gas lines are broken, turn off gas at the meter or tank.
4. Do not smoke or use any open flame.
5. Watch for loose plaster and ceilings that could fall.
6. Open as many doors and windows as possible to remove moisture, odors and flammable or toxic gases. If windows are stuck tight, take off window strips and remove entire sash. If doors are stuck, drive out door hinge pins with a screwdriver and hammer, and remove doors.
7. If you are not qualified to judge the stability of a foundation, hire a contractor to make this inspection. A neighborhood might join together in hiring a contractor for this work.
8. Examine foundations and supports for undermining. If walls or foundations have settled or cracked, uncover footings and raise, reinforce or brace any settled sections. Be extremely careful when uncovering footings, because of the possibility of cavernous washouts.
9. If underlying material has been washed away, fill spaces to within 12 inches of the footing with gravel or crushed rock. Fill the remaining space with concrete reinforced with steel rods.
10. Check piers for settling or shifting.
11. If the building has shifted or the floors have settled badly, it may be necessary to install temporary bracing until extensive work can be done.
12. Drain any crawl spaces which contain water.
13. Wash out mud, dirt and debris as soon as possible with a hose and mop, cloth or sponge. Clean walls and floors before silt or mud dries.
14. Start cleaning from the top floor or upper limit of flooding and work downward toward the first floor or basement.
15. Check walls with a level or plumb bob.
16. Brace walls where necessary.
17. Check mudsills, plates, soles and anchorage. Replace or repair where necessary, using redwood, cedar or treated lumber.
18. To speed up drying of flooded studing and insulation, remove all siding strips or plaster from upper and lower parts of the walls. Do not repaint walls until they are completely dry. This may take several months. Flooded insulation may be ruined.
19. Remove loose plaster. After house is completely dry, repair damaged plaster on walls and ceilings. Badly damaged plaster walls can be resurfaced with gypsum board or plywood.
20. Flooded wooden floors will dry out slowly. Don't build fires to speed up their drying, as this could cause cracking or splitting from uneven drying. However, if the central heating system is operating, keep the temperature of the house at 60° to 70° F to hasten drying without causing additional problems.
21. To prevent further buckling and warping, drive nails where the floor tends to lift or bulge.
22. After floors are completely dry, plane or sand them level.
23. If floors are too badly damaged to be refinished, lay a new floor over the old, or cover with carpet, vinyl or linoleum.
24. If a concrete floor is badly damaged, break it up and install a new floor. If damage is minor, patch with a rich mixture of concrete containing no coarse gravel aggregate.
25. Use plastic sheeting or roll roofing for temporary repair on solid deck roofs covered with asphalt shingles, wood shingles or roll roofing.
26. Use knife consistency patching compounds to repair minor leaks.
27. You probably will have to replace damaged metal roofing on spaced roof decks.
RESTORING FLOODED WATER SYSTEMS

1. Do not start submerged electric motors until they have been cleaned, dried and checked for safety.
   - Disconnect the motor. An ejector or jet pump motor may be a separate unit mounted on the pump, or the end bell of the motor may be part of the pump. The separate motor unit can be disconnected and serviced easily. With the second type, remove the pump and motor as a unit. It is not necessary to remove the drop pipes.
   - Take the motor to an electrical repair shop. In the shop, the motor should be checked for any short circuits or grounding caused by moisture. If the motor was submerged in mud and water, it should be thoroughly cleaned. Windings should be dried in a drying oven. The bearings should be lubricated before you use the motor again.
   - Clean and dry electrical controls and pressure switches. Check all wiring for short circuits.

2. Pumps usually are damaged by sediment deposited in the bearings. Clean pumps. Check valves for silt and sand. Remove all dirt and water from the gears in the gear box and replace the lubricant with fresh oil.
   - **Submersible pumps.** The bearings on water-lubricated pumps will not be damaged by flood waters, since these bearings are constantly submerged in water. As soon as possible, flush clean water down the casing to remove sediment and silt. Then disinfect the well.
   - **Centrifugal pumps.** Many centrifugal pumps contain two sets of oil-lubricated bearings along the drive shaft between the motor and the pump. If the pump has been flooded, dismantle the container bracket and remove the bearings.
     - Clean the bearings, or install new bearings if the old ones are worn out.
     - Close-coupled centrifugal pumps contain no bearings, so there is little chance of flood damage except to the electric motor.

3. **Injector-type pumps.** These pumps usually contain watertight packing at the ground surface, with sealed impellers. Flood waters probably will not damage this type of pump.

4. The storage tank and piping should be all right unless muddy water was pumped through it. If tank is contaminated, disinfect the entire system with a strong chlorine solution. Use 1 quart household laundry bleach or check with local health department for recommended solution strength.
   - Open all faucets while the system is being filled. Do not close the spigot until a definite smell of chlorine is evident. Do not use the system for 24 hours. Then start the pump and run water from all faucets until the chlorine odor is gone.

5. Wells probably will not be damaged structurally from floods, but they may be contaminated. Have your well tested by health officials before you use the water.

6. If the well is located in a low spot, it may be contaminated with silt from floodwaters draining into it. If so, the well and entire water system should be disinfected. To disinfect the well system:
   - Pump the well until water is clear.
Pour a solution of 1 quart liquid laundry bleach (Clorox, Purex, Hilex or a similar hypochlorite solution) mixed in 3 gallons of water into the well casing. Leave it there at least 4 hours, or preferably overnight.

Pump the chlorinated water into the piping system, and leave it there for at least 2 hours or even overnight.

The next day, pump and flush out the system until the taste and odor of chlorine are no longer apparent. Two days after you have disinfected the water system take a sample of water according to recommended procedures and have it tested for purity. Boil or treat all drinking water until a water test indicates that water is safe for all purposes.

7. Do not drink water from a flooded cistern until you disinfect the cistern and the entire piping system. To disinfect the cistern:
   - Use an auxiliary pump to remove the water and empty the cistern. Do not pump water through the pipeline distribution system.
   - Wash down the walls and ceiling with clean water, and pump out the dirty water with an auxiliary pump.
   - Check the cistern walls, ceiling and floor for cracks where groundwater could come in.
   - Disinfect the interior with a solution of 1 quart laundry bleach in 3 gallons of water. Be sure the bleach contains no soap. Apply the chlorine solution with a sprayer or scrub with a stiff broom.
   - Swab or pump out the disinfecting solution that collects in the bottom of the cistern.
   - Leave the chlorine solution in the pipes for at least 2 hours (overnight if possible) before you drain them.
   - Fill the cistern with water for use. This water will have a chlorine taste for awhile, but it will be safe for all purposes.

8. Regenerate water softeners before you use them. Use clean chlorinated water to backwash the filterbed.

Provided by Alabama Extension System; www.aces.edu/dept/edres/floods/#kids
Cleaning
Flood-damaged Homes

Caution!
1. Inspect for structural and electrical damage from outside to determine if it is safe to enter.
2. Electrical safety is extremely important in floods. Check for fire hazards and gas leaks. Use battery-powered light sources.
3. Never mix chlorine bleach with ammonia or vinegar.
4. Wear sturdy shoes, rubber gloves and eye protection.
5. Be watchful for fire ants and animals.
6. If mold is present, wear a respirator that can filter spores.

First Steps
See that everyone is out of danger of new flood crests, fire and falling buildings. Assume floodwater and flooded materials are contaminated.

Flood Insurance Claims
1. Contact your insurance adjuster immediately.
   a. Begin cleanup, salvage and drying as soon as possible.
   b. Clean house so adjuster can see the damage.
   c. Leave phone number where you can be reached when adjuster arrives.
   d. Adjuster will assess damages to house. Owner should sign proof of loss statement. Additional damage can be added when found.
2. Contact governmental offices for information.
   a. Cooperative Extension Service parish office (may be listed as County Agent’s Office or LSU AgCenter in parish government section).
   b. Parish Emergency Management Office; the FEMA TeleRegistration Hotline, 800-621-3362.

Electrical Systems
3. Be sure all electric and gas services are turned off before entering premises for the first time.
   a. Disconnect main switch and all circuits.
   b. Remove covers from all outlets and fuse or breaker boxes and flush covers with clean water.
   c. Let dry and spray with contact cleaner/lubricant.
   d. Have electrician check for grounds and other unsafe conditions before reconnecting system.

Food and Water Sanitation
4. Until your local water company, utility or public health department declares your water source safe, purify water, not only for drinking and cooking, but also for washing any part of the body or dishes.

a. Water: Strain water through a clean cloth or filter, then boil water vigorously for a full minute, let cool. If boiling is not possible, use fresh unscented liquid chlorine bleach (16 drops or 1/8 tsp./gallon of clear water, 1/4 tsp./gallon of cloudy water), stir, let stand 30 minutes. Iodine and purification tablets are not recommended.

b. Food: Because of risk of contamination, discard all foods that came in contact with floodwater, including canned goods. Discard perishable foods that have been above 40 degrees F for more than two hours.

c. Utensils: Discard flood-contaminated wooden cutting boards and spoons, plastic utensils, baby bottles, nipples and pacifiers. Thoroughly wash metal and ceramic pans, utensils and dishes with hot soapy water and sanitize by boiling them in clear water or by immersing them for 15 minutes in a solution of 1 tsp. chlorine bleach/quart water.

Furnishings and Carpets
5. Remove all furniture, bedding and carpeting to outdoors to be cleaned and dried (or discarded).

a. Flooded carpets and rugs are best replaced since floodwater may contain contaminants. Flooded carpet pads should always be discarded and replaced.

b. Remove waterlogged rugs, carpets and pads within 48 hours after flooding subsides.

c. If salvage is attempted, spread out rugs and carpets outdoors. Hose off. If soiled, professionally clean or work in carpet shampoo with a broom. Rinse well with solution of 1 gallon water and 2 tablespoons liquid household chlorine bleach to sanitize (if colorfast). If carpet is wool, do not add bleach.

d. Dry carpet and subfloor thoroughly as quickly as possible. If carpet is installed damp, it can mildew. Carpet might shrink, but a professional may be able to stretch it.

Walls*
6. Open flooded walls, even if they appear undamaged, to prevent mold, odor and structural decay later.

a. Remove water from structure as rapidly as possible.

b. Ventilate.

c. Remove interior surface of insulated walls to a point above water height. Discard flooded drywall. Undamaged paneling may be propped open or reinstalled after cleaning.

d. Remove and discard all wet fibrous insulation.

e. Clean out mud. Wall studs and plates may be sprayed with disinfectant (1 cup bleach/gallon water) to kill any existing mold and fungi.

f. Speed drying with dehumidifiers and fans.

g. Leave walls open until they have thoroughly dried (may take up to a month).
h. Select replacement materials that will withstand future floods (such as rigid foam insulation, removable wainscoting, ceramic tile, etc.).

Next Steps
7. Long-term flooding or wetness is likely to ruin most interior finishes and contents, but the next steps may be possible when flooding is short term and cleanup begins promptly. Delay permanent repairs until the building is thoroughly dry (may take weeks).

Subfloors
a. Layers of submerged plywood or OSB subfloors will likely separate or swell. Affected sections must be replaced to keep new floor covering from buckling.
b. When floor coverings are removed, allow subflooring to dry thoroughly (may take months without dehumidifier). Check for warping before installing new flooring.

t. Carefully remove a board every few feet to reduce buckling caused by swelling. If boards are tongue-and-grooved, consult a carpenter or flooring professional.
d. Clean and dry floor thoroughly (may take weeks) before replacing boards and attempting repairs.

Wood Floors

Tiling and Sheet Flooring
e. If submerged wood subfloor swells or separates, flooring will need to be removed. (Asbestos tiles should be removed only by a trained professional.)
f. If subflooring is concrete, removal of floor covering will hasten drying of slab but might not be necessary if it would ruin an otherwise unharmed material.
g. If water has seeped under loose sections of sheet flooring, remove entire sheet.
h. Ease of flooring removal depends on type of material and adhesive. Contact a reputable dealer to find out what product and technique (if any) will loosen the adhesive.

Cleaning Wall Finishes, Woodwork and Floors*
8. To reduce mold and damage, clean and dry as soon as floodwaters recede.
a. Use phosphate-free all-purpose or disinfecting cleaner. Wash from top to bottom. Rinse with clean water.
b. One-half cup of household chlorine bleach to a gallon of water can be used on nonmetallic, colorfast surfaces as a disinfectant (to kill surface mold and bacteria) after cleaning, but it will not prevent new mold growth on materials that stay damp.
c. Dry thoroughly and quickly. If utilities are on, use air conditioning or heater, fans and a dehumidifier or desiccants to speed drying.

Appliances and Equipment
9. Clean and dry submerged household appliance before starting.
a. With electricity or fuel turned off, unplug and open as much as possible to rinse or wipe clean and let dry.
b. Tilt to drain and aid quick drying. Three days to a week is necessary for drying.
c. Appliance repair professionals should inspect before reconnecting. Many appliances can be saved.

Furniture
10. Take furniture outdoors to clean.
a. Brush off mud. All parts (drawers, doors, etc.) should be removed. Remove or cut hole in back to push out stuck drawers and doors. Discard flooded padding.
b. Use commercial furniture-cleaning products designed for the type of material. Do not refinish or wax until thoroughly dry.
c. Dry slowly out of direct sunlight because sun will warp furniture. It may take several weeks to several months to dry.

Preventing Mold
11. Aggressively control mold in the weeks and months after the flood.
a. When power is available, continuously use air conditioning (or heat in winter) plus a dehumidifier, if possible, to remove humidity.
b. In an unair-conditioned home, open windows and use fans to circulate air.
c. Turn on electric lights in closets, and leave doors open to facilitate drying.
d. Try to reduce activities that add moisture to the indoor air, and use exhaust fans when cooking and bathing.

Removing Mildew from Household Articles and Upholstery
a. Use a HEPA vacuum, if available, to remove visible mold growth. Discard vacuum bag. Otherwise, wipe with damp paper towels, discard and seal in plastic bags.
b. Dry items in the sun if possible.
c. Sponge any remaining mildew with thick suds or commercial cleaner designed for the type of material. Wipe with a clean, barely damp cloth.
d. Wipe mildew-stained area with cloth dampened with diluted alcohol (1 cup rubbing or denatured alcohol to 1 cup water). Dry thoroughly.

For more information, visit www.lsuagcenter.com. Click on Family and Home or contact your local Cooperative Extension Service office.

*Do not sand or scrape lead-based paint. Get more information before disturbing old paint. If materials are already moldy before you can begin cleanup, get more information on avoiding mold hazards and recommended removal methods from www.epagov/mold or other LSU AgCenter disaster recovery publications.

Prepared by Louisiana Cooperative Extension Service Disaster Preparedness Task Force. Revised by Claudette H. Reichel, Ed.D., Professor and Extension Housing Specialist

Visit our Web site: www.lsuagcenter.com

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DISINFECTING WELLS

Disinfect flooded wells before they are used as a source of drinking water. To disinfect a well:

1. Scrub the pump room and wash all equipment, including piping, pump and pressure tank.
2. Remove the well seal at the top of the casing. Pour a solution of 1 quart laundry bleach and 3 gallons of water into the top of the well. Pour the solution so it washes down the inside of the casing and the outside of the drop pipes. In some wells you will need only to remove a plug from the seal to pour the solution into the well.
3. Leave the solution in the well about 4 hours. Then pump it into the pressure tank and distribution system.

Draw the chlorinated water into all piping by opening each faucet until the odor of chlorine is apparent. Leave the chlorine in the piping at least 2 hours. Then run the water until the taste and odor are no longer objectionable.

Provided by Alabama Extension System; [www.aces.edu/dept/edres/floods/#kids](http://www.aces.edu/dept/edres/floods/#kids)

CONTROLLING RODENTS AFTER FLOODS

1. Rats and other rodents often move into buildings to escape flood waters. Rats can carry disease and small vermin. They should be eliminated as soon as possible.
2. Because of the danger of rat infestation, use caution when entering flooded buildings. Carry a solid club and a flashlight. Inspect likely hiding places for rats. Check closets, furniture, drawers, mattresses, stacks of clothes or paper, appliances, upholstered furniture, dark corners, attics and basements. Be extremely careful when approaching rats. A starving rat can be dangerous.
3. Eliminate rat populations by poisoning rats that can't be destroyed by clubbing or trapping. Use rat control measures as recommended by your county Extension agent. Be extremely careful when using rat poison or bait, especially if there are children in the house.
4. After infestation has been controlled, clean up rat harboring places. (Rats may move into buildings when their hiding places are removed.) Remove trash piles and piles of damaged furniture or equipment. Store materials on platforms or shelves 1 to 18 inches above the ground.
5. Remove food sources. Store food supplies in rat-proof bins or containers. Suspend garbage containers from trees or posts. Remove animal carcasses which may attract rats. Do not leave scraps of food around.
6. Maintain several permanent rat bait stations in strategic locations, even after rat infestation has been controlled. This should eliminate rats that can migrate from neighboring areas, and will help prevent another infestation. Inspect baits frequently and replace them with fresh material whenever necessary.
7. If you are bitten by a rat, take the rat to your local health authorities or a veterinarian. The animal should be checked for rabies.

Provided by Alabama Extension System; [www.aces.edu/dept/edres/floods/#kids](http://www.aces.edu/dept/edres/floods/#kids)
According to University of Minnesota Extension and the Onsite Sewage Treatment Program (OSTP) staff, if you have a septic system that is in the area affected by the recent flooding, there is potential for damage to the system. However, you can take action after the flooding to minimize the damage. When floodwaters cover your septic system it should not be used. If the drainfield or ground above your septic tank floods, your individual sewage treatment system is not working.

If your system was flooded

The OSTP staff recommends the following steps to help your system recover:

**Pump the tank(s) as soon as possible after the flood recedes and prior to resuming use of the system.** Be sure to pump both the septic tank and the pump/lift station (if you have one). Silt and other debris may have collected in your septic tank while it was under water which could ultimately find its way to and damage the drainfield. Additionally, a variety of substances such as pesticides, petroleum products and other contaminants may have entered the tank. These contaminants could be detrimental to the beneficial bacteria in both the tank and the drainfield and therefore need to be removed. However, it is not advisable to leave the septic tank empty after pumping if the soil around the area of the tank(s) is saturated; this can cause the tank to “float” toward the ground’s surface if the soil’s water pressure remains high. If you have this concern, consult a licensed tank pumper/mainainter.

**Locate and protect the drainfield from compaction by keeping all traffic off the area.** Often considerable traffic takes place around a flooded home as flood cleanup and home restoration occur. This traffic could include but is not limited to foot traffic, debris piles, dumpsters, and heavy equipment. Compaction reduces the capacity of your drainfield to treat wastewater and could lead to the early failure of your entire system.

Check electrical connections for damage or wear before turning electricity back on.

Check that the septic tank manhole cover is secure and that inspection ports have not been blocked or damaged. Check for animal damage or intrusion in the drainfield area.

Check the vegetation over your septic tank and drainfield. Repair erosion damage; sod or reseed as necessary to provide a good plant cover. You may need to mulch the area to provide insulation if the grass has not become well established before winter.

Inside your home, be sure to disinfect thoroughly if sewage backed up into the house or garage. Disease-causing organisms (pathogens) in wastewater can cause serious illness, such as dysentery, hepatitis and other waterborne illnesses. However, avoid flushing disinfectants into drains which empty into the septic system, or clean before pumping. The disinfectants could be detrimental to the beneficial bacteria in both the tank and the drainfield. If you need to chlorinate your well, follow the instructions fully on the University of Minnesota Safe Drinking Water from Wells in Flooded Areas fact sheet. Do not allow the bleach to enter your septic system.

If after the floodwater has receded from the drainfield and the surrounding soil has had a chance to dry, but the drainfield still will not accept effluent from the septic tank, the drainfield pipes or soil might be “plugged.” At this time the homeowner should consult a licensed septic system professional.

If homeowners have additional concerns they should discuss them with a local septic system permitting authority or a licensed septic system professional.

If you have a drainfield that has not been flooded, but is soggy due to heavy rain, minimize water use within the home. The additional water added due to household use can cause poorly treated sewage to surface in your yard or raw sewage to back up into your house. You can minimize water use within the house in a variety of ways, including taking shorter showers or baths and not doing laundry until the drainfield begins to dry out.
If portions of your system were destroyed

Often flood waters can cause components of septic systems to be partially or completely washed away. The owner of such a system should not assume that soil or other “fill” can be added and new system components constructed.

Heavy rains can cause slides to partially or completely cover septic system components with rock, mud, or silt. These slides can affect the operational integrity of the system, especially the drainfield. Care needs to be taken for slide debris removal from the area on or around a septic system in order to protect system components, taking special care to keep vehicle and equipment traffic off the drainfield to avoid compaction.

If your drainfield is saturated or has standing water not caused by flooding or heavy rain, you may have a long-term problem.

For any of the problems listed above, contact a licensed septic system professional or the local septic system permitting authority to discuss options that will meet state and local codes.

Source: University of Minnesota Onsite Sewage Treatment Program staff

For more information visit septic.umn.edu or extension.umn.edu.

The Septic System Owner’s Guide is an excellent resource for more information. To order, call 800-876-8636 or go to shop.extension.umn.edu.

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CLEANING AND REPAIRING FLOODED BASEMENTS

Before you enter a flooded basement:

1. Turn off the electricity, preferably at the meter.
2. Check outside cellar walls for possible cave-ins, evidence of structural damage or other hazards.
3. Turn off gas or fuel service valves.
4. Open doors and windows or use blowers to force fresh air into the basement.
5. Do not use an electric pump powered by your own electrical system. Use a gas-powered pump or one connected to an outside line. Fire departments in some communities may help with such services.
6. More damage may be done by pumping water from the basement too soon or too quickly, than from letting the floodwater remain. Water in the basement helps brace the walls against the extra pressure of water-logged soil outside. If water is pumped out too soon, walls may be pushed in or floors pushed up. To help prevent such structural damage, pump the water from the basement in stages. Remove about one-third of the water each day. Watch walls for signs of failing. If the outside water level rises again after the day's pumping, start with a new water line. The soil may be very slow to drain, but do not hurry the pumping. Whatever is submerged in the flooded basement will not be damaged further. By delaying the pumping, serious structural damage may be prevented.
7. After water has been pumped from the basement, shovel out the mud and debris while it is still moist. Hose down walls to remove as much silt as possible before it dries.
8. Floors and walls may need sanitizing, particularly if sewage has entered the basement. Scrub walls and floors with one of these sanitizing solutions:

- Chloride of lime (25 percent available chlorine). Dissolve a 12-ounce can in 2 gallons of water.
- High test hypochlorate (65 percent available chlorine) Stir 5 ounces into 2 gallons of water.

9. Oil stains in basements caused by overturned or damaged oil tanks may be a problem following flooding.

- Commercial products (such as Neutrodal) will help neutralize fuel oil.
- Products are available in powder form or an aerosol spray for hard-to-reach places.
- To remove oil stains and destroy odor, wipe up excess oil, shake or spray product on the spot according to manufacturer's directions, and let it set.

10. Check supporting columns, beams, walls and floors. Structural damage to flooded basements usually includes buckled walls, settled walls or heaved floors.
11. Buckled walls are evidenced by horizontal cracking and walls moving out of plumb. When this condition is minor, you need not repair the wall immediately. However, any noticeably buckled wall will eventually collapse from normal ground pressures and seasonal temperature changes. When buckling has seriously weakened the wall, rebuild the damaged parts immediately. Build pilaster into walls over 15 feet long for reinforcement. Pilaster spacing should be 12 to 15 feet.
12. Settled walls and footings are indicated by vertical cracks either in small areas or throughout the structure. Repairs are difficult without special equipment. Contact a reliable contractor for this work.
13. Heaved floors are those that have not returned to their original level, or have cracked badly. You may need to construct a new floor:

- Remove old, broken concrete.
- Place 6 inches of gravel fill on the basement floor surface.
- Cover area with a polyethylene vapor barrier.
- Lay a 4-inch concrete floor with waterproof expansion joints between the floor and the walls.
- The floor should be reinforced with steel. Welded wire reinforcement placed at mid-height in the slab is minimum reinforcement.

14. If a floor is badly cracked, but has returned to its original level, and if there is sufficient headroom, place a new floor over the old one. Add a vapor barrier between the two floors. The new floor should be at least 2 inches thick.

15. In houses without basements, the area below the floor may be completely filled with mud. Remove the mud as soon as possible to avoid rotting joists or foundation wood. Jack up the house, if necessary, to make sure all mud is removed.

Provided by Alabama Extension System: www.aces.edu/dept/edres/floods/#kids

**FINDING AND REPAIRING LEAKS IN ROOFS**

**Causes of Leaks:**

- Defective flashing. Wet spots near a chimney or outside wall may mean the leak is caused by defective flashing, narrow flashing or loose mortar joints.
- On sloping roof valleys and at junctions of dormers and roof, look for corroded, loose or displaced flashing. Defective flashing often occurs around dormers and plumbing vent pipes.
- Clogged downspouts or eaves. Check for choked downspouts on flat roofs. Accumulated water on the roof above the flashing may cause a leak.
- Cracks and deterioration. Roofing (especially wood or composition shingles) usually deteriorates first on southern exposures. Check southern slopes for cracking or deterioration.
- Holes. Wet spots on plain roofs usually are caused by missing shingles or holes in the roofing. To find holes, look for light coming through places in unsealed attics. Stick a straw through the hole to mark the spot on the outside.

**Repairing Leaks:**

Methods of repair will depend on the kind of roofing and the nature and extent of the leak.

1. Replace missing shingles with similar shingles or pieces of rust-resistant metal. (In an emergency you can use metal cut from a tin can.) Paint the metal on both sides and slip it under the upper layer of shingles. Be careful not to dislodge or loosen sound shingles. Cut out old nails with a long thin cold chisel. Cover exposed nails with roofer's cement.
2. Patch small holes with metal screws. Use neoprene washers in low places.
3. Repair large holes by replacing metal sheets or patching with a heavy cloth or canvas and elastic roofer's cement. Apply cement carefully over the patch to prevent canvas from sagging into the hole.
4. To repair cracks in the roof:
   - Place heavy cloth or light canvas over the cracked area, extending the cloth approximately 6 inches beyond the cracked area.
   - Use a roofing brush to smooth out cloth, and brush on two thin coats of roof coating. Keep cloth smooth while brushing.

CONTROLLING INSECTS AFTER FLOODS

1. Eliminate breeding spots.
   - Empty water from barrels, old tires, cans and other vessels. (This water may be polluted by floodwaters and may be a health hazard, in addition to being a breeding place for insects.) Also, check clogged gutters and flat roofs which have poor drainage. Make sure cisterns, cesspools, septic tanks, fire barrels and rain barrels are covered tightly.
   - Whenever possible, drain ponds, pools or any standing water in which mosquitoes may breed.
   - Dispose of refuse. Bury animal carcasses as soon as possible. Bury or burn garbage at least once every week. Be sure garbage cans have tightly fitting lids. When using manure and garbage as fertilizer, spread it thinly so it will dry quickly and not support fly development.
   - Clean up debris. In some climates, scorpions may seek refuge in and around buildings during flood conditions. During the day they hide beneath loose stones, loose bark of fallen trees, boards, piles of lumber, and within walls of buildings.

2. Patch screens and other places where mosquitoes may enter buildings.
3. Use a household spray or an aerosol bomb to kill mosquitoes, flies or other insects that get into buildings. Do not apply oil-based sprays to flowers or ornamental plants. Spray shrubbery and shaded areas of buildings to kill adult insects. Contact your county Extension agent for specific recommendations.
4. If possible, keep small children indoors, especially in the evening. Persons who must go outside at dusk should use a repellent on exposed parts of the body and clothing.
DISPOSING OF ANIMAL CARCASSES

1. Prompt and sanitary disposal of animal carcasses is necessary to protect the living animals in an area from disease.
2. Search all pastures for dead animals as soon as possible. Carcasses may have some commercial value, so send them to a rendering plant if possible.
3. If rendering is impractical, dispose of the dead animals on the premises. Use the following procedure:
   - Bury carcasses. Use power equipment if it is available. Choose a site where subsurface drainage will not reach water supplies.
   - Bury the carcasses at least 3 to 4 feet deep so predatory animals won't be able to reach them. If quicklime is available, cover carcasses with it before filling. Quicklime will hasten decomposition.

*Provided by Alabama Extension System; [www.aces.edu/dept/edres/floods/#kids](http://www.aces.edu/dept/edres/floods/#kids)*
Mold Removal Guidelines
For Your Flooded Home

A flood-damaged home needs special care to remove mold safely and effectively. Mold begins to grow on materials that stay wet longer than two or three days. The longer mold grows, the greater the health hazard and the harder it is to control. So, as soon as it is safe to return, don’t delay cleanup and dry out.

Take photographs before cleaning up for insurance purposes, and get started. Do not wait for the claims adjuster to see your home before removing wet and moldy materials. Most homeowners’ insurance policies do not cover mold damages or cleanup costs, but flood insurance may cover it.

What Is Mold?

Molds are a type of fungi. They serve as nature’s recycler by helping to break down dead materials. Molds produce tiny cells called spores that float and spread easily through the air. Live spores act like seeds, forming new mold growths (colonies) whenever they find the right conditions – moisture, nutrients (nearly anything organic) and a suitable place to grow. Of these, moisture is the key factor – for growth and for control.

Mold and Health

Some people are much more sensitive to mold than others, but long-term or heavy exposure is unhealthy for anyone. Mold can trigger allergic reactions and asthma attacks, may lower resistance to illness or have other effects. Young children, the elderly and the ill are most vulnerable. Some molds can make toxins that can be carried in live or dead spores and fragments. “Black mold” is a misleading term since many molds are black.

Mold Testing and Remediation Services

Mold testing in a home is not usually needed and is rarely useful to answer health concerns. Some insurance companies and legal services may require sampling for evidence. Professional mold remediation contractors may test before and after cleanup to measure the cleanup’s effectiveness.

If you hire a contractor to remove mold, seek a licensed mold remediation contractor with special training and equipment such as HEPA vacuums and dehumidifiers. Get in writing the cost, methods and steps to be used. Compare their procedures with the do-it-yourself guidelines below and to EPA’s Mold Remediation in Schools and Commercial Buildings available online at www.epa.gov/mold. Also, review the CDC’s Mold Prevention Strategies and Possible Health Effects in the Aftermath of Hurricanes Katrina and Rita available online at www.bt.cdc.gov/disasters/mold/report/.

Do-It-Yourself Mold Cleanup Steps

Follow these guidelines, and also refer to the EPA publication, A Brief Guide to Mold, Moisture and Your Home, at www.epa.gov/mold.

1. Wear protective gear during cleanup. People are mainly exposed to mold by breathing spores and skin contact. Wear gloves, goggles and a respirator rated N-95 or higher. Some types have valves to make it easier to breathe. A properly fitted half-face or full-face respirator with filter cartridges provides greater protection and comfort than the dust mask types.

2. Isolate work area and ventilate to outdoors. Disturbing mold colonies during cleanup can cause a huge release of spores into the air, so seal off the moldy areas from the rest of the house. Open windows, and don’t run the central air system during cleanup. Tape plastic over air grilles, and drape plastic in the stairwell if the second story is dry and clean. If power is on, put a box fan in a window to blow out and exhaust mold-filled air to the outdoors.

3. Remove moldy, porous materials. Porous moldy or sewage-contaminated materials should be removed, put in plastic bags if possible and thrown away. To reduce the release and spread of mold spores, it is helpful to cover moldy material with plastic sheeting before removing it.
   - Remove all flooded carpeting, upholstery, fabrics and mattresses right away. It’s best to discard them, but if you hope to salvage a valuable item, have it cleaned, disinfected and dried quickly outside the home. Never reuse flooded padding.
• Remove all wet fibrous insulation, even if wallboard appears to be dry. Wet insulation will stay wet far too long, leading to the growth of hidden unhealthy mold and decay fungi inside the walls. Cut wall covering above the level that was wet; water can Wick up above the flood level.

• Remove all moldy, porous materials, including gypsum wallboard, processed wood products, ceiling tiles and paper products.

• Clean and sanitize plaster, wood paneling and nonpaper-faced gypsum board walls that dried, are in good condition and have no insulation in the wall. It’s best to remove multiple layers of paint on old plaster to aid drying. There is a risk of mold on the backside, however, that can release spores into the home through air leaks in the walls. If you choose to restore these materials, seal interior gaps with caulk.

• Remove all vinyl wallpaper, flooring and any other materials that hamper drying of framing toward the interior space. All interior side plastic sheeting or foil-faced insulation should be removed.

4. Clean and disinfect. Surface mold can be effectively cleaned from nonporous materials such as hard plastic, concrete, glass and metal; solid wood can also be cleaned since mold cannot penetrate solid wood but grows only on the surface. Cleaning should remove, not just kill, the mold, because dead spores can still cause health problems.

After cleaning, you may choose to use a disinfectant to kill any mold missed by the cleaning. If there was sewage contamination, disinfection is a must. If you disinfect, follow label directions and warnings, handle carefully, wear rubber gloves, and never mix bleach with ammonia or acids. Many disinfectants, including bleach, can kill molds but do not prevent regrowth of new colonies.

• Remove any sediment. Hose out opened wall cavities, if necessary.

• Wash dirty or moldy materials with nonphosphate all-purpose cleaners, because phosphate residue is mold food. Rough surfaces may need to be scrubbed. Rinse, but avoid pressure spray that can force water into materials.

• Use a HEPA filtered vacuum (not a regular vacuum) to remove dust and mold residue, if possible.

• Disinfect wall cavities and other materials after cleaning to kill any remaining fungi and bacteria.

Soil can make some disinfectants, including bleach, less effective. On colorfast, nonmetal surfaces, you can disinfect with a solution of 1/4–1 cup household chlorine bleach per gallon of water. Do not use in the air conditioning system. You can use milder, less corrosive disinfectants, such as alcohols, phenolics and hydrogen peroxide on materials that may be damaged by bleach.

5. Consider a borate treatment to resist termites, decay and mold. Solutions that penetrate wood over time are more expensive but offer better protection. Other mold inhibitors such as latex zinc paints and fungicides also may help inhibit mold regrowth during drying. Do NOT apply sealants that can impair drying. Framing materials that are difficult to clean or remove (such as “blackboard,” OSB sheathing, rough surfaces, etc.) can be painted with latex paint to “encapsulate” any remaining mold and prevent its release to the air.

6. Flush the air. After cleaning and disinfecting, air out the building. Use fans in windows to pull mold spores to the outdoors.

7. Speed dry. Dry all wet materials as quickly as possible. Close windows and air condition or heat, run fans and use a dehumidifier, if possible. If there is no power, keep windows open.

8. Remain on Mold Alert. Continue looking for signs of moisture or new mold growth. New mold can form in as little as 2-3 days if materials stay wet. Wood and other materials that may look dry can still be wet enough to support new growth. If mold returns, repeat cleaning and, if possible, use speed drying equipment and moisture meters. Regrowth may signal that the material was not dry enough or should be removed.

9. Do not attempt restoration until all materials have dried completely. Wood moisture content should be less than 20 percent. Do NOT use vinyl wallpaper, oil-based paint or other interior finishes that block drying to the inside.

10. Restore with flood-resistant materials. If possible, “watertight” your home so it can better withstand a flood. Use closed-cell spray foam insulation in walls, or rigid foam insulating sheathing that does not absorb water. Choose solid wood or water-resistant composite materials. Elevate wiring and equipment. Consider removable, cleanable wainscoting or paneling. Use paperless drywall that does not provide a food source for mold. Use restorable flooring such as ceramic tile, solid wood, stained concrete, etc.
Agricultural Buildings & Landscapes
SPECIAL CONSIDERATIONS FOR AGRICULTURAL PRODUCERS

In addition to the precautions and responses, the agricultural producer will want to consider the following measures.

Preparing For a Flood or Flash Flood on Your Farm or Ranch

1. If you graze livestock in areas subject to flash flooding, consider using the area for larger animals. Pigs and calves are less likely to survive a flood than larger animals.
2. Leave animals an exit route to higher ground when possible. Animals will not always use an exit wisely.
3. If heavy rains are expected, pen animals on high ground at night.

Protecting Livestock During a Flood

Livestock that are not in a confined area usually can take care of themselves during floods. Do not let them become trapped in low-lying pens.

In broad, level flood plains where flood waters are seldom deeper than 3 or 4 feet, construct mounds of soil on which livestock can stay until flood waters recede. Or carry bales of hay for hogs to climb on. Try to locate these mounds where they will not be washed away by fast flowing water.

1. Provide feed and water. Water is essential. Thirsty animals will try to break out to get to flood waters. If water is in short supply, limit feed intake.
2. If animals are housed with machinery, fasten bales of straw in front of sharp edges and protruding parts such as cutter bars or crank handles. Do not use hay because animals will eat it. Try to cover wooden paddle wheels on combines or choppers because these parts can be dangerous if partially broken.
3. Block off narrow passageways where animals would be unable to turn around. A few heavy animals in a narrow dead end can be dangerous both to themselves and the building.
4. Be absolutely sure that herbicides, pesticides and treated seeds are not even remotely accessible to livestock and are stored where flood water will not contaminate livestock feed or water.
5. Turn off electricity at the main switch. Livestock could damage electric fixtures, causing fires or electrocutions.
6. If there is a possibility that dairy barns may become inundated, drive cattle out of the barn. During a rapid rise of water, cattle often refuse to leave the barn and may drown if the water rises high enough.

Preparing to Evacuate Your Farm

Ensure family safety first. See the General Family Preparedness section for more information on evacuation procedures. Be certain you have enough time to get to higher ground before access is cut off. If you have time before you receive an evacuation order, the following precautions may help you protect your farm buildings, livestock and equipment from flood damage:

1. Move machinery, feed, grain, pesticides and herbicides to higher elevations.
2. Construct mounds of soil for livestock, or open gates so livestock can escape high water. Small numbers of hogs can sometimes be saved by bringing them bales of hay to climb on.

3. Animals swim well. The greatest problem for grazing animals will be fences and other obstacles. Try to drive stock through water free of obstructions. Long swims through calm water are safer than short swims through a swift current.

4. Leave building doors and windows open at least 2 inches to equalize water pressure and help prevent buildings from shifting.

5. If possible, move motors and portable electric equipment to a dry location.

1. Disconnect electric power to all buildings which may be flooded. Call your utility company if in doubt about how to disconnect power electric.

2. Dairymen who anticipate extensive flooding should:
   
   - Check with a veterinarian to be sure cattle are properly immunized before being exposed to flood waters.
   - Check with the Department of Health concerning approval of temporary milking facilities.
   - Try to obtain standby equipment or services for emergency milk pickup.
   - When possible, move grain out of reach of flood water.

8. Tie down lumber, logs, irrigation pipes, fuel tanks and other loose equipment or material.

9. Prepare immovable power units and machinery for flooding.
   
   - Seal radiator openings (tightly cap plug overflow).
   - Remove air cleaners and carburetors; seal openings. Use material strong enough to withstand water pressure.
   - Fill oil reservoirs.
   - Plug breather pipes and openings.
   - Fill bearings with fresh lubricant.
   - Protect open gears, sprockets, pulleys and wearing and cutting edges of machinery with lubricant or rust inhibitor.
   - Drape polyethylene sheeting over bell ends of motor. Tie securely with cord on cylindrical part of motor housing, or fasten with a strong rubber band.

Provided by Alabama Extension System; [www.aces.edu/dept/edres/floods/#kids](http://www.aces.edu/dept/edres/floods/#kids)
Returning to a Farm after a Flood

Disaster recovery can be as dangerous as the disaster itself, especially if no disaster preparedness plan was implemented. This is especially true on farms and ranches where inherent farm hazards such as machinery and equipment, livestock, and agriculture chemicals are displaced and co-mingle, putting all emergency response personnel, farm workers and family members, and livestock in danger. First responders should recognize the hazards that exist and proceed with caution.

Utility check

Look carefully for signs of damage to electrical components. Electrical components, such as switches and outlets, may have debris that will cause electrical hazards. Contact your electric utility for guidance. Never try to turn the electricity back on in areas that have been flooded before having the system checked. Depending on the extent of damage, gas lines also could sustain significant damage. Have the gas utility check the system for leaks before continuing service.

Care for the animals

As with humans, the aftermath of disasters pose significant safety and health problems to livestock. Agriculture producers can minimize the safety risk to livestock in the following ways:

1. Gather and dispose of trash, limbs, wire, and damaged equipment that could harm livestock. Clear and repair damaged fences.
2. Make sure livestock have plenty of water and feed that have not been contaminated by pollutants. In some cases, it will be necessary to truck in water and feed, or move livestock to an area free from contamination.
3. Immediately dispose of dead carcasses. Consult state rules on carcass disposal. Check with regulatory authorities to determine if any permits are required for emergency burial.
4. Observe livestock for signs of infectious disease such as pneumonia or foot rot. Animals (or a representative sample) that die immediately following a disaster should be necropsied by a veterinarian.
5. Spray livestock with insect repellent to protect against mosquitoes that may carry disease.

Farm disaster assistance

Agriculture producers do not have to face a disaster alone. If a farm or ranch has suffered a loss due to disaster, it may be eligible for assistance under Farm Service Agency programs.

Provided by eXtension; www.extension.org
Salvaging Flood-damaged Agricultural Buildings

Buildings that have been exposed to flood waters need to be evaluated for the extent of damage and the amount of clean-up and repairs necessary to restore them to a useable condition.

The first thing that needs to be done with a building that has survived a flood is to check its structural soundness. If the building has been moved, shifted or twisted, it may not be safe to enter. Check the foundation, sill plate, roof supports and walls for damage. If there is extensive damage to the building, it probably will be less expensive to tear it down and start again with a new building as compared to attempting to repair the damaged structure.

Consider, though, that while storm damage to structures is obvious in many cases, that which is not immediately noticeable also could weaken the building or cause other problems.

Close inspection required. Building owners should do a close inspection of the structure from the outside to check for damage, advises Ken Hellevang, a North Dakota State University Extension Service agricultural engineer. He says they should check whether the ridge and eaves are straight, walls are vertical and straight, and the building has not shifted on its foundation. They also should look for indications that frame members, such as knee braces, have been pushed into the siding or up into the roof.

Other damage may become evident inside the building. Examine the trusses and rafters for signs of crushed, split or broken wood. Determine whether any members buckled, twisted, are bowing out of alignment, appear to have slipped relative to each other or have gaps between members in a truss joint. Also see whether the gussets show signs of being deformed. Look carefully at connections for indications of nail, screw or bolt holes being elongated, and see whether nails or other connectors are pulled out of the wood or bent.

Hellevang notes that an inspection for structural damage also should include:

- An examination of the posts of pole buildings for crushed or broken wood near the ground or at truss connections or knee braces. Make sure the posts are straight and vertical. Look for indications that posts made of more than one board may have split along rows of nails.

- Checking whether doors or windows open as they did before flooding. If they do not, this may indicate the structure has shifted. In cases of severe shifting, water lines, gas lines and electrical circuits may have been damaged.

- A wetness check. If wetness occurred because of flooding or leaking roofs, you will need to look for wet electrical circuits, wet insulation and other water damage to the structure’s interior. Once insulation in a wall or attic becomes wet, it must be replaced. Wall insulation that is sealed within the structure will not dry.
- An examination of siding and metal roofing. Look at the siding and roof sheets for tears around fasteners, evidence of fasteners being pulled, and bends or buckles in the metal roof sheets. See whether the sheets still are aligned with each other.

- Checking wood for indications of rotting or other damage that could weaken the building. Document the damage with pictures and contact your insurance company.

"Buildings that show signs of damage will need to be repaired," Hellevang says. "Truss members may need to be replaced or additional boards placed from joint to joint. Additional and larger gussets may be required for damaged joints. Additional nails or screws may be required. Nails and screws should not be placed too close to each other or they may weaken the wood."

Hellevang warns that cost of repairs may exceed the value of the building in some cases, and suggests building owners consult a building contractor or engineer if they see several indications of damage.

"The value of machinery, vehicles and equipment stored in a building can be several hundred thousand dollars," he says. "It does not make sense to put that value or yourself at risk with a building that is structurally damaged." Once the water has subsided, he suggests, dry out the building as much as possible. This can include using a sump pump, mops, fans and/or natural ventilation.

After wood dries, inspect laminated woods, such as plywood, that have been immersed in water to be sure laminations are still firmly bonded together. Check existing nails to determine whether they are still firmly driven.

If the building was insulated, the wet insulation must be removed. Floodwater often will leave absorbent material with a foul odor that is difficult to remove. When checking the insulation, expect it to be wet above the high water level because of the wicking action of the material.

If the interior wall sheathing is drywall, it will need to be replaced. Usually the interior sheathing in the out-buildings will be wood which can be removed, dried and reused. After the sheathing and insulation are removed, inspect the wall studs, sills and plates for structural damage. Damaged components will need to be repaired or replaced.

Inspect wiring and plumbing for damage from the flood’s pressure. Electrical outlets, switches, sockets and fuse boxes generally need to be replaced. Check local electrical codes.

Note: Do not turn on the power to a flooded structure until it has been inspected and determined safe by a qualified person.

After the buildings have dried sufficiently, renovation can begin. All floors probably will be covered with layers of silt and mud. This will need to be removed. Wood floors that have absorbed a lot of water could be buckled. Do not repair them until they are fully dried. It may be possible to pull some of the flooring back into place with nails. Plane and sand as needed to remove humps in the floor. This may not get it into condition to look good uncovered, but it will be smooth enough to serve as a base for a new covering.

Insulation will need to be replaced in the walls. Cover with a 4 mil or 6 mil polyethylene vapor barrier on the warm side of the insulation according to local recommendations and then install interior drywall or sheathing.
Other farmstead considerations post-flooding

Livestock-building and electrical equipment – After disconnecting them from the power source and completely disassembling them, thoroughly clean milking equipment, grain augers, ventilation fans and other items that were immersed in the flood waters to remove grit or other contaminants. Do not run electric motors until they are clean, dry, free-running and judged safe by a qualified person. This means that air conditioners, furnaces, appliances, feed augers, fans and other equipment may not be approved for use for several days.

Alternatives may be necessary to get a flood-damaged farmstead back into operation. This could involve moving dairy cows to a neighbor’s milking unit, utilizing natural ventilation instead of mechanical, and feeding by hand. Animals housed in mechanically ventilated buildings may need to be moved to prevent acute exposure to hazardous gases.

Water system – If a well is used for the water supply, test the water to determine if it is safe for human or livestock consumption. A well that has been contaminated by floodwaters usually can be cleaned and sanitized. If a rural water system is being used, check for breaks or leaks in the supply and distribution pipes. It also would be good to flush all your water lines after the flood.

Fuel and chemical storage areas – If these supplies are spilled or have water damage, special measures may be needed for proper and safe cleanup and disposal. Your county Extension office has information on the methods necessary for safe cleanup.

Farm shop – Clean, dry and lightly oil all metal tools to prevent rusting. Power tools will need individual cleaning and drying before they are used. Belts, nails, screws, etc., will need to be dried to prevent rusting.

Cleaning up after a flood presents many problems. Try to remain calm. Survey the farmstead, evaluate the amount and location of the damage, and then prioritize the necessary cleanup.

Provided by eXtension; www.extension.org
Managing Flooded Grain Bins

Grain bins exposed to floodwaters are likely to have sustained damage and some grain loss can be expected. It is, however, often possible to repair bins and salvage at least part of the grain.

Water does not "wick" very far in whole grain, so it is likely that grain above the water line is still in good condition. It might even be possible to salvage grain that was submerged in floodwaters, but quick action will be required to prevent spoilage of this very wet grain.

**Actions necessary** for salvaging flood-damaged grain depend on the extent of damage to both bin and grain, so the first step is to inspect the bin, including unloading and aeration equipment, and the stored grain. Then, contact your insurance company or disaster relief agency as soon as possible to find out what you need to do to document losses.

With only a few exceptions, flood-soaked grain is not useable for feed or food. Flooding affects both the stored grain and the storage structures.

**Grain and grain products**

Flood-damaged grain is adulterated grain because of the potential for many contaminants to enter through the water. This grain should be destroyed, never blended. Contact local public health and sanitation officials for the best disposal process in your area.

Water coming up from tiles and pits is just as suspect as overland water. Even field tile water may contain animal waste products, high chemical levels and other contaminants.

The moisture will not travel more than a few inches above the flood line. Good grain on top of flooded grain must be removed from the top or side, not down through the damaged grain. Remove grain that is in good condition before attempting to do anything with the portion damaged by floodwaters.

Toxins are likely in rewetted grain. Warm wet conditions are ideal for mold growth. Soaked grain will spoil within a day or two at high moisture and summer temperatures.

Rain damaged grain, which may occur when roofs of storage structures are damaged during storms, can be saved by drying and cleaning. This grain should be tested for mycotoxins before use. *Use reconditioned grain immediately.*

Take care not to track or mix mud or gravel from flooded grounds into good grain during salvage operations. These materials are potentially toxic for the same reasons as the floodwaters.

The U.S. Food and Drug Administration (FDA) allows for reconditioning (washing and drying at high temperatures) in cases where the floodwater did not remain long and did not contain contaminants. It is very rare to know for certain whether floodwater is clean, however.
**Structures**

Grains swell when wet so bin damage is likely. This is more likely to occur in stored soybeans than other grains. Bolts can shear or holes elongate. Look for signs such as stretched caulking seals, misaligned doors or similar structural problems.

Check bins with stirring devices carefully. The bin must be perfectly round for them to work correctly.

Bin foundations can shift, float or deteriorate from flooding. Inspect structures and foundations carefully, and have an engineering evaluation for larger bins.

Expect electric wiring, controls and fans to be ruined. Do not energize wet components. Be sure the power is off before touching any electrical components of flooded systems.

Wood structures may sustain more damage than metal structures and will also retain mold and contaminants.

Clean facilities and grounds completely.

**Salvage**

In the rare situations where the water was not contaminated, the grain may be reconditioned. If the grain is to be sold, reconditioning must be done with the written consent of the FDA. For feed on site, producers have three alternatives:

- Dry the grain
- Feed it immediately to their livestock
- Ensile the grain for livestock feed

Decisions need to be made quickly, because wet grain will spoil within a couple days at warm temperatures. The wet grain will likely plug bottom unloading equipment, so the grain will need to be removed from the top.

Uncontaminated soaked corn can be used as livestock feed if used within a day or two before spoilage occurs. Moldy grain should not be fed to livestock. Just replace the corn in the animals' current diet with the wet corn. Remember to adjust amounts fed for moisture.

Wet, whole soybeans can be fed to cattle if the soybeans are limited to 10 to 12 percent of the ration's dry matter. Soybeans substitute well for the protein in soybean meal, but they need to be fed with a vitamin-mineral-additive premix if substituted for a complete protein supplement.

It is not necessary to heat-treat the soybeans for cattle. Also, if adding whole soybeans to diets high in distillers' grains, watch the total ration fat content. For hogs, raw soybeans can only be fed to mature sows. The soybeans need to be heat-treated if fed to younger pigs.
Answers to some potential questions about flooded grain bins:

**How much time does it take for wet grain to spoil?**

The rate of spoilage for wet grain depends on its moisture content and temperature. Grain that was submerged for more than a few days will have a moisture content of about 30 to 50 percent. At warm spring and summer temperatures, grain this wet will become moldy in a few days.

**If the bin was only partly submerged, can dry grain be left on top of the wet grain?**

Dry grain will be relatively safe for a few weeks, but it would be best to separate it from the wet grain as soon as you can because the wet grain will begin to spoil in a few days and generate heat and odors that could reduce the quality of the dry grain above it. Try to unload the dry grain without mixing it with the wet. Using a vacuum-type grain conveyor to suck the dry grain out the top of the bin might be the best way to do this. Consider selling the dry grain, moving it to an undamaged storage bin at your place or a neighbor's place, or temporarily storing it in a machine shed or other building modified for grain storage.

**What can be done with grain that was exposed to flood waters?**

If the grain is not contaminated with excessive silt, bacteria, fuel, or chemicals, it might be possible for you or a neighbor to feed wet grain directly to livestock. Remember that wet grain will spoil quickly; if it cannot be fed in a few days, consider adding a grain preservative to extend shelf life. If the grain moisture is between 25 and 35 percent, consider ensiling it in an upright silo, plastic-covered horizontal silo, or plastic silage bag. Beware that grain in ruptured bins could contain bolts, bin hardware, or other debris that should be separated out (consider using grain cleaners and/or magnets) before the grain is fed.

Another option is to dry the wet grain in a gas-fired dryer. Be aware that after drying, grain should be cooled to less than 60 degrees Fahrenheit for safe storage.

If you can remove the dry grain from the top of the bin and get the fan going, you might be able to use unheated air to dry a very shallow layer of wet grain in bins equipped with full-perforated floors and large drying fans. Chances of success for unheated air drying decrease as grain moisture, outside temperature, and grain depth increase.

Under certain conditions, grain molds can produce mycotoxins that can cause animal feed refusal, health problems, or even death. Since beef cattle (except for breeding stock), are somewhat less sensitive to molds and mycotoxins than other animals, feeding suspect grain to beef cattle as part of a mixed ration would be safer than feeding to other animals. If grain develops a lot of visible mold, test for mycotoxins before feeding it or spending money to dry it. Grain that is badly damaged by mold or has high levels of mycotoxins should be discarded.

**How should the bin be unloaded?**

Grain probably cannot be removed through the bin's unloading system. If electric motors on the unloading system have been underwater, it is best not to start them until they have been cleaned, dried, and lubricated. Very wet grain probably will not flow out of the bottom-unloading sump anyway. Consider using a vacuum-type grain conveyor to suck the grain out of the top of the bin. If the water line was below the level of the side door on the bin, it might also be possible to insert an auger into the dry grain through a small opening in the side door. Make sure the auger extends
to near the center of the bin, however, because unloading a bin from one side creates uneven sidewall pressures that can damage the bin.

**What kind of bin damage is likely in flood situations?**

It is not unusual to find structural damage to bins after floods. Because grain swells when it absorbs moisture, it exerts a great deal of pressure on the inside of bin walls, often resulting in stretched bolt holes, broken bolts, and torn bin sheets. Sometimes, bins are knocked off their foundations or dented by the pressure of moving water or by impacts from floating debris. Rapidly moving water can also cause erosion around foundations.

Drying, aeration, and unloading equipment on bins are likely to be inoperable immediately after floods. In many cases, however, electric motors and controls, and gas burners will work again after they are cleaned and dried. Mud in electrical motors and equipment may cause electrical faults and other damage. Do not try to start electric motors until they have been cleaned and dried or they might burn out. You should also clean mud and debris off of fan blades to prevent imbalances that might lead to bearing damage. In many cases, aeration ducts and areas under full-perforated floors will contain mud and saturated grain fines. Clean these areas before the bin is filled again.

Companies that work on grain bins are likely to be quite busy after widespread flooding, so if repair work is needed, try to line up a contractor as soon as possible to get bins repaired before next harvest.

**Are problems likely if water surrounded the bin foundation, but did not actually flow into the grain?**

If the bin has an elevated, full-perforated floor, and the water level remained below the floor, the grain is probably fine. You might still need to check for erosion around the foundation, damage to the fan and unloading system, and mud accumulation under the floor.

If grain rests directly on a concrete floor, it is possible that water moved up through small cracks and pores and wet a few inches of grain next to the floor. It is also possible that in-floor aeration ducts are full of water and mud and that the fan and unloading system have been damaged by water. If you can get the aeration system to work, attempt to dry the layer of wet grain by aerating it. Or, if you can get the unloading system to work, consider transferring grain from one bin to another to get the layer of wet grain off the floor before it molds.

**Are there safety concerns about working around flooded bins?**

Possible safety hazards include electrical short circuits, gas leaks, sudden rupture of weakened bins, entrapment in flowing grain, and breathing dust and mold spores from damaged grain. Turn off gas valves and electrical power until you have a chance to clean, dry, and inspect gas and electrical systems. Work in pairs and stay out of flowing grain. And finally, wear a tight-fitting, high-quality dust mask or respirator that is designed to filter mold spores and other toxic dusts when handling flood-damaged grain. The mask will generally have an N-95 rating and two straps.

*Provided by eXtension; [www.extension.org](http://www.extension.org)*
Recovering the Flooded Landscape

Returning to a flooded site can be quite devastating. Flood damage to your home or office maybe quite extensive and overwhelming. What about your landscape and garden? Your first impulse may be to pull all the plants out and start over. But wait! Experience has shown that your landscape may at least partially recover.

Survival

After the floodwaters have receded the landscape will be covered in thick silt and it may have a raw sewage-like odor, which indicates a lack of oxygen in the soil. Many plants will look dead. Will these plants survive? Plants that have shown good survival after two weeks under floodwaters include most native trees, shrubs, perennials and hardy bulbs. Other plants that show good recovery include crape myrtles (Lagerstroemia Spp.), Chinese Holly (Ilex rotunda sp. including Casissa Holly and Burford Holly). Plants that do not typically survive being underwater or show marginal survival include Japanese Holly (Ilex crenata Spp.), Japanese Boxwood (Buxus microphylla ssp. japonica), Indian Hawthorn (Rhaphiolepis Spp.), Nandina (Nandina Spp.), hybrid junipers (Juniperus Spp.), and hybrid azaleas (Rhododendron Spp.). These are plants that typically do not like “wet feet” and typically have low survival rates.

The Clean Up

You should begin the clean up by addressing the safety of the site. Beware of down power lines. After you are assured that the site is safe to enter begin by assessing the site. Is it dry enough to enter and not cause further rutting or damage? If your landscape is still saturated, you will want to wait for it to dry out. Once dry remove trash, debris and any uprooted plants. Separate trash and yard waste and place in the appropriate designated spot for pick up. This is typically curbside, but check with local authorities first.

Most deciduous landscape plants will defoliate immediately after a flood. Hardy evergreen plants like Chinese Hollies, may hold on to their leaves. I have found washing the silt off evergreen plants to be beneficial to survival and re-growth. A solution of one tablespoon of dishwashing liquid per gallon of water in a sprayer works well in most cases. First wet the plants with plain water and then spray the detergent solution on the foliage. Wait about a minute and rinse. Work in small areas so as not to leave the detergent solution on too long. In the case where the silt is extra thick and stubborn, a teaspoon of an additional wetting or rinsing agent such as those used in dishwashers, has proven beneficial in breaking up the silt. Pressure washing should not be used on plants as it can result in further damage to the leaf and stem areas.

Refrain from using a high nitrogen fertilizer on trees and shrubs at this time. Take a soil sample if possible to determine if fertilizer is needed. Flooded trees and shrubs have undergone a shock and may be experiencing a forced dormancy. Adding a new mulch layer to your landscape will do wonders for its aesthetic quality. You may find chipped hardwood mulch available for free due to tree and limb cleanup. Check to be sure that it has been properly aged. Do not use fresh hardwood mulch, as it has been know to tie up soil nitrogen as it ages and breaks down. Also be sure that your mulch does not contain any trash or contaminated material.
Turf and Lawn Areas

Bermuda grass (Cynodon dactylon Sp.) and Bahia grass (Paspalum notatum) have the most resiliencies to flooding. Hybrids of these grasses have also responded well. Bermuda grass under four weeks of floodwater has responded with re-growth when a general maintenance and management regime has resumed after a drying out period. Remove accumulations of sediment land organic debris and mow. Remove only about a 1/3 of the height at this time. Applying about one-half pound of nitrogen per 1,000 sq ft will encourage turf recovery and then follow normal maintenance practices.

The Sprinkler System

You will want to inspect and flush your sprinkler system. Be sure the power is off when inspecting electrical connections. If your irrigation clock was flooded you will need to replace it. Your backflow prevention system will need to be checked by a certified professional prior to reintroducing potable water (i.e. water that is part of your main drinking water system whether well or municipal). Shut off the water supply to the irrigation system and open up the drain valve to drain the water from the underground pipes. If your system has rotors you may have to remove them, shake them out and rinse them thoroughly. Many rotors have a built in check valve that prevents the water from draining out. If you have any gear-driven rotors mounted above ground be sure to check to make sure the water has drained out of them, remove and thoroughly clean them. Unscrew the inside of the head from the casing and rinse out both pieces.

Flush the pipe system before you replace the heads. Open the valves one at a time to the full open position and turn the system on manually. Let the water run for at least 5 minutes at each zone. After you are done flushing all the zones, re-install the heads and run your system for about 10 minutes. Are the spray heads or rotor heads spraying a correct spray pattern? When you shut the water off are the heads sticking up instead of retracting back down? Sometimes, the heads can be easily cleaned by stepping down on the riser while the head is running. Let it pop back up, then step on it again. Do this a few times, then turn off the system and see if the head is still sticking. Finally turn off the system and make sure all the heads went down. If heads are still sticking, you may find it well worth your time to just replace the ones not working correctly.

Drip and micro-irrigation systems may be plugged by a variety of causes including particulate matter, chemical precipitates, organic growths, and insects in the system or a combination thereof. You may try cleaning these systems by opening the end of the line and flushing with fresh water. Replace emitters that remain clogged or that are damaged.

Patience can save you money

Salvaging a flooded landscape can be economically feasible if you have the time and patience to let your plants return naturally. By following these simple steps to access your landscape and giving it time to recover you can benefit from nature's resilience. For more information contact Charlene LeBleu at leblecm@auburn.edu and

Provided by eXtension; www.extension.org
Evaluating Flood Damage in Corn

Chad Lee, James Herbek, Greg Schwab, and Lloyd Murdock, Plant and Soil Sciences

Corn survival after flooding depends on the duration of the flood and the soil temperature during the flood. When soil temperatures are greater than 70 degrees F, corn will survive about 24 hours of submersion, but survival can increase up to four days at cooler soil temperatures. Even with warm temperatures, water over the top of corn for only a few hours will do little harm to the crop.

Corn that was submerged and survived may be yellow and/or stunted. These symptoms are likely due to an inability to take up nitrogen (N) under saturated conditions. These symptoms will continue even after water has receded because the soil will remain saturated. The time required for the soil to dry out and allow oxygen back into the root zone will determine the rate of crop recovery. If mud and other debris stay on the corn leaves, recovery can be further delayed.

Replanting may be necessary if stand loss is significant. Taller corn that is flooded may be too late to replant. If water rises above the ear of corn, the grain should be analyzed for toxins before feeding to livestock.

Estimating Severity of Flood Damage

Wait two to three days after the flood to determine if the corn has survived. On small plants, cut the cornstalk to expose the growing point (at or below the soil surface on V6 and younger corn). Healthy growing points will be white or cream-colored; dead points will be dark and/or flaccid. Use Tables 1 and 2 to determine plant population and yield potential.

Surviving plants could suffer a yield loss. The lack of oxygen could stunt root and shoot development during critical stages of growth. Flooding at V6 growth stage could hinder ear development, and flooding at V12 could reduce kernel size and number. Yellowing and stunting are often a result from a lack of N. This does not mean that all available nitrogen has been lost from the soil, but that the corn cannot take up nitrogen under saturated conditions. Much of the nitrogen will be available to the corn once the soils dry out. “Estimating Nitrogen Losses from Wet Soils” on the next page provides more information on how much nitrogen may have been lost.

Multiple stand counts should be made in both injured and non-injured areas of the field. Use Table 1 to determine the length of row to count to estimate plant stand. Count the plants within a row and multiply that number by 1,000. The product is the estimated number of plants per acre. This process should be repeated throughout the field in injured and non-injured areas. If stands are erratic, counting 50 feet of a row may be a better way to estimate corn stands. Compare the estimated stand to the population numbers in Table 2 to help determine the remaining yield potential in the field.

Table 1. Estimating corn stand.

<table>
<thead>
<tr>
<th>Row Width</th>
<th>Plants in Row</th>
<th>Multiply by:</th>
<th>Estimated Plants/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uninjured areas of the field:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 34'10&quot;</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 26'2&quot;</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 17'5&quot;</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 14'6&quot;</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38 13'9&quot;</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injured areas of the field:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 50'</td>
<td>696.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 50'</td>
<td>522.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 50'</td>
<td>348.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 50'</td>
<td>290.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38 50'</td>
<td>275.12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Relative grain yields for various planting dates and plant populations.*

<table>
<thead>
<tr>
<th>Planting Date</th>
<th>Thousand Plants/A</th>
<th>25+</th>
<th>22.5</th>
<th>20</th>
<th>18</th>
<th>16</th>
<th>14</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yield Potential (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May 6</td>
<td>100</td>
<td>98</td>
<td>95</td>
<td>92</td>
<td>88</td>
<td>83</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>May 11</td>
<td>99</td>
<td>98</td>
<td>95</td>
<td>92</td>
<td>88</td>
<td>83</td>
<td>77</td>
<td></td>
</tr>
<tr>
<td>May 16</td>
<td>98</td>
<td>96</td>
<td>93</td>
<td>90</td>
<td>86</td>
<td>81</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>May 21</td>
<td>95</td>
<td>94</td>
<td>91</td>
<td>87</td>
<td>83</td>
<td>78</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>May 26</td>
<td>92</td>
<td>90</td>
<td>87</td>
<td>84</td>
<td>80</td>
<td>75</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>May 31</td>
<td>87</td>
<td>85</td>
<td>82</td>
<td>79</td>
<td>75</td>
<td>70</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>June 5</td>
<td>81</td>
<td>80</td>
<td>77</td>
<td>73</td>
<td>69</td>
<td>64</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>June 10</td>
<td>75</td>
<td>73</td>
<td>70</td>
<td>67</td>
<td>63</td>
<td>58</td>
<td>52</td>
<td></td>
</tr>
</tbody>
</table>

* Expressed as a percent of the yield considered optimal for a given planting date and plant population. Plants are assumed to be uniformly spaced within the row.

Source: Adapted from the National Corn Handbook (NCH), “Guidelines for Making Corn Replanting Decisions.” Also appears as Table 5 in A Comprehensive Guide to Corn Management in Kentucky (ID-139).
Fertilizer Management

Estimating Nitrogen Losses from Wet Soils

Wet soils cause nitrogen losses, and determining how much nitrogen is lost is necessary to choose the proper management options. In cases where high intensity rain results in high runoff, leaching losses will probably be low. The primary nitrogen loss mechanism in saturated soils is denitrification, which occurs when soil nitrate nitrogen (NO₃-N) is converted to nitrogen gas by soil bacteria. Two to three days of soil saturation is required for bacteria to begin the denitrification process. Well-drained upland soils that have been wet from a series of rains probably have not experienced much denitrification. Soils in lower landscape positions that stay saturated longer will likely lose more N.

Losses can be calculated by estimating 3 to 4 percent loss of fertilizer NO₃-N for each day of saturation. Use Table 3 to determine how much fertilizer NO₃-N was in the soil.

Table 3: Estimated NO₃-N remaining after fertilizer application.

<table>
<thead>
<tr>
<th>Fertilizer Type</th>
<th>Weeks after application</th>
<th>% of NO₃-N Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anhydrous ammonia (AA)</td>
<td>0  20  65</td>
<td></td>
</tr>
<tr>
<td>AA with N-Serve</td>
<td>0  10  50</td>
<td></td>
</tr>
<tr>
<td>Urea</td>
<td>0  50  75</td>
<td></td>
</tr>
<tr>
<td>Urea with N-Serve</td>
<td>0  30  70</td>
<td></td>
</tr>
<tr>
<td>UAN (solution 28 and 32%)</td>
<td>25  60  80</td>
<td></td>
</tr>
<tr>
<td>Ammonium Nitrate</td>
<td>50  80  90</td>
<td></td>
</tr>
</tbody>
</table>

Example: Determining the Amount of N Loss

A farmer applied 175 lb nitrogen (N/A) as urea to corn grown on poorly drained soil. Because of a series of heavy rains, three weeks after application the field became saturated for seven days. How much N was lost?

Step 1. Determine the amount of applied N that was in the nitrate (NO₃-N) form.

According to the table, 50% of the urea will be in the NO₃-N form three weeks after application. 175 lb N x 50% = 88 lb N.

Step 2. Determine the amount of N lost.

Remember that two days are needed for the bacteria to begin the denitrification process. Therefore, denitrification occurred for five days (seven days total saturation minus two days to start the process). With 4% lost each day for five days, 20% would have been lost. 88 lb N x 20% = 18 lb N lost and 60 lb N remaining.

The N loss calculated in this example is not as high as most people would assume. A soil N test can verify this estimation. The soil sample should be taken to a depth of one foot in several locations within the field. The samples should be mixed well and a subsample sent for nitrate analysis. If NO₃-N is 0.0-10 ppm, a full rate of N for the crop should be added. At 25 ppm, no additional N would be needed. One could interpolate between these two figures, keeping in mind the amount of NH₄-N left in the soil from the first fertilizer application, based on the calculations made using Table 3.

Crazy Top

When young corn is flooded for 24 to 48 hours soon after emergence, swimming zoospores of the crazy top fungus (Sclerophthora macrospora) can enter the whorl and infect the growing point. If infection occurs, the plant will produce tillers, a leafy tassel ("crazy top"), and no ears. The fungus that causes crazy top occurs in Kentucky and surrounding states, but it is not a widespread problem. The fungus also infects wheat, several turf grasses, and certain wild grasses, but is rarely important on these crops. Because the appearance of crazy top occurs once the corn plant is tasseling and the number of occurrences is extremely low, there are no management options for controlling crazy top.

Nitrogen Broadcast Prior to Rain

Farmers sometimes broadcast fertilizer nitrogen on a field within 24 hours of a heavy rain. In most cases, very little nitrogen is lost to runoff, especially if the field was under no-till soil management. The nitrogen fertilizer begins to dissolve almost immediately after being applied to the soil surface and will dissolve completely in a short period of time. As rain begins, the first water that falls moves into the soil, taking most of the fertilizer nitrogen with it. Once in the soil, most of the fertilizer nitrogen is protected from runoff. The only exception is a very intense rain soon after application that also erodes topsoil from sloping areas. Even in this situation, the loss would probably be less than one third of the fertilizer applied.

References


All this rain!!! – Horses
by Fernanda Camargo

Problems with mud and humidity:

1/ Wet pastures get ruined by horses' hooves. So unless you have a sacrifice lot, it is very possible that you will have more weeds than grass when all this rain stops. It all depends on the size of your pasture and how many horses you have in it. The result will be that you may need to feed your horses hay during the summer. You may also have some poisonous plants in your pasture, and since horses will not have a lot of grass to eat, they may venture themselves and start eating the weeds. Ask for your county agent to take a look at your pasture so he/she can verify the presence of poisonous plants. In times of rain like this, you can make a sacrifice lot to turn your horses out and keep your pastures intact.

2/ Horses that like to "horse around" keep running and slipping and risk falling down and getting injured, or bowing a tendon, or popping a splint. Slippery slopes and horses are never a good combination!

3/ You may have a higher incidence of skin diseases such as rain rot and fungal diseases. To prevent these kinds of diseases, make sure to groom your horses often to allow air to penetrate the coat and dry the skin. Have shelters or bring the horses in for part of the day so they can get dry. Some horses don't like to sleep in wet ground, and these horses will appreciate being in a dry stall to rest.

Problems with floods:

1/ A lot of rain and standing water will increase the incidence of mosquito-borne diseases. These include the neurological diseases Eastern and Western Equine Encephalomyelitis and West Nile Virus. Other diseases transmitted by insects are Equine Infectious Anemia and Potomac Horse Fever. Vaccinate your horses at least for the neurological diseases as soon as possible. Consult with your veterinarian to draft a vaccination schedule.

2/ Floods will drive rodents out of their habitat and bring them to a dryer place: your barn. A barn, however, is not a suitable place for rodents to live, as they bring diseases, such as leptospirosis, which can cause abortion in pregnant mares and blindness. Humans can also get leptospirosis. Make sure to exterminate rats and mice from your barn and dispose of the carcasses appropriately. Don't just throw the carcasses in the pasture, as that will attract opossums, which in turn can transmit EPM to your horses.

3/ Floods will also bring out trash, wash out agrotoxics to creeks and water beds, all of which can be potentially dangerous to horses. Make sure to clear your pasture of debris if it has been under water.

4/ Floods can also rot vegetation that has been under water, or a round bale of hay, for example. If horses eat the rotten and moldy hay, they are at risk of acquiring botulism, which can be fatal.

Rain is important for agriculture. But when it rains this much, horse owners need to be aware of the possible complications they may be facing in the near future.

Provided by UK Healthcare; http://ukhealthcare.uky.edu/forums/blogs/saddleupsafely/archive/2011/04/26/all-this-rain.aspx
Emergency Streambank Restoration/Stabilization

Kentucky Division of Water
Water Quality Certification
May 2010 Educational Assistance

Due to the severity of the recent rains and flooding occurrences, the Kentucky Division of Water (KDOW) understands the urgency of public and private landowners to repair waterways and structures that may have experienced damage due to the flooding events of early May 2010.

The KDOW’s Water Quality Certification (WQC) Section issues approvals in the form of certifications. The WQC issued approvals certify the federally generated U.S. Army Corps of Engineers (USACE) permits. These permits and certifications allow work within streams and wetlands that involve the placement of any form of fill material (common examples of fill include rip rap, culverts, bridge supports, and utility lines). The WQC Section also provides free technical assistance to improve public comprehension of stream behavior and how modifications may improve or worsen problem areas.

As anticipated with most severe weather cleanup practices, work will need to be conducted in and around stream channels to remove accumulated debris, repair steeply-eroding stream banks, and replace or repair structures such as roadways, bridges, and culverts.

In order to expedite review and permitting procedures between the parties affected by recent flood waters and the WQC Section, the following should be carefully read:

- Certifications available for flood water cleanup and repair
- Actions exempt from KDOW certifications
- Federal assistance programs

**Certifications available for flood water cleanup and repair:**

For placement of fill material or dredging within a stream channel or wetland, a USACE permit may be required (contact numbers for the three Corps offices that serve Kentucky are listed at the bottom of this
If a USACE permit is required, then a water quality certification is also required.

There are two kinds of USACE permits: general (also called nationwide) and individual. Typically, repair work due to flooding falls under a nationwide or general permit. Each nationwide permit is different and is geared toward the form of the proposed project. The following nationwide are commonly used for projects related to flood cleanup and repair:

**NW 13: BANK STABILIZATION:**

**NW 3: MAINTENANCE of existing structures:**
http://www.water.ky.gov/NR/rdonlyres/4E157BAF-2790-422F-AE4F-7F99DAA21CDE/0/2007NWP03.pdf, and

**NW 37: EMERGENCY WATERSHED PROTECTION MEASURES (which has been established for Federal Agencies only):**

The KDOW has placed limits (or conditions) on each USACE nationwide permit. These conditions determine whether we will allow the work to proceed without the further scrutiny of an individual certification. Typical limits include the amount of linear feet of stream to be impacted, the type of fill material to be placed, and the quality of the stream.

When the Water Quality Certification Section reviews a proposed project, one of three results may be expected.

1.) If the project is proposed to occur within an ephemeral stream (smaller order stream that only flows following a rain event), or if the work proposed within the project is to be conducted above the Ordinary High Water Mark (OHWM) of the stream (usually found in the approximate location of where the vegetation begins and ends on a stream bank), then the project is **EXEMPT**, and does not require a water quality certification. Please note that a USACE permit may be required even if a certification is not.
2.) If the proposed project:

a. will occur below the OHWM of an intermittent stream (small to midsize stream that has a groundwater connection, or is at least fed by a natural spring); or
b. will occur below the OHWM of a perennial stream (mid to large size stream where water is visible within the channel for the majority of the year); or
c. will occur within less than 1 acre of wetland; and
d. there is a possibility of fill material being placed within the stream channel or wetland; and
e. the work is not being done in a Special Use Water (http://eppcapp.ky.gov/spwaters/); and
f. the proposed project will stay within the limits of the KDOW’s General Certification guidelines and conditions associated with flood cleanup and repair procedures,
g. then the project is permitted under KDOW WQC GENERAL CERTIFICATION.

3.) If the proposed project:

a. will occur below the OHWM of an intermittent stream or a perennial stream; or
b. will occur in greater than 1 acre of wetland; and
c. there is a possibility of fill material being placed within the stream channel or wetland; and/or
d. the work is being done in a Special Use Water, and
e. the project proposes to exceed the guidelines and conditions listed within the KDOW WQC General Certifications, then an INDIVIDUAL SECTION 401 WATER QUALITY CERTIFICATION will be required. If the proposed project will require individual certification, please contact the WQC project manager for your area (LINK BELOW). A WQC application (ATTACHMENT 1) will need to be submitted to the Kentucky Division of Water.

NOTE: The USACE, not KDOW, determines if a stream is ephemeral, intermittent, or perennial. They also determine the location of the OHWM. If you are uncertain about these determinations, please contact the USACE. Also, note that the mapping of a stream as “blue line” has no bearing on whether or not a stream is regulated by the USACE or KDOW’s water quality certification.
**Actions exempt from KDOW certification:**

In addition to the exemption criteria listed above, guidelines have been designed to advise in the removal of log jams, creek rock, or other natural material that have formed barriers within the stream, in a document titled “Guidelines for the Removal of Stream Flow Obstructions” (ATTACHMENT 2). This literature addresses use of equipment, placement of removed objects, vegetation removal, timing, and at what elevation you are permitted to conduct work. If your proposed procedures shall exceed the listed guidelines, your project may no longer be exempt from WQC permitting procedures. Please contact a WQC project manager for assistance.

**Federal assistance programs**

For additional assistance for flood cleanup or removal projects affecting public or private landowners, the Natural Resource Conservation Service (NRCS) of the U.S. Department of Agriculture (USDA) has a multitude of established assistance programs to aid in the funding of the cleanup and repair projects. The Emergency Watershed Protection (EWP) Program is a 75/25 cost-share program established to financially assist in the cleanup of the recent flooding events.

For additional information, please follow:

**Additional KDOW WQC Information:**

- Find the WQC Project Manager for your area:
  [http://www.water.ky.gov/permitting/wqcert/Contact+Us.htm](http://www.water.ky.gov/permitting/wqcert/Contact+Us.htm)

- Investigate the KDOW WQC web page for additional questions:

**Additional Contact Information:**

-U.S. Army Corps of Engineers Contact Information:

<table>
<thead>
<tr>
<th>District</th>
<th>Contact Information</th>
</tr>
</thead>
</table>
<pre><code>                  | (502)-315-6733              |
                  | (615) 369-7500              |
                  | (304)-399-5210              |
</code></pre>

- Links or Contact info for Local Floodplain Coordinators:
Insurance & Scams
Floods: Making Claims

Whether you’re filing for insurance, seeking assistance, or claiming a casualty tax deduction, you will need proof of your losses. This includes both before and after a disaster.

Keeping a Household Inventory

An up-to-date household inventory is a valuable resource. Before a disaster, the inventory will help you determine if you have enough insurance to cover the contents of your home. After the disaster, the inventory will help prove for insurance or tax deduction purposes the value of the possessions that are damaged or destroyed.

An inventory consists of a:

• Description of each item (include model and serial numbers)
• When you bought it
• How much it costs

It is highly recommended to have photos or a video to accompany your inventory.

Do not forget less expensive items, such as towels and clothes. It will be costly to replace them entirely. Be thorough. Do not forget lawn furniture or tools in the garage. Keep the inventory up to date.

The University of Illinois Extension Service provides an excellent online guide and relevant forms for conducting a household inventory:
<http://www.ag.uiuc.edu/~vista/abstracts/ahouseinv.html>

Computer software programs such as a database or spreadsheet can also be used, but make sure you keep an up-to-date copy in a safe place -- and not only in electronic form. Keep a printed hard copy in a safe place as well.

Protecting Valuable Records

The key to an easy claims process and a smooth recovery is documentation. Secure your valuable papers in a waterproof, fireproof container.

Table 1 is a list of the valuable papers that need to be in a safe location outside your home, such as in a safe deposit box. This could be in the care of a lawyer, the administrator of wills, business associates or trusted family members residing outside of your home.

Table 2 is a list of valuable papers that need to be in your possession at home at all times in a waterproof, fire-proof locked box. This includes those documents that need to be readily
available after a disaster when you may not be able to reach copies that are located in your other safe location.

**Table 1. Valuable Papers to Keep in a Safe Deposit Box or Other Secure Location.**

*Property* -- Property records (deeds, titles, leases)

-- Household inventory

-- Home improvement records

-- Automobile title and bill of sale

-- Copies of insurance policies

*Financial*

-- Income tax returns

-- Copyrights and patents

-- Contracts (including promissory notes)

-- Copies of insurance policies

-- Certificates for stocks, bonds, etc.

-- Important receipts and bills of sale

-- Supporting documents for years of large transactions, unusual losses, or deductions

*Identification*

-- Social Security cards

-- Citizenship papers

-- Passports

-- Birth certificates

-- Death certificates

*Other*

-- Divorce decrees

-- Adoption/custody papers

-- Military service records
-- Retirement papers
-- Religious records
-- Copies of your and your partner's wills
-- Trust agreements, living wills, powers of attorney, and health care powers of attorney

**Table 2. Valuable Papers to Keep at Home in a Waterproof, Fire-proof Locked Box**

**General**

-- Safe deposit box key
-- Safe deposit records and inventory of items
-- List of emergency contacts (doctors, vets, financial advisers, clergy, reputable repair contractors, and family members)

**Property**

-- Rental property records
-- Guarantees and warranties
-- Appliance manuals
-- Copies of insurance policies

**Financial**

-- Income tax returns
-- Current bank balances
-- Loan payment books
-- Employee benefits
-- Bank account, loan, credit card, investment account numbers

**Identification**

-- Social Security numbers
-- Driver's license numbers
-- Copies of citizenship papers
-- Copies of birth certificates
-- Copies of marriage certificates

-- Educational records

**Health**-- Health records

-- Copies of immunization records

-- Copies of prescriptions for medicines and eyeglasses

-- Copies of veterinary/vaccination records

-- Health, dental, or prescription insurance cards

**Making an Insurance Claim**

By having your household inventory and records, it is easier to make an insurance claim should the need arise. There are six steps in making a claim.

**Step One: Contact Your Agent Immediately**

- Give your name, address, policy number, and the date and time of your loss.

- Make sure to tell them where you can be reached, especially if you are unable to stay in your home.

- Follow up the call with a letter detailing the problem. Keep a copy of the letter.

- Your insurance agent will arrange for an adjuster to visit your property and assess the damage. Be sure the adjuster is properly licensed. You can call your state's Department of Financial Services or Insurance Commission to do a licensee check.

See below regarding hiring your own adjuster.

**Step Two: Carefully Document Your Losses**

This step is especially important if you failed to make an accurate inventory beforehand, or if the inventory you made was lost.

**Safety First!** Before entering a building, check for structural damage. Don't go in if there is any chance of the building collapsing. Be careful walking around. Upon entering the building, do not use open flames, since gas may be trapped inside. Instead, use your flashlight to light your way. Keep power off until an electrician has inspected your system for safety.

- Make a detailed list of lost or damaged property.

- Videotape or photograph damaged property before beginning any repairs.

- Do not throw away damaged property without your adjuster's approval.
• Try to document the value of each object lost. Bills of sale, canceled checks, charge account records, and insurance evaluations are good evidence. If you have no such records, estimate the value, and give purchase place and date of purchase. Include this information with your list.

• List cleaning and repair bills, including materials, cost of rental equipment, and depreciation of purchased equipment.

• A list of any additional living expenses you incur if your home is so severely damaged that you have to find other accommodations while repairs are being made. This includes motel and restaurant bills, home rental, or car rental.

**Step 3: Protect Your Property from Further Damage or Theft**

• Patch roofs temporarily. Cover broken windows with boards or plastic.

• If household furnishings are exposed to weather, move them to a safe location for storage.

• Remember the documentation from Step 2! Save receipts for what you spend and submit them to your insurance company for reimbursement.

• If your home has been flooded, protect your family's health by cleaning up your house right away. Floodwaters pick up sewage and chemicals from roads, farms and factories. Throw out foods and medicines that may have come into contact with floodwater. Dry out water-damaged furnishings and clothing as soon as possible to prevent fading and deterioration. You may wish to take some items to a reliable dry cleaner.

For more information on what can be cleaned and what may need to be tossed, go to Salvaging After Flooding.

**Step 4: Working With the Adjuster**

• Your insurance agent will arrange for an adjuster to visit your property and assess the damage. (See below.)

• Be sure that you or a trusted advisor is present when the adjuster visits the site.

• Work with the adjuster. It is their job to assist you and review your claim. The adjuster will inspect your list of lost or damaged property. The adjuster will work with you to calculate the value of the items on the list and prepare a repair estimate of damage to the property.

• You and the adjuster need to come to an agreement as to the scope of damage, which is an agreement, without a dollar amount, of what needs to be repaired or replaced.

• Make sure you know what needs to be done to follow up on this agreement and why. If you do not, ask the adjuster for instructions in writing.

Since the adjuster works for the insurance company, there will be an incentive to value your claim at the low end. Householders with significant losses should consider hiring their own adjuster to negotiate with the insurer's adjuster. Having a professional adjuster working for you levels the playing field.
You can find these professionals in the yellow pages, listed under "Adjusters." Their fee is a percentage of your recovery. The recovery that they negotiate will almost always provide a net benefit to the claimant (including their fee) as well as saving the hassle of negotiations.

**Step 5: Settling Your Claim**

- You may settle personal property and structural claims at separate times, although your adjuster may suggest that you file the claims together. Filing separately allows you to take the time needed to determine the full extent of your losses.

- Don't be in a hurry to settle your claim. Although you may want to have your damage claim settled as quickly as possible, it is sometimes advisable to wait until all the damage has been discovered. Damages overlooked in an early estimate may become apparent later. If you are dissatisfied with the settlement offer, talk things over with your agent and adjuster.

- If you and your adjuster cannot reach a settlement, you may obtain mediation through your state's Department of Insurance. Mediation is an informal process where a neutral third party tries to help the parties resolve the dispute.

**Step 6: Repairing Your Home**

- You or your insurance company may contract for the repair of your home. See if the contractor holds a proper license by contacting your state department of business and professional regulation.

- Contact the reputable licensed and insured firm to have your damage repaired. Beware of door-to-door sellers. Sometimes undependable workers enter a damaged area, make cheap repairs, and leave before the residents discover that the repairs are inadequate. If your local contractor cannot do the work, ask them to recommend someone.

- Get a written estimate that includes any oral promises the contractor made. But remember to ask if there's a charge for an estimate before allowing anyone into your home.

- Your insurance company may initially pay you a sum equal to the actual cash value unless you request minimal repairs. The company will withhold the balance of the full replacement cost until after you complete the repairs.

**Resources Used For This Document**

"Six Steps in Making an Insurance Claim," The National Disaster Handbook, IFAS Extension

"Keeping a Household Inventory and Protecting Valuable Records," The National Disaster Handbook, IFAS Extension

*Provided by eXtension; [www.extension.org](http://www.extension.org)*
Floods: Avoiding Scams

In the wake of a disaster, con artists and other dishonest people often emerge offering their services or asking for donations to help victims. After Hurricane Katrina for example, more than 2000 phony charity Web sites appeared, some of them set up even before the hurricane hit land. Many homeowners paid for rebuilding work that was shoddy or never done. By understanding the scams that are known to occur after a disaster, you can prevent becoming a victim.

Home Repair/Clean-Up Scams

After a disaster, the demand for experienced licensed contractors greatly exceeds supply. Nonetheless, it pays to shop around first before hiring a repairman or contractor. Be extra-cautious of people offering help door-to-door. Conduct business only with established, licensed and insured workmen. Be cautious of sound-alike names.

Cases involving fraudulent contractors normally fall into two categories:

1. Unlicensed Contractors

These contractors may represent themselves as having a license or may even use an unsuspecting licensed contractor's license. It is imperative to check on the status of a contractor's license. These scam artists attempt to obtain large amounts of money up front, and do little, if any, work.

Some contractors or repair people might be honest and upfront about the fact that they are unlicensed, and it might be very tempting to hire them due to the fact that licensed contractors are so difficult to find. However, keep these points in mind:

• Uninsured workers may have the right to sue you if they are injured on your property (for example, a worker falls off a roof.)

• Unskilled workers doing electrical or structural work may pose a serious, even life-threatening, risk to the tenants of the structure.

• An improperly felled tree can easily cause major damage to your or your neighbor's property: If the workman is uninsured you may be liable for that damage.

For your own protection, you should always use a contractor or repair person who is licensed and bonded!

If you decide to employ an independent repair person or tree cutter in spite of the risks involved, draw up a written contract that clearly spells out the work to be done (for example, number of trees to be cut, stump height or treatment, what is to be done with the cut trees and by whom, beginning and completion date of work and amount to be paid and when). Never pay for work before it is done. Ask for references and to see the person's driver's license. Write down the license number, address and vehicle license plate number. Include a statement about who is responsible for expenses in case of an accident. This should include what happens if the worker
damages your property accidentally and who pays if the worker is accidentally injured. These steps are no assurance of protection, but they may help.

2. **Licensed contractors who are well-intentioned and honest but get in over their heads.**

These may create the most difficult problems. In this case, a contractor takes on more jobs than normal. Given a limited pool of experienced workers, newly hired subcontractors may not be highly skilled or experienced. The result tends to be poor quality work that might not meet code requirements and may need to be redone, which reduces profit and provides further incentive for shoddy work. Homeowners may experience delays and ultimately the contractor may run out of money and abandon the work in progress, leaving the homeowner without the completed work but having spent the money. A second part to this problem is that the contractor may not have paid the subcontractors or suppliers, who will in turn place a lien on the homeowner's property, burdening the homeowner with the responsibility of paying off the debts.

Never let anyone begin working on your home or business without first establishing a written contract. Don't let anyone rush you into a deal or signing something. Make your first payment after the contract is established and make your final payment when the work is completed to your satisfaction.

Other reported home repair/clean-up scams include:

- Contractor explains a low price by stating the material is left over from another job. The contractor begins work, says he needs more money to buy additional material but then disappears with the money, leaving the job unfinished.

- Contractor takes an advance deposit on a job and doesn't return to do the work. Typically it is discovered that the contractor used fake documents to appear to be a local or licensed contractor. It is best not to entrust large sums of money to a contractor. A draw system should be set up to front money to a contractor only for each specific step in the construction project.

- Contractor quotes a low price for a needed repair then uses below-grade or fake material to make the repair. Local building inspectors should help prevent use of material that falls below code standards.

- Contractor charges a fee to inspect a job and write up an estimate. The homeowner is told the fee will apply to the cost of the work. The contractor doesn't return with the estimate.

- Contractor quotes a low price for a repair, does the work, then presents a bill that is much larger than the original quote. When the homeowner protests, the contractor maintains the homeowner misunderstood the agreements and threatens legal action. Any contracting agreement should be put in writing in the form of a specific contract setting out what work will be done and for how much money.

**Landlords and Tenants**

If you are renting a residence that is damaged, you have special rights and responsibilities. Repairs are the responsibility of the landlord. You should immediately notify the landlord of any damage to the property and make reasonable efforts to help protect it from any additional damage. The landlord is responsible for having the residence repaired and returned to livable
condition. If repairs are not made within a reasonable time, the tenant has the right to reduced rent, or perhaps to terminate the lease and move.

Identity Theft

If you are recovering from the effects of a disaster, you will need to share your personal information to get relief benefits from government agencies or other organizations or to get replacement identification documents. Be cautious. Identity thieves may pose as government officials or representatives of government agencies. Ask for identification. When possible, initiate the contact yourself using information posted on official Web sites or in official information dissemination areas.

As you work with contractors and others to repair your home, you may be asked for information so a credit check can be performed. Be certain the business is legitimate before you give out your Social Security number and other personal information. If in doubt, do not give your information.

You should examine your bank statements, credit card statements, and other statements closely for unauthorized purchases or withdrawals. About 60 days after the disaster, you should request copies of your credit report from all three major credit bureaus: Experian, TransUnion and Equifax. All three credit bureaus will usually provide disaster victims with a free copy of their credit report.

If you believe that someone is committing identity theft against you or may commit identity theft against you in the future, you may want to add an initial security alert to your personal credit report. This alert will remain on your report for 90 days and will notify anyone who reviews your report to take extra steps to verify your identity before granting credit. You need to request the security alert with only one credit bureau. It will automatically notify the other two to place an alert on your file. Be aware that adding an alert to your credit report may prevent you from opening an account unless the creditor is able to get in touch with you and positively confirm your identity and that you are applying for credit.

Additional information on preventing identity theft can be obtained at http://www.consumer.gov/idtheft

Price Gouging

In past disasters people have complained of businesses charging excessive prices for essential goods and services such as rental cars, hotels and motels, building materials and groceries. If you feel you have been a victim of price gouging, you should report the incident to your state's Attorney General's office.

Scams regarding charity

After a disaster, many people are contacted asking for charitable donations to help victims. Four common ways that con-artists ask for donations is by 1) an e-mail from an organization, 2) a phone call from a solicitor, 3) a letter in your mailbox, and 4) phony Web sites. Before donating to charities, take precautions to ensure that the money will go where it's needed.

• Don't give cash. Legitimate charities will take a check.
• Don't give credit card, bank account or personal information to telemarketers. If you want to give, initiate the call.

• Don't give in to Internet appeals if the cause does not look legitimate and doesn't check out. Traditional frauds have gone electronic in recent years, giving con artists easy access to thousands of potential victims.

• Don't give in to pressure. Anyone who can't wait for a donation while you check out his or her organization is likely to be a crook.

• Expect specific information. Ask what kind of relief this organization is going to provide. Don't give to a vague appeal.

• Check out the charity with national, state and local authorities. Established charities register with the Internal Revenue Service. You can search for specific non-profit organizations on the IRS Web site, http://www.irs.gov.

• Beware of newly formed organizations. If the charity is new, you may have to rely on your relationship with the company or sponsor of the organization to determine whether you trust the group.

• Report abuses to the nearest Better Business Bureau and the State Attorney General's office. Both are listed in local telephone directories. You can also report abuses to the National Fraud Information Center at (800) 876-7060. NFIC also has a Web-based complaint form at http://www.fraud.org.

To find out more information about charities and how to investigate them on the Web, go to either http://www.give.org or http://www.charitywatch.org.

Resources used for this document

"Preventing Fraud Following a Disaster," Texas Cooperative Extension

"Avoiding Frauds and Deceptions," The Disaster Handbook, IFAS Extension

"Federal Trade Commission Consumer Alert," After a Disaster: Repairing Your Home

"Beware of Fraud in Disaster Struck Areas," University of Illinois Extension

"How do you know where your charity money is going?" The Los Angeles Times

New Mexico Attorney General's Office, http://www.ago.state.nm.us

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