Managing Floods on the Farm

The potential long-term effects of recent and future flooding may include reduced livestock productivity, lower livestock feed supplies and quality, decreased crop yields, and pesticide or chemical contamination or replacement.

"Providing extra care reduces the detrimental effects of flooding on livestock and poultry," says Patty Scharko, University of Kentucky (UK) Extension ruminant veterinarian, providing tips for producers to take proactive steps to minimize the negative consequences of flooding on livestock. "Have a veterinarian vaccinate them for such flood-related disease as anthrax, blackleg and swine erysipelas. Monitor animals for flood-related disease symptoms such as fever, breathing difficulty, lameness and muscle contractions. Spray livestock with properly labeled insecticides to prevent mosquito and other pest annoyances and potential disease spread."

When flooding is imminent, open gates so livestock can escape high water.

Clean barns and other buildings and spray with a disinfectant before bringing animals back inside. Thoroughly air out buildings to dry them.

Inspect feeds and hay. Do not feed moldy legume hay or heated, sour or molded feed to livestock because it could lead to reduced performance, illness, abortion or death. Also, do not use feed or forage that may be contaminated by pesticides or chemicals.

Handle wet hay with care

"Pay special attention to wet hay because it quickly molds and heats, resulting in spontaneous combustion in just a few days," says Garry Lacefield, Extension forage specialist.

"Check hay temperature to determine fire danger," he continues. "If hay has reached 150 degrees Fahrenheit, observe it every day; 160 degrees, every four hours. Hot spots or fire pockets are possible at 175 degrees, so have adequate water handy. If hay reaches 185 degrees, move it out a safe distance from the barn because flames may occur when it comes in contact with air. At 210 degrees, hay likely will ignite."

To keep workers from possibly falling into fire pockets, secure ropes around their waists and do not allow them to enter the hay storage area alone. For additional safety, let workers stand on long planks placed across the top of hay.

"Wet grain also can build up to spontaneous combustion," Lacefield explains. "To salvage grain, quickly take it to a dryer. If one is not available, spread grain out no higher than 6 inches in a dry location and stir it daily. Remove molded grains."

Remember to check hay and grain storage areas often for signs of heating such as pungent odors; hot, damp areas on the stack; and water vapor emission.

Healing the land

Seasonal temperatures and time spent under water are significant factors in crop recovery. Warm, summer weather intensifies damage and can cause death to submerged plants. When water quickly rises and recedes, crops have less oxygen depletion and are more likely to survive than those submerged in standing water. Plants with some leaves above the water and those in moving water have a better likelihood of survival.

Lacefield says alfalfa, ryegrass, orchardgrass and tall fescue usually will recover from moderate silting. To reduce

damage, remove old growth from unharvested hay crop fields. Make crops harvested just before flooding into silage or hay, then topdress fields with fertilizer.

"Submerged corn may show yellowing and/or stunting because plants cannot take up nitrogen in saturated conditions," notes Chad Lee, Extension grain crops specialist. "These symptoms will continue after flood waters recede because soils remain saturated. To eliminate surplus soil moisture, open drainage ditches as soon as possible. The rate of recovery is affected by the time it takes soil to dry out and allow oxygen back into the root zone.

"To determine if corn is surviving, cut down the length of several cornstalks to

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If you are driving, know the depth of standing water before crossing a dip or low area, because the road beneath might not be intact and floodwaters could quickly carry a vehicle away.

Flash flood tips

What is the difference between severe weather warnings for a flash flood watch and a flash flood warning? Knowing the answer and how to safely respond could save lives.

A "watch" means that current and developing hydro-meteorological conditions favor flash flooding in the area, whereas a "warning" means that flash flooding is in progress, imminent or highly likely, says Tom Priddy, University of Kentucky (UK) College of Agriculture meteorologist.

"A flash flood can happen quickly, often within a few minutes, threatening both life and property," he explains. "Waters can move at incredible speeds, moving boulders, tearing out trees, destroying buildings and creating new channels. Quick action can save lives, so it is important to remain alert to weather conditions and immediately seek higher ground if a warning is issued."

A National Oceanographic and Atmospheric Administration (NOAA) weather radio with Specific Area Message Encoding (SAME) is a very good source of weather information, in addition to area radio and television station coverage. NOAA weather radio is a nationwide network of stations broadcasting continuous National Weather Service warnings, watches, forecasts and other hazard information 24 hours a day. SAME technology enables listeners to program radios to tone alert only for specific counties of interest.

"When a flash flood warning is issued for your area, or if you realize flooding is occurring, it is critical to act quickly because you may only have seconds to save yourself and your family," says Kim Henken, UK Extension associate for environmental issues.

Following these safety tips may prevent tragedy during a flood:

- Remain alert for indications of heavy rain, such as thunder and lightning, where you are and upstream from your location. Watch for rising water levels.
- Move out of dips, low spots and flood-prone canyons during periods of heavy rain.
- Do not camp or park your vehicle along streams and washes, especially during flood-threatening conditions.
- Be especially watchful at night because it is harder to determine the water depth and recognize the potential danger.
- Know where higher areas are and go there quickly if you see or hear rapidly rising water.
- Avoid flooded areas.
- Do not try to cross a flowing stream on foot if the water is above your knees.
- If you are driving, know the depth of standing water before crossing a dip or low area, because the road beneath might not be intact and floodwaters could quickly carry a vehicle away. Immediately abandon a vehicle that stalls when crossing water and seek higher ground.
- Do not allow children to play around high water, storm drains, viaducts or drainage ditches.

To find more information on weather-related safety, visit the Extension Disaster Education Network home page at *wwwagwx.ca.uky.edu/EDEN*, or contact your local Extension office.

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Flooding can stunt plant growth and dilute nitrogen in the soil. To eliminate surplus moisture, open drainage ditches as soon as possible.

the growing point at or below soil surface on V6 and younger corn," Lee recommends, referring to the vegetative stage at which the corn plant shows six collars, or about eight leaves. "Healthy growing points will be white or cream-colored. Darkening and/or limp growing points indicate plant death. These symptoms occur several days after flooding."

Surviving corn may suffer yield losses resulting from flooding conditions.

Cornfields fertilized before the heavy rains may suffer nitrogen loss from denitrification. When soils are saturated for two to three days, bacteria build up and convert soil nitrate into nitrogen gas, resulting in nitrogen losses.

To calculate the amount of nitrogen lost, estimate the level of soil nitrate before flooding occurred, then assume a 3%-4% loss for each day of saturation beyond two days of flooded fields.

Typically, farmers would have little loss from nitrogen fertilizer broadcast on fields within 24 hours of heavy rain because the nitrogen would quickly dissolve and the first part of the rain would move fertilizer into the ground, where it is protected from runoff. An exception would be intense rain that erodes topsoil from the slopes.

Chemical cautions

Improperly stored pesticides and other chemicals can contaminate water supplies. It is critical to safely store them in both daily and disaster situations.

"If flood waters entered your pesticide storage area, carefully check all containers for damage or leaks," says Lee Townsend, Extension specialist and pesticide application trainer. "Open windows and doors for good ventilation. Wear the same personal protective equipment you would use when mixing or loading the most hazardous pesticide in the storage area. Provide training and protective equipment for everyone assisting with the cleanup."

Although metal and plastic containers may be unharmed, their labels may be damaged. Dry off and move undamaged containers to a dried out, secure storage area. Repair or reattach damaged labels. If this is not possible, put new labels on containers. The pesticide dealer can help you with this label problem.

"Paper or cardboard containers typically receive the most damage and may be leaking," Townsend says. "Transfer the contents of leaking containers into sealable metal or plastic drums, and follow pesticide spill cleanup procedures prescribed on the appropriate material safety data sheets available from your chemical supply dealer."

Remove contaminated wood, dirt and other porous materials to sealable containers and dispose of them according to pesticide label directions. Decontaminate nonporous surfaces such as concrete floors and metal shelving.

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Editor's Note: *This article was written by Ellen Brightwell, from the UK College of Agriculture, which supplied this article.*