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For more information please contact your MU Extension Center:

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Your local link to MU for ag extension and research information
http://agebb.missouri.edu/agconnection

Repairing Flood-Damaged Fields

There are some important things learned from the past about bringing flooded fields back into production, even if flooding is short term. Following are three stages to repair flood-damaged fields.

1. Remove Debris and Sediment
Debris can be grouped into two general categories: plant material and other debris. The type of "other" debris will make a difference on how it is handled.

Plant material, primarily corn stalks and trees, can be burned on the tract of land where it was found and the ashes buried.

If a layer of corn stalks or other crop residue is not too deep, it can be incorporated into the soil with normal tillage operations. One concern, and this will be a recurring theme, is to not perform tillage when the soil is too wet. This will cause compaction and create more of a problem. Also, burying high-carbon crop residues may temporarily tie up nitrogen in the soil as microbes break it down.

Other debris floating into a field can vary from items such as tires, posts, boards, propane tanks, and appliances. In Missouri, a majority of these items can be taken to an approved landfill. Further information and guidance regarding debris can be found at: https://dnr.mo.gov/disaster.htm the Missouri Department of Natural Resources website to by contacting the Regional Missouri DNR Office.

Sedimentation from floods can pose a challenge for crop production on agricultural land. The difference in texture of the deposition and the native soil below can cause major production issues. In the past, deposits have varied from an inch or two to over 30 feet deep. The depth of the deposition will determine how it is best handled:

- 0-2 inches: incorporate with normal tillage operations
- 2-8 inches: incorporate with chisel or moldboard plow
- More than 8 inches: spread or remove to a depth of 8 inches or less and incorporate as listed above

Tillage of the soil should be the depth of the sand plus 1.5 times the depth of sand; for example, one would till 10 inches deep for 4 inches of sand [4 + (1.5 x 4) = 10]. Avoid tillage or other field operations until soil is dry enough to reduce the chance of compaction.

2. Repair Erosion
The degree of erosion can vary from a few inches to many feet and different levels need to be managed differently.

- Tillage – if soil can be smoothed and farmed following a normal tillage operation
- Earth Moving – if erosion is too deep to be corrected with tillage, but can be filled, then farmed.
  Fill eroded areas or top dress with native soil from other parts of the field, depending on the depth of the erosion.

- Abandonment – may be the only option if erosion is too deep to correct economically, even with earth moving

If sediment depositions are used to fill eroded areas, use native soil from another area in the field for the final three feet to avoid droughty areas.

Avoid field operations until the soil is dry enough to reduce chances of compaction. After major erosion repairs, sample the soil in the repaired area. Consider sampling from both the repaired area and undisturbed area to determine if fertility should be managed differently in each. Use traffic lanes if making multiple trips in the same field to correct erosion.

3. Manage Other Factors
Soil Crusting - Surface soil texture changes and the loss of structure can cause effects resembling compaction. This can restrict root penetration and reduce water infiltration. Tillage should remedy a shallow (less than 2 -inch) crust.

Wind Erosion and Planting Cover Crops - Sedimentation and the removal of crop residues from the soil surface may lead to wind erosion. The easiest way to reduce this is by seeding a cover crop as soon as conditions permit. There are several options:

- ► Aerial seeding success depends on timely rains and may not be as effective because of a lack of seed to soil contact. However, this does allow the earliest seeding in a field where ground operations might be impossible. The whole field can be done at once, regardless of conditions.

- ► Broadcast seeding followed by light tillage provides better seed-to-soil contact, but is dependent on being able to get into a field. Often the whole field may not be seeded at the same time.

- ► Drilling gives the best seed to soil contact and seed distribution, which leads to more rapid germination and establishment. Drills may provide some soil smoothing and cause less compaction than tillage to incorporate seeds.

Other Crop Management Practices
There are many other management decisions such as tillage, fertility recommendations, cover crop termination, inoculation, seeding practices, and weed control that may also require special consideration following a flood.

Information for this article was adapted from University of Nebraska Crop Watch - Repairing Flood-Damaged Fields by John Wilson - Extension Educator - https://cropwatch.unl.edu/2019/repairing-flood-damaged-fields

Source: *Kent Shannon, natural resource engineer*

Selling Local Foods

As the growing season progresses, local food producers are busy meeting the demand for locally produced food. Demand has steadily grown as consumers want to know where their food comes from and how it is produced. Consumers want higher quantity and quality of fruits and vegetables, less carbon footprint and to support the local economy.

One marketing outlet, Farmers' Markets, has grown from 2,000 to 8,720 markets throughout the U.S. with 7% of this increase since 2013 and annual sales of $1 billion, according to USDA Agricultural Marketing Service. This upward trend has followed in Missouri, which has over 200 markets. Missouri Department of Agriculture has a website with current market offerings and prices https://mdafmr.mo.gov/. This timely data is collected June through October by MU Extension Specialists around the state.

Other forms of direct to consumer local food sales have also increased. Roadside or farm stands, often tied with agritourism, and Community Supported Agriculture or CSAs are two alternatives. Farm or roadside stands make efficient use of labor if they are at the house or production area. There is no or little transportation cost, low overhead, and no additional business licenses required unless reselling product purchased wholesale. This avenue also has the opportunity to combine sales with tours or agritainment, which can increase overall farm income. The biggest disadvantage is the lack of separation between business and home. Customers may come to the site early, late, and on weekends. Check with your insurance company to ensure liability insurance covers this activity. Many policies will require an additional business rider.

CSAs have grown in popularity, especially in areas within an hour's drive of an urban or affluent area. Most CSAs operate on a subscription basis. Before the growing season begins, producers sell a subscription for a share of the production to be delivered throughout the growing season. This is usually weekly or every two weeks depending on the products and the time of year. The consumer shares in the production risk and helps the producer cash flow by paying before inputs are purchased. Subscriptions vary greatly in cost and product.

While direct to consumer sales realize more profit for the producer and often, more job satisfaction, other marketing outlets could also be a part of a marketing plan. These include institutions, restaurants, grocery stores, and produce auctions. The first three may

require a liability insurance policy and training or certification such as Food Safety Modernization Act (FSMA) or Good Agricultural Practices (GAPs). Produce auctions may have volume requirements and wholesale prices, so it is important to know production costs.

Before planting in volume, research on potential markets; know costs of production; know limitations such as labor and land; and connect with people who can help navigate some of these marketing channels. This could include farmers' market managers, grocery store produce managers, food service directors at institutions, and experienced producers.

Whether buying or selling local foods, it is a rewarding experience. To further research potential markets, go to https://allthingsmissouri.org/

Source: *Darla Campbell, ag business specialist*

Egg Production in the Backyard

Maintaining a small poultry flock is growing in popularity. Backyard flocks can provide eggs, meat, and an opportunity for all family members to participate and learn animal care. The majority of backyard flocks are raised to provide eggs for the family. Excess eggs can be a source of additional income. To insure egg quality in small backyard flocks, producers must learn to properly handle the eggs. This article will focus on handling eggs for high quality and safe for consumption.

Collect eggs as frequently as possible, preferably 2-3 times per day. Frequent collection will help prevent accumulation of dirt and stain on the shells. Most flocks will lay the majority of eggs by 10:00 am. Eggs are more likely to get dirty or broken the longer they lay in the nest. Interior quality also decreases the longer the egg is left in the nest.

Dirty eggs should be washed before being stored in the refrigerator. Wash dirty eggs with running water (no immersion) that is 10 degrees warmer than the temperature of the eggs. The warmer water will cause the contents of the egg to swell and push dirt away from the tiny pores on the shell surface. When eggs are washed, the protective layer called the cuticle is also washed from the shell surface; therefore, bacteria have an easier time entering the egg after washing. Dry and cool eggs quickly after washing. Keep the eggs at a constant temperature until they are washed. Never cool eggs rapidly before then. Unwashed eggs can be held at room temperature for up to 30 hours after being laid. Eggs stored properly in a carton should hold quality of Grade A for at least four weeks.

Eggs can be packaged into previously used cartons as long as the carton is clean and in sound condition. All markings that do not pertain to the eggs currently in the carton must be removed, if selling to marketing outlets. Cartons of all eggs sold in the United States must contain the following safe handling instructions: "To prevent illness from bacteria: Keep eggs refrigerated, cook eggs until yolks are firm, and cook foods containing eggs thoroughly." In order to package eggs, producers must have either a dealer or limited retailer's egg license. All cartons must have either the approved license number or the name and address of the person packaging the eggs, the size, grade, and the date the eggs are packaged.

Eggs should be placed with the small end down and stored at 40-45 degrees. Eggs should never be stored with materials that have an odor. Eggs will take in the odor, which can alter the taste of the egg. Store eggs in the back of the refrigerator where it is colder, and not in the door.

For more information on backyard flock and egg production contact the local livestock specialist or visit eXension.org/poultry. For more information on the rules and regulations for selling eggs in Missouri, visit agriculture.mo.gov/weights/device/egglic.php

Source: *Heather Conrow, livestock specialist*

July Gardening Tips

Ornamentals

- Continue to pinch mums until mid-July. Pinching later may delay flowering.
- Deadhead perennials (remove dead flowers) that have finished blooming.
- Prune climbing roses and rambler roses after bloom.
- Spider mites may be a problem during hot, dry weather. Leaves will become speckled above and yellowed below. Evergreen needles will appear dull gray-green to yellow or brown.
- Water newly planted trees and shrubs thoroughly at least once a week, if rain has not been plentiful.
- Fertilize trees and shrubs by July 4. Late fertilizing may cause lush growth that is more prone to winter kill.
- Black Spot may be a problem on roses. Remove and pick up infected leaves and spray fungicides as needed.
- Lilacs may get powdery mildew. It is rarely harmful and shrubs grown in full sun are less susceptible.
- Divide irises now.

Vegetables

- Blossom end rot of tomatoes and peppers may become a problem. Maintain soil moisture, and do not let soils dry out. Place a layer of mulch 2-3 inches thick around plants.
- Keep weeding! Prevent weeds from going to seed.
- Dig potatoes when the tops die. Plant fall potatoes by July 15th.
- Harvest onion and garlic when the tops turn brown.
- Keep cucumbers well-watered. Drought conditions will cause bitter fruit.
- Sow seeds of carrots, beets, turnips, and radishes for fall harvest the last week of July. Also set out broccoli, cabbage, and cauliflower transplants for the fall garden at this time.

Fruit

- Protect grapes from birds!
- Prune out old fruiting canes of raspberries after harvest.
- Apply second spray to trunks of peach trees for peach borers.
- Early peach varieties ripen now.
- Blackberries will begin to ripen soon.

Turf

- Water lawns frequently enough to prevent wilting. Early morning irrigation allows turf to dry before nightfall and will reduce the chance of disease.
- Monitor lawns for newly hatched white grubs. If damage is occurring, apply appropriate controls, following product label directions.

Resource: *Missouri Botanical Garden*

Source: *Jennifer Schutter, horticulture specialist*

Happy Independence Day
July 4th