Management of Over-mature and/or Rain Damaged Hay

The first step in dealing with over-mature or rain damaged hay is forage testing. Forage testing results provide the information needed to accurately balance animal rations. When taking hay samples, be sure to get a core sample and not a grab sample. If possible avoid end bales, also.

Low quality grass hay can be baled and treated with ammonia in a procedure known as “ammoniation.” Ammonia treatment should only be applied to low quality grass hay. Ammonia breaks linkages in the fiber that prevent forage digestion; the result of ammonia treatment is increased fiber digestibility and high energy.

According to research at the University of Missouri, ammonia treatment also degrades ergovaline and other ergot alkaloids produced by the tall fescue endophyte. Ammonia-treated fescue is far less toxic than untreated fescue.

The procedure for ammoniation can be found at the following link: http://extension.missouri.edu/p/AGW1003. Take note that this bulletin shows bales stacked as 2 on the bottom and 1 on top. Some of our producers have stacked 4 on the bottom and 3 on the top. Also, please be aware of that this bulletin does not account for changes in cost of anhydrous ammonia over recent years.

Another option is to provide grain or grain by-product supplements to meet the nutritional needs of the animals. There are lots of good supplemental feed options, but best results require knowledge of forage nutritive value.

Recent work at MU showed that for those with the equipment to do it, treatment with calcium hydroxide or calcium oxide can work. Here is a link to an article from North Dakota State: https://www.ag.ndsu.edu/news/columns/dairy-focus/dairy-focus-improve-low-quality-forages/.

Lastly, fertilize cool-season grass hay fields in mid-August. Good quality cool-season grass pastures this autumn can be used to "supplement" poor quality hay. Following a strip grazing program where a few days of grass and a few bales of hay are fed at the same time can stretch the good quality pasture while using some of the hay. Move stock to a new strip of grass and provide a new bale or two when the original hay bales are 80% consumed.

Anthony Ohmes, Agronomy Specialist, University of Missouri Extension, Jackson, MO.
Flooding is the flowing or overflowing of a field with water outside a grower’s control. Pooled water (e.g., after rainfall) that is not reasonably likely to cause contamination of the edible portions of fresh produce is not considered flooding.

Flooding events can present a potentially hazardous public health risk. In some areas, crops may be submerged in flood water which may have been exposed to sewage, chemicals, heavy metals, pathogenic microorganisms or other contaminants. Even if the crop is not completely submerged, there may still be microbial contamination of the edible portion of the crop. There is also the potential for plants to take up chemical contaminants. In addition to the direct presence of contaminants noted above, mold and toxins may develop in the crops as a result of exposure to the water.

If the edible portion of a crop is exposed to flood waters, it is considered adulterated under section 402(a)(4) (21 U.S.C. 342(a)(4)) of the Federal Food, Drug, and Cosmetic Act and should not enter human food channels. There is no practical method of reconditioning the edible portion of a crop that will provide a reasonable assurance of human food safety. Therefore, the FDA recommends that these crops be disposed of in a manner that ensures they are kept separate from crops that have not been flood damaged to avoid adulterating "clean" crops. This applies to ALL food crops, including:

- Surface crops such as leafy greens, tomatoes, string beans, berries, and corn;
- Underground crops, such as peanuts, potatoes, carrots, and garlic;
- Crops with a hard outer skin or shell, such as watermelon and winter squash;
- Grains, nuts, corns, and similar products stored in bulk;
- Others.

Does flooded produce have to be discarded?

Yes, if the edible portion has come in contact with flood waters the produce must be discarded due to the high risk of contamination from chemicals and microbial pathogens in flood water.

There was a lot of water standing on my field after the storm but it was just rainwater; it did not come from a river, stream or other surface water. Can I sell my produce? Yes. Pooled water from rainwater alone is not considered to be flood water and the produce should be ok for sale. However, if there is evidence of contamination due to significant runoff from an adjacent area where livestock, manure, or compost are kept, then the produce may be contaminated if it was in contact with the contaminated water and should not be sold for human consumption.

Disposition of crops in proximity to, or exposed to a lesser degree of flooding, where the edible portion of the crop has NOT come in contact with flood waters, may need to be evaluated on a case-by-case basis. Factors to consider in the evaluation include:
Safety of Flood-affected Food Crops continued…….?  

- What is the source of flood waters and are there potential upstream contributors of human pathogens and/or chemical contaminants?
- Type of crop and stage of growth, e.g., is the edible portion of the crop developing? How far above the ground does the lowest edible portion grow?
- Were conditions such that the crop may have been exposed to prolonged periods of moisture and stress which could foster fungal growth, and possibly, development of mycotoxins?

For more questions about flood waters look at this reference from University of Vermont Extension based on federal guidelines.  
https://www.uvm.edu/vtvegandberry/factsheets/Flooded_Produce_FAQ.pdf

The waiting period before growers can replant depends on conditions such as temperature, weather, and soil type. State, industry, and university extension specialists have recommended a 30-60 day waiting period and/or soil testing prior to replanting. While this time period is generally considered sufficient for fecal contamination to decline, chemical contaminations, if present, may continue to remain in the flood-affected soil.

- Prevent cross-contamination. Growers should follow FDA’s Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables to avoid possible cross-contamination after flooding. Farm equipment should not be used in a non-flooded field after use in a field that was flooded unless the equipment has been cleaned and sanitized first. Workers should wear protective clothing such as rubber boots and rubber gloves when working in fields that were flooded. Protective clothing should be discarded or thoroughly cleaned and disinfected after use.

- A 30-feet buffer zone is generally recommended between flooded areas of fields and areas to be harvested for human consumption. This distance is to accommodate a generous turning radius for farm equipment to prevent cross contamination between the flooded and non-flooded fields.

- Check your well. If the well head is under flood water, there is a potential for contamination and the well water quality should be tested before using. Growers may want to have their well examined by a water quality expert.

For more information see Guidance for Industry: Evaluating the Safety of Flood-affected Food Crops for Human Consumption at  

Flood Information:  
For those affected by the flood please see resources available from the University of Missouri Extension at  
Repairing Flood-Damaged Farm Fields

Once the water recedes it is time to repair fields for production. It is important to keep records of all observations around each field. This may help to diagnose future issues that present themselves. Don’t be afraid to utilize GPS when documenting changes to a field. This will help pinpoint specific problems that may turn up.

Erosion caused by flooding may remove soil cover over buried utilities such as gas, electric, and communication lines. At least two days before any excavation or deep tillage, contact your utility locator service to locate and mark underground utilities.

Flood waters will leave drifts of plant debris and driftwood behind. Other items such as building materials, furniture, barrels and tanks, and assorted garbage may be included as well. As soon as soil conditions allow, begin taking inventory and perhaps even map on aerial photos where debris accumulations are located. Note any potentially hazardous items such as fuel tanks or unmarked containers. Household hazardous materials (HHM) should be separated and stored safely for proper disposal.

Plant debris (free of other trash) that is less than 4 inches deep can likely be incorporated into the soil with tillage. Consider the additional nitrogen demand caused by decomposing plant debris in the soil. When plant debris is more than 4 inches thick, it may be necessary to spread it to a thinner layer before incorporating. Residue too thick to incorporate may have to be removed and/or burned.

Soil testing is critical for good management following the physical repair of flooded fields. Consider grid sampling or sampling by soil map unit and area of greatest sand addition to identify specific areas of need. Keep track of areas were soil was eroded and were soil was added to check against performance at harvest.

In cases where insurance or other assistance programs may provide financial reimbursement, it will be important to document restoration expenses. Keep receipts for all purchased materials, supplies, and services, as well as records of your own labor.


Records kept during and after the flood may speed up the investigation of crop issues later on. For example, yellowing of leaves in this low lying area could indicate nitrogen was leached out of soil in the flooded area.
Crop Report from David

Corn

Old crop and new crop futures seem to be in a trading range until there is a better idea on supply. From the USDA March 31 planting intentions report, corn acres are projected at 90.0 million up 4.0 million from 2016. USDA will give their first 2017 supply and demand estimate in the May 10 report. At a trend line yield of 169.0 bushels/acre, ending stocks would fall 500,000 bushels to 1.8 billion. If the final yield is 7.0 bushels below trend at 162.0, ending stocks fall to 1.3 billion bushels. It points out the how the planting and growing season will impact ending stocks and price.

Technically, the July futures has support at $3.62 and resistance at $3.80. December futures has support at $3.78 and resistance at $3.96. Both futures contracts recently put in a morning star candlestick pattern, which opens the door for a potential rally. Due to fewer acres and the need for a good yield, should provide price support and the potential of significantly higher prices on adverse weather this spring and summer.

Soybeans

Soybean acres are projected to be up over 6.0 million from last year to 89.5 million. Acres could easily go higher on fewer corn acres if wet weather and flooding persists into mid-May. At a trend line yield of 48.0 bushels/acre, ending stocks would jump over 90 million bushels to 533 million bushels.

Technically, July futures has support at $9.50 and resistance $10.10. November futures support is at $9.50 and resistance at $9.80. At this time, rallies will be limited due to the big soybean crop from South America and the potential big crop in the United States.

Wheat

Wheat acres are projected at 46.1 million acres, which is 4.0 million acres less than last year. With trend line yields, wheat ending stocks would fall 250 million bushels to 880 million. Still a lot of wheat but getting smaller.

Technically, July 2017 futures has support in the $4.15 to $4.20 range and resistance is in the $4.45 to $4.50 price range.

Cotton

Cotton acres are projected to be up 2.1 million to 12.23 million. Ending stocks would jump from 4.5 to 7.0 million bales. It is important for a cotton producer to remain in close contact with his cotton buyer to get the most current price quotes. Technically, December 2017 cotton futures has rallied back to 75 cents. Support is in the 72.5 to 73 cent range.

Rice

Rice acres were projected at 2.626 million down over 500,000 acres from last year. Ending stocks could fall from 52.1 million to under 33 million. This should give better pricing opportunities going forward. For cash rice quotes, contact your rice buyer to get the most current price quotes and cash price outlook. Technically, May rice futures have fallen sharply the past 8 trading sessions. Price support is at $9.20 and resistance is at $10.20.

David Reinbott, Ag Business Specialist, University of Missouri Extension, Benton, MO.
Future Meetings & Events -

Show-Me-Select Heifer Sale - Friday, May 5. Fruitland Livestock Auction, 7505 US Highway 61, Jackson MO. Buyers may register sale day at the auction barn. Contact Erin Larimore for more information 573-243-3581.

Missouri Pesticide Collection Program - Southeast Missouri Saturday, June 24 - Saturday at DeWitt Auction Company, 220 DeWitt Drive, Sikeston, MO. 8:00 to 12:00 p.m.

Pest Management Field Day - Friday, July 7. The Bradford Research Center 4968 Rangeline Road, Columbia, MO, 65201. Contact Thresa Chism for more information at 573-884-7945

Crop Injury Diagnostic Clinic - Thursday, July 13. The Bradford Research Center 4968 Rangeline Road, Columbia, MO, 65201. Contact Thresa Chism for more information at 573-884-7945

Soybean College - Friday, July 14. The Bradford Research Center 4968 Rangeline Road, Columbia, MO, 65201. Contact Thresa Chism for more information at 573-884-7945

Vegetable Grower Field Day - Thursday, August 3. The Bradford Research Center 4968 Rangeline Road, Columbia, MO, 65201. Contact Thresa Chism for more information at 573-884-7945

Commodities and markets - http://extension.missouri.edu/scott/crop-budgets.aspx

Contributions to this publication are made by University of Missouri agriculture food and natural resource specialists. If you would like to receive this publication please send an email with request to: denklers@missouri.edu

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