Recent Rain Creates Stress on Crops

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Recent intense rainfall events have caused flooding, ponding, and soil saturation in many of our corn and hay fields. What are the prospects for these crops?

**Corn Fields**

Corn planted nearly two weeks ago around the state is just now beginning to emerge and doing so very erratically. The cause of the problems are multiple and include dense soil surface crusts restricting coleoptile emergence, seed rots, seedling blight, stress from saturated soils, and some insect damage. To determine seed health, dig up many seeds in the field and determine condition of the seed. A soft mushy seed is a sign of death. If the corn has started to germinate, check to see if the shoot is healthy and not easily detached. In addition, severe crusting has added to the problem. Corn emergence will be challenging when a dense surface crust sets. The resistance of a crust to corn penetration often results in corkscrewed corn elongation below the surface and eventual leafing out underground. Monitor fields and be prepared to use a rotary hoe (or some other implement) to break the crust and aid emergence. You can also take the planter back to the field and run them shallowly over the existing furrow to break the crust. Of course, the challenge with this strategy is to balance the benefit of breaking the crust while avoiding damage to the emerging seedlings. A side benefit to breaking this crust is improved aeration for the crop.

Flooded or ponded soil creates other risks for corn that has already emerged. Soil oxygen becomes depleted after about 48 hours of soil saturation. Without oxygen, corn cannot perform critical life functions (i.e. nutrient uptake, root growth inhibited). Since the growing point of corn at this stage is still below ground it is directly subject to the stress of oxygen depleted conditions. The likelihood of crop injury is less where the flooded and ponded conditions last less than 24 hours. To confirm plant survival, check the color of the growing point and look for new leaf growth 4 to 7 days (with 70 degree weather) after the water drains from the field. Healthy growing points will be firm and yellowish-white, not mushy and discolored.

Many growers are faced with the challenge of accurately assessing the extent and health of surviving stands in order to make a reasoned replant decision. The challenge lies in the fact that germination and emergence have been so very slow in response to the dramatic cooling down of soils that occurred with the arrival of the rains. Remember that slow germination and emergence by itself does not automatically translate to a failed stand. IF (note the emphasis on "if") such delayed seedlings are otherwise healthy, they will likely develop into normal plants. The bottom line is that until emergence is complete, it is nearly impossible to accurately estimate effective plant populations across entire fields. With the current warming trend, growers should be in a better position by the end of this week to make these important stand assessments. Remember that only portions of the field may need to be replanted. Compare this population to the original target population. If you are in a situation where corn needs to be replanted remember to consider a shorter season hybrid.
Hay & Pasture Fields

Forage plants (other than perhaps wet site-tolerant reed canary grass) can survive for several weeks in saturated soils, but the lack of oxygen in the root zone will adversely affect their growth. These plants do not take up soil nutrients normally, an increasing part of the root system deteriorates, and legumes cease 'fixing' nitrogen. They appear stunted and yellowish-green in color. If the soils drain quickly, plants begin to recover. Flooded forages contain fine silt, fungus spores, bacteria that are bad for you and your animal health. The forage that has been flooded with silt and debris can cause health problems, production problems, and/or reproduction problems in livestock. To be safe, avoid making silage out of it. However, if you do, keep it separate from the rest of your unflooded silage. It may spoil and it could contaminate adjacent silage. If you ensile these flooded crops, you may find that once the silo is opened, they spoil faster than other silage. Generally, you should avoid feeding this material if possible. However, if you haven’t already done it, try to get this standing material off the field as soon as possible to encourage regrowth. If hay fields were flooded remember to wear a dust mask when harvesting. Grazing animals can be exposed to clostridial organisms that can lead to some serious diseases. The safest approach would be to clip the contaminated pastures and then wait to graze the regrowth. But don’t graze it too closely - avoid letting your livestock get down into the old dead material. Watch your livestock closely. If any of you animals appear sick, call your vet immediately.

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