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Summer Flooding of Hay Fields and Pastures

Stephen K. Barnhart

Iowa State University, sbarnhar@iastate.edu

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Summer Flooding of Hay Fields and Pastures

Abstract

Most forage crops perform best when soils have adequate, but not excessive, soil moisture. Standing water, flowing water and waterlogged soils following heavy summer rainstorms or extended periods of higher than normal rainfall patterns can all cause management concerns for forage crops.

Keywords

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Summer Flooding of Hay Fields and Pastures ICM News

June 10, 2008

By Stephen K. Barnhart, Department of Agronomy

Most forage crops perform best when soils have adequate, but not excessive, soil moisture. Standing water, flowing water and waterlogged soils following heavy summer rainstorms or extended periods of higher than normal rainfall patterns can all cause management concerns for forage crops.

Management Suggestions

- As soon as possible, check hay fields and pastures for flood debris that might damage harvest equipment or harm livestock.
- Try to avoid moving into hay fields or pastures too soon because they are still quite susceptible to wheel traffic and compaction damage, which also will limit the future productivity of the field.

- Flooded forage may be silt-covered, which will add to plant disease potential, detract from the palatability of the harvested hay, add to the 'ash' content on a forage test, and possibly affect normal silage fermentation.
- Plants growing in saturated soils can be damaged physiologically. Delay harvest for a week to 10 days to allow the plants to regain what vigor and recovery that they can. This management approach will produce a more mature forage crop of lower nutritive value. In addition, take extra care to schedule a 5- to 6-week "fall rest" period for these stands.

Alfalfa, clovers, and most forage grasses cannot live for very long under water. Most forage plants can tolerate a short term of flowing water (for a few days to a week).

Standing or ponded water that "heats" in the sun and "cooks" the submerged forage plants is more of a concern and can kill or severely damage most plants within hours. After the surface water recedes, an extended period of saturated soils continues to be reason for concern.

Forage plants (other than perhaps reed canarygrass) will live for a week or two 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.

If flooded areas are recovering slowly and you are concerned about the viability of the stand in those areas, dig random plants in several areas and evaluate the condition of the root systems.

Legume plants with a firm taproot, creamy white in color with no evidence of root rot, and that have green and visually healthy crowns and crown buds have the greatest likelihood for survival. These plants need a week or more of sunshine and drying soils.

Legume or grass plants with watery, mushy, textured roots, yellowish or tannish in color, and those with no evidence of active crown buds will be the least likely to survive, even with good growing conditions during the next few weeks.

Pasture plants are affected much the same as alfalfa when under standing or flowing water and growing in water-logged soils. Grasses are, however, slightly more tolerant of these conditions than are legumes.

Stephen K. Barnhart is a professor of agronomy with extension, teaching, and research responsibilities in forage production and management.

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