Cornell University
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PRO-DAIRY

Resources for Forage Management in a Drought Situation

Agronomic Considerations

Short Term	Long Term
Fertilizer • Nitrogen on Grass for a late summer/fall cutting can be beneficial ***IF*** you receive moisture for the crop. • Plants require moisture to take up most nutrients and there is a low likelihood of efficient nutrient utilization or crop response to fertilizer during dry conditions. Plant Health Inputs • Fungicides with plant health labels have shown to be beneficial under certain growing conditions, particularly when plant diseases are present but are unlikely to provide any sort of economic response to a crop that is simply lacking moisture. Harvest Management • If the crop has "shut down" significant new growth is unlikely in the event rain does come. Any chance for new growth with rain will come from clipping the old growth to encourage new growth when moisture arrives. • Grasses – Cut High (4"). Cutting height is always critical but can have an even greater impact on a crop that is under stress. • Do not overgraze pastures. Move animals frequently and leave adequate stubble. Potato Leafhopper • This pest tends to prefer dry, hot conditions and routine scouting should be performed. By the time the damage to the plants is visible it is too late to treat. These fields should be clipped to control the pest and encourage new growth. Rotational Considerations • The prospect of obtaining additional forage from late planted summer annuals, such as oats planted in early August, or winter forages, such as triticale or rye planted in September, will be dependent on late season moisture for establishment.	Fertilizer • Proper fertility will promote overall plant health and production in all conditions, including stress conditions such as drought. • Harvesting corn as whole plant silage removes a larger amount of nutrients from the field than grain harvest. Harvest Management – Fall Cutting • With perennial hay fields already under stress consider your current forage needs with the rotational status and future expectations of the fields. • Alfalfa is particularly sensitive to fall harvest timing and there is a need to weigh the need for extra forage with the potential long term persistence of a field. Rotational Considerations • While it is unconventional to plant a winter grain crop into a sod field if you have gravely underperforming hay fields that are scheduled for rotation planting a winter forage into them this fall may provide greater early season production next spring than the existing sod crop. Soil Management • While tillage will dry the soil in the short term, dry soil conditions lend themselves to proper utilization of compaction alleviating practices such as deep ripping to address on-going field problems. • Reduced and no-till practices promote soil health and resiliency, including moisture management in wet and dry conditions.

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Feed and Feeding Considerations

Short Term

Forage Inventory

- It is critical to accurately calculate current forage inventories and continue to track them with usage rates.
- While the exact impact on the corn crop is still somewhat unknown projecting yields and addressing expected shortfalls should start now.

Harvest Management

- Continue to strive for top quality feed. Even if quantity is short it is generally easier to source lower quality feeds, to build inventory, than high quality feed.
- Avoid Ash in Feed
    - Low cutting height can increase DM yield but they can also increase non-forage DM (Ash) which will impact several aspects of forage quality.
- Closely watch the stage of crop development to assure proper harvest timing.

Feed Storage

- Harvest at the correct stage and dry matter
- Corn - Assure adequate processing of kernels present
- Bunk Silos
    - Pack thoroughly
    - Cover with two layer oxygen limiting plastic
    - Manage face at feed out
- Consider use of inoculants
- Sample and test forage early and often to assess feed quality

Nitrates in Forage

- Forage Nitrate issues warrant attention but are most generally only an issues in feeding green chop or when harvested immediately after a “drought ending” rain event.

Water Supply

- Have your water tested, in addition to adequate supply changes in the water table can affect water quality throughout the year.
    - This could also exacerbate nitrate issues in total diets.

Short Term

Purchasing Feed

- These situations often make pricing difficult in respect to both supply and quality.
    - Assess local supply & demand dynamics
    - Request forage quality analysis
- Standing Corn
    - Overall yield
    - Ear to Stover ratio and implications on feed value.

Long Term

Feeding Impact on Lactation

- Any feeding changes made now in an effort to cut cost or forage usage will have ramifications for the remainder of these animals lactation.
- Shorting young stock on nutritional needs can follow them throughout their life.

Future Forage Needs

- Assess impact of current forage shortages, how they will impact the coming year’s inventories and what adjustments to your crop rotation may be needed to adequately rebuild desired inventories.
- If you are growing BMR corns consider the yield differences associated with these crops and if the need to rebuild forage inventories with higher yielding hybrids exceeds the benefits of BMR.

Storage Management

- Thoroughly examine feed storage structures and their management. Decreasing Dry Matter losses by improving storage can gain you forage in the short term and improve inventory management in the long term.

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Safety!
Harvest is a busy time for farm operations. Time means money when it comes to yields, production schedules, and operating costs. However, time also ensures safety at harvest. The extra time it takes to perform a task properly can determine whether the job is completed at all. Harvest season comes with many stresses. Exposure to dangerous situations can increase the mental pressure, and your risk of injury. Follow safe practices around harvest equipment to make the most of your work time. *The most important goal is to send all family members and employees home to their families SAFE … EVERYDAY!!*

Planning and Teamwork
Accomplishing key field operations at the correct times can be a challenge under the best of circumstances but can be especially challenging under inclement conditions and achieving your goals might come from a different way of thinking. Consider the 5,000-foot view of the land that you and your neighbors work and think of the inventory of people and equipment potentially available to accomplish the needed activities for the *collective* land base. Are there opportunities to share equipment and time even where you haven't done so before?

Calculate adequate packing weight
It is critical to match forage deliver rate to packing weight to achieve adequate densities in the silo. Adequate density will increase the tons of storage within the given footprint and provide a better environment for up front fermentation and long term forage stability.

MINIMUM packing weight needed (tons) =
800 lbs packing weight * Delivery Rate (tons/hour)

Resources

Northwest NY Dairy, Livestock & Field Crops Team
http://nwnyteam.cce.cornell.edu/submission.php?id=589&crumb=forages|2
- Forage Management and Addressing Forage Shortages

PRO-DAIRY
https://cals.cornell.edu/pro-dairy/our-expertise/forage-systems
- Forage Management Resources

North Country Regional Agriculture Team
- Managing Forages in Drought Videos
  - Part 1: Managing Pastures in Drought https://vod.video.cornell.edu/media/1_19bj2cuc
  - Part 2: Stored Forages: Winter Feed Supply https://vod.video.cornell.edu/media/1_ql576klx

Nutrient Management Spear Program Agronomy Factsheets
http://nmsp.cals.cornell.edu/guidelines/factsheets.html
- #70: Drought and Risk of Nitrate Toxicity in Forages
- #114: Emergency and Alternative Summer Annual Forages

Cornell Beef Cattle Management Drought Resources
http://blogs.cornell.edu/beefcattle/producer-resources/

Penn State University
- Managing Drought Stressed Corn https://extension.psu.edu/managing-drought-stressed-corn
- Pricing Standing Corn Silage Spreadsheet https://extension.psu.edu/spreadsheet-to-price-standing-corn-for-silage

University of Wisconsin
https://fyi.uwex.edu/forage/harvest/
- Storage Capacity Calculators: Bunks, Bags, Upright Silos

Miner Institute Feeder Tools
https://www.whminer.org/dairy/
- Inventory Calculator
- Inventory Management

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