

DROUGHT STRATEGIES

Managing Your Tame Pasture Through Drought

Unfortunately, drought is inevitable. Whether it occurs once in five years or for five consecutive years, it will occur. This factsheet will focus on the effects of drought on tame pastures and suggest some tips on how you can manage your pastures through drought.

DROUGHT EFFECTS ON PASTURES

A lack of adequate soil moisture will:

- Limit plant growth resulting in reduced forage yields.
- Limit plant root growth, which increases their vulnerability to future drought.
- Prolonged drought may shift perennial plant communities (species mixes) into communities dominated by weedy, shallow-rooted, less productive plant species.

Unhealthy plant communities tend to be more susceptible to drought. These plant communities often lack litter, have large amounts of bare ground and have large components of invasive (weedy) plant species. Healthy plant communities however, tend to store more moisture in their litter layer and make greater use of available soil moisture due to larger root systems. As a result, reductions in forage production are generally less on healthy pastures.

MANAGING YOUR TAME PASTURE THROUGH DROUGHT

There are many tips that may assist you in managing your pasture through drought. First and foremost, lower your stocking rate. If you stock your pastures at normal stocking rates, you risk damaging them and lowering their productivity in the future. You need to reduce stocking levels so that livestock needs are balanced with the forage supply.

Forage Management

Fertilizing

In British Columbia, fertilizer is often forgotten as a useful drought management tool. Depending on your soil needs, an application of nitrogen often increases the water use efficiency of your forage plants thus allowing them to extract water from greater depths within the soil profile. This often results in extra late-summer and early fall grazing during a drought when compared to unfertilized pastures. Fertilizing tame grasses and native grasses may also be a good drought mitigating tool provided it is economical and runoff is not a concern. If there is insufficient moisture however, no amount of fertilizer will help. Finally, as mentioned above, it is important to base your fertilizer application on your soil requirements. A general rule of thumb in the interior is to apply approximately 50 lbs N/acre on grass pastures.

FACTSHEET



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Also, try and fertilize when your crops have the best chance of receiving moisture. This is typically during the early spring.

Alternative Forages

You may also consider alternative forages:

- **Annual tame forages**- if your operation includes annual crops (oats, barley, fall rye), you may want to consider managing annual crops for forage production. This may include converting cultivated acres to temporary pasture during the summer and swath grazing of cereals during the winter.
- **Perennial tame forages** - species such as crested wheatgrass can also be valuable components of a drought management plan. Crested wheatgrass and others are drought tolerant and, depending upon moisture availability, can also exhibit regrowth in the fall. This allows you to graze these pastures in the spring and fall thus alleviating grazing pressure on less tolerant forages such as your native grasses. Other perennials including smooth or meadow bromegrass and alfalfa, due to their growth characteristics, also have the ability to provide forage during short dry periods.
- Other possibilities include irrigating (if possible) hay and silage acres to increase production, grazing crop stubble following harvesting, and using your livestock to harvest your crops especially light or poor hay and annual crops.

Irrigated Pastures

Water shortages for irrigation purposes are often associated with long periods of drought. When faced with a looming water shortage, irrigators may want to consider the following options:

- **Irrigation timing** -Well-timed irrigations will help you irrigate more acres without significantly lowering crop yields. To conserve water, avoid irrigating during the heat of the day and irrigate only when your forages need it. For example, in order to promote plant health and continued root growth during the growing season, alfalfa should be irrigated within 10 to 15 days following harvesting. Also, minimize early-season irrigations and late-season irrigations.
- **Forage selection** –If you live in an area where drought is common, select tame species that display some drought resistance. For example, due to its vast root system, alfalfa is one of the most drought-resistant forages available. When water is not available, it actually stops growing and goes dormant. This helps maintain its presence in the stand through long periods of drought. It is also important to note that all varieties are not created equal. Some including alfalfa, crested wheatgrass, orchardgrass, Russian wildrye, pubescent wheatgrass and smooth brome are more drought resistant than others.
- **Reduce expectations** -If you're forced to cut back on the amount you irrigate during the active growing season, concentrate water usage on your best-producing and newest hay fields. Also, lower your stocking rates or production expectations.

Other Tools

1. **Turn out**- If possible, delay turnout. If you graze your plants too early during a drought, you will stress them further and increase the amount of rest needed before they can replenish their energy reserves. If possible, turnout first onto tame pastures instead of native pastures. For example, since crested wheatgrass is very tolerant of drought and grazing, you can graze it earlier and longer than normal but resist the temptation to regraze it late summer or fall.

2. **Grazing systems** - In order to maintain healthy plant communities avoid or defer grazing pastures that were heavily grazed in the previous grazing season. Conversely, graze pastures that were rested, deferred or lightly to moderately grazed the previous season. Rotational grazing systems are more effective during drought than continuous grazing systems since periodic rests help plants maintain vigor. If you have a rotational grazing system, shorten your grazing periods by moving animals more frequently.
3. **Distribution tools** - When faced with drought you may also want to consider improving the distribution of your animals. This may enable you to take advantage of areas that normally receive little or no grazing pressure during average years. Various tools can be used including:
 - **Water** - consider trucking or developing new water sources.
 - **Salt, mineral and feed (protein blocks etc.)** - all of these may be used to attract livestock to underutilized areas and act as supplements to tame and native forages.
 - **Fencing** - temporary or permanent fencing can be a useful tool to increase utilization of unused forage resources.
 - **Herding** - although labour intensive, herding can also be very effective in improving pasture utilization.
4. **Maintain residual plant material** -It is extremely important to leave an adequate amount of stubble (residual plant material), after each harvest. Plants need this material to continue growing both above and below ground. If you remove too much of this material you will remove growing points, delay recovery and lower the competitive advantage of your preferred forages. A good rule of thumb is to maintain 10 to 15 cm of stubble after every harvest and at the end of the growing season. This stubble assists the plants in surviving the droughty conditions by encouraging root growth and maintaining their competitive advantage while assisting in the capturing the winter snow, all of which will hopefully give your pasture a head start next year. Stubble also eventually turns into litter which in turn increases the moisture retention of your pasture.
5. **Rest** - Do not return to a pasture until plant appear vigorous and growth has resumed. Don't overgraze your pastures with the expectation that the drought will end next year. Drought cycles often persist for several years. Overgrazing often results in the loss of important forage species, increased bare ground, and corresponding weed invasions.
6. **Use everything** - Use all sources of forage including rest, reserve or buffer pastures and fields. Always assume that a drought will continue. If possible, delay grazing native grasslands as long as possible, preferably after the grasses have set seed and entered dormancy. Graze forests during the growing season. Keep livestock on irrigated and subirrigated sites longer and use tame pastures more heavily than native ones.

