

Drought Decision Support Tool for Ranchers

By Grace Woodmansee, Livestock and Natural Resources Advisor – Siskiyou County
and Dan Macon, Livestock and Natural Resources Advisor – Placer-Nevada-Sutter-Yuba

Introduction

There's no "right way" to plan for an unpredictable natural disaster like drought. The goal of the drought decision support tool is to provide a starting point that fits your needs: use it as a worksheet for yourself, as a way to start conversations with your family and management team, or to think about a few questions you may not have considered in the past.

Purpose of plan: Creating a drought management plan with both proactive/reactive strategies does three key things: 1) sets deadlines—or "critical dates"—for making important decisions; 2) helps prioritize objective (rather than emotional) decision-making during a time when many difficult decisions must be made; and 3) pairs proactive and reactive strategies to help you avoid sunk costs¹. Just as your budget is a tool for personal finance, your drought plan is a tool for your ranches' business strategy.

Flexibility:

Drought management strategies provide FLEXIBILITY in two primary ways:

- 1) flexibility in forage demand (the numbers and class of grazing livestock), and;
- 2) flexibility in supply (the ability to conserve or supplement forage supply).

For example: demand flexibility might include adding stockers in a good forage year or selling older cows during a drought. Supply flexibility might include stockpiling forage during good years/seasons to save it for dry years/seasons.

What data are you already collecting?

- Production records (i.e., details of key events)
- Production calendar (i.e., timing of key events)
- Precipitation data/outlook
- Forage calendar

¹ Sunk costs can occur when you've invested in a specific proactive tool (like conserving forage for pregnant females) but decide to implement a reactive tool (like culling pregnant cows) that does not realize the benefit of this investment.

Do you already have a written drought plan? Yes No

Does anyone else need to be involved in establishing this plan? Or given a copy?

What outcome would make this plan a success?

What proactive practices are you currently using?

- | | |
|-------------------------------------------------------|--------------------------------------------------------|
| <input type="checkbox"/> Incorporate feeders/stockers | <input type="checkbox"/> ID animals that could be sold |
| <input type="checkbox"/> Multispecies grazing | <input type="checkbox"/> Forage insurance |
| <input type="checkbox"/> Stockpile forage | <input type="checkbox"/> Incorporate pasture rest |
| <input type="checkbox"/> Conservative stocking | |

Other:

What drought impacts are you most concerned about?

- | | |
|-------------------------------------------------------------------|----------------------------------------------------------------------------|
| <input type="checkbox"/> Reduced forage production | <input type="checkbox"/> Reduction in irrigation water (ground or surface) |
| <input type="checkbox"/> Reduced stock water availability/quality | <input type="checkbox"/> Reduction in reproductive rates |
| <input type="checkbox"/> Increase in losses from poisonous plants | <input type="checkbox"/> Decrease in weaning weights |
| <input type="checkbox"/> Increase in invasive weeds | <input type="checkbox"/> Increased herd health problems |
| <input type="checkbox"/> Increase in wildfire severity | <input type="checkbox"/> Increased expenses |
| <input type="checkbox"/> Tree and/or brush mortality | <input type="checkbox"/> Reduced revenues |

Other drought impacts of concern:

Have your current proactive practices helped mitigate your most concerning drought impacts? Yes No NA

Planning Calendar

Writing out a forage/production calendar in advance creates opportunities to develop, evaluate and adjust your drought management plan, which is key for making difficult decisions in a timely manner. We also know that *reduced forage availability* and *increased expenses* are the two biggest drought impacts- planning for forage availability helps address both by identifying what portions of calendar will be short on feed in advance, so that management practices with least undesired consequences can be adopted.

Operation Name: _____

Current Date: _____

12-month Projections

Month	# of Head	Livestock Class	Stage of Production	Forage Source	Forage Projection*	Land Type / Ownership**	Limiting Factor(s)	Potential Action: will forage be short this month?	Economic Considerations (see spreadsheets)
			<ul style="list-style-type: none"> • Maintenance • Gestation • Lactation • Growth 	<ul style="list-style-type: none"> • Perennial range • Irrigated pasture • Mtn meadow • Other: 	<ul style="list-style-type: none"> • Adequate / inadequate • Percent of "normal" forage 	<ul style="list-style-type: none"> • Public or private? • Owned or leased? 	<ul style="list-style-type: none"> • Forage quantity • Forage Quality • Stock water 	<ul style="list-style-type: none"> • Yes/Now • Potential options? Consider economics → 	What impact will this decision have on revenue and expenses? Other sources of funding (savings, FSA payments, loan, etc.)
1	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____
2	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____
3	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____	_____ _____ _____ _____

Drought Planning Tool for Ranchers

Month	# of Head	Livestock Class	Stage of Production	Forage Source	Forage Projection*	Land Type / Ownership**	Limiting Factor(s)	Potential Action: will forage be short this month?	Economic Considerations (see spreadsheets)
			<ul style="list-style-type: none"> • Maintenance • Gestation • Lactation • Growth 	<ul style="list-style-type: none"> • Perennial range • Irrigated pasture • Mtn meadow • Other: 	<ul style="list-style-type: none"> • Adequate / inadequate • Percent of "normal" forage 	<ul style="list-style-type: none"> • Public or private? • Owned or leased? 	<ul style="list-style-type: none"> • Forage quantity • Forage Quality • Stock water 	<ul style="list-style-type: none"> • Yes/Now • Potential options? Consider economics → 	What impact will this decision have on revenue and expenses? Other sources of funding (savings, FSA payments, loan, etc.)
4	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
5	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
6	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
7	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
8	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					

Drought Planning Tool for Ranchers

Month	# of Head	Livestock Class	Stage of Production <ul style="list-style-type: none"> • Maintenance • Gestation • Lactation • Growth 	Forage Source Annual range <ul style="list-style-type: none"> • Perennial range • Irrigated pasture • Mtn meadow • Other: 	Forage Projection* <ul style="list-style-type: none"> • Adequate / inadequate • Percent of "normal" forage 	Land Type / Ownership** <ul style="list-style-type: none"> • Public or private? • Owned or leased? 	Limiting Factor(s) <ul style="list-style-type: none"> • Forage quantity • Forage Quality • Stock water 	Potential Action: will forage be short this month? <ul style="list-style-type: none"> • Yes/Now • Potential options? Consider economics → 	Economic Considerations (see spreadsheets) What impact will this decision have on revenue and expenses? Other sources of funding (savings, FSA payments, loan, etc.)
9	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
10	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
11	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
12	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					
	_____	_____	_____	_____					

* Other considerations for Forage Source:

- Do you currently produce hay? Can you keep more of what you produce?
- What does it cost for you to put up your own hay? Can you buy hay cheaper?
- If irrigation water is limited, are you better off cutting hay or grazing pasture?

** Other considerations for Land Type/Ownership:

- Will you be able to turn out on your public lands grazing allotment, or will your grazing season be shortened?

- Can you take non-use for resource protection?
- What is the likelihood of having to gather/ship early?
- If forage amount and/or quality is limited, is it worth the cost to ship? Will it pay to haul water if stock water is your limiting factor?

Avoiding sunk costs: pairing proactive and reactive strategies

Supply flex ←————→ Demand flex

Proactive strategies:						
Stockpile forage at end of growing season	Conservative stocking rate	Incorporate pasture rest into grazing system	Forage insurance (both)	Incorporate feeders or stockers	Identify animals that could be sold	Multi-species grazing
Reactive Strategies to Consider:						
<input type="checkbox"/> Provide supplemental protein <input type="checkbox"/> Haul stock water <input type="checkbox"/> Keep more hay grown on ranch (or graze hay fields)	<input type="checkbox"/> Provide supplemental feed <input type="checkbox"/> Haul stock water <input type="checkbox"/> Cull females <input type="checkbox"/> Rent additional pasture	<input type="checkbox"/> Provide supplemental feed <input type="checkbox"/> Haul stock water <input type="checkbox"/> Cull females	<input type="checkbox"/> Provide supplemental feed <input type="checkbox"/> Provide full feed (i.e., feed only hay) <input type="checkbox"/> Haul stock water	<input type="checkbox"/> Sell feeders or stockers	<input type="checkbox"/> Develop priority list of animals to be sold <input type="checkbox"/> Wean early	<input type="checkbox"/> Cull females of species least suited to forage resources

Other supply flex options: change irrigation practices to produce more forage.

Other demand flex options: place in feedlot

Based on the above forage projections, what are your preferred strategies?

Economic Analysis: *Use the spreadsheets provided to complete an economic analysis of your preferred strategies for your operation*

What will your preferred strategies cost (increased expenses or decreased revenues)?

What will your preferred strategies save (decreased expenses or increased revenues)?

Based on this analysis, what are the most economically beneficial strategies for your operation?

What are your critical dates for implementing your selected strategy(ies)?

When will you reevaluate this plan? _____

Drought recovery and reflection:

What is your drought recovery plan?

- Rebuild operation (the same as it was before drought)
- Modify operation structure
- Retire and/or end career in ranching
- Help transition someone else into ownership of ranch
- Other: _____

Have the proactive practices you implemented helped mitigate your most concerning drought impacts? Yes No
