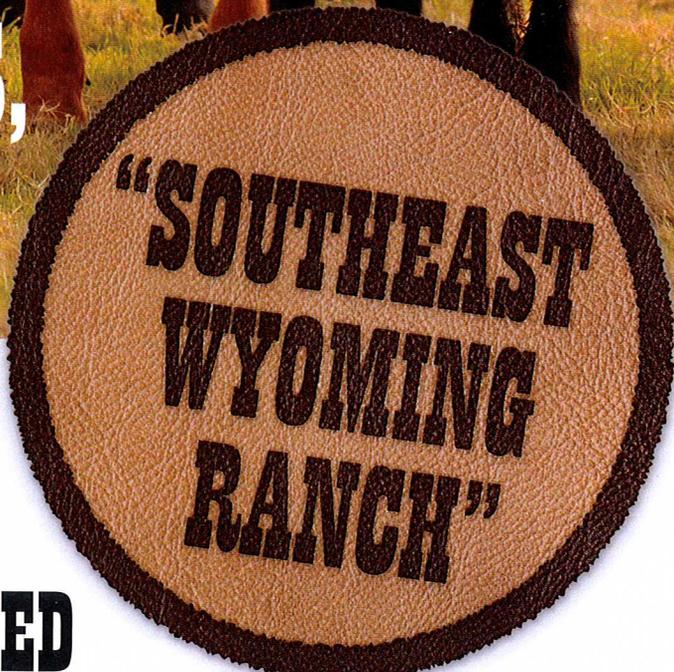




**WE CORRALLED
OUR COMPUTERS,
BRANDED THEM**



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**&
WEANED**

SOME SURPRISING RESULTS

Retaining calves as separate stocker enterprises can improve profits 23 percent over long haul

Mother Nature's Precipitation Department seems more closed than open in Wyoming over the years.

A line showing the state's annual precipitation over the years displays the peaks and valleys of an erratic EKG. Overlay that onto a chart of the up-and-down cattle market prices and they merge to paint a picture worthy of kindergartners drawing outside the lines.

Simple enterprise budgets (listing all estimated income and expenses of a business to estimate profits) can't accurately present the losses in profitability, so we created a model southeastern Wyoming ranch to examine how profits are affected over time as herd numbers fluctuate with prices and variable precipitation influences annual forage productivity.

We drew from long-term research at the USDA Agricultural Research Service High Plains Grasslands Research Station near Cheyenne. The information yielded data on forage and livestock production in response to growing season weather conditions.

Economic Returns and Precipitation Patterns

We estimated economic returns given historical precipitation patterns across a suite of price cycles over a

number of 35-year periods. That research indicates April–June precipitation is a good predictor of forage production and livestock performance.

Our representative ranch has a land base for southeastern Wyoming given acreage estimates collected from USDA surveys. The ranch has 1,385 privately owned acres, with access to just over 300 Animal Unit Months (AUMs) on public land. An AUM is how much forage a 1,000-pound cow with calf would eat in one month – about 26 pounds of forage per day.

We compared outcomes from historical precipitation data to a scenario where growing season precipitation was average in all years. This shows how growing season precipitation variability affects ranch profits.

Our model results reveal profitability is overestimated by 81 percent over a 35-year horizon if a ranch planned for average weather every year instead of the actual fluctuations.

Why did this happen? Destocking during dry years (especially when prices are unfavorable), coupled with

the production lag associated with rebuilding through retention, reduces profitability.

Adding a Stocker Enterprise

Dry years hurt profitably by liquidating breeding stock (or purchasing additional feed), and the ranch can lose sales in subsequent years while herd numbers are rebuilt. Ranches also can lose out in wet years due to the inability to rapidly increase stocking to take advantage of additional grass. Quickly adjusting cow numbers is unfeasible when additional forage is available if keeping heifers to retain herd genetics.

However, profitability can be increased if steer calves are retained as a separate stocker enterprise (to provide flexibility in the operation). Buying and adding calves when there is extra forage available can improve long-term profitability by over 23 percent.

Not every year is profitable, regardless of strategy. Even in the absence of droughts, cattle price cycles caused roughly 8 percent of years to be unprofitable. This number nearly doubles when including growing season weather effects on herd dynamics (Table 1).

Our results become more impressive in the face of more extreme weather. For example, what happens to ranch profitability if growing season precipitation amounts over the 35-year

Table 1. Probability of Annual Returns Less than \$0

Static Weather Cow/Calf	Historical Weather Cow/Calf	Historical Weather Cow/Calf/Yearling
8.8%	15.7%	13.7%



horizon remain the same, but the variability is increased by 25 percent? Cow/calf operations could expect profits to drop by an additional 20 percent with increased growing season precipitation variability. However, ranches that add a stocker operation would increase long-term profitability under increased weather variability by 35 percent compared to cow/calf only operations.

Being better able to match forage availability with forage demand is the biggest reason for the increased profits from adding yearlings to a cow-calf operation.

For example, optimal cowherd numbers decrease by 50 percent when actual growing season precipitation is used in the model over the 35 years compared to the scenario using average precipitation across all years. This decrease in optimal cow numbers for our ranch is because replacement only occurs from within the herd, and cow numbers rarely have time to fully recover post-drought before liquidation begins again in response to the next drought/extended dry period.

Stocker Strategy

Using stockers as a flex strategy allows a more timely response to effectively match forage demand with forage availability. Adding a stocker enterprise to the cow-calf operation will result in a smaller herd of cows compared to the average cow-calf

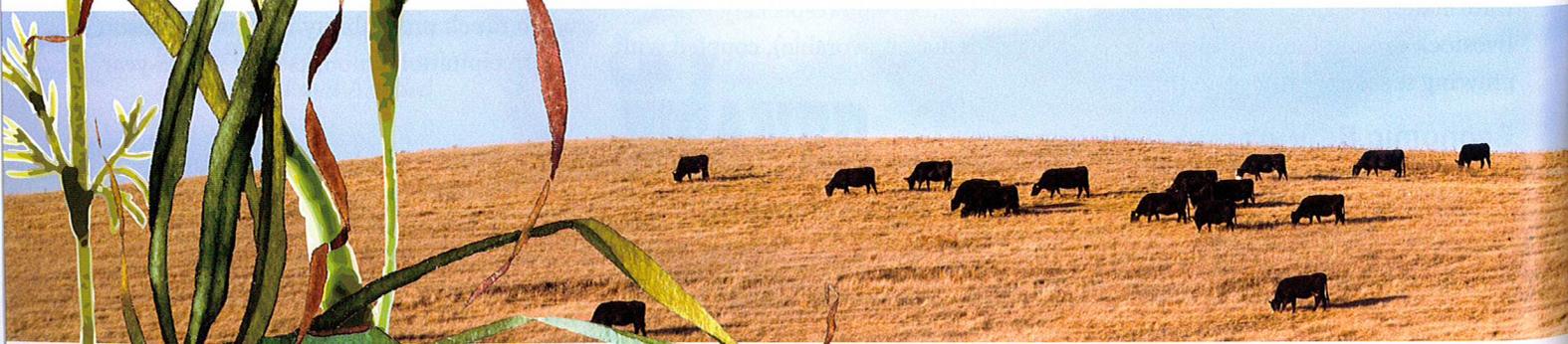
operation, but this cowherd is more stable over time, lessening impacts of liquidating herd genetics. Total animal units supported by the ranch actually increases by 23 percent on average.

Adding stockers allows the ranch to better match forage demand to

WHAT WE FOUND

Understanding the variable nature of cattle prices and forage production is important to making better long-term planning decisions. One way to reduce risk and increase long-term profitability is to diversify the cow-calf ranch enterprise by retaining steer calves.

Our results suggest adding yearlings to an operation can allow a ranch to better adapt to Mother Nature's variability and the related changes in forage supplies. This strategy can help stabilize cow numbers across years, enhancing long-term sustainability of the herd genetics.



availability. This translates into opportunities to utilize “extra” forage in good years while minimizing overuse in bad years. The second benefit is the ranch has a more stable number of cows. This benefits ranchers by not having to liquidate valuable herd genetics in drought years.

Of course, a stocker strategy does not always perform better than simply having a cow-calf operation. There will be some years a ranch with a stocker strategy is not as profitable as a ranch that solely sells calves. However, the ranch that does have stockers will be in a better profit position most years.

Understanding that some ranches may have increased costs associated with adding a stocker strategy is important. For example, additional labor (checking, herd health) and infrastructure (equipment, corrals/fencing) costs may be incurred with yearlings; however, the increase in returns over time should more than cover these costs.

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WESTERN PROFIT PUNCH

Our research modeled a representative ranch in southeast Wyoming. Results are even more impressive when looking at a representative ranch in western Wyoming. For a ranch over 1,000 acres, and with over 4,000 AUMs of leases, adding a stocker operation from retained steers increased the long-term profitability of the ranch by 50 percent. Western ranches tend to have more animals with more public land available for summer forage. Many animals can be carried in the good moisture summers with adequate forage, and

numbers can be adjusted to better adapt to forage supplies without the lag time of rebuilding herd numbers.

