

19. SOME RANCH ECONOMICS

NOTE: Here are some more agricultural details per readers' requests.

I think of a ranch as an artificial ecosystem managed by humans. The ranch next door may function as a very different 'ecosystem' for any number of reasons.

What determines the character of these systems are the amounts and types of resources that the ranch controls, when the resources are available and the decisions concerning their use made by the rancher¹.

The principal resource on most ranches is grass. Its availability tends to be seasonal. In some cases, the rancher has an option of how to harvest – with cattle or machinery.

Storing excess forage in the form of hay is a common way of dealing with seasonality. However, mechanical harvesting of grass (or alfalfa) for hay is expensive and can only be justified where a dense stand of grass can be grown. In Livermore, this almost always requires irrigation.

On the other hand, cattle can be thought of as intelligent, low-cost, self-propelled harvesting machines.

Grass is high in cellulose and low in nutrients. As a practical matter, it is not digestible by humans. Ruminants (cattle, goats, sheep, buffalo, deer, etc.) are animals that can break down grass into high quality nutrients utilizing a four-part stomach system aided by microbial fermentation.

Grass is so low in nutrition that cows have to spend most of their time eating. In most ranching country, there isn't a lot of grass. For instance, in the Livermore area the amount of grassland required to support one cow and her calf for a year varies from 30 to 50 acres, and in the mountains, it can be over 100 acres.

The economics of a cow/calf ranch operation are driven primarily by three numbers:

1. The percentage of the ranch's cows that have a calf every year. After calving, a cow needs to become pregnant in time to have a calf at the same time the next year. Since the gestation period is

nine months, this gives her three months to recover from calving while nursing her new calf and become pregnant again. The nutritional requirements of a cow peak during the first four months after calving due to lactation, with a smaller peak during the last trimester of her pregnancy, so the ranch's available grass and other feed resources have to be synchronized with the cow herd's nutritional needs.

2. The percentage of calves born on the ranch that survive to be weaned (at about six months of age). Factors that affect this include mortality at birth, calf hood diseases, predation (rare), rustling (rare) and injury. All of these factors are mitigated by careful management which requires people (always a scarce ranch resource).
3. The weaning weight of the calves. This is determined by a combination of genetics and nutrition. For most ranches the preponderance of meaningful genetic selection is on the male side, either through the choice of bulls or semen if artificial insemination (AI)² is an option.

Every decision on a ranch needs to be weighed by the estimated impact on these three numbers.

From the beginning, our operation was blessed with an excess of winter feed. We could have sold hay, but we chose to use it to provide the extra nutrition needed to calve earlier, which in turn presented the option to use artificial insemination.

Since most of our cows were moved to the National Forest in mid-June, I thought it was a reasonable objective to try to get the breeding season over with beforehand so we wouldn't have to deal with bulls in the mountains.

Successful AI thirty-five years ago required at least twice a day monitoring of the cow herd to determine which cows were in heat (estrus).³ A cow showing signs of heat in the morning would be brought in to be bred in the evening. Cows showing heat in the evening would be bred the next morning.⁴

All of this was most easily done if the cows and their calves could be held and fed in corrals for at least one heat cycle (21 days).

Toward this end, we decided to put some real effort into repairing and expanding our corrals, first at Rabbit Creek, then our home place, which we called Stonewall Creek (and later at the Ferree Place and the other ranches, but that's getting ahead of the story).

¹ Since our ranch was a commercial cow/calf operation, I'll limit my illustrations to cows, but the same principles would apply to sheep, goats and buffalo.

² More about AI later.

³ Accurate visible indication of estrus is a trait nearly unique to cattle. Not only can you tell by her behavior when a cow or heifer is in heat, but you can often detect the signs of impending heat a day or two in advance. For millennia, this has provided an important tool for cattle owners to manage breeding. George Seidel has told me that it probably explains why cattle became the go-to beasts of burden – a poor farmer could own a cow (for draft or milk) without having to own a bull. When the time came, the cow could be taken to a bull owned by someone else.

⁴ Thanks to George Seidel for providing editorial input for this chapter. In addition to several edits he suggested, George pointed out a big change in AI procedure since my day. Now, ovulation time in a herd of cows can be synchronized by use of hormones, so there is little or no heat detection. (More about George later.)



'Preg' Checking at Meadow Creek 1981