

Ranch to Fork

The Connection of California's Rangelands to Beef is Not Direct But Should be Valued

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Beef cattle are raised in every county in California, except San Francisco. Livestock, mostly beef cattle graze about 40% of state. Arguably beef production has an extensive footprint on the landscape and ranchers steward much of the state's natural lands. Yet despite the extensive footprint and large number of cattle (5.1 million head of beef and dairy cattle in 2017), few consumers could say that they have purchased beef that was locally raised or even raised in California. Why?

In short, very few cattle are direct marketed from California ranches, and many cattle leave California to be finished and processed in other states. The final product may return to be sold and consumed in California, but it also increasingly contributes to a globally integrated beef production system. To understand how California's ranchers and grazing lands are connected to the production of beef, I studied cattle movements recorded by the state brand inspectors, collected data from feeder cattle sales, and surveyed and interviewed bay area ranchers. I also considered the opportunities for a new technology, blockchain to support the marketing of "California beef" without changing the current production system, which includes cow-calf, stocker and feed lot operations, and dairies.

The following factors explain a lot of the connection of California's rangelands to beef production. **1)** Ranchers "fit" cattle to forage resources. **2)** Direct marketing is very limited. **3)** Many producers (most small and mid-size producers) rely on auction yards to market their cattle. **4)** Large numbers of calves and yearlings leave California's rangelands for finishing and processing, and **5)** While ranchers get paid for the cattle they sell, ranching requires management of natural resources, e.g. grass, wildlife, water.

California ranchers move cattle, including selling calves and yearlings from rangelands, to "fit" their forage resources. Forage on most of California's grazing land is natural growing plants, which are harvested by livestock with little to no agronomic inputs. The "fit" to the resource is demonstrated by the substantial seasonal movement of cattle off California's grazing lands (Fig. 1). Over ½ million head of beef calves and yearlings or about 47% of beef calves and yearlings, that moved off California's grazing lands in 2017, were moved in late spring to summer (May -July). A smaller flush of movement occurred in the fall, October through November, when 16% or nearly 200,000 head (2017) of beef calves were moved from grazing lands (irrigated pastures and summer rangelands). This seasonal movement is in sharp contrast to the 1.2 million head of dairy calves, which are also moved through production systems to contribute to beef production, but with little indication of any cyclical or seasonal pattern (Fig. 1).

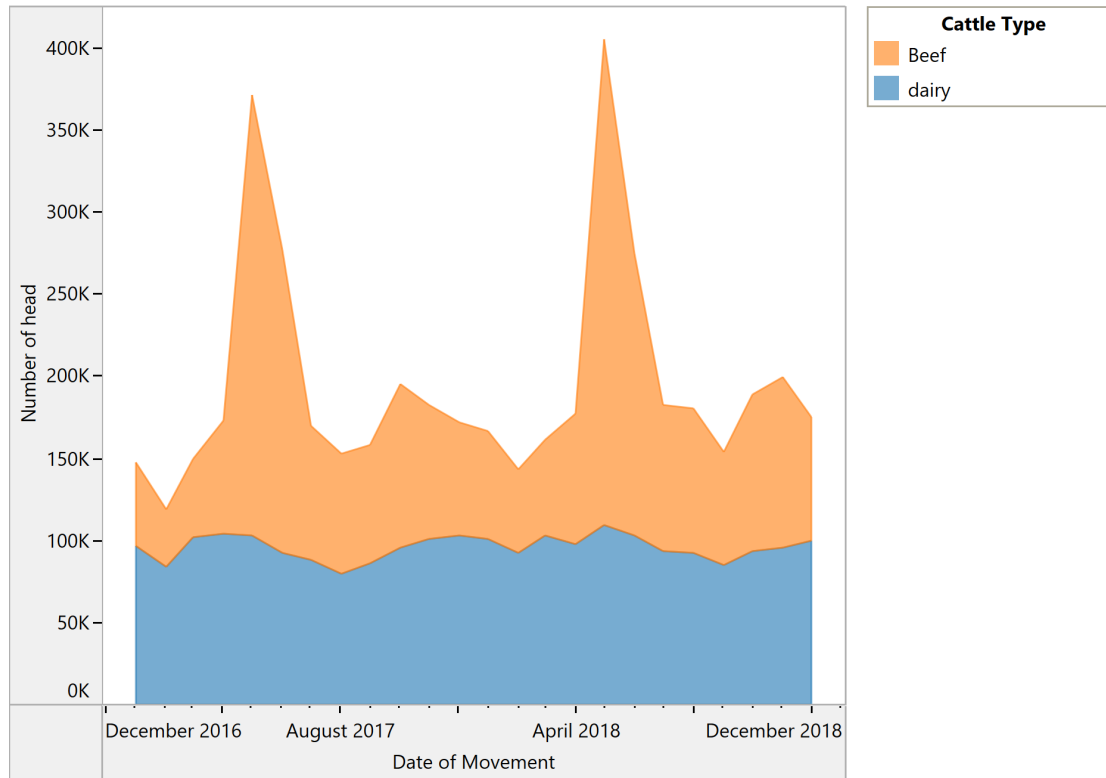


Fig. 1. Calves and yearlings (number of head) moving from California grazing lands (beef) and dairies or feed yards (dairy) from January 2017 to December 2018.

"This is the typical time of year to sell fall born calves. You could keep them longer when feed is abundant, but calves do not grow well."

In terms of forage quantity, ranchers noted the importance of leaving feed.

"We pull the calves and move the cows, so there is feed to come back to."

When asked how selling at this time impacted conservation objectives, most ranchers spoke about conservation in terms of a desire to prevent overgrazing. Ranchers also acknowledged how their grazing management, including livestock sales, worked to support specific conservation interests.

"I have no conservations restrictions, but I keep it the best I can. According to the [Natural Resources Conservation Service] NRCS biologist, it remains a good habitat for red-legged frog, California tiger salamander, and San Joaquin kit fox. I sold later than usual because I had excess feed, but there was no impact. I don't like to graze to the ground."

Ranchers also described how moving cattle, including timing of sales, reduced fire risk, and protected soils.

"It was good to keep calves a little longer. I graze, so it does not burn. I graze closer [to the ground] next to property boundaries since my neighbors don't graze and have grass six-feet tall. I keep cows and calves out of the hills during the rainy season to avoid erosion. After the rainy season, I jump [the cow and calves are moved] back and forth between hill and flats."

Very few beef cattle are direct marketed by California producers. According to brand inspection records, a small portion of the state's beef producers are "Ranch-to-fork" operations. In fact, only **24,000 head or about 1.5% cattle are direct marketed (2017, Fig. 2)**. Other studies have found processing and distribution, along with accessing enough quality forage are all recognized as significant challenges to direct marketing beef.

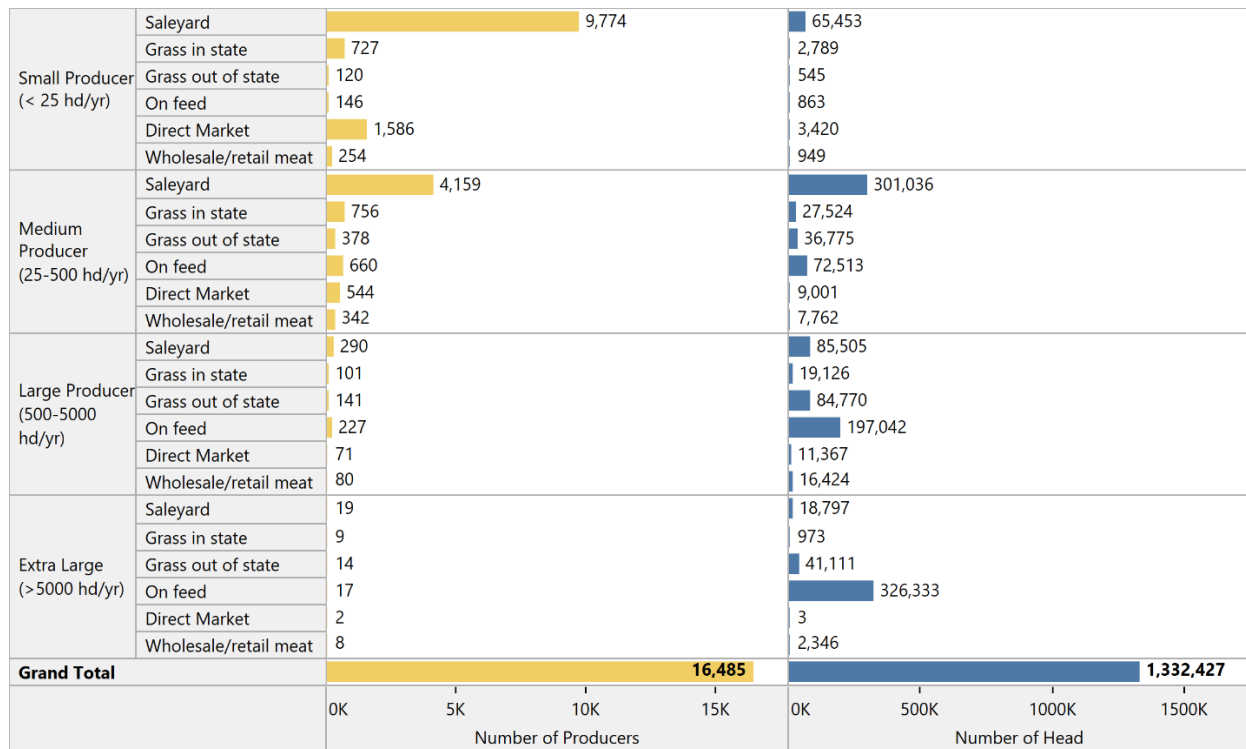
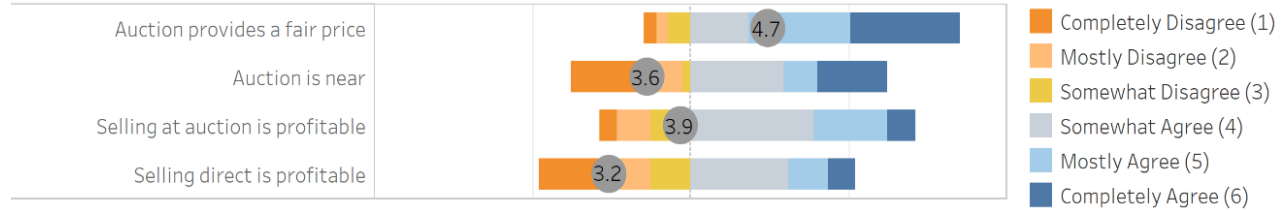


Fig. 2: Movements of all beef cattle in California, number of producers and number of head, by producer size (2017). Note: number of producers is only unique number per movement type. They may be counted multiple times with production size class if they use different movement types.

For all but the largest producers, auction yards are critical; they provide for the movement of cattle off grazing lands and into the next phase of production. Auction yards not only sort, market and support pricing of cattle, but also provide flexibility in marketing cattle of different types, different times of year and provide value for ranchers managing changing forage conditions, e.g., from fire or drought. Small and medium-sized producers (< 500 head) market nearly 70% of their cattle through an auction yard (366,000 head in 2017). While auction yard may not be nearby for some ranchers, there was broad agreement among bay area ranchers that the auctions provided a fair price for their cattle (Fig. 3).

Why do you sell your cattle at auction or market direct?



Most beef cattle leave California's grazing land for finishing. Whether through retained ownership or sale, most beef cattle leaving California's grazing lands move into more intensive production systems, where there are feed resources to further grow or finish. In 2017 as many as 50% (420,000) of calves and yearlings on grazing land left the state for feedlots or grass out-of-state.

Culled beef cows and bulls are the exception, with most moving directly from grazing land to a meat processing facility. Culled cows are the largest class of beef cattle going directly from California grazing lands to processing. In 2017, nearly 17% of the beef cow herd or 109,000 cows was replaced with most of these cows going directly to slaughter. The dairy industry in California with a much higher replacement rate (40%) contributed 7 times as many cull cows to beef production (2017).

California ranchers are not just connected to food production but also conservation. A common theme among California ranchers is a commitment to good grazing management regardless of land ownership or conservation requirements. This view was clearly articulated during ranchers surveys:

"I have no directive for conservation, but as all cattlemen, I convert grass to beef, so we need to manage grass...I manage it, all the same, to keep grass."

"I graze all lands similarly. If you take care of the land, it takes care of you."

Keeping ranchers viable is increasingly recognized as a benefit to the conservation of California's natural landscapes. Many of the high ecosystem services values provided by rangelands are lost if these lands are converted to more intensive uses. From 1984 to 2008, over nearly ½ million acres of California's rangeland was converted to more intensive agriculture or housing (Cameron et al. 2014). There is growing interest in valuing ecosystem services provided by rangelands and incentivizing or paying ranchers to provide them. Ranchers surveyed in the San Francisco Bay area overwhelmingly agreed that they grazed for resource management reasons like reducing fire fuels, controlling weeds or improving wildlife habitat, but many disagreed with graze because it is profitable and nearly all disagreed with the statement that they "get paid to graze." (Fig. 4)

Why do you graze?

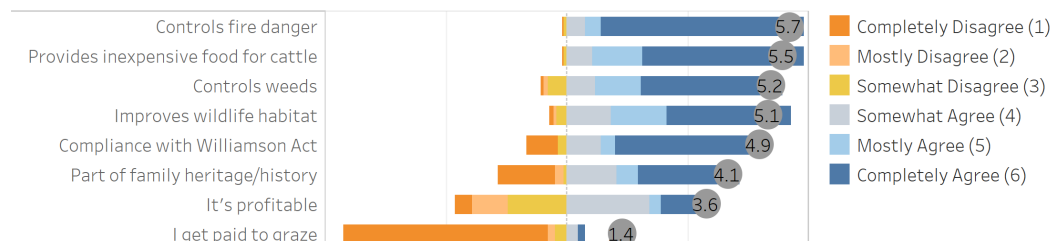


Fig. 4 Bay Area ranchers' survey responses to statements about why they graze. Number in circle represents average score from 110 responses.

Certainly, there are straight economic considerations that influence when ranchers' decisions move (or sell) cattle off of California grazing lands or to invest time and resources to develop ranch-to-fork enterprise. However, in the rancher interviews, even economic reasons for selling like changing market conditions or the need for cash were typically explained within the context of resource management.

"The market was going south. I could save a little feed by selling now."

"I was watching the market and needed cash. I only marketed the heavy end because I have grass [irrigated pasture] for the lighter cattle to go on."

"I had feed and prices were low, but I needed cash to pay bills."

The decision to sell cattle driven by seasonal changes in forage quality and quantity and a commitment to resource protection should not, however, undermine the fact that selling livestock is essential to the economic sustainability of ranching. One of the auctioneers at the beginning of each of his feeder sale reassured the ranchers present that the sale yard understood this:

"I know this is your paycheck for the year, and we take it very seriously."

The Future

The beef production system continues to evolve. We have seen growing consumer interest in grass-fed beef, and COVID- related plant closures spurred new ranch-to-fork operations, and more. Where can we go from here? Are there options for ranchers to capture more from the marketplace? As it stands now, beef that originates from extensive rangelands is generally not differentiated from dairy beef, for example. Other than physical information that can be visually assessed or measured, such as weight, hide, sex, frame size, and hot-iron brand if available (ranch origin), information including vaccine records, care practices, feed sources is not transferred through the production systems unless the cattle are associated with a specific value-added program. Current value-added programs for meat products like natural, organic or grass-fed are limited in the attributes of beef and its production that they account for and promote. So what is next...

There are new disruptive technologies that decentralize information and control, like blockchain, which may help ranchers distinguish their product and meet consumer interests, and it appears that at least some consumers are willing to pay.