RANGE

Exchanging Steers for Cow-Calf Pairs no. 6.102

by L.R. Rittenhouse [1]

Quick Facts...

Steers can be exchanged for cow-calf pairs on a weight-to-weight basis.

Similar ratios are not valid to exchange one kind of animal for another kind (sheep for cattle or vice-versa).

Exchange ratios assume that current stocking rates are proper.

Some ranchers may consider replacing a cow-calf enterprise with a yearling-steer enterprise. Advantages of a yearling enterprise include eliminating the need to maintain the cow all winter, lower labor inputs, and a shorter period for carrying production loans. A cow-calf-yearling operation increases the economic flexibility of a ranch by providing for the purchase or retention of yearling cattle during favorable years and liquidation during less favorable years.

Exchange Ratios

To convert a cow-calf operation to a yearling operation, choose a substitution or exchange ratio to allow for proper range use by the new class of livestock. There are subtle differences in behavior between yearling steers and cow-calf pairs in dietary selection, grazing patterns and forage consumption. The influence of these differences on exchange decisions are small, except in extreme cases.

Steers eat plants similar to those eaten by cows and calves, so it is feasible to exchange steers for a cow-calf operation. It is not possible to use a simple exchange ratio to exchange one kind of animal for another, for example, cattle for sheep. A vegetation type may be more suitable for one kind of animal than the other.

The proper substitution ratio of steers for cow-calf pairs on shortgrass steppe was verified at the Southeast Colorado Research Center. Forage consumption by the two classes of cattle under field conditions on shortgrass and seeded (sideoats grama) rangeland was evaluated during the grazing season, about June 1 to October 15. The ratio is applicable to most types of cattle but should be used with caution if animals of extreme biological types are exchanged.

A weight-to-weight substitution ratio is applicable on shortgrass range. Weight of steers per area can be substituted for a similar weight of cow-calf pairs during a growing season. The potential range of error in using the weight-to-weight exchange is about 3 percent. Many interacting factors could affect the value of this ratio, including animal type, weight, production, pasture size and environment.

Example

Consider the example of a 300-cow unit that is to be converted to a yearling operation. The actual number of yearlings that can be run depends on the amount of hay vs. winter grazing by the cow herd. Let's consider only the pasture used during the growing season as shown in Table 1. Based on these weights, 621 steers can be stocked where there were 300 cow-calf pairs.

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Table 2 can be used as a quick conversion for weights to the nearest 100 pounds. For example, if the average weight of the cow and calf is 1,300 pounds and the average weight of steers is 600 pounds, 2.2 steers can be exchanged for each cow and calf pair.

Pasture used by the cow herd for winter grazing also can be converted to yearling use in the same manner. It may be a problem to estimate the number of cow/calf days of grazing available if that pasture is grazed during the growing season. One solution is to compare the stocking rate on areas of the ranch similar to the winter pastures and adjust animal numbers for differences in forage production.

Any exchange-ratio estimate is a guess. What counts is how animals perform in relation to what is expected. Exchange ratios assume that current stocking rates are proper. Exchange ratios say nothing about the number of cow-calf pairs vs. steers to maximize net return. Different variable costs and selling prices are associated with different enterprises. Therefore, stocking rates that maximize profits will probably be different for the two enterprises.

Table 1: A sample calculation.

Average cow weight	1,150
Calf weight off pasture	450
Average calf weight	300[1]
Average weight cow-calf	1,450
Projected yearling weight on pasture	550
Projected yearling weight off pasture	850
Projected average yearling weight	700[2]

300 cows-calves x (1,450) pounds	= 435,000 pounds
435,000 pounds/700 pounds per steer	= 621 steers

[1]Assumes calf weighs 150 pounds when it goes on pasture; therefore, average weight is (150 + 450)/2 = 300
[2](550 x 850)/2 = 700

Table 2: Number of steers that can replace cow-calf pairs.

Average weight of cow and calf for season, pounds	Average weight of steer for season, pounds			
	500	600	700	800
1,000	2.0	1.7	1.4	1.2
1,100	2.2	1.8	1.6	1.4
1,200	2.4	2.0	1.7	1.5
1,300	2.6	2.2	1.8	1.6
1,400	2.8	2.3	2.0	1.8
1,500	3.0	2.5	2.1	1.9
1,600	3.2	2.7	2.3	2.0

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