

**Cow Herd Inventory and Hay Supply Decision Aide  
Example**

Joe Rancher is trying to determine how many cows he might need to sell based on his current hay supply which is not sufficient to carry the entire herd through winter. As he sells cows, he will generate revenue that could be used to purchase hay or byproduct feeds to substitute in place of hay, so he does not have to sell to the extent that his current hay supply will be sufficient to carry the remaining inventory.

The Cow Herd Inventory and Hay Supply Decision Aide can help demonstrate the balance between hay needs relative to herd hay consumption and waste.

To begin, clear the entire spreadsheet by clearing all the cells with blue content (everything outside of the BALANCE SUMMARY). By Default, any cells that cannot be changed should be locked.

Start with an inventory of **36 mature cows** (B3) and weighing **1150 lbs** (B4).

Enter the beginning and end of the hay feeding period (B9 & B10) as **11/15/11** to **4/1/12**.

Enter the expected hay consumption (2% BW for gestation, 2.5% BW for lactation or 2.3% multiple stages of production) in **cell B13 – use 2.3%** for the example.

Enter the expected hay waste (10% ring feeder, 24% unrolling, 35% unprotected) in **cell B14 – use 10%** for the example.

In the example, no supplement is fed, so enter 0 in cell B16.

The amount of hay on the farm is **160 (B20)**, 4x5 bales weighing **750 lbs (B21)**.

Based on these inputs, review the BALANCE SUMMARY

1. Hay supply is expected to last **101 days**.
2. Hay supply is expected to be short **37 days**.
3. The expected number of cows that would need to be marketed to cover the shortfall of hay so that the current hay inventory is sufficient for the herd is **10 cows**.

Note 1: to make sure the scenario of hay requirements to bale inventory accurately reflects the real scenario, use the number of bales fed in a typical year in cell B20, then change the expected intake or feeding waste numbers so that the hay shortfall equals 0 days. Once the typical hay consumption is corrected, return to cell B20 and enter the actual hay inventory that reflects the hay shortage.

Note 2: If a hay waste scenario is high such as with unprotected hay, demonstrate the impact of reducing hay waste by using ring feeders to help stretch the current hay inventory.

To continue with the example, enter the expected **Gross Margin (I4)** for the initial mature cow inventory. Gross Margin is the amount of income remaining after paying for specified costs such as feed, fertilizer, vet medicine, etc. For more detail read the University of Arkansas, Cooperative Extension Service publication (MP 413) *Cow-calf Enterprise Budget*. In this example the costs are based on an Animal Unit and an Animal Unit is a 1,000 lb beef cow equivalent. Enter **\$60 for the expected Gross Margin (I4)**.

Based on the expected Gross Margin, there is an **expected \$2,400 (I6)** that could go toward the additional hay purchase. Remember, as more of these funds are spent, less remains to cover costs not accounted for in the Gross Margin which could include taxes, insurance, cattle payment, family living withdrawal, etc.

To continue with the example, suppose hay could be purchased for \$45/bale (including the cost to haul the hay to the farm) and the bales weigh 750 lbs, so the equivalent **cost per ton of hay is \$120 (I15)**.

Now, observe, Remaining funds available after hay purchase is reduced to **-\$255.27 (K22)** in the general summary.

The client does not wish to spend more for hay than his gross margin can absorb. Therefore, examine the impact of marketing cattle.

Place **1 cow for sell (B6)** with an expected **value of \$750 (B7)**. The spreadsheet assumes that this cow's annual cost as well as the value of the calf she produced is accounted for in the gross margin. THIS IS NOT A PLACE TO ACCOUNT FOR ANNUAL CULLING RATES. COSTS AND RETURNS ASSOCIATED WITH ANNUAL CULLING RATES SHOULD BE ACCOUNTED FOR IN GROSS MARGIN. THIS SECTION IS ONLY USED FOR VALUING COWS BEYOND NORMAL CULLING PRACTICES.

Based upon marketing the single cow, notice

1. Hay shortfall drops from 37 to 34 days.
2. Cow's to market drops to 9 to avoid purchasing additional feedstuffs.
3. Remaining funds available after purchasing enough hay to cover the deficit is \$768.49 **(K22)**.

Suppose, the client choose to **sell 2 cows (B6)**, and decides to purchase and **feed 8 lbs (I10)** of a byproduct feed mix to stretch the hay inventory at a **cost of \$190/ton (I11)**.

Based upon this decision, notice total potential funds available is \$28.05 **(K22)**.

Change the 8 lbs of supplement (I10) to 0, change the 2 cows marketed to 3 cows. Observe, after purchasing hay at \$120/ton for the 28 day shortfall, at the end of the year, a \$2,816 remains expected. Therefore, enough cows were sold to cover additional hay needs along with reducing hay demand while maintaining a balance similar to the budgeted Gross Margin.

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