

## Replacement Heifer Inventory – Head Day and AUM Calculator

### Objective

This decision aid provides a record to reconcile monthly cattle inventories for various categories and classes of replacement heifers. Heifer inventories are essential measuring reproduction performance, costs of production, profitability and development of financial statements:

### Input

Data required in the use of this decision aid include the number of head heifers' categories defined by the user's needs. Within each major category the user may add detail such as class sex, pregnancy status or age to categories. Number of heifers will be maintained through use of this monthly-reconciled inventory.

Before using this spreadsheet, it is good to recall the basic inventory equation and review definitions.

### Basic Inventory Equation

The basic formulas for reconciliation of cattle numbers are as follows:

1. Ending Inventory = (Total In – Total Out)
2. Total In = (Beginning Inventory + Purchases + Transfers In + Change in Category + Births + Longs in Count)
3. Total Out = (Sales + Transfers Out + Change in Category + Consumed + Death + Shorts in Count)

### Definitions

**Category** is used to define a specific group of heifers. This is particularly useful from a production standpoint (i.e., replacement heifers, herd bulls, etc.)

**Classification** refers to the reproduction phase and/or growth, or production stage (i.e., exposed, open, pregnant heifers). See the suggested classification that follows.

**Change in Category** is when an animal changes categories and/or class as they move through reproduction or production (i.e., open heifers move to exposed).

**Transfers** are used to keep heifers moved between enterprises, herds, or business divisions that do not really generate sales revenue. Examples include weaned calves that are transferred into the replacement category from the cow-calf herd and heifers that are brought in from another herd.

**Shorts in Count** is normally used in larger operation to reconcile inventories. One-way to think of shorts is that they are cattle that cannot be accounted for through one of the normal decreases in inventory (i.e., deaths, sales/transfers out). These are cattle that are missing at the time of counting inventory and are not assumed dead or permanently lost.

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**A long in Count** is used in larger operations when cattle are rounded up and inventory numbers do not match. An example of longs in count is cattle that get mixed when a fence is broken. Information on longs is useful in identifying extra cattle in the wrong inventory group. Longs are cattle in the inventory that cannot be accounted for through one of the normal increases in inventory (i.e. purchases or transfers in).

### **Suggested Replacement Heifer Ranch Categories and Classes\***

The actual heifer categories used in the inventory must fit the individual's situation and what the owners and managers desire. The category is replacement heifer and classifications include exposed, open, pregnant and calved. Herd bulls used for breeding is also part of the replacement heifer inventory.

To comply with the IRS data requirements, the inventory of **purchased cattle for resale must be kept separate from raised or purchased breeding stock**. Purchased breeding stock is recorded on the business depreciation account so the depreciation schedule can be updated. Recall that the book value of purchased cattle is the purchase cost minus accumulated depreciation.

### **Output**

The animal unit month **equivalent (AUM)** is an input, (see line 49), in the category name in the first sheet of the inventory year (See Appendix A for definition of AUM). A graph of AUM is presented. The spreadsheet also calculates the **head days by category** of cattle based on the average of the beginning and ending inventories by month. End of year head days are a good base for allocation of production costs between categories of heifers.

A summary sheet records shorts and longs by month this should be monitored closely. If shorts and longs are similar then losses are not occurring. If shorts exceed longs this would indicate errors in counts or losses of cattle.

The end of year summary report can be used to record inventory valuation information to assist in preparation of the business balance sheet. Months are linked but the shorts and longs must be monitored. The graph of AUM and head shows the inventory throughout the year.

Head days are calculated each month based on the average inventory by category. In the summary **the months to include in the report need to be specified**. Head day is a very good number to use to allocate fixed costs between production categories of cattle. The graph shows a monthly inventory by month. The **user identifies the months** to include in these graphs in the summary page. The reason months must be selected for reporting is that ending and beginning months are connected across all months. Defining the report month in the summary sheet (head day and Inventory value sheet) will give the correct months to include in summary head day, head of cattle and AUM reports in Graphs.

## **Inventory Data Worksheet**

The monthly spreadsheets can be used as a worksheet and report for data collectors to assist in keeping inventories and help to ensure that all ins and outs are accounted for.

## **Execution**

Essential to effective use of this spreadsheet is to provide the monthly report to the personnel that collect the cattle inventory data. It's important that getting data together and recording is done monthly. Someone needs to be in charge and rewarded for mainlining the cattle inventory.

## **Appendix A: Definition: Animal Unit Months\***

Grazing plans and stocking records can use Animal Unit Months (AUMs) to describe the carrying capacity of a pasture. This is a common system used to standardize the forage needs of cattle and the forage available to measure grazing land productivity or needs for planning purpose or to measure productivity. Grazing leases priced by AUM require the monthly cattle head by category to calculate the monthly payment by the lessee.

In this system, a 1,000 lb. animal is considered 1 AU making a 600 lb. animal 0.6 AU and a 1,200 lb. animal 1.2 AU. A 1,200 lb. cow and 300 lb. calf would be 1.5 AU.

Furthermore, 780 lb. of air-dried grass is considered 1 AUM. This means a 1,000 lb. animal would consume 780 lb. of air-dried forage (approximately 90% of the moisture removed) in one month's time.

Using the suggested alternative grazing record spreadsheets require recording monthly head of cattle by their AUM to measure productivity and also to monitor stocking rate. This information facilitates the prevention of overstocking for protection of the grazing land resource. Historical AUM use should be part of the lease negotiations and communications for both parties. \_\_\_\_\_

\*University of Nebraska Lincoln "Sustainable Pasture Usage – Understanding AUMs (Animal Unit Months)", Institute of Agriculture and Natural Resources (<http://inar.unl.edu>), May 2013