

Texas AgriLife Extension Forage Worksheet  
TSCRA Ranching 101  
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Megan.Clayton@ag.tamu.edu

NRCS Web Soil Survey: (<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>)

- Click on green button 'Start WSS' OR
- Scroll down on the page to 'Four Basic Steps'
  1. Define your 'Area of Interest'
  2. Click on 'Soil Map' Tab to view or print a soil map
  3. Click on 'Soil Data Explorer' Tab to access soil data (like vegetative productivity)
  4. Click on 'Shopping Cart' Tab to download your report (print only pages you want later)

Calculating Dry Forage:

Supplies Checklist

- Plot frame\*
- Paper bags
- Microwave
- Clippers
- Scale in ounces
- Ruler/yard stick
- Paper to label pictures/dry erase board
- Camera
- Calculator
- Permanent marker
- Map of land
- Conversion factor chart

\*Select a plot frame size from the chart below. Construct with either 3/8" reinforced rod welded on the corners or 1/2" to 3/4" PVC pipe with 4- 90° PVC corners and PVC glue.

| Plot Area            | Length per Side | Conversion Factor           |
|----------------------|-----------------|-----------------------------|
| 4 ft <sup>2</sup>    | 24 in           | 680 * wt in ounces = lbs/ac |
| 9 ft <sup>2</sup>    | 36 in           | 302 * wt in ounces = lbs/ac |
| 4.5 ft <sup>2</sup>  | 25.6 in         | 600 * wt in ounces = lbs/ac |
| 9.07 ft <sup>2</sup> | 36.1 in         | 300 * wt in ounces = lbs/ac |
| 1 m <sup>2</sup>     | 39 in           | 10 * wt in grams = kg/ha    |

Steps to Clip Plot

1. Locate representative areas with different forage quantities & species mixtures
2. Randomly place plot frame in area
3. Move grass to either inside or outside of plot perimeter
4. Label picture with paper or dry erase board
  - a. Pasture name, date, range site, plot number
5. Place yard stick/ruler vertically in plot
6. Take picture
7. Label paper bag with corresponding plot #
8. Clip vegetation inside plot to soil surface, place in paper bag

Steps to Calculate Dry Forage per Acre

1. Place clipped forage in paper bag inside microwave

2. Microwave for 15 seconds
3. Weigh bag
4. Microwave for 10 seconds
5. Weigh bag
6. Continue to microwave and weigh until weight does not change, record weight in ounces
7. Remove forage from bag, weigh bag in ounces
8. Subtract weight of bag from weight of forage & bag to get forage weight
9. Average all plots from same representative area
10. Use conversion factor chart (above) to get pounds of dry forage per acre based on size of plot frame

Calculating Stocking Rate:

| UNIT                         | DEFINITION          |
|------------------------------|---------------------|
| Animal Unit (AU)             | 1000 lb cow w/calf  |
| Animal Unit Day (AUD)        | 26 lbs dry forage   |
| Animal Unit Month (AUM)      | 780 lbs dry forage  |
| Animal Unit Year (AUYear)    | 9360 lbs dry forage |
| Animal Unit Equivalent (AUE) | % above or below AU |

| ANIMAL TYPE | AUE  | LBS/DAY* |
|-------------|------|----------|
| Cattle      |      |          |
| Calves      |      |          |
| 300 lb      | 0.3  | 8        |
| 400 lb      | 0.4  | 13       |
| 500 lb      | 0.5  | 16       |
| Cows        | 1.0  | 26       |
| Bulls       | 1.5  | 39       |
| Horses      | 1.25 | 32       |
| Sheep       | 0.20 | 5        |
| Goats       | 0.17 | 4        |

\*Does not take into consideration forage quality

Stocking Rate Calculations:

$$\boxed{\phantom{000}} \times \boxed{\phantom{000}} = \boxed{\phantom{000}}$$

dry lbs/acre      # grazeable acres      total lbs dry forage

$$\boxed{\phantom{000}} \times \boxed{0.25} = \boxed{\phantom{000}}$$

total lbs dry forage      25% for livestock      lbs forage for livestock

$$\boxed{\phantom{000}} / \boxed{26} = \boxed{\phantom{000}}$$

lbs forage for livestock      lbs forage/AU/day      Animal Unit Days

$$\boxed{\phantom{000}} / \boxed{365} = \boxed{\phantom{000}}$$

Animal Unit Days      Days in a Year      Animal Units/Year

Smartphone/Tablet Apps:

Beef Cow BCS (Crystalx) – Available for Apple and Android (FREE)

CowPoop Analyzer (Texas A&M Extension Service) – Available for Apple and Android (FREE)

GrazingCalc (Texas A&M Extension Service) – Available for Apple (FREE)

SoilWeb (UC Davis) – Available for Apple and Android (FREE)

ESRI ArcGIS – Available for Apple and Android (FREE)

BRIT – Texas Range Plants – Available for Android (FREE)

LeafSnap – Available for Apple (FREE)

WeatherUnderground - Available for Apple and Android (FREE, Optional In-App Purchases)

WindFinder - Available for Apple and Android (Basic Version FREE)

My Radar - Available for Apple and Android (FREE)

DuPont TankMix - Available for Apple and Android (FREE)

Calibrate My Sprayer - Available for Apple and Android (FREE)

Mix My Sprayer - Available for Apple and Android (FREE)

Websites:

Texas A&M Extension Bookstore: [AgriLifeBookstore.org](http://AgriLifeBookstore.org) (Look for Brush Busters, ERM-1466 Chemical Suggestion Guide)

NOAA Weather (Activity Planner): Google NOAA Weather with Closest Major City (Austin/San Antonio, Dallas/Fort Worth)

Texas Rangeplant Database: [Rangeplants.tamu.edu](http://Rangeplants.tamu.edu)

Soil Testing Website: <http://soiltesting.tamu.edu>