Calculator Web Application Project

Sydni Curry | July 8, 2020

Project name: Forage Caculators Web Application

Date: June 25, 2020

Project manager: Karen Watts DiCicco

Project sponsor: U of A System Division of Agriculture Cooperative Extension Service

Objective: To create a web application that will consist of three calculators (Ag Lime Quality, for the Animal Science department at the U of A System Division of Agriculture Cooperative Extension Service. Currently, these calculators and formulas are in Excel sheets available to the public.

Deliverables:

- **Wireframe**
- **Developing a Web friendly and Accessible Application**
- **Landing Page**
  - **AG Lime Calculator**
  - **Hay Quality Calculator**
  - **Grazing Calculator**
- **Technical Documentation**

Project risk: low

Description:

Ag Lime Quality Calculator – Ag lime is applied to neutralize soil acidity and raise soil pH. Lime quality is dependent on the fineness of the material and the percent calcium carbonate of the limestone source.

In Arkansas, ag lime does not have to meet a minimum quality standard, but each lime vendor is required by state law to have their ag lime product tested for sieve size and % CCE (calcium carbonate equivalent). The fineness measure used in Arkansas is the amount of material passing through 10, 60, and 100 mesh sieves. The University of Arkansas ag lime recommendations are based on a lime product with a liming value of 47%.

Grazing Calculator - This program includes three calculators that allow the user to makes estimates forpasture rotations, setting stock density formob grazing, and estimating field strip sizes forstrip grazingstockpiled forage

Pasture Rotation Calculator:

The Pasture Rotation Calculator helps estimate the number of days a given size paddock or pasture can be grazed by a given size herd.

Mob Grazing Calculator:

Mob grazing is often used as a tool where high stocking rates are used to trample down overgrown vegetation to open the canopy allowing regrowth of desirable forage. Forage utilization can be as low as 20% for brushy, mature vegetation, but can be higher for quality forage. When high stock densities are used, paddocks must be rotated frequently to provide enough quality forage to sustain the grazing animals. This calculator estimates thepaddock size or herd size needed to achieve certain stock densities per acre. It also estimates therotation frequencyneeded to provide adequate forage availability to sustain the grazing herd.

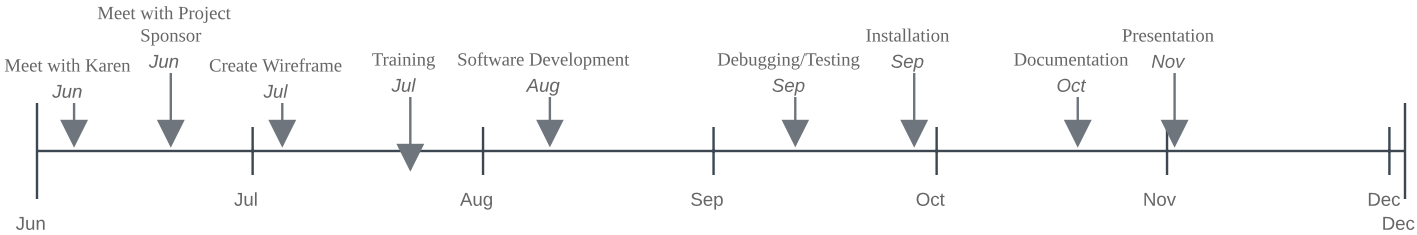
Strip Grazing Calculator:

Strip grazing is often used for short-term grazing across a large field or when stockpiled forage is grazed during winter. This calculator estimates the strip size of forage needed for a given size hard. It also estimates the number of grazing day from a pasture or paddock based on given forage availability estimates. The field size, field width (feet), and forage height with forage density are needed.

Hay Quality Calculator - This program calculates the percent of crude protein (CP) and total digestible nutrients (TDN) requirements met by hay for different classes of livestock. The hay sample ID and CP and TDN levels from hay tests (dry matter basis) for up to six hay samples can be entered and compared for**beef cows, stocker calves/heifers, horses, and sheep/goats**. When the hay data are entered, click on the tab corresponding to the animal being fed. Values shown in green meet 100% or more of requirement for that animal. Values shown in red meet 90% or less of requirement for that animal. A nutritionist should be consulted for feeding recommendations when values do not meet CP or TDN requirements.

These calculators will be designed in a stand-alone web application similar to https://riceadvisor.uaex.edu.

Milestone review:



Key stakeholders	
Name	**Title**
Karen Watts DiCicco	Digital & IT Innovation Mgr.
Dr. John Jennings	Professor-Forage
Dr. Vic Ford	Assoc VP-AG & Nat Resources Assoc. Dir Ag. & Nat. Resources

Roles and responsibilities		
Name	**Role**	**Responsibility**
Sydni Curry	Developer	Design / Development

Project approval requirements:

- wireframe
- application

Signature of project sponsor:

Date approved: