

C-Graz Help Files

Version 2.0

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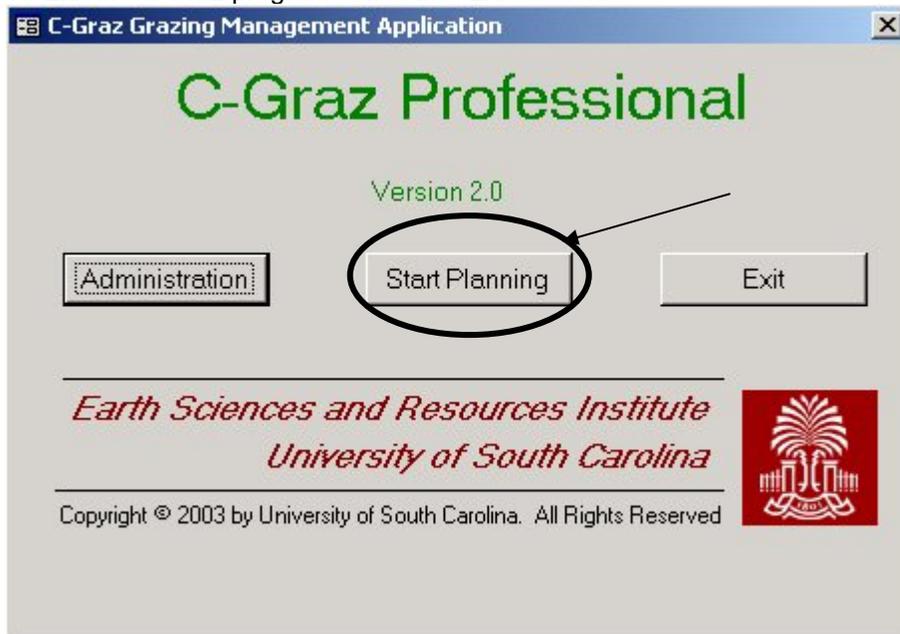
Main Operation Form

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“Start Planning” begins the C-Graz program, and takes the user directly to the Operation Information page discussed in the next section.

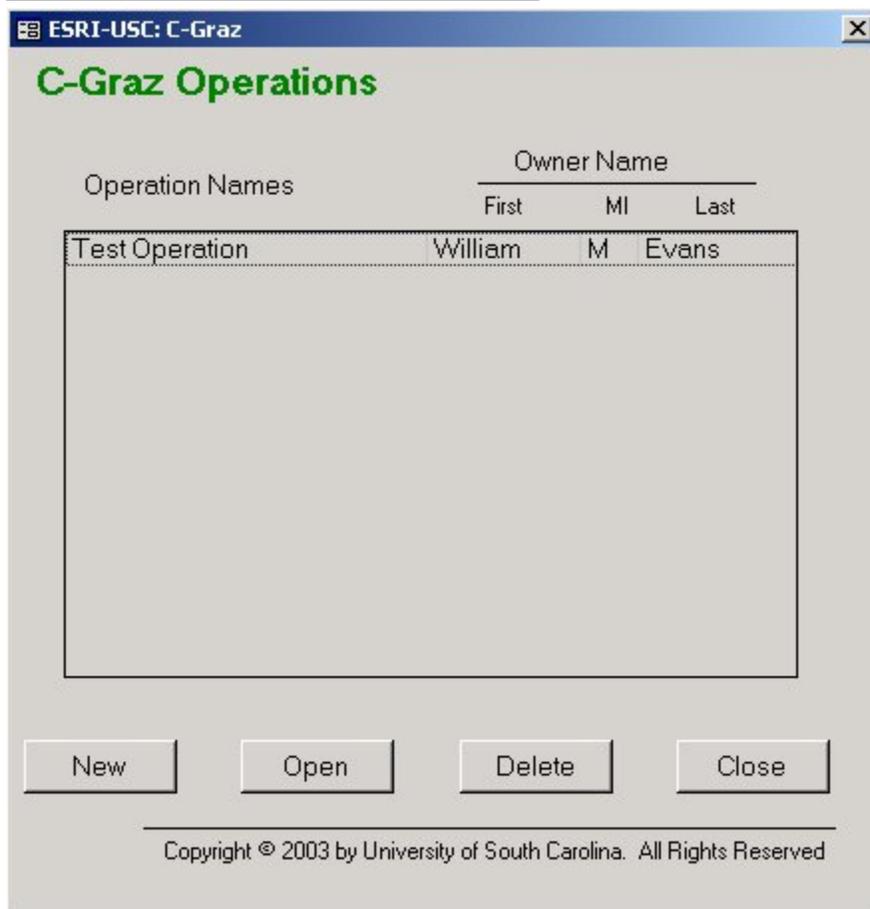
Administration will be covered in more detail in Step 8.

To Exit the C-Graz program select the “Exit” button.



Begin C-Graz Application.

To Start C-Graz Planning Select Operation



The screenshot shows a window titled "ESRI-USC: C-Graz" with a sub-header "C-Graz Operations". It contains a table with two columns: "Operation Names" and "Owner Name". The "Owner Name" column is further divided into "First", "MI", and "Last". A single row is visible with the following data:

Operation Names	Owner Name		
	First	MI	Last
Test Operation	William	M	Evans

Below the table are four buttons: "New", "Open", "Delete", and "Close". At the bottom of the window, there is a copyright notice: "Copyright © 2003 by University of South Carolina. All Rights Reserved".

Main Operation Form C-Graz Operation Selection Form.

The options for the Operation Selection form are:

1. New
 - a. Select to add a new operation.
2. Open
 - a. Select an operation by highlighting it with the cursor
 - b. Select Open
3. Delete
 - a. Select and operation by highlighting it with the cursor
 - b. Select Delete
4. Close
 - a. Select to close C-Graz Application.

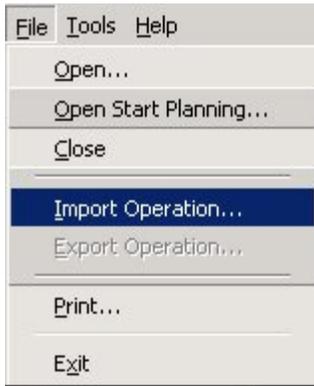
Deleting an operation is irreversible, unless previously exported.

To Import/Export Operations

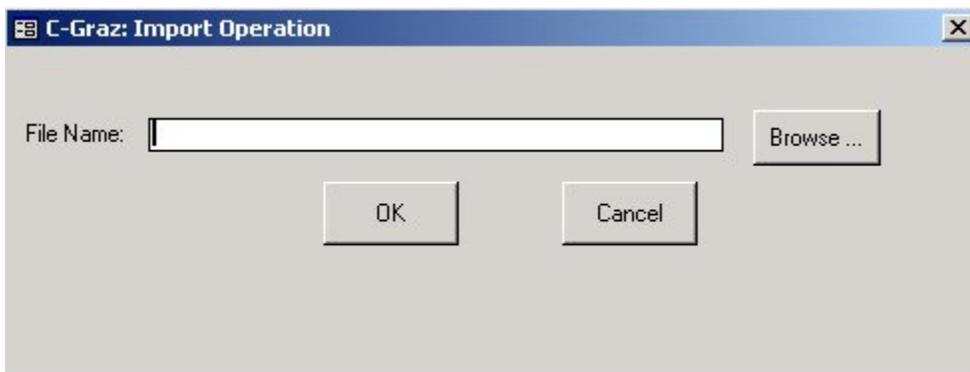
The Import button under File on the Menu at the top of the page allows the user to import a copy of a particular operation into the database. The import function is activated only when the user is in the Operation Selection page. Importing an operation allows the user to store an operator's information in their Customer Service Toolkits without having to store the entire database for each operation.

Import Operation:

1. Select Start Planning
2. Select File (upper left hand corner of the screen).
3. Select Import Operation



4. Select the browse button and search the directory where the file is located.
5. Select open on the directory page.
6. When the file appears beside the file name on the import screen, select OK.
7. The file will import onto the C-Graz application.



Import Operation

Once an operation has been opened and the Operation Information page is shown, the export button will appear under File in the Menu at the top of the page. Exporting an operation allows the user to export an operation so that other's can import it into their database. These files can be easily emailed between offices, but the file must first be zipped in order to do so.

Export Operation

1. Select File
2. Select Export Operation button
3. Search for the Directory/folder where the file should be saved.
4. Name the file.
5. Select the "Save" button at the button right hand corner!



Operation Name*: Test Operation Select a Scenario: [Dropdown]

Owner Name

First Name*: William MI: M **Last Name*:** Evans

Owner Address

Address1: 6965 East Peach Road
 Address2: PO Box 1311
 City: Columbia
 County: Fairfield
State*: SC **Region*:** Coastal Plains
 ZIP code: 29205

Owner Contact Information

Work Phone: (803) 678-8756
 Home Phone: (805) 867-6875
 Mobile Phone: (968) 686-8969
 FAX: (123) 123-2312
 Email: mevans@esri.sc.edu

Planned by: Mark Evans

Notes: Planner Notes can be written here and they will be inserted into the Grazing Plan Template.

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Operation tab in C-Graz - Required Information is in red.

Operation Information

1. Type the Operation Name (the operation’s name is required)
2. Select a region from the list box provided by select the desired region
3. Type the Owner’s Name (first and last names are required)
4. Type Owner Address
 - a. Address
 - b. City
 - c. State
 - d. Zip code
5. Owner Contact Information
 - a. Work Phone
 - b. Home Phone
 - c. Mobile Phone
 - d. Fax
 - e. Email
6. Type any “Notes” that may be necessary for the operation.
7. The Planner.

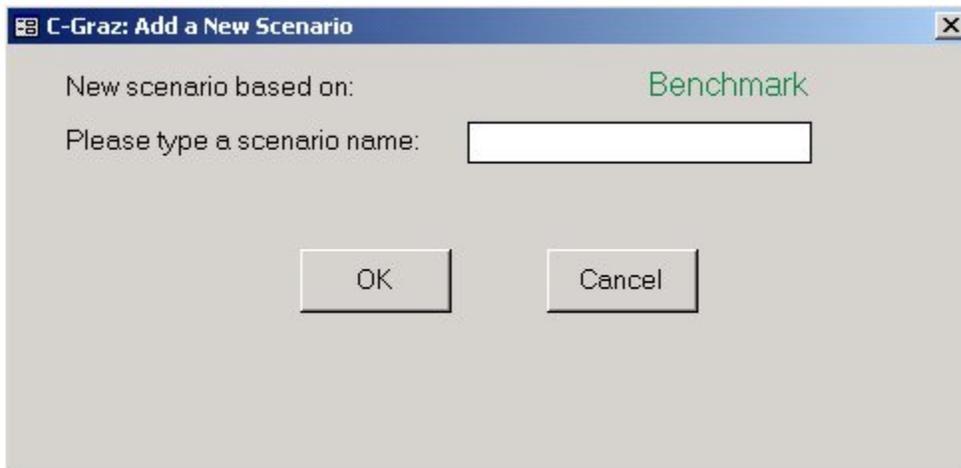
Scenarios

Scenarios (alternatives) allow the planner to change data within the forage and animal tabs to predict different balances for those data. The first scenario defaults automatically to “Benchmark”. The Benchmark scenario consists of the data that are currently “on the ground” for the producer. The user has the option to name all additional scenarios added to any operation.



Add/Delete Scenario buttons on the Operation Form

1. Select the 'Add Scenario' button.
2. The new scenario will be based on (a copy of) the current scenario displayed in C-Graz.
3. Enter a new scenario name. In the form shown below. To cancel the procedure, select cancel. If the name entered is correct, select "OK" and the form will close.



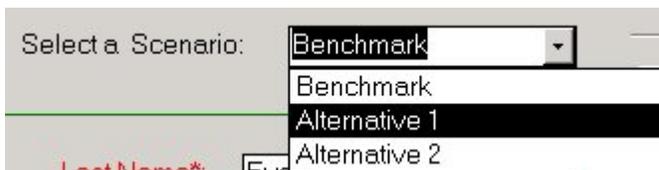
Form to name additional scenarios.

4. At the first addition of a scenario, benchmark data will be automatically copied to the new scenario so the user will only have to change desired forage production/required data.
5. After the first scenario has been added the user has the ability to copy any scenario produced when developing new plans. Simply select on the scenario you wish to copy from the scenario list box (See Figure 2.4) and then select "Add Scenario".



To delete a scenario:

1. Select the scenario to be deleted out of the "Scenario Name" list box



2. Select the delete button.

Forage Data

Forage Production Information Form

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Field Summary

Tract#	Field#	Field Name	Acreage
123	1	East Pasture	80
123	2	South Pasture	40
234	1	West Pasture	50

Total Grazing Acres: 170.0

Individual Field Data

Field ID

Tract No: 123 Field No: 1

Field Acre: 80

Field Name: East Pasture

Forage Information

Forage Name: Bahia

Annual Forage Production (lbs/acre): 6000

Select Field Grazing Efficiency (%) from Left ComboBox or Type directly in the Right Box

5-14 days avg. graze duration 60

Pasture Condition Score

Forage Production data entry form.

Add Field Information

1. Select the add field button on the right side of the page
2. Under "Field ID"
3. Enter Tract# (required)
4. Enter Field # (required)
5. Enter Field Name
6. Field Acreage (required) (Total Grazing Acres is automatically calculated based on the individual field acreage entered).
7. Under Forage Information (All information here is required to calculate forage production)
 - a. Select the type of forage from the forage list box under "Forage Name"

Forage Name:

Bermuda, Improved seeded

Bahia

Bermuda, common seeded

Bermuda, Improved seeded

Bermuda_30% +Fescue_70% mixed

Bermuda+Crabgrass mixed

Bermuda+Crimson Cl mixed

Bermuda+Rye overseeded

Bermuda+Rye&Ryegrass overseec

Forage Selection.

- b. The Annual Forage Production is calculated automatically, this number can be overwritten if necessary.

- c. Select the appropriate grazing efficiency from the “Field Grazing Efficiency” list box this number is a percentage.

The screenshot shows the 'C-Graz System' interface with the 'Forage' tab selected. The main window is titled 'Test Operation' and 'Benchmark'. The interface is divided into several sections:

- Field Summary:** A table listing fields with columns for Tract#, Field#, Field Name, and Acreage.

Tract#	Field#	Field Name	Acreage
123	1	East Pasture	80
123	2	South Pasture	40
234	1	West Pasture	50
- Individual Field Data:** Fields for entering specific data for a selected field.
 - Field ID: Tract No: 123, Field No: 1
 - Field Acre: 80
 - Field Name: East Pasture
- Forage Information:** Fields for forage and grazing details.
 - Forage Name: Bahia (selected from a dropdown)
 - Annual Forage Production (lbs/acre): 6000
 - Select Field Grazing Efficiency (%): 5-14 days avg. graze duration (selected from a dropdown), 60 (entered in a text box)
 - Pasture Condition Score: (button)
- Required Information in Red:** A vertical sidebar on the right containing buttons: Add Field, Delete Field, Import Fields (Toolkit), and Import Fields (Spatial).

At the bottom left, it says 'Sponsored by USDA-NRCS'. At the bottom right, it says 'Copyright © 2003 by University of South Carolina. All Rights Reserved.' The total grazing acres are shown as 170.0.

Individual Field Data.

Update Field Information

1. Select a field under the “All Fields” box by highlighting it with a cursor.
2. Make any changes in the “Forage Information” or “Field ID” box.

Delete Field Information

1. Select a field under the “All Fields” box making sure it is highlighted.
2. Select the “Delete Field” button directly below the “Add Field” button.

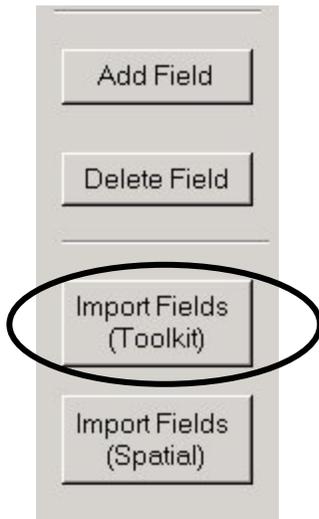
Import Field Information from Toolkit

The import field button on the forage tab allows one to import field information already recorded in the Customer Toolkit Consplan. The information imported includes tract number, field number, and acres. One must remember to select the appropriate forage, and grazing efficiency for each field after importing the data from the Consplan.

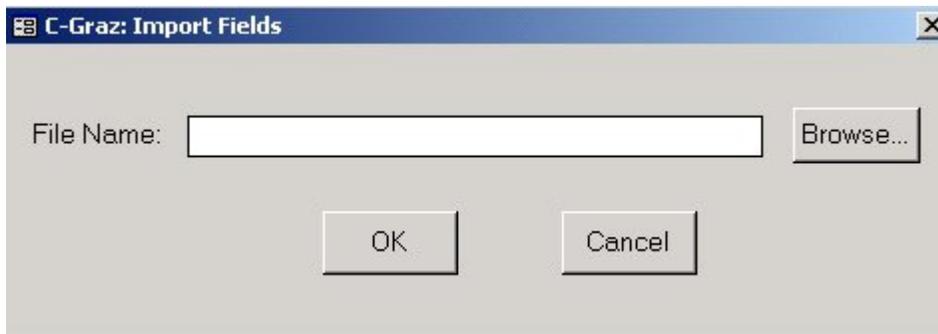
The following describes the steps involved in importing field information.

Import Fields from the Customer Service Toolkit Consplan.mdb.

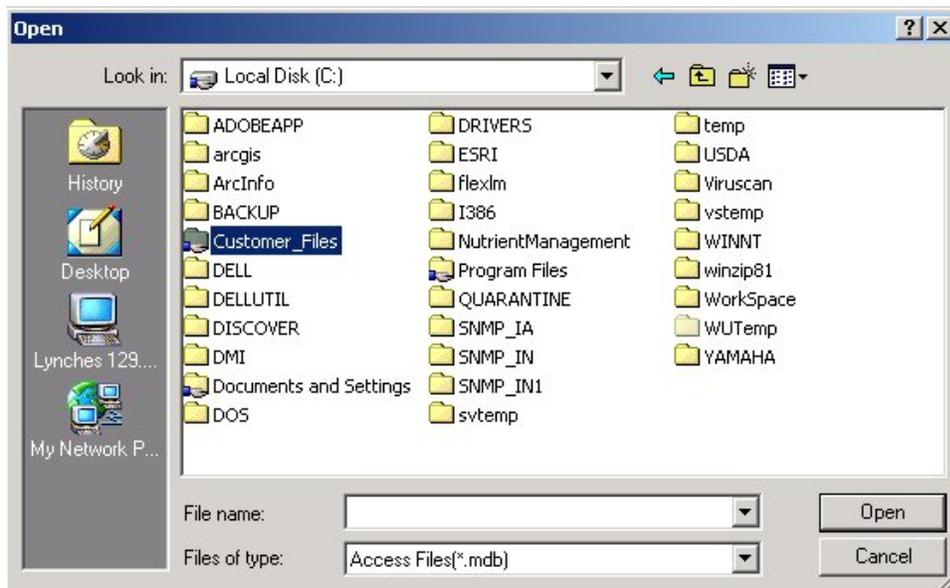
1. Select the ‘Import Fields(Toolkit)’ button.



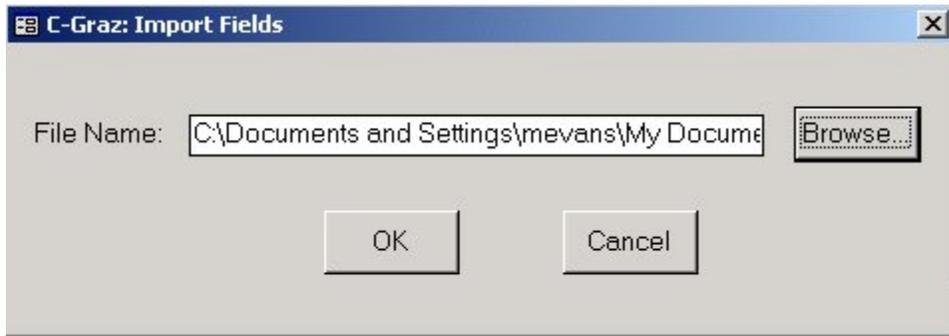
2. Select the Browse button to find the desired Consplan.mdb to be imported.



3. Find the Directory containing the desired file.



4. Either double-click on the desired file or highlight the file and then select 'Open'.
5. When the filename and path are displayed on the 'C-Graz Import' form shows next to "File Name" in the import field box select 'OK'.



6. All of the fields contained in the mdb will automatically populate the "All Fields" section on the forage page.

Field Summary			
Tract#	Field#	Field Name	Acreage
123	1	East Pasture	80
123	2	South Pasture	40
234	1	West Pasture	50

Total Grazing Acres: 170.0

Imported fields listed in Field Summary section.

Import Field Information from AFOPro Spatial

The 'Import Fields (Spatial)' button on the forage tab allows the importation of field information created using ArcView®. The information imported includes tract number, field number, and acres. The user must populate the remaining information associated with each field on the forage page, including the forage, the annual forage production (if not using the default value), and the grazing efficiency after importing the data.

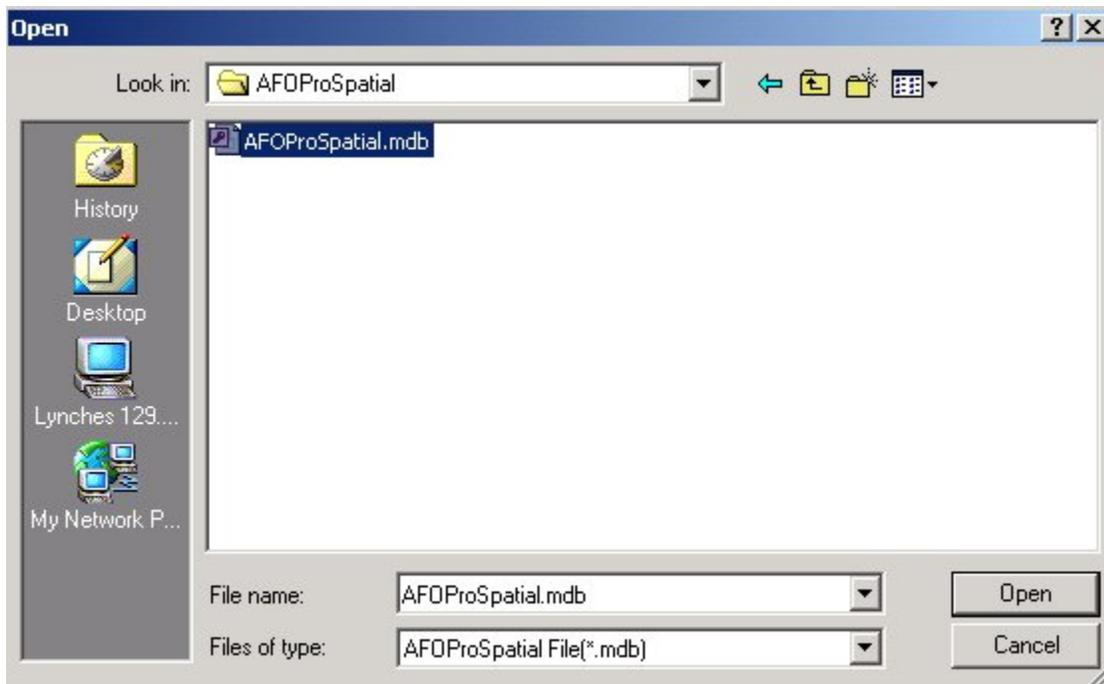
The following describes the steps involved in importing field information.

Import Fields from the ArcView by using AFOPro Spatial.

1. Select the 'Import Fields (Spatial)' Button.



2. Browse to the desired spatial export.



3. Either double-click on the desired file or highlight the file and then select 'Open'.
4. All of the fields contained in the mdb will automatically populate the "All Fields" section on the forage page.

Field Summary			
Tract#	Field#	Field Name	Acreage
123	1	East Pasture	80
123	2	South Pasture	40
234	1	West Pasture	50

Total Grazing Acres:

Imported fields listed in Field Summary section.

Pasture Condition Score (PCS)

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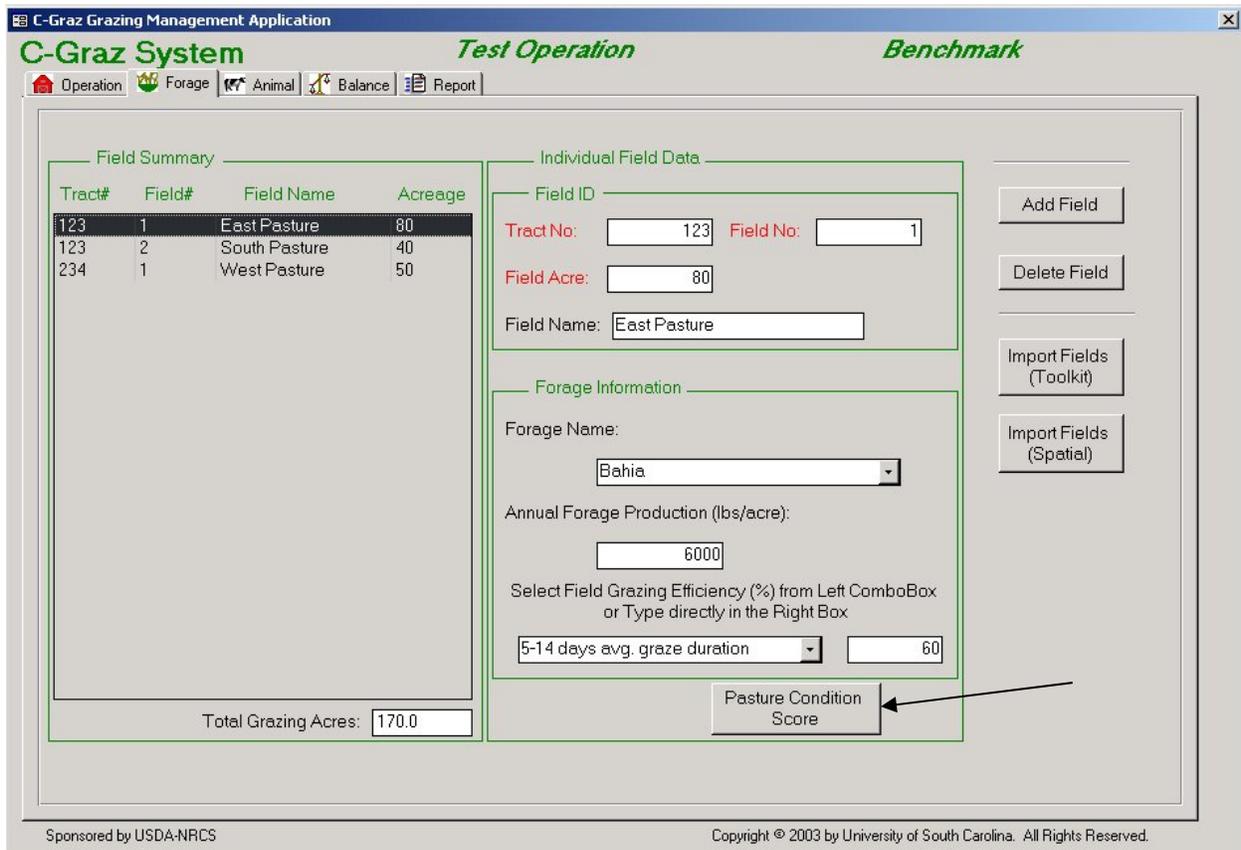
The Pasture Condition Score is a qualitative look at the condition of the pastures on an operation. The PCS should be recorded (but is not necessary to run the program) when the planner is developing the benchmark scenario for a producer's operation. The score should be recorded for each field used in the grazing operation. Some planners may wish to take the average pasture condition score of the property. If so, simply fill in the PCS for one field knowing that it represents the average of the property.

The planner selects the field to be scored in the "All Fields" box shown in Figure 3.1. By selecting the "Pasture Condition Score" button shown in Figure 3.1 on the Forage tab, the planner can enter a PCS. The score is an evaluation of current pasture conditions. The planner only needs to calculate the PCS on the Benchmark scenario for the year of the plan. More than one condition score can be recorded throughout the year of the plan.

To enter PCS Score

Select a field from the all fields box

- 1.) Select the Pasture Condition Score button



PCS button on the Forage tab in C-Graz.

To add Pasture Condition Score

- 1.) Enter the date of the evaluation.
 - a. If a PCS has already been evaluated previously select the "Add New PCS" then enter the appropriate date.
- 2.) Select the appropriate score from the list box to the right of each indicator

Pasture Condition Score Sheet

Pasture Condition Score Sheet: Tract Number 234 Field Number 1 Field Name West Pasture

12/3/2004 Add New PCS Delete PCS

INDICATORS	SCORE	Required
Plant Vigor*	2	?
Plant Cover*	3	?
Perct. Desirable Plants:	3	?
Plant Diversity:	3	?
Plant Residue:	3	?
Percent Legume:	4	?
Uniformity of Use:	4	?
Livestock Conc. Areas:	2	?
Soil Compaction:	2	?
Erosion:	3	
Total Score:	29	

PLANT VIGOR FACTOR SCORE SHEET

Indicators	Score	
P and K Status*	3	?
N Status*	3	?
Soil pH*	3	?
Severity of Use	3	?
Adaptation of Species	3	?
Climatic Stresses	3	?
Insect and Disease	3	?

Done

Evaluate Management Suggestions

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Pasture Condition Score Sheet

Entering Plant Vigor Factors

If "Plant Vigor" is scored less than 4, a set of Plant Vigor Factors must be completed allowing the planner to indicate the factors that contributed to the lower score. The Plant Vigor Factor score sheet will automatically appear when the lower score is selected.

- 1.) Select the appropriate score to the right of each indicator.
- 2.) Select the "Done" button, and the box will be removed.

Plant Vigor Factor Scores

PLANT VIGOR FACTOR SCORE SHEET

Indicators	Score	
P and K Status*	1	?
N Status*	2	?
Soil pH*	2	?
Severity of Use	2	?
Adaptation of Species	2	?
Climatic Stresses	2	?
Insect and Disease	2	?

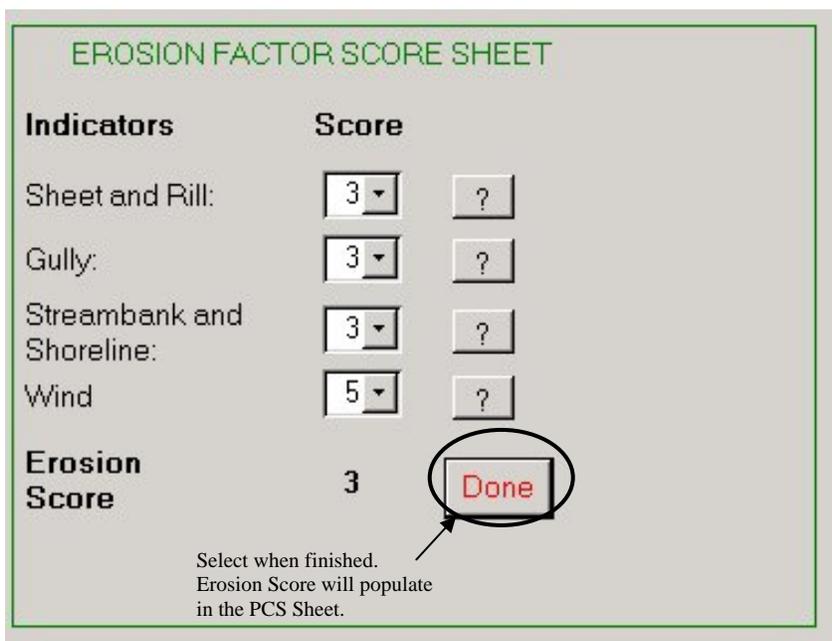
Done

Select when finished selecting the Vigor Factors

Plant Vigor Factor Score Sheet.

Evaluate Erosion Condition Score

1. Select the "Evaluate" button to the right of the Erosion indicator score.
2. A separate Erosion Score sheet will automatically appear to the right of the Pasture Condition Score Sheet as shown in Figure 4.4.
3. Sheet and Rill erosion factor must be recorded for each field.
4. If other erosion factors exist, record as seen in the field by selecting the appropriate score to the right of each erosion indicator.
5. The total erosion factor is always the lowest value of each factor seen in the fields and will automatically be entered to the PCS form.
6. Select the "Done" button when finished.
7. The total score will not be tabulated until the Erosion Factor is determined.



Indicators	Score	
Sheet and Rill:	3	?
Gully:	3	?
Streambank and Shoreline:	3	?
Wind	5	?
Erosion Score	3	Done

Select when finished.
Erosion Score will populate
in the PCS Sheet.

Erosion Factor Score Sheet.

To Edit PCS

- 1.) Select the appropriate field from the forage information form.
- 2.) Select "Pasture Condition Score" button.
- 3.) Navigate to the appropriate date for the field PCS that needs editing by using the red arrows.
- 4.) Make any changes necessary by selecting the correct score for each indicator.

To View Indicator Descriptions:

The "Range" is a general description for each score. The "?" button gives a detailed description of what each score represents for the indicators.

1. Select the "?" beside the respective indicator.
2. To close the description, select the X in the upper right hand corner.

When finished entering the Pasture Condition Scores, the user can view management suggestions by selecting "Management Suggestions" next to the total PCS on the bottom center of the form.

To close the PCS form, simply select the "X" button at the top right corner. The information is automatically saved.

Herd Information

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The following displays the Animal Information entry form for Cow/Calf. Each Animal Type selected will display slightly different forms with the differing default data displayed. The user can change any of the data on the form to match the situation of the operation on which the plan is being created. C-Graz does have parameter restriction on most of the information that is entered on these forms. All information on this form is required.

Herd Summary		
Name	Type	Number
Dairy Cow	Dairy Cow	1
Wether	Growing Animal	1
Purchased Repl. Heifer	Heifer	1
Purchased Repl. Ewe	P. R. Ewe	1
Horse	Mature Animal	1
Doe/Kid	Doe/Kid	1
Purchased Repl. Doe	P. R. Doe	1
Cow/Calf	Cow/Calf	5
Ewe/Lamb	Ewe/Lamb	1

Animal Herd Information

Animal Type:

Herd Name:

Number of Head: Estimated Herd BCS:

Average Adult Cow Body Weight(lbs):

First Month Calving Percent (%):

Calving Efficiency (%):

Calving Month:

Weaning Month:

Calf Weaning Weight (lbs):

Culling Non-breeding Cows? Replacement Heifers from Herd?

Culling Month: Replacement Number

Number Culled: Begin Body Weight:

Animal Form: Enter all herd information for the operation.

To Enter Animal Data

1. Select 'Add Herd'
2. Select an animal type by using the combo box next to 'Animal Type'.
3. Herd Name will default to the 'Animal Type' name selected or if "Growing Animal" or 'Mature Animal' is selected, then upon selection of that particular animal type lower on the form that will be used as the default name. The default name is for the user's convenience and may be changed by the user as they see fit.
4. Enter the Number of Head
5. Select the 'Estimated Body Condition Score'. The selection list will be for the particular animal type selected.

Animal Herd Information

Animal Type: Mature Animal

Herd Name: Cow/Calf

Number of Head: P. R. Doe

Select Mature Animal: P. R. Ewe

Dairy Cow

Growing Animal

Mature Animal

Animal Selection list box.

Specific information for each animal herd is entered in “Animal Herd Information”.

Cow/Calf Information

Animal Herd Information

Animal Type: Cow/Calf

Herd Name: Cow/Calf

Number of Head: 100 Estimated Herd BCS: 5 ?

Average Adult Cow Body Weight (lbs): 1100

First Month Calving Percent (%): 70

Calving Efficiency (%): 85

Calving Month: March

Weaning Month: September

Calf Weaning Weight (lbs): 450

Culling Non-breeding Cows? Replacement Heifers from Herd?

Culling Month: September Replacement Number 23

Number Culled: 15 Begin Body Weight: 450

1. Average Adult Cow Body Weight (lbs) (defaults to 1100 pounds, but can be overwritten).
2. Animal First Month Calving Percent (%): This is the percentage of herd that calves in the month selected (assumption; first of month). The remainder of the herd that calves is assumed to calve at the beginning of the next month. (defaults to 70% but can be overwritten).
3. Calving Efficiency (%) (defaults to 85% but can be overwritten).
4. Calving Month (defaults to March but can be changed)

5. Weaning Month (defaults to September, but the user can select between the fifth and ninth month post calving).
6. Calf Weaning Weight (lbs): Defaults to 450 lbs, but may be overwritten.
7. Replacement Heifers from Herd?: The program defaults to not having replacement heifers retained from the herd. If the producer wishes to keep replacement heifers simply check this box.
 - a. Replacement Number: Heifers kept as replacements defaults to 150% of the number of cows that did not calve, but may be overwritten.
 - b. Begin Body Weight: Heifers begin body weight defaults to the user entered Calf Weaning Weight, but may be overwritten.
8. Culling Non-breeding Cows?: The program defaults to not culling cows from the herd. If the producer wishes to cull cows then simply check this box.
 - a. Culling Month: Defaults to the weaning month, but may be changed.
 - b. Number Culled: Defaults to the number of non-calving cows (rounded), but may be overwritten.

Note to user: Cows are assumed to be at mature weight when calculating forage requirements. Calves are assumed to weigh 85 lbs at birth. Using the user entered wean weight, calving month and wean month, an average daily gain is calculated for the calf. This daily gain must fall within parameters setup in C-Graz or the user will be required to make the necessary change(s) to achieve an acceptable daily gain. C-Graz then calculates the daily forage requirements for the pair separately based upon intake rates as a percentage of body weight for the Cow, that varies during the gestation and nursing periods, and for the calf that varies during the nursing period and is based upon the calculated daily gain derived from the user inputs.

Ewe/Lamb Information

Animal Herd Information

Animal Type:

Herd Name:

Number of Head: Estimated Herd BCS:

Average Adult Ewe Body Weight (lbs):

Lambing Efficiency (%):

Average Lambs Per Lambing Ewe:

Animal Lambing Month:

Animal Wean Month:

Culling Non-breeding Ewes? Replacement Ewes from Flock?

Culling Month: Replacement Number:

Number Culled: Begin Body Weight:

1. Average Adult Ewe Body Weight (lbs): Defaults to 150 pounds, but can be overwritten.

2. Lambing Efficiency (%): Defaults to 85% but can be overwritten.
 - a. Assumes 70% of Lambing Ewes lamb in selected month.
3. Average Lambs Per Lambing Ewe: Defaults to 1.8 but can be overwritten.
4. Animal Lambing Month: Defaults to March but can be changed.
5. Animal Wean Month: Always second month after lambing.
6. Ewe Replacement?: The program defaults to having replacement animals retained from the flock. If the producer does not wish to keep replacements simply uncheck this box.
 - a. Replacement Number: Ewes kept as replacements defaults to 150% of the number of Ewes that did not lamb, but may be overwritten.
 - b. Begin Body Weight: Replacements body weight defaults to 60 lbs, but may be overwritten.
7. Culling?: The program defaults to not culling Ewes from the flock. If the producer wishes to cull then simply check this box.
 - a. Culling Month: Defaults to month of weaning, but may be changed.
 - b. Number Culled: Defaults to the number of non-lambing Ewes (rounded), but may be overwritten.

Doe/Kid Information

Animal Herd Information	
Animal Type:	<input type="text" value="Doe/Kid"/>
Herd Name:	<input type="text" value="Doe/Kid"/>
Number of Head:	<input type="text" value="100"/> Estimated Herd BCS: <input type="text" value="3"/> <input type="button" value="?"/>
Average Adult Doe Body Weight (lbs):	<input type="text" value="80"/>
Kidding Efficiency (%):	<input type="text" value="85"/>
Average Kids Per Kidding Doe:	<input type="text" value="1.8"/>
Animal Kidding Month:	<input type="text" value="March"/>
Wean Month:	<input type="text" value="May"/>
<input checked="" type="checkbox"/> Culling Non-breeding Does?	<input checked="" type="checkbox"/> Replacement Does from Flock?
Culling Month:	<input type="text" value="May"/> Replacement Number: <input type="text" value="23"/>
Number Culled:	<input type="text" value="15"/> Begin Body Weight: <input type="text" value="30"/>

1. Average Adult Doe Body Weight (lbs): Defaults to 80 pounds, but can be overwritten.
2. Kidding Efficiency (%): Defaults to 85% but can be overwritten.
 - a. assumes 70% of Lambing Ewes lamb in selected month.
3. Average Kids Per Kidding Doe: Defaults to 1.8 but can be overwritten.
4. Animal Kidding Month: Defaults to March but can be changed
5. Wean Month: Always second month after kidding.
6. Doe Replacement?: The program defaults to having replacement animals retained from the flock. If the producer does not wish to keep replacements simply uncheck this box.

- a. Replacement Number: Does kept as replacements defaults to 150% of the number of Does that did not kid, but may be overwritten.
 - b. Begin Body Weight: Replacements body weight defaults to 30 lbs, but may be overwritten.
7. Culling?: The program defaults to not culling Does from the flock. If the producer wishes to cull then simply check this box.
- a. Culling Month: Defaults to month of weaning, but may be changed.
 - b. Number Culled: Defaults to the number of non-lambing Ewes (rounded), but may be overwritten.

Mature Animal Information:

The Mature Animal nomenclature indicates that these animals are at mature weight and not breeding. The user must then select the mature animal type using the combo box associated with 'Select Mature Animal Type'. Once this selection is made the 'Herd Name' will default to the 'Mature Animal Type' selected, but may be changed by the user.

Note to user: 'Mature Animal' is our designation for these animals that share certain characteristics and is our choice for this program. It was not our intent to introduce confusion for the user, and it should be understood that many of the other animal types are also mature animals. Furthermore, the selection 'Horse' should also be used for Mares.

Animal Type	Minimal Intake Rate (lbs % BW)	Maxmal Intake Rate (lbs % BW)	Default Intake Rate (lbs % BW)	Minimal Body Weight (lb)	Maxmal Body Weight (lb)	Default Body Weight (lb)
Bull	1.5	3	2	800	2200	1500
Horse	1.5	3	2	800	1800	1200
Buck	1.5	3	2	50	250	125
Ram	1.5	3	2	100	350	200

Available Choices and Default Reference Data for Mature Animals

Bull Information

Animal Herd Information

Animal Type:

Herd Name:

Number of Head: Estimated Herd BCS:

Select Mature Animal Type:

Average Animal Body Weight (lbs):

Animal Intake Rate (lbs DM % BW):

1. Select Mature Animal Type: Animal type will then default as herd name, but can be changed by the user.
2. Average body weight Default to 1500 but can be overwritten.
3. Animal Intake Rate (lbs of Dry Matter as a % of Body Weight: Defaults to 2 but can be overwritten.

Horse Information

Animal Herd Information

Animal Type:

Herd Name:

Number of Head: Estimated Herd BCS:

Select Mature Animal Type:

Average Animal Body Weight (lbs):

Animal Intake Rate (lbs DM % BW):

[Click Here to See data for Mature Animals](#)

*: Intake Rate is only for forage consumption, no consideration is made of any feed other than grazing.

1. Select Mature Animal Type: Animal type will then default as herd name, but can be changed by the user.
2. Average body weight Default to 1500 but can be overwritten.
3. Animal Intake Rate (lbs of Dry Matter as a % of Body Weight: Defaults to 2 but can be overwritten.

Buck Information

Animal Herd Information

Animal Type:

Herd Name:

Number of Head: Estimated Herd BCS:

Select Mature Animal Type:

Average Animal Body Weight (lbs):

Animal Intake Rate (lbs DM % BW):

1. Select Mature Animal Type: Animal type will then default as herd name, but can be changed by the user.
2. Average body weight Default to 1500 but can be overwritten.
3. Animal Intake Rate (lbs of Dry Matter as a % of Body Weight: Defaults to 2 but can be overwritten.

Ram Information

Animal Herd Information

Animal Type:

Herd Name:

Number of Head: Estimated Herd BCS:

Select Mature Animal Type:

Average Animal Body Weight (lbs):

Animal Intake Rate (lbs DM % BW):

1. Select Mature Animal Type: Animal type will then default as herd name, but can be changed by the user.
2. Average body weight Default to 1500 but can be overwritten.
3. Animal Intake Rate (lbs of Dry Matter as a % of Body Weight: Defaults to 2 but can be overwritten.

Purchased Replacement Animal Information

These animals are to be distinguished from replacement animals retained from the herd. The assumption is that the producer has purchased these animals from outside of the operation and that the intent is to breed these animals. C-Graz assumes and limits the user to these animals birthing within 6 months of being brought on to the farm.

Heifer Information

Animal Herd Information	
Animal Type:	Heifer
Herd Name:	Purchased Repl. Heifer
Number of Head:	100
Estimated Herd BCS:	6 ?
Purchased Month:	January
Purchased Body Weight (lbs):	821
Mature Cow Body Weight (lbs):	1100
Daily Growth Rate Before Calving (lbs):	1
Intake Rate Before Calving:	2.5
Calving Month:	March
Weaning Month:	September
Calf Weaning Weight (lbs):	450

1. Purchased Month: Defaults to January, but may be changed to actual month.
2. Purchased Body Weight (lbs): Defaults to 821 lbs, but may be overwritten to reflect actual purchase weight. Weight must reach 80% of Mature Cow Weight prior to calving.
3. Mature Cow Body Weight (lbs): Defaults to 1100 lbs, but may be overwritten to reflect actual mature weight of breed.
4. Daily Growth Rate Before Calving (lbs): Calculated value to must be between 0.8 and 2.5 lbs per day.
5. Intake Rate Before Calving: Defaults to 2.5 % of body weight, but may be overwritten with a value between 1 and 3 %. Beginning with the calving month, the calculation will use C-Graz reference data for the monthly intake percentage.
6. Calving Month: Defaults to March, but may be changed by the user. User is limited to a calving month within 6 months of purchase month.
7. Weaning Month: Defaults to September (7 months after default calving month), but may be changed by the user to a month between 5 and 9 months post birth.
8. Calf Weaning Weight (lbs): Defaults to 450 lbs, but may be overwritten by user.

Note to user: Purchase Replacement Heifers are required to calve within 6 months of being purchased. Based upon the user's entry for the Intake rate, the average daily gain is calculated. That daily gain is required to be within 0.8 lbs and 2.5 lbs per day and the animal must reach 80% of mature body weight prior to calving. Animals that are all ready over the 80% requirement are assumed to have a 1lb daily growth rate. The animals weight is calculated daily to derive its forage requirement prior to calving. The weight is calculated daily post calving until the animal reaches its mature body weight and its weight is then held constant. Calves are assumed to weigh 85 lbs at birth. Using the user entered wean weight, calving month and wean month, an average daily gain is calculated for the calf. C-Graz then calculates the daily forage requirements for the pair separately based upon intake rates as a percentage of body weight for the Cow, that varies during the gestation and nursing periods, and for the calf that varies during the nursing period and is based upon the calculated daily gain derived from the user inputs.

Purchased Replacement Doe

Animal Herd Information

Animal Type:

Herd Name:

Number of Head: Estimated Herd BCS:

Purchased Month:

Purchased Body Weight (lbs):

Mature Doe Body Weight (lbs):

Daily Growth Rate Before Kidding (lbs):

Intake Rate Before Kidding:

Average Kids Per Kidding Doe:

Kidding Month:

Wean Month:

1. Purchased Month: Defaults to January, but may be changed to actual month.
2. Purchased Body Weight (lbs): Defaults to 60 lbs, but may be overwritten to reflect actual purchase weight. Weight must reach 95% of Mature Doe Weight prior to kidding.
3. Mature Doe Body Weight (lbs): Defaults to 80 lbs, but may be overwritten to reflect actual mature weight of breed.
4. Daily Growth Rate Before Kidding (lbs): Calculated value must be between 0.06 and 0.8 lbs per day.
5. Intake Rate Before Kidding: Defaults at 2.5 % of body weight, but may be overwritten with a value between 1 and 4 %. Beginning with the kidding, the calculation will use C-Graz reference data for the monthly intake percentage.
6. Average Kids Per Kidding Doe: Defaults to 1.8 kids per kidding event, but may be overwritten by user. There is no limitation on this entered value.
7. Kidding Month: Defaults to March, but may be changed by the user. User is limited to a kidding month within 6 months of purchase month.
8. Wean Month: Defaults to May (2 months after default kidding month), and will adjust automatically if the kidding month is changed.

Note to user: Purchase Replacement Does are required to kid within 6 months of being purchased. Based upon the user's entry for the Intake rate, the average daily gain is calculated. That daily gain is required to be within 0.06 and 0.8 lbs per day and the animal must reach 95% of mature body weight prior to kidding. The animal's weight is calculated daily to derive its forage requirement prior to kidding. The weight is calculated daily post kidding until the animal reaches its mature body weight and its weight is then held constant. Kids are assumed to weigh 6 lbs at birth and 30 lbs at weaning. C-Graz then calculates the daily forage requirements for the pair based upon intake rates as a percentage of body

weight for the Doe, that varies during the gestation and nursing periods, and for the kid(s) that varies during the nursing period and is based upon the calculated daily gain.

Purchased Replacement Ewe

Animal Herd Information	
Animal Type:	P. R. Ewe
Herd Name:	Purchased Repl. Ewe
Number of Head:	100
Estimated Herd BCS:	4 ?
Purchased Month:	January
Purchased Body Weight (lbs):	60
Mature Ewe Body Weight (lbs):	150
Daily Growth Rate Before Lambing (lbs):	0.8
Intake Rate Before Lambing:	2.5
Average Lambs Per Lambing Ewe:	1.8
Lambing Month:	March
Wean Month:	May

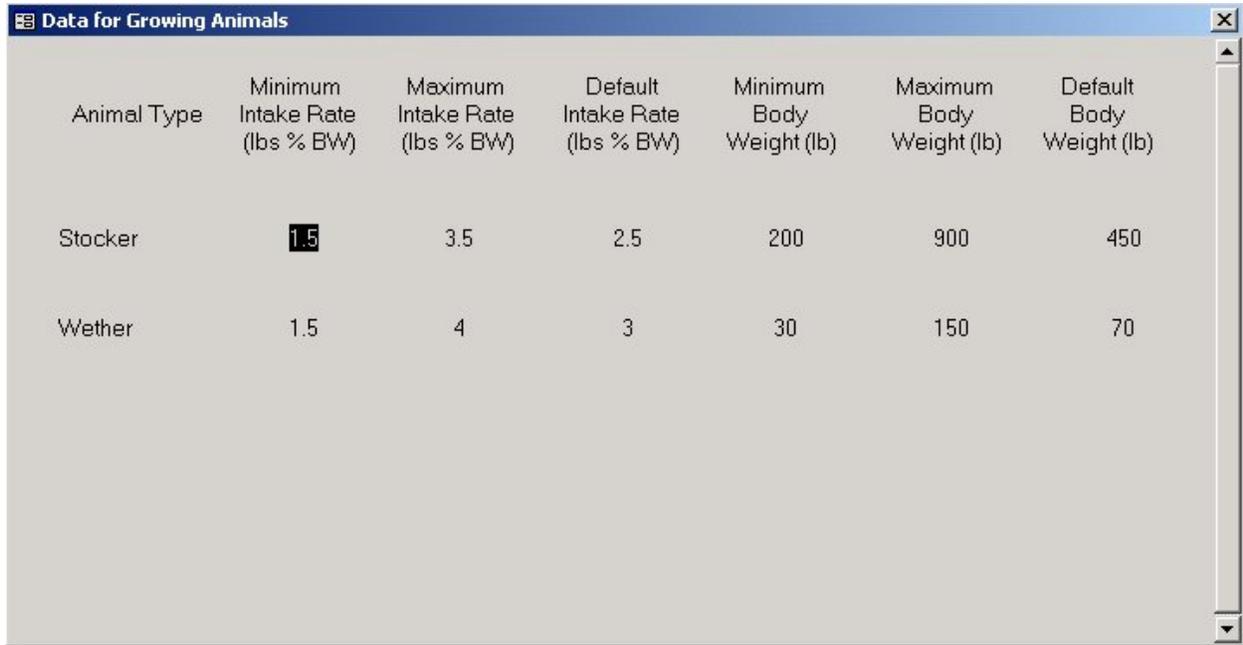
1. Purchased Month: Defaults to January, but may be changed to actual month.
2. Purchased Body Weight (lbs): Defaults to 60 lbs, but may be overwritten to reflect actual purchase weight. Weight must reach 95% of Mature Ewe Weight prior to lambing.
3. Mature Ewe Body Weight (lbs): Defaults to 150 lbs, but may be overwritten to reflect actual mature weight of breed.
4. Daily Growth Rate Before Lambing (lbs): Calculated value must be between 0.1 and 1.0 lbs per day.
5. Intake Rate Before Lambing: Defaults to 2.5 % of body weight, but may be overwritten with a value between 1 and 3 %. Beginning with the lambing, the calculation will use C-Graz reference data for the monthly intake percentage.
6. Average Lambs Per Lambing Ewe: Defaults to 1.8 lambs per lambing event, but may be overwritten by user. There is no limitation on this entered value.
7. Lambing Month: Defaults to March, but may be changed by the user. User is limited to a lambing month within 6 months of purchase month.
8. Wean Month: Defaults to May (2 months after default lambing month), and will be adjust automatically if the kidding month is changed.

Note to user: Purchase Replacement Ewes are required to lamb within 6 months of being purchased. Based upon the user's entry for the Intake rate, the average daily gain is calculated. That daily gain is required to be within 0.1 and 1.0 lbs per day and the animal must reach 95% of mature body weight prior to lambing. The animals weight is calculated daily to derive its forage requirement prior to lambing. The weight is calculated daily post lambing until the animal reaches its mature body weight and its weight is

then held constant. Lambs are assumed to weigh 8 lbs at birth and 60 lbs at weaning. C-Graz then calculates the daily forage requirements for the pair based upon intake rates as a percentage of body weight for the Doe, that varies during the gestation and nursing periods, and for the lamb(s) that varies during the nursing period and is based upon the calculated daily gain.

Growing Animal Information

When the user selects Growing Animal, nomenclature indicating that these animals are not at mature weight, the Growing Animal form is displayed. The user must then select the growing animal type using the combo box associated with 'Select Growing Animal Type'. Once this selection is made the 'Herd Name' will default to the 'Growing Animal Type' selected, but may be changed by the user.



Animal Type	Minimum Intake Rate (lbs % BW)	Maximum Intake Rate (lbs % BW)	Default Intake Rate (lbs % BW)	Minimum Body Weight (lb)	Maximum Body Weight (lb)	Default Body Weight (lb)
Stocker	1.5	3.5	2.5	200	900	450
Wether	1.5	4	3	30	150	70

Stocker Information:

Animal Herd Information

Animal Type:

Herd Name:

Number of Head: Estimated Herd BCS:

Please Select Growing Animal Type:

Animal On-farm Month:

Animal Off-farm Month:

Animal Intake Rate (lbs DM % BW):

Animal Begin Body Weight (lbs):

Animal Market Body Weight (lbs):

Target Daily Rate of Gain (lbs): 0.68

1. Please Select Growing Animal Type: Animal type will then default as herd name, but can be changed by the user.
2. Animal On-farm Month: Select month animals brought on to farm. Defaults to January.
3. Animal Off-farm Month: Select month animals are sold and/or removed from farm. Defaults to December.
4. Animal Intake Rate (lbs Dry Matter as a % of Body Weight): Defaults to 2.5%, but can be overwritten
5. Animal Begin Body Weight (lbs): Defaults to 200 lbs, but may be overwritten to actual weight at purchase.
6. Animal Market Body Weight (lbs): Defaults to 450 lbs, but may be overwritten to actual weight at sale.
7. Target Daily Rate of Gain (lbs): Must be between .5 and 2.5 lbs per day.

Wether Information

Animal Herd Information

Animal Type:

Herd Name:

Number of Head: Estimated Herd BCS:

Please Select Growing Animal Type:

Animal On-farm Month:

Animal Off-farm Month:

Animal Intake Rate (lbs DM % BW):

Animal Begin Body Weight (lbs):

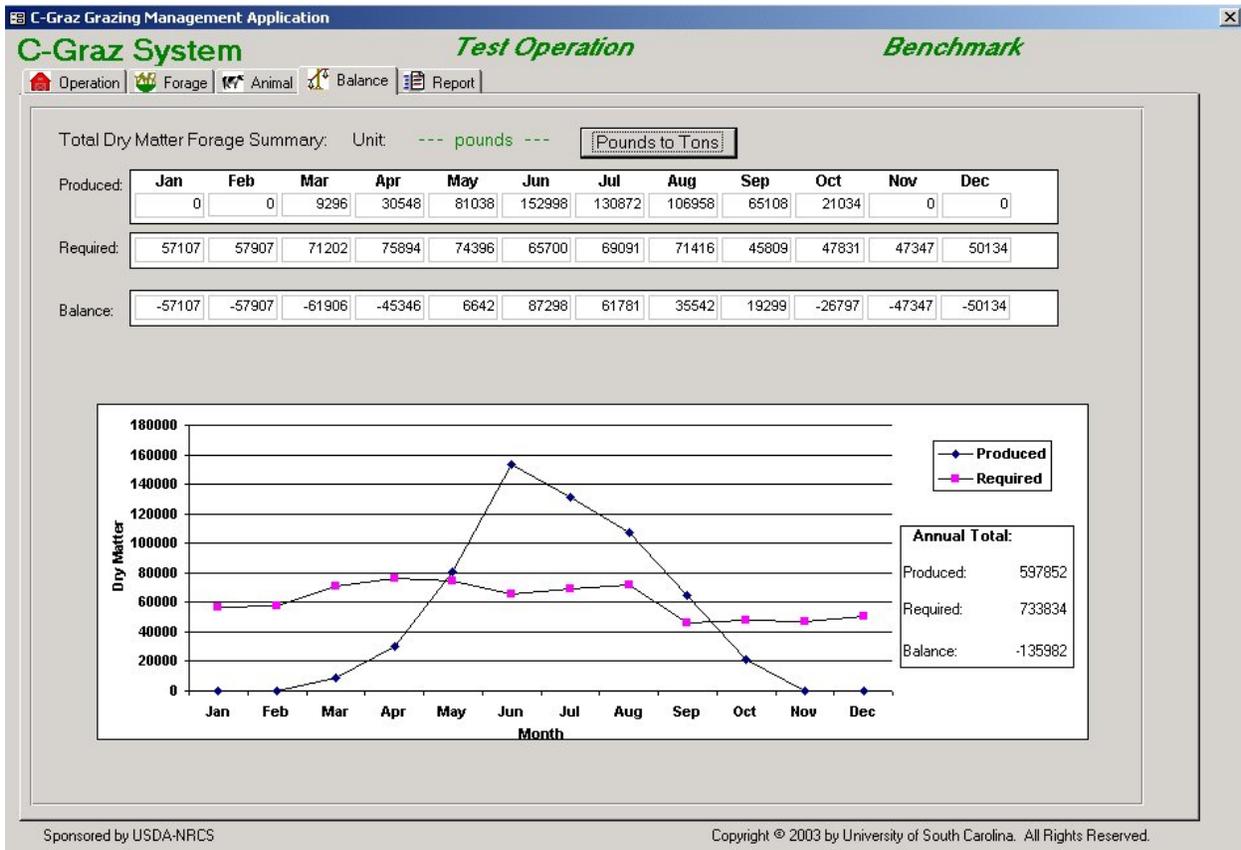
Animal Market Body Weight (lbs):

Target Daily Rate of Gain (lbs): 0.08

1. Please Select Growing Animal Type: Animal type will then default as herd name, but can be changed by the user.
2. Animal On-farm Month: Select month animals brought on to farm. Defaults to January.
3. Animal Off-farm Month: Select month animals are sold and/or removed from farm. Defaults to December.
4. Animal Intake Rate (lbs Dry Matter as a % of Body Weight): Defaults to 3%, but can be overwritten to any value between 1.5 % and 4 %.
5. Animal Begin Body Weight (lbs): Defaults to 30 lbs, but may be overwritten to actual weight at purchase.
6. Animal Market Body Weight (lbs): Defaults to 70 lbs, but may be overwritten to actual weight at sale.
7. Target Daily Rate of Gain (lbs): Must be between .05 and 0.8 lbs per day.

Estimated Forage Balance

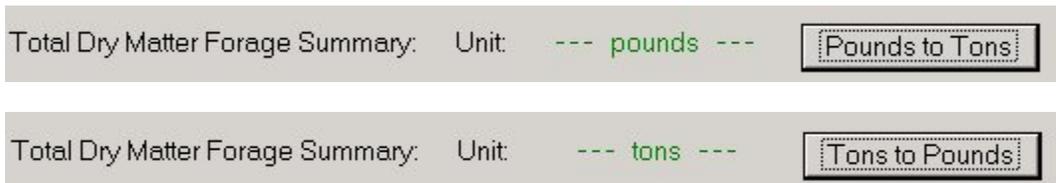
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Balance Form in C-Graz.

Displaying Data

The units of forage produced and required can be displayed either in pounds or tons. The user simply has to select the 'Pounds to Tons' button to change the units to tons or 'Tons to Pounds'.



Balance Tables

Forage produced is factored by the grazing efficiency in each field. These monthly total is then in essence what is available to "go down the throat". Forage required is the monthly total of what all animals in the plan require in that month.

Total Dry Matter Forage Summary: Unit: --- pounds ---

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Produced:	0	0	9296	30548	81038	152998	130872	106958	65108	21034	0	0
Required:	57107	57907	71202	75894	74396	65700	69091	71416	45809	47831	47347	50134
Balance:	-57107	-57907	-61906	-45346	6642	87298	61781	35542	19299	-26797	-47347	-50134

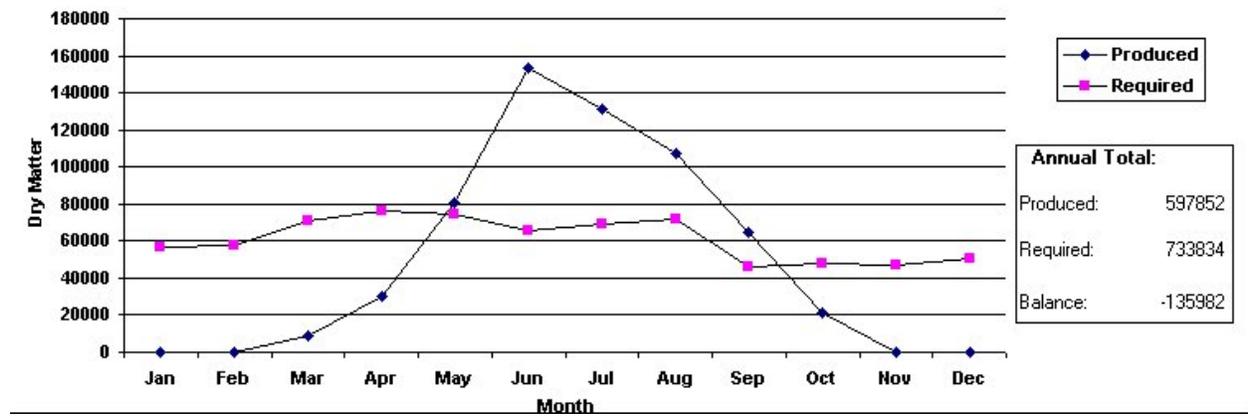
Forage Balance Table in Pounds

Total Dry Matter Forage Summary: Unit: --- tons --- Tons to Pounds

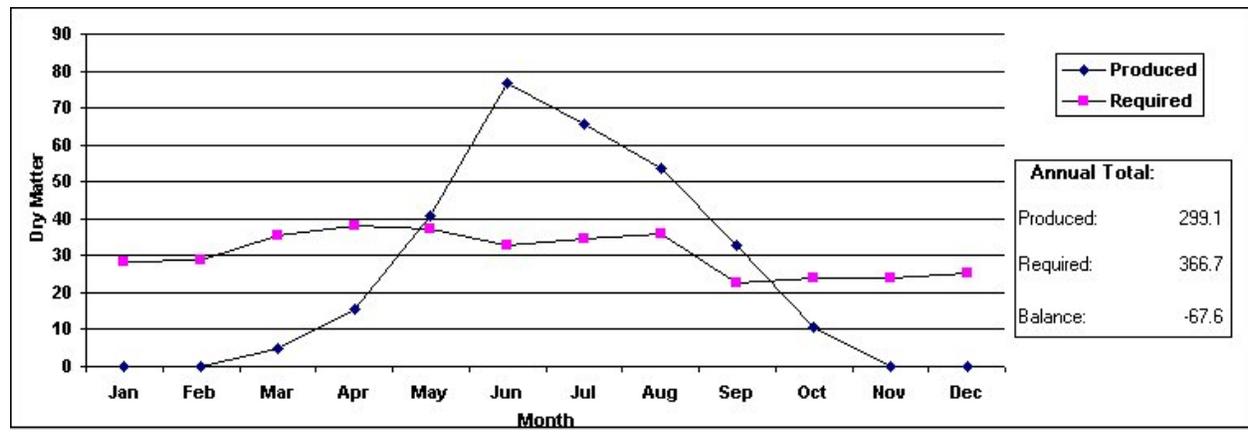
Produced:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	0	0	4.7	15.3	40.6	76.5	65.4	53.5	32.6	10.5	0	0
Required:	28.5	28.8	35.6	38.1	37.3	32.7	34.5	35.7	22.8	23.8	23.8	25.1
Balance:	-28.5	-28.8	-30.9	-22.8	3.3	43.8	30.9	17.8	9.8	-13.3	-23.8	-25.1

Forage Balance Table in Tons

Balance Charts



Forage Balance Graph in Pounds



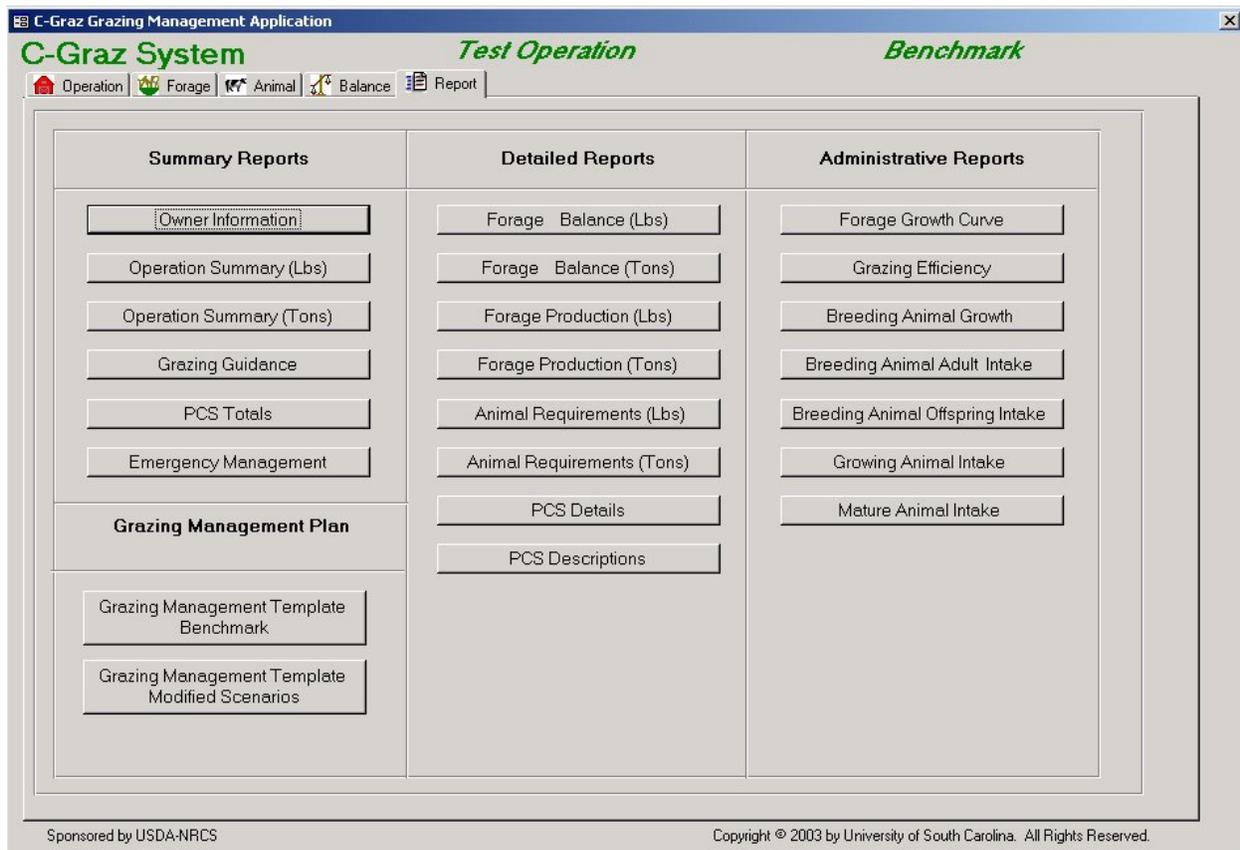
Forage Balance Graph in Tons

The graph represents the table in a more visual mode for the producer to see the forage produced versus required per month planned. The Annual Totals are shown in the box on the right side of the graph.

Reports

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To obtain detailed reports for each operation select the "Reports" tab on the database menu.



Reports Form

The reports are divided into four categories, and all reports will be displayed in Microsoft Word®.

1. Summary Reports
 - a. Owner Information.
 - b. Operation Summary (pounds/tons).
 - c. Grazing Guidance.
 - d. PCS Totals.
 - e. Emergency Management Plans.
2. Detailed Reports
 - a. Forage Balance (pounds/tons).
 - b. Forage Production (pounds/tons).
 - c. Animal Requirements (pounds/tons).
 - d. PCS Details (gives each indicator score/field).
 - e. PCS Descriptions (gives the descriptions for each indicator).
3. Administrative Reports (reports displaying the underlying reference data in the state and region of the plan).
 - a. Forage Growth Curves
 - b. Grazing Efficiency
 - c. Breeding Animal Growth
 - d. Breeding Animal Adult Intake
 - e. Breeding Animal Offspring Intake
 - f. Growing Animal Intake
 - g. Mature Animal Intake
4. Grazing Management Plan
 - a. Grazing Management Template – Benchmark
 - i. Select this button to write the Benchmark data to the Grazing Management Plan (if a template has been developed for your state). C-Graz will write a set of reports previously programmed into the document.
 - ii. Save the changes.
 - b. Grazing Management Template – Modified Scenarios

- i. In the template, use Autotext to insert the text for Modified Scenarios. This text includes additional bookmarks that C-Graz needs to write the reports to the Grazing Plan. Save the changes and close the document.
- ii. In C-Graz, select the scenario that needs to be inserted into the plan.
- iii. Select the Grazing Management Template – Modified Scenarios button.
- iv. Browse to the previously saved document.
- v. C-Graz will insert the additional reports set up in the template.

Administration

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The administration tab allows the user to:

- 1.) Update Available States
- 2.) Update Reference Data
- 3.) View Reference Data

C-Graz Administration

The Following States Have Available Reference Data

Check States to Update Reference Data	State Name	Name	e-mail	Phone	Approved by NRCS?
<input checked="" type="checkbox"/>	Delaware	Sally L. Griffith-Kepfer	sally.kepfer@de.usda.gov	(302) 678-4182	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Georgia	Holli Kuykendall	holli.kuykendall@ga.usda.gov	(706) 546-2095	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Maryland	Elmer Dengler	elmer.dengler@md.usda.gov	(443) 482-2922	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	North Carolina	Jim Green	jim_green@ncsu.edu	(919)515-2390	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	South Carolina	Michael Hall	michaelhall@sc.usda.gov	(864)388-9163	<input checked="" type="checkbox"/>

Do you want to use offline data?

Main Administration Form.

Reference Data is the underlying information C-Graz uses to compute total forage production and total forage required on an operation.

Updating Reference Data

1. Obtain a copy of the states reference data.
2. Place the obtained files in C:\program files\ESRI-USC\C-Graz\RefData.
3. Place checkmark in "Do you want to use offline data?" checkbox.
4. Select 'Update Available States'
5. Place checkmark next to state name whose reference data needs to be updated.
6. Select 'Download Reference Data'

Viewing Reference Data

To View the Reference Data

1. Select 'View Reference Data'
2. Select the State
3. Select a Region

Reference Data

Forage Growth Curves

1. Forage Species
2. Annual Yields
3. Monthly Growth Curves

C-Graz: Reference Data

1. Select a state: 2. Select a Region:

Forage Growth Curve | Grazing Efficiency | Breeding Animal Growth Info | Breeding Animal Intake Rate | Non-breeding Animal Information

Forage Species	Annual Yield (lbs/ac)	----- Monthly Growth Curve (Fraction of Total Annual Yield) -----											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Alfalfa	7600	0	0.03	0.11	0.19	0.22	0.14	0.08	0.09	0.07	0.04	0.02	0.01
Bahia	6000	0	0	0	0.02	0.12	0.23	0.25	0.21	0.14	0.03	0	0
Bermuda, common seeded	7400	0	0	0.03	0.08	0.15	0.28	0.19	0.15	0.08	0.04	0	0
Bermuda, Improved seeded	8250	0	0	0.03	0.08	0.15	0.28	0.19	0.15	0.08	0.04	0	0
Bermuda_30% +Fescue_70% mi	9000	0.01	0.05	0.1	0.17	0.21	0.15	0.09	0.07	0.06	0.04	0.04	0.02
Bermuda+Crabgrass mixed	9200	0	0	0.01	0.05	0.09	0.21	0.28	0.25	0.07	0.04	0	0
Bermuda+Crimson Cl mixed	9900	0.01	0.02	0.06	0.12	0.16	0.2	0.18	0.12	0.05	0.04	0.03	0.02
Bermuda+Rye overseeded	11550	0.01	0.04	0.08	0.1	0.16	0.2	0.16	0.1	0.07	0.04	0.03	0.02
Bermuda+Rye&Ryegrass overse	11500	0.01	0.03	0.09	0.12	0.19	0.2	0.14	0.09	0.06	0.04	0.03	0.01
Bermuda-Hybrid	7400	0	0	0.03	0.08	0.15	0.28	0.19	0.15	0.08	0.04	0	0
Bermuda-Hybrid	9900	0	0	0.03	0.08	0.15	0.28	0.19	0.15	0.08	0.04	0	0
Big bluestem	7000	0	0	0.01	0.07	0.2	0.25	0.18	0.15	0.12	0.02	0	0
Bluestem, Caucasian	7000	0	0	0	0.02	0.15	0.3	0.25	0.19	0.08	0.01	0	0
Cornstalks, gleaning	1500	0	0	0	0	0	0	0	0	0.3	0.3	0.25	0.15
Crabgrass	7500	0	0	0	0.05	0.15	0.3	0.23	0.18	0.08	0.01	0	0
Dallisgrass	7200	0	0	0	0.05	0.17	0.28	0.25	0.16	0.08	0.01	0	0
Fescue 70% and Crabgrass 30%	7500	0.01	0.05	0.1	0.17	0.2	0.15	0.09	0.07	0.06	0.04	0.04	0.02

Reference Data for Monthly Growth Curves.

Grazing Efficiency

1. Grazing Intensity
2. Percent Efficiency

C-Graz: Reference Data

1. Select a state: 2. Select a Region:

Forage Growth Curve | **Grazing Efficiency** | Breeding Animal Growth Info | Breeding Animal Intake Rate | Non-breeding Animal Information

Grazing Intensity	Grazing Efficiency (%)
1-4 days avg. graze duration	75
5-14 days avg. graze duration	60
15-21 days avg. graze duration	45
Continuous grazing lax	35
Continuous grazing heavy	35
>21 days avg. graze period	35
Other grazing methods	0

Grazing Efficiency Reference Data.

Breeding Animal Growth Info

- a. Animal Type
- b. Adult Weight
- c. Birthing Efficiency
- d. Percent Born the First Month
- e. Average Offspring per Birthing Animal
- f. Offspring Weight
 - i. Birth
 - ii. Wean
- g. Replacement Animals
 - i. Percent Retained
 - ii. Percent of Adult weight when returned to the reproduction herd.

1. Select a state:

2. Select a Region:

Forage Growth Curve | **Grazing Efficiency** | Breeding Animal Growth Info | Breeding Animal Intake Rate | Non-breeding Animal Information

Animal Type	Adult Weight (lbs)	Birthing Efficiency (%)	Born 1st Month (%)	Average Offspring per Birthing Animal	Offspring Weight (lbs)		Replacement Animals		
					Birth	Wean	Repl (% of Non-birthing Adult)	12 Month Wt (% of Adult)	24-Month Wt (% of Adult)
Cow/Calf	1100	85	70	1	85	450	150		80
Doe/Kid	80	85	70	1.8	6	30	150	70	95
Ewe/Lamb	150	85	70	1.8	8	60	150	70	95
Dairy Cow	1350	85	70	1	90	450	150		80

Breeding Animal Growth Info Reference Data.

Breeding Animal Intake Rates

C-Graz: Reference Data

1. Select a state: 2. Select a Region:

Forage Growth Curve | Grazing Efficiency | Breeding Animal Growth Info | **Breeding Animal Intake Rate** | Non-breeding Animal Information

----- Daily Intake Rate (lbs Dry Matter % Body Weight)-----

Animal Type	Repl. Animals	----- (Months Post Birth) -----											
		1	2	3	4	5	6	7	8	9	10	11	12
Cow	2.8	2.3	2.46	2.4	2.26	2.12	2	1.88	1.6	1.63	1.69	1.8	1.99
Doe	3	5	5.5	4.5	3	3	3	3.5	3.5	3.5	3.5	4	4.5
Ewe	3	5	5.5	4.5	3	3	3	3.5	3.5	3.5	3.5	4	4.5
Dairy Cow	2.8	1	1	1	1	1	1	1	1	1	1	1	1

----- Offspring Daily Intake Rate (lbs Dry Matter % Body Weight)-----

Animal Type	----- (Months Post Birth) -----												Post-birth Intake Rate for Each Extra Offspring		
	1	2	3	4	5	6	7	8	9	10	11	12	1 Month	2 Month	3 Month
Calf	0	0.8	1.63	2.12	2.32	2.44	2.73	2.9	3	0	0	0			
Kid													0.5	0.75	1
Lamb													0.5	0.75	1

1. Animal Type
2. Replacement Animals Intake Rates
3. Monthly Intake Rates for Breeding Females
4. Month 1 reflects the intake rate for the first month after birth.

Non-breeding Animal Info

C-Graz: Reference Data

1. Select a state: 2. Select a Region:

Forage Growth Curve | Grazing Efficiency | Breeding Animal Growth Info | Breeding Animal Intake Rate | **Non-breeding Animal Information**

Animal Type	Minimal Intake Rate (lbs % BW)	Maximal Intake Rate (lbs % BW)	Default Intake Rate (lbs % BW)	Minimal Body Weight (lb)	Maximal Body Weight (lb)	Default Body Weight (lb)
Bull	1.5	3	2	800	2200	1500
Horse	1.5	3	2	800	1800	1200
Buck	1.5	3	2	50	250	125
Ram	1.5	3	2	100	350	200

Animal Type	Minimal Intake Rate (lbs % BW)	Maximal Intake Rate (lbs % BW)	Default Intake Rate (lbs % BW)	Minimal Body Weight (lb)	Maximal Body Weight (lb)	Default Body Weight (lb)	Minimal Daily Gain (lb)	Maximal Daily Gain (lb)	Average Daily Gain (lb)
Stocker	1.5	3.5	2.5	200	900	450	0.7	3.5	0.68
Wether	1.5	4	3	30	150	70	0.06	0.8	0.08

Non-Breeding Animal Information.

Mature Animals

1. Maximum, Minimum and Default Intake Rates
2. Maximum, Minimum and Default Body Weight

Growing Animals

1. Maximum, Minimum and Default Intake Rates
2. Maximum, Minimum and Default Body Weight
3. Maximum, Minimum and Default Daily Gain