

# Animal Ag Demo Project

(Dairy)





---

For more information on getting started with COMET-Farm™ please see the following pages:

- [-Navigating COMET-Farm™](#)
- [-Creating an Account](#)
- [-Creating New Projects](#)

# How to Use Demo Projects



---

Each demo project helps  
users navigate:

- COMET-Farm<sup>TM</sup> data entry pages
- Help tools and windows with information on the site or the management practices that have been selected.

# Help along the way...

**COMET Farm** | USDA United States Department of Agriculture Natural Resources Conservation Service | Colorado State University | Whole Farm and Ranch Carbon and Greenhouse Gas Accounting System

HOME TOOL INFO HELP (Sign in or Register) f t

### What is COMET-Farm?

COMET-Farm is a whole farm and ranch carbon and greenhouse gas accounting system.

The tool guides you through describing your farm and ranch management practices including alternative future management scenarios. Once complete, a report is generated comparing the carbon changes and greenhouse gas emissions between your current management practices and future scenarios.

[Start Using COMET-Farm](#)

Why should I use COMET-Farm? | USDA GHG methods | What information do I need? | How are my results calculated? | Is my information safe? | How do I use COMET-Farm? | Overview video

#### Related Tools

[COMET-Energy Tool](#) [Go to COMET-Energy Tool >>](#) | [COMET-Planner Tool](#) [Go to COMET-Planner Tools >>](#) | [Help](#)

## Welcome to Support

Got questions?

Search for help

Suggested articles

- Crops with overlapping calendar years
- Entity grows in size over time
- Case of multiple cover crops

[Contact us](#)

by Freshworks

[Help](#)

- Search for solutions to common questions or submit a help-desk ticket for COMET-Farm™ support.

-Blue question mark icons provide information on categories and what can be evaluated 

# WHAT INFORMATION WILL I NEED?

For a detailed list of information needed, click [HERE](#)



## BASELINE MANAGEMENT



"Business as Usual"  
What are your current practices for  
dairy cattle management?



## FUTURE SCENARIO MANAGEMENT



What changes will you make to the  
following cattle management practices  
for 10 years after baseline?

# ANIMAL AGRICULTURE (DAIRY)

## DEMO PROJECT SCENARIO

Cattle management impacts on greenhouse gas emissions



ANAEROBIC  
LAGOONS



Large production of  
methane (CH<sub>4</sub>)



LIVESTOCK  
MANURE



Converted to safe, high  
quality soil amendment  
and fertilizer



ANAEROBIC  
DIGESTERS



Methane can be captured and  
burned in generators to  
generate electricity or heat  
water

# Animal Agriculture (Dairy) Demo Project

## Selected Activities for the Current Project: Animal Ag Demo Project

All Categories - Full Accounting

Cropland, Pasture, Range, Orchards/Vineyards

Animal Agriculture

Agroforestry

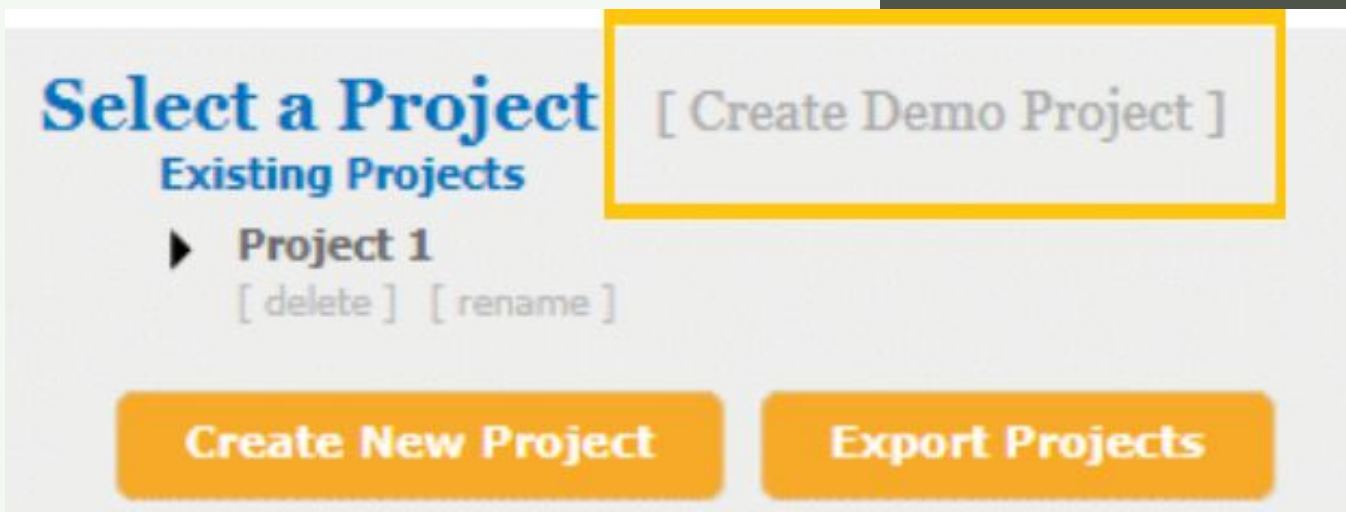
Forestry

[Define Activities >>](#)

This demonstration project is based on the dairy at the California Polytech Institute in San Luis Obispo, California. The university converted their manure management system to an anaerobic digester in 2013, using the methane to generate electricity and reducing their overall system greenhouse gas emissions by hundreds of tons of carbon dioxide.

# To Select Animal Agriculture (Dairy) Demo Project

On the Tool page,  
select "Create  
Demo Project"



Select  
"Animal Agriculture" and  
"Create"





# Property Location:

Navigation  
Bars



Step 1 Activities    Step 2 **Animal Agriculture** ▼    Step 3 Report

Property Location → Animal Types → Animal Characteristics

Current Step

Select Property Location

### Select Property Location


Enter your Zip code

What are your preferred units of measure?


**Please enter all data in Pounds except where noted**

<< Back    Save & Continue >>

Units are pre-selected for demo



Move to Next Management Activity



# Animal Types:

A help window will appear when the animal types page is opened. This defines the scenario in the Animal Agriculture (Dairy)- Demonstration Project.

The screenshot displays a web application interface with a navigation bar at the top containing 'Step 1 Activities', 'Step 2 Animal Agriculture', and 'Step 3 Report'. Below the navigation bar, the current step is 'Animal Types', with 'Property Location' and 'Animal Characteristics' as sub-steps. A 'Current Step' indicator shows 'Select Animal Types'. The main content area is titled 'Select Animal Types' and contains a list of animal types: 'Cattle', 'Other', 'American Bison', and 'Goats'. A help window titled 'Demo - Animal Types' is overlaid on the page. The help window features a blue header, a map of the United States, and the text: 'Animal Agriculture Demo' and 'The dairy milks 180 cows with a total population of over 350 animals, including heifers and calves.' An 'Ok' button is highlighted with a yellow box, and a yellow arrow points from the text 'Move to Animal Types page' to the 'Ok' button. At the bottom of the page, there are two buttons: '<< Back' and 'Save & Continue >>'.

# Animal Types:

There are many different animal types available.

For the purposes of the demo project, the following animal types are already selected:

- Dairy-Dry Cows
- Dairy-Heifer Replacements
- Dairy-Lactating Cows

Step 1 Activities   Step 2 **Animal Agriculture**   Step 3 Report

Property Location → **Animal Types** → Animal Characteristics

**Current Step**  
Select Animal Types

### Select Animal Types

**Cattle**

Beef-Heifer Replacements <input type="checkbox"/>	Beef-Heifer Stockers <input type="checkbox"/>
Beef-Mature Cows/Cow-Calf <input type="checkbox"/>	Beef-Steer Stockers <input type="checkbox"/>
Bulls <input type="checkbox"/>	Dairy-Heifer Replacements <input checked="" type="checkbox"/>
Dairy-Dry Cows <input checked="" type="checkbox"/>	Dairy-Lactating Cows <input checked="" type="checkbox"/>
Feedlot Cattle <input type="checkbox"/>	

**Poultry**

Broilers <input type="checkbox"/>	Ducks <input type="checkbox"/>
Laying Hens <input type="checkbox"/>	Turkeys <input type="checkbox"/>

**Sheep**

Feeder Sheep <input type="checkbox"/>	Flock Sheep <input type="checkbox"/>
---------------------------------------	--------------------------------------

**Swine**

Gestating Sows <input type="checkbox"/>	Grow-Finish Pigs <input type="checkbox"/>
Lactating Sows <input type="checkbox"/>	Weaning Pigs <input type="checkbox"/>

**Other**

American Bison <input type="checkbox"/>	Goats <input type="checkbox"/>
---	--------------------------------

<< Back   **Save & Continue >>**

Move to Next Management Activity

# Animal Characteristics:

The Demo-Current Management window explains the project details.

The details explained will reflect the selected options for the animal characteristics for the three animal categories throughout the demo project.

The screenshot shows a software interface with three steps: Step 1 Activities, Step 2 Animal Agriculture (selected), and Step 3 Report. The current step is 'Animal Characteristics'. On the left, there are two panels: 'Current Step' with 'Enter Animal Details' (including 'Dairy-Heifer Replacements', 'Dairy-Dry Cows', and 'Dairy-Lactating Cows') and 'Scenarios' (including 'Baseline' and 'Digester Install'). A dialog box titled 'Demo - Current Management' is open, displaying text about herd management and an 'Ok' button. A yellow arrow points to the 'Ok' button. At the bottom, there are 'Back' and 'Save & Continue' buttons.

Step 1 Activities Step 2 Animal Agriculture Step 3 Report

Property Location → Animal Types → Animal Characteristics

**Current Step**

**Enter Animal Details**

Current Category Selection

- ✓ Dairy-Heifer Replacements
- Dairy-Dry Cows
- Dairy-Lactating Cows

**Scenarios**

**Scenario List** [new] [delete]

- ✓ Baseline
- Digester Install

**Demo - Current Management**

Number Herds

Most of the herd is housed in free stall barns. About 90 percent of the manure is deposited on concrete and flushed with fresh or recycled water to a single-cell lagoon. The remaining ten percent is deposited in the corrals and collected only seasonally. Solids are separated from the flushed wastewater prior to storage in the lagoon, which has a volume of 19,000 m<sup>3</sup>, translating to 50 to 90 days of storage, depending upon the water used by the dairy.

Ok

Read through the management details, and click "ok" to continue.

<< Back Save & Continue >>

# Animal Characteristics:

Step 1 Activities   Step 2 **Animal Agriculture**   Step 3 Report

Property Location → Animal Types → **Animal Characteristics**

**Current Step**

**Enter Animal Details**

Current Category Selection

✓ **Dairy-Heifer Replacements**

Dairy-Dry Cows

Dairy-Lactating Cows

**Scenarios**

**Scenario List** [new] [delete]

✓ **Baseline**

Digester Install

Animal Details   Housing Details   Manure System Details

Number of Herds   Types of Feed   Manure System Types   Manure Details

**Enter Animal Characteristics - Dairy-Heifer Replacements**

How many unique herds do you have? 1

Assign unique labels to each of your herds

Replacements

**What are Herds?**  
A group of animals managed within the same category but with different vegetation types or different manure handling methods

<< Back   Save & Continue >>

**Need Help?**

Road map of Animal Characteristics; the page you are on will be **bolded**

This is the current Animal Category you are working with

Current Scenario you are working with

Help Tool

# Animal Characteristics: Number of Herds

Step 1 Activities    Step 2 **Animal Agriculture**    Step 3 Report

Property Location → Animal Types → **Animal Characteristics**

**Current Step**

**Enter Animal Details**

Current Category Selection

- ✓ Dairy-Heifer Replacements
- Dairy-Dry Cows
- Dairy-Lactating Cows

**Scenarios**

**Scenario List** [new] [delete]

- ✓ Baseline
- Digester Install

Assign label to each unique herd. This is already assigned in Demo Project

Animal Details    Housing Details    Manure System Details

Number of Herds    Types of Feed    Manure System Types    Manure Details

**Enter Animal Characteristics - Dairy-Heifer Replacements**

How many unique herds do you have?

Assign unique labels to each of your herds

**What are Herds?**  
A group of animals managed within the same category but with different vegetation types or different manure handling methods

**Unique herds:** Groups of animals in the same category, but are fed different feed rations

<< Back    Save & Continue >>

Need Help?

# Animal Characteristics: Number of Herds

Step 1 Activities    Step 2 **Animal Agriculture**    Step 3 Report

Property Location → Animal Types → **Animal Characteristics**

**Current Step**

**Enter Animal Details**

Current Category Selection

Dairy-Heifer Replacements

✓ Dairy-Dry Cows

Dairy-Lactating Cows

**Scenarios**

**Scenario List** [new] [delete]

✓ Baseline

Digester Install

Animal Details    Housing Details    Manure System Details

Number of Herds    Types of Feed    Manure System Types    Manure Details

**Enter Animal Characteristics - Dairy-Dry Cows**

How many unique herds do you have? 1

Assign unique labels to each of your herds

Dry Cows

**Current Step**

**Enter Animal Details**

Current Category Selection

Dairy-Heifer Replacements

Dairy-Dry Cows

✓ Dairy-Lactating Cows

**Scenarios**

**Scenario List** [new] [delete]

✓ Baseline

Digester Install

Animal Details    Housing Details    Manure System Details

Number of Herds    Types of Feed    Manure System Types    Manure Details

**Enter Animal Characteristics - Dairy-Lactating Cows**

How many unique herds do you have? 1

Assign unique labels to each of your herds

Lactating Cows

Move to Next Management Activity

<< Back    **Save & Continue >>**

Unique herd label

# Animal Details: Dairy-Heifer Replacements

Users will enter the number of cattle they have based on the average number in the herd per month. There are three housing options for dairy cows.

This is the current Animal Category you are working with

Step 1 Activities   Step 2 **Animal Agriculture**   Step 3 Report

Property Location → Animal Types → **Animal Characteristics**

**Current Step**

**Enter Animal Details**

Current Category Selection

- ✓ Dairy-Heifer Replacements
- Dairy-Dry Cows
- Dairy-Lactating Cows

Current Herd Selection

- ✓ Replacements

**Scenarios**

**Scenario List** [new] [delete]

- ✓ Baseline
- Digester Install

**Animal Details**   Housing Details   Manure System Details

Number of Herds   Types of Feed   Manure System Types   Manure Details

### Housing options for Dairy Cows

**Enter Animal Characteristics - Dairy-Heifer Replacements**

How many Dairy-Heifer Replacements do you have, on average, per month?

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Roofed Facility	85	85	85	85	85	85	85	85	85	85	85	85
Dry Lot	0	0	0	0	0	0	0	0	0	0	0	0
Pasture Range	0	0	0	0	0	0	0	0	0	0	0	0

Average Daily Feed Intake (lbs) 17

Average live body weight (lbs) 800

**Average Daily Feed Intake**  
If you are unable to provide the average daily feed intake default will be used (leave field 0).

**Dairy Cow feed intake & Average Body Weight**

<< Back   Save & Continue >>   ? Need Help?



# Animal Details: Dairy-Dry Cows

If animal populations are the same throughout the year, users can click on the icon to the right of "Jan" to populate the same value into all other months.



Current  
Animal  
Category

**Current Step**

**Enter Animal Details**

Current Category Selection

Dairy-Heifer Replacements

Dairy-Dry Cows

Dairy-Lactating Cows

---

Current Herd Selection

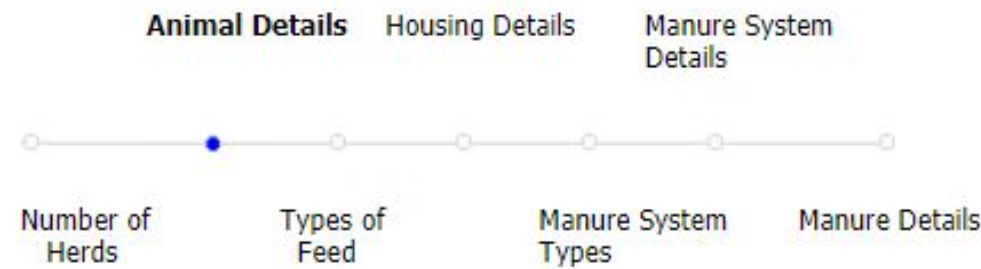
Dry Cows

**Scenarios**

**Scenario List** [new] [delete]

Baseline

Digester Install



## Housing options for Dairy Cows

### Enter Animal Characteristics - Dairy-Dry Cows

How many Dairy-Dry Cows do you have, on average, per month?

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Roofed Facility	85	85	85	85	85	85	85	85	85	85	85	85
Dry Lot	0	0	0	0	0	0	0	0	0	0	0	0
Pasture Range	0	0	0	0	0	0	0	0	0	0	0	0

Average Daily Feed Intake (lbs) 25

Average live body weight (lbs) 1500

**Average Daily Feed Intake**  
If you are unable to provide the average daily feed intake default will be used (leave field 0).

### Dairy Cow feed intake & Average Body Weight

# Animal Details: Dairy-Lactating Cows

Note measurement units for which feed intake is reported. If the average daily feed intake is not known, users can cleave the field "0" and an average default value will be calculated.

**Current Step**

**Enter Animal Details**

Current Category Selection

Dairy-Heifer Replacements

Dairy-Dry Cows

Dairy-Lactating Cows

---

Current Herd Selection

Lactating Cows

**Scenarios**

**Scenario List** [new] [delete]

Baseline

Digester Install

**Animal Details** Housing Details Manure System Details

Number of Herds Types of Feed Manure System Types Manure Details

### Housing options for Dairy Cows

#### Enter Animal Characteristics - Dairy-Lactating Cows

How many Dairy-Lactating Cows do you have, on average, per month?

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Roofed Facility	180	180	180	180	180	180	180	180	180	180	180	180
Dry Lot	0	0	0	0	0	0	0	0	0	0	0	0
Pasture Range	0	0	0	0	0	0	0	0	0	0	0	0

Average Daily Feed Intake (lbs) 55

Average live body weight (lbs) 1500

Days in milk 305

Milk production per day (lbs) 75

**Average Daily Feed Intake**  
If you are unable to provide the average daily feed intake default will be used (leave field 0).

<< Back **Save & Continue >>** Move to Next Management Activity

Current  
Animal  
Category

Dairy Cow feed intake &  
Average Body Weight

Move to Next  
Management Activity

# Types of Feed

This page allows users to create feed rations to reflect varying diets than can occur for Dairy cattle during different stages of productions.

The feed types for the demo project have already been added for each category and herd.

**Current Step**

**Enter Animal Details**

Current Category Selection

Dairy-Heifer Replacements

Dairy-Dry Cows

Dairy-Lactating Cows

---

Current Herd Selection

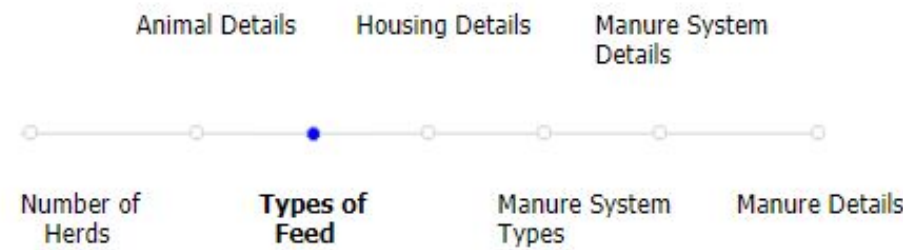
Replacements

**Scenarios**

**Scenario List** [ new ] [ delete ]

Baseline

Digester Install



## Enter Animal Characteristics - Dairy-Heifer Replacements

1. Select a range of months for your Dairy-Heifer Replacements in the table below to enter in your feed types. Complete all months before proceeding to next panel. ?

Date Range		
<input type="checkbox"/>	Mont	Completed Feed
<input type="checkbox"/>	Jan	Yes Grass Hay, Corn Silage, Mature Well Eared, Corn Grain, Whole, Soybean Meal, Solv. Ext. 44% CP, Cottonseed Hulls
<input type="checkbox"/>	Feb	Yes Grass Hay, Corn Silage, Mature Well Eared, Corn Grain, Whole, Soybean Meal, Solv. Ext. 44% CP, Cottonseed Hulls
<input type="checkbox"/>	Mar	Yes Grass Hay, Corn Silage, Mature Well Eared, Corn Grain, Whole, Soybean Meal, Solv. Ext. 44% CP, Cottonseed Hulls
<input type="checkbox"/>	Apr	Yes Grass Hay, Corn Silage, Mature Well Eared, Corn Grain, Whole, Soybean Meal, Solv. Ext. 44% CP, Cottonseed Hulls
<input type="checkbox"/>	May	Yes Grass Hay, Corn Silage, Mature Well Eared, Corn Grain, Whole, Soybean Meal, Solv. Ext. 44% CP, Cottonseed Hulls
<input type="checkbox"/>	Jun	Yes Grass Hay, Corn Silage, Mature Well Eared, Corn Grain, Whole, Soybean Meal, Solv. Ext. 44% CP, Cottonseed Hulls
<input type="checkbox"/>	Jul	Yes Grass Hay, Corn Silage, Mature Well Eared, Corn Grain, Whole, Soybean Meal, Solv. Ext. 44% CP, Cottonseed Hulls
<input type="checkbox"/>	Aug	Yes Grass Hay, Corn Silage, Mature Well Eared, Corn Grain, Whole, Soybean Meal, Solv. Ext. 44% CP, Cottonseed Hulls
<input type="checkbox"/>	Sep	Yes Grass Hay, Corn Silage, Mature Well Eared, Corn Grain, Whole, Soybean Meal, Solv. Ext. 44% CP, Cottonseed Hulls
<input type="checkbox"/>	Oct	Yes Grass Hay, Corn Silage, Mature Well Eared, Corn Grain, Whole, Soybean Meal, Solv. Ext. 44% CP, Cottonseed Hulls
<input type="checkbox"/>	Nov	Yes Grass Hay, Corn Silage, Mature Well Eared, Corn Grain, Whole, Soybean Meal, Solv. Ext. 44% CP, Cottonseed Hulls
<input type="checkbox"/>	Dec	Yes Grass Hay, Corn Silage, Mature Well Eared, Corn Grain, Whole, Soybean Meal, Solv. Ext. 44% CP, Cottonseed Hulls

Remove all the dates and start over

This column indicates if the feed type is completed for that month

# A closer look at types of feed:

**Current Step**

**Enter Animal Details**

Current Category Selection

- ✓ Dairy-Heifer Replacements
- Dairy-Dry Cows
- Dairy-Lactating Cows

---

Current Herd Selection

- ✓ Replacements

**Scenarios**

**Scenario List** [new] [delete]

- ✓ Baseline
- Digester Install

Animal Details   Housing Details   Manure System Details

Number of Herds   **Types of Feed**   Manure System Types   Manure Details

**Enter Animal Characteristics - Dairy-Dry Cows**

1. Select a range of months for your Dairy-Dry cows in the table below to enter in your feed types. Complete all months before proceeding to next panel. ?

Date Range		
Month	Completed	Feed
<input type="checkbox"/> Jan	No	
<input type="checkbox"/> Feb	No	
<input type="checkbox"/> Mar	No	
<input type="checkbox"/> Apr	No	
<input type="checkbox"/> May	No	
<input type="checkbox"/> Jun	No	
<input type="checkbox"/> Jul	No	
<input type="checkbox"/> Aug	No	
<input type="checkbox"/> Sep	No	
<input type="checkbox"/> Oct	No	
<input type="checkbox"/> Nov	No	
<input type="checkbox"/> Dec	No	

2. Choose the types of feed consumed for your Dairy-Heifer Replacements for the month/months in your Replacements.

**Feed Stuff** ?

Search

- Cattle Manure
- Cheatgrass
- Citrus
- Clover
- Coconut Meal
- Coffee
- Corn**
- Cottonseed
- Crab Waste
- Crambe Meal
- Cranberry
- Crawfish Waste
- Distillers Grains
- Elephant Grass
- Fat, Animal
- Feather Meal
- Fescue
- Fish Meal
- Flax Seed
- Garbage

**Category** ?

- Whole
- Meal, Solv. Ext. 41% CP
- Hulls**
- Meal, Mech. Ext. 41% CP

**Add >>**

**<< Remove**

**Your Selections** ?

- Cottonseed Hulls

Confirm Selections

Select the month(s)

Select Feed type

Select Feed category

# A closer look at types of feed:

The third step you will define the percentage of each feed type that makes up a ration for the unique herd. Total percent must add up to 100%.

Remember, values are pre-populated for the demo project.

3. Enter the percentage of each feed for your Dairy-Heifer Replacements in Replacements. ?

Cottonseed Hulls	6	▲▼
Soybean Meal, Solv. Ext. 44% CP	8	▲▼
Corn Grain, Whole	10	▲▼
Corn Silage, Mature Well Eared	37	▲▼
Grass Hay	39	▲▼

Total % of Diet

Done - Save feed types for current selected date

<< Back **Save & Continue >>**

Move to Next Management Activity

# Housing Details:

Used to determine how manure is managed within buildings and covered areas.

The screenshot displays a multi-step process for entering animal details. The progress bar at the top shows the following steps: Animal Details, **Housing Details** (current step), and Manure System Details. Below the progress bar, the current step is further divided into: Number of Herds, Types of Feed, Manure System Types, and Manure Details.

**Current Step:** Enter Animal Details

- Current Category Selection:  Dairy-Heifer Replacements
- Dairy-Dry Cows
- Dairy-Lactating Cows
- Current Herd Selection:  Replacements

**Scenarios:**

- Scenario List: [new] [delete]
- Baseline
- Digester Install

**Enter Animal Characteristics - Dairy-Heifer Replacements** (Determined on animal details page)

How is manure handled within your housing type?

- Roofed Facility
- Dry Lot
- Pasture Range Paddock
- Pit Storage
- Bedded Pack
- Flushed Or Scraped

Area of the Barn floor covered with Dairy-Heifer Replacements manure (ft<sup>2</sup>): 25000 (Demo project information already pre-selected.)

Management Activity: Move to Next

Navigation: << Back | Save & Continue >>

Selecting either Pit Storage or Bedded Pack require further criteria that needs to be entered to evaluate the manure management.

# Manure System Type:

Used to determine how manure is managed within animal housing

The screenshot shows a multi-step process for entering animal details. The current step is 'Enter Animal Characteristics - Dairy-Heifer Replacements'. The interface includes a progress bar at the top with steps: Animal Details, Housing Details, Manure System Details, and Manure Details. Below the progress bar, the current step is expanded to show sub-steps: Number of Herds, Types of Feed, Manure System Types, and Manure Details. The main form area contains several questions and input fields:

- Do you use a solid/liquid separator? (Radio buttons for Yes and No, with Yes selected)
- What is the separator type? (Dropdown menu with 'Roller press' selected)
- Percentage of Solids Removed? (Input field with '25')
- What is the primary solid treatment method? (Dropdown menu with 'Composting' selected)
- What is the primary liquid treatment method? (Dropdown menu with 'Anaerobic lagoon, liquid/slurry storage pond' selected)

At the bottom of the form, there are two buttons: '<< Back' and 'Save & Continue >>'. A yellow arrow points from the 'Save & Continue >>' button to the text 'Management Activity' below it.

Management details pre-selected for demo project

User can modify any default values

# Manure System

## Details:

Used to determine how liquids and solids are further managed.

The options on this page are generated based on previous options selected on the Manure System Type Page.

If lagoon's level is managed through evaporation and there are not annual cleanouts, enter "zero" for solid removal.

Animal Details   Housing Details   **Manure System Details**

Number of Herds   Types of Feed   Manure System Types   Manure Details

### Enter Animal Characteristics - Dairy-Heifer Replacements

What are your manure system details for **Dairy-Heifer Replacements**?  
Define primary composting method

Composting

Anaerobic lagoon, liquid/slurry storage pond, storage tanks

What is the system cover type?

What is the exposed surface area (ft<sup>2</sup>)?

In what year was the Anaerobic lagoon, liquid/slurry storage pond, storage tanks established?

Length of time between pumpdowns or cleanouts

Percent solid removal

<< Back   Move to Next Management Activity   **Save & Continue >>**



# Manure Details:

- What is the total dry manure produced per head per day?

AND

- What is the average percent nitrogen content of the manure each month?

These values have been calculated based on information that has been entered in the previous modules. There is no need to modify unless user has actual measurements from laboratory reports.

**Current Step**

**Enter Animal Details**

Current Category Selection

- ✓ Dairy-Heifer Replacements

Dairy-Dry Cows

Dairy-Lactating Cows

---

Current Herd Selection

- ✓ Replacements

**Scenarios**

**Scenario List** [new] [delete]

- ✓ Baseline
- Digester Install

Animal Details    Housing Details    Manure System Details

Number of Herds    Types of Feed    Manure System Types    **Manure Details**

**Enter Animal Characteristics - Dairy-Heifer Replacements**

What are your manure details for Dairy-Heifer Replacements?

What is the total dry manure produced per head per day? (lbs)

Jan	8.15	Feb	8.15
Mar	8.15	Apr	8.15
May	8.15	Jun	8.15
Jul	8.15	Aug	8.15
Sep	8.15	Oct	8.15
Nov	8.15	Dec	8.15

Click [copy](#) icon next to Jan to copy your animal count to every month

What is the average percent nitrogen content of the manure each month?

Jan	3	Feb	3
Mar	3	Apr	3
May	3	Jun	3
Jul	3	Aug	3
Sep	3	Oct	3
Nov	3	Dec	3

Click [copy](#) icon next to Jan to copy your animal count to every month

**How to Determine Average Percent Nitrogen Content**

Nitrogen content of the manure should be provided on your manure lab report. If you are unable to provide this value, a system default has been provided.

<< Back    **Save & Continue >>**

Move to Next Scenario

# Baseline Scenario Complete

After the baseline scenario has been completed, the “Scenario Complete!” window will appear.

For the purpose of the demo click the “Close” button. This will return the user to the manure details page.

Any management practices in the current management can be copied to future scenario

The screenshot displays a web application interface. At the top, a progress bar shows four steps: 'Animal Details', 'Housing Details', 'Manure System Details', and 'Manure Details'. The 'Manure Details' step is currently active. Below the progress bar, there are four columns of input fields: 'Number of Herds', 'Types of Feed', 'Manure System Types', and 'Manure Details'. The 'Manure Details' column contains a table with months (Jan to Aug) and a value of 8.15 for each. A tooltip next to the Jan field says 'Click copy icon next to Jan to copy your animal count to every month'. Below the table, there are input fields for 'Nov 3' and 'Dec 3'. At the bottom of the page, there are two buttons: '<< Back' and 'Save & Continue >>'. On the left side, there are two panels. The top panel, titled 'Current Step', shows 'Enter Animal Details' with 'Dairy-Heifer Replacements' selected. The bottom panel, titled 'Scenarios', shows a 'Scenario List' with 'Baseline' and 'Digester Install' listed. A 'Scenario Complete!' dialog box is overlaid on the right side of the page. It has a blue header and contains the text: 'You may choose to continue to Report, create a new scenario or close this window and continue editing your current scenario.' Below this text is a text input field containing 'for example, Improved Feed Quality Scenario'. There is a checkbox labeled 'Copy management information from:' followed by a dropdown menu labeled 'Select a Scenario...'. At the bottom of the dialog box, there are three orange buttons: 'Continue to Report >>', 'Create new Scenario >>', and 'Close'. A yellow arrow points from the 'Close' button to the text 'Move to Next Scenario' on the right. Another yellow arrow points from the 'Copy management information from:' checkbox to the text 'Any management practices in the current management can be copied to future scenario' on the left.

**Current Step**

**Enter Animal Details**

Current Category Selection

- ✓ Dairy-Heifer Replacements
- Dairy-Dry Cows
- Dairy-Lactating Cows

Current Herd Selection

- ✓ Replacements

**Scenarios**

**Scenario List** [new] [delete]

- ✓ Baseline
- Digester Install

**Scenario Complete!**

You may choose to continue to **Report**, create a new scenario or close this window and continue editing your current scenario.

for example, Improved Feed Quality Scenario

Copy management information from: Select a Scenario...

**Continue to Report >>** **Create new Scenario >>** **Close**

Move to Next Scenario

<< Back Save & Continue >>

# Scenario Management

Select "Digester Install"  
Scenario and management  
window will appear

This aspect of COMET-Farm™ allows users to see how changes in management practices can impact greenhouse gas emissions and carbon sequestration.

After reading the future management description, click the "ok" button in the bottom right corner of the window.

The screenshot displays the COMET-Farm Scenario Management interface. At the top, a progress bar shows the current step: "Enter Animal Details". Below this, a "Current Step" panel lists "Current Category Selection" with "Dairy-Heifer Replacements" selected, and "Current Herd Selection" with "Replacements" selected. A "Scenarios" panel shows a "Scenario List" with "Baseline" and "Digester Install" (selected). A "Demo - Scenario Management" window is open, displaying the "Animal Agriculture Demo" logo and a detailed description of a methane recovery system. The "Ok" button in the bottom right corner of the demo window is highlighted with a yellow box and an arrow. The background interface includes navigation buttons for "Animal Details", "Housing Details", "Manure System Details", "Number of Herds", "Types of Feed", "Manure System Types", and "Manure Details".

# Scenario Management:

For this Demo project, there is one future management scenario, using the same animal types, unique herds, management practices.

The interface is divided into several sections:

- Current Step:** A sidebar on the left with an orange header. It contains:
  - Enter Animal Details:** A list of categories with a green checkmark next to "Dairy-Heifer Replacements". Other categories include "Dairy-Dry Cows" and "Dairy-Lactating Cows".
  - Current Herd Selection:** A list with a green checkmark next to "Replacements".
  - Scenarios:** A section with an orange header containing a "Scenario List" with options "[ new ]" and "[ delete ]". It lists "Baseline" and "Digester Install" with a green checkmark.
- Progress Bar:** A horizontal line with six steps: "Number of Herds", "Types of Feed", "Manure System Types", "Manure Details", "Housing Details", and "Animal Details". The "Manure System Types" step is highlighted with a yellow box and a blue dot, with a yellow arrow pointing to the right.
- Main Form:** Titled "Enter Animal Characteristics - Dairy-Heifer Replacements". It asks: "FOR Dairy-Heifer Replacements which manure management systems are currently in use?".
  - Question: "Do you use a solid/liquid separator?" with radio buttons for "Yes" (selected) and "No".
  - Question: "What is the separator type?" with a dropdown menu showing "Roller press".
  - Question: "Percentage of Solids Removed?" with a numeric input field showing "25".
  - Question: "What is the primary solid treatment method?" with a dropdown menu showing "Composting".
  - Question: "What is the primary liquid treatment method?" with a dropdown menu showing "Anaerobic Digester with Biogas Utilization o". This dropdown is highlighted with a yellow box, and a yellow arrow points to it from the text "Change to the primary liquid treatment".
- Navigation:** At the bottom, there are two buttons: a grey "<< Back" button and an orange "Save & Continue >>" button. A yellow arrow points from the "Save & Continue" button to the text "Click to see changes in manure management on 'Manure Systems Details' page".

# Scenario Management:

For this Demo project, there is one future management scenario, using the same animal types, unique herds, management practices.

The interface is divided into three main sections:

- Current Step (Left Sidebar):** Shows the current step as "Enter Animal Details". Under "Current Category Selection", "Dairy-Heifer Replacements" is selected with a green checkmark. Other options include "Dairy-Dry Cows" and "Dairy-Lactating Cows". Under "Current Herd Selection", "Replacements" is selected with a green checkmark.
- Scenarios (Bottom Left Sidebar):** Shows a "Scenario List" with options "[ new ]" and "[ delete ]". One scenario, "Baseline Digester Install", is listed with a green checkmark.
- Main Form (Center):** Titled "Enter Animal Characteristics - Dairy-Heifer Replacements". It asks "What are your manure system details for Dairy-Heifer Replacements?". The form is divided into two sections:
  - Composting:** "What is the composting method?" with a dropdown menu set to "Passive Windrow". A yellow arrow points to the dropdown arrow with the text "Change in drop down menu to describe the digester type".
  - Anaerobic Digester:** "What is the digester type?" with a dropdown menu set to "Up-flow Anaerobic Sludge Blanket (UASB) type with floating gas holders and nc". This section is highlighted with a yellow border.

At the bottom, there are two buttons: "<< Back" and "Save & Continue >>". A yellow arrow points from the "Save & Continue >>" button to the text "Next Management activity".

# Scenario

## Manure Details:

Manure details have not changed in the demo project.

Continue to continue to **Future Scenario** window.

**Current Step**

**Enter Animal Details**

Current Category Selection

✓ Dairy-Heifer Replacements

Dairy-Dry Cows

Dairy-Lactating Cows

---

Current Herd Selection

✓ Replacements

**Scenarios**

**Scenario List** [new] [delete]

✓ Baseline  
Digester Install

Animal Details   Housing Details   Manure System Details

Number of Herds   Types of Feed   Manure System Types   **Manure Details**

---

**Enter Animal Characteristics - Dairy-Heifer Replacements**

What are your manure details for Dairy-Heifer Replacements?

What is the total dry manure produced per head per day? (lbs)

Jan	8.15	Feb	8.15
Mar	8.15	Apr	8.15
May	8.15	Jun	8.15
Jul	8.15	Aug	8.15
Sep	8.15	Oct	8.15
Nov	8.15	Dec	8.15

Click [copy](#) icon next to Jan to copy your animal count to every month

What is the average percent nitrogen content of the manure each month?

Jan	3	Feb	3
Mar	3	Apr	3
May	3	Jun	3
Jul	3	Aug	3
Sep	3	Oct	3
Nov	3	Dec	3

Click [copy](#) icon next to Jan to copy your animal count to every month

**How to Determine Average Percent Nitrogen Content**  
Nitrogen content of the manure should be provided on your manure lab report. If you are unable to provide this value, a system default has been provided.

<< Back   **Save & Continue >>**

Move to Next Scenario

# Scenario

## Manure Details:

At this point, the Baseline and Digester Install scenario are complete, the user can continue to the report

The time to generate a report for demo projects is typically less than a minute.

However, for user's projects, depending on the number and complexity of scenarios, results make take several minutes to load.



The screenshot displays a multi-step process for entering animal details. The 'Current Step' is 'Enter Animal Details', which includes 'Current Category Selection' (Dairy-Heifer Replacements) and 'Current Herd Selection' (Replacements). A progress bar shows the current step is active. Below this, a 'Scenarios' list shows 'Baseline' and 'Digester Install' as completed. The main form is titled 'Enter Animal Characteristics - Dairy-Heifer Replacements' and asks for manure details. It includes a table for monthly dry manure production (lbs) per head per day, with values of 8.15 for all months from Jan to Aug. A 'copy' icon is present next to the Jan value. At the bottom, a 'Scenario Complete!' dialog box offers three options: 'Continue to Report >>', 'Create new Scenario >>', and 'Close'. The 'Continue to Report >>' button is highlighted with a yellow box and a yellow arrow.

Month	Value (lbs)
Jan	8.15
Feb	8.15
Mar	8.15
Apr	8.15
May	8.15
Jun	8.15
Jul	8.15
Aug	8.15

# Report

The user may navigate his or her browser away from the page as the information entered has been saved. The reports will be available to **registered users** when they return later to the tool and open the project, by clicking on the “Report” option in the navigation bar at the top of the page

**Nonregistered users** can access the reports of demo projects but any changes to the projects will not be saved for future review and analysis.

Step 1 Activities    Step 2 Animal Agriculture    Step 3 Report ▼

Animal Agriculture    Animal Agriculture Graphical Report

NAME: Haley Nagle    TIME: 7/27/2020 3:49:49 PM    USDA United States Natural Resou  
PROJECT: Animal Ag Demo Project  
Version: Cloud deployment version 2.3.3, build 3.2.7509.29935 (23-Jul-2020)

Source	Baseline Emissions	Digester Install	
		Emissions	Change
<b>Dairy-Heifer Replacements</b>			
Methane (tonnes CO <sub>2</sub> equiv./yr.)	205.0	112.1	-92.8
Nitrous oxide (tonnes CO <sub>2</sub> equiv./yr.)	4.0	4.0	0.0
<b>Total</b>	<b>208.9</b>	<b>116.1</b>	<b>-92.8</b>
<b>Dairy-Dry Cows</b>			
Methane (tonnes CO <sub>2</sub> equiv./yr.)	0.0	151.1	+151.1
Nitrous oxide (tonnes CO <sub>2</sub> equiv./yr.)	0.0	8.8	+8.8
<b>Total</b>	<b>0.0</b>	<b>159.9</b>	<b>+159.9</b>
<b>Dairy-Lactating Cows</b>			
Methane (tonnes CO <sub>2</sub> equiv./yr.)	1038.3	567.9	-470.4
Nitrous oxide (tonnes CO <sub>2</sub> equiv./yr.)	33.7	33.7	0.0
<b>Total</b>	<b>1072.0</b>	<b>601.6</b>	<b>-470.4</b>
<b>Total (all animals)</b>	<b>1280.9</b>	<b>877.6</b>	<b>-403.3</b>

<< Back To Management    Print    Export Livestock Verification    [GHG Equivalencies Calculator](#)



# Report

NAME: Haley Nagle  
 PROJECT: Animal Ag Demo Project  
 Version: Cloud deployment version 2.3.3, build 3.2.7509.29935 (23-Jul-2020)

TIME: 7/27/2020 3:49:49 PM

Source Categories

Source	Baseline Emissions	Digester Install	
		Emissions	Change
<b>Dairy-Heifer Replacements</b>			
Methane (tonnes CO <sub>2</sub> equiv./yr.)	205.0	112.1	-92.8
Nitrous oxide (tonnes CO <sub>2</sub> equiv./yr.)	4.0	4.0	0.0
<b>Total</b>	<b>208.9</b>	<b>116.1</b>	<b>-92.8</b>
<b>Dairy-Dry Cows</b>			
Methane (tonnes CO <sub>2</sub> equiv./yr.)	0.0	151.1	+151.1
Nitrous oxide (tonnes CO <sub>2</sub> equiv./yr.)	0.0	8.8	+8.8
<b>Total</b>	<b>0.0</b>	<b>159.9</b>	<b>+159.9</b>
<b>Dairy-Lactating Cows</b>			
Methane (tonnes CO <sub>2</sub> equiv./yr.)	1038.3	567.9	-470.4
Nitrous oxide (tonnes CO <sub>2</sub> equiv./yr.)	33.7	33.7	0.0
<b>Total</b>	<b>1072.0</b>	<b>601.6</b>	<b>-470.4</b>
<b>Total (all animals)</b>	<b>1280.9</b>	<b>877.6</b>	<b>-403.3</b>

Change in emissions

While different practices impact different greenhouse gas fluxes, the results are simplified in terms of Metric Tonnes of CO<sub>2</sub> eq.  
 \*Negative results indicate emissions reductions OR carbon sequestration\*

Baseline "Business as Usual" results      Future Management Scenario Results

The demo project compares the baseline scenario, which liquid manure is stored in an uncovered anaerobic lagoon, to the emissions related to managing the liquid manure with the installation of an anaerobic digester.

# Report

By selecting each source category, the sub-source category for each will extend.

Step 1 Activities    Step 2 Animal Agriculture    Step 3 Report

Animal Agriculture    Animal Agriculture Graphical Report

NAME: Haley Nagle    TIME: 7/27/2020 3:49:49 PM    USI  
 PROJECT: Animal Ag Demo Project  
 Version: Cloud deployment version 2.3.3, build 3.2.7509.29935 (23-Jul-2020)

Source	Baseline Emissions	Digester Install	
		Emissions	Change
<b>Dairy-Heifer Replacements</b>			
Methane (tonnes CO <sub>2</sub> equiv./yr.)	205.0	112.1	-92.8
Nitrous oxide (tonnes CO <sub>2</sub> equiv./yr.)	4.0	4.0	0.0
<b>Total</b>	<b>208.9</b>	<b>116.1</b>	<b>-92.8</b>
<b>Dairy-Dry Cows</b>			
Methane (tonnes CO <sub>2</sub> equiv./yr.)	0.0	151.1	+151.1
Nitrous oxide (tonnes CO <sub>2</sub> equiv./yr.)	0.0	8.8	+8.8
<b>Total</b>	<b>0.0</b>	<b>159.9</b>	<b>+159.9</b>
<b>Dairy-Lactating Cows</b>			
Methane (tonnes CO <sub>2</sub> equiv./yr.)	1038.3	567.9	-470.4
Nitrous oxide (tonnes CO <sub>2</sub> equiv./yr.)	33.7	33.7	0.0
<b>Total</b>	<b>1072.0</b>	<b>601.6</b>	<b>-470.4</b>
<b>Total (all animals)</b>	<b>1280.9</b>	<b>877.6</b>	<b>-403.3</b>

<< Back To Management    Print    Export Livestock Verification    [GHG Equivalencies](#)

Source	Baseline Emissions	Digester Install	
		Emissions	Change
<b>Dairy-Heifer Replacements</b>			
Methane (tonnes CO <sub>2</sub> equiv./yr.)	205.0	112.1	-92.8
Enteric	78.4	78.4	0.0
Housing	0.0	0.0	0.0
Barn Housing	32.2	32.2	0.0
Composting	0.4	0.4	0.0
Anaerobic Lagoon	94.0	0.0	-94.0
Anaerobic Digester	0.0	1.2	+1.2
Nitrous oxide (tonnes CO <sub>2</sub> equiv./yr.)	4.0	4.0	0.0
Housing	0.0	0.0	0.0
Composting	4.0	4.0	0.0
Anaerobic Lagoon	0.0	0.0	0.0
Anaerobic Digester	0.0	0.0	0.0
<b>Total</b>	<b>208.9</b>	<b>116.1</b>	<b>-92.8</b>

# Report

Users may ask the question “If there is a greenhouse gas benefit to installing an anaerobic digester, why are methane emissions higher with the digester installed?”

The methane generated by anaerobic digesters is usually burned in a generator to produce on-farm electricity, is burned to heat water and buildings, or is piped to be used elsewhere to offset burning fossil methane (natural gas) in another location. These avoided fossil fuel emissions are a significant part of the overall life cycle benefit of installing anaerobic digesters, and that is the main greenhouse gas benefit to installing an anaerobic digester.

Step 1 Activities    Step 2 Animal Agriculture    Step 3 Report

Animal Agriculture    Animal Agriculture Graphical Report

NAME: Haley Nagle    TIME: 7/27/2020 3:49:49 PM    USDA United States Natural Resources Service

PROJECT: Animal Ag Demo Project

Version: Cloud deployment version 2.3.3, build 3.2.7509.29935 (23-Jul-2020)

Source	Baseline Emissions	Digester Install	
		Emissions	Change
<b>Dairy-Heifer Replacements</b>			
Methane (tonnes CO <sub>2</sub> equiv./yr.)	205.0	112.1	-92.8
Nitrous oxide (tonnes CO <sub>2</sub> equiv./yr.)	4.0	4.0	0.0
<b>Total</b>	<b>208.9</b>	<b>116.1</b>	<b>-92.8</b>
<b>Dairy-Dry Cows</b>			
Methane (tonnes CO <sub>2</sub> equiv./yr.)	0.0	151.1	+151.1
Nitrous oxide (tonnes CO <sub>2</sub> equiv./yr.)	0.0	8.8	+8.8
<b>Total</b>	<b>0.0</b>	<b>159.9</b>	<b>+159.9</b>
<b>Dairy-Lactating Cows</b>			
Methane (tonnes CO <sub>2</sub> equiv./yr.)	1038.3	567.9	-470.4
Nitrous oxide (tonnes CO <sub>2</sub> equiv./yr.)	33.7	33.7	0.0
<b>Total</b>	<b>1072.0</b>	<b>601.6</b>	<b>-470.4</b>
<b>Total (all animals)</b>	<b>1280.9</b>	<b>877.6</b>	<b>-403.3</b>

Change in emissions

<< Back To Management    Print    Export Livestock Verification    [GHG Equivalencies Calculator](#)

# Graphical Report

The graphical report can be found in the tab at the top of the reports page.

Reports will be available to registered users when they return late to the tool and open the same project.

The user may navigate away from this page as the information entered has been saved.

