Providing Environmental Services from Agriculture in a Budget-Constrained Environment
April 17, 2012 – Washington DC

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FARM-LEVEL SOIL C AND GHG ESTIMATION: COMET-FARM

The Context

- Agriculture has one of the largest near-term mitigation potentials.
- Many proven technologies and many farmers who can, and are willing to, make management changes for modest **incentives**.
- Inclusion of agriculture has lagged significantly within current international GHG mitigation policies and in voluntary offset markets – Why?

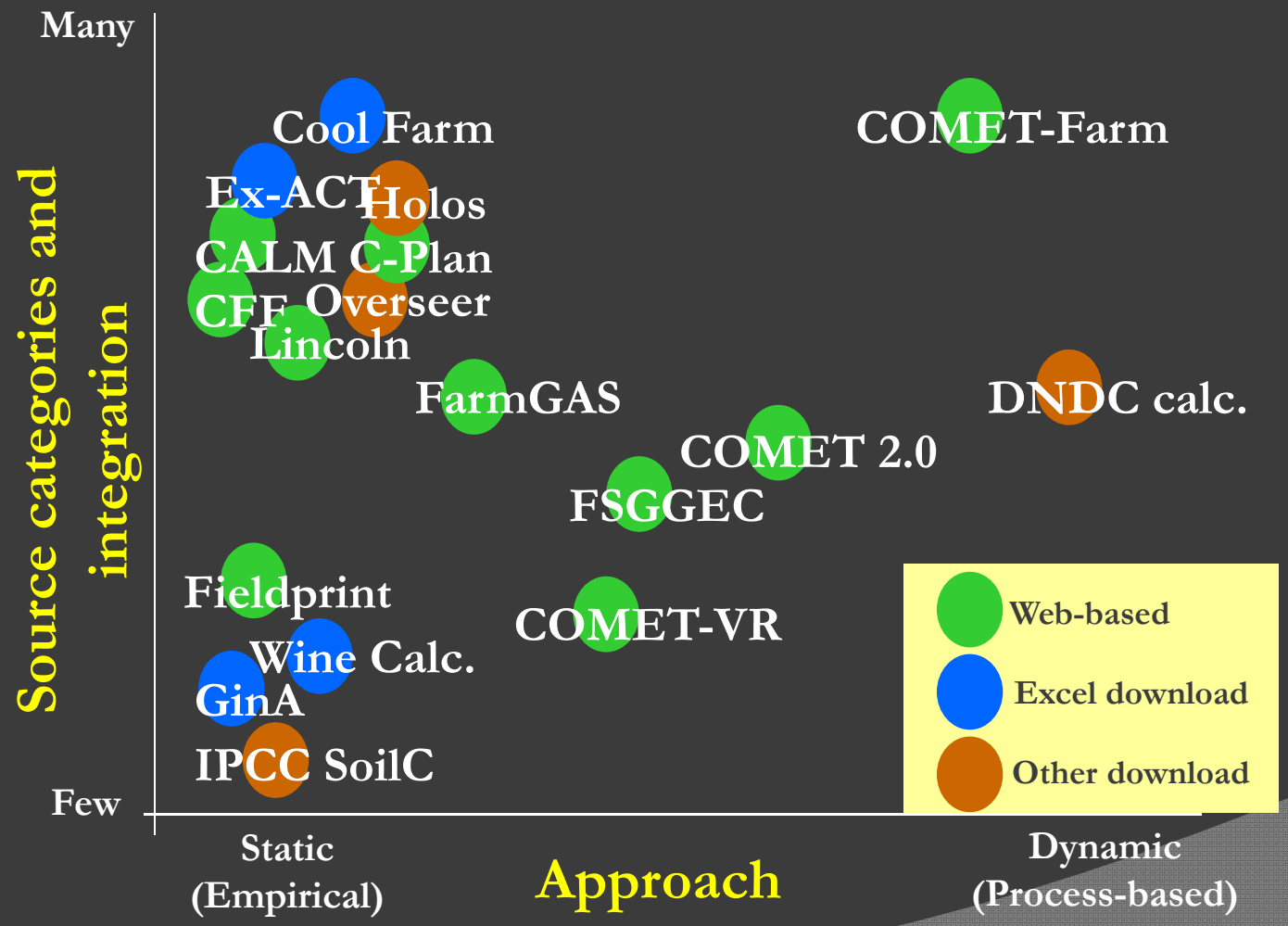
Confidence in capabilities to quantify, verify and administer agricultural GHG mitigation activities is a key issue

- Emissions/sinks are dispersed, non-point source.
- Direct measurement requires specialized equipment and training, and is too expensive for deployment in most mitigation projects.
- Local-scale variability – climate and soil conditions and **farm-level management – matters!**

Attributes of an effective quantification system to support GHG mitigation in the US

- Acceptable accuracy and precision
- Uncertainty quantified
- Applicable for entire US, but locally-specific
- Flexible - incorporates multiple options for conservation/mitigation practices
- Considers all significant sources and sinks (full GHG accounting)
- Equitable - producers are compensated for what they produce
- Cost-effective (e.g. measurement/monitoring costs < 5-10% of value produced)
- Consistent across spatial scales – i.e., sum of 'project-scale' activities are consistent with national-level reporting

GHG calculators



Aim of COMET-tools

Comet-VR, Comet 2.0, Comet-Farm

- To provide a means for non-GHG specialists (farmers, consultants, NRCS field staff, etc.) to easily estimate farm-scale GHG emissions and to explore GHG impacts of alternative management and land use strategies.
- Employ state-of-the-art methods/models used in the US national GHG inventory, directly accessible on the ‘web’.
- Provide rigorous estimates of uncertainty.

http://www.comet2.colostate.edu/

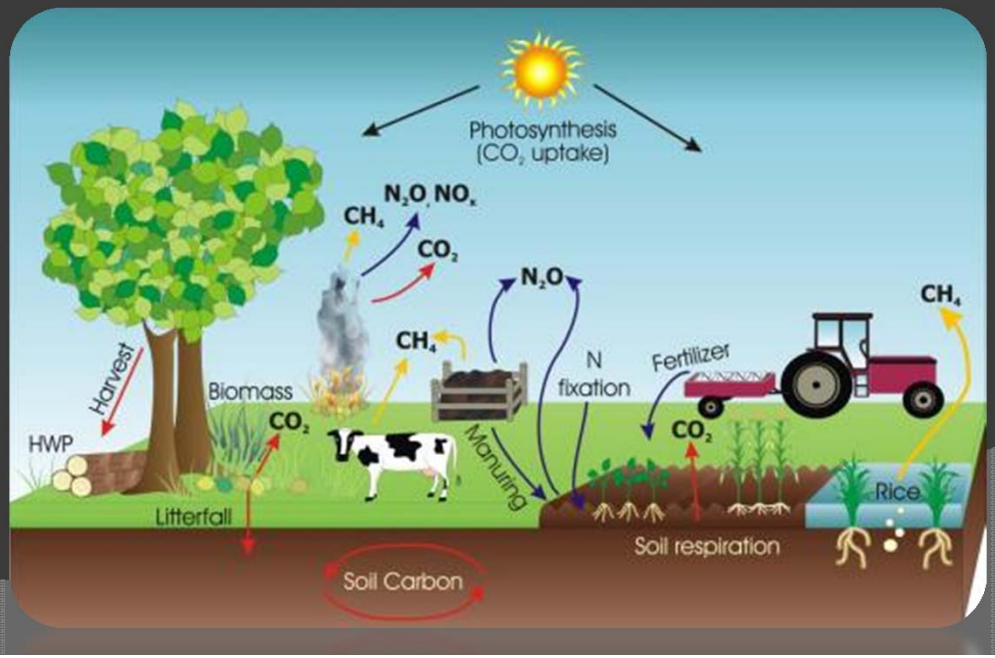
Comet-Farm – coming soon

COMET - History

- **COMET-VR**
  - Released 2005
  - Cropland and grassland soil C and fossil fuel use
  - Real-time Century model simulations and NRCS energy tool
- **COMET 2.0**
  - Released December 2010
  - More crop/grassland options, added agroforestry and orchard/vineyard systems
  - Added N_2O emissions, using DayCent meta-model
- **COMET-Farm**
  - Initial beta release expected late spring 2012
  - Fully spatial interface, including Web Soil Survey
  - Real-time DayCent simulations for soil C and N_2O emissions
  - Include livestock emissions and expanded energy module

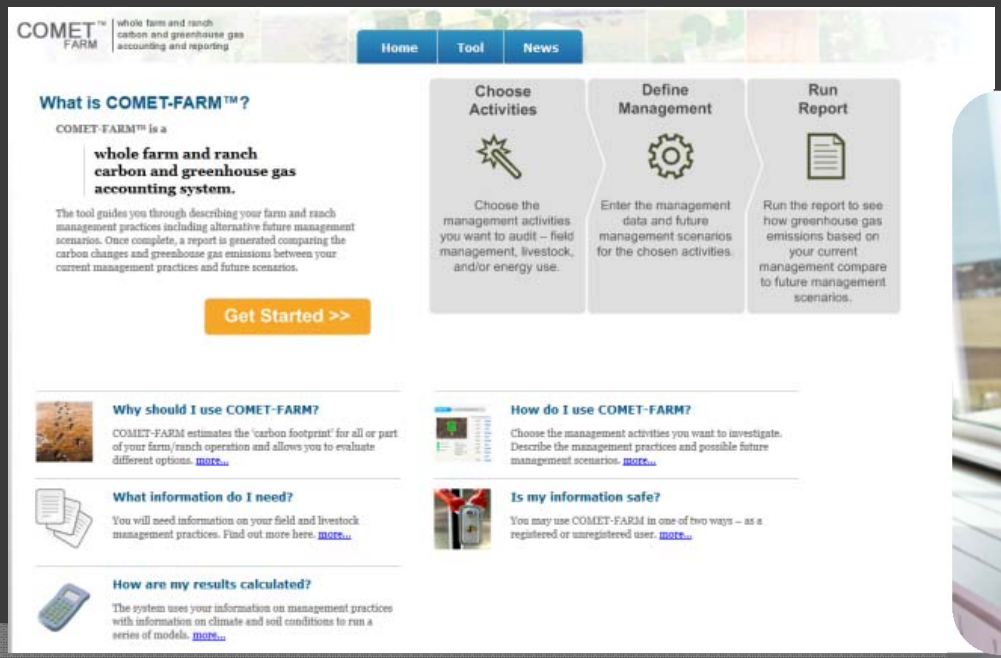
COMET-Farm
Scope and key features

- Full farm-level greenhouse gas accounting
  - Soil and biomass C stock changes
  - Soil N_2O and CH_4 emissions
  - Livestock – enteric CH_4 and manure CH_4 and N_2O
  - Energy – Fossil C emissions; on-farm renewables
  - Other emissions – burning, liming, …



COMET-Farm
Scope and key features

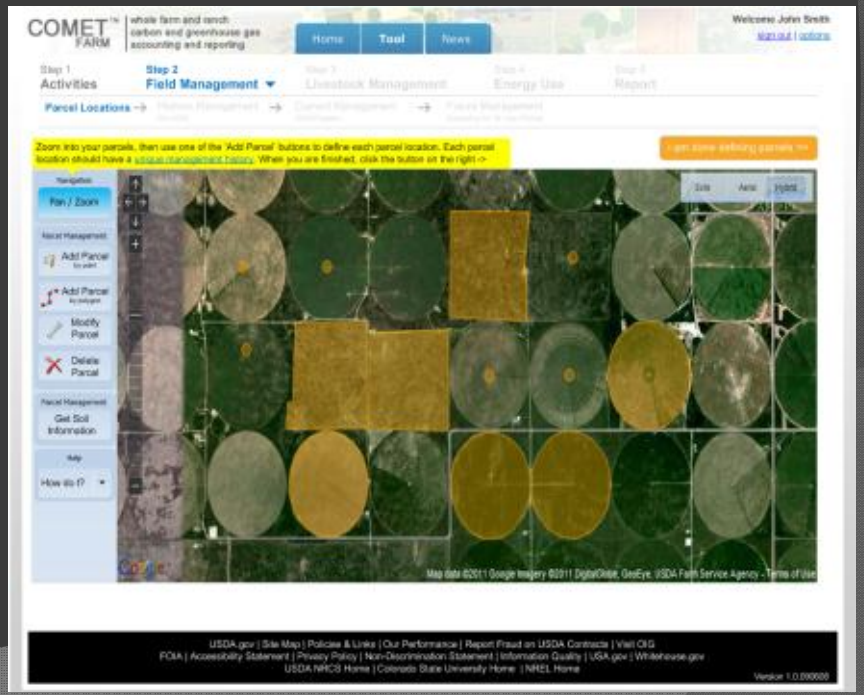
- Full farm-level greenhouse gas accounting
- Web-served application
  - Registration - capabilities for return-users
  - User-friendly (drop-downs)
  - Fast response time (1-2 sec)



COMET-Farm
Scope and key features

- Full farm-level greenhouse gas accounting
- Web-served application; capabilities for return-users
- Provides a spatial user interface for specific field and soil locations (incl. NRCS Web Soil Survey)

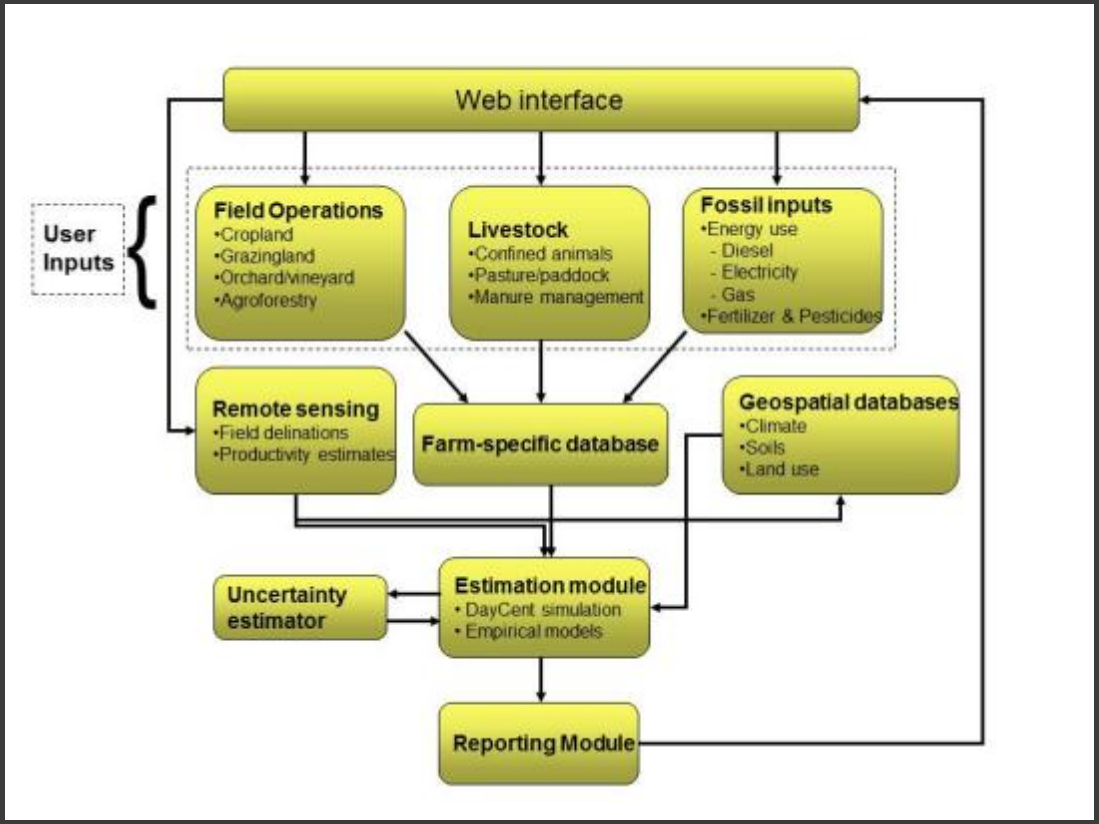
Incorporates influence of different soil types, climate regimes, land use history

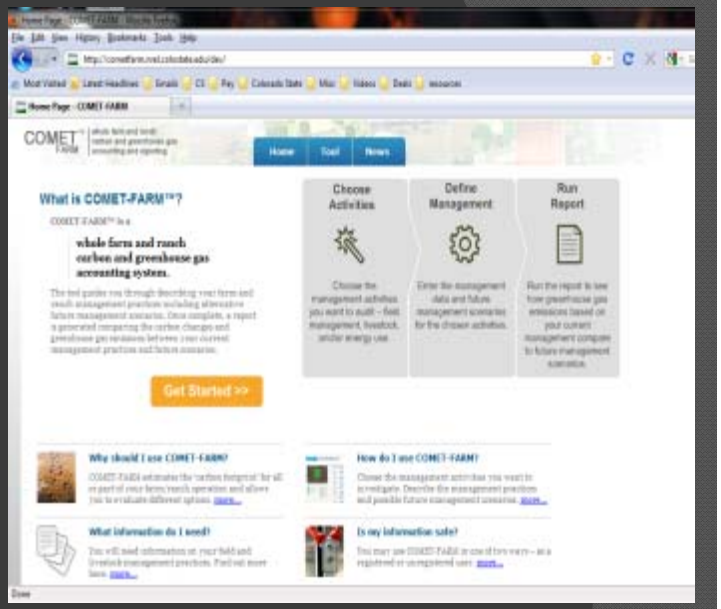


COMET-Farm
Scope and key features

- Full farm-level greenhouse gas accounting
- Web-served application; capabilities for return-users
- Provides a spatial user interface for specific field and soil locations
- Incorporates existing NRCS products – e.g. Web Soil Survey, Energy Use Tool
- Initial beta-release scheduled for late spring 2012

COMET-Farm system for farm-level GHG accounting





Key Data sources

- Soils – SSURGO (web-served)
- Climate –NARR (NCAR/NOAA)
- Land use/Management – incorporated in historical 'spin-ups'
  - National Resources Inventory (NRI)
  - USDA/ERS Cropping Practices Survey
  - NRCS manure management
  - CSRA – regional LU and management surveys
- **User input** of detailed management for recent (>2000) and projected practices

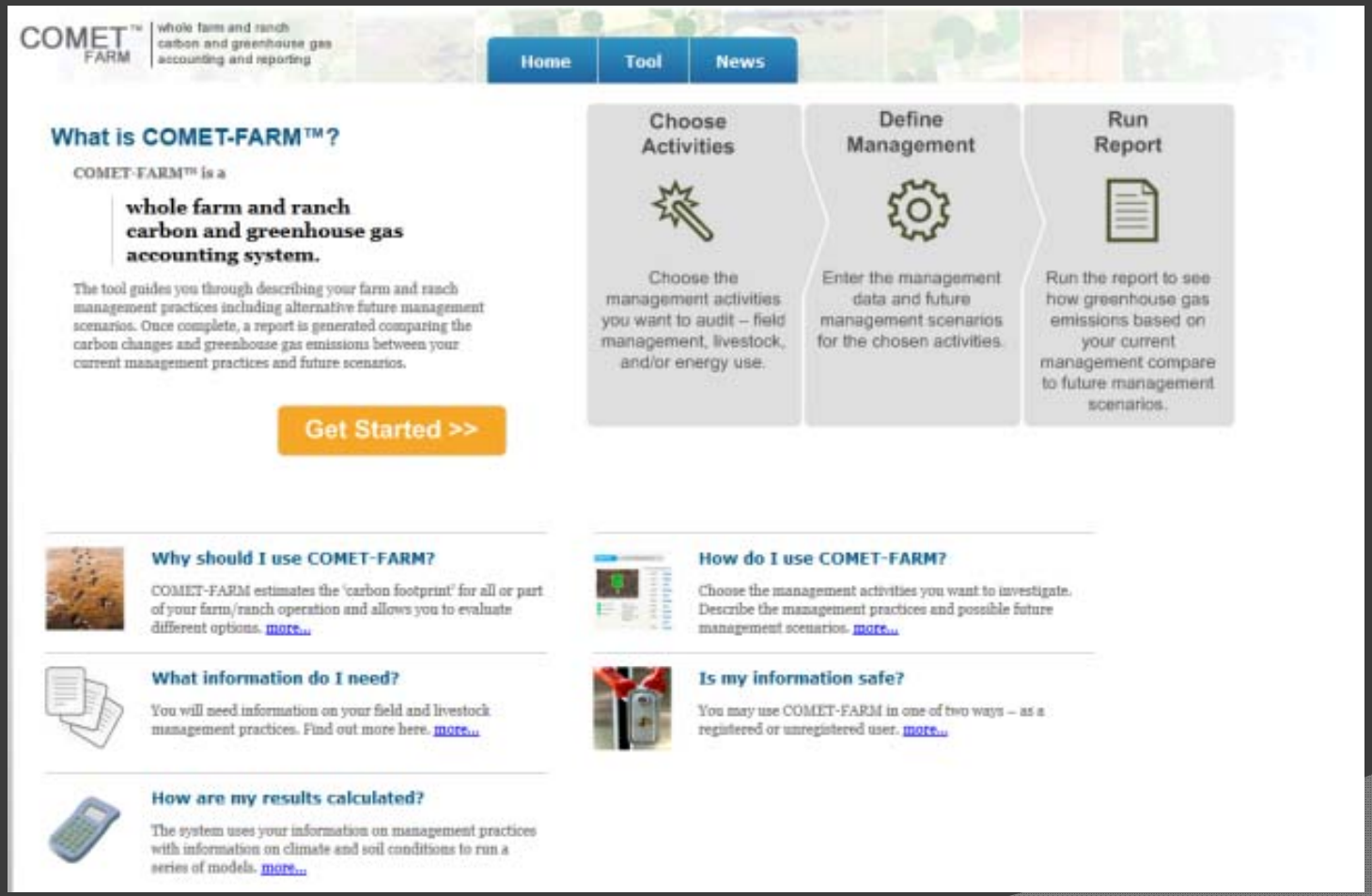
User inputs (post-2000)

- Field Module
  - Cropping sequence and approx. planting and harvest date
  - Type of grazing system
  - Type of tillage system
  - Rate, timing, type and application method for fertilizer and manure applications
  - Irrigation method and application rate
  - Residue management
- Livestock Module
  - Herd size and composition (species, sex and age ratios)
  - Type of manure management system
  - Feed characteristics and supplements
- Energy Module
  - Draws from info entered in Field and Livestock modules
  - Additional info on capital equipment and on-farm renewable energy production

Calculation approach

- Soil-related GHG emissions: DayCent dynamic model, also used in the U.S. National Greenhouse Gas Inventory.
- Livestock-related GHG emissions: statistical models based on USDA and university research, similar to models used in the U.S. National Inventory.
- Energy-related GHG emissions: based on the models used in the USDA/NRCS Energy Tool along with supplemental peer-reviewed research results.
- Uncertainty calculator

Tool in action



Conclusion

- Agriculture has a significant (especially near-term) technical capacity to mitigate GHG emissions
- Barriers exist – a key issue is better capabilities to quantify and verify GHG mitigation results at the farm scale.
- The COMET-FARM system is designed so that a farmer, without any specialized training or knowledge about greenhouse gas quantification, can do state-of-the-art estimates and reporting, all within a web-based environment.
- Farm-scale quantification and self-reporting tools, such as the COMET-FARM tool, could provide efficient mitigation while streamlining monitoring, verification and other transactional functions in a networked environment.
- Estimation tools will need to be supported by 'strategic' on-farm measurements (e.g., inventory monitoring sites), long-term field experiments and continued model improvements.

The COMET-FARM Team

Colorado State University

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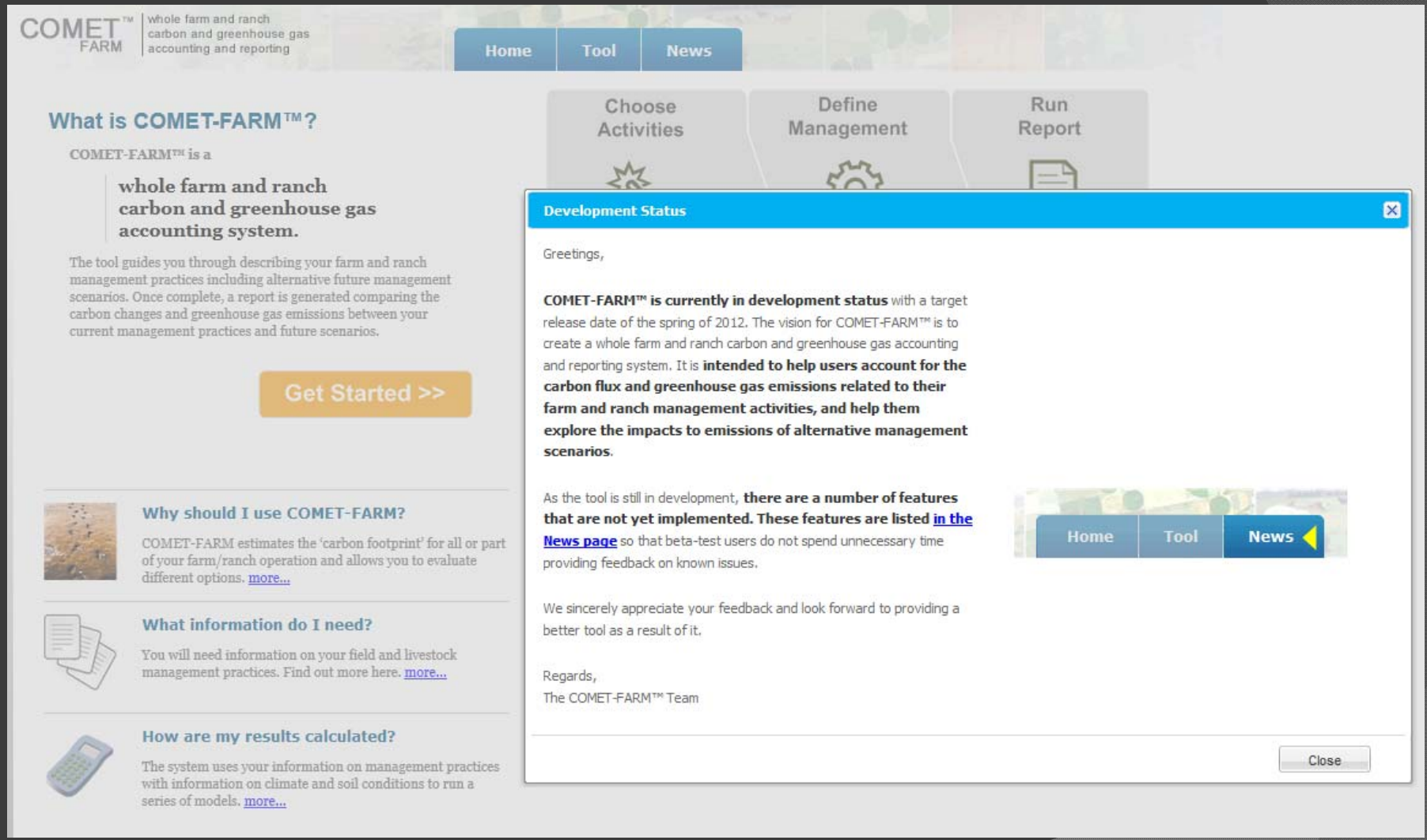
Greg Johnson (Portland)
Carolyn Olson (DC)
Roel Vining (Ft. Collins)

ARS

Steve DelGrosso

In case movie does not work – screenshots provided in following slides.


COMET™ FARM
whole farm and ranch carbon and greenhouse gas accounting and reporting
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Tool
News
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.
Get Started >>
Why should I use COMET-FARM?
COMET-FARM estimates the 'carbon footprint' for all or part of your farm/ranch operation and allows you to evaluate different options. more...
What information do I need?
You will need information on your field and livestock management practices. Find out more here. more...
How are my results calculated?
The system uses your information on management practices with information on climate and soil conditions to run a series of models. more...
Choose Activities
Define Management
Run Report
Development Status
Greetings,
COMET-FARM™ is currently in development status with a target release date of the spring of 2012. The vision for COMET-FARM™ is to create a whole farm and ranch carbon and greenhouse gas accounting and reporting system. It is intended to help users account for the carbon flux and greenhouse gas emissions related to their farm and ranch management activities, and help them explore the impacts to emissions of alternative management scenarios.
As the tool is still in development, there are a number of features that are not yet implemented. These features are listed in the News page so that beta-test users do not spend unnecessary time providing feedback on known issues.
We sincerely appreciate your feedback and look forward to providing a better tool as a result of it.
Regards,
The COMET-FARM™ Team
Close
Home
Tool
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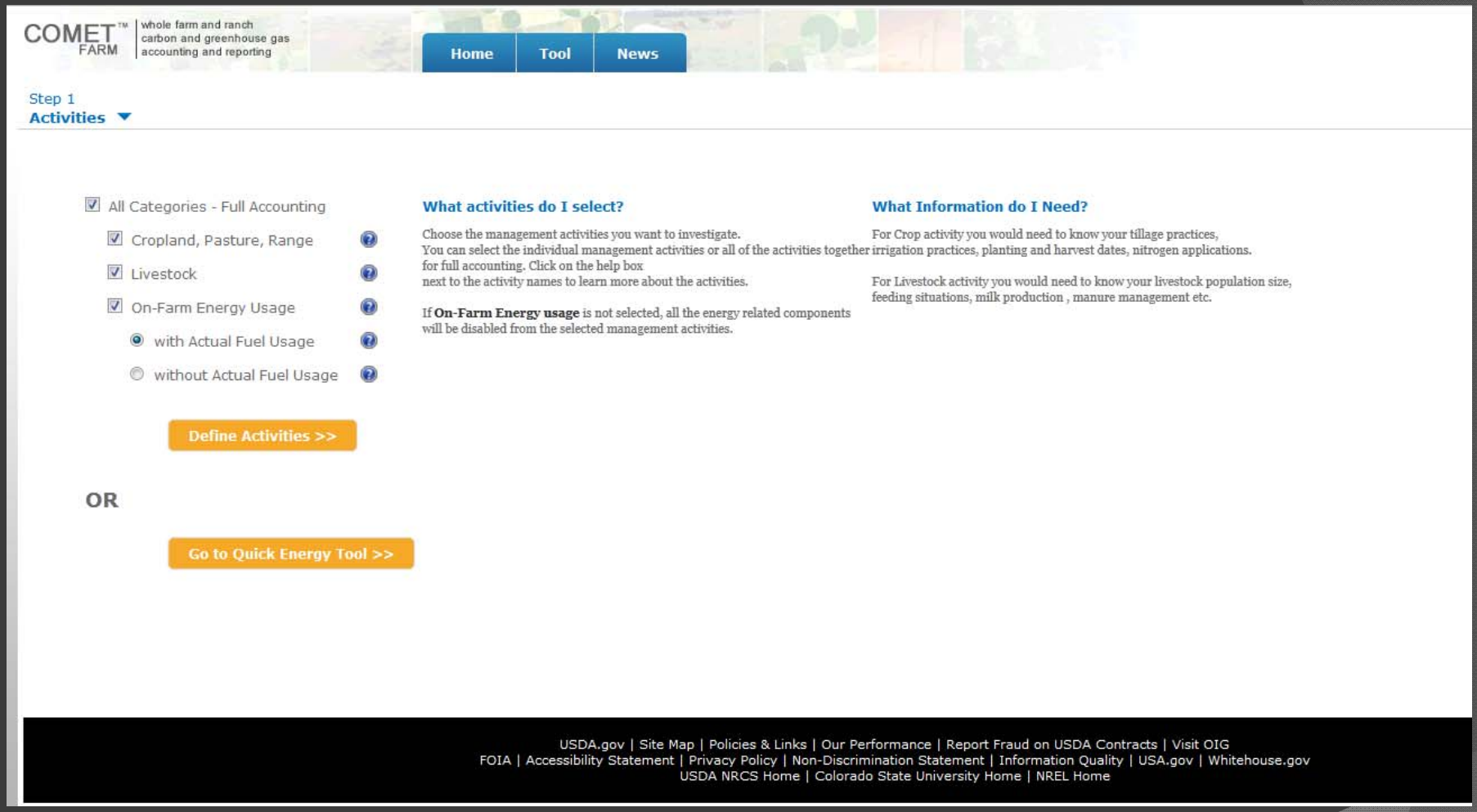
COMET™ FARM
whole farm and ranch carbon and greenhouse gas accounting and reporting
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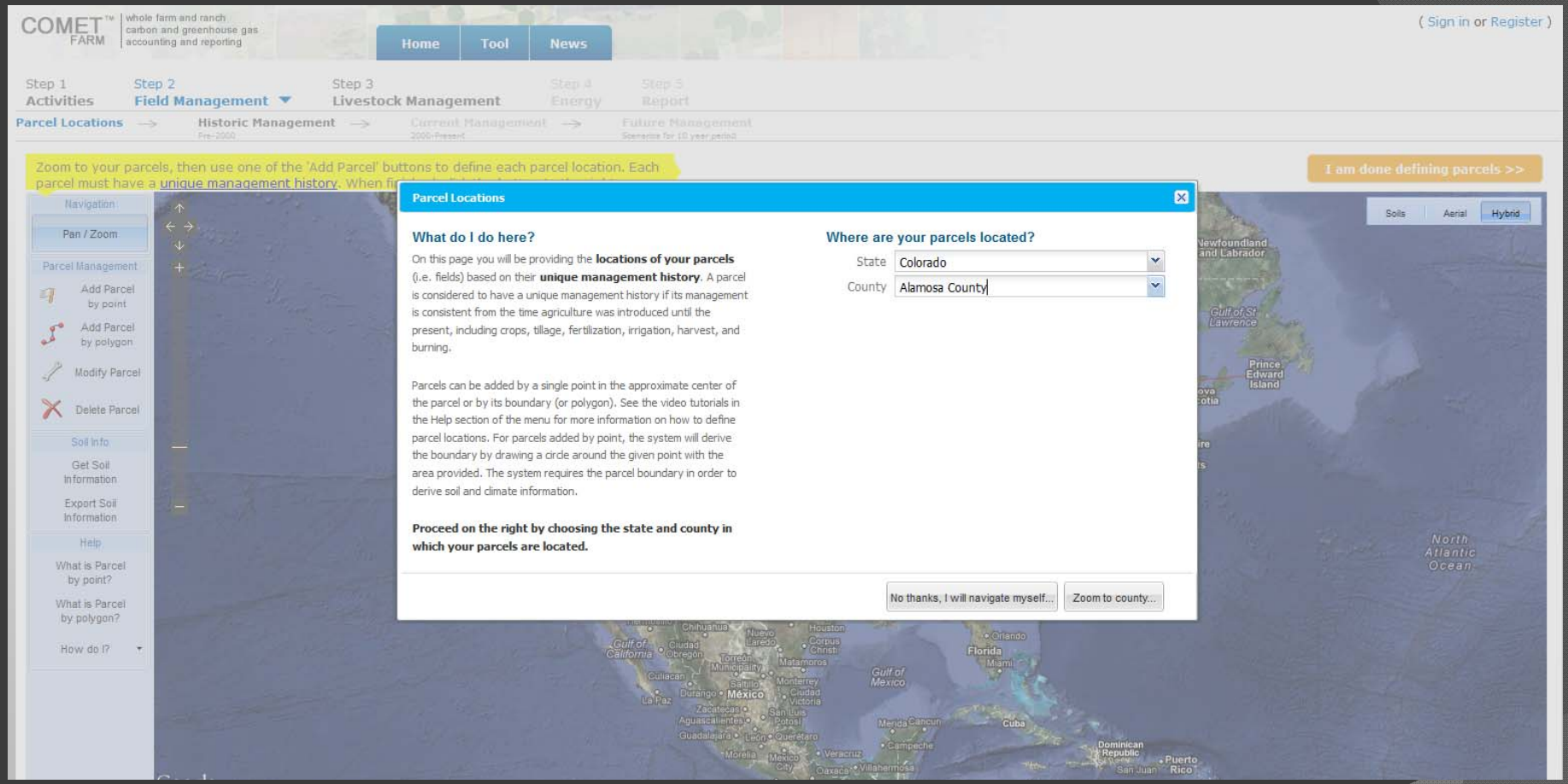
Step 1
Activities
All Categories - Full Accounting
Cropland, Pasture, Range
Livestock
On-Farm Energy Usage
with Actual Fuel Usage
without Actual Fuel Usage
Define Activities >>
OR
Go to Quick Energy Tool >>
What activities do I select?
Choose the management activities you want to investigate.
You can select the individual management activities or all of the activities together for full accounting. Click on the help box
next to the activity names to learn more about the activities.
If On-Farm Energy usage is not selected, all the energy related components will be disabled from the selected management activities.
What Information do I Need?
For Crop activity you would need to know your tillage practices, irrigation practices, planting and harvest dates, nitrogen applications.
For Livestock activity you would need to know your livestock population size, feeding situations, milk production , manure management etc.
USDA.gov | Site Map | Policies & Links | Our Performance | Report Fraud on USDA Contracts | Visit OIG
FOIA | Accessibility Statement | Privacy Policy | Non-Discrimination Statement | Information Quality | USA.gov | Whitehouse.gov
USDA NRCS Home | Colorado State University Home | NREL Home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(Sign in or Register)
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Step 3 Livestock Management
Step 4 Energy
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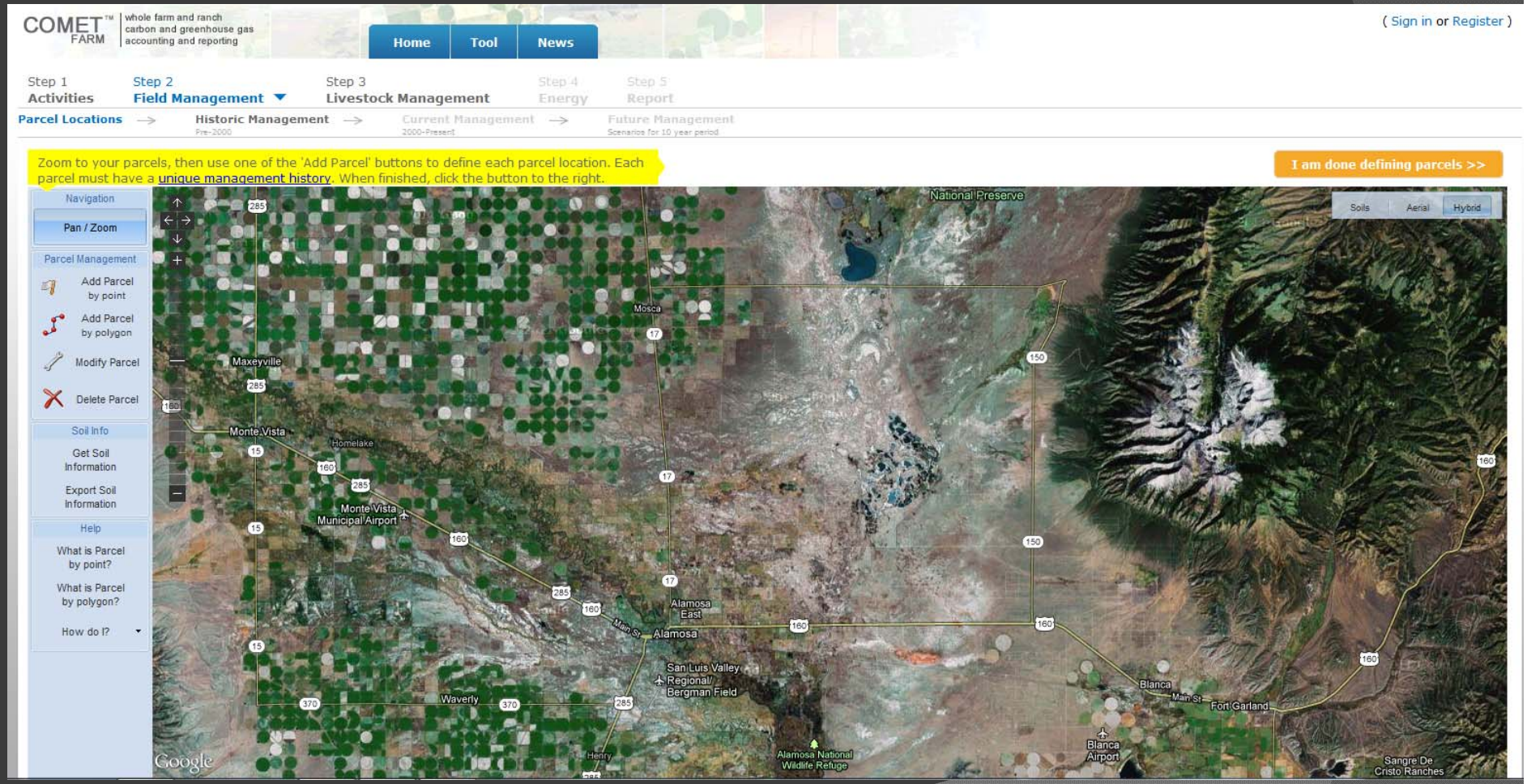
Parcel Locations
Historic Management
Current Management
Future Management
Zoom to your parcels, then use one of the 'Add Parcel' buttons to define each parcel location. Each parcel must have a unique management history.
I am done defining parcels >>
Navigation
Pan / Zoom
Parcel Management
Add Parcel by point
Add Parcel by polygon
Modify Parcel
Delete Parcel
Soil Info
Get Soil Information
Export Soil Information
Help
What is Parcel by point?
What is Parcel by polygon?
How do I?
Soils
Aerial
Hybrid
Parcel Locations
What do I do here?
On this page you will be providing the locations of your parcels (i.e. fields) based on their unique management history. A parcel is considered to have a unique management history if its management is consistent from the time agriculture was introduced until the present, including crops, tillage, fertilization, irrigation, harvest, and burning.
Parcels can be added by a single point in the approximate center of the parcel or by its boundary (or polygon). See the video tutorials in the Help section of the menu for more information on how to define parcel locations. For parcels added by point, the system will derive the boundary by drawing a circle around the given point with the area provided. The system requires the parcel boundary in order to derive soil and climate information.
Proceed on the right by choosing the state and county in which your parcels are located.
Where are your parcels located?
State Colorado
County Alamosa County
No thanks, I will navigate myself...
Zoom to county...
Gulf of California
Gulf of Mexico
Florida
Cuba
North Atlantic Ocean
Prince Edward Island
Dominican Republic
Puerto Rico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Current Management
2000-Present
Future Management
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What is Parcel by polygon?
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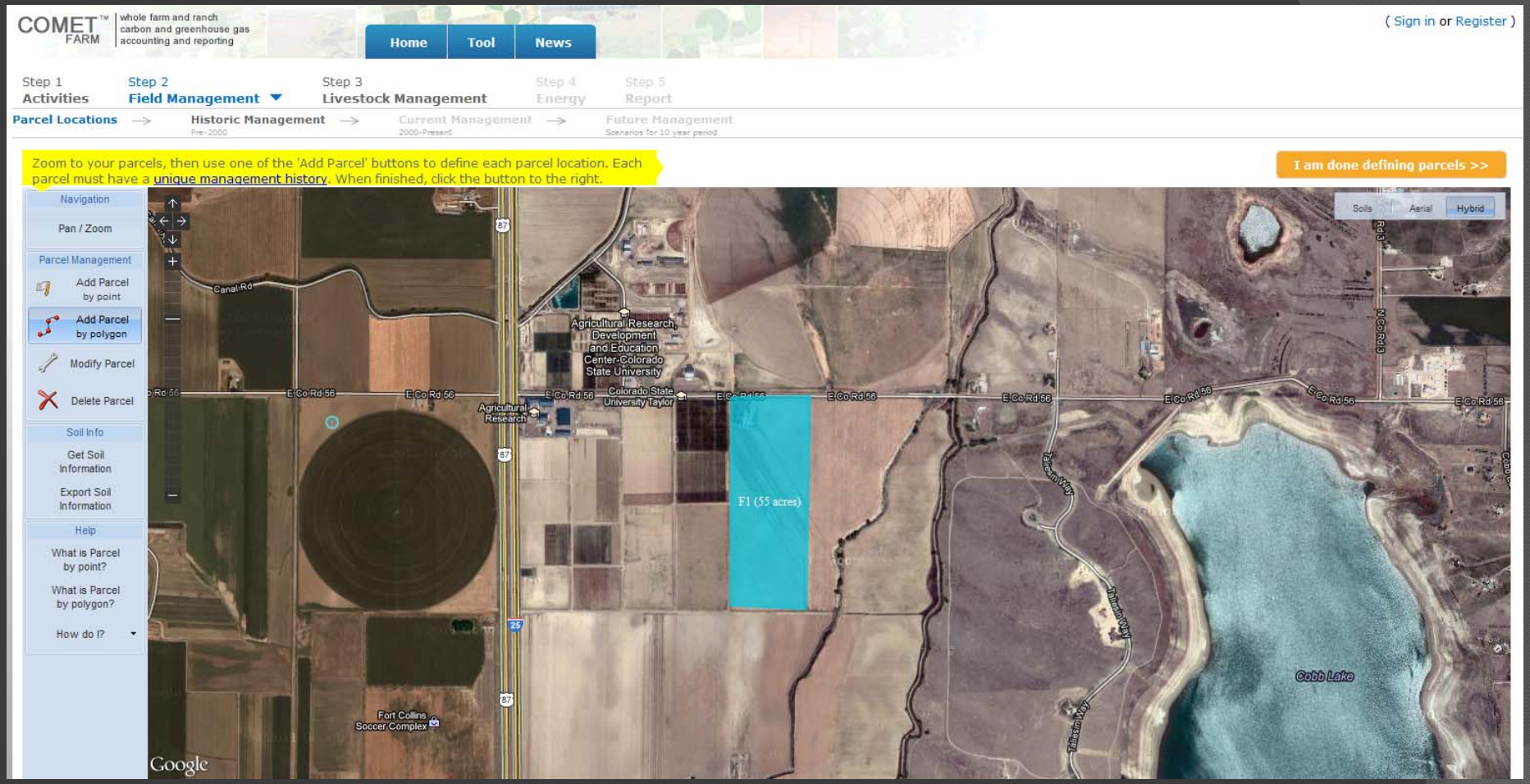
Aerial
Hybrid
National Preserve
Mosca
Maxeyville
Monte Vista
Homelake
Monte Vista Municipal Airport
Alamosa East
Alamosa
Main St
San Luis Valley Regional/ Bergman Field
Waverly
Henry
Alamosa National Wildlife Refuge
Blanca
Main St
Fort Garland
Blanca Airport
Sangre De Cristo Ranches
Google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Help
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What is Parcel by polygon?
How do I?
Soils
Aerial
Hybrid
Canal Rd
E Co Rd 56
Agricultural Research, Development and Education Center-Colorado State University
Colorado State University Taylor
Agricultural Research
F1 (55 acres)
Talisen Way
N Co Rd 3
Cobb Lake
Fort Collins Soccer Complex
Google

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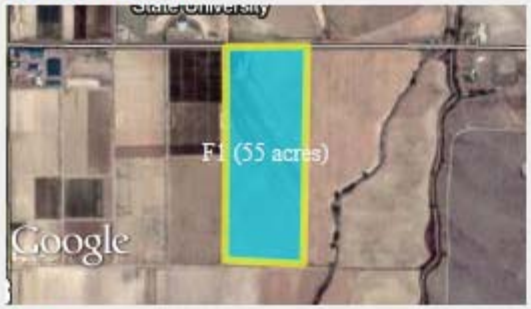
Parcel Locations → Historic Management (Pre-2000) → Current Management (2000-Present) → Future Management (Scenarios for 10 year period)

Selected Parcel



Data complete

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Selected

For parcel F1 (selected at left) what was its historic management?

Pre-1980 Management: Livestock Grazing

Was this parcel enrolled in CRP at anytime before 2000?: ○ Yes ◉ No

1980-2000 Management: Irrigated: Mechanical Fallow-Winter Wheat

1980-2000 Tillage: Intensive Tillage

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Parcel Locations → **Historic Management** (Pre-2000) → **Current Management** (2000-Present) → **Future Management** (Scenarios for 10 year period)

Selected Parcel

Data complete

Data incomplete

Selected

Parcel Management Summary

[details]

2000 Corn
2001 Undefined
2002 Undefined
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2006 Undefined
2007 Undefined
2008 Undefined
2009 Undefined
2010 Undefined
2011 Undefined

Tillage | Manure Application | Harvest

Crop and Planting Date | Nitrogen Application | Irrigation | Burning

For Parcel F1 in 2000 what crop was planted and when?

Crop: Alfalfa, Barley, Clover, **Corn**

Planting Date: 04/20/2000

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Data complete

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Parcel Management Summary

[details]

2000 Corn

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2002 Undefined

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Tillage | Manure Application | Harvest

Crop and Planting Date | Nitrogen Application | Irrigation | Burning

For Parcel F1 in 2000 what were the tillage practices?

Tillage: Intensive Tillage

Season Of Primary Tillage: Spring

Total Number of passes: 1

Fuel Type: No. 2 Diesel

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For Parcel F1 in 2000 what were the nitrogen application practices?

Fertilizer Type: UAN

Enhanced efficiency product (nitrification inhibitor) used? ☐

	No. of Applications	Total Amount (lbs/acre)	Application Method
Spring	1	110	Incorporate / Inject
Summer	1	110	Surface Broadcast
Fall	0	0	None
Winter	0	0	None

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Tillage | Manure Application | Harvest

Crop and Planting Date | Nitrogen Application | Irrigation | Burning

For Parcel F1 in 2000 what were the manure application practices?

	No. of Applications	Total Applied (tons)	Carbon-to-Nitrogen Ratio
Spring	0	0	5
Summer	0	0	5
Fall	0	0	5
Winter	0	0	5

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Tillage | Manure Application | Harvest

Crop and Planting Date | Nitrogen Application | **Irrigation** | Burning

For Parcel F1 in 2000 what were the irrigation practices?

	No. of Applications	Gross Application (acre-inches/acre)
Spring	1	1
Summer	8	2
Fall	0	0
Winter	0	0

Irrigation System: Sprinkler

Power Source: Diese

Well Lift (ft): 0

System Pressure (psi): 0

Do you use a **flow meter** ?

Do you use **irrigation scheduling** ?

Do you conduct regular irrigation application system **maintenance and upgrades** ?

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Selected Parcel

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Data incomplete

Selected

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[details]

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Crop and Planting Date | Tillage | Nitrogen Application | Manure Application | Irrigation | Harvest | Burning

For Parcel F1 in 2000 what were the harvest practices?

Harvest Date	Grain	Straw/Stover/Hay %
10/20/2000	☑	50

Add Harvest

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2011 Undefined

For Parcel F1 in 2000 what seasons did you burn?

- [ ] Spring
- [ ] Summer
- [ ] Fall
- [ ] Winter

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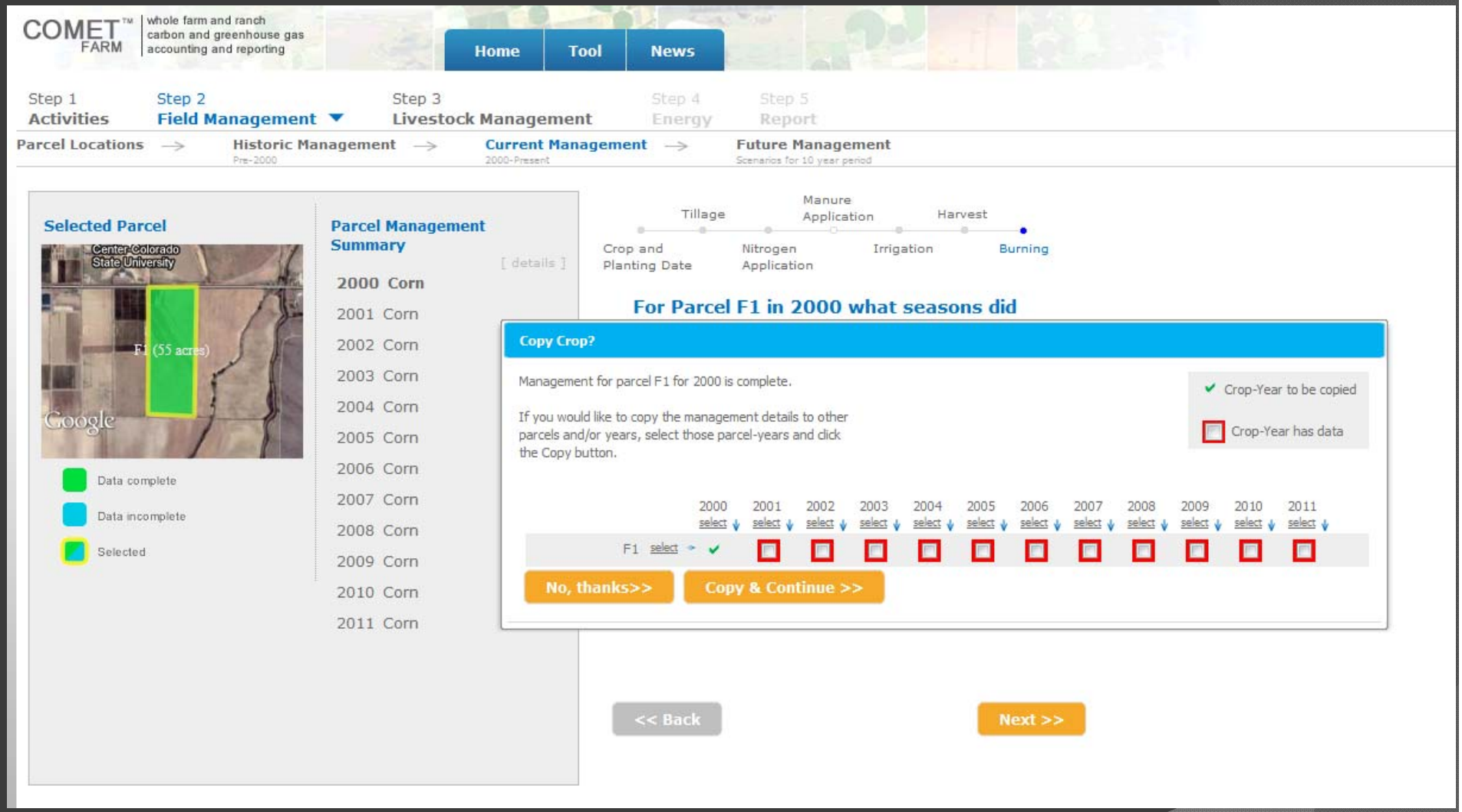
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Scenarios for 10 year period
Selected Parcel
Center-Colorado State University
F1 (55 acres)
Google
Data complete
Data incomplete
Selected
Parcel Management Summary
[details]
2000 Corn
2001 Corn
2002 Corn
2003 Corn
2004 Corn
2005 Corn
2006 Corn
2007 Corn
2008 Corn
2009 Corn
2010 Corn
2011 Corn
Tillage
Manure Application
Harvest
Crop and Planting Date
Nitrogen Application
Irrigation
Burning
For Parcel F1 in 2000 what seasons did
Copy Crop?
Management for parcel F1 for 2000 is complete.
If you would like to copy the management details to other parcels and/or years, select those parcel-years and click the Copy button.
Crop-Year to be copied
Crop-Year has data
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
select
F1 select
No, thanks>>
Copy & Continue >>
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2011 Corn

Tillage | Manure Application | Harvest

Crop and Planting Date | Nitrogen Application | Irrigation | Burning

For Parcel F1 in 2000 what crop was planted and when?

Crop

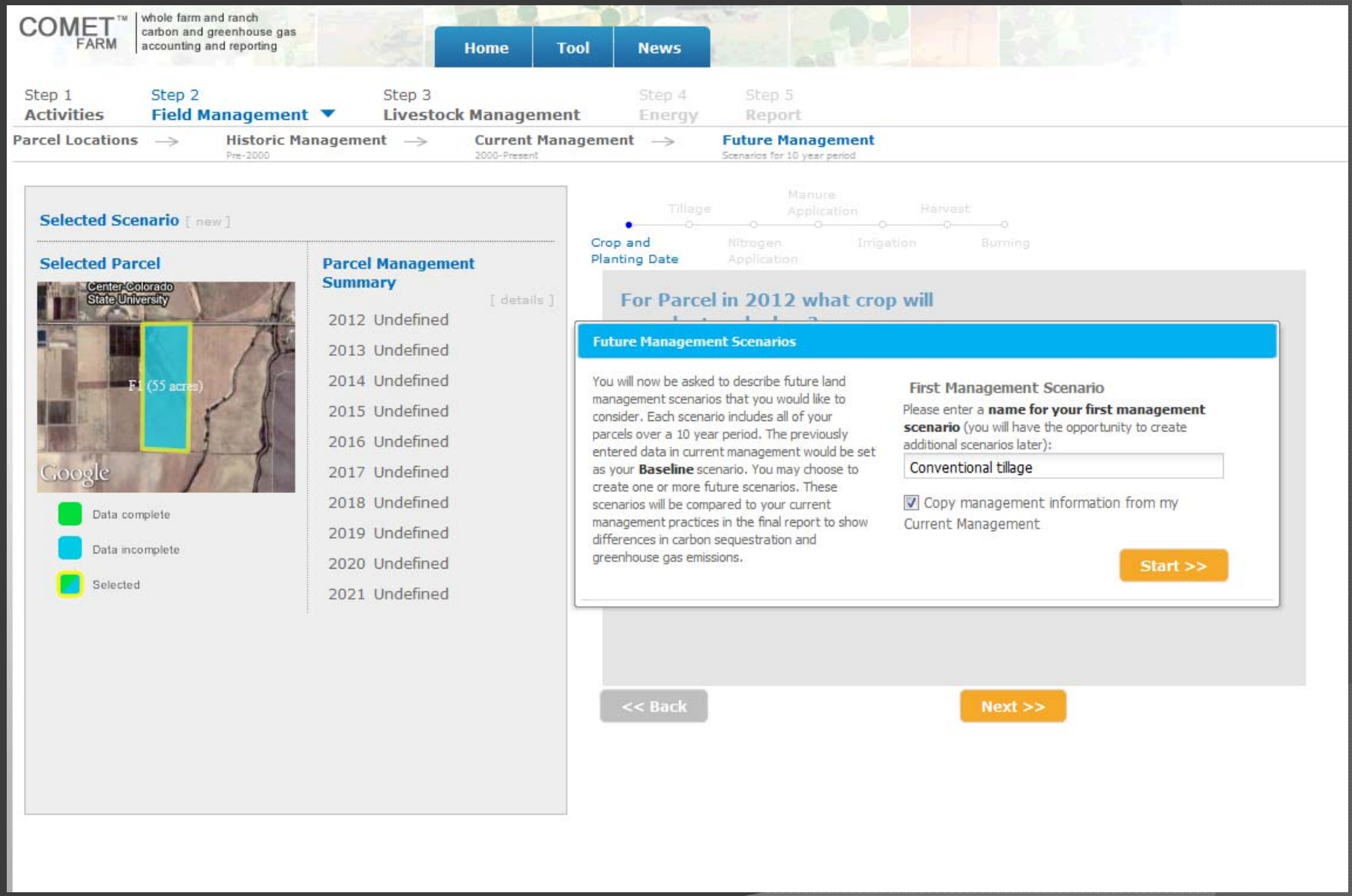
Plan
Date

Continue to future management

All current management (2000-present) is defined for all parcels. You will now be taken to the Future Management page where you will define management scenarios to compare against your current management.

Continue editing>> | Continue to Future Management >>

<< Back | Next >>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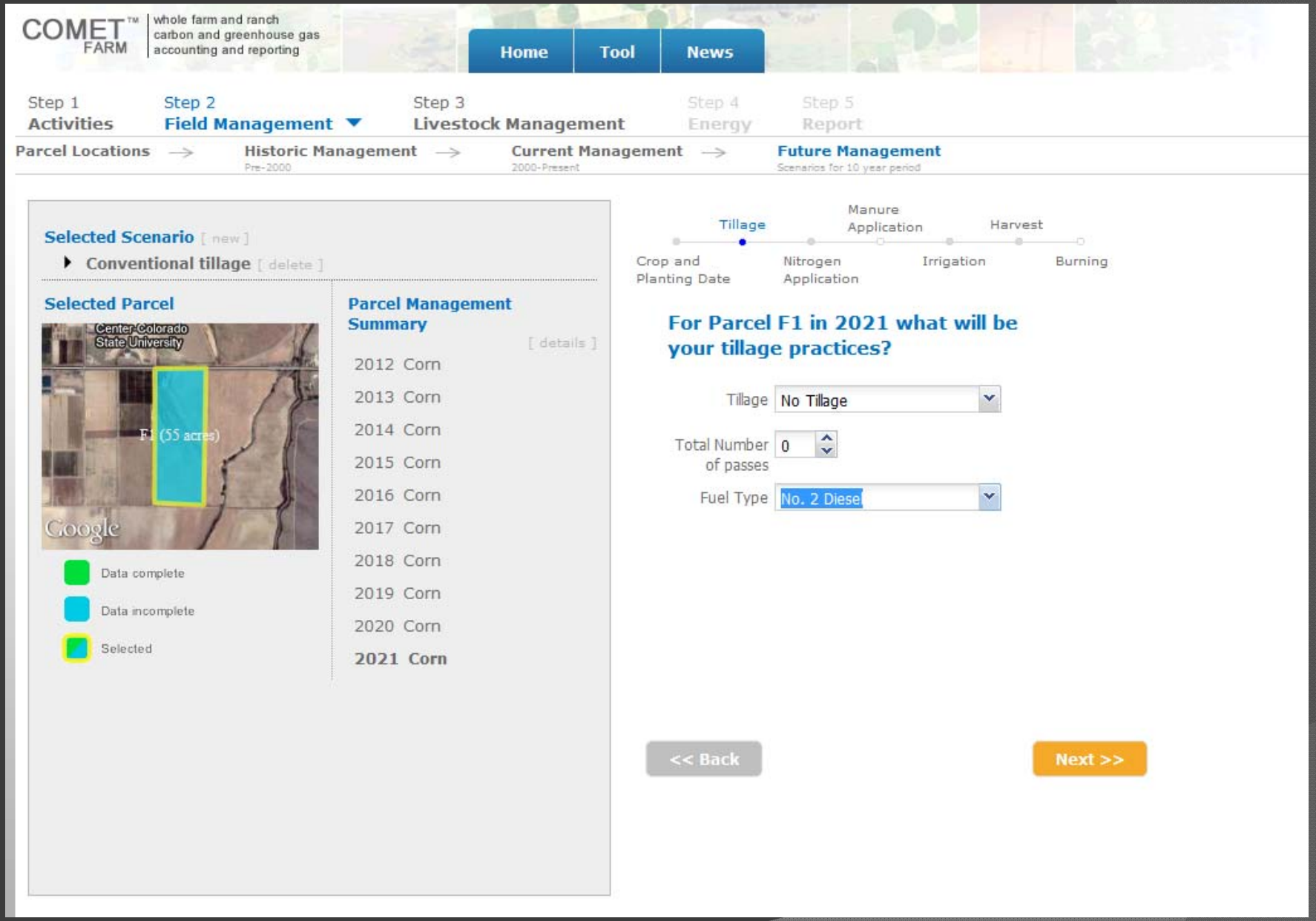
Parcel Locations
Historic Management
Pre-2000
Current Management
2000-Present
Future Management
Scenarios for 10 year period
Selected Scenario [new]
Selected Parcel
Center Colorado State University
F1 (55 acres)
Google
Data complete
Data incomplete
Selected
Parcel Management Summary
[details]
2012 Undefined
2013 Undefined
2014 Undefined
2015 Undefined
2016 Undefined
2017 Undefined
2018 Undefined
2019 Undefined
2020 Undefined
2021 Undefined
Tillage
Manure Application
Harvest
Crop and Planting Date
Nitrogen Application
Irrigation
Burning
For Parcel in 2012 what crop will
Future Management Scenarios
You will now be asked to describe future land management scenarios that you would like to consider. Each scenario includes all of your parcels over a 10 year period. The previously entered data in current management would be set as your Baseline scenario. You may choose to create one or more future scenarios. These scenarios will be compared to your current management practices in the final report to show differences in carbon sequestration and greenhouse gas emissions.
First Management Scenario
Please enter a name for your first management scenario (you will have the opportunity to create additional scenarios later):
Conventional tillage
Copy management information from my Current Management
Start >>
<< Back
Next >>



The rest stays the same.

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Parcel Locations → Historic Management (Pre-2000) → Current Management (2000-Present) → Future Management (Scenarios for 10 year period)

Selected Scenario [new]

▸ **Conventional tillage** [delete]

Selected Parcel

Data complete

Data incomplete

Selected

Parcel Management Summary [details]

2012 Corn
2013 Corn
2014 Corn
2015 Corn
2016 Corn
2017 Corn
2018 Corn
2019 Corn
2020 Corn
2021 Corn

Tillage | Manure Application | Harvest

Crop and Planting Date | Nitrogen Application | Irrigation | Burning

For Parcel F1 in 2021 what season will

Copy Crop?

Management for parcel F1 for 2021 is complete.

If you would like to copy the management details to other parcels and/or years, select those parcel-years and click the Copy button.

✔ Crop-Year to be copie

Crop-Year has data

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	select	select	select	select	select	select	select	select	select	select
F1 select	☐	☐	☐	☐	☐	☐	☐	☐	☐	✔

No, thanks>> | Copy & Continue >>

<< Back | Next >>

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Parcel Locations → Historic Management (Pre-2000) → Current Management (2000-Present) → Future Management (Scenarios for 10 year period)

Selected Scenario [new]

▸ **Conventional tillage** [delete]

Selected Parcel

Data complete

Data incomplete

Selected

Parcel Management Summary

[det

2012 Corn
2013 Corn
2014 Corn
2015 Corn
2016 Corn
2017 Corn
2018 Corn
2019 Corn
2020 Corn
2021 Corn

Tillage | Manure Application | Harvest

Crop and Planting Date | Nitrogen Application | Irrigation | Burning

For Parcel F1 in 2012 what crop

Future Management Scenarios

Your scenario is complete!

I'm done building scenarios.

Continue to Livestock >>

OR

Create New Management Scenario

Please enter a **name for your new management scenario:**

No-tillage

Copy management information from:

Select a Scenario...

Continue Editing

Create New Scenario >>

<< Back

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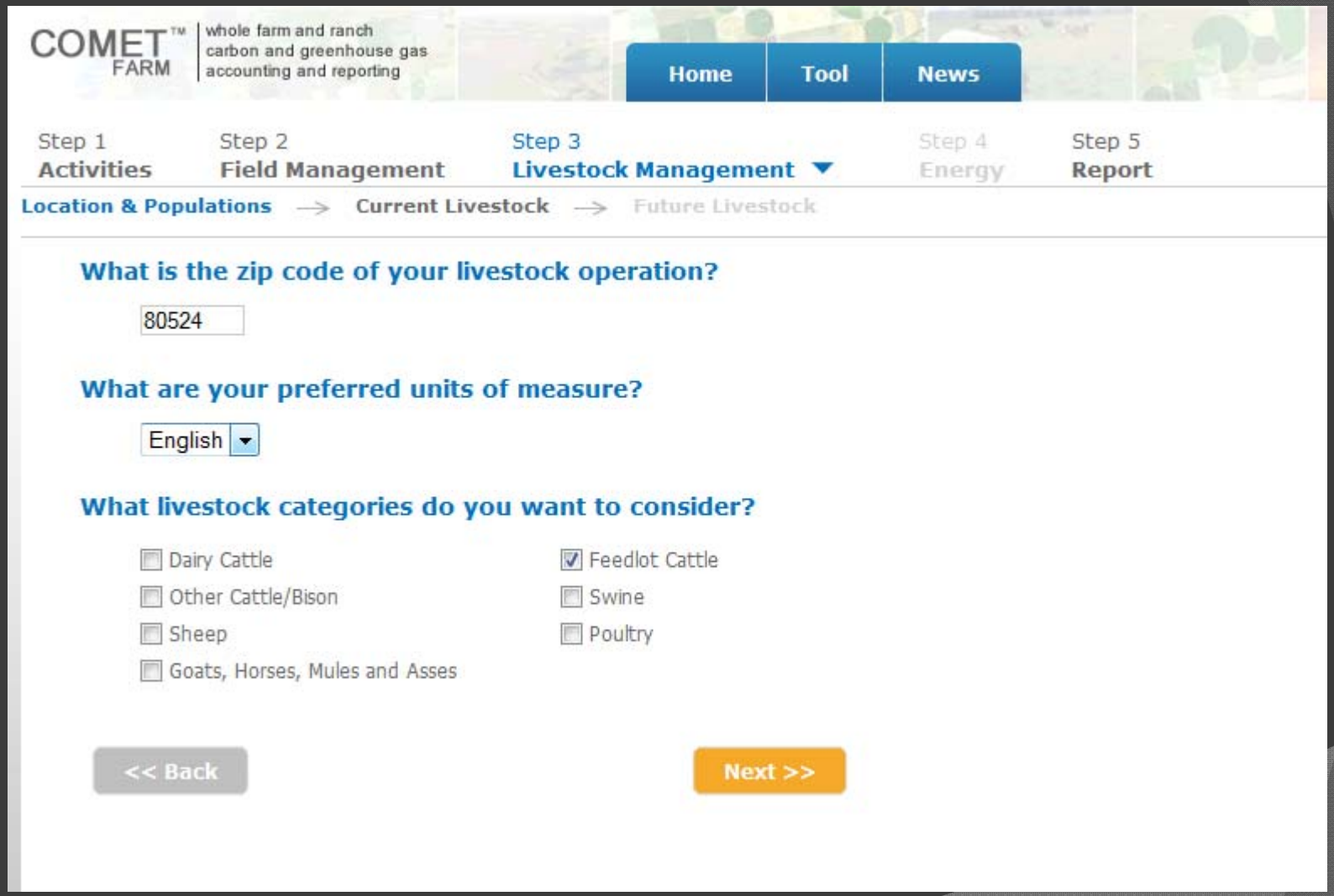
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Location & Populations → Current Livestock → Future Livestock
What is the zip code of your livestock operation?
80524
What are your preferred units of measure?
English
What livestock categories do you want to consider?
Dairy Cattle
Feedlot Cattle
Other Cattle/Bison
Swine
Sheep
Poultry
Goats, Horses, Mules and Asses
<< Back
Next >>

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Location & Populations → Current Livestock → Future Livestock

Livestock Category

Feedlot Cattle

Populations | Manure Management Systems | Feeding Situation | Weight | Pregnancy and Milk Production

Primary Breed | Feed Quality and Additives | Feed Mills | Offspring

What are the average populations per month for Feedlot Cattle?

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mature Females	20	20	20	20	20	20	20	20	20	20	20	20
Mature Intact Males	2	2	2	2	2	2	2	2	2	2	2	2
Castrate males	5	5	5	5	5	5	5	5	5	5	5	5
Calves	8	8	8	8	8	8	8	8	8	8	8	8

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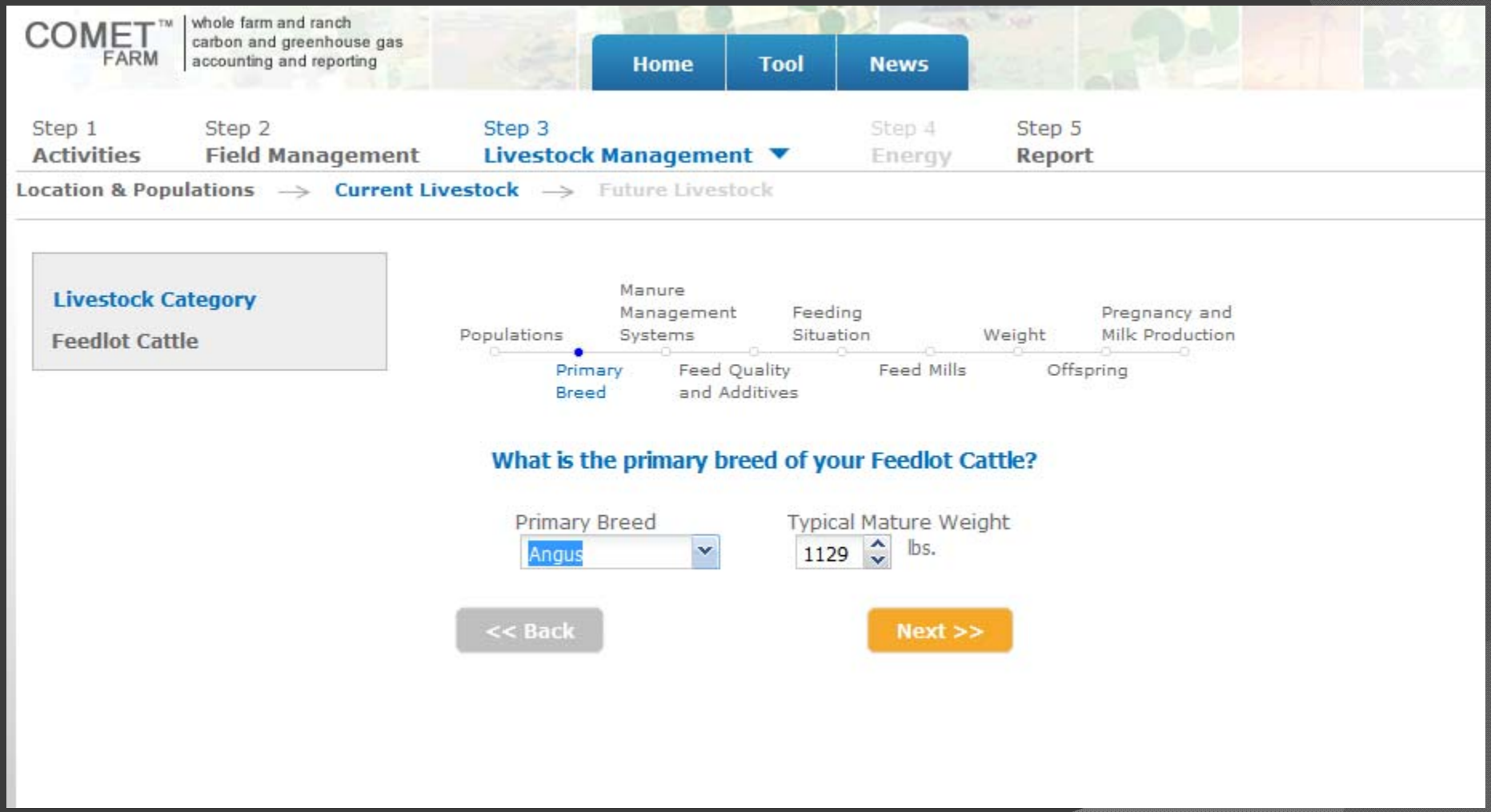
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Livestock Category
Feedlot Cattle
Populations
Primary Breed
Manure Management Systems
Feed Quality and Additives
Feeding Situation
Feed Mills
Weight
Offspring
Pregnancy and Milk Production
What is the primary breed of your Feedlot Cattle?
Primary Breed
Angus
Typical Mature Weight
1129
lbs.
<< Back
Next >>

Livestock Category

Feedlot Cattle

Populations | Primary Breed | Manure Management Systems | Feed Quality and Additives | Feeding Situation | Feed Mills | Weight | Offspring | Pregnancy and Milk Production

What is the average percent manure ash and what are the allocations to manure management systems?

Percent Manure Ash	10

Manure Management Sytems	% Allocation	% CH_4 Recapture Rate
Anaerobic Digester	0	0
Aerobic Treatment forced aeration	0	
Aerobic Treatment natural aeration	0	
Cattle/Swine Deep Bedding < 1 month	0	
Cattle/Swine Deep Bedding > 1 month	0	
Cattle/Swine Deep Bedding > 1 month (active mixing)	0	
Composting intensive windrow	0	
Composting in-vessel or static pile	0	
Composting passive windrow	0	
Daily Spread	0	
Dry Lot	0	
Liquid/Slurry with natural crust cover	0	
Liquid/Slurry without crust cover	0	
Pasture/Range/Paddock	0	
Pit Storage < 1 month	0	
Pit Storage > 1 month	0	
Solid Storage	0	
Uncovered Anaerobic Lagoon	100	
Total	100	

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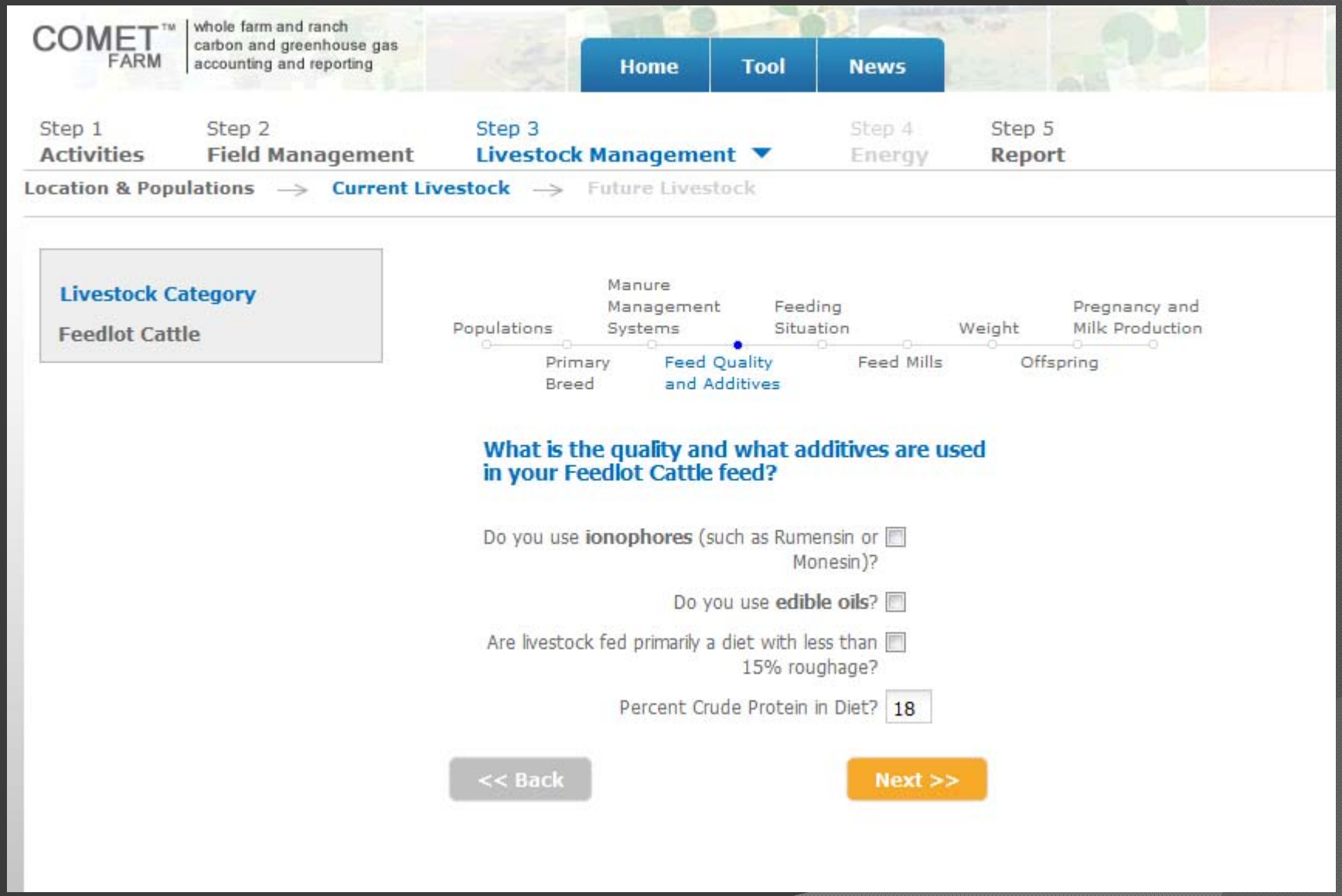
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Feedlot Cattle
Populations
Primary Breed
Manure Management Systems
Feed Quality and Additives
Feeding Situation
Feed Mills
Weight
Offspring
Pregnancy and Milk Production
What is the quality and what additives are used in your Feedlot Cattle feed?
Do you use ionophores (such as Rumensin or Monesin)?
Do you use edible oils?
Are livestock fed primarily a diet with less than 15% roughage?
Percent Crude Protein in Diet? 18
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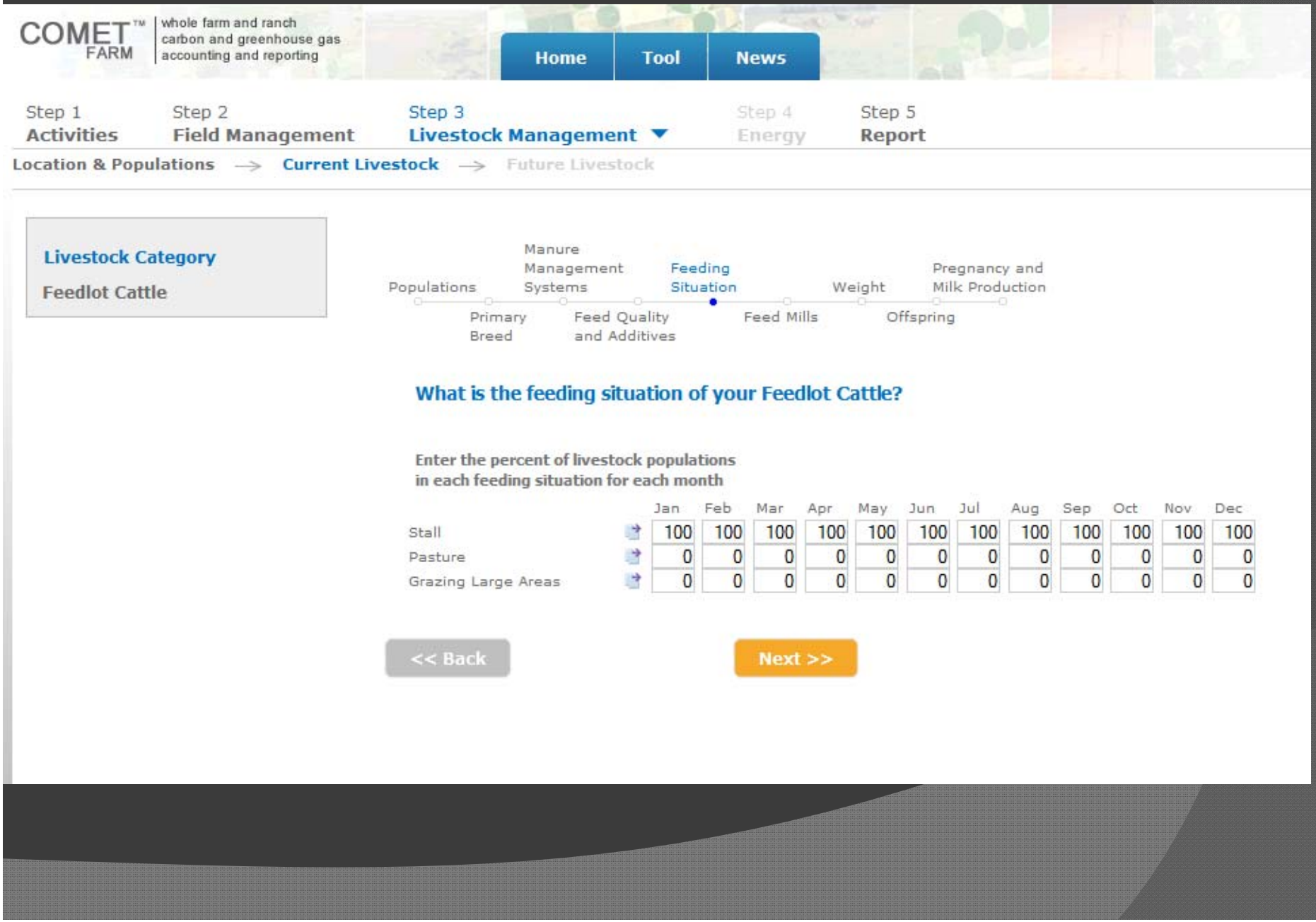
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Populations
Primary Breed
Manure Management Systems
Feed Quality and Additives
Feeding Situation
Feed Mills
Weight
Offspring
Pregnancy and Milk Production
What is the feeding situation of your Feedlot Cattle?
Enter the percent of livestock populations in each feeding situation for each month
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Stall 100 100 100 100 100 100 100 100 100 100 100 100
Pasture 0 0 0 0 0 0 0 0 0 0 0 0
Grazing Large Areas 0 0 0 0 0 0 0 0 0 0 0 0
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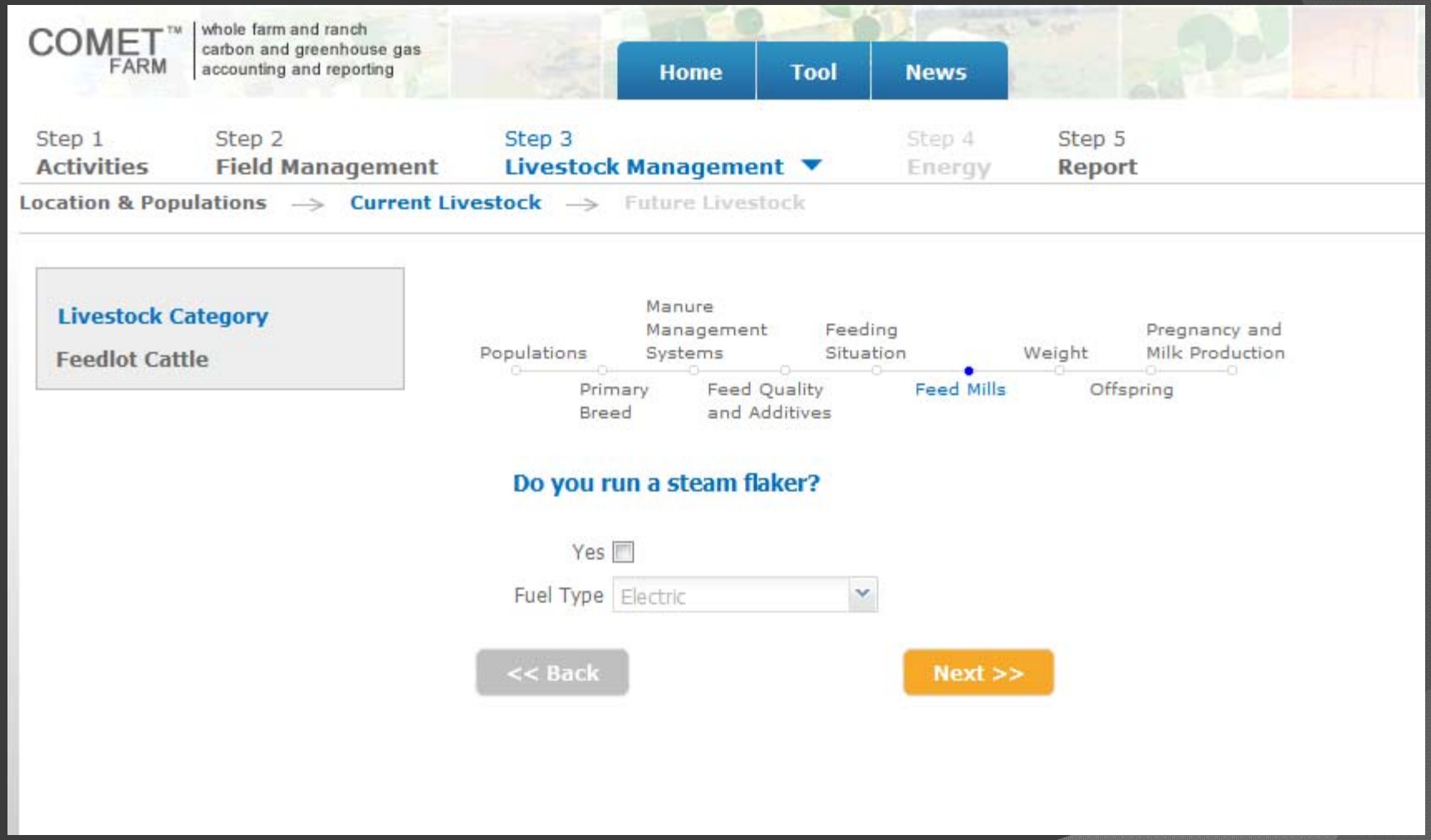
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Feedlot Cattle
Populations
Primary Breed
Manure Management Systems
Feed Quality and Additives
Feeding Situation
Feed Mills
Weight
Offspring
Pregnancy and Milk Production
Do you run a steam flaker?
Yes
Fuel Type
Electric
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Step 1 **Activities** | Step 2 **Field Management** | Step 3 **Livestock Management** | Step 4 **Energy** | Step 5 **Report**

Location & Populations → **Current Livestock** → Future Livestock

Livestock Category

Feedlot Cattle

Populations | Primary Breed | Manure Management Systems | Feed Quality and Additives | Feeding Situation | Feed Mills | Weight | Offspring | Pregnancy and Milk Production

What are the typical daily weight gain and average live weight of your Feedlot Cattle?

Enter the **average daily weight (lbs) gain** per animal per month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mature Females	1	1	1	1	1	1	1	1	1	1	1	1
Mature Intact Males	1	1	1	1	1	1	1	1	1	1	1	1
Castrate males	1	1	1	1	1	1	1	1	1	1	1	1
Calves	1	1	1	1	1	1	1	1	1	1	1	1

Enter the **average live weight (lbs)** per animal per month

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mature Females	1129	1129	1129	1129	1129	1129	1129	1129	1129	1129	1129	1129
Mature Intact Males	1129	1129	1129	1129	1129	1129	1129	1129	1129	1129	1129	1129
Castrate males	847	847	847	847	847	847	847	847	847	847	847	847
Calves	847	847	847	847	847	847	847	847	847	847	847	847

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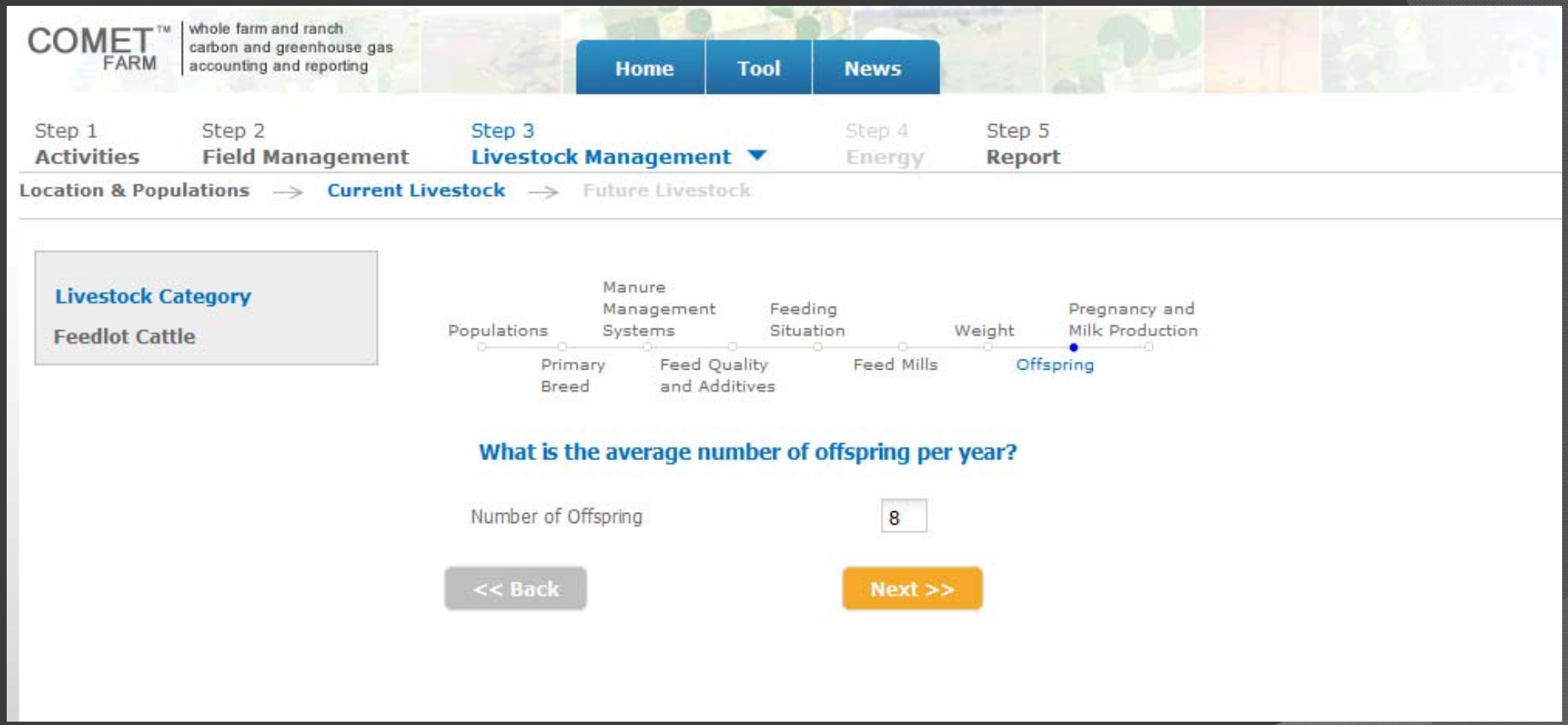
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Populations
Primary Breed
Manure Management Systems
Feed Quality and Additives
Feeding Situation
Feed Mills
Weight
Pregnancy and Milk Production
Offspring
What is the average number of offspring per year?
Number of Offspring
8
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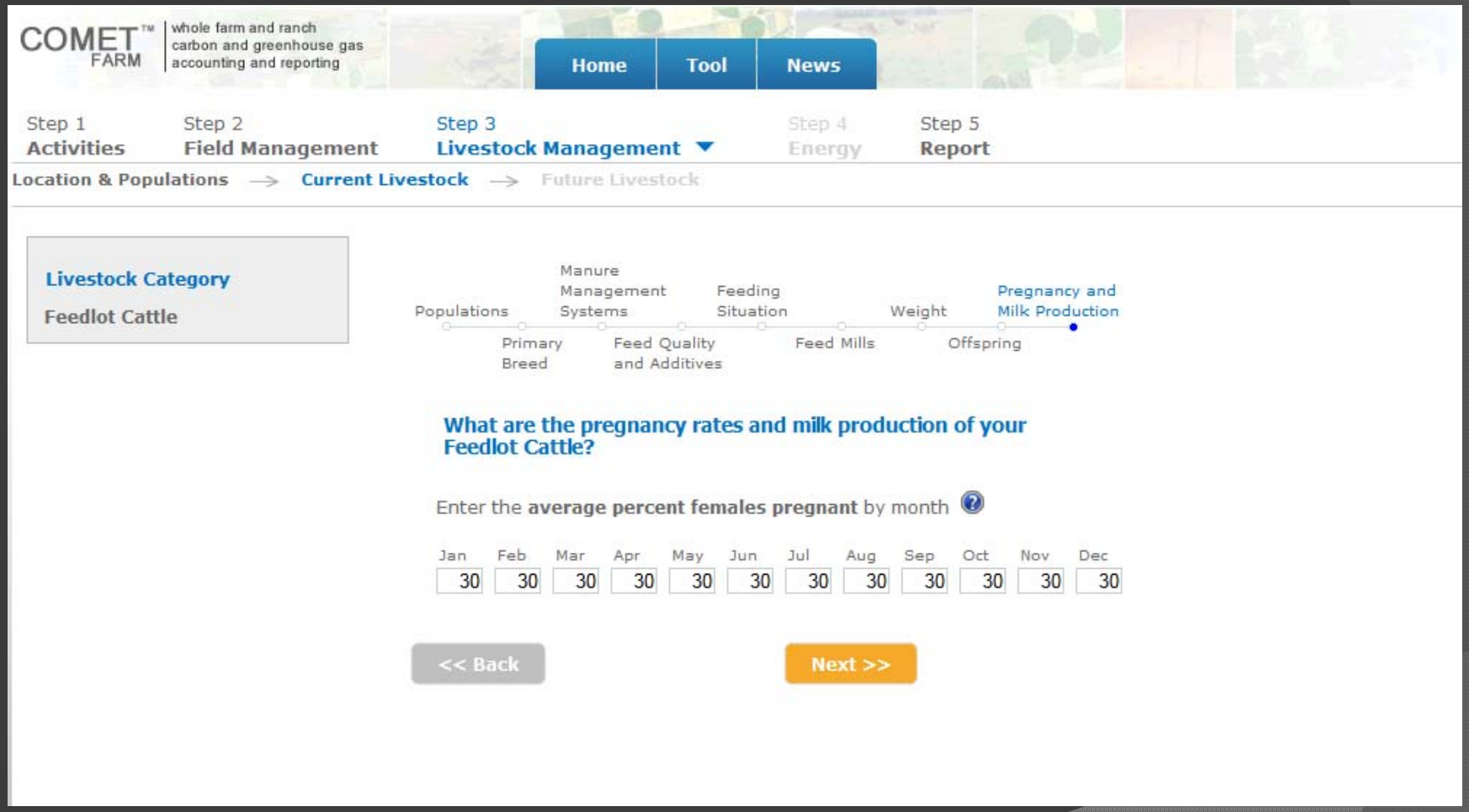
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Populations
Primary Breed
Manure Management Systems
Feed Quality and Additives
Feeding Situation
Feed Mills
Weight
Offspring
Pregnancy and Milk Production
What are the pregnancy rates and milk production of your Feedlot Cattle?
Enter the average percent females pregnant by month
Jan 30
Feb 30
Mar 30
Apr 30
May 30
Jun 30
Jul 30
Aug 30
Sep 30
Oct 30
Nov 30
Dec 30
<< Back
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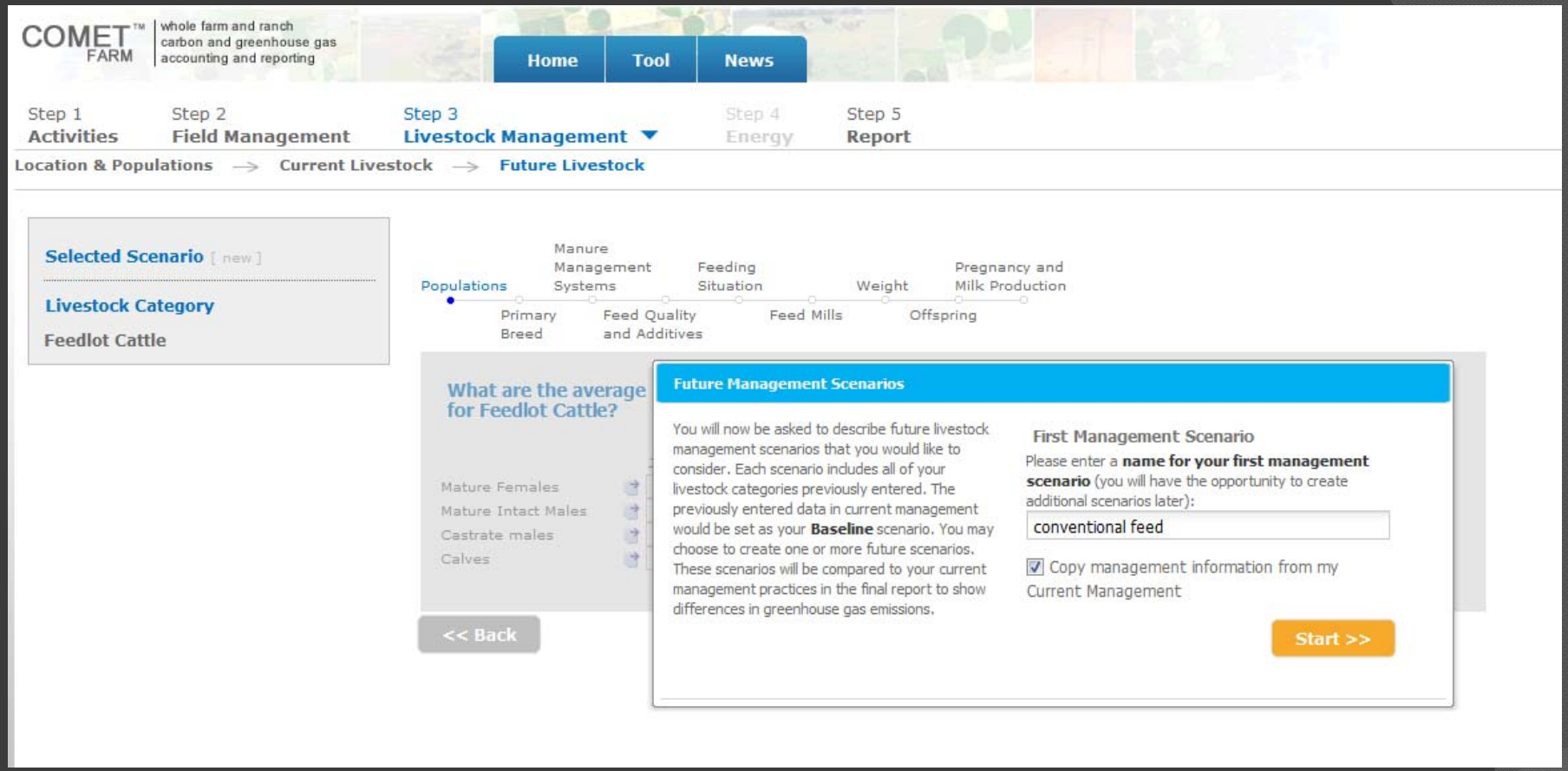
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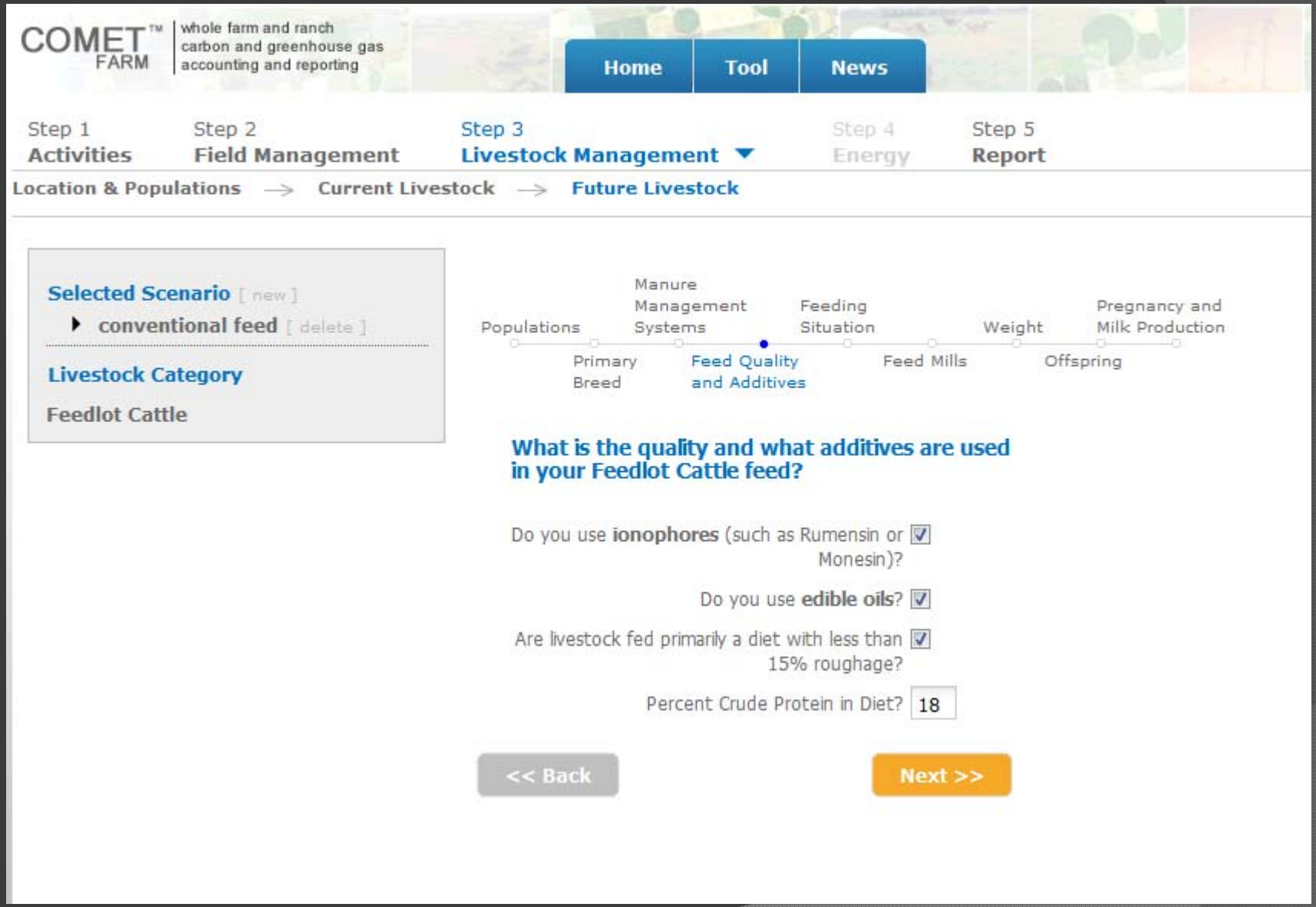
Livestock Category
Feedlot Cattle
Populations
Manure Management Systems
Feeding Situation
Weight
Pregnancy and Milk Production
Primary Breed
Feed Quality and Additives
Feed Mills
Offspring
What are the average for Feedlot Cattle?
Mature Females
Mature Intact Males
Castrate males
Calves
<< Back
Future Management Scenarios
You will now be asked to describe future livestock management scenarios that you would like to consider. Each scenario includes all of your livestock categories previously entered. The previously entered data in current management would be set as your Baseline scenario. You may choose to create one or more future scenarios. These scenarios will be compared to your current management practices in the final report to show differences in greenhouse gas emissions.
First Management Scenario
Please enter a name for your first management scenario (you will have the opportunity to create additional scenarios later):
conventional feed
Copy management information from my Current Management
Start >>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conventional feed [delete]
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Populations
Primary Breed
Manure Management Systems
Feed Quality and Additives
Feeding Situation
Feed Mills
Weight
Offspring
Pregnancy and Milk Production
What is the quality and what additives are used in your Feedlot Cattle feed?
Do you use ionophores (such as Rumensin or Monesin)?
Do you use edible oils?
Are livestock fed primarily a diet with less than 15% roughage?
Percent Crude Protein in Diet? 18
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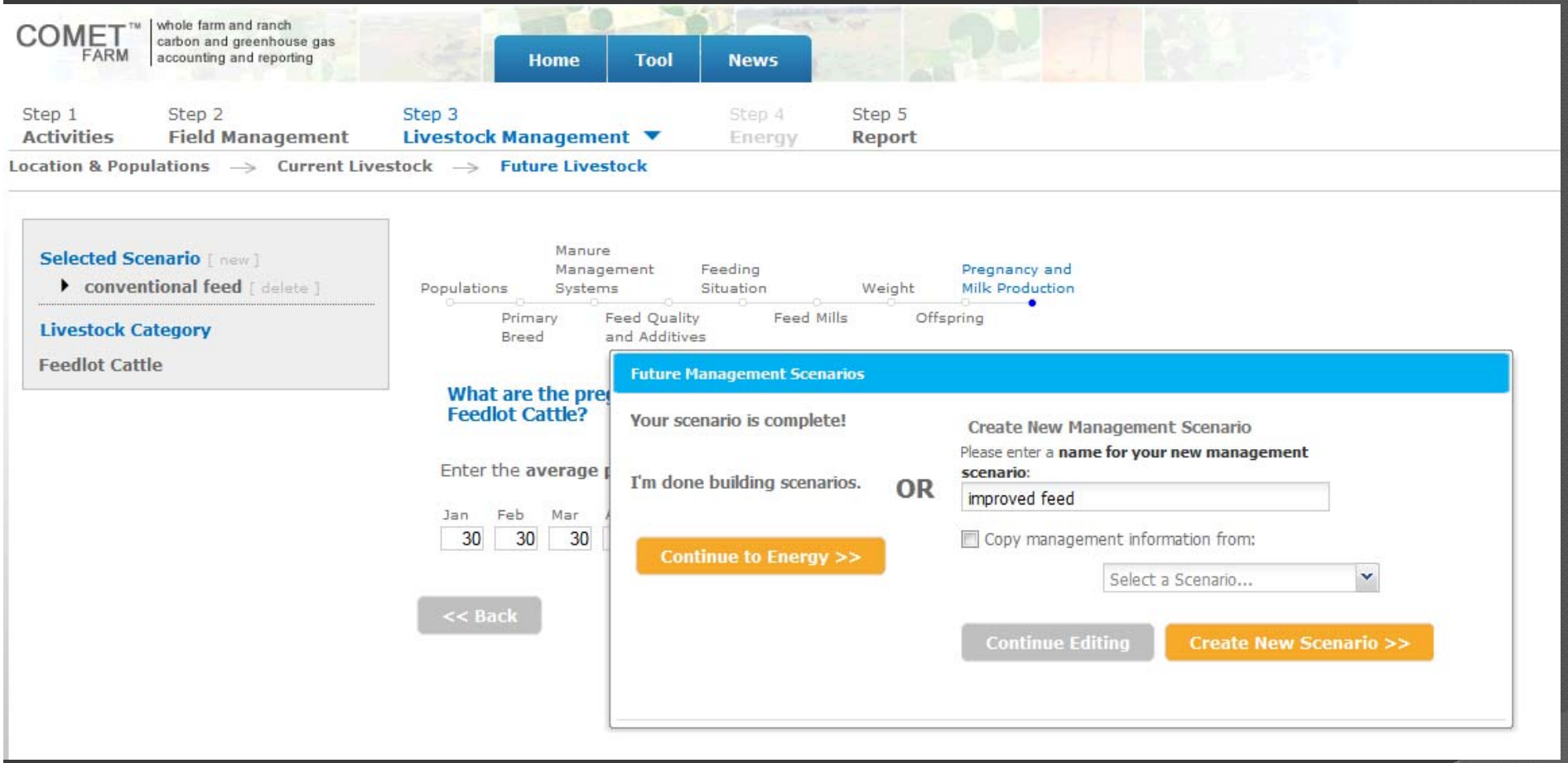
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conventional feed [delete]
Livestock Category
Feedlot Cattle
Populations
Primary Breed
Manure Management Systems
Feed Quality and Additives
Feeding Situation
Feed Mills
Weight
Offspring
Pregnancy and Milk Production
What are the pre
Feedlot Cattle?
Enter the average
Jan
Feb
Mar
30
30
30
<< Back
Future Management Scenarios
Your scenario is complete!
I'm done building scenarios.
Continue to Energy >>
OR
Create New Management Scenario
Please enter a name for your new management scenario:
improved feed
Copy management information from:
Select a Scenario...
Continue Editing
Create New Scenario >>

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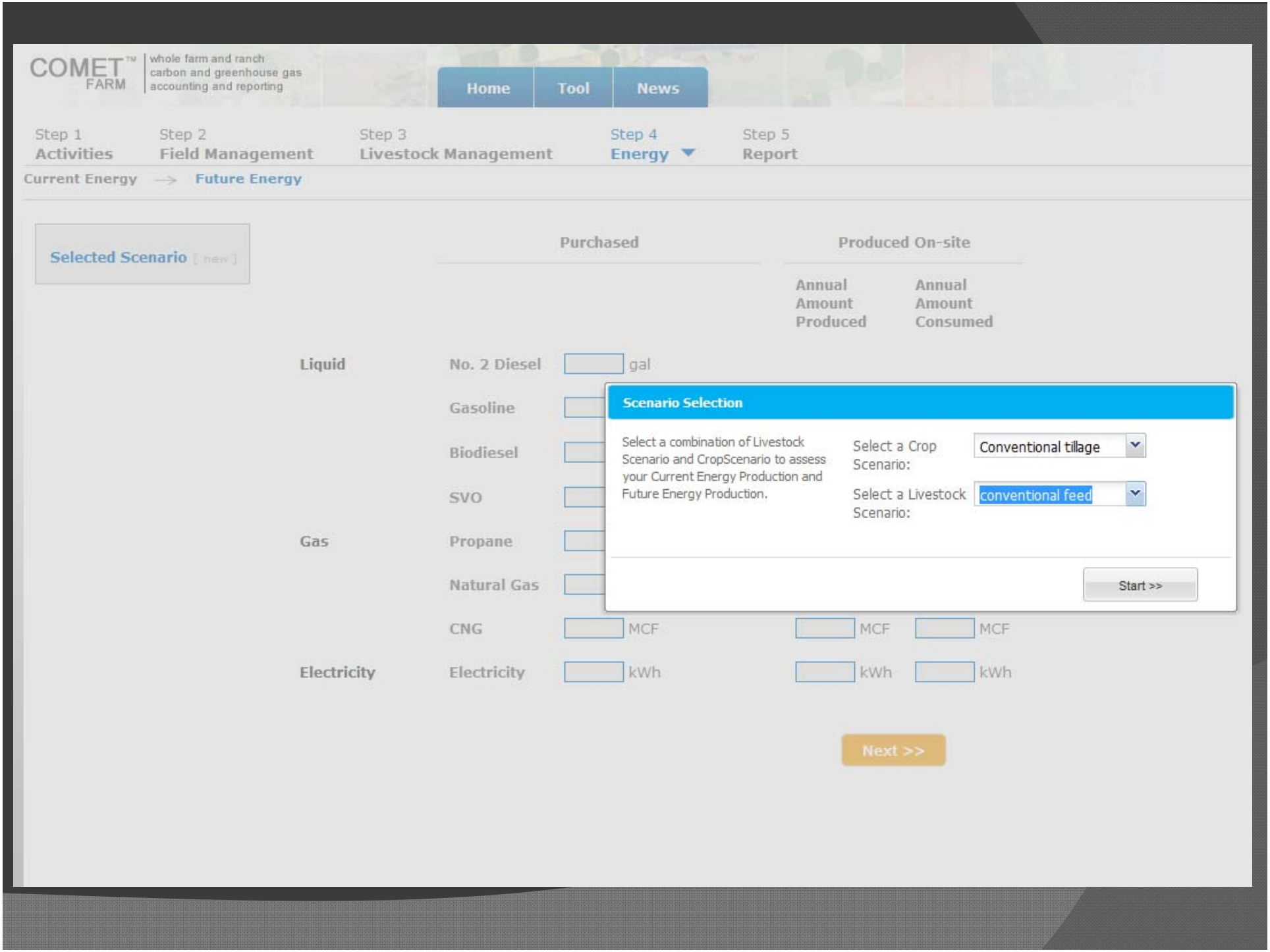
Current Energy → Future Energy

What is your current annual fuel consumption and on-site fuel production?

		Purchased			Produced On-site	
					Annual Amount Produced	Annual Amount Consumed
Liquid	**No. 2 Diesel**	4000 gal				
	Gasoline	9000 gal				
	Biodiesel	0 gal	B2		0 gal	0 gal
	SVO	0 gal			0 gal	0 gal
Gas	**Propane**	0 gal				
	Natural Gas	0 MCF				
	CNG	0 MCF			0 MCF	0 MCF
Electricity	**Electricity**	13000 kWh			0 kWh	0 kWh

Next >>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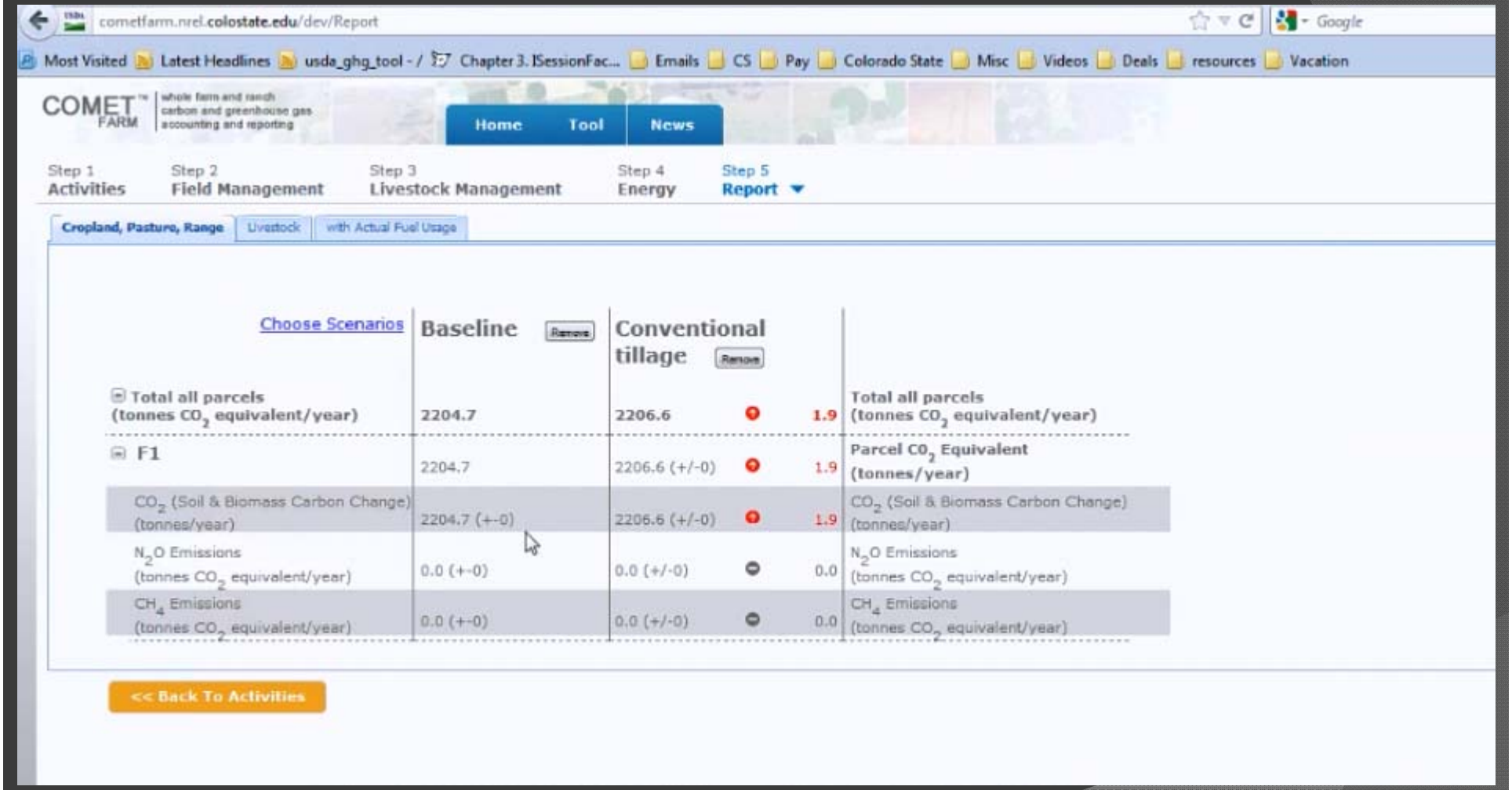
Current Energy
Future Energy
Selected Scenario [new]
Purchased
Produced On-site
Annual Amount Produced
Annual Amount Consumed
Liquid
No. 2 Diesel
gal
Gasoline
Biodiesel
SVO
Gas
Propane
Natural Gas
CNG
MCF
MCF
MCF
Electricity
Electricity
kWh
kWh
kWh
Next >>
Scenario Selection
Select a combination of Livestock Scenario and CropScenario to assess your Current Energy Production and Future Energy Production.
Select a Crop Scenario:
Conventional tillage
Select a Livestock Scenario:
conventional feed
Start >>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Cropland, Pasture, Range
Livestock
with Actual Fuel Usage
Choose Scenarios
Baseline
Remove
Conventional tillage
Remove
Total all parcels (tonnes CO2 equivalent/year)
2204.7
2206.6
1.9
Total all parcels (tonnes CO2 equivalent/year)
F1
2204.7
2206.6 (+/-0)
1.9
Parcel CO2 Equivalent (tonnes/year)
CO2 (Soil & Biomass Carbon Change) (tonnes/year)
2204.7 (+-0)
2206.6 (+/-0)
1.9
CO2 (Soil & Biomass Carbon Change) (tonnes/year)
N2O Emissions (tonnes CO2 equivalent/year)
0.0 (+-0)
0.0 (+/-0)
0.0
N2O Emissions (tonnes CO2 equivalent/year)
CH4 Emissions (tonnes CO2 equivalent/year)
0.0 (+-0)
0.0 (+/-0)
0.0
CH4 Emissions (tonnes CO2 equivalent/year)
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