

Funding to Address Agriculture Efficiency and GHG Emissions

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Ag/Climate Working Group

Oct 26, 2026

Water & Natural Resources Committee

The 2026 Ag/Climate working group is - Tom Solomon, Don Schreiber, Mark Torres, Dr. Sawssan Boufous, Dr. Wendy Hamilton, Dr. Robert Hagevoort, Dr. Joyce Marumo

NM Ag is 13% of 2023 Greenhouse Gas Emissions: 2026 Inventory Report

- GHG emissions from Ag = **13% of NM GHGs**, third after industry & transportation.
- **Three sources cause 99% of Ag emissions:**
  1) soil management (N2O)
  2) enteric fermentation (cow burps)
  3) manure management
- N2O is a 273X GWP* GHG

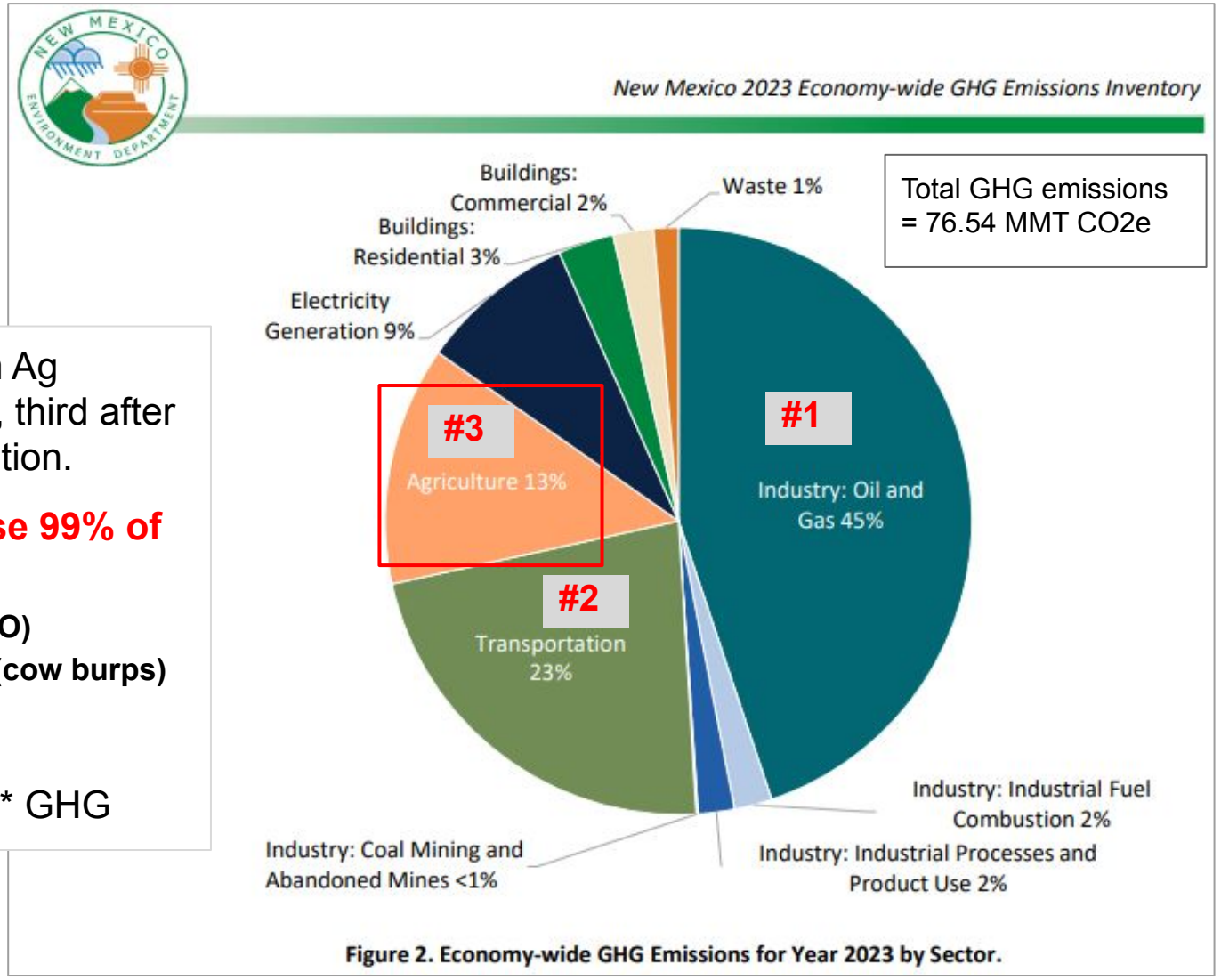


Figure 2. Economy-wide GHG Emissions for Year 2023 by Sector.

NM GHG Emissions Inventory Report Sep 2026 p18.

* GWP = global warming potential, CO2 multiplier, IPCC AR6

Ag Emissions Hit #1 Between 2030 & 2050

Looking forward to 2050: another 9% required from Ag: Doable?

Table 6. Implementation Scenario Emissions by Sector

Sector	Base Year Emissions (2005) ($MMTCO_2e$)		Most Recent Inventory Year Emissions (2023) ($MMTCO_2e$)	Short Term Implementation Scenario Year (2030) ($MMTCO_2e$)		Long-Term Implementation Scenario Year (2050) ($MMTCO_2e$)
Industry	47.72	#1	37.53	23.01	#3	1.66
Transportation	15.85	#2	17.24	12.05	#2	6.31
Agriculture, Forests, and Wilderness	11.15	#3	10.07	9.47	#1	9.15
Electricity Generation	16.33		6.60	4.29		0
Commercial and Residential Buildings	4.07		4.05	3.52		0.07
Waste and Materials Management	1.32		1.05	0.36		0.33
Total	**96.44**		**76.54**	**52.70**		**17.32**

GHG Emission Reduction Measures and Implementation Scenario Projections 27

[2] NM Climate Action Plan (2025), Fig. 5; Tables 6, 47–48

- NMED forecasts show Ag becoming the #1 GHG source between 2030 & 2050 as other sectors improve faster.
- We propose a program to help Ag keep pace.



Funding to Address Ag GHG Emissions

99% of Ag emissions:
1/2 from soil management (N2O)
1/3 from fermentation (burps)
1/6 from manure management

- $14.4M to fund Phase 1, five years from 2027-2031. Would be recurring funding at ~ $2.9 M/year
  - Research to validate or adjust EPA/NMED emissions models for **NM's specific** soil, climate and farming/ranching practices. Get the science right.
  - Develop ag practices to benefit producers bottom line while reducing emissions. Emissions are wasted $$.
  - Implementation, starting with pilots, expanding to more producers over time. Explore incentives that work.



$14.4 M Phase One (2027-2031)

Recurring funding at ~ $2.9 M/year

Work package	Direct cost	Facilities and administration	Total
Soils and stored carbon	$2,607,272	$758,356	$3,365,627
Dairy and beef digestion methane	$1,688,856	$475,700	$2,164,556
Dry lots manure and nutrients	$1,742,101	$480,348	$2,222,449
Forage water and crop integration	$1,219,718	$344,183	$1,563,900
Farm demonstrations and economics	$1,766,832	$607,773	$2,374,605
Inventory statistics and coordination	$2,020,038	$688,988	$2,709,027
Total	**$11,044,817**	**$3,355,348**	**$14,400,165**

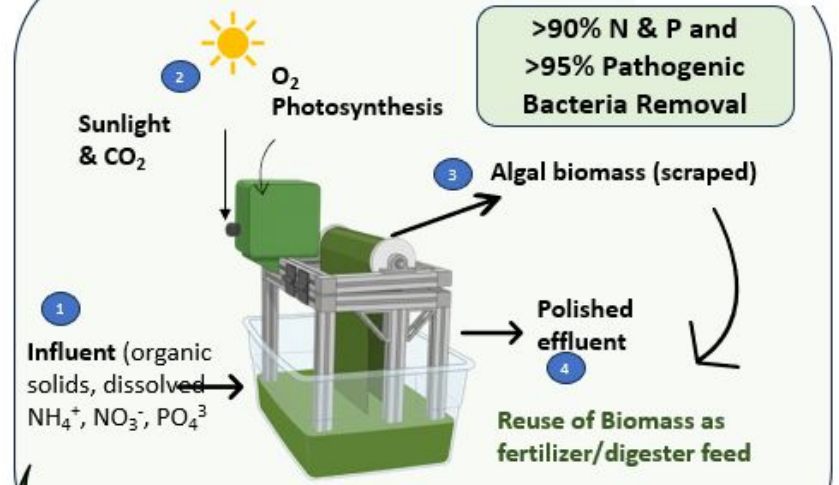
To build on progress that NM Ag producers have already made.

Example Solutions

Validating Novel & Nature-Based Solutions:

Algae Cultures

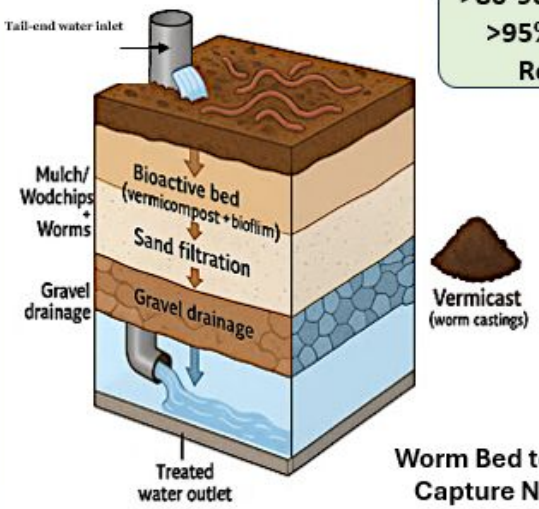
>90% N & P and >95% Pathogenic Bacteria Removal



Algae Reactor System to Capture Nutrients

Worm Beds

>80-90% N & P and >95% Methane Reduction



Worm Bed to Clean Water, Capture Nutrients, and Reduce GHG

NMSU Dairy Extension
Prepared by: Drs. Joyce Marumo; Robert Hagevoort.
Contact: jlm13@nmsu.edu; dairydoc@nmsu.edu

Solid separation or Anaerobic Digestion (AD) *can be added before the algae step. AD can also produce pipeline-quality renewable*



1. Screen/Settle Solids/AD
Remove coarse solids first and protect downstream units.

2. Worm Beds
Reduce solids, organics, & part of the nutrient load.

3. Algae Pond/Reactor
Polish remaining dissolved N and P with algal growth.

4. Reuse/Safer discharge
Recover clearer water and route it for reuse or compliant release.

Vermicompost

Algal biomass

Possible reuses: soil amendment, fertilizer, feed ingredient, or digester input

Example Solutions

Validating Novel & Nature-Based Solutions:

Vermiculture: How Worm Power Could Save Water, Reduce Emissions, and Restore Soil Health, converting Livestock Manure into vermicompost and clean water





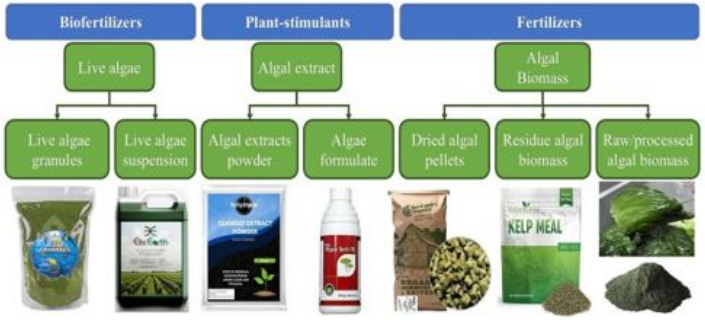




Algae cultures and worm beds capture nutrients (N&P), reduce emissions, and generate valuable by-products (irrigation water, soil amendments, biomass).







Solutions that integrate sustainable (efficient) livestock production, providing economic returns for NM farmers while protecting the environment.