Major Green House Gases (GHG) produced on dairy farms

- Methane (CH$_4$)
  - enteric fermentation by cows
  - manure storage
  - silage bunkers/piles
- Carbon dioxide (CO$_2$)
  - fuel and electricity use
  - soil respiration
- Volatile organic compounds (VOC)
  - silage bunkers and piles
- Nitrous oxide (N$_2$O)
  - released from soil
  - fertilizer on crops/pastures
  - manure on crops/pastures
- Ammonia (NH$_3$)*
  - manure in barns and storage
  - silage bunkers and piles
  - soils

* Not a GHG, but emissions can be regulated

Ways to reduce GHG emissions on dairy farms

1. Select cows for high feed efficiency; higher producing cows produce less methane per unit of milk produced.
2. Balance rations for protein and energy to enhance utilization of feedstuffs.
4. Cover silage bunkers and piles; manage face to reduce exposure to air.
5. Improve manure collection and storage systems; reduce water content of manure; separate urine and feces.
6. Use anaerobic digesters to capture methane from manure; develop economic small-scale manure digesters.
7. Incorporate manure into soil; improve manure injection systems.
8. Change cropping and fertility practices to maximize nitrogen uptake.