# Maine GHG Action Plan Development Process

Agriculture & Forestry Greenhouse Gas Reduction Options

April 8th, 2004

# Agenda

- Forest Sector
  - ☐ **Inventory and baselines**
  - ☐ **Mitigation options and scenarios**

- Agriculture Sector
  - ☐ **Inventory and baselines**
  - ☐ **Mitigation options**

# Forestry Inventory

- FORCARB2 development
  - ☐ Tree biomass
  - ☐ Forest floor
  - ☐ Soils
  - ☐ Wood products
  - ☐ Land use change
  - ☐ Time series
  - ☐ Wetlands

# Forestry Baseline

- FORCARB2 projection to 2010, 2020
    - ☐ Back casting to 1982
    - ☐ Connecting to 2002 data
    - ☐ Linear Forecasting to 2020
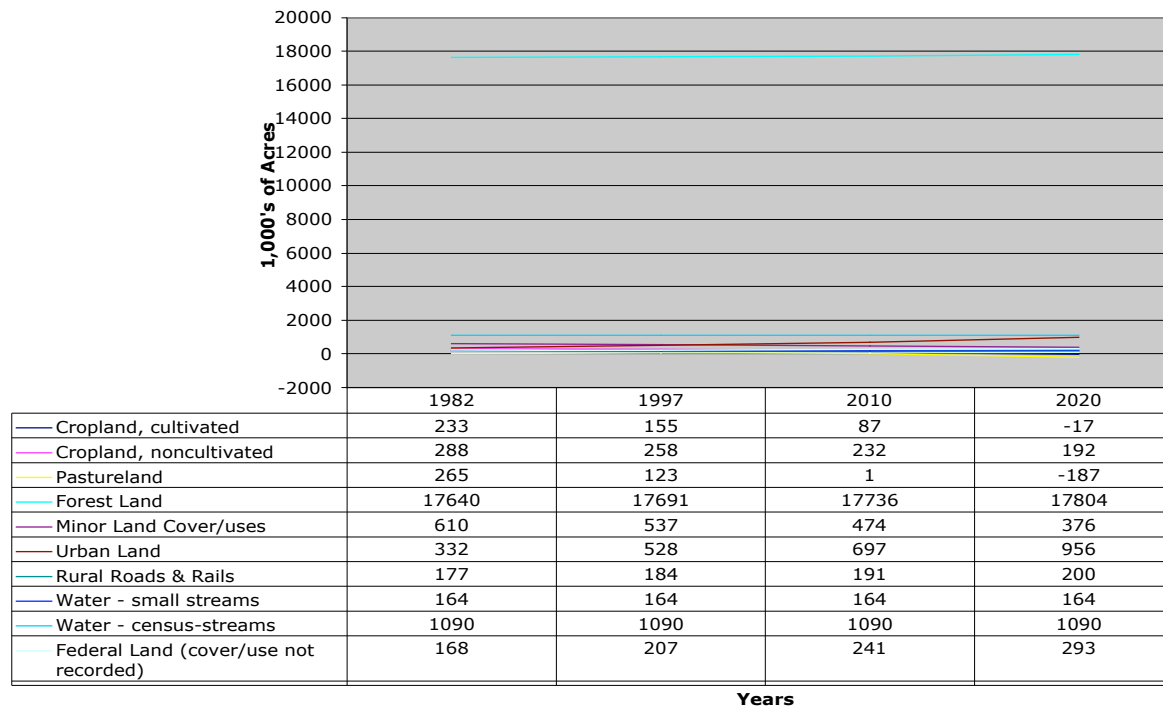
# Forestry Options

| OPTION | PRIORITY FOR ANALYSIS |
|---|---|
| **Land conservation options** | |
| Reduce Conversion Of Forestland, Farmland, and Wetlands (many sub elements) | High |
| **Forest management options** | |
| Forest Management (many sub elements) | High |
| Forestry Biomass Feed Stocks for Electricity | High |
| Promote Use of Wood Products | High |
| Expanded Local Wood Products Use | High |
| Afforestation (Rural) | Low |
| Afforestation (Urban) | Low |
| Application Of Bio Solids To Forest Lands | Low |
| Maintain Fire Suppression Programs | Low |
| Fertilization Of Forests | Low/Uncertain |
| Restore Wetlands | Low/Uncertain |
| Carbon offsets | Moved to cross cutting issues |

# Maine Land Cover Changes NRI

**Maine Land Use Change NRI 1982-97**

| | 1982 | 1997 | 2010 | 2020 |
|---|---|---|---|---|
| Cropland, cultivated | 233 | 155 | 87 | -17 |
| Cropland, noncultivated | 288 | 258 | 232 | 192 |
| Pastureland | 265 | 123 | 1 | -187 |
| Forest Land | 17640 | 17691 | 17736 | 17804 |
| Minor Land Cover/uses | 610 | 537 | 474 | 376 |
| Urban Land | 332 | 528 | 697 | 956 |
| Rural Roads & Rails | 177 | 184 | 191 | 200 |
| Water - small streams | 164 | 164 | 164 | 164 |
| Water - census-streams | 1090 | 1090 | 1090 | 1090 |
| Federal Land (cover/use not recorded) | 168 | 207 | 241 | 293 |

Y-axis: 1,000's of Acres

X-axis: Years

# Land Conservation

- Forests, farms, wetlands
  - **Baselines from NRI**
    - 200,000 acres to be converted from forest and farm to urban between 2005-2020 (3/4 from forests, 1/4 from farms)
    - Consistent with FIA, FORCARB
  - **NWI acres TBD**
- Scenario assumptions from work group
  - **10% savings from baseline in 2010 = 20,000 acres**
  - **20% savings from baseline in 2020 = 40,000 acres**
  - **Total land savings by 2020 = 60,000 acres (30%)**
- Implementation programs?
- Co-benefits (transportation demand, etc.)?

# Forest Management Options

- Reforestation
- Increased Stocking
- Better Harvest Methods
- Modification of Rotation Age
- Thinning And Density Management
- Species Selection Via Selective Thinning
- Species Management Via Stand Replacement And Intensive Management

# Forest Management Scenarios

- FORCARB2 runs alter baseline in 2010, 2020 via:
  - ☐ **Harvest method**
  - ☐ **Stocking rate**
  - ☐ **Thinning rate**
  - ☐ **Species/stand types**
  - ☐ **Acreage in forestland**
- HARVCARB runs alter wood products supply baseline
  - ☐ **Expand supply of biomass feed stocks, test prices**
- NEMS runs alter power supply baseline?
  - ☐ **Expand supply of biomass feed stocks, test prices**
- Transportation Demand Calculation for Open Space
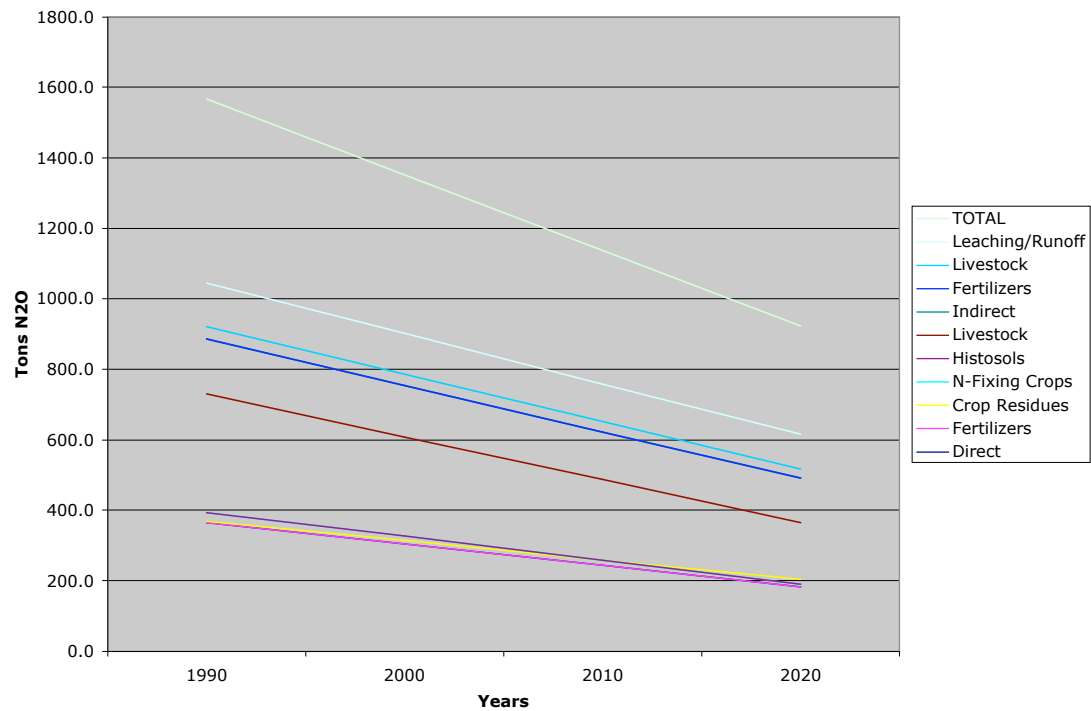
# Maine Agriculture Baselines

**Maine Ag Baseline: EPA Tool + Extrapolation**
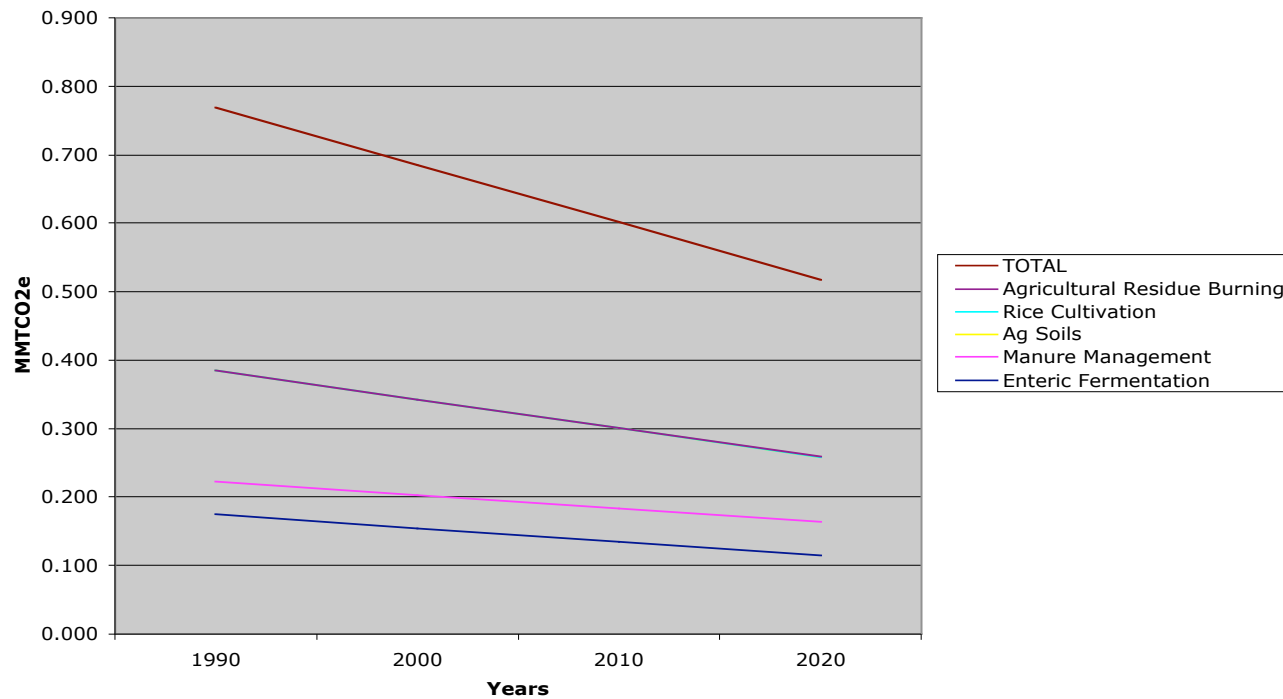
# Maine Agriculture Baselines



Maine Ag N2O Baseline: EPA Tool + Extrapolation

# Agriculture Options

| Option | Priority For Analysis |
|---|---|
| Agricultural Land Conservation (moved to land conservation package) | High – moved to land conservation package |
| Nutrient Management | High |
| Conservation Tillage/No-Till | High |
| Increase Cover Crops | High |
| Organic Farming | High |
| Support Local Farming/Buy Local | High |
| Biodiesel or Ethanol Fuel for Farm Equipment | Low – coordinate with transport group |

# Agriculture Options - Estimates

| Option | GHG Savings in 2010 | GHG Savings in 2020 | Cost Effectiveness |
|---|---|---|---|
| Agricultural Land Conservation (moved to land conservation package) | Potentially very high | Potentially very high | TBD |
| Nutrient Management | Low | Low | TBD |
| Conservation Tillage/No-Till | Low | Low | TBD |
| Increase Cover Crops | Low | Low | TBD |
| Organic Farming | Low | Low | TBD |
| Support Local Farming/Buy Local | Low | Low | TBD |
| Biodiesel or Ethanol Fuel for Farm Equipment | Very Low | Very Low | TBD |