

Practical **Actions** to Reduce Greenhouse Gas Emissions on **Irish Farms**

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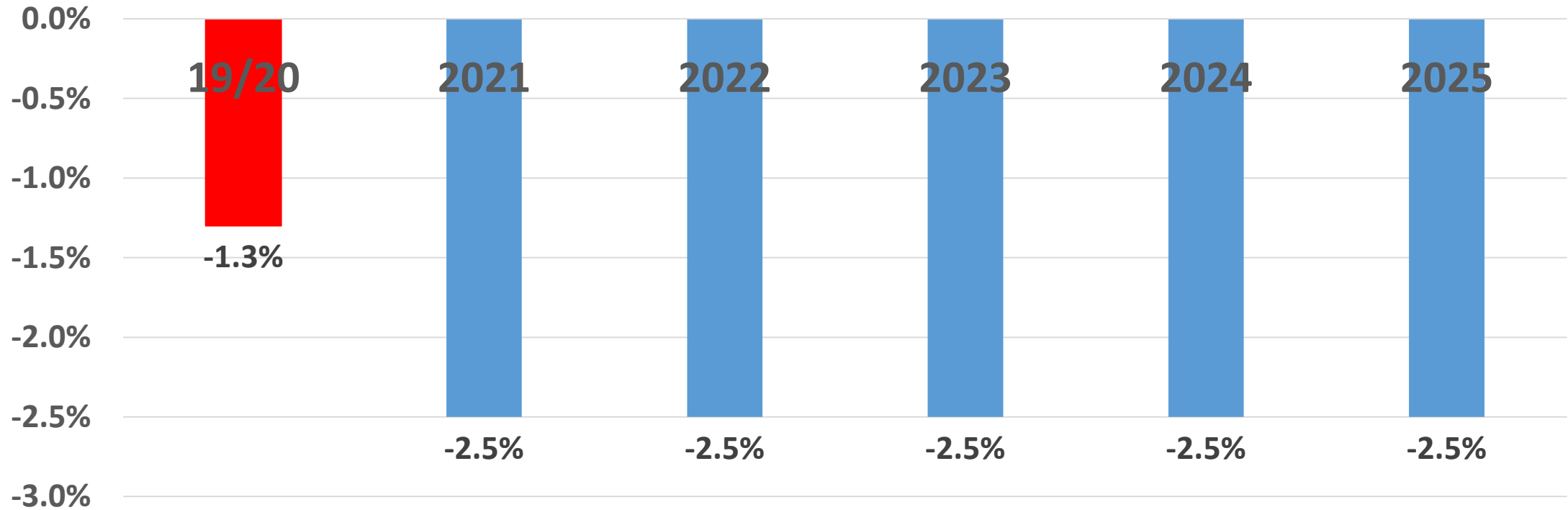
12/11/2021

Introduction

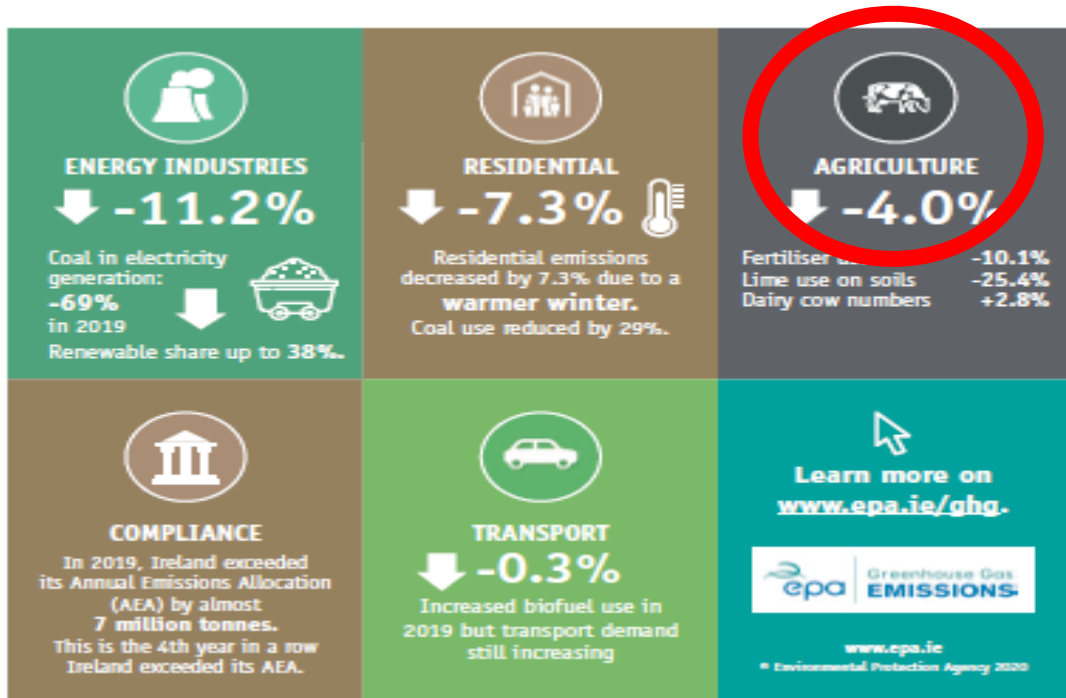
- Break down the challenge facing Agriculture
- Emission breakdown by enterprise
- Building blocks to reduce Greenhouse Gas emissions
- Quantify farm actions and their potential to reduce GHG emissions
- Summary for dairy and suckler to weanling/store farm actions



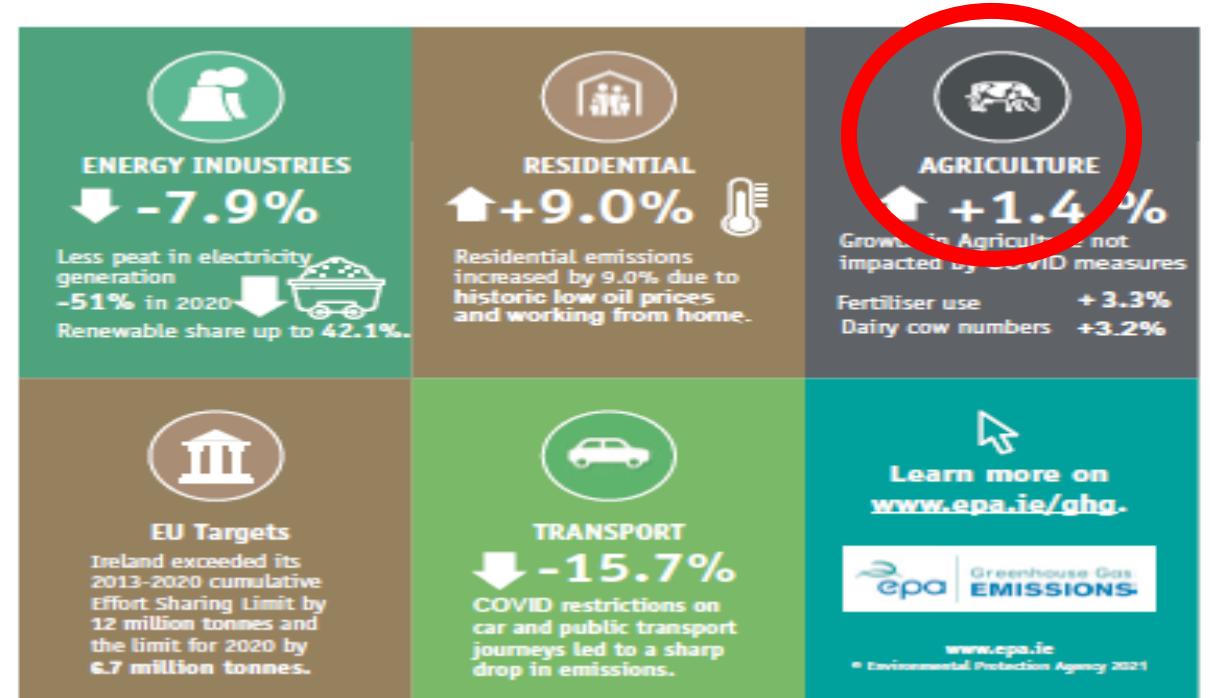
Agricultural Greenhouse Gas Emissions



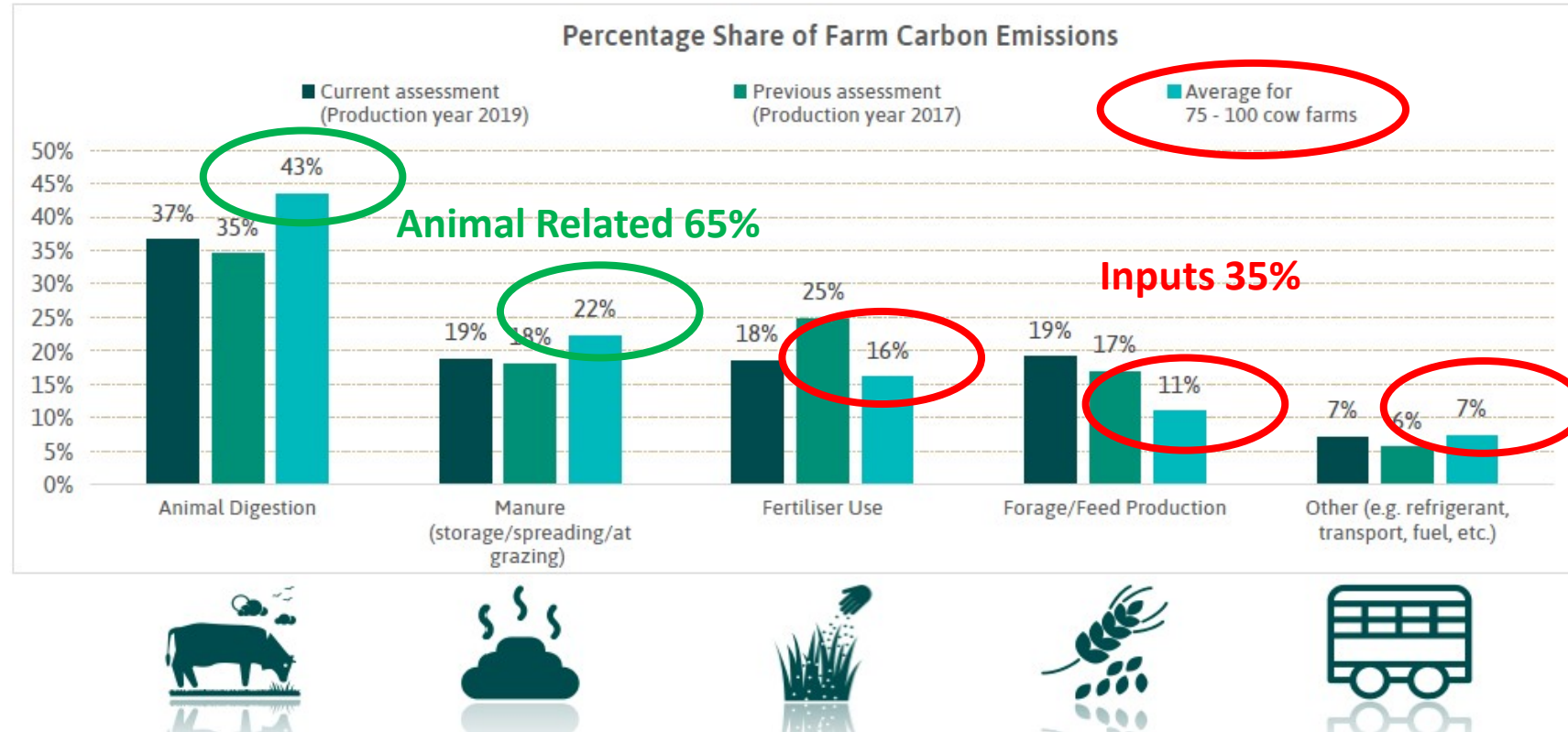
2019



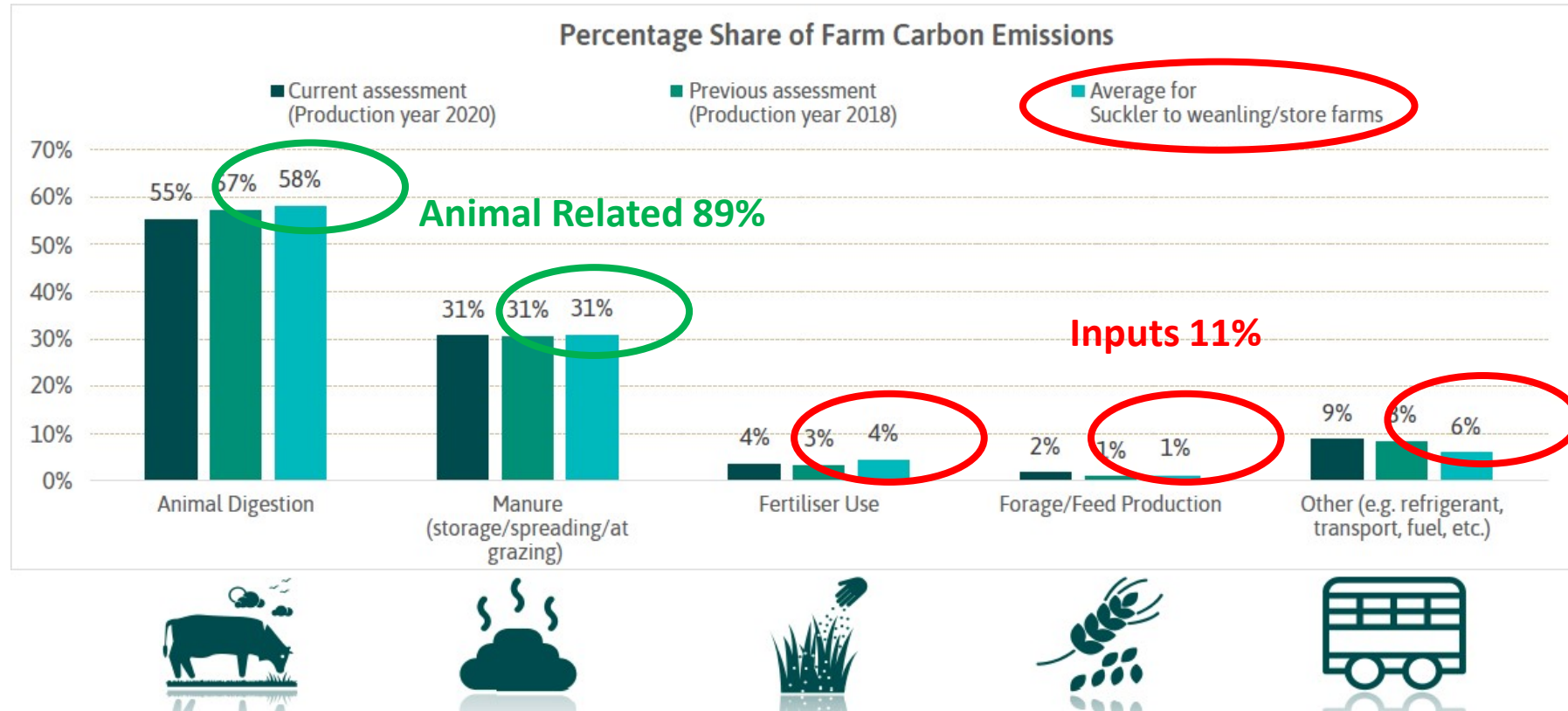
2020



Dairy Carbon Footprint



Suckler Beef Carbon Footprint



Building Blocks to Reduce Farm Emissions

Biodiversity

Hedgerow Management
Trees
High Value Nature

Soil Fertility

Lime (pH)
Phosphorous (P)
Potassium (K)

Animal Productivity

Animal Breeding (EBI Dairy)
Animal Breeding (MRI Sucklers)
Earlier Finishing of Cattle
Animal Health Plan

Water Quality

Buffer Zones
Timing of Applications

Building Blocks to Reduce Farm Emissions

Fertiliser

Type
Timing
Quantity

Slurry Management

Slurry Storage
Timing
Application Methods

Grassland Management

Extended Grazing
Grass Measuring
Grass Quality

Clover/Mixed Species Swards

Establishment
Reducing Fertiliser Use

Building Blocks to Reduce Farm Emissions

Fertiliser

Type
Timing
Quantity

Slurry Management

Slurry Storage
Timing
Application Methods

Grassland Management

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Grass Measuring
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Establishment
Reducing Fertiliser Use

Farm Profitability

The Farmer

Biodiversity

Hedgerow Management
Trees
High Value Nature

Soil Fertility

Lime (pH)
Phosphorous (P)
Potassium (K)

Animal Productivity

Animal Breeding (EBI Dairy)
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Buffer Zones
Timing of Applications

Animal Productivity

- **Economic Breeding Index (EBI)**
 - Every **€10 increase in EBI** = €20 profit/cow/year
 - **1% Reduction in GHG Footprint**
 - More mature herd, higher MS/cow and lower replacement rate
 - Same output with less animals
- **Maternal Replacement Index (MRI)**
 - Improved health and survival
 - Shorter calving interval

Grassland Management

- **Extended Grazing**

- Every extra week at grass

= 1% GHG Footprint Reduction

- **Summer Grass Quality**

- 1,400 kg/dm/ha v 2,000 kg/dm/ha
- 6-8 week peak growth

= 15% GHG Reduction Daily

= 1-2% GHG Footprint Reduction

Meal Feeding

- **Meal Feeding**

- Reduction of 50-100 kg/meal/cow = **1% GHG Footprint Reduction**

- **Silage Quality**

- Higher DMD Silage/Lower Fibre = **Lower GHG Emissions**

Fertiliser

- **Protected Urea (Cheaper than CAN)**

- $\frac{1}{4}$ of GHG and Ammonia Emissions of CAN

- 100% Protected Urea Dairy
- 100% Protected Urea Beef

= 7-8% GHG Reduction

= 2-4% GHG Reduction

- **Fertiliser Reduction**

- 25% Reduction Dairy
- 25% Reduction Beef

= 5% GHG Reduction

= 1-2% GHG Reduction

Fertiliser Reductions

- **Soil Fertility**

- Lime (pH), Phosphorus (P) and Potassium (K) **80 kg/N/ha**

- **Clover**

- Reduced chemical N up to **100kg/N/ha**

- **Mixed Species Swards**

- **Slurry Spreading**

- **Timing** Spring spreading before 1st May **extra 3 units N/1,000 gals**
- **Method** Low emission slurry spreading **+ extra 3 units N/1,000 gals**



- | • Dairy Potential to 2030 | GHG's |
|----------------------------------|---------------|
| • 1 Week Extra Grass | 1% |
| • S. Rate 1.98 lu/ha | |
| • Summer Quality Grass | 1% |
| • 100 kg Meal/cow less | 1% |
| • EBI +€10/year | 9% |
| • 25% less chemical N | 5% |
| • 100% Protected Urea | 7% |
| • LESS Slurry Spreading | 2% |
| • 20% Energy Reduction | 1% |
| • Total | 23-27% |



• Suckler To Weanling/Store

• Potential to 2030

- 2 Week Extra Grass
 - S. Rate 1.38 lu/ha
- Summer Quality Grass
- Calving Interval
 - 391 to 375 days
- Heifer Calving
 - 30.4mths to 24mths
- **25% less chemical N**
- **100% Protected Urea**
- **LESS Slurry Spreading**
- 20% Energy Reduction
- **Total***

GHG's

- 2%
- 1%
- 2-3%
- 4-5%
- 1%**
- 1-2%**
- 1%**
- 1%**
- 13-16%**

• ***Does not incl earlier sale of stock**

Summary

- Lower GHG emissions are compatible with good farming and profit
- Get the basics right
 - Soil fertility
 - Herd fertility/Animal Health
 - Grassland management
- Go after the quick wins
 - Protected urea, LESS, efficient fertiliser use, grassland management
 - No passenger stock on farm

Focus **Areas for 2022** to Reduce Emissions

- **Lime**
- **LESS/Spring Slurry Spreading**
- **Protected Urea Fertiliser**
- 10% Reduction in Fertiliser (Price€)
- Marginal Cow/Surplus Stock