AgNav: Putting Climate Action Planning in Farmers' Hands

Mike Lynch – ICBF

ICAR 23rd May 2024

A Sea of Numbers….

How do we plot a course ?

Multi-Level Targets

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FROM NUMBERS TO ACTIONS…

- WHAT ARE THE CURRENT GREENHOUSE GAS EMISSIONS ?
- WHAT ARE THE SOURCES?
- WHAT IS THE TARGET FOR OUR SECTOR?
- HOW DO WE GET TO THESE TARGETS ?
- WHAT DOES IT MEAN FOR AN INDIVIDUAL FARMER ?

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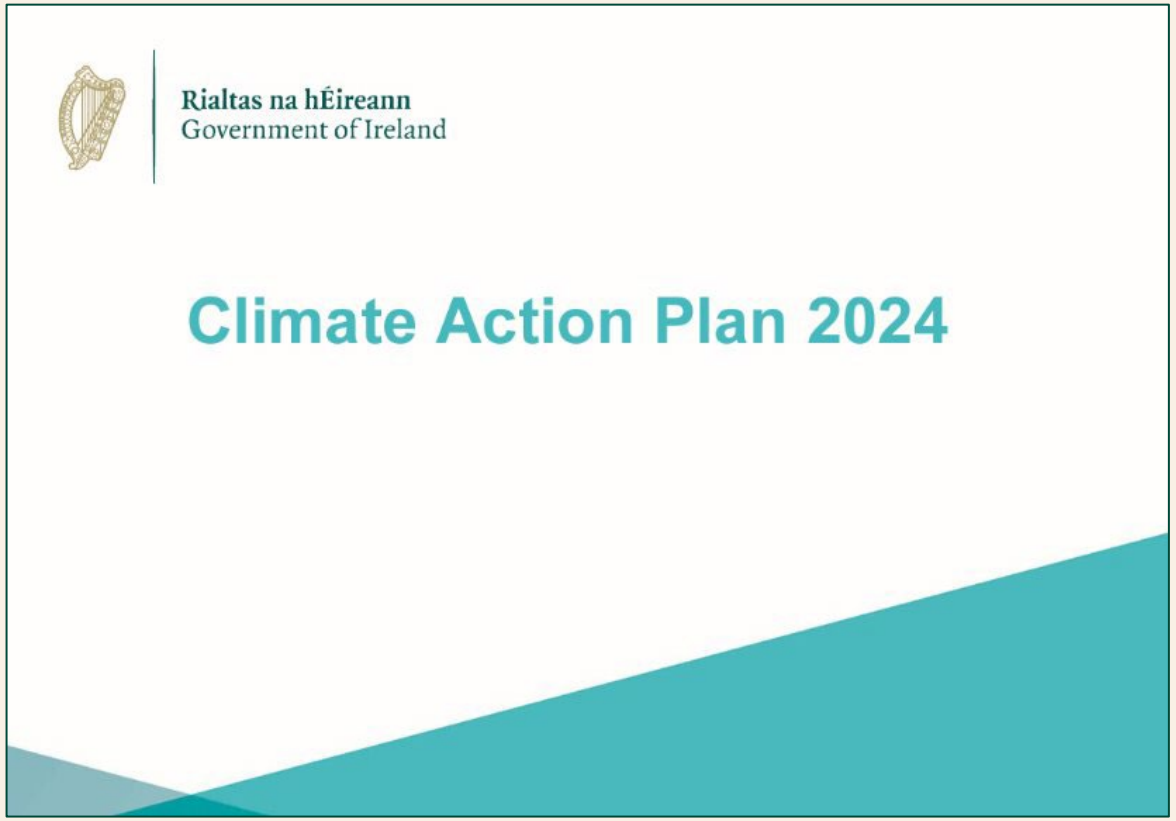
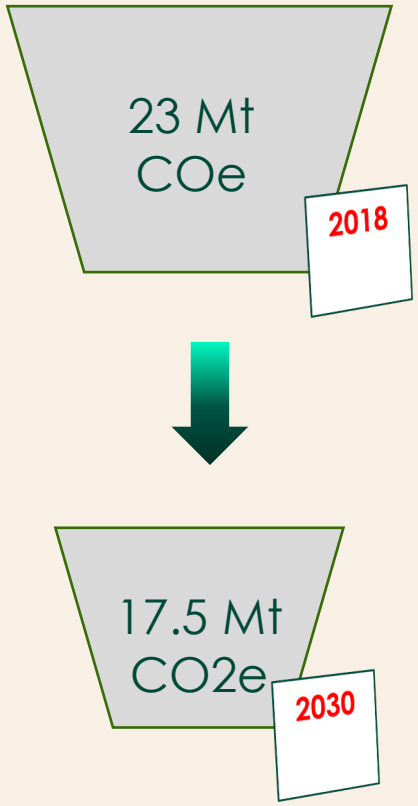
Emissions Targets for Agriculture





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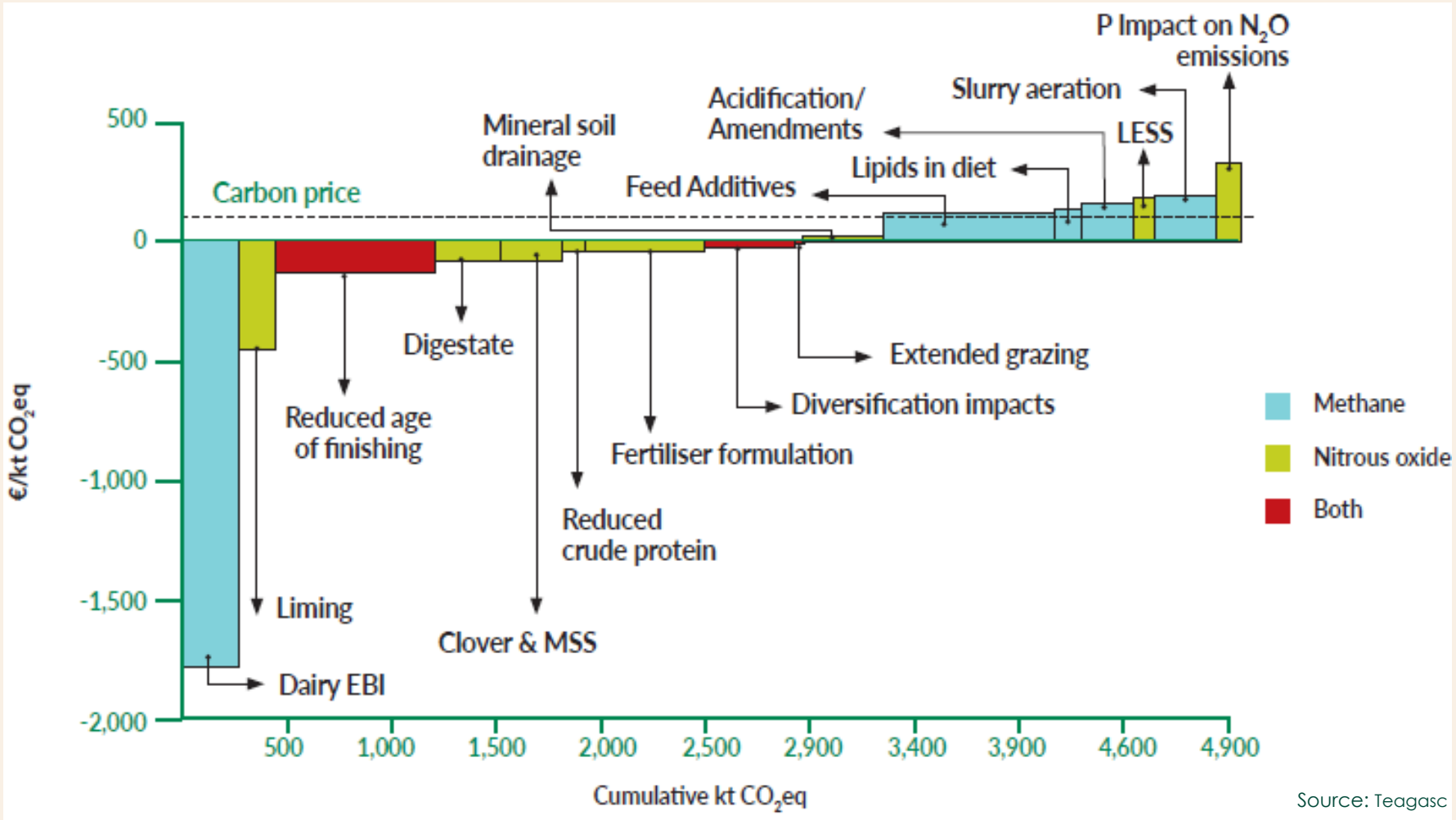
Marginal Abatement Cost Curve (MACC)



Source: Teagasc

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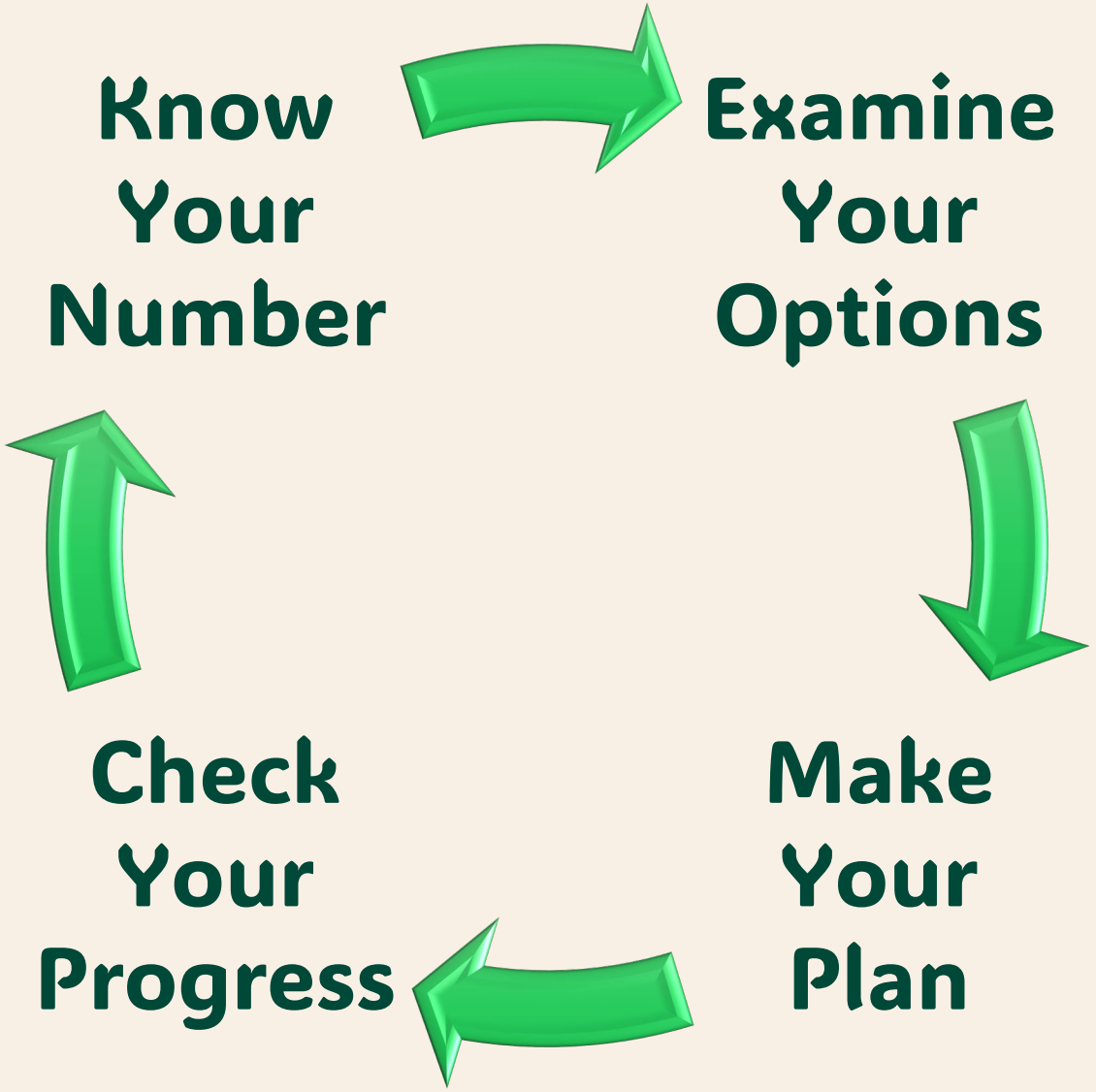
Virtuous Cycle



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- Robust scientific models
- Validated data sources
- Ability to run models at large scale
- Farm specific Action Plans
- Advisory channels to assist farmers on this journey

- **Agnav** platform developed by Bord Bia, Teagasc and ICBF to support farmers to improve the sustainability of their farms

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Organisational Roles

- Scientific Research
- Peer Reviewed Carbon Models
- Farm Advisory Programmes

- Central Database
- IT Implementation of Models
- User Interfaces

- Farm Level Quality Assurance
- Validated Datasets
- Farm Planning Tools

Teagasc
Agriculture and Food Development Authority

- Scientific expertise & research outputs
- Carbon assessment models & tools
- Signpost Advisory Services & demo farms
- Relevant datasets

icbf

- IT Infrastructure & resource
- Data processing & analysis
- AIM data
- Relevant datasets

BORD BIA
IRISH FOOD BOARD

- QA scale and infrastructure
- Farm Sustainability Survey
- Carbon Footprints (Farmer Feedback Report)
- E-Learning
- Sustainability Planning Tools
- Relevant datasets

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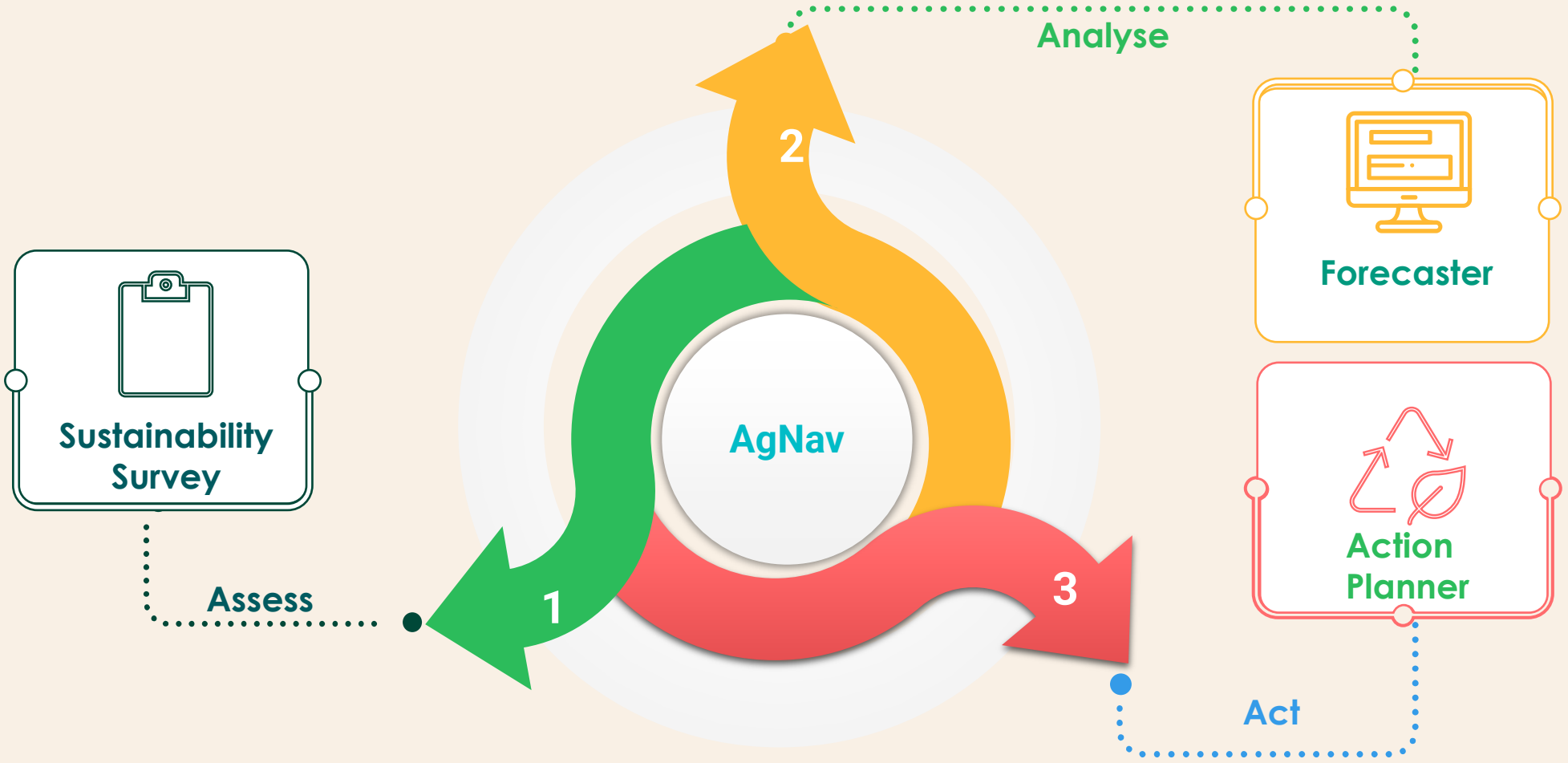
The pathway to Action..

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Origin Green IRELAND
eagasc
Agriculture and Food Development Authority
icbf

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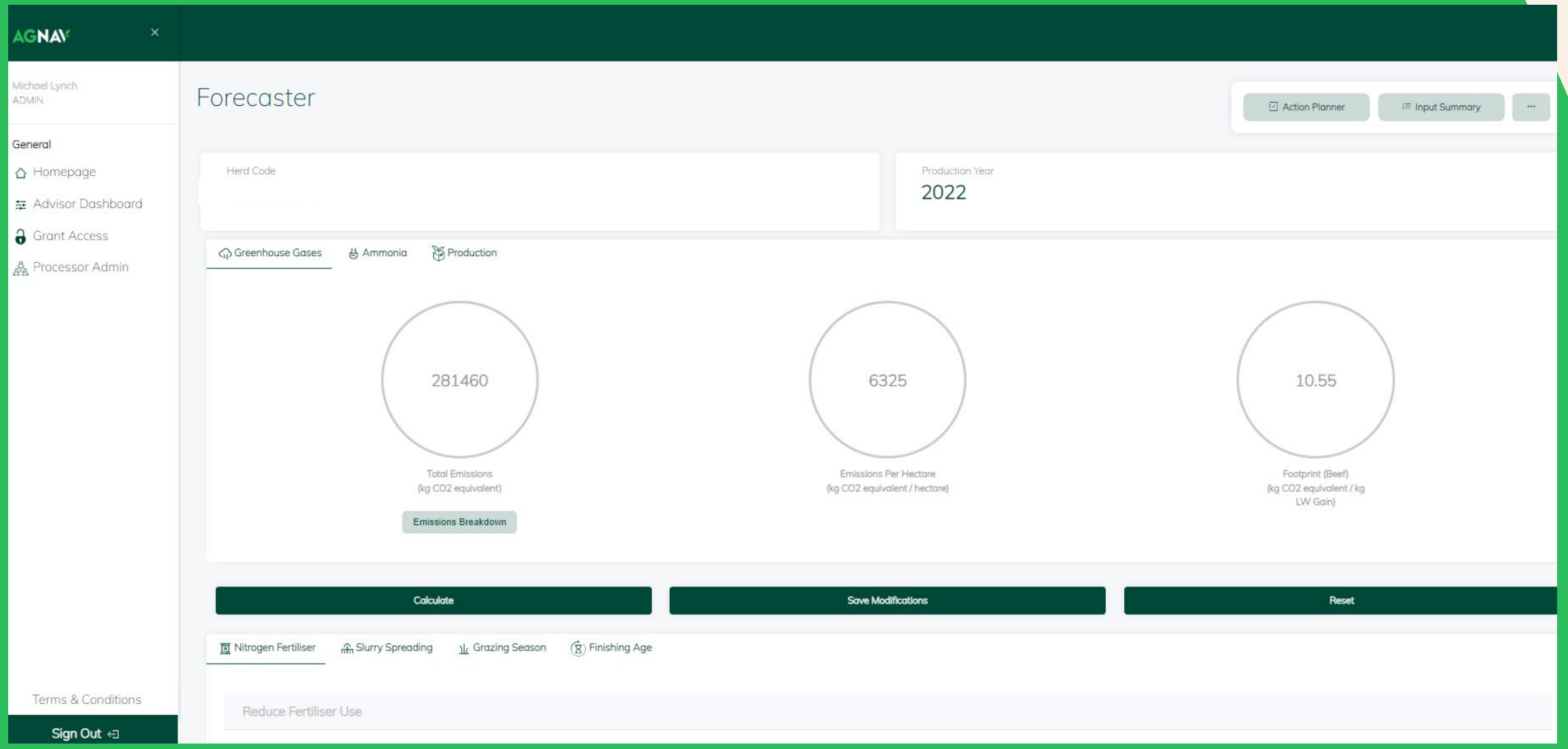
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Advisor Dashboard
Grant Access
Processor Admin
Terms & Conditions
Sign Out
Forecaster
Action Planner
Input Summary
Herd Code
Production Year
2022
Greenhouse Gases
Ammonia
Production
281460
Total Emissions
(kg CO2 equivalent)
Emissions Breakdown
6325
Emissions Per Hectare
(kg CO2 equivalent / hectare)
10.55
Footprint (Beef)
(kg CO2 equivalent / kg
LW Gain)
Calculate
Save Modifications
Reset
Nitrogen Fertiliser
Slurry Spreading
Grazing Season
Finishing Age
Reduce Fertiliser Use

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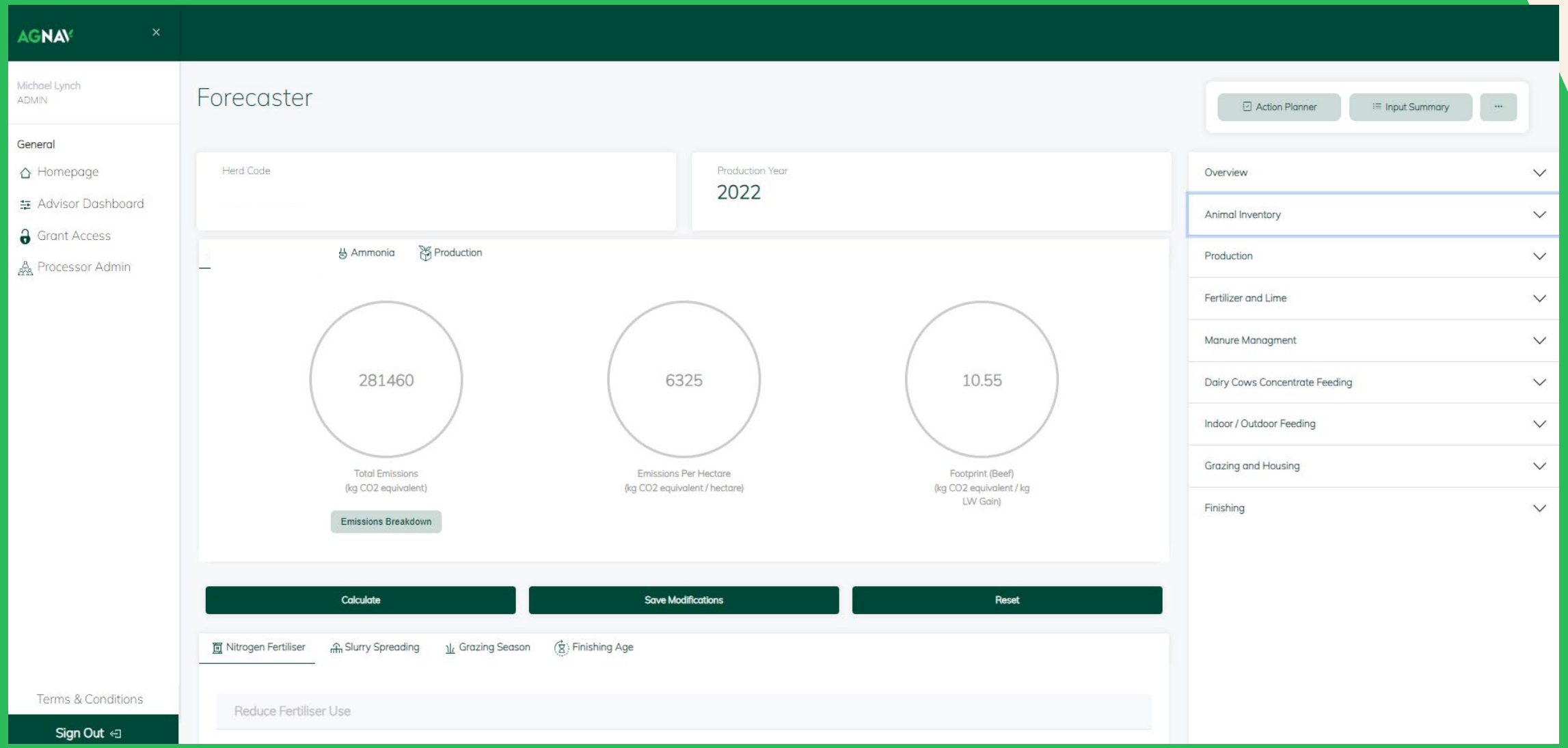
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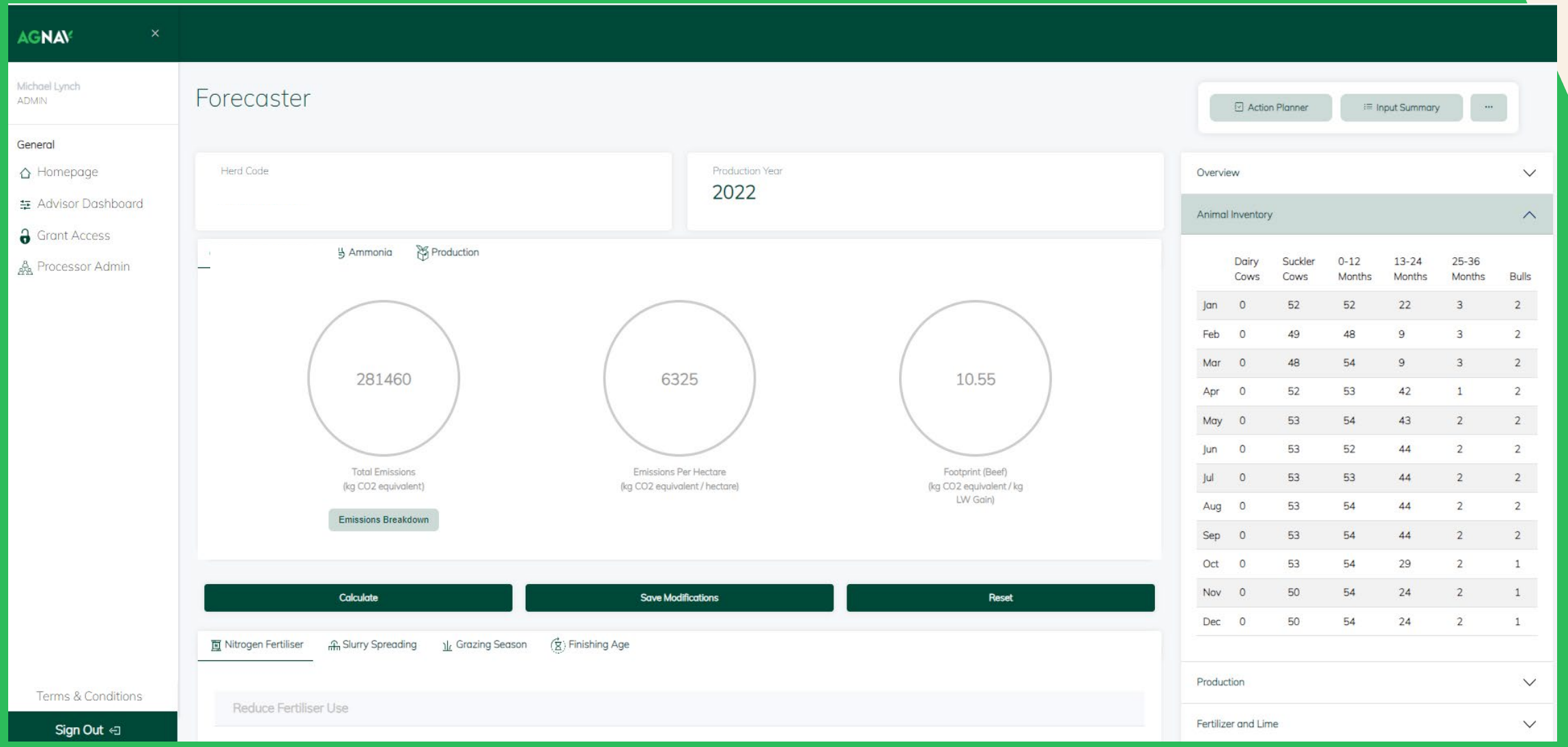
Action Planner
Input Summary
Herd Code
Production Year
2022
Overview
Animal Inventory
Production
Fertilizer and Lime
Manure Managment
Dairy Cows Concentrate Feeding
Indoor / Outdoor Feeding
Grazing and Housing
Finishing
Ammonia
Production
281460
Total Emissions
(kg CO2 equivalent)
6325
Emissions Per Hectare
(kg CO2 equivalent / hectare)
10.55
Footprint (Beef)
(kg CO2 equivalent / kg
LW Gain)
Emissions Breakdown
Calculate
Save Modifications
Reset
Nitrogen Fertiliser
Slurry Spreading
Grazing Season
Finishing Age
Reduce Fertiliser Use



	Dairy Cows	Suckler Cows	0-12 Months	13-24 Months	25-36 Months	Bulls
Jan	0	52	52	22	3	2
Feb	0	49	48	9	3	2
Mar	0	48	54	9	3	2
Apr	0	52	53	42	1	2
May	0	53	54	43	2	2
Jun	0	53	52	44	2	2
Jul	0	53	53	44	2	2
Aug	0	53	54	44	2	2
Sep	0	53	54	44	2	2
Oct	0	53	54	29	2	1
Nov	0	50	54	24	2	1
Dec	0	50	54	24	2	1

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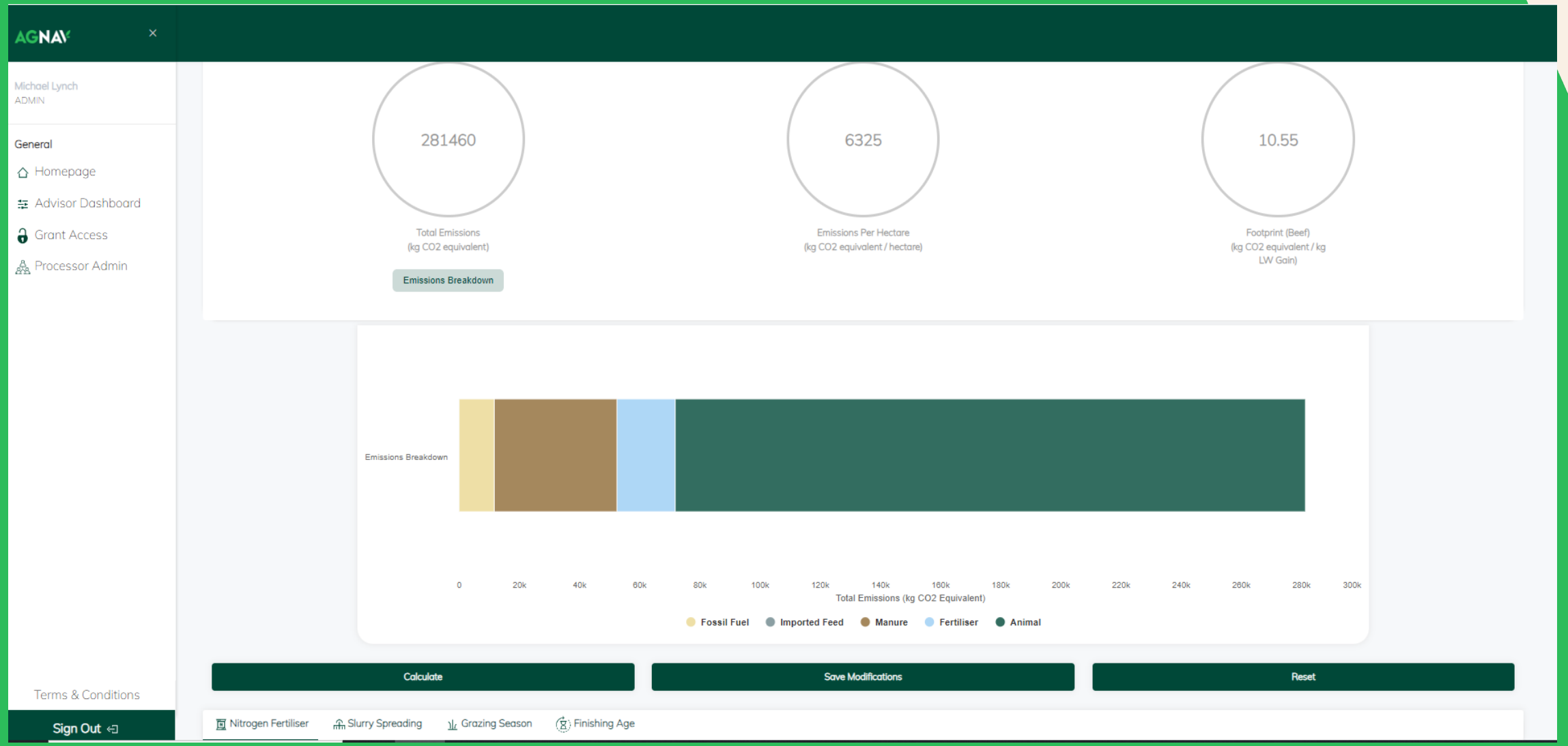
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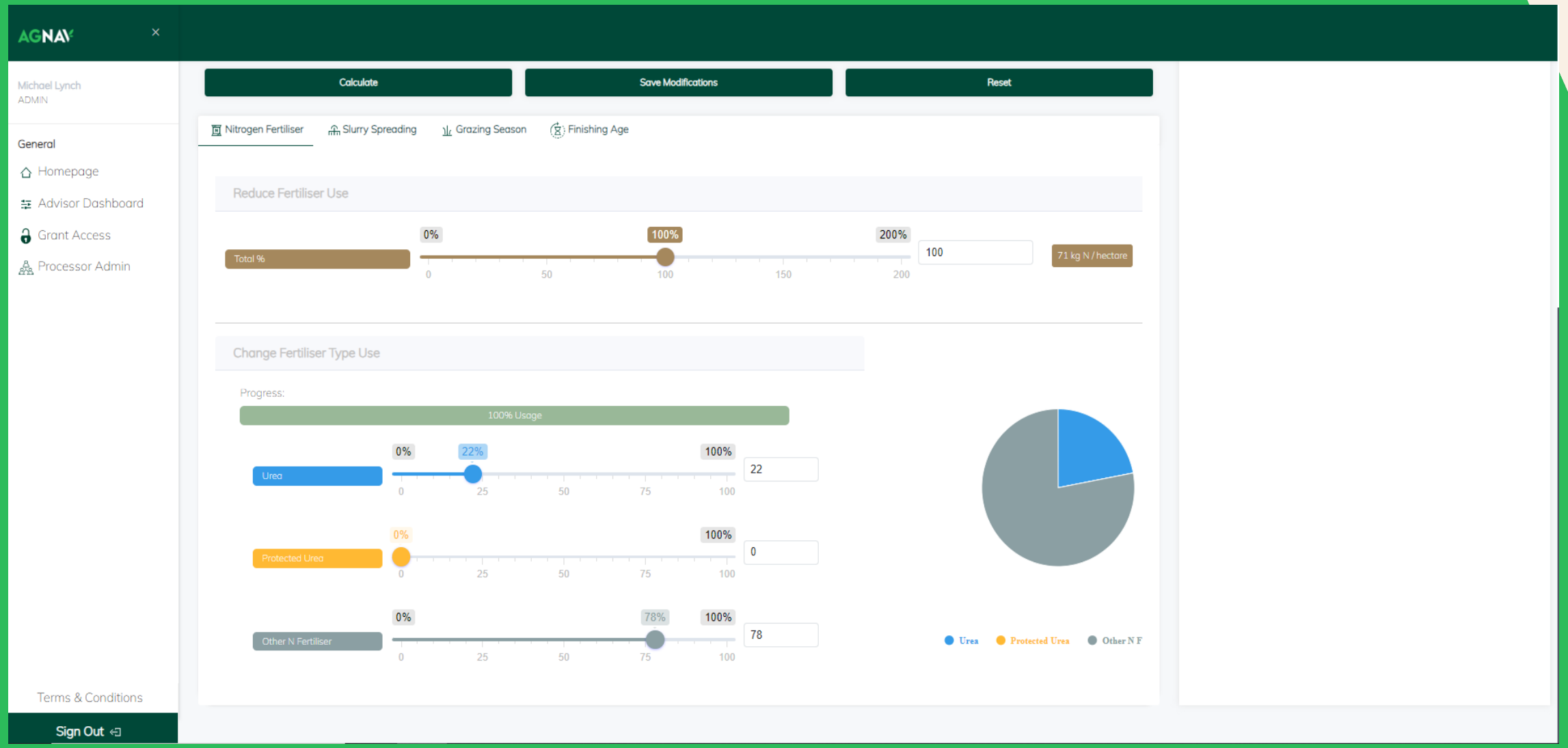
Total Emissions
(kg CO2 equivalent)
Emissions Breakdown
6325
Emissions Per Hectare
(kg CO2 equivalent / hectare)
10.55
Footprint (Beef)
(kg CO2 equivalent / kg
LW Gain)
Emissions Breakdown
0
20k
40k
60k
80k
100k
120k
140k
160k
180k
200k
220k
240k
260k
280k
300k
Total Emissions (kg CO2 Equivalent)
Fossil Fuel
Imported Feed
Manure
Fertiliser
Animal
Calculate
Save Modifications
Reset
Nitrogen Fertiliser
Slurry Spreading
Grazing Season
Finishing Age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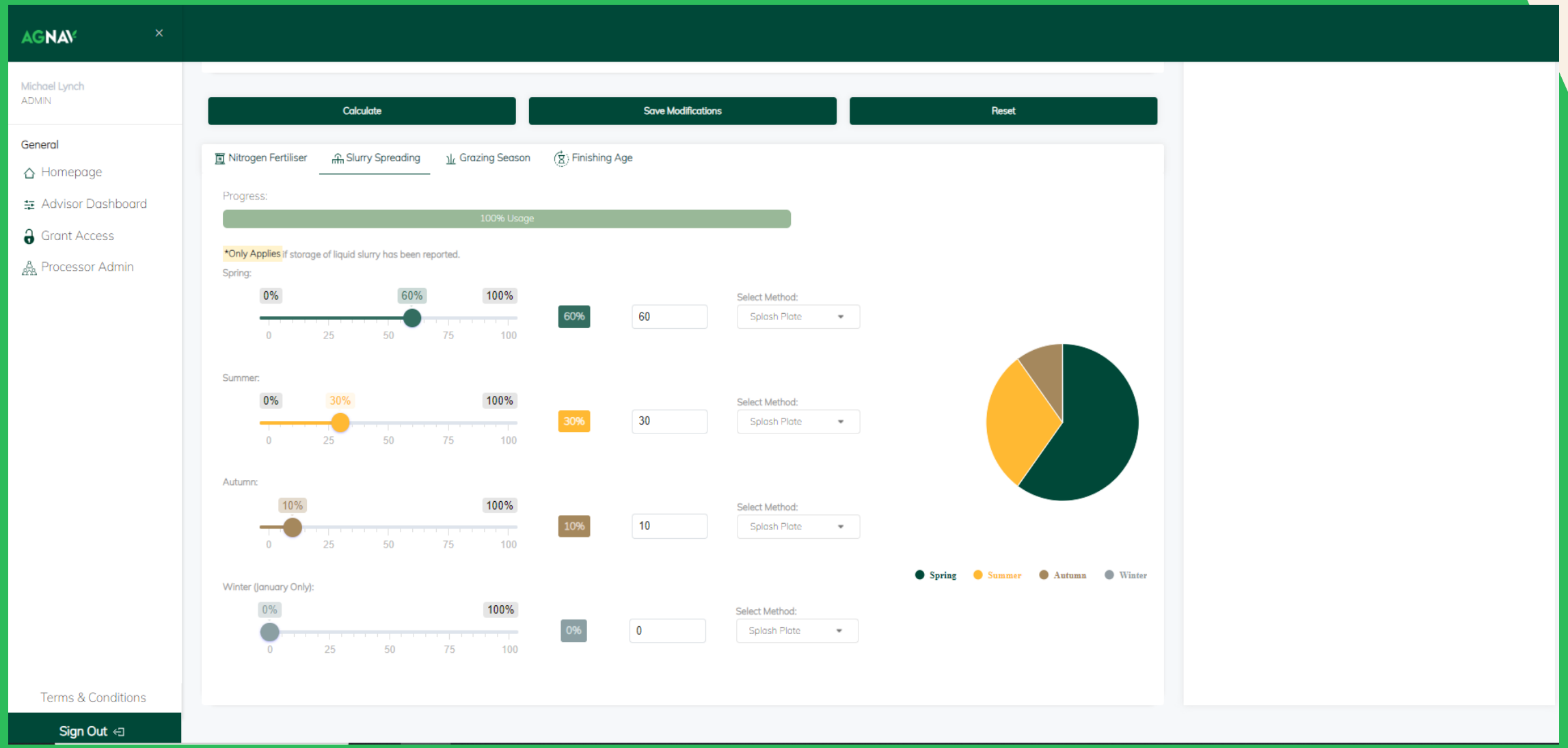
Calculate
Save Modifications
Reset
Nitrogen Fertiliser
Slurry Spreading
Grazing Season
Finishing Age
Reduce Fertiliser Use
Total %
0%
100%
200%
100
71 kg N / hectare
Change Fertiliser Type Use
Progress:
100% Usage
Urea
0%
22%
100%
22
Protected Urea
0%
100%
0
Other N Fertiliser
0%
78%
100%
78
Urea
Protected Urea
Other N F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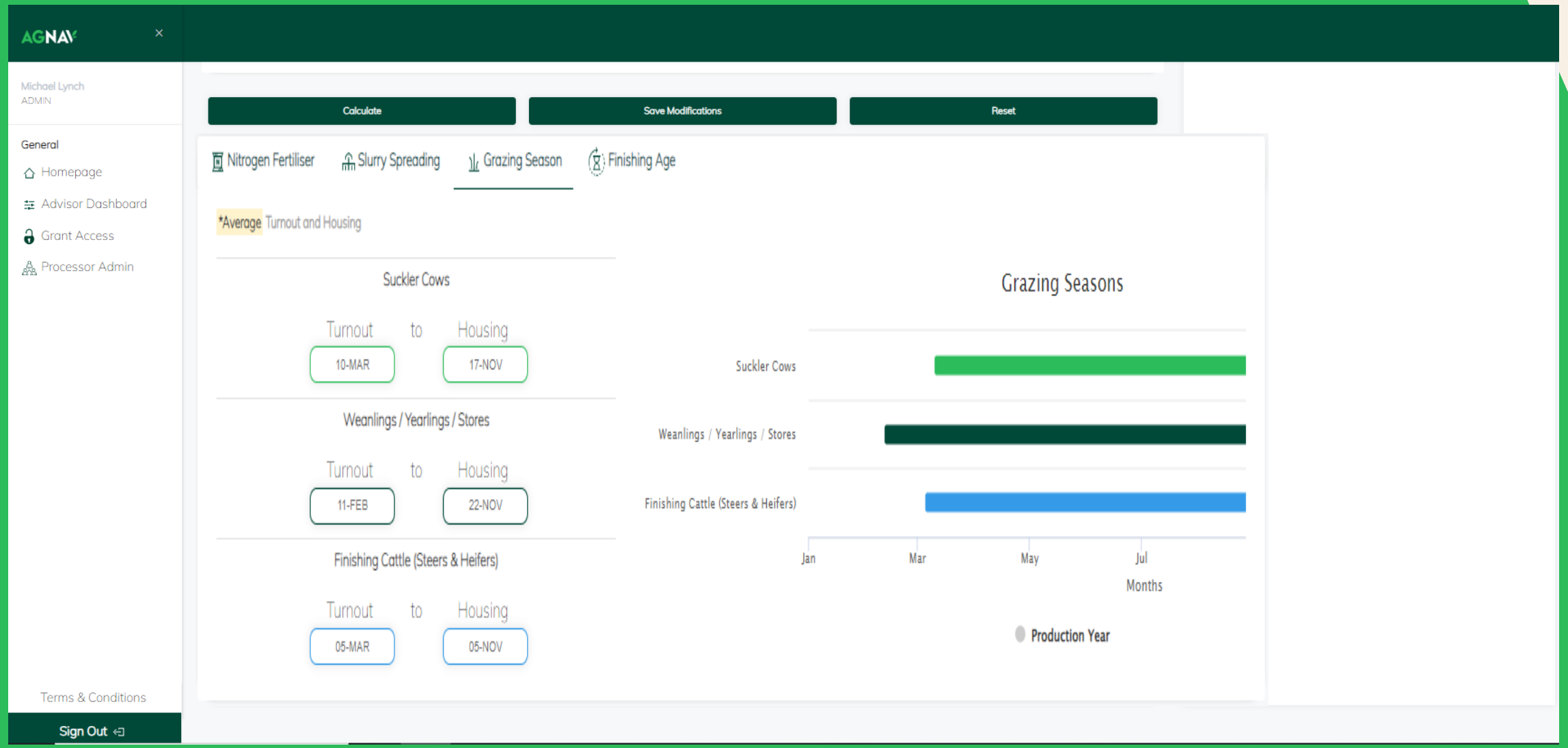
Calculate
Save Modifications
Reset
Nitrogen Fertiliser
Slurry Spreading
Grazing Season
Finishing Age
Progress:
100% Usage
*Only Applies if storage of liquid slurry has been reported.
Spring:
0%
60%
100%
60%
60
Select Method:
Splash Plate
Summer:
0%
30%
100%
30%
30
Select Method:
Splash Plate
Autumn:
10%
100%
10%
10
Select Method:
Splash Plate
Winter (January Only):
0%
100%
0%
0
Select Method:
Splash Plate
0
25
50
75
100
Spring
Summer
Autumn
Winter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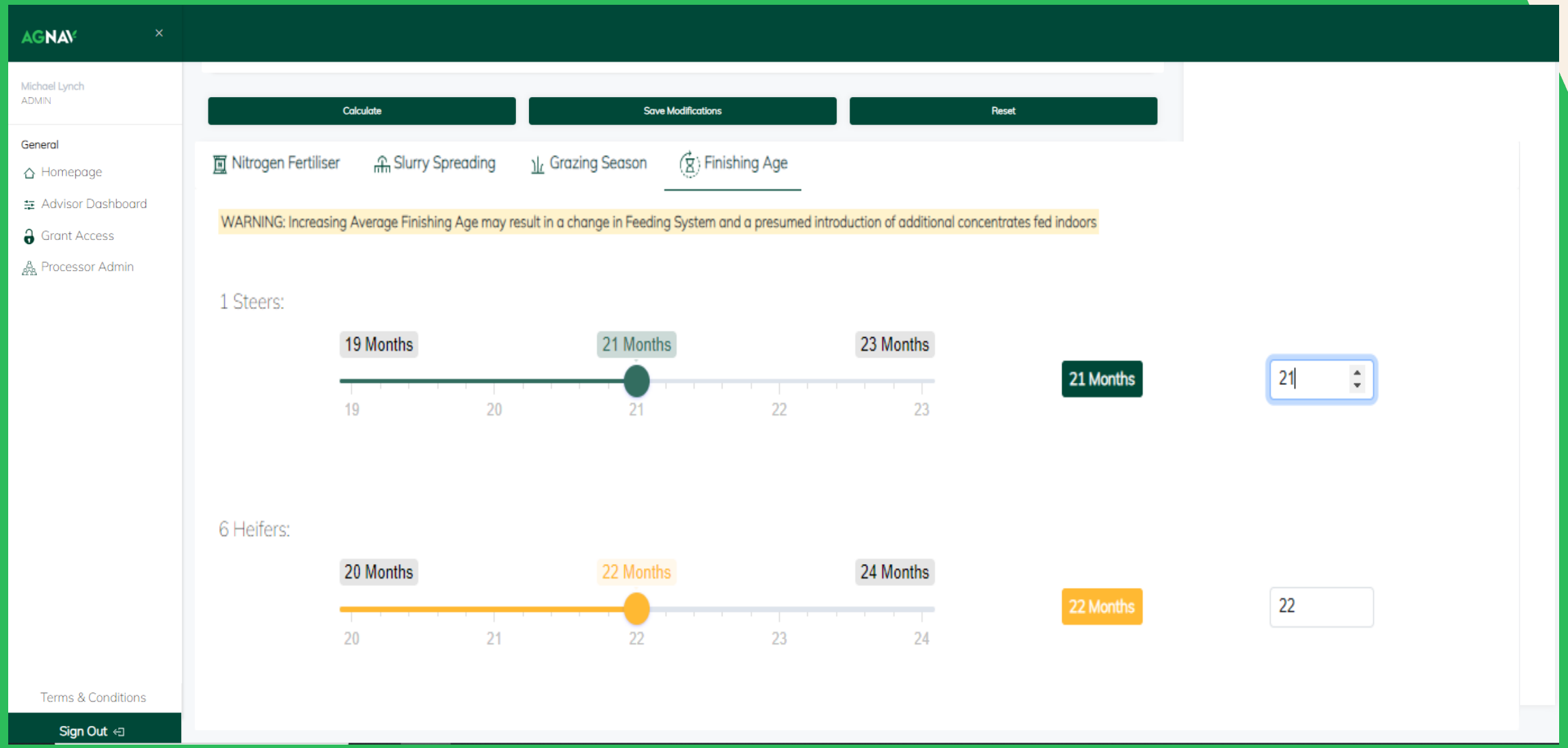
Reset
Nitrogen Fertiliser
Slurry Spreading
Grazing Season
Finishing Age
*Average Turnout and Housing
Suckler Cows
Turnout
to
Housing
10-MAR
17-NOV
Weanlings / Yearlings / Stores
Turnout
to
Housing
11-FEB
22-NOV
Finishing Cattle (Steers & Heifers)
Turnout
to
Housing
05-MAR
05-NOV
Grazing Seasons
Suckler Cows
Weanlings / Yearlings / Stores
Finishing Cattle (Steers & Heifers)
Jan
Mar
May
Jul
Months
Production Year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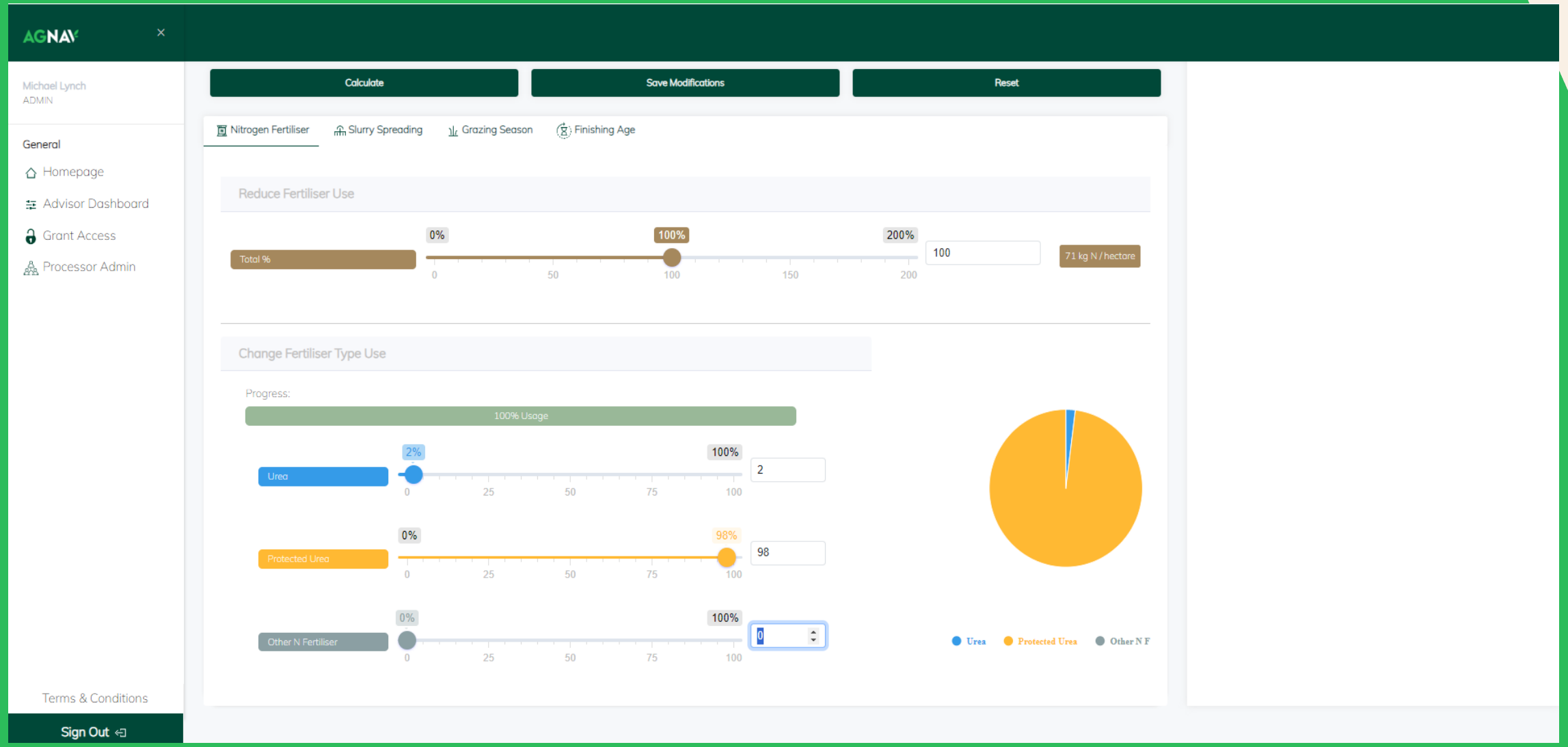
Calculate
Save Modifications
Reset
Nitrogen Fertiliser
Slurry Spreading
Grazing Season
Finishing Age
WARNING: Increasing Average Finishing Age may result in a change in Feeding System and a presumed introduction of additional concentrates fed indoors
1 Steers:
19 Months
21 Months
23 Months
19
20
21
22
23
21 Months
21
6 Heifers:
20 Months
22 Months
24 Months
20
21
22
23
24
22 Months
22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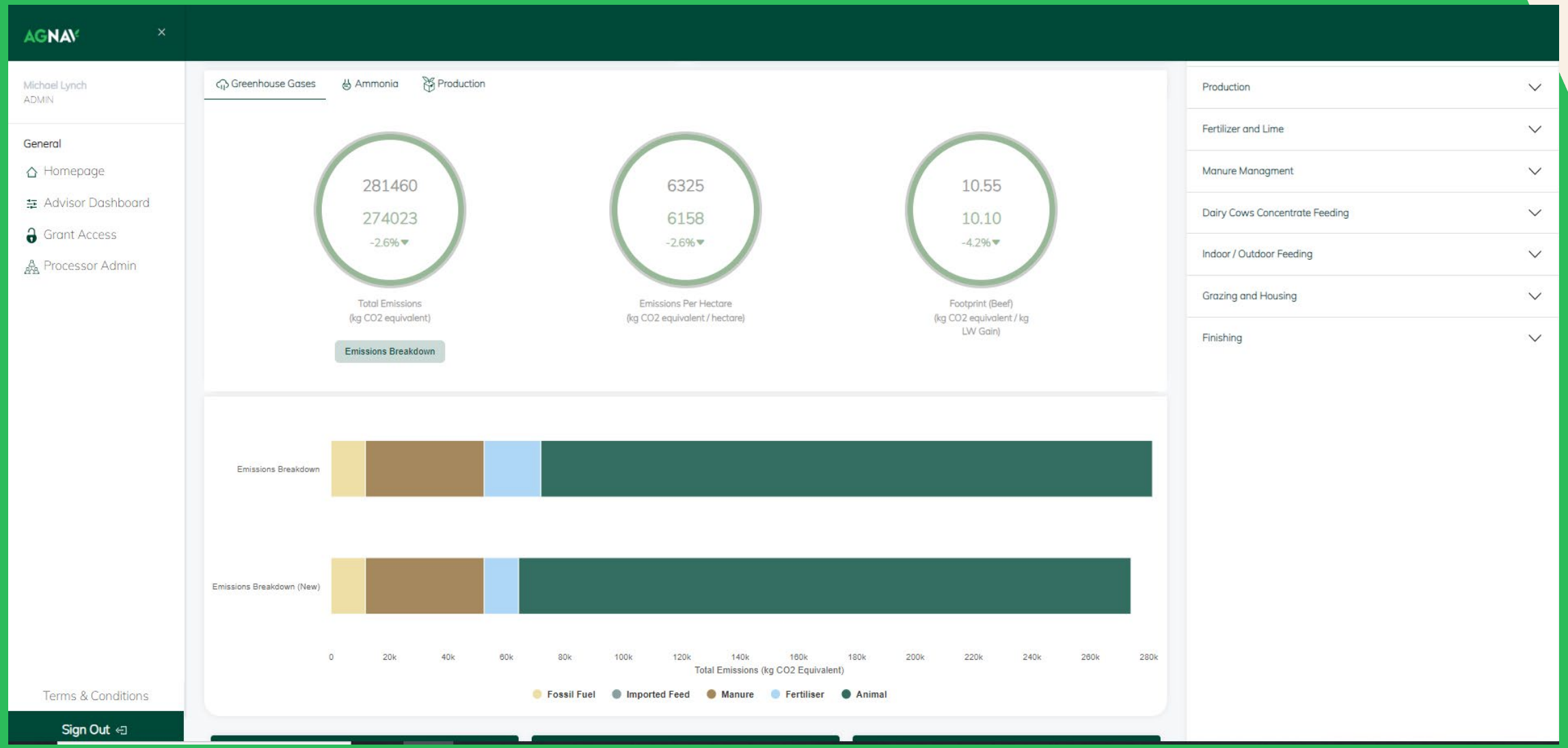
Calculate
Save Modifications
Reset
Nitrogen Fertiliser
Slurry Spreading
Grazing Season
Finishing Age
Reduce Fertiliser Use
Total %
0%
100%
200%
100
71 kg N / hectare
Change Fertiliser Type Use
Progress:
100% Usage
Urea
2%
100%
2
Protected Urea
0%
98%
98
Other N Fertiliser
0%
100%
0
Urea
Protected Urea
Other N F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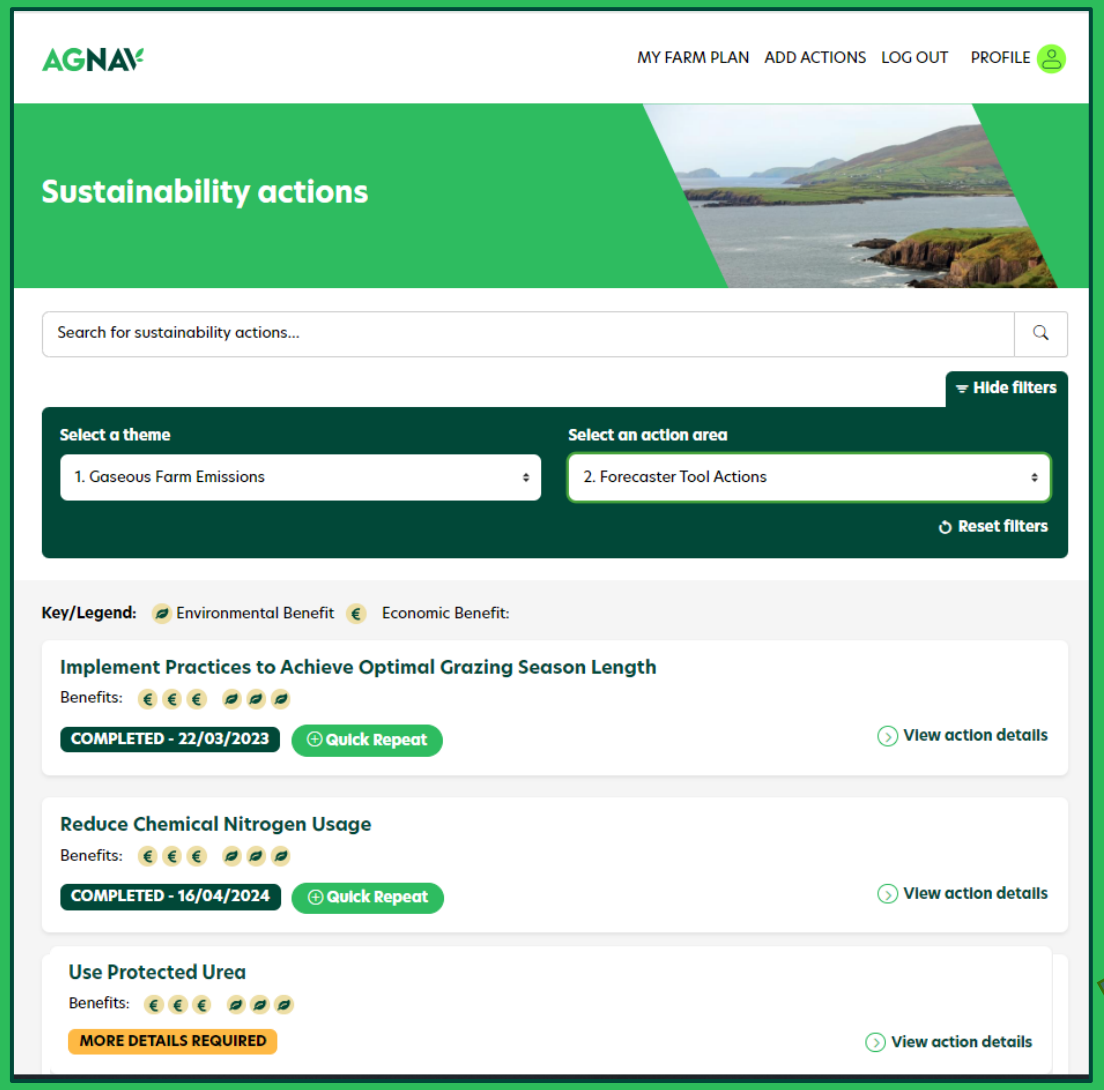
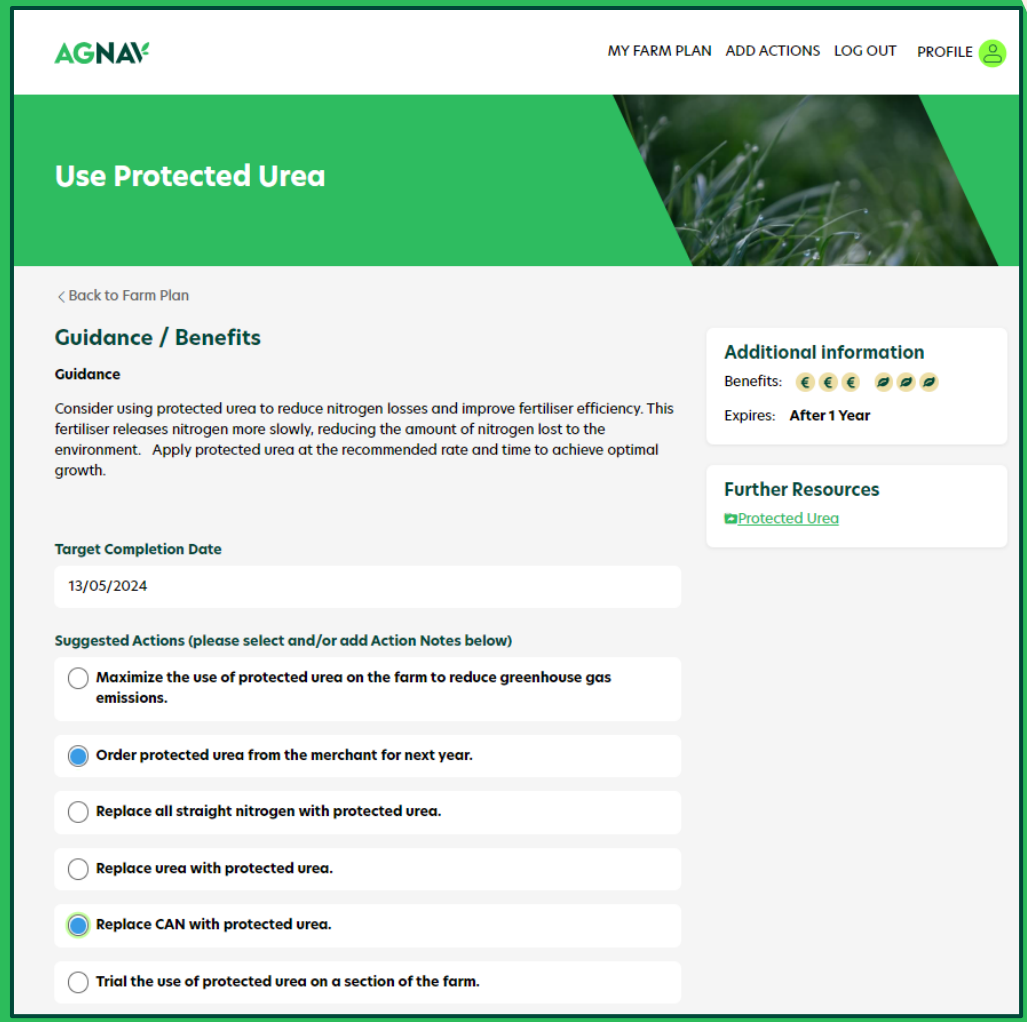
Greenhouse Gases
Ammonia
Production
281460
274023
-2.6%
Total Emissions
(kg CO2 equivalent)
Emissions Breakdown
6325
6158
-2.6%
Emissions Per Hectare
(kg CO2 equivalent / hectare)
10.55
10.10
-4.2%
Footprint (Beef)
(kg CO2 equivalent / kg LW Gain)
Production
Fertilizer and Lime
Manure Managment
Dairy Cows Concentrate Feeding
Indoor / Outdoor Feeding
Grazing and Housing
Finishing
Emissions Breakdown
Emissions Breakdown (New)
0
20k
40k
60k
80k
100k
120k
140k
160k
180k
200k
220k
240k
260k
280k
Total Emissions (kg CO2 Equivalent)
Fossil Fuel
Imported Feed
Manure
Fertiliser
Animal

Farm Action Plan





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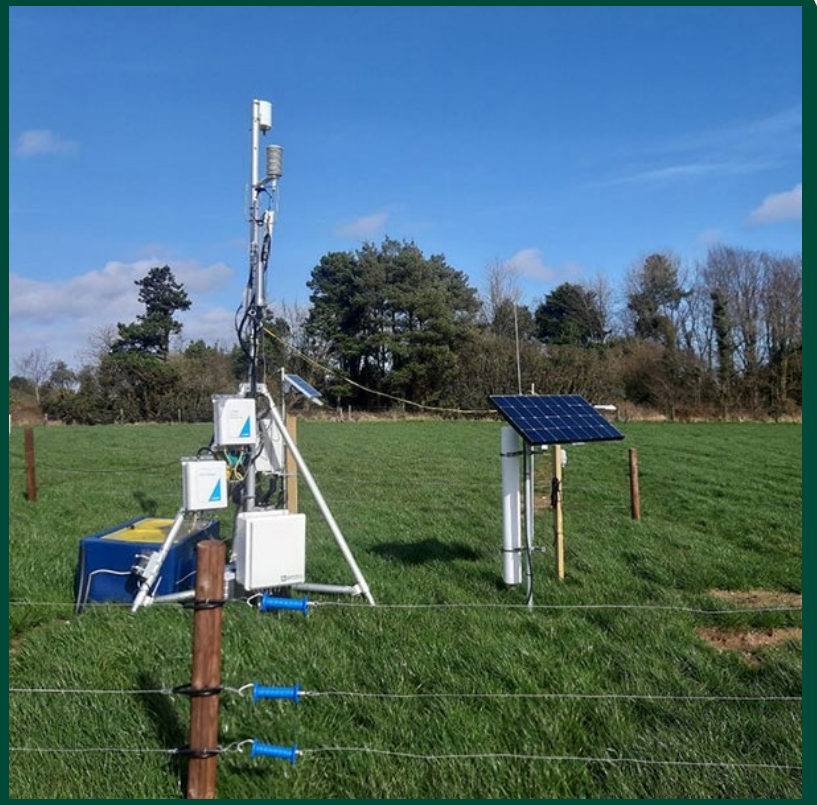
Ongoing Developments

- Further **Forecaster functions**:
  - Genetic impact on Methane Efficiency
  - Feed additives
  - Concentrate feed
  - …

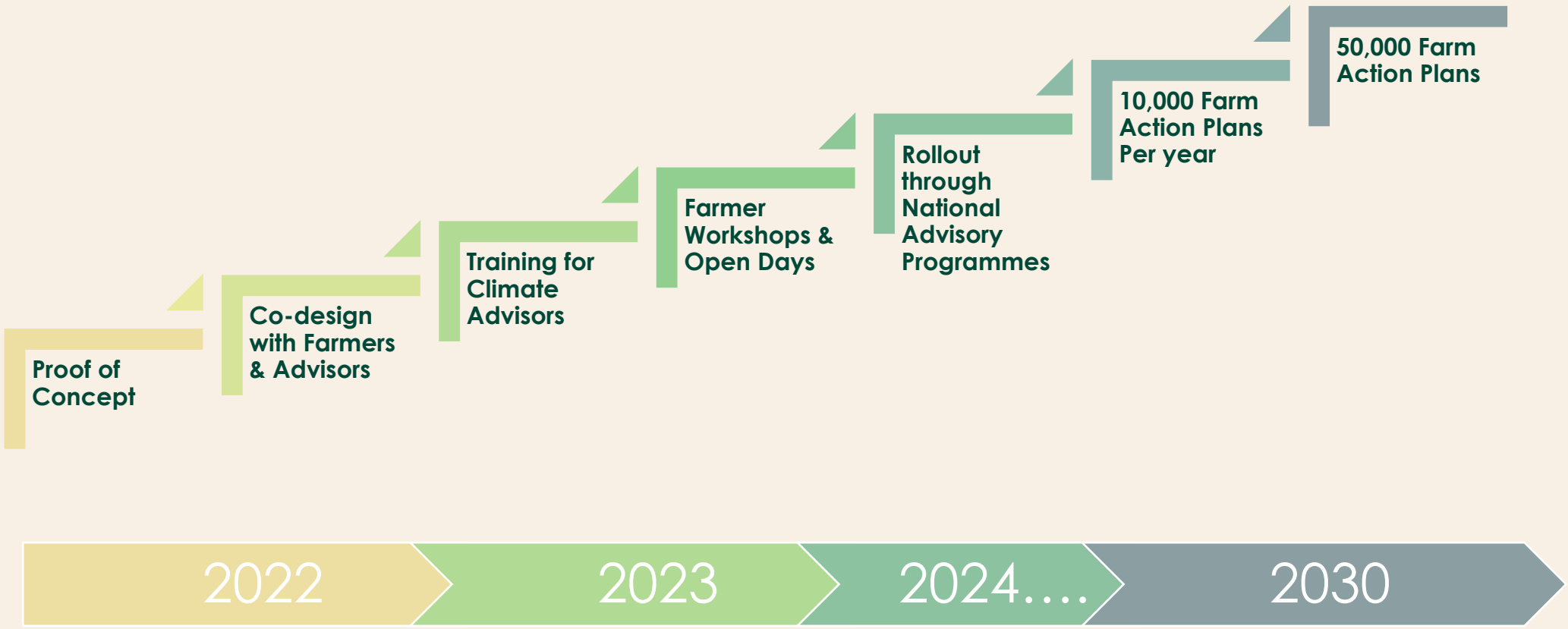
- Integration with Beef and Dairy Processor Sustainability Schemes

Future Developments

- Additional **indicators**:
  - Carbon sequestration
  - Biodiversity
  - Water quality
  - Economics of Climate Actions at farm level



Progress to data … future plans



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Extending to other domains

- High demand from other **enterprises**:
  - Sheep
  - Tillage
  - Pigs
  - Poultry
  - Horticulture
  - Forestry
- All LCA models used must be peer reviewed
- Routine model updates – every 12 months

Key Benefits

- **Farmers are requesting guidance and support** to deliver improvements.
- **Maximises use of existing databases** in the agri sector (verified data).
- Opt in, - All subject to **farmers permission.**
- **Scientific oversight** for development of **robust and accurate** system.
- **No duplication** for farmers, - one source of the truth.
- **Freely available to all farmers.**

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Thank you for your attention