



A FARMER'S PERSPECTIVE ON BIODIVERSITY, EMISSIONS AND WATER QUALITY

A warts and all look

Quick intro – who am I, where we farm, our farming ‘philosophy’

- Thomas Duffy, former President of Macra na Feirme
- Farming in partnership with my father Ned and mother Kathleen in East Cavan
 - The farm;
 - 51ha (125ac) owned – fragmented into 3 blocks with no block being larger than 20ha (50ac)
 - Grazing block is the largest, 20ha with 6ha rented
 - 105 cows milking – all spring calving, predominately Holstein Friesian with some xbreeds
- Our Philosophy – Reduce waste first - ‘Wilful waste brings woeful want’
 - Pollution is EXPENSIVE – every kg of N lost to water, or kg of methane produced is fertiliser or feed you both

Fertility & Calving data based on HerdPlus 2020 Calving Report

Calving Interval (days)

Average number of days between successive calvings for cows calved during the period

384 402 367 62% * * * *

Spring 6 Week Calving Rate

Number of cows/heifers calved within the first 6 wks (78) as a proportion of all cows calved during the Spring (102)

76% 56% 83% 79% * * * *

% with known Sire and Calving Survey recorded

Calves where sire (105) and calving survey (105) are recorded as a proportion of all births during the period (105)

100% 62% 100% 100% * * * * *

%AI bred replacements

Calves born in the period from dairy AI (15) as a proportion of dairy females born (15)

100% 54% 100% 100% * * * * *

% of Heifers Calved at 22-26 months

No. of heifers calved (13) that were between 22 & 26 months of age (20)

65% 56% 100% 49% * * *

EBI Statistics based on the latest HerdPlus EBI report 2021

Herd EBI (2021)

Average EBI for Cows (104) with EBI data

€139 €107 €158 77% * * * *

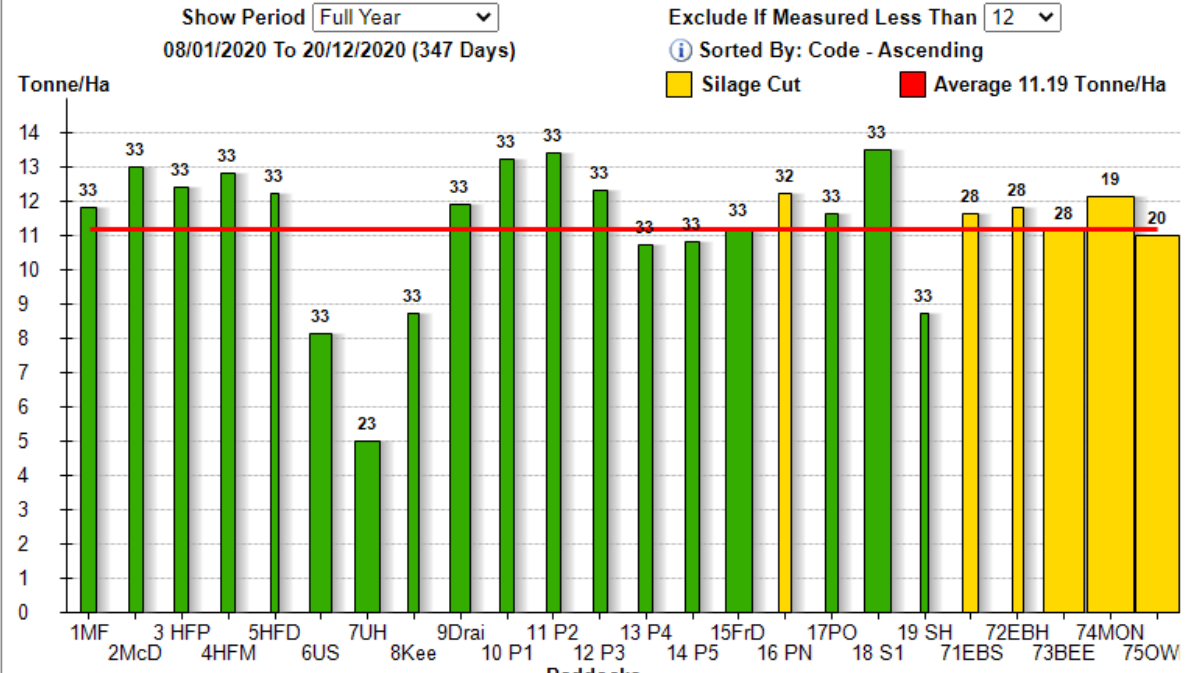
EBI of 2021 Inseminations

Weighted Average EBI of recorded in Spring 2021

1. Production Summaries - Valid Lactations

Only animals that have had a valid lactation are included in these summaries. A valid lactation is one that: (i) was completed on the farm during the 12 month period (ii) is closed (has dry off date in 2020) with over 150 days in milk or is still in milk and had a test on or after 305 days in 2020.

Group	No. of cows	Average days in milk	Completed Lactations Only							SCC	Milk Value EBI
			M Kg	M Gall	F%	P%	F Kg	P Kg	F+P Kg		
Overall	83	267	6149	1314	4.01	3.49	247	215	462	114	€2094
		305	6587	1407	4.07	3.53	268	233	500		€143
		Cl: 384									
1st Lactation	19	250	4491	959	4.07	3.55	183	159	342	81	€1557
		305	5089	1087	4.17	3.61	212	184	396		€146
		Cl: 351									€2140
2nd Lactation	12	276	5993	1280	4.19	3.64	251	218	470	60	€2140
		305	6291	1344	4.25	3.68	267	231	499		€165
		Cl: 351									€2195
3rd Lactation	4	272	6809	1455	3.66	3.42	249	233	482	114	€2195
		305	7298	1559	3.73	3.45	272	252	524		€144
		Cl: 438									€2286
4+ Lactation	48	272	6790	1451	3.99	3.45	271	234	505	134	€2286
		305	7195	1537	4.03	3.48	290	251	540		€137
		Cl: 388									
Winter											
Spring	83	267	6149	1314	4.01	3.49	247	215	462	114	€2094
		305	6587	1407	4.07	3.53	268	233	500		€143
		Cl: 384									



Why these elements matter



EMISSIONS:

GHG – CLIMATE CAUSING GASES

(CC)

VS

**AMMONIA GAS – LOCAL EFFECTS
TO PLANTS/ECOSYSTEMS**

(AM)



WATER QUALITY:

SURFACE WATERS –
RIVERS/LAKES/SEA

GROUND WATER – WATER FOR
BOTH PEOPLE AND LIVESTOCK

HIGH NITRATES LEVELS – ALGAE
BLOOMS

HIGH PHOSPHORUS/ LEVELS

(WQ)



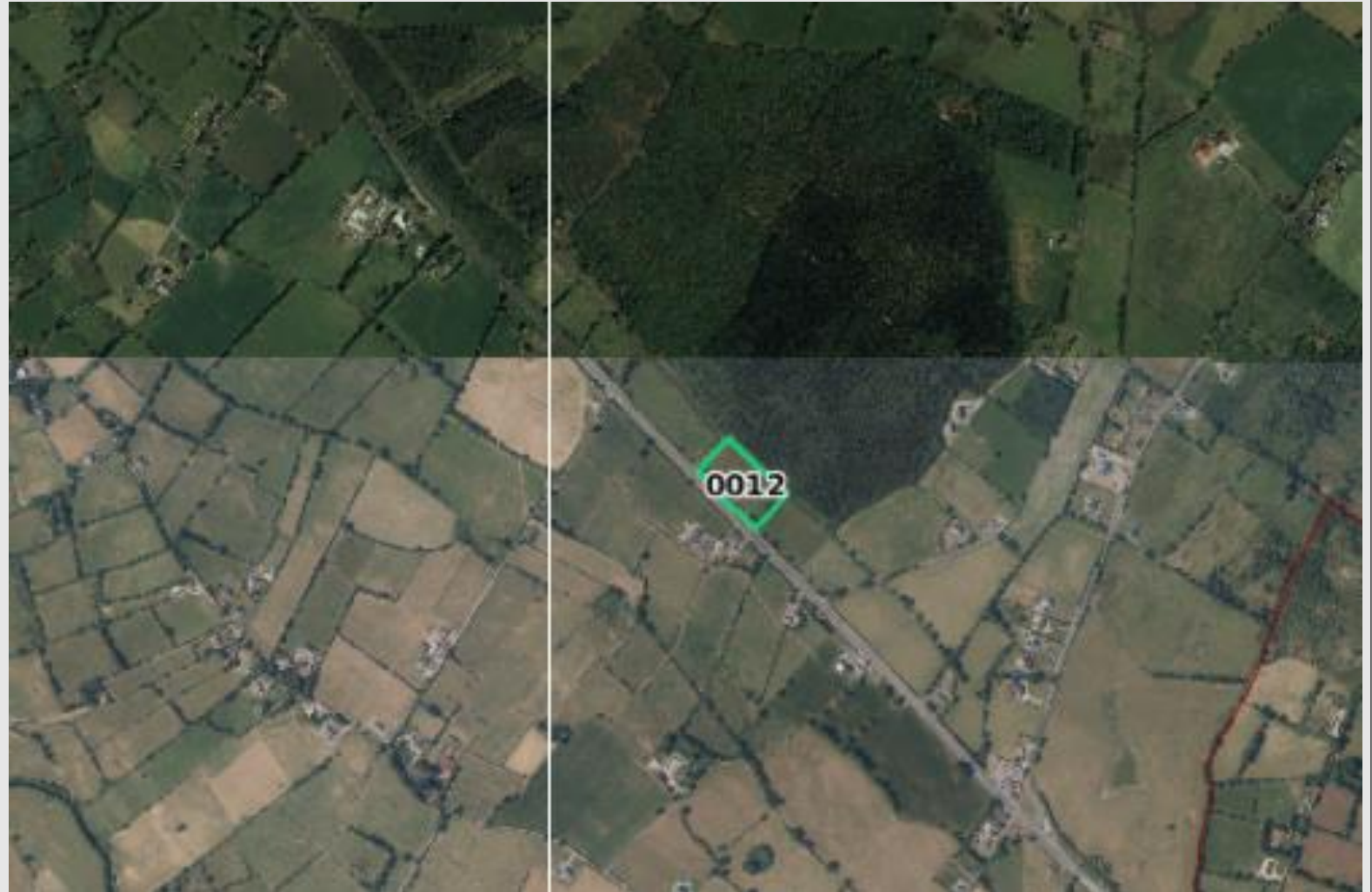
BIODIVERSITY:

LOSS OF SPECIES UNBALANCES
THE SYSTEMS WE RELY ON –

HOODED CROW POPULATIONS
HAVE GROWN 40%+ SINCE 1998
DUE TO HABITAT CHANGE AND
LOSS OF BIRDS OF PREY

(BIO)

Why this
really matter



Quick intro – terminology

- Gases:
 - Ammonia – not a GHG, other issues
 - Methane – belched by cattle/sheep, released by slurry and from dung heaps
 - Nitrous Oxide – powerful climate warming (276 times carbon dioxide) released from manure/fertiliser
 - Carbon dioxide – mostly before the farm gate, drained peat as a major source though
- Can carbon sequestration save us?
 - NO, can help but big uncertainty around soils and VERY complicated global political matter
 - Net increase in hedgerow, new hedges or bigger hedges, existing hedges wont count

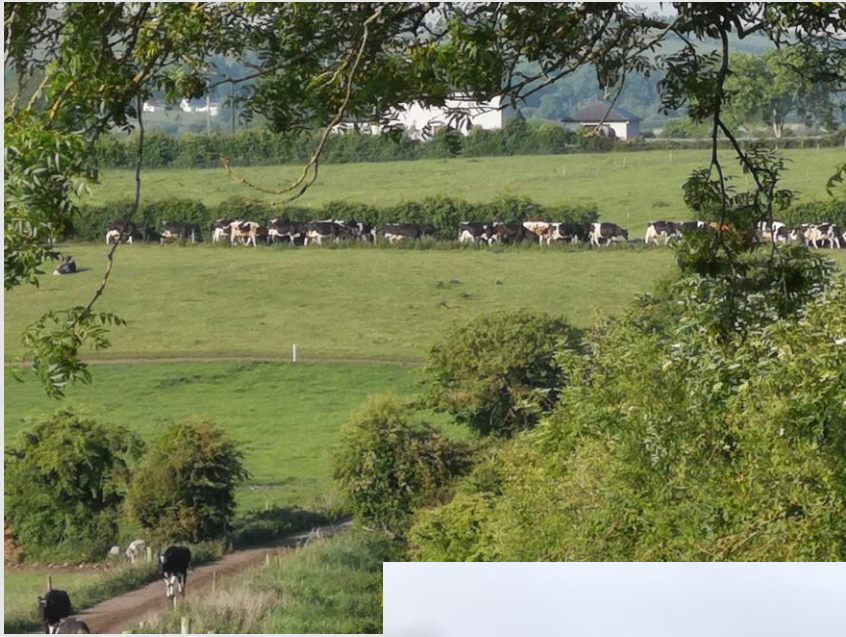
Facts – both entirely accurate and true but only represent one side of conversation

◦ What 'we' say

- Ireland has the lowest emissions per litre of milk in the EU agriculture, 4th lowest in beef
- Ireland has the second highest water quality in EU (after only Austria)
- Ireland has above EU area of habitat on farms at 13% (vs 2.1% in Netherlands)

What 'they' say

- Ireland has the highest % of national emissions in agricultural at 35% and growing
- Farming is the largest pressure on water quality with declines in most categories
- Farmland Birds are declining, some species by 50% due to habitat loss



VS



Not all changes are equal

- Easy wins/simple to reduce or replace
 - Protected urea – straight swap for urea, small changes to CAN use (Am)
 - Low Emission slurry spreading – either purchase or contractor change (Am & CC)
 - Liming (CC)
 - Improve beef value of dairy beef stock – high DBI or Terminal bull (CC)
 - Improving hedgerow management – A shape (CC & Bio)
 - Milk recording or cattle weighing and culling lowest performers/ensuring they don't breed (CC & Am)
 - Increasing longevity of cows & reducing involuntary culling – health improvements (CC)
- Smaller changes/investments needed
 - Sexed semen – need good heat management (CC)
 - Clover incorporation – at reseeding or overseeding (WQ & CC)
 - Upgrading fertiliser spreader (WQ & CC)
 - Tolerance of weeds or leaving aside areas (WQ, Bio & CC)
 - Red clover silage (Bio & CC)
 - Minimum tillage (CC)
- Bigger/costlier changes and investments
 - Renewable energy – solar panels (CC)
 - Ponds or rewetting (WQ & Bio)
 - Covering all slurry tanks (CC & Am)
 - Recontouring farm road ways away from water sources (WQ)

Fertiliser – fertiliser doesn't grow grass. Sun, water and soil does, fertiliser helps only

- Largest source of non-methane emissions
- Largest source of water pollution
 - Point source – leaking slurry tanks, livestock in streams, roadway runoff – massive improvements here
 - 'Diffuse' – too much slurry too early, 'early nitrogen' when its cold and wet
- Heavy wet soils – Nitrogen lost to air
- Dry sandy soils – Nitrogen lost to water
- **LOW USE OF NMP = a major barrier to good fertiliser management**
 - **Personal opinion: Compounds are not usable on farms following a NMP – all straight P&K needed, 18.6.12 is a crutch**
 - **Ignore calendars, you don't feed a calf that's not eating and pile the feed in the trough?**



Once conditions are right, what do we need

Where possible
no fertiliser

Clover

Soil conditions
right

P&K

Lime

Nitrogen

What we
spread

Slurry

Straights

Protected
Urea

Water quality reductions



Red clover/white clover



The warts

- Complaints around Protected area
- Lower 6week calving with more sexed semen
- No return from the market for these measures when not cost saving
- The failures/unknowns – Multispecies Grasslands (huge potential but weed control a nightmare)
- Increasing droughts and flooding making adoption harder (ironically)

Multispecies



Space for nature



Genetics

- Most reliable way to reduce methane
- For dairy cows: longer life = lower lifetime emissions (carrying a 'overhead' of methane for her first 2 years)
 - Key factors
 - Improving EBI
 - Low INVOLUNTARY CULLING
 - Lower replacement rate (once not expanding)
 - More mature cows (3rd-5th lac)
 - Calving 22-26m
- For beef (dairy beef)
 - Key factors
 - Age at slaughter
 - Weight at slaughter
 - Sire more vital than

Lactation Summary

Lact.	Calved	Milk Kg	Fat Kg	Prot Kg	Fat%	Prot%	F+P Kg	SCC	Days	305d Milk Kg	305d Fat Kg	305d Prot Kg	305d Fat%	305d Prot%	305d F+P Kg
1	18-02-11	4836	212	164	4.38	3.39	376	48	279	5050	224	172	4.43	3.40	396
2	23-01-12	6078	248	205	4.08	3.37	453	41	317	6007	245	203	4.08	3.37	448
3	11-02-13	7359	286	244	3.89	3.32	530	75	318	7230	279	239	3.86	3.31	518
4	17-02-14	6284	246	208	3.91	3.31	454	56	265	6706	267	223	3.97	3.33	490
5	10-02-15	7361	323	256	4.38	3.47	579	63	284	7660	338	267	4.41	3.49	605
6	26-01-16	8105	307	277	3.79	3.42	584	180	321	7967	300	272	3.77	3.41	572
7	12-02-17	9354	376	331	4.02	3.54	707	48	293	9557	386	338	4.04	3.54	724
8	06-02-18	7655	300	261	3.92	3.41	561	86	318	7474	292				
9	25-02-19	7602	298	253	3.91	3.33	551	397	326	7317	285				
10	25-03-20	6543	234	216	3.58	3.30	450	73	269	6966	251				
11	08-04-21	1147	43	40	3.78	3.50	83	172	32	7237	270				
Avg (Completed)		7118	283	242	3.99	3.39	525	107	299	7193	287				

Jumbo: AA1602
Animal Number: ██████████
Sex: MALE
Date Of Birth: 23-APR-2018
Animal Name: LISDUFF RED LENNY U602

Status: Arrived on Farm 04-MAY-19, 769 days ago
Breed: AA (100%)
Dam: ██████████ LISDUFF RED LUCKY M048 Dam Verified (SNP)
Sire: IE331505880658 LANIGAN RED KRACKERJACK Sire Verified (SNP)

Genotype available for animal, genotype included in evaluation

Replacement/Terminal Dairy Beef

- Euro-star index
- Pedigree
- Weight
- Progeny
- Linear Scoring
- Evaluation History
- Index Comparison
- Other

Star Rating (within Angus breed)	Economic Indexes	Purpose	Euro value	Index reliability	Star Rating (across all beef breeds)
★★★★★	Replacement (per daughter lactation)	To breed future cows for the suckler herd	€142	46% (Average)	★★★★★
★★★★★	Terminal	To breed beef animals from the suckler herd that are destined for slaughter	€86	50% (Average)	★★★★☆
★★★★★	Dairy Beef	To breed beef animals from the dairy herd that are destined for slaughter	€96	53% (Average)	★★★★★

Help