

EU Implementing Decision for Ireland's Nitrates Derogation

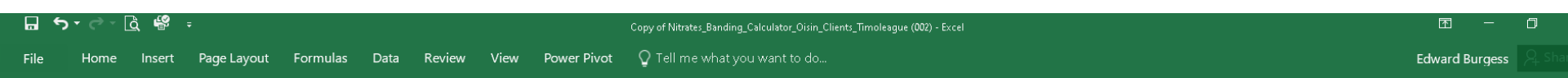
- The amount of livestock manure from grazing livestockshall not exceed the amount of manure containing 250 kg N/ha per year
- From 2024, as a consequence of the two-year review, this max amount shall not exceed 220 kg N/ha per year in areas referred to in Article 12

Article 12 – Two year review

- average values of nitrate concentrations above 50 mg/l
- increasing trends of nitrates concentration compared to 2021
- ‘Eutrophic’ status
- ‘could become eutrophic’ status with a stable or worsening trend compared to 2021
- waters identified shall be considered as polluted, or at risk of pollution or showing worsening trends
- average values for the period 2020, 2021 and 2022
- trends are compared from 2021 to 2022

XL calculator – 30 farms

e.g. 90 cow farm with high yielding cows



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	<div style="text-align: center;"> Stock Report Nitrates 2021 (Printed 03/10/22) A1234567 Darby McGill </div>																		
2	Animal Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	N kg/hd	N Total	P kg/hd	P Total	
3	Dairy Cows	80.1	88.9	92.8	93.8	94	94	94	93.1	93	88.5	88	80.2	90	89	8011	13	1170	
4	Suckler Cows	0	0	0	0	0	0	0	0	0	0	0	0	0	65	0	10	0	
5	Total Cattle 0 - 12 mths	0.6	49.6	54.4	55.4	59.2	35.1	17.7	3.7	0	0	0	0	22.7	24	546	3	68	
6	Total Cattle 12 - 24 mth	13.6	2.8	0	0	0	0	0	0	0	0	21.5	34	6	57	344	8	48	
7	Total Cattle 24 mths+	1.3	3.3	2.2	1.2	1	1	1	1	1	0.1	0	0	1.1	65	70	10	11	
8	Totals	95.6	144.6	149.4	150.4	154.2	130.1	112.6	97.7	94	88.6	109.5	114.2	119.9		8971		1297	

2021 BPS Areas	
Total Farm Area =	32.31
Grassland Area =	32.31

	Total Cows	Litres	Kg milk	kg / cow	Band	kg/hd
2022			-			
2021	90	608,838	626,920	6,966	Band 3	106
2020	90	615,795	634,084	7,045	Band 3	106
average	90	612,317	630,502	7,006	Band 3	106

	Changes to meet Stocking Rate with banding included		
	170	220	250
Cows	-48	-32	-23
Hectares	29.5	15.5	9.7
m ³ slurry	-2086	-1413	-1009

Animal Type	Average	N kg/hd	N Total
Dairy Cows	90	106	9,540
Suckler Cows	0	65	-
Total Cattle 0 - 12 mths	22.7	24	545
Total Cattle 12 - 24 mth	6	57	342
Total Cattle 24 mths+	1.1	65	72
Other stock (eg sheep)			-
Totals	119.8		10,498

	2021 Stocking Rate	
	Actual	Band Projection
Farm Stocking Rate =	278	325
Grassland Stocking Rate =	278	325

	Volume of Slurry produced by cattle on farm in Jan, Feb, Oct, Nov and Dec			
	16	18	20	22
Weeks	16	18	20	22
m ³	600	675	750	825

The Stocking Rate Calculations are based on cattle livestock numbers from ICBF (above) and 2021 BPS areas.

Other stock N can be entered manually, either by typing in the N Total figure in cell D23 or by entering the Average and the N kg/hd in cells B23 and C23

The band calculation is based on 2021 and 2020 milk production figures that you entered from the ICBF co-op performance report.

The greyed out row for 2022 does work and is optional if you wish to use it.

Slurry volumes are based on 6-12 and 18-24 month old cattle for 0-1 and 1-2 year old's respectively.



Compiled results can be ranked for various conditions

										Changes to meet Stocking Rate (Including banding)														
										2021 Gr Stocking Rate			2021 Wh Farm Stocking Rate			170			220			250		
Rel	Tab	Nam	Herd	Total Area	Grassland Ar	Difference	Average Cow	Average Kg/Cov	Organic Band	Actual	With Banding	Actual	With Banding	Cows	Land	Slurry	Cows	Land	Slurry	Cows	Land	Slurry		
15	Farmer 15			116.29	116.29	0	281	6199	Band 2	293	301	293	301	-166	89.8	-6359	-103	43	-3936	-65	23.9	-2482		
3	Farmer 3			0	0	0	77	5966	Band 2															
7	Farmer 7			62.06	62.06	0	138	5000	Band 2	269	275	269	275	-72	38.6	-2728	-38	15.7	-1435	-18	6.4	-660		
6	Farmer 6			76.56	76.56	0	167	4449	Band 1	246	226	246	226	-54	25.4	-1795	-6	2.2	-200	23	-7.3	758		
2	Farmer 2			50.65	50.65	0	103	6316	Band 2	239	246	239	246	-42	22.6	-1595	-15	5.9	-540	3	-0.9	94		
1	Farmer 1			69.99	67.07	2.92	124	6759	Band 3	198	230	189	220	-94	20.7	-1462	-3	0.1	-4	20	-8.4	872		
5	Farmer 5			68.9	43.27	25.63	102	7037	Band 3	270	309	169	194	-16	9.7	-682	18	-8.3	754	37	-15.6	1616		
8	Farmer 8			72.05	72.05	0	108	6779	Band 3	167	192	167	192	-16	9.5	-672	19	-9.1	830	40	-16.7	1731		
11	Farmer 11			62.4	50.38	12.02	80	5964	Band 2	228	234	184	189	-13	7	-493	22	-8.9	808	42	-15.3	1588		
10	Farmer 10			63.7	58.94	4.86	106	4467	Band 1	217	200	200	185	-12	5.5	-388	29	-10.3	940	53	-16.7	1736		
14	Farmer 14			74.4	74.4	0	111	5147	Band 2	175	180	175	180	-8	4.3	-300	33	-13.7	1251	57	-21	2181		
9	Farmer 9			84.63	84.63	0	105	5520	Band 2	170	174	170	174	-4	2	-138	43	-17.8	1626	71	-25.8	2684		
13	Farmer 13			26.09	26.09	0	31	5241	Band 2	161	165	161	165	2	-0.9	60	16	-6.6	603	25	-9	929		
12	Farmer 12			54.78	53.16	1.62	81	3832	Band 1	183	169	177	164	5	-2.1	148	39	-14.1	1289	60	-19	1974		
17	Farmer 17			58.65	58.65	0	86	6109	Band 2	159	163	159	163	5	-2.5	171	37	-15.2	1393	56	-20.5	2126		
16	Farmer 16			96.4	91.47	4.93	85	5900	Band 2	154	157	146	149	22	-11.9	841	75	-31.1	2850	106	-39	4055		
18	Farmer 18			87.67	87.67	0	47	5633	Band 2	146	147	146	147	22	-11.9	839	70	-29.1	2665	99	-36.2	3761		
4	Farmer 4			150.77	52.78	97.99	75	5108	Band 2	185	189	65	66	170	-92	6516	252	-105.4	9657	302	-110.8	11542		
19	Farmer 19			0	0	0									0	0	0	0	0	0	0	0		
20	Farmer 20			0	0	0									0	0	0	0	0	0	0	0		
21	Farmer 21			0	0	0									0	0	0	0	0	0	0	0		
22	Farmer 22			0	0	0									0	0	0	0	0	0	0	0		
23	Farmer 23			0	0	0									0	0	0	0	0	0	0	0		
24	Farmer 24			0	0	0									0	0	0	0	0	0	0	0		
25	Farmer 25			0	0	0									0	0	0	0	0	0	0	0		
26	Farmer 26			0	0	0									0	0	0	0	0	0	0	0		
27	Farmer 27			0	0	0									0	0	0	0	0	0	0	0		
28	Farmer 28			0	0	0									0	0	0	0	0	0	0	0		
29	Farmer 29			0	0	0									0	0	0	0	0	0	0	0		
30	Farmer 30			0	0	0									0	0	0	0	0	0	0	0		

All Catchments Combined

- 45 herds 5693 cows
- Average herd 127 cows 27 to 312
- Average yield 6008 kg 3,932 to 8,157
- 2021 (Cow \equiv 89 kg N / head)
 - 24% > 250 (11) 42% > 220 (19)
- Banding
 - 36% > 250 (16) 56% > 220 (25)

All Catchments Combined

Band I - 80kg	Band II - 92kg	Band III - 106kg
8%	59%	33%

Changes in Cow Number 5693 cows

> 250	>220		>170	
439	887	-448	1991	-1552
8%	16%	-8%	35%	-27%

Wexford Catchments

- 18 herds 1902 cows
- Average herd 106 cows 31 to 281
- Average yield 5635 kg 3,832 to 7,037
- 2021 (Cow \equiv 89 kg N / head)
 - 12% > 250 (2) 24% > 220 (4)
- Banding
 - 12% > 250 (2) 29% > 220 (5)

Wexford Catchments

Band I - 80kg	Band II - 92kg	Band III - 106kg
17%	66%	17%

Changes in Cow Number

> 250	>220		>170	
83	163	-80	437	-354
4½%	9%	-4½%	24%	-19½%

Timoleague

- 18 herds 2521 cows
- Average herd 140 cows 30 to 279
- Average yield 6132 kg 5,131 to 7,754
- 2021 (Cow \equiv 89 kg N / head)
 - 33% > 250 (5) 60% > 220 (9) – out of 15 herds
- Banding
 - 60% > 250 (9) 87% > 220 (13) – out of 15 herds

Timoleague

Band I - 80kg	Band II - 92kg	Band III - 106kg
0%	67%	33%

Changes in Cow Number

-1999 cows

> 250	>220		>170	
134	370	-236	840	-706
7%	19%	-12%	42%	-35%

Ballinrobe

- 7 herds 613 cows
- Average herd 88 cows 27 to 176
- Average yield 6546 kg 5,707 to 7,245
- 2021 (Cow \equiv 89 kg N / head)
 - 14% > 250 (1) 29% > 220 (2)
- Banding
 - 14% > 250 (1) 29% > 220 (2)

Ballinrobe

Band I - 80kg	Band II - 92kg	Band III - 106kg
0%	43%	57%

Changes in Cow Number

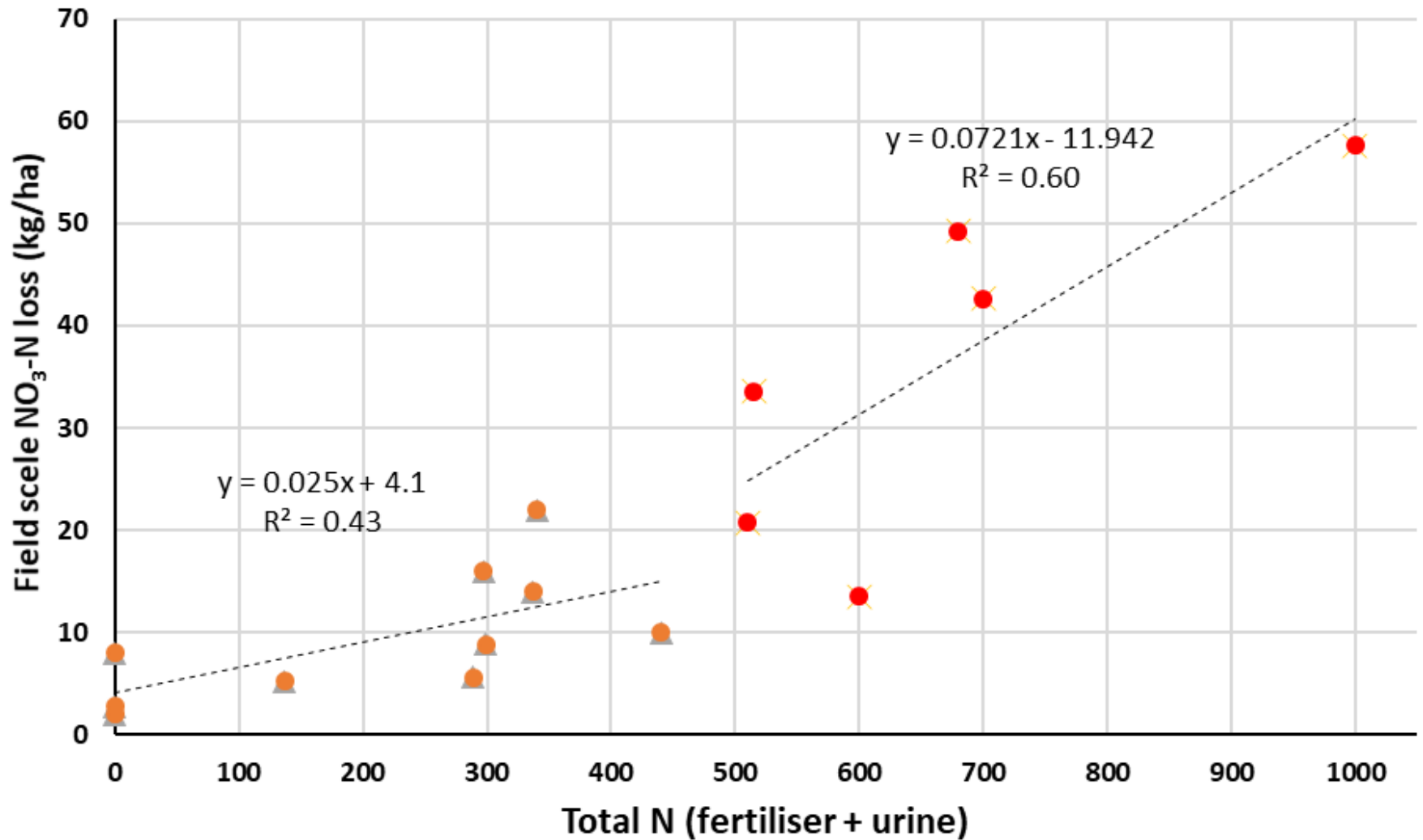
-613

> 250	>220		>170	
23	41	-18	122	-99
4%	7%	-3%	20%	-16%

Summary

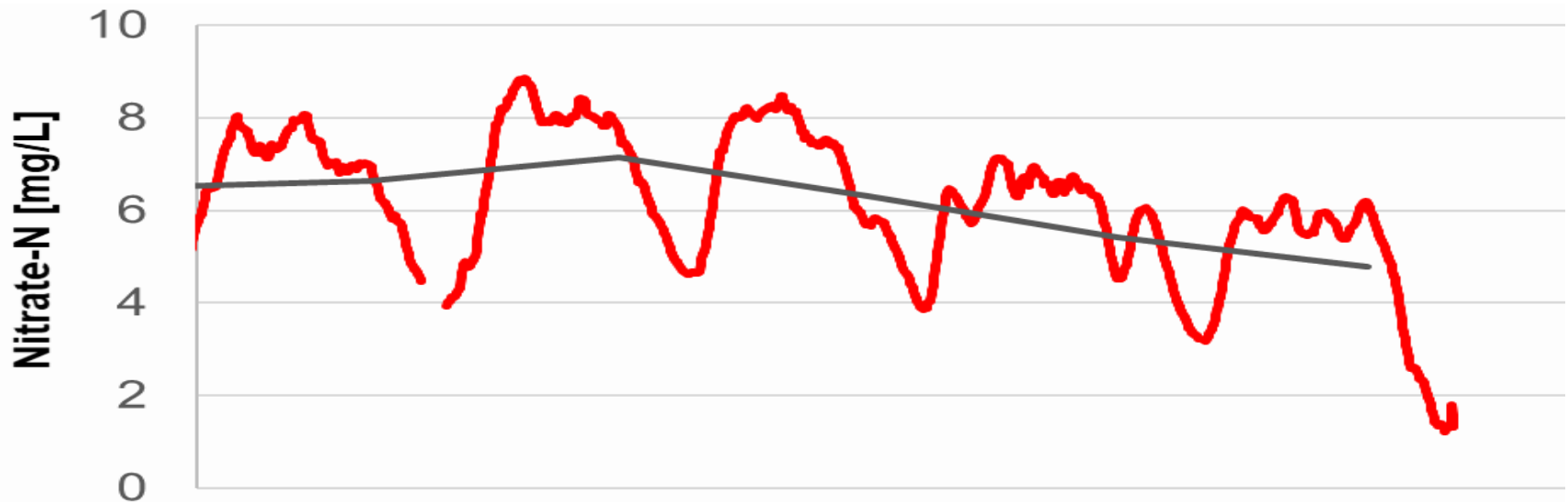
- Regional Contrasts
 - Band III may be insignificant
 - Band II at a high SR – more relevant ?
- Individual Assessment Vital
- Those already over 250 most impacted
- N content in slurry - bigger effect
 - 5 kg N/m³ ➤ 2.4 kg N/m³

Relationship between total N and nitrate leaching loss (1m depth)



Predicted NO₃-N loss at field scale (1 ha) based on measurements from lysimeter studies using the calibration outlined by Selbie (2014)

What has more impact, overall stocking rate or surplus N?



- Timing of surplus is key
 - Breaking the pathway
- Avoid available NO_3 & water moving down

Sources of surplus N in Autumn

- Organic manure applications
- Late applications of Chemical N
- Mineralisation of soil organic matter
 - Ploughing
 - Very dry summers – poor growth / uptake
- Urine patches
- Chemical N with Clover
- Stubble ground