Teagasc
Agriculture and Food Development Authority

Workshop 3:

CLOVER 150 – Lessons Learned From 2024

Dr. Michael Egan, Teagasc

Joseph Dunphy, Teagasc

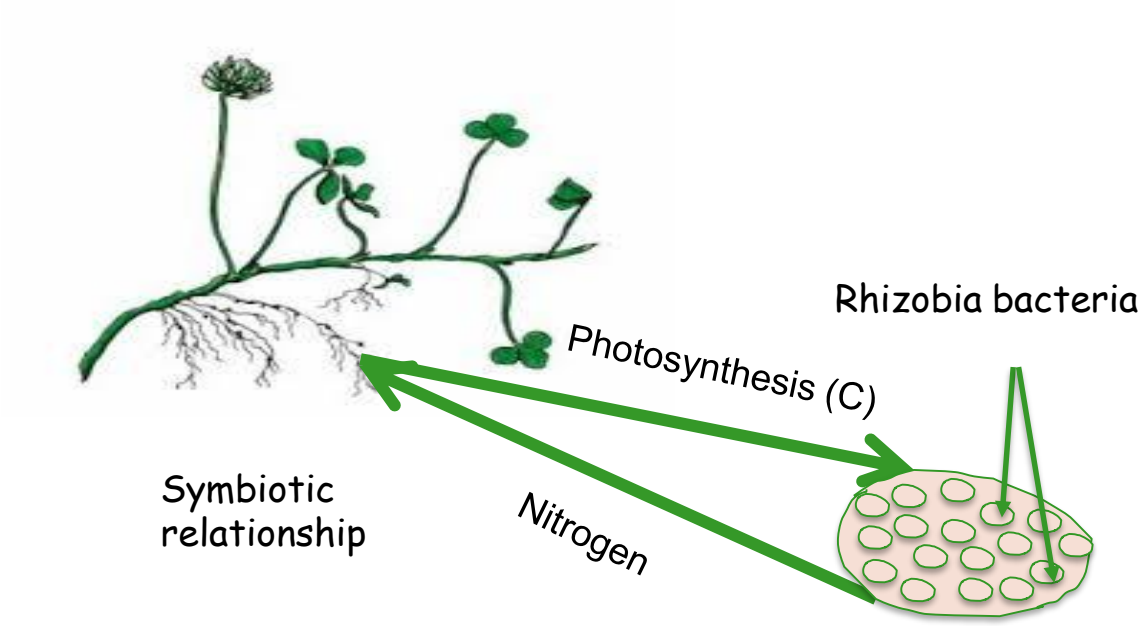
Robert & Denis O'Dea, dairy farmers, Limerick

National Dairy Conference Wednesday, 27 November Limerick Racecourse

Factors influencing legume growth

What is N fixation?

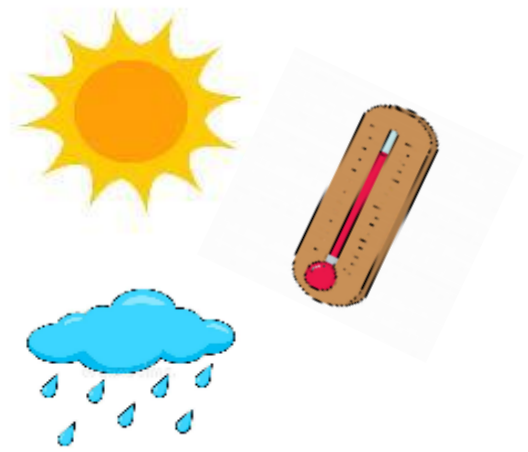
- Conversion of atmospheric N into a plant usable form (ammonia)
- Symbiotic relationship between soil rhizobia and clover



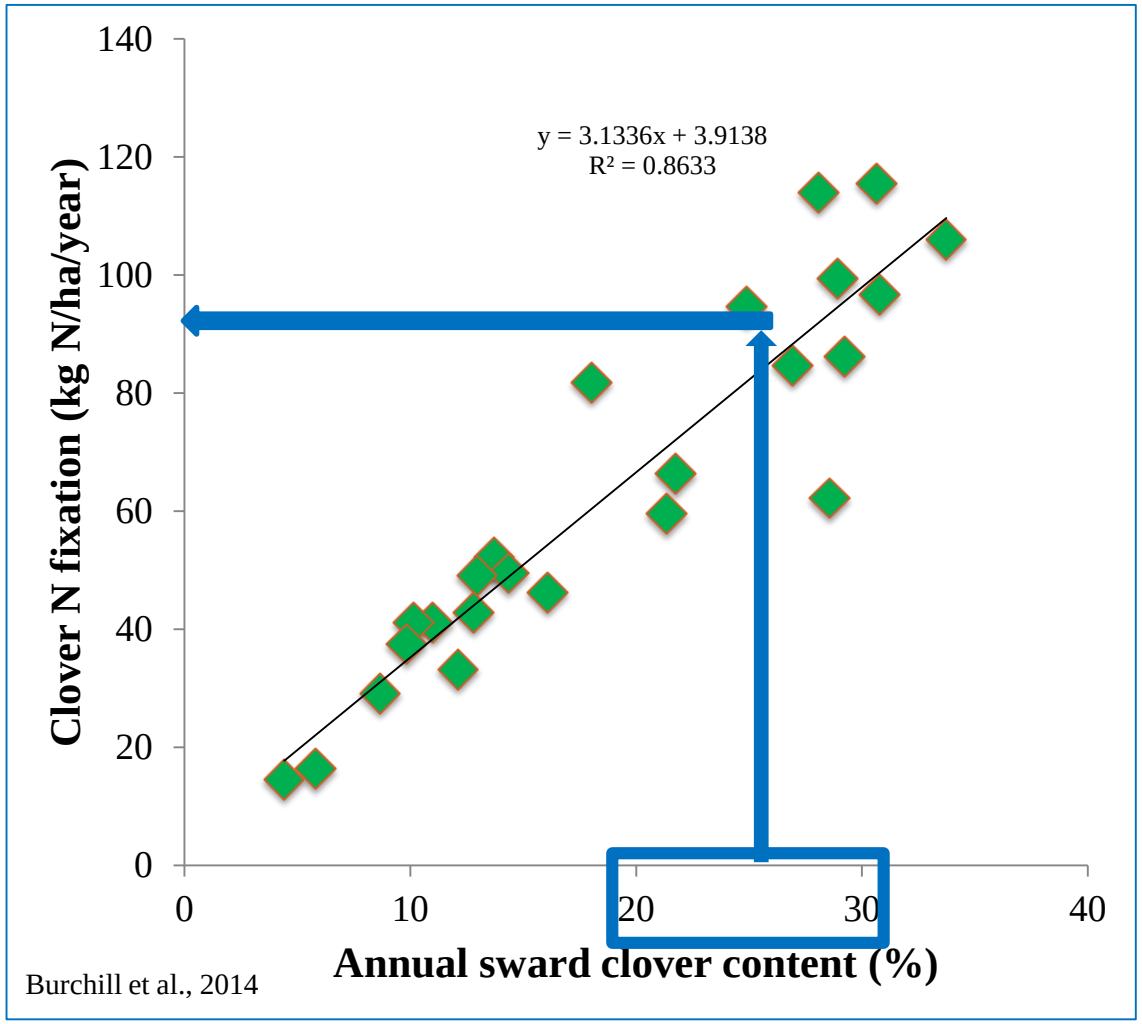
What is mineralisation?

- Conversion of organic N from manure, organic matter and crop residues into a plant usable form (ammonia)
- Biological process using microbes

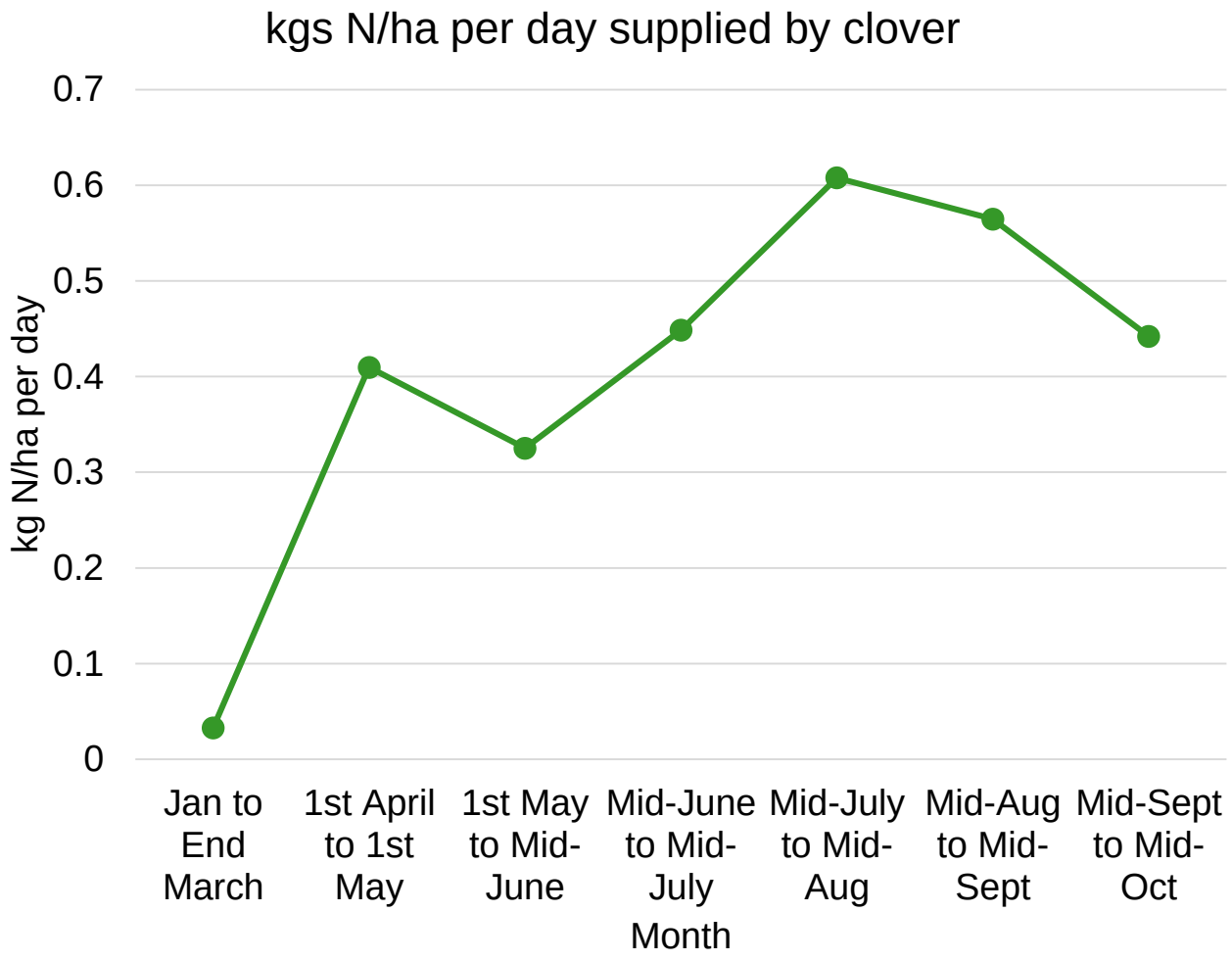
What influences it?



Importance of sward clover content



Burchill et al., 2014



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2024 – Zero chemical N - what happened?

3 year average (2021-2023)	Grass	Grass Clover	
Total Herbage Harvested (kg DM/Ha)	7,682	10,166	-
Total N Yield (kg N/Ha)	185	284	99

2024	Grass	Grass Clover	Kg N fixed
Total Herbage Harvested (kg DM/Ha)	6,048	7,256	-
Total N Yield (kg N/Ha)	152	203	51

- 22% reduction in mineralisation in 2024
- 53% reduction in fixation in 2024
  - Murray et al. unpublished

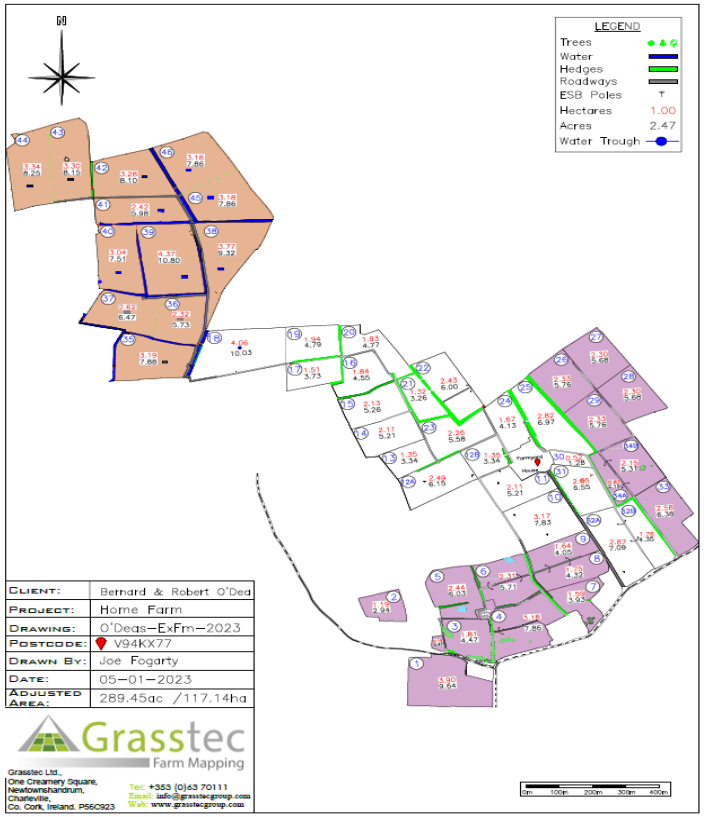
Clover150 study

Objectives

1. Maintain herbage production > 14 T DM/ha
2. Reduce N fertiliser - < 150 kg N/ha
3. Reduced N surplus - < 130 kg N/ha and NUE to >40%
4. Increase clover content - >20%
5. Maintain farm feed self-sufficiency

O'Deas

- In a partnership with brother Bernard and his son Denis since 2020
- Historically both of us ran a dairy/beef enterprise until abolition of milk quotas
- Milking 261 cows
- Milking block 117 ha – 79 ha owned and 38 ha rented
  - 16 ha outside block
- Stocking rate - MP - 2.47 and WF 2.35
- 50% very good dry land - 50% heavy type soil
- All replacements kept
- Main goal is to run a low cost, high profit grass based system



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Establishment Blueprint

	Target area reseeded (%)	Target area over-sown (%)	Target total Area (%)
Year 1	10%	≤15%	25%
Year 2	10%	≤15%	50%
Year 3	10%	≤15%	75%
Year 4	10%	≤15%	100%
Year 5+	On-going process		

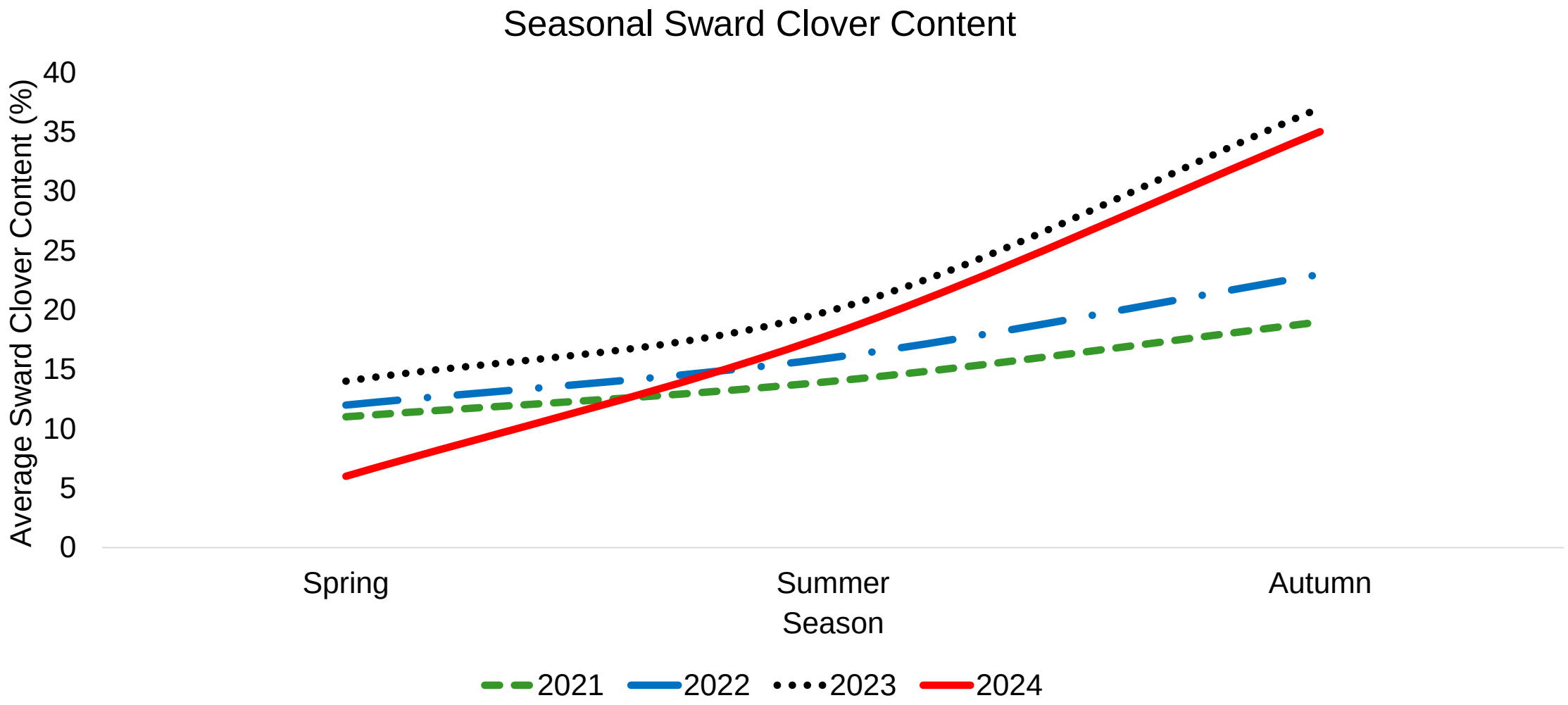
Performance of reseeded and oversown paddocks in the establishment year

	Reseeded	Oversown
Dry matter Yield (t DM/ha)	9.9 (Year 2 -13.5)	13.2
Clover Content	19%	18%
N fertiliser (kg N/ha)	125	156

Group Average 2020 - 2024

Year	Average clover %	Average area %	Annual tonnage	N (kg N/ha)	N surplus
2020	<10%	*10%*	**14.4**	232	**194**
2021	12%	*45%*	**14.1**	206	**175**
2022	17%	*61%*	**13.2**	159	**137**
2023	23%	*65%*	**12.9**	156	**140**
2024	20%	*75%*	**12.8*(YTD)**	*182*	-

Yearly and Seasonal Variation



O’Dea Performance 2020 - 2024

Year	Average clover %	Average area %	Annual tonnage	N (kg N/ha)	N surplus
2020	8%	10%	15.6	234	195
2021	14%	33%	12.1	171	146
2022	19%	45%	12.7	137	98
2023	21%	55%	13.5	126	110
2024	24%	64%	13.9*(YTD)	187	-

Nitrogen strategy for clover %

April Clover content (%)	Feb	Mar	April	May (2 rot)	June (2 rot)	July (2 rot)	Aug	Sept	Total
	Chemical Fertiliser (kg N/ha)								
Grass sward	24	36	20	32	28	28	21	23	212
5%	20	35	20	20	20	20	20	20	175
10%	20	35	20	15	15	10	15	20	150
15%	20	35	20	15	10	*SW	10	20	130
20%	20	35	20	15	SW	SW	SW	15	105

- *Soiled water used whenever zero chemical N application
- +25kg organic N applied

Preparing for high clover contents in 2025

Late grazing of grass clover paddocks	• **Avoid carrying heavy covers on clover paddocks** • **Reduce affect stolon development** • **Light to the base of the sward key to stolon development & high clover contents**
Take a full set of soil samples this winter	• **High soil fertility index 3 & 4 for P & K and >6.5 soil pH** • **Identify low index paddocks and put a nutrient management plan in place**
Early grazing of clover paddocks in late February 2025	• **Early grazing of clover paddocks (1st March)** • **Minimise damage – prioritize grazing in a favorable weather week** • **Apply Protected Urea (30 kg N/ha) and slurry @ 2500g/ac – increase spring growth**
Identify paddocks for reseeding & over-sowing	• **Review PastureBase data for your farm during winter 2024** • **Identify paddocks to reseed and over-sow next year**