



Plenary 3 - Agroforestry Innovation and Farmer Engagement

*Increasing tree cover on Irish dairy and drystock farms:
Main barriers and perceptions that impede agroforestry uptake*

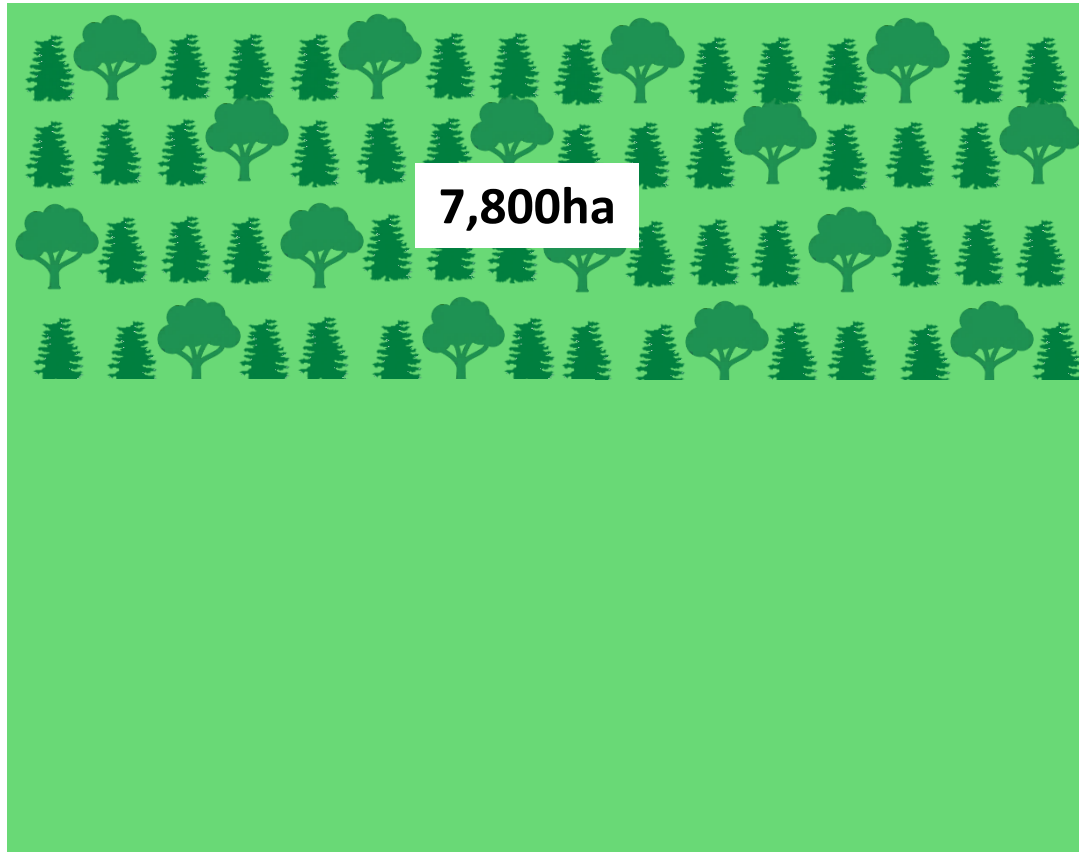
Rachel Irwin, Aine Ni Dhubhain, Ian Short, Mohammad Mohammadrezaei

Overall objectives of the PhD research project

1. Impacts of incorporating agroforestry practices, such as small woodlands, on dairy and drystock farms
2. Collate information on the management of existing and the establishment of new trees
3. Investigate farmer attitudes, perceptions and willingness to plant trees and adopt agroforestry practices (*Study 1 & 2*)
4. Determine the effectiveness of the current Irish Agroforestry Innovation System Network in facilitating the transition towards heightened agroforestry adoption and identify any evident structural and functional failures (*Study 3*)
5. Identify methods to break down the barriers identified in order to increase agroforestry adoption and tree planting on farms

Importance of the research

Afforestation in Ireland



Grant/Premium Category (GPC) 11 (FT8)



Importance of Study

GPC	1 st Grant Ha	2 nd Grant Ha	Additional fencing Allocation (IS436) 140m/Ha	Total Grant Available Ha
GPC 1 – Unenclosed	€1,605	€535	€600	€2,740
GPC 2 – Sitka spruce / Lodgepole pine	€2,330	€775	€600	€3,705
GPC 3 – 10% Diverse Conifer e.g. Sitka spruce and 10% broadleaves	€2,410	€805	€600	€3,815
GPC 4 – Diverse Conifer e.g., Scots pine, Douglas Fir	€2,785	€925	€600	€4,310
GPC 5 – Broadleaf e.g. sycamore	€3,960	€1,320	€600	€5,880
GPC 6 – Oak	€4,215	€1,405	€600	€6,220
GPC 7 – Beech	€4,215	€1,405	€600	€6,220
GPC 8 – Alder and Birch	€2,695	€900	€600	€4,195
GPC 9 – Native Woodland Establishment (oak-birch-holly-hazel)	€4,215	€1,405	€600	€6,220
GPC 10 – Native Woodland Establishment (alder-oak woodland)	€3,960	€1,320	€600	€5,880
GPC 11 – Agro-forestry	€4,215	€1,405	€600	€6,220
GPC 12 – Forestry-for-Fibre	€2,410	€805	€600	€3,815

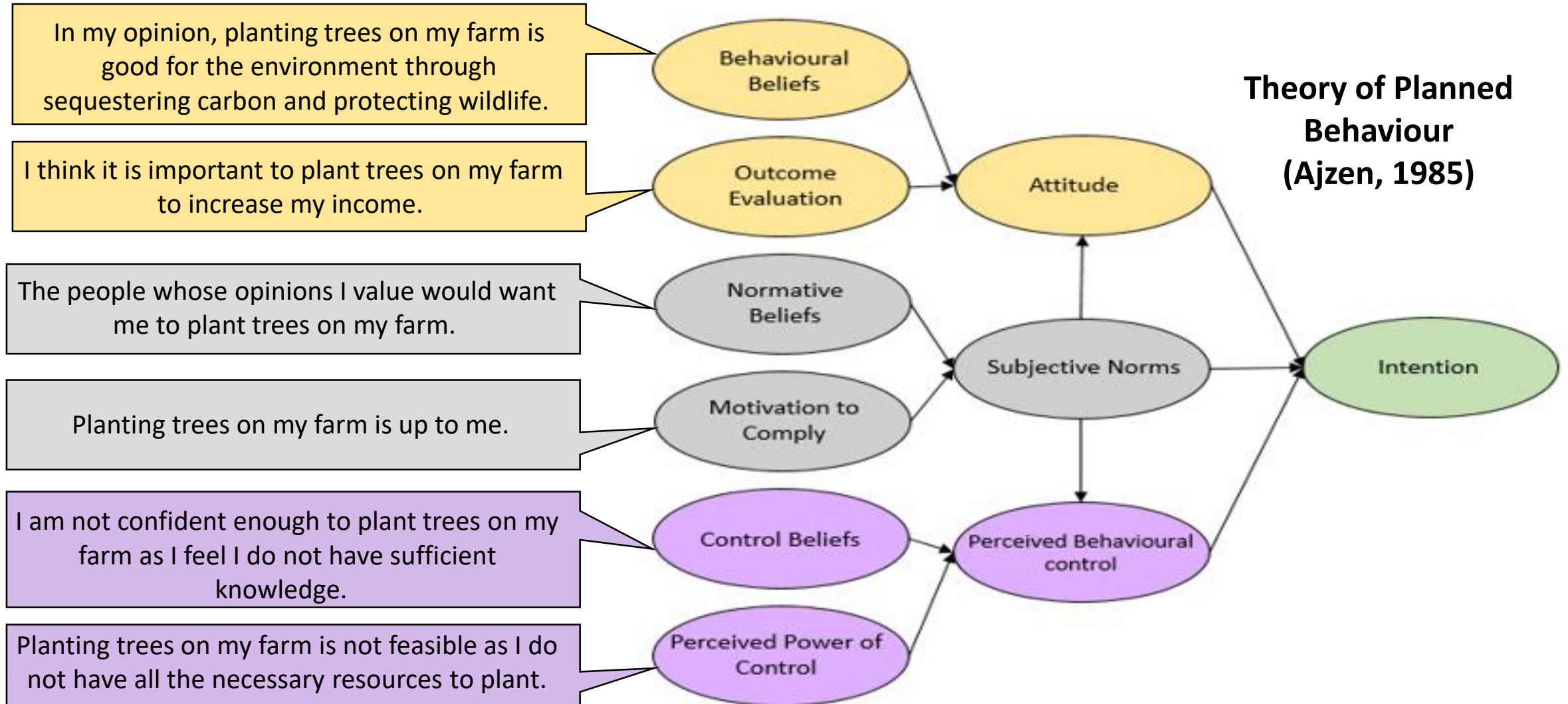
Forest Type	Grant Rates (excluding fencing)		Premium Payments				
	Current Grant/ha	Proposed Grant/ha	Current Premiums/ha	Proposed Annual Premium/ha	Current Number of Premiums	Proposed Number of Premiums for Non-Farmers	Proposed Number of Premiums for Farmers
FT1 Native Forests	€5,620	€6,744	€665	€1,103	15	15	20
FT2 Forests for Water*	New	€6,744	New	€1,142	New	15	20
FT3 Forests on Public Lands**	€9,920	€11,044	n/a	n/a	n/a	n/a	n/a
FT4 NeighbourWoods***	€8,800	€10,200	New	€1,142	New	15	20
FT5 Emergent Forests	New	€2,500	New	€350	New	15	20
FT6 Broadleaf, mainly oak	€5,620	€6,744	€645	€1,037	15	15	20
FT7 Other Broadleaf	€2,500	€4,214	€605	€975	15	15	20
FT8 Agroforestry	€5,620	€8,555	€645	€975	5	10	10
FT9 Seed Orchards	New	€10,000	New	€1,142	New	15	20
FT10 Continuous Cover Forestry	New	€5,421	New	€912	New	15	20
FT11 Mixed High Forests: Conifer, 20% broadleaves	€3,710	€4,452	€590	€863	15	15	20
FT12 Mixed High Forests with mainly spruce, 20% broadleaves	€3,215	€3,858	€510	€746	15	15	20

Native Tree Area Scheme will be paid at FT1 and FT2 rates. Premiums will be paid over 10 years rather than 20 at a rate of €2,206 per ha annually for NTA1 and €2,284 per ha annually for NTA2

* Additional payment of €1,000 per ha will be paid to landowner on completion of planting
 ** Grant includes Trails, Seats & Signage Facilities and Derelict Site payment
 *** Grant includes Facilities payment

€€€€€ x uptake

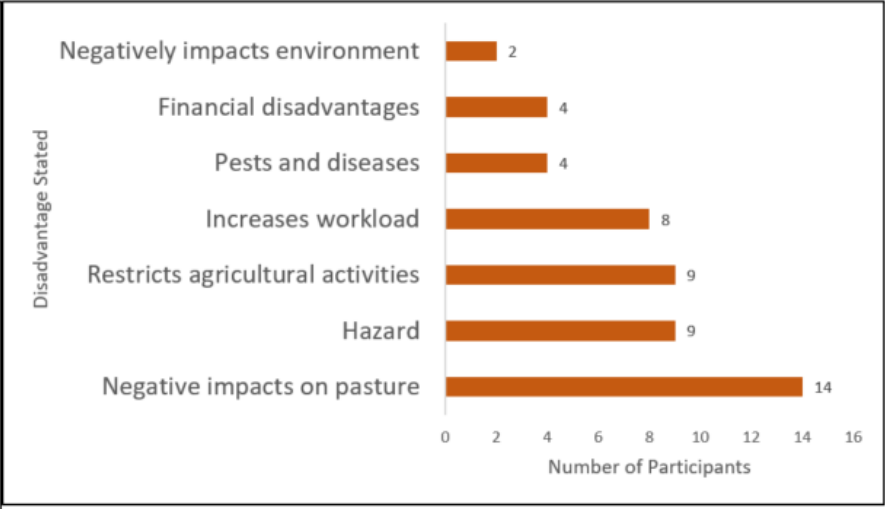
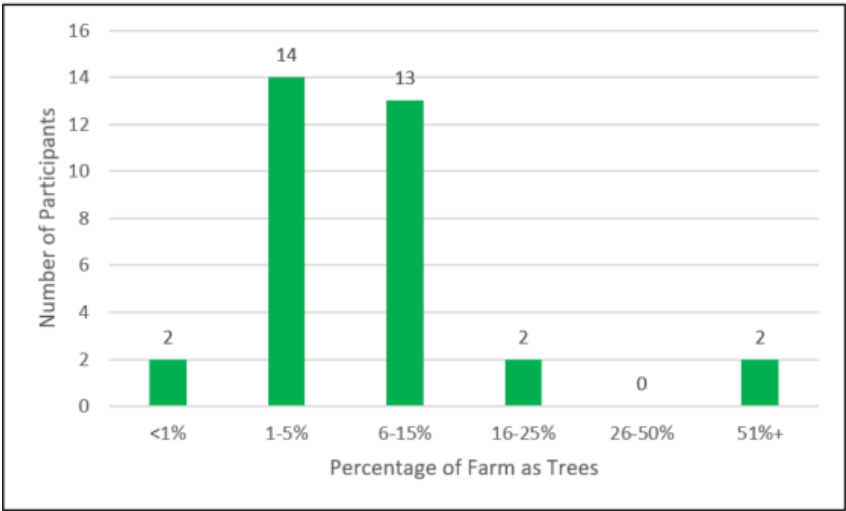
Study 1 & 2: Methodology – Theoretical framework



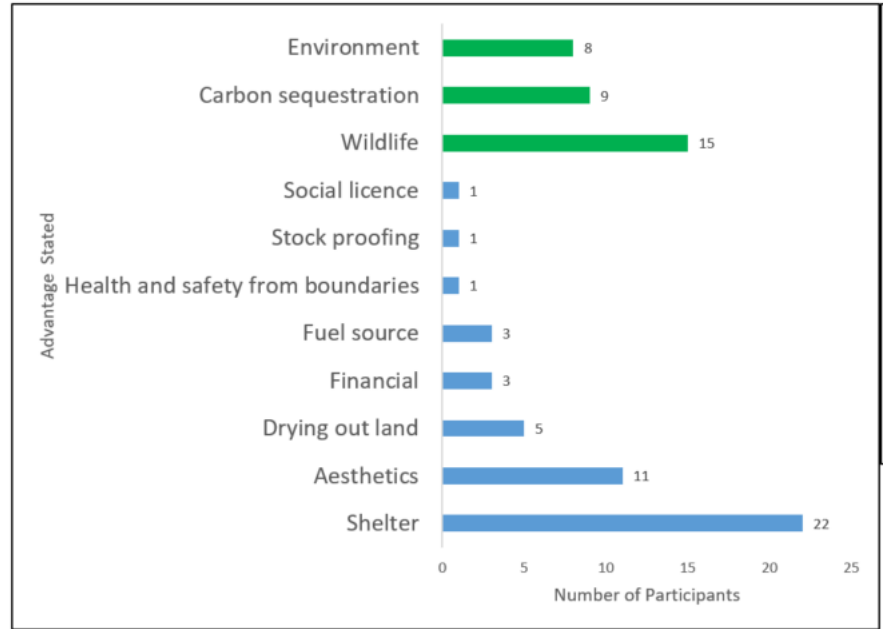
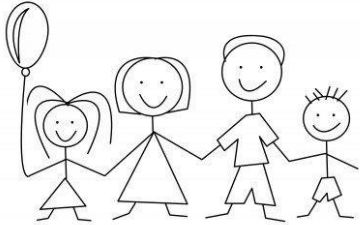
Study 1 Results

Major barriers cited:

- Lack of knowledge
- Requirement to replant
- Financial barriers
- Location constraints
- Terminology



Top five influential people/ organisations:



(Irwin et al., 2022)

Study 1 Results

Perceived Behavioural Control:

Question	Theme	Frequency (n)	Percentage (%)
Knowledge of planting trees	No	18	55
	Yes	15	45
Knowledge of managing trees	No	18	55
	Yes	13	39
	Hedgerows yes but not other trees	2	6
Planting successful	Yes	33	100
Confidence	Yes	32	97
	Yes for hedgerows	1	3

Intention to plant trees:

- Yes = 82%

Beneficial area:

- Linear boundaries
- Low output pasture
- Corner of field

Question	Theme	Frequency (n)	Percentage (%)	
Do you intent to plant trees on your farm in the next five years?	Yes	13	39	
	Yes, but only hedgerows	12	36	
	No	6	18	
	Yes, but only replacing felled trees	2	6	
Where do you believe would be the most beneficial area for you to plant trees on your farm?	Linear boundaries	Along field boundaries	15	45
		Riparian buffer strip	3	9
		As windbreak	1	3
	Low output pasture	Least profitable part of farm	9	27
		Wetter soil	8	24
	Corner of field	Marginal land	7	21
			7	21

(Irwin et al., 2022)

Study 2 Methodology

Quantitative Study: Online questionnaire

- Advertised via a number of publications and at the Moorepark Open Day
- Dairy and drystock farmers (n = 415)
- SPSS and SmartPLS

Have your say on trees

In recent years, there has been increased emphasis on the multiple values of trees on farms. MGo Walsh Scholar Raohel Irwin is conducting an online survey of dairy and drystock farmers' perceptions of, and attitudes towards, trees on farms.

The results of this study will be collated and analysed to aid policy and help create guidelines for policy makers.

To anonymously complete the survey, please either scan the QR code with your smartphone or go to <https://tinyurl.com/#kj3n85z>.



Pippa Hackett @pippa_hackett

Teagasc researchers are conducting a survey to analyse farmers' perceptions of, attitudes towards, and willingness to plant small [#Woodlands](https://tinyurl.com/wp2pvjxf) on farms (tinyurl.com/wp2pvjxf) [#FarmlandTrees](https://twitter.com/FarmlandTrees)

Please complete the survey here: tinyurl.com/2vt6r9a9



Results to Date

Subjective Norms - Influential People (Likert scale)

1. Family -> 79% (n = 314)
2. Teagasc -> 68% (n = 268)
3. Other farmers -> 59% (n = 234)

Table 1: Influential person or organisations scored 5 and above.

Influential person or organisation	Frequency (n)	Percentage (%)
Family	314	79
Teagasc	268	68
Other farmers	234	59
Close friends	212	54
Policy makers	160	41
Forestry company	158	40
Newspaper articles	116	29
Neighbours	104	26
Vet	55	14
Social media	53	13

Note: Participants could select one or more options.

(Irwin et al., 2023)

Results to Date

Intentions – Locations of trees (Likert scale)

1. Along field boundaries -> 71% (n = 281)
2. On marginal land -> 39% (n = 156)
3. Along watercourses -> 27% (n = 107)

Table 2: Intention to plant trees

Intention to plant trees	Frequency (n)	Percentage (%)
Along field boundaries	281	71
On marginal land	156	39
Along watercourses	107	27
In a block plantation	86	22
Scattered in pasture	83	21
Around houses or sheds	77	19
No intention to plant trees on my farm in the next five years	42	11

Notes: Participants could select one or more options.

(Irwin et al., 2023)

Results to Date

Knowledge of Agroforestry

- Scattered managed trees in pasture (64%)
- Trees planted in a linear format to provide a windbreak or shelterbelt (41%)
- Trees within hedgerows (29%)

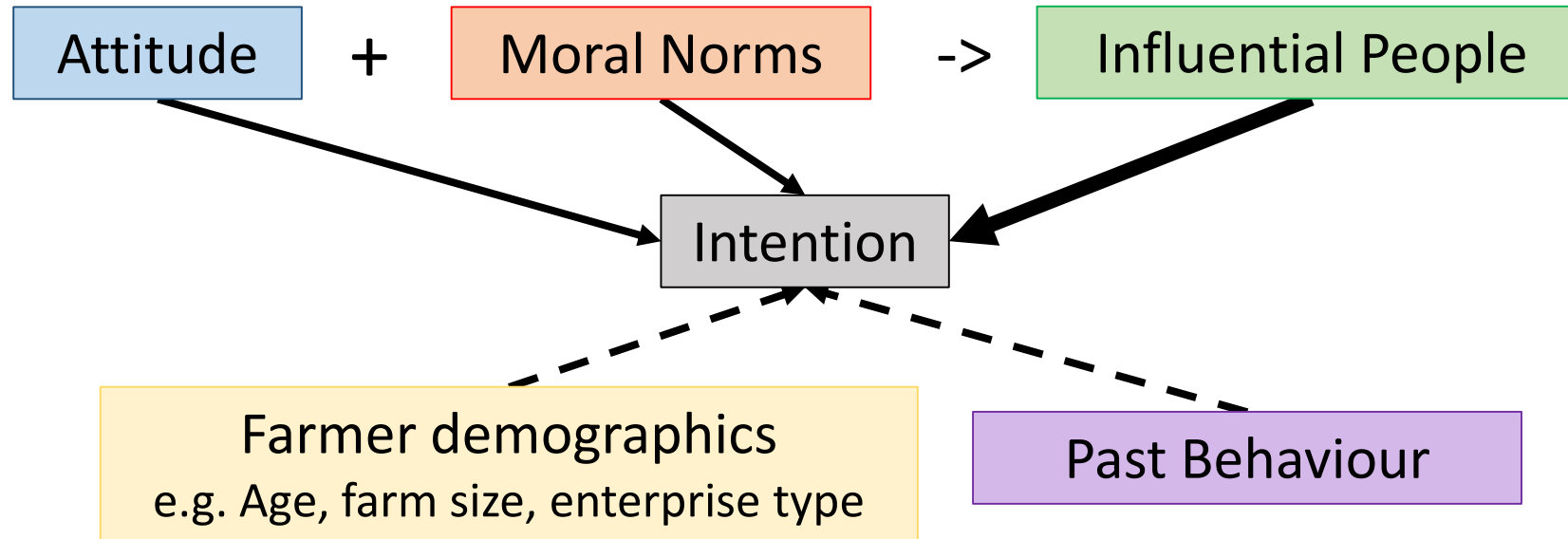
Table 3: Statements relating to participants perceptions of agroforestry

Statement	Frequency (n)	Percentage (%)
Scattered managed trees within pasture.	252	64
Trees planted in a linear format to provide a windbreak or shelterbelt.	162	41
Trees within hedgerows.	116	29
Trees planted along a watercourse such as a river or stream.	95	24
Naturally occurring trees that are present within an agricultural context that are neither managed nor part of the farm.	82	21
Trees in a plantation forest where livestock are omitted and only timber is harvested.	76	19
Scattered unmanaged trees within pasture.	44	11
None of the above	9	2

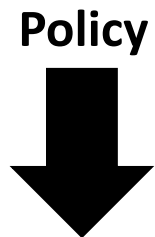
Notes: Participants could select one or more options.

(Irwin et al., 2023)

Overview of Main Findings (Study 1 & 2)



Current Method:



Top-Down + Focused on economic incentives

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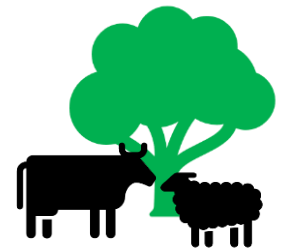


New Method:

Promotion by influential people

+ Co-design/ co-creative systems

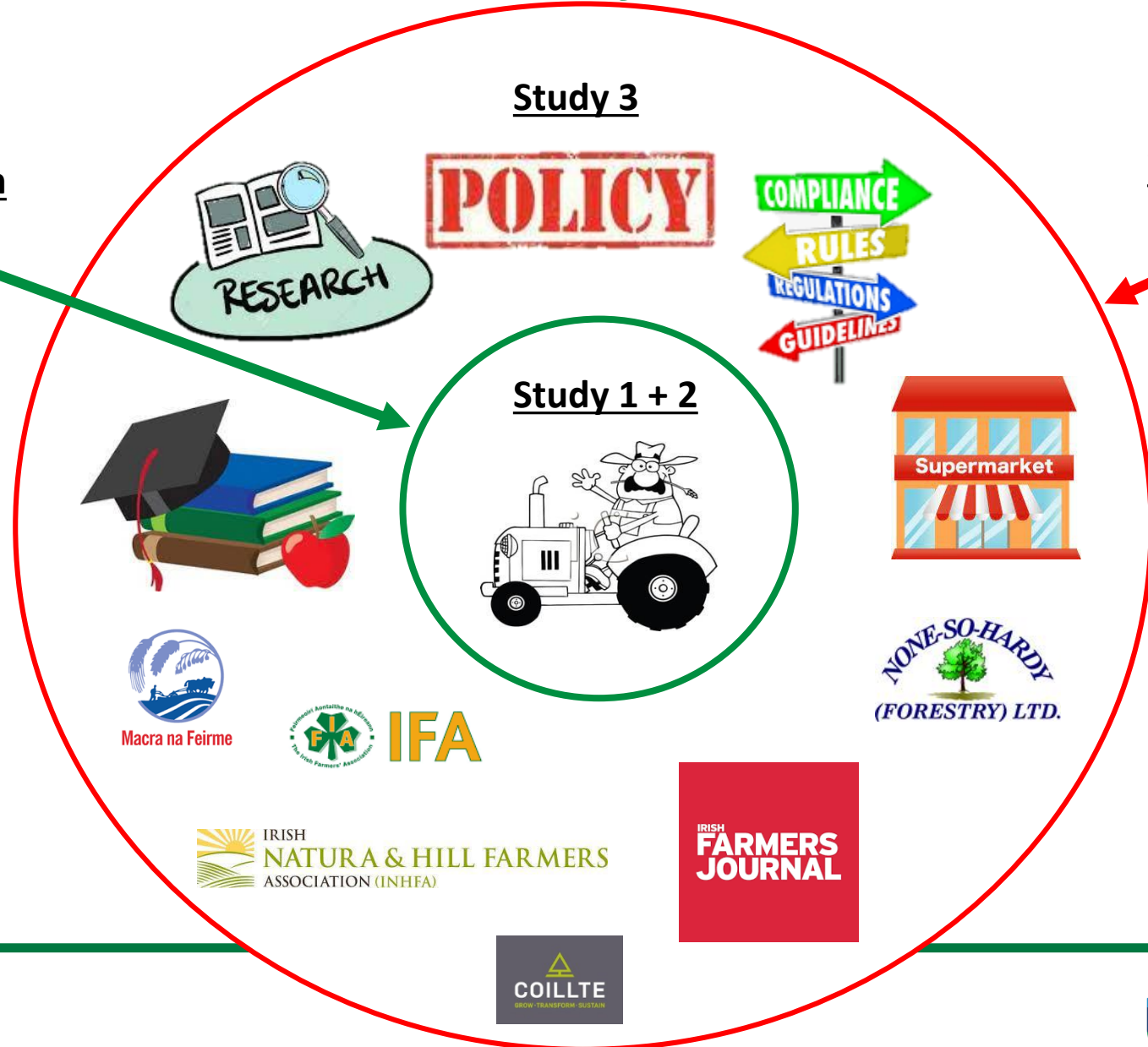
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Study 3

Farmer focused approach

Wider sector approach

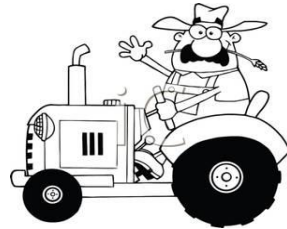


Study 3

POLICY

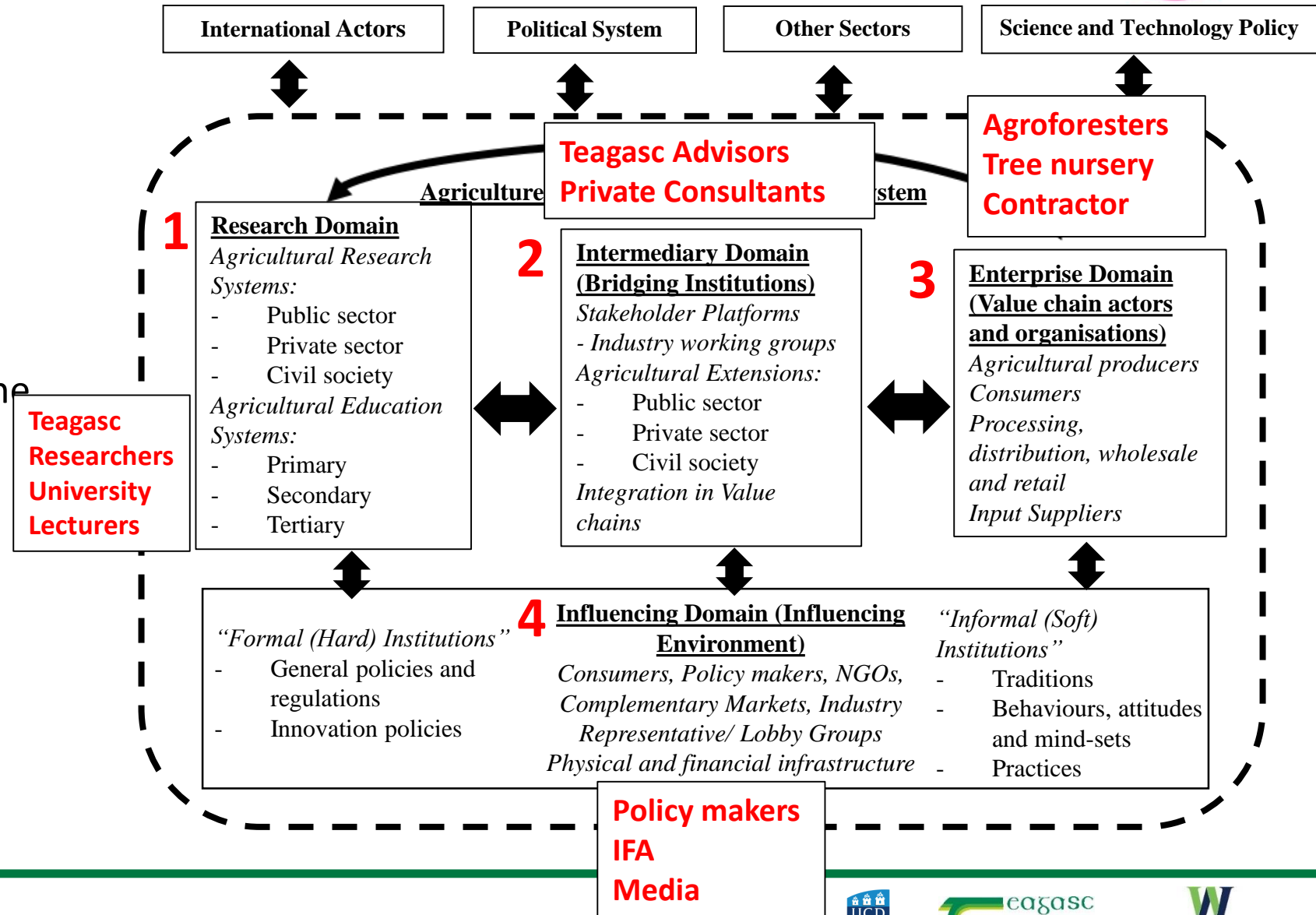


Study 1 + 2

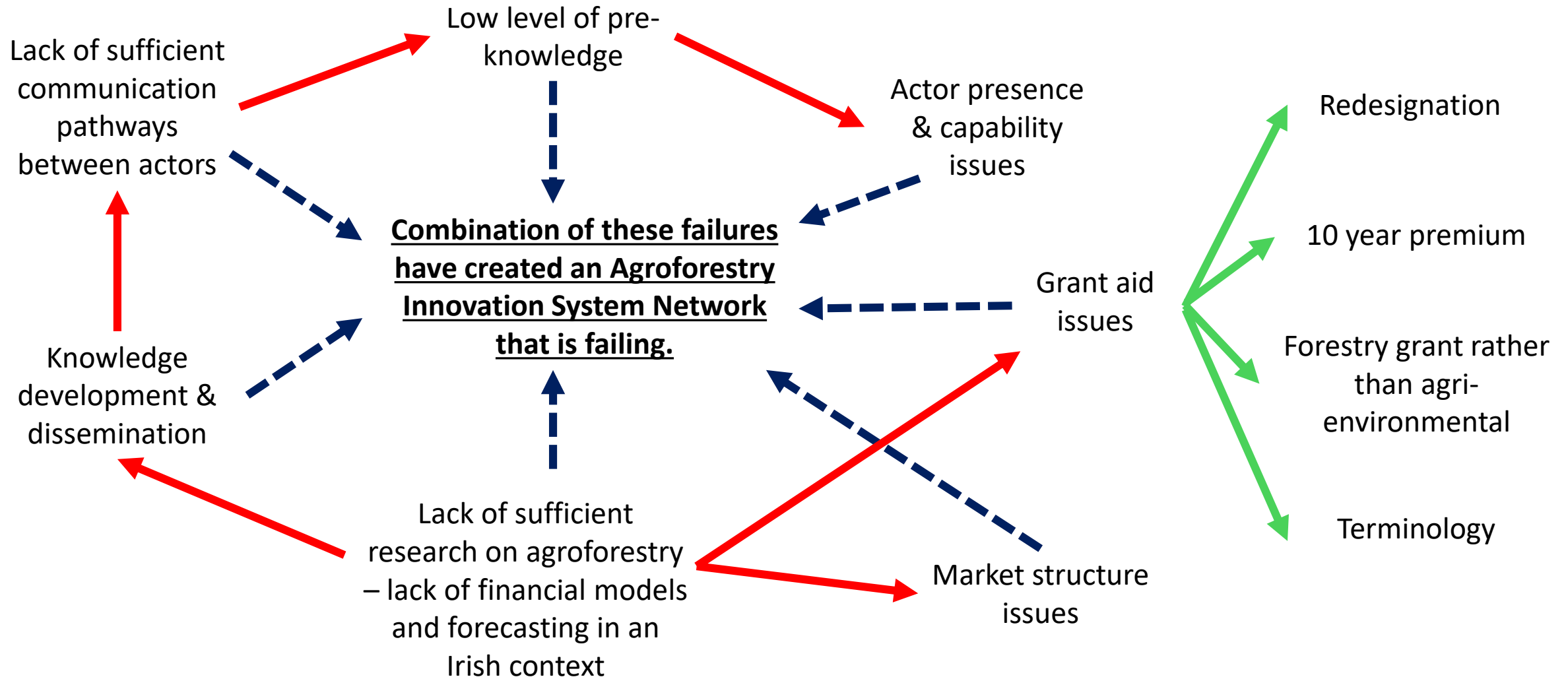


Innovation System Approach

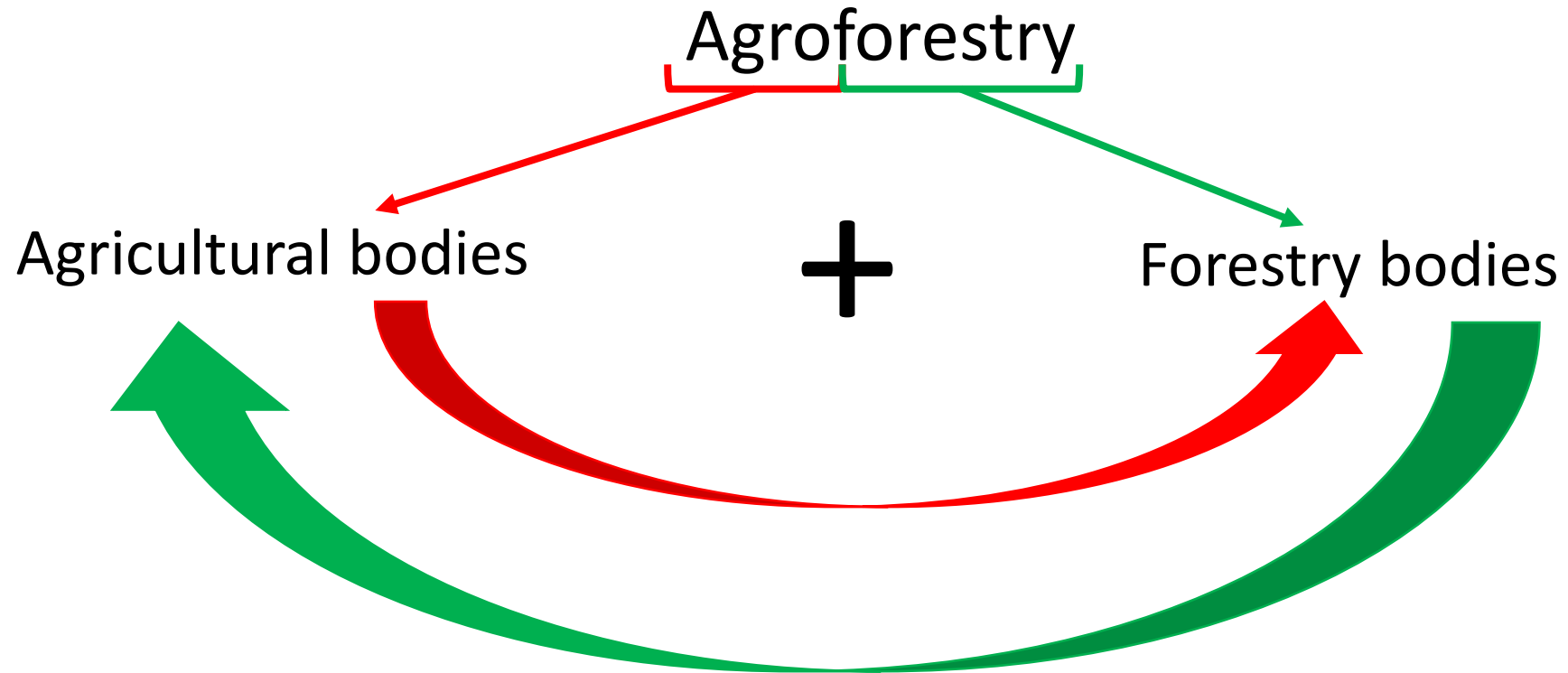
- Wider sector approach
- Failures within the innovation system = blocking mechanisms
- Coupled structural – functional Analysis
- Qualitative analysis: interviews with key actors within each of the four domains:
 - Research Domain
 - Intermediary Domain
 - Enterprise Domain
 - Influencing Domain
- Actors interviewed = 33



Study 3: Main blocking mechanisms



Study 3: Main blocking mechanisms



What needs to change

- ❑ Agricultural and forestry bodies need to **both** take responsibility

- ❑ Proposed **nine goals** which include:
 - ✓ Increase communication and participation amongst actors within and between each domain
 - ✓ Reduce the over-dependence on agricultural advisors to transfer knowledge to farmers
 - ✓ Grant aid amendments
 - ✓ Increase promotion and awareness of agroforestry including peer-to-peer learning and on-site training days
 - ✓ Create new financial models for agroforestry and increase forecasting

- ❑ **Next Stage:** Propose methods to reach these goals through engagement with members of the Irish Agroforestry Forum

Thank You

- Link to project website:
 - <https://www.teagasc.ie/crops/forestry/research/small-woodlands-on-farms/>
- Rachel Irwin
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