SIL FORE

DELIVERABLE D5.3 – ANALYSIS OF STAKEHOLDERS' OPINIONS TO ADDRESS NON-TECHNICAL BARRIERS

07/28/2025

NEIKER

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Objectives

The general objective of the SILFORE project is to increase the resilience of Atlantic and Sub-Atlantic agroforestry systems in the context of climate change through strategies linked to the multifunctional use of land and the promotion of functional (species-level) and landscape biodiversity, by combining different silvopastoral management practices.

This deliverable aims to understand the current perception of silvopastoral practices by the agricultural sector in the northwest of the Iberian Peninsula. Specific objectives include: (i) identifying the challenges faced by individuals interested in establishing silvopastoral systems, (ii) gathering the perceived advantages and disadvantages of silvopastoral practices, and (iii) identifying the most suitable livestock species, all to support the design of strategies that promote its implementation.

Materials and Methods

Survey

The study used a cross-sectional, non-experimental survey design. Data collection was conducted through a questionnaire designed and approved by all project partners (Annex I). The survey was distributed mainly online via the platform EncuestaFacil (https://www.encuestafacil.com/), except in Portugal where it was conducted entirely in person. The questionnaire contained 80 questions, with various response types: closed (either dichotomous or with multiple options), Likert scale (0 to 5, e.g., 0 = "strongly inadvisable" to 5 = "strongly advisable," or "not suitable" to "very suitable"), and open-ended text fields.

The 80 questions were grouped into blocks:

- Block A: Personal data
- Block B: Familiarity with silvopastoralism
- Block C: Suitability of silvopastoralism
- Block D: Suitable livestock for silvopastoral systems
- Block E: Evolution of silvopastoralism
- Block F: Ecosystem services of silvopastoralism
- Block G: Personal experience with silvopastoralism

In general, it was observed that respondents gradually abandoned the questionnaires as they progressed through them, suggesting that the survey was too long and dense. Additionally, the online format may have discouraged completion for some users, and in certain cases, an in-person approach may have been more effective.

Participants

The survey was distributed to individuals from various fields related to agriculture, including forestry, livestock, environmental, and administrative sectors, to capture the broadest range of perspectives on silvopastoralism.

Distribution began after the LIFE Silfore project launch event on December 5th, 2023, in Orozko (Donibane Aretoa) and ended on May 31st, 2024.

A minimum of 60 surveys per region was agreed upon, with equitable distribution across activities: 15 forestry, 15 livestock, 15 environmental, and 15 other (e.g., education, administration, research). In total, 256 surveys were collected, distributed as follows:

Region	Number of surveys
Trás-os –Montes (Portugal)	60
Galicia	63
Asturias	64
Basque Country	69
TOTAL	**256**

"Activity" refers to the respondent's work area or interest within the agricultural sector, with possible multiple selections: "Forestry," "Livestock," "Environmental," and "Other" (including research, rural development, veterinary practice, and other agricultural activities). "Profession" reflects the respondent's professional role, with options: "Owner," "Technician," "Manager," and "Other." For practical purposes, "Technician" and "Manager" were merged into a single category, resulting in three professional groups: "Owner," "Technician-Manager," and "Other" (primarily educators, researchers, political and administrative staff). "Age" was categorized into: "<18 years," "18–34 years," "35–54 years," "55–64 years," and ">64 years." "Gender" options included: "Non-binary," "Male," "Female," and "Unspecified"; due to only one unspecified and no non-binary respondents, gender analysis was limited to "Male" and "Female."

Across the 256 surveys, the most common profile was that of a male aged 35–54. While gender trends were consistent across all four regions, age varied: respondents in Trás-os-Montes and Galicia were mostly 35–54, whereas in Asturias and especially in Euskadi, the 55–64 age group was more prevalent.

Global (4 regions)

Age					Gender			
≤18	18-34	35-54	55-64	>64	Nonbinary	Male	Female	Unspecified
0 (0,00%)	41 (16.02%)	123 (48.05%)	75 (29.30%)	17 (6.64%)	0 (0,00%)	173 (67.58%)	75 (29.30%)	8 (3.13%)

Trás-os-Montes

Age					Gender			
≤18	18-34	35-54	55-64	>64	Nonbinary	Male	Female	Unspecified
0 (0.00%)	16 (26.67%)	31 (51.67%)	11 (18.33%)	2 (3.33%)	0 (0.00%)	49 (81.67%)	11 (18.33%)	0 (0.00%)

Galicia

Age					Gender			
≤18	18-34	35-54	55-64	>64	Nonbinary	Male	Female	Unspecified
0 (0.00%)	15 (23.81%)	36 (57.14%)	10 (15.87%)	2 (3.17%)	0 (0.00%)	41 (65.08%)	22 (34.92%)	0 (0.00%)

Asturias

Age					Gender			
≤18	18-34	35-54	55-64	>64	Nonbinary	Male	Female	Unspecified
0 (0.00%)	5 (7.81%)	26 (40.63%)	23 (35.94%)	10 (15.63%)	0 (0.00%)	38 (59.38%)	19 (29.69%)	7 (10.94%)

Basque Country

Age					Gender			
≤18	18-34	35-54	55-64	>64	Nonbinary	Male	Female	Unspecified
0 (0.00%)	5 (7.25%)	30 (43.48%)	31 (44.96%)	3 (4.35%)	0 (0.00%)	45 (65.22%)	23 (33.33%)	1 (1.45%)

Regarding activity, environmental profiles were underrepresented (18.75%), while the remaining categories were balanced. By region, Trás-os-Montes (Portugal) showed balanced activity distribution without multiple responses. In Galicia, livestock dominated (53.95%); in Asturias, "Other" was most common (42.19%); and in Euskadi, forestry was predominant (37.68%).

"Technician-Manager" was the most represented professional group overall (55.47%) and within each region.

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Statistical Analysis

Initially, chi-square tests were planned for each questionnaire block to test for significant relationships between variables (activity, profession, age, and gender) and other responses. Analyses were conducted using SPSS 24. Due to low and inconsistent significance values, these results are shown in Annex II without interpretation.

Statistical analysis then focused on the Kruskal-Wallis test using data from all four regions.

To improve data handling, Likert scale variables were recoded into binary levels as follows:

- Block B: Responses 0–1 grouped as 0 = "Few," 2–3 as 1 = "Many" (B2, B3, B5, B6)
- Block C: 0–2 = 0 = "Inadvisable," 3–5 = 1 = "Advisable" (C1–C16)
- Block D: 0–2 = 0 = "Unsuitable," 3–5 = 1 = "Suitable" (D1–D6)
- Block F: 0–2 = 0 = "Disagree," 3–5 = 1 = "Agree" (D1–D6)
- Block G: 0–2 = 0 = "Not interesting," 3–5 = 1 = "Interesting" (G3)

Open-ended responses, and variables A_plan, A_gan, and E13–E18 (Annex I) were excluded due to low relevance.

Results

BLOCK B

Do you think that silvopastoralism is a common and well-established practice in the rural areas of your autonomous community?									
Asturias		Basque Country		Galicia		Trás-os Montes		Total	
NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
30 (46.8)	34 (53.1)	30 (43.4)	39 (56.5)	28 (44.4)	35 (55.5)	12 (20)	48 (80)	100 (39.0)	156 (60.9)

Do you know of any real-life experiences and/or research and rural development projects related to the practice of silvopastoralism in your autonomous community?						
		Asturias	Basque Country	Galicia	Trás-os-Montes	Total
Real-life experiences	No	16 (25)	22 (31.8)	12 (19.3)	40 (66.6)	90 (35.2)
	A few (1 to 2)	28 (43.7)	34 (49.2)	20 (32.2)	6 (10)	88 (34.5)
	Some (3 to 6)	20 (31.2)	7 (10.1)	18 (29.0)	13 (21.6)	58 (22.7)
	Many (more than 6)		6 (8.69)	12 (19.3)	1 (1.66)	19 (7.45)
Research and rural development projects	No	16 (25)	27 (39.1)	15 (24.1)	28 (46.6)	86 (33.7)
	A few (1 to 2)	30 (46.8)	30 (43.4)	23 (37.0)	7 (11.6)	90 (35.2)
	Some (3 to 6)	18 (28.1)	8 (11.5)	12 (19.3)	24 (40)	62 (24.3)
	Many (more than 6)		4 (5.79)	12 (19.3)	1 (1.66)	17 (6.66)

Do you know of any experiences in other regions outside your autonomous community?						
		Asturias	Basque Country	Galicia	Tras-os-Montes	Total
Real-life experiences	No	29 (45.3)	51 (73.9)	33 (53.2)	43 (71.6)	156 (61.1)
	A few (1 to 2)	24 (37.5)	13 (18.8)	15 (24.1)	7 (11.6)	59 (23.1)
	Some (3 to 6)	11 (17.1)	4 (5.79)	9 (14.5)	9 (15)	33 (12.9)
	Many (more than 6)		1 (1.44)	5 (8.06)	1 (1.66)	7 (2.74)
Research and rural development projects	No	29 (45.3)	43 (62.3)	31 (50)	37 (61.6)	140 (54.9)
	A few (1 to 2)	21 (32.8)	17 (24.6)	17 (27.4)	7 (11.6)	62 (24.3)
	Some (3 to 6)	14 (21.8)	6 (8.69)	10 (16.1)	15 (25)	45 (17.6)
	Many (more than 6)		3 (4.34)	4 (6.45)	1 (1.66)	8 (3.13)

In Block B, 60.9% of respondents considered silvopastoralism a common and well-established practice in their region, compared to 39.0% who did not. However, when asked about actual experiences or R&D projects in their area, only 6.66% reported knowing of more than six. When asked about other regions, most respondents were unaware of any (61.1% for real experiences, 54.9% for R&D projects).

In conclusion, knowledge of silvopastoral practices is limited or nonexistent, likely due to its scarce presence in rural areas. LIFE SILFORE aims to highlight and expand this practice, leveraging its perceived sociocultural value among different stakeholder groups.

BLOCK C

Under what circumstances would you consider this practice highly advisable? And in which ones would you consider it inadvisable?		
Circumstances	Acceptable	Inadvisable
Rustic breeds	227 (93.0)	17 (6.96)
Broadleaf forests	191 (78.2)	53 (21.7)
Conservation of native breeds	227 (92.6)	18 (7.34)
Conservation of endangered breeds	215 (87.7)	30 (12.2)
Conservation of wild flora/fauna	193 (78.7)	52 (21.2)
Conservation of agricultural landscapes	221 (90.2)	24 (9.79)
Firebreaks	235 (95.5)	11 (4.47)
Other crops such as olive groves, almond orchards...	177 (72.5)	67 (27.4)
Steep slopes	184 (75.1)	61 (24.8)
Young forest plantations	99 (40.4)	146 (59.5)
Mature forest plantations	207 (84.8)	37 (15.1)
Fire prevention	238 (97.1)	7 (2.85)
Understory with high biomass	209 (85.3)	36 (14.6)
Abandoned areas (with shrubs and/or small trees)	216 (87.8)	30 (12.1)
Areas with wolf presence	104 (42.4)	141 (57.5)
Recently burned areas	118 (48.1)	127 (51.8)

Out of 16 scenarios assessed for silvopastoral advisability, many were marked as advisable (in green). Two key areas stood out:

- Fire prevention (97.1%) and firebreaks (95.5%)
- Rustic breeds (93.6%) and native breed conservation (92.6%)

In young forest plantations and recently burned areas, differences emerged by activity type: forestry respondents found these scenarios inadvisable (32.9% and 33.6%, respectively), while livestock respondents considered them advisable (32.7% and 36.6%). These differences highlight the need to demonstrate good practices in silvopastoral systems to support their broader adoption.

Under what circumstances would you consider this practice highly advisable? And in which ones would you consider it inadvisable?. Young forest plantations				
	Forestry	**Livestock**	**Environmental**	**Others**
Acceptable	24.5	32.7	18.2	24.5
Inadvisable	32.9	26.8	20.1	20.1

Under what circumstances would you consider this practice highly advisable? And in which ones would you consider it inadvisable?. Recently burned areas				
	Forestry	**Livestock**	**Environmental**	**Others**
Acceptable	25.2	36.6	16.0	22.1
Inadvisable	33.6	22.4	22.4	21.7

BLOCK D

Which livestock species do you consider most suitable for silvopastoral management?		
	Suitable	Unsuitable
Poultry (chickens, ducks, geese)	93 (38.2)	150 (61.7)
Goats	217 (89.3)	26 (10.6)
Horses	212 (87.2)	31 (12.7)
Sheep	223 (91.7)	20 (8.23)
Pigs	169 (69.5)	74 (30.4)
Cattle	210 (86.4)	33 (13.5)

Which livestock species do you consider most suitable for silvopastoral management?								
	Asturias		**Basque Country**		**Galicia**		**Trás-os-Montes**	
	Suitable	Unsuitable	Suitable	Unsuitable	Suitable	Unsuitable	Suitable	Unsuitable
Poultry (chickens, ducks, geese)	24 (38.7)	38 (61.2)	23 (38.3)	37 (61.6)	23 (37.7)	38 (62.2)	23 (38.3)	37 (61.6)
Goats	53 (85.4)	9 (14.5)	47 (78.3)	13 (21.6)	57 (93.4)	4 (6.55)	60 (100)	(0)
Horses	53 (85.4)	9 (14.5)	56 (93.3)	4 (6.66)	56 (91.8)	5 (8.19)	47 (78.3)	13 (21.6)
Sheep	56 (90.3)	6 (9.67)	53 (88.3)	7 (11.6)	54 (88.5)	7 (11.4)	60 (100)	(0)
Pigs	40 (64.5)	22 (35.4)	35 (58.3)	25 (41.6)	43 (70.4)	18 (29.5)	51 (85)	9 (15)
Cattle	43 (69.3)	19 (30.6)	54 (90)	6 (10)	56 (91.8)	5 (8.19)	57 (95)	3 (5)

All livestock species were considered suitable except for poultry, which was significantly marked as unsuitable. Among the rest, pigs had the highest "unsuitable" response rate (30.4%), while sheep were considered the most "suitable" (91.7%). Regional and species-based differences included:

- Goats: Suitability declined from west to east: Portugal (100%), Galicia (93.4%), Asturias (85.4%), Euskadi (78.3%)
- Pigs: Considered least suitable across all regions, except in Portugal, where horses ranked lowest (21.6%)
- Cattle: Generally well-regarded across regions (Euskadi 90%, Galicia 91.8%, Trás-os-Montes 95%), except in Asturias (69.3%)

These findings highlight the ecological and socioeconomic diversity across regions and the importance of context in designing silvopastoral systems.

BLOCK E

Compared to the past (20 years ago), do you think that the practice of silvopastoralism is currently more or less developed, in terms of the number of farms?		Total	
		More developed	Less developed
Regarding the livestock	Cattle	69 (29.4)	165 (70.5)
	Sheeps	79 (33.7)	155 (66.2)
	Horses	68 (29.1)	165 (70.8)
	Goats	77 (33.0)	156 (66.9)
	Pigs	75 (32.0)	159 (67.9)
	Poultry (chickens, ducks, geese)	41 (17.6)	191 (82.3)
Regarding the forest cover	Pine forest	84 (36.0)	149 (63.9)
	Beech forest	35 (20.5)	135 (79.4)
	Oak forest	85 (36.6)	147 (63.3)
	Apple orchard	47 (27.3)	125 (72.6)
	Chestnut grove	107 (46.3)	124 (53.6)
	Shrublands	126 (54.0)	107 (45.9)
	Cork oak	51 (85)	9 (15)
	Holm oak	40 (66.6)	20 (33.3)

Significant responses in Block E were mostly about livestock. Except for sheep, respondents believed silvopastoralism is less developed today than 20 years ago. This aligns with Block B findings on the lack of local practices. Key contributing factors cited include: abandonment of livestock activities, low profitability, depopulation, aging, and the shift to more productive breeds (mainly cattle). These reflect broader trends in the decline of agricultural activities.

BLOCK F

Statements about silvopastoralism		
	Agree	Disagree
Supports the maintenance of biodiversity	215 (94.2)	13 (5.70)
Helps with pest control	183 (80.2)	45 (19.7)
Helps in adapting to climate change	205 (89.9)	23 (10.0)
Helps in expanding the land base	190 (83.3)	38 (16.6)
Contributes to the conservation of the natural environment	219 (96.0)	9 (3.94)
Contributes to the regulation of the water cycle	190 (83.7)	37 (16.2)
Contributes to landscape maintenance and recreation	215 (94.2)	13 (5.70)
Makes management and handling more difficult	117 (51.3)	111 (48.6)
Diversifies economic income	201 (88.1)	27 (11.8)
Is of interest for wildfire prevention	220 (96.4)	8 (3.50)
Is a good option for the conservation of native breeds	217 (95.1)	11 (4.82)
Is an economically relevant practice in your region	159 (69.7)	69 (30.2)
Causes forest damage	111 (48.6)	117 (51.3)
Causes soil damage (erosion, compaction, etc.)	103 (45.1)	125 (54.8)

Statements about silvopastoralism	Asturias		Basque Country		Galicia		Trás-os-Montes	
	Agree	Disagree	Agree	Disagree	Agree	Disagree	Agree	Disagree
Supports the maintenance of biodiversity	54 (88.5)	7 (11.4)	45 (93.7)	3 (6.25)	57 (96.6)	2 (3.38)	59 (98.3)	1 (1.66)
Helps with pest control	45 (73.7)	16 (26.2)	37 (77.0)	11 (22.9)	49 (83.0)	10 (16.9)	52 (86.6)	8 (13.3)
Helps in adapting to climate change	49 (80.3)	12 (19.6)	42 (87.5)	6 (12.5)	59 (100)	(0)	55 (91.6)	5 (8.33)
Helps in expanding the land base	47 (77.0)	14 (22.9)	39 (81.2)	9 (18.7)	53 (89.8)	6 (10.1)	51 (85)	9 (15)
Contributes to the conservation of the natural environment	57 (93.4)	4 (6.55)	45 (93.7)	3 (6.25)	59 (100)	(0)	58 (96.6)	2 (3.33)
Contributes to the regulation of the water cycle	45 (73.7)	16 (26.2)	37 (77.0)	11 (22.9)	56 (96.5)	2 (3.44)	52 (86.6)	8 (13.3)
Contributes to landscape maintenance and recreation	57 (93.4)	4 (6.55)	45 (93.7)	3 (6.25)	58 (98.3)	1 (1.69)	55 (91.6)	5 (8.33)
Makes management and handling more difficult	29 (47.5)	32 (52.4)	32 (66.6)	16 (33.3)	37 (62.7)	22 (37.2)	19 (31.6)	41 (68.3)
Diversifies economic income	54 (88.5)	7 (11.4)	38 (79.1)	10 (20.8)	55 (93.2)	4 (6.77)	54 (90)	6 (10)
Is of interest for wildfire prevention	56 (91.8)	5 (8.19)	46 (95.8)	2 (4.16)	59 (100)	(0)	59 (98.3)	1 (1.66)
Is a good option for the conservation of native breeds	57 (93.4)	4 (6.55)	44 (91.6)	4 (8.33)	58 (98.3)	1 (1.69)	58 (96.6)	2 (3.33)
Is an economically relevant practice in your region	42 (68.8)	19 (31.1)	31 (64.5)	17 (35.4)	43 (72.8)	16 (27.1)	43 (71.6)	17 (28.3)
Causes forest damage	28 (45.9)	33 (54.0)	27 (56.2)	21 (43.7)	25 (42.3)	34 (57.6)	31 (51.6)	29 (48.3)
Causes soil damage (erosion. compaction. etc.)	17 (27.8)	44 (72.1)	23 (47.9)	25 (52.0)	22 (37.2)	37 (62.7)	41 (68.3)	19 (31.6)

Most survey statements about silvopastoralism received "agree" responses, indicating recognition of its environmental and socioeconomic benefits. Three statements lacked statistical significance:

- Increases management complexity
- Causes forest damage
- Causes soil damage (erosion, compaction, etc.)

Statements about silvopastoralism. Makes management and handling more difficult				
	Forestry	**Livestock**	**Environmental**	**Others**
Agree	29.3	34.6	18.0	18.0
Disagree	27.0	24.6	28.9	29.5

Statements about silvopastoralism. Causes forest damage				
	Forestry	**Livestock**	**Environmental**	**Others**
Agree	34.4	25.0	20.3	20.3
Disagree	22.0	34.6	16.5	26.8

Statements about silvopastoralism. Causes soil damage (erosion, compaction, etc.)				
	Forestry	**Livestock**	**Environmental**	**Others**
Agree	50.0	36.0	51.9	41.7
Disagree	50.0	64.0	48.1	58.3

Both forestry and livestock respondents agreed on increased management complexity, while "Other" respondents disagreed. Regarding forest damage, forestry respondents agreed (34.4%) and livestock respondents disagreed (34.6%). For soil damage, livestock and "Other" disagreed, while forestry and environmental responses were evenly split.

BLOCK G

Have you encountered any difficulties in developing a silvopastoralism practice or experience?									
Asturias		Basque Country		Galicia		Trás-os-Montes		Total	
NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
34 (57.6)	25 (42.3)	25 (52.0)	23 (47.9)	36 (64.2)	20 (35.7)	22 (36.6)	38 (63.3)	117 (52.5)	106 (47.5)

If you answered yes, what kind of projects?					
	Asturias	Basque Country	Galicia	Trás-os-Montes	Total
Administration (bureaucracy, lack of technical knowledge...)	16 (28.0)	14 (22.9)	14 (24.5)	26 (23.6)	70 (24.5)
Conservation of the natural environment	1 (1.75)	6 (9.83)	2 (3.50)	3 (2.72)	12 (4.21)
Costs (various expenses)	12 (21.0)	7 (11.4)	6 (10.5)	22 (20)	47 (16.4)
Forestry	5 (8.77)	14 (22.9)	9 (15.7)	10 (9.09)	38 (13.3)
Livestock-related	6 (10.5)	6 (9.83)	7 (12.2)	4 (3.63)	23 (8.07)
Other uses: hunting, sports...	2 (3.50)	1 (1.63)	1 (1.75)	2 (1.81)	6 (2.10)
Product selling prices	7 (12.2)	5 (8.19)	4 (7.01)	23 (20.9)	39 (13.6)
Land ownership	8 (14.0)	8 (13.1)	14 (24.5)	20 (18.1)	50 (17.5)

Do you consider it important to develop research and rural development projects that help advance the practice of silvopastoralism?									
Asturias		Basque Country		Galicia		Trás-os-Montes		Total	
Interesting	Not interesting	Interesting	Not interesting	Interesting	Not interesting	Interesting	Not interesting	Interesting	Not interesting
56 (94,9)	3 (5,08)	43 (89,5)	5 (10,4)	56 (96,5)	2 (3,44)	59 (98,3)	1 (1,66)	214 (95,1)	11 (4,9)

Responses were evenly split on personal experience difficulties: 52.5% said no difficulties, 47.5% said yes. Among those with difficulties, administrative issues (bureaucracy, lack of technical knowledge) were most common and consistent across regions. Other issues varied by region:

- Euskadi: Forestry-related difficulties
- Asturias and Galicia: Land ownership
- Trás-os-Montes: Product selling prices

Across all regions, 95.1% of respondents considered research and rural development projects that promote silvopastoralism to be of interest.

Conclusions

In general, all respondents consider silvopastoral activity to be common and well-established in the rural areas of their region. However, they also unanimously agree that, compared to the past, this activity is currently less developed.
The main reasons cited include: abandonment of livestock activity, low economic profitability, depopulation, and aging—factors that also explain the overall decline of agricultural activity.

Knowledge of real-life experiences and/or rural development and research projects related to silvopastoralism within their own region is low, and even lower for other regions. It is expected that this situation will improve after the LIFE SILFORE project, benefiting all involved stakeholders.

Among the scenarios where this practice is considered advisable, fire control ranks first, followed by the conservation of hardy and native livestock breeds.

The ecosystem services provided by silvopastoral systems are positively recognized by all respondents.

All livestock species were considered suitable for silvopastoral practices, except for poultry. Among the remaining species, pigs were rated the least suitable—except in Portugal, where horses were. Regarding goats, suitability ratings vary by region, from highest to lowest: Portugal (100%), Galicia (93%), Asturias (85%), and Euskadi (78%).

Among the challenges reported in implementing silvopastoral practices, administrative issues (bureaucracy, lack of technical knowledge) were identified as the most significant. Two areas in need of further analysis by LIFE SILFORE include:
i) Management complexity, as noted by both forestry and livestock sectors, and
ii) Perceived forest damage, where forestry and livestock stakeholders gave opposing responses.

Silvopastoralism is considered to be of economic interest, as is the development of research and rural development projects that support its advancement.

A socio-ecological approach to designing and implementing silvopastoral systems is essential to ensuring their success.

LIFE SILFORE aims to provide the technical knowledge necessary to support both public administrations and end users (forestry and livestock sectors), in order to promote and expand silvopastoralism as an opportunity to design resilient landscapes in the face of climate change.

Annexe I. Survey

The purposes of this survey, which is ANONYMOUS and CONFIDENTIAL, are solely for SCIENTIFIC-TECHNICAL purposes: to diagnose the current situation and design lines of work aimed at promoting and disseminating the role of silvopastoralism as a tool for promoting rural economic development and environmental conservation. It will take you less than 15 minutes to complete, and your contribution will be of great help to us. Feel free to share it with other people in your autonomous community who are familiar with the practice of silvopastoralism to increase its dissemination. We thank you in advance for your interest and time!

https://www.encuestafacil.com/respweb/cuestionarios.aspx?EID=2884351

BLOCK A. PERSONAL DATA					
1. Age		**2) Sex**		**3) Gender**	
<18 años		Man		Male	
18 - 34 years		Women		Female	
35 - 54 years				Nonbinary	
55 - 64 years					
>64 years					

2. Check the sections you consider part of your PROFESSIONAL ACTIVITY AND/OR LEISURE			
4) Activity		**5) Profession**	
Forestry		Owner	
Livestock		Technician	
Environmental		Manager	
Other (specify)		Other (specify)	

6) Autonomous community of residence	

3.Type of plantation and livestock			
7) Type of plantation		**8) Type of livestock**	
Chestnut grove		Cattle	
Oak forest		Sheeps	
Pine forest		Horses	
Mixed (species)		Goats	
Shrublands		Pigs	
Apple orchard		Poultry	
Other (specify)		Other (specify)	

BLOCK B. Familiarity with silvopastoralism			
9) Do you think that silvopastoralism is a common and well-established practice in the rural areas of your autonomous community?			
YES		No	

Do you know of any real-life experiences and/or research and rural development projects related to the practice of silvopastoralism in your autonomous community?			
10) Real-life experiences		**11) Research and rural development projects**	
No		No	
A few (1 to 2)		A few (1 to 2)	
Some (3 to 6)		Some (3 to 6)	
Many (more than 6)		Many (more than 6)	

12) If you answered yes, what is, or was, the ownership of the mountain?			
Public		RN2000	
Private		Other (specify)	
Collective(CMVMC, associations…)			

Do you know of any experiences in other regions outside your autonomous community?

13) Real-life experiences	
No	
A few (1 to 2)	
Some (3 to 6)	
Many (more than 6)	

14) Research and rural development projects	
No	
A few (1 to 2)	
Some (3 to 6)	
Many (more than 6)	

BLOCK C. Suitability of silvopastoralism

Under what circumstances would you consider this practice highly advisable? And in which ones would you consider it inadvisable? Rate between 0 and 5, where 0 = highly inadvisable/not at all

	0	1	2	3	4	5
15) Understory with high biomass						
16) Conservation of native breeds						
17) Conservation of agricultural landscapes						
18) Mature forest plantations						
19) Fire prevention						
20)Firebreaks						
21)Abandoned areas (shrublands and/or small trees)						
22) Broadleaf forests						
23) Rustic animals/breeds						
24)Conservation of endangered breeds						
25) Conservation of wild flora/fauna						
26) Young forest plantations						
27) Steep slopes						
28) Recently burned areas						
29) Areas with wolf presence						
30) Other crops such as olive groves, almond orchards…						
31) Other (specify)						

BLOCK D. Suitable livestock for silvopastoral systems						
Which livestock species do you consider most suitable for silvopastoral management? (Rate from 0 = not suitable at all to 5 = highest score/very suitable).						
	0	1	2	3	4	5
32) Cattle						
33) Sheep						
34) Horses						
35) Goats						
36) Pigs						
37) Poultry (chickens, ducks, geese)						

Which breeds do you consider most suitable for silvopasture in each type of livestock?	
38) Cattle	
39) Sheep	
40) Horses	
41) Goats	
42) Pigs	
43) Poultry (chickens, ducks, geese)	

BLOCK E. Evolution of silvopastoralism		
Compared to the past (20 years ago), do you think that the practice of silvopastoralism is currently more or less developed, in terms of the number of farms?		
REGARDING LIVESTOCK	MORE DEVELOPED	LESS DEVELOPED
44) Cattle		
45) Sheep		
46) Horses		
47) Goats		
48) Pigs		
49) Poultry (chickens, ducks, geese)		
REGARDING FOREST COVER	MORE DEVELOPED	LESS DEVELOPED
50) Pine forest (type)		
51) Beech forest		
52) Oak forest		
53) Apple orchard		
54) Chestnut grove		
55) Shrublands		

In the previous question, what factors or circumstances do you think may have determined these differences?

	56) Cattle	**57) Sheep**	**58) Horses**	**59) Goats**	**60) Pigs**	**61) Poultry**
Intensification of livestock activity						
Abandonment of livestock activity						
Shift to more productive livestock breeds						
Forest management						
Economic profitability						
Land availability						
Administration (regulations, support, etc.)						
Depopulation, aging						
Training, knowledge						
Social perception						
Presence of predators						
Other uses: hunting, recreation, etc.						
Other						

BLOCK F. Ecosystem services of silvopastoralism						
	0	1	2	3	4	5
62) Is an economically relevant practice in your region						
63) Contributes to the conservation of the natural environme						
64) Is a good option for the conservation of native breeds						
65) Is of interest for wildfire prevention						
66) Supports the maintenance of biodiversity						
67) Helps in adapting to climate change						
68) Contributes to the regulation of the water cycle						
69) Diversifies economic income						
70) Helps in expanding the land base						
71) Contributes to landscape maintenance and recreation						
72) Helps with pest control						
73) Causes forest damage						
74) Causes soil damage (erosion. compaction. etc.)						
75) Makes management and handling more difficult						
76) Others (positive or negative)						

BLOCK G. Personal experience with silvopastoralism			
77) Have you encountered any difficulties in developing a silvopastoralism practice or experience?			
YES		No	

78) If you answered yes, what kind of projects?	
Forestry	
Livestock-related	
Land ownership	
Conservation of the natural environment	
Administration (bureaucracy, lack of technical knowledge…)	
Costs (various expenses)	
Product selling prices	
Other uses: hunting, sports…	
Others (specify)	

79. Do you consider it important to develop research and rural development projects that help advance the practice of silvopastoralism? Please rate with a cross where appropriate (0 = not at all/not interesting; 5 = maximum score/very interesting)						
	0	1	2	3	4	5

80. What other proposals/ideas/suggestions would you propose to advance the practice of silvopastoralism?

Annexe II. Results of the X^2 analysis in each block of the survey

ASTURIAS

	Block B						Block C																Block D						Block E												Block F												Block G									
	1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	G1	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	G3
Activity Forestry	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
A. Livestock	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	s	ns	ns
A.Environmental	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	s	s	ns	ns	ns
A.Others	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	s	s	ns	ns	ns
Profession Owner	ns	s	s	ns	s	s	s	ns	ns	ns	ns	ns	ns	s	s	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
P.Tech-manager	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	s	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
P. Others	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	s	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Age	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	s	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns
Gender	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	s	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns

BASQUE COUNTRY

	Block B						Block C																Block D						Block E												Block F												Block G									
	1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	G1	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	G3
Activity Forestry	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	s	ns	ns	s	s	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	s	ns	ns	ns	ns	ns
A. Livestock	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
A.Environmental	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	s	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
A.Others	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Profession Owner	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns
P.Tech-manager	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns
P. Others	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	s	s	ns	ns	ns	ns	ns	ns	ns	ns
Age	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Gender	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	s	ns	ns	s	ns	ns	ns	ns	s	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns

GALICIA

	Block B						Block C																Block D						Block E												Block F												Block G									
	1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	G1	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	G3
Activity Forestry	ns	S	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	S	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns
A. Livestock	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	S	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	bns	ns	ns	ns	s	s	ns	ns	ns	ns
A.Environmental	ns	ns	ns	ns	S	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns
A.Others	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	S	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns
Profession Owner	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
P.Tech-manager	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
P. Others	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Age	ns	ns	S	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	S	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	S	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Gender	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	S	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	S	ns	ns	S	ns	ns	ns	ns	ns	ns	ns

TRAS-OS-MONTES

	Block B						Block C																Block D						Block E												Block F												Block G									
	1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	G1	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	G3
Activity Forestry	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns
A. Livestock	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns
A.Environmental	ns	s	s	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
A.Others	s	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	s	ns	ns	ns	ns	ns	ns	s	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	s	s	ns	s	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns
Profession Owner	ns	s	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	s	s	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	s	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
P.Tech-manager	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	s	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
P. Others	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	s	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	s	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns
Age	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	s	ns	ns	ns	s	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	s	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Gender	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	s	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns