ADDITIONAL MATERIAL

Appendix 1

Table 1: List of studies included/excluded in review with reasons for exclusion

	Study Citation	Included/ Excluded	Reasons for exclusion
1.	Hasler et al., 2019	Included	
2.	Wainwright et al., 2019	Included	
3.	Rodríguez-Entrena et al., 2019	Included	
4.	Gómez-Limón et al., 2019	Excluded	Study doesn't use CE per se, rather uses results of a CE for principal-agent model optimization
5.	Latacz-Lohmann & Breustedt, 2019	Included	
6.	Roussel et al., 2019	Included	
7.	Kanchanaroek & Aslam, 2018	Included	
8.	De Salvo et al., 2018	Included	
9.	Le Coent et al., 2017	Included	
10.	Villanueva et al., 2017	Included	
11.	Rocchi et al., 2017	Included	
12.	Rodríguez-Entrena et al., 2017	Excluded	Study focuses on visitor's perspective for improvement of the aesthetic value of landscapes in southern Spain; thus, survey participants are not farmers.
13.	Chang et al., 2017	Included	
14.	Villanueva et al., 2015b	Included	
15.	Villanueva et al., 2015a	Included	
16.	Santos et al., 2016	Included	
17.	Frida Franzén et al., 2016	Included	
18.	Pröbstl-Haider et al., 2016	Included	
19.	Kuhfuss et al., 2015	Included	
20.	Greiner, 2016	Included	
21.	Villanueva et al., 2017	Excluded	Study doesn't aim to study the farmer preferences of CE attributes and levels, rather highlights how protesters and very high takers differ from CE participants.
22.	Greiner, 2015	Included	
23.	Lienhoop & Brouwer, 2015	Included	
24.	Vedel et al., 2015	Included	
25.	Villanueva et al., 2017	Included	
26.	Breustedt et al., 2013b	Included	

27.	Breustedt et al., 2013a	Excluded	The study is not a farmer preference study, rather studies a multinomial Heckman model for contract optimization.
28.	Rodríguez-Entrena et al., 2012	Excluded	The survey respondents are the general public residing in Andalusia.
29.	Garrod et al., 2012	Excluded	Study surveys the general public across England using CE to investigate their preferences for benefits of ecosystem services across different landscapes.
30.	Broch & Vedel, 2012	Included	
31.	Christensen et al., 2011	Included	
32.	Hynes et al., 2011	Excluded	Study uses data from survey of the Irish public rather than just farmers
33.	Glenk & Colombo, 2011	Excluded	Study focuses on surveying respondents such as students, members of the wider public, agricultural experts and soil scientists for CE and thus, doesn't exclusively consider the farmers' perspectives
34.	Espinosa-Goded et al., 2010	Included	
35.	Eric Ruto & Garrod, 2009	Included	
36.	Hope et al., 2008	Included	
37.	Birol et al., 2006	Excluded	Study uses CE to estimate the private benefits farmers derive agrobiodiversity in home gardens in Hungary
38.	Christie et al., 2006	Excluded	Study respondents are the general public, and not farmers.
39.	Villamayor-Tomas et al., 2019	Included	
40.	Colombo et al., 2009	Excluded	Focus group of the study are members of the general public in North-West England.
41.	Glenk & Colombo, 2011	Excluded	Study surveys students, members of the wider public, agricultural experts, and soil scientists, and not exclusively farmers
42.	Grammatikopoulou et al., 2012	Excluded	Study includes respondents comprising of both landowners and residents without land ownership in their CE survey.
43.	Hasund et al., 2011	Excluded	Study participants were randomly selected Swedish inhabitants
44.	Rodríguez-Ortega et al., 2016	Excluded	Study targets two populations, general population and local population, but not exclusively farmers.
45.	Dupras et al., 2018	Included	
46.	Mariel & Meyerhoff, 2018	Included	
47.	Novikova et al., 2017	Excluded	Study surveys the citizens of Lithuania.

48.	Hannus et al., 2020	Included	
49.	Feng et al., 2019	Excluded	Study uses CE to test supply chain coordination among beef farmers, and doesn't study farmer's choice of AES enrolment for public goods.
50.	Novikova & Vaznonis, 2017	Excluded	Study respondents are mainly the general and the local public of the area.
51.	Star et al., 2019	Included	
52.	Rocchi et al., 2019	Excluded	Study investigates the preferences of general public for their Willingness to Pay to improve the quality of ecosystem services in Umbria
53.	Aslam et al., 2017	Included	
54.	Alló et al., 2015	Included	
55.	Novikova et al., 2015	Excluded	Study uses CE to study the attitudes of general residents of Lithuania for the maintenance of public goods and services in the countryside
56.	Domínguez-Torreiro et al., 2013	Excluded	Study respondents are mainly the general and the local public of the area.
57.	Domínguez-Torreiro & Soliño, 2011	Excluded	Study conducts a CE survey with general Cantabrian inhabitants, not exclusively farmers
58.	Hanley et al., 2007	Excluded	Study investigates the willingness of the general public to pay for public goods (like landscape features and habitats)
59.	Dupras et al., 2018	Excluded	Study was conducted with the general public

Appendix 2

Table 2: Characteristics of reviewed studies[1]

	Reference & Summary	Attribute Description	Attribute levels (X, Y)	Marginal WTA/ WTP*
1.	(Ruto & Garrod, 2009) **Study description** - Study uses CE approach to analyze farmers' preferences for key elements of an AES **Methods** - 1,247 participants and 1,015 non-participants farmers were surveyed in 10 areas across the EU - Data was analyzed using both mixed logit and latent class models **Results** - Farmers preferred • shorter contract lengths • greater flexibility over areas entered into the scheme • greater flexibility over scheme prescriptions • lower levels of paperwork	1. "Minimum length of agreement (years) 2. Flexibility over what areas of the farm are entered into the scheme 3. Flexibility over undertaking some of the measures required under the scheme 4. Average time spent on paperwork/ administration 5. Additional payment per ha"	5, 10, 20 No, Yes No, Yes Low (1-2 h), Medium (2-5 h), High (> 5 h) 5%, 10%, 20%	-1.37 9.08 6.76 -6.91 *Percentage of current payments

[1] Attributes, their description, and levels have been directly quoted from the articles. Some parts of study description have also been directly quoted.

	- Financial incentives would increase if scheme wouldn't fulfill these conditions - Respondents were divided into *'low-resistance adopters'* and *'high-resistance adopters'*; the former was more in number. - Low resistance adopters were younger and educated, had larger farm holdings. They showed positive attitudes to the conservation and were more likely to join an AES - High resistance adopters were mostly tenet farmers and would require higher incentives for participation to AES - Less restrictive schemes can be offered to the low-resistance adopters				
2.	(Espinosa-Goded et al., 2010) **Study description** - Study investigates farmers' preference for AES aimed at promoting nitrogen fixing crops in marginal dry-land areas in Spain **Methods** - Data was collected with face-to-face questionnaires in 2	"1. Flexibility over the amount of land to be enrolled in the AES" 2. "Flexibility over grazing in the land under AES" 3. "Availability of a compulsory and free of charge technical training and advisory service"	"Free, 50% eligible surface Free, Limited No, Yes	Aragon[2] 24.6 14.2 13.3	Andalusia 31.9 35.4 6.2

[2] marginal WTP estimates as a percentage of current payments

	regions in Spain (Arago´n and Andalusia) - A total of 300 responses were recorded - CE was done under 3 scenarios: one, maximizes environmental benefits (*environment*); second, attribute levels preferred by farmers (*farmer*); and third, the present situation (*current AES*) - CE was conducted using a random parameter logit model (RPL) – especially an error component random parameter logit (EC_RPL) approach **Results** - flexibility over grazing areas and amount of land enrolled in AES lowers' farmers' WTA - Fixed premium in the AES can also reduce the compensation amounts - Compulsory technical assistance and monitoring also ensures higher participation and reduces compensation - Potential savings can be up to 70% in *farmer* CE scenario	4. "Availability of a 1000 € one-off payment per contract independently of the area enrolled payable on the first year" 5. "Payment level per ha and year"	Yes, No 60, 80, 100, 120 (€/ha/year)"	37.3	20.5
3.	(Santos et al., 2015) **Study description**	"1. Area size: % of the eligible area under contract	"25%, 50%, 75%		

	- Study explores landowner preferences for different agri-environmental agreements using CE in the Portuguese *montados* - Study assess how changes in the institutional–economic terms and conditions underlying current contract design can increase the uptake of contracts in the area - CE focuses on grazing extensification and montado regeneration as contract attributes **Methods** - Study site: 5 municipalities from southeast Portugal: Barrancos, Mértola, Moura, Mourão and Serpa - Valid responses were collected from a total of 170 farmers - Questionnaire was divided into: general questions, perceptions regarding biodiversity & conservation policies, choice experiment, and farmers' demographic and socio-economic characteristics - CE was conducted using a mixed RPL model **Results** - Minimum WTA for current contract terms was found to be	2. Cattle density: number of livestock units allowed per hectare of forage area on the farm 3. Tree density: number of cork and holm oak trees per hectare on the contracted area by the end of the contract period 4. Contract duration 5. Compensation”	0.2, 0.5, 0.7 20, 30, 40 5, 10, 20 100, 250, 450 (€/ha/year)”	

	higher by a factor of six than actual pay-out levels - Farmers would not participate under low financial incentives and if they lack the information about the contract - Flexibility in cattle density and contract length are more important for farmer participation than flexibility in tree density or area size. - Compensation amount is the most important factor for choosing a contract, followed by technical support. - However, 82% of the farmers consider the ecological effectiveness of the scheme important for participation				
4.	(Wainwright et al., 2019) **Study description** - Study conducts a CE for eliciting farmer preferences for conserving rare breeds of farm animals alternative contracts options in small-holder and extensive farm systems **Methods**	“1. Contract Length (in years) 2. Scheme support	“5, 10 “2 Levels: - Basic application assistance - Additional advisory support (e.g., extra training)”	Bovines[3] −72.8 12.9	Ovines −3.3 −0.2

[3] WTA estimates in euro/year

	- Data was collected via questionnaires and usable responses were recorded from a total of 174 farmers in Transylvania (Romania), out of which 116 were bovine farmers and 81 were ovine farmers (and 45 farmers kept both) - Questionnaire was divided into 4 sections (1) farm business and animal breed and traits (2) any previous AES payments and/or previous knowledge of AES support (3) the CE (2 versions: ovines and bovines), (4) demographic and socio-economic information of farmers - Data was analyzed using a multinomial logit (MNL) model **Results** - Farmers exhibited willingness to participate in conservation programs for rare breeds - Under absence of a monetary attribute, farmer participation reduced to 84% - Farmers prefer for shorter contract durations - Bovine farmers preferred individually managed conservation programs and ovine farmers	3. Structure of conservation scheme 4. Subsidy (per animal per year)”	“2 levels: - community managed conservation program - individually managed conservation program” - “Bovines 90, 270, 530, 890 (Lei/year)” - “Ovines 5, 15, 25, 45 (Lei/year)”	-48.6	5.0

	preferred community managed schemes - Farmers already enrolled in an AES schemes didn't prefer to participate in this scheme - CE results show a clear trade-off between monetary attribute of the contracts and other attributes - Demographic and socio-economic characteristics of farers (like farm size, education level, age, etc.) did not have a significant effect on participation - Farmers lacked knowledge about such schemes and funding which is why they didn't participate: only 21% farmers knew about RDP funding for rare breeds				
5.	(Kanchanaroek & Aslam, 2018) **Study description** - Study elicits eliciting farmers' preferences towards various contract attributes using CE approach and quantifying WTA for changes in farming practices - Study also explores farmers' heterogeneity in land use decisions and observes whether it is associated with particular farm and farmer characteristics	1. "Agricultural diversification: adopting drought-tolerant crops or agroforestry practices 2. Use of chemicals: to reduce chemical use by x % 3. Length of agreement 4. Compensation"	"2 levels: - Drought tolerant cropping - Agroforestry 25%, 50%, 75%, 100% 1, 2, 5, 10 500, 1000, 2500, 5000, 7500, 10,000 (baht/rai/year)"	-419.14 10.01 -9.36 * marginal Willingness to Accept in USD/ha/year	

	Methods - Study area: north of Thailand, 14 villages - Participants: face to face survey with 529 agricultural households - Data was analyzed using latent class models **Results** - Higher compensation amounts show significant and positive correlation - Higher reductions in chemical use is not preferred - Adoption of drought tolerant crops is preferred over agroforestry - However, farmers with larger household size and/or more laborers prefer agroforestry and do not prefer reduction of chemicals - Farmers generally prefer shorter contract durations - Farmers with more agricultural experience accept lower compensations			for conditional logit model		
6.	(Villanueva et al., 2017) **Study description** - Study analyses the heterogeneity of farmers' preferences towards	"1. Cover crops area: percentage of the olive grove area covered by cover crops	25%, 50%	MOG[4] 8.8	ROG 6.5	IOG 7.7

[4] Mean willingness to accept (WTA) of the attributes in €/ha

	AES through a case study of southern Spain's 3 olive grove sub-systems: mountainous rain-fed (MOG), plain rain-fed (ROG), and plain irrigated olive groves (IOG) **Methods** - Study area: Andalusia (southern Spain) -Data collection: 293 questionnaires were collected (75 MOG, 116 ROG and 102 IOG) - 60 personal interviews were conducted - Data was analyzed with a random parameter logit model (RPL) with an additional error component **Results** - Cover crops area: • Farmer knowledge and perceptions of previous AES decreased their WTA • Harvesting of ground olives increased the farmers' WTA for cover crops area - Cover crops management: • If cover crops are deemed profitable, farmers could accept different management options	2. Cover crops management: farmer's management of the cover crops 3. Ecological focus areas (EFA): percentage of the olive grove plots covered by ecological focus areas 4. Collective participation: participation of a group of farmers (at least 5) with farms located in the same municipality 5. Monitoring: percentage of farms monitored each year 6. Payment: for a 5-year AES contract"	"Free management, Restrictive management 0%, 2% Individual participation, Collective Participation 5%, 20% 100€, 200€, 300€ and 400€ per ha per year"	112.4 39.2 153.6 -0.9	341.3 63.2 197.5 2.6	101.1 72.4 117.2 0.7

	- Ecological Focus areas: • If farmers perceive EFA as environmentally beneficial, they will accept lower compensations for MOG - Collective Participation: • Collective participation is negatively correlated to farm size • Older farmers (> 60 years) show higher WTA for collective participation than younger ones (in IOG and ROG) • If farmers believe that there will be no farm takeover, their willingness to participate collectively increases and their WTA is reduced - Monitoring: • Has significance only in ROG areas (increased monitoring induces fear in farmers) - Overall MOG farmers prefer more to participate in AES and accept lower compensations, both individually and collectively, than farmers of ROG or IOG					

	-Farmers of ROG take highest compensation amounts for their participation in an AES					
7.	(Villamayor-Tomas et al., 2019) **Study description** - Study analyzes farmers' participation in agro-environmental programs by: • assessing the costs of implementing the programs • and identifying the non-monetary incentives that can promote farmers participation - Study also assesses the impact of neighbor effects and coordination on farmer uptake of AES **Methods** - Study conducted a CE in areas: Germany (Uckermark district), Switzerland Cantons (Aargau and Zurich), and Spain (Monegros and Sastago counties) - Questionnaires were mailed and 234 responses were attained - Data was analyzed using a conditional logit model **Results**	"1. Location of trees: along the border of the farm of a neighboring participant 2. Share of farm 3. Recommendation 4. Payment for action: in € per hectare per year, in addition to the reimbursement of planting costs and other governmental subsidies"	"Coordinated, Not coordinated 1%, 5%, 10% 3 levels: -Recommended by farmers -Recommended by scientists - No particular recommendation 50, 100, 150, 200 (€/ha/year)"			

	- Most farmers (>70% in all 3 sites) perceive that their neighbors are not interested in any conservation activity; hence do not feel the need to join themselves - 'Recommendation by farmer' attribute had a significant positive impact only in swiss site. Contrastingly, attribute 'recommendation by scientsit' had no impact at any site - "Farmers prefer the ecosystem services with a higher share of private to public benefits, so they prefer to care more about soil conservation and biodiversity than water conservation, which mostly benefits downstream users" - 37% of farmers chose the opt-out option in the choice cards			
8.	(De Salvo et al., 2018) **Study description** - Study assesses farmers' preferences among alternative AES that focus on reducing risk of soil erosion, maintaining soil fertility, enhancing landscape, and preserving agrobiodiversity in arable lands of Sicily (Italy)	"1. Protection of soil from water erosion"	- "Turfing sloping surfaces - Construction of temporary furrow sinks at a distance of": • 20m • 40m • 80m"	

	- Study also investigates farmers' preference heterogeneity and spatial correlation at local scales **Methods** - Interviews were conducted with a random sample of 125 cereal farmers in the Sicilian slopes - Data was analyzed using appropriate models based on random utility maximization framework - To verify the significance of spatial variability at local scale, the study uses Moran's I test using mixed logit parameters - For attributes presenting significant spatial correlation, the study used a Spatial Autoregressive (SAR) model and a Spatial Error (SEM) model **Results** - Study reports that majority of farmers were aware about the local rules of eco-conditionality - Farmers accepted the restrictive agricultural practices - Farmers responded positively towards maintenance of soil fertility and controlling risk of soil erosion	2. "Maintenance of soil organic matter" 3. "Maintenance of landscape features 4. Agro-biodiversity conservation (%) 5. Additional compensation (€/ha)"	- "Grazing stubble, straw, and crop residue - Creation of firebreaks and burying of crop residues - Burning of crop residues" - "excellent - very good - good - sufficient" "75%, 50%, 25%, 0% 1000, 800, 600, 400, or 0"	

	- For erosion control farmers preferred turfing sloping surfaces to furrows-sinks - For protecting soil fertility, farmers preferred grazing stubble - Prevention of soil erosion and maintaining fertility positively influenced farmers' choice among alternative AES - Farmers were unaccepting of maintenance of countryside landscape and the cultivation of local varieties of grains (agrobiodiversity) - Spatial econometric analysis observed the "*neighbor effect*" which influenced farmers' preferences on basis of their neighbor's preferences for the cultivation of endangered varieties - Thus, focus on local context by policy makers might increase acceptability of an AES and make it cost-effective			
9.	(Franzén et al., 2016) **Study description** - Study assesses the impact of socio-demographic factors, and AES contract design on farmers' willingness to create wetlands on their farms	"1. Annual economic subsidy per hectare SEK Arable land (other land use) (SEK/ha/year)" 2. "Time frame for subsidy and commitment: Min years of	"Current level: 3000 (1500) Improved level: 4000 (2250)" "Current level: 5 (20) Improved level:	

	- AES design was studied in terms of five attributes through a discrete choice experiment which related to current AES in the area **Methods** - Study area: Himmerfjärden coastal catchment, Sweden which is south of Stockholm - Questionnaires were sent to 259 farms which yielded 135 responses - CE used a multiple logistic model and significance was tested with Likelihood Ratio type II ANOVA **Results** - Study shows that landowners were 3.5 times more willing to create a new wetland than leaseholders because wetland creation could cost up to 20 years which could be risky for leaseholders - Younger farmers were more willing than older farmers - Organic farmers that were already involved in some AES were not very willing to create wetlands as compared to conventional farmers - Analysis of CE showed that the level of monetary support was the	commitment (max extension of commitment in years)" 3. Practical support 4. "Economic compensation for construction (% of cost within ceiling) 5. Cost ceiling for compensation (SEK)"	10 (30)" "Current level: No practical assistance for projecting and design of wetland Improved level: A collaboration forum, and practical assistance with projecting and designing a wetland" "Current level: 50 – 90 Improved level: 100 Current level: 100,000 Improved level: 200,000"	

	most important attributes for farmer participation - Second most important factor was increasing the cost ceiling for the compensation, followed by an increase in the yearly subsidy level - Even with increased financial compensation, 70% of the farmers were unwilling - Major reason for non-participation was reported to be high costs that farmers incur			
10.	(Greiner, 2016) **Study Description** - Study explores the willingness of pastoralists and graziers to participate in voluntary biodiversity conservation contracts - Study also tries to understand farmers' preferences for contract attributes and explore the preference heterogeneity encountered among pastoralists and graziers **Methods** - Study area: regions of tropical savannas across northern Australia (including Northern territory, Western Australia, and Queensland)	"1. Conservation requirement: expresses the environmental service to be remunerated. Focus is on broad-scale biodiversity conservation by removing cattle from the contract area either completely for the duration of the contract period or temporarily (i.e., 'spelling' the contract area every year) during times when biodiversity is particularly sensitive to grazing. Defined relative to cattle grazing and associated opportunity cost" 2. "Annual conservation payment (in $/ha/year)" 3. Contract length 4. "Flexibility	"3 levels - Short spelling - Long spelling - Total exclusion" "1, 2, 4, 8, 16, 32 ($/ha/year)" "5, 10, 20, 40 years Flexibility, No Flexibility	 3.45 11.08 0.41 -5.90

	- 104 surveys were received from pastoralists and graziers - CE analysis was conducted Using both random parameter logit (RPL) and latent class (LC) models **Results** - Study results show that longer contract durations or higher opportunity costs increased WTA of pastoralists and graziers - Contract flexibility positively influences adoption of contracts - The respondents have favorable attitudes towards biodiversity and towards PES and it is a positive influence on their participation - Thus, future PES programs can be complemented with education and extension for increased participation	5. "Monitoring (conducted by)"	External, Self"	1.17 * Mean WTA in $/ha derived by RPL model
11.	(Vedel et al., 2015) **Paper Description** - Study elicits landowners' willingness to accept afforestation contracts with varying attributes, including being monitored. - Study designed 2 alternative hypotheses for landowners'	1. "Purpose of afforestation: Biodiversity implies that the afforested area mainly consists of broadleaved trees. Ground water protection implies that the ground preparation is minimal and no pesticides/herbicides can be used, and recreation implies that there has to be established walking paths and parking areas"	3 levels: - Biodiversity - Ground water protection - Recreation	− 1446.7 − 132.2

	behaviors based on agency and social preference theories: • "H1 – land owners may not comply, and not accept monitoring even as the contract sum increases • H2 – landowners may comply and consider monitoring increasingly fair as the contract sum increases" **Methods** - The data were collected using an online questionnaire and was answered by 1027 Danish landowners - hypotheses were tested using a discrete CE using a RPL model, where three parameters were estimated for an interaction effect between monitoring probability and contract sum (one fixed to zero and two varied freely) **Results** - Study rejected hypothesis H1 as "*none of the free parameters suggest a group of landowners have significant negative interaction term parameter*" - Study accepted hypothesis H2 since "*some landowners hold*	2. "Option of cancelling the contract: The contract is either binding or may be cancelled within 5 or 10 years. If the contract is cancelled, the compensation has to be paid back to the state (with a specified interest rate) and the landowner is then free to return the area to arable land" 3. "Monitoring: A fraction of the landowners who accept a contract will receive a visit by the authorities in order to check landowners' commitment (%) (Monitoring, 0% is reference)" 4. "Compensation: The compensation is the amount the landowner receives as a one-time payment per ha"	3 levels: - Option of cancelling within 10 years - Option of cancelling within 5 years - Binding contract 1%, 10%, 25% €3620–5525 per ha (in steps of €400)	− 2383.6 − 1498.6 632.5 * WTA in euros estimated through discrete mixture model

	social preferences for monitoring when choosing between agri-environmental contracts" - Landowners' attitudes towards monitoring: • 24.5% had a positive attitude – "*see monitoring as an opportunity for positive feedback and learning*" • 28.6% showed negative attitude – "*feel monitoring violates their ownership rights to the area or it is time consuming and a nuisance*" • 55.9% had no response - 63% landowners would accept €194 in additional compensation for a contract with 1% monitoring and the lowest subsidy level			
12.	(Lienhoop & Brouwer, 2015) **Study Description** - Study aims to explore the institutional, economic and ecological conditions that would encourage farmers of areas with limited forest cover to afforest	1. Forest size (%) 2. "Forest type: • Commercial production forest with one or two species (the revenues of which stay with the farmer)	"5, 10, 25, 50 Commercial forest, Non-commercial forest"	50[5] -67[6]

[5] Per percent of land for forests
[6] Commercial forest

	- Study estimates farmers' preferences for various contract designs through CE and qualitative interviews - Contract design attributes studied include provision of certain ecosystem services, like recreation and forest for timber production vs. species diversity **Methods** - Study area: West Saxony, Germany - Survey was conducted as questionnaires with 217 farmers; 15 farmers were further included in a qualitative interview in-person for 30–60 minutes - Discrete choice data was analyzed using two random parameter logit models through NLOGIT 4.0 • Model 1 focused on contract design features • Model 2 included socio-economic characteristics and environmental attitudes	• Non-commercial mixed forest containing a greater diversity of plants and wild animals and generating less revenue" 3. "Technical advice: availability of advice by rangers" 4. Recreational access 5. "Return to agriculture at end of contract" 6. Contract length (years) 7. "Subsidy: to compensate for forest management and income loss (€/ha/year)"	 Yes, No Yes, No Yes, No 10, 25, 50 years "500, 750, 1000, 1500, 2000, 3000 (€/ha/year)"	-219[7] -123[8] -228[9] 15[10] * WTA in euro/ha

[7] Yes
[8] Yes
[9] Yes
[10] Per additional year

	Results - Only 50% farmers acknowledge that afforestation is important - 67% of farmers are willing to trade-off different contract attributes against subsidy amounts - Though subsidy level is deemed as lucrative for farmers, other attributes can influence contract adoption more - Farmers do not prefer to afforest large forests, and it would increase the subsidy costs - Farmers prefer shorter contracts and would like to have the option to return to agriculture after the contract ends - 74% farmers preferred flexibility in their contract duration and highly preferred the option to terminate the contract at any time - If farmers receive technical advice, they would accept lower levels of subsidies - Species' diversity (non-commercial forests) vs. timber production (commercial forests) and recreation do not play a significant role in choosing contract alternatives, rather design elements of contracts are more important for choosing an AES			

13.	(Christensen et al., 2011) **Study Description** - Study aims to examine how to improve the appeal of AES among Danish farmers and elicit their preference for pesticide-free buffer zones **Methods** - CE was conducted with 444 Danish farmers - Data was analyzed using a random parameter logit framework to capture heterogeneity among farmers **Results** - CE results show high uncertainty among farmers for enrolling in subsidy schemes and their overlap with other subsidy schemes - Farmers also had a considerable lack of trust in authorities - 86% farmers are willing to trade-off scheme components against compensation amounts - Farmers' WTA lowers in exchange for free assistance for	"1. Contract length 2. Flexibility to release from contract 3. Buffer zone width 4. Changed agricultural practice 5. Application method	"1 year, 5 year Yes*, No *Yes: Can be released from contract without costs once a year 2 levels: - Between 6 and 24 m - 6 m" "2 levels: – Fertilizer can be used in buffer zones – Pesticides or artificial manure cannot be used in buffer zone 2 levels: – Assistance free of charge from extension service to send in application	128[11] 137[12] 43[13] 110 52

[11] Shorter contract length
[12] Yes
[13] Flexible zone width

	enrolling in a scheme, indicating they want to be relieved from administrative burdens	6. Size of subsidy (Euro/ha/year)"	form – Application for subsidy on common application form 134, 228, 336, 510 (Euro/ha/year)"	* Mean WTA in euro/ha/year
14.	(Kuhfuss et al., 2015) **Study Description** - This study aims to study the impact of conditional collective bonus in an AES on farmers' participation and land enrolment and overall budgetary costs - This incentive will be paid per hectare of enrolled land in addition to the contract payment -Study uses CE to elicit the preferences of wine growing farmers in the South of France for the collective bonus **Methods** - Questionnaires were distributed through e-mail to winegrowers in Languedoc-Roussillon of France and 317 farmers answered the survey	"1. Herbicides used on the farm during the contract: Global reduction of herbicide use on the enrolled area (in proportion of present use) (%)" 2. "Localized use of herbicides: Supplementary localized use of herbicides beyond the committed reduction" 3. "Collective and final conditional bonus: 150€/ha after five years, provided that, at the end of the 5 years, 50% of the area of interest is engaged in a process of herbicide use reduction" 4. "Administrative and technical assistance: Free administrative and technical assistance included in the contract and provided by a local technician" 5. "Individual annual payment per enrolled hectare"	-30%, -60%, -100% "Allowed, Forbidden" "Final bonus (150€/ha equivalent to 30 €/ha/year), No bonus" Yes, No "90, 170, 250, 330, 410, 500	

	- CE results were obtained through a conditional logit and mixed logit models **Results** - Results indicate that introduction of a collective bonus dimension to agri-environmental contracts enhances efficiency of AES: • Increase in farmers' initial participation • Negative willingness to accept the bonus would lower the WTA • Collective bonus also encourages higher participation rate - Farmers are more willing to make environmental efforts if they see their neighbors doing the same - So, contracts with the conditional bonus and collective dimension can ensure higher participation		(€/ha/year)"	
15.	(Latacz-Lohmann & Breustedt, 2019) **Study Description** - Study analyzes cost information using a CE for calibrating conservation contracts **Method**	"1. Fertilization"	"3 levels: - organic and mineral allowed - organic permitted - no fertilization allowed"	−190.91 −127.40

	- Survey data was achieved from a total of 68 farmers from the North Sea coast of Schleswig-Holstein, Germany - Study analyses data using a combination of a multinomial Heckman model and an OLS regression - First-stage estimation was done using a conditional logit model, followed by the second-stage estimation using OLS regressions - Survey also elicited information about the farms and the socio-demographic characteristics of the farmers **Results** - Stricter prescriptions lead to decrease in probability of choosing the contract and also increased the compensation payments per hectare - Flexibility in fertilization, grazing and mowing prescriptions is highly preferred by farmers - Farmers already enrolled or had participated previously in an AES were more likely participate in this AES and also would accept less compensation	2. "First mowing not before" 3. "Maximum grazing with (animals per hectare)" 4. "Contract period" 5. "Annual compensation"	"1 June, 22 June" "2, 3, 4 animals per hectare (1 animal = 1 cattle or 3 sheep's)" 1, 5, 10 years "250, 350, 450 € per hectare per year"	4.11[14] −139.71 12.18 * WTA estimates in euro/ha

[14] Per day after 20th may

16.	(Hasler et al., 2019) **Study Description:** - Study aims to investigate "farmer preferences from 5 European countries for adopting agricultural practices aimed at reducing nutrient leaching and greenhouse gas emissions" **Methods** - Data was collected using a survey of 2439 farmers from 5 countries "Denmark, Estonia, Finland, Poland and Sweden" (around Baltic Sea) - WTA compensation for specific attributes of alternative contracts were estimated using a MXL model **Results** - Study finds substantial difference in WTA between countries - E.g., Estonian farmers demand 523 euro per ha per year to enroll in fertilization contracts whereas farmers in Poland will accept the same contract for 270 euro/ha/year - WTA was found to be negatively correlated to 'Area enrolled' attribute.	"1. Area: The area enrolled in the contract (%) 2. Length of contract 3. Termination: Flexibility to terminate the contracts 4. Advisory: Advice offered 5. Payment levels: EUR/ha dependent on the country (in the choice cards the subsidy levels were presented in national currencies)"	"1, 5, 7, 10, 15, 25, 100 (%) 1, 3, 5, 7, 10, 20 (years) Not possible, Possible with refund, Possible without refund Charged, free DK 9 levels: from 70 to 940 EUR/ha (500–7000 DKK/ha) EE 10 levels: from 50 to 1000 EUR/ha FI 10 levels: from 50 to 500 EUR/ha PL 10 levels: from 23 to 345 EUR/ha (100–2000 PLN/ha) SE 10 levels: from 25 to 570 EUR/ha	

	- Also, lengthier contracts could lead to higher subsidies - The option to terminate a contract can elicit various responses. For e.g., in Estonia this option was not significant, but for Denmark and Poland this option is favorable - Also contracts with free agricultural advice were valued at 131 euro/ha in Estonia, 33 euro/ha in Sweden, 28 euro/ha in Denmark and 18 euro/ha in Poland, showing positive correlation of this attribute to farmers' preference.		(250–6000 SEK/ha)"	
17.	(Roussel et al., 2019) **Study Description:** - Study aims to explain the conditions for implementing "compensatory measures for damage to biodiversity" (CM) and whether these measures are compatible with the interests of farmers - Study also analyses how different contract specificities could generate different preferences among farmers **Methods**	1. "Specifications: Levels of specifications required by the compensatory measurement contract with regard to: the quantity of nitrogen for fertilization (UN), the mowing delay and the presence of a refuge area"	- "Level I: 30 UN, June 20, no refuge area - Level II: 0 UN, June 20, no refuge area - Level III: 0 UN, July 20, no refuge area - Level IV: 0 UN, July 20, refuge area"	

	- Survey was conducted in Picardy (Hauts-de-France) - 162 farmer responses were analyzed using a mixed logit model **Results** - All contract attributes are significant for farmer participation - "Farmers prefer to keep their current practices and only choose a contract with limited management constraints, with short duration, with a conditional monetary bonus and high subsidies" - "Two interactions between attributes and socioeconomic variables have significant effects: 1. having larger areas increases the probability of adopting more restrictive measures 2. being the owner of the land increases the probability of signing a contract, and also for a longer period"	2. "Duration of engagement: Total commitment period of the compensatory measure contract" 3. "Conditional monetary bonus: Additional remuneration (200 €/ha/year) for additional ecological measures when the bonus is proposed in the scenario" 4. "Remuneration of the measure: Remuneration received each year by the farmer per hectare hired (€ / ha / year)" 5. "Non- participation: Farmer prefers to keep current practices"	9, 18, 25, 40 (years) "Bonus available (200 €/ha/y), No bonus in compensatory measure, no bonus because it was the opt-out option that was chosen" "800, 1100, 1500, 2000 (€ / ha / year) Non-participation, Choice of compensatory measure A or B"	
18.	(Le Coent et al., 2017) **Study Description** - Study aims to assess the farmers' acceptance for contracts aimed at biodiversity offset as compared to	"1. Purpose: Aim of the contract"	"Compensation of biodiversity loss, Conservation of biodiversity" Yes, No	

	traditional contracts that include only biodiversity conservation - So, the study tries to quantify preferences for conservation contracts vs. compensation contracts using CE approach **Methods** - Survey data comprised of a total of 1169 farmers from South-East France - CE data was analyzed using a mixed logit estimation model **Results** - Analysis shows farmers are more likely to choose a conservation contract than a compensation contract - Farmers prefer contracts which are not conditional to a minimum participation level - Farmers are reluctant to participate in contracts with formalities like more paperwork, compulsory meetings, etc. - Farmers prefer the opt-out option, i.e., the option of not participating in any of the contracts	2. "Threshold: Existence of a minimum threshold of participation of 20% of farmers of the area" 3. Payment: per ha and year 4. "Opt-out: Neither of the 2 contracts"	"170, 200, 230, 260 (€/ha) Opt-out, Contract 1 or Contract 2"	
19.	(Rocchi et al., 2017)	1. "Nature: conversion of agricultural areas to pasture, using particular species with a high natural value"	"No surface, 1/3 surface, 1/2 surface"	

	Study Description: - Study aims to elicit the preferences of a group of farmers for similar AES that aims at improving the buffer areas **Methods** - Study area: Lake Trasimeno Regional Park in Region of Umbria, central Italy - 244 questionnaires were collected from agronomists and farmers - CE data was analyzed through MNL model and Latent Class Approach **Results** - Study identified 3 classes of respondents: - Class I farmers (the largest) • interested only in intensification of the reduction of nitrates and not in AES • willing to accept higher payments for increasing an environmental measure • Also, not interested to innovative actions, such as the growing of hedges and naturalization	2. "Biodiversity improvement: growing of hedges with species suitable for insect development" 3. "Landscape improvement: building of fences for animals at pasture" 4. Seeds: use of native seeds 5. "Lisciviation: additional decrease of 5% in nitrates consumption with regard to Nitrate Vulnerable Zone limits" 6. "Money: additional annual payment per hectare (€/hectares per year)"	"Do not make it, Creation of hedges" "Do not make it, Creation of fences" "No surface, 1/2 surface, All the surface No surface, 1/2 surface, All the surface" "50, 100, 150, 200 (€/hectares/year)"	

	- Class II farmers, the smallest (15.76%) • youngest farmers • have higher willingness to participate in AES - Class 3 farmers also would prefer to practice traditional agricultural methods			
20.	(Chang et al., 2017) **Study Description** - Study investigates farmers' preferences for a chemical fertilizer reduction scheme through the provision of an eco-label and whether an eco-label is an attractive element for farmers to choose an AES - Study estimates the "*marginal value of the attributes to derive the correlations between reduction of chemical fertilizer and corresponding payments*" **Methods** - Random sampling in Taiwan achieved 292 complete surveys which represented approximately 320,000 rice farmers - CE data was analyzed using a mixed logit model to identify preference heterogeneity and a	1. "Land to be enrolled (%) 2. Payment for entry to the scheme 3. "Additional chemical fertilizer reduction with corresponding reward payments (NT$/ha/year)"	"25% eligible area, 50% eligible area, 100% eligible area" "2000, 2500, 3500 (NT$/ha/year)" "4 levels: - only comply with reference level (no payment) - apply 15% less than reference level (NT$ 1000) - apply 30% less than reference level (NT$ 2000) - give up the use of chemical fertilizer (NT$ 5000)"	−93 698

	latent class model to estimate segment-specific utility **Results** - Study estimated that for full enrollment of the farmland, the compensation amount must be over NTD$ 698 per hectare - Extending contract length to 5 years requires approximately NTD$ 404 per hectare as additional compensation - However, presence of an eco-label will reduce the farmers' compensation amount (about NTD$ 717 less) - Model analysis separates the farmers into 2 classes: • Class 1 is not interested in enrolling; also has less education • Class 2 group has higher education and has at least one of the certifications for their products. They prefer having an eco-label. However, they are also reluctant for are further fertilizer reduction in fear of possible yield losses	4. Contract length 5. "Eco-Label: An eco-label for farmers who successfully comply with the standard"	2 years 5 years Yes, No"	 404[15] −717 * WTA estimates in $/ha

[15] For 5 years

21.	(Villanueva et al., 2017) **Study Description** - Study uses CE to analyze farmers' WTA to accept agri-environmental contracts and preferences for participating in agro-environmental and climate programs (PAAC) included in the second pillar of the CAP with different levels of practices **Methods** - 65 farmers were interviewed in Andalusian mountainous olive groves, Spain - Data was analyzed using a RPL model with an additional error component **Results** - Study shows that beyond a certain point, majority of the farmers are not willing to accept the adoption of conservation practices, as evident by the high WTP costs for demanding attribute levels like 100% green roofing of surface, no plant-cover management, and ecological level of insecticide treatment, as	1. "Green roof surface: Percentage of the surface of mountain olive grove under cover vegetable (%)" 2. "Plant cover management" 3. "Insecticide treatment: made in the plots of mountain olive grove" 4. "Premium for results: single payment at the end from the agri-environment program to condition that they be at provision levels of	"10% (reference level), 30%, 50%, 100% Free (reference level), Limited, Brush cutter and/or cattle, No management" "Free (reference level), Limited, Ecological, No treatment" "Non-inclusion of premium (reference level)",	 13.0 34.0 84.2 14.9 35.8 131.3 7.5 57.0 88.9

	compared to the other attribute levels - Programs with low requirements (e.g., related to integrated production) will be accepted by farmers at modest compensation amounts (< 80 €/ha); whereas, programs with demanding requirements (ecological) will require moderate to high compensation (125-175 €/ha) - Programs with stringent levels of demand (which greatly limit the management of farm) require significantly higher compensation amounts (>300 €/ha)	biodiversity and functionality of expected ground” 5. Annual payment: per hectare to receive during the 5 years of the agri-environment scheme (€/ha/year)”	“Inclusion of premium for €400/ha (received in 5th year)” 50, 150, 250, 350”	-3.7

<table>
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<td>22.</td>
<td>(Pröbstl-Haider et al., 2016)

Study Description
- Study analyzes farmers' decision-making under various climate change scenarios and risk, varying economic conditions, and different policy options

Methods
- Study area: March–Thaya floodplains in north-eastern Austria
- A total of 148 famers were surveyed
- Data analysis was conducted using SPSS and MS Excel
- CE data was analyzed by conditional logit model

Results
- Almost all farmers participated (99.3%)
- 65.5% farmers had previously signed conservation-related contracts, and 22% of them had contributed to the conservation of floodplains
- 48 % respondents would be willing to participate in AES contracts again after their current contract expires</td>
<td>“1. Type of management

2. Gross margin (€/ha/year)

3. Environment premium per ha per year (AES)

4. Duration (years)

5. Potential price fluctuation

6. Likelihood of complete crop failure”</td>
<td>
<table>
<tr><th>Alternative A</th><th>Alternative B</th><th>Alternative C</th></tr>
<tr><td>Cash crop cultivation</td><td>Short-rotation cultivation</td><td>Grassland cultivation</td></tr>
<tr><td>300, 450, 750, 1200, 1650</td><td>150, 375, 550, 725</td><td>75, 150, 250</td></tr>
<tr><td>None, Greening premium: € 50, 150</td><td>None, Climate premium: € 50, 100, 150</td><td>None, Australian AES funding € 300, 600, 900, 1200</td></tr>
<tr><td>1 year</td><td>15, 20, 25 years</td><td>7 years</td></tr>
<tr><td>Low, medium, high, very high</td><td>Low, Medium, High</td><td>Low</td></tr>
<tr><td>Every 2 years, every 3 years</td><td>Every 10 years, every 25 years</td><td>Every 5 years, every 10 years, every 15 years</td></tr>
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	- 30 % of respondents were undecided and 22 % are not interested in signing new contracts - Main reasons for not choosing a contract were inadequate compensation (10%); administrative work (8.8%) and long contract periods (8.1%) - Options like reducing the amount of acreage, changing farm management (like converting to organic), or terminating the business were not preferred by the farmers			
23.	(Hope et al., 2008) **Study Description** - Study presents research-based approach for Bhoj wetland in India - Study explores farmers' decision-making in adopting organic farming as a measure to reduce water pollution into a peri-urban wetland site **Methods** - Survey was conducted with smallholder farmers in Bhoj wetland area of Madhya Pradesh, India - In total, 640 responses were recorded	"1. Land commitment to organic farming (acres) (%)" 2. "organic crop price increase (per 100 Rupees)" 3. "cost of certification per acre (Rupees)" 4. "compost price per trolley (Rupees) 5. labor days to compost one trolley"	"25%, 50%, 75%, 100%" 5, 7, 9, 11, 13, 15 "R1,000 as a group, R3,000 as a group, R3,000 as an individual" "R600, R900, R1200, R1500" "4, 8, 12, 16"	

	- CE data was analyzed using two multinomial logit models: Model I Was used for testing contract attributes and Model II also includes socio-economic characteristics of respondents **Results** - Study analyzed farmer preferences with regards to different scenarios, and revealed 2 classes of farmers: • Class 1 farmers indicate a higher price preference than Class 2 farmers • Class 2 farmers express a positive preference for adopting organic farming if they are provided monetary incentives and there are no labour constraints • Class 1 has no experience of organic farming, are older (over 50 years if age), and live in the upper watershed • Class 2 has experience in organic farming, are illiterate, are non-income poor, and live in the lower watershed			
24.	(Rodríguez-Entrena et al., 2019)		“25%, 50%”	4.84

	Study Description - Study analyses attribute nonattendance (ANA) behavior by analyzing stated and inferred ANA in a CE that tests farmers' WTA for participating in AES in southern Spain - ANA has not been studied in the context of WTA - This study uses data from previous case study on olive growers' preferences toward AES design in Andalusia (Villanueva et al., 2015b) **Methods** - Study investigates 2 methodological approaches – "stated attribute nonattendance (SNA) and inferred attribute nonattendance (INA)" - Both were analyzed through an error-component mixed logit model (EC_MXL) - Rest of the study design is similar to the study by (Villanueva et al., 2015b) **Results**	1. "Cover crops area: percentage of the olive grove area covered by cover crops" 2. "Cover crops management: farmer's management of the cover crops" 3. "Ecological focus areas (EFA): percentage of the olive grove plots covered by ecological focus areas" 4. "Collective participation: participation of a group of farmers (at least 5) with farms located in the same municipality" 5. "Monitoring: percentage of farms monitored each year" 6. "Payment: yearly payment per ha for a 5-year AES contract"	"Free management, Restrictive management" 0%, 2% "Individual participation, Collective Participation" 5%, 20% "100€, 200€, 300€ and 400€ per ha per year"	153.44 49.97 129.98[16] * WTA estimates derived from based mixed logit models

[16] Collective participation

	- Payment attribute has the lowest level of nonattendance; thus, it is most important for farmers - Monitoring attribute has the highest level of nonattendance. Thus, it received the least attention from the farmers, indicating it plays a minor role in farmers choice of AES - Collective participation and ecological focus area attributes generate high uncertainty among the farmers						
25.	(Villanueva et al., 2015b) **Study Description** -Study assesses farmers' preferences toward AES considering 3 crucial elements: 1. AES uptake in irrigated permanent crops 2. Inclusion of EFA as an environmental requirement 3. Role of collective participation in schemes **Methods** - Study area: Irrigated olive groves (IOG) in Andalusia, Spain - 104 completed questionnaires were collected from five randomly	"1. Cover crops area: percentage of the olive grove area covered by cover crops" 2. "Cover crops management: farmer's management of the cover crops" 3. "Ecological focus areas (EFA): percentage of the olive grove plots covered by ecological focus areas" 4. "Collective participation: participation of a group of farmers (at least 5) with farms located in the same municipality"	25%, 50% "Free management, Restrictive management" 0%, 2% "Individual participation, Collective Participation"	C1[17] 1.0 11.3 8.2 41.2	C2 4.1 978.6 9.4	C3 13.5 220.3 151.8 354.7	C4 20.4 193.6 44.9 868.0

[17] WTA estimates in €/ha of different classes of farmers (C1, C2, C3, C4)

	sampled Andalusian agricultural districts - For analyzing the preference heterogeneity, a random parameter logit (RPL) model, with an error component, was used (EC_RPL) **Results** - 4 classes of farmers are identified with respect to their AES uptake preferences: 1. Class C1 – 30 % of farmers 2. Class C2 – 15 % of farmers who require moderately higher monetary incentive and do not prefer restrictions in use of tillage and herbicides 3. Class C3 – 42 % of farmers who require higher monetary incentives but lower levels of stringency in each attribute 4. Class C4 – do not want to participate in the AES whatever be the compensation offered or combination of attributes	"5. Monitoring: percentage of farms monitored each year" 6. "Payment: yearly payment per ha for a 5-year AES contract"	"5%, 20% 100€, 200€, 300€ and 400€ per ha per year"	0.6	115.0 6.5	-0.5	7.4
26.	(Villanueva et al., 2015a) **Study description**	"1. Cover crops area: percentage of the olive grove area covered by cover crops"	25%, 50%	6.3			

	- Study assess farmers' preferenes for AES in irrigated olive groves (IOG) in southern Spain - Study intends to tests some innovative contract elements, such as collective participation and ecological focus areas (EFA) through a CE **Methods** - 5 agricultural districts in Andalusia were selected for the survey which yielded 295 valid interviews - For analyzing farmer preference heterogeneity, latent class model (LCM) was used **Results** - Higher levels of cover crops area is not preferred since it would hinder the harvesting of ground olives - Farmers' mean WTA is €6.2/ha per 1% increase in area enrolled - Results show farmers have a "negative perception of managing cover crops without tillage and with a very restrictive use of herbicides" - For the attribute EFA, an average WTA of €64.6/ha was observed per 1% increase	2. "Cover crops management: farmer's management of the cover crops" 3. "Ecological focus areas (EFA): percentage of the olive grove plots covered by ecological focus areas" 4. "Collective participation: participation of a group of farmers (at least 5) with farms located in the same municipality" 5. "Monitoring: percentage of farms monitored each year" 6. "Payment: yearly payment per ha for a 5-year AES contract"	Free management, Restrictive management 0%, 2% Individual participation, Collective Participation 5%, 20% 100€, 200€, 300€ and 400€ per ha per year	114.7 64.6 124.5 0.7 *Mean WTA estimates in €/ha/year

	- Monitoring attribute was found to be insignificant			
27.	(Greiner, 2015) **Study description** - Study analyzes the willingness to participate in conservation contracts of pastoralists and graziers across north Australia's rangelands and estimate the influence of contract attributes, business characteristics and personal aspects on their contract preferences **Methods** - Survey was conducted among pastoralists and graziers in the tropical savanna rangelands, which yielded 104 valid responses - Personal aspects to be analyzed were motivations and attitudes, for which constructs were derived from Likert-type scales through factor analysis - CE data was analyzed through both random parameter logit (RPL) and latent class (LC) models **Results**	1. "Conservation requirement: expresses the environmental service to be remunerated. Focus is on broad-scale biodiversity conservation by removing cattle from the contract area either completely for the duration of the contract period or temporarily (i.e., 'spelling' the contract area every year) during times when biodiversity is particularly sensitive to grazing. Defined relative to cattle grazing and associated opportunity cost" 2. "Annual conservation payment: in $/ha/year 3. Contract length 4. Flexibility: flexibility to contract conditions 5. Monitoring (conducted by)"	"3 levels - Short spelling - Long spelling - Total exclusion" "1, 2, 4, 8, 16, 32 ($/ha/year) 5, 10, 20, 40 years Flexibility, No Flexibility External, Self"	3.03 12.04 0.39 6.71 0.71 * Mean WTA estimates in $/ha/year

	- Likelihood of participation increases with higher payments, shorter contracts and more flexible contracts - Likelihood decreases with increased and stringent conservation requirements - External monitoring was preferred over self-monitoring; however, it was not significant - Total exclusion of cattle was not preferred at all, short spelling was most preferred. - Higher compensation amounts are demanded for longer duration of contracts or if cattle is to be removed for some duration from the area under contract - Farmers strongly prefer flexibility in contracts					
28.	(Breustedt et al., 2013b) **Study description** - Study aims to investigate the factors affecting participation in agri-environmental schemes in Eiderstedt and Südtondern, two grassland regions in SchleswigHolstein using a discrete choice experiment	"1. Fertilization 2. First mowing not before	"3 levels: - organic and mineral allowed - organic permitted - no fertilization allowed" 1 June, 22 June	Contract 1[18] 214.88 162.02 -4.16	Contract 2 207.15 152.60 -4.16	Contract 3 199.48 167.63 -4.16

[18] Marginal WTA in euro/ha for different contracts; contract 1 – minimum area 5%, contract 2 – minimum area 10%, contract 3 – minimum area 20%

	Results - Increased compensation payment per hectare leads to a higher likelihood of choosing a contract, whereas stringent contractual requirements tend to make the farmer choose no contract - Variables such as the livestock density per hectare, the proportion of the area drained, the number of dairy cows or the proportion of grassland indicates intensive farms - Variables such as the permanent pasture share or the absolute grassland area, indicate extensive farms that also have a high probability of choosing a contract - Extensive farmers have a positive attitude towards nature conservation are more willing to participate - Organic fertilization is preferred if compensation payment per hectare is increased by 162.02 euros - If the contract period was shortened by one year for all contracts, farmers would take 12.39 euros/ha less	3. Maximum grazing with (animals per hectare) 4. Contract period 5. Annual compensation”	2, 3, 4 animals per hectare 1, 5, 10 years “250, 350, 450 € per hectare per year”	139.67 -12.39	139.67 -12.39	139.65 -12.39
29.	(Broch & Vedel, 2012) **Study description**	1. “Purpose of afforestation: different levels used in this attribute have different significance. Biodiversity	“3 levels: - Biodiversity	−1,060		

	- Study investigates preference heterogeneity for agri-environmental contracts among farmers for potential policy improvements that utilize this heterogeneity - Study focuses on eliciting farmers' response on 4 main attributes of contract: purpose of afforestation, option of cancelling, monitoring, and compensation level. **Methods** - Questionnaire for survey was distributed through email among Danish farmers - A total of 1027 completed surveys were received - Data was analyzed using a random parameter logit model **Results** - Study indicates having the option of cancelling the contract within 5 or 10 years reduced the WTA by approximately €1,400–1,450, which was the highest reduction among all attributes investigated - The option of cancelling the contracts also increased acceptance of afforestation	implies that the afforested area mainly consists of broadleaved trees. Ground water protection implies that the ground preparation is minimal and no pesticides/herbicides can be used, and recreation implies that there has to be established walking paths and parking areas" 2. "Option of cancelling the contract: The contract is either binding or may be cancelled within 5 or 10 years. If the contract is cancelled, the compensation has to be paid back to the state (with a specified interest rate) and the landowner is then free to return the area to arable land" 3. "Monitoring: A fraction of the landowners who accept a contract will receive a visit by the authorities in order to check landowners' commitment (%) (Monitoring, 0% is reference)" 4. "Compensation: The compensation is the amount the landowner receives as a one-time payment per ha"	- Ground water protection - Recreation" "3 levels: - Option of cancelling within 10 years - Option of cancelling within 5 years - Binding contract" 1%, 10%, 25% "€3620–5525 per ha (in steps of €400)"	−587 −1,455 −1,390[19] 38 * Marginal rate of substitution in euros

[19] Per 1% increase in monitoring

	contracts at a lower cost among farmers - With regard to the purpose of contract, farmers prefer firstly biodiversity, then ground water conservation, and lastly recreation. Farmers could be negative towards recreation because of issues such as littering and invasion of privacy within private property - Monitoring has a negative impact on farmers' utility and results in a higher WTA. Farmer on average want an increase of €38 per 1% increase in monitoring			
30.	(Mariel & Meyerhoff, 2018) **Study description** - Study compares two specifications of the random parameter logit model using data from a study about farmers' willingness to accept compensation for implementing agri-environmental measures in Brandenburg, Germany **Methods** - Survey was conducted online which derived 565 responses	1. "Contract duration: Run-time of the contract 2. Monitoring: Share of farmers that will be controlled by the authorities 3. Cancellation: Whether it is possible to cancel the contract during the term 4. Minimal share of farmland under contract: Minimum share of the available farmland that will be subject of the contract"	"3, 5, 12 years 3%, 10%, 30% No, yes 10%, 40%, 100%"	43.2 16.9[20] −43.1 42.9[21] 136.2

[20] For 10% change
[21] For 10% change

	- Choice data was analyzed through random parameter logit model with 2 model specifications – with and without correlated random parameters **Results** - Longer contracts are less preferred, while flexibility to cancel contract before it expires is valued positively by farmers - Farm characteristics: soil quality and amount of farmland, can significantly increase farmers' WTA - Attributes monitoring and minimal share of land, were found to be insignificant for farmers' preferences	5. "Effort on administration: Number of hours per months spent on administrative tasks 6. Compensation: Yearly payment per hectare if the farmer participates"	"Low (0−10h), Medium (10−20h), High (> 20 h)" "40, 65, 120, 170, 240, 370 Euros"	* marginal WTA values in euros
31.	(Hannus et al., 2020) **Study description** - Study aims to empirically determine farmers' WTA under a management-system-like standard - Study uses DCE to evaluate farmer acceptance to a sustainability scheme **Methods**	1. "Data provision: Data basis for sustainability assessment and technical support for data provision"	- "data collection with questionnaire" - "EDP data transfer from digital crop field records" - "EDP data transfer for the repeated application to the EU's Integrated Administration and	−1.502 −6.147

	- Online questionnaire was filled in by 554 farmers in German federal states - CE data was analyzed using a latent class logit model that separated respondents in two groups of farmers with different attitude, risk perception, age, education and previous participation in agri-environmental schemes (AES) **Results** - There is positive effect of technical support for data provision and increased acceptability of sustainability standards by farmers - 'Process optimization' attribute shows significant positive effect on farmers' WTA - Future generations of farmers may prefer sustainability standards	2. "Consultation: Consultation by standard-setting body" 3. "Process optimization: Standard optimizes production processes" 4. "Farm sustainability: Standard requirements & threshold values for sustainability assessment (e.g., nutrient balances and emissions)" 5. "Price premium: Percentage price premium"	Control System (IACS)" - "free-of-charge once-a-year - fee-based" Yes, no - "compliance with legal requirements" - "limits stricter than legal requirements (limit)" - "limits stricter than legal requirements plus additional measures (e.g., participation in agri-environmental or conservation schemes)" "none, 2%, 4%, 6%, 8%, 10%, 12%, 14% (price)"	 −1.867[22] −2.844 11.332 10.740 −1.837 *WTA estimates in %

[22] Once a year

32.	(Star et al., 2019) **Study description** - This study tests "the impact of risk of landholder participation in agri-environmental programs using a choice experiment" - Projects tested were the ones for reducing gully erosion and subsequent sediment run-off adjacent to the Great Barrier Reef. **Methods** -Study area: "Central Queensland region, the Isaac, Mackenzie, Lower Fitzroy and Dawson were identified as high-risk sub-catchments for sediment run-off" - Sample was collected through a series of four workshops with 75 landholders - Panel data and heterogeneity were tested by CE through mixed logit (random parameter) models **Results** - Results confirm that higher level of either, input or conservation outcome risks, will reduce landholder participation and increase compensation amounts	"1. Days of paid work: This is days of your labor costed into the project to ensure the correct control approach is implemented. 2. Payment per day: This is the dollars you would require to be paid to complete the works. 3. Extra days will be required (50:50 risk) (Input risk): This reflects the risk that the project may take more time than was factored in, which you would have to complete but has not been costed in. 4. Risk that the project will not fix the problem (Conservation Outcome risk): This is the risk that due to adverse weather outcomes or poor design the project may fail"	5, 10, 25 $100, $200, $500, $1000 5, 10, 25 0, 10, 25, 50,	

	- Model 1 showed that days of work and payment per day attributes were positive and significant - Model 2 showed opportunity cost as insignificant - Conservation outcome risk had a much higher effect than input cost risk			
33.	(Aslam et al., 2017) **Study Description** - study determines the heterogeneity in farmers' preferences of different farmland-based policy initiatives - alternative policy options were tested for reducing climate change impacts using CE and cost-effectiveness analysis **Methods** - face-to-face survey conducted across Yorkshire, Midlands, Norwich, and Scotland - 115 respondents across UK - CE results estimated using both basic and mixed logit models - Cost-effectiveness of two policy options was determined using a marginal abatement cost of carbon (MACC) approach	"1. Enrolment for permanent grassland: Area of land to enroll for conversion to grassland (%)" 2. "Enrolment for afforestation: Area of land to enroll for afforestation (%) 3. Grazing Intensity: Preferable grazing approach 4. Ploughing methods: Preferable ploughing method 5. Length of agreement: The minimum contract length they prefer (Years) 6. Compensation (£/ha): Compensation payments for the total farm size (£/ha)"	10, 15, 30, 50 2, 5, 10, 15 Intensive grazing, Extensive grazing Conventional till, Conservation till 2, 5, 10, 20 10, 25, 50, 75	4.06 2.20 20.17 70.05 1.24 * WTA estimates in £/ha derived from the conditional logit choice model

	Results - All the attributes show negative coefficient values which indicates farmers prefer business-as-usual - Compensation has positive and significant coefficient that indicates higher compensation drives preference - changes in the grazing time period and ploughing methods are not preferred - Less restrictions are preferred - Farmers need to be incentivized through higher compensation for adopting a contract			
34.	(Alló et al., 2015) **Study description** - This paper assesses farmers' preferences towards those AES that focus upon protecting birds. The study also analyses contract attributes like fine and social norms. **Methods** - face-to-face survey in farming communities in Aragon (north east Spain)	"1. Payment: Compensation rate (euros per hectare crop)" 2. "Flexibility: to decide how much of the total area enrolled in the contract" 3. "Fine: Amount of money to be paid if the farmer is caught cheating (in addition to the return of the payment). It will be applied for any infringement of the law" 4. Cultivate: Obligation to include alfalfa or sainfoin as a percentage of the crop area	"€30/ha, €60/ha, €90/ha, €120/ha" "0%, 40% €0/ha, €200/ha 0%, 20%"	 11.64 -14.71 -2.53

	- Valuation and ranking of AES attributes through the estimation of an Ordered Logit model **Results** - Payment attribute shows significant positive coefficient - Fine attribute shows negative coefficient which could reduce the probability of accepting a contract. - Flexibility of area size has a positive coefficient - Cultivation and Restriction attributes have negative coefficients. - Stringent rules to grow certain green crops and the prohibition to work for some months is not favorable for farmer participation	5. "Restriction: Prohibition of working in fallow lands in some months of the year in order to allow nesting"	"No restrictions, April 1–August 1"	-13.02 * Welfare estimates in euro/ha derived from baseline ordered logit model

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