

## Extended Abstract

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<b>Paper/Poster Title</b>	<b>Farmers' preferences over alternative AECS designs. Do the ecological conditions influence the willingness to accept result-based contracts?</b>
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<b>Abstract</b>	<b>200 words max</b>
<p>Agri-environmental-climate schemes (AECS) can boost the provision of environmental goods and services from agriculture by either compensating farmers to implement environmentally friendly management actions or obtaining ecological results. We contribute to the ongoing discussion on AECS design by eliciting farmer preferences for result-based schemes, action-based schemes, or a hybrid of the two approaches, in a case study from Bavaria (Germany) where a pilot program for result-based payments is implemented since 2015. In contrast to previous research, we uniquely measure the ecological performance with a farm-level biodiversity index to test whether farmers with greater biodiversity are more inclined to accept result-based schemes. In our mixed-logit model, we find that farmers are reluctant to implement pre-established management practices. Farms with greater biodiversity tend to accept result-based schemes more frequently and are willing to enrol a greater share of their grassland. In our latent class model, we find that intensive farmers with more biodiversity have a higher probability of adopting hybrid-based solutions, compared to the extensive farmers, who tend to prefer a result-based approach. The willingness to accept late mowing practices ranges from 323€ to 616€ and demonstrates that the existing payments fall short of these values.</p>	
<b>Keywords</b>	Choice Experiment, Agri-Environmental-Climate Schemes, Result based, Biodiversity
<b>JEL Code</b>	Q18 Agricultural Policy; Food Policy; Animal Welfare Policy Q57 Ecological Economics
<b>Introduction</b>	<b>100 – 250 words</b>
<p>Agri-environmental-climate schemes (AECS) represent one of the key instruments agricultural policies use to boost the provision of environmental goods and services by agriculture. The EU CAP reform 2023 – 2027 highlighted the importance of these instruments in the sustainable agriculture transition. Despite the decision to increase expenditure, challenges still exist in ensuring the cost-effectiveness and expected behavioural response of AECS. One solution is paying farmers for the ecological results they obtain, rather than for the management actions they implement. In light of the potential advantages of result-based approaches (e.g. linking payment and results, increased additionality, more flexibility for farmers), several pilot result-based AECS were introduced in the last decades. As result-based schemes shift the risk to suppliers, they are often less attractive to farmers. This risk can be reduced in hybrid solutions, which combine payments for action and results. To the best of our knowledge, no study has tried to empirically compare farmer preferences for action, result and hybrid approaches while relating them to the farm's ecological status. Thus, we use a discrete choice experiment to elicit farmer preferences among alternative contract designs for grassland conservation in a case</p>	



study from Bavaria (Germany) as a pilot program for result-based payments (KULAP B40) is implemented since 2015. We link these preferences to farm-level biodiversity, as well as to existing farm management practices. The results are valuable for informing future AECS design to increase farmer participation and cost-effectiveness.

<b>Methodology</b>	<b>100 – 250 words</b>
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We use a discrete choice experiment (DCE) to measure farmer preferences for alternative agri-environmental contract designs. We focus on farmers who manage permanent grassland fields and meet the requirements to participate in grassland extensification AECS. The research was conducted in the Bavaria, a region where both result-based and action-based grassland conservation schemes already coexist. To select attributes and levels that are relevant and comprehensible for both policymakers and farmers, we used the Q-methodology and conducted interviews with 12 stakeholders. Based on these attributes, we generated an efficient design (D-efficiency of 99%) in Ngene. We collected all data in-person. Farmers were confronted with a hypothetical scenario where they had the possibility to choose among result, hybrid and action-based alternative measures (or the option to opt-out). Biodiversity data were collected during farm field visits and were aggregated to the farm level in the Biodiversity Index. Our analysis follows a three-step approach. In the first stage, we estimated the probability of a farmer adopting the scheme as a function of the contract attributes and the ecological status of the farms. We observed how different contract features influenced the willingness to accept (WTA) these contracts. In a second stage, we tested if preferences vary among groups of participants using a latent class model. Finally, using a Heckmann sample selection model, we investigated what determines land allocation decisions in the schemes, conditional on a decision to sign a contract.

<b>Results</b>	<b>100 – 250 words</b>
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Our sample consists of 107 farmers utilizing permanent grassland located in five agroecological regions of Bavaria. The results of the mixed logit model show highly significant coefficients for all contract attributes. While the increase in the payments increases the probability of participation, the requirement of pre-determined management practices, such as late mowing or maximum livestock units (LSU), is significantly reducing the probability of uptake. Compared to maximum LSU, farmers seem to be particularly resistant to action-based schemes imposing a ban on mowing before the first of July. The result-based option appears to be less preferred when the number of indicator species that need to be found increases. The farmers also prefer conducting their monitoring of ecological results on their own, compared to receiving annual field inspections from agricultural authorities. In terms of farmers' preferences for the different approaches, we found no clear choice of farmers for result-based schemes, suggesting a certain heterogeneity among farmers' preferences. Significant is instead the preference for hybrid-based schemes, indicating that if farmers choose to implement a pre-determined management practice, they are interested in receiving a top-up payment conditional to results. The inclusion of the biodiversity index in our model shows a more detailed picture, where the presence of higher on-farm biodiversity increases the probability of choosing a result-based contract and enrolling a higher share of grassland in the scheme.

<b>Discussion and Conclusion</b>	<b>100 – 250 words</b>
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In our study, we conduct a DCE to empirically investigate farmer preferences for alternative contract designs for grassland conservation. We elicited 107 farmers managing permanent grassland in Bavaria, 69% of whom are active dairy farmers. We found that farmers are reluctant to implement management practices constricting their flexibility. Farmers also do not express a clear preference for result-based approaches. This is mainly due to farmer uncertainty about their capacity to obtain the results, or to the fact that for productive reasons they do not

consider feasible an extensification of their grassland use. Once we linked the preferences to farm-level biodiversity, we found that farmers with greater biodiversity were more likely to accept result-based schemes. The latter suggests a possible adverse self-selection bias toward "baseline-complying agents", which means that mainly participate those who would have extensified regardless of the scheme. The results of the latent class model show that, among the dairy farmers, those who are more intensively farming but have higher biodiversity have a higher probability of adoption hybrid-based solutions, compared to the extensively managing farmers who would easily choose a result-based approach. Farmers who never participated in AECS and have low biodiversity, demonstrate having no clear preference besides being against prescribed management practices. The WTA estimates show that the existing premia offered to farmers in Bavaria are well below to what they would be willing to accept. These findings contribute to the ongoing debate on results vs action-based schemes and provide practical insights for the efficient design of AECS in dairy regions.