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# Farmers' preferences for bonus mechanisms supporting collective action in agri-environmental contracts

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## Status of your work:

- Finished Work  
 First Results  
 Experimental Design

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## Abstract (max. 400 words):

Designing incentives for agri-environmental public good provision is a challenge involving trade-offs between environmental ambition and large farmers' acceptance. When the objective is water quality or biodiversity, critical mass participation and spatial continuity of commitments at the landscape scale are necessary to observe environmental improvements, and incentives must favour commitments and uptake coordination within a same area. Studies show farmers are reluctant when collective requirements condition the full payment, but favorable to a bonus rewarding collective action on top of an individual payment. More evidence is needed on farmers' attitudes towards mixed-payment mechanisms.

We conducted a choice experiment among 130 farmers in northwestern France in 2021 to explore their acceptability of two types of bonus in contracts designed to improve the ecological quality of rivers. The 4 contract attributes were: minimum soil coverage throughout the year, minimum anti-erosion hedgerows density, per-hectare payment and bonus option. This bonus option has three levels: (i) no bonus, (ii) sponsor bonus of 450€ each time the farmer convinces a peer into entering the scheme, (iii) sponsor bonus combined with a collective result bonus of

50€/ha distributed to all participants if the river's ecological status reaches a higher step of the water quality scale.

The mixed-logit model shows respondents prefer contracts with a sponsor bonus to no bonus, but prefer no bonus to a combined sponsor/collective bonus for environmental achievement. Bonuses distributed according to individual efforts for attracting farmers seem promising to increase participation, while bonuses based on collective achievement and distributed equally to all might be counterproductive. We also find the sponsor bonus option can improve the scheme's cost-effectiveness.

The latent class model reveals 3 behavioral patterns. The first (25.6% of respondents) describes preferences for low hedgerows density requirements and non-significant effects of bonuses. Farmers retiring within 5 years are more likely to be in this "hedgerows averse" class. The second (11.8% of respondents) depicts farms preferring the status-quo or contracts with high management requirements and no bonuses. Organic farmers are more likely to be in this "pro-environment individualists" class. The third (62.6% of respondents) describes farmers with positive preferences for both types of bonuses, who also require higher levels of per-hectare payment. This "pro-incentive" class more receptive to bonuses includes younger and conventional farmers. Since our sample over-represents organic farmers, we conclude the combined bonuses are cost-effective insofar as the overall payment is high enough to reach an environmentally effective participation level.