Can we save agrobiodiversity by paying farmers? Insights from a framed field experiment in Peru

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Introduction

- **In situ agricultural biodiversity (ABD)** part of the lyrics of the Food Security & BIODV conservation debate

- Env. governance is changing – e.g., Payments for Ecosystem Services (PES): within a "kind of-greening economy"

- Research on PES has mostly focused on:
  - Cost-effective design (e.g., targeting, size of payment)
  - Social-ecological context (e.g., common pool resources)
  - Socio-political framing (e.g., commodification of nature)
  - **Interactions (TRADEOFFS & SYNERGIES) between direct (price) impacts and culturally intrinsic/moral motivations for conservation**

Competition vs. cooperation

- Individuals **cooperate** even if it ***may*** appear to be contrary to their individual interest (Ostrom 2000) → people not driven just by self-interest
  - →focus on **social-ecological systems (issues of fairness, power relations, legitimacy, etc.)**
  - →**Economics** must move beyond utilitarian ethics approach

- Intrinsic/moral motivations often proxied by **altruism and/or self steem** reflecting cultural norms.
- BUT these norms are **fragile** and can easily be undermined by **external interventions (***extrinsic institutions***)**.

Cooperativeness

- **Unconditional cooperation** due to *altruism* or *self-esteem*
  - This may be undermined when people feel controlled (e.g., penalties)
  - This is a proxy for intrinsic motivations for conservation

- **Conditional cooperation** (reciprocity) mediated by levels of trust (social capital)

The question

- Are external PES-like incentives effective for in situ agrobiodiversity (ABD) conservation through *collective action*?

*Payments for **Agrobiodiversity Conservation** Services*

→ How might PACS interact with intrinsic motivations for ABD conservation?


PAPAS
AMARGAS
PAPAS
DULCES


Contenido Neto
650ml
SIN GAS
SAN LUIS
The Coca-Cola Company


Developing incentives for farmers to conserve agrobiodiversity for the public good-eng.wmv

CAPRi

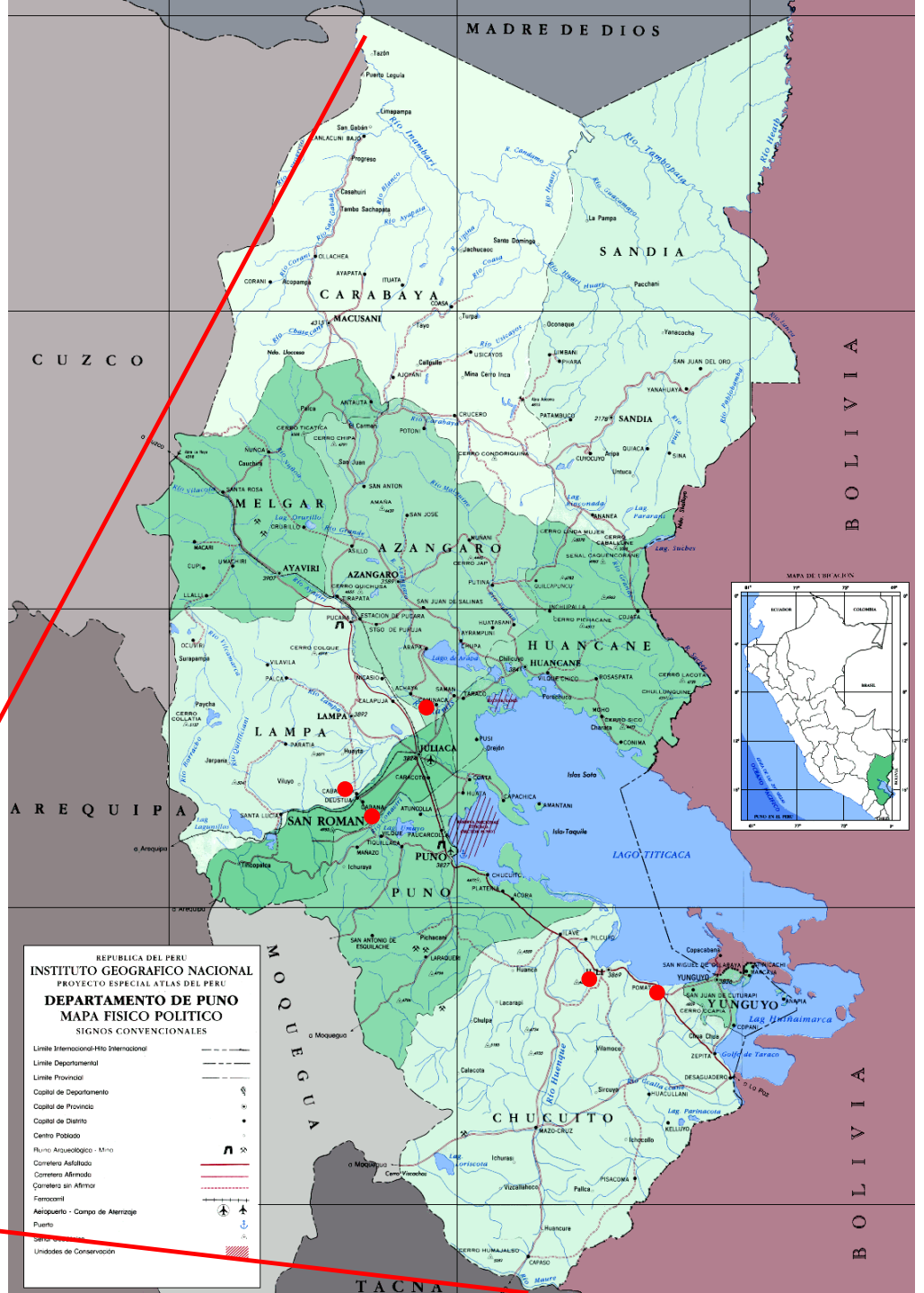
Bioversity International

CIRNMA

bc3
BASQUE CENTRE
FOR CLIMATE CHANGE
Klima Aldaketa Ikergai

UNIVERSITY OF CAMBRIDGE

The Peruvian Andes

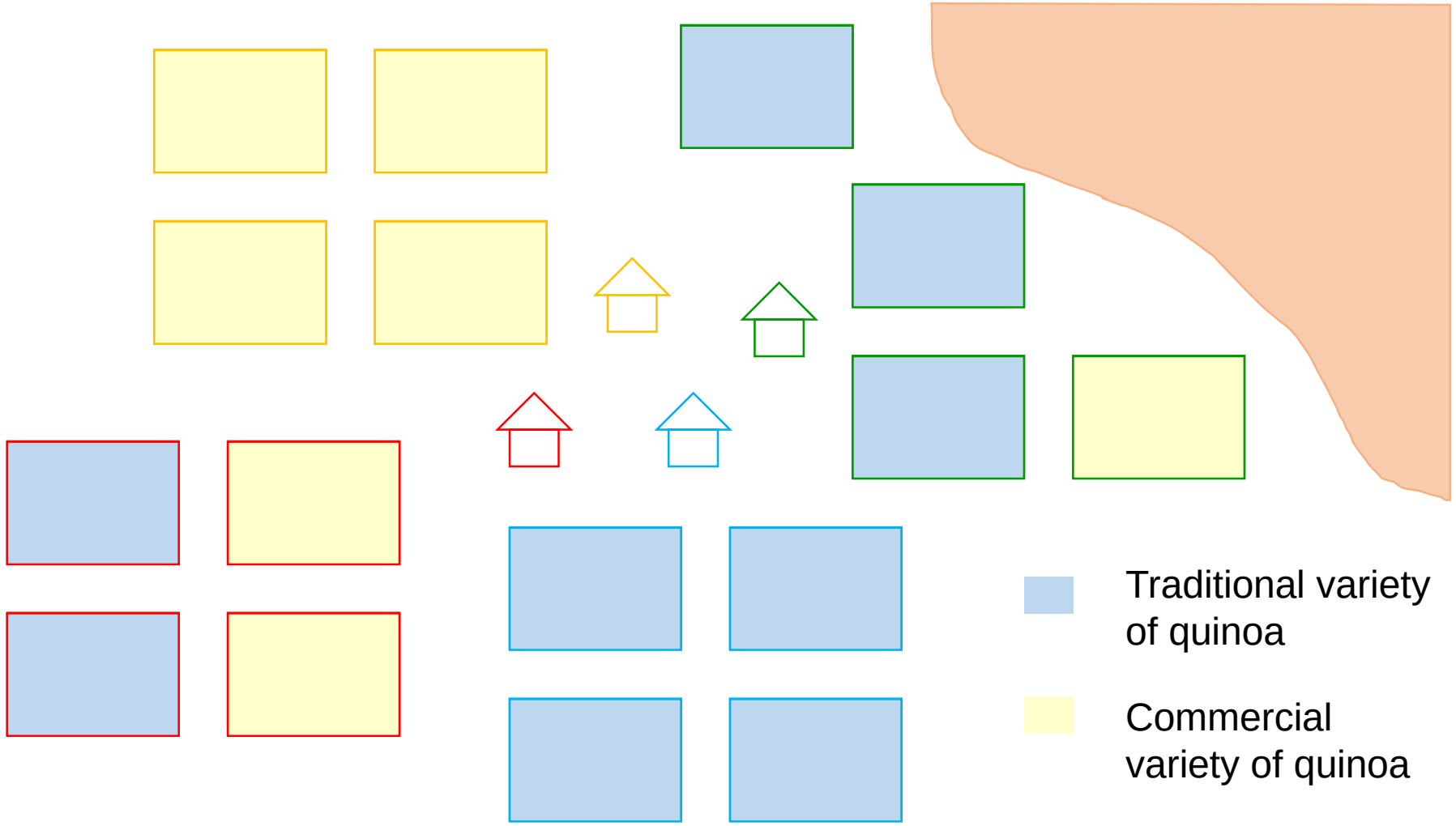


Methods

- Field experiment in 9 subsistence farming communities in the Andean high-plains in Peru (Puno province around Lake Titikaka).

- Framed field experiment – main assumptions:
  - Private net benefits from cultivating commercial variety > traditional crop variety
  - Public benefits depend on conservation thresholds being reached (safe minimum population)

Game design: Impure public good game with a threshold, 6 rounds

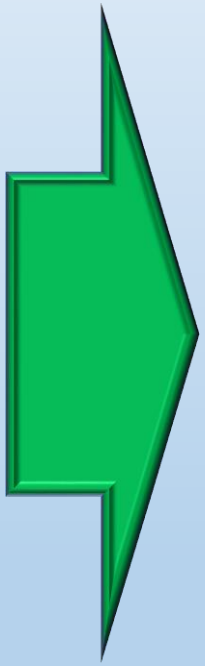


Baseline game and treatments

Part 1 (rounds 1-6): Baseline game

All farmers (176 participants)
Without access to:

- communication
- reward



Part 2 (rounds 7-12): Treatment game

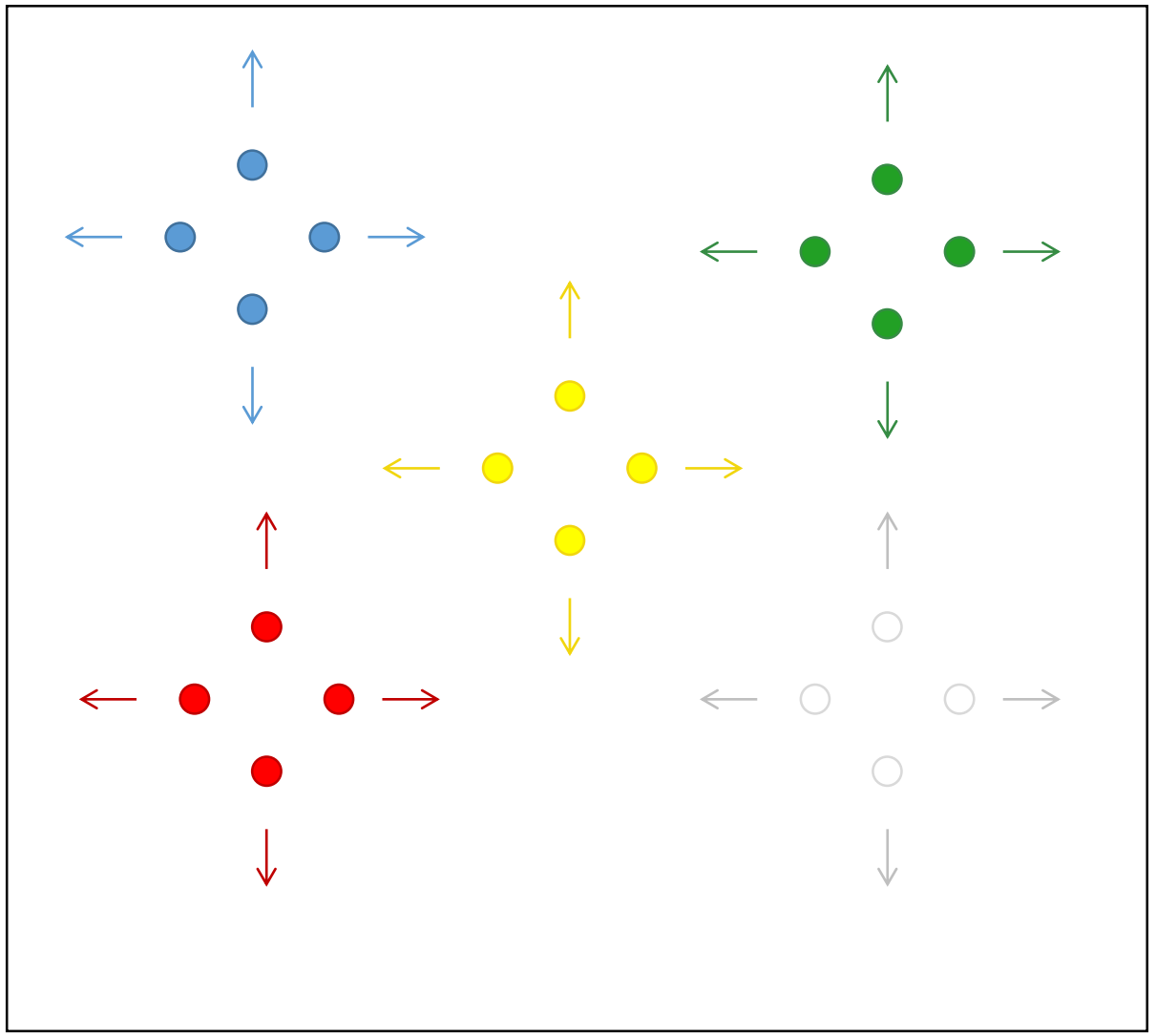
Individual reward (40 participants)

Collective reward (40 participants)

Communication & NO reward (40 participants)

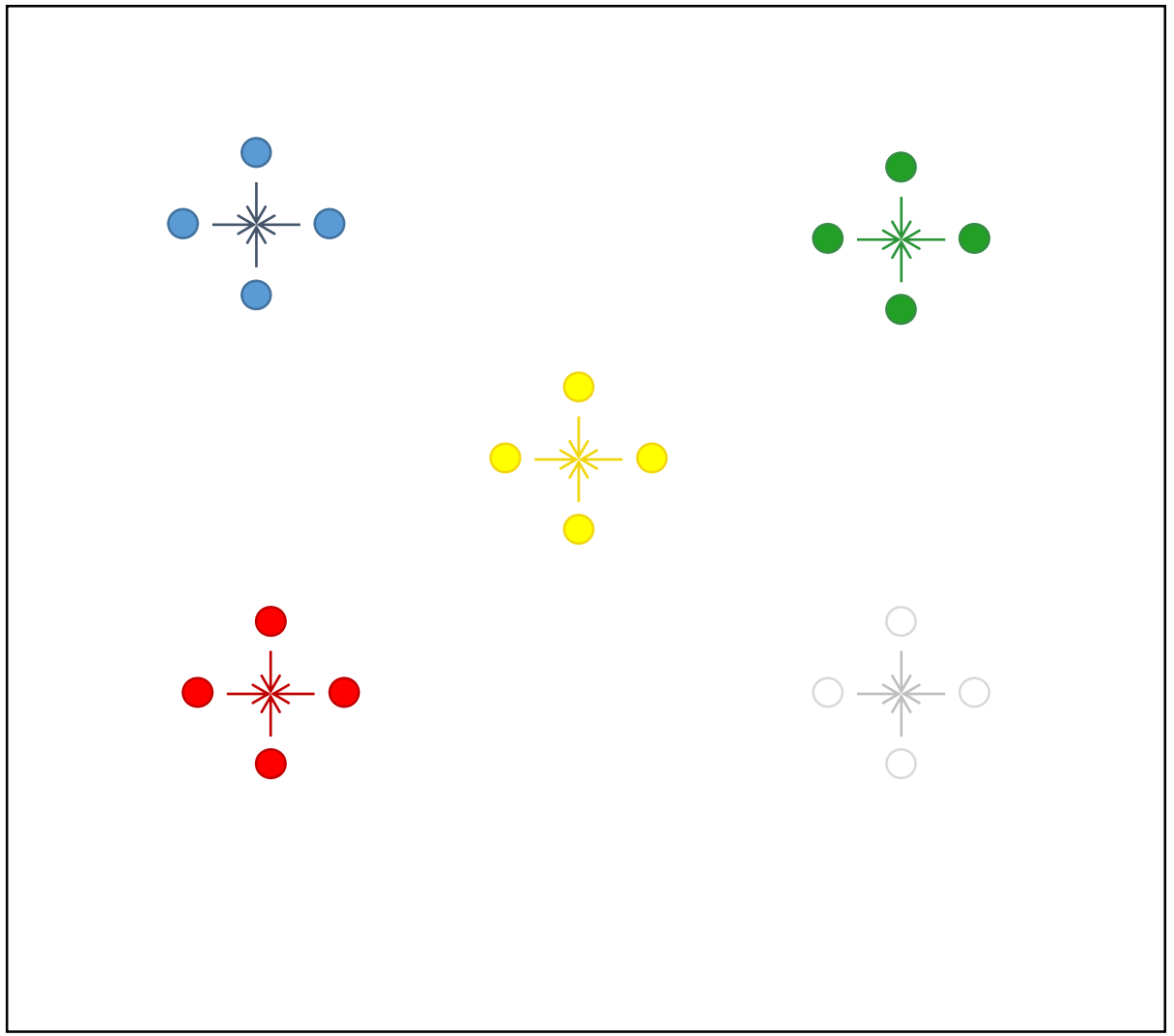
Communication + collective reward (56 participants*)

Map of the room, without communication

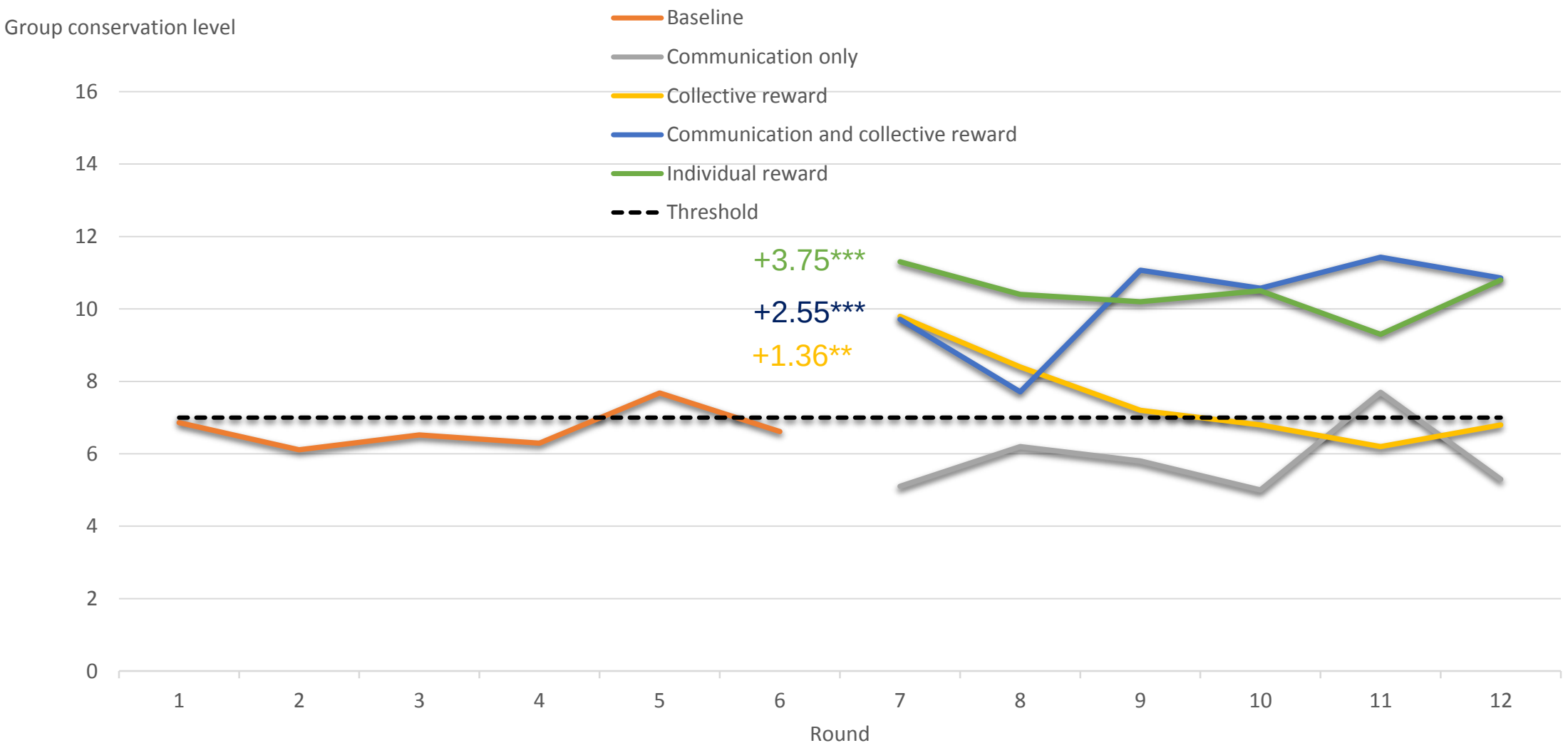


Information provided: identities, group-level conservation in each period, no indications of individual-level conservation

Map of the room, during communication



Results 1/2 (treatment effects)



Results 2/2 (interactions with IM)

Effect of external reward	Collective reward	Individual Reward
Direct Effect	0	**+++++**
Indirect Effects		
Unconditional cooperativeness	☹	☹
Social reciprocity effect	0	0
Conservation threshold effect	0	☹
Family, kinship ties effect (trust)	☺	**0**
Total Effect (Average)[#]	**+**	**+++**
Complementarity effect of communication on the collective reward	☺	n.a.

Discussion

- Individual rewards appear to be more effective in promoting cooperation than collective rewards (against expectations!)
- Farmers seem to be more *unconditionally cooperative* than *conditionally* cooperative
- Rewards do seem to crowd out intrinsic motivations in situations where unconditional cooperativeness is relatively robust
  - Caution about results since collective rewards require farmers to self-organize and cooperate, which may bring social benefits in context where social interactions are weak.

Discussion

- Increased interaction needed by agronomists, ecologists and social scientists (including economist, seriously!)
- Economists ALSO need to interact (more) with political scientists, anthropologists, sociologists and psycologists (no kidding!)
- PES should be considered as part of a policy MIX
- Formal institutions (laws and regulations, of course!) as well as informal institutions (collective action norms and rules) must be well understood before economic incentives are designed.

  → beware of crowding out moral/intrinsic motivations

"Good policies are those that support socially valued ends not only by harnessing selfish preferences to public ends but also by evoking, cultivating, and empowering public-spirited motives"

Bowles (2008) . Policies designed for self-interested citizens may undermine "the moral sentiments": Evidence from economic experiments. Science, 320, 1605-1609.