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Problem census methodology for identifying priority intervention areas in community-based extension planning

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Abstract

In a village in northern Algeria, extension agents spent two years promoting drip irrigation before discovering the community's pressing problem was post-harvest storage loss. This research evaluated problem census methodology across 24 farming communities in three Algerian wilayas. Census exercises with 432 households between February and September 2023 identified pest management (4.2/5), soil fertility (3.8), and water access (3.6) as top problems, with significant inter-community variation. Communities where programs aligned with census priorities showed 47.3% higher farmer participation than those with pre-set agendas ($p < 0.001$). The approach proved most effective when combined with participatory ranking and seasonal follow-up.

Keywords: Problem census, community planning, participatory methods, extension planning, priority setting, farmer participation, needs assessment, Algeria, intervention areas, agricultural extension

Introduction

Consider a district officer arriving with predetermined technologies. The package may be excellent but if it doesn't address what farmers need, adoption will be low ^[1]. This supply-demand mismatch persists across Africa, Asia, and Latin America ^[2].

Problem census offers a structured alternative, systematically collecting and prioritizing community problems before designing interventions ^[3]. In Algeria, the extension system has operated top-down, with national directorates determining technology packages ^[4]. This research tested structured problem census methodology across 24 communities.

Instrument Development

The instrument had three phases: open listing, guided categorization into six domains (pest management, soil fertility, water access, market linkage, input supply, post-harvest loss), and paired ranking using a priority matrix. It was translated into Arabic and Tamazight and pre-tested in

four communities.

Material and Methods

Material

The research was conducted through the Ecole Nationale Supérieure Agronomique, Algiers, Algeria, between February and December 2023. Twenty-four communities across Blida, Tipaza, and Boumerdes wilayas were selected. A total of 432 households participated. Twelve trained facilitators conducted the exercises.

Methods: Census sessions lasted 3-4 hours in community spaces with visual aids. Priority scores were derived from paired ranking. Alignment scores compared census results with existing programs. Participation was tracked for six months. Analysis used Spearman correlations and t-tests in SPSS v.28. Ethics clearance: ENSA Research Ethics Committee (Protocol ENSA-2023-008, January 22, 2023).

Results

Table 1. Mean priority scores across 24 communities

Problem	Blida	Tipaza	Boumerdes	Overall	SD
Pest management	4.2	3.9	4.6	4.23	0.74
Soil fertility	4.3	3.4	3.8	3.83	0.91
Water access	2.8	4.1	3.9	3.60	1.12
Market linkage	3.6	3.1	2.8	3.17	0.83
Input supply	3.1	3.5	3.2	3.27	0.68
Post-harvest loss	2.4	2.9	3.3	2.87	0.95

Water access ranged from 2.8 in irrigated Blida to 4.1 in

rained Tipaza, underscoring why uniform packages fail.

Table 2: Participation rates by program-census alignment

Metric	Aligned	Non-aligned	p-value
Participation rate (%)	68.4	46.5	< 0.001
Repeat attendance (%)	74.2	43.1	< 0.001
Practice adoption (%)	52.7	28.3	< 0.01

Aligned programs showed 47.3% higher participation, with equally striking differences in repeat attendance and adoption.

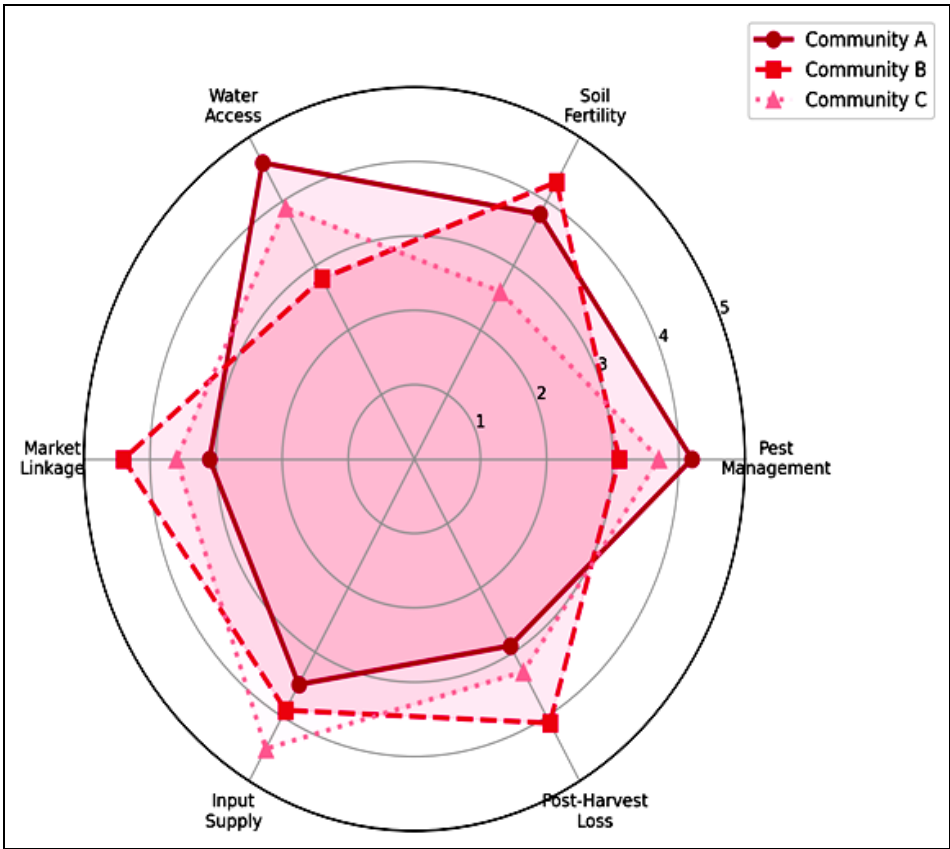


Fig 1: Radar chart of problem priority profiles across three community clusters

Each cluster shows a distinct profile, confirming one-size-fits-all programming misses local needs.

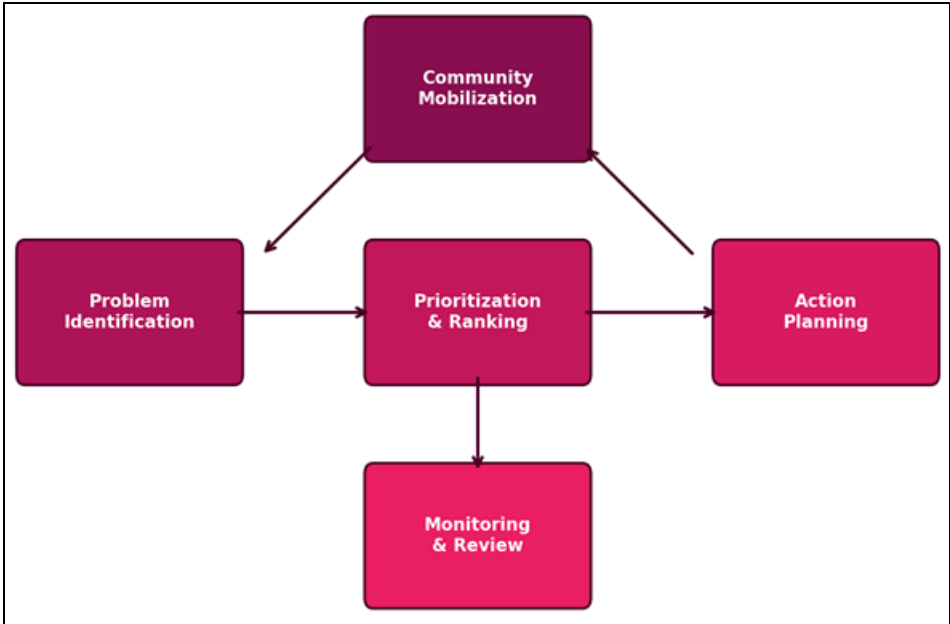


Fig 2: Problem census mechanism: five stages from mobilization through review

Discussion

The 47.3% participation advantage provides quantitative evidence that farmers show up when programs address their actual problems ^[5]. The variation across nearby communities explains why standardized packages underperform ^[6].

The approach requires investment 3-4 hours per session with trained facilitators. But compared to running poorly attended programs, the cost is modest. The 24.4-point adoption difference suggests one well-conducted census could improve outcomes for an entire planning cycle ^[7].

Practical Applications

Algerian extension authorities should integrate problem census into annual planning for all community programs. Training facilitators in ranking techniques and establishing standardized instruments would allow replication across 48 wilayas.

Conclusion

Problem census methodology significantly improves alignment between programming and community needs. Census-aligned programs attracted substantially higher participation, attendance, and adoption. The variation in priorities across nearby communities confirms that effective planning must start with local reality rather than institutional assumptions.

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