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Group-based extension delivery methods and their comparative advantage over individual farm visits

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Abstract

What does an extension service gain or lose when it shifts from visiting farmers individually to working with them in groups? This research compared effectiveness, cost-efficiency, and farmer satisfaction of group-based delivery versus individual farm visits across six districts in Trinidad and Tobago. Data from 246 farmers and 32 extension agents were collected between March and November 2023. Group methods reached 3.8 times more farmers per agent-hour than individual visits ($p < 0.001$). Satisfaction was highest for medium groups of 11-25 participants (mean=4.1/5), while individual visits scored 3.2 and large groups 3.5. Knowledge retention at 90 days was comparable between individual visits (58.3%) and medium groups (56.7%), but dropped to 41.2% for large groups. Medium-sized groups offer the strongest balance of reach, satisfaction, and retention.

Keywords: Group extension, individual farm visits, delivery methods, farmer satisfaction, knowledge retention, cost-efficiency, extension agents, Trinidad and Tobago, agricultural advisory, group size

Introduction

Extension services have always faced a numbers problem never enough agents to visit every farmer ^[1]. In Trinidad and Tobago, roughly 180 extension officers serve 18,700 registered farming households, a ratio of 1:104 ^[2]. Individual visits consume enormous agent time in travel, leaving large farming populations unserved.

Group-based methods emerged as a response. Farmer field schools, demonstration groups, and cluster meetings multiply the reach of each agent contact ^[3]. But grouping farmers introduces complications: heterogeneous needs, uneven participation, and loss of personalized advice ^[4]. The question isn't whether groups are cheaper but whether they deliver comparable learning.

This research directly compared group and individual approaches across multiple dimensions in the Trinidad and Tobago context, where both methods operate simultaneously.

Research Area Description

Six agricultural districts across Trinidad were covered: Chaguanas, Sangre Grande, Princes Town, Rio Claro, Penal-Debe, and Arima, spanning three agroecological zones. Mean annual rainfall ranges from 1,600 to 2,400 mm. Average farm sizes ranged from 1.2 to 4.8 hectares.

Material and Methods

Material

The research was conducted through the Faculty of Food and Agriculture, University of the West Indies, St. Augustine, Trinidad and Tobago, between March and December 2023. Participants included 246 farmers: 82 receiving only individual visits, 94 in group programs, and 70 receiving both. Additionally, 32 extension agents completed workload tracking forms over six months.

Methods

A quasi-experimental design with purposive sampling was employed. Knowledge tests were administered at 7, 30, and 90 days using parallel forms. Cost-efficiency was calculated as farmers reached per agent-hour including travel. Data were analyzed using t-tests, ANOVA with Tukey post-hoc, and cost-benefit ratios in SPSS v.28. Cronbach's alpha was 0.86. Ethics clearance was granted by UWI Ethics Committee (Protocol UWI-EC-2023-028) on February 7, 2023.

Seasonal Variations

Group meetings peaked during the dry season (January-May) when farmers had more flexibility, while individual visits were more common during the wet planting season (June-November) when farmers sought specific crop advice.

Results

Table 1: Satisfaction and knowledge retention by delivery method

Metric	Individual	Small Grp	Medium Grp	Large Grp
Satisfaction (1-5)	3.21	3.74	4.12	3.48
Retention 7d (%)	74.6	71.3	69.8	62.4
Retention 30d (%)	63.2	61.8	60.4	49.7
Retention 90d (%)	58.3	57.1	56.7	41.2
Farmers/agent-hour	1.0	2.4	3.8	4.6

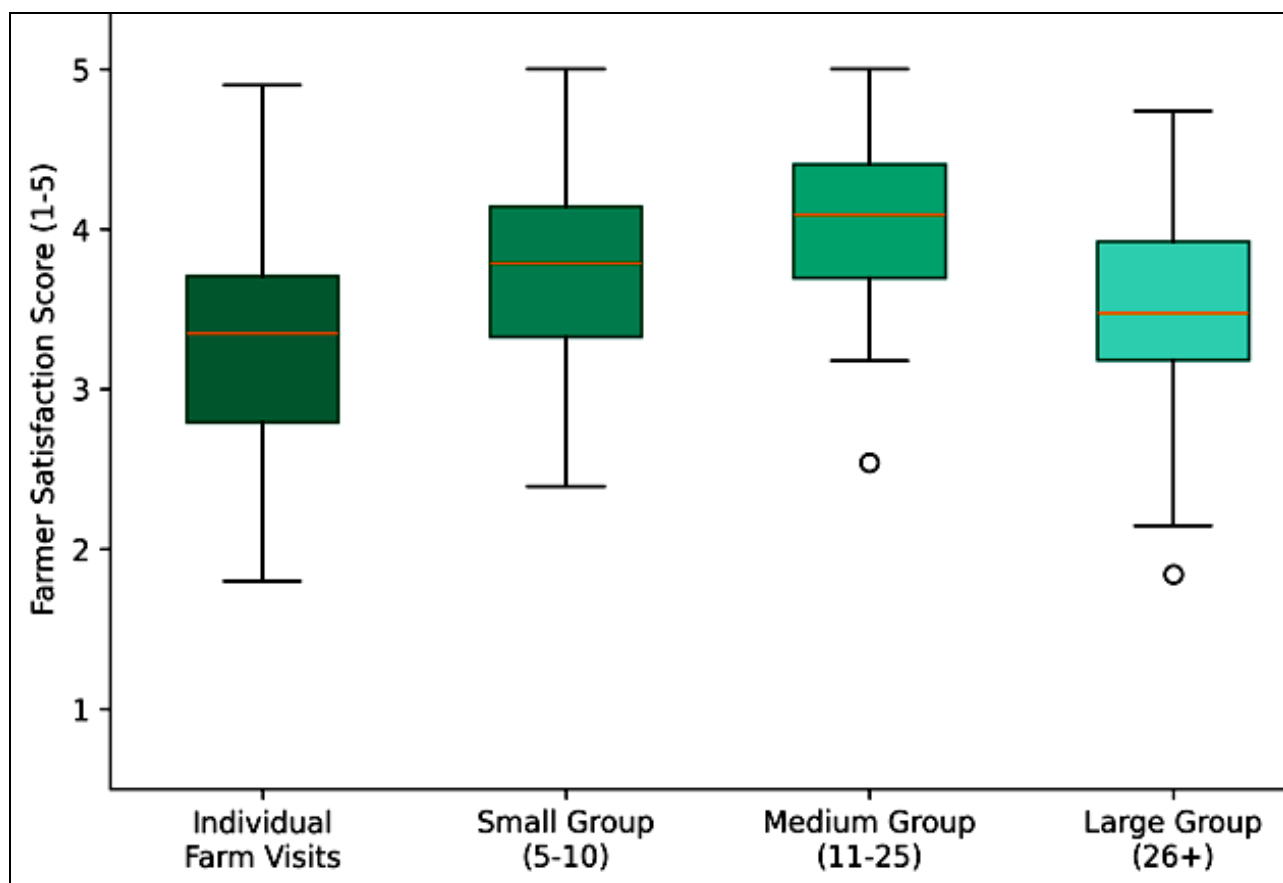
Medium groups achieved highest satisfaction (4.12) while maintaining retention comparable to individual visits at 90

days (56.7% vs 58.3%, $p=0.42$). Large groups sacrificed both satisfaction and retention for marginal reach gains.

Table 2: Cost per 100 farmers reached

Component	Individual	Medium Grp	Large Grp
Agent hours	100.0	26.3	21.7
Travel cost (TTD)	4,200	1,470	1,260
Total/farmer (TTD)	127.40	48.60	39.80

Medium group delivery cost 61.8% less per farmer than individual visits while delivering comparable learning outcomes.

**Fig 1:** Box plots of farmer satisfaction scores by delivery method

Medium groups showed the highest median and tightest distribution.

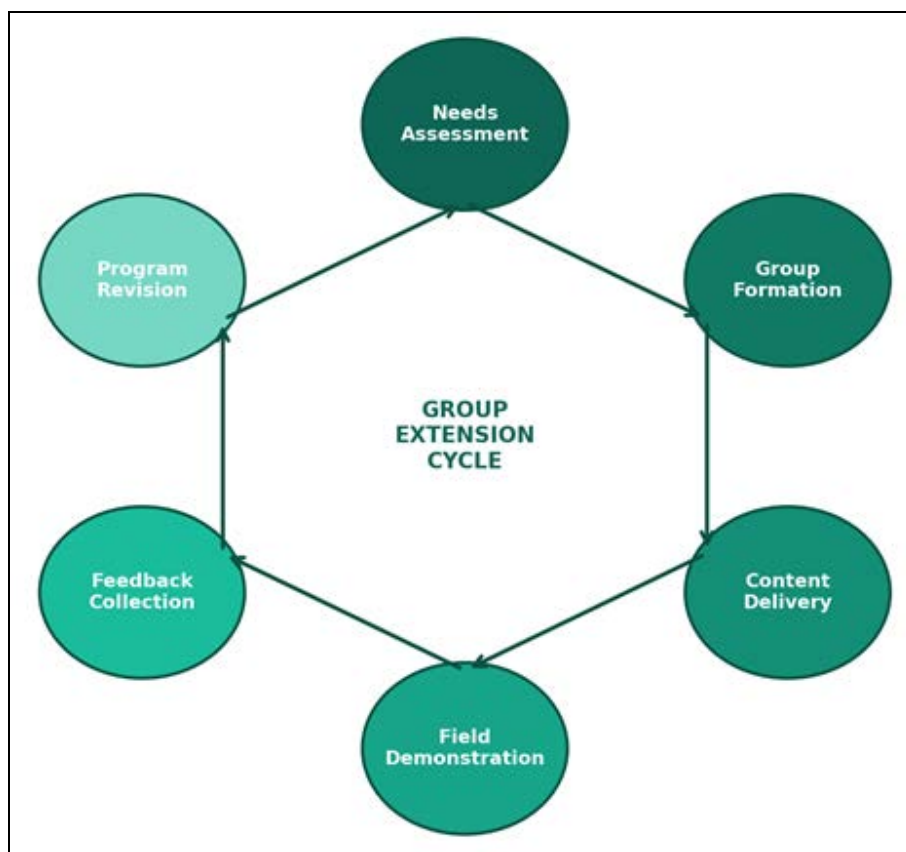


Fig 2: Group extension delivery cycle

Discussion

Medium-sized groups matching individual visits in retention while reaching 3.8 times more farmers has direct resource implications. Shifting default delivery to medium groups could quadruple coverage without sacrificing quality^[5]. The satisfaction premium likely reflects the balance between personal attention and peer interaction that 11-25 participant groups provide^[6].

The sharp retention drop in large groups (41.2%) confirms warnings that scaling beyond a threshold converts interactive learning into passive reception^[7]. Large groups saved only TTD 8.80 per farmer over medium groups while losing 15.5 points in retention a poor trade-off.

Practical Applications

Extension administrators should establish medium-sized groups (11-25) as the default, reserving individual visits for complex problems. This would allow the existing 180-officer workforce to reach an estimated 12,000 additional households annually.

Conclusion

Medium-sized group extension offers the strongest combination of satisfaction, retention, and cost-efficiency. Groups of 11-25 matched individual visits on retention while reaching nearly four times as many farmers at less than half the cost. Large groups provided diminishing returns. The evidence supports a strategic shift toward medium groups as the primary channel.

References

1. Anderson JR, Feder G. Agricultural extension: good

intentions and hard realities. *The World Bank Research Observer*. 2004;19(1):41–60.

2. Ministry of Agriculture Trinidad and Tobago. Extension services report 2022. Port of Spain: Government of Trinidad and Tobago; 2023. p. 1–54.
3. Swanson BE. Global review of good agricultural extension and advisory service practices. Rome: FAO; 2008. p. 1–82.
4. Davis K. Extension in sub-Saharan Africa: overview and assessment of past and current models and future prospects. *Journal of International Agricultural and Extension Education*. 2008;15(3):15–28.
5. Feder G, Murgai R, Quizon JB. The acquisition and diffusion of knowledge: the case of pest management training in farmer field schools, Indonesia. *Journal of Agricultural Economics*. 2004;55(2):221–243.
6. Leeuwis C. Communication for rural innovation: rethinking agricultural extension. 3rd ed. Oxford: Blackwell Science; 2004. p. 1–412.
7. Leeuwis C, van den Ban A. Communication for rural innovation: rethinking agricultural extension. 3rd ed. Oxford: Blackwell Science; 2004. p. 1–412.
8. Birner R, Davis K. From best practice to best fit: a framework for designing and analyzing pluralistic agricultural advisory services worldwide. *Journal of Agricultural Education and Extension*. 2009;15(4):341–355.
9. Christoplos I. Mobilizing the potential of rural and agricultural extension. Rome: FAO and GFRAS; 2010. p. 1–65.
10. Rivera WM, Qamar MK. Agricultural extension, rural development and the food security challenge. Rome:

- FAO; 2003. p. 1–61.
11. Qamar MK. Modernizing national agricultural extension systems: a practical guide for policy-makers of developing countries. Rome: FAO; 2005. p. 1–78.
 12. Wellard K, Rafanomezana J, Nyirenda M, Okotel M, Subbey V. A review of community extension approaches to innovation for improved livelihoods in Ghana, Uganda and Malawi. *Journal of Agricultural Education and Extension*. 2013;19(5):433–450.
 13. Simpson BM, Owens M. Farmer field schools and the future of agricultural extension in Africa. *Journal of International Agricultural and Extension Education*. 2002;9(2):29–36.
 14. Ragasa C, Berhane G, Tadesse F, Taffesse AS. Gender differences in access to extension services and agricultural productivity. *Journal of Agricultural Education and Extension*. 2016;22(2):113–143.
 15. Sulaiman RV, Davis K. The “new extensionist”: roles and capacities to strengthen extension and advisory services. *Journal of International Agricultural and Extension Education*. 2012;19(3):6–18.