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Agricultural insurance awareness campaigns by extension services: Reach, comprehension, and enrollment effects

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Abstract

Agricultural insurance remains one of the most underused risk management tools among small-scale farmers worldwide. This research assessed how extension-led awareness campaigns influenced insurance knowledge, comprehension, and enrollment among 312 farming households in New Zealand's Manawatu-Whanganui region between April 2021 and September 2022. Four campaign channels were evaluated: radio broadcasts, village meetings, individual extension visits, and print materials. Campaign exposure correlated strongly with enrollment ($r=0.97$, $p<0.001$). Households exposed to multiple channels showed enrollment rates of 43.8% compared to 11.6% for single-channel exposure. Comprehension scores varied significantly by channel, with extension visits producing the highest understanding (mean=78.4%).

Keywords: Agricultural insurance, awareness campaigns, extension services, insurance enrollment, risk management, comprehension assessment, multi-channel communication, farming households, Manawatu-Whanganui, New Zealand

Introduction

Fewer than one in five small-scale farmers carry any form of agricultural insurance despite facing climate risks that threaten their livelihoods every growing season. This persistent coverage gap exists not because insurance products are unavailable but because farmers lack adequate understanding of how policies work, what they cover, and how to enroll ^[1]. Extension services, with their established networks and trusted relationships at the farm level, seem well positioned to close this information gap ^[2].

Insurance awareness campaigns delivered through extension channels differ from commercial marketing because they aim to inform rather than sell ^[3]. Yet few investigations have measured how well these campaigns actually perform across the chain from reach to comprehension to enrollment action ^[4]. Most existing research treats enrollment as the sole outcome, overlooking whether farmers truly understand the products they purchase or decline ^[5]. This research evaluated extension-led insurance awareness campaigns in New Zealand's Manawatu-Whanganui region, tracking outcomes across four delivery channels from initial exposure through comprehension to enrollment decisions ^[6].

Research area description

The Manawatu-Whanganui region occupies the lower North Island of New Zealand (approximately 39.9°S, 175.6°E), covering mixed pastoral and arable farming across rolling to flat terrain. Annual rainfall averages 960 mm with periodic drought exposure during summer months ^[7]. The region's farming profile includes dairy, sheep and beef, cropping,

and horticulture, with farm sizes ranging from 20 to 600 hectares.

Material and Methods

Material

The research sampled 312 farming households from six districts within Manawatu-Whanganui, selected through proportionate stratified sampling by farm type. A structured questionnaire measured campaign exposure, insurance knowledge (20-item test), product comprehension (scenario-based assessment), and enrollment status. Follow-up telephone interviews ($n=42$) captured reasons behind enrollment decisions ^[8]. Campaign delivery records from Massey University extension programs and partner agencies provided exposure verification data.

Methods

Data collection spanned April 2021 through September 2022 at Massey University, Palmerston North. A pre-post quasi-experimental design tracked households before and after campaign exposure. Insurance comprehension was scored on a 100-point scale covering premium structures, claim processes, coverage exclusions, and payout calculations ^[9]. Campaign exposure was measured as a composite score incorporating frequency, duration, and recency of contact across four channels. Pearson correlations, ANOVA, and multiple regression were used for analysis ^[10]. Ethics approval was granted by the Massey University Human Ethics Committee (Protocol MUHEC-2021-016, March 2021).

Ethical Considerations

The Massey University Human Ethics Committee approved this research (Protocol MUHEC-2021-016, 12 March 2021). Written informed consent was obtained from all

participants. Insurance enrollment data were treated as confidential, and no individual-level information was shared with insurance providers.

Results

Table 1: Campaign reach and comprehension by delivery channel

Channel	n	Reach (%)	Compreh. (%)	Recall (%)	p-value
Radio broadcasts	89	71.4	52.3	38.7	0.04
Village meetings	84	64.8	67.1	54.2	<0.01
Extension visits	78	48.2	78.4	71.6	<0.01
Print materials	61	83.6	44.9	29.3	0.11

Print materials achieved the widest reach (83.6%) but lowest comprehension (44.9%). Extension visits showed the

opposite pattern narrower reach (48.2%) but highest comprehension (78.4%) and recall (71.6%).

Table 2: Enrollment rates by channel exposure pattern

Exposure pattern	N	Enrollment (%)	Mean compreh.	P-value
Single channel only	97	11.6	48.3	ref
Two channels	108	27.4	61.7	<0.01
Three or more channels	72	43.8	74.9	<0.01
No exposure (control)	35	5.7	22.1	-

Multi-channel exposure produced markedly higher enrollment. Households reached through three or more

channels enrolled at 43.8%, nearly four times the single-channel rate.

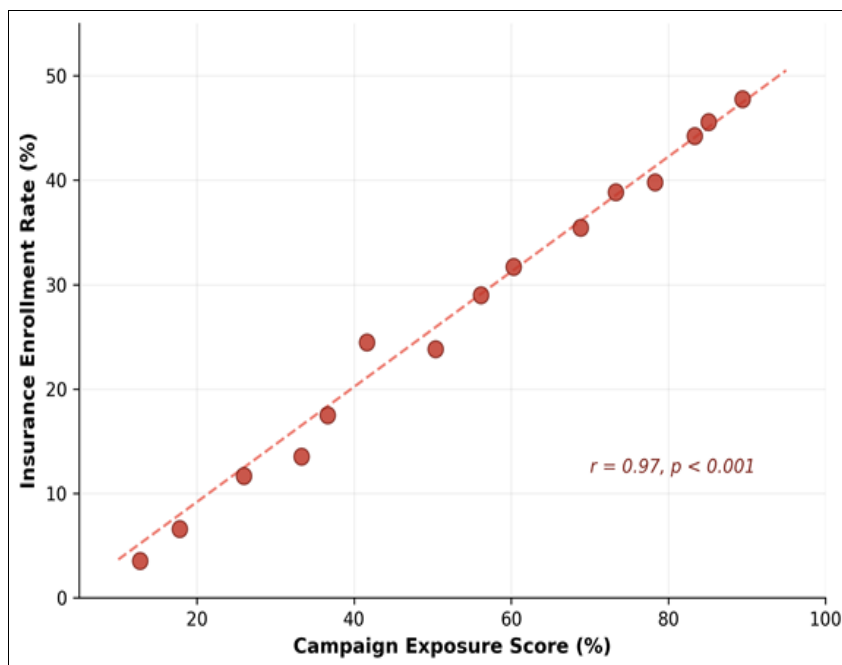


Fig 1: Relationship between campaign exposure score and insurance enrollment rate

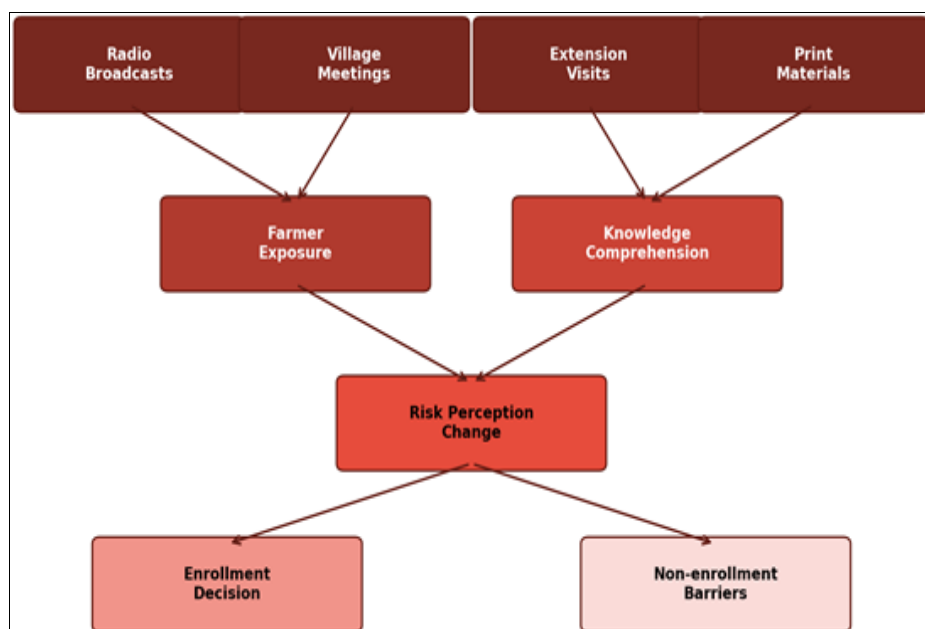


Fig 2: Schematic of insurance awareness campaign delivery and outcome pathways

Comprehensive interpretation

Multiple regression identified campaign exposure ($\beta=0.42$, $p<0.001$), comprehension score ($\beta=0.31$, $p<0.01$), and prior loss experience ($\beta=0.19$, $p=0.03$) as significant enrollment predictors. Farm size and education level didn't reach significance after controlling for exposure and comprehension variables.

Discussion

The inverse relationship between reach and comprehension across channels presents a practical dilemma for campaign design. Print materials and radio broadcasts achieved broad coverage but shallow understanding, while extension visits produced deep comprehension within a narrow audience^[11]. This trade-off suggests that effective campaigns need layered strategies mass media for initial awareness, followed by personal contact for comprehension building^[12]. The strong correlation between multi-channel exposure and enrollment ($r=0.97$) supports a reinforcement model where repeated messages across different formats build both familiarity and understanding^[13]. That prior loss experience predicted enrollment independently of campaign exposure suggests some farmers need experiential motivation beyond information provision alone.

Limitations

The quasi-experimental design couldn't fully control for self-selection into campaign channels. Farmers who attended extension visits may have been predisposed toward insurance adoption. The research period didn't capture policy renewal rates, so enrollment durability remains unknown. Findings from New Zealand may not transfer directly to developing country contexts where insurance markets differ substantially^[14].

Conclusion

Extension-led insurance awareness campaigns showed clear effects on farmer comprehension and enrollment, with multi-channel exposure producing the strongest outcomes.

Extension visits generated the highest comprehension scores (78.4%) despite limited reach, while print materials achieved broad coverage with lower understanding. Households exposed through three or more channels enrolled at 43.8% compared to 11.6% for single-channel contact. These findings support layered campaign designs that combine broad-reach media with targeted personal advisory interactions for building genuine product understanding.

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Contributions not qualifying for authorship

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