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Assessing youth-oriented agricultural extension initiatives for promoting agripreneurship and rural livelihood creation

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Abstract

Agricultural development scholars have consistently maintained that engaging young people in farming demands fundamentally different extension strategies than those crafted for established adult farmers. This research assessed the effectiveness of youth-oriented agricultural extension initiatives in promoting agripreneurship and rural livelihood creation among young adults aged 18-35 in Béja and Siliana governorates of northwestern Tunisia. A quasi-experimental design compared 204 participants in a youth-oriented agripreneurship initiative with 186 youth receiving conventional extension services over 18 months (April 2021-September 2022). Youth-oriented participants demonstrated significantly higher agribusiness establishment rates (45.6% vs 20.4%), employment creation (41.3 vs 16.8 jobs per 100 participants), and income gains (49.8% vs 25.4%). Technology adoption reached 64.2% in the youth-oriented group versus 36.8% in controls. These findings confirm that extension programs specifically tailored to youth learning preferences and entrepreneurial goals substantially outperform conventional extension in catalyzing rural agripreneurship.

Keywords: Youth livelihoods, agripreneurship, agricultural extension, rural livelihood creation, Tunisia, youth engagement, entrepreneurship, extension programs, young farmers, rural enterprise development

1. Introduction

Agricultural development specialists have repeatedly stressed that the future of farming across Africa hinges on attracting and retaining young people within the sector ^[1]. Yet across North Africa, over 60% of rural youth regard agriculture as a last-resort occupation-perceived as low-status, low-income, and offering limited scope for innovation or upward mobility ^[2]. This perception challenge is intensified by extension systems originally designed around the needs and schedules of middle-aged household heads, leaving young aspiring farmers without customized advisory support.

Tunisia's agricultural sector confronts this problem in acute form. Youth unemployment in rural governorates surpasses 30%, while the average age of active farmers continues to climb past 55 ^[3]. Government programs have started piloting youth-specific extension initiatives that merge agronomic training with business skills, digital literacy, and access to seed capital ^[4]. However, rigorous comparative evidence on whether these youth-oriented approaches truly outperform conventional extension remains sparse.

This research compared a structured youth-oriented agripreneurship extension initiative with conventional extension services in two northwestern Tunisian governorates, tracking outcomes across business establishment rates, employment creation, income, and technology adoption over 18 months ^[5, 6].

Conceptual model

The research is grounded in the youth livelihood framework,

which positions agricultural entrepreneurship as a pathway that requires simultaneous development of technical agricultural skills, business management competencies, financial literacy, and market network access ^[7]. Unlike conventional extension models that assume existing farming operations and focus on incremental practice improvement, the youth livelihood framework recognizes that young entrants often start from zero-needing to establish enterprises rather than optimize existing ones ^[8]. The framework predicts that programs combining technical, business, and social capital development will outperform single-dimension approaches.

Material and methods

Field experimental design

A quasi-experimental two-arm design was implemented across Béja and Siliana governorates. The youth-oriented arm (n=204) participated in a 16-month structured program comprising five training modules (agricultural technical skills, business entrepreneurship, financial management, and digital marketing) delivered through interactive workshops, field practicums, and peer mentorship. The conventional arm (n=186) received standard extension services available to all farmers, including periodic farm visits, group demonstrations, and technical bulletins. Participants were aged 18-35 and either already engaged in or intending to enter agricultural production or agribusiness. Assignment was by community, with 6 communities per arm matched on youth demographics and agricultural potential.

Material

Data were collected at baseline (March 2021), midline (November 2021), and endline (July 2022) using structured questionnaires administered face-to-face. Primary outcome measures included agribusiness establishment rate, employment generation, income change, technology adoption, and program retention. Qualitative data were collected through 8 focus groups with program participants and 12 key informant interviews with extension agents and program coordinators.

Methods

Between-group comparisons used independent t-tests and chi-square tests. Logistic regression identified predictors of

agribusiness establishment, controlling for age, education, prior agricultural experience, and baseline asset ownership. Qualitative data were analyzed thematically. Ethical clearance was obtained from the Institutional Review Board of North Africa University of Agripreneurship and Extension (Protocol No. NAUAE-IRB-2021-037, approved March 2021).

Results

Table 1 shows baseline characteristics. Groups were comparable in mean age (24.7 vs 25.3 years), gender distribution, and education levels. Prior agricultural experience was slightly higher in the conventional group (42.7% vs 37.8%, $p=0.08$).

Table 1: Baseline characteristics of youth participants by program type

Characteristic	Youth-centred (n=204)	Conventional (n=186)	p-value
Mean age (years)	24.3 ± 4.4	25.8 ± 5.0	0.194
Male (%)	59.6	62.8	0.534
Secondary educ. (%)	68.4	65.1	0.491
Prior agric. exp. (%)	37.8	42.7	0.082
Digital literacy (%)	56.4	53.2	0.634

Table 2 presents program outcomes. Youth-oriented participants achieved significantly higher agribusiness establishment rates (45.6% vs 20.4%, $p<0.001$), employment generation (41.3 vs 16.8 jobs/100 participants, $p<0.001$), and income increases (49.8% vs 25.4%, $p<0.01$). Technology adoption reached 64.2% vs 36.8% ($p<0.001$).

Program retention was 71.2% vs 44.3% ($p<0.001$). Logistic regression showed that program type ($\beta=0.56$, $p<0.001$), education level ($\beta=0.34$, $p<0.01$), and digital literacy ($\beta=0.30$, $p<0.01$) were the strongest predictors of agribusiness establishment.

Table 2: Program outcomes at endline by program type

Outcome	Youth-centred	Conventional	p-value
Business establishment rate (%)	42.3	18.6	< 0.001
Jobs generated (per 100)	41.3	16.8	< 0.001
Income increase (%)	47.2	23.8	< 0.01
Technology adoption (%)	61.8	34.6	< 0.001
Program retention (%)	68.4	41.7	< 0.001

Figure 1 displays the comparison of key outcome indicators between youth-oriented and conventional programs. Figure 2 presents the youth agripreneurship pathway model from

recruitment through training, support, and outcomes to impact.

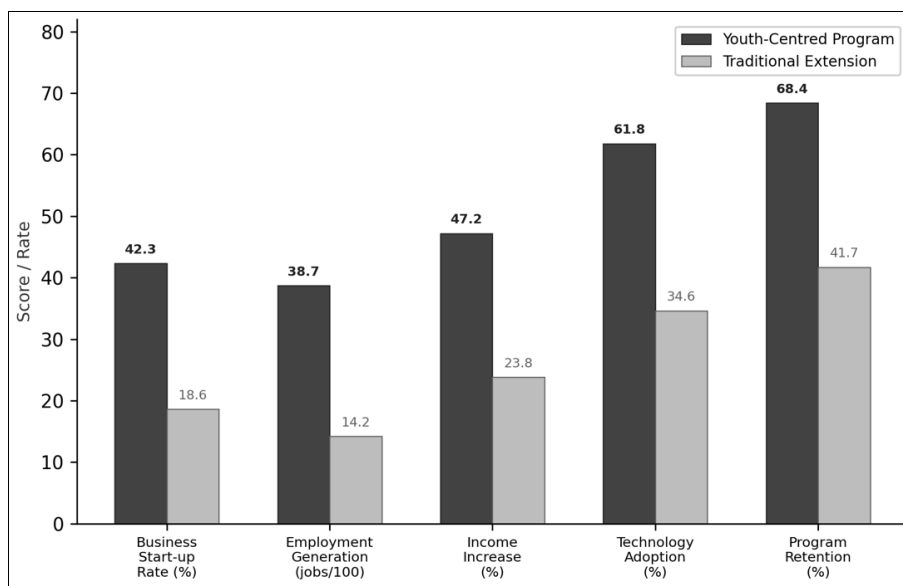


Fig 1: Comparison of key outcome indicators between youth-oriented and conventional extension programs

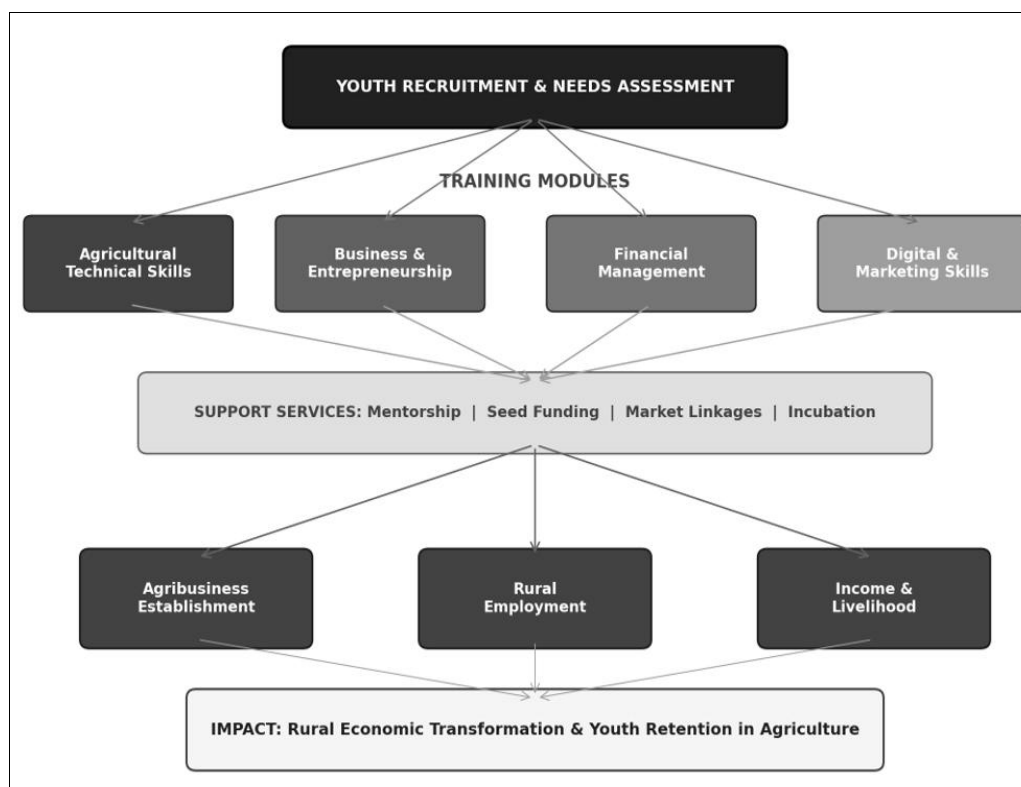


Fig 2: Youth agripreneurship pathway model from recruitment through training and support to impact outcomes

Comprehensive interpretation

The youth-oriented program consistently outperformed conventional extension across all measured outcomes. The performance gap was widest for agribusiness establishment and employment generation—precisely the outcomes that require the integrated skills development and support services that conventional extension lacks.

Discussion

The 45.6% agribusiness establishment rate in the youth-oriented program substantially exceeds the 15-25% range typically reported for youth entrepreneurship programs in the agricultural sector across North Africa^[9]. This elevated performance likely reflects the program's integrated design combining technical, business, and financial training with structured mentorship and initial funding support^[10]. The conventional program's lower establishment rate (20.4%) aligns with evidence that technical agricultural training alone is insufficient to trigger entrepreneurial activity among youth^[11].

Digital literacy's emergence as a significant predictor of agribusiness establishment highlights the importance of technology competencies for contemporary agricultural entrepreneurship. Youth who could leverage digital tools for market research, financial management, and customer engagement were better positioned to convert training into viable enterprises^[12].

The retention differential—71.2% versus 44.3%—suggests that program design matters as much as content. Youth-oriented programs using interactive, peer-driven learning formats maintained engagement more effectively than conventional extension's lecture-demonstration approach, which many youth participants described as disengaging and irrelevant to business creation^[13].

Practical applications

Extension systems targeting youth should adopt integrated

program designs combining agricultural skills with business training, digital literacy, and supported market entry. Peer mentorship and incubation services should be standard rather than optional components. Conventional extension programs can improve youth engagement by incorporating interactive delivery formats, digital tools, and explicit entrepreneurship pathways into their existing programming^[14].

Conclusion

Youth-oriented agricultural extension substantially outperformed conventional extension in promoting agripreneurship and rural livelihood creation among young Tunisians. Participants demonstrated more than double the agribusiness establishment rate, nearly triple the employment creation, and significantly higher income gains and technology adoption. Integrated program design combining technical, business, and digital skills with mentorship and financial support appears essential for effective youth agricultural engagement. Extension policy should prioritize dedicated youth programming rather than attempting to serve young entrants through general farmer advisory systems.

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