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Mind the Gap: Intra-household gender dynamics and agricultural technology adoption in Tunisia

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- International Center for Agricultural Research in the Dry Areas

Agricultural Technology: Kounouz Barley





Context– Study sites



Study objective & research questions



Methods



Results and discussion

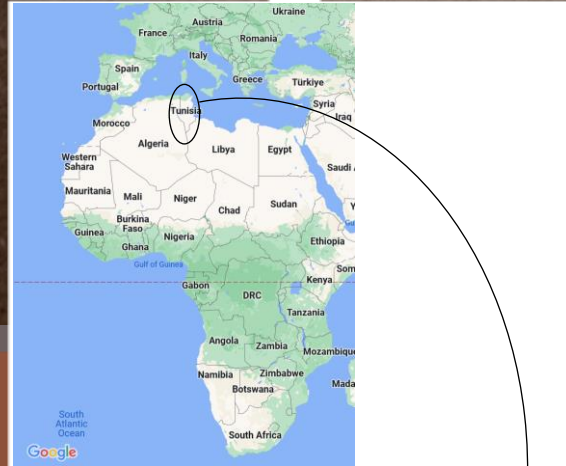


Conclusion



Photo: Saja Lewis (CSIS 2019)

Zaghouan and Kairouan Tunisia



Joint, family farming system

Men:



- Seen as **farmers**
- **Extension services oriented** towards them.
- **Crops** are considered **men's domain**.

Women:



- Considered as **helpers** or **unpaid family labor**.
- **Livestock** are considered **women's domain**.

Barley:
dual-purpose crop,
which impacts both
men's and women's
domains.

- **For human** consumption – food for family and/or to sell
- **For animal** consumption – feed source for livestock/sheep

Context –
Study Sites

Study Objective & Research Questions



- ❖ What **extension approaches** help **reduce gender inequalities** by **increasing women's access** to agricultural information, extension services, and their participation in decision making around adoption of agricultural technologies in joint, family farming systems?
- ❖ What **impact** do **intra-household gender dynamics**, related to **who has access** to extension services, agricultural information, and who participates in household-level agricultural decisions, have on household-level adoption of an agricultural technology?

Methods: Quantitative and Qualitative data



Quantitative data



Randomized control trial (RCT)

4 treatments + 1 control group



Survey data

- Part 1: household-level typically male household head was respondent
- Part 2: individual-level answered by men and women, typically spouses



Analysis

Descriptive Statistics & cross-tabs
Logit regression analysis

Qualitative data



Extension agent

20 interviews: 14 men and 6 women



Focus groups

17 focus group: 74 men and 41 women



Semi-structured interviews

240 interviews: half women, half men



Content analysis to extract meaning, patterns, and insights.

Extension Services

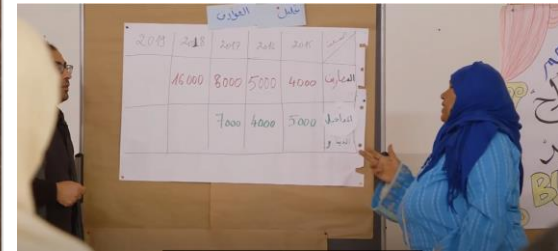
Technical training and subsidized inputs (TT and SI)



Business and cooperative trainings (B and C trainings)

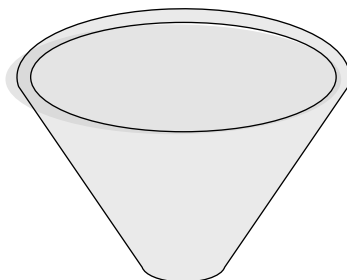


Women Targeted Economic, organizational, credit & technical training



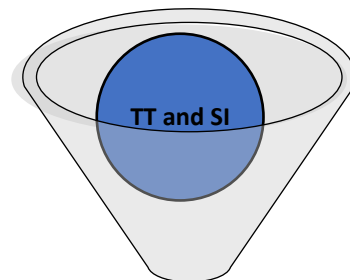
Randomized Control Trial

Control group



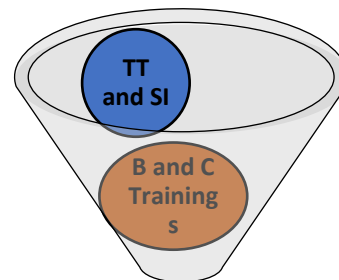
N=140

T1- TT and SI



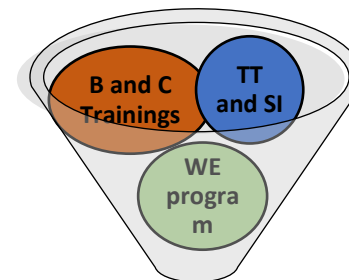
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**T2- TT and SI
+ B and C
Trainings**



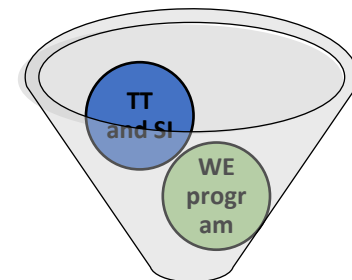
N=140

**T3- TT and SI +
B and C
Trainings +WE
program**



N=140

**T4- TT and SI
+WE program**



N=140

- **TT and SI**

Technical training and subsidized inputs

- **B and C trainings**

Business and cooperative trainings

- **WE program**

Women-targeted extension program including training exclusively for women on entrepreneurship, cooperatives, and subsidy programs, as well as technical training on Kounou

Results

1 Women's access to extension services and agricultural information

2 Women's agency and participation in Agricultural decisions

3 Intra-household gender dynamics and adoption of agricultural technologies

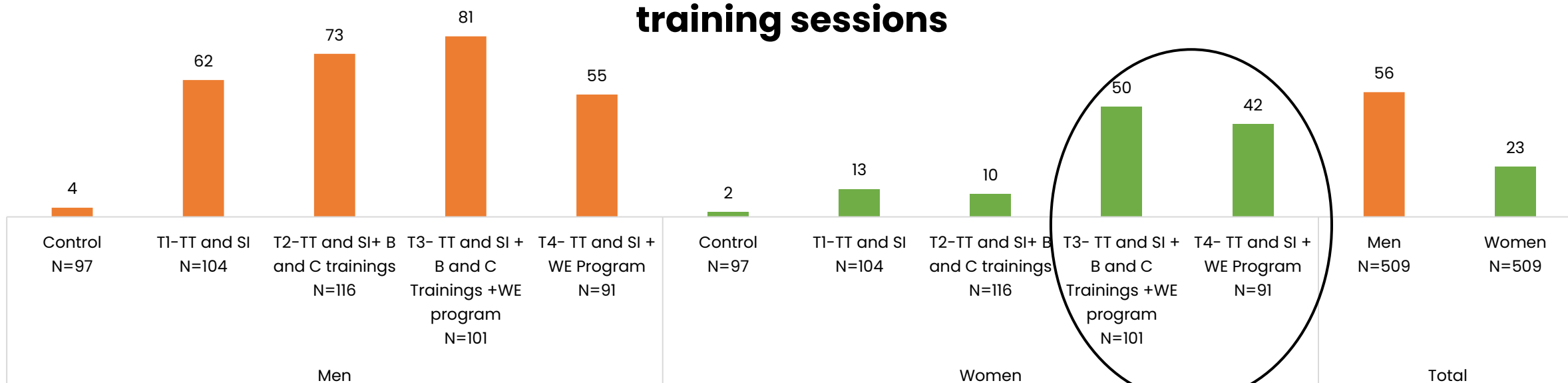




Photo: Felix Clay/Duckrabbit

Women's access to extension services and agricultural information

Proportion of respondents who have taken part in agricultural training sessions



Women in treatment groups T3 and T4 participated more in training sessions in the last 2 years.
 → The project's extension interventions had a positive impact on men's and women's access to extension



Photo: Felix Clay/Duckrabbit

Women's access to extension services and agricultural information

Who attends agricultural trainings?

- **None** of the project extension interventions explicitly **excluded women from participating**.
- **Gender norms** often **limit women's participation in extension services**, especially those oriented to agricultural production.
- **Invitations** to participate in extension programs **may inadvertently dissuade women** from participating "Dear Mr X and his family"



"I'm usually the one who takes part in the training sessions, it's usually the men who participate. Am I going to let my wife and daughters participate with the men [while I] stay at home doing nothing?"

Married, illiterate man from **Treatment 4** in Kairouan.



Photo: Felix Clay/Duckrabbitt

Women's access to extension services and agricultural information

Findings from perspective of extension agents

- Extension programs oriented towards women often **focused** on what are considered **women's topics** including (forest products, processing cereal by-products, particularly couscous, and non-agricultural activities, like sewing and handicrafts)
- Extension agents through MTG reported gaining an **increased understanding of women farmers' needs, especially with regards to crop production.**



Photo: Felix Clay/Duckrabbit

Women's access to extension services and agricultural information

Impacts of attending agricultural trainings on women and men



"I gained more self-confidence and started to express my opinions better, especially with my husband."

Married woman from **Treatment 3** in Zaghouan.

"The women took training courses with us and I witnessed how women can understand and apply information - thus the confidence in my wife's opinion increased."

Married, illiterate man from **Treatment 3** in Kairouan.

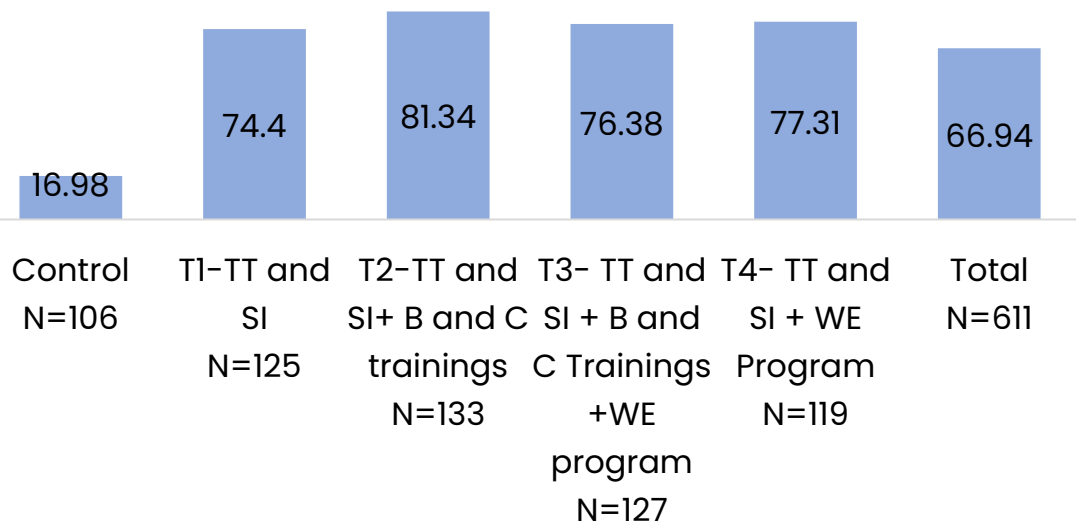


Photo: Felix Clay/Duckrabbit

Women's access to extension services and agricultural information

Who receives and learns from SMS

Proportion of households in which at least one household member (directly) received SMS texts.



■ Proportion of households in which a woman in the household received SMS text information either directly or indirectly.

■ Proportion of households in which a woman in the household directly received SMS texts.

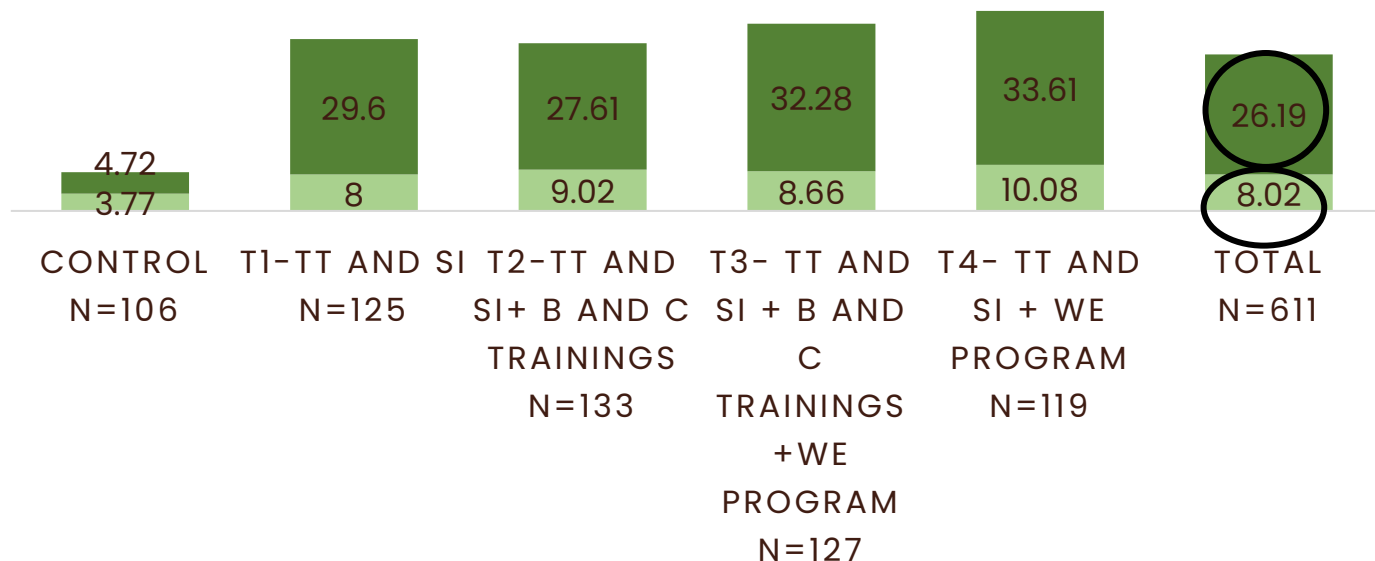




Photo: Felix Clay/Duckrabbit

Women's access to extension services and agricultural information

SMS sharing

"The messages arrive on my husband's phone, who works far away and doesn't tell me much about the messages, and I insist on knowing the new information, sometimes I ask my neighbor about the messages she receives."

Married, illiterate woman from **Treatment 1** in Kairouan

Since for the most part, **women got the information indirectly, wider network=more access for women.**

It is **not likely** that such an approach would **reduce gender gaps** in agricultural information; while more **women may get the information indirectly**, even more **men will get the information directly.**



Photo: Felix Clay/Duckrabbit

Women's agency and participation in decisions

Proportion of men and women reporting on luck for success

Q: To choose whether hard work or luck is responsible for success.

To be successful, one should first and above all be lucky

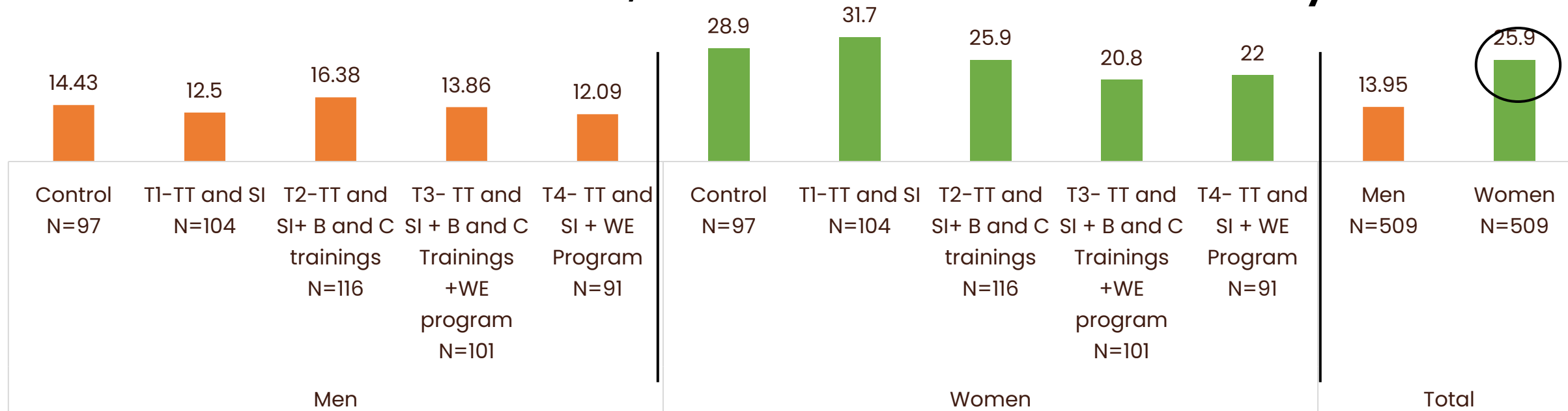




Photo: Felix Clay/Duckrabbitt

Women's agency and participation in decisions

Proportion of women and men contributing to decisions about agricultural activities

Proportion of respondents participating in crop decisions

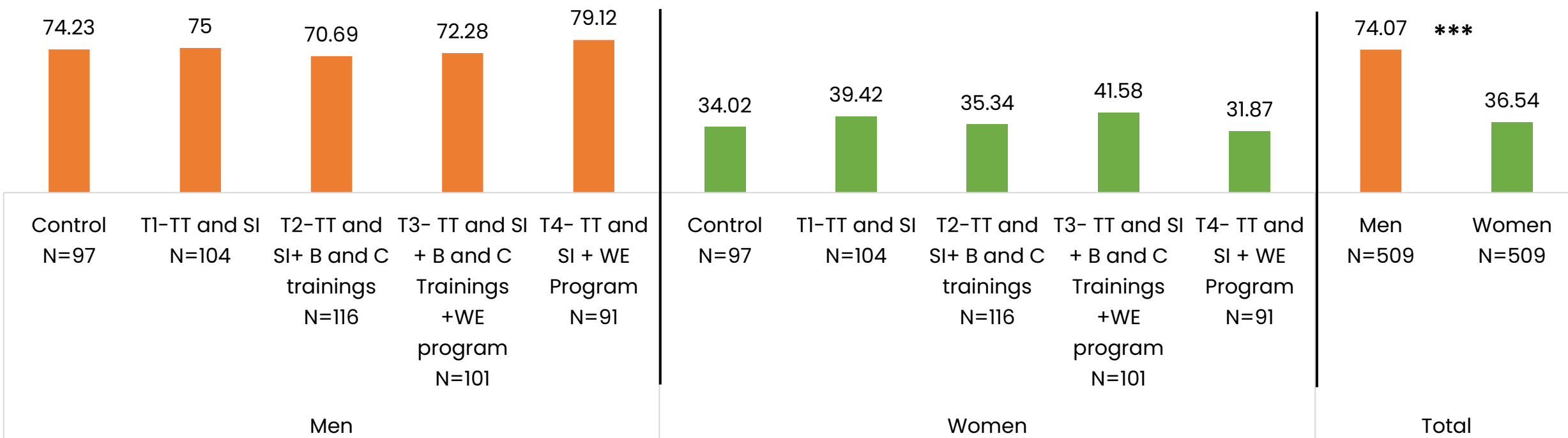




Photo: Felix Clay/Duckrabbit

Women's agency and participation in agricultural decisions

Proportion of women and men contributing to decisions about agricultural activities

Proportion of respondents participating in livestock decisions

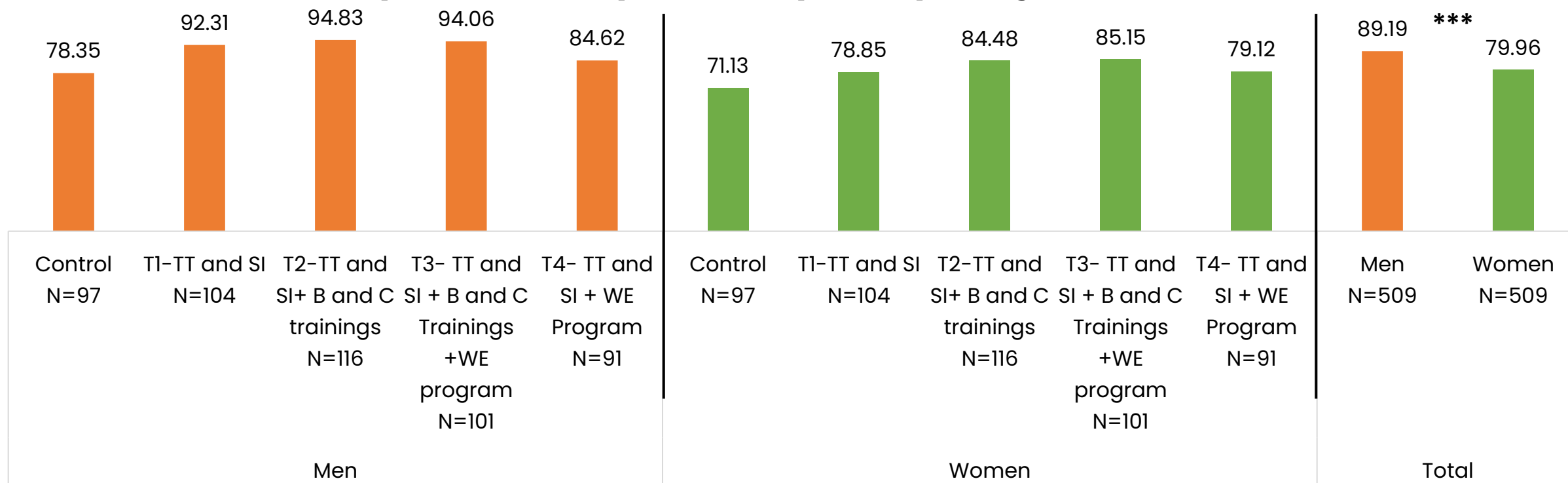
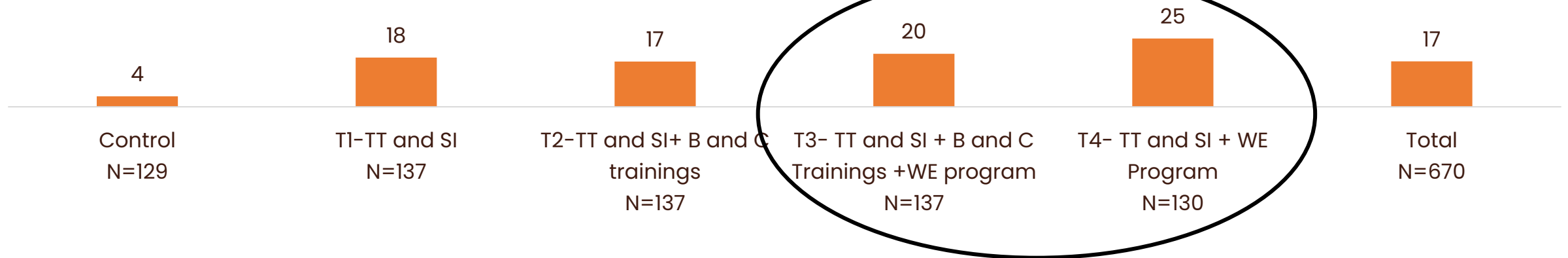




Photo: Felix Clay/Duckrabbit

Who in the household **makes agricultural adoption decisions** (asked in the household level questionnaire and as such was primarily answered by men) = **men's perceptions.**

Proportion of households in which women participated in the adoption decision



More households from **Treatment 3** and **Treatment 4** reported women participated in the adoption decision than in the other treatment groups and **the differences among all treatment groups were significant compared to control group at the 0.01 level.**



Photo: Felix Clay/Duckrabbitt

Women's agency and participation in agricultural decisions

How are agricultural decisions made?

The qualitative data indicated two tendencies

- The **dominant one**, reported by both men and women, was that **women do not participate** since agriculture is primarily the man's domain.
- The second, less prevalent, tendency is that **couples make decisions together**

"My husband is the decision-maker and farming is his role. I don't interfere in agricultural matters, and he doesn't discuss barley issues with me."

Married and illiterate woman from treatment 4 Kairouan

"My wife and I make decisions together, and we discuss even the simplest decisions."

Married and secondary educated man from Treatment 3 Zaghouan



Photo: Felix Clay/Duckrabbitt

Women's agency and participation in agricultural decisions

- Extension services oriented towards women had a **positive impact** on **women's participation in the adoption decision** supporting the idea that women who receive training experience an increase in recognition and validation of their knowledge and **increase men's confidence** in their wives' opinions, as expressed in the following quote.
- Other quotes illustrated the **stickiness of gender norms**; that they tend to stick around even if projects work to change them.

"I gained confidence in her opinion after the project because my wife was trained and given the right information so I started taking more decisions with her."

Married, illiterate man from **Treatment 3** in Kairouan.

"[There is] No role for women; women are not involved in decisions concerning cultivation, buying and selling."

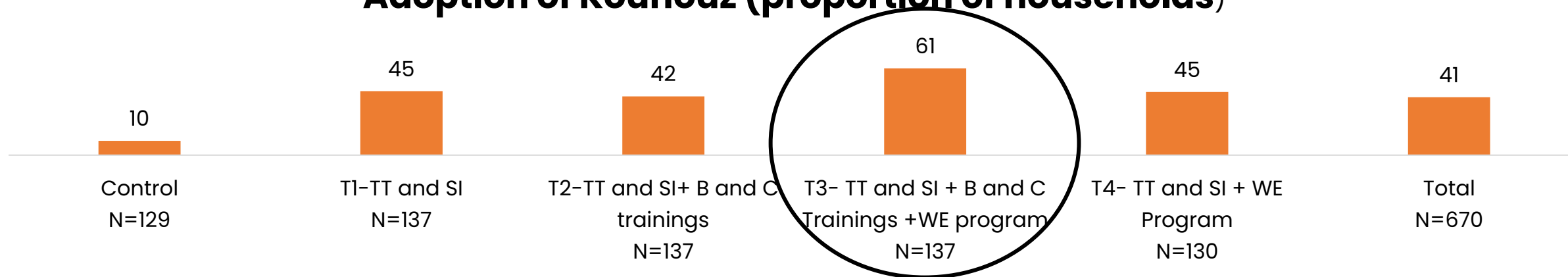
Married man whose wife attended the WE training with primary education from **Treatment 4** in Kairouan.



Photo: Felix Clay/Duckrabbit

Intra-household gender dynamics and adoption of agricultural technologies

Adoption of Kounouz (proportion of households)



Adoption rates varied among the treatment groups and these differences were statistically significant when compared to control group.



Photo: Felix Clay/Duckrabbit

Intra-household gender dynamics and adoption of agricultural technologies

Determinants of Adopting Kounouz Barley

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		
	Coeff	Std. Error	Coeff	Std. Error	Coeff	Std. Error	Coeff	Std. Error	Coeff	Std. Error	Coeff	Std. Error	
Treatment group	Control	Base	Base	Base	Base	Base	Base	Base	-1.64***	0.430	-2.40***	0.435	
	T1-TT and SI	2.00***	0.339	1.45***	0.376	1.47***	0.393	1.64***	0.430	Base	-0.76**	0.306	
	T2-TT and SI+ B and C trainings	1.85***	0.34	1.27***	0.379	1.34***	0.406	1.56***	0.447	-0.09	0.309	-0.84***	0.303
	T3- TT and SI + B and C Trainings +WE program	2.65***	0.342	2.15***	0.377	2.28***	0.395	2.40***	0.435	0.76**	0.306	Base	Base
	T4- TT and SI + WE Program	1.97***	0.342	1.44***	0.382	1.29***	0.404	1.19***	0.443	-0.46	0.316	-1.21***	0.335
Key variables of interest	Household received SMS texts			0.48**	0.229	0.43*	0.251	0.36	0.270	0.36	0.270	0.36	0.270
	Woman received agricultural information			0.53**	0.213	0.45*	0.229	0.52**	0.251	0.52**	0.251	0.52**	0.251
	Woman participated in adoption decision			0.38*	0.234	0.55**	0.257	0.59**	0.281	0.59**	0.281	0.59**	0.281
Farm and household characteristics	Governorate Zaghouan (base = Kairouan)					-0.31	0.243	-0.32	0.270	-0.32	0.270	-0.32	0.270
	Household size					0.07*	0.045	0.12**	0.052	0.12**	0.052	0.12**	0.052
	Land Size (ha)					0.03**	0.015	0.04**	0.017	0.04**	0.017	0.04**	0.017
	Distance to extension office (km)					-0.01	0.009	-0.01	0.010	-0.01	0.010	-0.01	0.010
	Respondent – man (base = woman)					0.14	0.310	0.70	0.455	0.70	0.455	0.70	0.455
Respondent Control Variables	Respondent Age					0.00	0.008	-0.02	0.017	-0.02	0.017	-0.02	0.017
	Education (base category = Less than Primary)												
	Primary					-0.07	0.225	-0.10	0.250	-0.10	0.250	-0.10	0.250
	More than Primary					-0.43	0.310	-0.46	0.357	-0.46	0.357	-0.46	0.357
	Main Occupation Crops					0.26	0.215	0.04	0.247	0.04	0.247	0.04	0.247
Has Off Farm Income					-0.04	0.218	-0.05	0.237	-0.05	0.237	-0.05	0.237	
Spouse Control Variables	Spouse Age							0.03*	0.017	0.03*	0.017	0.03*	0.017
	Education (base category = Less than Primary)												
	Primary							0.15	0.267	0.15	0.267	0.15	0.267
	More than Primary							0.47	0.471	0.47	0.471	0.47	0.471
	Main Occupation Crops							0.46	0.299	0.46	0.299	0.46	0.299
Has Off Farm Income							0.23	0.351	0.23	0.351	0.23	0.351	
Constant	-2.19***	0.292	-2.21***	0.313	-2.65***	0.696	-3.98***	0.972	-2.33**	0.958	-1.57	0.972	
Model Information													
Number of obs (n =)	670		611		580		509		509		509		
LR Chi2(4)	85.88***		93.77***		103.01***		104.62***		104.62***		104.62***		
Pseudo R2	0.0947		0.1124		0.1303		0.1525		0.1525		0.1525		
Log likelihood	-410.2969		-370.12241		-343.82034		-290.81346		-290.81346		-290.81346		

Statistical significance represented by asterisks, *** 0.01, ** 0.05, * 0.1.



Photo: Felix Clay/Duckrabbit

Intra-household gender dynamics and adoption of agricultural technologies

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Photo: Felix Clay/Duckrabbitt

Intra-household gender dynamics and adoption of agricultural technologies

Findings from the qualitative data analysis: Why T4 did not have same impacts as T3?

- Men sometimes felt threatened by the fact that women were receiving more training (as in treatment group 4).

“Even if my wife received 1000 training sessions, I will not allow her to interfere in decisions around agriculture ... and more generally!!

Married, illiterate man from **Treatment 4** in Kairouan

Conclusion



Photo: Felix Clay/Duckrabbitt

- **Extension programs** targeting **both men and women in the same household** with the same information helped **reduce gender inequalities** related to **accessing agricultural information** and **participation in agricultural decisions**, and had a **positive impact on adoption**.
- **Positive correlation** existed between **households that adopt agricultural technologies** and **those in which women participate in decision-making** processes and **in which women receive information**.
- **Women targeted** extension programs **increased women's knowledge** and **their decision-making power** to adopt technologies. They also facilitated the **recognition of women as farmers**, which **helped change perceptions held by local men, women themselves, and extension agents** alike.

Conclusion



- In households where **women had access to more training than men, men did not validate women's roles** and knowledge but rather **reverted to gender norms** to justify their own position of authority in agriculture.
- Our results suggest **the need to go beyond targeting women to addressing cultural and gender norms**, which will **support women's active participation** in agriculture as well as their **recognition as farmers**, which in turn supports broader agricultural development goals, such as adoption of agricultural technologies.



Photo: Felix Clay/Duckrabbitt

- ICARDA: International Center for Agricultural Research in the Dry Areas
- OEP: Office of livestock and pasture
- AVFA: The Agency for Agricultural Extension and Training
- GIZ: The German Development Agency
- INRAT: National institute of agronomic research of Tunisia
- IRESA: The Institution of Agricultural Research and Higher Education

Thank you

