



Programme for Improved Nutrition in Sindh

In support of the Accelerated Action Plan, Government Of Sindh

Wheat Farming: Evaluating the Impact of Digital Advisory Services to small farmers in 8 Districts of Sindh through GrowTech - A Case Study of Rabi (Winter) 2022



Why the GrowTech Trials? Impact through Strategic Collaboration



1. Training under PINS ER3 focused on improved crop cultivation methods and techniques. This showed positive results in yield increases (increase of 8-10%). But yields continued to be well below those of more progressive local farmers.

There was **room for significant productivity increases**.



2. Focus Group Discussions with small farmers highlighted several underlying barriers to increased productivity. Among these were small farmers not getting on-farm technical support (**e.g. on crop health and pesticide/nutrient use**).



3. In the absence of on-going support from the Agriculture Extension Department, small farmers in Punjab appear to be 'Early Adopters' of Digital Advisory Services to access **low cost, tailored support for their crop cycle management**.

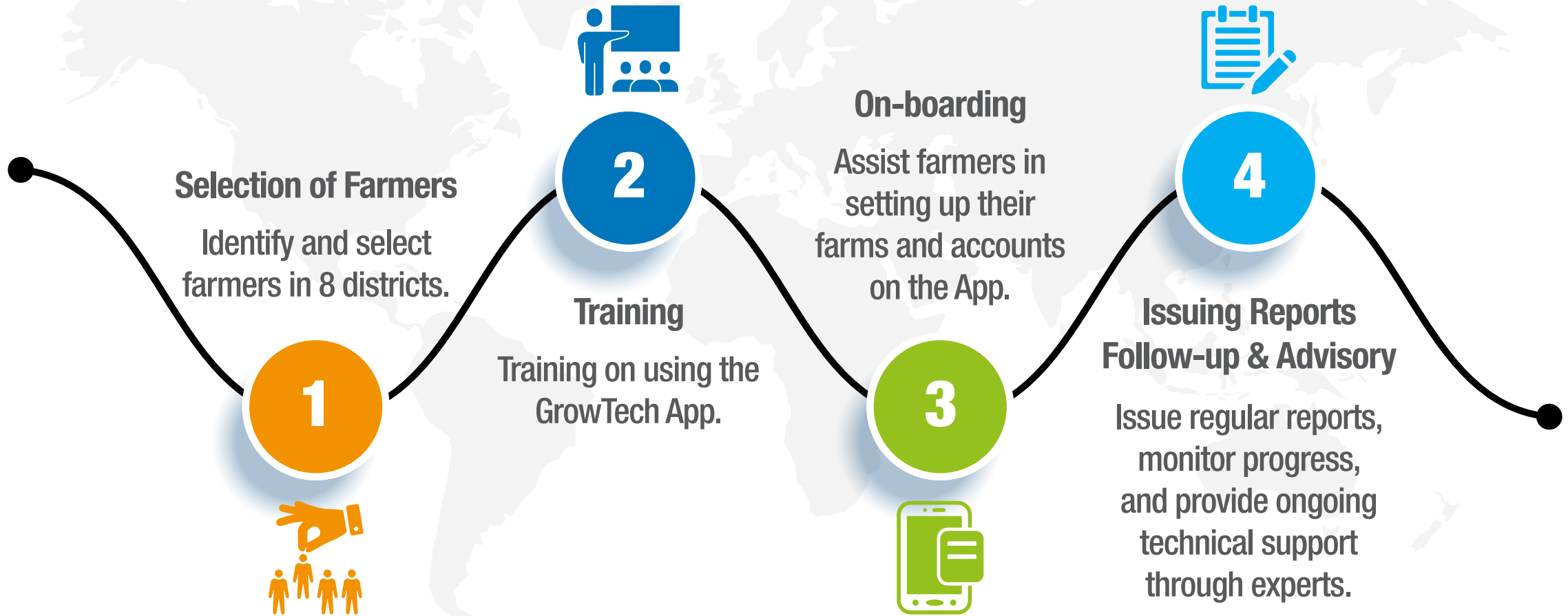


Improving Outreach: Enhancing Small Farmers' Profitability & Sustainability through Digital Advisory Services

Objective	Benefits	Desired Impact
Provide timely and relevant expert advice to small farmers.	● Improve on-farm decision making and modernize crop cultivation techniques. ● Reduce farmer costs by optimizing input usage (fertilizers, micro-nutrients, pesticides). ● Increase yields through data-informed management of crops across their lifecycle.	● Make target farmers more profitable per acre. ● Enhance sustainability in agricultural practices.



GrowTech Implementation Process





Package of Advisory Services and Support Provided to Each Farmer

GrowTech Features

Intended Impact

- Farm Reports in farmer-friendly language every 10 days
- Soil Organic Carbon (SOC) and Nitrogen Analysis.
 - Farm Management zones.
 - Fertilizer and Micro-Nutrient recommendations.
 - Plant Health & Water Stress Analysis.

- Farm Management Log
- A log of all activities done on the farms along with their costs for profit/loss forecasts.

- Expert Helpline and Chat Support
- Rapid responses to farmer questions and queries by Agriculture experts.
 - Access to high quality inputs from reputable suppliers

Agri-Commerce (Market Place)

- Real-time weather updates and forecasts to allow for planning of key on farm activities.

Weather Forecast & Alerts

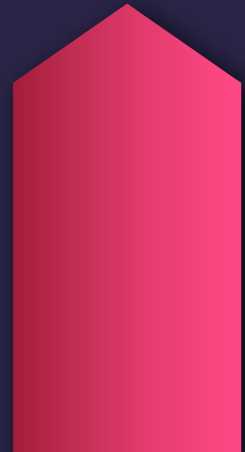
- Improve on-farm decision making and improving/modernising crop cultivation techniques
- Reduce farmer costs by optimising their input usage (fertilisers, micro-nutrients and pesticides).
- Increase yields by timely and data-informed management of crops across their lifecycle.
- Crop cycle planning and tracking/analysing inputs, costs, outputs/yields and income.
- Real-time support for queries and concerns.
- Improve access to quality assured inputs
- Crop cycle management decisions aligned with expected weather/agronomic conditions.



GrowTech Small Farmers' Profiles

185 Farmers / 720 Acres

Acres Breakdown: Distribution of Selected Farmers' Land Holdings

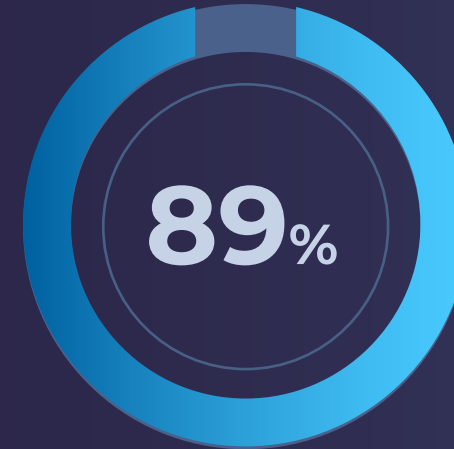


Acres > 6
95%

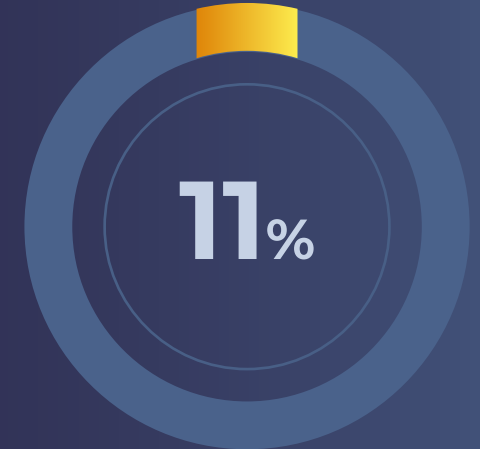


Acres > 6
5%

Gender Distribution: Breakdown of Selected Farmers by Gender



Men
89%



Women
11%

On-Going Support



- Crop Reports (10-15 Days)
- Daily Updates
 - Local Market Prices
 - Weather Forecasts
 - Pests etc.



- Local Groups Created.
- Moderated by Qualified Agronomists and Experts.
- 60% of target farmers used frequently for queries.
- 30-40 questions daily
- 1-2 hours response time



Summary of GrowTech Impact in 8 Districts

185 Farmers / 720 Acres

60%

ADOPTION RATE

59% farmers adopted and utilised the the technology. This 'Early Adoption' was driven by a few factors including positive relations with GT advisory personnel, availability of alternative income sources for risk-taking, and sufficient funds for recommended nutrient/inputs.



44%

AVERAGE YIELD INCREASE

This average yield increase compares data in districts with and without GrowTech implementation in 2023. In nearly all districts, yield increases of over 40% were observed, with variations attributed to the level of GrowTech App mobilization and the availability of on-ground information and support.



72%

NET INCOME INCREASE

Farmers' income rose by 44%, and expenses decreased by 15%. Farmers adopted a hybrid model for their interactions with GT experts and relied equally on WhatsApp support groups (and direct calls) for their queries and questions.





GrowTech App: Adoption Rates

District	Total Farmers	# of Farmers that Followed	Adoption rate
Kambar	27	15	56%
Shikarpur	25	18	72%
Larkana	25	14	56%
Matiari	19	11	58%
Sujawal	20	12	60%
Tando Mohammad Khan	25	14	56%
Thatta	21	12	57%
Tando Allahyar	23	14	61%
	185	110	60%

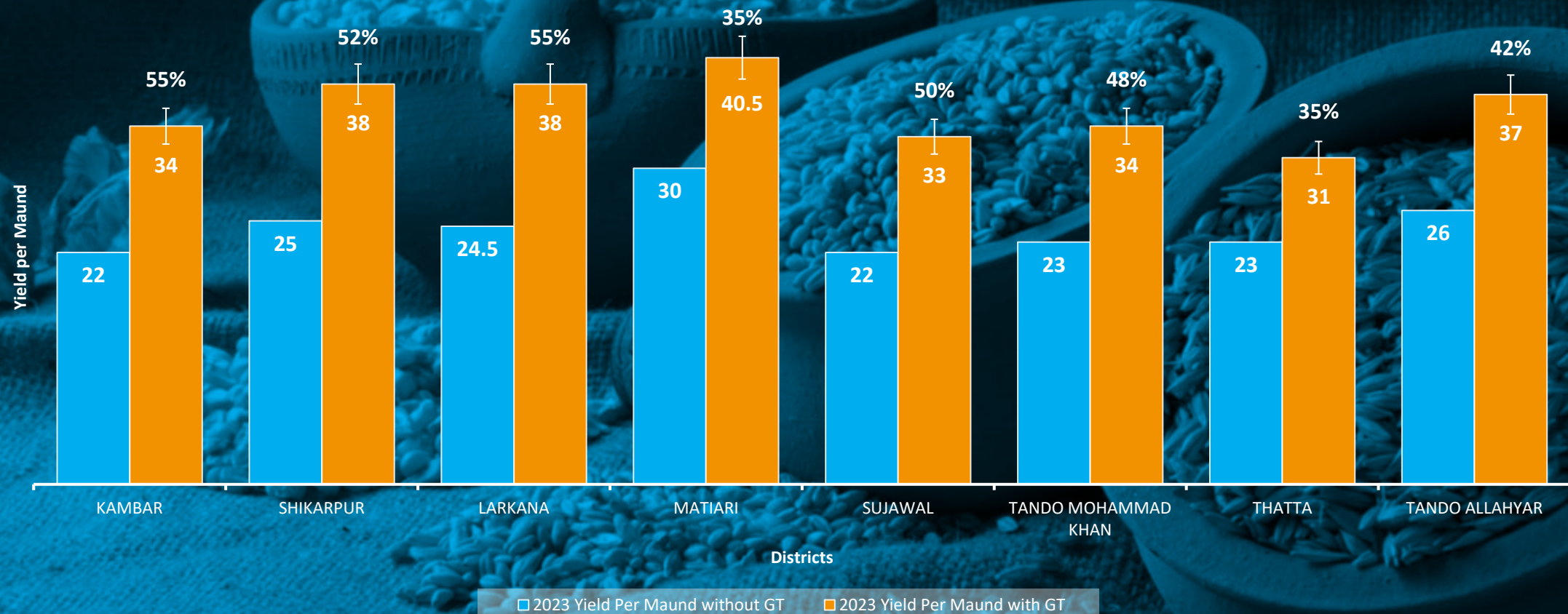


District	Non GT 2023	GT 2023	Yield Increase	Yield Increase %
Kambar	22	34	12	54%
Shikarpur	25	38	13	52%
Larkana	25	38	13	52%
Matiari	30	41	11	37%
Sujawal	22	33	11	50%
Tando Mohammad Khan	23	34	11	48%
Thatta	23	31	8	35%
Tando Allahyar	26	37	11	42%
	25	36	12	44%

* Rounded.

GrowTech Intervention Plots: District Trends

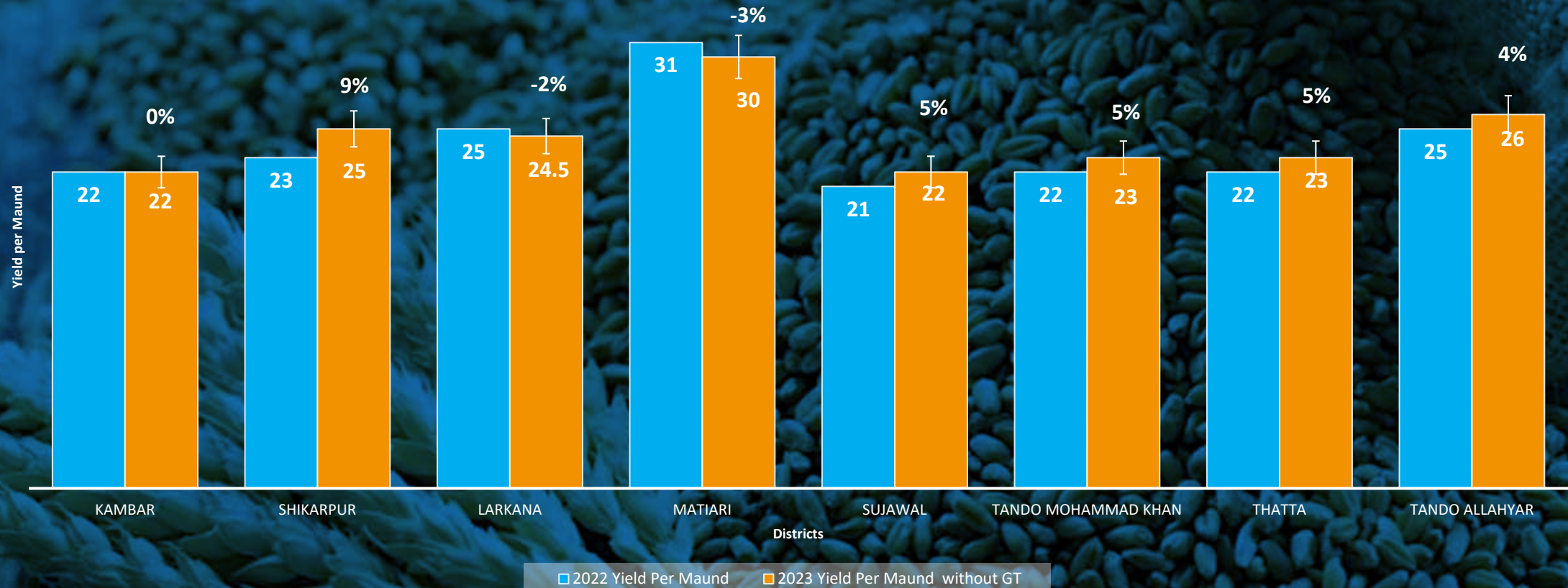
Comparison of Crop Yields: 2023 (Without Intervention) vs. 2023 (With GrowTech)





Non-GrowTech Plots (2022 & 2023): District Trends

Comparison of Crop Yields: 2022 vs. 2023 (both without GrowTech Intervention)





GrowTech's Impact on Expenses and Income

Yield and Income	Without GT	With GT	% Change
Wheat (Maund)	25	36	44%
Rate (PKR) @ 4,000	100,000	144,000	
Chuff/Bhussa (Maund)	25	36	
Rate (PKR) @ 500	12,500	18,000	
Total Income (PKR)	112,500	162,000	
Inputs and Expenses			
Urea @ 3,000	9,000	6,000	-15%
DAP @ 9,000	9,000	4,500	
Zinc/Potash	-	2,000	
Tractor/Thresher/water etc	18,000	18,000	
Total Expenses (PKR)	36,000	30,500	
Net Income (PKR)	76,500	131,500	72%



Interviews & Testimonials

“Earlier we used to have 50-60 grains on a spike, now we can see 80 to 90 grains per spike. So we will have a better yield.” Akber, KSK

“A healthy wheat plant has its spike threads sprouting outwards, we can that difference in field where GT advisory is taken and where not, due to this we are expecting a better yield.” Hamid, LRK

“By following GT advice, I have successfully managed to save money, and spend to for my family's needs.” Jairam, TAY

“I am thankful to GT and RSPN, because of their advice we had extra wheat as compared to our neighbors.” Sughra, KSK

“I am thankful to GT for their timely advisory, we have managed water and fertilizer expenses and have healthy grain, as you can see.” Dileep, TAY

Matiari (1): Testimonial

TAY (2): Testimonial

TMK (1): Testimonial

KSK (2): Testimonial

Larkana (1): Testimonial

Interview with GrowTech Agri. Expert



Conclusions & Recommendations

