



AGRITECH
— SOLUTIONS —

AGRI-TECH SOLUTIONS

Agriculture Matters to the Future of Development

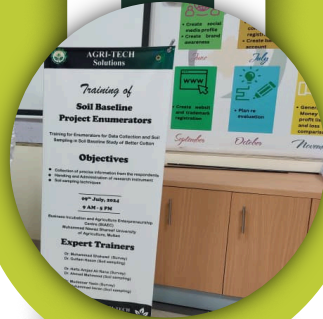
<https://agritech-solution.com/>





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**AGRITECH
SOLUTIONS**



COVER STORY

Agri-Tech Solutions is a registered consultancy firm with the Securities and Exchange Commission of Pakistan (SECP) and an incubated enterprise at the Business Incubation and Agri-Entrepreneurship Center (BIAEC), MNS University of Agriculture, Multan. We specialize in delivering high-quality research, evaluations, and technical assistance in agriculture, climate resilience, sustainability, and rural development.

Our team has successfully implemented a range of national and international projects, partnering with organizations in the United States, China, Germany, Turkey, Japan, and beyond. We bring a unique blend of local knowledge and global expertise, with consultants trained in world-leading institutions and deeply embedded in the rural contexts of Pakistan.

Agri-Tech Solutions offers proven capabilities in:

- Climate change analysis and crop modeling
- Soil health, fertility mapping, and baseline studies
- Water productivity and irrigation efficiency
- GIS mapping, geotagging, and remote sensing
- Integrated Pest Management (IPM) and pesticide phase-out
- Agroecology, organic cotton systems, and HHP alternatives
- Livelihoods, community health, and behavioral research
- Gender and youth-focused participatory development

We have successfully collaborated with Better Cotton, WWF-Pakistan, and other development partners on different projects related to:

- Soil Baseline Study (20 districts across Punjab and Sindh)
- Organic Cotton Expansion and HHP Phase-Out
- Producer Unit Rescoping Pilot - Baseline Consultancy
- Integrated IPM Ladder
- Behavioral and KAP Studies on pesticide use and alternatives

At the international level, our experts have led collaborative research with institutions in China, Germany, and the US on:

- Genetic adaptability of crops under climate change
- Soil-water-climate interactions
- Long-term crop modeling using 30-year datasets from cotton-wheat systems (Punjab-Pakistan and Xinjiang-China)

Our enumerator network, MEL systems, and research infrastructure allow us to rapidly deploy field teams with trained staff, digital tools (ODK, KoboToolbox), and ethical research protocols.



Mission

Innovative Solutions for a Bountiful Future: Our mission is to revolutionize agriculture sector through science, technology, expertise, and passion. We are committed to deliver sustainable agricultural solutions by consultancy services, training programs, and research collaborations to feed growing world with foster resilient ecosystems

Vision

A future where agriculture is modern, efficient and environmentally conscious, producing abundant, healthy food for all, while preserving the planet's precious resources



Scope

Agri Tech Solutions is dedicated to establishing an agriculture solution consultancy within a university, addressing various sectors including agriculture, research and development, education, biotechnology, bioinformatics, tissue culture training, and private sector consultancy. Our goal is to bridge the gap between academic knowledge and practical application in the agricultural industry. We provide cutting-edge solutions, foster research collaborations, and offer specialized training programs to drive positive change in agriculture. Understanding the unprecedented challenges facing agriculture today, from climate change to the demand for increased food production, we position ourselves as pioneers in delivering comprehensive services across agricultural sciences. Our team of experts works seamlessly to offer innovative solutions in crop management, soil health, plant protection, climate studies, breeding, biotechnology, and bioinformatics. Agri Tech Solutions is committed to collaboration and empowerment, providing tailored insights and training to researchers, farmers, and industry players, and advancing a sustainable, prosperous future for agriculture.



Acknowledgment

We would like to extend our heartfelt appreciation to all those who have played a pivotal role in the successful execution of our initiatives over the past year.

First and foremost, we sincerely acknowledge the unwavering efforts of our Agri-Tech Solutions team, whose innovation and dedication have been at the forefront of our progress. Special thanks to our team leaders for their outstanding guidance and leadership, and to the enumerators whose diligent fieldwork made the implementation of our projects possible.

We are also deeply grateful to the various consultants who have contributed their expertise and insight throughout the year. Your professional contributions have significantly enriched our strategies and impact.

A special note of thanks goes to the Business Incubation and Agri-Entrepreneurship Center (BIAEC) at MNS University of Agriculture, Multan, for their continued support and collaboration. Your role in fostering agri-entrepreneurship and innovation has been vital to our success.

We also extend our sincere appreciation to our esteemed partners and supporting organizations, including WWF, Better Cotton Initiative (BCI), and Organic Cotton Accelerator (OCA), for their shared commitment to sustainable agriculture and capacity building.

Our acknowledgment would be incomplete without recognizing the contribution of our academic consultants and collaborators from leading institutions such as the University of Agriculture Faisalabad (UAF), MNS University of Agriculture, Multan (MNSUAM), The Islamia University of Bahawalpur (IUB), and National University of Sciences and Technology (NUST). Your academic and research support continues to elevate the quality and effectiveness of our work.

We would also like to express our sincere gratitude to our international collaborators, especially Meandros Seed Industry and Trade Inc., Turkey, for their valuable partnership. Their technical expertise, knowledge-sharing, and support in promoting sustainable and innovative agricultural practices have greatly contributed to the success of our joint initiatives. This collaboration reflects the strength and potential of cross-border partnerships in advancing agricultural development.

To everyone who has been part of this journey — thank you for your support, dedication, and shared vision.

Dr. Zulqarnain Khan
Agri-Tech Solutions Founder





What We Offer

Agri-Tech Solutions offers expert consultancy services, empowering agricultural businesses to optimize operations, improve efficiency, and drive growth. Our comprehensive services address the unique needs of farmers, producers, and agribusinesses, fostering sustainable success. With our guidance, you can navigate the complex agricultural landscape with confidence.



Consulting Services

Our experienced agronomists and technology experts provide personalized guidance and support to help you overcome specific challenges and achieve your farm's goals.

Data Analytics

Our experts turn data into actionable insights, providing valuable information on soil health, crop growth, and weather patterns to inform data-driven decisions.

Strategic Planning

We develop tailored plans to achieve your business goals, addressing market trends, operational efficiency, and sustainable practices.

Operational Improvement

Our experts optimize farm operations, including crop management, supply chain management, and resource allocation.

Technology Integration

We guide the adoption and implementation of innovative agricultural technologies, enhancing productivity and decision-making.

Market Research and Analysis

Our team provides valuable insights into market trends, consumer behavior, and competitor analysis, informing data-driven business decisions.

Feasibility studies

We conduct thorough feasibility studies to evaluate the potential success of agricultural projects, helping our clients make well-informed investment decisions.

Policy Analysis

We provide thorough policy analysis, evaluating regulatory frameworks and their impact on agricultural practices, to guide our clients in making compliant and informed decisions.

Evaluation

We offer expert evaluation services to assess the effectiveness and impact of agricultural projects, providing actionable insights for improvement and strategic decision-making.



Our Team



**Dr.
Zulqurnain
Khan**

Founder

Employees

Name

Dr. Razullah
Ms. Fatima Tariq
Mr. Junaid Imam
Dr. Hafiz Amjad Ali
Mr. Hasaan Tariq
Ms. Hira Akhtar
Dr. Tajamml Hasnain
Mr. Muhammad Nasir
M Ghazanfar Ali

Designation

Agronomist
Manager HR
Assistant
Manager Projects & Program
PRO for Products & Promotions
Biosafety Assistant
Manager R&D
Office Assistant
Assistant Manager Projects and
Programs

Research Associates/Fellowships/Studentships

Name

Mr. Bilal Hussain
Mr. Nasir Ahmad
Ms. Ayesha Ali
Ms. Minahil Athar

Mr. Abdul Wahid
Ms. Sajeela Sahar
Ms. Najma Majeed
Mr. Gull Marjan



Consultants

Name	Experties	Role
Dr. Zulqarnain Khan	Soil Science, Genomics, Crop Sciences, Biotechnology, Cotton Expert	Founder, Agri-Tech Solutions
Environmental Benefits components		
Dr. Ahmad Mahmood	Soil Science, GIS, Geotagging, Fertility, WUE	Team Leader
Dr. Habib Ur Rehman	Agronomy, Climatology, GHG Emission, Climate Smart Agriculture	Team Member
Dr. Shahid Iqbal	Agronomy and Crop Rotation	Team Member
Dr. Amjad Saeed	Forestry and Wildlife	Team Member
Mr. Ahmad Mujtaba	Environmental Sciences and climate change	Registered consultant
Mr. Mughees Ur Din	Soil Science	Registered consultant

Soil Impact Components

Dr. Hafiz Amjad Ali	Agri. Extension and Social Sciences Expert	Team Leader
Ms. Arooj Goheer	Humanitarian and Gender Studies, Programming, Monitoring, Implementation, Reporting and Engaging Field Staff	Team Member
Ms. Samina Ashraf	Socio-economic Analysis and Impact Assessment, Family Planning and Women Rights, Health Care Studies	Team Member
Dr. Shahzad Ahmad	Agri. Extension Questionnaire Development, Data Analysis	Team Member

Crop Protection Components

Mr. Habib Ur Rehman	Agriculture and Entomology Specialist, Trainer	Team Member
Dr. Muhammad Ishtiaq	Insecticide Resistance & Management, Integrated Pest Management (IPM), Insect Toxicology, Biological Control, Sustainable Pest Management of High-Value Crops, Integrated Management of Pink Bollworm and Whitefly in Cotton, Research and Development in Entomology	Team Member



SWOT Analysis – Agri-Tech Solutions (2024-25)

Positioned as a leading agri-consultancy firm delivering research, technical support, and sustainable development solutions across Pakistan and internationally.

Strengths

1. Registered & Incubated Enterprise

- o Legally registered with SECP and incubated at BIAEC, MNS University of Agriculture, Multan.

2. Proven Project Delivery

- o Successfully implemented national and international consultancy projects in soil health, pesticide phase-out, organic cotton, and climate resilience.

3. Strong Academic & Expert Network

- o Collaborations with IUB, UAF, MNSUAM, and NUST Islamabad; access to highly qualified consultants and research backing.

4. International Partnerships

- o MoUs and joint work with partners in Turkey, China, Germany, USA, and Japan — blending local insight with global standards.

5. Youth Engagement & Capacity Building

- o Offered paid internships, trained students in field research, and created jobs through expert and enumerator contracts.

6. Technical Specialization

- o Strong capabilities in climate modeling, GIS mapping, soil surveys, IPM, water productivity, and agroecology.

7. Ethical & Transparent Operations

- o Fully tax-compliant, with clear governance, reporting, and research ethics protocols.

Weaknesses

1. Limited Digital Product Development

- o No in-house apps, dashboards, or digital advisory tools launched yet.

2. Moderate Private Sector Visibility

- o Strong presence in development and academic sectors, but limited exposure to commercial agri-businesses or brands.

3. Dependency on Project-Based Income

- o Core revenue comes from short-term consultancies; lacks recurring income streams.

4. Limited Downstream Integration

- o Focused mostly on farm-level and research services; value chain actors like processors or exporters less engaged.



SWOT Analysis – Agri-Tech Solutions (2024-25)

Opportunities

1. Growing Demand for Sustainable Cotton & IPM Solutions

o Increased global focus on traceability, organic farming, and pesticide phase-out aligns with your service offerings.

2. Digital Transformation Potential

o Scope to convert your technical knowledge and tools into scalable digital products for clients and farmers.

3. Scaling Capacity-Building Models

o High potential to formalize training programs or academies for field staff, youth, and agri-entrepreneurs.

4. Policy & Government Engagement

o Your expertise aligns with national goals on sustainability, offering opportunities for public-private partnerships.

5. International Expansion

o MoUs with foreign partners (e.g. Turkey) open doors for regional collaboration, research exchange, and donor funding.

Threats

1. Shifting Donor and Client Priorities

o Funding may shift to other sectors or in-house delivery models, reducing consultancy demand.

2. Limited Access to Government Data or Approvals

o Bureaucratic delays or data-sharing restrictions can hinder project execution.

3. Increasing Competition

o More local firms and university-based consultancies are entering the agri-services market.

4. Human Resource Retention

o Skilled consultants may be drawn to higher-paying INGOs or international projects.

5. Short-Term Project Cycles

o Reliance on contract-based projects creates income volatility and limits long-term planning.

6. Attribution & IP Risks

o Risks of misattribution or data misuse in collaborative projects may affect the company's intellectual value.



SWOT Analysis – Agri-Tech Solutions (2024-25)

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STRENGTHS

- Registered & Incubated Enterprise
- Proven Project Delivery
- Strong Academic & Expert Network
- International Partnerships
- Youth Engagement & Capacity Building
- Technical Specialization
- Ethical & Transparent Operations

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WEAKNESSES

- Limited Digital Product Development
- Moderate Private Sector Visibility
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OPPORTUNITIES

- Demand for Sustainable Cotton & IPM
- Digital Transformation Potential
- Scaling Capacity-Building Models
- Policy & Government Engagement
- International Expansion

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THREATS

- Shifting Donor and Client Priorities
- Limited Government Access
- Increasing Competition
- Human Resource Retention
- Short-Term Project Cycles
- Attribution & IP Risks



Projects



**SOIL BASELINE STUDY IN
BETTER COTTON
PROJECT PAKISTAN**

**PRODUCER UNIT
RESCOPING PILOT - RAHIM
YAR KHAN, PUNJAB -
PAKISTAN**



**EVALUATION OF MARKET
DEMAND AND SUPPLY OF
PHASE-OUT PESTICIDES
AND THEIR ALTERNATIVES**

**EVALUATION OF
ENVIRONMENTAL, SOCIAL,
AND ECONOMIC IMPACTS
OF ORGANIC COTTON
FARMING IN
BALOCHISTAN, PAKISTAN**



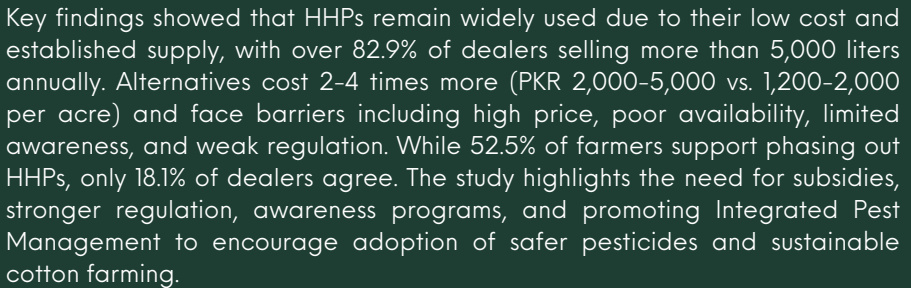
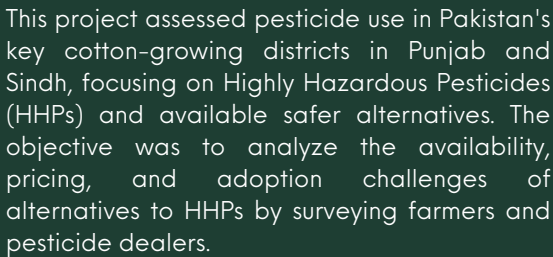
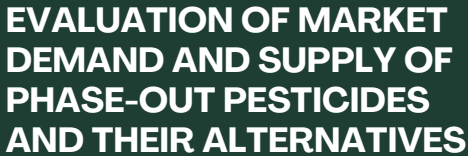


SOIL BASELINE STUDY IN BETTER COTTON PROJECT PAKISTAN

The Soil Baseline Study for the Better Cotton Project in Pakistan assessed soil health and management practices across 20 key cotton-growing districts, involving over 350,000 cotton farmers. The objective was to evaluate current soil conditions, farmers' awareness, and adoption of sustainable soil improvement techniques to inform future interventions.

Key findings revealed significant soil salinity issues, low organic matter, nutrient imbalances, limited soil testing, and barriers like small landholdings and cost constraints. The study highlighted the need for capacity building, routine soil testing, balanced fertilization, organic matter enhancement, and improved water management to achieve sustainable cotton production. Future prospects include region-specific support programs integrating soil conservation, organic practices, and technological tools to improve soil health and cotton yield sustainably.







PRODUCER UNIT RESCOPING PILOT - RAHIM YAR KHAN, PUNJAB - PAKISTAN

The Producer Unit Rescoping Pilot in Rahim Yar Khan, Punjab, Pakistan, assessed the Better Cotton Initiative's (BCI) implementation focusing on gender inclusivity, capacity building, and traceability in a major cotton-producing region. The objective was to evaluate Key Performance Indicators like gender equality, program reach, and farmer engagement to identify challenges and optimize sustainability efforts.

Key findings include low female participation (about 1% female farmers), gender-specific barriers limiting women's involvement, and administrative burdens reducing time for farmer training. Cotton yields improved with sites like PKRY04 leading production and PKRY19 showing highest yield growth. Procurement efficiency increased across locations, with targeted interventions improving outcomes. Capacity strengthening was valued but female farmers preferred women-only training sessions to overcome social barriers. The study highlights that enhancing gender-inclusive strategies, digitizing data tasks, and diversifying training topics are crucial for scaling impact and improving sustainable cotton farming.





EVALUATION OF ENVIRONMENTAL, SOCIAL, AND ECONOMIC IMPACTS OF ORGANIC COTTON FARMING IN BALOCHISTAN, PAKISTAN

This study evaluated the environmental, social, and economic impacts of organic cotton farming in Balochistan, Pakistan, involving 385 farmers across key districts. The objective was to compare organic and conventional practices to understand benefits and challenges in soil health, water use, biodiversity, profitability, and community health.

Key findings include a 27% reduction in greenhouse gas emissions (0.74 vs. 1.02 kg CO₂e/kg cotton), 13.3% lower water use due to better soil moisture retention, improved soil organic matter (0.7% vs. 0.6%), and substantially higher biodiversity (up to 38% more wildlife). Economically, organic farmers earned 29.1% more income per acre, benefiting from premium prices and lower inputs. Additionally, organic farming led to fewer health problems among farmers by reducing chemical exposure. These results demonstrate organic cotton's potential to enhance sustainability, farmer livelihoods, and regional ecological balance in Balochistan.



Agreement of Cooperation (AoC)



Muhammad Nawaz Shareef University of Agriculture,
Multan, Pakistan



Meandros Seed Industry and Trade Inc. (MSI), Turkey



Agri-Tech Solutions, Multan, Pakistan



Agreement of Cooperation (AoC)



Department of Agriculture Extension Education
Faculty of Agriculture and Environment
The Islamia University Bahawalpur



Memorandum of Understanding (MoU)

between

Agri-Tech Solutions, Multan

and

**Department of Agriculture Extension Education
Faculty of Agriculture and Environment
The Islamia University Bahawalpur**



Consultancy Services

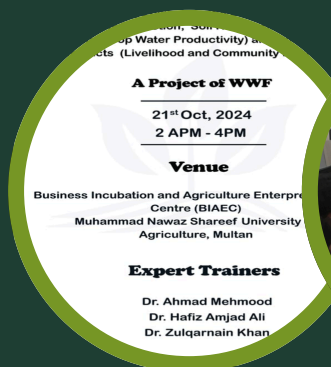
Name	Project Title	Amount
Dr. Muhammad Ishtiaq	Market Assessment HHPs and Alternate Pesticides MNSUAM/ORIC/Cons/743	1,00,000
Dr. Mudassar Yasin	Soil Baseline Study of Sindh Province MNSUAM/ORIC/Cons/573	50,000
Dr. Muhammad Imran	Soil Baseline Study of Sindh Province MNSUAM/ORIC/Cons/572	50,000



Trainings



Agri-Tech Solutions conducted three trainings in 2024 at MNS-University, Multan, to train 27 enumerators on standardized surveys, soil sampling, and pesticide assessment for organic cotton studies in Balochistan. Key experts guided practical sessions and ensured high data quality.



**Enumerator Training
Summary: Impact of
Organic Agriculture &
GHG Emissions Study in
Balochistan**



**Enumerator Training
summary: Soil Baseline
Study for Better Cotton
Project, Pakistan**



**Enumerator Training:
Phase-Out Pesticides
Assessment
Organized by Agri-Tech
Solutions**

The trainings improved enumerators' skills in field data collection, ethical survey practices, and sample handling, supporting accurate monitoring of organic farming impacts and pesticide use for sustainable agriculture in the region.



Enumerator Training Summary: Impact of Organic Agriculture & GHG Emissions Study in Balochistan



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Solutions



Training for Enumerators

Impact Assessment Study of Organic Cotton
Production in Baluchistan:
Evaluating Environmental Benefits (GHG
Emissions Reduction, Soil Health, Biodiversity,
and Crop Water Productivity) and Social
Impacts (Livelihood and Community Health)

A Project of WWF

21st Oct, 2024

2 APM - 4PM

Venue

Business Incubation and Agriculture Entrepreneurship
Centre (BIAEC)
Muhammad Nawaz Shareef University of
Agriculture, Multan

Expert Trainers

Dr. Ahmad Mehmood
Dr. Hafiz Amjad Ali
Dr. Zulqarnain Khan

Facilitators

Ms. Zarmeena Amjad
Ms. Hira Akhtar

☎ 0306-5239245

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Enumerator Training summary: Soil Baseline Study for Better Cotton Project, Pakistan





Enumerator Training: Phase-Out Pesticides Assessment Organized by Agri-Tech Solutions





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