



**Climate Adaptation and Resilience
(CARE) for South Asia Project**

Innovations in Climate Adaptation and Resilience (iCARE)

**High Throughput Crop Monitoring using Computer Vision
for Climate Smart Agriculture in Pakistan**

Project Name	High Throughput Crop Monitoring using Computer Vision for Climate Smart Agriculture in Pakistan
Lead Organization Name	University of Agriculture, Faisalabad (UoAF)
Country of Implementation	Pakistan
Summary Description	<p>The escalating global population and the depletion of natural resources exert significant strain on agricultural production systems already grappling with challenges. Projections from the United Nations indicate that the world population is expected to reach approximately 10 billion by 2050. Concurrently, the impact of global warming is altering climate patterns, posing a substantial threat to agricultural productivity across diverse regions. According to the Food and Agriculture Organization (FAO), current agricultural practices are deemed unsustainable due to their adverse environmental and natural resource consequences. Addressing these issues is imperative for ensuring a food-secure future. Consequently, a shift towards more sustainable techniques in agricultural production systems becomes paramount. To tackle these challenges, we propose the development of a straightforward and user-friendly application designed to mitigate the impacts of climate change. This innovative app leverages satellite and climate data to provide near real-time monitoring of crop health. By incorporating scientifically proven techniques, the application generates detailed crop health maps, offering profound insights into field-level monitoring and management practices. The proposed app serves as a valuable tool for government departments and individual farmers alike. By enabling users to monitor crop status based on satellite and weather data, it empowers them to make well-informed decisions, ultimately leading to enhanced outcomes in agricultural productivity and resource management.</p>
Expected Outcome	<ul style="list-style-type: none"> ➤ Mobile APP for High Throughput Crop Monitoring using Computer Vision for Climate Smart Agriculture <ul style="list-style-type: none"> ○ Design and development of online portal and mobile app ○ Data Integration – Satellite and Climate ➤ Training and capacity building of stakeholders <ul style="list-style-type: none"> ○ Development of training materials and resources ○ Training of stakeholders on using the online portal and mobile app for crop monitoring ○ Organize awareness seminars, workshops and conferences ○ Discuss the potential of scaling up of technology for the South Asian region

Partner Government Agency(ies)	<ul style="list-style-type: none">➤ Ministry of National Food Security & Research (PARC)➤ Ministry of Agriculture Punjab (Directorate Agriculture Extension and Adaptive Research, Punjab) Punjab (Faisalabad, Burewala, Toba Tek Singh, Okara)
Project duration	15 Months

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