

uring Security

Role of Geospatial Science, **Technology and Applications** (GeSTA) in Dryland Systems

Cooperative

Research and

Partnerships

Specific

mutual-interaction

& synergies

between plant and

animal species and

management

practices

Startup 35.47m

Total 122.7m

Gender

Address social

inequities,

greater roles and

priorities

Geospatial



Integrated agroecosystems: innovative approaches and methods for sustainable agriculture, while safeguarding the environment

Youth

Engaging and empowering young gen. by creating opportunities



■ Remote sensing ■ missions in orbit° Sensors potential in CRPs/IRPs, etc.

>6 are free

Mapping present, emerging & future land use /land cover dynamics, cropping patterns, intensities, water use, pest & disease risk, climate change & SRT2: Redu impacts

Quantification of existing agricultural production systems

Characterization of vulnerable areas for increasing resilience and assist in identifying mitigation pathways with biophysical, socioeconomic and stakeholder feedback as well as specific needs &

constraints

1) The West African Sahel and dry

4) Central Asia, and 5) South Asia.

Africa, 3) North Africa and West Asia

savannas, 2) East and Southern

Characteristics of agricultural and livestock production in small holder farming systems and rural

Cropping Intensity

Mapping the extent

of existing & traditional

practices, indigenous

knowledge, diversity,

potential areas for modern

& improved, productive,

Regions

Biodiversity

Spatial enrichment and its role in food security, risk mitigation, & sustainability

Lindowative Systems livelihoods ood production Red. Vul. potential sources A/Ss TAs

Agricultural

Intensification

Measuring the impact at spatial scales, rate, magnitude, synergy among the systems, CRPs, cross-regional synthesis

Earth's

land area

commons, KM sharing, Farmers, stakeholder stakeholders, feedback policymakers, mobilization, &

> marketing RESEARCH PROGRAM ON

Reasuring Impacts Assessing the impact of outcomes in Action Sites, post-project implementation, &

M&E

Sus. Int.

A/Ss TAs



SRT3: Sustainable Inter trends of existing production systems

Nutrition

Integrated Production

Systems for Improving

Food Security and Livelihoods in

Dry Areas

Changing diet patterns, nutrition and health

Delineation of

72%

21%

profitable, and diversified dryland agriculture, & potential, suitable linkages to markets areas for sustainable intensification, diversification of production systems

Increase in

Arable Land

Live in ■ Drylands

Livestock

Assessment of present, emerging & future droughts, floods, pests & diseases, extreme events, infrastructure, migration

Improved _ivelihoods



CGIAR

Dryland Systems







Geoinformatics Applications in ICARDA Led/Involved CGIAR Research Programs (CRPs)



Gene Banks

Managing biodiversity in agro-systems. Focused Identification of Germplasm Strategy. Characterization of genetic resources at landscape level.



Hyper and ultra spectral mapping of genotypic and phenotypic variability

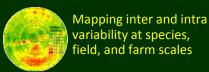
Climate Change

Eco-friendly climate change adoption - strengthening approaches for better management of agricultural risks associated with increased climate variability and extreme events

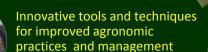


CRP

WLE



Water, Land and Ecosystems Improving land and water, productivity, and ecosystem services. Assessment of land degradation, soil health and nutrition, and climate change impact



Nutrition and Health Improving synergies between agriculture, nutrition, and health. Location base services-distribution. access pattern, value chain, and control of zoonotic diseases/pests and risks **CRP** DS

Dryland Systems

GB

Applications

CRP

N&H

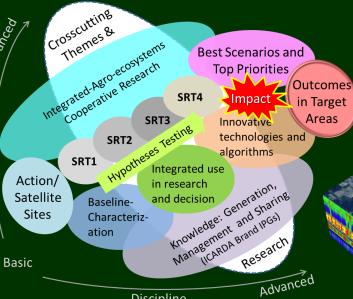
Enhancing productivity and managing risks through diversification, sustainable intensification, and integrated agro-ecosystem approaches

CRP

PIM

CRP

DC



Discipline

Livestock and Fish

Resilience and vulnerability of livestock production under changing climate, land use and markets, identify and address key constraints and opportunities

CRP L&F Bio-physical-spectral Location based libraries for mapping services in natural agricultural productivity resource management

Policies, Institutions, and Markets

Sustainable intensification, challenges and constraints, integrated crop and pest management practices, and value chain linkages

> Integrated pests and diseases management

CRP

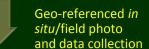
WHEAT

CRP

GL

Wheat

Improving productivity and profitability of wheat, improved resistance to pests and diseases, climate resilient, and increasing yield while reducing inputs





Sustainable intensificationchallenges and constraints, integrated crop and pest management practices, and value chain linkages

Quantification of trends and status of soil fertility, salinity, and degradation,

Dryland Cereals

Validating high yielding varieties with better pest and disease resistance, tolerance to abiotic stresses, and improved crop management technologies