Food Security

The World Food Summit of 1996 defined food security as existing "when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life". While food supplies have obviously increased globally, food security is defined by the ability to access those supplies. Given their tenuous economic and political marginality, and their restricted productive capacity, the issue of food security continues to be a critical concern in much of the world's arid zone.

According to the Worldwatch Institute in Washington, D.C., "60 percent of the world's food insecure population lives in dry lands," with the rural inhabitants in these areas dependent on agriculture and livestock for food and income. Agriculturally viable lands in arid regions are experiencing escalating desertification through soil erosion, water scarcity and inappropriate land use and cultivation practices, leading to decreased food production. As a result, food insecurity and poverty continue to grow.

Food security is a complex sustainable development issue linked to agricultural practices, economic development, environment, and trade. The projects funded by the International Arid Lands Consortium (IALC) have addressed several of the social, economic, and technical drivers threatening food security. By funding important research that aims to improve food production, protect precious natural resources, provide technical assistance, and facilitate knowledge sharing, the work of the IALC is helping to advance sustainable food security.

See the reverse side for detailed examples of these IALC Food Security Projects:

1. Subsurface Drip Irrigation for Vegetables Using Effluent in Arid Lands (2003).

2. Drought-Responsive Genes in Populations From Desert Habitats (2000).

3. Water Conservation Through Drip Irrigated Alfalfa Cropping Systems (2002).

Food Security

Read more about IALC Food Security Projects on our website: http://ialcworld.org.

1. Subsurface Drip Irrigation for Vegetables Using Effluent in Arid Lands (2003).

The University of Arizona, Ben-Gurion University of the Negev (Israel), Hebron University (Palestinian Authority)

Christopher Y Choi (Principal Investigator)

Efficient use of water resources is vital in arid and semiarid regions and can help to ensure a stable food supply. This study was conducted to compare two different irrigation systems, subsurface drip irrigation (SDI) and furrow irrigation (FI), in terms of viral contamination and water use efficiency when tertiary effluent is used for irrigation. The water use efficiency of the SDI system was higher than that of the FI system; since the SDI system supplies water right to the root zone, the crop can use water more efficiently, while furrow-irrigated water has a greater chance of evaporation. Results from this study suggest that deeper installation of drip taps and/or frequent irrigation as alternative practices are appropriate in order to minimize soil surface wetting in SDI plots and reduce potential contamination.

2. Drought-Responsive Genes in Populations From Desert Habitats (2000).

Ben-Gurion University of the Negev (Israel), New Mexico State University

Ariel Novoplansky (Principal Investigator)

Sheep and other livestock, and their products, are important sources of both food and economic opportunity in many arid regions and thus the availability of quality forage is critical. The goal of this project was to describe the variability in different populations of desert forage plants, Dactylis glomerata and Trifolium purpureum. Researchers examined whether the genetic complexity for drought response was greater in peripheral or core populations of these plants and found that in both species, the core population variation accounted for most of the variation.

3. Water Conservation Through Drip Irrigated Alfalfa Cropping Systems (2002).

New Mexico State University

Robert Flynn (Principal Investigator)

In the irrigated southwestern United States, alfalfa is a major component in the crop rotation schema and uses a large amount of water. The objective of this project was to show the effectiveness of utilizing drip irrigation for alfalfa production, by demonstrating the costs, benefits, and agronomic management practices of subsurface drip irrigation. The researchers demonstrated that alfalfa yields can be maintained while reducing water application by at least 40% using drip irrigation versus sprinkler irrigation. The use of drought tolerant crop varieties to further improve water savings was also demonstrated.

IALC
International Arid Lands Consortium

Contact Us:
Dr. Charles F. Hutchinson, President
1140 E. South Campus Drive
Tucson, Arizona 85721
Tel: (520) 621-7201 Fax: (520) 621-7196
Email: ialcworld@ag.arizona.edu
http://ialcworld.org