2nd International Training Program on "Climate Smart Agriculture Practices to Enhance Farmer's Capabilities to Address the Challenges of Climate Change using Climate Smart Agriculture Strategies" Date: 27th - 28th July 2021. (ZOOM Platform https://amityuni.live/8522121890).

Farmers' adoption of gypsum and laser land leveller as a climate-smart strategy to control soil salinity and conserve groundwater- Prof. Amin Mugera, Senior Lecturer (Associate Professor), UWA School of Agriculture & Environment (SAgE) & The UWA Institute of Agriculture, The University of Western Australia (UWA),

- The major problematic situation being faced is the climate change and variability which includes depletion of soil water, increased neeed for irrigation, high cost of production, change in land use patterns and water and food security.
- The main issue is observed in Punjab, Pakistan. The soil salinity is observed in excess. This includes the ground water overuse, waterlogging and poor drainage, soil degradation. In result, 20-25% of the land is salinized.
- The adverse effects of the soil salinity resulted in decline in the crops productivity. Productivity of wheat is decreased by 32% and that of rice is decreased by 28%. This has put livelihood at risk.
- The govt has intervened to these issues and introduced two strategies.

1. **Gypsum-**The use of gypsum. Govt has initiated a community driven project called "Bio Saline II" from 2006 to 2012. Gypsum improves the soil physio-chemical properties. Experimemntal results showed that the gypsum improves the crop productivity.
2. **Laser land leveller-** Introduced in 1985. It helped in water and cost saving enhancing the yield. The main problem is that it requires capital investment. Subsidy schemes by the government were introduced, giving upto 50% subsidy on the cost.

Climate Smart Agriculture Practices in India- Dr. Nutan Kaushik, Director General,Amity Food & Agriculture Foundation, Amity University Uttar Pradesh

- Discuseed about the impacts of climate change on agriculture. It has put significant impact on crop yield, caused environment instability which may reduce the effectiveness of pesticides, has grown the threat of food insecurity and malnuitrition.
- **Adaption to climate change: Explained how we can adapt to the climate change**
  - We can opt for the climate resilient crop varieties that are able to withstand a single or a range of climate stresses
  - We can change the crop pattern.
  - We can change the cropping calendar by altering the timing of farm activities to suit climatic variations or changes.
  - In addition, we can manage the land by practicing conservation agriculture.
  - Alternate wetting and drying irrigation can be used.
  - Pest management is also an important factor. Thus, ecologically safe pest management system can be used.

- ❖ Proper collection, processing and applications of the animal manure can be used in crop fields.
- ❖ Practicing agroforestry can also be a strategy to conserve soil moisture and porosity. It also lessens soil erosion and allows more diverse production and income sources for smallholder farmers.

- **Different climate smart technologies for different hotspot**

- ❖ **Flood hotspots:** flood tolerant crop cultivation can be used, clavation of submergence tolerant rice varieties. Sorjan cultivating, floating-bed cultivation and rice-duck system can be used.
- ❖ **Salinity hotspot:** Cultivation of salinity tolerant rice varieties, salinity resistant jute, peanut, sugarcane, kohirabi, sweet potato, sesame, millets. Practicing rice-fish vegetables cultivation in the same land. Crop through ditch & dyke, sorjan system and raised bed, floating beds to avoid saline water flooding.
- ❖ **Drought Hotspot:** Fruits and vegetable production can be done in homestead areas. Cultivation of low ater requiring crops like millets, maize, cowpeas etc. Surface water can be conserved by digging mini-ponds at the corner of the crop fields. Strategies like deep tillage and plant seedlings or sowing seeds at deeper layer of the soil can also be opted.
- ❖ **Heat stress:** Heat tolerant varieties can be used.

Climate Smart Agriculture Technologies in Sustainable Crop Production by the Farmers of Bangladesh- Dr. Md. Saleh Ahmed, Chairman, Kernel Group of Companies

- ❖ Bangladesh is considered as one of the most disaster-prone country in the world.
- ❖ Affected by sea level rise and saltwater intrusion, mean temperature increases, rainfall variability and an increase in the frequency and intensity of extreme weather events.
- ❖ The south, southwest and southeast coastal regions of Bangladesh are increasingly susceptible to severe tropical cyclones and associated saltwater intrusion.
- ❖ The average temperature in October has increased in recent years hampering the flowering of High yielding Aman rice.
- ❖ A study using international model for policy analysis of agriculture commodities and Trade (IMPACT) for Bangladesh shows that most production systems in Bangladesh are projected to be adversely affected by CC.
- ❖ BBS (2016) reveals that the decrease production of rice (5.3%), jute (3%), oilseeds (6.3%), vegetables (5.7%), wheat (6.4%) and pulse production (0.45) by 2050.
- ❖ There is a whole range of climate change variability in Bangladesh as summers are becoming hotter, monsoons are irregular, increased river flow an denudation during monsoon, heavy rainfall over short period causing water logging, crop damage due to flash flood

- ➢ Adaption and mitigation strategies in Agriculture:

- ❖ Saltwater intrusion into the tidal river of Bangladesh has become especially acute over the past 40 years.
- ❖ The use of salt and submergence tolerant and high yielding crop varieties and therefore an important to cope with climate change effects of rising temperature.

- Multistakeholder platforms, collaborative CSA initiatives, and regular knowledge and experience-sharing opportunities among diverse actors involved in research, policy, and implementation.
- More emphasis should be given to ICT sector as it has potential to facilitate higher adoption of CSA practices by farmers through mobile phones and apps.

Grower Group Emerging Role in Farmer Learning and Future Challenge- Prof. Kadambot Siddique, Hackett Professor of Agriculture Chair & Director, University of Western Australia

- The study is targeted to Western Australia. It's the second largest state in the world. Population of Western Australia account about 0.6 million people.
- Discussed the case of Western Australia; There is a rapid rise in grower group numbers from the 1990's. The focus is on production and environmental issues. The key topic addressed R&D NRM grain quality perennial pasture skill development among members and community issues. Over 2500 farmers involved.
- The grower groups were studied; There is limited public sector involvement in extension, due to which there is increasing use of grower group. There groups are efficient and sustainable and connect farmers and wider agricultural industry which leads to applied research and extension.
- Research aims were to study how farmer learning occurs within grower groups, factors influencing effective groups functioning and subsistence.
- A case study was done on 5 grower groups selected on the basis of geographical area.
- Survey results were generated, as 70% can access relevant information, 38% have cross membership of the groups, Majority of the farmers joined between 1994-2004. The issue regarding representativeness was seen as only 9% women members were observed, 50% above average farmers were seen and average holding of land in WA was observed to be 4200 Ha.

Climate Smart Agricultural Strategies directed through MAIL and other stakeholders in Afghanistan- Dr. Abdurrahman Manan, Senior Agriculture Advisor, ICARDA

- Discussed about the major effects of climate change on Agriculture: Increasing temperature, decrease in rainfall, scarcity of water, early snow melts in the spring causing flood, rapid depletion of underground water in the cities due to higher use, lack of food and feed and displacement of people to the cities.
- Agriculture in Afghanistan is vulnerable.
- Good agricultural lands are coming under construction of buildings and industrial areas, rain-fed agriculture is less in food security because of low yields, location of Afghanistan makes it vulnerable to climate change especially drought; and the average rainfall is about 250 mm per year.
- According to the FAO, the total water storage capacity of Afghanistan fiver river basins and the ground water system is 55 billion m^3 and the irrigated area of the country at present is about 3.2 hectares.

- The Afghanistan Research and Evaluation (AREU) estimates that this water is sufficient to irrigate 7.7 million hectares of land, significantly more than 3. Million ha that are currently irrigated (with average rate of 7100 m^3/ha), bit because of water mismanagement it could not irrigate the area under irrigation.
- Dry areas are getting hotter, drier and poorer causing loss of agro-biodiversity, increased vulnerability of pastoralists, increased vulnerability to diseases and insect pests and smaller and more erratic harvest.
- Supplemental irrigation is being used to cop-up with the climate changes.
- Sub-surface irrigation for fruit trees is being used.


Ayushi Sharma
nutan kaushik
Dhan PRAKASH
Shalini Visen
View
NEW Speaker and Gallery view is available
nutan kaushik
Audio
Video
28
Participants
Share Screen
Chat
More
Leave


Ayushi Sharma
nutan kaushik
Dhan PRAKASH
Shalini Visen
View
NEW Speaker and Gallery view is available
Kadambot Siddique
Audio
Video
28
Participants
Share Screen
Chat
More
Leave


Ayushi Sharma
Dr. Nutan Kaushik
Dr. Ravinder Raina
Shalini Visen
View
Shalini Visen
Audio
Video
Participants
13
Share Screen
Chat
More
Leave