



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

Welcome! We are delighted you could join us. A few reminders for today's webinar.

- Please **mute** your microphone and **turn off** your video.
- Please enter all questions into the chat. We will collect these to address in the discussion session at the end.
- The webinar is being recorded and will be made available after the webinar. The discussion session will not be recorded.

Thank you



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The Food Safety Network

Bringing the best of Food Safety Practices to the World

Participating Agency Program Agreement (PAPA)

Online library of
best practices

Rapid needs
assessments for
USAID Missions

Coordinated U.S.
government
expertise

Links to animal
and plant health
and food safety

Online interactive
sanitary and
phytosanitary
training

[Agrilinks.org/activities/food-safety-network](https://www.agrilinks.org/activities/food-safety-network)

October 1, 2016 to September 30, 2021



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Cotton Productivity Enhancement Program (CPEP)

November 17th, 2020



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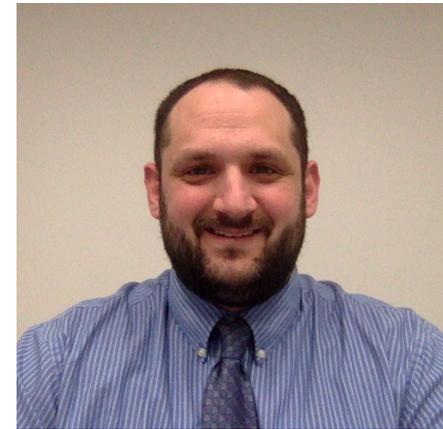
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OUR SPEAKERS



Dr. Jodi Scheffler

USDA Agricultural Research Service
CPEP Principal Investigator and Plant
Geneticist



Eric Brownstein

USDA Foreign Agricultural Service
CPEP program manager



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Growing up my world was an Iowa Farm



Land Grant Universities Opened Up My World

Studied and worked with students from over 40 different countries. Many on USAID scholarships.

Have maintained relationships with a number of them and they have risen to prominent positions in their home countries. Pro American and easy to work with.

Can we revive and enhance our scholarship and exchange programs?



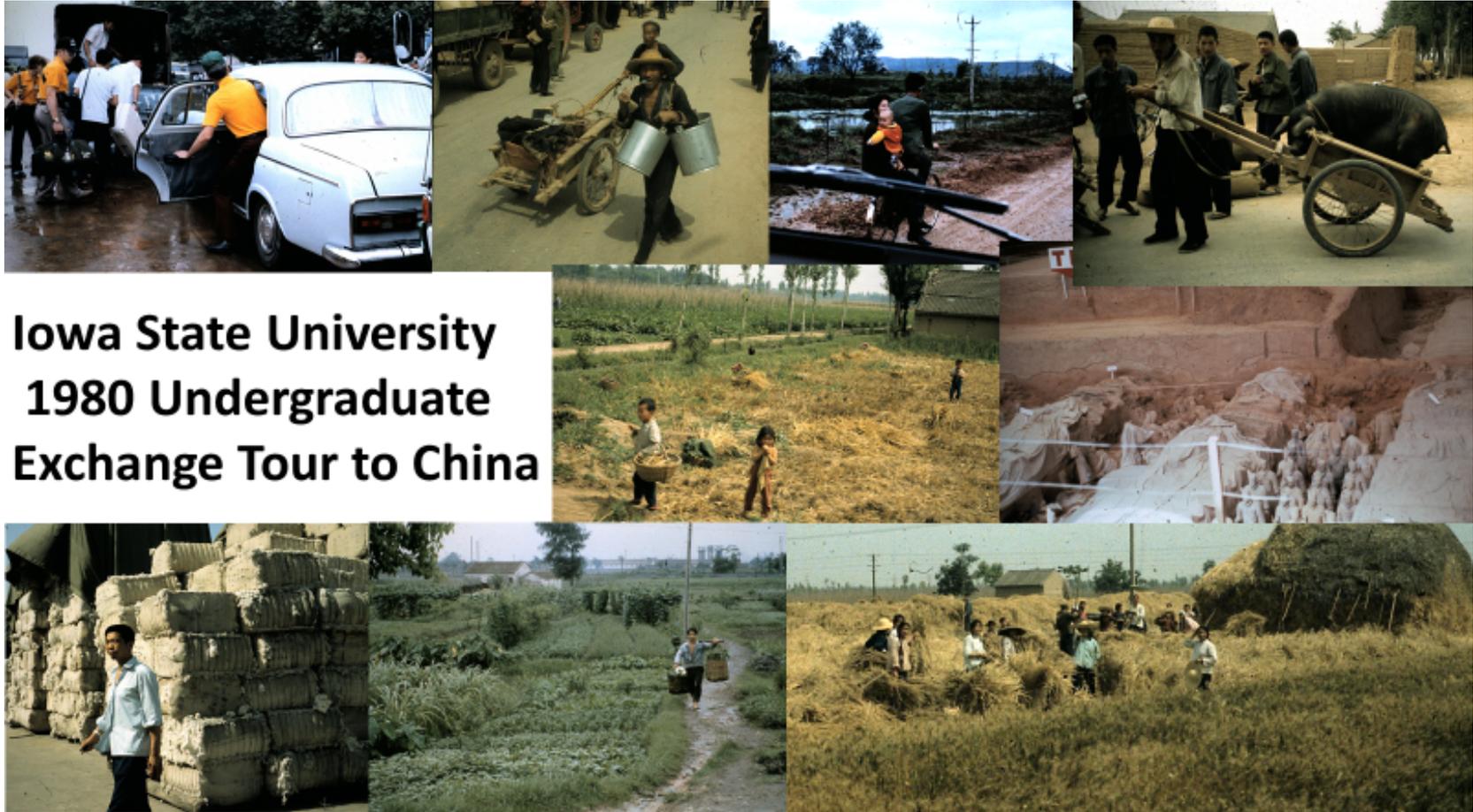
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Iowa State University 1980 Undergraduate Exchange Tour to China



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Worked in Europe for 12 years then joined ARS in 2000 **USDA Project with Uzbekistan 2002 – 2012** **Science and Foreign Policy as Partners**

Biosecurity Engagement Program (BEP) funded by the State Department
Mission Convert Biological Weapons Scientists into Agricultural Scientists
(Do something useful scientifically for both countries)

Through the project we developed, and are using in U.S. breeding programs, disease resistant cotton that matures in only 110 days.

Especially important for cotton growers in north Texas, Oklahoma and Kansas where verticillium wilt is a problem and early season frost often kills the later maturing lines.

Design projects that are beneficial to both countries



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In 2009, Pakistani and United States government officials met and identified several agricultural problems of mutual interest.



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One common threat identified Cotton Leaf Curl Virus (CLCuV)



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Many scientific institutions and governmental agencies worked together to make this project a success
It worked because of already established relationships between U.S. and Pakistani scientists
13 projects & over 70 scientists, Post Docs, Students, Support Staff, Farmer Organization Cooperators



CRS Faisalabad
CRS Vehari
CRS Multan



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Important to have buy-in and support from the Government, but not have them control the program. The CGIAR institute ICARDA was our in country implementer.



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Research Outcomes



Identified Cotton with resistance to the disease.

Provided seed to U.S. public breeders and breeding companies and breeders in China, India, Brazil and Australia. Seed is available on request.

In 2020, first commercial varieties for Pakistan, 10 years to develop.



Diagnostic tests to detect and identify and track the virus.

Now have a coordinated monitoring program in Pakistan.



Developed best management practices to mitigate the effects of CLCuV and improve the farmer's productivity.



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Program needed to successfully move from research results to being used by the framers

Took a step back and found a successful way to directly engage small-holder farmers.

- Approx. 1.2 M total farmers
- Most farms are <10 hectares
- Throughout Pakistan many small-holder farmers are illiterate

How to engage and reach these farm families?



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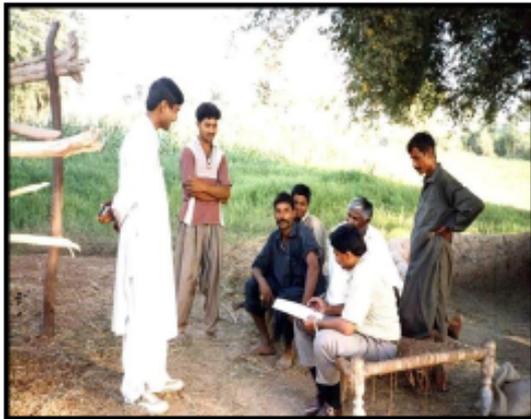
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**FAO developed the original Farmer Field Schools (FFS)
Pakistani scientists developed programs specific for
Pakistan in cooperation with Pakistani farmer
associations.**

Local people are trained (“early adopters”) as the
facilitators for the FFS. The farmers meet weekly
during the cropping season for hands on activities .

**Over 5,500 farmers have participated
in our Farmer Field School Programs.**



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Women Open Schools (WOS) to give women their own participatory learning programs to make their lives safer and economically more secure.

Cultural norms make it difficult for women to fully participate in mixed gender groups.

Women and children worldwide are the farm workers.

If women can earn money, they are more likely to use it to help the family unit.



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Children Ecological Clubs

Learn about their environment and how to stay safe on their farms through hands on activities.

80 Clubs

1719 Children

Ages 5-13 years



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Monitoring Cotton leaf curl disease spread



Pakistan has the virus and cell phones are their main source of information



Partnered with Pakistani researchers and families on small farms (5 -10 hectares). Photos of the diseased plants (or an insect pest) were sent to their phones as a message. If they saw a plant that looked similar, they took a phone photo and send it back.



Way to engage farm families and also get our name and positive image out there.

In the family, the younger generation are often the cell phone experts.

Through the Children Clubs we taught them to be disease and insect scouts and send photos as well.



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USDA Borlaug Fellows Program

Program targeted young scientists. Fifteen fellows completed the program and went on to positions at Pakistani universities, research institutes, private companies and governmental posts. Our next generation of important partners.



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“Blue Sky” research began under CPEP to find alternative strategies to enhance a plant’s own self protection mechanisms, including altering a plant so it can specifically target the virus and inactivate using RNAi or CRISPR technologies.

This promising research is being continued post CPEP by Pakistanis collaborating with U.S. universities that were interested in their results.



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Thank You!

The recording for today's presentation will be made available at <https://www.agrilinks.org/events/pakistani-partnerships-combat-cotton-disease-and-increase-agricultural-productivity>

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