FOOD TECHNOLOGY BRIDGE PROGRAM
USWDP

APPLIED FOOD TECHNOLOGY SKILLS WORKSHOPS:
Applied Food Technology Skills Workshop II (Egg Quality and Safety)

Purdue University and USWDP continue to make progress toward establishing the Department of Food Technology in the Herat University Faculty of Agriculture (HUFA). Dr. Kevin T. McNamara (Purdue), Dean Yousef Jami (HUFA), HUFA Food Technology Steering Committee, and Purdue faculty have been working closely to design the department at HUFA. The Food Technology Bridge Program was initiated in the summer of 2015 with 15 HUFA students as a means of introducing Food Technology to HUFA. The Bridge Program (similar to a minor in the US higher education system) is a two-year program for HUFA undergraduate students in their third or fourth years. In August of 2015, students participated in a two-week, intensive introduction to food technology developed and taught by Dr. Ghoryar (HUFA), Dr. Shakhes (HUFA), Mr. Ghanizadeh (HUFA), Dr. Ebner (Purdue), Dr. Deering (Purdue), and Dr. Oliver (Purdue). Students spent 60 hours divided between lecture and practical laboratory skills training. In the summer of 2016, this same group of students will participate in a second two-week, intensive program with different topics, focus, and depth. In the interim, Purdue and HUFA faculty members are maintaining engagement with students in the bridge program by conducting a series of Applied Food Technology Skills Workshops. Each of these workshops uses a hands-on approach where students:

1) Learn the laboratory techniques and protocols that are widely used in food quality analysis;
2) Use these same techniques to address current issues in food production and processing Afghanistan; and
3) Develop educational and outreach materials for consumers, food processors, and other food business owners based on their results and knowledge gained.

Importantly, while each workshop focuses on different commodities, the techniques and principles are readily applied across all food products. The technical skills the students learn are also a direct reflection of the skills needed immediately in the Afghanistan food economy, which ensures that students will have much greater opportunities to find meaningful employment upon completion of the program.
Applied Food Technology Skills Workshop II (Egg Quality and Safety)
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Eggs are an important source of protein for Afghan diet and an essential ingredient in numerous foods produced by large and small food processors throughout Herat Province. As such, initial egg quality often directly impacts the quality of products containing eggs.

Workshop Objectives
The workshop built on the food science foundation students developed during the August 2015 Bridge Program. The current program allowed students a more focused and in depth examination of eggs. The goals of this workshop were to teach students:
1. The science behind gauging egg quality and its impact on food processing and
2. Universal skills needed for testing egg quality.

The students will be able to apply these skills to help improve egg quality and safety in Herat.

Workshop Activities
The workshop began with an intensive introduction to egg science and production. This introduction provided the students with the science foundation needed to understand the different parameters used to gauge egg quality and the impact that different irregularities have in food processing.

The second part of the egg workshop used a hands-on approach, where students applied the universal skills needed to measure egg quality. Student first conducted preliminary physical inspections, and determined reasons or causes for different defects including micro-cracks, deformities, discolorations, and other irregularities. Next, students candled eggs in order to assess internal quality based on air cell size, yolk and albumen characteristics (shape, evidence of meat or blood spots, etc.). Finally, the group applied techniques used throughout the world to measure internal egg quality. Students calculated albumen and yolk height and yolk and albumen diffusion, and applied these measurements to assess egg quality and troubleshoot production challenges.
Workshop Outcomes
The students gained experience in:

1. Evaluating internal and external egg quality and safety through physical inspection and candling;
2. Troubleshoot production challenges;
3. Better management in the quality of eggs for sale; and

These activities allowed students to gain real skills needed in the Afghanistan economy and see first-hand how these techniques and principles are applied across all food commodities. Together with the outreach program, the workshop further developed the relationships between HUFA and their food processing stakeholders, while allowing students to showcase to future employers the skills and knowledge that they have gained.

Next Steps
As with all the Applied Food Technology Skills Workshops, students will now be charged with developing educational materials to teach:

1. Consumers in how to evaluate egg quality and safety;
2. Shop keepers in how to better manage the quality of the eggs they offer for sale; and

References
