



Professional Development Workshop - From Lab to Classroom- **August 1-3, 2023**
 Kansas Wheat Innovation Center at 1990 Kimball Ave. Manhattan, KS
 Kansas State University (KSU) Campus

Date/Time	Topic	Location/Trainer
<u>Tuesday, August 1, 2023</u>		
9:00 am to 9:15 am	Introductions, KFAC goals, participant expectations Topics: My Binder, Naitco Matrix, Journey 2050	Wheat Center Board Room KFAC Staff: Nancy Zenger-Beneda, Briana Jacobus
9:15 am – 10:15	Basic methods of crop improvement <ul style="list-style-type: none"> ● History and Origin of Wheat Domestication ● Plant and Wheat Breeding ● Traditional breeding methods ● Mutation Breeding ● Speed Breeding/Doubled Haploid Production ● Biotechnology ● Basics of marker-assisted selection/breeding 	Heartland Plant Innovations (HPI) Researchers: Asif Mohammad Sabeen Asif Ameha Yaekob Elfadil Bashir
10:15-10:30	Break and walk to IGP	Wheat Center Board Room
10:30-11:25	Tour International Grain Program(IGP)	Wheat Center Plaza - IGP KFAC & Shawn Thiele, IGP
11:25 - 11:30	Walk to Wheat Center	
11:30-12:30 pm	Continuation of crop improvement <ul style="list-style-type: none"> ● basic steps of boubled haploid breeding ● basic lab work ● Group discussion and interaction 	Wheat Center Board Room HPI Researchers
12:30 - 1:00 pm	Lunch break	Wheat Center Board Room
1:00 - 3:50	HPI greenhouse and Lab Visit: demonstrations of basic methods of crop improvement <ul style="list-style-type: none"> ● Tissue culture techniques ● Emasculation and pollination ● Development of mutant lines ● High throughput DNA extraction ● Marker-Assisted Selection 	HPI--lab & greenhouse HPI Researchers
3:50 - 4:00	Break	Wheat Center
4:00 - 5:00 pm	Group discussion – lesson plan development	Wheat Center Board Room KFAC Staff



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Date/Time	Topic	Location/Trainer
<u>Wednesday, August 2, 2023</u>		
9:00 am – 11:00 am (classroom)	GMO's (genetically engineered plants and gene-editing) <ul style="list-style-type: none"> ● Basics of GMO's ● GMO crop revolution ● Benefits and limitations Major challenges in agriculture <ul style="list-style-type: none"> ● Weed control ● Weed resistance to herbicides ● Best management practices 	Wheat Center Board Room KSU Researcher: Mithila Jugulam Wheat Center Board Room KSU Researcher
11:00 -11:15 am	Break and walk to Hal Ross Four Mill (HR)	Wheat Center Board Room
11:15 am to 12:15 pm	Tour HR	HR Flour Mill
12:15 am - 12:45 pm	Lunch Break	KFAC & Paul Blodgett, HR Wheat Center Board Room KFAC & KSU Researcher
12:45 - 1:00 pm	Leave Wheat Center and Travel to Throckmorton KSU	Wheat Center Board Room KFAC Staff
1:00 - 3:00	Laboratory visits and demonstrations How do you determine herbicide resistance in weeds? <ul style="list-style-type: none"> ● Greenhouse evaluations ● DNA/RNA extraction and gene mutation identification ● Biochemical assays 	KSU: Throckmorton Hall-- Weed Physiology laboratory KSU Researcher
2:30 - 2:45 pm	Travel to Wheat Center/Break	Wheat Center Board Room
2:45 pm to 3:45 pm	NBAF	NBAF staff
3:45 pm to 5:00 pm	Group Discussion/Lesson plan development	Wheat Center Board Room NBAF staff



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Date/Time	Topic	Location/Trainer
<u>Thursday, August 3, 2023</u> 9:00 am - 9:15 9:15 -12:15 am 12:15 - 12:30 12:30 - 1:00 1:00 - 2:00 2:00 - 2:30 2:30 - 5:00	Travel to KSU Campus Baking Science Instruction and activity Travel to Wheat Center Lunch Break Grain Craft Group Work - lesson plan presentation preparation Break Lesson Plan Delivery	KSU Campus - Shellenberger Hall KSU Faculty: Aaron Clanton Wheat Center Board Room
Follow-up Assignments	Submit written lesson plan to google drive Complete survey	Virtual/Online KFAC Staff