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| Topic | Instructor |  | Time |
| **PLF in the Broiler Industry Day 1**  Date: 2/11/2025  Time: 3:00pm-5:50pm |  |  | 2 hours 45 min |
| **Course Introduction and Goals** | Klingberg | -Purpose: provide broiler producers with more information on current research and technology designed to benefit poultry production  -Objectives: Introduce PLF; Identify different areas of broiler production that could benefit by PLF; Update producers on current PLF research and available technology  Goals: Increase broiler producer knowledge of PLF; provide producers with information about potential opportunities towards more efficient production; Allow producers to make informed decisions about whether to adopt PLF technology; provide an outlet for PLF education for producers and non-academia associates | 10 min |
| **PLF Use in Broiler Production** | Klingberg |  | 30 min |
| *Production* | Klingberg | -Benefit productivity and profitability, while decreasing labor and production costs  -real time monitoring to decrease time in broiler house, detect disease earlier, real time alerts that allow you to know as soon as production conditions change for timely action, wet spot detection to identify leaks sooner, and feed inventory systems to decrease feed waste | 5 min |
| *Behavior* | Klingberg | --Real- time monitoring of flock distribution, gait score, and eating/ drinking behaviors | 5 min |
| *Health* | Klingberg | Real-time monitoring through vision and audio for early disease detection  -Mortality disposal options to decrease biosecurity risks | 5 min |
| *Welfare* | Klingberg | -Real-time monitoring of thermal comfort, broiler behavior, in-house conditions  -efficiently monitors the whole flock without interference from human activity in the house  -allows producers to identify challenges quickly so they can be managed in a timely manner | 5 min |
| *Labor Management* | Klingberg | Environmental monitoring with real time alerts when conditions change, allows for immediate action to be taken when needed to account for the lowest risk  -ammonia, carbon dioxide, humidity, and temperature  -digital records of current and previous houses | 5 min |
| *Environmental Stewardship* | Klingberg | Making time in the broiler house more valuable with real-time monitoring and alerts that let the producer know when production conditions change so they spend less time trying to locate the changes | 5 min |
| ***BREAK*** |  |  | 10 min |
| **House Controllers** |  |  | 45 min |
| *Conventional Controllers* | Tabler | -Importance of having a proper, up to date controller for broiler houses  -House environment, ventilation control, backup with traditional controllers |  |
| *Controllers Integrating PLF Technologies* | Hawkins | -PLF controllers: improvements in house environment and ventilation control using online portals for real time alerts and production information  - increased production efficiency and lower energy costs through real time energy and fuel use monitoring systems |  |
| ***BREAK*** |  |  | 10 min |
| **Precision Systems for Securing Poultry Production** | Zhao |  | 1 hr |
| *Automated monitoring systems for improving management practices*   * *Feeding/drinking* * *Weight gain* * *Health* | Zhao | -The utilization of automated systems to monitor crucial production parameters in poultry, including feeding, drinking, and body weight  -How these systems can be leveraged to improve management practices.  - Technologies for monitoring, predicting and preventing the spread of poultry diseases. |  |
| **PLF in the Broiler Industry Day 2**  Date: 2/12/2025  Time: 3:00pm-5:40pm |  |  | 2 hours 30 min |
| **Conventional Ventilation & Environment Management** | Tabler/ Hawkins |  | 50 min |
| *Conventional broiler grow environment monitoring and control*  *- Temperature control*  *- Litter moisture control and house humidity*  *- Ammonia monitoring and control*  *Welfare impacts of poor ammonia control* | Tabler | - Conventional temperature and relative humidity monitoring in broiler houses: instrumentation, data collection, processing, and control  - Conventional litter moisture and house humidity level monitoring and control  - Assessing house tightness  - Impact of poor litter moisture and house humidity control on ammonia concentrations  - How ammonia is conventionally monitored in broiler houses  - Broiler welfare and production impacts of poor control: temperature, relative humidity, and ammonia  -footpad health important for profitability  -current limitations of monitoring footpad health on whole flock |  |
| ***BREAK*** |  |  | 10 min |
| **PLF Ventilation & Environment Management** |  |  | 50 min |
| *PLF Systems Approach*  *- Improved broiler grow environment monitoring and control: temperature, relative humidity, carbon dioxide, and ammonia*  *- Emphasis on improved production and welfare through early intervention*  *- Octopus Poultry & House Sanitation House tightness using Poultry 411* | Hawkins | - PLF temperature and relative humidity monitoring in broiler houses: instrumentation, data collection, processing, and control using real time alerts and digital records of ammonia, RH, and temperature for whole grow periods  -Litter moisture/wet spot detection with PLF vision systems  -PLF technology that helps producers to limit moisture in litter to keep footpad lesions from occurring  -automated house sanitation (Octopus Poultry: what it is, how It works, etc.) |  |
| *BREAK* |  |  | 10 min |
| **Mortality Management** |  |  | 45 min |
| *Broiler Mortalities* | Tabler | -limitations and challenges of current mortality disposal options  -biosecurity risks of not removing mortalities quickly  -time consuming and laborious to locate, remove, and dispose mortalities for every house |  |
| *SCOUT/Computer Vision Systems* | Hawkins | -SCOUT vision system for mortality identification and location monitoring  -regular and thermal imaging  -algorithms to confirm mortality  -real time alerts on quantity and location in house |  |
| **PLF in the broiler Industry Day 3**  Date: 2/13/2025  Time: 3:00pm-5:40pm |  |  | 2 hours 30 min |
| **Bird Behavior Monitoring** | Gan |  | 1 hour |
| *Computer Vision Systems* | Gan | -PLF computer vision systems for   * monitoring broiler eating/drinking behaviors * Monitoring welfare-related behaviors * Automated gait scoring | 30 min |
| *Poultry Welfare & Behavior: Effect of Management Practices* | Zhao | -Precision technologies to monitor poultry behavior & welfare  -Impact of management decisions (stocking density & light intensity) on the well-being of poultry | 30 min |
| **PLF Field Implementation** | Burns | -Taking PLF research out of the lab and into the production house | 1 hour |
| *Current PLF Use* | Burns | -What’s currently being used in the US, what’s being marketed, what’s about to be marketed, what’s being researched |  |
| *Return on Investment* | Burns | -ROI of various PLF technologies  -expected profit margin of adopting various PLF technology |  |
| *Data Ownership* | Burns | -Who owns data collected by PLF technology  -who has access to that data |  |
| *Record Keeping with PLF* | Burns | -digital record keeping of environmental parameters, mortalities, feed/water consumption, and other production data  - |  |
| *Government Cost Share Programs* | Burns | -what cost share programs currently exist for PLF  -how they can be obtained or applied for |  |
| *BREAK* |  |  | 10 min |
| *PLF Implementation Challenges* | Klingberg | -integrators decision makers for technology adoption  -not enough technology is being marketed  -limited research on commercial farms to determine ROI  -producers don’t know about it |  |
| *Next Steps/ Future of PLF* | Klingberg | -limited technology is currently available to buy in the US, but researchers are working on bringing more technology out of the lab and into commercial broiler production  -researchers are enhancing current technology and creating new technology for mortality management, disease detection, feed systems, and more efficient weighing systems. |  |
| **Conclusions** | Klingberg | -PLF utilizes real time monitoring and algorithm decision making provides producers with real time alerts when production operations change  -The goal of PLF is not to take the producer out of the broiler house, but to make their time in the house more valuable  -Vision, audio, and environmental control systems allow for efficient mortality removal opportunities, possibilities for early disease detection, and real time environmental management  -While limited PLF is available in US markets, researchers are working to create more PLF technology for commercial broiler production  -future PLF research is focused on technology for early disease detection, easy mortality removal, robots to get broilers to move and increase muscle strength | 30 min |
|  |  |  | Total:  7 hours 40 min |