INTERIM JOINT COMMITTEE ON AGRICULTURE

Minutes of the 3rd Meeting of the 2018 Interim

September 28, 2018

Call to Order and Roll Call

The 3rd meeting of the Interim Joint Committee on Agriculture was held on Friday, September 28, 2018, at 10:00 AM, in Lexington, Kentucky. Representative Richard Heath, Chair, called the meeting to order, and the secretary called the roll.

Present were:

Members: Representative Richard Heath, Co-Chair; Senators David P. Givens, Dennis Parrett, Damon Thayer, Robin L. Webb, and Stephen West; Representatives Myron Dossett, Derrick Graham, David Hale, Mark Hart, James Kay, Kim King, Phillip Pratt, Brandon Reed, Rob Rothenburger, Steven Rudy, Dean Schamore, Wilson Stone, Walker Thomas, James Tipton, and Susan Westrom.

Guests: Drew Graham, Assistant Dean, UK College of Agriculture, Food and Environment; Dr. Nancy Cox, Dean, UK College of Agriculture, Food and Environment; Dr. Eli Capilouto, President, University of Kentucky; Dr. Eric Monday, Executive Vice President for Finance and Administration, University of Kentucky; Patrick Perry, Research Coordinator, University of Kentucky Tobacco Research Development Center; Dr. Mark Williams, Professor and Interim Chair, Farming Apprenticeship Program, University of Kentucky; Dr. Seth Debolt, Professor, Distillation, Wine and Brewing Program, University of Kentucky; Ms. Patsy Wilson, Extension Specialist, Viticulture and Enology Program, University of Kentucky; Mr. Jeff Wheeler, Extension Specialist, Viticulture and Enology Program, University of Kentucky; Dr. John Strang, Extension Professor, Fruit Production, University of Kentucky; Dr. Rachel Rudolph, Assistant Extension Professor, Vegetable Production, University of Kentucky; and Dr. Krista Jacobsen, Associate Professor, Organic High Tunnel Production, University of Kentucky.

LRC Staff: Stefan Kasacavage, Nathan Smith, and Susan Spoonamore, Committee Assistant.

The August 23, 2018, minutes were approved by voice vote, without objection, upon a motion made by Representative Rudy and seconded by Representative Reed.

Opening Remarks and Welcome

Dr. Nancy Cox, Dean, UK College of Agriculture, Food and Environment, stated that the UK Horticulture Research Farm had enabled the UK College of Agriculture to be

a national leader in organic and conventional farming systems research for vegetable production. She said that the Research Farm produces wine along with educating students in the science and business of farming. All of UK's research farms are used to produce unbiased research and extension results. There are eight animal research units, five farm research units, and one forest unit which together serve 14 different academic departments. Dr. Cox said the Grain and Forage Center of Excellence at Princeton was made possible through a $15 million investment by the Kentucky Agricultural Development Board with the stipulation that matching funds are to be provided by the University of Kentucky. (The University stands at $9.4 million towards the match.) The Extension system is valued by rural communities. The UK College of Agriculture, Food and Environment is in the process of completing a needs assessment in each county regarding the extension system, along with a return on investment study of each extension across the state. Dr. Cox said that the College of Agriculture is starting a farm incubator program to help young farmers who cannot get credit or land. The program will help to prove the young farmers' creditability, ability to produce, and ability to manage finances. The College of Agriculture is formulating a spirits research institute to help the burgeoning bourbon and spirits industry.

Dr. Eli Capilouto, President, University of Kentucky, stated that the University of Kentucky's story starts with the people being served across the Commonwealth. UK takes seriously the responsibility to be the university for Kentucky. It takes infrastructure, research, and ideas to advance an economy. It is important to provide a good, healthy workforce at the individual level and community level. The University of Kentucky is committed to turning the opioid crisis around. The land grant mission is to keep the doors open wide and serve everyone you can. UK has record retention rates, record graduation rates, and groundbreaking research. The Extension system strengthens everything across Kentucky including developing leaders, economic development, and healthier living. The information provided at this meeting positions the agriculture sector to remain competitive. Agriculture is a $45 billion industry in Kentucky.

Dr. Eric Monday, Executive Vice President for Finance and Administration, University of Kentucky, stated that with the support of the General Assembly, UK has been able to invest over $2.2 billion in the campus in order to build the best physical environment for students to succeed, help build community, and achieve belonging. UK had invested approximately $500 million on housing and dining which contributed to 23,000 direct and indirect jobs. That equates to $25 million in taxes paid to Kentucky. UK is committed to a sustainable food supply for use in the dining program. In 2017, through the local purchasing initiative, UK purchased $1.7 million in food supplies.

Discussion on Artemisia Research

Mr. Patrick Perry, Research Coordinator, University of Kentucky Tobacco Research Development Center, discussed the production of the antimalarial drug Artemisinin from the medicinal plant *Artemisia annua L*. (sweet wormwood). Malaria is a worldwide epidemic, transmitted by mosquitoes and is most prevalent in underdeveloped regions. In

2015, there were 214 million cases and 438,000 deaths reported. The World Health Organization (WHO) recommends using Artemisinin-combination therapy (ACT) for the most effective treatment. The medicine supply is expensive and scarce, and the market demand is high. Sweet Wormwood (*Artemisia annual L.*) is primarily grown in southeast Asia and arable Africa. It is the only plant in the world that produces the active compound, *Artemisia.* It is a summer annual and belongs to the daisy/sunflower family. Artemiflow, which is a German company, has been able to increase efficiency through a continuous flow system that targets artemisinin and chemical relatives. It has increased higher yields, which lowers the cost. Artemisinin has also shown to be effective for cancer treatment (in human trials now at the UK Markey Cancer Center). Since artemisinin is already FDA approved, the only other step needed is repurposing approval. There is potential that artemisinin could have diabetes and veterinary applications. The Kentucky Tobacco Research Development Center (KTRDC) has been tasked with propagating sweet wormwood in a tobacco type production system. There is very limited information on how to grow from seed, especially in terms of transplant production. The KTRDC started with greenhouse testing in the winter, then moved on to field and harvest testing. He was able put the transplants into a tobacco transplanter and prepare the field as if it were a tobacco field. The plant would be hand cut, hung outdoors for a few days, and then finish drying in a barn. Because the material dries quickly, bailing would be out of the question. The price per acre return should be similar to tobacco. Artemiflow plans to establish a facility in Kentucky and expects to start with 30 acres in 2019, 3,000 acres by 2020, and hopefully 12,000 acres by 2026.

In response to Representative Tipton, Mr. Perry stated that the literature indicates sweet wormwood requires soil with high nitrogen and potassium, and he recommended Dual Magnum II and Trifluralin (Triflan) as herbicides. The Artemisia plant is cut and left in the field for several days so it can soak up the sunlight to help the conversion process, and then it is hung in the barn.

In response to Representative Rothenburger, Mr. Perry stated that the typical growing season is 300 days. The compounds needed for artemisinin develop just prior to flowering. The plant is resilient in hot and dry weather.

In response to Representative King, Mr. Perry stated that artemisinin can be used for colon cancer, breast cancer, and other common and aggressive types of cancer.

In response to Representative Pratt, Mr. Perry said that no treatment was applied or needed for mites or ladybugs. Natural nitrogen and potassium were used.

In response to Representative Dossett, Mr. Perry said that the seeds were started in a greenhouse. KTRDC had the nitrogen and potassium available so that is what was used. He did not have information regarding the economics of using other products.

In response to Representative Rudy, Mr. Perry said that the seed looks like sawdust. It is smaller than a tobacco seed; the seeds are extremely small. The seeds that the KTRDC used were elite hybrids bought from Switzerland and Thailand. Seeds can be bought in another state but they are undomesticated.

In response to Representative Westrom, Mr. Perry said that to the best of his knowledge, there are no American pharmaceutical companies synthesizing or producing their own material.

In response to Representative Pratt, Mr. Perry said sulfate is used instead of muriate because it is in the barn and readily available. Using muriate would be more cost effective.

Discussion on Department of Horticulture Programs

Dr. Mark Williams, Professor and Interim Chair of the Department of Horticulture gave an overview of the research done at the Horticulture Research. The farm is broken up into units, with the majority of the farm being used for conventional fruit and vegetable production research. The Viticulture and Enology program includes distillation of wine and brewing studies. There is a substantial vineyard with four to five acres of grapes in production. There is an ornamental section for woodies and annual plants. The organic farming unit contains approximately 30 acres that is a part of the farming apprenticeship program. The department sells wholesale fruits and vegetables to UK Dining Services. There is the potential of creating new programs such as beginning farmer training programs for non-degree seeking students where students can stay a year or longer to understand farm business plans, the science of farming, and the practice of farming. The Distillation, Wine and Brewing Program received a National Science Foundation grant for $6 million to look at lodging, which effects corn and sorghum. The philosophy of the department is sustainability.

There being no further business, the meeting was adjourned.