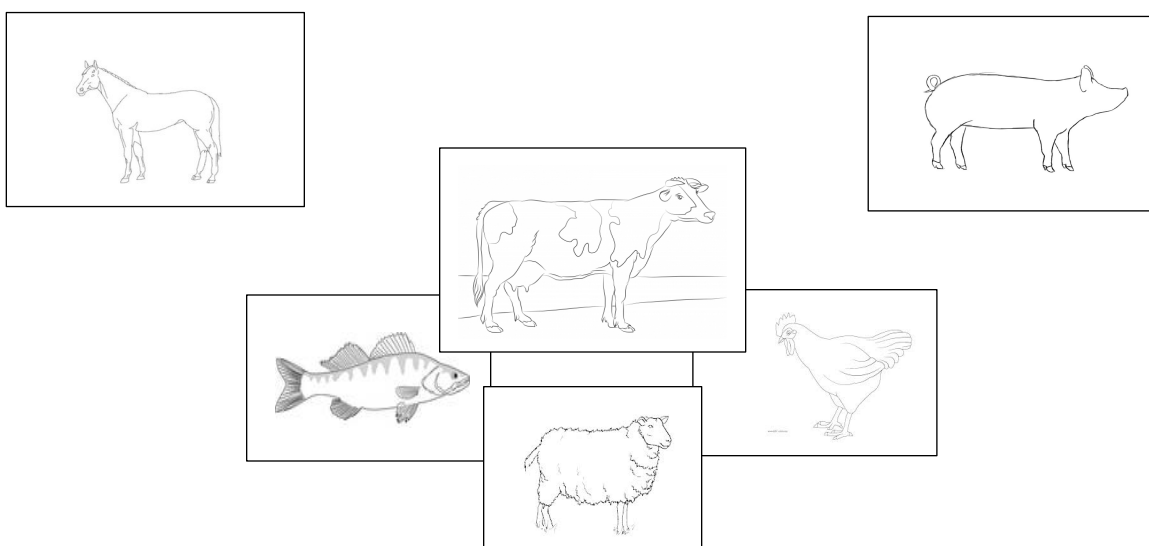


College of Food, Agricultural, and Environmental Sciences

# ANIMAL FACILITIES RE-ENVISIONING COMMITTEE REPORT

September, 2014  
(table updated)



## Committee Members:

**David A. Benfield, OARDC Associate Director, Committee Chair;** Gary Crocker, Dairy Manager, ATI; Kyle Culp, Instructor, Department of Animal Sciences; Craig Fendrick, Agricultural Administration, Waterman Farm; Francis Fluharty, Research Professor, Department of Animal Sciences; Gregg Fogle, Manager Beef Unit, Department of Animal Sciences; Wesley Green, Professor, ATI; Juliette Hanson, Director of Plant and Animal Agrosecurity Research Facility and CFAES Veterinarian; Ron Kensinger, Professor, Department of Animal Sciences; Jeff LeJeune, Director, Food Animal Health Research Program; Steve Moeller, Associate Professor, Department of Animal Sciences; Lynn McCready, Director, Oientangy Wetlands Research Park, School of Environmental and Natural Resources; Steve Neal, Assistant Dean, CFAES; Pasha Pepper, Associate Professor, Department of Animal Sciences; Ken Scaife, Assistant to the Director for Research Operations and Outlying Research Stations; Mark Sulc, Professor, Department of Horticulture and Crop Sciences; Hanping Wang, Associate Professor, Aquaculture Program, South Centers, Piketon; Bill Weiss, Professor, Department of Animal Sciences; Henry Zerby, Chair, Department of Animal Sciences



**THE OHIO STATE UNIVERSITY**

COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES

# Executive Summary

The College of Food, Agricultural, and Environmental Sciences (CFAES) commissioned an Animal Facilities Re-envisioning Committee to provide recommendations towards a plan and vision for 21<sup>st</sup> century animal facilities that enhance the research, teaching and outreach missions of the college. Animal agriculture is an important part of the \$104 billion agricultural industry in Ohio and receipts for livestock and livestock products comprises 32% (\$3.12 billion) of the farm marketing's for Ohio. The state also ranks in the top 20 of most production classes of animal agriculture.

Ohio continues to be a leader in the production of agricultural animals and their associated products and CFAES has served this industry for many years. Animal facilities within CFAES are also critical for our research, teaching and outreach programs. The Department of Animal Sciences has the largest undergraduate enrollment within CFAES and live animals are part of the classroom experience. Departments within CFAES that utilize animals for research have generated \$37.1 million in grant dollars over the past decade and nearly 2,000 individuals have toured or attended workshops in our facilities.

Many of the current animal facilities were constructed in the 1950's to 1980's and are past appropriate structural lifetimes and not consistent with today's production practices. Many of our facilities do not project an appearance that is consistent with the expectations of students, staff, faculty and stakeholders. Current conditions of many facilities impact the attitude of students, staff and faculty that must function in these buildings. Construction of new facilities or significant renovations will improve student recruitment and training; enhance faculty and staff morale; provide modern, functional and flexible facilities for outreach functions; enhance opportunities for new research and research funding; serve as a gateway for community education; enable compliance with current animal welfare standards; and enhance partnerships with animal commodity groups, industry and other stakeholders in the state of Ohio.

In this report, the committee makes nine recommendations for the college to consider as part of a 21<sup>st</sup> century plan to improve the animal facilities and programs within CFAES. These recommendations suggest a new vision to reduce duplication of facilities, relocation of some facilities closer to amenities (feed mill) and attempts to utilize appropriate land mass to accommodate new facilities. The recommendations are:

1. Make the Waterman Agricultural and Natural Resources Laboratory (WANRL) a site for a new multi-species facility that functions as a *Center for Teaching, Research and Outreach Excellence in Food and Animal Agriculture*. Relocate the equine program from Don Scott Field to WANRL with a new arena and associated facilities for horses. Maintain a smaller dairy herd in support of teaching, research and outreach priorities and provide the appropriate facilities for those programs.
2. Don Scott Field is envisioned as an excellent location to develop a collaborative program of excellence in forage management and heifer development for beef and dairy cattle. This requires construction of a new cattle facility, relocation of the equine program to WANRL and the existing swine program moving to Wooster.

3. Wooster (Ohio Agriculture Research and Development Center (OARDC) and the Agriculture Technical Institute (ATI)) would become the site of a new CFAES Dairy and a new swine facility. This would place larger animal units in proximity to the new OARDC Feedstock Research Processing Facility that produces feeds for these herds.

OARDC and Ohio State ATI would combine their sheep flocks into one. Beef cattle would remain at Ohio State ATI Grace Drake Land Laboratory (GDLL) and in the OARDC Feedlot Facility. A new cattle facility would be constructed at GDLL for this teaching herd and renovations to the feedlot facility are necessary to support a new research program in nutrient management.

The horse arena at GDLL would be expanded to provide classroom space and public seating for community related programs.

Poultry research would remain at the OARDC facilities with some renovation required.

4. Facilities at the Jackson and Eastern Agricultural Research Stations will require renovations to continue research programs in cattle reproduction and forage management. The cattle herd at the North Appalachian Experimental Watershed located in Coshocton will be eliminated. The swine unit at the Western Agricultural Research Station will be eliminated once a new swine facility is completed in Wooster.
5. The Food Animal Health Research Program and Department of Animal Sciences need specialized facilities for BSL2 work with animal pathogens. These facilities exist at Wooster but will need renovation to be sustainable.
6. Aquaculture is the fastest-growing food industry in the world and Ohio ranks 1<sup>st</sup> in pounds of yellow perch sold, number of blue gill produced and 4<sup>th</sup> in sales of largemouth bass and bait fish in the United States. There is good potential for expansion of research, teaching and outreach programs in this area. Aquaculture facilities should be continued and renovated at South Centers in Piketon and at the William H. Schiermeier Olentangy River Wetland Research Park in Columbus.
7. Construct new abattoirs for processing of agricultural animals necessary for the meat science programs. These facilities could either be part of the multi-species facility at WANRL or associated with the university food services. It is also proposed to establish an abattoir on the Wooster campus to support a two-year program in meat sciences and provide a facility for the endpoint processing of research animals at that location.
8. Changes at WANRL in concert with new facilities at that location, and Wooster, are key drivers of this set of recommendations. Construction of the equine facilities and multi-species facilities at WANRL are the highest priorities. The next major projects are building the new swine and dairy facilities at Wooster. The other facilities recommended for construction or renovation should follow these priorities.

9. The Animal Re-envisioning Committee has presented a general roadmap that will become part of the CFAES strategic plan. The committee recognizes that the recommendations in this report are a starting point and may or will be modified through discussions with administration and stakeholders. Critical areas for continued committee discussion are land management relative to the recommendations in this report, consideration of financial aspects and development of a management model for the facilities.

The committee respectfully submits this report to the CFAES Dean and administration with the intent of assisting in moving the plan forward to promote research, teaching and outreach programs of excellence in animal agriculture. The members of the committee thank Dean Bruce McPheron and Sr. Associate Dean Ron Hendrick for their guidance and advice throughout the planning process.

# Animal Facilities Re-envisioning Committee

## Recommendations on Animal Facilities for the College of Food, Agricultural, and Environmental Sciences

**Background.** The College of Food, Agricultural, and Environmental Sciences (CFAES) Animal Facilities Re-envisioning Committee was asked to review current animal facilities within the college and to provide a roadmap and vision for 21st century animal facilities that enhance our teaching, research and outreach missions. Animal agriculture is important to the economy of Ohio and the \$104 billion agricultural industry. Cash receipts from Ohio’s livestock, livestock products and crops totaled \$9.65 billion in 2011. Livestock and livestock products comprised 32% of total farm marketing (\$3.12 billion) in Ohio. The total estimated value of all livestock in Ohio was approximately \$4.095 billion for 2012 (Table 1).

<b>Table 1 Profile of Ohio Animal Agriculture 2012</b>			
<b>Class</b>	<b>Production or Inventory</b>	<b>Total Value</b>	<b>Rank U.S.</b>
<b>Poultry and poultry products</b>			
Chicken layers, pullets, other	35,988,000	71,976,000	2
Chicken broilers	63,200,000	189,600,000	16
Eggs	7,685,000,000	523,067,000	2
Turkey	5,500,000	158,223,000	9
<b>Cattle and calves</b>	1,280,000	1,353,000,000	25
Beef cows	300,000		29
Milk cows	270,000		10
Calf crop	490,000		
Milk produced lbs.	5,355,000	1,038,870,000	10
<b>Horse and pigs</b>	2,050,000	730,320,000	9
<b>Sheep and lambs</b>	121,000	29,524,000	13
<b>Total</b>		4,094,580,000	

Figures taken from the 2012 Ohio Department of Agriculture Annual Report and Statistics.

In addition, Ohio ranks in the top 20 of most production classes of animal agriculture (Table 1). Thus, Ohio continues to be a leader in the production of agricultural animals and animal products, and there is an expectation that CFAES continue to serve this industry through teaching, workforce training, research and outreach.

The Animal Facilities Re-envisioning Committee was given the primary charge to identify the essential mission-driven teaching, research and outreach activities that define a comprehensive 21st century “one college” animal facilities program at The Ohio State University.

**Teaching, research and outreach.** The Department of Animal Sciences continues to lead the college in enrollment with nearly 700 undergraduate students and 40 graduate students enrolled. Live animals are used as part of the class experience for 38 different classes within the curriculum. Essentially, all students have contact with different species of animals depending on their academic program. In addition, over 200 students are involved in co-curricular activities such as shows, livestock judging teams, employment and student organizations that require agricultural animals for these activities.

The availability of animals for instruction and practicums at the Agricultural Technical Institute (ATI) is also important. The Livestock (Beef/Sheep/Swine) AAS and AS degree programs had an average enrollment of 99 students (range 85–121) over the past five quarters. The Swine Production 1 course program enrollment averaged 12.6 (range 10–16) students for the past five quarters. Enrollment in the dairy program averaged 51 (range 38–58) in past quarters.

*Curriculum changes with conversions from quarters to semesters emphasize hands-on learning with animals as requested by students and stakeholders advising the departments on needs in the workforce, thus putting more pressure on current facilities.*

Research. Animals also serve an important niche in funded research projects within the college. Often the animal units are the field laboratories for conducting animal research. The Department of Animal Sciences and the Food Animal Health Research Program are the two main grant generators for projects related to animals and animal disease. Research funding metrics for these two departments are summarized in Table 2.

These two departments have generated \$37.1 million in direct costs over the past 10 years with \$7.06 million in indirect costs to the college. Most funded projects used animals and animal facilities in these scientific endeavors. These projects also generated 887 journal articles and 162 graduate degrees.

Faculty members in these departments often lead interdisciplinary research projects in collaboration with the Colleges of Education and Human Ecology, Medicine, Engineering and Veterinary Medicine.

Outreach. The major outreach events using animal units include 4-H and other youth events, and continuing education to stakeholders. Tours of animal facilities, where permitted, are opportunities for educating consumers about the food systems and the role agricultural animals have in society. During 2010–2011, approximately 2,000 FFA and 4-H students, advisors and parents attended training sessions, fairs, and contests; 1,500 youth, parents and teachers toured college animal units; and 750 stakeholders attended training sessions, organizational meetings and also toured the animal units. In addition to the Columbus units’ various K–12 events, field days and producer workshops are held at our outlying research stations that house animals.

**Table 2. Research Funding Metrics**

Department	Year	Direct Expenditures	F&A Expenditures	Journal Articles	Degrees Conferred
Animal Sciences	2003	\$1,380,670.00	\$133,215.00	80	11
	2004	\$1,672,702.00	\$187,203.00	71	14
	2005	\$2,024,599.00	\$242,976.00	57	7
	2006	\$2,182,614.00	\$274,342.00	46	9
	2007	\$2,281,802.00	\$233,537.00	53	12
	2008	\$2,071,829.00	\$371,429.00	60	12
	2009	\$2,102,508.00	\$326,721.00	50	16
	2010	\$1,741,865.00	\$393,795.00	51	14
	2011	\$1,769,148.00	\$351,174.00	58	9
	2012	\$1,814,306.00	\$363,002.00	77	17
<b>Total</b>		<b>\$19,042,043.00</b>	<b>\$2,877,394.00</b>	<b>603</b>	<b>121</b>
<b>Average</b>		<b>\$1,904,204.30</b>	<b>\$287,739.00</b>	<b>60</b>	<b>12</b>
Food Animal Health Research Program	2003	\$1,199,234.00	\$351,736.00	31	4
	2004	\$1,549,692.00	\$324,471.00	21	5
	2005	\$1,741,524.00	\$400,137.00	19	0
	2006	\$2,008,160.00	\$489,260.00	25	12
	2007	\$1,698,451.00	\$324,618.00	28	1
	2008	\$1,744,834.00	\$389,253.00	30	5
	2009	\$2,022,656.00	\$388,981.00	33	4
	2010	\$2,116,624.00	\$432,027.00	23	4
	2011	\$2,009,521.00	\$518,265.00	37	0
	2012	\$1,995,533.00	\$561,694.00	37	6
<b>Total</b>		<b>\$18,086,229.00</b>	<b>\$4,180,442.00</b>	<b>284</b>	<b>41</b>
<b>Average</b>		<b>\$1,808,622.90</b>	<b>\$418,044.00</b>	<b>28</b>	<b>4</b>

Many of our facilities do not project an appearance of high-quality, important or visible science occurring at the site. Current conditions of many facilities impact the attitude of students, staff and faculty who must function in these buildings. Construction of new facilities will:

- improve student recruitment and training,
- enhance faculty and staff morale,
- provide modern, functional and flexible facilities for outreach functions,
- enhance opportunities for new research and research funding,
- serve as an opportunity for community education,
- enable compliance with current animal welfare standards, and
- enhance a private-public partnership with animal commodities in the state of Ohio.

**Process.** An 18-member committee composed of faculty, animal facilities managers, and administration began meeting in October 2013, convening at approximately two-week intervals and held a half-day retreat in December 2013. In addition, separate reports were generated by committee members for beef cattle and sheep, dairy, equine, poultry, aquaculture and animal disease research facilities. The committee chair took input from other faculty in the Department of Animal Sciences and ATI who utilize animals but were not committee members. Some faculty also toured animal facilities at Colorado State and Iowa State Universities. Facilities at Findlay, Michigan State and North Carolina State University are still desired sites to visit in the future.

**Current status of animal units.** The college maintains animal units at several locations: Columbus (Waterman Agricultural and Natural Resources Laboratory–WANRL, poultry facility near 4-H Center, Don Scott Field); Wooster (OARDC and ATI); Eastern, Jackson and Western Agricultural Research Stations, the North Appalachian Experimental Watershed in Coshocton County and OSU South Centers at Piketon. These facilities include those where animals are housed and associated facilities for storage of forage, feeds and equipment. There are 89 such structures totaling 571,913 gross square feet within the college facilities inventory. Most of the facilities at each location were constructed in the 1950s through the late 1980s and are beyond their structural lifespans. There are a few exceptions such as the Poultry Research Units in Wooster (1995); cattle handling facility at ATI (2013); Krauss Dairy dry cow barn (2003), Eastern ARS feedlot renovation (2004), and various hay, feed and manure storage facilities constructed within the last 10 years. There have also been extensive renovations to each of the three dairies at WANRL, OARDC and ATI and the swine units at Don Scott and Western Agricultural Research Station within the past five years.

A major challenge for each animal unit is the costly physical maintenance of aging facilities and the lack of updated production technologies in most facilities. Facilities in Columbus have been severely impacted by structural damage from recent wind and snow storms. Buildings housing sheep, swine, equine and dairy have been structurally reinforced to stabilize the structures and extend the useful life of these facilities. The wind damage has resulted in no horse arena in the equine unit, a structure critical to courses in equine handling. Also, the beef unit is a hoop structure and not representative of industry expectations for research, teaching and outreach. The Ohio animal agriculture industry views our animal facilities as inadequate and outdated. Therefore, the committee prepared the current report with the goal to replace most, if not all, current animal facilities with new structures.

In addition to the structural challenges of deteriorating animal units, the college also is challenged by the geographic dispersal of these facilities. The committee makes the recommendations that follow by site, regard for species of animal, proximity to faculty and students, and available land resources.

Improvements and renovations to some animal facilities will need to be done in the transition from our current state to the construction of new facilities. For example, swine and poultry facilities require revised housing requirements based on the Ohio Livestock Care Standards.



## Guiding principles and understanding the total infrastructure needs

Each facility will vary in functionality depending on the animal species housed in the structure and use for research, teaching and/or outreach. However, there are certain guiding principles and associated infrastructure needs to be considered in the future design of all facilities.

- Form follows function; facility designs are driven by the programmatic vision and needs of research, teaching and outreach as defined by academic departments that use animals in the three mission areas.
- Facilities will comply with AAALAC guidelines, including recommendations in the Federation of Animal Science Societies' *Guide for the Care and Use of Agricultural Animals in Research and Teaching*. This includes providing the appropriate social environment and enrichment for each species of animal within each facility.
- Most facilities will have the capacity for public observations of animals; classrooms in appropriate facilities and observation decks/areas where animals can be viewed without contact and concerns for biosecurity.
- All facility entrances should be gated and an appropriate security mechanism for entry into the compound provided by using a card or punch key code.
- Recommended siting for facilities by this committee could change after consultation with planners, architects and/or engineers who have the expertise to evaluate building sites. However, the committee has given careful consideration to the need for these facilities to be located most conveniently for faculty, staff and students.
- No student housing is to be associated with new facilities suggested in this report.
- Facility designs should allow for flexibility to be used in research and teaching and accommodate the need for outreach and public activities.
- Facilities should incorporate into design the most advanced equipment, technology to reduce energy costs, and most efficient methods to handle nutrient management.
- Appropriate feeding and watering systems; these should be automatic to allow for monitoring of intake by individual animals.
- Fencing to allow access to grass and exercise.
- Shade for animals on pasture.
- Gating/heading for appropriate handling of animals for health treatments, sampling and separation where required.
- Carts or other equipment for movement of bulk and bagged feed and animals.
- Associated abattoir for processing of animals at end of life or end of use in research, teaching or outreach programs.
- Associated change rooms and showers for biosecurity protocols within the animal facilities that allow caretakers, faculty and students to freshen after handling animals.

## Recommendation #1. Waterman Agricultural and Natural Resources Laboratory

WANRL consists of 257 acres and represents approximately one-half the remaining open spaces on the Columbus campus and provides the following advantages for location of agricultural animal facilities:

- ❖ WANRL is in close proximity to the remainder of the Columbus campus,
- ❖ Bus routes to this location can be arranged to transport students,
- ❖ Provides proximity for faculty and graduate students for teaching and research,
- ❖ The location provides high visibility for college activities in research, teaching and outreach for college personnel and the general public, and demonstrates a rural/urban interface with animal agriculture. Therefore, it is proposed to:
  - Establish WANRL as a primary site for the teaching of animal agriculture and set as a high priority for the college to create a *Center for Teaching, Research and Outreach Excellence in Food and Animal Agriculture*.
  - Consistent with past planning exercises in 1998 and 2004, construct a multi-species facility that provides animal quarters for beef, a small dairy, poultry, sheep and swine to meet curriculum needs for CFAES and possibly the College of Veterinary Medicine (CVM).
  - An associated building for intensive animal research in proximity to the multi-species teaching facility should also be considered or the multi-species teaching facility designed to allow for teaching and research to be done at similar times. Possible BSL2 space should also be considered in the design of this facility.
  - To accommodate the new multi-species facility, reconstruct the current dairy at WANRL and maintain a teaching and research herd of 30–40 cows. The species of cow used in the multi-species facility will need to be determined. Replacement heifers for the teaching herd can originate from animals at the Don Scott Field (see recommendation #2). The smaller milk volume from the reduced herd size may present issues in being able to sell the milk. Efforts will need to be made to find a local market for the milk either within the university or the community.
  - Poultry currently housed in the one active poultry building near the 4-H Center would be moved to new housing in the multi-species teaching and research facility. This would allow the current facility to be discontinued.
  - Move the equine program from Don Scott Field to WANRL with the construction of an appropriate arena and sufficient stables for animals used in the curriculum. Horses would be an acceptable species within the rural/urban interface and it puts the equine therapy riding program in proximity to the OSU Wexner Medical Center.
  - The construction of a multi-species facility and movement of the equine program to WANRL should also appeal to the clinical large animal programs in CVM. Development of a solid partnership with OSU Wexner Medical Center and CVM will also give the college a firm anchor and economic support for utilization of WANRL as a Center of Excellence in Animal Agriculture.
  - Issues at this location to be resolved are division of pasture space (among horses and forage production for dairy animals and sheep) and a nutrient management program that also accommodates ongoing crop and urban horticulture/landscape research of other departments and colleges at this location.

## Recommendation #2. Don Scott Field

Don Scott Field is a 502-acre site located in the northeast quadrant at the junction of Sawmill and West Case Roads, adjacent to The Ohio State University Airport and other facilities. There is approximately 45–50 acres of pasture at this site located 6 miles from the Columbus campus. The distance from campus is a major disadvantage to using this site for classroom instruction, as students must be transported to this location at an annual expense to the Department of Animal Sciences.

Infrastructure exists for farrowing and nursery pigs, equine, and beef cattle. The beef research facility was destroyed in 2010 following structural damage from snow and a replacement hoop structure was erected in 2013. The roof of the equine arena was damaged in June 2012 and this building has been deconstructed and boarding of horses was eliminated at this site. Horses are still housed in a portion of the structure that was deemed structurally sound. Based on the above constraints, it is proposed that:

- Don Scott Field is utilized as an excellent location to develop a collaborative program of excellence in forage management and utilization for heifer development in the beef and dairy industry. This collaborative program would provide information to the cattle industry on forage needs and development of first year female cattle for repopulating herds. This program would involve the Departments of Animal Sciences and Horticulture and Crop Sciences.
- The use of this site also creates a location for forage research in proximity to the Columbus campus, as most research is now done at the Agricultural Research Stations that are several miles from the Columbus campus.
- Construct a new facility and associated infrastructure for the heifer development program.
- To accommodate the change in use of Don Scott Field, the equine program will relocate to WANRL. Once new facilities are available, the current equine and swine facilities at Don Scott would be deconstructed. The swine program and facilities at Don Scott will be discontinued and buildings deconstructed. A new swine complex will be constructed at Wooster (recommendation #3) or another location as potential public or private partnerships emerge.

### Recommendation #3. Wooster (OARDC and ATI)

OARDC and ATI will function as a “one college/one campus” concept related to animal facilities at Wooster.

The main impact on the Wooster campus is the relocation of the larger production herds for the college on land operated by OARDC and ATI. The justification for this recommendation is based on the following:

- Larger land masses at OARDC and ATI for relocation of dairy and swine units. These larger animal units are not suitable for a rural/urban interface at WANRL, but are suitable in a rural area.
  - More land available for nutrient management.
  - Proximity of these herds to the Feedstock Processing Research Facility (feed mill) that produces standard and experimental feeds for the animal herds at the various locations. Location of the majority of grain-consuming animals near Wooster will substantially reduce transportation and maintenance costs for delivering bulk and bagged feed to Columbus and the Western Agricultural Research Station.
  - Availability of personnel for operation of the dairy, and need to establish caretakers for the swine unit.
  - Student housing is available for students during the Maymester and summer at the ATI Applewood Village to accommodate undergraduate and graduate students who may work on research or other projects involving the dairy or swine herds.
- ✧ Construct a new college dairy with capacity for 500 cows (300 lactating, 50 dry and 200 replacements) to replace the dairy at WANRL, ATI and portions of the Krauss Dairy facilities. The committee suggests that the new dairy be sited near the current Krauss Dairy. This dairy will be the major college dairy for research, teaching and outreach, and would provide animals for the smaller dairy in the multi-species facility at WANRL. There are some issues with available land for forage, requiring shipment of forage to this herd, and there may be animal welfare requirements in the future that require cows to have access to dry lot or pasture for a period of time. These issues will need to be weighed into the discussion.
- Reconstruct the dairy at WANRL retaining the presence of animals for research, teaching and outreach in the multi-species facility.
  - Deconstruct ATI and portions of the Krauss Dairy complex.
- ✧ ATI will eliminate its sheep flock and use sheep in the OARDC flock as of July 1, 2014. The sheep facility has been renovated and is adequate for the next several years.
- ✧ ATI will maintain a beef herd of 125–175 cows at Grace Drake Land Laboratory (GDLL). This will require the deconstruction of the current beef cattle facility and construction of a new facility near the beef cattle handling facility.
- ✧ ATI will construct a facility to maintain a small goat teaching herd at GDLL. These are the only goats used in teaching programs within the college.

### Recommendation #3. Wooster (OARDC and ATI) Cont.

- ✧ Construct new swine facilities at GDLL, which will be a farrow to finish facility of approximately 150 sows. This herd will provide animals for the teaching programs at Columbus and Wooster, and for research programs in the college and Food Animal Health Research Program. Alternatively, current discussion with private industry partners could provide a larger commercial unit at a different location.
- ✧ Expand the current horse arena at ATI to allow for classroom and seating. The arena can then function as a multi-species classroom and multi-purpose facility to meet the curriculum needs of students at ATI.
- ✧ OARDC does not maintain a beef cattle herd at Wooster, but does have a feedlot research facility constructed in 1964. This facility is ideal for nutrition studies due to 24 group pens and 80 individual pens that allow for sufficient experimental replicates. However, the facility was built over manure pits and is not conducive to nutrient management research. Improvements in this facility are needed for animal comfort and well-being to reduce issues with lameness in cattle housed in this structure.
  - It is proposed that a new beef research facility be constructed with fence-line feed bunks under one roof and pens with concrete curbs to allow for a major emphasis on nutrient management research.
- ✧ Maintain the current poultry research facilities constructed in the 1990s. These facilities are in very good condition and have been recently renovated with new caging for turkeys and chickens. Laboratories in these facilities need to be modernized (replace wooden cabinets and fixtures) to allow initial sample processing on site.
- ✧ The Poultry Service Building constructed in 1928 at Wooster will need to be deconstructed at some time and either a new facility constructed to house current flocks of poultry with specific genetic traits or the flocks relocated to the Poultry Research buildings.

## Recommendation #4. Agricultural Research Stations

- ✧ Deconstruct the swine facilities at Western Agricultural Research Station, once new facilities are constructed at GDLL or alternative location.
- ✧ Phase out the bovine herd at North Appalachian Experimental Watershed. Some cattle with better genetics to be moved to the herds at the Jackson and Eastern Agricultural Research Stations. These animals will replace culled animals in the station herds. This process will be completed by fall 2014.
- ✧ Maintain current beef herds at the Jackson and Eastern Agricultural Research Stations. The closing of the cattle herd at Coshocton and prior closing of the herd at the Southern Agricultural Research Station results in a reduction of beef cattle from 744 to 544, a 27% reduction.
- ✧ Some cattle facilities at both Jackson and Eastern Agricultural Research Stations have been recently renovated and remain in very good condition. There is a need for a new cattle barn at Jackson and an addition to the shop/storage space at Eastern Unit 2 that will replace space lost from deconstructing older obsolete barns.

## Recommendation #5. Specialized Facilities

There are five specialized buildings (NIH, Gnotobiotic Laboratory, Swine Isolation, Animal Health Isolation, and Avian Disease) that are part of the Food Animal Health Research Program complex at Wooster. Faculty members in Animal Sciences are beginning to increase their involvement in experiments requiring BSL2 facilities.

Each of these structures was built in the early 1950s and is considered to be in fair to adequate condition.

- These buildings are in need of general reconditioning of the floors, walls, windows, HVAC, new environmental controls, plumbing and electrical services.
  - The exception is the Avian Disease Laboratory that needs to be deconstructed and replaced with a new building designed for BSL2 experiments.
- ✧ The Ralph Regula Plant and Animal Agrosecurity Research Facility completed in 2012 is in excellent condition and can be used for both BSL2 and BSL3 level experiments.

## Recommendation #6. Aquaculture

Aquaculture is the fastest-growing animal food industry in the world. The increased attention on human health benefits of seafood will continue to drive production demands.

Ohio has exceptional resources suitable for aquaculture operations, and land and water resources are plentiful in many parts of the state. Ohio ranks number one in pounds of yellow perch sold; is the number one bluegill producing state; and is fourth in sales of largemouth bass and bait fish. Thus, the aquaculture industry has potential for future growth in Ohio and will need associated research, teaching, workforce development and outreach functions provided by the college. Therefore, the committee proposes:

- Two sites be maintained for aquaculture research, teaching and outreach: South Centers Research and Extension Center at Piketon, Ohio, and the Wilma H. Schiermeier Olentangy River Wetland Research Park on the Columbus campus.
- Piketon facilities were constructed in 1991 and need updated filters, environmental controls and piping to support research on perch and blue gill genetics. Also, there is an urgent need for upgrades in the aquaculture breeding center barn including filters, environmental controls, emergency power backup and a recirculating aquaculture system.
- There is a need for additional aquaculture infrastructure at the Olentangy River Wetland Research Park to accommodate the use of live aquatic vertebrates in the curriculum. Future expansion of aquaculture research, teaching and outreach facilities within the college should be targeted to this site due to available infrastructure.
- Future establishment of a curriculum in aquaculture within the college should be centered at the Olentangy River Wetland Research Park.



## Recommendation #7. Abattoirs

Abattoirs are necessary for the end processing of agricultural animals to produce value-added products and for the research and teaching programs in the Animal and Meat Sciences.

- ✧ Abattoir on the Columbus campus can be associated with either University Food Service facilities or a separate facility within the proposed multi-species teaching, research and outreach facility at WANRL.
  - Location at WANRL would provide an abattoir for processing animals housed in the multi-species facility and other college locations in support of the growth of the Meat Science Program (serves majors in Animal Sciences, Meat Sciences and Food Science and minor in Meat Science).
  - More central location for outreach programs, proximity to 4-H Center for youth programs, and companies looking to use the facility as a pilot plant for product development.
  - Provides a terminal outlet for animals in the multi-species facility that can help control biosecurity in the original or source herd and flocks.
  - Greater opportunity to enhance interactions with University Dining Services and promote CFAES brand animal products at The Ohio State University and in Columbus.
  - CFAES, CVM and the Colleges of Medicine and Dentistry use available muscle and other tissues for research and teaching purposes. Having an abattoir available to obtain such samples is an advantage compared to seeking similar samples from a commercial abattoir.

The proposed abattoir on the Wooster campus is a new concept and could offer the following advantages:

- There is no abattoir at Wooster and research animals are often transported to Columbus to evaluate carcasses and obtain samples for research. A local facility would reduce travel time and costs for research projects.
- Creates the potential for a new two-year program in Meat Science at ATI that would provide a trained workforce for the meat processing industry.
- Provides for collaboration with FAHRP in food safety research projects with proximity to BSL2 and BSL3 facilities that could be used for research on pre-harvest food safety.
- Potential collaborative projects with the Department of Food, Agricultural and Biological Engineering in evaluating possible value-added uses of processing waste streams as a source of carbon for energy.
- Potential collaborative projects with local food processors but could also be viewed as competition by smaller meat producers.

## Recommendation #8. Proposed Order of Procession with Facilities

Changes at WANRL in concert with new facilities at this location and Wooster are the key drivers in this plan. Therefore, the following priorities are suggested in descending order. These priorities can change as details are developed in discussions with planner/architect or if funding streams become available for other projects listed below.

1. If sufficient space is available prior to deconstruction of the WANRL Dairy, construct new equine facility, including a new arena. Advantages are:
  - a. The arena will serve as a focal point for the new plan and would serve both teaching and Extension needs.
  - b. It would also provide a location to attract potential donors, and provide a space for new outreach activities (4-H groups, alumni at football games, medicine and veterinary medicine).
  - c. It allows the equine therapy riding program to be in proximity to the OSU Wexner Medical Center.
2. Construction of the multi-species classroom with the dairy portion of the building completed first to allow for dairy animals to be located to this building as the remaining deconstruction of the WANL Dairy is completed. This facility would also include classrooms and wet laboratory space to support the teaching activities within this facility.
3. Construction of new dairy at Wooster to allow for reduction of the dairy at WANL and deconstruction of associated buildings to allow for construction of the multi-species building. A portion of the dairy will need to be maintained in transition until the multi-species classroom is constructed.
4. Construction of new swine facilities at GDLL or alternative location determined in collaboration with industry. Deconstruction of swine facilities at Don Scott and Western Agricultural Research Station.
5. Construction of new beef facilities at GDLL and Don Scott Field.
6. Renovation of feedlot beef facilities at Beef and Sheep Research Farm in Wooster.
7. Renovation or replacement of BSL2 facilities for Food Animal Health Research Program and Animal Sciences.
8. Renovation of aquaculture facilities.
9. Renovation of poultry facilities.
10. Construction of replacement facilities or renovations at Jackson and Eastern Agricultural Research Stations.

As new construction is completed, follow committee recommendations on deconstruction of older facilities as per above recommendations.

## Recommendation #9. Next Phase for Re-envisioning Committee

- ✧ Discussion and recommendation of college management models for the animal facilities at both the Columbus and Wooster locations.
- ✧ Engage CVM in conversations related to the multi-species building at WANRL. Most of the agricultural animals used in research and teaching are housed at the Findley Farm. CVM may be interested in having the opportunity to partner with CFAES in using animals in the multi-species facility.
- ✧ Engage Ohio animal agriculture organizations in conversation with this report.
- ✧ Develop additional detail for proposed facility recommendations in the current report, preferably with the counsel of a planner or architect with experience in the design of animal facilities.