

## Iowa State University Teaching, Research, and Extension Working Dairy Farm

The dairy farm is located on an approximately 30-acre footprint with 400 dairy cows and is used for teaching, research, and outreach activities. Visitors can watch cows being milked from our front foyer, enjoy a video display of dairy-related activities, and tour the milk room and barns to learn the purpose of a modern dairy farm.

### FEATURES

**Capacity:** The Iowa State dairy has a lactating cow herd size of 440, with 400 in milk and a calving interval of 12.7 months. There are 108 Calan gates for lactating cows and 32 Calan gates for dry/prepartum cows. We have metabolic crates large enough for heifers and 15 box stalls for more intensive tissue sample collection, including biopsies and infusions. We are able to split our lactating barn into 12 pens for pen-level experiments. The nursery barn contains 92 individual calf pens in addition to 40 outdoor calf hutches.

**Feeding:** Cows have continuous access to high quality water and feed. The feed they receive may include corn silage, high quality hay, corn, and soybean meal, as well as necessary vitamins and minerals, formulated by our consulting nutritionist. The equipment used for feeding consists of four DataRangers, two Patz feed wagons, and one Jaylor.

With the upcoming opening of the Kent Corporation Feed Mill and Grain Science Complex at Iowa State, we will have additional opportunities to customize feed and concentrated premixes.

Calves are fed a high-quality commercial milk replacer. They receive milk twice a day and are offered free choice water and grain through weaning.

**Milking Parlor:** The Iowa State dairy milking parlor is a Boumatic double 12 parallel parlor, with the ability to milk 24 cows at a time. Automatic cow IDs provide individual cow data on milk weights and activity for farm and research use. Lactating cows are milked twice a day at 7:30 am and 7:30 pm.

**Ventilation:** Our facilities offer natural ventilation with curtains that allow managers the option to decrease or increase ventilation based on the time of year. Fans and soakers provide heat relief during hot Iowa summers.

**Genomic and Phenotype data:** All females are genotyped to facilitate genomic analysis. An extensive database of phenotypes is available, containing current and historical data. Precision sensing technologies including sensor ear tags as well as cameras are used for phenotyping animal behavior and could be used for other applications.

### RESEARCH TRIALS

- Nutritional studies
- Environmental stressors
- Genetics and genomics
- Animal health
- Cow comfort
- Milk quality
- Mastitis control

To set up a research trial, please contact the individual member of the dairy research team directly or Dr. Gail Carpenter, chair of the dairy users group, to discuss your research needs.



### DAIRY RESEARCH TEAM & AREAS OF EXPERTISE

#### ANIMAL SCIENCE

- Dr. Ranga Appuhamy (Nutrition and environmental sustainability)  
appuhamy@iastate.edu
- Dr. Lance Baumgard (Nutrition and environmental physiology)  
baumgard@iastate.edu
- Dr. Don Beitz (Nutritional biochemistry)  
dcbnitz@iastate.edu
- Dr. Gail Carpenter (Production management)  
ajcarpen@iastate.edu
- Dr. James Koltjes (Bioinformatics, genomics and phenomics)  
jekoltjes@iastate.edu

#### VETERINARY DIAGNOSTIC AND PRODUCTION ANIMAL MEDICINE

- Dr. Patrick Gorden (Milk quality and clinical pharmacology)  
pgorden@iastate.edu

#### FOOD SCIENCE AND HUMAN NUTRITION

- Stephanie Clark (Dairy product processing, safety and quality)  
milkmade@iastate.edu