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# Iowa Hoop Structures Used for Confined Beef Cattle Feeding: A Survey

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## **Abstract**

Beginning in the mid-1990s, hoop structures became available to Iowa farmers as an alternative housing system for livestock, primarily swine. Iowa State University was very active in research and demonstrations of hoop barns for swine. ISU also built hoop barns for calving at the ISU Rhodes Research Farm, Rhodes, IA in about 2000. From this work, in 2004/05 ISU built one of the first hoop barns for cattle feeding at the ISU Armstrong Research Farm, Lewis, IA. Frequently, questions are asked about the acceptance of hoop barns for beef cattle and how many beef cattle hoop barns are in Iowa.

## **Keywords**

RFR A10117, Animal Science, Agricultural and Biosystems Engineering

## **Disciplines**

Agricultural Science | Agriculture | Animal Sciences | Bioresource and Agricultural Engineering

# Iowa Hoop Structures Used for Confined Beef Cattle Feeding: A Survey

**RFR-A10117**

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## Introduction

Beginning in the mid-1990s, hoop structures became available to Iowa farmers as an alternative housing system for livestock, primarily swine. Iowa State University was very active in research and demonstrations of hoop barns for swine. ISU also built hoop barns for calving at the ISU Rhodes Research Farm, Rhodes, IA in about 2000. From this work, in 2004/05 ISU built one of the first hoop barns for cattle feeding at the ISU Armstrong Research Farm, Lewis, IA. Frequently, questions are asked about the acceptance of hoop barns for beef cattle and how many beef cattle hoop barns are in Iowa.

The objective of this study was to determine an estimate of the number of hoop barns used for beef cattle production in Iowa and their average size. Additional information was sought about the use of other styles of bedded confined beef cattle feeding facilities, for example, mono-slope buildings. The surveyed group was the ISU area extension livestock specialists with beef cattle responsibility. This article is included in the McNay Research Farm report because of the beef cattle and hoop barns located there.

## Materials and Methods

In December 2010, the six ISU area extension livestock specialists with beef cattle responsibilities were surveyed regarding hoop barns used for beef cattle in Iowa. Groups of

counties were allocated to each area extension specialist, so that all counties were assigned once, but no counties were assigned more than once. The counties were assigned based on the area that the extension specialist served and thus was most familiar. Not all county groupings were the same size, but were the areas that the area extension specialist served. The number of counties per specialist ranged from 15 to 18 counties.

A survey was distributed to the specialists. For the surveys that were not returned, the specialist was telephoned and the response taken over the phone. The response rate was 100 percent, i.e., all six surveys were completed, accounting for all counties in Iowa.

## Results and Discussion

The extension specialists estimated a total of 680 hoop barns in Iowa used for beef cattle as of January 1, 2011. The majority, 83 percent of the hoops or 566 hoop barns, were used for feeding beef cattle in bedded confinement.

The largest number of hoop barns for beef cattle in Iowa was located in the traditional beef cattle feeding area of northwestern Iowa. Additionally, the NRCS through its EQUIP funds have supported the concept as well as several equipment hoop barns, and feed companies.

According to the survey, the overall average capacity of hoop barns used for feeding beef cattle was 325 head/hoop barn. Multiplying the 566 hoop barns by 325 head each results in 184,000 head total one-time capacity. If these barns were used for two groups/year (368,000 head) that is approximately 15–20 percent of the beef cattle fed in Iowa annually.

The survey also asked the number of hoop barns used for other beef cattle related uses. There were approximately 115 hoop barns used for other uses such as calving, bull housing, open shelter, or calf feeding.

The survey also asked for the number of other bedded confined beef cattle feeding facilities, for example, mono-slopes. It was estimated that there were about 470 such facilities in Iowa with an average capacity of 600 head for a total one-time capacity of 282,000 head.

Interestingly, based on ISU research, feeding beef cattle in hoop barns does not result in improved beef cattle performance compared with lots with open shelter. However, the feedlot runoff is greatly minimized because the cattle are kept under roof at all times. Thus, the barns are being built for reasons other than economic reasons.

The hoop barn built at the ISU Armstrong Research Farm, Lewis, IA has had a role in the rapid adoption of bedded barns for beef cattle feeding in Iowa. In the six years since the barn was built, more than 5,000 individuals from eight states and five international countries have visited or been briefed on the beef cattle hoop barn project.

In addition, there have been hundreds of e-mails and phone calls concerning the project. Visitors have been producers, agribusiness, university researchers, extension staff, policy makers, commodity group leaders, and regulators. Additionally there have been numerous radio interviews and articles in the ag press.

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