

# Dairy Facility Risk Factors

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An honest evaluation of dairy facilities can be helpful in exposing environmental factors that may limit or challenge health, production and performance of dairy cattle. The following “risk” factors can be used as a guideline to evaluate dairy shelters. All of the values used in this tool are measurable. The values in the “Low Risk” category are generally accepted to provide positive environmental and management results. Factors that fall in the “High Risk” category are often a limit to health, production, and/or performance.

## Feeding

### **Feed Space (inches of feed space per head)**

Low	Medium	High
≥ 24 inches	16 to 24 inches	< 16 inches

### **Feed Available**

Low	Medium	High
≥ 22 hrs	20 to 22 hours	< 20 hours

**Height of Feed Table:** Defined as the vertical height difference between the cow’s front feet and the feed table

Low	Medium	High
2 to 6 inches	6 inches to 18 inches	< 2 inches or > 18 inches

**Feed Frequency:** Defined as number of times per day fresh feed is presented per day.

Low	Medium	High
3 or more times	2 to 3 times	Once or less per day

This factor examines possible feed quality over time due to sorting. If it is flagged a particle separation test at feeding, 1 hr later, 3 hrs later, and finally right before the next feeding to note the change in the TMR.

## Water Availability

### **Water Space per cow in freestall shelter**

Low	Medium	High
≥ 3 inches	3 inches to 1.5 inches	< 1.5 inches

### **Water Space per cow in tiestall shelter (also may need to look at flow rate in tiestall barn)**

Low	Medium	High
1 bowl per stall	1 bowl per two stalls	
Low	Medium	High
≥ 3 gallons per minute	1.5 to 3 gpm	< 1.5gpm

## Environment

**Air Quality:** Temperature difference between stall area and outside.

Low	Medium	High
≤ 5 degrees	5 to 10 degrees	> 10 degrees

### **Heat Abatement**

Low	Medium	High
Tunnel Ventilation or Circulation Fans <b>PLUS</b> Evaporative Cooling Used	Tunnel Ventilation or Circulation Fans Only Used	No heat abatement used

## Management

### **Overcrowding**

Low	Medium	High
≤ 5%	5% to 20%	> 20%

## Comfort

The following guidelines are used as a first step in stall evaluation. Stall success or failure can involve several factors other than dimensions. A more accurate evaluation of stall acceptance, comfort, and performance involves observation of stall use over time.

### **Freestalls (Large Frame)**

#### **Width**

Low	Medium	High
≥48 inches	46 to 48 inches	< 46 inches

**Length (Closed Front):** Measured from alley side of curb to the stall side of support post. Closed front defined as having an obstruction within the area from 6 inches above stall surface to 30 inches above stall surface.

Low	Medium	High
≥ 9 feet	7.5 to 9 ft	< 7.5 feet

**Length (Open Front):** Measured from alley side of curb to the stall side of support post. Open front defined as have no obstruction within the area from 6 inches above stall surface to 30 inches above stall surface.

Low	Medium	High
≥ 8 feet	7 to 8 feet	< 7 feet

**Neck rail (horizontal):** Measured from the alley side of curb to the cow side of the neck rail.

Low	Medium	High
≥ 68 inches	64 to 68	< 64 inches

**Neck rail (vertical):** Measured from the stall surface if mattress or from stall curb if sand bedded to the bottom of the neck rail.

Low	Medium	High
≥ 48 inches	44 to 48 inches	< 44 inches

**Brisket locator (board):** Measured from the alley side of the curb if mattress or from cow side of curb if sand bedded to the bottom of the brisket locator.

Low	Medium	High
≥ 70 inches	66 to 70 inches	< 66 inches

### **Freestalls (Small Frame)**

#### **Width**

Low	Medium	High
≥45 inches	43 to 45 inches	< 43 inches

**Length (Closed Front):** Measured from alley side of curb to the stall side of support post. Closed front defined as having an obstruction within the area from 6 inches above stall surface to 30 inches above stall surface.

Low	Medium	High
≥ 8 feet	6.5 to 8 ft	< 6.5 feet

**Length (Open Front):** Measured from alley side of curb to the stall side of support post. Open front defined as have no obstruction within the area from 6 inches above stall surface to 30 inches above stall surface.

Low	Medium	High
≥ 7 feet	6 to 7 feet	< 6 feet

**Neck rail (horizontal):** Measured from the alley side of curb to the cow side of the neck rail.

Low	Medium	High
≥ 64 inches	60 to 64	< 60 inches

**Neck rail (vertical):** Measured from the stall surface if mattress or from stall curb if sand bedded to the bottom of the neck rail.

Low	Medium	High
≥ 44 inches	40 to 44 inches	< 40 inches

**Brisket locator (board):** Measured from the alley side of the curb if mattress or from cow side of curb if sand bedded to the bottom of the brisket locator.

Low	Medium	High
≥ 66 inches	62 to 66 inches	< 62 inches

### **Tiestalls (Large Frame)**

#### **Width**

Low	Medium	High
≥ 54 inches	51 to 54 inches	< 51 inches

**Length:** Measured from cow side of feed curb to edge of gutter.

Low	Medium	High
≥ 70 inches	66 to 70 inches	< 66 inches

**Height of tie rail:** Measured from feed table to bottom of tie rail.

Low	Medium	High
≥ 44 inches	38 to 44 inches	< 44 inches

**Forward position of tie rail:** Measure from center of feed curb to center of tie rail.

Low	Medium	High
≥ 6 inches	2 to 6 inches	< 2 inches

**Length of chain evaluation:** Defined as the difference between the length of chain and the distance from the top of the feed curb and the bottom of the tie rail.

Low	Medium	High
≤ 1 inch	1 to 4 inches	>4 inches

### **Tiestalls (Small Frame)**

#### **Width**

Low	Medium	High
≥ 48 inches	46 to 48 inches	< 46 inches

**Length:** Measured from cow side of feed curb to edge of gutter.

Low	Medium	High
≥ 64 inches	60 to 64 inches	< 64 inches

**Height of tie rail:** Measured from feed table to bottom of tie rail.

Low	Medium	High
≥ 34 inches	28 to 34 inches	< 28 inches

**Forward position of tie rail:** Measure from center of feed curb to center of tie rail.

Low	Medium	High
≥ 6 inches	2 to 6 inches	< 2 inches

**Length of chain evaluation:** Defined as the difference between the length of chain and the distance from the top of the feed curb and the bottom of the tie rail.

Low	Medium	High
≤ 1 inch	1 to 4 inches	>4 inches