

# True Pregnancy Rate of Heifers and Optimal Raising Patterns

**V.E. Cabrera**

University of Wisconsin-Madison Dairy Science

# Rationale

Study heifers' calving patterns

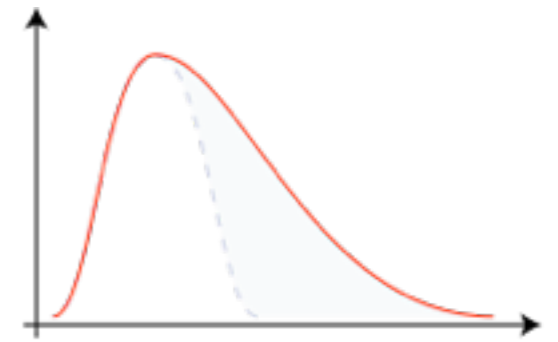
**True reflection of pregnancy speed**

Includes indirectly:

- Abortion
- Service rate
- Conception rate

**Does not include**

Heifers not becoming pregnant (<5%)



**Distribution is very important**

How wide or tied is the calving distribution

**Goals are important**

Should reflect local standards

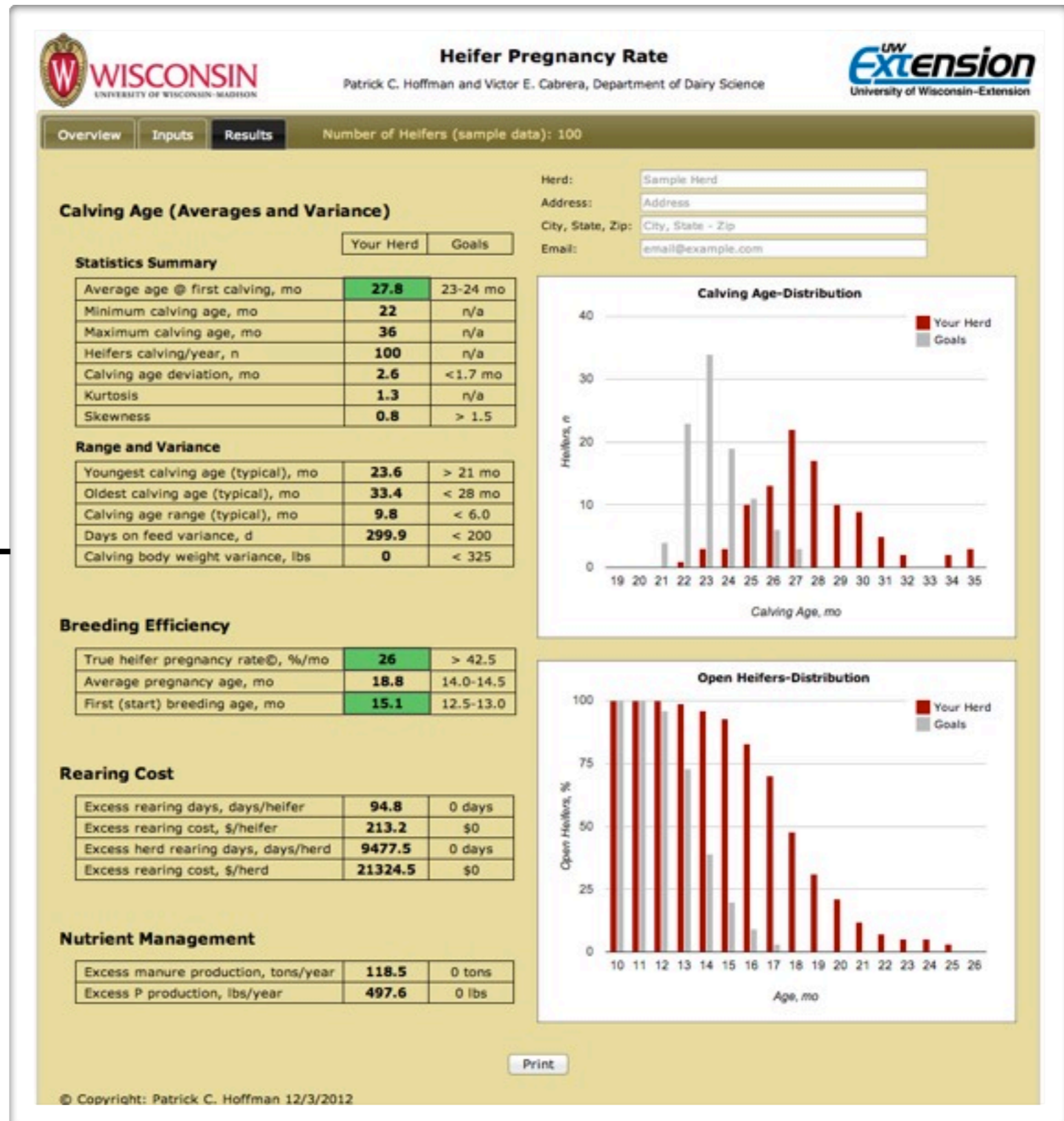
# Heifer pregnancy rate

A flexible online tool (or spreadsheet)

## Additional indices

- Economic
- Environmental

Goals comparisons



Distributions

# Heifer pregnancy rate

How to use it?

Use the “data entry spreadsheet” template

	A	B
1	ID	AFC, mo
2	1296	30
3	1313	25
4	1312	27
5	1314	30
6	1361	31
7	1358	35
8	1360	26
9	1357	34
10	1359	29
11	1362	27
12	1369	28
13	1370	31
14	1373	29
15	1376	28

Download data entry spreadsheet

Select Breed:

Select Spreadsheet:  No file chosen

What do you need?

- Heifer ID
- AFC=Age at first

# Heifer pregnancy rate

## Statistics summary

### Average AFC

Important, but not the only one

### Goals

Based on long experience, mostly in Wisconsin

Your Herd	Goals
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### Statistics Summary

Average age @ first calving, mo	<b>27.8</b>	23-24 mo
Minimum calving age, mo	<b>22</b>	n/a
Maximum calving age, mo	<b>36</b>	n/a
Heifers calving/year, n	<b>100</b>	n/a
Calving age deviation, mo	<b>2.6</b>	<1.7 mo
Kurtosis	<b>1.3</b>	n/a
Skewness	<b>0.8</b>	> 1.5

# Heifer pregnancy rate

Most typical measurements and variance

## Spread of calving

Better when less  
sparse

Your Herd

Goals

### Range and Variance

Youngest calving age (typical), mo	<b>23.6</b>	> 21 mo
Oldest calving age (typical), mo	<b>33.4</b>	< 28 mo
Calving age range (typical), mo	<b>9.8</b>	< 6.0
Days on feed variance, d	<b>299.9</b>	< 200
Calving body weight variance, lbs	<b>0</b>	< 325

# Heifer pregnancy rate

## Measurements and variance

### True pregnancy

Speed at which heifers become pregnant monthly

Your Herd	Goals
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### Breeding Efficiency

True heifer pregnancy rate©, %/mo	<b>26</b>	> 42.5
Average pregnancy age, mo	<b>18.8</b>	14.0-14.5
First (start) breeding age, mo	<b>15.1</b>	12.5-13.0

# Heifer pregnancy rate

## Measurements and variance

### Excess rearing days

Deviation from goal

Potential savings

Your Herd

Goals

### Rearing Cost

Excess rearing days, days/heifer	<b>94.8</b>	0 days
Excess rearing cost, \$/heifer	<b>213.2</b>	\$0
Excess herd rearing days, days/herd	<b>9477.5</b>	0 days
Excess rearing cost, \$/herd	<b>21324.5</b>	\$0



# Heifer pregnancy rate

Measurements and variance

## Excess manure and P

Deviation from goal

Potential decrease in  
environmental impacts

Your Herd

Goals

## Nutrient Management

Excess manure production, tons/year	<b>118.5</b>	0 tons
Excess P production, lbs/year	<b>497.6</b>	0 lbs

# Heifer pregnancy rate

Measurements and variance

## Excess manure and P

Deviation from goal

Potential decrease in  
environmental impacts

Your Herd

Goals

## Nutrient Management

Excess manure production, tons/year	<b>118.5</b>	0 tons
Excess P production, lbs/year	<b>497.6</b>	0 lbs

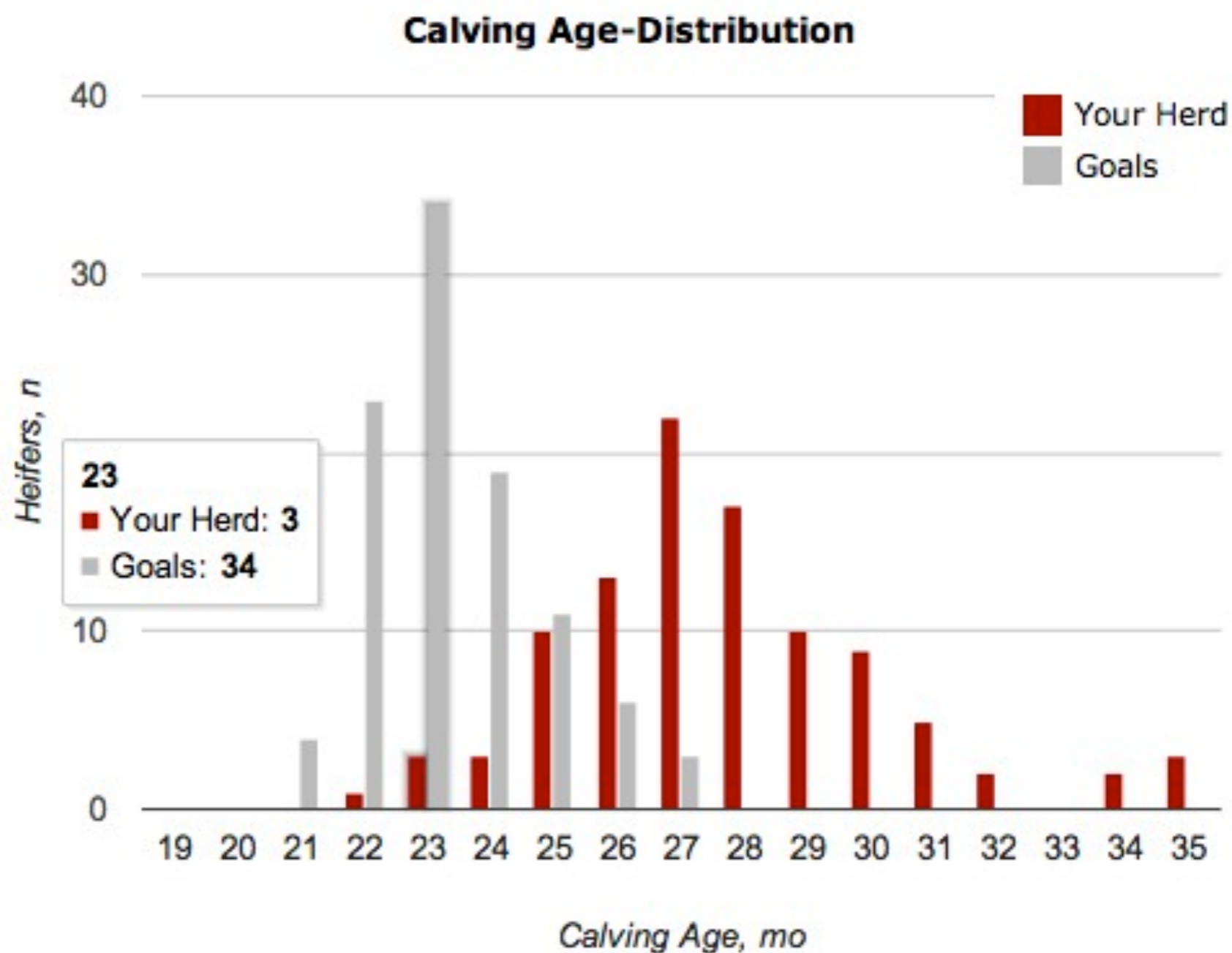
# Heifer pregnancy rate

## Distributions

### Calving distribution

Tighter better

Right skewed



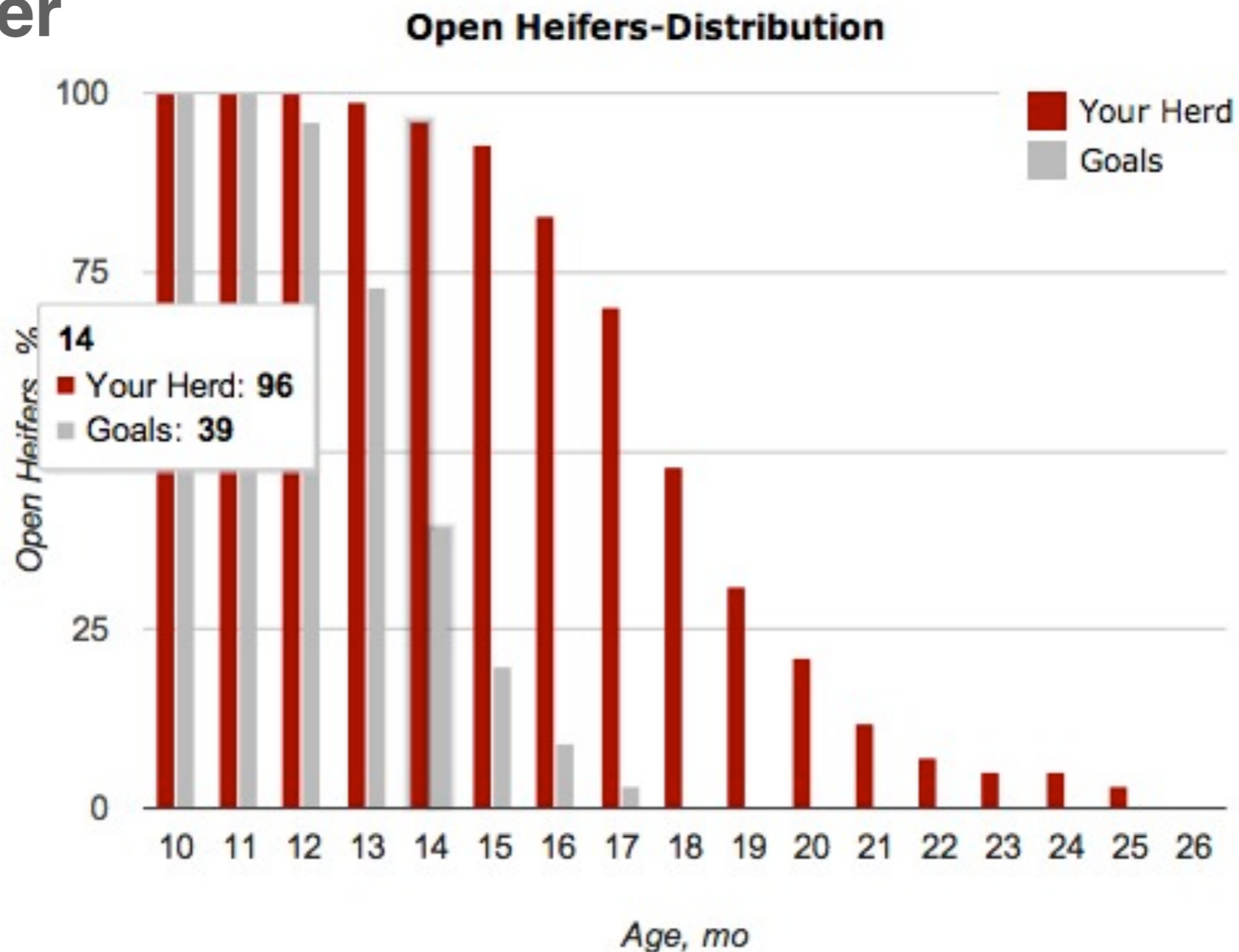
# Heifer pregnancy rate

## Distributions

### Survival curve

Tighter better

Early start



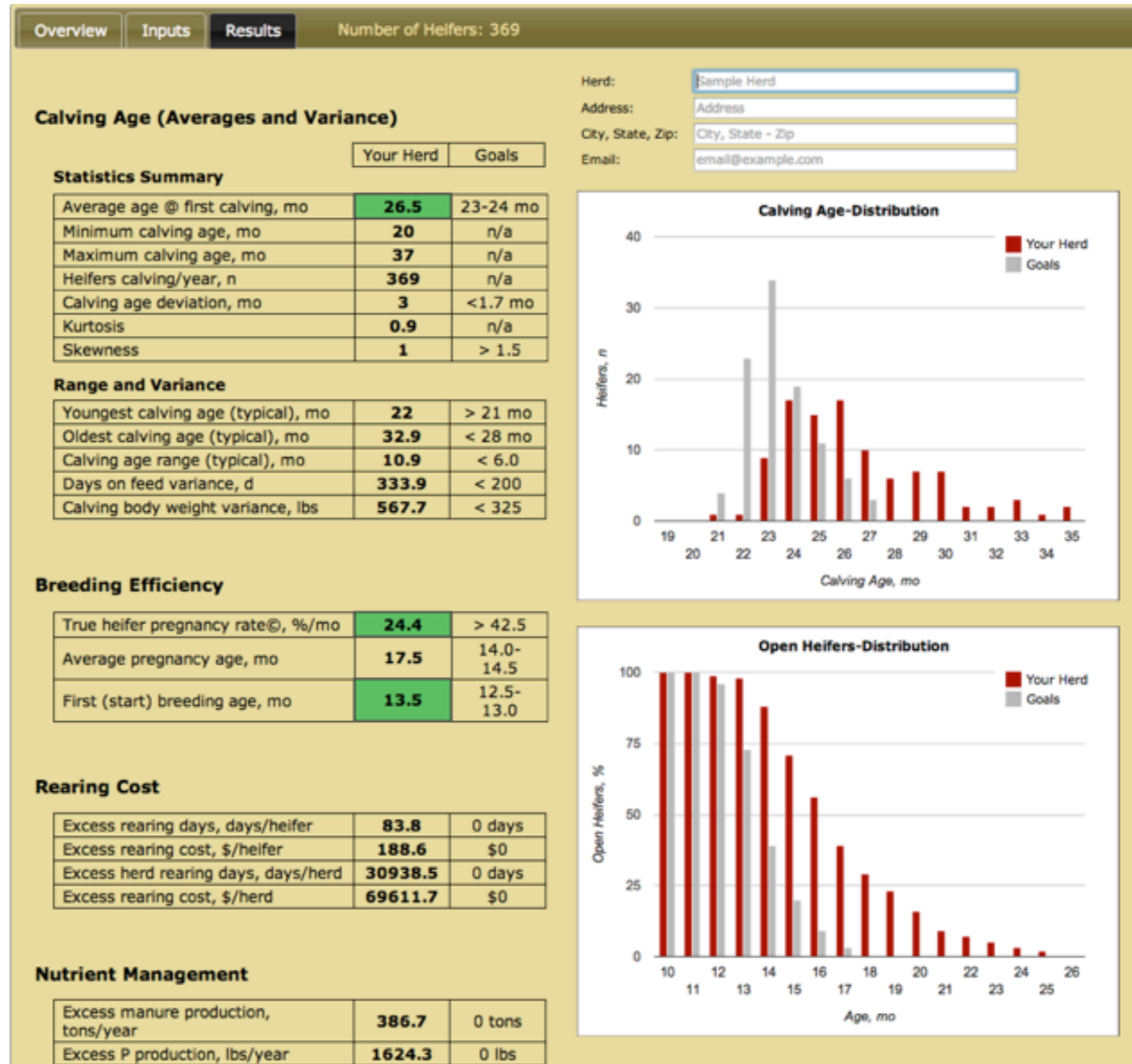
# Application to herds in Wisconsin

## Efficient heifer farm

Average AFC  
very sparse

True pregnancy  
Late start  
Not effective

Opportunities!  
Economics  
Environmental



# Application to herds in Wisconsin

## Efficient heifer farm

**Average AFC**  
**Fairly sparse**

**True pregnancy**  
**Early start**  
**Not effective**

**Opportunities!**  
**Economics**  
**Environmental**

### Heifer Management Report<sup>©</sup>



Breed **Holstein**



Herd	Herd 20
Address	
City, Zip	
email	

Developed by Patrick C. Hoffman, Department of Dairy Science, University of Wisconsin-Madison

#### Calving Age (Averages and Variance)

	Your Herd	Goals
<b>Summary Statistics</b>		
Average age @ first calving, mo	23.5	23-24 mo
Minimum calving age, mo	19.0	na
Maximum calving age, mo	35.0	na
Heifers calving/year, n	1480	na
Calving age deviation, mo	2.41	< 1.7 mo
Kurtosis	1.62	na
Skewness	0.98	> 1.5

#### Range and Variance

	Your Herd	Goals
Youngest calving age (typical), mo	19.8	> 21 mo
Oldest calving age (typical), mo	28.8	< 28 mo
Calving age range (typical), mo	8.9	< 6.0
Days on feed variance, d	273	< 200
Calving body weight variance, lbs	464	< 325

#### Breeding Efficiency

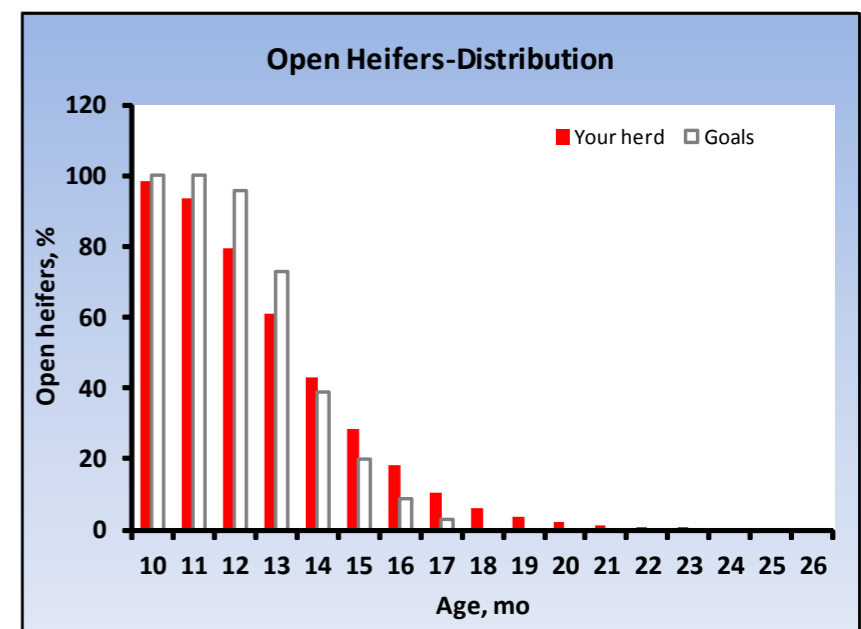
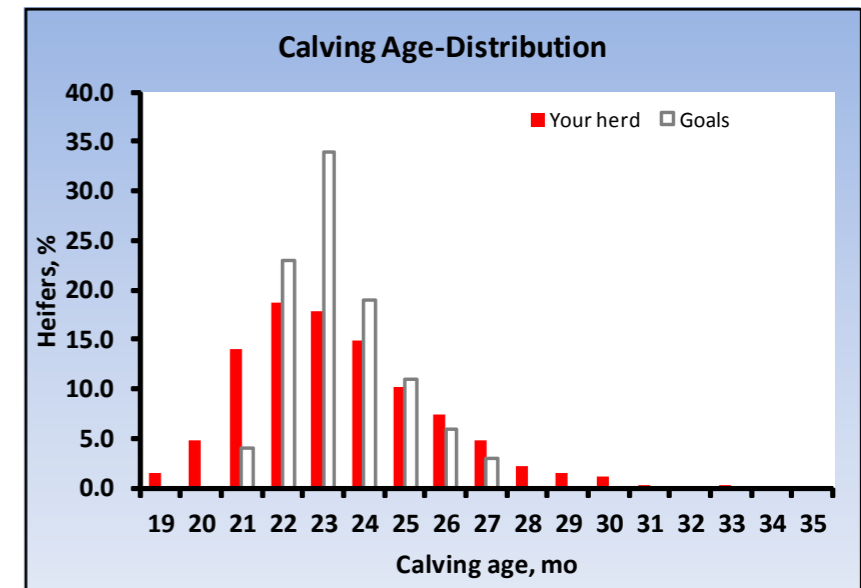
	Your Herd	Goals
True heifer pregnancy rate <sup>©</sup> , %/mo	31.0	> 42.5
Average pregnancy age, mo	14.5	14.0-14.5
First (start) breeding age, mo	11.6	12.5-13.0

#### Rearing Cost

	Your Herd	Goals
Excess rearing days, days/heifer	23	0 days
Excess rearing cost, \$\$/heifer	\$51.25	0 \$\$
Excess herd rearing days, days/herd	33713	0 days
Excess rearing cost, \$\$/herd	\$75,855.36	0 \$\$

#### Nutrient management

	Your Herd	Goals
Excess manure production, tons/year	421.4	0 tons
Excess P production, lbs/year	1770.0	0 lbs



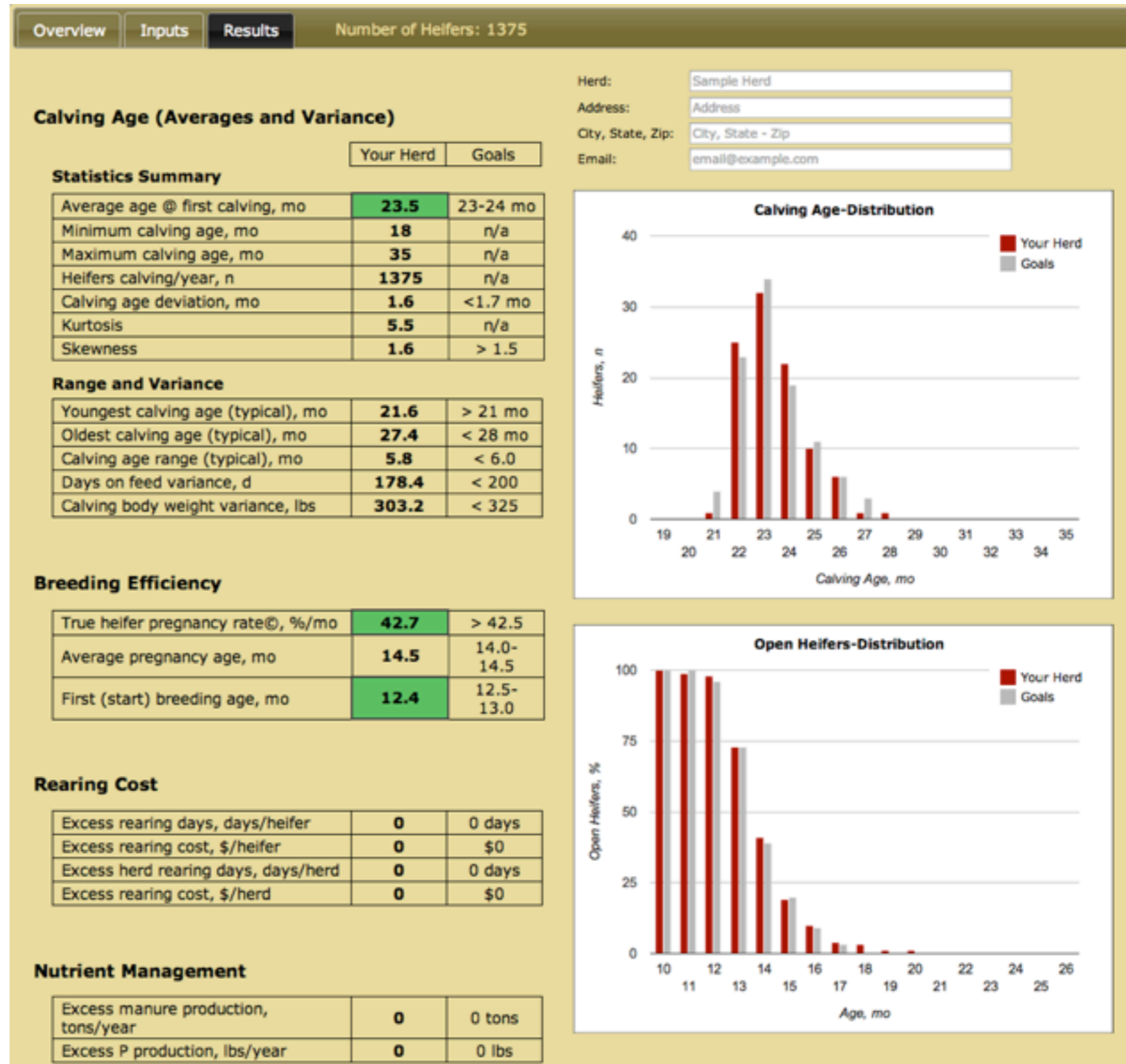
# Application to herds in Wisconsin

## Efficient heifer farm

**Average AFC**  
Nicely distributed

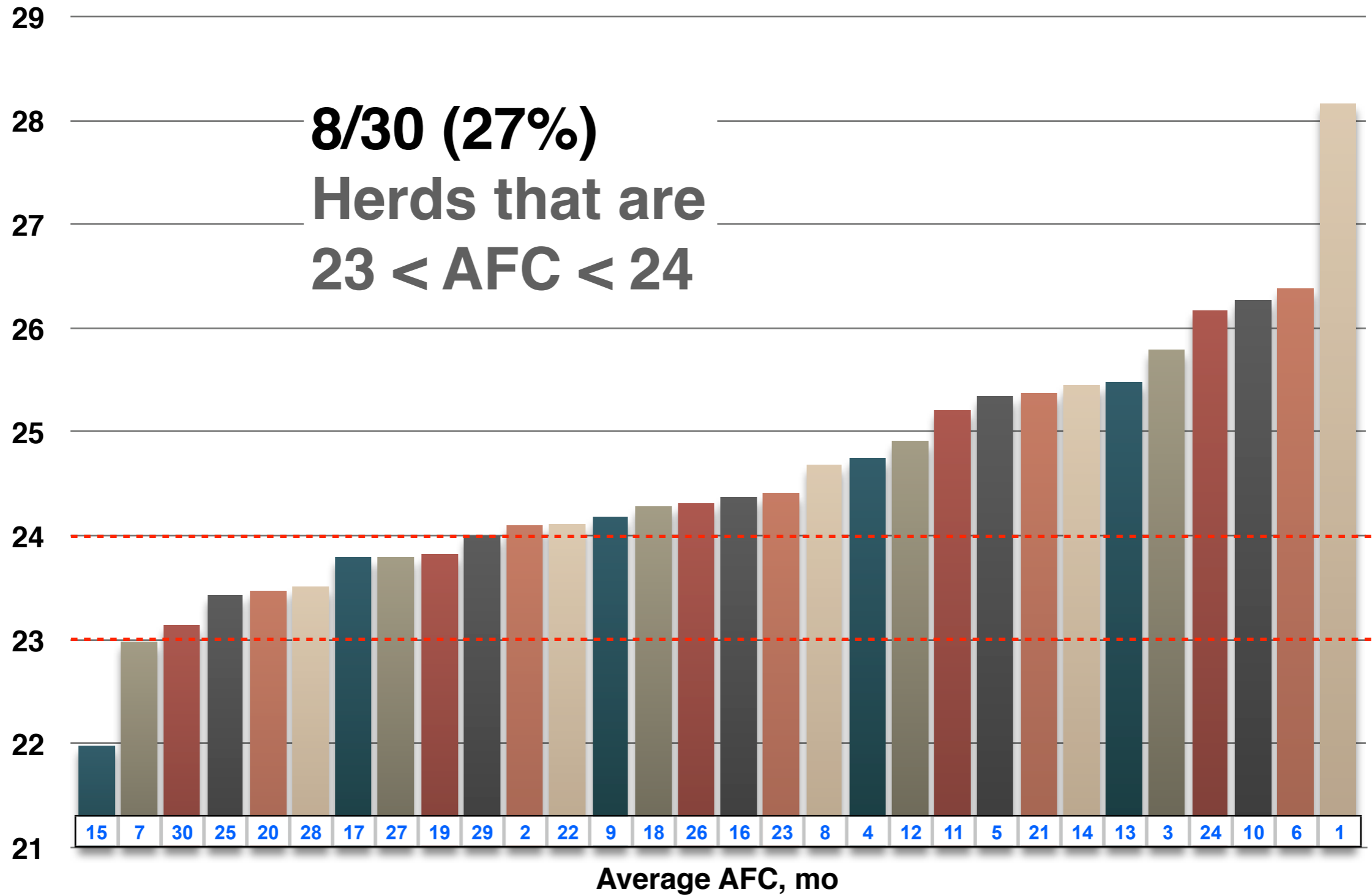
**True pregnancy**  
Early start  
Very effective

**Optimal**  
Economics  
Environmental



# 30 herds in Wisconsin

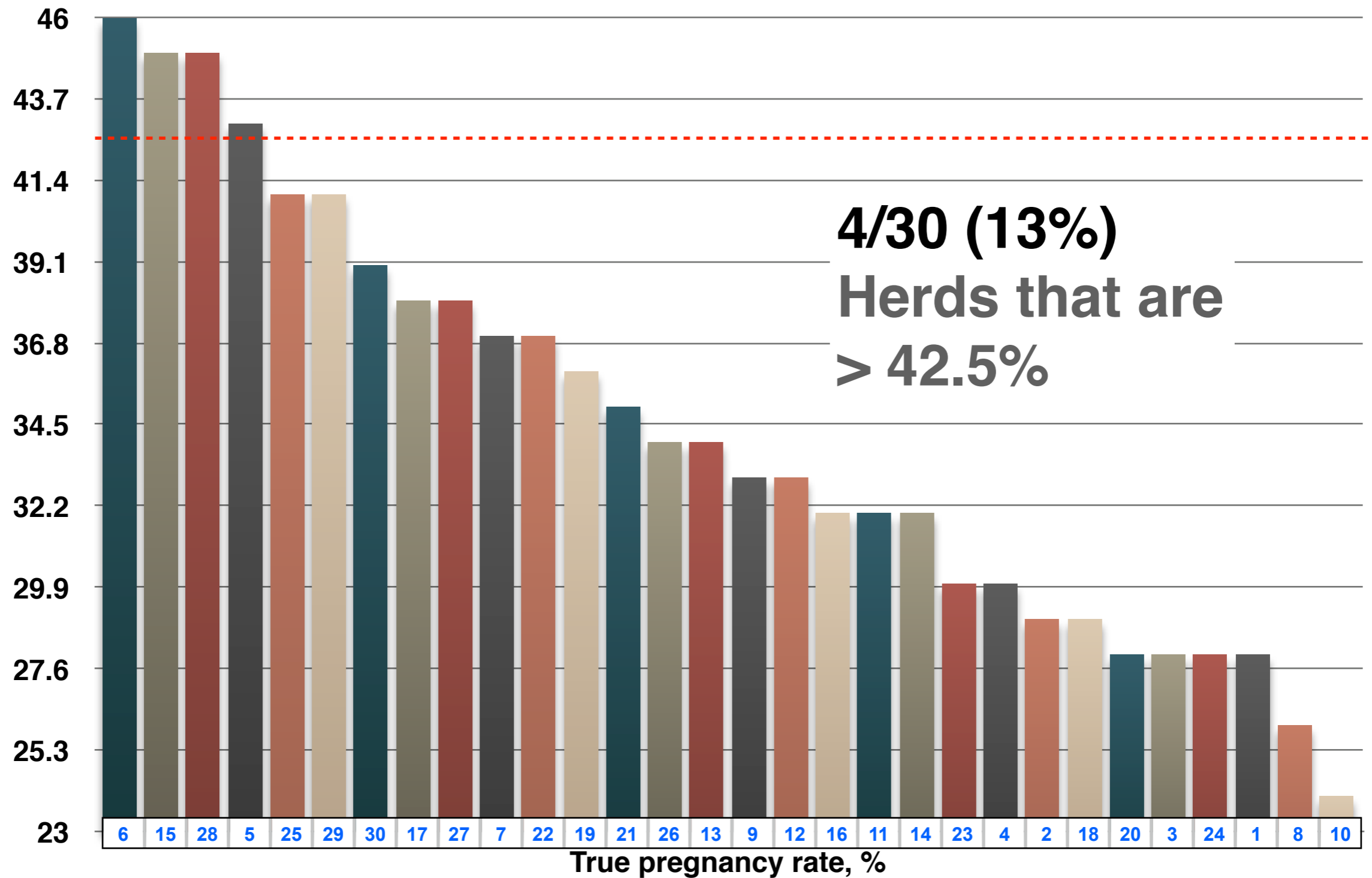
## Age at first calving





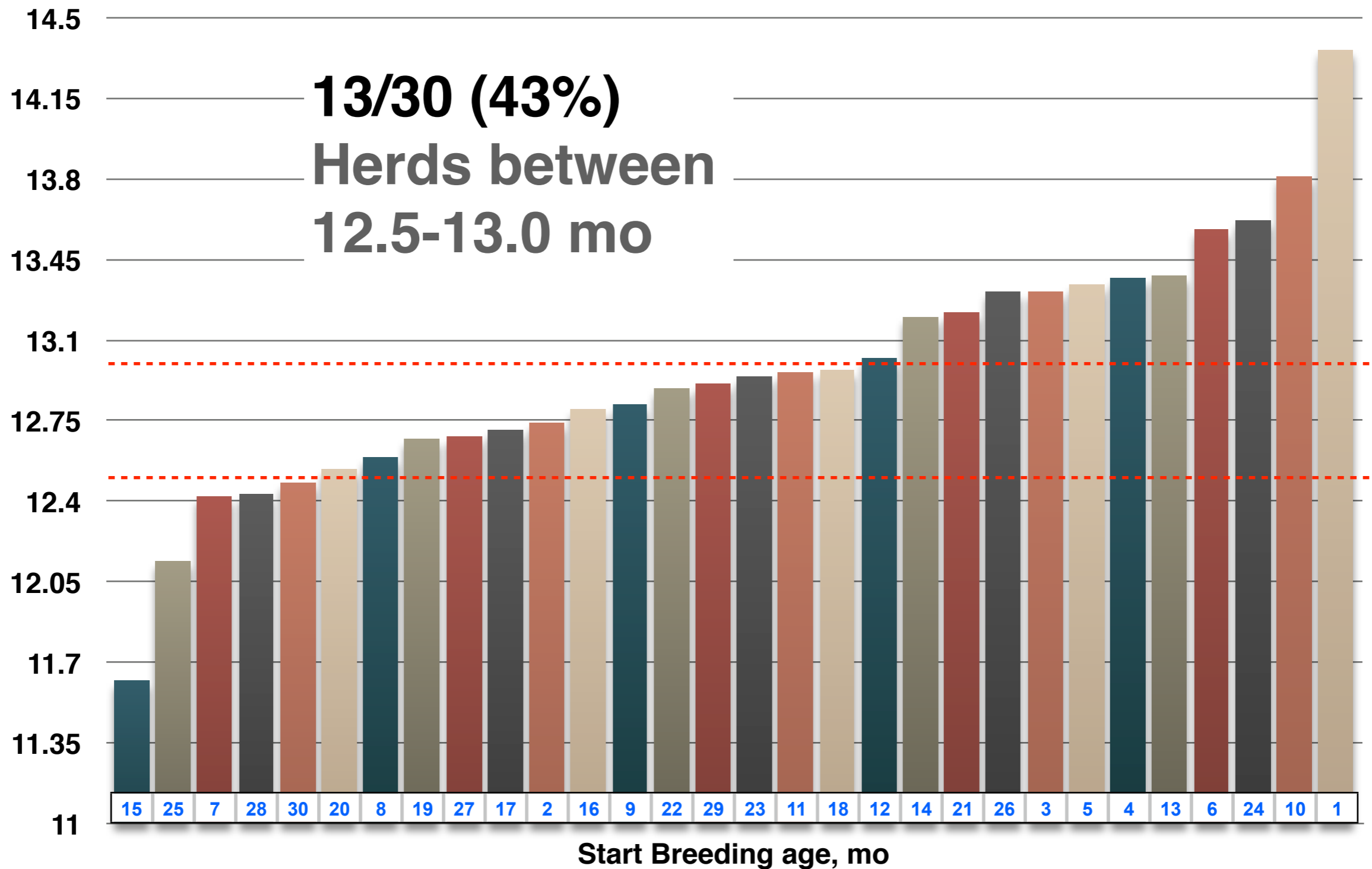
# 30 herds in Wisconsin

## True pregnancy rate



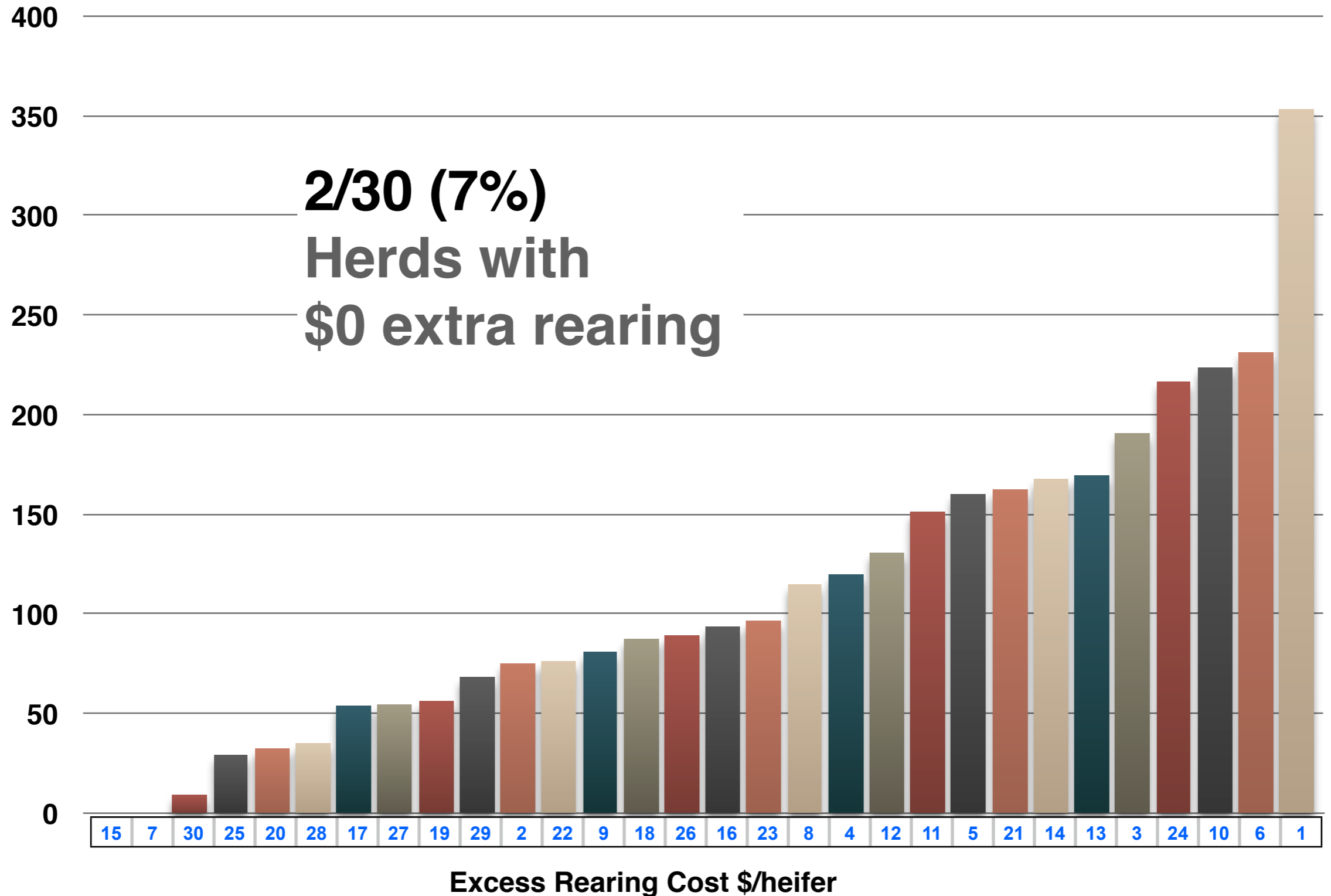
# 30 herds in Wisconsin

## Start breeding month



# 30 herds in Wisconsin

## Excess rearing cost





**Thanks**