



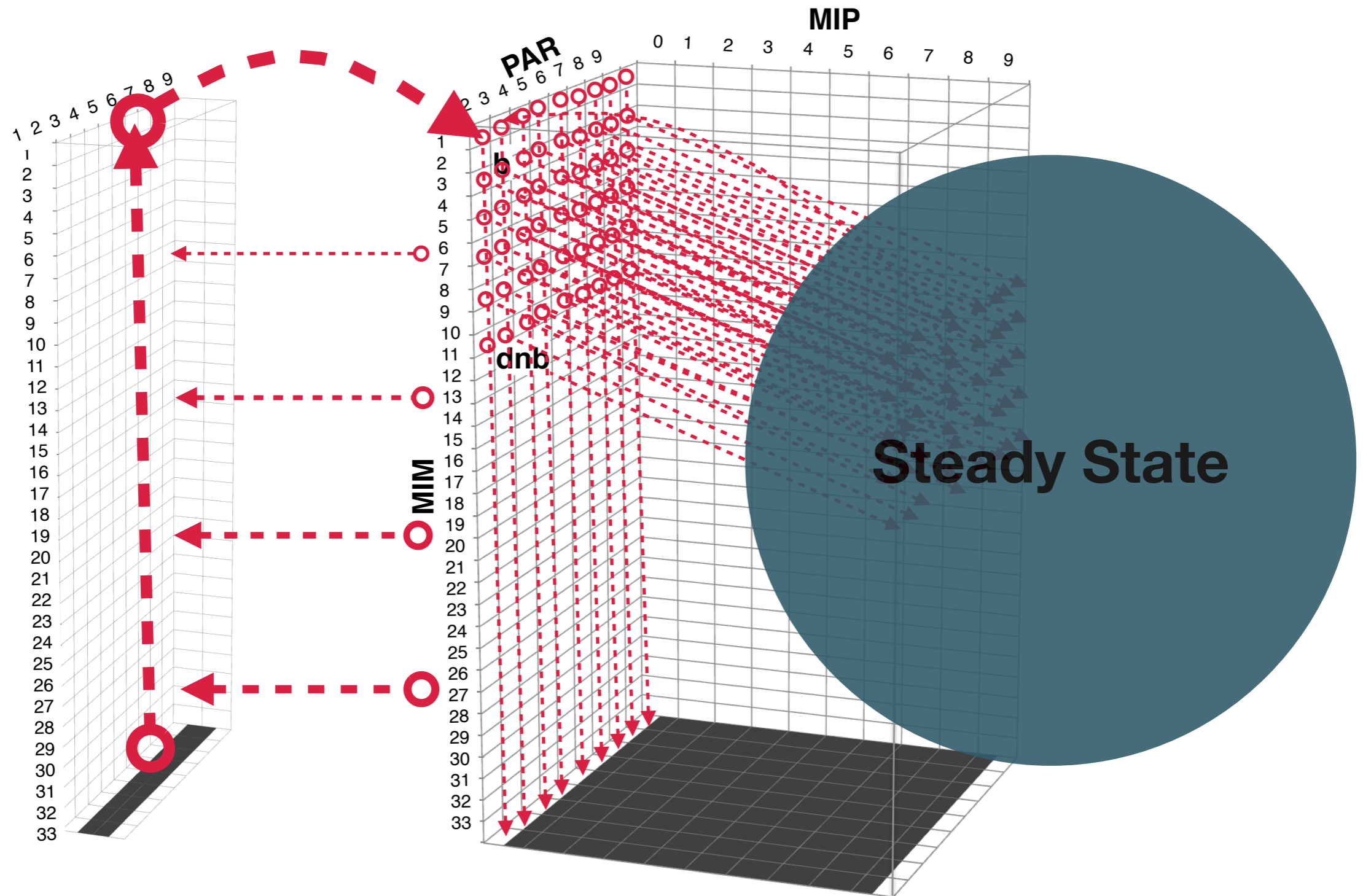
Economic value of a dairy cow and optimal replacement policies: Part 2

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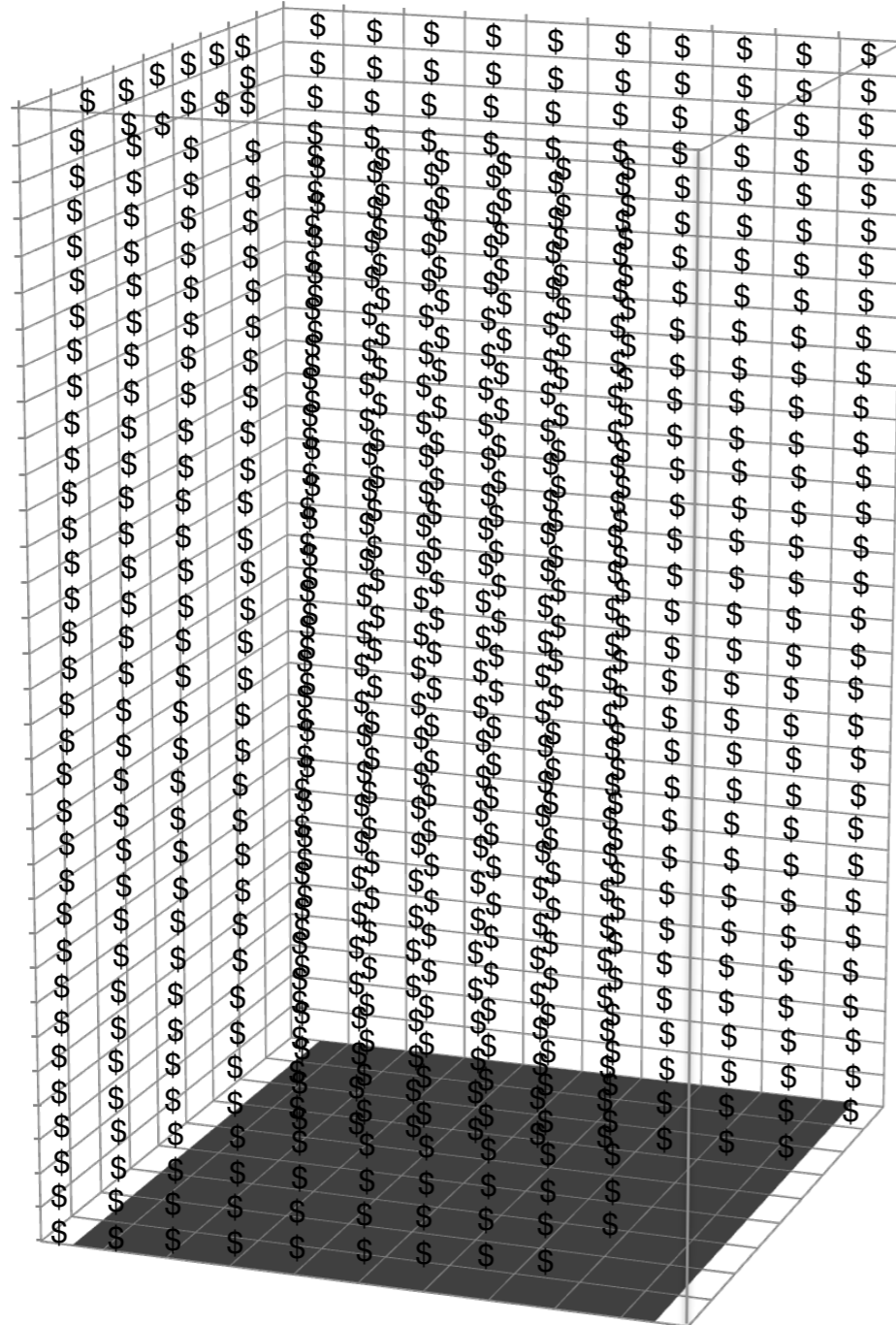
Rationale

A cow represents the whole herd dynamics



Basic principals of calculation

Aggregated herd economics



Herd net return (\$)

Aggregation of individual cow's net return

Herd value calculation

Online decision support tool

WISCONSIN UNIVERSITY OF WISCONSIN-MADISON

The Economic Value of a Dairy Cow
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UW Extension
University of Wisconsin-Extension

Overview | **Single Cow Analysis** | Herd Analysis | US English | US Metric | UK

INPUTS - Edit Values in This Block

Evaluated Cow Variables

Current Lactation	2
Current Months after Calving	1
Current Months in Pregnancy	0
Expected Milk Production Rest of Lactation, %	100
Expected Milk Production Next Lactations, %	100

Replacement Cow Variable

Expected genetic improvement, % additional milk	0
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Herd Production and Reproduction Variables

Herd Turnover Ratio, %/year	35
Rolling Herd Average, lb/cow per year	24,000
21-d Pregnancy Rate, %	18
Reproduction Cost, \$/cow per month	20
Last Month After Calving to Breed a Cow	10
Do-not-Breed Cow Minimum Milk, lb/day	50
Pregnancy Loss after 35 Days Pregnant, %	22.6
Average Cow Body Weight, lb	1306

Herd Economic Variables

Replacement Cost, \$/cow	1300
Salvage Value, \$/lb live weight	0.38
Calf Value, \$/calf	100
Milk Price, \$/cwt	15.88
Milk Butterfat, %	3.5
Feed Cost Lactating Cows, \$/lb dry matter	0.1
Feed Cost Dry Cows, \$/lb dry matter	0.08
Interest Rate, %/year	6

Analyze

OUTPUTS - Interactive Results

Value of the Cow, \$ 897

Compared Against a Replacement, \$

Milk Sales, \$	535
Feed Cost, \$	-238
Calf Value, \$	-2
Non-reproductive Cull, \$	-85
Mortality Cost, \$	-16
Reproductive Cull, \$	4
Reproduction Costs, \$	-5
Replacement Transaction, \$	704

Herd Structure at Steady State

Days in milk	224
Days to Conception	122
Percent of Pregnant	52
Reproductive Culling, %	8
Mortality, %	3
1st Lactation, %	43
2 nd Lactation, %	27
> 3 rd Lactation, %	30

Economics of an Average Cow, \$/year

Net Return, \$	1969
Milk Sales, \$	3806
Feed Cost, \$	-1522
Calf Sales, \$	60
Non-Reprod. Culling Cost, \$	-198
Mortality Cost, \$	-38
Reproductive Culling Cost, \$	-59
Reproductive Cost, \$	-80

\$1,969/cow per year

Average net return of a cow in the herd according to herd production, reproduction, and economic variables

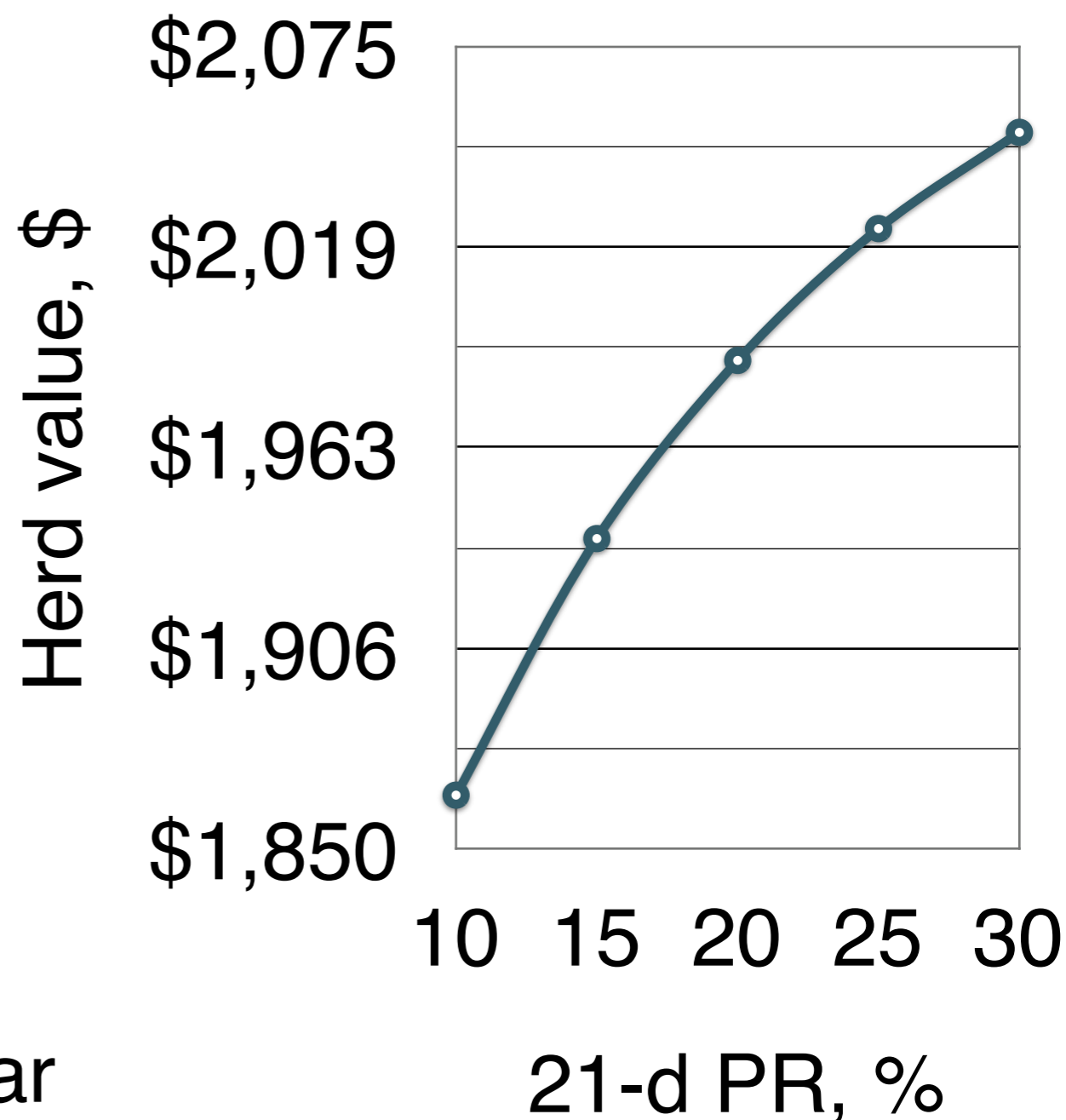
Herd value

Practical decision-making

Calculate the value of improved reproductive performance

Herd value difference of reproductive efficiency

E.g., value of improving 21-d pregnancy rate from 15 to 20% is **\$50/cow per year**



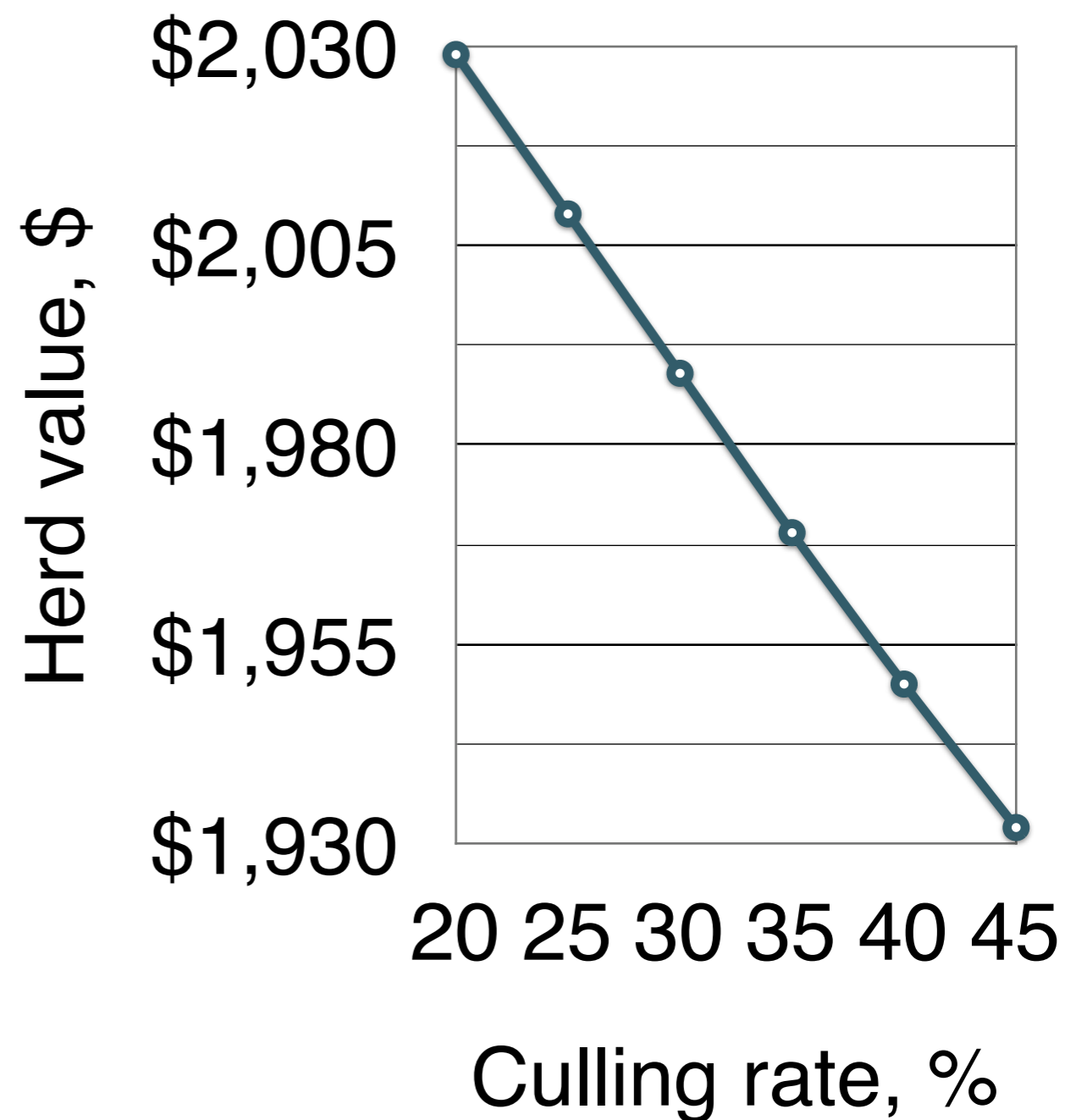
Herd value

Practical decision-making

Calculate the value of decreased culling rate

Herd value difference of changed culling rate

E.g., value of decreasing culling rate from 40 to 35% is **\$19/cow** per year



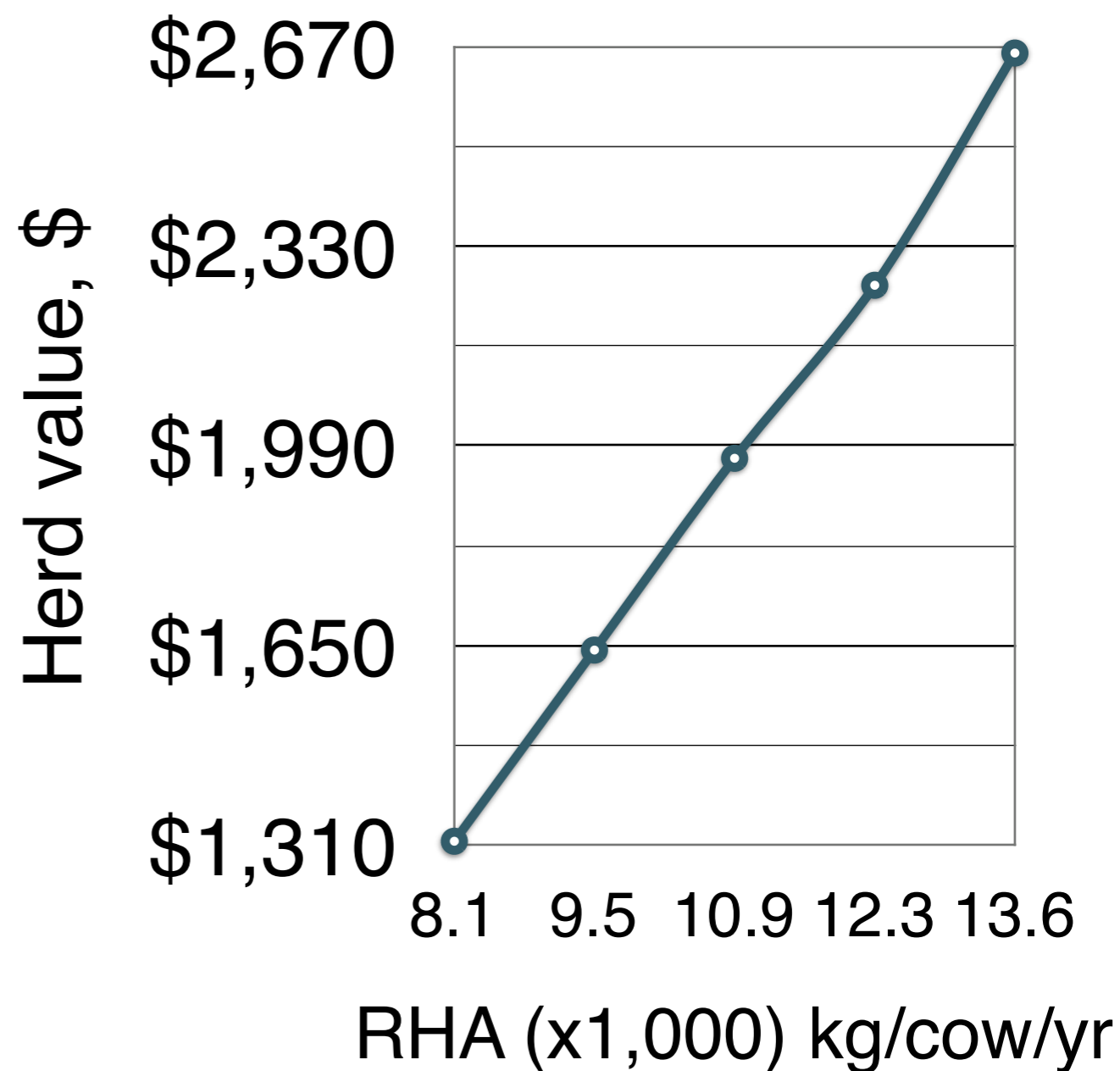
Herd value

Practical decision-making

Calculate the value of increased productivity

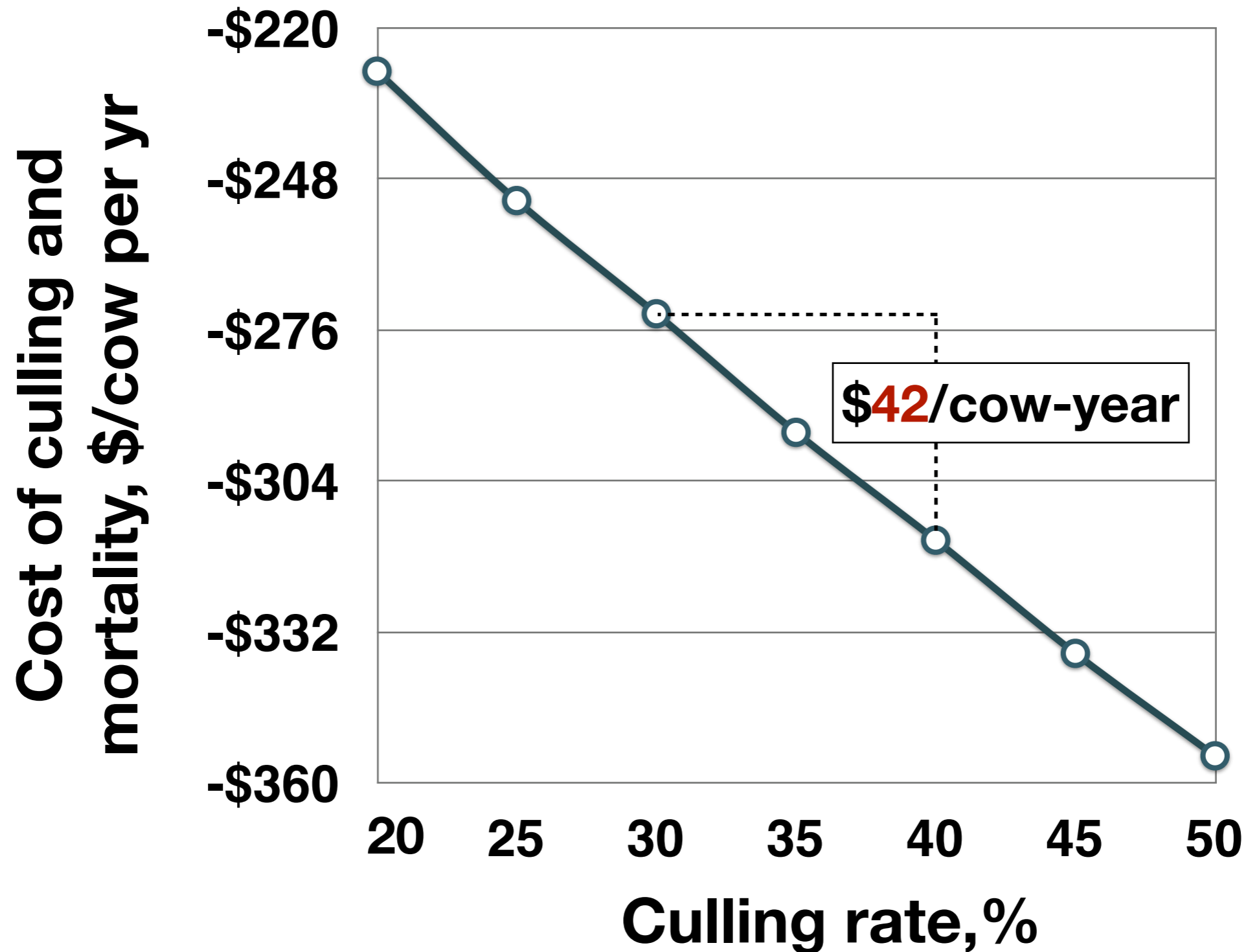
Herd value difference of changed rolling herd average (cow average production in a year)

E.g., value of improving RHA from 10,900 to 12,300 kg/cow per yr is **\$295/cow per year**



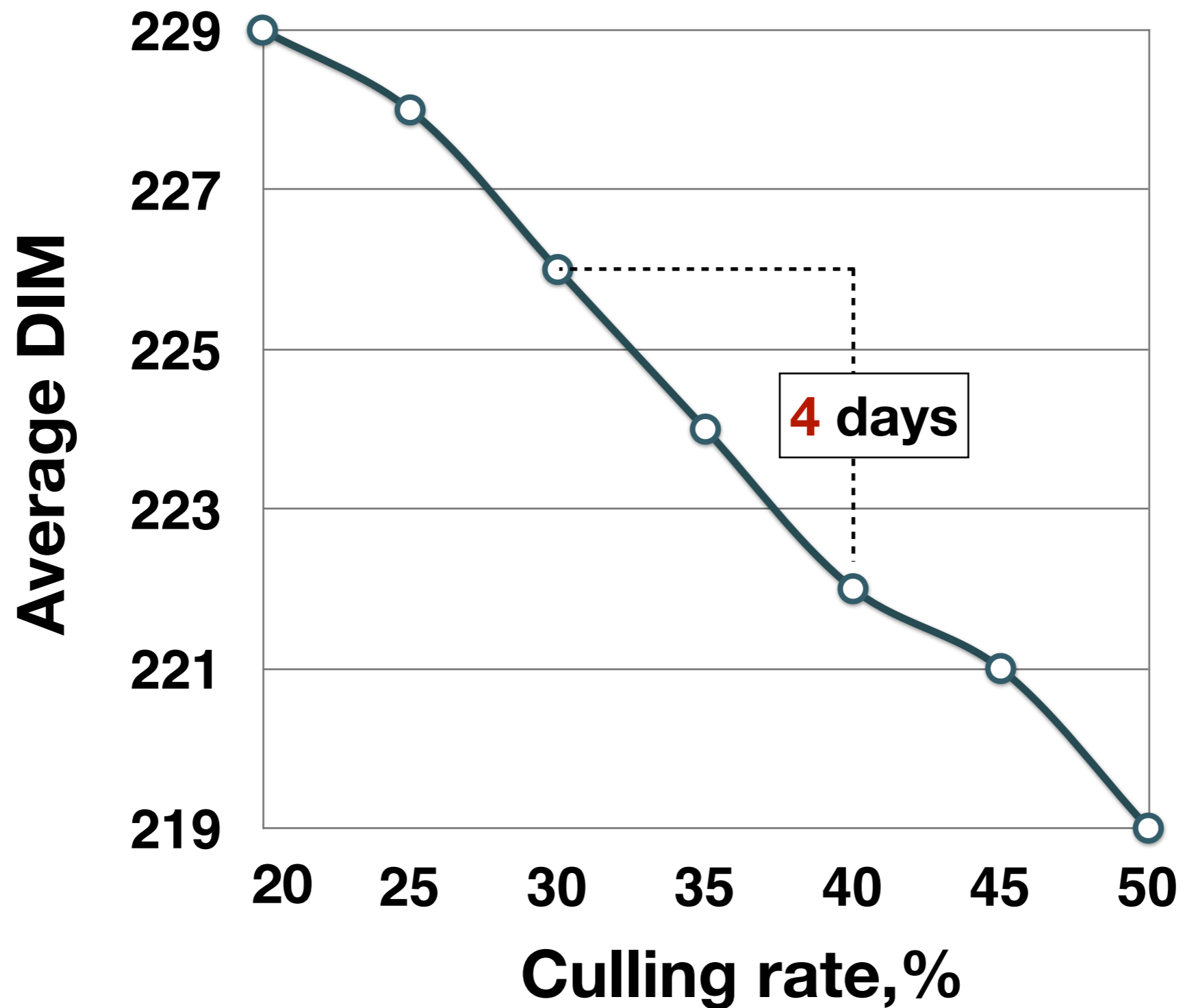
Herd value

Practical decision-making



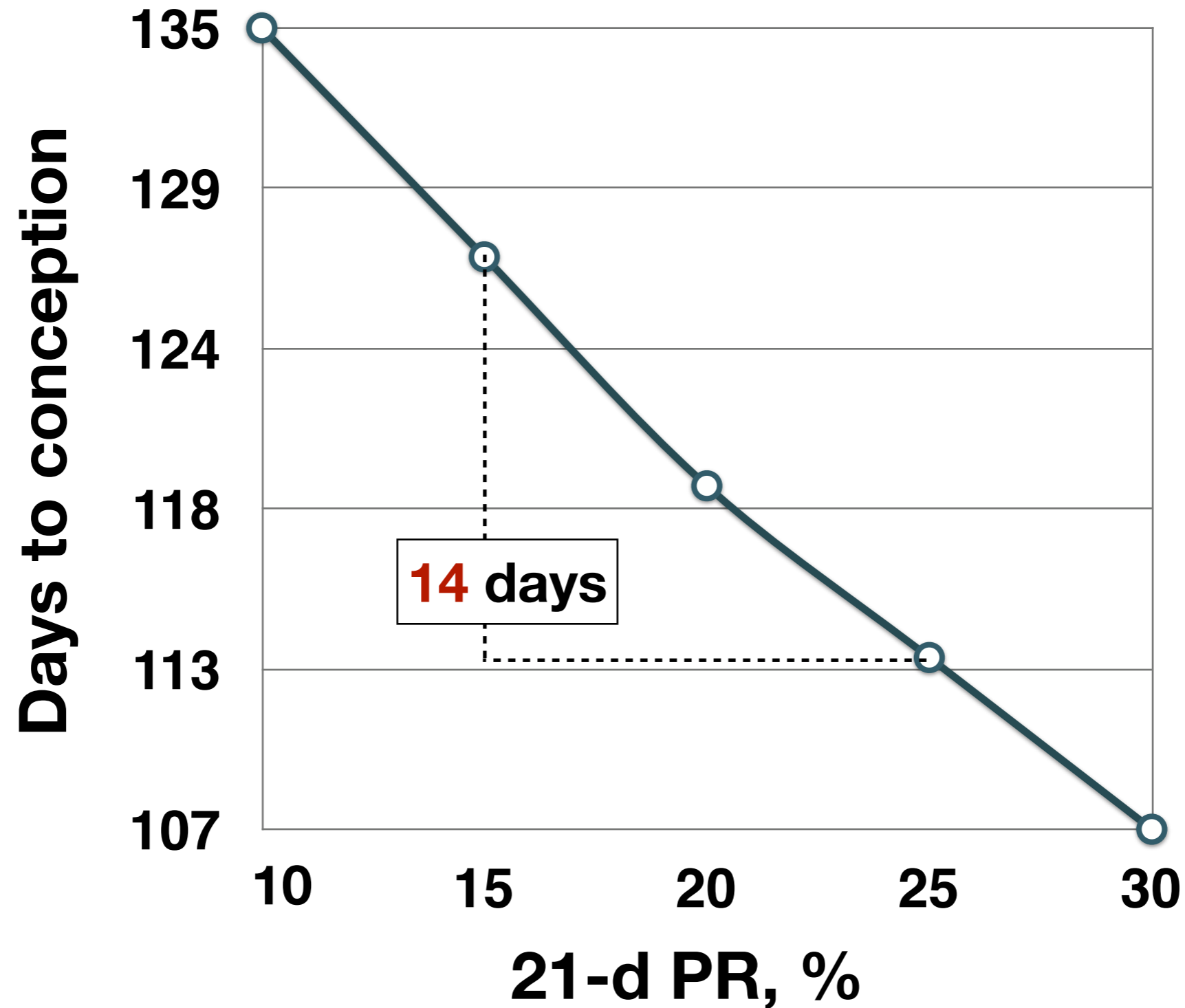
Herd value

Practical decision-making



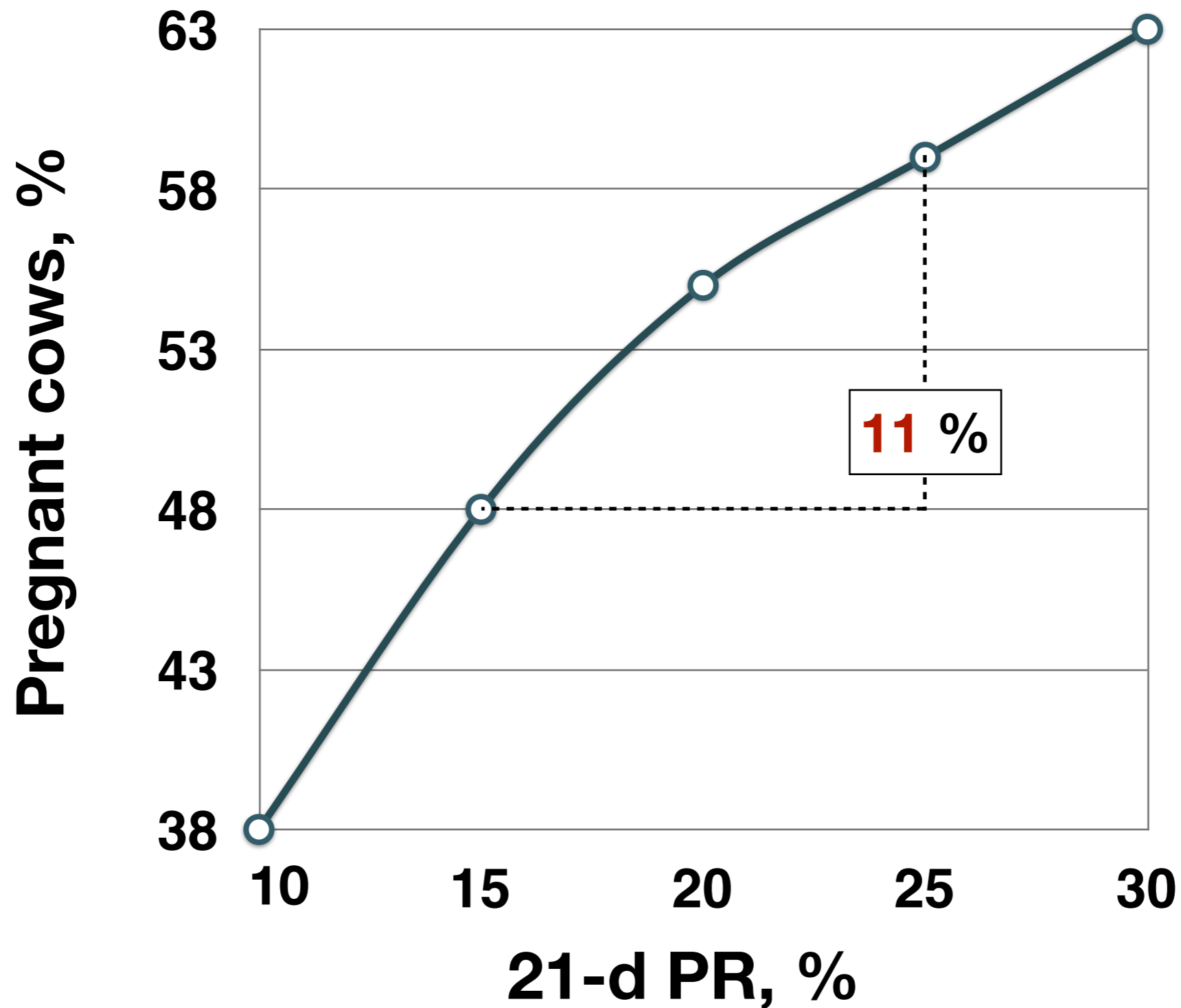
Herd value

Practical decision-making



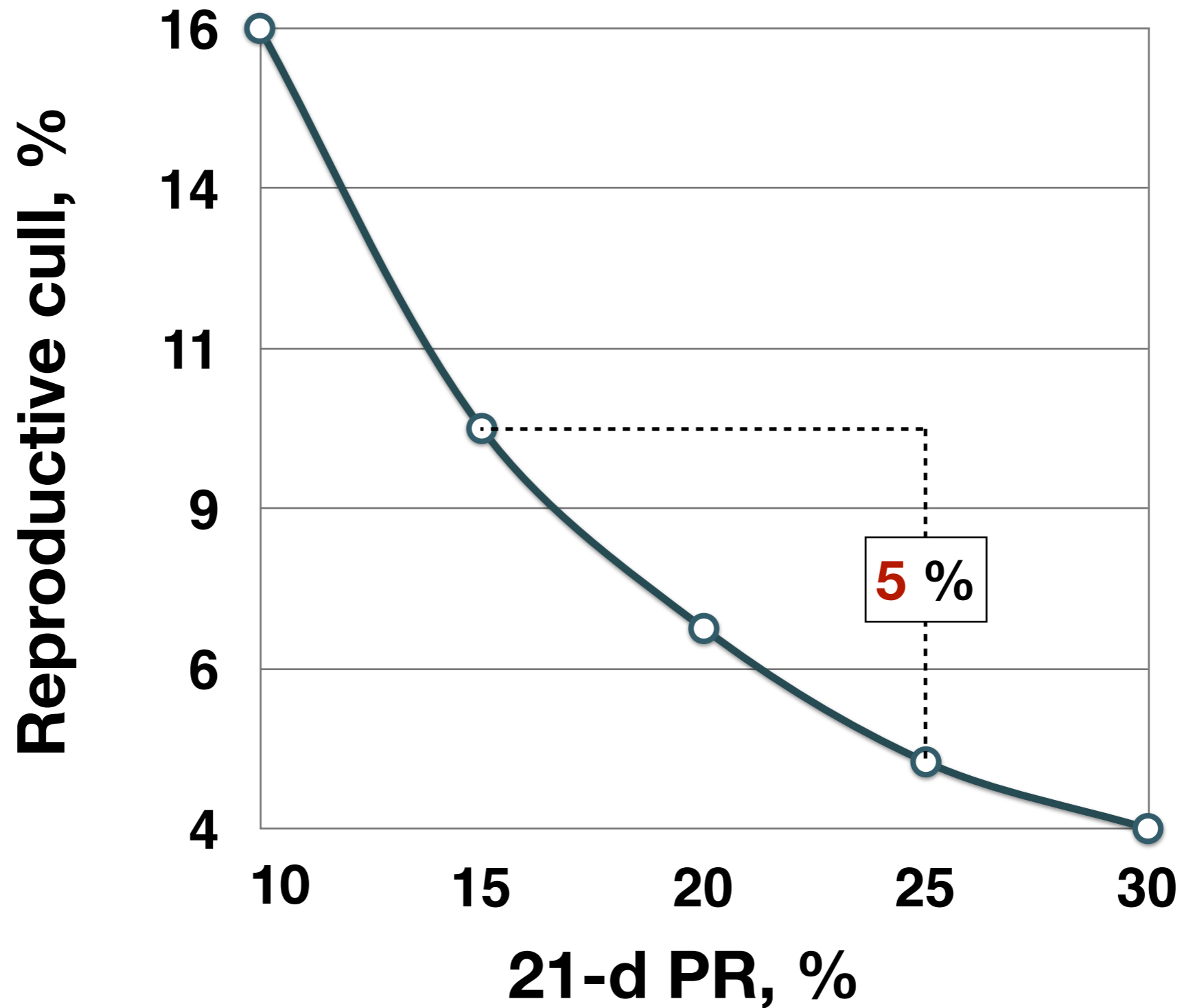
Herd value

Practical decision-making



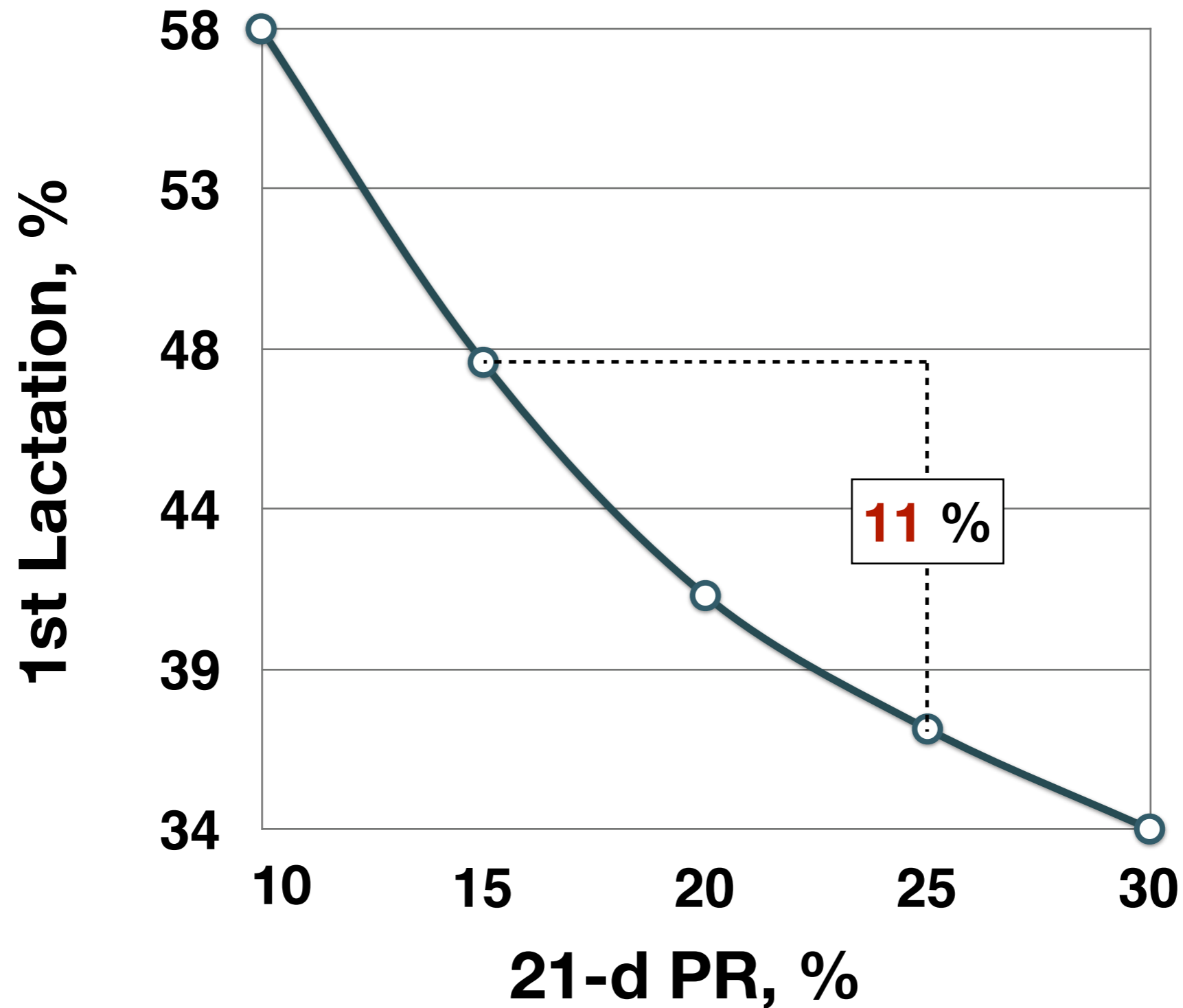
Herd value

Practical decision-making



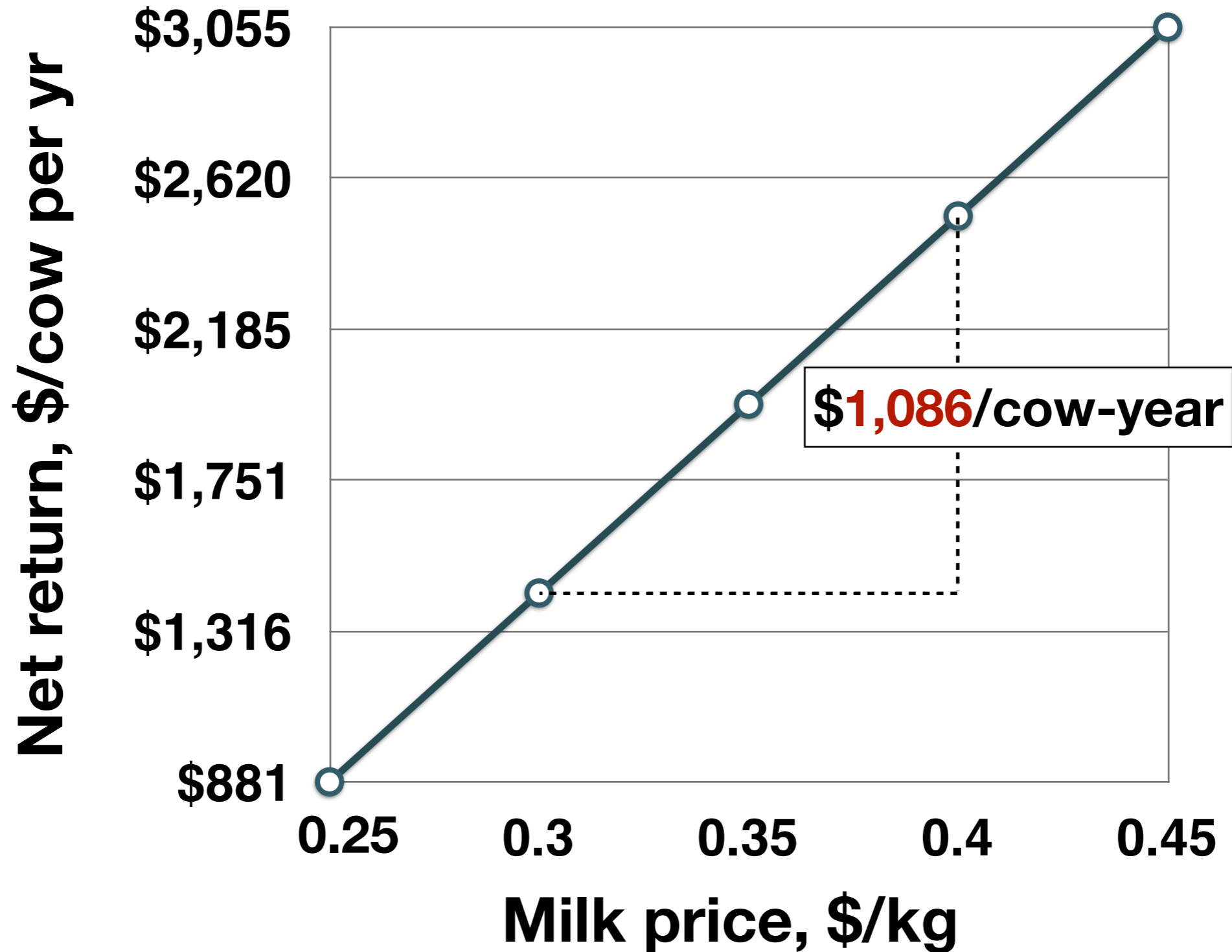
Herd value

Practical decision-making



Herd value

Practical decision-making

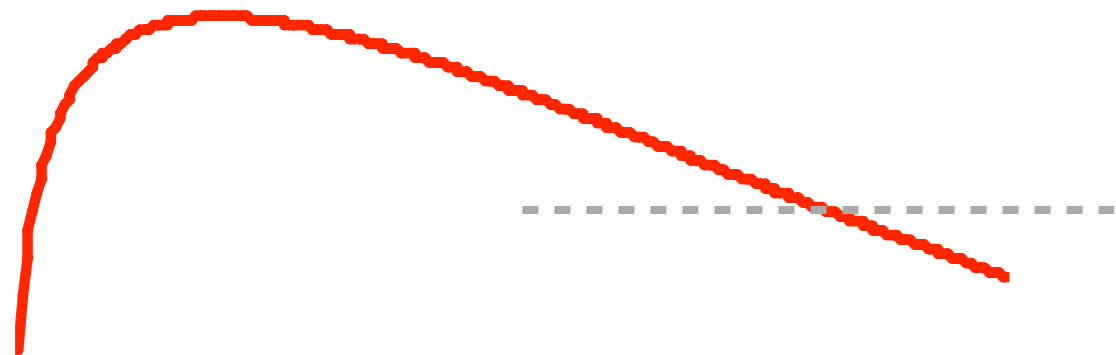


Herd value

Some questions

Reproduction vs. culling

Economically, how much increase in 21-d PR equals to 5% increase in culling rate:



Threshold increase to 30 kg/d
What happen with herd net return?
Increase or decrease?
How much?



Thanks