



# Herd Size Impacts Dairy Goat Hoof Overgrowth

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MURC  
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animal welfare  
program

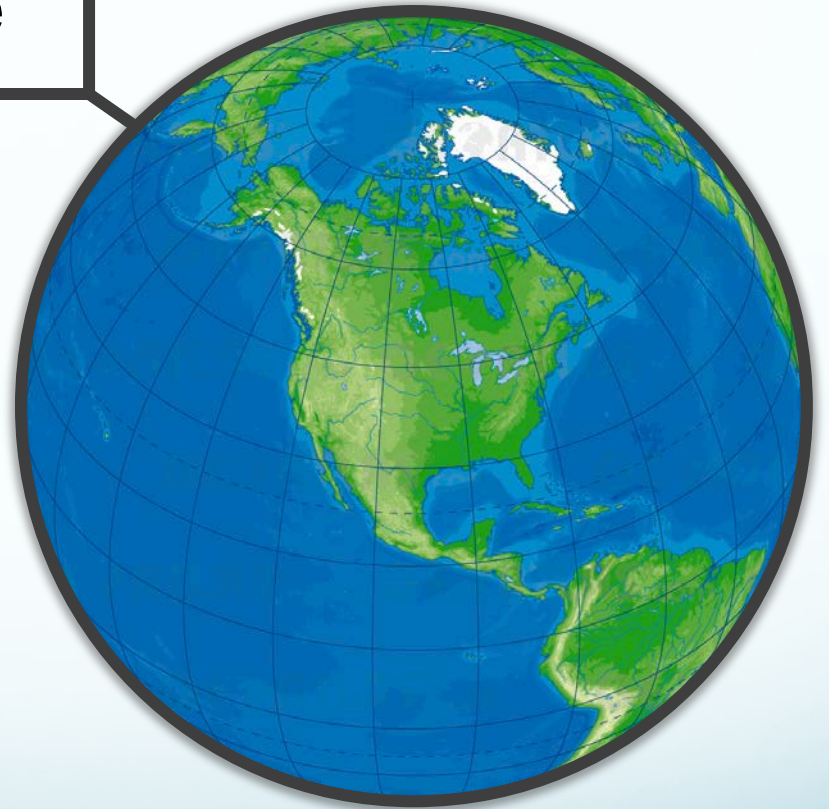
# Why study dairy goats?



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Worldwide: 26% increase

(FAOSTAT, 2012)



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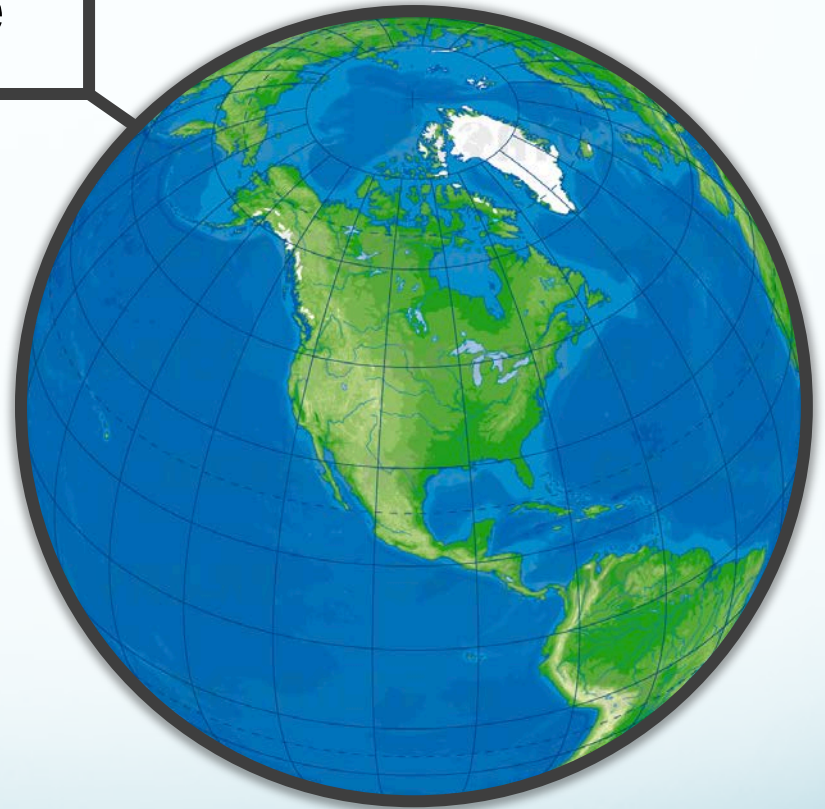
Worldwide: 26% increase

(FAOSTAT, 2012)

Top 3 continents:

(FAOSTAT, 2012)

- Asia
- Africa
- South America





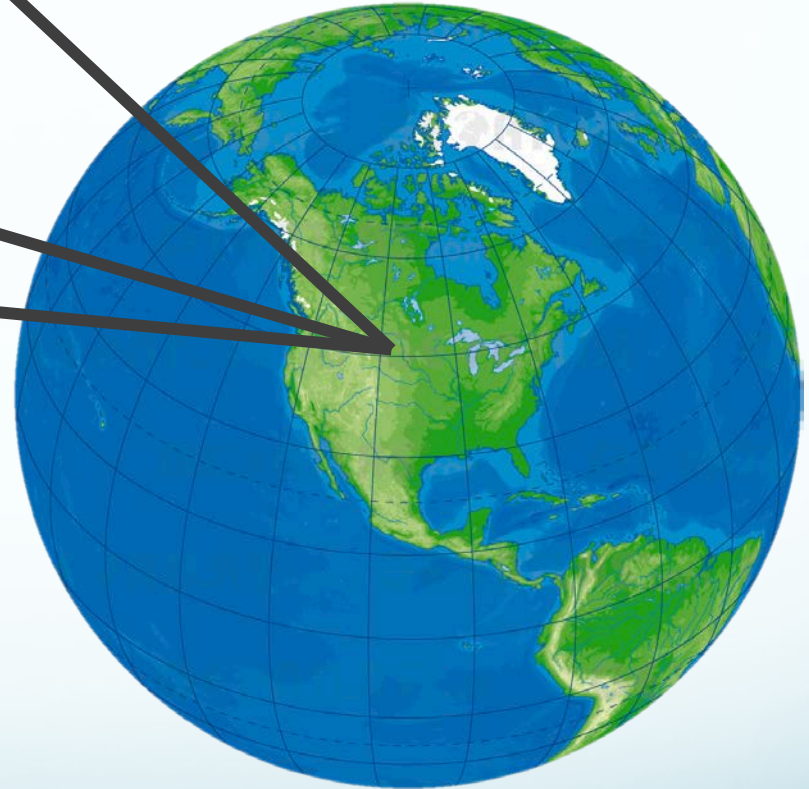
# Why study dairy goats?

Canada: 43% increase

(AAFC, 2006)

USA: 24% increase

(USDA, 2012)



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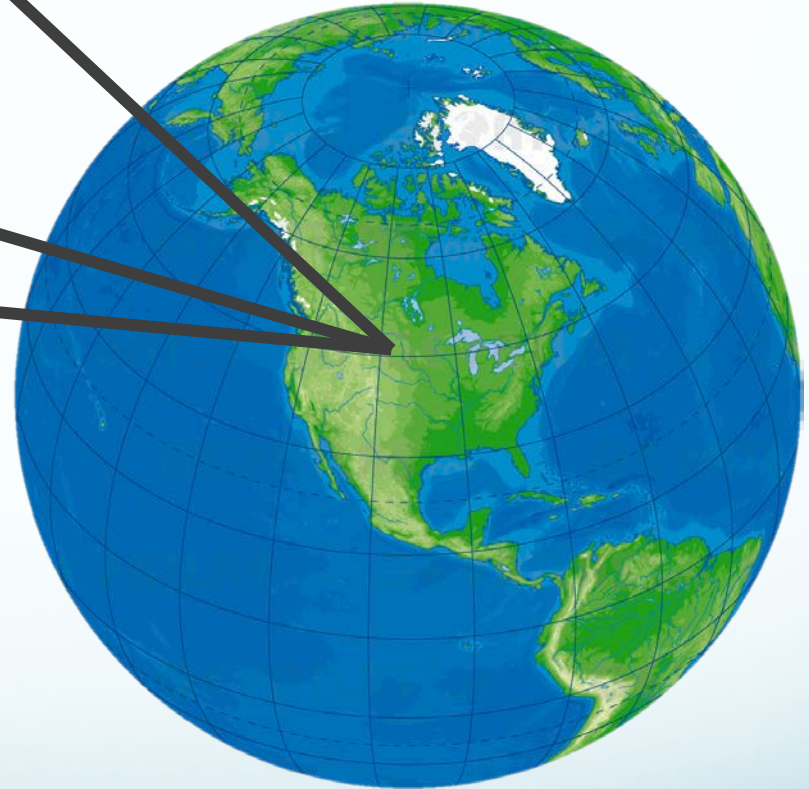
Canada: 43% increase

(AAFC, 2006)

USA: 24% increase

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**Lack of knowledge:  
hoof health**



# Hoof Health Issues

Hoof overgrowth can indirectly lead to:

- Abnormal behaviour



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Hoof overgrowth can indirectly lead to:

- Abnormal behaviour
- Lameness
- Milk production?

(Chapinal et al., 2013)





# Hoof Health Issues

Hoof overgrowth can indirectly lead to:

- Abnormal behaviour
- Lameness
  - Milk production?  
(Chapinal et al., 2013)
- Diseases



# Hoof Health Issues

Prevention requires:

- Trained workers
- Trimming



Image credits: fiascofarm.com, 2012 (right)  
blog.fairview.co.za, 2014 (left)

# Hoof Health Issues

- Herd sizes increase = focus on milk production
- Hoof health not primary focus





# Objective

- To determine the impact of herd size on hoof overgrowth



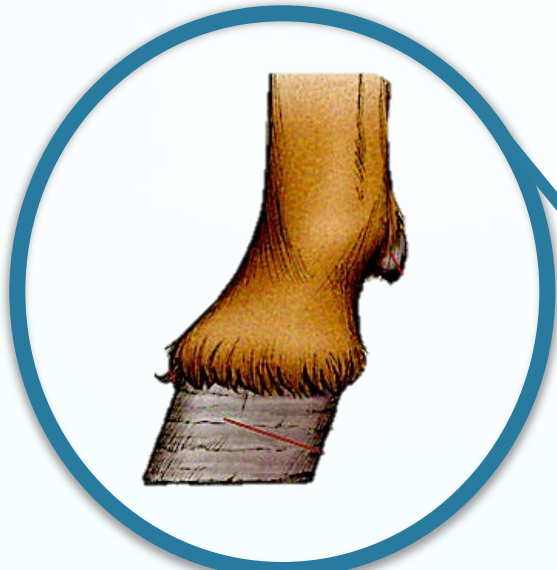


# Experimental Design

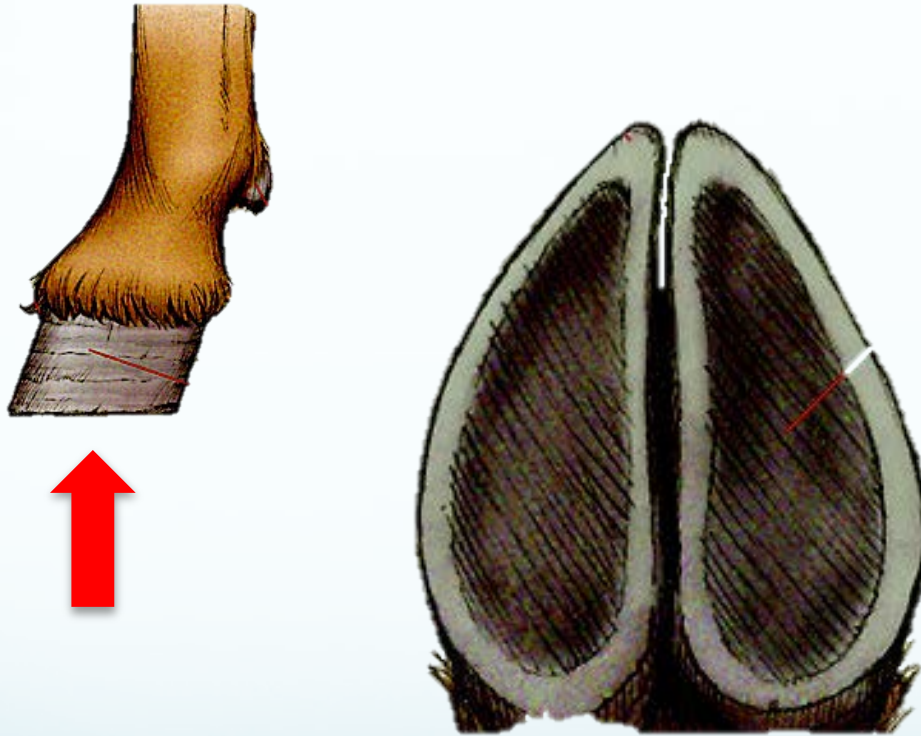
- Seven Ontario commercial farms
  - Herd size: 100 – 650 milking does
- Mean number of animals sampled =  $61 \pm 27$



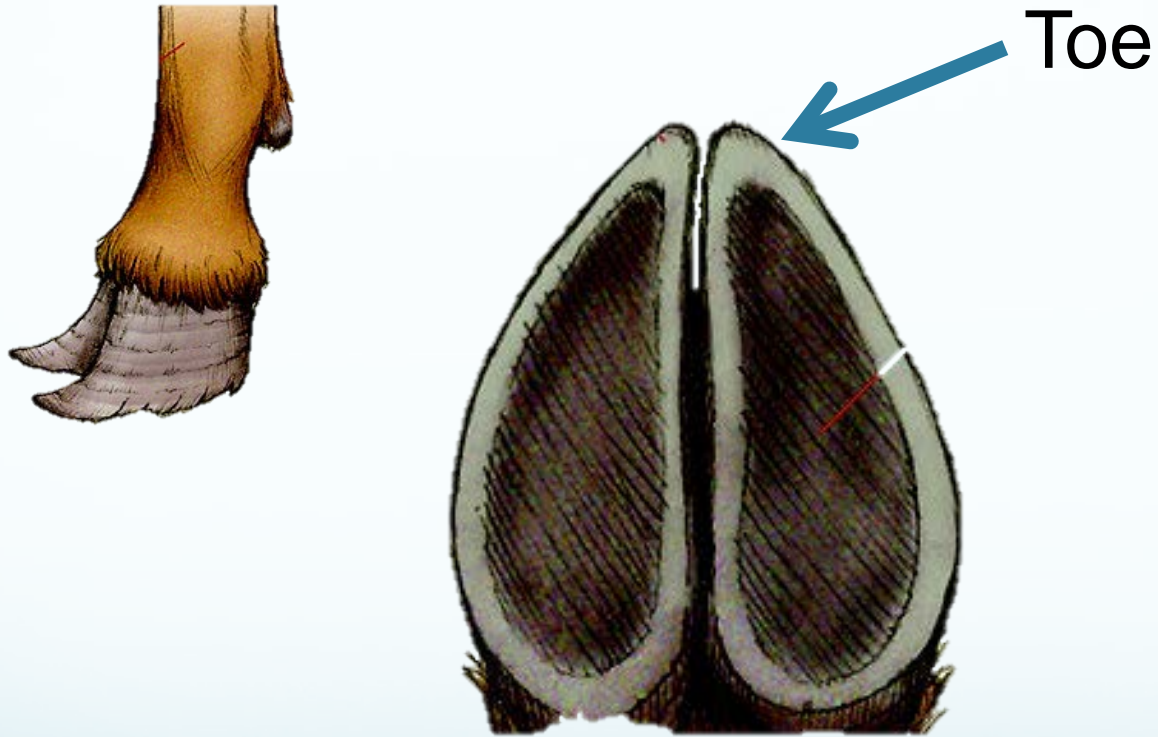
# What overgrows on hooves?



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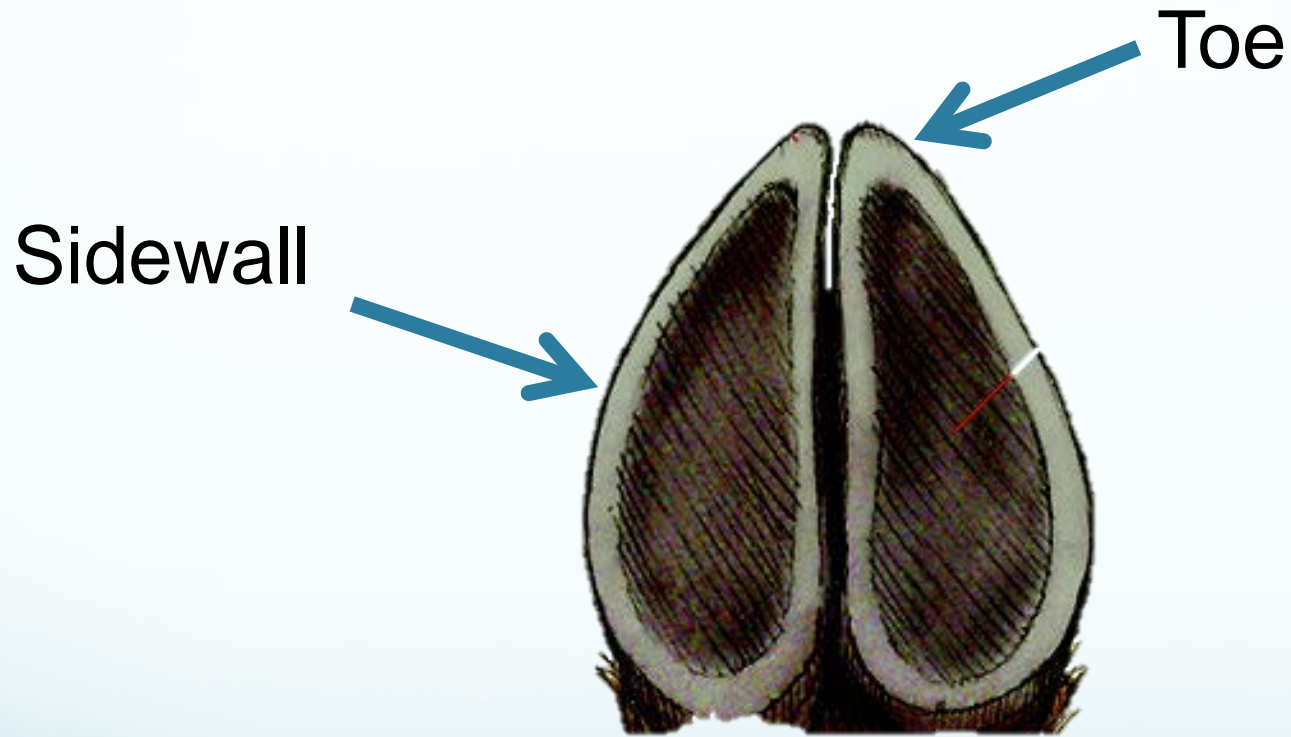


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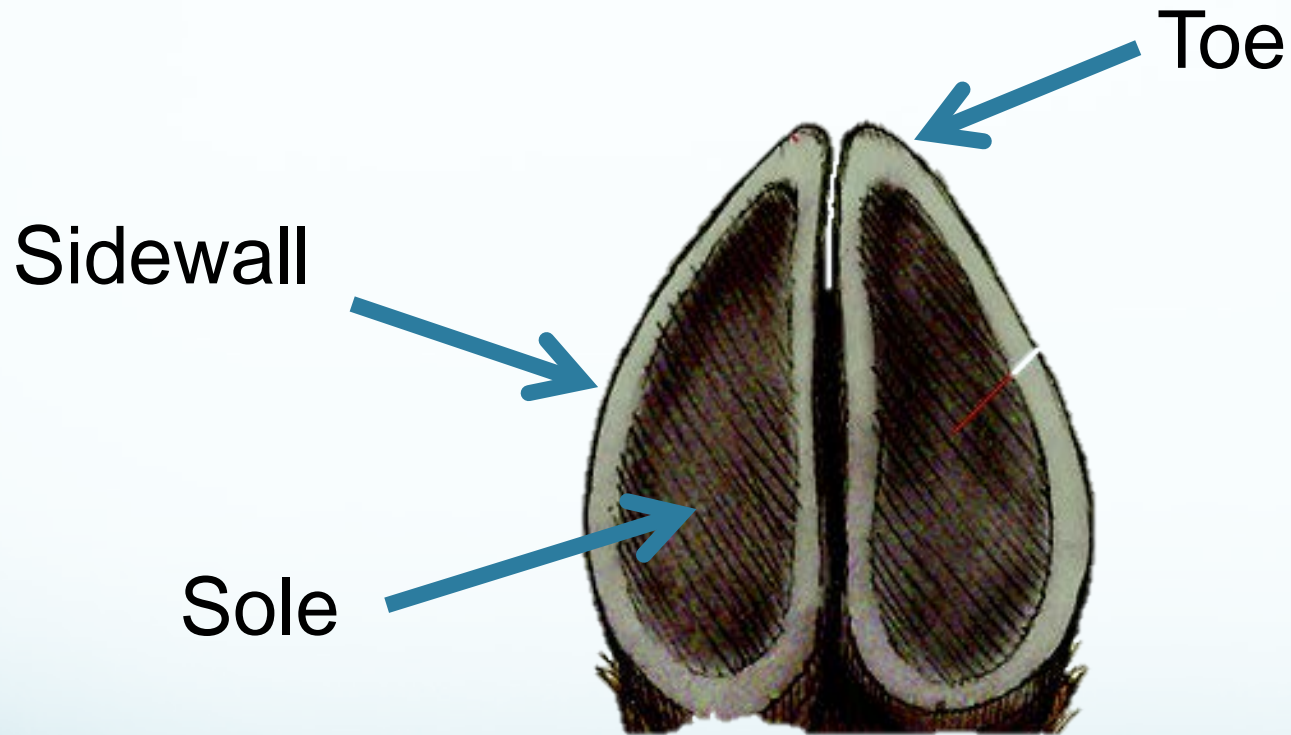




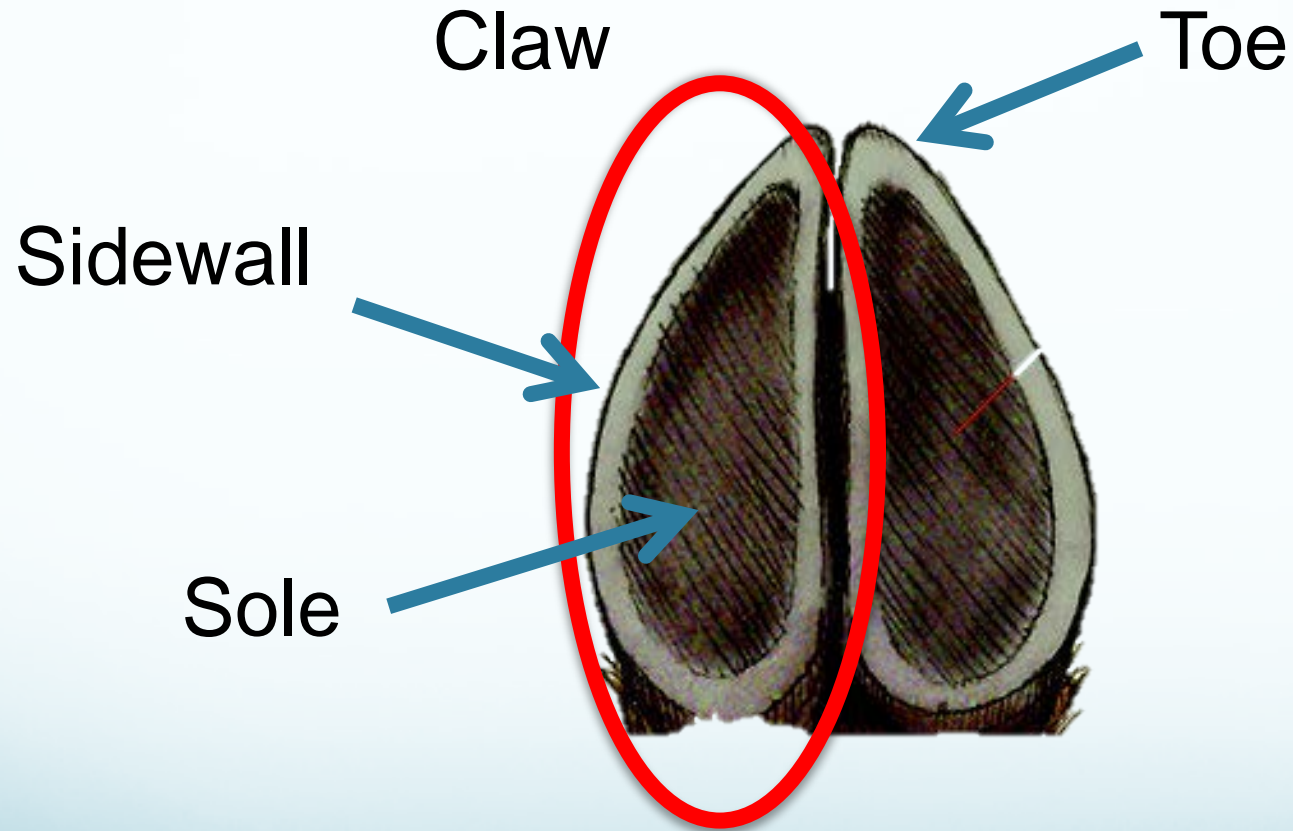
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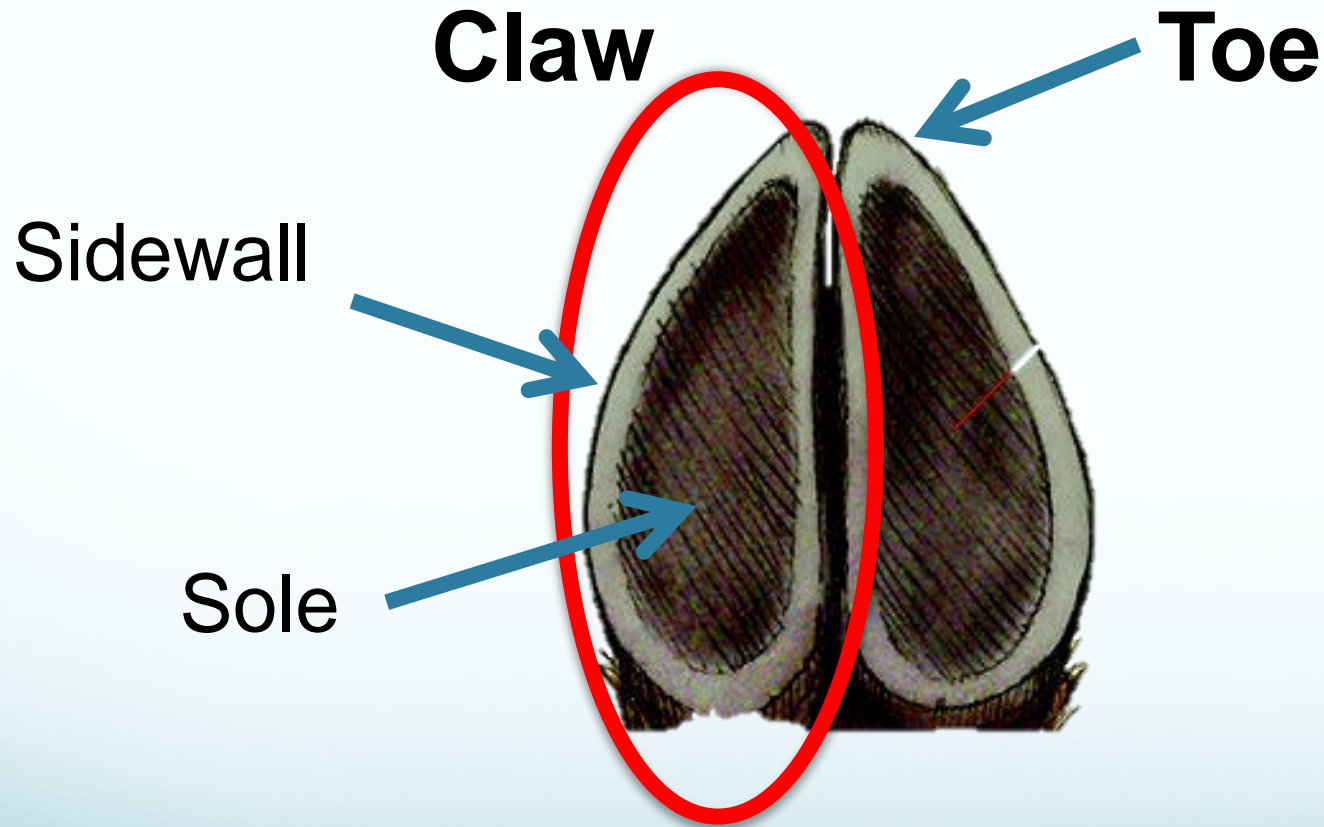
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# What overgrows on hooves?





# Measurements: Hoof Scores

TOE length and presence/absence of curling

- Scale 1 – 4

| Score | Status      |
|-------|-------------|
| 1     | Recent trim |



# Measurements: Hoof Scores

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| Score | Status                           |
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| 2     | Slight overgrowth,<br>no curling |



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| 3     | Overgrowth, curling              |



# Measurements: Hoof Scores

TOE length and presence/absence of curling

- Scale 1 – 4

| Score | Status                           |
|-------|----------------------------------|
| 1     | Recent trim                      |
| 2     | Slight overgrowth,<br>no curling |
| 3     | Overgrowth, curling              |
| 4     | Severe overgrowth,<br>curling    |





# Measurements: Claw Scores

SIDEWALL growth and SOLE visibility

- Scale 1 – 3

| Score | Status      |
|-------|-------------|
| 1     | Recent trim |



# Measurements: Claw Scores

SIDEWALL growth and SOLE visibility

- Scale 1 – 3

| Score | Status                               |
|-------|--------------------------------------|
| 1     | Recent trim                          |
| 2     | Sidewall overgrowth,<br>sole visible |



# Measurements: Claw Scores

SIDEWALL growth and SOLE visibility

- Scale 1 – 3

| Score | Status   |
|-------|--|
| 1     | Recent trim  |
| 2     | Sidewall overgrowth,<br>sole visible                   |
| 3     | Sidewall overgrowth<br>across claw,<br>no sole visible |



# Measurements: Claw Scores

## SIDEWALL growth and SOLE visibility

- Scale 1 – 3

| Score | Status   |
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| 1     | Recent trim  |
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# Statistical Analysis

1. Averaged scores per milking doe
  - Front & rear = one hoof score
  - Both claws = one claw score

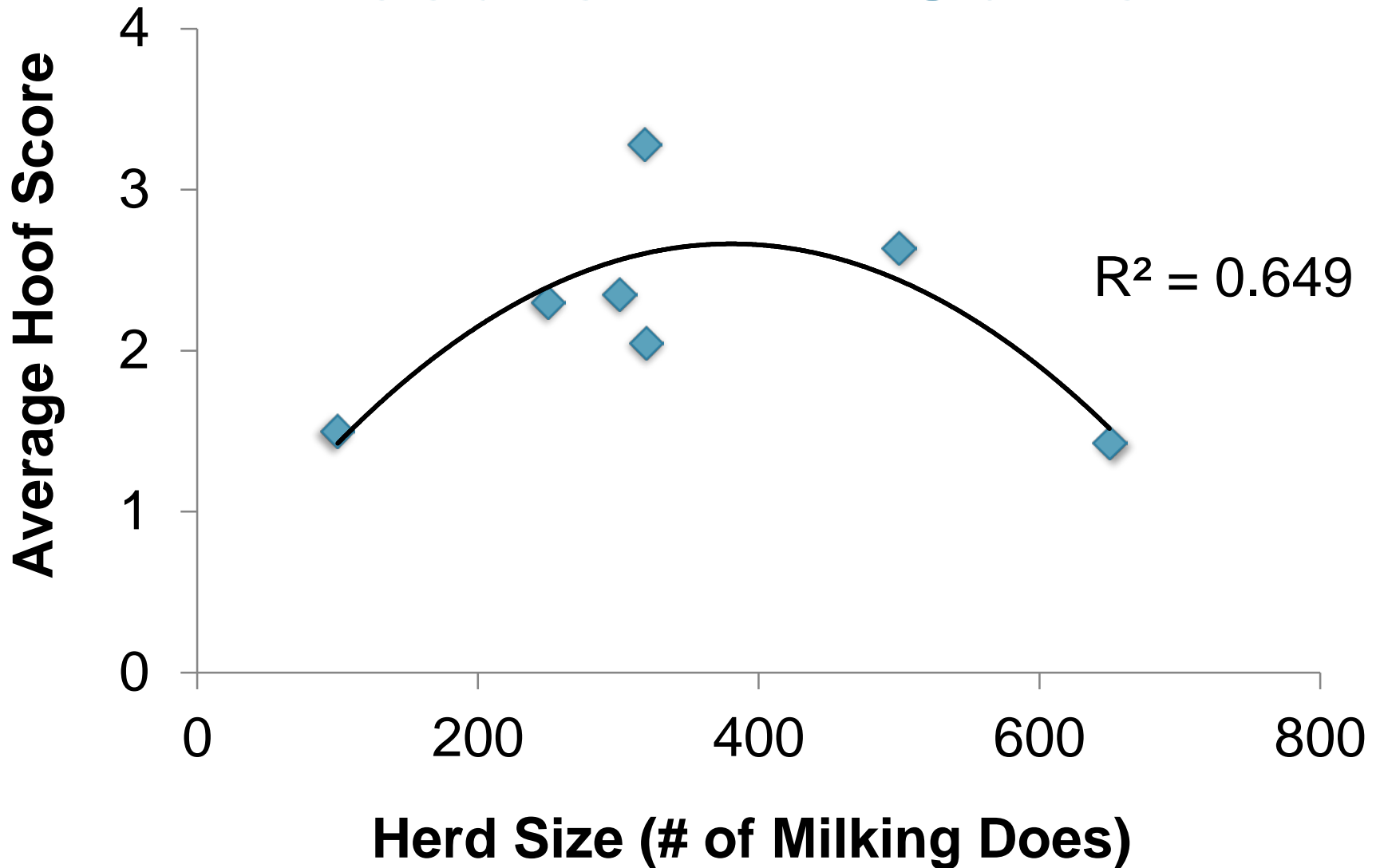
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2. Averaged scores for each farm

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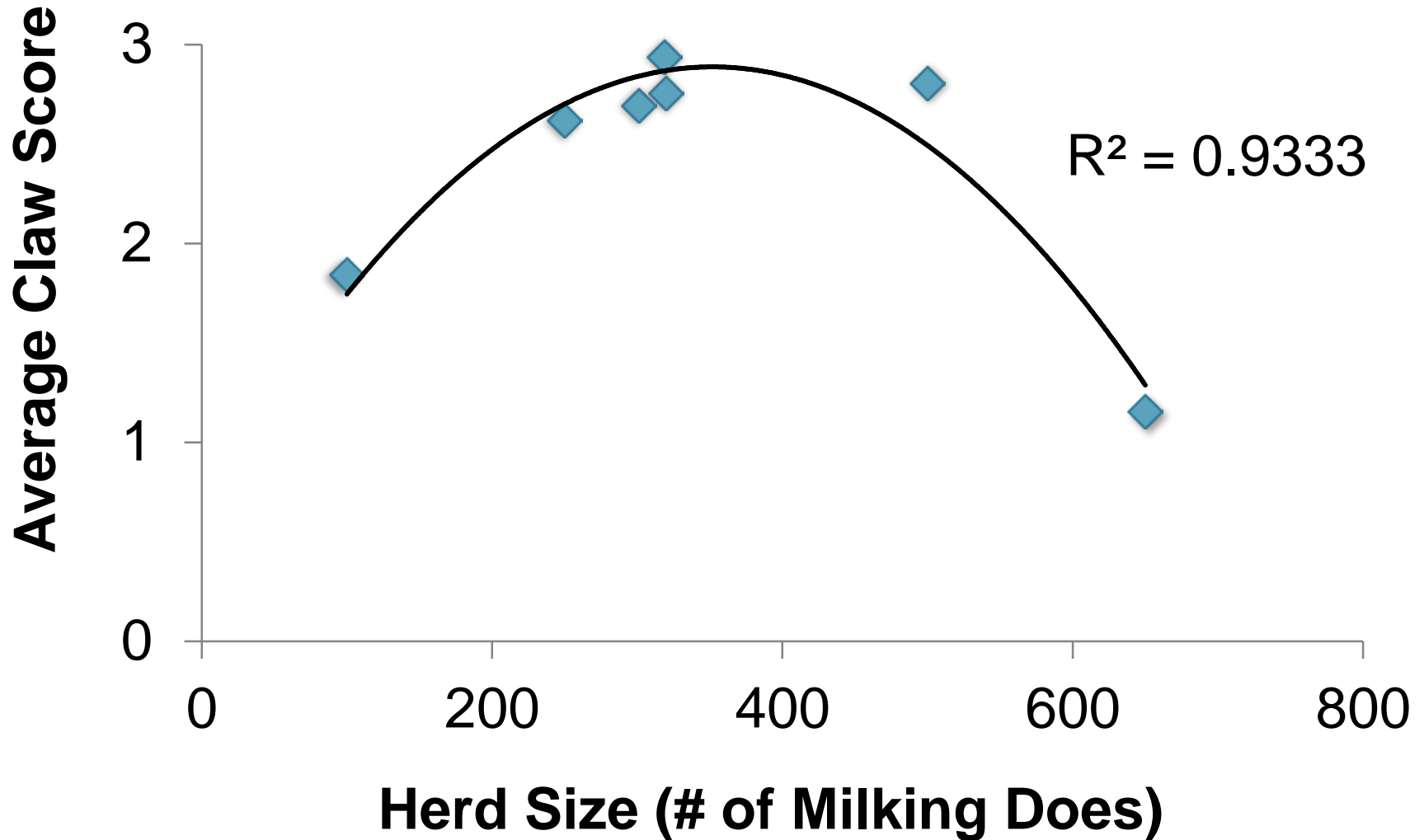
1. Averaged scores per milking doe
  - Front & rear = one hoof score
  - Both claws = one claw score
2. Averaged scores for each farm
3. Ran regression models to test impact of herd size on:
  - Hoof score
  - Claw score

# Results: Hoof Score





# Results: Claw Score



\* Results in preparation: Please contact Gosia Zobel ( ) for most recent analysis

# Discussion

- Most farms: as herd size grows, hoof score and claw scores increase
- However, the largest farm achieved low scores



# Conclusions

- Increasing herd size is associated with poorer hoof health



# Further Studies

- Examine farm management practices of the large farm that achieved good hoof health:





# Further Studies

- Examine farm management practices of the large farm that achieved good hoof health:
  - Worker training
  - Trimming schedule
  - Cleanliness of pens



# Further Studies

- Expand monitoring to include more farms
  - Especially more large farms



# Take-home Message

**As farmers expand their herd sizes, they must continue to ensure their goats have healthy hooves by having proper management.**



# Acknowledgements

Supervisor:

- Gosia Zobel

Research methods course  
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animal welfare  
program



Ontario Veterinary College  
POPULATION MEDICINE



CENTRE OF EXCELLENCE FOR  
GOAT RESEARCH  
& INNOVATION





# References

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Gosia Zobel

# Thank you!

