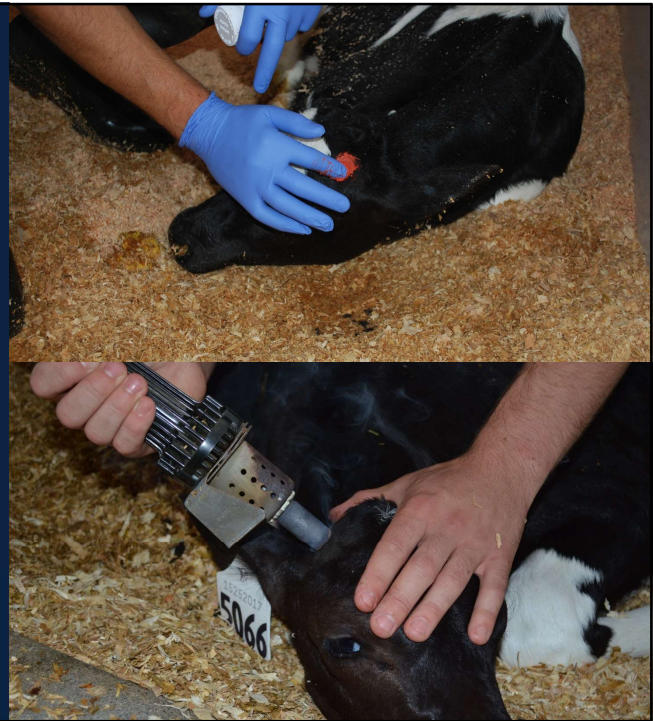


The effect of variation in disbudding procedure on wound healing

Seonpil Yoo,
Marina A. G. von Keyserlingk,
Daniel M. Weary



THE UNIVERSITY OF BRITISH COLUMBIA
Animal Welfare Program
Faculty of Land and Food Systems

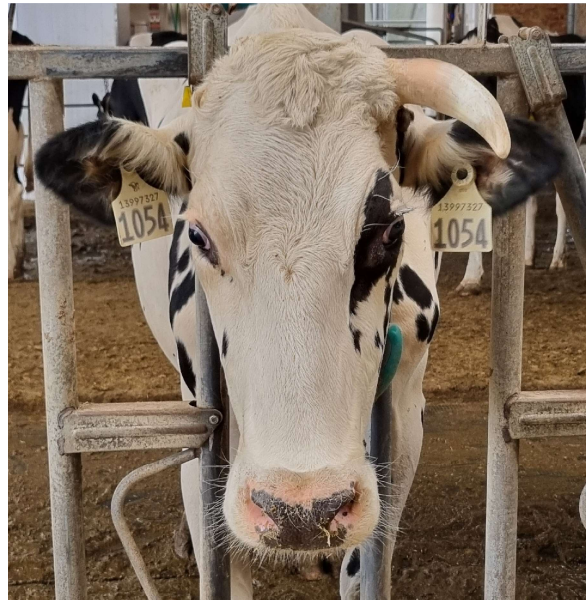


1

Why remove horns?



- Requires more space
- Increases the risk of injury to humans and animals
- Two main methods:
 - caustic paste
 - hot-iron

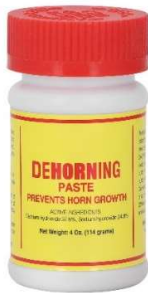


2

Caustic paste disbudding



A process of destroying horn producing cells using chemical burn



quarter (25mm).



3

3

Caustic paste: healing time and lasting pain



Fresh wound

132 days



Increased
skin sensitivity



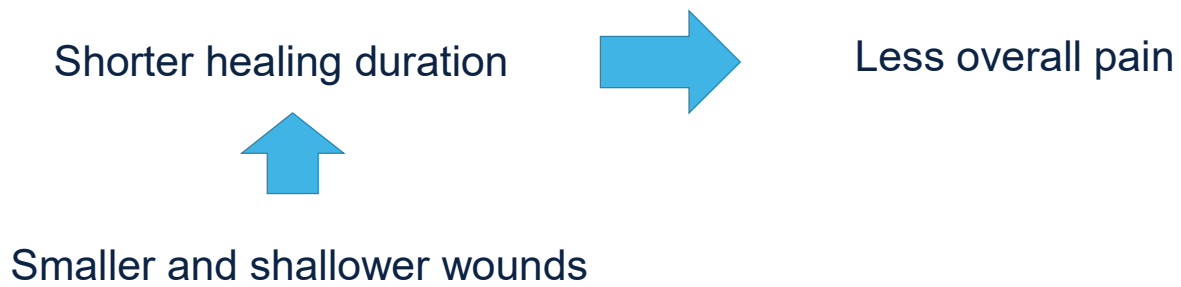
Epithelium

(Drwencke et al., 2023)

4

4

Caustic paste: healing time and lasting pain



(Margolis et al., 2003; Taniguchi and Matsumoto-Oda, 2018; Choiniere et al., 1989; Merz et al., 2010)

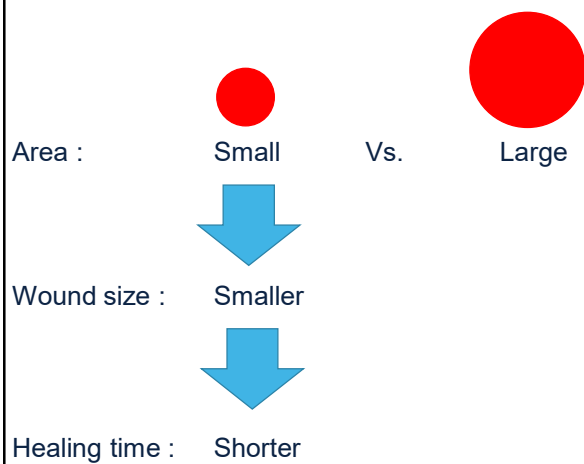
5

5

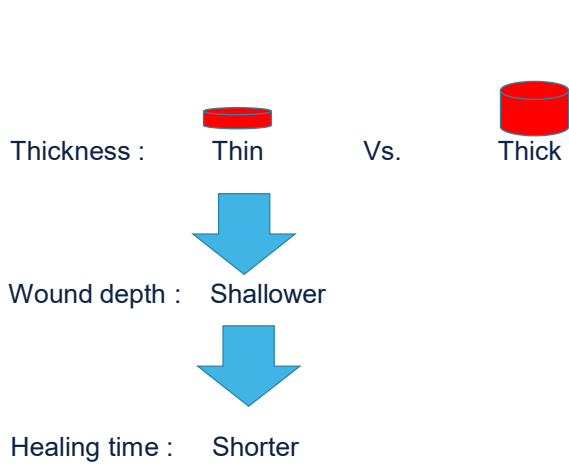
Caustic paste study



Hypothesis 1



Hypothesis 2



6

6

Materials and methods



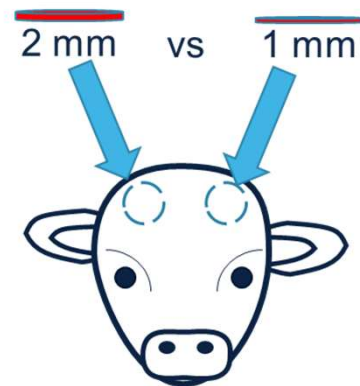
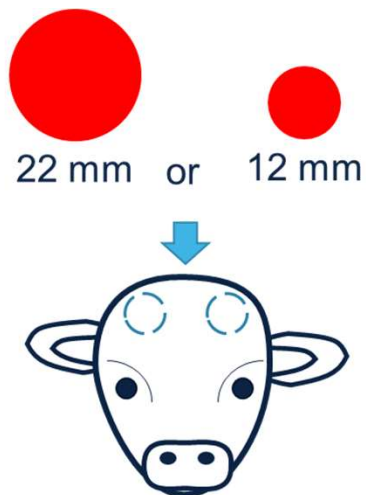
x 20

4 to 6 days of age

7

7

Treatments



8

8

		Diameter	
		12 mm	22 mm
Thickness	2 mm		
	1 mm		



9

9

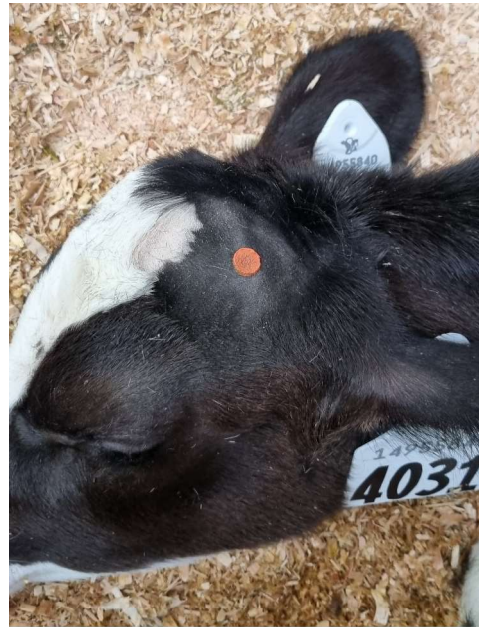
Paste application



10

10

Paste application



11

11

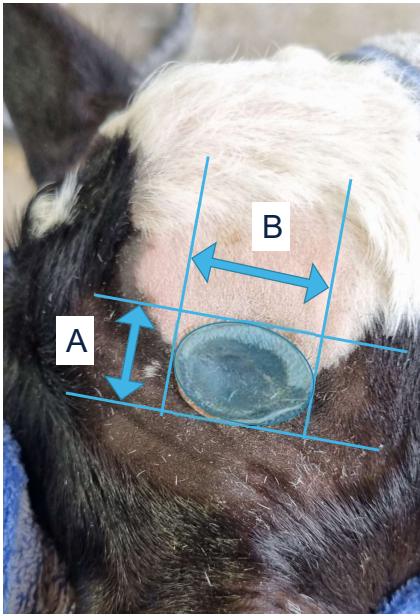
Measurements



12

12

Measurements



13

13

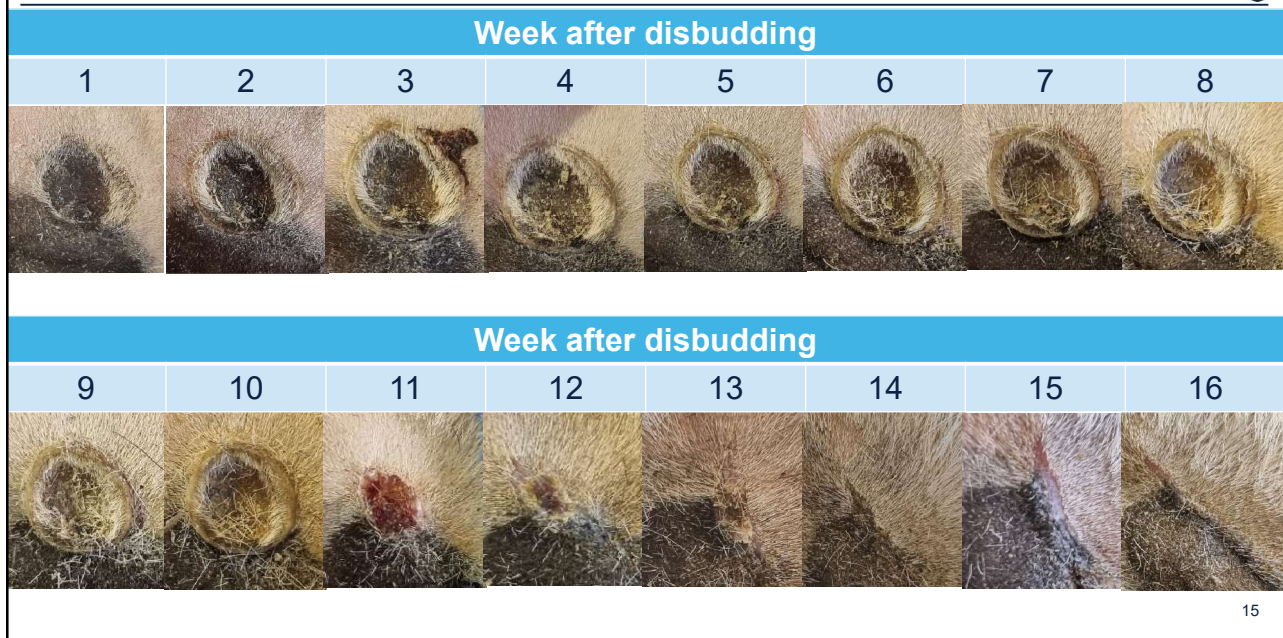
Scur (regrown horn) check at 9 months



14

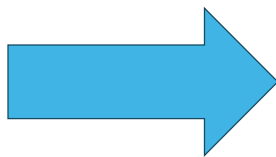
14

Wound healing progress



15

Necrotic tissue detachment



16

16

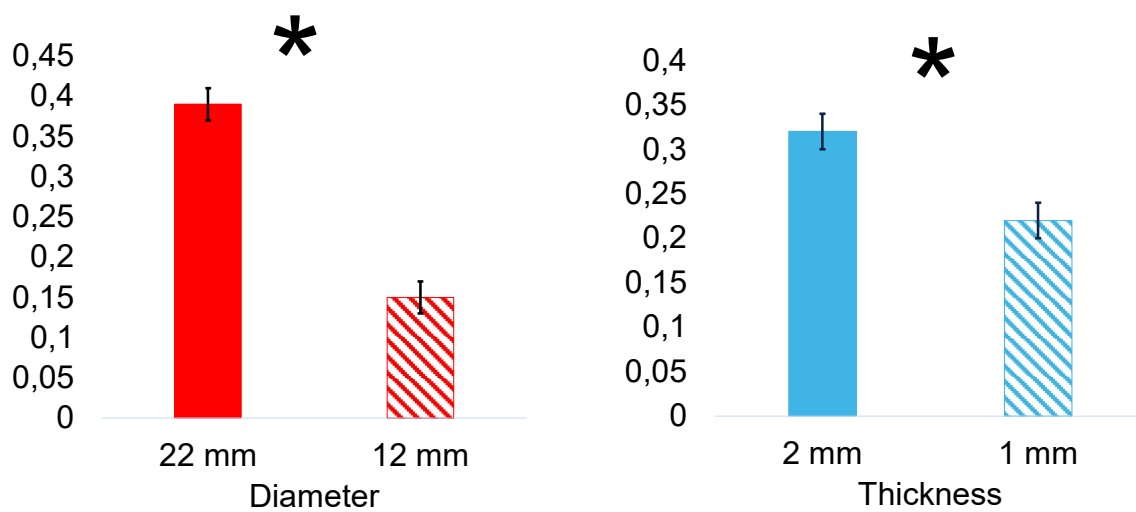
Epithelium



17

17

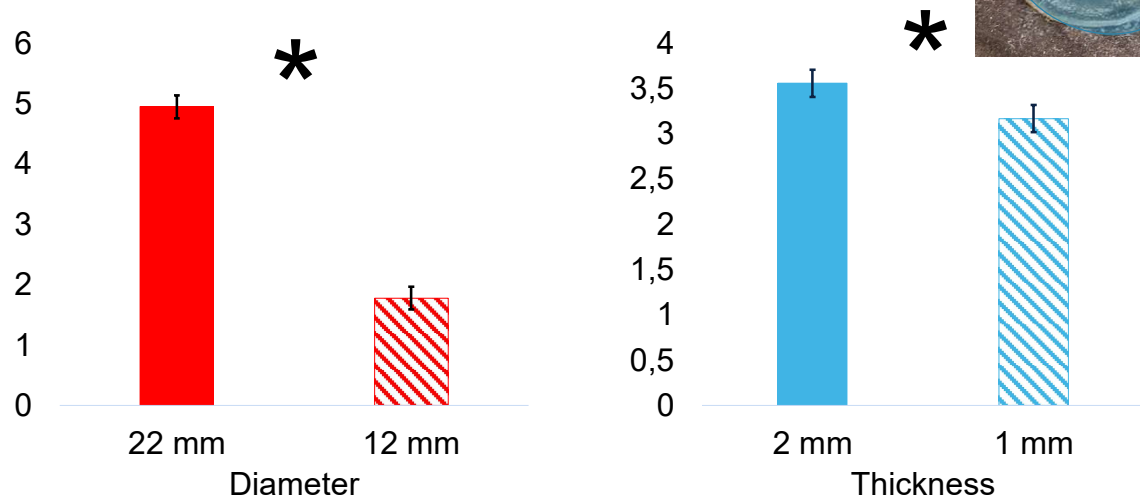
Caustic paste amount (g)



18

18

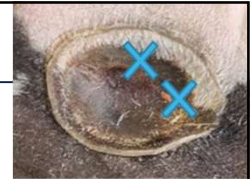
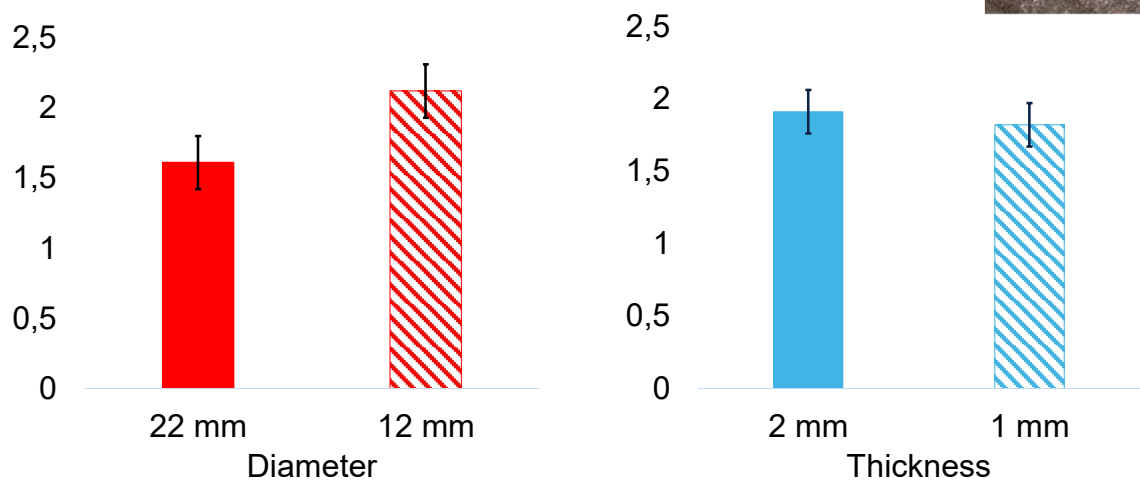
Wound area (cm²)



19

19

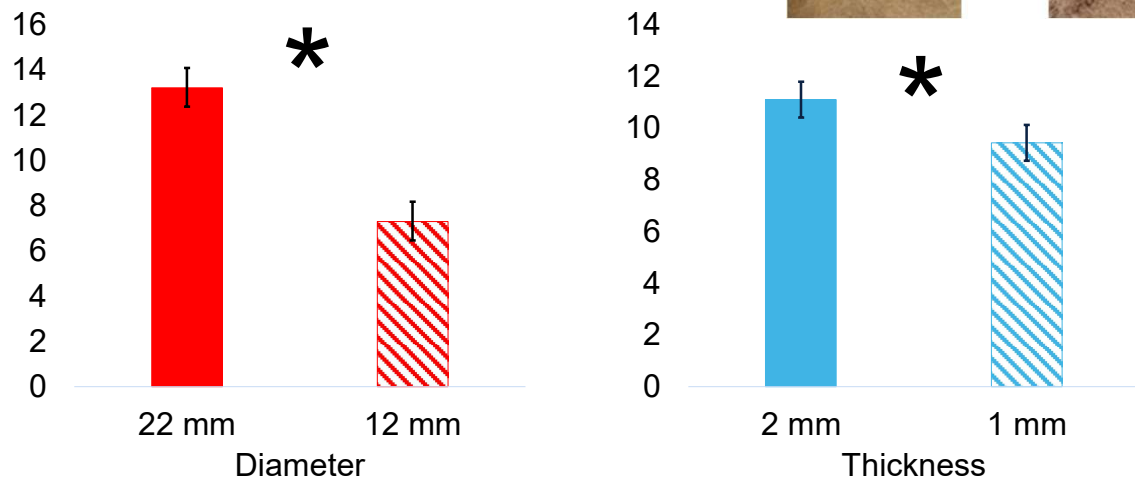
Depth (mm)



20

20

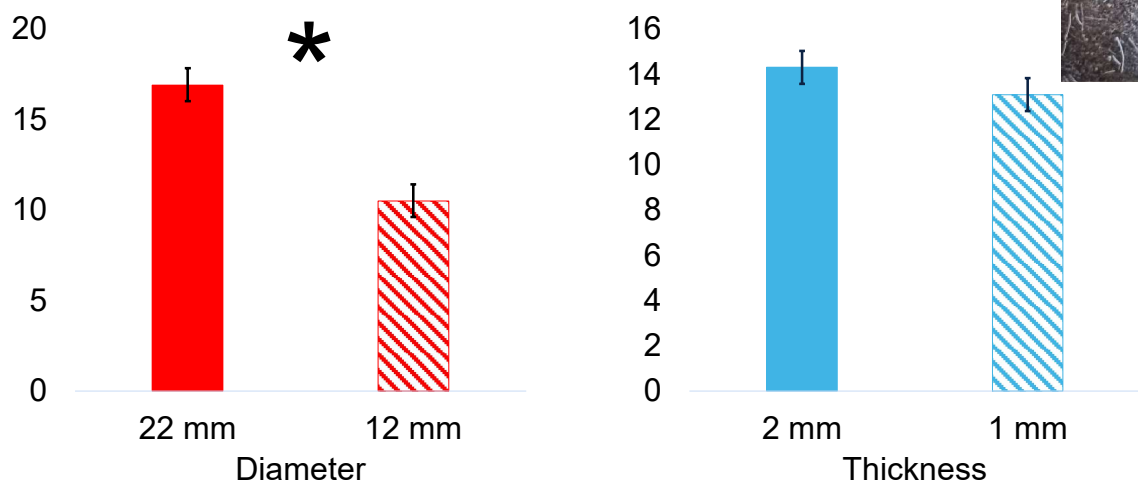
Necrotic tissue detachment (wk)



21

21

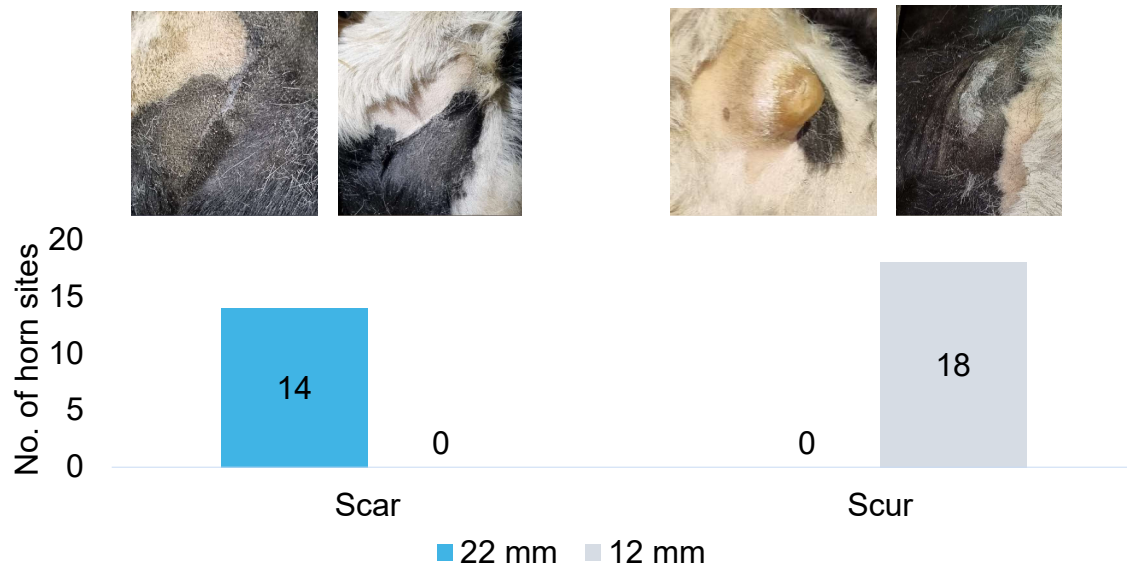
Epithelium (wk)



22

22

Scur (regrown horn) development



23

23

Caustic paste: take home messages



- Variation in paste application influences wound size and healing time
- Paste application technique affects the likelihood of scur development
- Standardized tools can help minimize unnecessary variation in paste application

24

24

Hot-iron disbudding



A process of destroying horn producing cells using thermal burns



25

25

Hot-iron: healing time and lasting pain



Fresh wound

54 - 64 days



Increased skin
sensitivity



Epithelium

(Adcock and Tucker, 2018; Adcock et al., 2019)

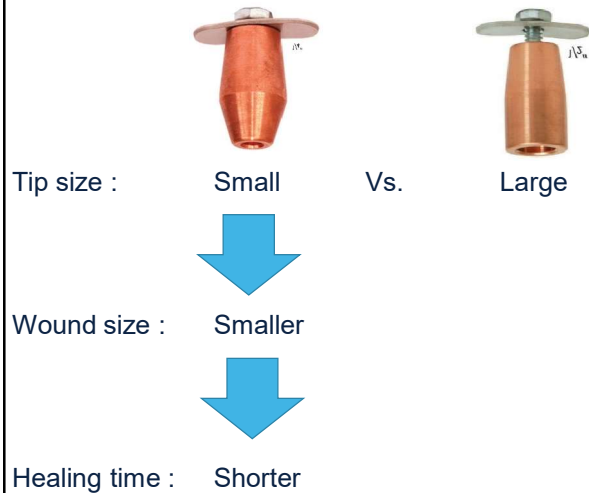
26

26

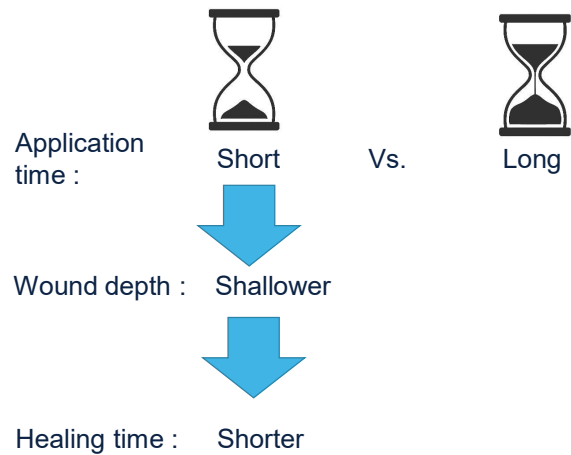
Hot-iron study



Hypothesis 1



Hypothesis 2



27

27

Materials and methods



4-weeks old

x 24

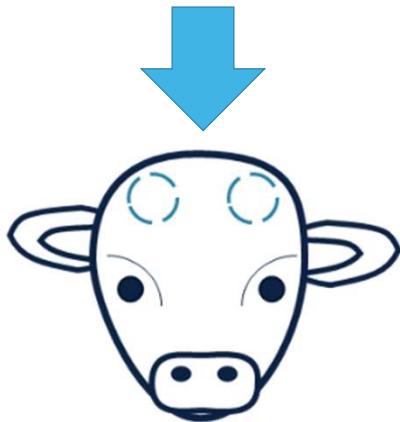
28

28

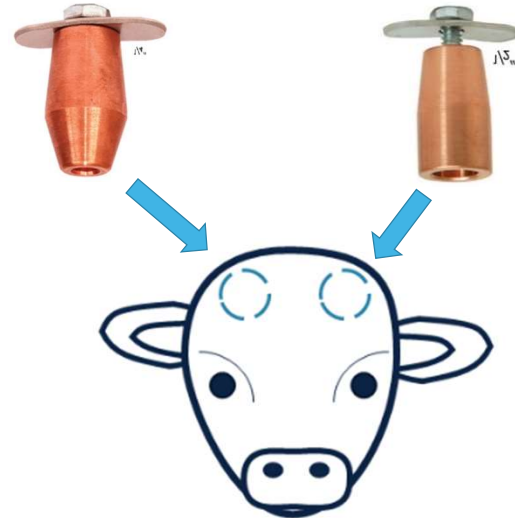
Treatments



Application time:
10 s or 20 s



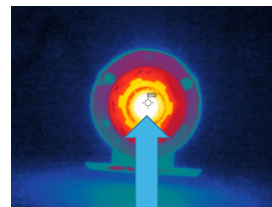
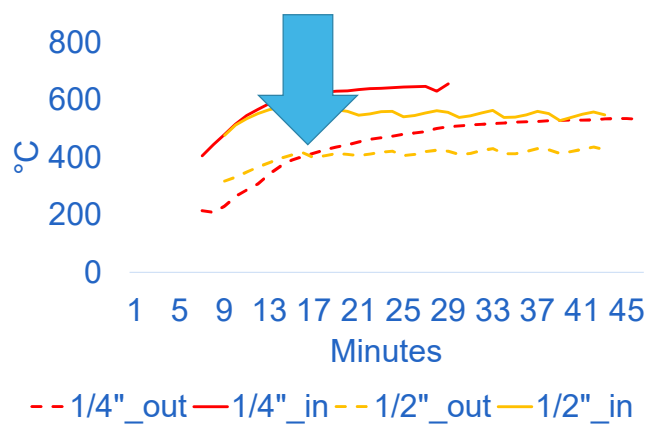
Tip size



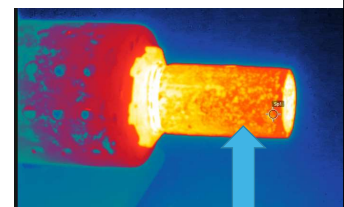
29

29

Temperature increase



inside

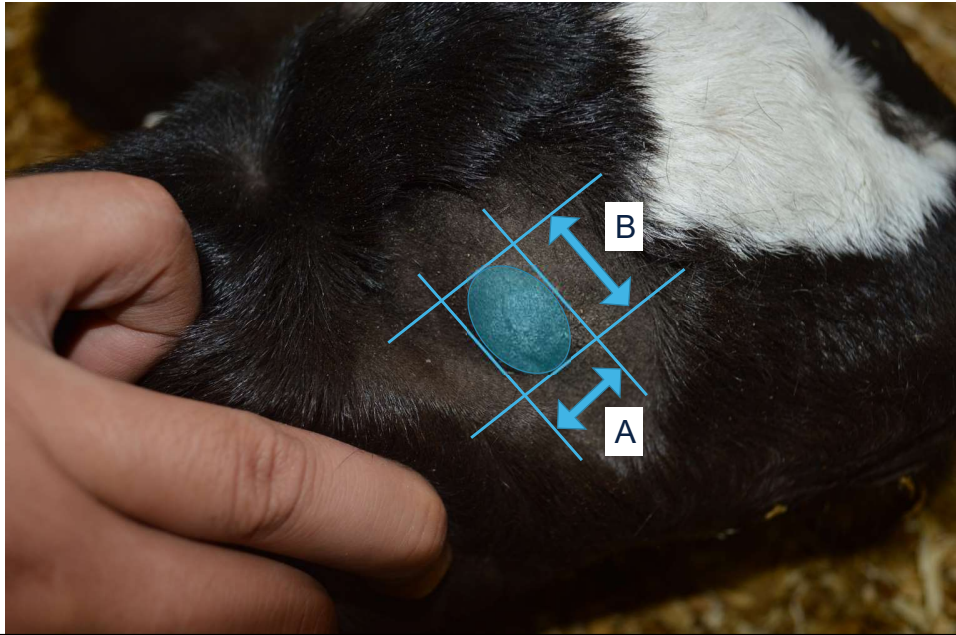


outside

30

30

Horn bud size



31

31

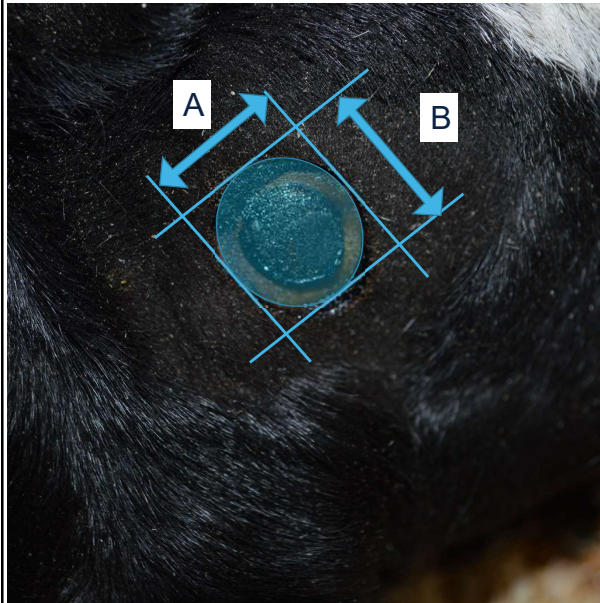
Measurements



32

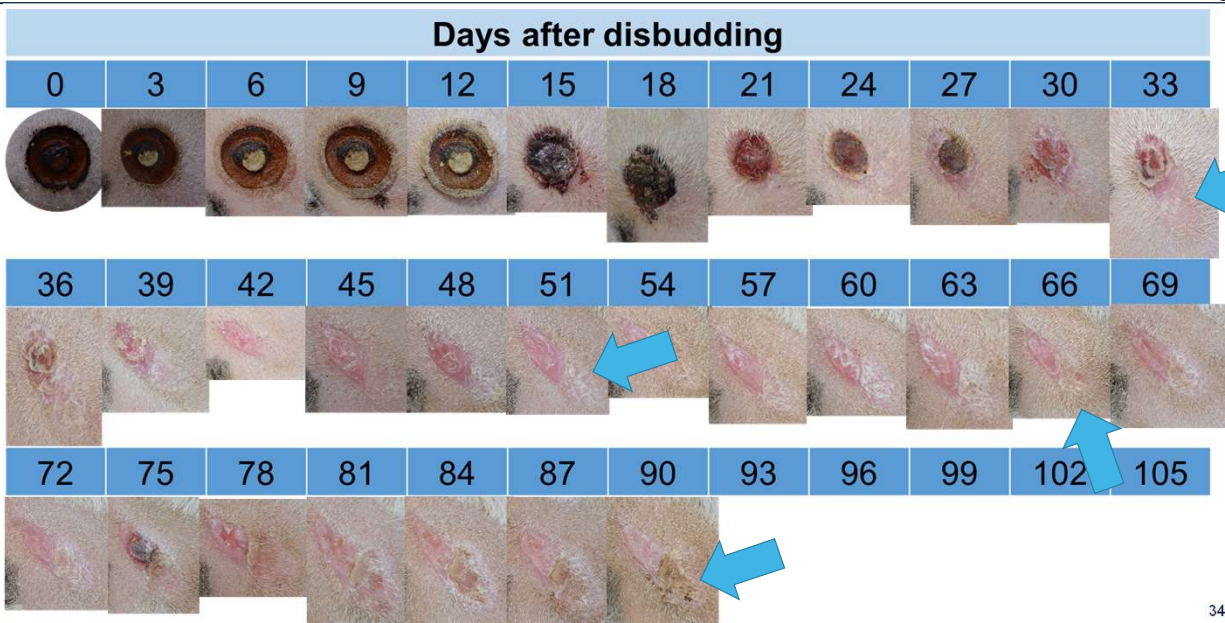
32

Measurements



33

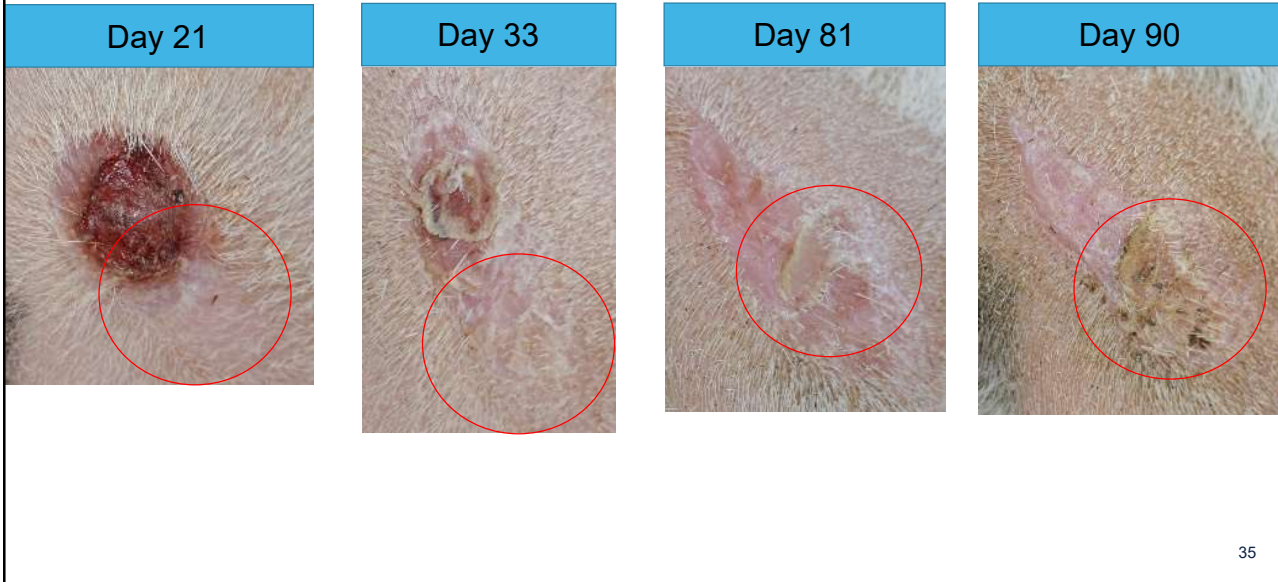
Hot-iron: wound healing progress



34

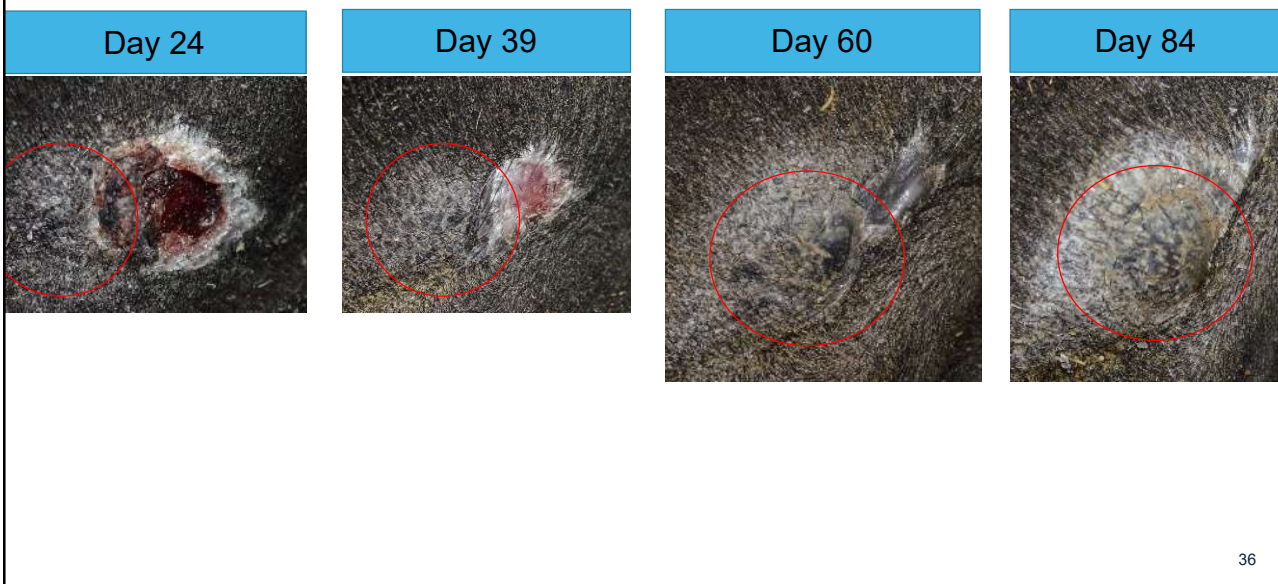
34

Hot-iron: alive horn tissue?



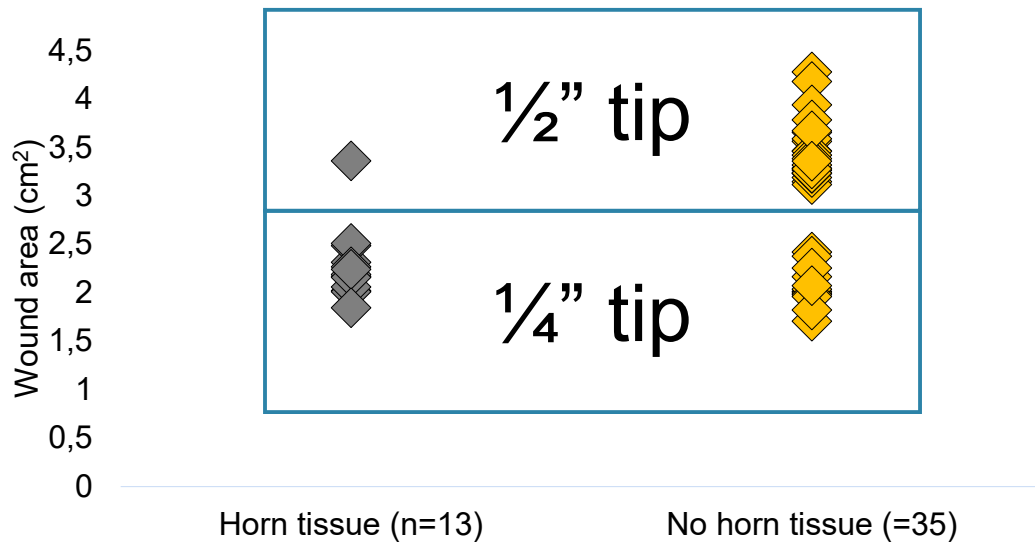
35

Hot-iron: alive horn tissue?



36

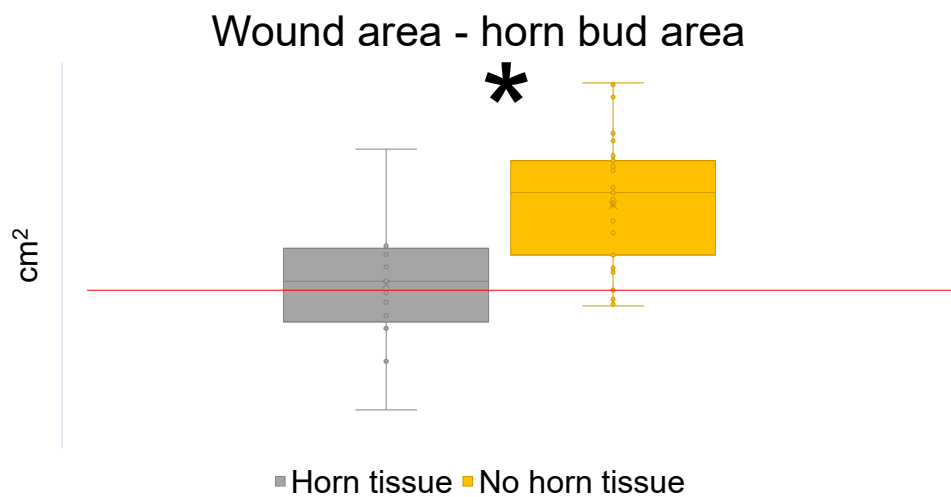
Hot-iron: alive horn tissue?



37

37

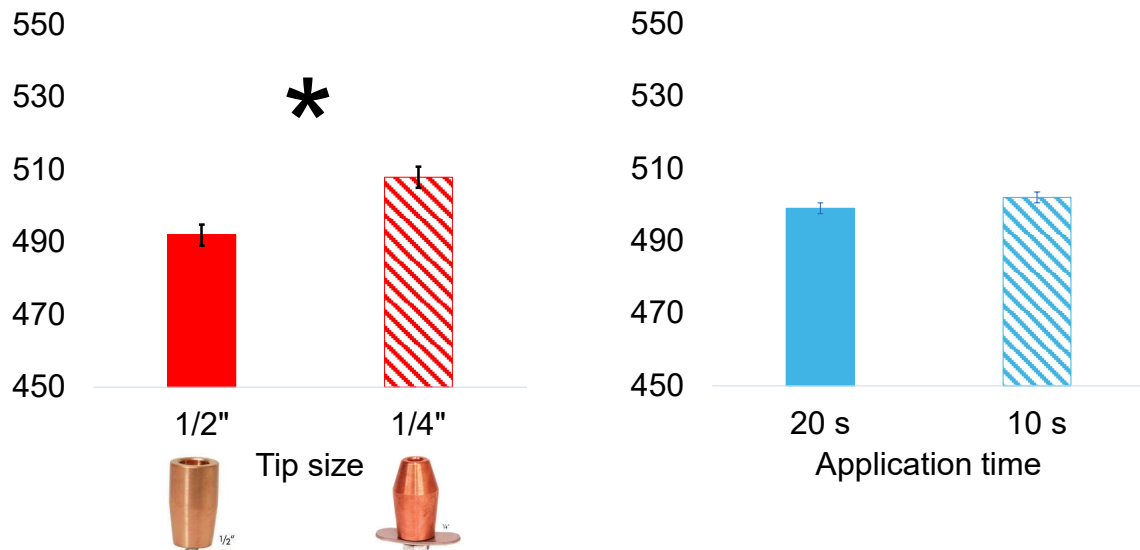
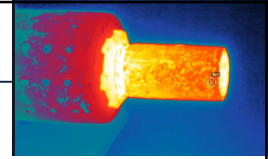
Hot-iron: alive horn tissue?



38

38

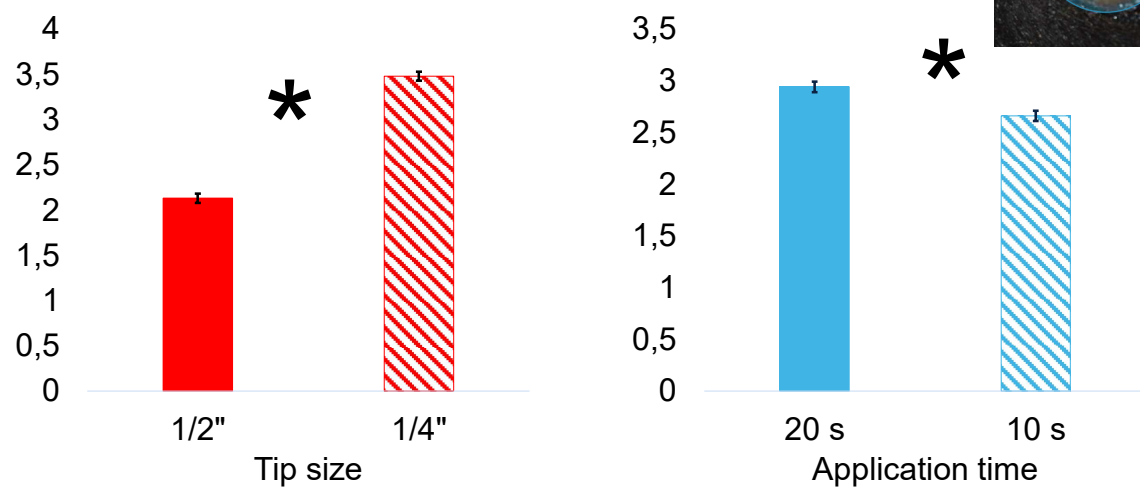
Hot-iron temperature (°C)



39

39

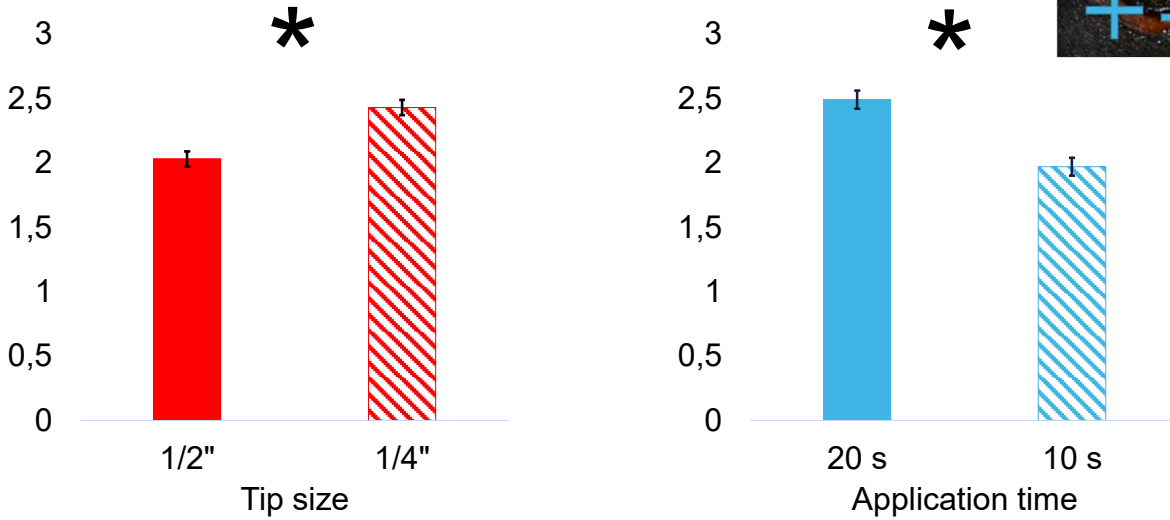
Hot iron: wound (cm²)



40

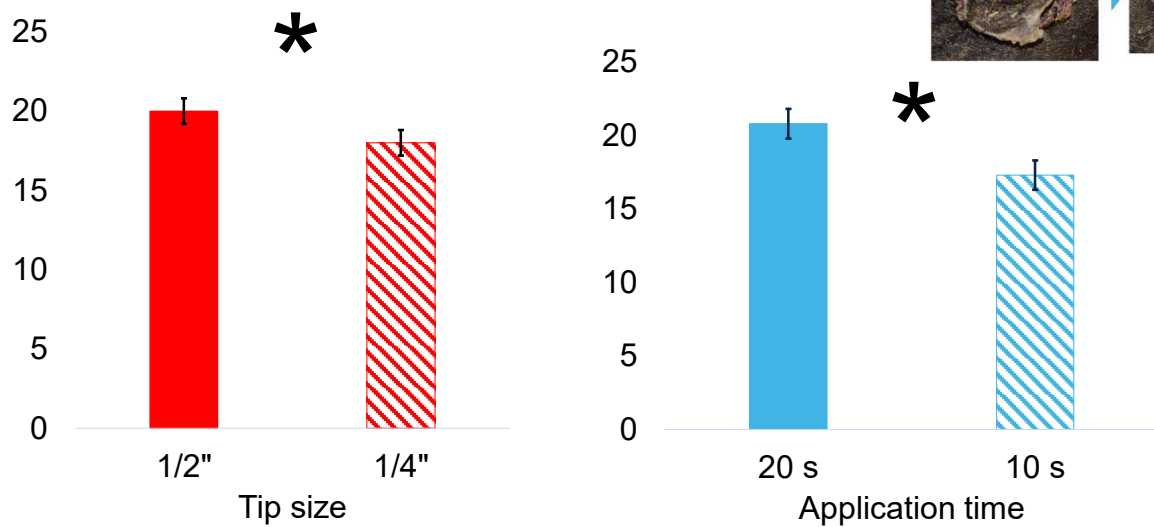
40

Hot iron: depth (mm)



41

Necrotic tissue detachment (d)



42

Take home messages



- Variation in hot-iron disbudding technique influences wound size and healing duration
- Horn tissue development is affected by the method of hot-iron application

43

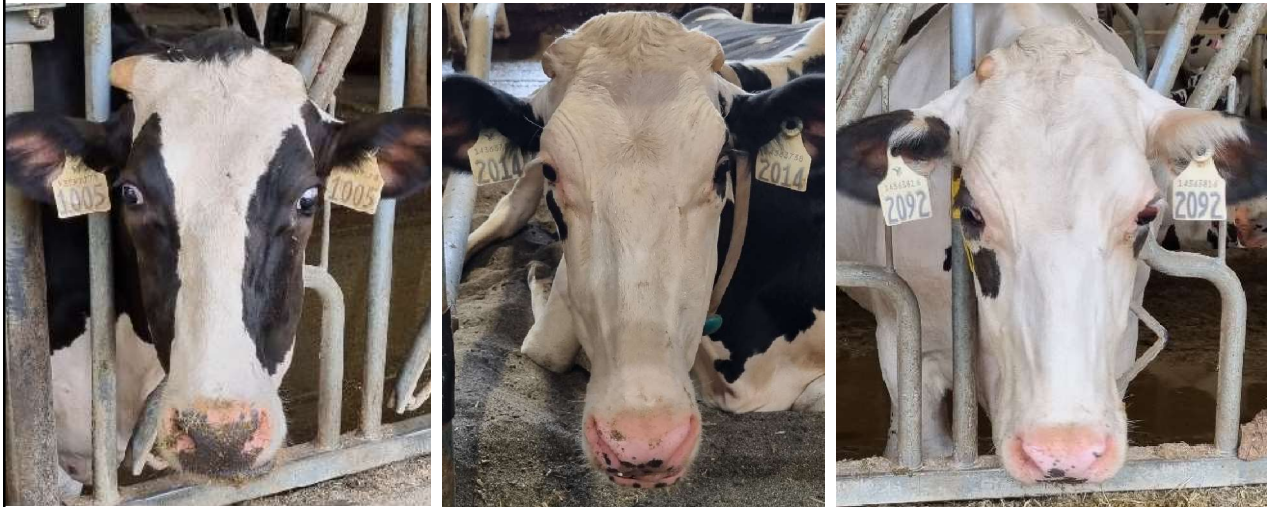
43

Do all scurs indicate failure?



44

Do all scurs indicate failure?



45

45

Thank you!



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