keonresearch

CASE STUDY

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Meat & Livestock
Australia

Cow Tattoo

Explore: The industry has been trying to solve the dark cutting meat problem by treating the meat, using blooming agents and dyes, but it continues to be a huge value detractor for the industry. Our exploration identified the underlying problem of animal stress as the opportunity for real improvement. If the animal stress can be managed, then the dark cutting meat problem will be manageable too.

Invent: Measuring the stress of thousands of head of cattle moving fast through the process is not trivial. We invented a simple, visual interrogation of physiology through responsive tattoo that changes colour and can inform the observer whether the animal is stressed above a certain threshold. The same platform could also be developed into other smart tattoos, such as for pregnancy, illness, and so on.

Build: Initial chemistry done in our lab was conducted to build hormone and temperature responsive dyes, that are sensitive to physiologically relevant thresholds and respond with clearly visible color changes. Furthermore, we developed inexpensive, rapid application microneedle patches to deliver these agents to the right layer in the animal hide.