

Technology on the Ranch: Precision agriculture and livestock production



Sam Wyffels

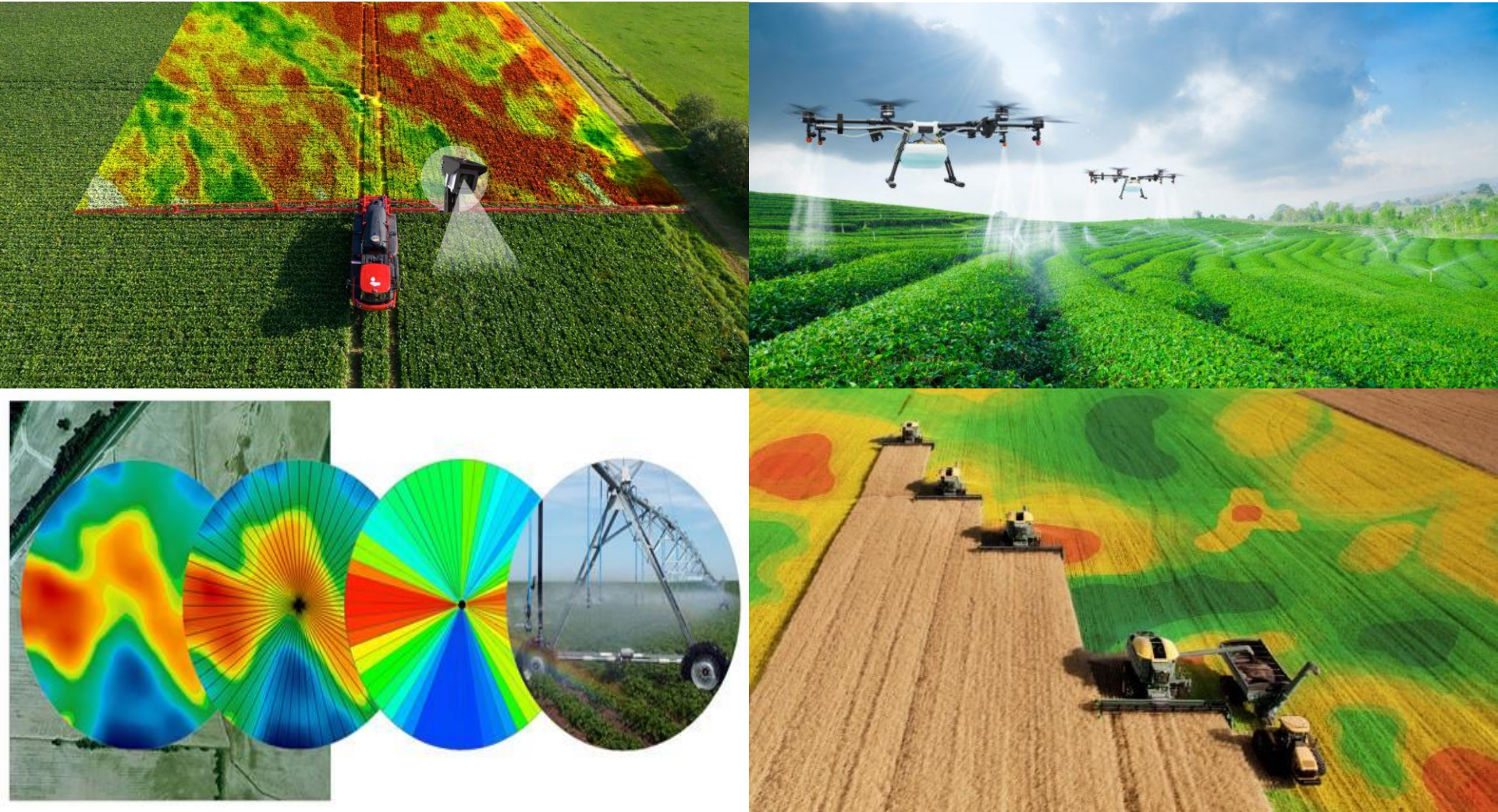
MSU Beef Specialist

What is “Precision Agriculture”?

- A farming management concept based on observing, measuring and responding to inter and intra-field variability in crops.
- The goal of optimizing returns on inputs while preserving resources.
 - wikipedia



What is “Precision Agriculture”?



How does precision agriculture apply to livestock production?

- What does it look like?
- Is it practical?
- Does it improve management and profitability?
- Have we already been doing some of this?



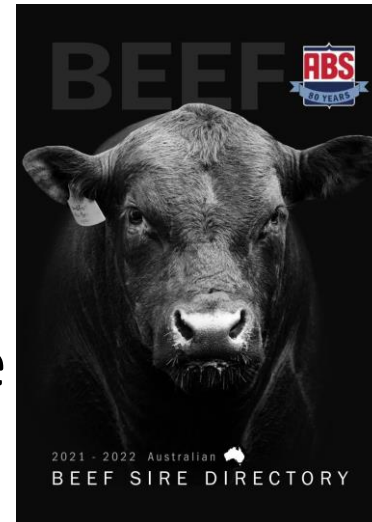
Precision Livestock: Established Technologies

- Record keeping
 - Age, weight, body condition, dam, sire, lbs calf weaned, calf ADG
 - Electronic
 - EID tags and readers
 - Record keeping software
 - Pen and paper



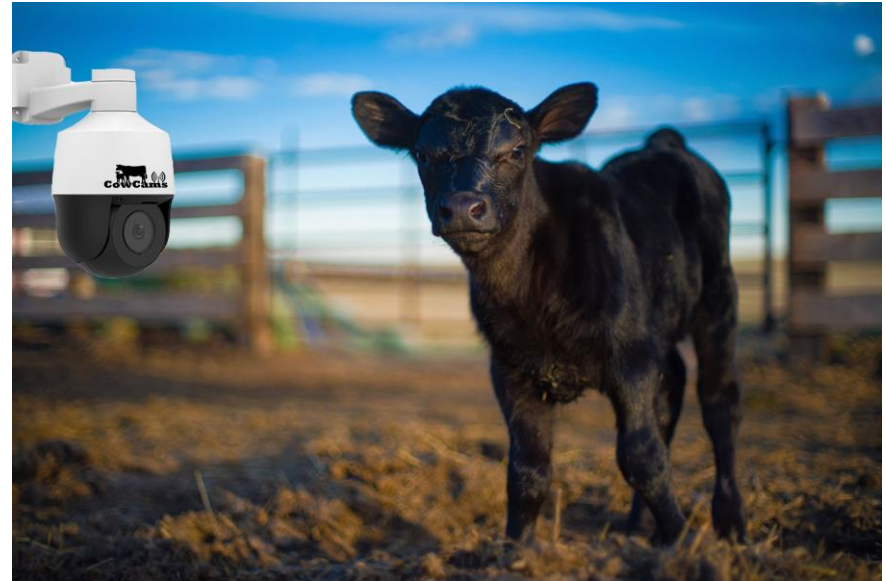
Precision Livestock: Established Technologies

- Artificial Insemination (AI)
 - Shorten the calving window
 - Purchase genetics without purchasing the bull
 - Uniform calf crop
 - Expected Progeny Difference (EPD)
 - Predictability in calf performance



Precision Livestock: Calving

- Camera systems
 - Most common
 - Several specialized companies
 - Video surveillance
 - Watch animals without disturbing them
 - Potential to incorporate AI capabilities to detect labor.



Precision Livestock: Calving

- Calving Technologies
 - Collar
 - Sensory hardware
 - Biomedical parameters
 - Predictive technology
 - Predicting calving 6 – 12 hours in advance



Precision Livestock: Calving

- Moocall
 - Monitors contractions
 - Connects with networks/phones
 - Phone notification/email 1-hour before calving



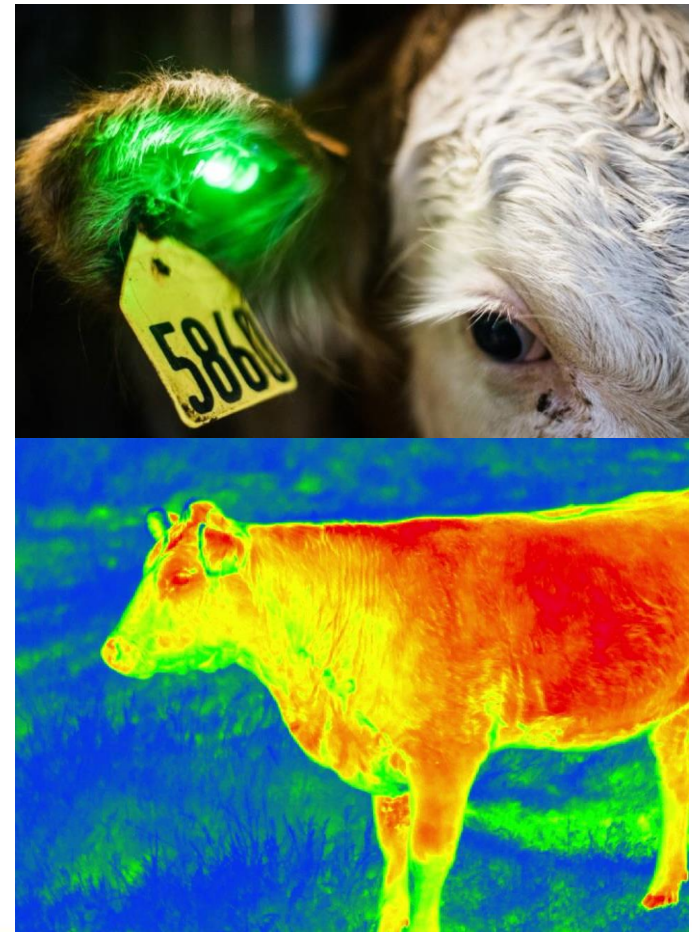
Precision Livestock: Calving

- Activity/GPS Ear tags
 - Primarily used for heat detection, pasture use, activity, location, behavior
 - Not developed for calving
 - Potential uses for calving
 - Allflex and Moovement working on calving detection



Precision Livestock: New Technology

- Thermal sensor/imagery
 - Sickness
 - Health
 - Stress
- Calving???



Final Thoughts

- Precision livestock technology offers the opportunity to improve:
 - Cattle production and management
 - Grazing and distribution
 - Nutritional management
 - Overall sustainability
- Every ranch is unique
- Precision livestock is still being developed and researched
- Stay tuned.....

Questions



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