


Smart Agriculture, IOT and Big Data


2016 Technology Futures 2016

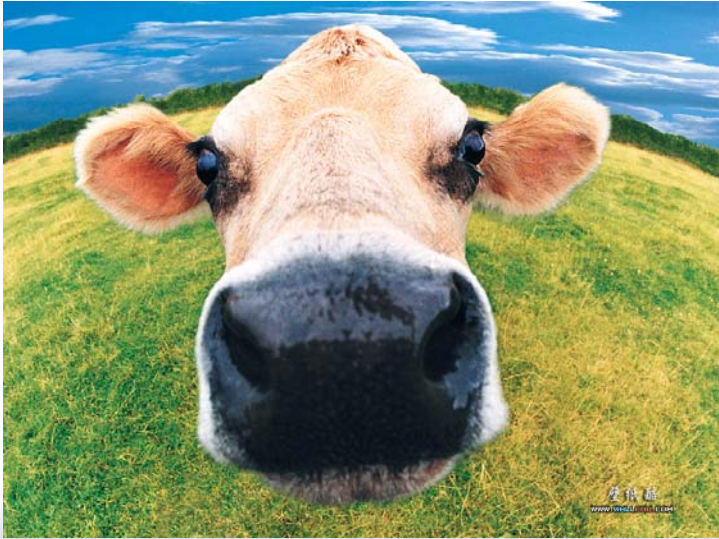
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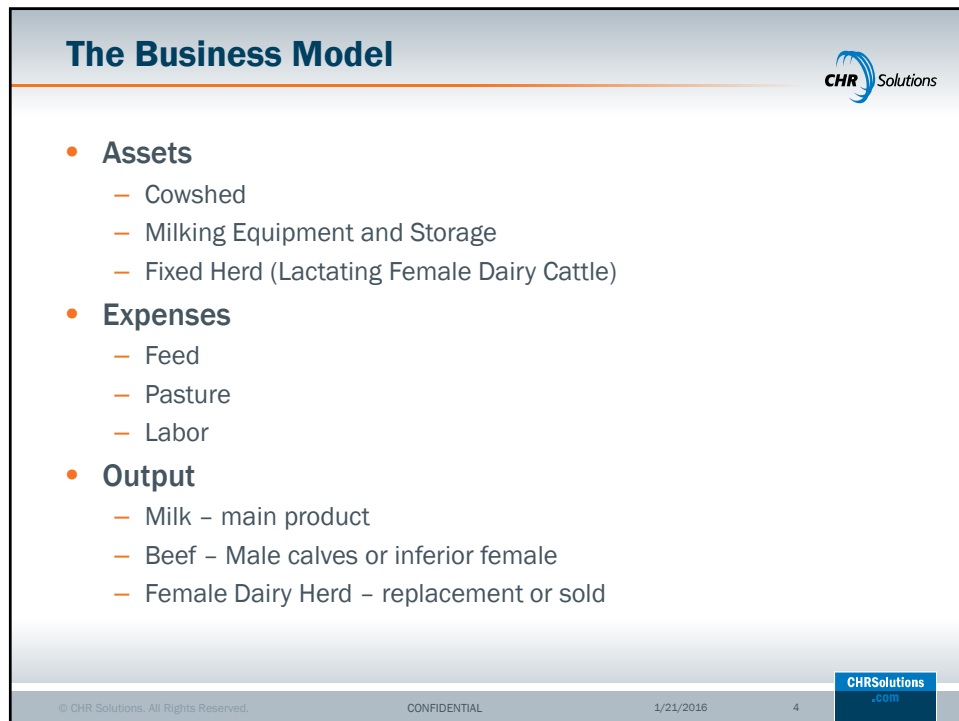
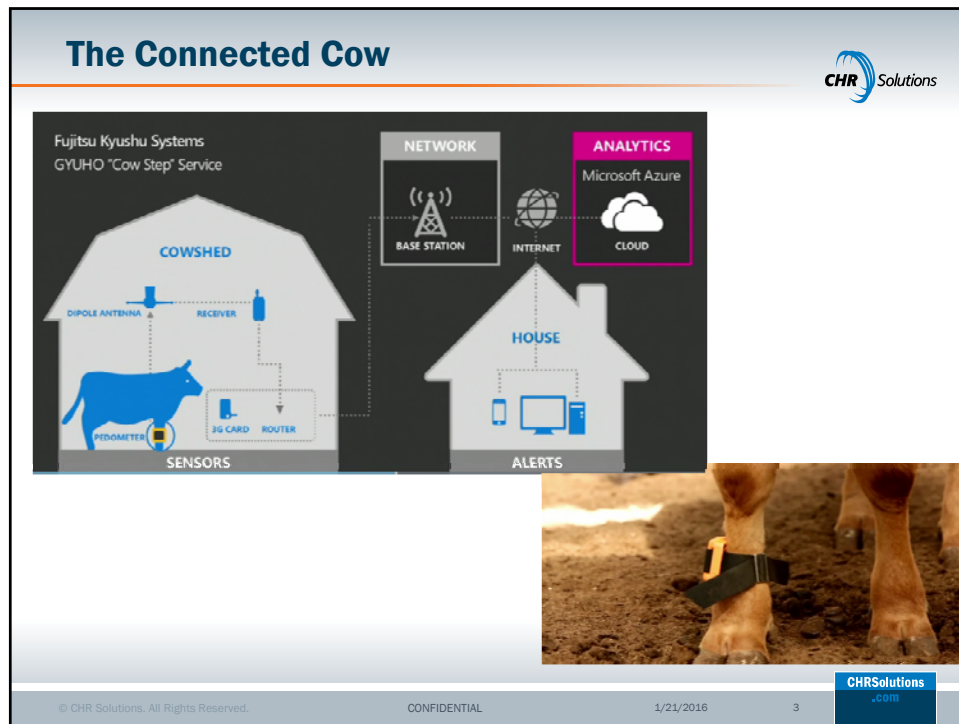
The Connected Cow





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Objective and Identify



- Extend the milking window of a milk producing cow.
- Identify when a dry cow comes into heat
 - Cows that go into heat they walk around furiously.



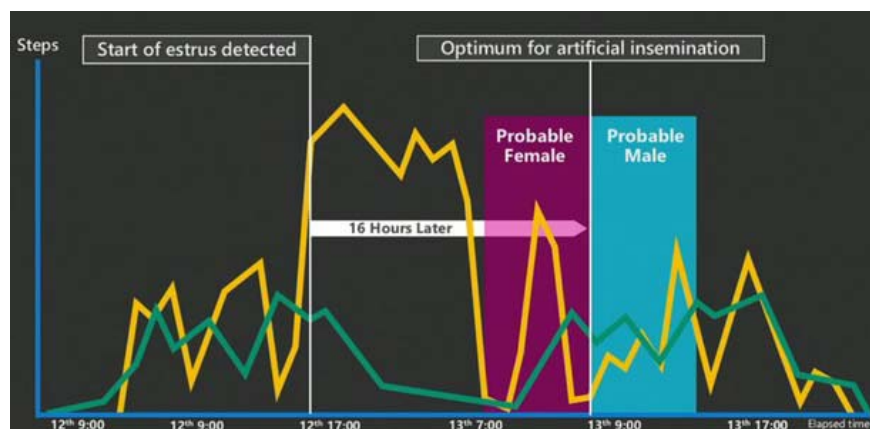
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Result



- Use artificial insemination at the appropriate time increases the of a pregnant cow.
- A 60% increased rate of success rate of pregnancy.
- Reduced labor for identifying the cows in heat and the appropriate time to AI. Average estrous cycle 17-21 days.
- Some data suggest that the timing of the AI can increase the gender of the calf.
- Eight (8) types of diseases can be identified using the monitoring of animal activity.
- Increased milk production, increased probable females born and a healthier herd.

What does the Connected Cow have to do with it?



Every company is a data company...



Dairy Operations are not the only ones



- Row crop farming
 - GPS Fields
 - Smart Tractors, farm equipment and harvest equipment
 - Drones for field inspection



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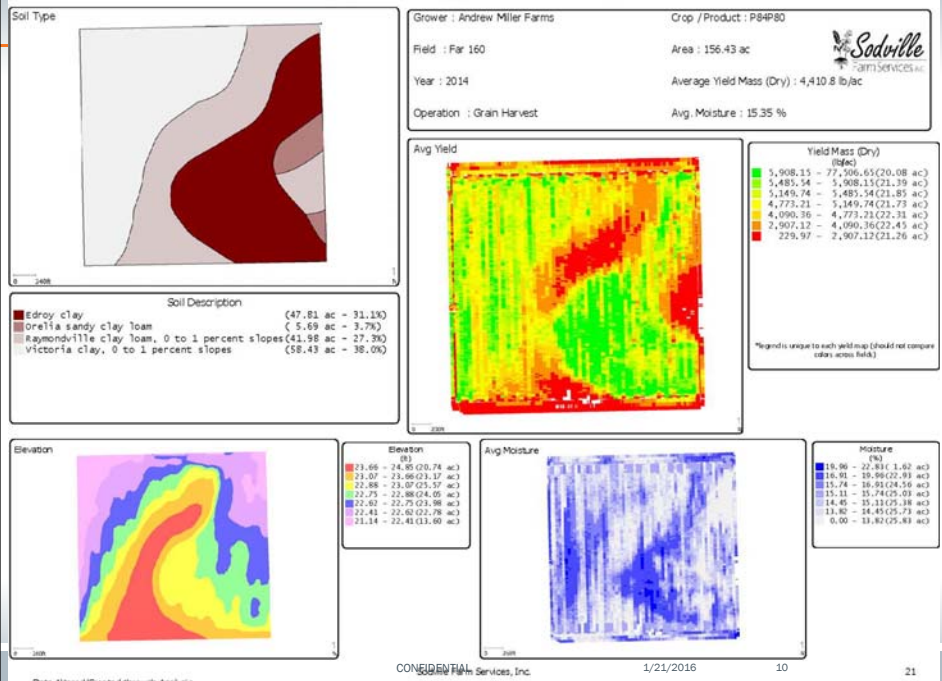
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Grain Harvest 2014 - Far 160



Dairy Operations are not the only ones



- **Row crop farming**
 - GPS Fields
 - Smart Tractors, farm equipment and harvest equipment
 - Drones for field inspection
- **Decreased fertilizer and seed cost by > \$8.00 per acre**
- **For 6,000 acres of grain = \$48,000 cost savings per year.**
- **Smart Petroleum - \$30 oil has stopped investment**
 - A year ago there was interest in 4G LTE data networks to replace SCATA monitoring along with motion detectors and cameras.
- **Wind Farm diagnostics**

Yield by Soil



Analysis Description

Allows the comparison of an attribute(s) or property(s) against other attributes/properties

Andrew Miller Farms | Far 160 | Far 160 | 2014 | Grain Harvest | (All) | (All) | (All) | (All)

Analysis Results- Moisture, Yield Mass (Wet), Yield Mass (Dry), Elevation
Classified By- Soil Survey : Soil Description

Soil Description	Harvested Area ac	Avg. Moisture %	Avg. Elevation ft	Total Yield Mass (Wet) lb	Total Yield Mass (Dry) lb	Avg. Yield Mass (Wet) lb/ac	Avg. Yield Mass (Dry) lb/ac
Edroy clay	47.94	15.82	22.87	260,996	250,223	5,444.1	5,219.4
Victoria clay, 0 to 1 percent slopes	56.18	15.35	22.71	289,186	279,083	5,147.0	4,967.2
Orelia sandy clay loam	5.530	14.79	22.74	19,656	19,132	3,554.7	3,459.8
Raymondville clay loam, 0 to 1 percent slopes	41.41	14.87	23.49	145,682	141,536	3,517.9	3,417.8
(All)	151.07	15.35	22.98	715,520	689,974	4,736.4	4,567.3

How Do I as a Service Provider Participate?



- Be forward thinking
- Be the technology expert
- Encourage Innovation
- Create the Vision
- Be Prepared for Wireless and Wireline solutions



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Questions



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