

# ON-FARM NIR TECHNOLOGY



2015 Vita Plus Custom Harvester Mtg.

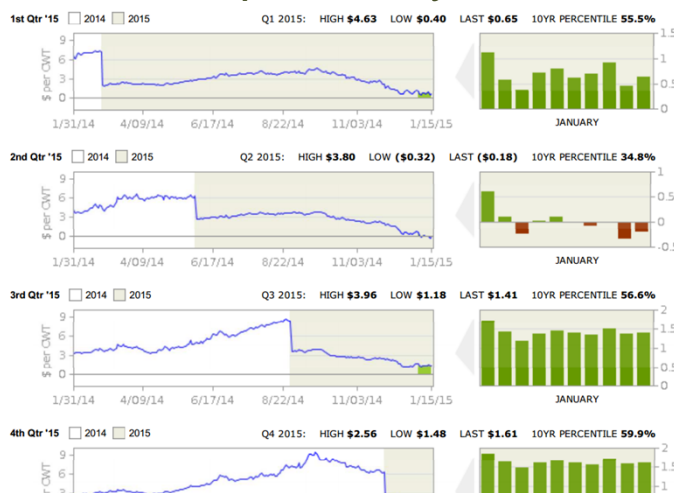
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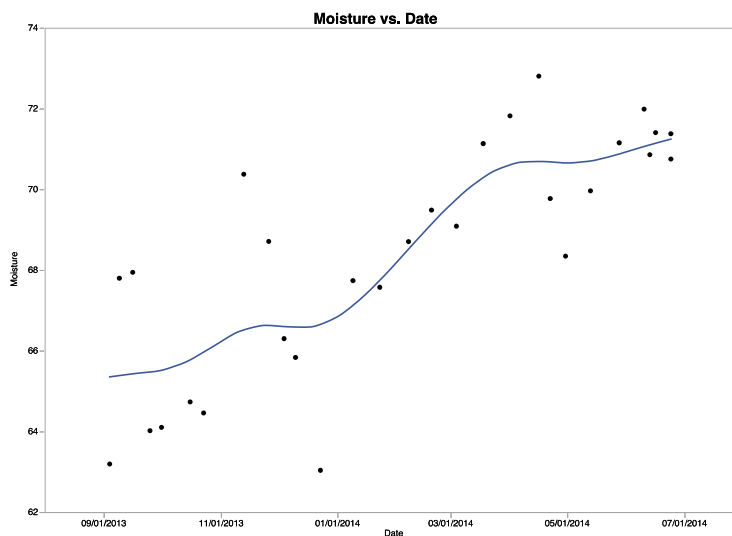
## Your Aim? Improve your clients performance & profitability



Adapted from CIH, 2015. Accessed online:  
[http://www.cihedging.com/assets/cih/marginwatch/Dairy\\_Margin\\_Watch\\_01a\\_2015.pdf](http://www.cihedging.com/assets/cih/marginwatch/Dairy_Margin_Watch_01a_2015.pdf)



## Feed Variation – Dry Matter (Moisture)



Can your dairy meet the gold standard for nutrient variability? Goeser, 2014 Progressive Dairyman



## NIR Application & Evolution



## How it works



## Situations where NIR excels on-farm



# Situations where NIR is not the best option



## Economics

\$7,300

The screenshot shows the website for 'vas' with a navigation menu (Home, Products, News, Support, About us, Contact). The main heading is 'Advanced technology for practical solutions' followed by 'ChemWatch'. Below this, there are sections for 'Additional information', 'Contact information', 'Screenshots & Images', and 'Related Products'. The 'About ChemWatch' section contains a paragraph of text and a list of features.

The screenshot shows the website for 'DIGI STAR' with a navigation menu (Home, Solutions, Products, Support, About DigI Star, Online Store, Shipping Cost). The main heading is 'SOLUTIONS' and the sub-heading is 'Moisture Tracker'. Below this, there is a section titled 'Complete system with carrying case, charger, and software'. The page features a large image of the Moisture Tracker device and a paragraph of text describing the product. At the bottom, there is a section titled 'The Value of Moisture Tracker Technology'.



## Precision Feed Management Matters

### At Harvest

- Moisture difficult to determine quickly and repeatedly
- 4-unit dry matter (moisture) error can cost 45 days of feed
  - \$100,000 in commodity purchased feed costs for a 1000 cow dairy (Goeser, [Hoard's Dairyman](#), Sept. 2014)



## What about feed out / feed cost?

Ingredient	Cost / ton As-Fed	DM	DMI Expected	DMI Actual	As-Fed Intake	Cost / Cow
<b>Prescribed Diet</b>						
Corn Silage	\$ 50.00	35.0%	22.0	22.0	62.9	\$ 1.57
Alfalfa					8.2	\$ 1.24
Corn					9.2	\$ 0.76
Protein and Mine					7.8	\$ 4.44
					8.1	\$ 8.01
<b>Actual Diet</b>						
Corn Silage	\$ 50.00	32.3%	22.0	21.0	64.9	\$ 1.62
Alfalfa	\$ 300.00	85.0%	7.0	7.2	8.5	\$ 1.28
Corn	\$ 165.00	87.0%	8.0	8.3	9.5	\$ 0.78
Protein and Mineral Mix	\$ 500.00	90.0%	16.0	16.5	18.4	\$ 4.59
			53.0	53.0	101.3	\$ 8.27

**\$ 0.26 per Cow**

Looking for additional profit per cow? Dial in on-farm moisture. Goeser and Meyer, 2014 Progressive Dairyman



## Results only as good as the Sample!



## An evolving story...NIR vs. Oven

- Wet and/or poorly fermented samples
  - Substantial volatile fatty (fermentation) acid contents
  - These provide energy to cows (same as rumen fermentation acids)
- **Oven measures (Koster) dry off these compounds in addition to moisture** (Nagengast et al., Rock River Laboratory, unpublished data)
- Expect differences, with NIR measuring greater DM content
  - Only sees moisture
- NIR is accurate



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## References

- Boyd, J. and D.R. Mertens, 2013. Abrupt changes in forage dry matter of one to three days affect intake and milk yield in lactating dairy cows. *J Dairy Sci.* Vol 96, E-suppl. 1, pg. 398.
- Goeser, J.P. and D. Meyer. 2014. *Popular press*: Looking for additional profit per cow? Dial in on-farm moisture. *Progressive Dairyman*, Feb. Issue 3, pg.s 83 and 85.
- Goeser, J.P. 2014. *Popular press*: Forage supplies vary with moisture errors. *Hoard's Dairyman*, Sept 25 issue, pg. 596.

