

## Lean on the Hoof

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Those of us who are in the business of teaching lean are engaged in the endless pursuit of the perfect example, the best analogy, the ideal teaching tool. John Stossel and Dr. Jude Capper, an assistant professor of dairy sciences at Washington State University may have finally provided it. In a piece on what he terms "another food myth" Stossel and the good professor debunk the idea that grass fed 'naturally raised' cows are better for the environment than grain fed ones bulked up in feed lots.

What does the feeding of cattle have to do with lean, you might ask? Cycle time. According to the doctor, a grain fed cow goes from birth to burgers in 15 months, while a corn fed one takes an 8 month slower path to McDonald's. That 50% longer cycle time causes the cow to incur "extra eight extra months of feed, of water, land use, obviously, and also an awful lot of waste. If we have a grass-fed animal, compared to a corn-fed animal, that's like adding almost one car to the road for every single animal. That's a huge increase in carbon footprints."

The environmental cost per month per cow may well be lower for the grass fed cattle, but the gain is more than eaten up (pathetic pun untended) by the longer life cycle. "By stuffing the feed-lot animals with corn, farmers get them to grow faster. Therefore they can slaughter them sooner, which is better for the earth than letting them live longer and do all the environmentally damaging things natural cows do while they are alive," Stossel says.

There is a direct parallel to the core lean objective of manufacturing cycle time compression. Stossel's statement can be rephrased: 'By reducing lot sizes and moving toward one piece flow, manufacturers get products finished sooner. Therefore they can sell them sooner, which is better for the business than sitting in work in process inventory longer and do all the indirect cost damaging things unfinished products do while they are in process.'

Whether it is with herefords or widgets, cycle time drives the consumption of resources. Stossel is worried about the environmental impact of resource consumption; manufacturers are worried about the cost of resource consumption; but the logic is the same.

Actually the excess cycle time penalty is worse than Stossel and the bovine thinkologist make it out to be.

Farmer Brown is a grain feeder and he needs to sell 100 cows a month to make ends meet. With a fifteen month life cycle, that means he has to have 1,500 cows in the feed lot - 100 one month old cows, 100 two month old cows, etcetera, so that every month he has 100 of 'em turning 15 months old to sell. Farmer Jones raises cows au naturel, so his cows take 23 months. To sell the same 100 per month, he has to have 2,300 cows in process to assure 100 are celebrating their fateful 23rd monthly birthday each month. With so many more cows doing so much more eating and requiring so much more cowboying and so forth Farmer Jones' monthly cost of coing business is a lot higher than Farmer Brown's. To make the same profit as Brown, Jones has to sell more than 100 cows a month ... say 110 per month to make as much money. So his inventory is not 100 cows X 23 months, it is 110 X 23, which, of course, raises his costs even more, which requires even more cows, which raises his costs, which ... well, you get the picture.

So what have Stossel, Professor Capper, and all of these cattle taught us about lean?

1. Any schmuck with a #2 pencil can figure out that it costs more to feed a cow on grain for a month than it does to feed it grass, and the environmental impact of a month in a feedlot is greater than the impact of a month in a field. Likewise, anyone with an accounting degree can figure out that an American factory worker costs more per hour than a Chinese worker. There is a lot more too it than that, however, and the environmenatl impact of holsteins and the 400-800% overhead rates in factories are driven by something a bit less obvious - time.

2. Cycle time and inventory are two ways of saying the same thing - it is a direct, logical, mathematical relationship. If it takes you 23 months to raise a cow to full weight, you need exactly 53.333% more cows in inventory than it does if you can take a cow to full weight in 15 months. Same is true in manufacturing: if your factory cycle time is 23 days, you will have exactly 53.333% more inventory than your competitor who has a 15 day cycle time. The costs involved in having so much more inventory - handling, floor space, quality controls, etc... - mean that if you and the competitor have exactly the same direct labor efficiency, same direct labor hourly rates, same purchased prices, then he makes a lot more money than you do.

This is why Toyota manufacturing wizard Taichi Ohno said, "*All we are doing is looking at the time line, from the moment the customer gives us an order to the point when we collect the cash. And we are reducing that time line by eliminating the non-value added wastes.*" It is why Motorola preached that the "shortest cycle time producer is always the best cost producer" back when Six Sigma was in its origins. It is why Shingo described the Toyota Production System as

*"the simultaneous compression of time and space"*. Who'da guessed the cattle folks knew it all along?