



Alberta Agriculture and Rural Development

Case Study:

Lean in Primary Production Operations

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With the assistance of Stillridge Ranch, Pincher Creek.

***By Jay Warren
Sustainability Coach
High Performance Solutions Inc.***

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Does Lean apply to Primary Production Operations?

My immediate response, is “Of course, where’s there’s a process, there’s an opportunity for continuous improvement”.

But to those in on the farm, it may not initially seem so clear. It has been traditionally seen that Lean “Manufacturing” has been an automotive driven, engineering, high volume production “program” for many years dating back to Henry Ford, and certainly linked strongly to Japanese car makers like Toyota.

I choose to refer to “Lean” as “Lean Thinking” as it is not a flavor of the week program, or a manufacturing program, or even a management program – it is a way of thinking that separates those who accept things “the way they have always been” to those of us who challenge the existing, always asking “Why?”

Image asking a 2nd generation rancher whose family has raised cattle for over 30 years, “Why don’t you have a crop rotation plan?”

Many people may not even know what Lean is. Lean thinking means creating a culture of continuous improvement and eliminating non-value added activities (waste) while adding value to the customer (both internal and external).

The nine main wastes identified throughout this case study:

1. Overproduction - producing more/sooner than the internal or external customer needs
2. Waiting – long periods of inactivity for people, information, machinery, or materials
3. Transportation – excessive movement of people, information, or materials
4. Inappropriate processing – using the wrong set of tools , procedures or systems
5. Unnecessary inventory – excessive storage and delay of information or product
6. Unnecessary motion – any motion that does not add value to the product or process
7. Defects – scrap, rework, repair
8. Untapped human potential – having the right people doing the right processes
9. Interruptions

There are five lean principles that any practitioner will share with you:

1. Define value from the perspective of the customer
2. Map the value stream
3. Make the process flow
4. Pull from the customer
5. Strive for perfection.

Now, I could confidently walk through each of the items listed above and give numerous examples of why each applies to primary production operations, however, I believe it would be more meaningful to share an experience with an actual operation.

The Ranch Background

The parents are first generation ranchers run 200 cows, and as many yearlings, on a Certified Organic ranch in Alberta. The cattle are British based and well adapted to their environment. Cows calve in the spring and are raised with the cows on pasture until weaning in the fall. Calves are weaned and backgrounded on pasture/hay until they reach 850 lbs. Feeder cattle are sold and are shipped to a feed lot, and are finished for 3-4 months on a ration of organic barley and organic hay. Cattle are slaughtered at an average weight of 1200 lbs and grade Canada A or higher.

Droughts and BSE were real life challenges that decimated many ranchers; however, this ranch had survived and now sees a growing market.

The family is known for thriving in their business and growing from it, becoming pillars in their community and their industry. The family has a daughter and son-in-law who have shown interest in taking over the ranch operations and also have some of their own cows as well. Other siblings are pursuing non-farming careers.

The passion and respect for the eco-system and organics was a significant contributor to the family's decision to live the ranch life.

The Family's initial thoughts

The family is progressive, and open to change and opportunity. When approached with the opportunity to see if Lean applies on their ranch, it was thought, "Why not?" This 'manufacturing' based program of continuous improvement could maybe make the long farming days, a little bit shorter (or more things done in the long day).

When asked, why did you agree to participate? The family said that "it appeared that lean thinking was consistent with the thinking of the individuals and the overall ranch involved."

There was a recognized need for "better analytical tools". Ranching technology had come a long way in the past 30 years, and the ranch was seen as a business as well. Plus, it was an opportunity to have outside eyes visit with a fresh look, and most ranchers will tell you that anything that helps cash flow is a welcome commodity!

The family sought methods of improving communication and reducing time taking on tasks.



That First Snowy Day in January

I have worked with many companies from metal fabrication shops, high production printers, electrical component manufactures, bakeries, meat processors, and a gamut of manufacturers. Lean thinking has embarked in non-traditional industries such as hospitals, banks, lawyer's offices, and even some government agencies.

I jumped at the opportunity to be involved in introducing lean thinking to primary production operations. I knew in an instant that there would be application of the tools, and more importantly the principles – even though having been on my Aunt's ranch, I had never repaired a fence, split the herd, or pulled calves.

I had the opportunity to spend the day with the family (pleasantly interrupted with a delicious lunch – beef stew, of course), and gave them a basic understanding of what lean thinking was in both principles and identification of waste.

It was assuring to see their heads nodding in agreement as they brought examples of where lean thinking applies on the ranch. Examples of waste including looking for tools in the barn, going out to fix the fence and not having all the right tools, duplicating information written in the field book in the truck and in the computer.

Discussions lead us to understand that Lean thinking is about process improvement. And everything is a process. With the inherent succession planning, transfer of information was key and standardization of procedures would benefit that.

Strategy

Lean thinking is about changing culture. We recognized that we were not going to change culture in 3 or 4 meetings, but we felt there were some benefits in working on learning some new tools for continuous improvement.

Areas of opportunity were identified that significantly reduce waste and reduce costs:

1. Defining roles and responsibilities for efficiency.
2. Looking at ways to produce enough feed for the ranch without having to purchase.
3. Strategic planning to pull together the family vision for the ranch and ensure alignment.
4. Cost / Benefit analysis on equipment as some is old and requires continual repairs.
5. Mapping out the “life of a cow” to identify areas to focus on for continuous improvement.
6. File and documentation control in the office
7. Utilizing software available to measure and evaluate cost of production

The family also indicated that they had “ranch” meetings that were focused on day to day operations, and “family” meetings that were more strategic. It was shared that the strategic meetings were much more challenging to ensure all parties were heard. I acknowledged that is evident in most businesses, family or not.

It was quickly apparent that these “lean thinking” tools and principles were simply good business practices, and the ranch, as a business, was certainly applicable.

I was excited about the uptake of the family and their willingness to participate. I stated that we would map out the “life of a cow” on the ranch. I remember hearing – well we can’t change nature and we can’t affect the weather. True. But there are many things in and around that we can.

What was the approach to implementing lean on the ranch?

Our first get together was to map out the “life of a cow”. Now, I have to admit, I probably got more out of this, initially, to help me understand the process – however, the discussions amongst the family was valuable to them as well. Numerous times I heard, “Well, I didn’t know you did it that way, I do it differently” – lean thinking says standardize.

The main purpose of mapping this was to understand roles and responsibilities. Ranching days are long, and we need to ensure we have the right people doing the right jobs (lean waste #8 – untapped human potential). When and where do we need our hired hands so they aren’t standing around (lean waste #2 – waiting)?

We were able to review resource allocation and scheduling as a result of this exercise.

Our next session was to review 5-S workplace organization. 5-S is a systematic approach to workplace organization – in other words, a place for everything and everything in its place. The 5-S stands for Sort, Set in order, Shine, Standardize, and Sustain. This applies to tools in the barn going back to where they belong, and to files in the office being easy to find and organized. From this session we identified that we needed to standardize the information captured in the field book in the truck to what was needed in the computer software to track animal health.

Our final session we were looking at tools for continuous improvement and root cause analysis. As with any problem, humans tend to jump to solutions. Lean thinking says; let’s get to root cause first. Why did it happen, and what can we do to prevent it from happening again?

My hope was that they would see value in even just one concept that we covered in a short period of time and continue to use – that of asking “how do we do it now, and how can it be done better?” I knew there was more work needed to shift the culture to lean thinking. I had recommended at least another 6 working sessions to address more process mapping, strategic planning and vision, lean and green, and working with suppliers.

The family stated that “these were good sessions, but we need more”.

Fast forward a year: back on the ranch

I was fortunate enough to be able to have two additional sessions with the ranch. I was pleasantly surprised to hear that they had modified the field book that was in line with the computer data entry and to hear that they had saved considerable amounts of time and frustration. The family indicated that “this had saved us considerable amounts of time”.

When asked, what had they taken away from the previous sessions; “seeing the waste” was a common answer. It’s not always easy to see the waste; it’s often harder to see it than to eliminate it. They had also indicated that “what had been learned/done, wasn’t enough” and more was desired.

I had asked them based on what we had done in the past, what areas they would like to work on. It was agreed that communication, visual management, strategic planning, and metrics would be our focus.

I knew that this would be a lot and intense for two sessions. Our first session started out asking about key strategic issues on the ranch. From a list of many, we were able to agree upon 5 that we would put a plan through. Lean thinking says that change without a plan will only cause false starts. This was evidenced through comments from the family which included: “We’ve been planning to plan for a couple of years”.

I felt that walking them through the A3 plan would be a good fit (called A3 because of the size of paper, it is a structured approach to get background information, measurable, and create a plan for making change happen). The A3 is designed to tell a story and be visible and accountable for making the improvements. I strongly believe that visibility creates accountability. We walked through a crop rotation plan, set measures, and set dates and names for our action items.

I was pleased that the family embraced the simplicity and usefulness of the A3 as an effective communication tool for strategic projects.

Our next session we completed the additional A3 forms for them and touched deeper into communication and meetings. It was apparent that, as with any business, there are communication challenges, and even more so when family is involved.

Lean thinking says that information that is not flowing is waste. And visual boards are a good tool to assist with transfer of information, particularly on a day to day operational basis.

I facilitated a discussion about meetings, and communication styles. We actually agreed upon some meeting guidelines which included agreeing upon a no-blame environment and respectful communication.

Our discussion on metrics/measures on the ranch didn't get as detailed as we had hoped as we found ourselves running out of time. For ranchers, sitting talking strategy can be very draining more so than much of the hard labour that is experienced day in and day out. It is my hope that they continue the metrics discussions that we started as these measures of success of the business (ranch) should guide us in everything we do.

What went well?

First and foremost, it was the family stating that lean thinking applies in primary production operations. Allow me to repeat that: Lean applies in Primary Production Operations.

Lean thinking is about continuous improvement. The creation of A3 strategic project plans was a breakthrough communication and accountability tool for the family. I believe the introduction and use of the A3 will be the breakthrough gain for this family. The challenge will be the discipline to use them.

The improvement to the field log book.

The use of the whiteboard as a communication tool.

The commitment to have the strategic meetings and review the A3 plans.

It went well because the family was open to accepting that there may be a better way to operate the ranch. This was a project involving 4 individuals, some cows, and a whole lot of land, and we were able to make some significant improvements in a short period of time. As many ranchers are asset rich and cash flow/time challenged, lean thinking looks at what we do and how we can reduce time and cost to perform. Cost not just in labour cost, but in supplies.

I challenged the family numerous times, with my favorite question, "Why?"

Comments from the family included:

"The communication plan is excellent"

"The use of A3 strategic planning will allow us to get things done"

"The participation was worthwhile, and we would like to continue"

"We would like to share our lessons learned with other family members"

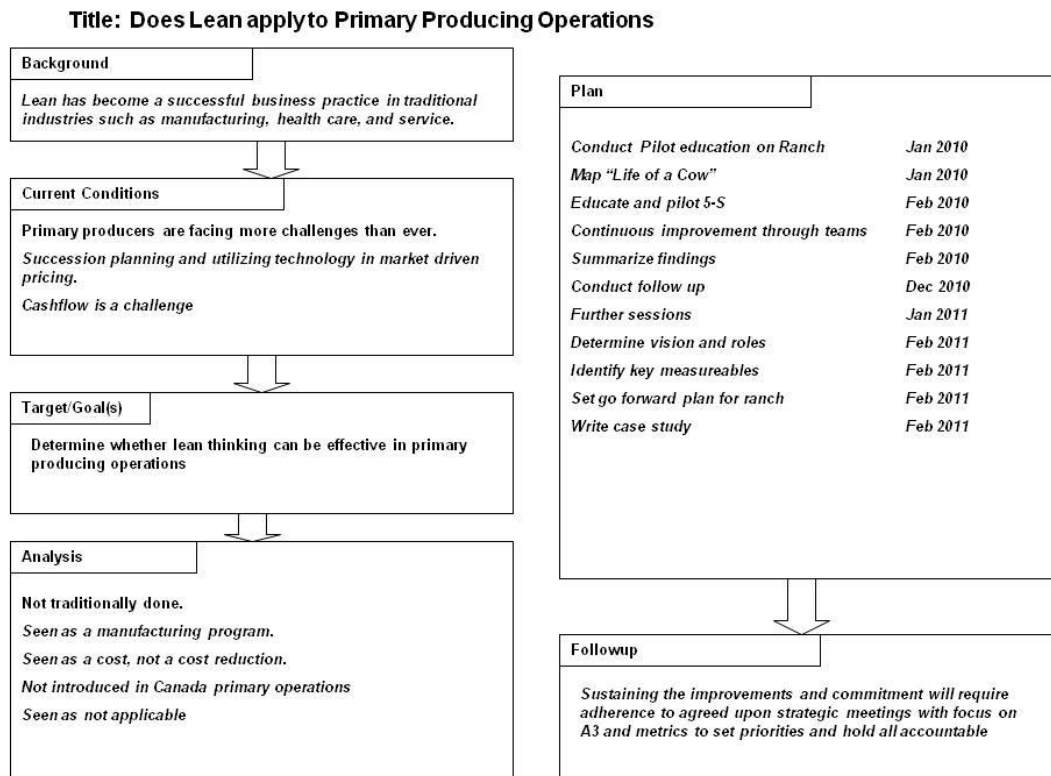
"Lean thinking works."

What about A3?

It was apparent that the family embraced A3 thinking. In Lean we seek to identify and remove obstacles on the path to perfection. This philosophy is rooted in the 5th Lean principle, to seek perfection in every activity.

For this reason, possessing the skills of solving problems and the ability to continuously improve are crucial to survival. “The most basic definition of an A3 is a Plan-Do-Check-Act storyboard or report on one sheet of paper. But the broader notion of the A3 as a process – embodying the way of thinking represented in the format – captures the heart of lean management. In this context, an A3 document structures effective and efficient dialogue that fosters understanding followed by the opportunity for deep agreement. It’s a tool that engenders communication and dialogue in a manner that leads to good decisions, where the proposed countermeasures have a better chance of being effective because they are based on facts and data gathered at the place where the work is performed, from the people who perform it” – John Shook.

An A3 for this case study may look like the following:



What were the challenges?

Lean doesn't happen in 3-4 sessions, it needs to be visited regularly and we talk about it taking 3-7 years to effectively change culture. In most primary production operations I could see this shortened. This could be adversely affected (or openly supported) by the succession plan.

Time to meet to discuss and maintain a lean implementation could be a challenge during busy seasons, however, not every lean event has to be a half or full day. Lean is about making small, incremental, continuous improvements. So there needs to be discipline to make time for improvements, it's not acceptable to say, "I'm too busy to improve".

Although cash flow may be a challenge, lean isn't about spending money. In fact if done right, should save money. In some rural ranches, in today's world, internet access or computer savvy may be a challenge, but is an enhancement and not a necessity.

The specific sessions addressing real life issues on the ranch were seen as more valuable than the educational ones on the use of the tools.

What next on the lean journey?

The family embraced the A3 strategic plan. These should be linked to the overall metrics and measurables for the ranch as a business. This would lead to the vision of the ranch and with the ranch's genuine responsibility to the environment; lean thinkers have identified environmental wastes that parallel lean thinking.

I believe that the maintenance program identified as a strategic plan will save the ranch direct dollars in transportation, and parts repair costs. The continuation of 5-S and visual management will improve communication and save time.

And listing issues and prioritizing them with the wastes in hand, some tools for root cause analysis, and living lean on the ranch will ensure profitability, quality of life, and family for future generations.

I appreciate the participation of the family, and look forward to their continued lean journey.