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## HOW WILL CATTLEMEN DEAL WITH THE FUTURE ?

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### ABSTRACT

Powerful forces are driving the US Beef Value Chain toward fundamental change. Longer term this obviously will affect Rocky Mountain cattlemen. There are also forces and mechanisms in the system that favor inertia and will try to make change slow and incremental. However, as this change occurs, technology will be amongst its key enablers. Many technical issues still need resolving before cattlemen will be able to fully benefit. Technology cycle times are accelerating. Solutions might be closer at hand than many people expect!

### INTRODUCTION

Looking to the Beef Value Chain, Rocky Mountain cattlemen might wonder what is going on in the wide plains, suburbs and cities of America. McDonald's talks about imposing tighter rules on how animals are treated in its supply chain. Kraft pledges to 'reduce the size of its portions' to help fight the issue of obesity. Wal-Mart urges the food chain to lower calories and sugars in its pre packaged meals and snacks. And Frito-Lay, based in the 'beef state' Texas, launches its "Smart Snack" label, with substantially reduced fat content. One might wonder why all these companies 'give in' to pressure groups. Is all this an overreaction... or is there more? Kraft Foods parent company, Altria, also owns Philip Morris, the tobacco giant. It sure knows about the ultimate cost of long and grinding wars against public opinion.

BSE, Bovine Spongiform Encephalopathy, also known as "Mad Cow Disease" sure shook things up in Europe about a decade ago. Soothing speeches by scientists and government officials no longer gain public confidence. Economically, consumption of beef dropped by about 30%, and it never recovered. Europe and Japan now eat steaks in 4-6 ounce portions. Imagine the impact of a scenario like that on Rocky Mountain cattlemen. Not surprisingly our own USDA has dramatically increased the number of tests it performs to 'nip any outbreak in the bud'. From 2001 to 2002, the number of bovines tested actually tripled from 7000 to 20,000 per year. This is great! However... We have to put things in perspective. While we test 20,000 bovines per year, Europe tests 20,000 bovines PER DAY, and Japan test every single bovine that enters its food chain! There even is national consensus in Japan to tightening up even further its regulations. It sure looks as though complacency is not part of the vocabulary in other parts of the developed world.

So, things are changing. And these fundamental changes will affect cattlemen.

### FUNDAMENTAL CHALLENGES TO AGRICULTURE

Let me share with you a motherhood statement: “the cozy status quo in agriculture is threatened”. As if you were not aware of that. Rather than analyze these challenges upward, from the individual rancher to the global world economy, I’ll spend the next few minutes looking at it from the other direction, from common global challenges, down to the rancher in the heartland of this beautiful country.

What are the mega challenges facing agriculture, worldwide and locally? In all my worldwide travels, working with farmers, companies, organizations and government agencies I always run into the same four issues. Without trying to rank them, it simply boils down to four words: water, manpower, economic leverage and politics. While I explain the global aspects, please think for yourself, and look at how you and your cattle operation are affected by these four mega challenges.

The West sure is familiar with the challenge of the long term availability of **high quality water**. Actually, for the past several years the West struggles through a serious drought. In many regional and local pockets this drought is now categorized as extreme, or worse, exceptional. But do not think the world is better off. Study after study, and conference after conference, all have come to following conclusion. Today, there are water shortages in most areas in the world that traditionally are called dry areas. Even in ‘wet areas’, water supply to agriculture is under pressure, because the water supply also needs to satisfy the demands of suburban lawns, recreation and energy. Beside any moral judgment about these uses of scarce water, who do you think has more spendable cash on hand to pay for that water? Is it agriculture? By 2010 the situation will get worse. All highly populated areas in the world will have water shortages. That includes many areas in the US. By 2020 there will be a global shortage of water. Even in wet areas there will not be enough water. If you do not believe me, look at the Mississippi Delta today. Plenty of summer rain, huge aquifers and plenty of big rivers, but already today water tables are falling, because of over pumping to cope with insatiable demands from cotton and catfish farms. By 2020 there will be one country left in the world with enough water to satisfy its own need: Canada!

The second big challenge confronting agriculture worldwide is the availability of **high quality manpower**. Take Japan, where over 50% of farm operators are now over 65 years old. Or take Africa, where urbanization and AIDS are wiping out rural workforces. Very often agriculture has to compete with a global industrial supply chain that drives up rural wages, whenever and wherever new industries are set up in developing countries. The US is increasingly competing in a global market – even in beef production.

The third big challenge has to do with **economic power and leverage**. Simply put, economic power has moved downstream, away from agriculture, toward the big food companies and retailers. In the US, farmers now get just one out of six dollars consumers spend on food. The other five dollars go to added value downstream. Consumers become more and more disconnected from agriculture. Not that long ago the joke was that food comes from the supermarket. More recently even that has changed. About 50% of the consumer expenses on food are now on food eaten ‘out of the home’. So the consumer not only does not grow his own food, in many case he doesn’t even prepare it anymore. Add to these social phenomena the relentless concentration at all levels of the food chain, and more recently the appearance of ‘national’ food distributor and grocery chains. Some of these grocery giants have clear and outspoken multinational ambitions, not just American Wal-Mart, but also French Carrefour, Dutch Ahold, Belgian The Lion and German Aldi. Many vertical chains in food are now as much or more concentrated than cars and telephone: beer, bread, chicken, hogs, snacks, soft drink, (pop), ice cream, breakfast cereal, juice, coffee ...

A case in point is Wal-Mart, the world's biggest company, with sales over \$ 244 billion. Wal-Mart last year sold \$54 billion worth of food. Every week 138 million customers visit a Wal-Mart store. Wal-Mart employs 1.3 million non-union 'associates', about as many as the US Armed Forces, or the combined population of Montana and Wyoming. Wal-Mart has a 40% yearly personnel turnover, and thus will hire this year about 560,000 new employees, just to stay even. How many of your calves end up in Wal-Mart fridges?

The fourth challenge is **food politics**. Traditionally agriculture (and rural America) has political representation exceeding by far its share of population, or economic significance. That is still so, but to a much lesser extent. Food politics no longer are farm politics. And in a worldwide perspective, food politics often becomes a tool of foreign affairs policies or politics, however you want to call it. All countries have rural voters and all governments want to be seen securing low cost, high quality food (what else?). Issues of 'cultural sensitivities' and 'origin' too often are just a thin veil to cover the real economic power play. And more recently, bio-terrorism and concerns about food tampering have taken center stage.

### FOOD SAFETY AND BIOTERRORISM

Although the political genesis and the cultural framework were totally different, within one week of each other, in January 2002, The Congress of The United States, and The European Parliament and Council of Ministers, enacted key pieces of legislation aimed at improving food safety and preparedness for and response to Bioterrorism. In the US these laws were translated into many USDA initiatives. One just needs to look at the front page of USDA's website to see to see what matters to the powers in charge of our food: nutrition, health and safety.

As could be expected, industry is working hard with our government to translate all the aspects of the Bioterrorism Act into workable and affordable rules and regulations. Previously unacceptable concepts like traceability and labeling of origin or prior notice rules are now part of daily life. There will be costs involved, but these costs will be 'cost of doing business' and no longer deemed to be a competitive disadvantage. Get over it! These regulations are here to stay. They protect your family too!

Another strong driver to tighten up on these matters is the food industry itself. The food industry lives (or dies) with the credibility of its brand franchises. To protect their franchises, food companies have started meddling with the food business upstream in the chain. They will achieve new and stricter requirements of origin, management, process protocols, and product specifications. They have no alternative to getting this done. They cannot afford to give a weak flank to potential liability suits. They will shape behavior and quality upstream in the chain, by contracting directly with the producer, grower or rancher, or through intermediates.

All of this can come across as anathema to the good old way of doing things. Isn't American Business Culture about entrepreneurship, detailed bi-lateral contracts, and winner-takes-all competition? It is indeed hard to change habits, especially if they were very appropriate and profitable in the past. Even bad ideas from the past sometimes linger on, just because of inertia, or they are considered part of the way business is done. Many people also (rightfully) fear any change that will directly affect their bottom line.

We can reasonably expect that the strong urge for change, based on powerful political and business forces, will be tempered by what I would call the classic 'system

inertia'. Consequently we can expect change to be incremental, linked to new infrastructure, and driven by specific vertical markets that manage to generate free cash flow based on new added value, whether real or perceived, for which the consumer is willing to pay.

Summarizing these challenges: As part of overall agriculture the Beef Value Chain will grow food with less resources and manpower. It will sell its product to fewer, stronger and oligopsonistic customers. It will contribute to an ever wider and diverse offering to satisfy needs and demands of a diverse consumer base. And finally, it will have to do all that without the political leverage, clout and support it enjoyed in the past.

## NEW TECHNOLOGIES

Technology can and will support the right business decisions by the players in the Beef Value Chain.

Agriculture, Food and Technology have always gone hand in hand. To cheer you up, or maybe to scare you even more, I will cover three areas of technology I think will contribute very soon to help ranchers satisfy the new requirements the market is imposing on them. They are: Precision Agriculture, Wireless Networks and RFID (Radio Frequency IDentification).

In the past, technology and agriculture have worked together to develop mechanical tools, irrigation systems, chemicals for fertility and pest control, improved seeds and animal genetics, and in some cases totally new plant species like green cauliflowers, pluots, and long time ago, selections for today's hybrid corn. Downstream the industry developed refrigeration, additives and packaging for shelf life, flavor, appearance and convenience. And technology has altered the way we prepare foods, with microwave and convection ovens being just a few of the many examples.

More recently bar code scanners improved inventory management, and new plastic foils allowed for cleaned, cut and bagged lettuce and baby carrots with long shelf life. At the level of production agriculture we have witnessed integrated water, pest and fertility management, improved genetics and biotechnology, automation of field tasks, and most recently Precision Agriculture.

Precision Agriculture is now part and parcel of management in large acre arable crops. Fifty million acres are harvested with yield monitor equipped combines, fifteen million acres get variable rate fertilizer and pesticide treatments. Over a third of corn and soybean acres are now managed in a site-specific way, with wheat and cotton catching up fast. Precision Agriculture also has proven to be beneficial in many high value agricultural situations like IPM, organic farming, suburban and market garden operations. Intensive livestock operations are using Precision Agriculture to better manage the 'land' aspect of their operation, like manure management and 'on farm' growing of feed crops.

We also have seen Precision Agriculture being adopted on operations confronting sustainability issues like manure management in large animal confinement operations, pasture management on rangeland to avoid overgrazing, and wherever documentation is needed to manage cost, liabilities or to maintain good neighborly relations.

A second area of technology, wireless data networks, is not yet very common in agriculture. Many ranchers have walkie-talkies or radio systems for point-to-point or networked communications between people through their voice. The new technology

covers data transmission from object-to-object, or on a ranch, from animal-to-object. Some dairy farms put radio collars around the neck of cows so they can track and actuate individual feeding regimens. Expect similar technologies to creep up the ranch for data transfer, identification and networking. Besides the advanced dairy operations there are many other examples of the use of wireless data networks in agriculture.

## RFID

A little further out, but in only a few years, are RFID, Radio Frequency Identification tags. RFID are small, chip size, devices that can receive, store and send data. Unlike 'dumb' barcodes, RFID can have read-and-write capabilities. The information related to a product life cycle can now be embedded in its label or in its packaging. Subsequent addition of information in the memory actually can create an embedded traceability. Initial issues or questions of ruggedness have been resolved. If the thing is good enough for the military supply chain in Gulf War II, we can assume it can work on a ranch. And cost is rapidly coming down, from 10 ct last year, to 5 ct now, and we can expect to pay about a penny for RFID tags in very few years.

Just like GPS entered commercial agriculture less than 5 years after its first military tactical engagement in Gulf War I, we can expect RFID to enter commercial agriculture shortly after its first military tactical use in Gulf War II. I bet you it will NOT take 5 years, probably only three, or less. The reason is that industry is much more eager to rapidly adopt RFID than they were to adopt GPS. In 2003 Gillette bought 500 million tags at 10ct a piece. Procter and Gamble will switch from bar codes to RFID in 2004. And on June 10, 2003, Wal-Mart announced it expects its 100 biggest suppliers to switch to RFID for pallet and box delivery ... by January 2005... That is little more than a year from today! When will individual product packages be tagged? Probably sooner than later!

What about RFID in the meat chain? Two US companies already offer turnkey systems, Animal ID Systems, from Greeley, Colorado, and VeriPrime Inc., from Wichita, Kansas. That is however peanuts compared to the test run by the European Community Research Center. Between 1998 and 2001 the Center ran a broad scale test that included amongst others, 440,000 heads of beef in 5 different countries, testing three concepts of tags (injected, in the digestive tract and ear tags). They followed the animals from birth to slaughter. The Center concluded that the technology works, and gave the go-ahead for commercial implementation, and inclusion in food quality and food safety management systems.

Ladies and Gentlemen, ... Are you ready for the future ?

## TECHNOLOGY CYCLES

The acceleration in the speed of adoption we are witnessing between GPS (5 years) and RFID (3 years) is representative of the continuously faster technology cycles we are going through. I hate it when I ditch, after a mere three years of use, a perfectly workable laptop PC, but I know I have to do it to become more efficient in my daily work thanks to advances in software and hardware. The life cycle of my cellular phone is about two years. My wife upgraded six months ago, and Oh boy, her gizmo can do things that would make my life easy, and my work more efficient!

I'll spare you a lot of academic or techie jargon about technology cycles. I'll share just a few graphs to convey the message. The technology cycle for a single product or technology looks a bit like a bell curve . After a loss making period of investments,

the market suddenly takes off, makes a lot of money, and then tapers off, usually as new technologies or products take over market dominance.

It used to be that successive cycles aligned themselves nicely, and allowed the social and moral infrastructure of society to keep pace with successive waves of innovation. More recently, since about twenty years, and even more since the Internet, cycles have become shorter. When the West was won, cycles ran about the length of a generation (30 years), and people could keep up. When my generation (the baby boomers) grew up, cycles ran from 6 years (a school cycle!) to 10 years (a demographic group). Now we think in 2 to 5 years cycles. The Beef Value Chain may be used to following the classic model of paced succession. It will have to speed up to keep aligned with the world. Be ready to learn about, and experience time compression!

#### A FEW QUESTIONS....

When will you buy your next truck, or phone, or PC?  
Who will buy your calves in 2004?  
How many technology cycles will we go through before 2010? Two? Three? Four?  
How many of these cycles will you actively participate in?  
Have you put aside the money to invest in your next technology cycle?

How prepared will you be when ...  
... New Zealand Lamb and Tyson Foods (your biggest customer) put RFID tags on their shipments to Wal-Mart?  
... Argentina Beef effectively complies with all the US Bioterrorism Act traceability requirements?  
... Chronic Wasting Disease becomes a household word, just like ... ?

In conclusion...  
Think food, lots of food.  
Think quality, and proof of quality.  
Think security, and proof of security.

Thank you.