IFCNR International Foundation for the Conservation of Natural Resources

North American Veal at a Crossroads: Crisis, Stasis, or Opportunity

An Industry Analysis
by Sustainable Resources International LLC

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I. Introduction:

Veal has long been associated with certain European cultures, high-end diners and exquisite cuisine. Yet, despite veal's lofty status within the hierarchy of fine dining and the fact that the United States is a nation renowned for its red meat consumption and individual wealth, veal fails to attract a significant market share among U.S. consumers. That is a core problem long lamented and debated within the veal industry.

The desirability and taste of veal is not the reason for consumer apathy. Quite the contrary, consumers celebrate properly prepared veal as a highly regarded delicacy. Price does discourage a significant sector of the public, but it does not account for the inability of the industry to garner an increased share of the U.S. upper middle class.

The veal industry places the blame for flat sales and consumer resistance on three decades of anti-veal public relations campaigns waged by animal rights advocacy organizations. In part, they are quite correct. The more accurate answer is that members of the veal industry and more specifically growers and processors subscribing to "traditionally accepted" methods of veal calf husbandry and slaughter are responsible for the state of their own affairs.

Despite the narrow market share held by veal in the U.S., literally millions of dollars can and are being made. Given the diverse economic conditions pulling the industry towards fiscal insolvency the struggle to maintain, much less increase profits is daunting. Rather than seek ways to eliminate barriers to market growth, too many within the veal industry opt to cut corners and engage in behavior arguably questionable, damnable and unethical.

Practitioners, critics, and academic observers alike characterize the U.S. veal industry as the last bastion of rearing animals via narrow, individual stalls. Some within industry refer to those stalls as "crates," a term seized upon by animal activists to instill in consumer minds the perception that veal calf housing is tantamount to imprisonment in a cramped, light-less, shipping box-like hell with the animals fed an unnatural diet to keep them weak and anemic.

Veal aficionados including a number of renowned chefs subscribe to the belief that the best veal is that raised in such arcane conditions of darkness and immobility. "Animal welfare" plays no role in their provision purchases or menu selections. Catering exclusively to this exceedingly narrow demographic guarantees industry stagnation. It also perpetuates conditions that lend themselves to "animal welfare" crusades by animal activists and ultimately to legislative or legal remedies.

At some point, the North American Veal Industry will, either by force of regulatory fiat or its own enlightened self-interest, convert the way it raises its animals to a process more

verifiably humane. Inevitably the U.S. veal industry will convert from a system that employs single, narrow stalls for each animal to some form of European-style group housing. That is a fact those who look beyond today recognize.

The downside, for the farmer, is that "group housing" increases costs per calf, both in terms of upkeep and mortality. The upside, for the calves and consumer appreciation, is that group housing allows the calves' very short life span to be a bit more natural. Such an approach will go far in breaking down consumer barriers to including increased amounts of veal among their grocery purchases per annum. That phenomenon will occur depending on how the industry's "reform" is promoted and whether or not that promotion leads to a change in consumer perception of veal that encourages purchasing the product not only on the merits of taste, price, and nutrition, but also as a means of patronizing an ethical industry.

Among the veal industry's black marks, the issues of calf handling and care are the most egregious. From the moment a dairy bull calf is born, handlers exhibit what can be described as callous indifference in removing the newborn calf from its mother and failing to provide it with sufficient health-promoting nutrition. Growers can exhibit similar disregard for animal and consumer welfare in housing conditions, nutrition, and the illegal use of bovine growth hormones as a means of cutting costs by speeding calf development and increasing muscle mass.

Ironically, while veal itself fails to enjoy mass consumer favor, the modern veal industry is a creature of society's mass consumerism. More correctly, North America's modern veal industry is a result of the tremendous consumer demand for dairy products: milk, ice cream and cheese.

In 2003, the United States' 9 million cow dairy herd[i] (94 percent Holstein stock[ii]) produced 170 million pounds of milk, 8.6 billion pounds of cheese, 1.24 billion pounds of butter, and 1.02 billion pounds of regular ice cream.[iii] Those cows not only produce milk; they also produce more than three-quarters of a million bull calves a year. Female calves become "replacements" for their mothers. Male dairy calves are sold for veal or "dairy beef", fates far more utilitarian than what awaited them barely 50 years ago when most were killed at birth and buried.[iv] The latter half of the 20th Century saw farmers persuaded, largely by feed companies, that money could be made with the purchase of the unwanted bull dairy calves, housing and feeding them twice daily for 16 weeks then shipping them off to be slaughtered for veal.

The 1950s saw per capita veal consumption range from six to eight pounds. The first half of the '60s held steady at four pounds per person tapering off to around three pounds for the last half of the decade. The '70s fluctuated from four to three to a still respectable two pounds per person per year. Then the market began its free fall.

The precipitous decline in consumer demand for veal – from 8.5 pounds per person in

1955 to 3.5 pounds in 1975 to 0.5 pounds today – appears the result of the convergence of a multitude of factors. One is the loss of first generation immigrants from traditional veal consuming nations – Italy, Germany, France, Austria, the Netherlands, etc. – to the natural consequences of a long life. Another is the competition for dairy calves by the dairy beef industry. Dairy beef constitutes about 20 percent of U.S. beef production.[v] The demand for dairy beef grew from the need to supply the niche market for lean beef created by the fad diet industry, lean hamburger, lower end restaurants as well as the fast food and canned food (soups, etc.) markets. Finally there is consumer "turn-off" from veal due to the rise of animal rights and environmental pressure groups equating veal with animal cruelty.

The convergence of the environmental and animal rights "welfare" agenda for farmed food animals with the goals of farmers to derive a profit from their never-ending labor and ever-rising cost of raising those same animals rarely proves mutually beneficial. The case of the North American Veal Industry may prove the rare exception; if and only if the right set of factors also emerge.

The vigorous efforts of extreme animal rights and environmental groups are anything but helpful to the typical veal farmer, processor, or retailer. From the latter years of the 1970s to the present, animal rights/environmental group-inspired anti-veal campaigns succeeded in shutting down consumer interest in veal to an annual half pound of the pale meat, a barely subsistence amount equivalent to a single home-made burger consumed over a year.

While the exposés and allegations brought against the veal industry did, in fact, reveal an array of unnatural living and sanitation conditions for the veal-bound bull dairy calves, some are exaggerations and even fabrications motivated by the adage that the end justifies the means. For some, the "end" they are promoting is improving the lot of confined, drugged and anemic veal calves. For many animal rights groups, promotion of vegetarian or vegan life-styles is their true motivation. A note of caution should be injected here. Some within the veal industry are making conscious efforts to pursue animal husbandry techniques that conform to more humane and natural conditions. At present, these are pioneers facing daunting odds whose survival rate is not for the faint of heart given that they are literally paddling upstream against the traditional financial flow of an entire industry.

In general, veal farmers, processors and retailers in the United States, in particular, and in Canada now find themselves at a crossroads.

A variety of factors loom throughout the atmosphere in which the veal industry must decide its future direction. They are legion and include:

- The vicissitudes of consumer concerns over what dietary components are or are not in the best interest of their health;
- Price;

- The appearance of Bovine Spongiform Encephalopathy (BSE or "Mad Cow" Disease) in North America;
- Competition for diary calves by the dairy beef industry causing increased cost per calf and contracting the calf supply;
- Market inertia; and
- Perceptions fueled by decades of NGO rhetoric that veal is the by-product of animal cruelty, and more.

Currently Canada supplies approximately 35 percent of diary calves processed into U.S. veal. The BSE-caused closing of the U.S. – Canada border to Canadian cattle in May 2003 hurt both nations' veal industries. The July 2005 border opening for live cattle (April 2004 for meat from animals under 30 months of age) based on declaration of Canada as a nation of "minimal risk" for BSE transmission and the decision of the 9th U.S. Circuit Court of Appeals in San Francisco overturning a lower court injunction does not remove the tenuousness of this supply as the cross border transit of Canadian cattle could again find the doors to the U.S. market slammed shut.

As noted, consumer selection of veal for their menus is virtually and economically insignificant during a period when U.S. consumers downed 114 pounds of red meats with the majority beef (64.5 pounds) and pork (48.2 pounds); 70.7 pounds of poultry (56.8 pounds of chicken, 14 pounds of turkey), and 254.5 pounds of eggs each year (2002 figures).[vi] Canadian consumers dined on 66 pounds (30 kg) of beef and 61.82 pounds (28.1 kg) of pork (2002 figures)[vii]. In 2002, Canadians bought nearly five times the veal meals (2.42 pounds 1.1 kg) [viii] than their neighbors to the south.[ix]

Animal rights groups take credit for the decline in veal consumption over the past three decades. Very vocal, very public protests over the way veal calves are housed and fed have indeed taken a toll on the veal industry and helped fashion, in a negative way, consumer-buying preferences.

Many of the allegations leveled at veal calf animal husbandry were and are based in historical fact. The combination of modern communications, public relations techniques, and the sensory "roughness" associated with any number of farming techniques formed an amalgam of fact and exaggeration that became the basis for a very real agenda of animal welfare concerns that viscerally repulsed a significant number of modern consumers. Grocery chains, restaurants, and chefs pledged not to provide their clientele with "cruel veal" and added credibility to the anti-veal campaigns. Practices within the dairy and veal industries keep that credibility viable.

The pervasive atmosphere of negativity surrounding the North American veal industry poses the biggest threat to veal producers, processors, and retailers. In the U.S., per capita consumer interest in veal is truly endangered and poised at the border of commercial non-

existence. In the U.S. and Canada, the lack of a robust trade in veal, even among the more affluent population sectors is an intriguing phenomenon specifically because both are significant and lucrative "red meat" markets.

North American veal interests find themselves staring at diverging signposts. One direction, the preference of animal rights extreme groups, points to the industry's last days. That is a path credible in the view of many veal farmers, processors and retailers struggling within an ever-contracting market share that seems to beckon them to find other means of income.

Another path is that of "business as usual." Those who consume a fraction of a pound of veal per annum in the U.S. and a couple of pounds in Canada appear immune to the claims of the animal protection groups. This core group of consumers will chose veal regardless of the arguments to the contrary, at least thus far. Some in industry will continue to do business. Some will leave.

The most interesting direction points to the opposite of economic contraction and status quo. It points to the industry's potential for economic opportunity and expansion.

Veal has obvious consumer appeal, particularly to population demographics with significant disposable income and those hoping to indulge if only on special occasions in the lifestyle of the privileged. That market sector is not deterred by veal's traditionally elevated price, a key reason why veal is not a commodity found across the economic spectrum of North American households.

The most obvious problem facing the industry, from industry's point of view, is the all too narrow share of the "red meat" market in which veal finds itself. Certainly part of that market contraction is the difficulty of industry to expand given the limited available veal calf supply and the industry's equally limited processing capacity. Supply, price to the farmer and to the consumer, shrinking profit margins for the farmer, processor, and retailer are all part of the problem.

Then there is the hurdle created by animal rights critics.

Regardless of the exaggeration and equally unethical tactics of animal rights advocacy groups applied to veal, the industry has no real culprit to blame but itself. Animal rights critics would have no grounds for complaint and absolutely no credibility if they were tilting against an industry where humane and ethical practices are the norm, not the exception.

Veal is very much in the position salmon was a generation or two ago. Successful aquaculture made the pink/orange-fleshed fish an affordable commodity. It's perception as a luxury food, appreciated by men and women of social and economic status remains.

However, mass production with the corresponding price drop now makes salmon affordable, spurring consumer attraction. The paradox is that in a geographic location where wealth is being accumulated at a rapid rate by a greater cross section of society and among a population where meat consumption is at global peaks, veal consumption figures are plummeting, not soaring.

Thirty years of incessant drumming that veal is a "cruel meal" into the collective consciousnesses of every strata of society, including veal's natural market, the affluent and better educated, appears to have taken its toll. Veal farmers acknowledge this market influence. They take steps to disassociate themselves and their farming practices from the more extreme veal calf raising techniques of the past. That's evident in the rhetoric issued from the veal industry itself. The American Veal Association[x] and the US Department of Agriculture[xi] both speak of calves "housed in modern, environmentally controlled veal barns" that provide for "animal health and safety."

Despite such self-serving denials, the manifesto of alleged infractions against veal calve welfare perpetuated by an industry easily portrayed as callous and uncaring resonates with consumers. The most widespread and often repeated allegations are:

- Veal production contradicts nature by destroying the strong mother-calf bond when it removes the calf from its mother almost immediately after birth.
- Calves, social animals by nature, are alienated from each other by being kept in abnormally small "crates" or stalls that do not allow them room to groom, exercise, or socialize with other calves further compounding their unnatural existence,
- Calves are tied or tethered to their crates.
- Calves are fed an unnatural and iron-deficient mix called "milk replacer" that further alienates the calf from a natural life,
- Calves are continually medicated with antibiotics, growth hormones, and other additives just to provide rapid growth that threaten human health.

Unless and until the veal industry, through the acts of individual farmers, can demonstrate simply, clearly and effectively that every last trait characterized as cruel has been eliminated from their animal husbandry practices, expansion of market share (as much as supply allows) for veal products will not be possible.

This paper examines the industry's past and present, and offers a formula for a hope-filled future for North American veal growers, producers, and retailers.

Editor's Note: Promoting the conservation of "nature" and its resources is the mandate of The International Foundation for the Conservation of Natural Resources (IFCNR). Among those resources is wise adherence to preserving the natural lives of fellow creature. Within that mission is the interaction of humankind with nature in a way that is sustainable, environmentally sound, socially just, and economically fruitful. IFCNR believes in that poverty promotes the abuse of nature. Therefore advocating for a profitable resource-based industry that adheres to a credo of ethical, sustainable, just, and environmentally compatible principles is quite within the bounds of conserving nature and its resources.

II. VEAL

Evolution of a Modern Industry:

Veal means many things to many people. To the gourmet, veal is an exquisite delicacy in taste and texture. To the animal rights advocate, veal is the embodiments of humankind's inhumanity to farmed food animals. To dairy farmers, veal represents a way to salvage income from a "waste product," namely, bull dairy calves. To many consumers it is a strange, expensive, pale-hued category of meat nestled between beef and pork in a supermarket meat display with a price tag that makes it more a curiosity than candidate for the evening meal. Historically, veal is the "fatted" calf of the Bible and was reserved for special occasions and special diners: the wealthy, the socially upper and priestly classes for at least 4500 years.[xii]

To the government veal is the category of "red meat" (despite its physical white to pale pink color) from a male dairy calf that together with lamb, in the U.S., constitutes a minute segment of the nation's meat production and per capita consumption. For a variety of reasons, veal is one of the forms of "red meat" that is least purchased by consumers in a nation that leads the world in meat consumption (124.1 kg – 273.02 lbs per capita per year - FAO 2002 data)[xiii].

Still, according to industry statistics, the veal trade is a $650 to $700 million a year enterprise. It plows another $250 million into the dairy industry through purchases of dairy by-products for feed and calves.[xiv]

The U.S. government defines veal is as "the meat from a calf or young beef animal."[xv]

The U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS) currently recognizes two main categories of veal while the industry refines the means of identifying veal even further.[xvi]

The FSIS categories include:

"Bob" Veal: "Bob" veal comes from calves up to three weeks of age and a weight of 150 pounds. Approximately 15 percent of U.S. veal calves are marketed at "Bob" veal.

"Special-Fed" Veal: Calves raised for 16 or more weeks, fed a milk-replacement diet, with an average weight of 450 pounds.

Within the industry, in part due to animal welfare concerns and in part due to marketing issues, an additional distinction of particular importance to Canadian veal growers is made, namely:

Grain-Fed Veal: Calves are fed a milk- or milk-replacement diet for six to eight weeks, and then transitioned to grain (usually corn) until they reach a market weight of 600 to 700 pounds. The majority (70 percent) of Canadian veal is grain-fed with only a fraction of production sold as export.[xvii] On the other hand, the majority of Canadian special-fed veal is sold to markets beyond Canada's borders.

Purists among chefs and connoisseurs insist only real milk-fed calves, raised in the dark and under confined conditions, then slaughtered in their first month produce true veal. That distinction has all but become archaic given today's veal industry based on the surplus bull calves of large-production modern dairy farms.

In the United States, Wisconsin ranks number one among the nation's special-fed veal calf production states with an annual inventory of some 200,000. It's ninth overall for beef and dairy livestock with some 3.4 million head of cattle.[xviii] In addition to Wisconsin, the U.S. veal industry recognizes six other states as primary veal producers: Indiana, Maryland, Michigan, New York, Ohio and Pennsylvania.[xix] Veal production in Canada is concentrated in Ontario (40 percent) and Quebec (55 percent) with the remaining five percent raised in Alberta and British Columbia.

In many ways, Wisconsin's dairy demographics mirror the national trends for dairy and veal farming. From 103,215 farms in 1959, Wisconsin saw its dairy farm numbers drop to 22,576 by 1997.[xx] Last year that number was 19,000.[xxi] In what seems to be a statistical contradiction, the decline in Wisconsin's dairy farms from 1955 to 1970 ran along parallel tracks, albeit in the opposite direction, with the rise of the modern veal industry.[xxii]

Throughout history, veal has been a commodity steeped in savory sauces and deep contradictions. The most intriguing contradiction centers around the fact that in the United States veal consumption per capita was highest for decades when male dairy calves, the mainstay of modern veal farming, were considered a "waste product," killed, and tossed away as refuse after birth. Then first generation immigrants from veal-consuming European nations brought their taste for veal fed on milk and eggs with them to the New World.

A key factor in the evolution of the modern veal industry is the rapid maturation of the U.S. Dairy industry. From the introduction of cows to the New Land via Christopher Columbus' second voyage until the 1850s, the U.S. dairy industry was confined, for the most part, to the farmer's family with little or no sales to those outside the farm's perimeter.

In the early 1900's scientific advances in keeping milk's quality and improving its safety via Dr. Louis Pasteur's work saw an industry growth spurt. The lack of refrigeration and transportation confined milk markets to areas around population dense regions. During the 1940s, the advent of rural electrification permitted rapid cooling in milk storage. Improved roads allowed transportation of milk to processing plants. Advances in housing and herd care

as well as the concentration of more cows on fewer farms all played roles in impressive gains in production per cow.[xxiii]

Ironically, as the U.S. dairy industry grew in production numbers and declined in the number of dairy farms from the late 1950s to the present day, veal consumption fell precipitously while the industry itself increased in terms of the numbers of farmers growing dairy bulls for veal.

From 1909 until 1930, veal consumption in the U.S. ranged upward from nearly six and a half pounds per person per year to slightly over eight and a half pounds per person. The statistical rise in veal consumption after 1930 was due in part from the addition of veal supplied to U.S. military personnel stationed or fighting wars over seas to government statistics. Per capita consumption was fairly constant hovering between six to seven and a half pounds until the beginning of the end of World War II. From 1944 until 1950, U.S. citizens enjoyed a high of 11.2 pounds of veal yearly to a still substantial "low" of seven and four tenths pounds (1950).[xxiv]

Veal in North America until the 1960s was largely "bob" veal, bull dairy calves slaughtered within weeks of birth. In Europe, after World War II, Dutch veal producers used inexpensive surplus U.S. skim and dry milk products combined with whey and fat to replace whole milk direct from the calf's mother in rearing veal calves for market. It was the defining innovation that gave birth to the "special-fed" veal phenomenon that debuted in the 1950s.

Veterans in the U.S. veal industry credit feed companies marketing their wares to farmers and the concentration of dairy herds into fewer farms for the rise of North America's modern veal farmer.[xxv] The Dutch-owned feed company, Provimi, led the way. Taking its name from the qualities it stressed in marketing its feed ("protein, vitamins and minerals"), Provimi convinced U.S. farmers that they could boost their income buying the dairy industry's throwaway male calves feeding them twice a day for four weeks and selling them as "special-fed" veal.[xxvi] Today, the Netherlands still leads the world in veal production (437 million pounds – 2004)[xxvii] sending twice the amount of veal to the market as the United States (205 million pounds – 2002)[xxviii] and four times the output of Canada (104 million pounds – 2004)[xxix].

The gradual shift in U.S. dairy and food animal farm demographics was another important factor in the growth of the modern veal industry. A significant portion of the nation's dairy farm operations migrated from the Northeast and Midwest toward the West and Southwest. Family farms that typically raised a variety of crops in addition to a modest dairy herd of 100 or fewer cows began a gradual increase in herd size generally doubling the number of dairy cows. At the same time modest "industrial" scale farms with herds of a 1000 cows began to appear. In other regions, most notably California, where the small, crop diverse, family farm was not as ingrained a tradition as in the Midwest, dairy herds of 10,000 or more cows changed the complexion of the industry.

One intriguing and confusing fact about the U.S. dairy industry today is that despite the prodigious quantities of dairy products flowing from farm to processor to consumer, the dairy farm population as well as the total number of dairy cows nationwide is at a record historical low. At the beginning of the 20th Century, the U.S. boasted nearly 17 million dairy cows. By 1944 the dairy cow population peaked at 25.6 million.[xxx] The number of U.S. dairy farms followed a similar pattern although the numbers of U.S. dairy farms using U.S.D.A. figures are said to be misleading. The reason for the doubt surrounding the accuracy of those figures comes from allegations that U.S.D.A. "counts any farm with one or more dairy cows as a herd" versus other inventories that used surveys of farms that actually sold milk in their count.[xxxi]

According to a National Agricultural Statistics Service (NASS) report, "U.S. Dairy Herd Structure," released September 26, 2002, milk cow operations dropped 21 percent from 123,700 in 1997 to 97,560 in 2001. Other figures put dairy farm numbers for 1999 at 87,669, far lower than the USDA figures for 2001.[xxxii] Yet the decline in dairy farms and in raw numbers of dairy cows did not signal the expected decline in milk production. Quite the opposite occurred. For a variety of reasons, the national milk production from 1977 to the early 1990s (a time when USDA figures suggest a loss of some 240,000 dairy farms) actually increased by 23 percent.[xxxiii]

Milk production figures per U.S. dairy cow rose from an average of just over 3000 pounds in 1900 to 5,314 pounds by 1950 to 20,446 pounds in 2001 for operations with more than 500 cows (16,919 pounds per cow in herds under 500 cows).[xxxiv] Those figures fell slightly in 2004 when U.S.D.A. NASS figures reported an average production of 18,749 pounds of milk per dairy cow from herds in the nation's 20 major dairy states.[xxxv] Even with that slippage, the milk production per cow is mystifying to those unfamiliar with modern dairy operations.

Overall, U.S. dairy production is quite impressive. According to the U.S.D.A., in 2003 the nation's 9 million dairy cows provided consumers with 170 million pounds of milk, 8.6 billion pounds of cheese, 1.24 billion pounds of butter, and 1.02 billion pounds of regular ice cream.[xxxvi]

The factors leading to the phenomenal increase in milk production per cow are fairly basic. The first is improved genetic selection aided by developments in artificial insemination and the ability to compile and use databases of superior producing lineages. The Dairy Herd Improvement Program (DHI), begun in 1905, tallied milk production records and linked them with cows and sires. Such information combined with the ability to freeze sperm and breed high production stock via artificial insemination and a Cornell University-created statistical model ranking sires to DHI records enabled the development of a highly sophisticated genetic breeding program.

Improved nutrition is another key factor. During the 1960s, the dairy industry realized that cows responded favorably in direct proportion to the quality of their environment. With all due respect to the former Borden Dairy TV ad campaign, a case can be made that the '60s saw the dawn of the era of the "contented cow." Milk consumption rose as feed increased to a certain level above traditional daily amounts (about 20 pounds per day). Upping the energy content of feed and improving forage were also important changes that brought about positive results in milk output.[xxxvii]

Bovines in their most elemental natural form are grass grazers. Today, they are fed a mixture of feed components. Regardless of the mix of material, the important part of cow nutrition comes is how it balances the production of milk for dairy cows and meat for those animals raised for the beef industry and their health.

The bovine digestive system is highly complex. An imbalance of fiber and protein cause an equal unbalance of the microbes in the rumen stomach chamber. Too little fiber or too fine a feed diminishes saliva production during the "chewing of the cud." Saliva, generated over a normal eight to ten hours of chewing daily, must be present in sufficient quantities because it is a source of bicarbonate that buffers the acid buildup in the rumen during fermentation by microbial action.[xxxviii]

Science created yet another aid for dairy production increases when it began to identify and apply natural bovine growth hormone (bovine somatotropin or BST also known as BGH). The next step was the genetically engineered duplication of natural bovine growth hormone (recombinant bovine somatotropin or rbST) approved by the Food and Drug Administration (FDA) in the mid 1990s. Growth hormones enable cows to increases lean body weight and milk production. Farmers giving their herds growth hormones saw milk yield jump by as much as 10.5 pounds per cow per day.[xxxix]

The single most important innovation in the development of the modern dairy industry was the electrification of U.S. farms during the 1930s. Straight from the cow, milk has a temperature of 95 degrees Fahrenheit, ideal for bacteria production. Electricity allows immediate cooling to 39 degrees Fahrenheit.[xl]

Electricity enabled dairy farmers to install advanced milking systems allowing large herds to be milked three and four times daily. Thanks to electricity, much of diary farm management is now computerized. The DHI program available via large, unwieldy mainframes in the 1950s became accessible to PCs with the development of programs such as the Direct Access to Records by Telephone or DART. Herd health records also became computerized. For cow comfort, electricity allowed farmers the means to combat the milk production decrease associated with hot weather via fans, misters and evaporative cooling systems.[xli]

The intensification of the dairy industry changed the complexion not only of the dairy industry but also changed the nature of veal production, not necessarily for the best.

Holstein Nations:

Modern farming's desire to concentrate investment, time and effort into breeds that are the best producers of saleable commodities from eggs to poultry to pork to bacon and beef led to the loss of farm animal diversity to the point where breeds of domestic farm animals once popular on family farms are among the most rare of the planet's species. Dairy farming is no different. The lack of crop and food animal diversity is a sticking point among agriculture critics.

The loss of specie diversity is one element of the gray area of modern nutrition and food security. It is part of the "debate over," "the desire for," and the "definition of" what is "natural" and how to get needed nutrition to a planet with 6,425 million (or 6.425 billion) human inhabitants, with 295,687,097 living in the United States alone.

Colorado State University cleverly illustrates the dilemma under the topic "Food for Thought."[xlii] Using an apple to represent the earth, the reader is directed to slice it into quarters and discard three of those quarters as the area of the planet covered by the oceans and other bodies of water. The remaining quarter is sliced in half. One half equals the landmass deemed virtually uninhabitable for humans: the arctic, Antarctic, deserts, swamps, and high mountains. The remaining one-eight of the total apple is human-friendly habitat. That eighth size slice is then partitioned into four more sections. Three of those sections are areas where the soil cannot be farmed because it is too rocky, too steep, too cold, too wet, or covered by cities, homes, parks, and roads that prohibit its use for agriculture. Only the skin of the remaining section representing the top five feet of the earth's crust is left to produce the world's non-marine food and fiber.

Therein lies the problem: How to produce food in sufficient quantities to feed a world burgeoning with people and domesticated animals on extremely limited farmable land. Solving that problem has led to techniques that tend to maximize productivity at the expense of what's considered "natural." Currently, the Holstein cow is the top milk producer among many breeds and hybrids of diary stock. Coaxing previously unheard of milk production from individual Holsteins has become an industry that applies the findings of science and the principles of business into an efficient milk producing facility that has strayed far from allowing these cows a typically natural bovine existence.

Because of their amazing ability to produce vast quantities of quality milk, Holsteins are the heart and soul of the North American dairy industry accounting for roughly 94 percent of the U.S. dairy herd, up from less than 50 percent in 1950.[xliii] They constitute over 95 percent of Canada's 1.15 million dairy cows on 18,000 Canadian dairy farms. Eighty-one percent of Canada's Holsteins reside in just two provinces: Ontario and Quebec.[xliv]

Second in popularity among dairy farmers to Holsteins is the smaller but butterfat and protein-rich Jersey. But that second place finish is far down the track from the Holstein field leader. Today, Jerseys make up most of the remaining less than seven percent of the U.S. dairy herd.

The Holstein is a relatively recent immigrant to North America. The first black and white Holstein diary cow landed in the New World some one hundred fifty three years ago in 1852. During a voyage from Europe to the fledgling United States, that pioneer Holstein provided milk for the crew of a Dutch trade ship. Bought by Massachusetts' dairy breeder Winthrop Chenery, that off spring of the 2000-year-old Holstein-Friesian breed proved an able milk producer and prompted Chenery to continue purchasing the Dutch dairy animals in 1857, 1859 and 1861.[xlv] Canada's first Holstein arrived in 1881.[xlvi]

Holsteins are prime milk producers with a three to four year average productive life span. They are large animals averaging 1500 pounds at maturity. Typically Holsteins sport color patterns of black and white or red and white. According to 1999 U.S. production test trials, Holsteins in the program averaged 21,167 pounds of milk, 775 pounds of butterfat and 683 pounds of protein per animal per year. Canadian Holsteins yield 20,613 pounds (9350 kilograms).[xlvii] Super producers among the breed, milked twice daily, are reported to have given as much as 67,914 pounds of milk in one year.[xlviii]

Overall, the U.S. 9.084 million cow dairy herd produced 170,300 million pounds of milk in 2003. Those figures represent a U.S. herd reduction of 400,000 cows but an increase of 16,700 million pounds of milk over 2002. Of the total milk production in the United States and Canada roughly 35 percent is consumed as milk and cream. Sixty-five percent is used to make other dairy products such as ice cream and cheese. Cheese accounts for fully a third of North American milk consumption.[xlix]

The U.S. national average production per cow was 18,749 pounds for 2003. The leading milk producing states by far included California with 1.68 million cows giving 35,400 million pounds of milk. Per cow average for California was 20,993 pounds per year. Wisconsin's 1.26 million cows gave 22,270 million pounds of milk averaging 17,728 pounds annually.[l] Canada's annual milk production is 75 million hectoliters (1,981 million gallons).[li]

As a result of the North American dairy herd being predominately Holstein, so too are the bull calves fed into the veal industry each year.

Veal Calves:

After a nine-month gestation, Holstein calves can weigh from 60 to 90 pounds or more at birth. Like their adult counterparts, Holstein calves are renown for their lean body configuration, a quality that helps define their future.

Bull calves destined for veal farms fare far worse during the early days and weeks of their lives than their female counterparts. One very important reason is the attention, treatment and handling each receives immediately after birth. Female calves are faced with lives as replacements for their mothers on the dairy production line and therefore represent significant value as the future of the dairy operation. They represent far greater financial worth to the dairy farmer than bull calves. The care and pampering of female calves reflect that proprietary status versus the minimal attention shown bull calves awaiting the auctioneer's gavel.

A few bull calves with the best genetic makeup are selected out to live as four-legged sperm donors to propagate the dairy herd. Of the more than 4 million bull calves born each year nearly a million (800,000 in 1995[lii]) become veal calves while the rest are raised for "dairy beef."

Dairy beef accounts for an approximately 20 percent share of the U.S. beef industry. Holsteins, with their lean muscle configuration, occupy that significant niche market within that industry. Dairy beef is not the fare of high-end "white tablecloth" restaurants. Holstein dairy beef becomes fast-food hamburger, inexpensive steak, and the beef of choice for the fad diet-created niche market that demands lean cuts of meat. It is the key competitor of the veal industry for dairy bull calves, one that's caused quite a financial strain on the would-be and practicing veal farmer. Where once throwaway bull calves could be purchased for $20 to $50 a head, competition in the form of the dairy beef farmer bumped up prices to the point where a bull calf can fetch $150 to $250 at auction.

Male Holstein calves sold at auction or bought direct from the dairy within two to five days after birth appear the most star-crossed of bovines.[liii] If they escape the very real possibility of dying during birth, they face untold life threats from day one of their very brief life on planet Earth.

Every newborn calf's life is fraught with health-threatening diseases originating from bacteria within their own bodies, diseases lurking about their new environment, and diseases catalyzed by a long list of stressors. One important medical fact of a calf's life is that calves whose birth process is less stressful tend to have a better survival and immune resistance rate than calves that experienced difficulty at birth.

Birthing difficulty is the primary cause of calf death. Once the placenta and

membranes appear the normal delivery process takes between 30 minutes and an hour. For first-time mothers called "first-calf heifers," that time might extend to four hours. The appearance of the placenta is also when the calf's "mortality clock" starts. The longer the birthing time the higher the chances of calf death.[liv]

For calves that survive the birth process, scours (diarrhea caused by a variety of diseases and even stress) and pneumonia are afflictions that await with fatal consequences. Scours accounts for nearly 60 percent of calf mortality.[lv] Diarrhea causing vectors include corona virus or rotavirus, bacteria (E. coli and salmonella) and protozoan microorganisms such as Cryptosporidium. Statistics on calf mortality run the gamut from three to four to six percent[lvi] to 12 – 18 percent to as high as 20 percent.[lvii] The rule of thumb within the veal industry is that five percent mortality is unavoidable.[lviii]

A major part of the problem is that calves, like any newborn, enter the world with woefully inadequate immune systems. The first hours up to and including the initial two weeks of a calf's life are vital. Living into the third week bodes well for calf survival.

Calf health requires immune-building colostrum, the first milk from mammal mothers that passes antibodies from dam to calf within the first few hours after birth. Colostrum is necessary in order for the calves to withstand the tremendous stress bacteria and disease bring to their young lives. High in carbohydrates, protein, and anti-bodies, colostrum is nature's "vaccine" needed to kick-start a newborn calf's immune system. The immunoglobulins contained in colostrum neutralize bacteria housed in the gut and help prevent the onset of diarrhea. Transferrin and lactoferrin, also contained in colostrum, bind iron and inhibit bacteria growth.[lix]

Colostrum contains 22 percent solids compared to whole milk's 12 to 12.5 percent solids. Most of the solids are immunoglobulin with the rest milk protein (casein), fat, sugars, and vitamins including vitamins A, D and E. Vitamin A is necessary for growth and reproduction. Vitamin D ensures proper bone development. Vitamin E's domain is muscle growth. Microbes in the calves' rumen manufacture B vitamins that are often added to calf milk replacer.

Colostrum quality depends upon a number of factors. Dairy cows produce more colostrum than beef breeds. Biologically Holstein heifers are capable of breeding at a scant 13 months. Nevertheless, the recommended age for first calving is between 23 and 26 months and for good reason. Mature cows produce more and higher quality colostrum than heifers. Inadequate nutrition fed gestating cows is another factor that reduces colostrum volume. Within dairy breeds differences in colostrum quality exist too. Guernseys, noted for predisposition to calf fatalities, produce colostrum low in immunoglobulins "IgM" and "IgA."

Other factors that influence colostrum quality and calf survival are milking frequency.

The first colostrum is twice as potent as the second milking. Birth-inducing corticosteroids also reduce colostrum quality.

Colostrum fed the first day of life produces optimum immunoglobulin levels within 24 hours and provides protection for the next three to five weeks. Colostrum-deprived calves can die from diseases such as scours within four days of birth. Calves given less than the optimum amount of colostrum exhibit increased vulnerability to disease and death by factors of three to ten times that of calves fed the correct amount of colostrum. Calves given inadequate amounts of colostrum, if they survive, tend to endure chronic joint problems. Calves not afforded colostrum take three months to develop the level of immunity colostrum would have imparted in one day[lx].

An unfortunate fact of life for the calves is that the regimentation of today's modern dairy industry causes the newly borne calf to be spirited away from its birth mother almost immediately. That practice all but caused Holstein calves to lose their ability to suckle.[lxi] Calves therefore must be handfed colostrum if they are to gain any semblance of a normal early immune system. Further complicating the process is the fact that modern Holsteins are selectively bred to produce great quantities of milk. Their vastly extended udders cause the teats to hang too low for the most efficient suckling, that is, if the calves were allowed to nurse at their mothers.

The formula for "dosing" newborn calves with colostrum varies. Some experts recommend four liters at the first feeding. That volume requires considerable time expended in hand feeding the animals and is seen by most dairy farmers as impractical. A practical "rule of thumb" used is five to six percent of bodyweight in colostrum during the first six hours. For an 80-pound calf, that amounts to two quarts of colostrum per feeding. The key is to get 100 grams of immunoglobulins into the calf before it is six hours old.

Because dairy bull calves are barely more than an after-thought to intensive dairy operations, the ideal colostrum feeding may be the exception, not the rule. Female calves are vital to the continued operation of a dairy farm. Bull calves aren't. Quality colostrum, doled out in quantities that assure good calf health, often fails to find its way into the newborn bulls. Many simply aren't fed colostrum in anywhere near optimum amounts. Where that colostrum goes is a mystery for on-site sleuths to solve. Because this paper addresses only dairy bulls destined to become veal, the amount fed dairy beef calves or dairy replacement females or even whether or not it is being channeled into the milk supply or other products is not addressed. The reality is that bull calves sold to veal and dairy beef producers are left lacking and are alarmingly vulnerable to disease and death.

The practice of purchasing veal calves directly from dairy farmers brings with it the option of veal growers to specify conditions for purchase. Among those conditions can be a requirement for correct colostrum feeding. Despite such requirements, there is no guarantee

that the calf was indeed afforded ample quantities of quality colostrum. One sampling of dairy-direct purchased calves where colostrum was "guaranteed" found via blood testing that only 50 percent of the calves exhibited the immunity characteristic of correct colostrum consumption. Among auctioned calves tested barely 30 percent showed signs that they were fed colostrum.[lxii]

Under ideal conditions, after the recommended two colostrum feedings, calves are fed either low quality/discarded milk or milk replacer. The latter can be of varying quality depending on the components used for protein. Milk replacer, most simply put, is a formula of protein, carbohydrates and vitamins designed to replace mother's milk. Human-grade milk-based protein is preferable to that derived from soy and cereal flour. Its utility is based largely on economy. Fifty pounds of milk replacer is the equivalent of 400 pounds of whole milk. That comparison is based on whole milk containing roughly 12.5 percent solids. Multiplying 400 times 12.5 percent equals 50 pounds of solids.

Baby calves are born with four-compartment stomachs: the rumen, reticulum, omasum, and abomasum. The weaned bovine uses all four. The milk or special-fed veal calf uses only one, the abomasum, during the first three to four weeks of its life.

Typically, the bovine digestive process follows a pattern. The cow gulps down grass or feed that is passed virtually intact to the rumen. Microorganisms in the rumen break down by means of fermentation the grass and covert it to small chunks called "cud." The cud is returned to the cow's mouth by regurgitation, rechewed and sent to the reticulum, a small "holding" chamber. The "digesta" (the chewed feed and fluid – mostly saliva – mixture) passes to the omasum where water is absorbed. The abomasum is the last stop in a bovine's digestion.

The abomasum is sometimes called the "true stomach" because it's the site where enzymes complete the digestive process. Nutrients are sent onto the body through the small intestine. Some of those enzymes break down the proteins casein and lactalbumin and the carbohydrate lactose found only in milk making the abomasum the only chamber necessary to accommodate the diet nature intended for the calf.

Milk replacer formulas vary in composition and nutritional quality. The most efficient are based on human-grade fresh milk by-products such as dried skim milk, dried buttermilk, dried whey and casein that supply milk protein. They also contain fat and vitamins A, D, E with some tossing in B vitamins. Unfortunately, manufacturers don't label their products "human-grade." Quality replacer promotes growth and reduces the risk of scours. Optimum calf performance requires 22 percent (milk) protein and 20 percent fat content. Ten percent fat is the accepted minimum for fat. Above 20 percent fat provides little discernable difference.

The advent of the "mad cow disease" tragedy (Bovine spongiform encephalopathy or

BSE) in 1986 focused world attention on the very unnatural practice of feeding animal matter in the form of meat and bone meal to cattle. Fully 184,000 United Kingdom cattle contracted BSE from 1986 through 2004.[lxiii] Of those infected cows, better than 85 percent were dairy cows. Half of Britain's 4.7 million cows were killed and burned as a preventative measure. By 2003, 143 Britains and 10 other humans from throughout the rest of the world died of variant Creutzfeldt-Jakob disease, BSE's human counterpart.

No one is certain of the actual origin of BSE. Scientists theorize a number of likely, but unproven scenarios. One suggests the inclusion of scrapie-infected sheep offal in meat and bone meal fed to cattle and highly susceptible calves in particular is the culprit.[lxiv] Another holds that BSE appeared spontaneously in a number of cattle and the carcasses of the afflicted bovines were then rendered into infected meal that in turn was fed to other cattle.[lxv] The majority view is that the disease is caused by folded over rogue protein cells called prions. Others say the behavior of the infecting agent is more akin to a virus. Proponents of grass fed and organic beef float yet another intriguing theory on the origin of BSE based on the observations and studies by British beef farmer, Mark Purdey.

Purdey's hypothesis is that BSE began in the early 1980s after the British Government mandated the application of Phosmet, an organophosphate pesticide, on the heads and necks of cattle in the United Kingdom to combat warble fly infestation. Purdey refused and his cows appeared immune to the disease that infected nearly two hundred thousand British cows including those of neighboring organic cattle growers.

Purdey's theory suggests that prions are naturally occurring proteins with copper on their tips. When a convergence of conditions including exposure to organophosphate pesticides and sonic shock waves from supersonic aircraft occurs in areas of low copper and high contamination of manganese, strontium, or uranium a mutation of prions takes place. Instead of their normal copper tips, the prions become armed with manganese or strontium tips that bore through tissue leaving the characteristic spongy holes in infected mammal brains.[lxvi]

Purdey's theory is intriguing specifically because the appearance of BSE in the early to mid 1980s raises serious questions about its appearance at that time. The most obvious is what caused BSE to appear in the United Kingdom in 1984-1986 given the presence of 1.3 billion head of cattle spread among 60 species across the face of the earth. Only ten percent of the planet's cattle are concentrated in Europe. Greater numbers (roughly estimated) are in the Americas (34 percent), Asia (30 percent) and Africa (15 percent) yet the BSE outbreak touched those nations primarily through cattle or contaminated feed that originated in the United Kingdom.[lxvii]

Regardless of BSE's origin, whether from twisted prions, a virus, or anything else, what is known is that BSE agents are transmitted via ingestion of contaminated feed or flesh and there exists no known cure for animals or humans. The United Kingdom prohibited meat

and bone meal (MBM) for animal feed in 1988. The European Union banned MBM fed to ruminants in 1994, then to all animals in 2001. The U.S. and Canada imposed their own laws against MBM cattle feed in 1997. Still, despite evidence that contaminated tallow is linked to BSE incidents in Denmark, Germany and Japan,[lxviii] tallow rendered from beef is both a legal and preferred fat source in U.S. milk replacer despite its very real potential for controversy.[lxix]

Government food security watchdogs within the Agriculture Department as well as the Food and Drug Administration (FDA) may be confident that BSE is not transmissible via tallow. But, Dr. Stanley Prusiner, who won the Nobel Prize for identifying prions, believes "we shouldn't be using anything from ruminants in cattle feed."[lxx]

Even if the newborn calf receives the proper amount of quality colostrum during its first hours and enjoys optimum quality milk replacer or even whole milk after that, threats to its life become even more complicated and tenuous once the auctioneer's gavel falls.

Bull calves separated from their mothers and heading for either veal or dairy beef production facilities experience fear and social stress that comes with being removed from their mothers, isolated from herd mates, and the disconcerting novelty of a constantly changing environment. Among the calves' most disorienting "adventures" is the never-before-experienced stress of being transported from dairy to auction barn, then to their new home. Dairy-direct purchased calves have one less trip with which to contend. That scenario is a journey of ever changing "firsts": being loaded upon a truck, being closely confined with other strange animals, being aboard a moving vehicle, and then the reverse experience of off-loading.

Veal farmers are observant of the details associated with transporting calves. They see the effects of that stress first hand. Some believe that calf health deteriorates rapidly depending upon the number of times it moves from farm to farm with death resulting from as few as three trips.[lxxi] No matter how kind the calf keeper may be, calves off-loaded from trucks to veal barns balk and fight at the prospect of rows of individual pens. Attempting to move recalcitrant and frightened calves into their new "homes" also presents physical danger to farm staff assigned to the chore.

Assuming the calf survives the sojourn from dairy farm to veal farm, the dangers associated with very young calves are far from over. After the birth process itself, the biggest threat to their young lives comes from the potential of developing one or more diseases within hours of their birth. Stress contributes to their penchant for contracting life-threatening disease.

Novelty and fear are strong sources of stress to animals.[lxxii] The litany of stress types affecting calves includes thermal, environmental, disease, management techniques, social and transportation to mention a few.[lxxiii]

Fluctuations in temperature can seriously influence calf health. Below 50 degrees Fahrenheit, known as the "lower critical temperature," food energy diverts from growth to maintenance of body temperature. At that temperature, too, newborn calves' ability to absorb colostrum decreases. The "upper critical temperature" of 85 degrees Fahrenheit results in decreased food intake in dairy calves again inhibiting growth. Humidity, wind-chill, rain and mud compound the effects of temperature extremes.[lxxiv]

Environmental stress can come from slippery flooring, the amount of living space allotted to individual calves, even the fumes given off from accumulated manure and urine that damage the lining of young lungs and result in respiratory disease.

Veal calf housing in North America and the United States in particular is particularly troubling from an animal welfare point of view. Stand-alone calf hutches are little more than oversized fiberglass doghouses. In winter, temperatures can drop to below zero causing serious problems for the calves whether they are housed in hutches or barns without heating systems. The same holds true in hot weather.

Individual stalls within veal barns can be constructed from wood or metal. U.S. standards specify that stalls should be a minimum of 24 inches wide and 65 inches long.[lxxv] Canada's Codes of Practice for veal calves specify individual stalls at least 35.5 by 65 inches. The extra ten inches of width allows Canadians to boast that "Canadian stalls are among the largest in the world, allowing calves to lie down, stand up, and groom themselves. Calves can turn around in the stalls for the majority of their lifespan as Canadian stalls do not require tethering."[lxxvi]

Stalls or pens, or as they are termed by veal growers and their critics alike "crates," are explained by veal growers as the most efficient way to maintain calf health. Given the diversity of origins of veal calves bought at auction or dairy-direct from a variety of farms, calves housed together for the first time bring an equally diverse vulnerability or resistance to bacteria and viral agents as well as that those disease-causing agents themselves. Arguably, keeping calves separated in individual stalls is a way of monitoring individual animal's health.

The downside, for an industry lamenting zero growth among nations of meat consumers, is that life in an individual "crate" is as far from a natural setting for a calf as solitary confinement in a prison cell is for a human baby.

Tethering young animals to their three-sided stalls compounds the fear experienced by the newly arrived calves. It also poses a threat to their lives. Their small domiciles leave little room for movement once the heftily muscled mature veal calf approaches the end of its life. However during the first few days in a stall, a tether can become a hangman's rope for newly arrived calves that can leap in fear at being bound to the stall's small space. Calves resisting the tether can and do jump to escape both the tether and the stall. If they land the wrong way, they can and do die from strangulation.[lxxvii]

After their 16 to 20 week stationary stay at the veal grow-out facility, calves kept immobile in "crates" find their ability to walk with balance and stability atrophied. At four hundred or more pounds, the calf's unsure footing on sloping and oftimes slippery ramps onto and off transportation to the slaughterhouse can result in rough handling, both forbidden by the USDA and used by industry critics to argue about the rampant inhumanity of veal.

Disease-caused stress, as noted earlier, is greatly facilitated by the lack of quality colostrum during the early hours of a calf's life. Cleanliness and stocking density are other disease contributing factors. Failure to dip the umbilical cord in a tincture of iodine solution exposes the calves to pathogenic bacteria. Parasites are another disease vector that must be held in check.

Exposing calves to ear tagging and dehorning in quick succession are other ways to compound the stress and fear that works against robust health.

Even calves raised in the field with their mothers can undergo life-threatening stress resulting in "nutritional scours" if their feeding routine is disrupted for any number of reasons such as storms or strong winds or even the mother wandering off in search of new patches of grass to graze.

The ability of a calf to avoid the maze of obstacles working against its survival seems somewhat ironic given that its purpose for living is to become a select cut of veal anywhere from three weeks to four to five months after birth.

The "bob" veal calf's life runs its course once the calf grows to 150 pounds. "Special fed" calves live considerably longer with their average life span between four and five months. Gaining roughly two-and-a-half pounds per day on milk replacer, then "finisher feed" (averaging 14-16 percent protein and 18 percent fat), the calves are ready for slaughter once they reach weights ranging from 375 to 475 pounds.

During the early months of 2004, the US Department of Agriculture's (USDA) Food Safety and Inspection Service (FSIS) agents exposed a wholesale violation of federal regulations against the use of bovine growth hormone implants in veal calves being transported for slaughter. Use of the growth hormones in veal calves is expressly forbidden in the U.S. Many growers regarded that ban on growth hormones for veal calves with cavalier disdain until the FSIS agents intercepted shipments of implant laden calves that year.

Bovine growth hormone use is approved for other calves groomed as beef cattle. Tests demonstrating growth hormone use in calves with functioning rumens is safe for human consumption convinced the U.S. Food and Drug Agency (FDA) to approve it for beef calves. No such tests exist on its effects in pre-ruminating calves. Scofflaw veal growers consider one dairy bull calf identical to another, whether that calf's life ends as veal or beef and rationalized its use despite the federal ban.

On April 4, 2004, the USDA FSIS issued a notice on hormone implants that gave the veal industry a one-time break.[lxxviii] Non-ruminating calves (veal calves) implanted with growth hormones would be allowed to go to slaughter without penalty if a 63-day period between the removal of the implant and slaughter was observed. That one-time grace period ended on June 6, 2004.

Unable to rely on the rapid growth promoted by hormone implants, a number of veal growers opted to leave the veal business and convert to dairy beef where hormones are legal.

Veal calf carcasses are converted to prime, choice, good, standard, or utility grades in a variety of popular retail cuts for osso bucco, cutlets, loin chops, rib chops, breast, blade or shoulder chops, stew or kabob portions, and shoulder clod roast. The seven major cuts of the veal carcass include the hind shank, leg, loin, rack, breast, chuck, and foreshank. A recent trend among white tablecloth restaurants elevated once lowly veal cheeks to prized dining fare.

Perpetuating an Unnatural Life:

Life for a bull Holstein calf on a typical veal farm is a perpetuation of a way of a very short life that is far from that intended by nature. It's a life described as "an altered state."[lxxix] The same is true of the life of the Holstein cow in the dairy industry and of the bull calf in the dairy beef industry.

As noted, the first example of veal calf handling that flies in the face of nature's intended life is the immediate removal of the calf from its mother. The calf is not allowed to establish the most elemental of relationship, that of mother and offspring, nor is it allowed the most basic of infant nourishment, namely, the ability to nurse from its mother.

At dairy farms more concerned about milk production than unwanted bull calf health, poor to little to virtually no colostrum is given the newborn veal or dairy beef male calf. Denial of mother's colostrum is not what nature intended. Odds are against any animal newborn entering unscathed into a world fraught with dangers during the birth process and filled with many sources for disease and death. Therefore a mother's colostrum is vital to post partum survival. As noted, that omission leaves the calf vulnerable to a variety of life-threatening illnesses. That vulnerability is the reason antibiotics are administered as a prophylactic measure by veal farmers.

After being auctioned or sold diary-direct, a very unnatural process ensues when the calf is loaded, often with great physical duress, aboard a motorized transport vehicle and taken far from its birthplace. Each step in the transportation process elevates a calf's fear and stress factors, conditions known to catalyze disease and even death.

The combination of being off-loaded at the veal barn and facing life in a confining stall or hutch is manifest in the calves' behavior coming off the ramp. Calves bleating from fear have to be dragged, pushed, and pulled to what industry calls (much to the delight of animal rights critics) "crates." The experience is exhausting physically and emotionally to the calf and the human participant alike.[lxxx]

Calves are naturally social animals that wander about seeking more bountiful patches of grass to graze upon. That's the key characteristic of any herd-species. At the veal farm, isolation awaits. There are no mother cows or adults of their breed to provide comfort and security. The calf kept in unheated outdoor hutches is isolated from others of its age. The calf kept in stalls may be a board's width away from another but its ability to socially interact is nil and less than natural no matter what industry association public relations spin might say. Some calves are tethered to keep them separated from their peers. Any semblance of herd life disappears.

Veal farmers insist, and with good reason, that keeping calves isolated is necessary to maintain calf health. Given the diversity of birth farms for calves housed in a single veal barn, the potential for a virus- or bacteria-carrying calf infecting its barn mates is high. By isolating the calves from each other, their health can be more efficiently monitored and any needed medical treatment can be administered with a high degree of assurance that each calf is treated and none overlooked. Of course, the case can also be argued that the penchant for disease importation is a very predictable by-product from the essentially un-natural condition of separating calves from their birth mothers and "herds."

Yet another area of the veal calf's life that falls into the "alien from nature" category is its diet. The function of diet is to provide nutrition to enable the calf to grow in muscle mass in order to bring the highest possible price at market. Certainly to a point in every calf's life before (more an "if" for veal calves) they graduate to grass or grain, milk is the food nature intended they have. But milk is an expensive commodity the bulk of which is reserved for human consumption. Here economics take control.

The veal farmer is presented with the problem of feeding a calf as inexpensively as possible but at the same time providing an efficient feed that promotes optimum growth. So the veal calf is fed "milk replacer" substitute. Milk replacer adds to farm costs too. The problem with the equation that the longer a calf is fed the heavier it grows. The more muscle mass it acquires, the higher the potential profit. Therefore the cost of milk replacer must also be factored into overall cost. The use of illegal bovine growth hormone helped some overcome that financial bump in the veal production road.

The concept of a man-made formula to replace mother's milk is not unique to the veal industry. A milk substitute is available for virtually every domesticated mammal: pigs, goats, lambs, foals, kittens, dogs, etc. Every human parent recognizes that one brand or another of "formula" is available for his or her newborn offspring, particularly if the child exhibits an intolerance to milk or needs a nutritional boost to overcome some early health deficit. So while "milk replacer" may be different than nature's intended food, its use is not necessarily a negative for veal calves. What compounds milk replacer's un-naturalness is the inclusion of animal protein or fat into its make-up. Bovines, by nature, are not meant to eat other animals.

It is precisely this laundry list of alienation from what's natural that presents the veal industry with its greatest vulnerability to criticism and contributes significantly to the lack of market expansion. That is a view held by a sizable segment of potential consumers. Any number of unnatural characteristics contributes to the all too familiar frightened, wide-eyed expression on veal calf faces and their frantic bleating. Most can be mitigated. Most, too, are easily seized upon by animal rights activists to make their case that veal is the product of deliberate and systematic animal abuse.

Antibiotics – Yes or No:

One of the mainstays of animal rights and environmental activist groups' condemnation of veal is the allegation of antibiotic misuse by the veal industry. Those allegations include ominous claims that antibiotics necessary for human health are rendered ineffective for human medical use by the indiscriminate dispensation among veal calves as unnatural growth stimulants.

Given the complexity of factors working against a veal calf's survival from the moment it is born through at least the first two weeks of its becoming acclimated to the veal barn, the issue of whether the ethical use or presence of antibiotics – both natural and synthetic (antimicrobial) – in veal is allowed cannot be a simple "YES" **or** "NO." The ethical and legal antibiotic use in veal calf husbandry is more a question of "YES" **and** "NO."

YES: Antibiotic use to treat and prevent disease in veal calves is allowed and, more often than not, necessary. Depending upon the type of antibiotic and the regime governing its use, antibiotics given veal calves are quite legal and desirable for the prevention and treatment of life-threatening disease.

The controversy over antibiotic use in food-animals is grounded on several hotly debated points.

Critics of the veal industry and antibiotic use for farm animals in general, and they are legion throughout the environmental and animal rights communities, raise questions and demand regulatory as well as legal relief from threats to human health they perceive flowing from the rampant and unnecessary use of antibiotics in food animal production.

One concern is the transference of antibiotic-resistant bacteria, mainly strains of *Escherichia coli* (E. coli) and *Campylobacter* from animals (predominantly poultry) to humans. Related to that issue is the fear that frequent, widespread, and indiscriminant use of antibiotics will lead to their becoming useless for treating human and animal diseases.

Each of these concerns is valid to a degree.

Some antibiotics are approved for use in calves. Some are not. Some antibiotics used in food-animal health care are important in treating human health problems. Some are not.

In the United States, the Food and Drug Administration (FDA) compiles the official list of antibiotics approved for food animal use under Title 21, Part 556 of the Code of Federal Regulations. The Food Safety and Inspection Service (FSIS) is charged with implementation and enforcement.

A handy reference to antibiotics used in animals and the importance of each to human healthcare is found in Appendix V "Antibiotics Frequently Used in Animals" of the April 2004 General Accounting Office Report to Congressional Requesters entitled: "Antibiotic Resistance –Federal Agencies need to better focus efforts to address risk to humans from antibiotic use in animals." The classes and specific antibiotics approved for animals are categorizes as "Critically Important" (third generation Cephalosporin, Macrolide, Fluoroquinolone), "Highly Important" (Penicillin/Aminopenicillin, Tetracycline) and "Not Important" (Phenicol, Sulfonamide) to humans.

It is true that antibiotic misuse diminishes a particular antibiotic's effectiveness. A prescribed dose and timeline for antibiotic usage must be followed faithfully. Prematurely ending its use treating a malady can result in incomplete eradication of the targeted microbes, and in particular, those bacteria with the greatest resistance to the drug.

Antibiotics given in low dosages over a long period of time is a technique typically used to promote growth in some types of food-animals, largely poultry and swine.[lxxxi] Banning that practice would, according to some estimates, increase the cost to swine growers by nearly three quarters of a billion dollars per year. Arguably administering antibiotics deemed "not important" for human health care for this purpose should not pose any threat to the efficacy of antibiotics needed by humans.

NO: Antibiotic residues in excess of specific trace limits called "tolerances" set by the U.S. Food and Drug Administration (FDA) are not allowed in meat products sold to the public.[lxxxii]

Where public perceptions of the dangers to humans posed by antibiotic use in food animals become confused is in what appears to be a deliberate oversimplification of the issue by food-animal critics.

Veal industry critic allegations of widespread antibiotic use to promote rapid growth are made without differentiating among food animal species. What may be an accepted and widespread practice among swine and poultry producers is, by inference, alleged to be common throughout the veal industry. Similarly, no distinction is made as to whether or not the antibiotics used for animals, either for therapeutic or non-therapeutic reasons, are important to humans. All antibiotics are portrayed by veal foes as critical to human health care.

This technique of declaring one entity (the veal industry) guilty by association with others (swine and poultry) is all too common in the realm of animal rights advocacy. It is carefully and, one may assume from the frequency of the technique's use, deliberately deceptive and misleading. Lacking a basis in fact, the operating rationale seems to be "all is fair in love and war."

Unfortunately, another point ignored by the critics of the veal industry is the fact that the U. S. government monitors antibiotic levels in meat processed for the consumer market. Perhaps the bulk of consumer confusion and fear might be allayed if the language governing this fact both jettisons the technical jargon employed by regulators and simplifies its terminology in a way understood by the average consumer.

The use of the term "tolerance" is scientifically specific. It means quite literally the level of antibiotics present in meat that the government will "tolerate" or "accept" as safe for consumer use. These levels amount to barely detectible traces. For example, tetracycline tolerances approved for calves are measured in parts per million (ppm) with 12 ppm for fat and kidneys, six ppm for liver, and 2 ppm for meat. [lxxxiii]

Antibiotic "tolerances" directly relate to perhaps the most controversial and confusing question arising from the antibiotic issue, namely the issue of what exactly is meant by the claim that a veal calf or veal product is **"antibiotic free?"** Does it mean no antibiotics were ever used in the raising of the animal? Does it apply only to the meat for sale? How "free" is "free"? The answer is yet another confusing "YES" **and** "NO."

YES: Veal from calves given antibiotics to treat and/or prevent disease may be sold as "antibiotic free" as long as the residue levels of the antibiotics used are at zero, below or equal to the specific "tolerance" for those antibiotics.

Put another way:

NO: "antibiotic free" does not mean antibiotics were never used in the animal or that the meat lacks even traces of antibiotics. However, the U.S. government is satisfied that those traces and that use pose no threat to human health, animal health or the viability of the antibiotics involved.

Veal may be marketed as "antibiotic free" with traces of antibiotics if they are equal to or less than FDA-approved tolerance levels. Except in U.S. certified "organic" veal, the term "free" does not mean absolutely "free."

U.S. "organic" standards demand that while it is mandatory to treat all sick animals, no antibiotics may be administered to animals whose meat will be marketed as certified "organic." Canadian organic agriculture standards have the same prohibition…almost. While Canadian "organic" standards require veal treated with antibiotics to be sold as traditional veal, Canada's organic standards also have an exception that again causes the question about "organic veal" to be yet another "YES" **and** "NO" concept.

NO: Veal treated with antibiotics may not be USDA- or Canadian-certified "organic" with one exception for Canadian veal.

USDA and Canadian standards require healthcare treatment for all animals. Therefore "organic" veal farmers may be compelled to treat sick animals with antibiotics if all other treatments fail. Those animals, whether on U.S. or Canadian veal farms must be marketed as non-organic. However, according to the Canadian standards governing "organic" agriculture an exception exists that allows antibiotic-treated veal to be marketed as "organic" if it meets the requirements of Section 7.4.4 under Livestock Production of the Canadian Organic National Standards that reads: *"No products from livestock treated with synthetic antibiotics, parasitides, or other synthetic veterinary compounds not permitted in this standard, with the exception of vaccines, shall be labeled or marketed as certified organic, in accordance with this standard, until an interval of time that is at least double the permitted federal withdrawal period allowed for such veterinary compounds has been exceeded for the treated animal."*[lxxxiv]

The Canadian Cattlemen's Association fact sheet for producers on Canadian organic beef contains the following restatement of the Canadian Standards passage: "*Organic producers may use antibiotics to treat ill animals. If an animal is treated with antibiotics for an illness, beef from this animal may still be considered "organic beef". However, no products from the livestock will be labeled or marketed as certified organic, until at least double the permitted federal withdrawal period allowed for the treatment has been exceeded for the animal."*[lxxxv] Therefore:

YES: Canadian "antibiotic-free organic" veal may have been treated with antibiotics if the double withdrawal period is observed. No such exemption exists for U.S. veal to date.

Ironically, despite the rhetoric and regulatory commotion surrounding "organic" versus "conventional" farming techniques, studies show the advantage of one over the other in terms of freedom from harmful bacteria doesn't exist. [lxxxvi] The bacteria levels in samples tested by Purdue and Ohio State investigators came out to be statistically equal. The main difference being the increased cost of "organic" meat due in part to increased calf mortality in the absence of prompt antibiotic treatment for life-threatening disease.

Yet another irony arises from the push by forces championing "organic" over "traditional" food-animal production. If ever the antibiotic controversy is put to rest, the North American veal industry, whether "organic" or not, as well as virtually every aspect of food-animal production, is certain to face an equal if not more volatile controversy. It will center over the permitted use of "veterinary biologics."

A "veterinary biologic" is defined as a product designed to diagnose, prevent, or treat animal diseases via active or passive immunity processes. Active immunity stems from the body's ability to combat disease by means of surviving a natural infection or through its response to a vaccination. Passive immunity comes from transference of immunity from one immune organism to one that has no such immunity. The classic example is a mother passing immune building colostrum to a child in her first milk.

Biologics differ from traditional drugs in that they are often too complex to synthesize. Biologics in the form of vaccines, blood and blood components, allergenics, gene therapy, tissue, and recombinant therapeutic proteins are considered the "cutting edge" of medical biotechnology and therein lies the potential for the next controversy to plague veal producers.

Vaccines are already embroiled in a consumer controversy over perceived dangers versus proven benefits. The movement of genetic research into animal health care brings with it the full weight of the global controversy instigated by many of the same animal rights and environmental groups behind the opposition to veal. The so-called "Frankenfood" fight can easily be seen as shape-shifting into a "Frankentherapy" struggle. Only this time around the organic producers will be equally as vulnerable as their more traditional colleagues.

Animal Rights & Wrongs:

Over the past three decades, veal has been surrounded with a strong air of controversy in no small part due to animal rights advocacy campaigns equating veal to animal abuse.

A persuasive case can be made that both the environmental and animal rights movements emerged from the shift in energies and focus of a generation of young adults whose interest and passions were long associated with protesting the Vietnam War, the Nixon Administration, capitalism, corporations, globalization, as well as the institutions and mores of society in general.

Certainly, the founding of many environmental and animal rights activist groups coincided with the winding down of the Vietnam era. David Brower founded Friends of the Earth and co-founded the League of Conservation Voters in 1969. A diverse network of anti-war activists and U.S. ex-patriots living in Canada founded Greenpeace in 1975. People for the Ethical Treatment of Animals (PETA) appeared on the animal advocacy landscape just after the close of the '70s in 1981.

Then the plight of animals, wild (whales, elephants, and baby seals) and domestic (veal calves), galvanized the activism of the protest generation and their mission to create a more brave, newer and more natural world. Key players were bright, highly educated and often born to privilege. Many were heirs to fortunes built from industries and activities considered violators of the Earth and its wild creatures (oil, pharmaceuticals, government, corporate global trading, etc.).

Farmers, meanwhile, tended to be the segment of society charged not only with feeding a hungry world and working without respite for the narrowest of profit margins, but also with sending their sons into the ranks of combat soldiers in the rainforests of Southeast Asia. Life on a family farm focused on the essentials of meeting the basic food, water, shelter needs of livestock; the planting, growing, harvest schedule of crops; dealing with the feast or famine quirks of nature; and not much else.

The shift from family farms raising a diversity of crops and animals to family farms contracting with corporations and conglomerates to provide a single product: eggs, milk, pork, beef, corn, soybeans to mention a few made agriculture a prime target for the legion of animal and environmental advocacy campaigns.

To the farmer, food animals are like any other crop. Treat them well and they flourish. Fail to provide for their needs and they fail. Commonsense and the desire to turn hard labor into monetary profit compel farmers to pursue the former.

On the farm, traditional ways to keep and increase milk flowing, animals growing heavy with meat, and hens laying eggs had little to do with today's concept of "farm animal welfare." It was the way things were done. The concept of animal cruelty was not part of the typical farmer's experience.

Farmers know that calves are susceptible to disease. They also know that veal calves, destined for a short life thrive better if kept in isolation from others of their ilk. The materials to expand barns not only cost money but demand other commodities family farms find in short supply: time and energy. The farming conditions and practices in place during the 1940s, '50s and '60s lend themselves to offending the sensibilities of urban-raised, university-educated animal activists who appeared on the scene in the 1970s and '80s.

To their credit, animal rights groups were the first to point out the unnatural nature of veal farming. The desire to see every animal enjoy a "natural" life led some in the advocacy field to embrace "organic" farming. Others chose the path of vegetarianism.

Animal rights campaigns against veal focused public attention on the quite unnecessary but traditionally accepted practices that compounded the discomfort, stress and mistreatment endured by the short-lived calves. "Special Fed" veal growers became the "humane" movement's primary farm target.

The list of "abuses" alleged against the veal industry was obvious. The first count in the animal rights indictment of veal growers is the separation of mother cow and calf. The emphasis on mistreatment of "baby" animals is deliberate. A baby animal elicits quite a bit more sympathy than an adult bull; the natural form the veal calf would evolve into if allowed to live a full and natural life. The second indictment is the denial of colostrum to the newborn youngster. Next on the agenda is the issue of transporting the infant animals. That issue includes rough handling of recalcitrant calves as well as the lack of food or rest during the journey.

Animal advocates decried the use of "tiny, confining crates" that prohibited movement and social interaction among calves. Anti-veal campaigns purposely used language equating the calves to human children eliciting impassioned emotional reactions to tethered calves unable to "romp and play," groom themselves, or even walk as young calves should.

Portraits are created of the "baby" cows denied the ability to suckle from their mothers and forced to drink unnatural brews from cold, metal buckets. Their living conditions confined to the crates are described as being filthy from accumulated manure and urine and detrimental to normal growth causing weakened legs from enforced inactivity. In some cases animal advocates allow their audience to believe the veal industry still engages in the archaic practice of keeping calves immobilized and living in the dark based on the erroneous belief that the lack of light produces the palest meat.

Farm animal activists decry the lamentable results of veal farming and describe the calves as neurotic, crippled, and enslaved in a freakishly unnatural and unsanitary existence fraught with illegal drugs, disease, and inadequate nutrition, water, or even light.[lxxxvii]

The most savvy of animal advocacy groups are quick to capitalize on any issue that can be used against veal growers. The "mad cow" disease scare presents just such an opportunity. Using typical animal advocate rhetoric, editorial writers for The Humane Society of the United States (HSUS) implant the idea that the safeguards against BSE surfacing in the U.S. cattle herd are "weakly enforced and plagued with non-compliance problems." The source for that statement is given as "two studies by the General Accounting Office and the FDA's own data made public in 2003" but no references to cross check the statement are given.[lxxxviii]

The HSUS "fact sheet" stresses that the FDA failed to ban cattle blood as a component of milk replacer fed to calves. It also refers to chicken manure used as cattle feed as potentially tainted with matter that might contain transmissible spongiform encephalopathy material. Each is a true statement as related to the 1997 regulations imposed by FDA and USDA. However, the animal rights group's article is woefully disingenuous precisely because both agencies were in the process of imposing an updated set of regulations that specifically banned use of bovine blood in calf milk replacer and chicken manure from cattle feed. Those regulations went into effect two weeks after the HSUS Internet posting.[lxxxix] Not the first mention or corrective action has been taken by HSUS to provide accurate information on the subject.

Having suggested that U.S. consumers are vulnerable to "mad cow" disease and balking at an affirmative response to the safety of eating beef, HSUS goes on to state that the best course of individual action is to practice the "3Rs: refining, reducing or replacing use of animal products as appropriate." Ultimately, the consumer is told that the best way to ensure that BSE-infected products are not eaten, to avoid the array of illnesses transmitted by meat, and to express concern for the well-being of animals is to "consider replacing meat altogether with a vegan or vegetarian diet."[xc] Vegetarianism, of course, is the agenda behind most animal activist campaigns championing the plight of food animals.

Openly vegan organizations such as People for the Ethical Treatment of Animals (PETA), HSUS, and others cloak their anti-veal and anti-farm animal rhetoric in platitudes about concern that consumers are offered only humanely raised and slaughtered animal fare when they dine at fast food or more trendy eating establishments.

Farm Sanctuary, a New York-based animal advocacy group, works closely with HSUS, PETA and others. Among its many anti-farm animal campaigns is NoVeal.org. The basis for the protest is the concept that veal calves are "taken from their mothers" and "chained by the neck in crates measuring just two feet wide" and that the calves cannot stretch, turn around, or

lie down with any semblance of comfort. Ironically, Farm Sanctuary condemns veal growers for keeping veal calves in "severe confinement" that "makes the calves meat tender since the animals' muscles cannot develop."[xci] The absurdity of that statement should be obvious. Meat is muscle. If the calves' muscles cannot develop, no veal will be available for sale.

By scanning the activist group's numerous websites, Farm Sanctuary's true agenda (eat no meat) becomes evident. A list of Farm Sanctuary's websites includes: AdoptATurkey.org.; BanCruelFarms.org; FactoryFarming.com; FarmAnimalShelters.org, FreeFarmAnimals.org, NJFarms.org; NoDowners.org; NoFoieGras.org, Poultry.org, NoVeal.org, SentientBeings.org, and VegForLife.org

PETA campaigns run parallel to those of other organizations and often point to the next target in the animal rights sector's battle plan. They also inject the element of street theater complete with scantily clad male and female activists. PETA tends to focus its efforts on retailers – KFC, Wendy's, Burger King, McDonalds. Still, PETA is steadfast in promoting its vegan (no animal products whatsoever) ideology hoping to help society evolve to the level where meat, dairy and fish are purged from the human diet. It comes as no surprise then, that PETA's veal "Fact Sheet" urges its followers to expand their anti-veal sentiment to the origin of the veal calves: the dairy industry. PETA want consumers to boycott dairy because "cruel veal" is a "by-product of the cruel dairy industry."

Animal rights groups consider the decline in North American veal consumption evidence of their influence. They also see the 1990 ban on veal crate use by United Kingdom farmers and the 1997 European Union decree prohibiting the use of crates after eight weeks or tethering for more than an hour as victories.[xcii] To a great extent the issues they raise and the public opinion campaigns they've waged over the past three decades have taken a toll in consumer confidence and created a barrier resulting in the failure of the veal industry to expand market share. The effectiveness of their anti-veal campaigns cannot be denied. The ineffectiveness of industry to respond is also true.

On virtually every point of criticism of the veal industry, the animal rights groups are correct in raising objections to traditionally accepted veal grower practices.

To their detriment, these same groups distort their criticisms by piling on gratuitous claims of gross cruelty and inflating the rhetoric of deliberate abuse aimed at veal growers. The frustrating truth about the animal rights movement is that its "watchdog" role has become corrupted. There is worth in raising the alarm about problems. There is no valor or integrity in doing so only to disrupt and destroy the lives of farmers, processors and retailers if the true agenda is to promote an ideology or increase donations from "true believers." The animal and environmental movements are caricatures of their worst enemies: special interest groups and corporate giants. Animal rights activism is big business and operates in political circles as an avaricious and uncaring "special interest."

Farm Sanctuary is a $3.5 million a year operation (2003 figures). Each year PETA raises $24 million (2003) while HSUS rakes in $133 million in tax-free donations (2002).

These groups make headlines, influence public opinion, manipulate the press, and shape public policy and legislation. Their tales of animal abuse are compelling. Yet their actions to provide solutions in areas they see as problematic are lacking.

As revenues from "save the whales/save the elephants" campaigns during the early years of their rise to fame waned, animal and environmental rights groups stepped up the accusatory rhetoric against agriculture and veal farming. It grew in shrillness and alarm not to improve conditions for the animals but to stimulate donor giving. An even more damning indictment of their misplaced motivations can be seen in a quite correctable domestic issue that to date has seen no action by the animal advocate groups. That is the plight of the ten to 15 million stray "pets" (cats and dogs) indigenous to the United States. With hundreds of millions of dollars at their access annually, the animal rights groups have the ability to end this deplorable state of affairs yet they have done nothing of substance to correct it.

Still the tactics and intelligence of the animal rights and environmental activist groups cannot be ignored, particularly their expertise in using the "system" against their targets. A prime example is the introduction of anti-veal legislation in Massachusetts.

The amendment (floor number 665/clerk number 369) to the State's Fiscal Year 2005 budget calls for a change to Massachusetts laws Section 363, Section 1, Chapter 272 inserting new sections 77C and 77D that impose year jail terms and $1000 fine for pork growers keeping pregnant sows in gestation pens and veal growers keeping calves in "crates" or tethers calves. The penalties apply to each sow or calf. The effect would effectively shut down any Massachusetts veal farm employing such techniques. Massachusetts' veal would disappear from the market.

Given the litany of problems described in this paper about traditional veal barns, such legislation should be welcomed as a positive step in achieving a modicum of welfare for veal calves. In fact, the legislation and the animal groups behind it ring all too characteristically hollow.

According to the 1997 livestock census figures published by the USDA Natural Resources Conservation Service, the number of "veal and confined heifer" farms in Massachusetts was less than ten. If the animal rights groups were serious in their concern about the living conditions of veal calves they would have set their sights on the hundreds of veal farms in Wisconsin, Texas, Iowa, and Nebraska to mention a few. In those states veal farms contribute significantly to those states' economies. The Massachusetts exercise offends virtually no constituency. Waging war against an opponent made of straw is not an aberration.

In 2004, the anti-veal activist groups attempted to ban veal crates in New Jersey, a state that has no veal farms. Before that the animal groups spent millions on a voter ballot initiative to ban sow gestation pens in Florida. At that time only one Florida farm used the maternity pens and that farm was in the process of going out of business.

In one sense the activist community's actions in Massachusetts and New Jersey could be construed as pure hypocrisy. Why spend millions to enact laws that protect no animals? Part of the answer is that such tactics help build institutional and legislative constituencies needed to pressure federal legislators. More to the point, they increase donated revenues from supporters. Part of the answer lies in the political tactic of waving such precedents before state and federal legislators as proof positive that the will of the people is to enact similar laws elsewhere and nationally. Massachusetts, New Jersey and Florida may not have many veal farmers but they do have dense voting populations.

Success via animal and environmental advocacy in causing an even greater contraction of the veal market will not touch a narrow core of veal farmers, processors and consumers undeterred in their devotion to veal. Even if the animal and environmental activists succeed in destroying the veal industry state by state or nationally through passage of animal cruelty laws, their actions would have little effect on the lives of dairy bull calves. Rather than lives destined to become veal, they'll become dairy beef instead.

The answer to correcting animal welfare problems endemic throughout the veal industry does not lie in the animal rights advocacy movement. Rather, it depends upon both the dairy and veal industries taking those ethical steps themselves. Doing so out of enlightened self-interest is quite acceptable motivation.

The European Union & Animals as "Sentient Beings":

The legal underpinnings of the European Union (EU) begin with the 1957 Treaty of Rome. That legal document, amended numerous times since its first inscription, is a key factor in how U.S. veal calves (any animal actually) should be raised and treated whether the reason is for a continued or future access to the European market or because of the international legal precedent it represents. The importance of the latter is that European precedents have a very real tendency of becoming "model" legislation for the U.S and other non-European nations. They also are used as references/precedents cited by animal advocates in the pursuance of similar legislation, policy and legal rulings in the United States or elsewhere.

The treaty's revision, known as the Treaty of Amsterdam (entered into force 1 May 1999), saw the inclusion of a Protocol on Animal Welfare relating to agriculture, transportation, marketing and research. Previously, the Treaty of Rome had a legally lesser "declaration" regarding the necessity of animal welfare. The Animal Welfare Protocol reads:

> *"The High Contracting Parties, Desiring to ensure improved protection and respect for the welfare of animals as sentient beings, Have agreed upon the following provision, which shall be annexed to the Treaty establishing the European Community, In formulating and implementing the Community's agricultural, transport, internal market, and research policies, the Community and Member States shall pay full regard to the welfare requirements of animals, while respecting the legislative or administrative provisions and customs of the Member States relating in particular to religious rites, cultural traditions and regional heritage."*

The essence of that Protocol was incorporated into the European Constitutional Treaty agreed upon on 18 June 2004 and now in the process of securing Member State approval prior to 1 November 2006. Under the proposed European Constitution, animal welfare progresses up the legislative value system from Protocol to Article, specifically Article III – 121:

> *"In formulating and implementing the Union's agricultural, fisheries, transport, internal market, research and technological development and space policies, the Union and the Member States shall pay full regard to the welfare requirements of animals, as sentient beings, while respecting the legislative or administrative provisions and customs of Member States relating in particular to religious rites, cultural traditions, and regional heritage."*

European animal advocates remain disappointed but not undaunted because even the ascension of the animal welfare provision to Constitutional "Article" does not provide the framework for introduction of legislation earmarked to improve the condition of animals. Such legislation, however, can be enacted under the various "objectives" of the EU.

The point of greatest importance is that the Treaty of Amsterdam protocol was the first legal reference to animals as "sentient beings."

The most narrow definition of "sentient being" is "having the power of perception by the senses." Animal activists use this term to stress the concept that animals are "capable of awareness, feeling, and suffering" and therefore merit not only being treated with respect but also, some argue, with legal standing to demand punishment for non-natural or abusive treatment.

To date in the United States some 64 municipalities in 22 states and Puerto Rico have official proclamations addressing animals as "sentient beings."[xciii] Each appears a clone of the same "model" language:

> *WHEREAS, animals exploited by agribusiness are sentient beings - capable of awareness, feeling, and suffering; and WHEREAS, human beings have an ethical obligation to refrain from causing pain and suffering to other sentient beings; and WHEREAS, agribusiness commonly subjects cattle, pigs, chickens, and other farm animals to overcrowding, intensive confinement, and other conditions which cause pain and suffering; NOW, THEREFORE, be it resolved, by _____ Mayor of the City of _____, to recognize farm animals as sentient beings who deserve to be treated with respect and protected from inhumane treatment.*

Each of these "official proclamations" constitutes a step closer to granting animals including veal calves legal standing in a court of law. Animal advocates are currently working on strengthening state animal cruelty laws and crafting a national animal cruelty law. Those legal stratagems create the ability of advocacy groups to seek legal penalties against what they perceive (and hope to convince the courts to rule on) as animal cruelty in handling, housing, feed, transportation practices, and slaughtering to name a few areas easily targeted by animal rights groups.

Should the animals themselves be granted legal standing, the animal advocates could then take legal action on behalf of the aggrieved animal against the farmer and his corporate sponsor. Conceivably not only monetary damages could be awarded, the farm itself might revert to ownership by the herd or members of a herd.

III. Ethical Veal

At a time when "traditional values" are at the forefront of the public's political debate and the men and women of America who raise the nation's food are portrayed at the repositories of those important human qualities, rethinking and rebuilding dairy and veal operations to incorporate those same "traditional values" applied to their animals is not too great a leap for everyone involved.

Doing the "right thing" precisely because it is the correct way to proceed should be reason enough. Unfortunately, the "right" or "ethical" approach to business tends to conflict with the desire to cut costs in order to improve profits. The dominance of the latter is not simply a matter of common sense, it's the credo pounded into the American business psyche by statistics-driven economics lecturers from the Nation's leading business schools.

Bringing ethical considerations into play among the nation's dairy and veal farmers is not a far stretch, even among those whose vision is concentrated on ever-narrowing profit margins. The link between ethical behavior at the farm and increasing profit at the market is not hypothetical. The interplay among nutritionists, the media and consumers seeking ways to increase the vitality and health of themselves and their families strongly suggests the public is ripe for products provided by compassionate farms.

Today the veal industry is mired in inertia. Its prospect of growing richer is far darker than the potential of its declining further thanks to animal rights groups ratcheting up public and legislative pressure against the industry. Veal growers concerned over rising costs certainly can see the wisdom in reducing nuisance costs for lobbyists and lawyers to combat negative campaigns against their livelihood. Many will simply convert to dairy beef production.

Those who believe that veal can self course correct and jettison the old ways of raising veal for a more natural approach will, in fact, neutralize animal activist activity while at the same time build consumer confidence on a number of levels. Removing the activist rhetoric and activity from the veal arena, allows veal growers the opportunity to concentrate on the quite do-able and potentially lucrative market expansion.

Veal's innate attraction to fans of fine food strongly suggests that veal consumption would rise among those consumers awaiting a signal that animal welfare issues no longer make veal a taboo purchase. Raising calves in a more natural environment should increase calf growth and survival rates reducing yet another significant erosion of profits. An added but as yet not scientifically proven boon may well be increased nutritional value for veal. If true, that would be a significant plus in its own right. Nothing is guaranteed or automatic. But, the fact remains that until and unless the veal industry recognizes it is ripe for reform and

revising its procedures, what is guaranteed is the industry will be plagued with a steady erosion of its financial vigor.

At the Dairy

Ensuring the welfare of veal calves begins at the dairy farm. The first order of business is for dairy farmers to realize that it is in their best interest to make their operations immune to animal activist criticism that leads to consumer disaffection.

The care and welfare of newborn calves reflects mightily on the dairy operation. Whether those calves are heifers or bulls, they must be treated with equal deference from the moment of birth. That means the dairy farm needs to attend to the basic needs of their calves both male and female from the moment of birth.

A "nursery" where the newborn can spend time with the birth mother and enjoy the health-imparting benefits of colostrum in the quantities nature intended is imperative. Even a day with the nursing mother will improve the health of the calves and the public perception of the farm operation. Colostrum intake can be measured. Making certain that each calf receives optimum colostrum is far easier and preferable to a state or federal official testing, citing and penalizing a farmer.

The practices of ordering calves direct from the dairy enables the purchasing agent to specify conditions for the purchase. One is that the calf received sufficient colostrum. Another is a specification that the calf not be treated in rough or abusive manner. Buying dairy direct eliminates one stress-causing road trip for the calves, namely, being trucked to an auction barn.

Auction houses need to change their ways too. Every precaution must be made to afford the calves stress-free conditions, no matter how brief their stay may be. That includes diet.

On the Farm

The moment calves are off-loaded at the veal barn the environment awaiting them should be conducive to the animals' welfare. Rather than draconian individual stalls, the calves should be herded five or six at a time into group pens of at least 10 by 17 feet in size.

Experiments with such a facility demonstrate that the traumatic vocalizing and resistance to movement normally associated with the introduction of calves to dank row of holding "crates" vanish. The calves' crying and screaming is replaced by calf play and frolicking to their new home. Tethers, unless needed for veterinarian visits or other health care issues, must not be used. Fresh water should always be available.

The physical barn itself must well lit, afford proper ventilation, and have the ability to regulate temperature. Calves' health suffers from extremes of heat and cold. To promote efficient growth and best health, the internal barn temperature should be kept in the health zone above 50 and below 85 degrees Fahrenheit. The energy needed for muscle development shifts to maintaining body heat at the lower temperature. Extreme heat diminishes the calf's interest in eating.

Years of manhandling calves into individual pens or crates takes its toll on the animals and farm personnel, if only emotionally but also physically for the latter. The spirit of cooperation the group pens instills benefits farm staff by improving their quality of work life.

Nutrition is another aspect of ethical veal that must be addressed. The adage among veal growers is that the most expensive purchase a grower can make is cheap milk replacer lacking in the most efficient protein and fat sources. Optimum feed, whether in the form of replacer or whole milk, improves health and promotes muscle growth. While it may seem like a small detail, but use of nipple feeders during the early stages of the grow-out cycle does bring another element of "nature" into the mix. As the calf grows in health and poundage, so too grows the farmer's profit level rises accordingly.

As noted, bovines were never meant to eat meat by-products as were once added to feed before the "mad cow" tragedy. Nor were they originally grain feeders although modern bovines are accustomed to it and may voluntarily include it in their diet with grass when such options are available. By nature their digestive system is made first for milk, then for grass or other roughage. As the calf grows in age, its nutritional needs change. Life on the ethical veal farm not only affords the calves the opportunity to socialize within their group holding pen. The veal grower must also allow them, outside temperature permitting, to spend time in fresh air and graze.

Improved diet, housing, and environment should promote optimum health and lower the need for whole use of antibiotics.

Transport

Transporting calves, whether they are newborn calves from auction or dairy farm to veal barns or 600-pounders heading for slaughter, is an area of important concern. Calves injured due to improper handling or over crowding are not in a veal grower's best interest. Similarly, too steep, unsteady, or slippery ramps increase the stress/fear level and the potential for damaged animals.

To their credit federal inspectors are paying close attention on handling of animals during the off-loading process. That veal growers, transporters and processors' too are paying careful attention to calf welfare is yet another indicator of the industry's growing fidelity to ethical husbandry practices.

IV. The Crossroads

The North American veal industry is vulnerable to further erosion caused by animal activists and consumer animosity not only because of its practices but also because it is a marginal industry. Attempts by activist groups to bring down so vast an enterprise as North America's beef or dairy industries may provide years of opportunities to increase hardcore vegan fundraising but it will not end beef, milk, ice cream, or cheese consumption. The same cannot be said for veal.

If veal is such an elegant, healthful and delightful commodity as members of the industry passionately believe and as chefs and connoisseurs so passionately embrace, then every effort should be expended in preserving and expanding the industry. Farmers are not compassionless tyrants. Something held in esteem does not earn its reputation by the measure of pain and suffering it affords to living creatures. That said the veal industry stands at a crossroads. One direction, the path it seems headed down at present is fraught with crisis. One path goes nowhere but stands motionless in place. One points to opportunity.

Veal growers are unique. They can choose their fate.

The path of crisis is one where the industry digs in its heals, antes up significant amounts of hard-earned cash and fights constant battles at the state and federal level aimed at contracting and eradicating the industry.

The veal industry can do nothing. Its participants can live in stagnant stasis changing nothing and hope they can weather any assaults brought by the animal rights activist community. The most likely outcome of business as usual is a gradual or even cataclysmic erosion of players and market thanks to animal cruelty laws championed by the animal activist community. Veal barns will be shutdown or converted to dairy beef facilities. The industry will atrophy to the point where perhaps one processor remains standing together with a few growers to provide the smallest of niche markets their share of pale calf meat.

Or, the industry can change its ways. Adopting techniques for handling, raising and transporting veal calves that are more in tune with what is natural to a bovine existence can be marketed to dispel the emotional barriers now erected between veal and potential consumers. Veal truly raised as the nutritional and ethical meat presents opportunities that combined with its nature as a viand that instills creativity among chefs promises an expansive future for those willing to accept the challenge.

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