



# Pasture-Fed Livestock Association

## Benefits of Pasture-Fed Production

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# ***Benefits of pasture-fed production***



- Environmental
- Health
- Animal welfare

# *Environmental benefits*



- It is sometimes said that meat produced from grass fed animals is less "efficient" than that from animals fed grain because you need less land and less time to raise each grain fed animal
- Or it is said that grassfed beef is less "environmentally friendly" than feedlot beef because the digestion of poor quality forages in the rumen results in the production of more methane – and important greenhouse gas (GHG)

# *Environmental benefits*



## **Methane and grassfed animals**

Ruminant digestion is primarily a microbial process and the fermentation and digestion of fibrous feeds produces compounds that the animals can absorb and utilize, as well as methane gas which is eructated (belched) into the air.

As a general rule, the more fibrous the feed the greater the methane emissions, which is where the contention originates that grassfed beef systems produce more GHGs than grain fed beef systems.

# *Environmental benefits*



## **Methane cont.**

As an example, an Australian study (Peters *et al* 2009) found grain-finished beef produced 38 percent less methane than grass-finished beef.

Peters *et al* pointed out (as noted above) that although the total methane emissions were higher from the area of the feedlot, the animals gained weight faster and so were slaughtered at a younger age, emitting less gas on a per pound of meat basis.

So, this and other studies have shown that grassfed cattle produce more methane in their lifetime than grain fed cattle. However, it is important to understand that this does not mean that grassfed cattle systems produce more GHGs in their life-time than grain fed cattle systems.



# *Environmental benefits*



pasture-fed for life

## **Carbon sequestration**

Grassfed cattle can mitigate their higher methane emissions by helping to capture atmospheric carbon dioxide (CO<sub>2</sub>)—another key GHG—through carbon sequestration.

When this carbon storage role is incorporated into the calculations of overall GHG emissions, many researchers now state that grassfed beef produces no net GHG emissions—and some argue that well managed grassfed beef systems may even capture more GHGs than they emit.

The Intergovernmental Panel on Climate Change (IPCC)—the world's leading body for the assessment of climate change—now suggests that soil carbon sequestration is the mechanism responsible for most of the mitigation potential.

National Trust study – *What's your beef* report found that while the GHG emissions of grassfed and more intensive farms were largely comparable, the carbon sequestration contribution of well-managed grass pasture on the less intensive, grass-based systems reduced net GHG emissions by up to 94 percent—and even resulted in a carbon “net gain” on some farms.

# *Environmental benefits*



## **Carbon sequestration cont.**

- A recent Australian study concluded that the cattle farming industry in Queensland was nearly carbon neutral because the carbon sequestration from the growth of vegetation and accumulation of soil carbon actually offset the total greenhouse gas emissions from farming operations.
- Similarly, French researchers have produced an estimate of the rate of soil carbon sequestration in sheep grazing pasture, which could offset emissions from the farming operation.

# *Environmental benefits*



## **Feeding animals or feeding humans**

Livestock, particularly ruminants, can eat a wider range of biomass than humans.

In recent years, intensive livestock production systems have moved away from allowing ruminants to graze vegetation on pasture or range, favoring approaches where animals are confined (either indoors or in feedlots) and fed a grain-based diet.

This puts intensively raised livestock in direct competition with humans for high energy crops such as cereals

Wilkinson (2010) noted that when you compare how much edible energy or protein you get out of ruminant, pig, and poultry production systems for the amount of human-edible energy or protein you need to put in, ruminants came out on top.

The researchers showed that grass-based beef systems also perform much better than cattle systems that rely on feeding grain.



# *Environmental benefits*



## **Feeding animals or feeding humans cont.**

Millions of tons of grass and forage crops are consumed in the production of milk and meat from ruminants, and much of the pasture land that is used would be otherwise unsuitable for the production of human food.

There are many areas of the world where the climate is conducive to the production of grass and forage crops, but the limitations of topography or soil type preclude growing crops that can be directly eaten by humans.

If these grasses and forage crops are grown and grazed as efficiently as possible, or grown, cut, preserved, and then fed to ruminants, it enables us to produce food from land that could not be used in any other way for food production.

# *Health benefits*



A summary of some of the research:

## **Omega 3:**

Omega-3s are most abundant in seafood and certain nuts and seeds such as flaxseeds and walnuts, but they are also found in animals raised on pasture.

The reason is simple. Omega-3s are formed in the chloroplasts of green leaves and algae. Sixty percent of the fatty acids in grass are omega-3s. When cattle are taken off omega-3 rich grass and fattened on omega-3 poor grain, they begin losing their store of this beneficial fat.

Studies have shown that meat from grassfed animals has two to four times more omega-3 fatty acids than meat from grain-fed animals.

# *Health benefits*



## **Omega 3 cont:**

Omega-3s are often called "good fats" because they play a vital role in every cell and system in the body. Indeed, people who have ample amounts of omega-3s in their diet are less likely to have high blood pressure or an irregular heartbeat.

According to a 2011 study in the British Journal of Nutrition eating moderate amounts of grass-fed meat for only 4 weeks will give consumers healthier levels of essential fats. The research showed that healthy volunteers who ate grass-fed meat increased their blood levels of omega-3 fatty acids and decreased their level of pro-inflammatory omega-6 fatty acids.

Studies show that if cattle start their lives on grass they immediately begin losing the health benefits, such as the omega-3s stored in their tissues, when they are taken off grass and shipped to a feedlot for fattening on grain. As a consequence, the meat from grain fed animals typically contains 50–85 percent less omega-3s than the meat from grassfed livestock

# *Health benefits*



## **Conjugated linoleic acid** (or CLA for short):

When ruminants are raised on fresh pasture alone, their meat and milk contain from three to five times more CLA than similar products from animals fed grain based diets.

Scientists now believe that CLA may be one of our most potent defenses against cancer.

In laboratory animals, a very small percentage of CLA—a mere 0.1 percent of total calories—greatly reduced tumor growth.

Another study found that adults with rheumatoid arthritis showed a significant decrease in blood pressure after CLA additions to their diet.

When ruminants are raised on fresh pasture alone, their products contain from three to five times more CLA than products from animals fed conventional diets.

# *Health benefits*



## **Vitamin E:**

Scientists have shown that grassfed meat is higher in vitamin E than either grain fed animals (four times higher in one study) or, surprisingly, grain fed animals that were given high doses of synthetic vitamin E. In humans, we know that vitamin E is linked with a lower risk of heart disease and cancer.

## **Lutein**

Lutein is closely related to beta-carotene, but is absorbed more readily. Lutein reduces the risk of macular degeneration (a cause of blindness) and may also help prevent breast and colon cancer.

Meat from sheep raised on pasture has twice as much lutein as meat from grain-fed sheep



# *Health benefits*



## **Reduced fat:**

A team of scientists from the USDA compared grassfed lambs with lambs fed grain in a feedlot. They found that:

“Lambs grazing pasture had 14% less fat and about 8% more protein compared to grain-fed lamb.” The researchers acknowledged that “consumer desires for healthier meats have shifted the emphasis to leaner, trimmer carcasses..” and that raising more sheep on pasture will “benefit our economy by reducing reliance upon expensive grain supplements...”

# *Health benefits*



## **A wide range of benefits**

Grass-fed beef is better for human health than grain-fed beef in ten different ways, according to one comprehensive analysis to date.

Compared with grain-fed beef, grass-fed beef was:

Lower in total fat

Higher in beta-carotene

Higher in vitamin E (alpha-tocopherol)

Higher in the B-vitamins thiamin and riboflavin

Higher in the minerals calcium, magnesium, and potassium

Higher in total omega-3s

A healthier ratio of omega-6 to omega-3 fatty acids (1.65 vs 4.84)

Higher in CLA (cis-9 trans-11), a potential cancer fighter

Higher in vaccenic acid (which can be transformed into CLA)

Lower in the saturated fats linked with heart disease

# Health benefits



## A potential problem with grain fed animals

Acid resistant *E Coli*

Research shows that feeding excessive amounts of grain to cattle creates an unnaturally acidic environment in their digestive systems, resulting in the rapid growth of certain acid loving — and human health threatening — bacteria in the cattle's gut, such as *E. coli 0157:H7*.

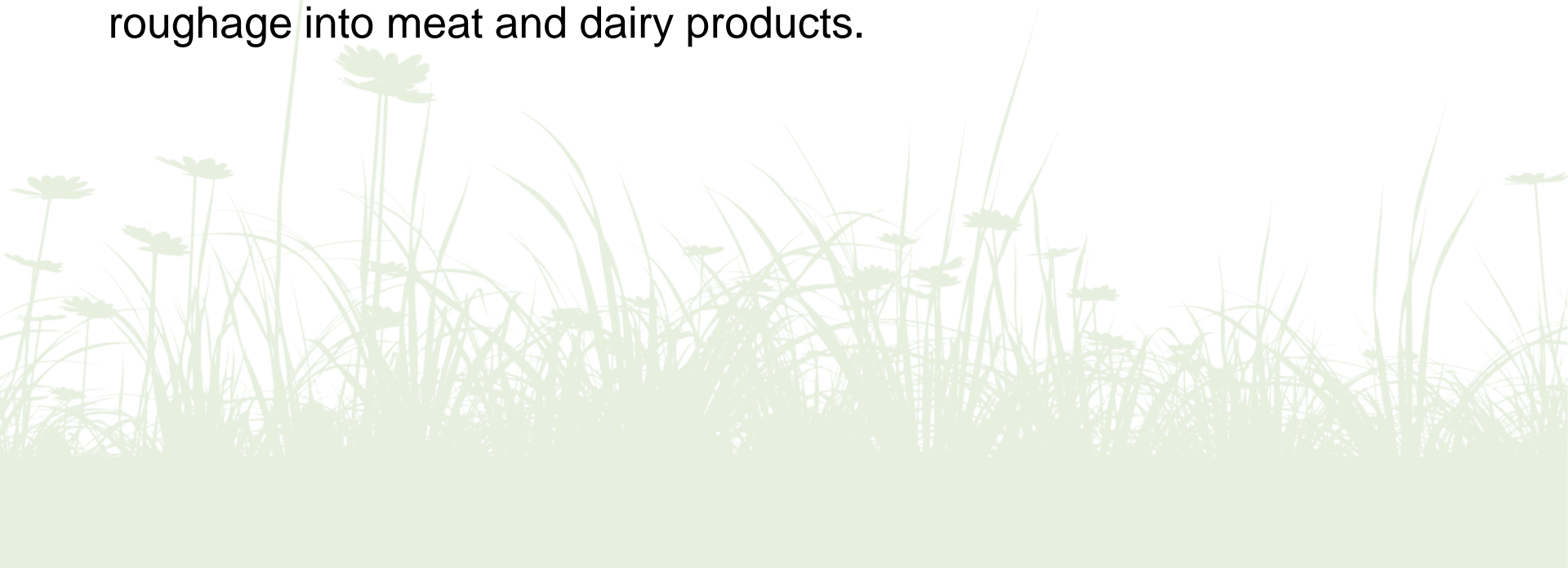
In the US feedlot cattle are fed low doses of antibiotics to prevent the outbreak of diseases, but this means that the harmful bacteria in the cattle's gut, such as *E. coli 0157:H7*, are now developing resistance to the antibiotics that were supposed to control them,

# *Animal welfare benefits*



Being grass-fed is the natural option for ruminants

Their digestive system is perfectly adapted to convert grass and other roughage into meat and dairy products.



# *Animal welfare benefits*



The extreme:

In US feedlot systems with a high level of grain feeding cattle routinely suffer:

Acidosis

Feedlot bloat (mortality 3%)

Liver abscess (up to 30% of animals)

There are also problems with respiratory problems – feedlots are essentially dirt lots and can get very dusty



# *Animal welfare benefits*



## **Lameness**

Studies of dairy cows show improved gait scores for cows kept on pasture

Other studies show risk of lameness increases when outdoor exercises decreases and higher levels of digital dermatitis in cows housed in cubicle or loose housing compared with cows on pasture

Preference tests also show that cows will chose pasture over barns in many circumstances – giving weight to the perception that ruminants allowed access to pasture have higher welfare because the animals have freedom to express natural behaviours, such as grazing and exploration

# *Animal welfare benefits*



## **Mastitis and milk quality**

Studies show that cows kept indoors had more clinical mastitis than pastured herds.

Also; heifers on pasture were at lower risk for clinical mastitis than confined heifers

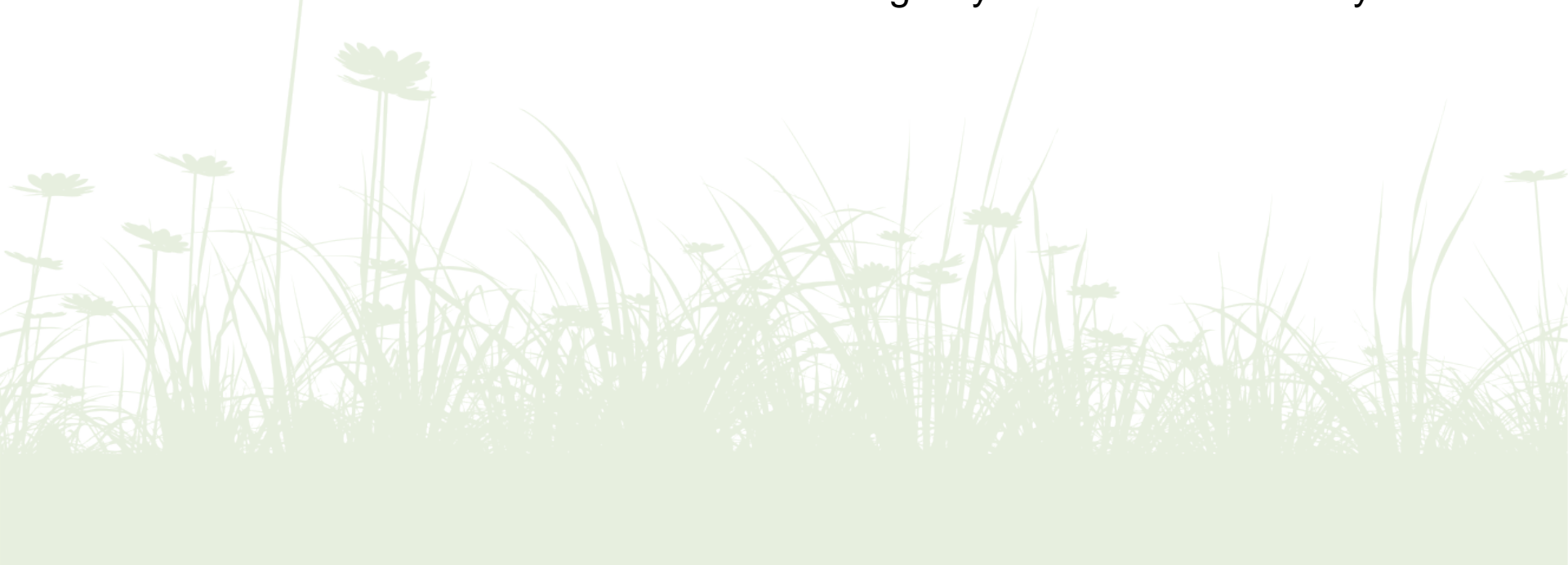
A US study showed that grazed herds had lower total bacteria counts than confined herds during grazing season with a trend toward improved udder health on pastured herds.

Another study showed lower standard plate counts in grazing herds with a trend toward improved udder health and fewer teat injuries in grazing.

# *Animal welfare benefits*



Other studies show that ruminants fed on pasture and whose metabolism and production is matched to their natural capacity, are associated with lower stress increased longevity and increased fertility.





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