

Organic Pasture Beef

Eric Meili

Animals in the Food System Conference
Kellogg Biological Station
Hickory Corners, Michigan
November 2-4, 2004

C.S. Mott Group for Sustainable Food Systems
Michigan State University
312 Natural Resources Building
East Lansing, MI 48824-1222

Organic Pasture Beef

Eric Meili

Abstract

Organic pasture beef (in German: Bio Weide-Beef®) is a program for extensive grassland beef production. It is linked to dairy farming with fattening of crossbreed offspring with beef bulls or finishing weaners of suckler cows. This is a low input/cost production system. Its main aim is to get high productivity out of the grassland in an economical way. The most important factor for quality meat is that the animal for fattening is a crossbreed of a milking cow with a beef breed or an offspring of beef breed suckler cow. In Switzerland, Limousin beef have produced the best results.

In the Bio-Weide program the animals have to remain on the pasture at least 8 hours every day and have access to an outdoor run every day in winter. Loose housing stables are required. The weaners come in to the beef farm at about 5-6 months (200 kg live weight) from the dairy farm or get set off the suckler cow at about 10 months (350 kg live weight). They get fattened to 550 kg live weight or 300 kg carcass weight (700-900 grams daily gain) with very little concentrated feed. The age at slaughtering is 18 to 23 months, depending on the quality of feed.

The meat has sold very well in Migros, the biggest super market chain in Switzerland. Consumers pay 10-15% more for the meat and the farmer gets up to 40% higher carcass price than for conventional.

Editors Note:

This document contains the Powerpoint slides used by the presenter. If you wish to make this document larger on your computer screen to better view the slide detail, you may change the magnification by selecting the View menu, and then Zoom To. Select or type in your desired magnification and then select OK.

Organic Pasture Beef Eric Meili

I am a little agricultural consultant running around Switzerland and Eastern-Europe, trying to support the farmers on their way to organic farming. I try to be out on the farms as much as I can. I switched to organic farming in 1974 while on the farm where I was an apprentice. I don't have a rich wife, so I can't buy a farm in Switzerland.



Instead, I started a small project of organic pasture beef. It is a vertically integrated project, from the production to the sales, and I am the president. The idea was born in my head. When I told my friends, they all said, "Eric go back to the University; you flunked the course on fattening beef. We can't do it on pasture; it takes corn and concentrated feed. You missed something there." A farmer and I tried it anyway, and it worked.

Switzerland is grassland. We only have 4 million hectares and 1.7 million of those hectares are grass: 1 million hectares in alpine pastures, 700,000 hectares in meadows and pastures. We have only 300,000 hectares of arable land.

Use of grassland in Switzerland

- Human beings can not directly use grassland for food
- Grassland has to be transformed into food
- The transformation can only be done with ruminants, in Switzerland historically it is cattle
- Milk has the highest efficiency in transformation of plant energy and protein, about 45%
- Meat as a side product of milk has only about 15%

Human beings cannot consume that grass; we have to convert it to milk or meat. Most countries in the world have a ruminant to do that. The Sahara Desert has camels to convert the bushes into milk and meat. Albania has sheep and goats. We want to efficiently transform this grass into energy and protein for human consumption. Milk is more efficient than meat in the transformation. But we always get meat if we produce milk. Think about beef production. We can do it intensively, and that is what we usually do in Switzerland. It is not in feedlots, it's in barns. We have bulls, not steers, 200-300 in one barn. They get corn silage and concentrated feed, and they are never out on pasture. That is how it is usually done in Europe.

I tried something different. I went to one farm up in the mountains to develop my idea of organic pasture beef. I didn't tell anybody, I just tried it. It's a low input, low cost system. Ireland and New Zealand, countries that go low input, are earning money with their animal production systems. So we tried a low input system in Switzerland. I am half American (my mother comes from Seattle Washington) but I am a European American. My great grandparents are from Irish and Scottish decent. So I went back to my roots in Ireland to study the low input milk and beef production.

Organic Pasture Beef Eric Meili

Extensive production of beef

- The opposite is intensive beef production with corn, concentrated feed, in barns or feed lots with 1000 to 1500 gr. daily gains, with high input on energy
- Extensive beef – emphasise on grassland, pasture in summer, grassilage and hay and out door run in winter, daily gain 700-800 gr.
- Low input / Low cost
- Aim: low cost barns, low on technology, work load and energy

Intensive milk and beef systems have a negative energy balance. You put in much more energy than you take out in calories for consumption. The United States puts in about 30 calories to produce one calorie of food. That is not a very sustainable system. If you move production to organic and on pasture, the energy-balance improves. If the pasture system is economical in Europe, then it will be sustainable for the future.

The high input countries for milk are Israel, Canada, USA, Holland and Italy. They have high input systems for milk production, 10,000 to 15,000Kg per cow per year. Countries like New Zealand, Ireland and Western France go low input and also earn money.

World wide two strategies for milk and beef

- High input per barn place
- Conserved feed all year, TMR
- 10-15'000 kg of milk per cow
- Israel, Canada, USA, Holland, Italy

- Low input
- Maximum pasture
- High surface productivity
- New Zealand, Ireland, Western France

Organic Pasture Beef: For what kind of farms?

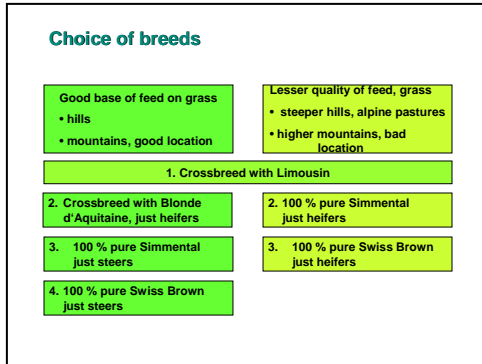
- Small milk farms who will have high investments in milk production
- Who need a reduction or flexible working hours
- Who have steep grassland and need lighter animals
- Who want to have animals on only arable land when they convert to organic

In Switzerland, the small milking farms are interested in the organic pasture beef production because it is less work. They do not make enough money on their small milking farms. They have to work off the farm. European family farms have economic problems because they are not big enough. But size alone has never solved the problem; otherwise U.S. agriculture would be in very good shape. It isn't. So we are thinking about organizing our farms in Europe so we can do other things in addition to farming, while we keep people

on the farms. The average size of our farm unit is 18 head. We are talking about very small family farms.

Organic Pasture Beef

Eric Meili



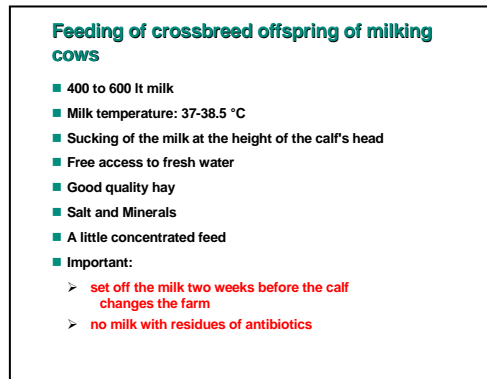
Let me describe our production system. We take the weaners off the suckler cows, mostly 75% beef breeds at 8 to 10 months. We cross breed beef bulls with milking cows. We only use heifers and steers. We need special breeds for the hills and mountains. The main breed we are using in Switzerland is Limousin. It's not a very heavy breed but it is not a light breed like Hereford or Angus. It's in the middle, which is very good for pasture beef. If we have good quality feed we can

use a little heavier breed like Charolais, or pure Simmental.

These are the offspring cross breeds of Limousin, on straw, with an outdoor run.



Crossbreed offspring after 3 weeks with out door run



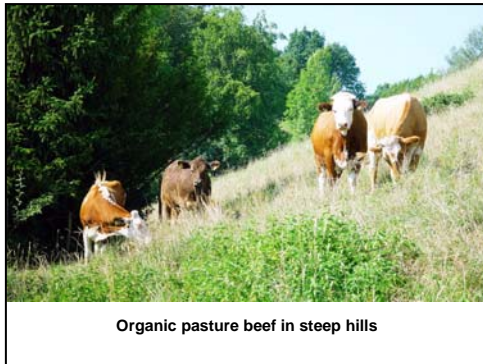
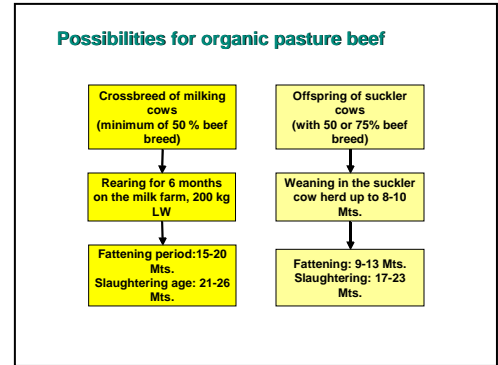
We do not feed a lot of milk; they have to start to feed on grass and hay early, which gives them grass bellies. They then know how to grow on grass.



Crossbreed heifers with „grass bellies“

Organic Pasture Beef Eric Meili

We have these two systems, crossbred with milking cows or taken from the suckler cows. Crossing a cow that is 50% Aberdeen Angus and 50% Brown Swiss with a Limousin bull results in animals that are 75% beef breed Angus/Limousin. Pure Angus or Hereford does not have enough milk because of their small udders. But if you have a 50% milking cow crossed with one of these, then she will have large udders for milk and the males will grow rapidly. So that is why we do cross breeding for F1.



Organic pasture beef in steep hills

Good animal husbandry for organic pasture beef means going on pasture for a minimum of eight hours every day, at night or during the day, depending on conditions.

A daily outdoor run in the winter is compulsory. We have snow, sometimes as much as two meters, but they go out every day. Loose housing systems are obligatory, tied systems are forbidden in our program. We use deep straw bedding. This is a Limousin crossbred with Red Holstein, one crossed with Blonde d'Aquitaine, and in the back a Brown Swiss crossbred with Limousin.



Deep litter takes a lot of straw

Organic Pasture Beef Eric Meili

Load up and transport

- Quiet and without stress
- Chauffeurs have to be educated
- Both ear tags
- Transport document for the Vet
- Transport document for organic
- Good place for loading
- No pushing or driving with electric device



Loading and transportation are important issues in Europe. You have to be careful and train the animals. You can't chase them with electric devices; it is forbidden. The bonds should be simple.

We design barns for two or three groups of cattle, with permanently accessible outdoor runs. Conversion of a milking barn is easy. We provide cubicles where cattle can lie down.

Barns for organic pasture beef

- Simple, use the old barn if you can
- Line of order: laying place-outdoor run-feeding place
- Divided in 2 or 3 groups
- Give enough place for laying down
- Permanently accessible outdoor run
- Strong paddocks
- Feeding bars for catching the animals



This is a conversion of an old milking barn. The farmer converted to organic pasture beef on the farm. You can see the label is Bio Weide-Beef. I owned the label at one time. Then the largest supermarket chain in Switzerland, Migros, said "Eric if we are going to sell your beef, you need to sell us your label otherwise we don't do anything." So I had to sell it to them, I could not keep it.

Organic Pasture Beef Eric Meili

Feeding aims for organic pasture beef

- Get the right carcass weight (in CH 300 kg)
- Get the right finishing (fat) (3+4 taxation)
- Get the right carcass quality (T+H in CH, R+U in the EU)
- Get the right meat quality
- Big quantity of roughage in the ration
- A lot of pasture grass (cheap feed)
- Low input on concentrated feed (expensive)

We want 300 kg of carcass weight; live weight is about 550Kg, which is normal for Europe.

We provide normal feeding, roughage, grass, silage, enough protein and maybe 30Kg of concentrate in the growth period (5-13 months) which is up to 350 Kg live weight.

In the middle period (13-20 months), cattle receive no concentrated feed, only pasture, up to 475 Kg live weight.

For finishing (20 – 24 months), cattle are still on pasture for eight hours, but steers also get 150Kg of concentrates per animal, which is very low for Switzerland. Intensively raised bulls would get 600-700Kg of concentrated feed. Animals are finished until they reach 450 to 550 Kg.



Animals between growth and fattening can easily be pastured in the alps

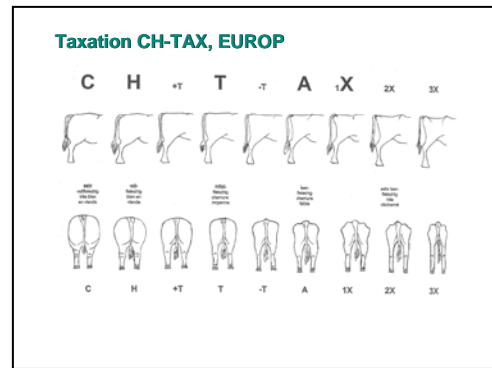
Slaughtering

- 18-26 Months
- 500-550 kg live weight
- 280-310 kg carcass weight
- Carcass yield 54%
- Breast measure 196 cm

Cattle reach slaughter weight at 18 – 26 months. It's a wide range because cattle grow faster on the flat land. The altitude goes up to 2000 meters for some permanent farms, where it can take 26 months. But high altitude increases Omega 3 fatty acids. Omega 3 fatty acids at 2000 meters are five times more than on flat pastures.

Organic Pasture Beef Eric Meili

This is our taxation, carcass taxation and fat. Switzerland calls it CH-TAX. The European Union calls it EUROP. Our pastured animals never get a C because we are not on intensive production. Intensively raised beef get C and H; we get H and T. We have to watch carefully when finishing. We look at the teeth, watching for what the slaughter house calls two shovels. That is the oldest animal we can send to slaughter.



Main factors for economic efficiency

- Duration of the fattening period
- Quality of the carcass
- Price of the weaners
- Price for the carcass
- Breed of the bull
- Structure costs of the farm
- Amount of direct payments

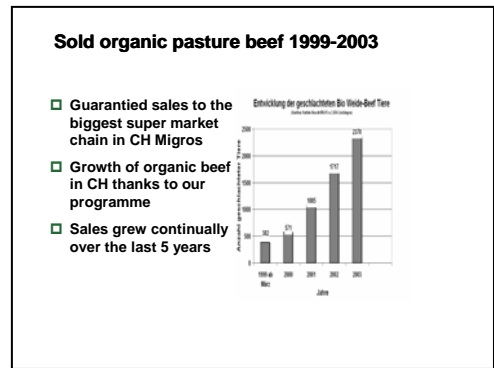
We monitor seven factors that affect the economic efficiency of our system: duration of the fattening period, quality of the carcass, price of the weaners, price for the carcass, breed of the bull, structure costs of the farm and the amount of direct payments.

We only have two big supermarket chains in Switzerland, Migros and Coop. One sells 50% of all the food, and the other one sells 25%. That is the highest concentration of supermarkets in all of Europe. We sell to the big one, Migros.

Migros added our program as premium organic pasture beef. They said, “Eric, we want two things. Guaranteed pasture and good quality, and then we will sell it. We will price it at just 10% more for the price-sensitive consumer. We want a high turnover. It’s not going to be very expensive. We will pay a maximum of about 20% more to the farmer and we will get 10% more in the store.” So there is not as big a margin as on conventional meat, but they get people into their stores by saying they have organic pasture beef.

Organic Pasture Beef Eric Meili

Starting with just one farmer in 1999, now we are up to 3,000 animals this year (2004). We are growing slowly. That is peanuts for you, but not peanuts for us in Switzerland if we can sell that in a supermarket chain. These are very good quality carcasses. H is the second best. Conventional beef breeders did not believe that we could possibly make a third of the carcasses in H quality. The U.S. beef breeders only look at the back for steaks. In Europe we look at the legs, we like nice legs in Europe. I'm talking about beef now. European breeds have nice legs, hips, and thighs; the butchers like that.



Examined samples of meat

- BWB Organic pasture beef Migros
- M7 Normal label beef Migros
- KM Conventional beef butcher
- KW Conventional beef other super market
- NB Natura Beef jung beef (10 months old weaners slaughtered of the suckler cow) Coop super market chain

What is the quality of the beef? We are examining meat color, pH, intramuscular fat, and fatty acids. We compared these five: organic pasture beef, normal label beef at Migros, conventional beef at the butcher, conventional beef in the supermarket and Natura Beef ten month old weaners off the suckler cow, directly slaughtered. Organic pasture beef did very well in all these quality factors.

We didn't have a loss of tenderness. We always thought that older beef would be less tender, but it's not true. It is tender because it grew slowly. We had less intramuscular fat, but it was still tender. The U.S. beef has 7 - 8% intramuscular fat, we only have 2-3%. We want that, we don't want too much fat in our meat.

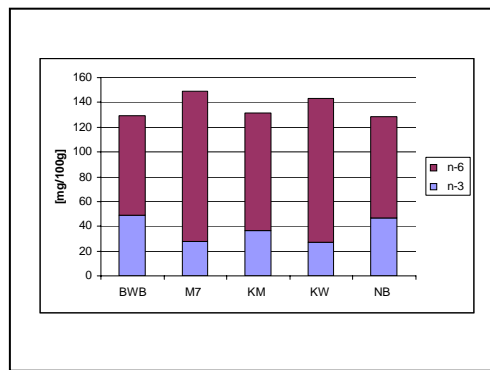
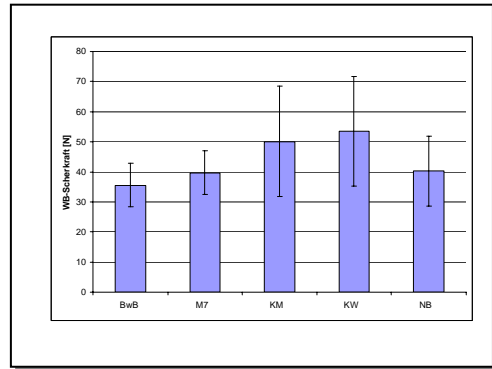
pH, colour, loss of water, tenderness

- pH all between 5.5 und 5.6, no significant difference, Aim under 5.8
- Colour Red, BWB darkest red (Age), lightest red NB (jung)
- Loss of water after grilling at 72°C, no sig. difference, M7 and NB highest loss
- Loss of water after grilling at 80° C, no sig. difference, highest loss M7 and KM
- Tenderness at 72° C, KM und KW sig. higher
- Tenderness at 80° KM und KW sig. higher

Organic Pasture Beef

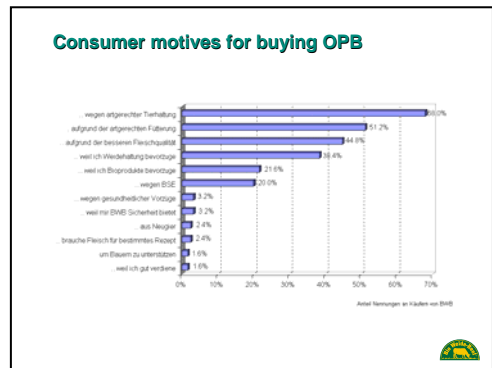
Eric Meili

Here is the shear force: 40 Newton for organic pasture beef. The natural beef was good too. The conventional beef was less tender. The label beef of Migros was tender because they do a good job in aging the beef.



With fatty acids we have very good results in comparison to the conventional beef. You see organic pasture beef is higher in N-3 and the conventional has a lot more N-6. The intensive label beef at Migros has a lot of N-6; we have a better relationship of N-6 to N-3 due to the pasture.

The price in Switzerland is \$8.00 U.S. per kilogram of carcass weight for the farmer. We asked people who bought organic pastured beef why they bought it. They said good animal husbandry, good feeding, meat quality, raised on pasture, it's organic and it absolutely will not have BSE. Those are the main reasons they bought pasture beef. The higher price did not matter. They were willing to pay 10% more than conventional.




Organic Pasture Beef

Eric Meili

Control and certification

- Integrated in the yearly organic control and certification
- Unannounced controls during the year
- Important documents:
 - Vet journal
 - Pasture and out door run journal
 - Journal of bought in feed (organic)

➔ Traceability is very important for the trust of the consumer!



Organic pasture beef is a part of each farm's normal organic plan and inspection. During the normal organic farm audit, we also audit the pasture beef. I have a contract with the two organic certification agencies for our farms.

We have an Organic Pasture Beef association. I am the president. The animal dealer puts together 30 to 50 animals every Monday to be slaughtered at the Migros slaughterhouse. The animal dealer and the retailer, Migros, are members of the association for organic pasture beef. We strive for: partnership with the trading partners; transparency to get a win-win situation for the farmer; quality sales; and exact planning to produce what Migros can sell. We have tried to have stable prices and we have managed that pretty well.

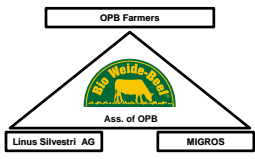

Aims of the association of OPB

- Association of producers, animal dealer and retailer
- Obligatory membership with ass. OPB
- Aims:
 - Partnership within the trading partners
 - Promote Quality at all levels
 - Sales promotion
 - Exact planning of production quantity
 - Stable prices



Members of die ass. OPB

- Producers of OPB
 - 350 farms 2004
 - 6400 Animals 2004
 - Linus Silvestri AG
- MIGROS

This is the triangle we are in. In the middle is the organic pasture beef. We have 350 farms with room for 4,006 animals. Because they grow for more than a year, we only have 3,000 in production right now.

Organic Pasture Beef Eric Meili

Organic pasture beef is well adapted for the grassland in Switzerland, from flat land up to the highest mountains. I am also doing low input beef and milk in Bulgaria, Romania, the Balkan and the Carpats. High input systems in those countries don't work. This is extensive beef production and high quality beef.

We have the highest criteria for the animal husbandry in our program. It goes further than organic farming with an outdoor run everyday in the winter. It is very strictly controlled. I think we are doing what the consumer wants. 15% of the beef sold at the Migros in eastern Switzerland, where this program started, is Bio Weide-Beef. I don't know anywhere in the world where I have heard of a supermarket chain selling 15% of their beef as organic pasture beef. The retail price is only 10% higher; but farmers get about 20% higher prices for that production. The farmer in this picture is laughing. He lives on about 1600 meters or 5000 feet above sea level high in the Alps. He converted his milking farm to organic pasture beef.

