Ranching without Iron and Oil: Why grazing is a better way

Only four necessary ingredients for making meat, milk, and fiber

- CO₂
- Solar energy
- Water
- Soil minerals

Ranch management should be about balancing ecosystem processes, not manipulating inputs

Basic ingredients for making meat, milk, or fiber:
- Solar energy

When you buy an acre of land, you buy 43,560 sq ft of solar panel

How good is your solar panel?
Basic ingredients for making meat, milk, and fiber:

- Solar energy
- Water

When you buy an acre of land, you buy 43,560 sq ft of water catchment.

How effective is your water cycle?

Basic ingredients for making meat, milk, and fiber:

- Solar energy
- Water
- Soil minerals

When you buy an acre of land, you buy the nutrients in that soil.

How efficient is your nutrient cycling?

> 90% of what goes in the front end comes out the back end.
Basic ingredients for making meat, milk, and fiber:

- Solar energy
- Water
- Soil minerals

Managing these resources is the only source of new wealth in ranching.

The right animal to be the factory!

Environmental adaptation is the single most important genetic trait in livestock.

Fertility is the second most important genetic trait.

Cow type is more important than cow breed.

Having a whole herd of the right kind is even better!

What is the right type?

- Moderate framed
- Easy fleshing
- Capable of living on your resources
- They can come in any color
Average genetics with superior grass management vs. Superior genetics with average grass management

Why Management-intensive Grazing?
- Cows “intensively graze” by nature, only people can “intensively manage”

Why Management-intensive Grazing?
- Management is what is intensified… NOT grazing

Management-intensive Grazing

Winter feed costs are the single largest cost in most livestock operations

Why MiG?

Most farmers and ranchers have no idea what it really costs to get here!

Typical cow-calf operation:
- Annual hay or pasture seeded
- Hay and Pasture fertilized
- Hay harvested
- Hay fed
- Calves shipped
- Manure hauled

Hay Production Costs:

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost/acre</th>
<th>Cost/operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres of hay</td>
<td>$60.00</td>
<td>$12.00</td>
</tr>
<tr>
<td>Expected yield</td>
<td>$10.00</td>
<td>$2.00</td>
</tr>
<tr>
<td>Number of harvests</td>
<td>$1.00</td>
<td>$0.20</td>
</tr>
<tr>
<td>Weight of hay</td>
<td>$1.00</td>
<td>$0.20</td>
</tr>
<tr>
<td>Total hay produced</td>
<td>$9.00</td>
<td>$1.80</td>
</tr>
<tr>
<td>Spreading cost</td>
<td>$0.60</td>
<td>$0.12</td>
</tr>
<tr>
<td>Mowing or Swathing</td>
<td>$0.60</td>
<td>$0.12</td>
</tr>
<tr>
<td>Raking</td>
<td>$0.60</td>
<td>$0.12</td>
</tr>
<tr>
<td>Small square bale handling</td>
<td>$0.60</td>
<td>$0.12</td>
</tr>
<tr>
<td>Large round bale</td>
<td>$9.00</td>
<td>$1.80</td>
</tr>
</tbody>
</table>
Maybe this is a better picture of wintering cows

Typical winter grazing conditions in north Missouri

Maybe this is a better picture of wintering cows....

.... even where it does snow

Typical winter grazing conditions in western Montana

Hay feeding can lead to long term soil damage in wet environments!

Don’t park the cattle, ..... keep them moving

Even in the winter, grazing is better for the land and soil

Making and feeding hay:

- Equipment overcapitalization
- Consumption of fossil fuel
- Export of soil nutrients
- Equipment and labor for feeding
- May have to haul manure

Economic climate - 1973

- In May 1973 my Dad bought one of the first Vermeer 605C balers in the state of Illinois.
  - Cost: $4,200

- In July 1973 fed cattle hit an all-time record high price
  - Fed Cattle: $54/cwt
Economic climate - 2011

- Fed cattle hit an all-time record high price at an astounding $1.24/cwt

A new Vermeer 605M large round baler cost about $40,000 depending on features

Equipment depreciation is a real cost and must be accounted for!

Changing economies

<table>
<thead>
<tr>
<th>Item</th>
<th>1973</th>
<th>2011</th>
<th>% increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Round Hay Baler</td>
<td>$4,200</td>
<td>$40,000</td>
<td>950%</td>
</tr>
<tr>
<td>Diesel Fuel</td>
<td>$0.27/gal</td>
<td>$3.40/gal</td>
<td>2000%</td>
</tr>
<tr>
<td>Farm labor</td>
<td>$1.50/hr</td>
<td>$18.36/hr</td>
<td>1000%</td>
</tr>
<tr>
<td>Nitrogen fertilizer</td>
<td>$0.09/lb</td>
<td>$0.48/lb</td>
<td>450%</td>
</tr>
<tr>
<td>Custom charge for baling</td>
<td>$6.00/bale</td>
<td>$9 - 12/bale</td>
<td>50-100%</td>
</tr>
<tr>
<td>Fed cattle record highs</td>
<td>$54/cwt</td>
<td>$124/cwt</td>
<td>230%</td>
</tr>
</tbody>
</table>

Conventional finishing system:
- Feed is produced
- Feed is processed
- Feed is hauled
- Cattle are hauled
- Manure is hauled
- Cattle are hauled again

La Cense Montana Ranch finishes 500 -1000 head on pasture every year

- 55% USDA Choice
- All under 20 months
- ≈ 70% cost of feedlot
- Sells for premium price

Maybe this is a better vision for finishing beef

Pasture-finished beef as an alternative to feedlots
Conventional dairy system:
- Huge investment in facilities
- Feed is produced
- Feed is hauled to facility
- Feed is processed
- Feed is fed
- Manure is hauled

Pasture-based dairy:
Bright Dairy, Bucklin, MO
- 60 cows
- Commodity fluid milk
- Focus is on cost management

Pasture-based dairy:
Nature’s Harmony Dairy, Twin Falls, ID
- 800 cows
- Horizon Organic producer
- Focus is premium price

Grazing can even provide a better life for chickens

Why does grazing offer us a more sustainable future?
- Better for the land
The love of tillage is the root of all evil
- Overcapitalization in equipment
- Oxidation of organic matter
- Destruction of soil tilth
- Soil erosion
- Consumption of fossil fuels

Tired of tillage?
Consider direct pasture seeding....
- Much lower cost than full tillage
- Can be rented in most locations
- Good reliability (with proper operation)

- These pastures have experienced no mechanical activities....
- .... for the last 20 years

In 2004 production was 185 CDA
In 2009 production was 318 CDA

We have increased pasture production from 185 CDA average in 1997 thru 2004 to 318 CDA in 2009....
- Without reseeding
- Without N-fertilization
- Just management

We used N fertilizer only 3 times in 23 years on our Missouri farm
- Legumes
- Organic matter
- Effective nutrient cycle

Under capitalization in equipment?
- This is the extent of our equipment use
We average less than one gallon of gas or diesel per 100 cows per month.

Even in the winter, usually all we do is move fence.

Oxidation of organic matter

Every time soil is tilled, organic matter is destroyed.

Building of organic matter

Managed grazing leads to increasing organic matter.

Destruction of soil tilth

- Soil tilth is collapsed
- Soil structure is being crushed
- Life is being destroyed

Resurrection of soil tilth

Long term pasture growth builds soil structure.
**Soil erosion**

Tillage for annual crops almost always leads to erosion.

**Soil conservation**

Managed pastures protect soil stability and water quality.

**Infiltration and Runoff**

3 inches of rainfall in 90 minutes, 10% slope, silt loam soil  
(University of Nebraska & USDA-SCS, 1937)

<table>
<thead>
<tr>
<th>Pasture Type</th>
<th>Ground Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>95%</td>
</tr>
<tr>
<td>Fair</td>
<td>75%</td>
</tr>
<tr>
<td>Poor</td>
<td>50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil loss (tons/A)</th>
<th>Percent runoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
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<td>5</td>
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<td>10</td>
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<td>10</td>
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<td>30</td>
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<td>60</td>
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<tr>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>70</td>
<td>80</td>
</tr>
</tbody>
</table>

**Why does grazing offer us a more sustainable future?**

- Better for the land
- Better for the livestock

**Healthy & Happy Livestock**

- Pasture provides:
  - Their natural environment
  - Their natural diet
  - Their natural social structure

**Low-stress pasture weaning**

Days 1 - 3: Cows and calves separated with 4-strand electric fence.
Days 1 – 3: Cows and calves separated with 4-strand electric fence

By day 7 calves grazing out on their own behind single wire fence.

Calves weaned in lots typically have 7-10% sickness

In 18 years with 3800 calves weaned on pasture..... we had 2 sick calves

Why does grazing offer us a more sustainable future?

- Better for the land
- Better for the livestock
- Better for living

Challenges to the Feedlot Finishing System

- High cost of production

“Boys, there’s three ways to lose money around here... Women’s the funnest, Gamblin’s the quickest, Feedin’ cattle’s the surest!”

The pasture-finished option...

Lower production cost and better for you.
Our goals for pasture finishing:
- Never confined from open spaces
- No bite of grain in its lifetime
- Harvested at 18 – 20 months
- USDA grade high select-low choice
- A pleasurable eating experience
- Profitable for the producer

We can finish 2 to 2 ½ hd/acre annually....
.... in a land that can’t grow corn
.... with a fraction of the inputs

Pasture requirements for finishing:
- 1 3/4 – 2 ton forage for 120 days @ 2.5 lb yields 300 lb finished beef
- Retail value on direct market $2-3/lb liveweight
- 6-8 ton/acre pasture yield can gross $2,000 to $3,600/acre
- Wholesale value of $1,000 - $1,500 / acre

Annual costs/acre for grazing irrigated pasture as we do it
- Tillage $0
- Seeding $0
- Machinery operation $0
- Equipment depreciation $2
- Fertilizer $8
- Labor $10
- Irrigation $30

Annualized Capital costs for grazing irrigated pasture as we do it
- Pivot equipment $108 (10 yr)
- Stock water system $ 18 ( 5 yr)
- Fence system $ 8 ( 5 yr)

Production per acre for three beef enterprises with 4.5 ton/acre dry matter yield

<table>
<thead>
<tr>
<th>Enterprise</th>
<th>lb/acre</th>
<th>value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow-calf</td>
<td>400</td>
<td>$646</td>
</tr>
<tr>
<td>Stocker (custom)</td>
<td>900</td>
<td>$405</td>
</tr>
<tr>
<td>Stocker (owned)</td>
<td>900</td>
<td>$846</td>
</tr>
<tr>
<td>Pasture-finished</td>
<td>750</td>
<td>$1088</td>
</tr>
<tr>
<td></td>
<td>(wholesale)</td>
<td></td>
</tr>
<tr>
<td>Pasture-finished</td>
<td>750</td>
<td>$2062</td>
</tr>
<tr>
<td></td>
<td>(direct market)</td>
<td></td>
</tr>
</tbody>
</table>
Pasture-based dairy....

... where a family can still make a living

- Less daily stress on the cows
- Greater cow longevity
- Higher quality milk

Just commercial cattlemen....

- More productive pasture
- Better quality pasture

In Missouri we ran fall-calving cows all winter on nothing but stockpiled tall fescue + legume pastures

- 92% conception rate in 45 days
- 500 lb calves on April 1
- For less than 50¢/pair/day

Winter annual forage can be carried forward into winter in many environments

... Sept thru Dec 2004, this field* produced 292 cow-days/acre @ 39¢ per day

* Barley, Oats, & Winter Peas

The same ranch had a hay feeding cost on other cows of $1.33 per day in 2004

In winter 2007-8 the cost was $2.10/cow/day

Joe Miller, Salmon, ID went from feeding 2 ½ ton of hay/cow every winter to feeding none

The first thing he changed was his MIND
Grazing can be a slower paced lifestyle
.... So enjoy it!

Books by Jim Gerrish

- Management-intensive Grazing
- Kick the Hay Habit

$30
$27
Both for $55

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