INNOVATIVE IMMUNO THERAPY
Introducing Immunotherapy
Livestock Stress Formulas
Alternatives for Health & Performance

- No synthetic hormones or antibiotics
- Made from all natural compounds
- Educates the immune system
- Results in dramatic health & performance improvements
- Research proven & tested
- Easily delivered
- Safe to use
A NATURAL-PATENTED
ALTERNATIVE FOR HEALTH CARE & PERFORMANCE

- Helps support the immune system
- Made with natural compounds
- No synthetic hormones or antibiotics
- Research proven & tested
Made with low molecular weight **Bioactive Peptides** plus specific **Bioactive Oligosaccharides** plus key direct-fed microbials, **Livestock Stress Formulas** help support and modulate immune health.

- **Bioactive Peptides**
- **Bioactive Oligosaccharides**
Livestock Stress Formulas bioactive peptides have three unique functions that affect the primary immune responsive cells controlling the cell mediated immune response. These bioactive molecules have been called: Immune Memory Molecules and their three functions are:

- Transfer
- Induction
- Modulation
Transfer Function

Our bioactive peptides transfer antigen recognition from ‘educated’ to naïve lymphocytes. Once the peptides contact the lymphocytes of the animal, they, along with the peptide receptor, convey the unique antigen-specific recognition.
Induction Function-Immune System “Priming”

The immune memory molecules induct the immune response by increasing NK cell activity, cytokine and chemical messenger production. They activate antigen processing cells (APCs) and macrophages. This function occurs only in the presence of a pathogen.
Modulation of the Immune Response Function

The immune memory molecules induce T-regulator cell activity, sending a message that the pathogens have been successfully eliminated. They can play a role in controlling allergy symptoms and autoimmune disease, favoring cell-mediated activity over antibody production.

Enhancing modulation helps decrease the ongoing inflammatory response and reduces the likelihood of immune-mediated damage.
We educate the animal’s own immune system to help us prevent disease, enhance antibiotic response, help increase antibody production from vaccine use (a new patent).
Accepted Facts:

- Stress can cause a decrease in immune function.
- When ruminants are highly stressed, their immune system is challenged.
- If you help improve immune function, there is a good likelihood of reducing morbidity & mortality.
- If morbidity is reduced, weight gain should increase.

Healthy Animals = Profitable Animals
Cortisol levels were lower on calves fed LSF.
Insulin response of calves fed LSF. LSF calves were eating better than controls.
Stress Leads to Challenged Immune System!

We need a “Level Playing Field” for Medicine and Nutrition to Work Correctly & Efficiently

Good Nutrition +

Efficacious Medicine ________________ Stress
Stress has a powerful negative impact on animal health. **Livestock Stress Formulas** help support and modulate the immune system, making it possible for nutrition and medicine to be more effective. The results are:

- Improved performance
- Fewer days on feed
- Reduced mortality
- Reduced morbidity
- Improved fertility
Livestock Stress Formulas

- **Stress Formula Powder** for all species newborns
- **Stress Formula Original Bolettes** for baby calves
- **New Stress Formula Time Release Bollettes** for baby calves
- **Stress Formula Original – Rumen By-Pass Bolus**
- **New Stress Formula Time Release Bolus**
- **New Patents: Time Release & Vaccine antibody level enhancement**
Study Calves: 419 head  
Control Calves: 180 head

All calves vaccinated and wormed

<table>
<thead>
<tr>
<th>Group</th>
<th># of animals</th>
<th>Illness (%)</th>
<th>Death (%)</th>
<th>Weight Gain (#/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>180</td>
<td>15.5%</td>
<td>5.5%</td>
<td>1.85</td>
</tr>
<tr>
<td>LSF</td>
<td>419</td>
<td>3.1%</td>
<td>0</td>
<td>3.05</td>
</tr>
</tbody>
</table>

Study Calves were given Livestock Stress Formula (LSF)  
1 oz/head/day x 4 days.  
Total dose 4 oz per head.
Study calves were given Livestock Stress Formula (LSF) 1 oz/head/day x 4 days Total dose 4 oz/head.

<table>
<thead>
<tr>
<th>Group</th>
<th># of animal</th>
<th>Illness</th>
<th>Death</th>
<th>Weight Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>29</td>
<td>83%</td>
<td>24.1%</td>
<td>0.9 #/day</td>
</tr>
<tr>
<td>LSF</td>
<td>585</td>
<td>2.6%</td>
<td>0</td>
<td>3.13/day</td>
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<tr>
<td>Group</td>
<td>Number of Animals</td>
<td>Weight Gain (lbs)</td>
<td># Medical Treatments</td>
<td>Cost of Medicine (no labor)</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------</td>
<td>-------------------</td>
<td>----------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>Control</td>
<td>20</td>
<td>800.8</td>
<td>61</td>
<td>$388.19</td>
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<tr>
<td>LSF</td>
<td>19</td>
<td>856.5</td>
<td>9</td>
<td>$34.90</td>
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</table>

<table>
<thead>
<tr>
<th>Group</th>
<th>Days to Full Feed</th>
<th>Feed Consumption in 18 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>18 days</td>
<td>2500 #</td>
</tr>
<tr>
<td>LSF</td>
<td>11 days</td>
<td>5960 #</td>
</tr>
</tbody>
</table>

Improving Efficiency Through Improved Health
Oakdale, California Dairy Calf Trials

Dairy A used 180 calves (30 died). No Livestock Stress Formula was used in either period.

Dairy B used 181 Calves (only 3 died). Calves were fed Livestock Stress Formula during the Study Period.
Feck Dairy Study
Dairy Calves

Livestock Stress Formula Used
Dairy Calves

Non Supplemented
Feck Results

3 Groups:
- ABS-MI  A
- ABS      B
- Control  C

Group A had a total of 1 treatment
Group B had 4 treatments
Group C had 54 treatments
Feck Results

Days on Feed

Group A: 13.5 months on feed
Group B: 14.5 months on feed
Group C: 16.5 months on feed

Group A vs Group C:
90 DAYS LESS ON FEED
Feck Results

YIELD GRADES

GROUP A:  100% CHOICE +

GROUP B:  100% CHOICE +

GROUP C:  100% SELECT
Livestock Stress Formulas

- Reducing Mortality
- Reducing Morbidity
- Improving Health
- Improving Performance
- Improving Fertility & Conception
Livestock Stress Formula for Reproduction

- **Protocol: Donor cow**
  - 1 bolus @ lut injection and cidr pull
  - 1 bolus @ Day 1 of FSH injection
  - 1 bolus @ Day 2 of FSH injection

- **Recipient cow:**
  - 1 bolus @ cidr pull
  - 1 bolus @ implantation
## Reproduction-Fertility in Cows

<table>
<thead>
<tr>
<th>Dairy Cows</th>
<th>Flush Results-</th>
<th>No LSF</th>
<th>Flush Results-</th>
<th>With LSF (given Three times)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total Number of Embryos</td>
<td>Grade #1 Embryos</td>
<td>Total Number of Embryos</td>
<td>Grade #1 Embryos</td>
</tr>
<tr>
<td>#</td>
<td>9-16</td>
<td>6</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>1</td>
<td>6-12</td>
<td>4</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>2</td>
<td>2-6</td>
<td>4</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>3-9</td>
<td>6</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>4-7</td>
<td>4</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>2-6</td>
<td>3</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>2-4</td>
<td>2</td>
<td>9</td>
<td>9</td>
</tr>
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<td>7</td>
<td>3-7</td>
<td>2</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>1-4</td>
<td>2</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>
Cow Calf Program
Beef Cow/Calf Program

Cows

Spring

1) Deworm with Injectable Ivomec plus oral Fenbendazole, Levasole, or Ivomec pour on and delice with Cyclence.
   - This worming should occur during the 42 days after the first grass turns green

2) Cattlemaster-10

   a) Covers Leptospirosis and Vibrio for breeding
   b) Respiratory diseases
Cows

Fall/Winter

1) Deworm/delice with Ivomec pour on, Ivomec injectable plus oral Fenbendazole, or Levasole

2) Cattlemaster-10
   a) Cover abortions: Lepto & Vibrio
   b) Improves colostrums antibodies for respiratory infections in the newborn

3) Scour-Bos
   a) Heifers: 2 times 2 weeks apart prior to calving improves resistance to E.coli and viral scours for 4 months
   b) Mature cows 1 vaccination protects 4 months
Beef Cow/Calf Program

Calves

Birth

1) TSV-2 intranasal IBR and PI3
2) Cattle Master Gold – 2cc SQ protects vs. killed IBR, PI3, BVD, BRSV
3) Naval tincture of iodine
4) Optional: BoSe 1 cc/40# to prevent white muscle disease
5) **ABS Bollettes** for baby beef 2 bollettes/day for 2 days or **ABS Time Release** 2 bollettes 1 day to improve immune function for disease prevention

6) **ST-BAC Implant**- new multiple bacterin for 9 types of Mycoplasma, 4 types of Pasturella & Mannhemia, and 2 types of Hemophilus. This has been effective and is highly recommended.
Beef Cow/Calf Program

This program has enabled us to vaccinate for 19 pathogens vs 9 pathogens at a savings of $7.10/head over the prior program with 2 fewer injections.
Beef Cow/Calf Program

Calves

Weaning:

Bovoshield Gold FP 5: 2 cc SQ MLV IBR, PI3, BVD, BRSV

Livestock Stress Rumen By-pass bolus to prevent stress & enhance vaccine: 1 bolus (optional)

4-8 Months old:

Bangs Vaccine for Brucella abortus
Fort Bidwell, CA  Beef Calf Study 2003

Livestock Stress Formula Study

**Morbidity (Scours)**

- **Treatment calves**: 27 calves
- **Controls**: 20 calves

**Immediate tx**

- Morbidity (Scours): 100%

**Delayed tx**

- Morbidity (Scours): 0%

**Weaning Weight**

- **Immediate tx**: 575
- **Delayed tx**: 569
- **Control**: 513

Treatment calves: given 1 oz **Livestock Stress Formula** Day 1 & 2

given 1 oz **Livestock Stress Rumen Bypass Formula** at processing i.e. castration/branding/vaccinating.
To achieve the best results against Bovine Respiratory Disease or “shipping fever” we need to take a multi-faceted approach. The three primary areas that need addressed are

1. Vaccination program
2. Immune boost
3. Nutritional support
Newborn Calf: Shipping Fever

- **Essential Vaccination Program**: to educate the immune system against the worst pathogens viral or bacterial.

Day 1:
1. TSV-2 intranasal IBR and PI3
2. **Cattle Master Gold**: 2cc SQ protects vs. **killed IBR, PI3, BVD, and BRS-V**
3. Naval tincture of iodine
4. **BoSe** to prevent white muscle disease, (optional) 1cc/40#
Essential Vaccination Program

5. **Livestock Stress Powder**: 1 oz/day for Day 1, 2, Day 12 to improve calf’s immune function for resistance to disease in bucket calves or

  **ABS Bollettes**: 2 bollettes/day for Day 1, 2, Day 12 to improve immune function for disease prevention. Now available in Time Release Formula

6. **ST-BAC Implant-new multiple bacterin** for 9 types of Mycoplasma, 4 types of Pasturella & Mannhemia, and 2 Types of Hemophilus. Effective and highly recommended.
Newborn vaccination program

- Day 12 or prior to weaning: Bovoshield Gold FP 5
- 2cc SQ MLV IBR, PI3, BVD, and BRSV.
Essential Vaccination Program

- The above program has enabled us to vaccinate for 19 pathogens vs. 9 pathogens at a saving of $7.10/head over the prior program with 2 fewer injections.
Immune Boost - newborn calf

5cc of Procaine penicillin g IM or SQ day 1

BoSe - Optional

PM administration of AMPROLIUM in the milk for first 5 days
Nutritional and Environmental Support

Day 1 - Draft free and dry rearing area

- Individual pens
- Water free choice
- Milk Replacer - all natural 100% whey or milk products (at least 20% fat and 20% protein) *No soy or plant protein.*
- Nipple bottle or nipple bucket preferred
- High quality calf starter pellets of feed
Treating Sick Cattle
What does it really cost

Treatment Costs - Performance and Quality
Land of Lakes study results
### Effects of # of treatments for BRD on feedlot performance and carcass quality

<table>
<thead>
<tr>
<th># of treatments</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of total cattle</td>
<td>81</td>
<td>14.2</td>
<td>3.3</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>% of dead cattle</td>
<td>0.9</td>
<td>2.9</td>
<td>7.2</td>
<td>10.0</td>
<td>16.0</td>
</tr>
<tr>
<td>% Rail</td>
<td>0.2</td>
<td>1.0</td>
<td>6.0</td>
<td>8.0</td>
<td>16.0</td>
</tr>
<tr>
<td>Med $</td>
<td>0</td>
<td>16.96</td>
<td>33.63</td>
<td>53.39</td>
<td>69.79</td>
</tr>
<tr>
<td>ADG</td>
<td>2.92</td>
<td>2.77</td>
<td>2.57</td>
<td>2.45</td>
<td>1.99</td>
</tr>
<tr>
<td>% Ch</td>
<td>41</td>
<td>25</td>
<td>22</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>% Sel</td>
<td>53</td>
<td>61</td>
<td>57</td>
<td>72</td>
<td>45</td>
</tr>
<tr>
<td>% Stnd</td>
<td>6</td>
<td>14</td>
<td>24</td>
<td>11</td>
<td>37</td>
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</table>
# Added costs for sick cattle

<table>
<thead>
<tr>
<th># treats</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death loss</td>
<td>0</td>
<td>11.05</td>
<td>34.81</td>
<td>50.28</td>
<td>83.43</td>
</tr>
<tr>
<td>Performance loss</td>
<td>0</td>
<td>14.57</td>
<td>33.39</td>
<td>46.09</td>
<td>108.90</td>
</tr>
<tr>
<td>Carcass Discount</td>
<td>0</td>
<td>25.20</td>
<td>34.05</td>
<td>32.55</td>
<td>50.85</td>
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<tr>
<td>From table 1 Med cost</td>
<td>0</td>
<td>16.96</td>
<td>33.63</td>
<td>53.39</td>
<td>69.79</td>
</tr>
<tr>
<td>Total cost</td>
<td>0</td>
<td>67.78</td>
<td>135.88</td>
<td>182.31</td>
<td>312.96</td>
</tr>
<tr>
<td>Breakeven purchase price*</td>
<td>85.00</td>
<td>74.58</td>
<td>64.10</td>
<td>56.95</td>
<td>36.85</td>
</tr>
</tbody>
</table>

*Assuming $85/cwt for a 650# steer breakeven purchase prices.
Questions

• Are we buying questionable cattle cheap enough?

These figures give us some indication of where pricing should be based on the risk of sickness in cattle
Question

• What can we do once cattle are in our lot to eliminate as much sickness as possible?
Solution

- Need to know about the origin and handling of the cattle prior to arrival at our lot
- Need to have a program of processing laid out before arrival
- Program needs to be tailored to that particular pen of cattle
- Program includes
  - Time needed to rest cattle
  - Vaccinations and implants to be used
  - Parasite treatment needed
Solution

- Arrival pens should be prepared
  - Dry, clean pens
  - Good access to clean water and feed bunks
  - Starter feed should be available soon after arrival

Starter rations that include digestible energy, protein, micronutrients and are very palatable can help eliminate sickness. Starter rations should never be cheap or shortchanged. (Compare to cost of treatment)

**Nutrient intake quickly and at good levels will prevent treatments and save money.**
LIVESTOCK STRESS BOLUS

PRIMARY AREAS TO ADDRESS ARE
VACCINATION PROGRAM

IMMUNE BOOST

NUTRITIONAL SUPPORT
Essential Vaccination Program

- Educate the immune system against the worst pathogens vial or bacterial

- Day 1  
  a) TSV-2 intranasal IBR and PI3  
  b) **Cattle Master Gold**: 2 cc SQ protects vs. *killed* IBR, PI3, BVD, and BRSV  
  c) **ST-Bac Implant**: new multiple bacterin for 9 types of Mycoplasma, 4 types of Pasturella & Mannhemia, and 2 types of Hemophilus.

Highly recommended and has been effective
Vaccination program: stocker/feeder

- **Day 12:** Bovoshield Gold FP 5:
  - 2 cc SQ MLV IBR, PI3, BVD, BRSV.
  - Deworm with Ivomec injectable and Panacur or Levasole and pour on Cyclence (for lice) or Ivomec pour on (for worms and lice).
Immune Boost    Stocker/feeder

- **Livestock Stress RB**: 1 oz Bolus + Procaine Penicillin G (4cc/100#)

- **Best Method**
  - **Day 1, Day 2, Day 12**: administer 1 oz to each calf orally in ½ oz or 1 oz bolus form

- **Alternate Method**:  
  - **Day 1**: bolus  
  - **Day 2, 3, 4**: 1 oz/head in feed. *This only works if cattle are bunk trained and hand fed.*  
  - **Day 12**: 1 oz
Stocker/feeders

- Newest method and patent
  - **LIVESTOCK STRESS TIME RELEASE BOLUS**
  - Day 1, and Day 12 treatment as adjunct to vaccine and antibiotic
Nutritional Support Stocker/Feeder

Day 1 thru Day 21

- Fresh endless water supply
- Trace mineral salt free choice
- Hay and/or pasture free choice
- 2:1 calcium phosphorus ration (½ feed grade limestone and ½ dicalcium phosphate) free choice.
- 11.5% to 12% dry ration (350 to 700 #) fortified with Vit A, D, E, Selenium, and CTC or ATC (tetracycline) 300 gm/ton.
Formula for grind and mix Concentrate ration 300 to 700# calves

- 1800 # grain (your choice corn, corn/oats, etc)
- 200 # supplement- all natural No urea: Soy Bean Meal
- 5 # Dairy ADE Pack
- 1.5 # Selenium 60
- 20,000 units Vitamin E
- 6 # CTC-50 (chlorotetracycline) = 300 gm/ton
- 90# molasses

Start feeding @ ½% body wt. day 1 & increase by ¼% body wt. every 2 to 3 days.
Stocker/FeederShipping Fever
High Stress Calves

• For highly stressed calves we add Tetradure™ prior to shipping or post arrival to help improve stress management.

• Protocol otherwise is the same.