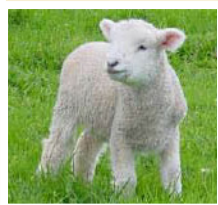
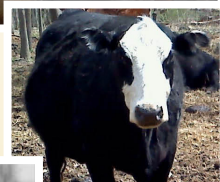


# D.U.A.<sup>™</sup> and D.U.A. G.R.P.<sup>™</sup>

## Digestion Utilization Absorption



*Conventional & Organic Livestock*



The animal feed products listed in this catalog are **USDA** certified organic and are identified with the **USDA** organic seal. All other products contain only certified organic agricultural products or ingredients that conform to the NOP's national list of materials acceptable for **organic livestock production**.

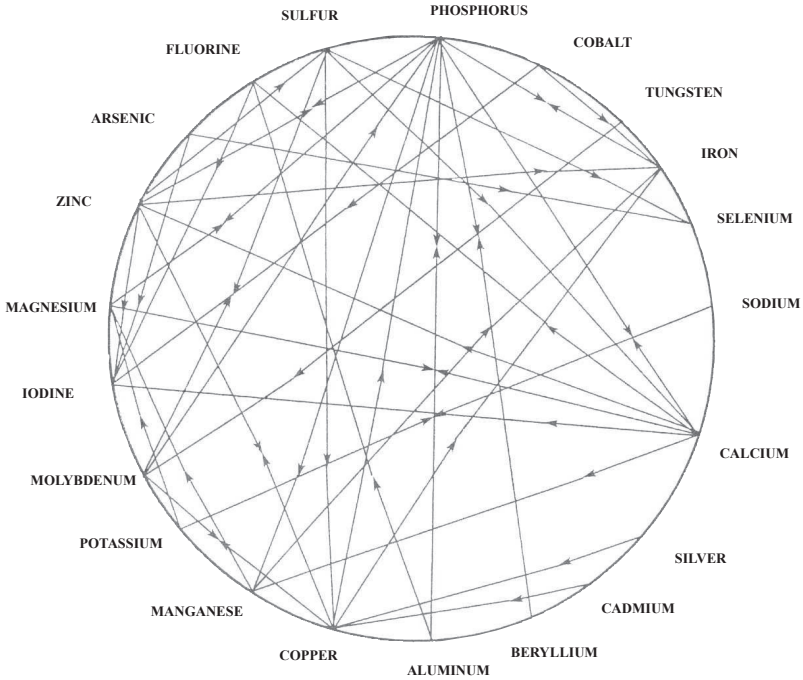


Certified Organic  
by Ecocert SA

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FPD238-5

# The Mineral World



Certified Organic  
by Ecocert SA



## Our Mission:

**To achieve maximum animal health with organic nutrients through Applied Common Sense, Technology and Services.**

**Advanced Biological Concepts®** has been dedicated for over 45 years to providing producers with nutritional technology to achieve maximum animal health for the production of drug and hormone free meat and milk. We believe animal health problems are due to nutritional deficiencies and related environmental conditions.

**Advanced Biological Concepts®** offers a complete line of **USDA/NOP** organic livestock production products.

Certified Organic Processor/Handler #0207-003IN

Certified By: ECOCERT SA

# ADVANCED BIOLOGICAL CONCEPTS®

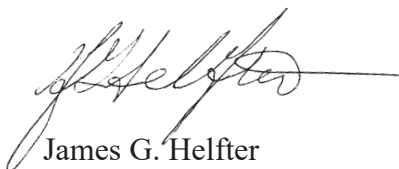
## MISSION STATEMENT

**Improve the quality of life for mankind; by improving the quality of life for animals through nutrition.**

### **Guideline for Achieving Mission Statement:**

- 1) Always focus on the **cause** of a disease or problem, not the symptom.
- 2) Refrain from Research and Development involved in symptom relief.
- 3) We believe most poor health problems in animals are due to a nutritional deficiency caused by the confinement of animals, thereby, limiting their access to a variety of nutritional ingredients.
- 4) Often improvement in health can be dramatic when furnishing a balanced diet or adding nutrients that are lacking in the animal's diet. Not unlike giving food to a starving animal, this creates a dramatic improvement in health. This mode of nutritionally assisting animals must not be confused with drug therapy or medicine. We do not prescribe replacing the body's own mode of action through supplementation with synthetic chemicals and artificial components.  
**We supply the body with what it needs to repair itself.**
- 5) We do not prescribe the use of poisons or mega doses of single nutrients to **enhance performance**.

For more information or to place an order, call us at  
**1-800-373-5971** and we will be happy to serve you.



James G. Helfter  
Chief Executive Officer

Helfter Enterprises, Inc.  
d.b.a.

Advanced Biological Concepts®

**“TOMORROW’S TECHNOLOGY TODAY”**



# D.U.A.™

Dietary Nutritional Supplement for Dairy Cattle,  
Beef Cattle, Sheep, Goats, Swine, Poultry, and Llamas



## GUARANTEED ANALYSIS

Crude Protein	(min)-----12.0 %	Phosphorus (P)	(min)-----1.00 %
Lysine	(min)-----0.05 %	Salt (NaCl)	(min)-----3.0 %
Methionine	(min)-----0.05 %	Salt (NaCl)	(max)-----3.5 %
Crude Fat	(min)-----3.5 %	Sodium (Na)	(min)-----1.00 %
Crude Fiber	(max)-----15.0 %	Sodium (Na)	(max)-----1.50 %
Acid Detergent Fiber (ADF)	(max)-----32.0 %	Copper (Cu)	(min)-----650 PPM
Calcium (Ca)	(min)-----5.0 %	Copper (Cu)	(max)-----750 PPM
Calcium (Ca)	(max)-----6.0 %	Zinc (Zn)	(min)-----1,500 PPM
		Vitamin A	(min)-----180,000 IU/LB

## INGREDIENT STATEMENT

This product contains only certified organic agricultural products or ingredients that conform to the NOP's national list of materials acceptable for organic livestock production.™

**INGREDIENTS:** Dried Lactobacillus Acidophilus Fermentation Product, Organic Oat Groats, Diatomaceous Earth, Reed-Sedge Peat, Organic Linseed Meal, Dicalcium Phosphate, Calcium Carbonate, Attapulgite Clay, Organic Dehydrated Alfalfa Meal, Monosodium Phosphate, Organic Soybean Oil, Organic Dried Kelp, Bentonite, Sodium Aluminosilicate, Salt, Choline Chloride, Magnesium Oxide, Yeast Culture, Ferrous Sulfate, Zinc Sulfate, Sodium Sulfate, Potassium Chloride, Manganous Oxide, Zinc Hydroxychloride, Ascorbic Acid, Vitamin E Supplement, Manganese Hydroxychloride, Manganese Sulfate, Basic Copper Chloride, Organic Garlic, Organic Fenugreek, Niacin, Sulfur, Citric Acid, Folic Acid, Potassium Sulfate, Magnesium Sulfate, Riboflavin, Vitamin A Acetate, Organic Apple Cider Vinegar, Copper Sulfate, Organic Feed Grade Dried Milk, Calcium Pantothenate, Organic Egg Product, Pyridoxine Hydrochloride, Organic Cloves, Organic Lecithin, Organic Barley, Vitamin D3 Supplement, Cobalt Sulfate, Beta-Carotene, Calcium Hydroxide, Vitamin B12 Supplement, Biotin, Thiamine Mononitrate, Organic Dandelion, Ethylenediamine Dihydriodide, Organic Parsley, Magnesium Chloride, Organic Althea Root, Organic Dried Tomato Pomace, Organic Yucca Schidigera Extract, Organic Horseradish, Organic Licorice, Organic Sweet Orange Peel, Organic Aloe Vera Gel Concentrate, Organic Peppermint, Organic Calendula, Organic Ginger, Organic Coconut Oil, Organic Sage, Organic Common Fennel, Organic Thyme, Organic Lemon Grass, Organic Elder Flowers, Cobalt Carbonate, Organic Papain, Organic Basil, Organic Violet Leaves, Organic Coconut Flour, Organic Juniper Berries.

## DIRECTIONS FOR USE:

### DAIRY CATTLE:

Top Dress or Add Mix:  
1/2 ounce (14.17 g) per head per day.

### CALVES:

Top Dress or Add Mix:  
1/2 ounce (14.17 g) per head per day.

### BEEF CATTLE:

Top Dress or Add Mix:  
1/4 ounce (7.09 g) per head per day.

### Receiving:

Top Dress or Add Mix:  
1/2 ounce (14.17 g) per head per day  
for 14 days.

### SHEEP & GOATS:

Top Dress or Add Mix:  
1/8 ounce (3.54 g) per head per day.

### SWINE:

#### Finishing:

Add 3 Pounds Per Ton of Complete Ration.  
Grower and Lactation:

Add 5 Pounds Per Ton of Complete Ration.

#### Starter and Gestation:

Add 7 Pounds Per Ton of Complete Ration.

### POULTRY:

#### Starter:

Add 4 Pounds Per Ton of Complete Ration.

#### Complete Feed:

Add 2 Pounds Per Ton of Complete Ration.

### LLAMAS / EMUS / ALPACAS:

Top Dress or Add Mix:  
1/4 ounce (7.09 g) per head per day.

Manufactured for:

Advanced Biological Concepts®

P.O. Box 27 • Osco, Illinois 61274-0027

Phone: 800-373-5971 • Fax: 888-770-0735

jgh@a-b-c-plus.com • www.abceplus.biz

Certified Organic by: ECOCERT SA

FPD157-53

# A037

## Net Weight 25 Pounds (11.36 kg)

*Disclaimer: This product is formulated to meet the requirements of the USDA National Organic Program. Advanced Biological Concepts® accepts no responsibility for performance failure or misuse of this product, or changes of organic protocol that we are not aware of.*



# D.U.A.<sup>TM</sup> Pellets



Dietary Nutritional Supplement for Dairy Cattle,  
Beef Cattle, Sheep, Goats, Swine, and Llamas

## GUARANTEED ANALYSIS

Crude Protein	(min)-----11.0 %	Phosphorus (P)	(min)-----1.0 %
Lysine	(min)-----0.05 %	Salt (NaCl)	(min)-----2.5 %
Methionine	(min)-----0.05 %	Salt (NaCl)	(max)-----3.0 %
Crude Fat	(min)-----3.5 %	Sodium (Na)	(min)-----0.5 %
Crude Fiber	(max)-----10.0 %	Sodium (Na)	(max)-----1.0 %
Acid Detergent Fiber (ADF)	(max)-----32.0 %	Copper (Cu)	(min)-----500 PPM
Calcium (Ca)	(min)-----5.0 %	Copper (Cu)	(max)-----600 PPM
Calcium (Ca)	(max)-----6.0 %	Zinc (Zn)	(min)-----1500 PPM
		Vitamin A	(min)-----180,000 IU/LB

## INGREDIENT STATEMENT

This product contains only certified organic agricultural products or ingredients that conform to the NOP's national list of materials acceptable for organic livestock production.<sup>TM</sup>

## INGREDIENTS:

Dried Lactobacillus Acidophilus Fermentation Product, Organic Oat Groats, Diatomaceous Earth, Reed-Sedge Peat, Organic Linseed Meal, Dicalcium Phosphate, Calcium Carbonate, Attapulgite Clay, Organic Dehydrated Alfalfa Meal, Monosodium Phosphate, Organic Soybean Oil, Organic Dried Kelp, Bentonite, Sodium Aluminosilicate, Salt, Choline Chloride, Magnesium Oxide, Yeast Culture, Ferrous Sulfate, Zinc Sulfate, Sodium Sulfate, Potassium Chloride, Manganous Oxide, Zinc Hydroxychloride, Ascorbic Acid, Vitamin E Supplement, Manganese Hydroxychloride, Manganese Sulfate, Basic Copper Chloride, Organic Garlic, Organic Fenugreek, Niacin, Sulfur, Citric Acid, Folic Acid, Potassium Sulfate, Magnesium Sulfate, Riboflavin, Vitamin A Acetate, Organic Apple Cider Vinegar, Copper Sulfate, Organic Feed Grade Dried Milk, Calcium Pantothenate, Organic Egg Product, Pyridoxine Hydrochloride, Organic Cloves, Organic Lecithin, Organic Barley, Vitamin D3 Supplement, Cobalt Sulfate, Beta-Carotene, Calcium Hydroxide, Vitamin B12 Supplement, Biotin, Thiamine Mononitrate, Organic Dandelion, Ethylenediamine Dihydrochloride, Organic Parsley, Magnesium Chloride, Organic Althea Root, Organic Dried Tomato Pomace, Organic Yucca Schidigera Extract, Organic Horseradish, Organic Licorice, Organic Sweet Orange Peel, Organic Aloe Vera Gel Concentrate, Organic Peppermint, Organic Calendula, Organic Ginger, Organic Coconut Oil, Organic Sage, Organic Common Fennel, Organic Thyme, Organic Lemon Grass, Organic Elder Flowers, Cobalt Carbonate, Organic Papain, Organic Basil, Organic Violet Leaves, Organic Coconut Flour, Organic Juniper Berries.

## DIRECTIONS FOR USE:

### DAIRY CATTLE:

Top Dress or Add Mix:  
1 ounce (28.35 g) per head per day.

### CALVES:

Top Dress or Add Mix:  
1 ounce (28.35 g) per head per day.

### BEEF CATTLE:

Top Dress or Add Mix:  
1/2 ounce (14.17 g) per head per day.

### Receiving:

Top Dress or Add Mix:  
1 ounce (28.35 g) per head per day  
for 14 days.

### **2 oz. (60 cc) Scoop Included**

### SHEEP & GOATS:

Top Dress or Add Mix:  
1/4 ounce (7.09 g) per head per day.

### SWINE:

Finishing:  
Add **6 Pounds** Per Ton of Complete Ration.

### Grower and Lactation:

Add **10 Pounds** Per Ton of Complete Ration.

### Starter and Gestation:

Add **14 Pounds** Per Ton of Complete Ration.

### LLAMAS / EMUS / ALPACAS:

Top Dress or Add Mix:  
1/2 ounce (14.17 g) per head per day.

### Manufactured for:

Advanced Biological Concepts®  
P.O. Box 27 • Osco, Illinois 61274-0027  
Phone: 800-373-5971 • Fax: 888-770-0735  
jgh@a-b-c-plus.com • www.abplus.biz

Certified Organic by: ECOCERT SA



FPD31-43

## A039



## Net Weight 25 Pounds (11.36 kg)

*Disclaimer: This product is formulated to meet the requirements of the USDA National Organic Program. Advanced Biological Concepts® accepts no responsibility for performance failure or misuse of this product, or changes of organic protocol that we are not aware of.*



**D.U.A.™**



**D.U.A.™ = Digestion, Utilization, Absorption  
Helps to improve fiber digestion.**

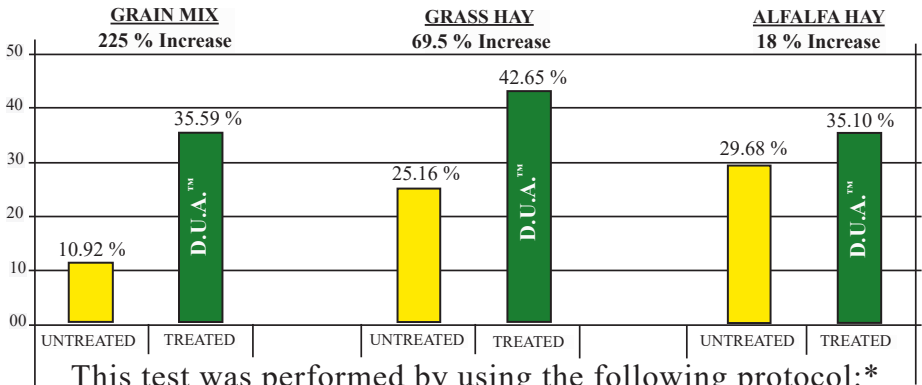
Aids in increasing **mineral** and **protein** assimilation.

**Benefits of this type of Mineral:**

Highly available **single molecule**, **chelated** to carbon (sugar) by the plant.  
This is the type of **mineral** that **animals** were **meant to live on**.

**Study: Neutral Detergent Fiber Digestion**

Independent Lab studies of D.U.A.™ effect on digestion of **Neutral Detergent Fiber Digestion** yielded the following results.



This test was performed by using the following protocol:\*

**GRAIN MIX**  
Control grain mix /  
fiber digestion = 10.92 %  
D.U.A.™ added /  
fiber digestion = 35.59 %  
increase = 225 %

**GRASS HAY**  
Control grass hay /  
fiber digestion = 25.16 %  
D.U.A.™ added /  
fiber digestion = 42.65 %  
increase = 69.5 %

**ALFALFA HAY**  
Control alfalfa hay /  
fiber digestion = 29.68 %  
D.U.A.™ added /  
fiber digestion = 35.10 %  
increase = 18 %

\*These numbers were obtained through Invitro procedures.

**Manufactured for:**  
**Advanced Biological Concepts®**  
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jgh@a-b-c-plus.com • www.abceplus.biz

## PROFIT WITH D.U.A.<sup>TM</sup>

**DAIRY:** Producers in the dairy industry have shown:

Using **D.U.A.<sup>TM</sup>** at the  $\frac{1}{2}$  oz/hd/day in your dairy ration helps increase the utilization of protein in the diet equal to the level of 3.1 pounds of **Soybean Meal** (48%).

Removal of Soybean Meal, 3.1 pounds @ .58/ pound	= \$1.798
Inclusion of <b>D.U.A.<sup>TM</sup></b> $\frac{1}{2}$ oz/hd/day	= \$.0978
<b>Savings</b>	= \$1.70

For every \$1.00 invested in **D.U.A.<sup>TM</sup>**, you **SAVE \$18.36!**

If  $\frac{1}{2}$  oz/hd/day saves 3.1 pounds of **Soybean Meal**, then 1 bag of **D.U.A.<sup>TM</sup>** saves **4,960 pounds** (almost 2.5 ton) of **Soybean Meal**.

**PROTOCOL:**

**D.U.A.<sup>TM</sup>**

(Digestive Utilization Absorption)

&

**FREE CHOICE MINERALS**

**D.U.A.<sup>TM</sup> helps to increase digestion of fiber!**

Fiber contains the major minerals, as well as minors.

**D.U.A.<sup>TM</sup>** helps to make **Free Choice Minerals** more available; this all means **less usage** and **greater profit** for you, the **Producer**.

*Disclaimer: This product is formulated to meet the requirements of the USDA National Organic Program. Advanced Biological Concepts® accepts no responsibility for performance failure or misuse of this product, or changes of organic protocol that we are not aware of.*

# D.U.A.<sup>TM</sup> Beef Feed Performance Test

Performed by: **MEXICALI CATTLE CO.**

Major Livestock Product Distributor

“Serving the Animal Industry”

## Control Group

60 Days on Feed

217 Head

Average Weight = 283 lbs.

Average Gain = 2 lbs. per day

## D.U.A.<sup>TM</sup>

60 Days on Feed

816 Head

Average Weight = 264 lbs.

Average Gain = 2.7 lbs. per day

35 % Increase in ADG

## 42 lbs. More Gain Per Head

# D.U.A.<sup>TM</sup> Cattle Test Results

## Incoming Cattle - 28 Day Tests

### Feed Efficiency and Rate of Gain Recap from Farm Testing

<u>Oregon</u>	<u>Control</u>	<u>Treatment</u>	<u>Improvement</u>
Steers on test	120	135	-----
Feed fed per lb. of gain	8.10	7.14	11.0 %
Daily gain	3.65	4.10	12.0 %
<u>Nevada</u>	<u>Control</u>	<u>Treatment</u>	<u>Improvement</u>
Steers on test	36	35	-----
Feed fed per lb. of gain	8.75	8.00	8.6 %
Daily gain	3.95	4.38	11.0 %
<u>California</u>	<u>Control</u>	<u>Treatment</u>	<u>Improvement</u>
Steers on test	35	35	-----
Feed fed per lb. of gain	7.20	6.80	5.6 %
Daily gain	3.90	4.30	9.0 %
<u>California</u>	<u>Control</u>	<u>Treatment</u>	<u>Improvement</u>
Steers on test	105	105	-----
Feed fed per lb. of gain	7.90	7.10	10.0 %
Daily gain	3.60	3.95	10.0 %
<u>California</u>	<u>Control</u>	<u>Treatment</u>	<u>Improvement</u>
Heifers on test	67	63	-----
Feed fed per lb. of gain	7.50	7.00	6.7 %
Daily gain	3.50	3.85	10.0 %



# SLAUGHTER RESULTS with D.U.A.™

## Group 1

	<b>Body Weight</b>	<b>% Dress</b>
73 Heifers	79,500	64.17
23 Steers	24,180	66.18*
96 Total	103,680	
2% Shrink	2,074	
	101,610	
65.03%		

ALL GRADED CHOICE, NO REJECTED LIVERS

*\*Sandunsky Beef Co. commented on the excellent cutability on this group of feedlot cattle as very rare and usually found in show cattle*

## Group 2

	<b>Body Weight</b>	<b>% Dress</b>
79 Heifers	81,090	63.85
10 Steers	12,390	65.93
89 Total	93,480	
2% Shrink	1,870	
	91,610	65.21%

## Group 3

	<b>Body Weight</b>	<b>% Dress</b>
54 Heifers	52,390	64.94

The producer indicated on the previous page, is a dealer for **Advanced Biological Concepts®** and finishes out 500-700 cattle per year. He usually receives cattle at weights of 750 pounds. He was already into this group of feeders when we introduced **D.U.A.™** into the feeding program. Included below is **Advanced Biological Concepts®** all natural receiving and feeding program.

### **I. RECEIVING PROGRAM**

1. Dry Hay for 12-14 days.
2. ½ pound per day Kickoff Starter Pellet plus **D.U.A.™** for 30 days. 1 pound per day 42% Beef supplement (MGA) Co-op.
3. Haylage started with 1 pound oats.
4. 5th Day - 1 pound corn increase 1 pound every day 3 days - 2 pounds oats (30 days).
5. 30 days - Kickoff Starter plus **D.U.A.™** reduced to ¼ pound per head per day.

### **II. 2 MONTHS - March**

1. Cough started - Aureo 700 fed for 10 days.
2. **D.U.A.™** introduced at ¼ ounce per head per day. Aureo discontinued.
3. After 2 weeks corn was able to be increased an additional 3 pounds from 23 pounds to 26 pounds.

## **D.U.A.™ Testimonial**

Last winter, we had some home raised calves that were slow and not responsive to traditional antibiotics. An **Advanced Biological Concepts®** representative introduced us to a product called **D.U.A.™**

We began adding **D.U.A.™** to the calves feed and within 2 weeks the calves had a better appetite and smoother hair coats. We probably would have lost most of these calves or they wouldn't have been worth much, if we hadn't added **D.U.A.™** to their feed.

**Clayton**

# BOVINE TEST CENTER

## Bovine Test Center Senior Bull Test 56 Days

	<b>Control</b>	<b>D.U.A.<sup>™</sup></b>
No. of Bulls	11	26
Days of Feed	56	56
Average Start Weight	1071	1171
Average Finish Weight	1295	1411
Average Gain	223.8	240
Average Daily Gain	4.0	4.28
Average Daily Lb./Feed	40.44	30.58
Feed / Lb. Gain	10.1	7.14
Cost Per Day	3.23	2.45
Cost of D.U.A. <sup>™</sup>	-----	.015
Total Cost / Head / Day	3.23	2.465

**A feed saving of \$0.75 per head per day plus a 7% increase in weight gain.**

Milk producers need increased profits, which are not always achieved by increased production.

Increased profit margins can come through better management of off the farm dairy cost.

**D.U.A.<sup>™</sup>** stimulates appetite so cows stay on feed better, convert protein better (so less off the farm protein is needed), and get maximum utilization from your grain and forage.

I find most producers are looking for better ways of lifting the stress of heavy production in their dairies. At the same time they want to get away from drugs and antibiotics. Many are using several expensive stress packs to accomplish this. I recommend **D.U.A.<sup>™</sup>** to do this job.

Using **D.U.A.<sup>™</sup>** as the single off the farm stress fighter makes for easier feeding and greater profits.

William D. Johnson  
Dairy Consultant / Owner of WDJ Enterprises, Inc.



# DRUG FREE PRODUCTS FOR LIVESTOCK

## *Less Protein, More Production*



19% Crude protein ration was being used in a herd where the daily average milk production per cow was 80 pounds. The crude protein was dropped to 18% and **D.U.A.**<sup>™</sup> was added at a daily rate of 1/4 ounce per cow. In a weeks time, changes in the milk production were not noticed. The following week, **D.U.A.**<sup>™</sup> was increased to a daily rate of 1/2 ounce per cow. The cow's manure became loose due to the protein levels.

Therefore, the crude protein level was dropped to 17%. In thirty days, the daily milk production increased to 88 pounds per cow.

## *Conception Rates*



In an operation with 120 replacement heifers, the heifers are divided into several groups ranging in size. Their sizes vary from 400 pounds to 1,100 pounds. **D.U.A.**<sup>™</sup> has been included into the ration at a daily rate of 1/2 ounce per head. All antibiotics have been removed. Since the inclusion of **D.U.A.**<sup>™</sup> and the removal of all antibiotics, and within a period of 90 days, there has been improved health and improved conception rate at breeding time.

# D.U.A.™ Poultry Results

## Farm Test with 80,000 Laying Hens

	<u>Control</u>	<u>D.U.A.™</u>
Feed Conversion per 100 birds	23.00 lbs.	21.50 lbs.
Death Loss	3.00 %	.75 %

## Hyline #36 Laying Hens

	<u>Flock #1</u>	<u>Flock #2</u>
Number of Birds per Flock	147,796	145,600
Average Mortality Rate 1-44 Weeks	8.4 %	17.8 %
Egg Production at Week 44	83 %	78.4 %
<b>D.U.A.™ was added at Week 44</b>		
Average Mortality Week 44-78	7 %	6.4 %
Egg Production at Week 78	65 %	71 %
Life Time Feed Consumption / 100 Birds	21.7 lbs.	21.4 lbs.



## Benefits of D.U.A.™

After adding one pound per ton to Flock #2 at Week 44

Increased Egg Production by 6.7% compared to Flock #1

# D.U.A.<sup>™</sup> Turkey Results

These test results were accumulated from a TURKEY producer who raises organic birds Without Medications.

He began using D.U.A.<sup>™</sup> approximately half way through the feeding period. Before this time, his biggest loss occurred in the first 30 days and his second biggest loss came at processing, in the form of condemned birds. His inspector told him he was far below industry standards on the one group this past year.

**Turkeys are tanked for three main reasons:**

**(1) Sinuvitis (2) Septicemia (3) Air Sacculitis**

Out of 2,260 birds delivered for slaughter, 195 head (8.6%) without D.U.A.<sup>™</sup> were tanked. Of the birds with D.U.A.<sup>™</sup>, only 28 head (1.2%) were tanked.

## Test Results

	<u>Sinuvitis</u>	<u>Septicemia</u>	<u>Aie Scculitis</u>
Number tanked without D.U.A. <sup>™</sup>	21 head	53 head	121 head
Number tanked with D.U.A. <sup>™</sup>	9 head	16 head	3 head

The producer comments that without a doubt he will use D.U.A.<sup>™</sup> all the way through the year because of its cost effectiveness and performance results.

# Digestion Utilization Absorption

## D.U.A.<sup>TM</sup>

A key alternative for total silage management

**D.U.A.<sup>TM</sup> out performed the competition by**



**300% in reduction of yeast.**

**D.U.A.<sup>TM</sup> reduces pH in your silage faster than any other product on the market.**

**Yeast control is the one most critical components of the process that preserves the silage and prevents spoilage during feedout.**

**D.U.A.<sup>TM</sup>** is in a form which allows 100% coverage and immediate production of lactic acid, which drops the pH and slows down yeast production. Competitive products are pelleted which have to break down before production of lactic acid can begin.

### **Why is this important?**

From a practical view, the three most important things that must occur in order to make good silage are:

1. The rapid removal of air.
2. The **rapid production of lactic acid that results in a rapid drop in pH.**
3. Continued exclusion of air from the silage mass during storage and feedout.

**A quick reduction in silage pH limits the breakdown of protein in the silo** by inactivating plant proteases. In addition, a rapid decrease in pH will **inhibit the growth of undesirable anaerobic microorganisms** such as enterobacteria and clostridia. Eventually, continued production of lactic acid and a decrease in pH inhibits the growth of all bacteria.

A common **misconception** is that **molds are responsible for spoilage of silage** when it is exposed to air. However, **yeasts (not molds) are the primary microorganisms that cause aerobic spoilage and heating.** When exposed to air, yeast metabolizes lactic acid that causes the pH of the silage to increase, thus allowing bacteria, that were inhibited by low pH, to grow and further spoil the mass.

FPD165-2

# Digestion Utilization Absorption D.U.A.<sup>™</sup>

A key alternative for total swine management

## *What can D.U.A.<sup>™</sup> do for your swine feeding program?*

- May enhance **fermentation** and **protein digestion**
- Can contribute more positive energy available for growth
- **Additional** available **Nitrogen** to your **lagoon**
- Addresses manure management **environmental issues**

### Protein Savings Using D.U.A.<sup>™</sup> Added to Feed for 8,500 Head of Grower and Finisher

Protein Reduction by the use of D.U.A. <sup>™</sup> (1%) ( D.U.A. <sup>™</sup> Soymeal Savings) =	\$12,900.00
Cost of corn to replace soymeal	<u>- \$4,128.00</u>
Total Protein Savings is	<b>= \$8,772.00</b>

### Manure Management - Savings in Fertilizer Costs

**Manure** is not a waste product, but a **valuable fertilizer** source at no additional costs.



# Digestion Utilization Absorption D.U.A.<sup>™</sup>

A key alternative for total swine management

## Profit from D.U.A.<sup>™</sup> in a 8,500 Head, 4,000,000 Gallon Swine Lagoon

D.U.A.<sup>™</sup> added \$10.12 per 1,000 gallon of available nitrogen.

A total increase value of the lagoon was **\$40,480.00**

(using \$300.00 per ton for 28% Nitrogen)

## Profit Per Hog Using D.U.A.<sup>™</sup>

Farrow to Finish data compiled by a Iowa Master Pork Producer.

27.8 Pounds more per Pig to market @ \$0.50 Market = \$13.90

45.0 Pounds less feed per Pig to market @ \$0.064 per pound = \$ 2.88

Total = \$16.78

**\$16.78 More Profit Per Hog**

**Cost of D.U.A.<sup>™</sup> for 8,500 Hogs \$23,730.00**

Protein Savings \$8,772.00

Lagoon Profit \$40,480.00

**Total Profit when using D.U.A.<sup>™</sup> \$25,522.00**

For every dollar invested in D.U.A.<sup>™</sup> there is a \$2.00 Return

Based on past performance data, potential additional profit is \$16.78 per pig.

# D.U.A.™ Results

## 4,000,000 Gallon Liquid Manure Swine Lagoon

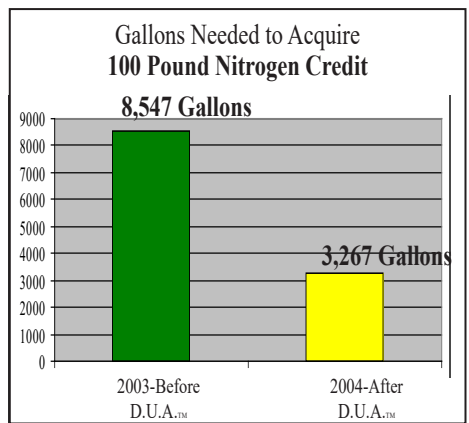
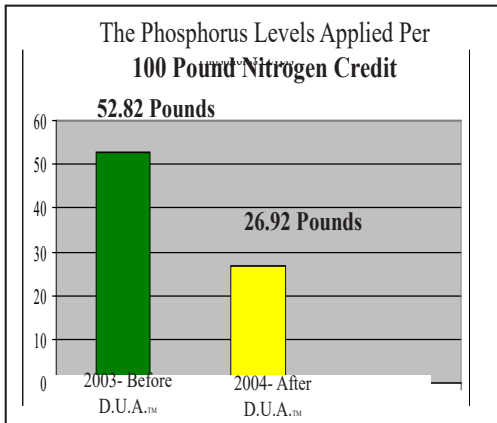
### How does D.U.A.™ increase nitrogen values?

**D.U.A.™ reduces denitrification.** D.U.A.™ proprietary process influences aerobic bacteria colonization and oxygen, increasing nitrification of organic waste. This proprietary process retards the vaporizing of N<sub>2</sub>O and NO gases. The result of this process is the increase in value of the lagoon or slurry manure.

	Prior to using <b>D.U.A.™</b> Nitrogen (Na) / Phosphorous (P) <b>Ratio is 1.89</b>	After 6 months <b>D.U.A.™</b> Nitrogen (Na) / Phosphorous (P) <b>Ratio is 3.71</b>
<b>Nitrogen</b>	Total Lbs./1,000 Gallons	Total Lbs./1,000 Gallons
Organic N	1.8 lbs.	4.5 lbs.
Ammonium- N	9.9 lbs.	<b>26.1 lbs.</b>
Total Nitrogen	<b>11.70 lbs.</b>	<b>30.6 lbs.</b>

<b>Phosphorous</b>	6.08 lbs	8.24 lbs.
<b>Potassium</b>	7.56 lbs.	18.36 lbs.

<b>Moisture</b>	99.2 %	97.6 %
<b>Solids</b>	0.8 %	<b>4.4 %</b>
<b>Organic Matter</b>	46.74 lbs.	142.18 lbs.



FPD162-2

To decide the amount of liquid manure needed to apply per acre for fertilizer credit, samples were taken prior to the application in 2003 without the use of D.U.A.<sup>™</sup> and in 2004 after feeding D.U.A.<sup>™</sup> for approximately 6 months in a 1,000 sow operation.

Approximately 4,000,000 gallons were pumped from the test lagoon each year and liquid manure analysis were acquired to exhibit amounts of nutrients for crop production.

In the example above, notice that to acquire the same nitrogen levels per acre there is a significant reduction in gallons needed to apply.

Also notice the significant reduction in phosphorus levels when comparing nitrogen levels pound-for-pound per acre.

**Example: 2003 total nitrogen (no D.U.A.) 11.70/1,000 Gallons**

100 pounds of nitrogen credit needed for crop production:

2003 analysis 100 pounds divided by 11.70 pounds/1,000 gallons = 8.547 or 8,547 gallons per acre needed to acquire a 100 pound nitrogen credit.

Phosphorus levels applied at this amount would be  $8.547 \times 6.18$  pounds/1,000 = 52.82 pounds of phosphorus.

**Example: 2004 total nitrogen (D.U.A. fed for 6 months) 30.60/1,000 Gallons**

100 pounds of nitrogen credit needed for crop production:

2004 analysis 100 pounds divided by 30.60 pounds/1,000 gallons = 3.267 or 3,267 gallons per acre needed to acquire a 100 pound nitrogen credit.

Phosphorus levels applied at this amount would be  $3.267 \times 8.24$  pounds /1,000 = 26.92 pounds of phosphorus.

The result is a 50% reduction in phosphorus when acquiring the same nitrogen credit per acre.

When comparing identical nitrogen credit like 100 pounds per acre, the number of acres to be applied from the 4,000,000 gallon test lagoon, is a large difference.

**No D.U.A. 2003**

4,000,000 divided by 8,547 gallons per acre = 468 acres

**D.U.A. 2004**

4,000,000 divided by 3,267 gallons per acre = 1,224 acres

**D.U.A.<sup>™</sup>** exhibits a significant difference for nitrogen credits with added beneficial value of lower salt index and phosphorus levels to soils for crop production.

## Benefits of Increased Organic Matter in Animal Waste

**D.U.A.™ increases Organic Matter by**

**300%**



### **Organic Matter = Major Key to Soil Productivity**

**Organic matter** is the source of energy for soil organisms as they multiply and carry on their life process. Ammonia produced during mineralization may then be nitrified to  $\text{NO}_3$  (nitrate) by nitrifying bacteria.

These are some of the benefits from **increased organic matter** in animal waste being applied to agricultural lands. In a study done in a four million gallon liquid swine manure lagoon, **D.U.A.™** was fed through the facility for a period of six months; the result was a substantial increase of the nutrient value of the manure. **Organic matter increased by 300%.**

#### **Benefits of Organic Matter:**

- Helps build stable soil aggregates improving soil structure and tilth.
  - Improves aeration and water penetration.
  - Improves moisture holding capacity.
- Provides an abundance of negatively charged colloidal particles (humus) capable of holding and exchanging nutritive rations.
- Acts as a buffering agent by decreasing the tendency for an abrupt pH change in the soil when acid or alkaline forming substances are added.
- Stabilizes soil micronutrients that otherwise might not be available.
  - Provides a source of numerous plant nutrients.

# DUA Milk Production Formula



## FORMULA 754



**Forage Optimization For Greater Profitability**

**For Organic Livestock Production**

**Dietary Nutritional Supplement for Dairy and Beef**

Cation (+) and Anion (-) Charged Balanced Mineral Supplement also Fortified with Enzymes

### GUARANTEED ANALYSIS

Crude Protein	(min)-----	14.0 %	Calcium (Ca)	(min)-----	0.90 %
Crude Fat	(min)-----	2.0 %	Calcium (Ca)	(max)-----	1.40 %
Crude Fiber	(max)-----	18.00 %	Phosphorus (P)	(min)-----	0.50 %
Acid Detergent Fiber (ADF)	(max)-----	30.00 %	Vitamin A	(min)-----	45,000 IU/LB

### INGREDIENT STATEMENT

**This product contains only certified organic agricultural products or ingredients that conform to the NOP's national list of materials acceptable for organic livestock production.™**

### INGREDIENTS:

Dried Lactobacillus Acidophilus Fermentation Product, Organic Oat Groats, Organic Fenugreek, Diatomaceous Earth, Reed-Sedge Peat, Organic Linseed Meal, Dicalcium Phosphate, Calcium Carbonate, Attapulgit Clay, Organic Dehydrated Alfalfa Meal, Monosodium Phosphate, Organic Soybean Oil, Organic Dried Kelp, Bentonite, Sodium Aluminosilicate, Salt, Choline Chloride, Magnesium Oxide, Yeast Culture, Ferrous Sulfate, Zinc Sulfate, Sodium Sulfate, Potassium Chloride, Manganous Oxide, Zinc Hydroxychloride, Ascorbic Acid, Vitamin E Supplement, Manganese Hydroxychloride, Manganese Sulfate, Basic Copper Chloride, Organic Garlic, Niacin, Sulfur, Citric Acid, Folic Acid, Potassium Sulfate, Magnesium Sulfate, Riboflavin, Vitamin A Acetate, Organic Apple Cider Vinegar, Copper Sulfate, Organic Feed Grade Dried Milk, Calcium Pantothenate, Organic Egg Product, Pyridoxine Hydrochloride, Organic Cloves, Organic Lecithin, Organic Barley, Vitamin D3 Supplement, Cobalt Sulfate, Beta-Carotene, Calcium Hydroxide, Vitamin B12 Supplement, Biotin, Thiamine Mononitrate, Organic Dandelion, Ethylenediamine Dihydriodide, Organic Parsley, Magnesium Chloride, Organic Althea Root, Organic Dried Tomato Pomace, Organic Yucca Schidigera Extract, Organic Horseradish, Organic Licorice, Organic Sweet Orange Peel, Organic Aloe Vera Gel Concentrate, Organic Peppermint, Organic Calendula, Organic Ginger, Organic Coconut Oil, Organic Sage, Organic Common Fennel, Organic Thyme, Organic Lemon Grass, Organic Elder Flowers, Cobalt Carbonate, Organic Papain, Organic Basil, Organic Violet Leaves, Organic Coconut Flour, Organic Juniper Berries.

### DIRECTIONS:

**DAIRY COWS:** Lactating Cows: Add mix 1 oz. per head per day.

**BEEF COWS:** Add mix 1/4 oz. per head per day.

**SWINE:** 40 lbs to Finish: Add mix 2 lbs. per ton of feed.

Lactating Sows: Add mix 1 lb. per ton of feed.

**Manufactured for:**

**Advanced Biological Concepts®**

P.O. Box 27 • Osco, Illinois 61274-0027

Phone: 800-373-5971 • Fax: 888-770-0735

jgh@a-b-c-plus.com • www.abcplusplus.biz

Certified Organic by: ECOCERT SA

FPD697-11

# A318

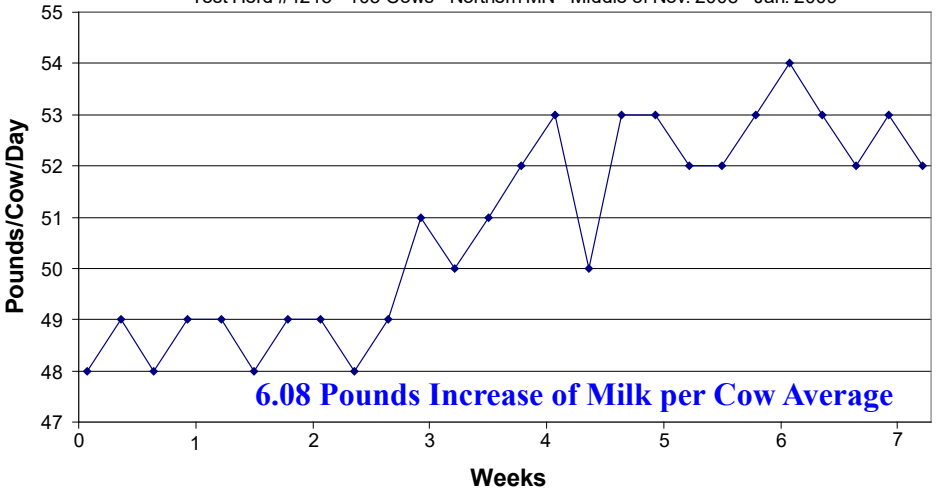
## Net Weight 25 Pounds (11.36 kg)

*Disclaimer: This product is formulated to meet the requirements of the USDA National Organic Program. Advanced Biological Concepts® accepts no responsibility for performance failure or misuse of this product, or changes of organic protocol that we are not aware of.*

# Results of 754 Organic

## Increase in Milk Production

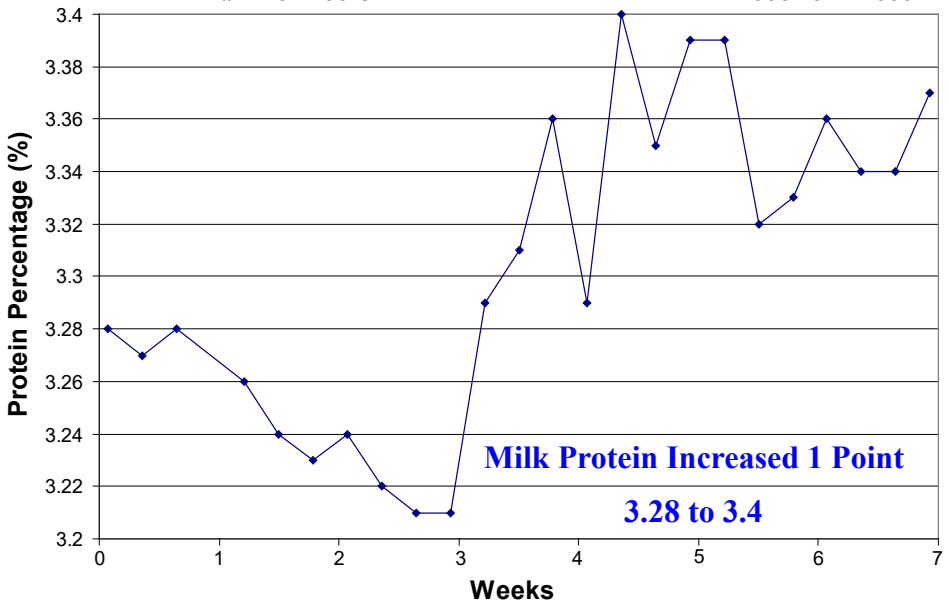
Test Herd #4213 - 105 Cows - Northern MN - Middle of Nov. 2008 - Jan. 2009



# Results of 754 Organic

## Increase of Milk Protein

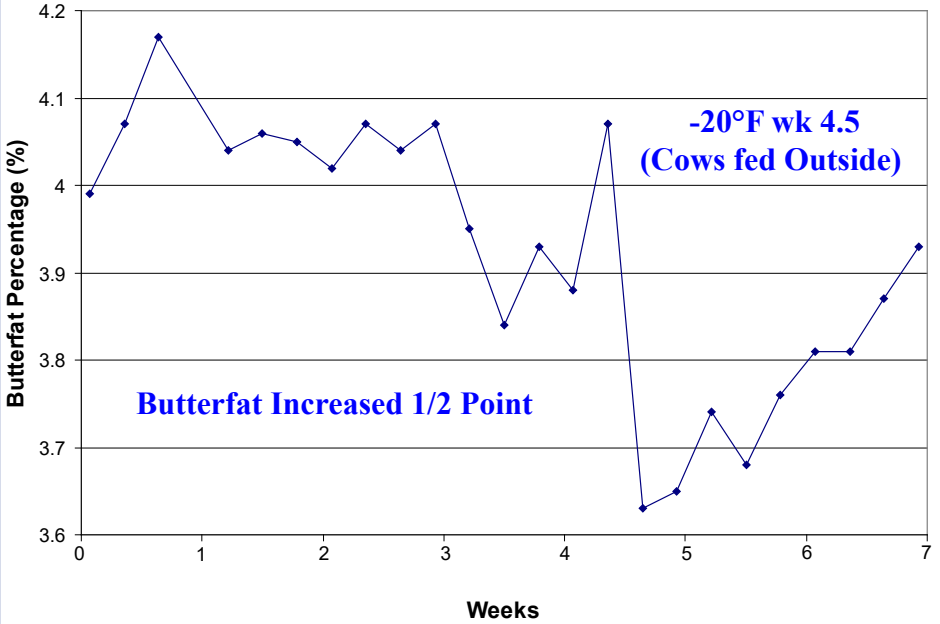
Test Herd #4213 - 105 Cows - Northern MN - Middle of Nov. 2008 - Jan. 2009



# Results of 754 Organic

## Milk Fat Profile

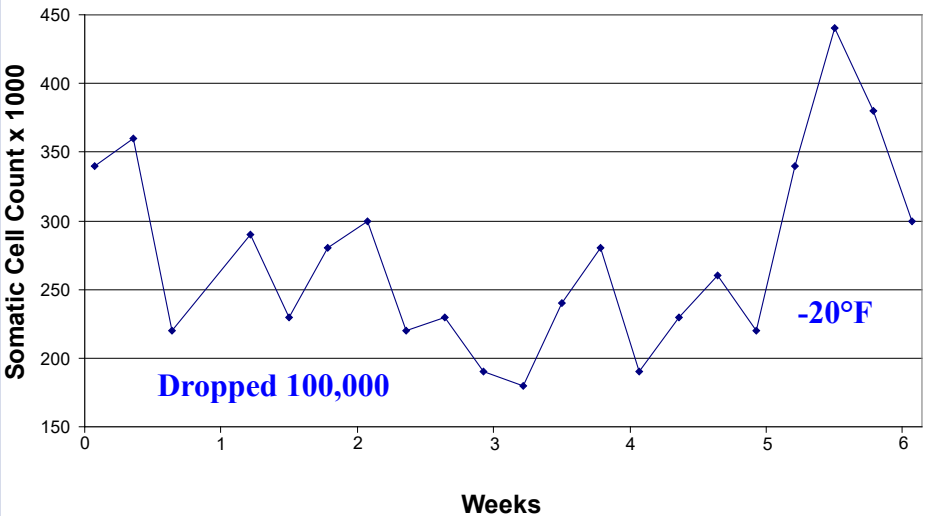
Test Herd #4213 - 105 Cows - Northern MN - Middle of Nov. 2008 - Jan. 2009



# Results of 754 Organic

## Somatic Cell Count

Test Herd #4213 - 105 Cows - Northern MN - Middle of Nov. 2008 - Dec. 2009



# Results of FORMULA 754

## Test Herd #4213 - 105 Cows

Northern MN - Middle of Nov. 2008 - Jan. 2009

**FORMULA 754 - Item no. A061**

2 oz. per head per day (for trial)

### Results

*\* 6.08 LBS Increase of Milk per Cow Average*

*\* Milk Protein Increased 1 Point (3.28 to 3.4)*

*\* Butterfat Increased 1/2 Point*

*\* Somatic Cell Count Dropped 100,000*

*\*3 LBS Reduced Dry Matter intake*

*\*Individual Free Choice Minerals Usage Dropped 3 %*

## FORMULA 754

### Organic Herd Cost

#### Benefit Analysis (per Cow per Month)

Increased premiums(Protein, BF and SCC) \$10.50

Increased milk production \$43.65

Savings from decreased feed consumption \$10.80

Saving from decreased Self Regulated

Individual Mineral consumption \$0.34

Grand total return on investment \$65.29

Cost of FORMULA 754 ORG (\$9.15)

**Total Profit per Cow per Month \$56.14**

\*The same test was conducted on a conventional livestock herd,  
using current market data, profit was \$43.09



## **Other benefits commonly reported when using FORMULA 754:**

- If a dairyman can cut feed costs by 25 cents per HWT of milk, he can boost profits by \$50 per 20,000 pounds of production.
- Lowering the somatic cell count (SCC) by one linear point can result in a \$85 savings in health care cost plus premiums paid on milk quality.
- Lengthen the average days in milk by one day can yield \$8 per cow per year. That's over \$150 for each cow that settles one cycle earlier.
- Drop the culling rate by 1 percent, and you can pocket \$1,200 for every animal that would have otherwise have been sent to slaughter.
- Avoiding one Retained Placenta can save an average of \$285.00.
- Have one less episode of Ketosis and save \$145.00.
- For every DA (Displaced Abomasum) you don't have, you can pocket \$340.00.
- Avoid one case of Milk Fever and save \$334.00.

**IT DOESN'T COST, IT PAYS!**

## Results from the study to determine effects of DUA™ on Growth, Performance and Nutrient Digestibility.

1. Experimental animal: 90 young pigs (BW 11.64 kg)
2. Duration: 21 days
3. Experimental design: 5 heads/6 replicates/3 treatments
  - 1) NC: Negative control (Antibiotics Free diet)
  - 2) PC: Positive control: Antibiotics included diet, OTC 100<sub>ppm</sub>, CTC 100<sub>ppm</sub>

Table 1. Growth performance

Item	NC1	PC1	NDU1	SE2
Initial BW, kg	11.69	11.61	11.60	0.03
Finish BW, kg	22.25	22.42	22.31	0.38
ADG, g	502.86	514.76	510.00	16.91
ADFI, g	558.33	556.83	610.50	21.59
Gain/feed	0.901 <sup>ab</sup>	0.924 <sup>a</sup>	0.835 <sup>b</sup>	0.02

<sup>1</sup> NC: Antibiotics Free; PC: Antibiotics included diet; NDU: NC + DUA.

<sup>2</sup> Pooled standard error.

<sup>ab</sup> Means in the same row with difference superscripts differ (P<0.05).  
Sulfathiazole 100 ppm, Penicillin 50 ppm )

3) NDU: NC + DUA 0.35%

Table 2. Nutrient digestibility

Item, %	NC1	PC1	NDU1	SE2
DM	74.48 <sup>c</sup>	78.91 <sup>b</sup>	79.40 <sup>ab</sup>	0.86
N	69.59 <sup>c</sup>	73.86 <sup>b</sup>	75.77 <sup>ab</sup>	1.30

<sup>1</sup> NC: Antibiotics Free; PC: Antibiotics included diet; NDU: NC + DUA.

<sup>2</sup> Pooled standard error.

<sup>ab</sup> Means in the same row with difference superscripts differ (P<0.05).

Table 3. Fecal consistency score

Item	NC1	PC1	NDU1
No. of pigs	30	30	30
0 day	3(1.50) 2	2(1.50)	2(1.50)
7 days	4(1.50)	1(1.00)	2(1.20)
14 days	2(0.56)	1(0.50)	1(0.40)
21 days	1(0.50)	0(0.20)	0(0.23)

<sup>1</sup>NC: Antibiotics Free; PC: Antibiotics included diet; NDU: NC + DUA.

<sup>2</sup>Fecal score is the mean fecal consistency score:

0, normal; 1, soft feces; 2, mild diarrhea; 3, severe diarrhea.

Values in brackets represent mean fecal score

Results could be drastically modified, utilizing the technology and benefits of DUA™.

In table one and two, we would normally run at 50 ppm of OTC and CTC, when DUA is incorporated, on chronically sick animals. As a prevention, we would run 10 ppm.

In table three, it is evident that the ration, at minimum, 10% high on protein. In the NC group the protein level is, at a minimum, 20% too high during the first 14 days.

In other words, the protein level caused inflammation of the intestinal wall producing a higher level of water content in the gut, increasing intestinal transit time – lowering feed efficiency.

- Jim

# Also Available:



## D.U.A. G.R.P.™



Dietary Nutritional Supplement for Dairy Cattle, Beef Cattle, Sheep, Goats, Swine, Poultry, and Llamas

### GUARANTEED ANALYSIS

Crude Protein (min)-----	12.0 %	Phosphorus (P) (min)-----	1.0 %
Lysine (min)-----	0.05 %	Salt (NaCl) (min)-----	3.0 %
Methionine (min)-----	0.05 %	Salt (NaCl) (max)-----	3.5 %
Crude Fat (min)-----	3.5 %	Sodium (Na) (min)-----	1.0 %
Crude Fiber (max)-----	15.0 %	Sodium (Na) (max)-----	1.5 %
Acid Detergent Fiber (ADF) (max)-----	32.0 %	Copper (Cu) (min)-----	650 PPM
Calcium (Ca) (min)-----	5.0 %	Copper (Cu) (max)-----	750 PPM
Calcium (Ca) (max)-----	6.0 %	Zinc (Zn) (min)-----	1,500 PPM
		Vitamin A (min)-----	180,000 IU/LB

### INGREDIENT STATEMENT

This product contains only certified organic agricultural products or ingredients that conform to the NOP's national list of materials acceptable for organic livestock production.™

### INGREDIENTS:

Dried Lactobacillus Acidophilus Fermentation Product, Organic Oat Groats, Diatomaceous Earth, Reed-Sedge Peat, Organic Linsed Meal, Dicalcium Phosphate, Calcium Carbonate, Attapulgitic Clay, Organic Dehydrated Alfalfa Meal, Monosodium Phosphate, Organic Soybean Oil, Organic Dried Kelp, Bentonite, Sodium Aluminosulfate, Salt, Choline Chloride, Magnesium Oxide, Yeast Culture, Ferrous Sulfate, Zinc Sulfate, Sodium Sulfate, Potassium Chloride, Manganese Oxide, Zinc Hydroxychloride, Ascorbic Acid, Vitamin E Supplement, Manganese Hydroxychloride, Manganese Sulfate, Basic Copper Chloride, Organic Garlic, Organic Fenugreek, Niacin, Sulfur, Citric Acid, Folic Acid, Potassium Sulfate, Magnesium Sulfate, Riboflavin, Vitamin A Acetate, Organic Apple Cider Vinegar, Copper Sulfate, Organic Feed Grade Dried Milk, Calcium Pantothenate, Organic Egg Product, Pyridoxine Hydrochloride, Organic Cloves, Organic Lecithin, Organic Barley, Vitamin D3 Supplement, Cobalt Sulfate, Beta-Carotene, Calcium Hydroxide, Vitamin B12 Supplement, Biotin, Thiamine Mononitrate, Organic Dandelion, Ethylenediamine Dihydrochloride, Organic Parsley, Magnesium Chloride, Organic Althea Root, Organic Dried Tomato Pomace, Organic Yucca Schidigera Extract, Organic Horseradish, Organic Licorice, Organic Sweet Orange Peel, Organic Aloe Vera Gel Concentrate, Organic Peppermint, Organic Calendula, Organic Ginger, Organic Coconut Oil, Organic Sage, Organic Common Fennel, Organic Thyme, Organic Lemon Grass, Organic Elder Flowers, Cobalt Carbonate, Organic Papain, Organic Basil, Organic Violet Leaves, Organic Coconut Flour, Organic Juniper Berries.

### DIRECTIONS FOR USE:

#### DAIRY CATTLE:

Top Dress or Add Mix:  
1/2 ounce (14.17 g) per head per day.

#### CALVES:

Top Dress or Add Mix:  
1/2 ounce (14.17 g) per head per day.

#### BEEF CATTLE:

Top Dress or Add Mix:  
1/4 ounce (7.09 g) per head per day.

#### Receiving:

Top Dress or Add Mix:  
1/2 ounce (14.17 g) per head per day for 14 days.

#### SHEEP & GOATS:

Top Dress or Add Mix:  
1/8 ounce (3.54 g) per head per day.

#### SWINE:

Finishing:  
Add 3 Pounds Per Ton of Complete Ration.

Grower and Lactation:  
Add 5 Pounds Per Ton of Complete Ration.

Starter and Gestation:  
Add 7 Pounds Per Ton of Complete Ration.

#### POULTRY:

Starter:  
Add 4 Pounds Per Ton of Complete Ration.

Complete Feed:  
Add 2 Pounds Per Ton of Complete Ration.

#### LLAMAS / EMUS / ALPACAS:

Top Dress or Add Mix:  
1/4 ounce (7.09 g) per head per day.

Manufactured for:  
Advanced Biological Concepts®  
P.O. Box 27 • Osco, Illinois 61274-0027  
Phone: 800-373-5971 • Fax: 888-770-0735  
jgh@a-b-c-plus.com • www.abcpus.biz

Certified Organic by: ECOCERT SA

FPD680-25

## A101

Net Weight 25 Pounds (11.36 kg)

Disclaimer: This product is formulated to meet the requirements of the USDA National Organic Program. Advanced Biological Concepts® accepts no responsibility for performance failure or misuse of this product, or changes of organic protocol that we are not aware of.

## Addressing the Negative Effects of GMOs and Glyphosate

**D.U.A.™ + G.R.P.™ Technologies**

Learn more at [www.abcpus.biz](http://www.abcpus.biz)

FPD572-25

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