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# RUMENFIBE®



# Meiwa

CORPORATE PROFILE

# Message

Customer feedback nourishes our inspiration and energy.

Throughout the years since our founding, we have never questioned this belief, and we think that is what has carried us steadfastly to this auspicious moment -- the half-centenary of Meiwa Sangyo Co., Ltd.

During our fifty years in business, the most rewarding and encouraging experience has been seeing many satisfied faces of our customers, users of our products.

Since customer happiness remains our top priority, we are determined to surpass our previous efforts in the five decades to come, by rapidly and conscientiously meeting various needs.

To realize this principal goal, we have developed unique supply chains, allowing us to distribute our products efficiently and smoothly regardless of the customer's location.

To ensure constant provision of the best quality, our R&D activities in pursuit of the latest technologies are thorough and unceasing.

As a reliable company which is dedicated to its customers, we strive to establish unrivaled levels of safety at every stage of our operations, from development, to manufacturing and also logistics.

On the other hand, we are also an eco-solution provider for livestock farming and as such, committed to minimizing our environmental impact and constantly improving sustainability.

Nurturing our customers' prosperity through our products.

Provided this "Meiwa Spirit" vividly survives throughout our operations, successful partnership with our customers cannot fail to flourish, deepen, and extend into generations to come.

President **Tadashi Nagamori**

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# Milestones

- 1887 "Nagamori Association of Beer Barley Producers", the forerunner of the company, starts supplying beer barley to the Japan Beer Brewery Company.
- 1888 "Firm Nagamori", the second predecessor, starts operations.
- 1923 The firm goes into business with "Kotobuki-ya" (presently Suntory Liquors Limited).
- 1960 Meiwa Sangyo Co., Ltd. is founded.  
Masamoto Nagamori assumes the first presidency of the company.  
The Yamazaki Office is opened within the premises of the Yamazaki Distillery of "Kotobuki-ya".
- 1963 Sun Gross Co., Ltd., a joint venture company with Suntory, is founded.
- 1969 The Kyoto Office is opened within the Suntory Kyoto Brewery.
- 1972 The manufacturing and marketing of bag-packed brewer's grains starts.
- 1973 The Hakushu Feed Company is founded as a joint venture with Suntory.
- 1974 The manufacturing and marketing of "Shogen", mixed feed consisting of spent malt grains and yeast culture concentrate, is started.
- 1975 The Nagoya branch office is established within the Sun Grain Chita Distillery.  
The marketing of "Maize-lees", a grain whisky distilling byproduct is started.
- 1978 The manufacturing and marketing of "Beer-lage", bag-packed dehydrated brewer's grain product is started.
- 1980 Shotaro Nagamori assumes the presidency.
- 1981 The Tokyo Office (now Musashino Office) is opened within the Suntory Musashino Brewery.
- 1982 The Kanto branch office (now Musashino Office) is opened within the premises of the Suntory Musashino Brewery.
- 1986 The Hakushu Office is established within the Suntory Hakushu Distillery.  
The manufacturing and marketing of "CaroteneMix", natural carotene containing mixed feed, is started.  
The development of the "RUMENFIBE" product is started.
- 1988 The Tokachi Stock Point in Obihiro city is established.
- 1990 The manufacturing and marketing of "Beer-gross", mixed feed including concentrated yeast culture, is started.
- 1992 The manufacturing and marketing of "RUMENFIBE", a rumen stimulating device for cows, is started.  
The manufacturing and marketing of "C.A.B.", an ion balance adjusted mixed feed for cows during the non-lactation period, is started.
- 1995 A patent for "RUMENFIBE" is acquired.
- 1997 Tadashi Nagamori takes over the presidency.  
A patent for "C.A.B." is obtained.
- 2001 The manufacturing and marketing of "Beer-lage Mix L", a mixed feed product dedicated to the Hokkaido market, is started.
- 2003 The Kumamoto Office is opened within the location of the Suntory Kyushu Kumamoto Plant.
- 2004 The Obihiro Office is established.
- 2009 Sales of animal feed products using spent tea leaves (green tea and Oolong tea) produced by Suntory are started.
- 2010 Accumulated sales of 800,000 units of "RUMENFIBE" are achieved.

# Meiwa Sangyo History

In the early 1880s, Tobei Nagamori was the first in Japan to succeed in farming beer barley (Nijo barley). He then shared this technique with farmers living in a nearby rural area of Kyoto, starting the business of supplying the barley crops to beer breweries. He founded his barley business (Firm Nagamori) in 1888, and then initiated transactions with Japan Beer Brewery Company and Osaka Beer Brewery Company (presently Asahi Breweries, Ltd.)\*. \* These two companies were later integrated into Dai-Nippon Beer Company, founded in 1906.

In 1923, an opportunity surfaced for him when Suntory (then called "Kotobuki-ya") established the first whisky distillery in Japan, in Yamazaki, near Kyoto. Through the introduction by Ryutaro Takahashi at Dai-Nippon Beer Company, later to become Minister of Trade and Industry in Japan, Tobei concluded a contract with Suntory and the trade with them soon became "two-way": supplying barley and accepting the spent grains after distilling. This grain residue was then re-packaged in empty bags used for barley delivery, and distributed by ox carriage as animal feed to cattle farmers in the outskirts of Kyoto, which was the origin of the Meiwa Sangyo business.

After World War II, his business faced a turning point. While an ever-growing amount of whisky distillery grains was being collected, at the same time, imported cereals increasingly began to replace nationally-produced crops, and the latter were now being marketed under the control of the Union of Agricultural Cooperatives. Accordingly, Firm Nagamori shifted its business focus to the distribution and marketing of distillers' grains.

June 16, 1960 saw the relaunch of Firm Nagamori in its corporate form, under the name of Meiwa Sangyo Co., Ltd. It was a humble, but promising start, with the president and only six employees. Following their first office, located within the Suntory Yamazaki Distillery, further offices were opened and joint ventures established, as Suntory's operations expanded. The business of collection and marketing of spent grains began to take off and gave the cattle farming industry, which had been suffering from serious animal feed issues, a remarkable boost in the process.

However, what followed was a period of adversity. In the 1980s, the industry was engulfed in groundless accusations denying the merits of spent malt (beer and whisky) grains as animal feed. Meiwa had to fight back to verify the truth, conducting various field tests with the cooperation of authoritative institutes, and finally obtaining a set of scientific data proving the potential of spent malt grains as super-efficient animal feed and accordingly capable of enhancing farming productivity.

And Meiwa's effort did not end there. It began elaborating on lecture and seminar sessions, as well as field guidance for farmers to secure the status of spent malt grain feeds. The company also discovered the excellent properties of residual concentrated yeast culture liquid, and succeeded in distribution of the same in wet form, allowing its nutritional value to be maximized.

In 1991, Japan liberalized beef imports, which had a huge impact on its cattle farming industry. To survive, enhanced quality of meat was essential. However, this required a longer farming period for each animal, and a stable supply of fibrous feed was key. Meiwa again took up the challenge and devised an innovative solution in the form of a product named "RUMENFIBE", launched onto the market in 1992, following accumulated and laborious R&D which was underway long before the import liberalization.

The company has now celebrated its half-centenary in 2010. Preparing itself to further benefit the cattle farming industry with new products and services in the next half century, Meiwa's formidable innovation and development knows no bounds.



Tobei Nagamori's achievements are inscribed in the stone monument erected at the Kyoto Agricultural Cooperative site.



Pot still (single distillation still) used to manufacture Japan's first whisky in 1923.



A letter of appreciation sent by the Dai-Nippon Beer Company to Tokichi Nagamori for his great initiative in beer barley cultivation.



An enduring focus on unique R&D, the key to developing RUMENFIBE, an efficient replacement for fibrous feed.



The RUMENFIBE product was approved by the Ministry of Agriculture, Forestry and Fisheries in 1992.

## Beer-lage

**Silage-Processed Dehydrated Spent Malt Grains:  
No More Loss by Decomposition or Concern about Supply Fluctuation**

Beer-lage is a feed product for dairy and beef cattle featuring excellent palatability and based on the processed remains of the malt grains used to generate maltose in beer and whisky production. It is one of Meiwa's flagship products and reflects its motto: "develop excellent animal feeds, optimally exploiting important resources".



Spent malt grains are traditional feed for dairy cattle and considered to be the optimal component for TMR (total mixed rations). Beer-lage enables the possible maximum dry matter intake (DMI) with the moisture in the grains dehydrated to approx. 65%. It also features enhanced fermentation quality by ensiling the feed for a certain period, after lactobacillus has been added. Thanks to a taste and feel that appeal to the animal palate, Beer-lage is a popular interim product between roughage and concentrate feed.

Its high protein and fibrous properties, key to nurturing stomach strength, rib eye and rib development during the early and mid-breeding stages, are also acclaimed by beef cattle breeders. Moreover, since it contains no vitamin A, it can make an excellent functional feed, facilitating vitamin control for marbling.

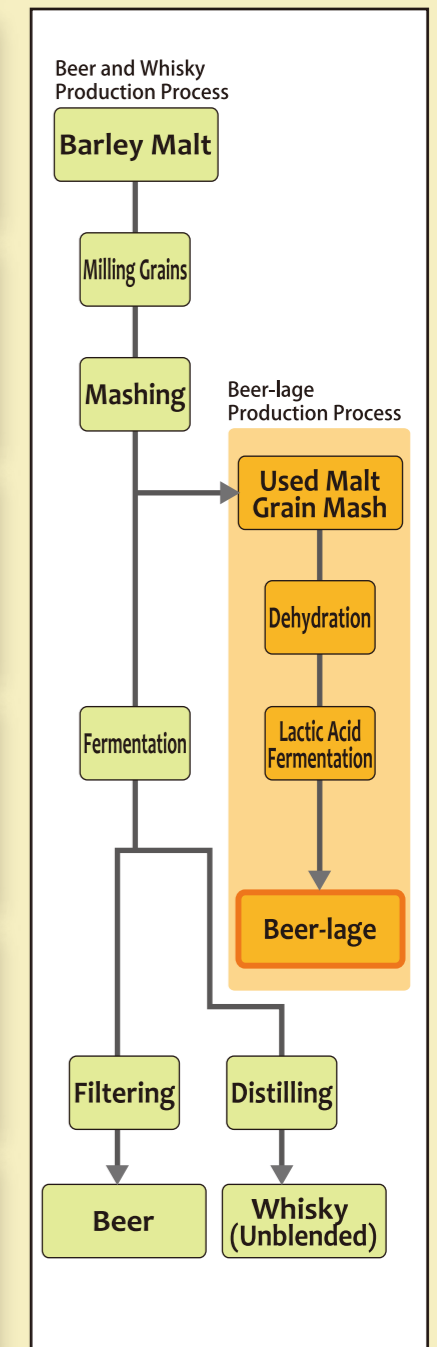
A nationwide distribution network ensuring year-round stable supply is yet another advantage our customers can enjoy.

### Beer-lage Composition

Unit: %

	Moisture	Crude Protein (CP)	Ether Extract (EE)	Nitrogen Free Extract (NFE)	Crude Fiber (CF)	Crude Ash (CA)	Acid Detergent Fiber (ADF)	Neutral Detergent Fiber (NDF)	Total Digestible Nutrients (TDN)
As Fed	65.0	8.7	3.5	15.6	5.5	1.5	8.6	17.4	25.1
Dry Matter	—	24.9	10.0	44.6	15.7	4.3	24.6	49.7	71.7

## Beer-lage Manufacturing to Shipping



## RUMENFIBE®

### A Mechanical Brush Unit Replacing the Rumen Stimulating Function of Fibrous Feed

RUMENFIBE is a mechanical brush unit approved by Japan's Ministry of Agriculture, Forestry and Fisheries, which functions similarly to fibrous feed by physically stimulating the bovine rumen. The product was launched on the market in 1992, after significant R&D efforts for many years. More than 800,000 units have been sold, and more than 270,000 beef bodies bred with the unit have been shipped.

Once installed through the mouth of a cow (via the dedicated installer), RUMENFIBE automatically spreads its brush allowing itself to settle inside the rumen for the animal's lifetime.

Beef cattle breeding requires nutritional control at the rapid growth stage and stable lifetime forage feeding to enhance the meat quality in terms of both mass as well as fat content. RUMENFIBE provides constant physical stimulus to encourage active rumination and motility, both required to build the healthy and strong stomach so vital for sophisticated beef quality control.

RUMENFIBE also boosts nutritional control for lactating dairy cattle, by promoting otherwise insufficient rumen stimulation. Although the latter is essential for bovine health, it may be lacking sometimes in the event of restricted roughage intake due to the need to increase dry matter intake (DMI) and highly nutritious food for enhanced milk production.

Applying RUMENFIBE provides an extra advantage: namely reduced use of roughage, allowing savings on feeding purchase and operation costs as well as livestock waste management expense. Likewise, in environmental terms, methane generation can also be inhibited, since the product promotes propionic acid fermentation in the rumen.



RUMENFIBE (for Dairy Cattle)



RUMENFIBE B (for Beef Cattle)

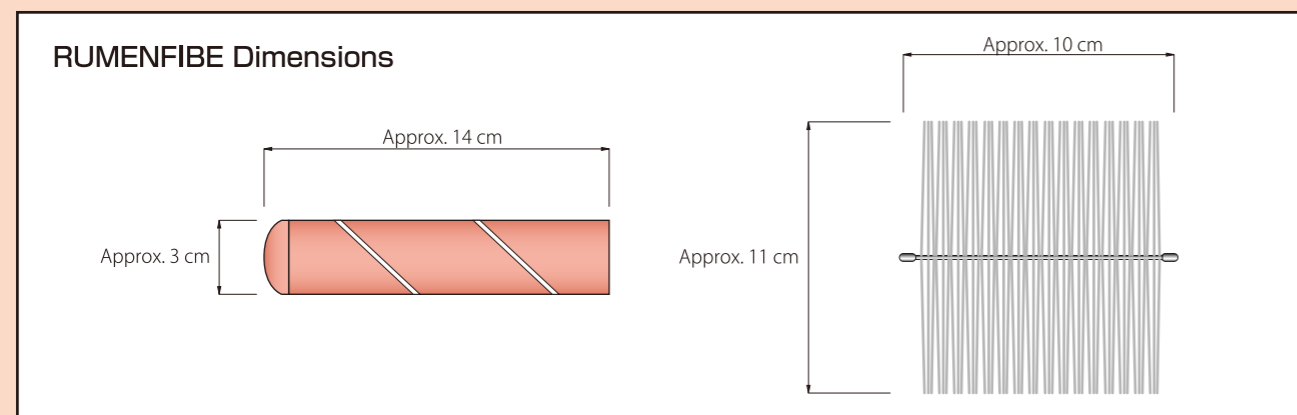
### How RUMENFIBE unfolds after installation.



**Approx. 5 minutes after installation**  
The paper capsule is moistened and gradually unfolds.

**Approx. 5 to 20 minutes later**  
The RUMENFIBE brush unit sealed inside begins to spread, pushing away and completely unfolding the capsule.

**Approx. 20 to 30 minutes later**  
The RUMENFIBE brush completely spreads out and detaches from the capsule. The brush remains in the rumen while the capsule dissolves to be discharged from the animal.



A brochure containing detailed information and an installation guide DVD are available.

Contact us as follows:

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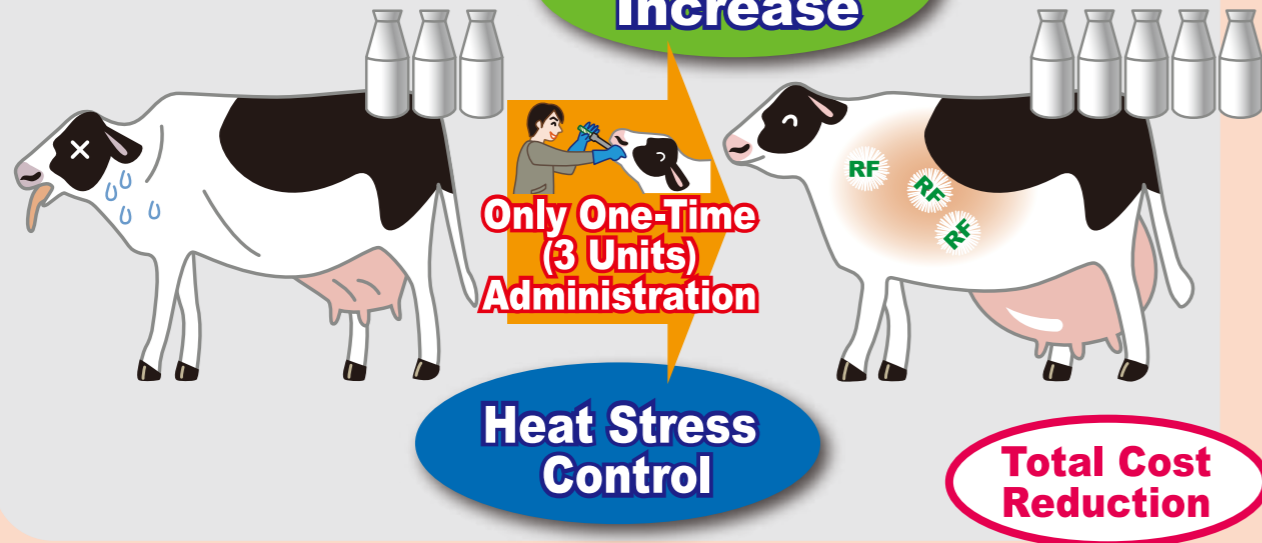


## With RUMENFIBE Administration...

Physically stimulating the rumen mucous membrane, it enhances the cow's appetite, daily gain and meat quality. It also promotes nutrition absorption, ensuring healthy and efficient growth of the animal.

### Daily Cattle

**Milk Yield Increase**



Physically stimulating the rumen mucous membrane, it enhances the cow's appetite, as well as milk quality and yield. It also promotes nutrition absorption, effectively reducing heat stress in the animal.

### Beef Cattle

**Disease Prevention**

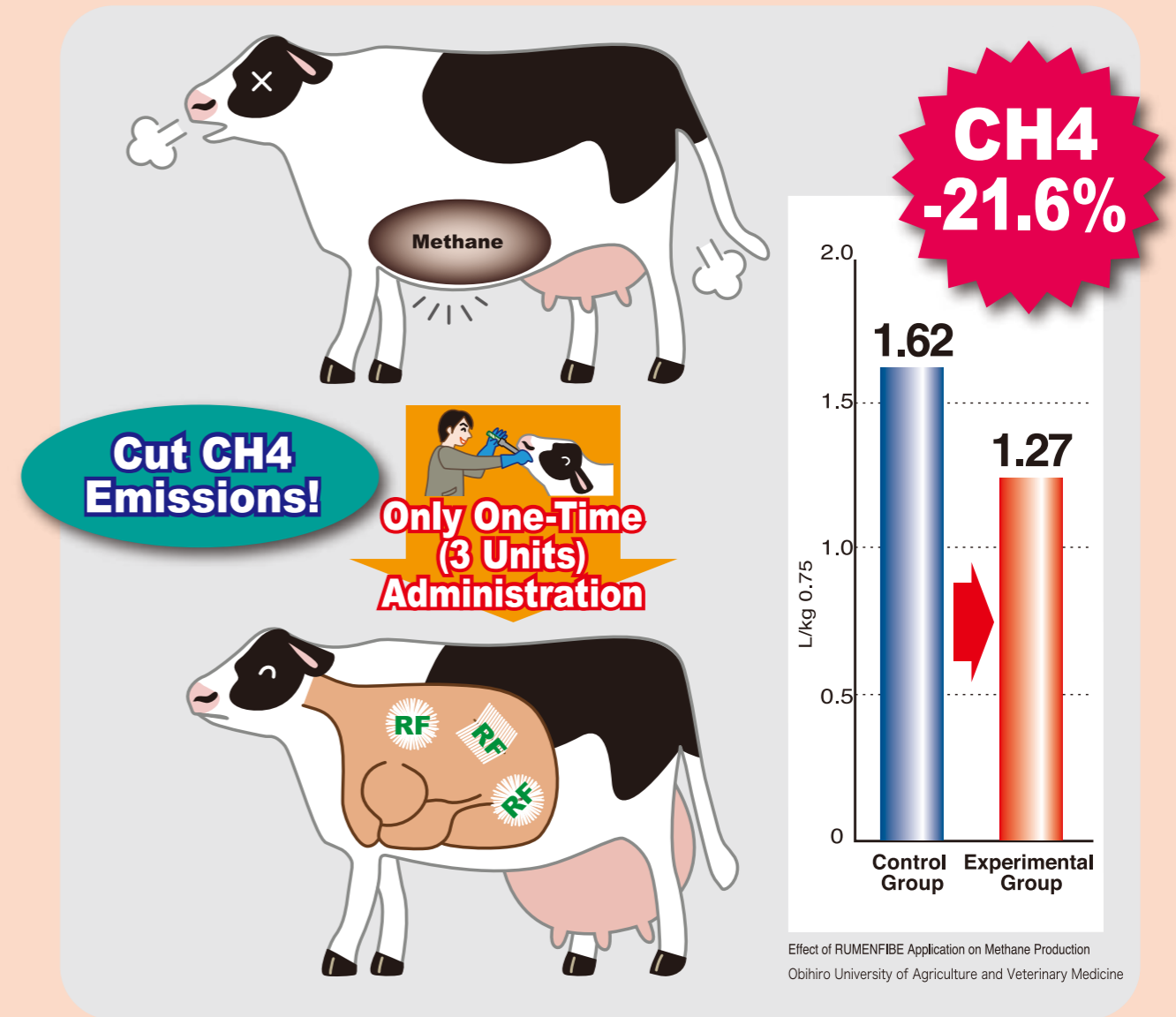


## Cut CH4 Emissions!

**One-Time Application for Continuous Suppression. Significantly Reduced Environmental Impact!**

Methane is a greenhouse gas largely contained in ruminant's droppings and cited as a major culprit of global warming.

RUMENFIBE is a medical device that can make a difference. It stimulates the rumen membrane, replacing significant roughage and inducing propionic acid fermentation in the rumen to inhibit methane generation. A one-time administration per cow is all you need. RUMENFIBE -- An effective and economical solution.



Effect of RUMENFIBE Application on Methane Production  
Obihiro University of Agriculture and Veterinary Medicine

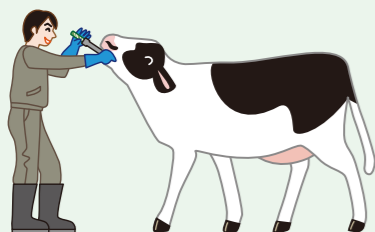
## RUMENFIBE Administration Procedure

**1** Prepare all of the following items necessary for administering RUMENFIBE to the cow:

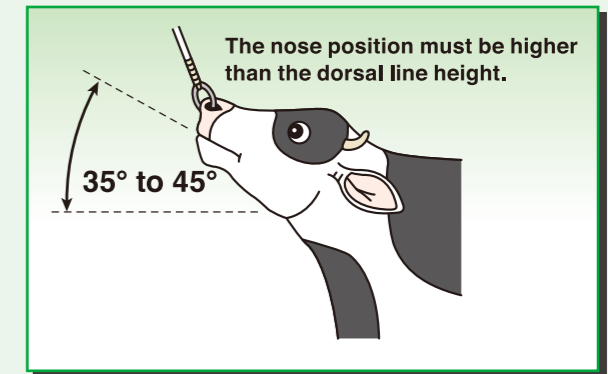
- RUMENFIBE units (three)
- Dedicated installer
- Nose tongs
- A halter
- Work gloves
- Water
- Lubricant oil (for coating)
- A hose (approx. 2 m; slightly rigid type)



If the installer surface is rough due to cow's bite marks, smooth it with a rasp beforehand.



**2** Secure the position of the cow's head for installation while ensuring no pressure is applied to the throat and lower neck of the animal. Ensure the cow can open its mouth sufficiently to facilitate the passage of the RUMENFIBE units through the esophagus.



**3** Maintain an angle between head and neck of 35 to 45 degrees and allow the halter some slack. If the angle is maintained at 60 degrees or more, the cow may inadvertently ingest the unit into the airway.

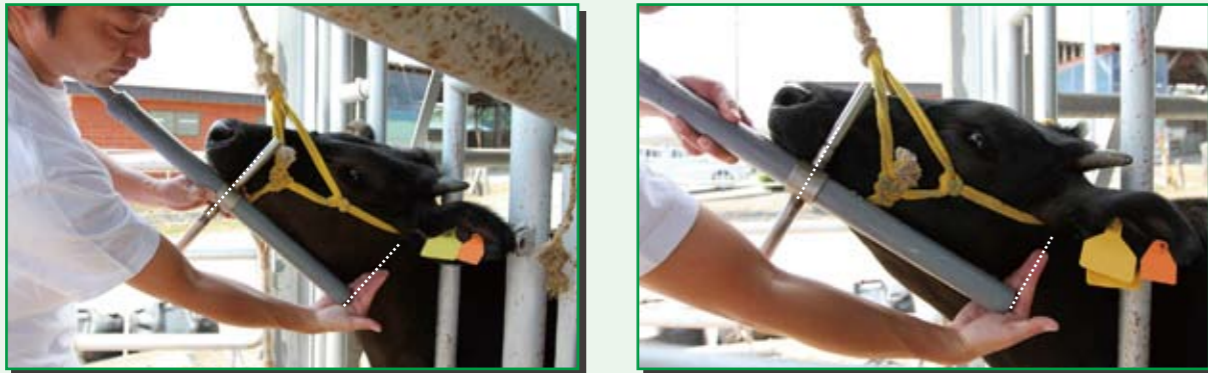


**4** Apply sufficient lubricant oil to the front tips of the installer and the RUMENFIBE units immediately before administration.

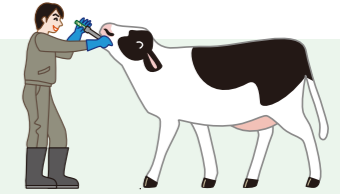
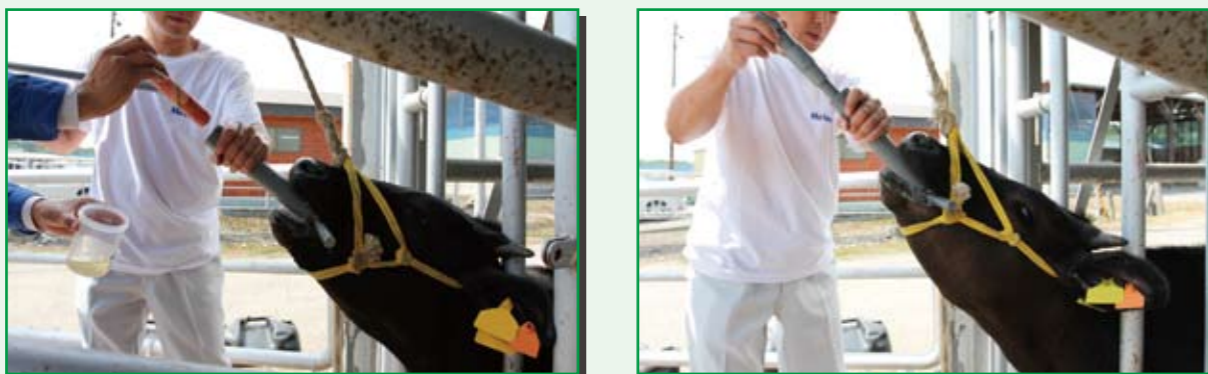


## RUMENFIBE Administration Procedure

- 5** Adjust the cross position of the RUMENFIBE installer in accordance to the cow's size. Make sure that the front tip (lower end) of the installer stops at the cow's posterior pharyngeal wall (position seen from outside: above the rear end of the cow's lower jaw, approx. lower area between the ears).  
**NOTE:** The installer must not be inserted deeper than the above position (must not reach the anterior wall of the esophagus).



- 6** Gently push the installer's piston until a feeling of lightly hitting the wall is sensed, then push lightly a few more times and wait for the cow to swallow the RUMENFIBE unit. Confirm that the unit has been swallowed by the sound of pushing, which changes when this has happened.



- 7** After confirming swallowing and passage of the unit through the esophagus (5 to 6 seconds), administer the next RUMENFIBE unit. When the second unit has been installed, pull out the installer, and let the cow take a breath. This will facilitate the third installation.



- 8** When the third unit has been administered, let the cow drink some water by dripping it on the tongue, which will ensure the RUMENFIBE units are securely installed in the rumen. Also, giving the cow water after the administration of the second unit and temporary removal of the installer is even more effective. However, do not force the animal to drink it, otherwise only the water may flow into the rumen leaving the RUMENFIBE behind in the esophagus, which may consequently be vomited and expelled. Voluntary drinking by the cow is essential.



- 9** RUMENFIBE units spread out approx. 20 to 30 minutes after installation. Observe the animal for a while after administration to check whether any unit has been vomited out, or whether the animal has slaver or froth in the mouth.
- 10** In rare cases, RUMENFIBE units may remain in the esophagus. If some abnormality is found on the administered cow, use the dedicated installer to insert the hose slowly until a feeling of light contact is sensed. Subsequently, continue inserting the hose slowly until the unit reaches the rumen. In case further treatment is required, please contact your veterinary doctor.



## Find about RUMENFIBE

### What is RUMENFIBE?

**Q** Basically, how does RUMENFIBE work?

**A** Orally administered to cows, it artificially stimulates the rumen interior wall to induce active rumination. It's a medical veterinary device approved by the Japanese government.

**Q** On what kind of animals is RUMENFIBE used?

**A** It is currently mainly used on cows, but it can also be used on other ruminants such as sheep.

**Q** What are the specific benefits of using RUMENFIBE on cows?

**A** By physically stimulating the rumen interior walls for active rumination, it can stabilize the pH of the rumen, which has further subsequent effects.

**Q** How many units have been sold in Japan?

**A** More than 50,000 units have been sold annually since we started marketing in 1992. RUMENFIBE is a highly-acclaimed product and its accumulated sales now exceed 800,000 units.

**Q** How is RUMENFIBE installed in the rumen?

**A** A dedicated installer is used to drop RUMENFIBE units through the mouth into the rumen.

**Q** Why are three RUMENFIBE units required?

**A** This number is based on trials conducted on Wagyu (Japanese-bred cows), F1s (Filial One: hybrid of Holstein and Black Hair Wagyu) and Holsteins (all bred in Japan) using various numbers of RUMENFIBE units (1 to 7). Results showed the application of three and four units showed the similar and largest number of ruminations, hence we recommend the use of "three" units.

**Q** Can users install the product by themselves?

**A** Yes, anyone can do so with some experience. We offer a demonstration for the initial administration.

**Q** Is RUMENFIBE used in other countries than Japan?

**A** Yes. It's currently used in a few countries, but it's being used for trial in various countries.



# RUMENFIBE®

### More About RUMENFIBE

**Q** Why did you develop RUMENFIBE?

**A** At one time, the market supply of dried forage was scarce, and we decided that some means of breeding cows with less dried forage feed was required. We started R&D on this project, and after trial and error, succeeded in developing the product. The use of an artificial device to physically stimulate the rumen interior wall was not a new concept, but materializing the idea as a product was difficult, and we were the first to do so.

**Q** To what product category does RUMENFIBE belong?

**A** The Ministry of Agriculture, Forestry and Fisheries in Japan has approved it under the medical veterinary device category.

**Q** Why is RUMENFIBE a medical veterinary device?

**A** Because it can resolve diseases and symptoms (e.g. bloating, abomasal displacement, rumination weakness), and many veterinary doctors use the product in treatment.

**Q** Where is RUMENFIBE manufactured?

**A** It is made in Japan.

**Q** What purpose do some purple fibers in the brush serve?

**A** They have been added as a token of authenticity to distinguish it from fake replica products.

**Q** Does RUMENFIBE use any special materials?

**A** Yes. The brush fibers are made of a unique synthetic polymer material with a specifically calculated strength and effect depending on the necessary useful life of the individual product types, developed through repeated tests. This is why fake replica copies cannot produce such effects.

**Q** Will the metal components of the unit rust?

**A** No (at least for one decade of use). The materials used for the components are stainless steel and brass.

**Q** What are the difference between standard RUMENFIBE (RF) and RUMENFIBE B (RFB) models?

**A** The RF models are for dairy cattle and cows for reproduction (designed for a minimum seven years' use), RFB, beef cattle (for three years). Each uses a different synthetic polymer material for the brush fibers depending on the required lifespan.

**Q** Can RUMENFIBE units be recycled after the animal is processed as meat?

**A** No. No recycling in any form is possible.

**Q** Do you have any plans to change the RUMENFIBE design or specification?

**A** Yes. We are currently developing a new RUMENFIBE product with extra features other than rumination promotion, based on various tests and trials we are continuously conducting.

## Find about RUMENFIBE

### How to Administer RUMENFIBE

**Q** When should RUMENFIBE be administered to animals?

**A** We recommend that it should be administered to cows of 6 months or older or weighing a minimum 250 kg.

**Q** For what purposes other than methane inhibition is RUMENFIBE used in Japan?

**A** Many farmers use the product for daily weight gain, improved meat quality, increased milk yield, or bloating control.

**Q** Why does RUMENFIBE increase daily gain?

**A** When installed in the rumen of cows with low appetite, it stimulates the rumen wall, enhancing feed consumption and feed efficiency.

**Q** What exactly does the meat quality improvement mean?

**A** Japan uses five beef quality categories: Marbling; Color and Brightness; Firmness and Texture; Color, Luster and Quality of Fat, and Final Yield of Carcass Quality Scores. The higher the ratings, the higher the trading price.

**Q** With what kind of cows and feeds is RUMENFIBE optimally compatible?

**A** In Japan, it seems optimally compatible when used on cows with low feed consumption and in combination with bulk concentrate feeds.

**Q** Can RUMENFIBE increase daily gain?

**A** In Japan there are many cases where the product has been used to increase daily gain.

**Q** Can RUMENFIBE increase milk yield?

**A** In Japan there are many cases where the product has been used to increase milk yield or cope with a drop in milk yield in the hot season.

**Q** Have cows administered with RUMENFIBE won cow contests?

**A** Yes. According to our research, cows with RUMENFIBE have become grand champions in the castrated ox and female sections in the nationwide beef cattle contest in 2009. Many other RUMENFIBE-administered cows have won awards in local contests.



# RUMENFIBE®

## Japanese Beef Grading

Yield Score: A: 72% or above / B (Average): 69 to 72% / C: 69% or below

Beef Quality: 5: Exceptionally Excellent / 4: Excellent / 3: Very Good / 2: Good / 1: Average

Beef quality grading is determined by various factors including meat quality, luster of fat and meat firmness as well as marbling and classified into five grades.

Yield scores and meat quality grades are then combined into 15 classes (from A5 to C1).



Yield Score \ Beef Quality	5: Exceptionally	4: Excellent	3: Very Good	2: Good	1: Average
A: 72% or above	A5	A4	A3	A2	A1
B (Average): 69 to 72%	B5	B4	B3	B2	B1
C: 69% or below	C5	C4	C3	C2	C1

Japan Meat Grading Association

## Japanese Milk Quality Grading

Milk Composition = Solid-not-fat composition, milk fat, protein, and lactose

Somatic Cell Count = Indicator of mammary gland health status

Standard Plate Count = Indicator to show the sanitary condition of the farm

Flavor = Milk taste and aroma

Item	Rank 1	Rank 2	Rank 3	Rank 4
Milk Fat (%)	3.7 or above	3.5 to 3.69	3.0 to 3.49	below 3.0
Protein (%)	3.2 or above	3.0 to 3.19	2.7 to 2.99	below 2.7
Milk Solids-not-fat Component (%)	8.7 or above	8.4 to 8.69	8.0 to 8.39	below 8.0
Somatic Cell Count (10 thousands/ml)	Below 10	10 to 29	30 to 99	100 or above

National Milk Quality Improvement Association

\* For Holstein species

## What RUMENFIBE Customers Have to Say

### Daily Gain Boost

Customer A

**"Having installed RUMENFIBE in all our cows, we are now ready to become the top farm in Japan."**

We are engaged in a large-scale and comprehensive livestock business, covering reproduction to rearing and fattening and shipping of Holstein, Black Hair Wagyu (Japanese-bred species) and F1 (crossbreed of both kinds mentioned) animals (7,350 in total). We started the Dairy Division in 2003 to self-supply calves and rear and fatten them for shipping.

In 2005, we tried out RUMENFIBE on some animals, and soon decided to administer the product to the entire herd. After the administration, what amazed us most was how the cows began to eat! Symptoms such as bloating observed in some animals disappeared, and they are now very healthy. The dressed carcass weight has also increased by at least 5%, with some F1 females even exceeding a ton. Of course, the costs for RUMENFIBE have been sufficiently paid off.

### Shorter Breeding Period

Customer B

**"Slow growers outstrip non-RUMENFIBE buddies in size! We decided to administer it to all our cows."**

We started using RUMENFIBE only on those with excessive gas problems. Later, we tried it on slow growing animals, and the way they rapidly gained weight and matured to eventually exceed their peers completely convinced us of its effectiveness. We've been using it on all our animals ever since, for around a decade.

Today we see no cases of bloating, an average dressed carcass weight increased by 13 kg, and some animals boasting up to 520 kg. Moreover, the breeding period has reduced to 24 or 25 months. Rib thickness has been enhanced, and more than half the cattle can achieve meat quality grade 4. When a stable supply of good roughage is scarce, RUMENFIBE is definitely the solution. It can substitute the coarseness of fibrous feed and enhance cow's appetite.

### Roughage Reduction

Customer C

**"Straw feeding frequency has dropped to just every other day. The secret to our rich, fatty taste is RUMENFIBE."**

Our cattle include F1 (a hybrid of Holstein and Wagyu) and Black Hair Wagyu (our original beef brand) cows (5,000 in total). Our beef products are renowned for their robust rib thickness and fatty deliciousness. Usually more than 70% of our cattle are ranked at Quality Grade 4 or higher.

After rearing young calves on large quantities of rice straw to build strong and healthy bodies, we administer RUMENFIBE when they are ready: on F1s when they reach a weight of 280 to 300 kg and Wagyu nine months old. Post-administration straw feeding frequency has dropped to just every other day, which has significantly curbed feed and labor costs. Another notable benefit is the almost total absence of disease. We can consider RUMENFIBE a must for any high brand beef producer.

## Beef Cattle

### Improved Meat Quality Grade

Customer D

**"80% of our cattle are now ranked Grade 4. Now all our cows are with RUMENFIBE, which is our key to success."**

We breed Black Hair Wagyu cows in our three farms. Over the past six months, we have shipped 134 females, with impressive records: average dressed carcass weight of 438.3 kg; 32.1% of cattle ranked at Quality Grade 5 and 47.0% at Grade 4; breeding periods reduced to 28 or 27 months - shorter than the nationwide average. Our next goal is to raise the average dressed carcass weight to 450 kg.

We have been using RUMENFIBE on all our cattle since the product launch. We are confident in making the following three claims for RUMENFIBE: 1) Boosted appetite; 2) Eliminates disease such as colds or excessive gas accumulation; and 3) Makes cattle management easy. Given the harsh market circumstances, we may think twice about using certain types of feed or additives, but we think using RUMENFIBE is non-negotiable.

### Enhanced and Award-Winning Meat Quality

Customer E

**"All our cows have had RUMENFIBE administered and one animal won the top prize in a nationwide contest."**

As a famous brand beef producer, we are breeding 55 Black Hair Wagyu (Japanese-bred) cows. Three years ago, a friend in the same business introduced RUMENFIBE to us, and we've been using it ever since on all cows, regardless of their condition.

Cows with RUMENFIBE administered eat plenty and grow healthy. Not only does their dressed carcass weight increase, but also their meat quality, especially the color. Last year, our shipping records showed an average dressed carcass weight exceeding 540 kg. Even more astonishing, more than 60% of our cattle were ranked Grade 5.

In the nationwide beef carcass weight contest held in October 2009, one of our cattle won the first prize (Honorary Award). Of course, it was a RUMENFIBE cow.



## What RUMENFIBE Customers Have to Say

### Disease Prevention

Customer F

**"RUMENFIBE helps us efficiently utilize roughage and prevent abomasal displacement."**

Last year we tested RUMENFIBE on 15 of our 100 dairy cows, and it was great, so we proceeded to administer it on all our remaining cows.

The most surprising effect was the excellent condition of the cows after delivery. Before RUMENFIBE, they used to suffer from heavy gas problems after parturition; injections didn't help and abomasal displacement occurred within a few days. But RUMENFIBE changed everything. With a single injection, the symptoms never recurred. We had been feeding them with TMR since before the administration, but their appetite has improved still further, so we are thinking of increasing the amount. The fecal conditions have also been optimized remarkably, while milk yield and quality have both increased and stabilized. There may be some fluctuation depending on the climate, but the daily yield has been boosted by 500 to 600 kg compared with the previous year.

### Improved Insemination

Customer G

**"RUMENFIBE is beneficial in every way: enhanced milk yield and quality as well as efficient insemination."**

We handle 120 beef and 400 dairy cows. Three years ago, we tested RUMENFIBE on 30 beef and 32 dairy replacement cows, and attained good results on both groups. We then started using the product on ordinary milking cows last January, and completed its administration on all cows within the year.

After administration, the internal organs, especially the rumen, of beef cattle have shown remarkable improvement. Dairy cows have shown great improvement, not only in milk yield and quality, but also in insemination efficiency. We were thinking of replacing some dairy cows with new ones, but decided to delay doing so, since we could still milk them.

We are planning to gradually reduce the roughage feed quantity and eventually make it zero in future in order to enhance our business performance.

### Reduced Fecal Amount

Customer H

**"RUMENFIBE has provided a solution to our persistent issue: the lack of capacity of manure management facility."**

Our association consists of suburban dairy farmers living in the same community. Our major and long-term problem has been the diminishing capacity of our collective compost management facility. In spring last year, we decided to try RUMENFIBE on 250 cows to reduce the fecal amount produced in our farms.

The effects were clear and obvious. In one farm for example, once the product had been administered to all the cattle, the fecal amount per head was reduced by 20 kg a day! This figure can be broken down: the 15 kg reduction due to reduced roughage quantity, and a further 5 kg due to thorough solid-liquid separation of compost and reduced bedding amount. Moreover, thanks to RUMENFIBE, we enjoy excellent milk yield and quality. It's also a great solution in terms of business performance.

## Daily Cattle

### Increased Milk Yield

Customer J

**"RUMENFIBE administration plus a recombination of feed ingredients dramatically increased the milk yield."**

In May last year, we completed our free stall and milking parlor systems, and could achieve a milk yield of 8,000 kg. When we were considering the next goal of 9,000 to 10,000 kg via three milkings per day, someone recommended RUMENFIBE to us.

We decided to try RUMENFIBE, thinking that we could use its physical properties to replace Sudan grass and instead increase the level of digestive fibrous feed, whereupon the nutrient concentration of complete feed and digestion rate would improve, promoting the animals' vigorous appetite. We administered the product on all cows while recomposing feed ingredients at the same time and were proved right. We could achieve the goal and are now targeting a higher objective: 10,000 kg by milking twice daily, of course, using RUMENFIBE.

### Heat Control

Customer K

It never happened throughout my 35 years' experience as a cattle breeder: Despite the scorching summer heat, my cows remain in good shape. This is probably because we could reduce fibrous feed - thanks to RUMENFIBE, they eat very well.

Customer L

We are located on a highland where the temperature is 2 to 3°C lower. Our environment is favorable for cattle breeding, but the effect of RUMENFIBE is still wonderful. Milk yield continues stably increasing, even in summer.

Customer M

Cows with RUMENFIBE gave birth consecutively, but their condition remained excellent, despite the summer heat. Those without RUMENFIBE were flagging after delivery.

Customer N

When the climate was extremely hot, a few cows sometimes died after delivery due to complications. However, after RUMENFIBE was administered, every cow remains healthy and active.

Customer O

Even on boiling hot summer days, my cows are doing well, they never stop eating. The meat quality remains constant too. Neither fat (3.8%) or solids-not-fat (8.7%) have decreased.

Customer P

Since we have many parturitions in summer, luckily, the milk yield has remained constant. The cows' appetites have remained constant despite the heat, which I think is thanks to RUMENFIBE.

Customer Q

The fat content has decreased slightly due to the reduced long fibrous feed, but the milk yield is stable and constant. My cows eat sufficiently, thanks to RUMENFIBE.

Customer R

My brother, a non-user of RUMENFIBE, and I make complete feed together and share it. When summer came, a notable difference emerged: The milk yield and fat of my cattle exceeded his, by 2 kg and 9.3% respectively. My cows gobble everything I feed them.

## Effects of RUMENFIBE Application on Digestibility and

113th Annual Meeting of the Japanese Society of Animal Science March, 2011 At the Tokyo University of Agriculture (Cancelled)  
 □ Tetsuro Matsumoto 1; Chaokaur Anan 2; Khempaka Stisa 3; Takuya Okamoto 4; Takehiro Nishida 1; Junichi Takahashi 1  
 (1: Obihiro University of Agriculture and Veterinary Medicine; 2: Silpakorn University Phetburi; 3: Suranaree University of Technology; 4: Meiya Sangyo Co., Ltd.)

### 1. Experimental Feed

TMR: The roughage ratio of the experimental group TMR reduced by 5% compared to the control group TMR

Lucerne Hay (kg) : Concentrate Feed (kg)

#### 1. Control Group TMR

600 : 1400

#### 2. Experimental Group TMR

570 : 1400

Feeding Amount of TMR

#### 1. Control Group TMR

Dry Matter Requirements for Maintenance = 55 g/kg (0.75 g/Day)

As Fed Amount = Requirements for Maintenance/0.9 × 70/100 + Requirements for Maintenance/0.9 × 30/100

#### 2. Experimental Group TMR

As Fed Amount = Requirements for Maintenance/0.9 × 70/100 + Requirements for Maintenance/0.9 × 28.5/100

### 2. Experimental Animals

Eight dry cows

#### 1. Control group: 4 cows

#### 2. Experimental group: 4 cows

### 3. Experiment Method

#### 3-1. Inversion Method (2 Periods)

##### • Experimental Group

RUMENFIBE administered (4 cows)

##### • Control Group

No RUMENFIBE administered (4 cows)

#### 3-2. Digestion/Nitrogen Balance Test

Total urine and feces collection method

#### 3-3. Energy metabolism Test

Respiration trial using a ventilated head-hood system

### 4. Experiment Period

90 days (30 days preliminary and 30 days x 2 experimental)

### 5. Experimental Items

#### 5-1. Digestibility

Dry matter digestibility, CP, energy, NDF, ADF, ether extract, and TDN content

#### 5-2. Nitrogen Balance

Digestible nitrogen, metabolic nitrogen, and nitrogen retention

#### 5-3. Energy Metabolism

Methane production, oxygen consumption, carbon dioxide production, metabolic rate, and energy retention

### 6. Result

#### 6-1. TMR Nutrient Content

Table 1. TMR Nutrient Content

Chemical Composition	Control Group TMR	Experimental Group TMR
DM (%)	92.58	92.78
Organic Matter	92.19	90.88
Crude Ash	7.81	9.12
CP	17.69	18.08
Ether Extract	3.14	3.27
Carbohydrate	71.36	69.53
NDF	28.33	25.63
ADF	15.37	13.68
TDN	75.33	77.22
Crude Energy (MJ/kg)	19.04	19.35

#### 6-2. Digestibility

Table 2. Digestibility and Digestible Nutrient Content

Chemical Composition	Control Group TMR	Experimental Group TMR
Digestibility (%)		
DM	76.29	78.21
Organic Matter	79.46	81.07
CP	7.85	81.28
Ether Extract	75.97	86.54
NDF	58.85	58.44
ADF	49.46	47.44
Digestible Nutrient Content (%)		
TDN1.	76.23	89.91

#### 1. Actual Measurement Value

Table 1 shows the nutrient contents of both control and experimental group TMRs obtained by calculations. Due to the roughage reduction (by 5%) compared to the control group, the experimental group TMR showed a lower fiber content. However, levels of other nutrients were almost equal between both groups. Table 2 indicates the digestibility comparison. Even though both showed similarity in terms of the digestibility of most individual ration components, the TDN of the experimental group tended to be higher than the other.

## Methane Generation in the Rumen of Non-Lactating Dairy Cows

### 6-3. Nitrogen Balance

Table 3. Nitrogen Balance

	Control Group	Experimental Group
Nitrogen Utilization (g/d)		
Nitrogen Intake	170.21	178.69
Fecal Nitrogen Excretion	34.20	33.34
Urinary Nitrogen Excretion	67.27	66.93
Nitrogen Retention	68.74	78.42
Apparent Nitrogen Digestibility	79.84	81.28
Nitrogen Balance (%)		
Fecal Nitrogen Excretion Rate	20.16	18.66
Urinary Nitrogen Excretion Rate	39.36	37.46
Nitrogen Retention Rate	40.49	43.89
Nitrogen Runoff (g/kgBW0.75)		
Nitrogen Intake	1.57	1.52
Fecal Nitrogen Excretion	0.32	0.28
Urinary Nitrogen Excretion	0.61	0.57
Nitrogen Retention	0.64	0.67

Table 3 shows the nitrogen balance results. No significant difference in nitrogen retention was observed between both groups; however, the nitrogen retention rate was slightly higher in the experimental group than the other.

### 6-4. Energy Metabolism

Table 4. Respiration Trial Result

	Control Group	Experimental Group
L/kg0.75/Day		
O2	30.39	26.32
CO2	21.96	19.43
CH4	1.62	1.27

Table 5. Energy Balance

	Control Group	Experimental Group
Energy Balance (kJ/kgBW0.75)		
GE Intake	1064.06	1019.12
DE Intake	807.12	793.69
ME Intake	719.91	709.65
Fecal Energy	255.31	225.43
Urinary Energy	21.81	34.25
Methane Energy	64.82	51.8
Heat Production	601.36	553.74
Energy Retention	118.7	153.89

Tables 4 and 5 show the respiration trial data and energy balance results respectively. Despite the experimental group showing a higher urinary excretion energy value than the control group, it recorded extremely low fecal excretion and methane energy levels, hence the first group showed 29.6% more energy retention than the second.

### 6-5. Methane Production

Figure 1 shows the methane production comparison per 1 kg of metabolic live weight. The experimental group administered with RUMENFIBE products showed a significant reduction in methane production (P<0.05) by 21.6%, compared with the other group.

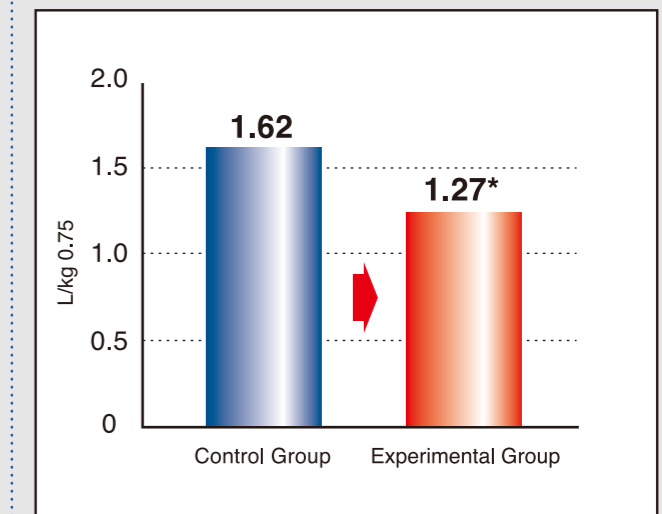


Figure 1. Effect of RUMENFIBE Application on Methane Production \*P<0.05

### 7. Conclusion

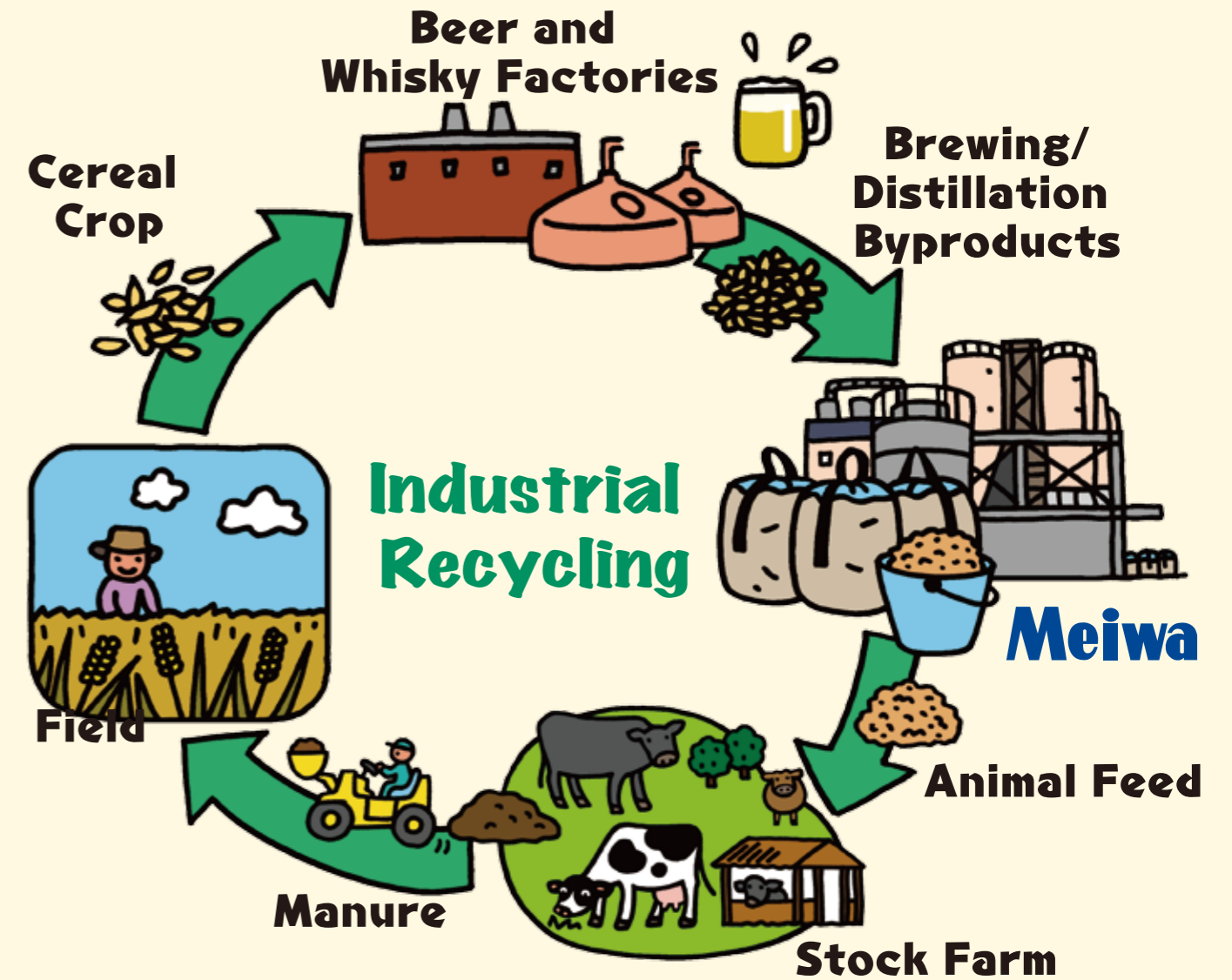
This trial aimed to assess the effects of the quantitative replacement of roughage by RUMENFIBE products, which have a function similar to roughage in stimulating the rumen interior wall, while providing the effect of inhibiting methane production. The roughage content in the experimental group TMR was set 5% lower than that of the control group TMR. No significant difference in nutrient contents was observed; however, the roughage amount fed to the experimental group resulted in 25.7% less than the other group.

The trial revealed that the methane production of the experimental group was significantly lower by 21.6% (P<0.05) than the other group. However, there was no notable difference in TMR digestibility, and the nitrogen retention rate, energy retention and its retention rate were clearly higher at the experimental group. The post-trial animal weight was slightly heavier than that of pre-trial in both groups but with no significant difference. In conclusion, some effects were clearly verified: the application of RUMENFIBE products has no effect on digestibility under TMR, even with 25% less feed for maintenance, but instead it improves productivity factors such as nitrogen and energy balance; as well as effectively suppressing methane production in the rumen.

END

Company Name	Meiwa Sangyo Co., Ltd.
Operations	The manufacturing and marketing of animal feeds and veterinary medical equipment. The marketing of brewing/distillation byproducts (e.g. spent malt grains) generated at Suntory Liquors breweries/distilleries throughout Japan. The marketing of food and brewing/distillation byproducts including spent malt grains generated by food/liquor manufacturers.
Head Office	7-4 Nishi Ishigatsubo-cho, Nishi Shichijo, Shimogyo-ku, Kyoto City, Kyoto
Offices	Obihiro Office Tonegawa Office (within the premises of the Tonegawa Brewery, Suntory Liquors Limited) Musashino Office (within the premises of the Musashino Brewery, Suntory Liquors Limited) Hakushu Office (within the premises of the Hakushu Distillery, Suntory Liquors Limited) Kyoto Office (within the premises of the Kyoto Brewery, Suntory Liquors Limited) Yamazaki Office (within the premises of the Yamazaki Distillery, Suntory Liquors Limited) Kumamoto Office (within the premises of the Kyushu Kumamoto Plant, Suntory Liquors Limited) Tokachi Stock Point Chiyoda Stock Point Kumamoto Stock Point Shiga Factory
Foundation	June 16, 1960 (Former body Nagamori Shop was founded in 1888)
Capital	12,000,000 JPY
President	Tadashi Nagamori
Number of Employees	25 (As of April, 2010)
Main Business Partners	(Purchase) Suntory Liquors Limited, Suntory Products Limited, Kirin Echo Co., Ltd., Sapporo Breweries Limited, Fuji Oil Co., Ltd., Shoda Shoyu Co.,Ltd., Snow Brand Seed Co., Ltd. and others.  (Sales) Sasaki Cattle & Meat Suppliers Co., Ltd., Tanbaya Co., Ltd., Kobe Cattle Feedlot Corporation, Susuki Farm Co., Ltd., All-in-One Co., Ltd., Kyushu Futaba Co., Ltd., and other milk production companies, feed companies and stock farms in Japan, National Federation of Agricultural Co-operative Associations, Japan Agricultural Cooperatives and others.

## Meiwa's Initiative in Industrial Recycling System



Meiwa Sangyo starts the cycle by collecting spent malt grains, byproducts of brewing/distillation, from beer and whisky factories and distributing them to stock farmers nationwide. The feed consumed by cattle is discharged as bodily waste, which is then used as manure for the field to grow barley. The harvested barley grains in the field become material for producing beer and whisky.

This is the basis on which the industrial recycling system works, by optimally exploiting resources while minimizing the impact on the environment. Meiwa's mission is to continue playing a key role in this cycle to maintain and enhance the quality of the entire industrial recycling.