

July 2, 2013
EU-Japan Seminar

Technology Development to Build a Sustainable Future

Takeshi MASUYAMA
Group General Manager,
External Scientific Affairs Group,
Quality Assurance & External Scientific Affairs Dept.,
Ajinomoto Co., Inc.

Contents

I . Introduction of Ajinomoto Group

II . Practical Technology Development

Changes of MSG (Monosodium Glutamate)
Manufacturing Method

III. Contribution to Global Sustainability

MSG and Feed-use Amino Acid

Contents

I . Introduction of Ajinomoto Group

II . Practical Technology Development

Changes of MSG (Monosodium Glutamate)
Manufacturing Method

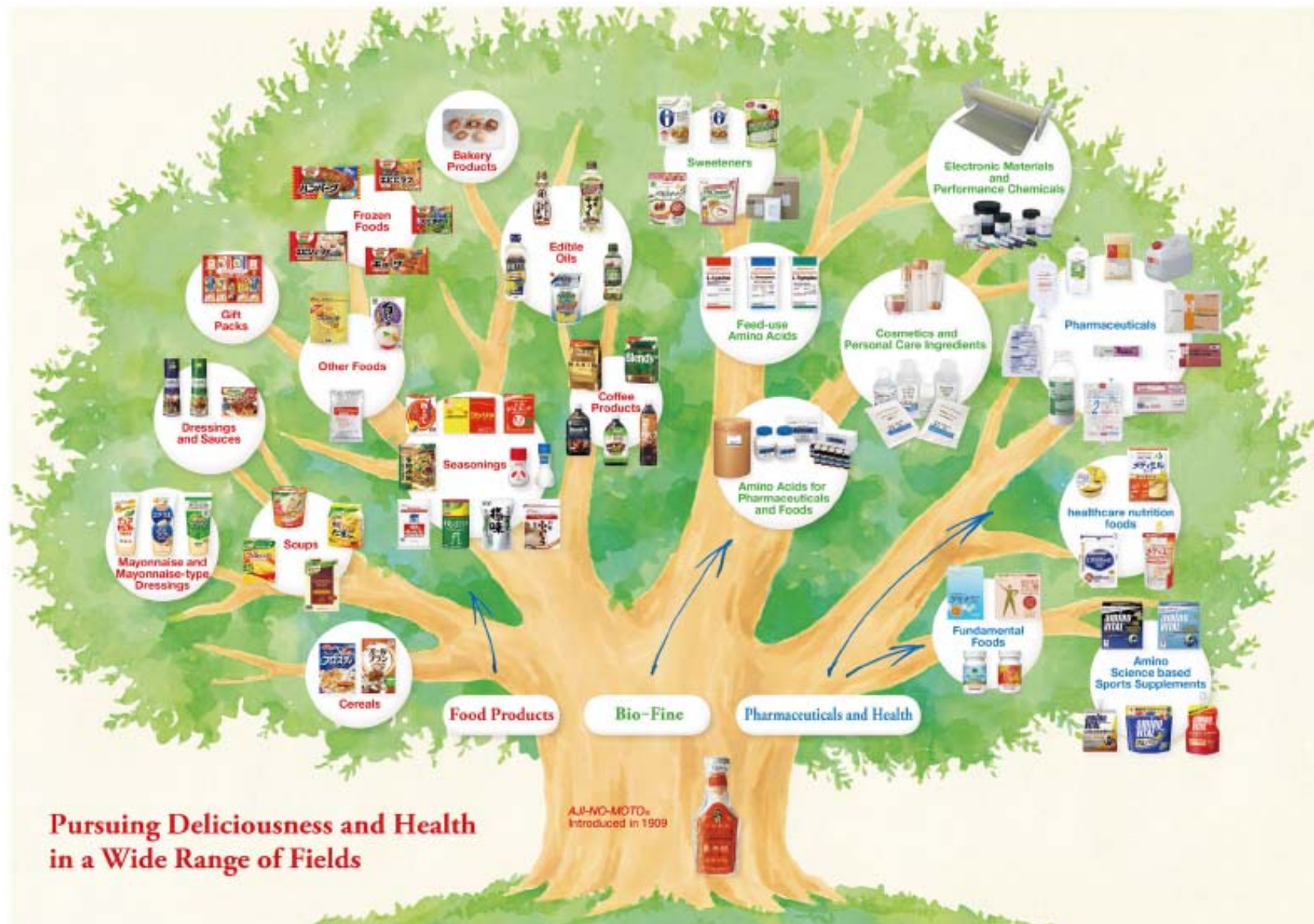
III. Contribution to Global Sustainability

MSG and Feed-use Amino Acid

**We create better lives globally
by contributing to significant advances
in food and health and by working for life.**

Product Tree

おいしさ、そして、いのちへ。
Eat Well, Live Well.
AJINOMOTO



As of May, 2012



Contents

I . Introduction of Ajinomoto Group

II . Practical Technology Development

Changes of MSG (Monosodium
Glutamate) Manufacturing Method

III. Contribution to Global Sustainability

MSG and Feed-use Amino Acid

Changes of MSG Manufacturing Method

Derived Glutamic Acid from Kelp



Changes of MSG Manufacturing Method

1. Extraction Method

Gluten flour is hydrolyzed with Hydrochloric Acid, glutamate is taken out, it neutralizes with alkaline, and MSG is produced.

■ To overcome the difficulties

① **By-product** which comes out so much

→ Use in amino acid liquid and manure

② **Degradation of equipment** by the generated hydrochloric acid gas and **environmental burden**

→ Development of container

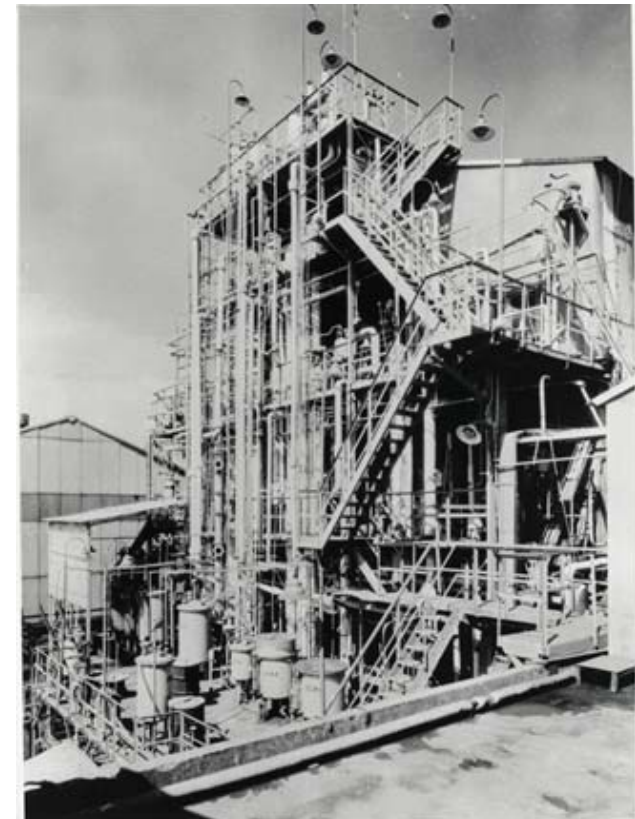


Changes of MSG Manufacturing Method

2. Synthesis Method

An optical isomer is divided and L-glutamic acid is taken out, after synthesizing by a chemical reactions

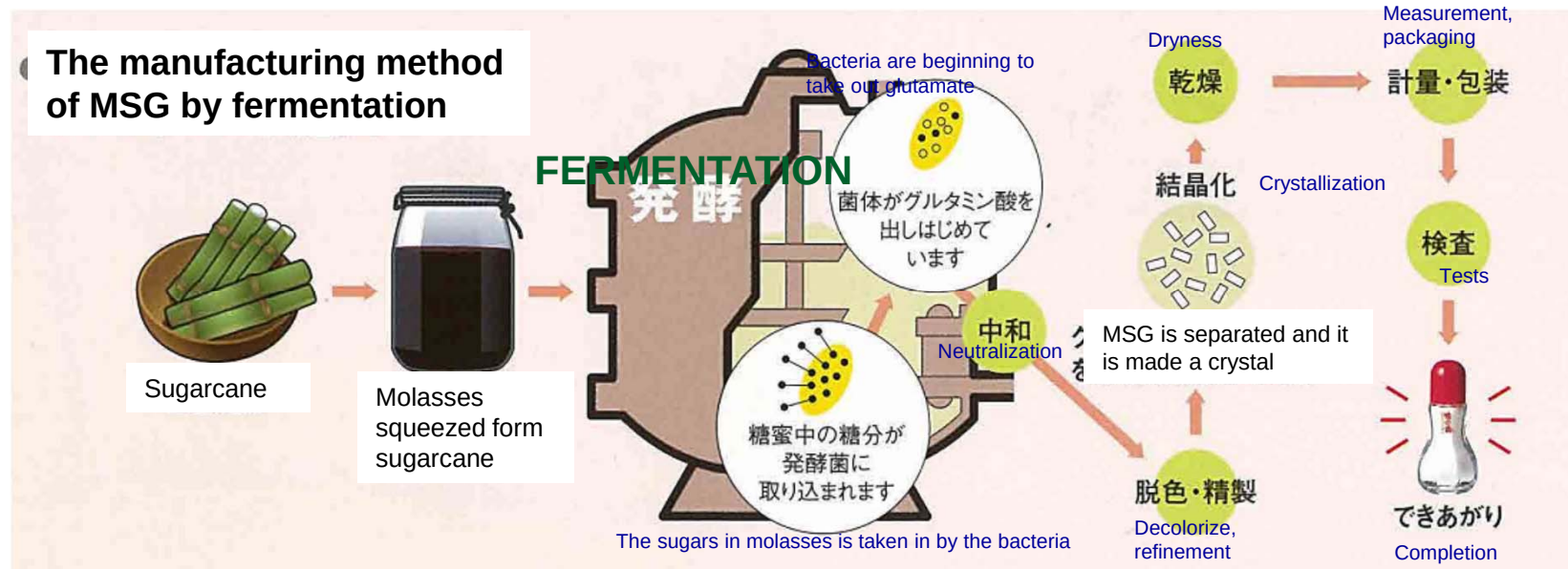
- **Effective and innovation**
which a by-product
hardly generates
- **A citizen's negative**
image to the food
produced by chemical
synthesis



Changes of MSG Manufacturing Method

3. Fermentation Method

By a microbial, L-glutamic acid is produced by fermentation of sugars of raw materials



- **The cycle** which returns by-product to the field of the crops used as materials is established
- **A new issue:** More efficient use of materials, further mitigation of environmental loads.

Contents

I . Introduction of Ajinomoto Group

II . Practical Technology Development

Changes of MSG (Monosodium Glutamate)
Manufacturing Method

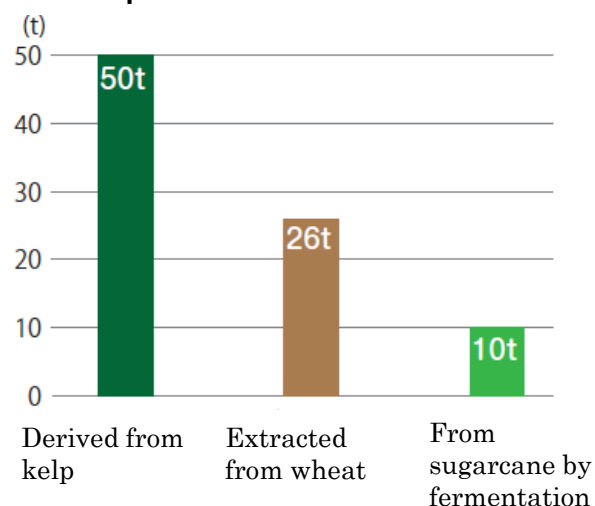
III. Contribution to Global Sustainability

MSG and Feed-use Amino Acid

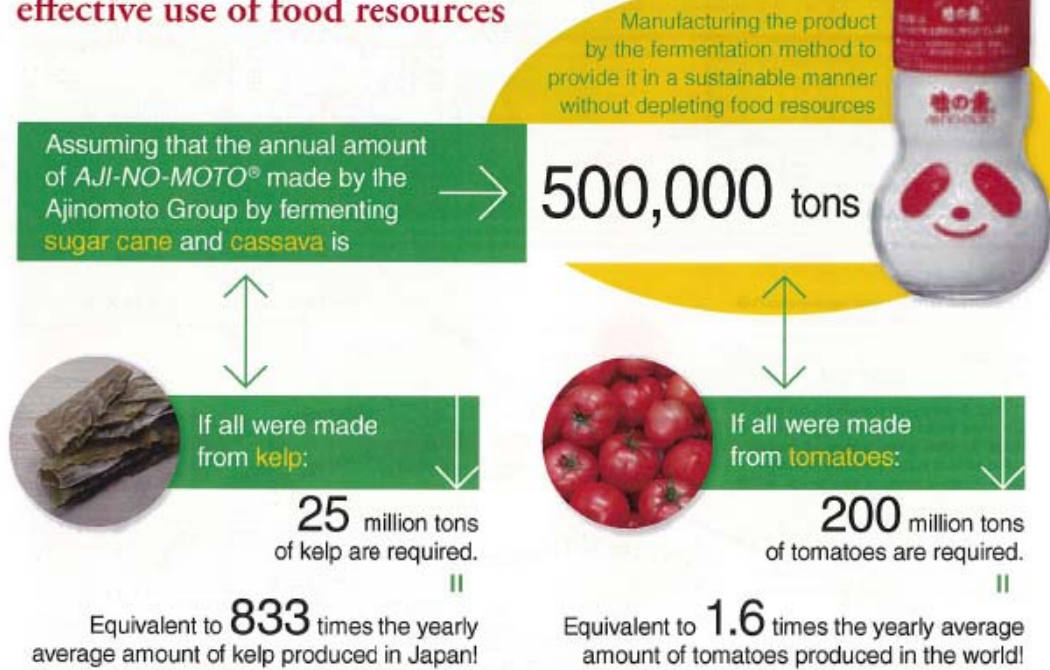
Contribution to Global Sustainability - MSG

適当な
一覧表

Materials required in order to make 1t of MSG

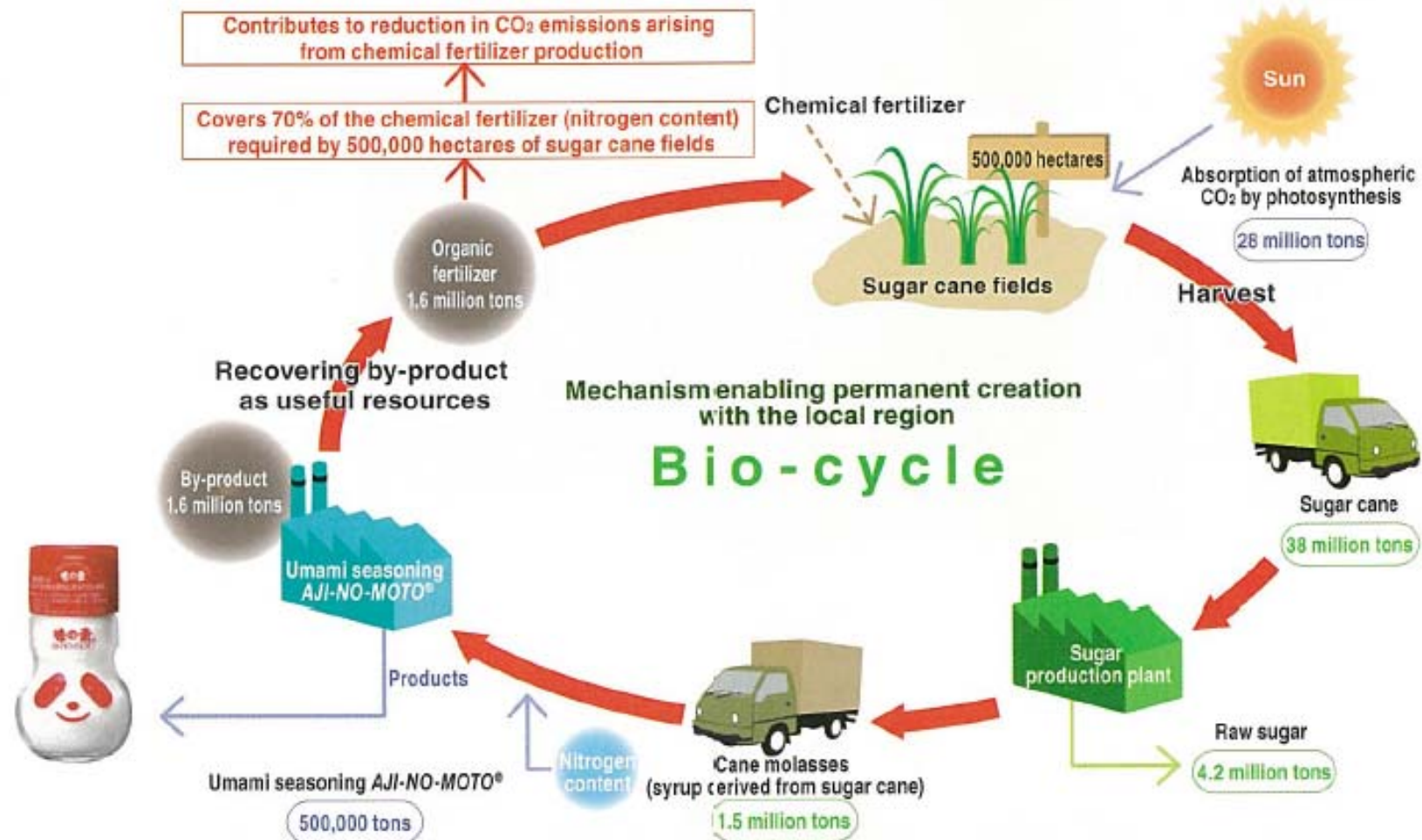


Manufacture of *AJI-NO-MOTO*® and effective use of food resources



By developing technologies, reduce the use of materials and energy and increase productivity of food resources.

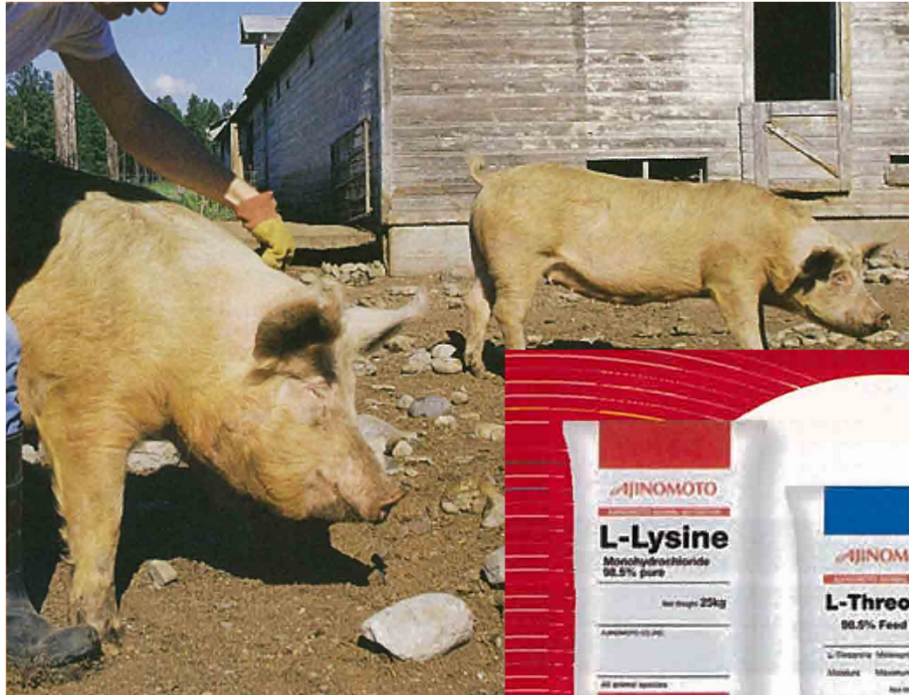
Contribution to Global Sustainability - MSG



Utilize By-product as Chemical fertilizer

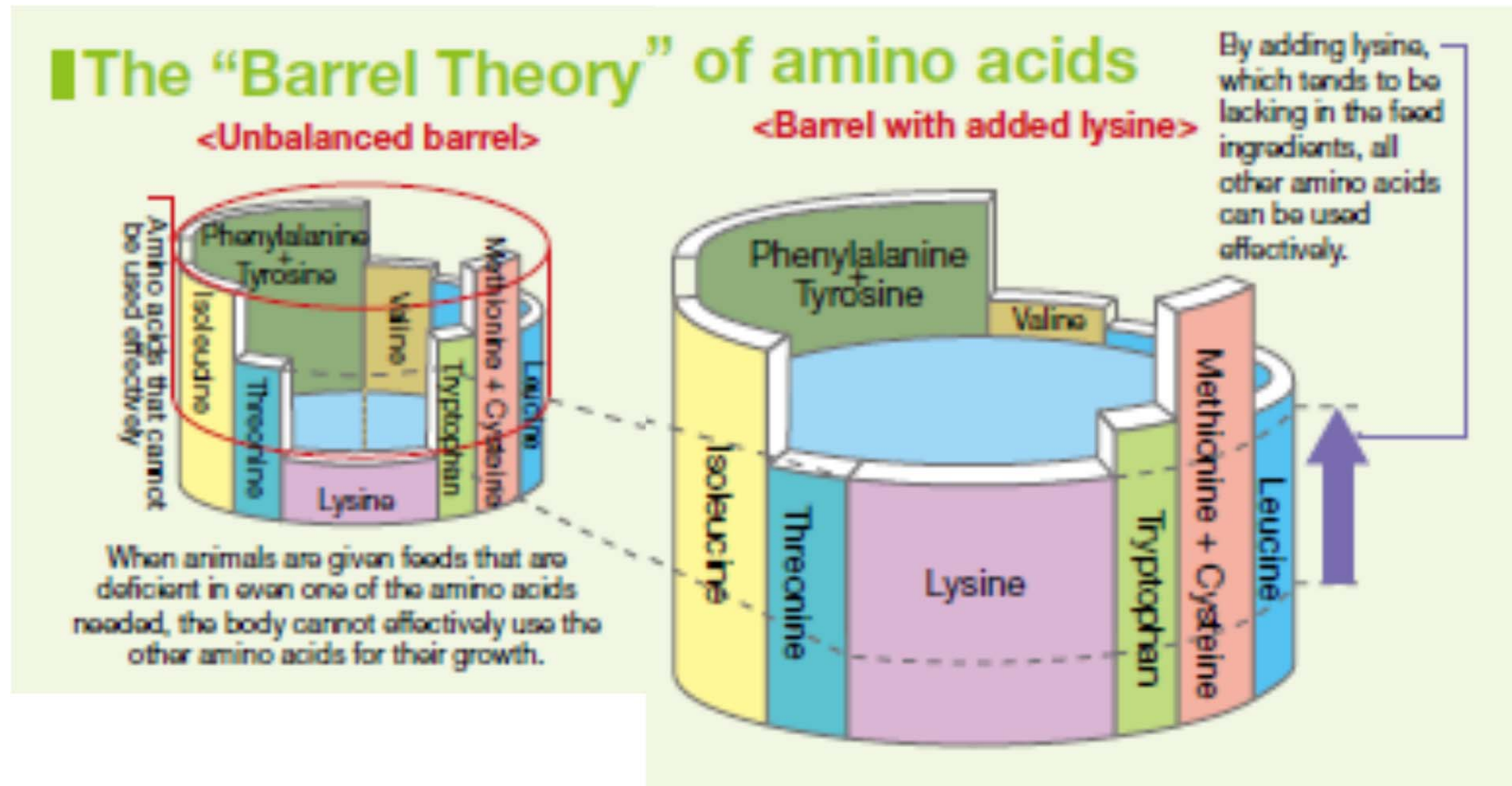
Contribution to Global Sustainability

- Feed-use Amino Acid



Contribution to Global Sustainability

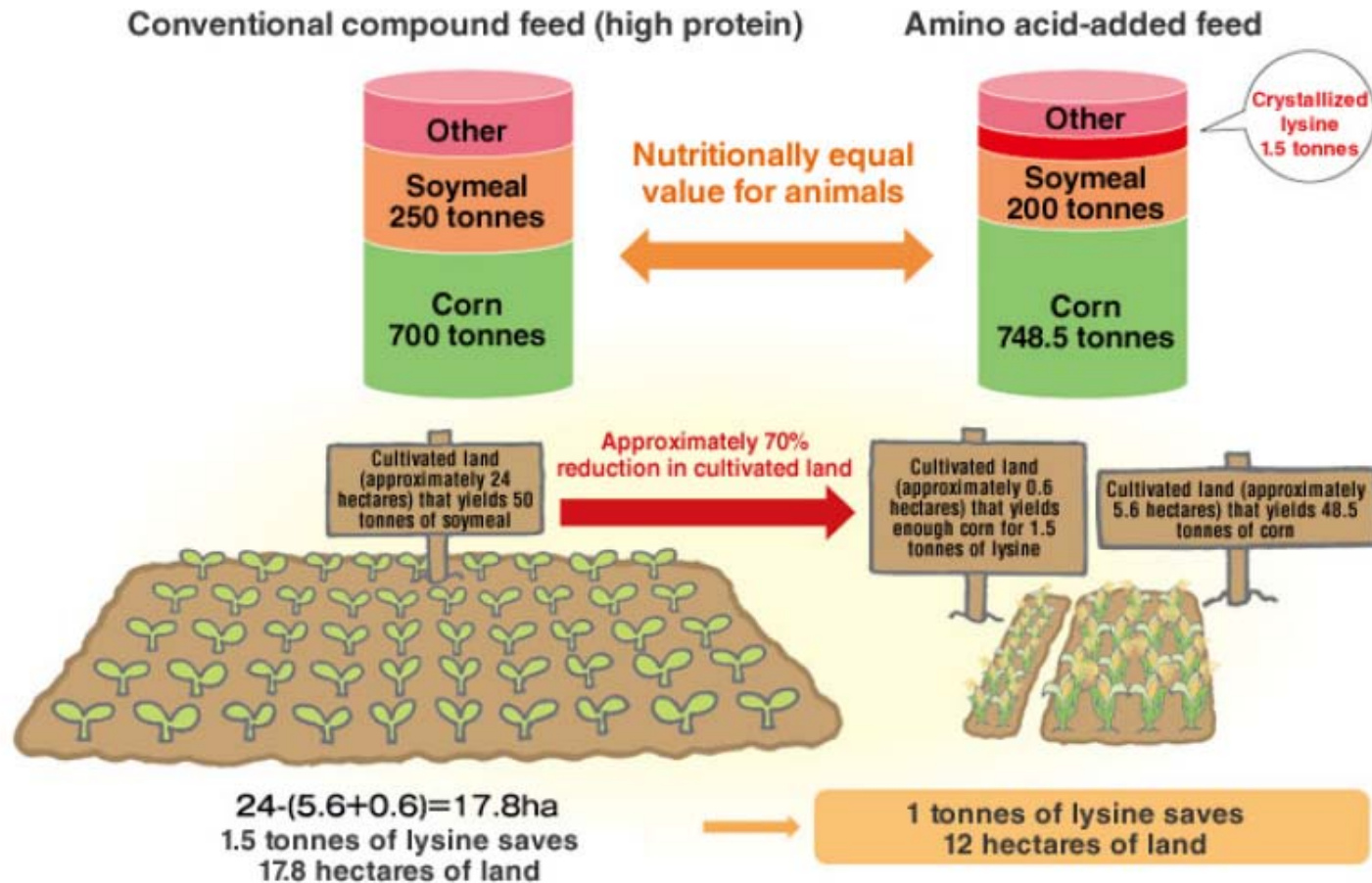
- Feed-use Amino Acid



By adding the deficient amino-acids, feeds can be more effectively used by the animal.

Contribution to Global Sustainability

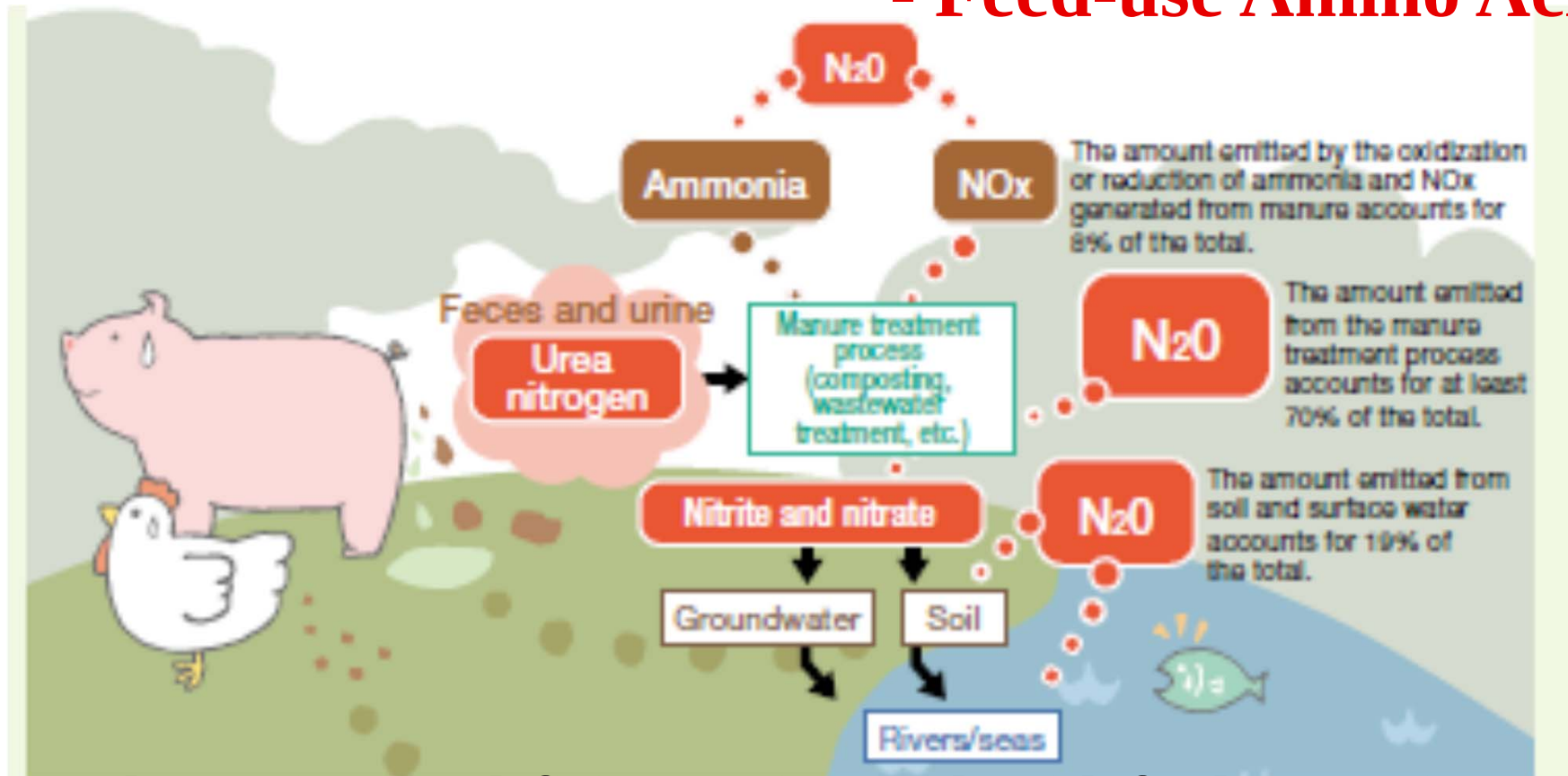
- Feed-use Amino Acid



The land surface used for feed can be saved by using amino acid for feed

Contribution to Global Sustainability

- Feed-use Amino Acid



Supplementing the deficient amino acids with feed-use amino acids helps to improve the nutrition balance of the feed and decrease the excretion of nitrogen, thereby reducing the environmental impact caused by livestock waste.

Conclusion

**Technical Development such as
Biotechnology is Contributing to
Create the Sustainable Future**

おいしさ、そして、いのちへ。

Eat Well, Live Well.

おいしさ、そして、いのちへ。
Eat Well, Live Well.

AJINOMOTO®