

The industry leader in rumen protected lysine



AjiPro[®]-L is the dairy industry's leading rumen protected lysine with a documented 80% rumen bypass and 64% bioavailability. These high quality standards earn extensive product respect and use by top nutritionists. Use of AjiPro-L can be associated with increased milk production, increased income over feed cost and a reduction in nitrogen excretion.

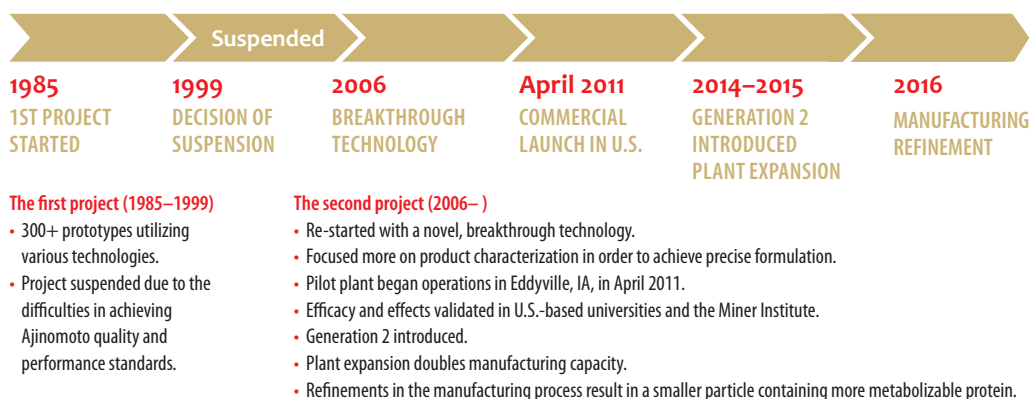
BRIEF HISTORY OF AJINOMOTO

The Ajinomoto tagline "Eat well. Live well." presents an ideal that has been scientifically proven. Today, the Ajinomoto Group continues to share this aspiration. It aims to contribute to society in the fields of food, amino science, and pharmaceuticals and health by further pursuing the potential of amino acids that was found with the discovery of umami in 1908 by Dr. Kikunae Ikeda.

AJINOMOTO:

- Introduced the flavor enhancer mono-sodium glutamate (MSG), a direct result of the discovery of umami.
- Became the first manufacturer of feed grade L-LysHCl (1965).**
- Is among the world's largest suppliers of feed grade amino acids: L-Lysine, L-Threonine, L-Tryptophan, L-Valine, AminoGut[®].
- Commercially launched AjiPro-L in 2011; second generation introduced, 2014; plant expansion, 2015; manufacturing refinements result in a 3rd generation product, a smaller particle with greater digestibility, 2016.**

AJIPRO-L DEVELOPMENT TIMELINE • R&D since mid-80s



RESEARCH SUMMARY • Publications on Ajinomoto rumen protected lysine

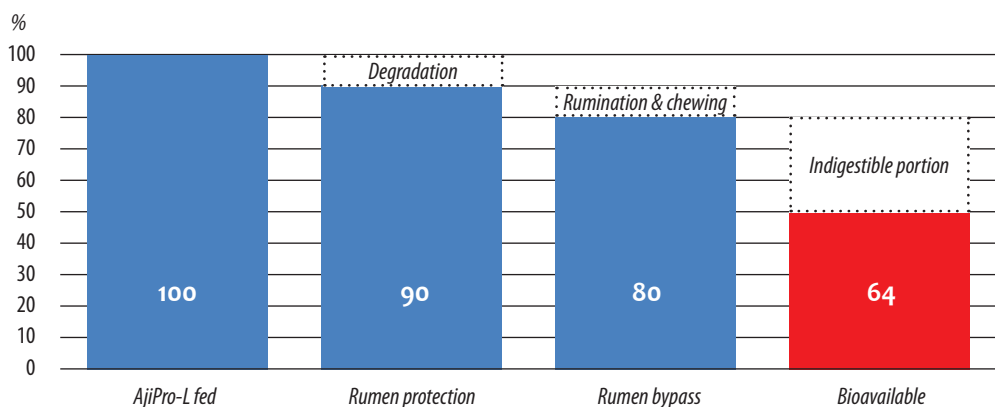
Location	Period	Rumen Protected AA used	Conducted by	Publication
NY	0-8 wk	Prototype	Julien, WE et al.	JDS vol. 82. Suppl. 1. 1999
NB, CA	0-6 wk	Prototype	Robinson, PH et al.	JDS vol. 79. Suppl. 1. 1996
VT	0-4 wk	Prototype	Sniffen, CJ et al.	JDS vol. 82. Suppl. 1. 1999
VT	0-6 wk	Prototype	Sniffen, CJ et al.	JDS vol. 82. Suppl. 1. 1999
NY	0-6 wk	Prototype	Nocek, JE et al.	JDS vol. 82. Suppl. 1. 1999
NS, CA	6-12 wk	Prototype	Fredeen, AH et al.	JDS vol. 82. Suppl. 1. 1999
NY	0-4 wk	Prototype	Chalupa, W et al.	JDS vol. 82. Suppl. 1. 1999
WA	0-10 wk	Prototype	Harrison, JH et al.	JDS vol. 81(4):1062-77, 1998
CA	11-18 wk	AjiPro-L	Robinson, PH et al.	Anim. Feed Sci. Tech. 168:30-41, 2011
NY	5-8 wk	AjiPro-L	Nocek, JE and Shinzato, I	JDS vol. 93. E-Suppl. 1: 235-236. 2010
NY	17-29 wk	AjiPro-L	Boucher, SE et al.	JDS vol. 93. Suppl. 1: 236-237. 2010
NY	0-4 wk	AjiPro-L	Nocek JE et al.	JDS vol. 94. E-Suppl. 1: 737. 2011
NY	4-7 wk	AjiPro-L	Nocek, JE and Shinzato, I	JDS vol. 95. EW-Suppl. 2: 483. 2012
NH	Bioavailability methodology		Whitehouse, NL et al.	JDS vol. 95. E-Suppl. 2: 115-116. 2012
NY	Lysine loss in total mixed ration (TMR)		Ji P et al.	JDS vol. 95. E-Suppl. 2: 356. 2012
NY	TMR mechanical mixing stability		Ji P et al.	JDS vol. 95. E-Suppl. 2: 356. 2012
WI	5-15 WK	AjiPro-L	Lobos, NE et al.	JDS vol. 97. E-Suppl. 1. 2014
NY	-3 – 3 WK	AjiPro-L	Nocek, NE et al	JDS vol. 97. E-Suppl. 1. 2014
NY	Bioavailability measure	AjiPro-L	Tucker, HA et al.	JDS vol. 97. E-Suppl. 1. 2014
NH	Bioavailability methodology		Whitehouse, NL et al.	JDS vol. 97. E-Suppl. 1. 2014
MN	Bioavailability methodology		Miyazawa, Y et al.	JDS vol. 97. E-Suppl. 1. 2014

The development of AjiPro-L began in the mid-1980s and reflects a culture of singularly focused scientific research and thoughtful product development.

The specific science of amino acid production and application are well-recognized core competencies of Ajinomoto. At Ajinomoto headquarters, some 30% of employees are involved in research.

AjiPro-L is supported by the most abundant research data in comparison to other commercially available RP-Lysine products. AjiPro-L also offers outstanding economic value.

AJIPRO-L BIOAVAILABILITY



AJIPRO-L INTESTINAL DIGESTIBILITY

64% AjiPro-L bioavailability / 80% AjiPro-L rumen bypass = 80% Intestinal Digestibility

