



The industry leader in rumen protected lysine

Project suspended due to the

difficulties in achieving

Ajinomoto quality and

performance standards.



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 Ο ΓΑ ΙΝΟΜΟΤΟ

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-8os

	Suspen	ided	$\mathbf{>}$	\rangle	\rangle	
1985 1ST PROJECT STARTED	1999 DECISION OF SUSPENSION	2006 BREAKTHROUGH TECHNOLOGY	April 2011 COMMERCIAL LAUNCH IN U.S.	2014-2015 GENERATION 2 INTRODUCED PLANT EXPANSION	2016 Manufacturing Refinement	
The first project (1985–1999) 300+ prototypes utilizing various technologies. 		The second project (2006–) • Re-started with a novel, breakthrough technology. • Focused more on product characterization in order to achieve precise formulation.				

- - Focused more on product characterization in order to achieve precise formulation.
- Pilot plant began operations in Eddyville, IA, in April 2011.
 - Efficacy and effects validated in U.S.-based universities and the Miner Institute.
- Generation 2 introduced.
- Plant expansion doubles manufacturing capacity.
- · Refinements in the manufacturing process result in a smaller particle containing more metabolizable protein.

RESEARCH SUMMARY • Publications on Ajinomoto rumen protected lysine

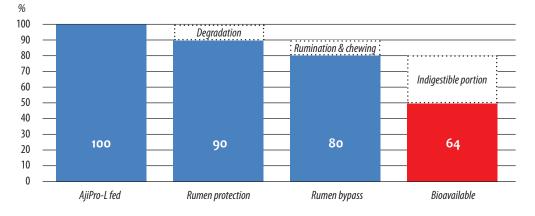
Location	Period	Rumen Protected AA used	Conducted by	Publication	
NY	0-8 wk	Prototype	Julien, WE et al.	JDS vol. 82. Suppl. 1. 1999	
NB, CA	0-6 wk	Prototype	Robinson, PH et al.	JDS vol. 79. Suppl. 1. 1996	
VT	0-4 wk	Prototype	Sniffen, CJ et al.	JDS vol. 82. Suppl. 1. 1999	
VT	0-6 wk	Prototype	Sniffen, 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 met	hodology	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 m	ixing 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 met	,	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



ΑΝΙΜΑ NUTRITION

AJINOMOTO ANIMAL NUTRITION NORTH AMERICA, INC.

