



Rock River Laboratory, Inc.
 710 Commerce Drive
 P. O. Box 169
 Watertown, WI 53094-0169
 www.rockriverlab.com
 (920) 261-0446

Fermentation End Product Guidelines

	Legume/Legume Mixed Silage		Grass Silage	Corn Silage
	Dry Matter 30-40%	Dry Matter 45-55%	Dry Matter 30-45%	Dry Matter 35-40%
pH	4.3 - 4.5	4.7 - 5.0	4.4 - 4.7	3.7 - 4.2
Lactic Acid (% DM)	7 - 8	2 - 4	6 - 9	4 - 7
Acetic Acid (% DM)	2 - 3	.5 - 2.0	1 - 3	1 - 3
Propionic Acid (% DM)	<0.5	<0.10	<0.10	<0.10
Butyric Acid (% DM)	<0.10	<0.10	<0.10	<0.10
Iso-Butyric Acid (% DM)	<0.10	<0.10	<0.10	<0.10
Lactic Acid (% of total) *	+70	+70	+70	+70
Ammonia - N (% of CP)	10 - 15	<12	<12	5 - 7

* *Silages treated with certain preservative or bacterial additives (e.g. L. buchneri) can exhibit lower Lactic:VFA ratios due to increased production of acetic and propionic acids. Research studies by Kung, Taylor, Combs and Driehuis indicate that silages treated with additives resulting in these altered VFA profiles generally have improved bunklife and exert no negative impact on dry matter intake; as opposed to elevated acetic acid levels caused by detrimental organisms commonly found on the crop such as: 1) yeast, 2) gramnegative acetic acid producers (e.g. enterobacter sp.) or 3) heterofermentative lactic-acid bacteria (e.g. leuconostoc sp.) which may contribute to poor bunklife or feeding issues.*

Source:

- 1 Randy Shaver, UW Extension
- 2 L. Kung, University of Delaware
- 3 Richard Muck, USDA Forage Research Center