

Appendix 1: Standard Abbreviations

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The following abbreviations may be used without definition in the *Journal of Dairy Science* (but please spell out all abbreviations in the Interpretive Summary). In addition, abbreviations of all chemical elements, common combinations of chemical elements, SI units of measure used with a value, and common amino acids (3-letter and 1-letter abbreviations) should be used without definition. Abbreviations are generally not permitted in the title, running head, and key words. Plural abbreviations do not require "s".

AA = amino acid	mAb = monoclonal antibody
ACTH = adrenocorticotropin	MALDI-TOF = matrix-assisted laser desorption/ionization
ADF = acid detergent fiber	time-of-flight ME = metabolizable energy
ADG = average daily gain	MIC = minimum inhibitory concentration
ADL = acid detergent lignin	MP = metabolizable protein
ADIN = acid detergent insoluble nitrogen	mRNA = messenger ribonucleic acid
AI = artificial insemination	MS = mass spectrometry
AMP, ADP, ATP = adenosine mono-, di-, or triphosphate	MUFA = monounsaturated fatty acids
ANOVA = analysis of variance	MUN = milk urea nitrogen
ATPase = adenosine triphosphatase	n = number of samples
BCS = body condition score	NAD ⁺ /NADH = nicotinamide adenine dinucleotide (oxidized/reduced)
BHB = β -hydroxybutyrate	NADP = nicotinamide adenine dinucleotide phosphate
BLUP = best linear unbiased predictor	NADPH ₂ = reduced nicotinamide adenine dinucleotide phosphate
BSA = bovine serum albumin	NAN = nonammonia nitrogen
bST = bovine somatotropin	NAS = non- <i>aureus</i> staphylococci
BTA = <i>Bos taurus</i> autosome	NDF = neutral detergent fiber
BUN = blood urea nitrogen	NDIN = neutral detergent insoluble N
BW = body weight	NDM = nonfat dry milk
cDNA = complementary deoxyribonucleic acid	NEAA = nonessential amino acid
CI = confidence interval	NE _G = net energy for gain
CLA = conjugated linoleic acid	NE _L = net energy for lactation
CN = casein	NE _M = net energy for maintenance
CNS = coagulase-negative staphylococci (see NAS)	NFC = nonfiber carbohydrates
CoA = coenzyme A	NPN = nonprotein nitrogen
CP = crude protein	NRC = National Research Council
CV = coefficient(s) of variation	NSC = nonstructural carbohydrates
DCAD = dietary cation-anion difference	OM = organic matter
df = degrees of freedom	PAGE = polyacrylamide gel electrophoresis
DHI(A) = Dairy Herd Improvement/Information (Association)	PBS = phosphate-buffered saline
DIM = days in milk	PCR = polymerase chain reaction
DM = dry matter	PGF _{2α} = prostaglandin F _{2α}
DMI = dry matter intake	PMN = polymorphonuclear leukocyte
DNA = deoxyribonucleic acid	PTA = predicted transmitting ability
DNase = deoxyribonuclease	PUFA = polyunsaturated fatty acids
dNTP = deoxynucleotide triphosphates	QTL = quantitative trait loci
EAA = essential amino acid	r = correlation coefficient
EBV = estimated breeding value	R ² = coefficient of determination
ECM = energy-corrected milk	RDP = rumen-degraded protein
EDTA = ethylenediaminetetraacetate	REML = restricted maximum likelihood
EGTA = ethylene glycol tetraacetate	RFLP = restriction fragment length polymorphism
ELISA = enzyme-linked immunosorbent assay	RIA = radioimmunoassay
FCM = fat-corrected milk	RNA = ribonucleic acid
FSH = follicle-stimulating hormone	RNase = ribonuclease
GAPDH = glyceraldehyde 3-phosphate dehydrogenase	rRNA = ribosomal ribonucleic acid
GBLUP = genomic best linear unbiased predictor	RUP = rumen-undegraded protein
GC = gas chromatography	SARA = subacute ruminal acidosis
GEBV = genomic estimated breeding value	SCC = somatic cell count
GHG = greenhouse gases	SCS = somatic cell score
GLC = gas-liquid chromatography	SD = standard deviation
GnRH = gonadotropin-releasing hormone	SDS = sodium dodecyl sulfate
GWAS = genome-wide association study	SE = standard error
h ² = heritability	SEM = standard error of the mean
HEPES = N-2-hydroxyethyl piperazine-N'-ethanesulfonic acid	SFA = saturated fatty acids
HPLC = high-performance (pressure) liquid chromatography	SNF = solids-not-fat
HTST = high temperature, short time	SNP = single nucleotide polymorphism
IFN = interferon	SPC = standard plate count
Ig = immunoglobulin	TDN = total digestible nutrients
IGF = insulin-like growth factor	Tris = tris(hydroxymethyl)aminomethane
IL = interleukin	TMR = total mixed ration
IMI = intramammary infection	TS = total solids
α -LA = α -lactalbumin	UF = ultrafiltration, ultrafiltered
β -LG = β -lactoglobulin	UFA = unsaturated fatty acids
LH = luteinizing hormone	UHT = ultra-high temperature
LPS = lipopolysaccharide	USDA = United States Department of Agriculture
LSD = least significant difference	VFA = volatile fatty acids
LSM = least squares means	UV = ultraviolet

The following units and terms can be used without definition in the *Journal of Dairy Science*.

atomic mass unit	amu	minute(s)	min
atmosphere	atm	molar (concentration)	<i>M</i>
base pair	bp	molar (mass)	mol
calorie (gram)	cal	mole (number, mass)	mol
celsius (with number)	°C	month(s)	mo
centimeter	cm	morning/afternoon	a.m./p.m.
centimeter, square	cm ²	nano	n (prefix)
circa	ca.	newton	N
centimorgan	cM	normal (concentration)	<i>N</i>
centipoise	cP	nanogram	ng
central processing unit	CPU	osmolality	use mmol/kg
colony-forming unit	cfu	outside diameter	o.d.
counts per minute	cpm	parts per billion	ppb (use µg/kg or equivalent)
counts per second	cps	parts per million	ppm (use mg/kg or equivalent)
crossed with, times	×	pascal	Pa
cubic	cu	pico	p (prefix)
cubic centimeter	cc, cm ³	picogram	pg
cubic millimeter	mm ³	plaque-forming unit	pfu
curie	Ci	probability	<i>P</i>
cycles per second (hertz)	Hz	revolutions per minute	rpm
day(s)	d	second(s)	s
dalton	Da	siemens	S
deci	d (prefix)	species	spp.
deciliter	dL	subcutaneous	s.c.
electron volt	eV	subspecies	ssp.
equivalents	Eq	thousands (approximation)	K (e.g., 50K SNPs)
foot-candle	use lx	unit	U
gram	g	volt	V
gravity	<i>g</i>	volume	vol
hectare	ha	volume/volume	vol/vol (use parenthetically)
hour(s)	h	watt	W
inside diameter	i.d.	week(s)	wk
international unit	IU	weight/volume	wt/vol (use parenthetically)
intramuscularly	i.m.	year(s)	yr
intraperitoneally	i.p.		
intravenously	i.v.	Amino Acids	
joule	J	alanine	Ala
kilo	k (prefix)	arginine	Arg
kilobase	kb	asparagine	Asn
kilobyte	KB	aspartic acid	Asp
kilocalorie	kcal	citrulline	Cit
kilogram	kg	cysteine	Cys
kilopascal	kPa	glutamic acid	Glu
liter	L	glutamine	Gln
logarithm (natural)	ln	glycine	Gly
logarithm (base 10)	log ₁₀	histidine	His
lux	lx	isoleucine	Ile
mega	M (prefix)	leucine	Leu
meter	m	lysine	Lys
metric tonne	tonne or t	methionine	Met
micro	µ (prefix)	ornithine	Orn
microcurie	µCi	phenylalanine	Phe
microfarad	µF	proline	Pro
microgram	µg	serine	Ser
microliter	µL	threonine	Thr
milli	m (prefix)	tryptophan	Trp
milliliter	mL	tyrosine	Tyr
millimeters of mercury	mm Hg	valine	Val
millimolar (concentration)	mM (= mmol/L)		
millimole (mass)	mmol		