



***NIRS Forage & Feed Testing  
Consortium  
Plant Breeders Committee***

Chuck Kahl	Paolo Berzaghi
David Johnson	Neal Martin
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Dave Whalen	Dennis Walker
Paul Williams	Patty Laskowski
David Sevenich	Steve Fransen
Bill Mahanna	Others



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- **Equations currently used for breeding purposes:**
  - Alfalfa Breeders
  - Corn Silage Unfermented and/or Fermented
  - Grass Hay
- **Most select and promote germplasm with less lignin**
  - Corn silage
  - Sudangrass
  - Teff Grass
  - Alfalfa
- **Cool & Warm season grasses for sugars**
  - water soluble carbohydrates to seed breeders
  - fructose, fructosans, and glucose to horse nutritionists
- **Fermented corn silage**
  - sugar



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**Alfalfa Breeder's Equation History**

- The original equation was initiated by ABI Alfalfa;
- Cal West Seeds, FFR Cooperative, Forage Genetics, Pioneer HiBred, and Dairyland Seed joined later
- ABI was bought by Forage Genetics and Dairyland Seed discontinued NIRSC membership, leaving 4 seed research companies in the alfalfa breeders group
- Equation for predicting oven dried, green cut research plot alfalfa samples
- Wiley Mill ground to pass through a 2mm screen or cyclone mill ground to pass through a 1mm screen



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Year	Analyses/Parameters	# Samples	Total Cost	Cost/Member
1999	DM, CP, ADF, NDF, IVDDM, ADL, P, Ca, K, Mg	~34	\$2,761.99	\$460.33
2000	DM, CP, ADF, NDF, IVDDM, ADL, P, Ca, K, Mg	94	\$7,725.00	\$1,287.50
2000RUP	RUP	79	\$3,555.00	\$592.50
2001	DM, CP, ADF, NDF, IVDDM, ADL, P, Ca, K, Mg	59	\$5,658.00	\$943.00
2001dNDF	dNDF	75	\$6,000.00	\$1,000.00
2002	DM, CP, ADF, NDF, IVDDM, ADL, P, Ca, K, Mg	48	\$4,462.00	\$744.00
2003	DM, CP, ADF, NDF, IVDDM, ADL, P, Ca, K, Mg, dNDF	180	\$15,805.20	\$2,634.20
2004	DM, CP, ADF, NDF, IVDDM, ADL, P, Ca, K, Mg, dNDF	127	\$11,654.40	\$1,942.40
2005	DM, CP, ADF, NDF, dNDF	90	\$4,000.00	\$1,000.00
2006	CP, ADF, NDF, DM, dNDF	74	\$4,000.00	\$1,000.00
2007	ADF, ADL, DM, dNDF	40	\$4,000.00	\$1,000.00
1999-2007	Alfalfa Breeders Equation	Total Cost	\$69,621.59	\$12,603.93



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The current calibration equation (03alford.eq)

Constituent	N	Mean	SD	SEC	RSQ	SECV	1-VR
DM	526	92.88	1.96	0.37	0.97	0.40	0.96
CP	662	21.87	3.42	1.16	0.88	1.24	0.87
ADF	659	31.62	5.47	1.75	0.90	1.84	0.89
NDF	745	38.21	5.96	1.98	0.89	2.08	0.88
ADL	408	6.33	1.38	0.44	0.90	0.50	0.87
P	489	0.29	0.05	0.03	0.65	0.03	0.58
CA	484	1.39	0.30	0.12	0.84	0.14	0.79
K	474	2.44	0.71	0.23	0.89	0.26	0.87
MG	479	0.29	0.08	0.04	0.77	0.04	0.72
ASH	176	8.57	3.33	1.02	0.91	1.14	0.88
dNDF48	227	17.07	1.70	1.13	0.56	1.22	0.49
IVTDMD	223	78.34	3.80	1.72	0.79	1.88	0.76
RUP	73	21.94	2.39	0.99	0.83	1.38	0.67
CPD	73	89.91	2.14	0.89	0.83	1.23	0.67
DMD	72	69.25	4.19	2.06	0.76	2.54	0.64
NDFD1	224	44.08	4.73	2.78	0.65	2.98	0.60



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### ***Membership Committee***

Paul Vendrell – Chair  
Patty Laskowski  
Sam Stratton