2020

Washington State Hay Growers Association

ALFALFA VARIETY TRIALS

QUALITY RESULTS

Conducted by Washington State University Extension

Steve Norberg, Regional Forage Specialist | Washington State University Extension | Franklin County Extension Office | 404 West Clark Street | Pasco, WA 99301 | Phone: 509-545-3511 | E-mail: s.norberg@wsu.edu

Washington State Hay Growers Association
Alfalfa Variety Trials
Conducted by Washington State University Extension

Nine alfalfa trials were harvested for yield in irrigated central Washington State in 2020. The Washington State Hay Growers Association (WSHGA) sanctions the trials and contracts with Washington State University (WSU) Extension to conduct and report the research. Three conventional trials are conducted near Othello, WA and three conventional and three Roundup Ready™ (RR) trials near Pasco, WA. **The trials are named by the year the fall planting occurred.**

For 2017, 2018 and 2019 trials, the Othello site is located on the WSU Othello research farm 6 miles ESE of Othello, WA at Lat: N46°47'41 Lng: W119°02'33, at an elevation of 1154 feet. A new Pasco site (called "City of Pasco" site) was established in fall 2019 at Lat: 46°17'31.11"N and 119° 1'54.97"W with an elevation of 502 ft and near the City of Pasco Water Treatment Plant. Both the 2017 and 2018 plantings (called "Pasco" site) established at 3128 Ivy Road, Pasco, WA at Lat: 46°17'51.01"N and Lng: 119° 8'22.40"W with an elevation of 446 ft.

The soils are a Shano silt loam (coarse-silty, mixed-mesic Xerollic Camborthids) at Othello, and a Quincy loamy fine sand (Xeric Torripsamments) at the Pasco and City of Pasco locations. All trials were sprinkler irrigated throughout the April-October growing season. The frost-free (32°F) period at Othello averages 180 days and 209 days at Pasco.

Each trial is arranged in a randomized complete block (RCB) design with 4 replications. All trials are seeded at 22 lbs/ac in rows spaced 6 inches apart with a 1-foot inter-plot separation,total plot size is 4 x 15 feet. The trials contain some experimental entries that are not available for commercial planting. Forage yields are collected for each submitted entry for three years on every planting.

Coefficient of Variation or "CV" is estimated using statistics and gives an estimate of the variability in the field. The lower the number the less variation in the measurements taken and the more likely you can determine a significant difference between treatments. Least significant difference or "LSD" is used to determine if the varieties are statistically different from each other. If the difference between two treatment means is greater than the LSD then you can determine that one variety yielded greater than another with a high level of confidence (90% for LSD at 0.10). For the longest yield duration in the table, I highlight in yellow the yields of the varieties that yielded statistically similar to the highest yielding variety using the LSD method.

Tables 1 - 3 contain a summary of annual total of yields for alfalfa varieties since the fall planting in 2017 to 2020 at the Pasco and Othello locations. Yields are presented in percent of mean of the test for ease of comparison. Table 4 is from: NAFA's "Winter Survival, Fall Dormancy & Pest Resistance Ratings for Alfalfa Varieties – 2021 Edition and previous editions". For a complete copy of the NAFA document visit www.alfalfa.org/varietyLeaflet.php.

Forage yields for each harvest; total season yield for 2020 and the totals for all years of the trials from those planted in the fall of 2017 to date are reported in Tables 5 through 13. Yields are determined from whole plot fresh weights converted to a 100% dry matter basis using a constant dry matter fraction of 20%. Ratings for regrowth after 5th cutting were taken on October 14 and Oct 6, 2020 for the Pasco and Othello locations, respectively, and represent visual ratings from 1-5.

Rating scale was: 1 - little to no regrowth, 2 - below average regrowth, 3 - average regrowth, 4 - above average regrowth, and 5 - high amount of regrowth.

At the end of each experiment final stands were evaluated for percent stand. This was determined by visually determining how many 6-inch gaps were found between plants in each of the seeded rows compared to the number of 6-inch blocks there are in a plot and calculating the percentage.

The WSHGA-WSU goal for the alfalfa variety testing project is to identify varieties for growers that are adapted to the Columbia Basin region that will tolerate both biotic (pests) and abiotic (environmental) stresses and still yield well. The goal of this annual publication is to provide growers and industry the best, most reliable quality results possible.

This is the third year of data on the fall of the fall of 2017 planting and first cutting quality samples was funded by seed companies and results can be seen in Tables 14 through 22. The fall of 2019 planting quality was only taken on the Othello and City of Pasco conventional trials as not enough entries were received on the Roundup Ready experiment and only the first cutting was used for quality. A new A method of determining nutrient and fiber value was used according to Dr. Wiess, Nutritionist, who spoke on "Innovations in Forage Digestibility Analyses/Changing Concepts of Forage Quality" at the 2017 and 2019 Western Alfalfa and Forage Symposium and can be viewed at https://alfalfa.ucdavis.edu/+symposium/2017/workshop.aspx for 2017and select the talk at 1:15 pm which uses aNDF for price adjustment, whereas 2019 talk uses NDFD as for value of adjustment http://lecture.ucanr.edu/Mediasite/Play/62cdb31981f745dba980dc695cf48ffa1d . This method allows a total dollar value of hay to be calculated on each variety. The numbers given is based on an "as fed" basis with values based in the Midwest since none were available for the PNW. Values for protein, energy, fiber, and an adjustment for fiber fill effect on dairy cow milk production. I used this method because it allows us to know what in the hay brings value to the dairy industry which is the main ultimate use of our high-quality hay. Maybe you will be surprised that even for dairies protein brings more value than energy contained in the hay. I would be happy to try to answer any questions on how the numbers were calculated.

I want to especially thank Obadiah Sheriff, Hayley Beaver, Abigail Tellez and Emily Skeen, Jason Mieirs, Steve Fransen, Josefina Guzman, for their assistance with this year's trials and planting of next year's trials. I also want to thank the Washington State Hay Growers Association and Washington State University Extension for their continued support.

Please do not hesitate to contact me if you have any questions on the trials. My email is: s.norberg@wsu.edu.

Sincerely,

Regional Forage Specialist

Table 1. 2020 Summary of Conventionally Sprayed Alfalfa Yield Trials Planted Since Fall of 2015 at WSU Othello Research Farm, WA

	Seeded August 2015				Seeded August 2016				Seeded August 2017				6 YR Avg. of	6 YR Avg. of	6 YR Avg. of
Entry	**2016**	**2017**	**2018**	**3 Yr.**	**2017**	**2018**	**2019**	**3 Yr.**	**2018**	**2019**	**2020**		**2015 & 2016 Trials**	**2016 & 2017 Trials**	**2015 & 2017 Trials**
8420					98.3%	95.4%	92.5%	**95.4%**							
4H400* (CW 054004)					105.1%	109.9%	101.5%	**105.6%**							
54Q29					104.7%	106.2%	106.5%	**105.8%**							
AFX 429*					103.8%	99.8%	105.7%	**103.0%**							
AFX 457*					96.2%	98.4%	90.3%	**95.0%**							
AFX 460* (CW A113005)									99.5%	109.1%	108.5%	**105.7%**			
AFX 469*					104.8%	103.4%	119.6%	**109.1%**							
AFX 579*					99.0%	108.2%	116.2%	**107.8%**							
AmeriStand 318TQ									104.6%	105.3%	106.9%	**105.6%**			
AmeriStand 427TQ	104.5%	102.6%	111.7%	**106.3%**	96.9%	99.2%	106.5%	**100.8%**					**103.6%**		
AmeriStand 445NT	98.1%	98.0%	100.7%	**99.0%**	96.9%	96.5%	95.8%	**96.4%**	97.7%	88.3%	98.3%	**94.7%**	**97.7%**	**95.6%**	**96.7%**
Camas															
CB11007*					96.3%	97.5%	96.7%	**96.8%**							
CB11009*	96.5%	97.3%	77.5%	**90.3%**											
CW 104014									99.8%	115.6%	98.8%	**104.7%**			
CW 093009*					95.3%	99.6%	96.5%	**97.2%**							
CW 105021*					94.8%	102.8%	99.3%	**99.1%**							
DG5315					105.8%	103.4%	107.2%	**105.4%**							
DS1168*					99.8%	98.8%	106.3%	**101.6%**							
FSG426	109.2%	110.1%	114.8%	**111.4%**											
GrandsStand II	97.9%	98.7%	124.0%	**107.0%**											
HG 4001*					100.2%	110.2%	106.5%	**105.7%**							
HibriForce-3400*					101.2%	98.7%	99.3%	**99.7%**							

continued on next page

	Seeded August 2015				Seeded August 2016				Seeded August 2017				6 YR Avr. of	6 YR Avr. of	6 YR Avr. of
Entry	**2016**	**2017**	**2018**	**3 Yr.**	**2017**	**2018**	**2019**	**3 Yr.**	**2018**	**2019**	**2020**		**2015 & 2016 Trials**	**2016 & 2017 Trials**	**2015 & 2017 Trials**
Hi-Gest 360*					99.7%	102.7%	95.6%	**99.4%**					**99.4%**		
HybriForce-3420/Wet*					104.9%	104.4%	100.0%	**103.1%**							
HybriForce-3430*					104.6%	97.6%	93.5%	**98.5%**							
HybriForce-4400*					103.6%	105.3%	101.7%	**103.6%**							
Mallard*					102.5%	98.5%	91.6%	**97.6%**							
msSunstra-143146*					98.3%	99.2%	93.3%	**96.9%**							
PGI 529*					108.2%	112.0%	112.6%	**110.9%**							
PGI 557*					99.0%	106.5%	103.7%	**103.1%**							
Quail 5									103.1%	117.3%	116.8%	**112.4%**			
Rebound 6XT					100.3%	100.5%	112.9%	**104.5%**							
SGS 47M	105.9%	106.8%	100.4%	**104.4%**											
Slingshot									106.0%	112.4%	112.2%	110.2%			
SW 4107	108.6%	109.5%	106.3%	**108.1%**					109.6%	109.1%	100.8%	**106.5%**			
SW 5210					102.5%	98.2%	102.1%	**100.9%**							
SW 5213	107.4%	108.3%	101.6%	**105.7%**	103.3%	101.5%	101.1%	**102.0%**	103.8%	107.3%	109.4%	**106.8%**	**103.8%**	**104.4%**	**104.8%**
SW 5512Y	96.6%	97.4%	97.9%	**97.3%**											
Vernal	77.0%	77.6%	76.7%	**77.1%**	**84.2%**	**76.3%**	**67.3%**	**75.9%**	80.1%	72.6%	77.6%	**76.8%**	**76.5%**	**76.4%**	**76.6%**
Vernema	94.0%	90.5%	80.0%	**88.1%**	**83.9%**	**69.1%**	**73.3%**	**75.3%**	88.4%	74.4%	77.8%	**80.2%**	**81.7%**	**77.8%**	**81.2%**
WL 365HQ					106.2%	104.3%	115.6%	**108.6%**							
Avg. Total-Tons/Acre	**10.77**	**9.68**	**7.50**	**27.95**	**8.45**	**8.38**	**8.62**	**25.45**	**10.83**	**10.56**	**9.12**	**30.5**			
LSD (0.10)	**5.2%**	**5.6%**	**5.6%**	**4.5%**	**6.5%**	**7.6%**	**15.2%**	**8.1%**	**4.6%**	**4.7%**	**7.1%**	**4.0%**			
CV (%)	**4.3%**	**4.7%**	**4.7%**	**3.8%**	**5.4%**	**6.4%**	**12.7%**	**6.8%**	**5.5%**	**5.7%**	**9.0%**	**4.82%**			

Table 2. 2020 Summary of Conventionally Sprayed Alfalfa Yield Trials Planted Since Fall of 2015 - Near Pasco, WA

	Seeded August 2015			Seeded August 2016				Seeded August 2017				5 YR Avg. of	6 YR Avg. of	5 YR Avg. of
Entry	**2016**	**2017**	**2 Yr.**	**2017**	**2018**	**2019**	**3 Yr.**	**2018**	**2019**	**2020**	**3 Yr.**	**Seeded 15 & 16**	**Seeded 16 & 17**	**Seeded 15 & 17**
54Q29				108.4%	107.6%	108.2%	**108.0%**	105.2%	105.5%	109.2%	**106.6%**		**107.3%**	
AmeriStand 427TQ				98.7%	97.6%	109.5%	**101.3%**							
Ameristand 445NT				100.7%	101.8%	102.6%	**102.0%**							
Camas	98.3%	99.8%	**99.0%**					96.9%	101.7%	100.2%	**99.3%**			**99.4%**
CB11007*				98.1%	93.5%	94.4%	**95.4%**							
CB1109*	102.2%	96.2%	**99.4%**	94.9%	90.1%	94.3%	**93.0%**					**95.5%**		
DG 5315	104.1%	111.7%	**107.6%**	100.9%	103.2%	104.9%	**102.8%**					**105.0%**		
DKA44-18								102.9%	96.2%	95.1%	**98.5%**			
DKA50-17								106.6%	105.0%	101.7%	**104.5%**			
GrandStand II	107.0%	108.0%	**107.4%**											
Integra 8420	108.2%	109.6%	**108.9%**	99.8%	107.3%	102.6%	**103.3%**					**105.5%**		
L-504 HD				97.6%	90.9%	95.0%	**94.4%**							
Rebound 6XT				101.4%	105.4%	109.5%	**105.1%**							
Robin				97.4%	96.4%	91.7%	**95.5%**							
Slingshot								99.6%	105.5%	108.7%	**104.2%**			
SW 4107	103.1%	105.2%	**104.1%**					100.3%	99.5%	101.3%	**100.4%**			**101.9%**
SW 5210*				107.2%	111.1%	105.5%	**108.2%**							
SW 5512Y*	97.0%	94.2%	**95.7%**											
SW 5213	97.8%	93.8%	**95.9%**	110.6%	109.1%	113.5%	**110.8%**	104.3%	106.8%	107.9%	**106.2%**	**105.0%**	**108.5%**	**102.1%**
Vernal	80.2%	75.1%	**77.8%**	82.5%	80.7%	75.0%	**79.8%**	84.2%	79.8%	75.9%	**80.3%**	**78.7%**	**80.0%**	**79.0%**
Vernema	94.1%	87.5%	**91.0%**	93.0%	91.2%	85.4%	**90.2%**					**90.2%**		
WL 365HQ	99.9%	109.6%	**104.4%**											
WL 377HQ	108.2%	109.4%	**108.8%**											
Total Tons/Acre	**11.44**	**10.01**	**21.44**	**10.20**	**10.20**	**7.30**	**27.70**	**12.52**	**9.36**	**10.30**	**32.18**			
LSD Years (0.10)	**6.7%**	**7.6%**	**6.3%**	**7.6%**	**7.9%**	**8.8%**	**5.8%**	**4.0%**	**6.9%**	**7.8%**	**6.7%**			
CV(%)	**5.6%**	**6.4%**	**5.3%**	**6.3%**	**6.6%**	**7.4%**	**4.8%**	**3.3%**	**5.7%**	**6.4%**	**5.5%**			

Table 3. 2018 Summary of Roundup Sprayed Alfalfa Yield Trials Planted Since 2015 - Near Pasco, WA

	Seeded August 2015			Seeded August 2016				Seeded August 2017				5 YR Avg.	6 YR Avg.	5 YR Avg.
Entry	**2016**	**2017**	**2Yr.**	**2017**	**2018**	**2019**	**3Yr.**	**2017**	**2018**	**2019**	**3Yr.**	**Seeded 15 & 16**	**Seeded 16 & 17**	**Seeded 15 & 17**
4R200	102.7%	104.3%	**103.5%**	98.2%	95.5%	91.9%	**95.7%**					**98.5%**		
54VR10				105.6%	111.3%	107.0%	**107.3%**							
54VR70				105.4%	104.5%	102.9%	**103.4%**	103.2%	94.6%	99.3%	**99.4%**		**101.4%**	
6424R				100.1%	98.9%	99.9%	**97.7%**							
6427R								103.8%	100.7%	100.7%	**101.9%**			
AmeriStand 415NT RR				98.4%	100.9%	96.4%	**98.9%**							
AmeriStand 545NT RR	100.4%	106.3%	**103.2%**											
DG 417RR								97.5%	94.9%	101.9%	**98.2%**			
DKA43-18RR								101.0%	103.8%	103.8%	**102.7%**			
DKA44-16RR	101.8%	100.5%	**101.2%**	99.4%	99.0%	97.4%	**100.6%**	97.4%	98.0%	95.5%	**97.0%**	**99.6%**	**98.8%**	**99.1%**
DKA50-20RR								98.9%	98.8%	99.3%	**99.0%**			
FG R410A136*				101.4%	98.8%	105.9%	**99.9%**							
LG 4R200	102.7%	104.3%	**103.5%**	98.2%	95.5%	91.9%	**95.7%**					**98.5%**		
LG 4R300								99.2%	102.7%	98.5%	**100.0%**			
LG 5R300*	97.8%	96.0%	**97.0%**					99.1%	106.5%	100.9%	**101.9%**			**99.4%**
Integra 8444R				95.5%	89.6%	92.7%	**95.1%**							
Integra 8401RR	95.9%	90.6%	**93.4%**											
RR AphaTron 2XT				101.7%	103.0%	105.9%	**102.7%**							
RR501	101.3%	102.3%	**101.8%**	94.2%	98.5%	100.0%	**98.8%**					**98.5%**		
Total Tons/Acre	**11.40**	**10.12**	**21.52**	**10.20**	**10.20**	**7.30**	**28.10**	**12.59**	**9.76**	**10.79**	**33.15**			
LSD (0.10)	**NS**	**6.7%**	**4.8%**	**4.9%**	**7.8%**	**4.9%**	**4.6%**	**4.0%**	**3.6%**	**NS**	**3.0%**			
CV(%)	**4.3%**	**4.3%**	**4.3%**	**4.1%**	**6.5%**	**4.1%**	**4.0%**	**3.3%**	**2.9%**	**3.9%**	**2.5%**			

Table 4. Fall Dormancy & Pest Resistance Ratings for Alfalfa Varieties in these Trials*

Variety	Marketing	FD	WS	BW	VW	FW	AN	PRR	APH1	SAA	PA	BAA	SN	SRKN	NRKN	Salt	Tech.
54Q29	Pioneer	4		HR	HR	R	HR	HR	HR	R	HR		HR				C
54VR10	Pioneer	4		HR	HR	MR	HR	HR	HR	R	HR		R				R
54VR70	Pioneer	4		HR	HR	MR	HR	HR	HR	R	HR		R				R
6424R	NEXGROW	4	2	HR	HR	HR	HR	HR	HR	MR	R		R				R
6427R	NEXGROW	4	1	HR	HR	HR	HR	HR	HR	MR	R		HR				R
6585Q	NEXGROW	5	2	HR	HR	HR	HR	HR	HR		R		HR				C
AFX 429*	Alforex	3		HR	HR	HR	HR	HR	HR			R	R				C
AFX 457*	Alforex	4		HR	HR	HR	HR	HR	HR	R	HR		R			G	C
AFX 469*	Alforex	4		HR	HR	HR	HR	HR	HR				HR			G	C
AFX 579*	Alforex	5		HR	HR	HR	HR	HR	HR			R	HR			G	C
AmeriStand 415NT RR	America's Alf.	4		HR	HR	HR	HR	HR	HR		HR		HR		HR	G	R
Ameristand 427TQ	America's Alf.	4	1	HR	HR	HR	HR	HR	HR		R		HR			G	C
AmeriStand 445NT	America's Alf.	4	2	HR	R	HR	HR	HR	R	HR	R		HR		HR		C
AmeriStand 481 HVXRR	America's Alfalfa	4	2	HR	HR	HR	HR	HR	HR	R	R		R				RX
AmeriStand 455TQ RR	America's Alfalfa	4	2	HR	HR	HR	HR	HR	HR		R		R		HR		R
AmeriStand 518NT	America's Alfalfa	5		HR	HR	HR	HR	HR	HR		HR		HR		HR		C
AmeriStand 545NT RR	America's Alf.	5		R	HR	R	HR	HR	HR	HR	HR		HR	HR			R
Camas	AgReliant Genetics	4		HR	R	HR	HR	HR	HR	HR	R		HR		HR		C
DG 417RR	Nutrien Ag Solutions	4	1	HR	HR	HR	HR	HR	HR		R		R				R
DG 5315	Nutrien Ag Solutions	5		HR	HR	HR	HR	HR	HR		HR		HR				C
DKA40-16	DeKalb	4	1	HR	HR	HR	HR	HR	HR	R	R		HR			G	C
DKA40-21HVXRR	Dekalb	4	2	HR	HR	HR	HR	HR	HR	R	R		R				RX
DKA40-51RR	Dekalb	4	1	HR	HR	HR	HR	HR	HR	R			R				R
DKA44-16RR	DeKalb	4	2	HR	HR	HR	HR	HR	HR	R	R		R			G	R
DKA50-17	DeKalb	5	1	HR	HR	HR	HR	HR	HR		HR		R				C
FSG 426	Farm Science	4	2	HR	HR	HR	HR	HR	HR	MR	HR						C
Grandstand II	Nutrien Ag Solutions	4	2	HR	HR	HR	HR	HR	HR		R		HR				C
Hi-Gest 360	Alforex	3		HR	HR	HR	HR	HR	HR			R				G	C
HybriForce-3400	Dairyland	4	2	HR	HR	HR	HR	HR	HR		R		HR	R	HR		H
Integra 8420	Wilbur-Ellis	4		HR	HR	HR	HR	HR	HR	HR	R		HR		HR		C
Integra 8420	Wilbur-Ellis	4		HR	HR	HR	HR	HR	HR	HR	R		HR		HR		C
Integra 8444R	Wilbur-Ellis	4		R	HR	HR	HR	HR	R	HR			HR		R	G/F	R

continued on next page

Variety	Marketing	FD	WS	BW	VW	FW	AN	PRR	APH1	SAA	PA	BAA	SN	SRKN	NRKN	Salt	Tech.
LG 4R300	AgReliant Genetics	4		HR	HR	HR	HR	HR	HR	HR	HR		HR				R
LG 5R300	AgReliant Genetics	5		HR	HR	HR	HR	HR	HR	HR	HR		HR				R
Magnum 8	Corteva	4		HR	HR	HR	HR	HR	HR	R	MR	R	R				C
PGI 529	Alforex	5	1	HR	R	HR	HR	HR	HR	MR	R	MR	R				C
PGI 557	Alforex	5	2	HR	HR	HR	HR	HR	HR		R	R	HR		HR		C
Quail	Blue River Hyb.	5		HR	HR	HR	HR	HR	HR		R	MR	HR		R		C
Rebound 6XT	Croplan	4	1	HR	HR	HR	HR	HR	HR	R	HR						C
RR AphaTron 2XT	Croplan	4	2	HR	HR	HR	HR	HR	HR		R		R				R
DKARR501	DeKalb	5	2	HR		HR	HR	HR	HR		HR		HR			G/F	R
RRALF 4R200	AgReliant Genetics	4	2	HR	HR	HR	HR	HR	HR	MR			HR		R		R
Slingshot	BrettYoung	5	2	R	HR	HR	HR	HR	HR	HR	HR		HR		HR		C
SW 4107	S & W	4		HR	HR	HR	HR	HR	HR	MR	R		R				C
SW 5210	S & W	5		HR	HR	HR	HR	HR	HR	R	HR		HR			G	C
SW5213	S & W	5		HR	HR	HR	HR	HR	HR	R	HR		HR				C
Vernal	Public	2		R	S	MR	S	S	S				SN		MR		C
Vernema	Public	4		MR	MR		LR	LR		MR			HR				C
WL 349HQ	W-L Research	4	2	HR	HR	HR	HR	HR	HR		HR						C
WL 365HQ	W-L Research	5	1	HR	HR	HR	HR	HR	HR	HR	HR		R				C
WL 377HQ	W-L Research	5		HR	HR	HR	HR	HR	HR	HR	HR		HR		HR		C

FD Fall Dormancy
WS Winter Survival
BW Bacterial Wilt
VW Verticillium Wilt
FW Fusarium Wilt

AN Anthrocnose Race 1 PRR
Phytophthora Root Rot
SAA Spotted Alfalfa Aphid
PA Pea Aphid

BAA Blue Alfalfa Aphid
SN Stem Nematode
APH[1] Aphanomyces Race 1
SRKN Southern Root Knot Nematode

NRKN Northern Root Knot Nematode
Salt Tol.- G=germination F=forage prod.
Tech. C= Conv., R= RR, RX= RR & HarvXtra

* NAFA's "Winter Survival, Fall Dormancy & Pest Resistance Ratings for Alfalfa Varieties - 2021 Edition and previous editions". "For a more complete copy of the NAFA document visit www.alfalfa.org/varietyLeaflet.php." Blanks mean adequate testing has not yet occcured. Only data from publications were used.

Table 5. Three-Year Forage Yield - 2017 Alfalfa Variety Trial in 2020, Othello, Adams County, WA
Forage Yield (Ton DM/A)

Planted August 10, 2017		Fall	2018		2019		2020 Harvests							2018-2020		2020 Fall
		Dorm.	Total	Total	Total	Total	26-May	22-Jun	20-Jul	20-Aug	11-Sep	Total	Total	3 Year Total		2-Oct
Company	Entry	Rating	Tons/a	% Mean	Tons/a	% Mean	Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Tons/a	% Mean	Tons/a	% Mean	% Stand
Blue River Hybrids	Quail 5	5	11.16	103.1	12.39	117.3	3.58	2.50	1.85	1.82	0.90	10.65	116.8	34.2	112.1	97.5
Brett Young	Slingshot	5	11.48	106.0	11.88	112.4	3.58	2.31	1.73	1.69	0.93	10.23	112.2	33.6	110.1	98.1
S & W Seed Company	SW 4107	4	11.87	109.6	11.53	109.1	3.31	1.94	1.51	1.63	0.80	9.20	100.8	32.6	106.8	96.4
S & W Seed Company	SW 5213	5	11.23	103.8	11.34	107.3	3.71	2.20	1.61	1.63	0.83	9.98	109.4	32.5	106.7	98.1
America's Alfalfa	AmeriStand 318TQ	3	11.32	104.6	11.12	105.3	3.61	2.02	1.57	1.71	0.84	9.75	106.9	32.2	105.5	97.5
Alforex Seeds	AFX 460* (CW A113005)	4	10.77	99.5	11.52	109.1	3.43	2.31	1.70	1.62	0.84	9.90	108.5	32.2	105.5	97.0
Alforex Seeds	CW 104014*	4	10.80	99.8	12.21	115.6	3.21	1.89	1.57	1.57	0.77	9.01	98.8	32.0	105.0	93.2
RR Check	RR Check	4	11.19	103.3	10.88	103.0	3.66	2.03	1.60	1.68	0.83	9.79	107.4	31.9	104.4	97.6
America's Alfalfa	AmeriStand 445NT	4	10.58	97.7	9.32	88.3	3.70	1.76	1.45	1.41	0.65	8.96	98.3	28.9	94.6	98.2
Conventional Check	Conventional Check	5	11.29	104.2	9.04	85.6	3.05	1.54	1.21	1.39	0.61	7.80	85.5	28.1	92.2	92.6
Public	Vernema	4	9.57	88.4	7.86	74.4	2.54	1.32	1.15	1.42	0.66	7.09	77.8	24.5	80.4	93.7
Public	Vernal	2	8.67	80.1	7.67	72.6	2.90	1.34	1.08	1.26	0.50	7.08	77.6	23.4	76.8	85.7
	Mean	**4.1**	**10.83**	**100.0**	**10.56**	**100.0**	**3.36**	**1.93**	**1.50**	**1.57**	**0.76**	**9.12**	**100.0**	**30.5**	**100.0**	**95.5**
	CV %		**4.6**	**4.6**	**4.7**	**4.7**	**8.6**	**11.0**	**10.9**	**7.2**	**14.4**	**7.1**	**7.1**	**4.0**	**4.0**	**5.0**
	LSD 10%		**0.60**	**5.5**	**0.60**	**5.7**	**0.35**	**0.25**	**0.20**	**0.14**	**0.13**	**0.82**	**9.0**	**1.5**	**4.8**	**5.8**

* Entered as Experimentals

Table 6. Three-Year Forage Yield - 2017 Conventional Alfalfa Variety Trial in 2020, Pasco, Franklin County, WA
Forage Yield (Ton DM/A)

Planted August 9, 2017		Fall	2018		2019		2020 Harvests							2018-2020		Percent
		Dorm.	Total	Total	Total	Total	7-May	5-Jun	6-Jul	4-Aug	11-Sep	Total	Total	3 Year Yield		Stand
Company	Entry	Rating	Tons/a	% Mean	Tons/a	% Mean	Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Tons/a	% Mean	Tons/a	% Mean	17-Sep
DuPont Pioneer	54Q29	4	13.17	105.2	9.88	105.5	3.12	2.22	1.81	2.29	1.83	11.25	109.2	34.3	106.6	97.7
S & W Seed Company	SW 5213	5	13.05	104.3	10.00	106.8	2.85	2.19	1.88	2.34	1.86	11.12	107.9	34.2	106.2	97.1
DeKalb	DKA50-17	5	13.34	106.6	9.83	105.0	2.81	2.00	1.59	2.36	1.71	10.47	101.7	33.6	104.5	98.1
Brett Young	Slingshot	5	12.47	99.6	9.88	105.5	2.83	2.12	1.79	2.62	1.83	11.20	108.7	33.5	104.2	97.5
S & W Seed Company	SW 4107	4	12.56	100.3	9.32	99.5	2.74	1.89	1.72	2.25	1.82	10.43	101.3	32.3	100.4	98.1
AgReliant Genetics	Camas	5	12.12	96.9	9.52	101.7	2.58	1.95	1.75	2.29	1.75	10.33	100.2	32.0	99.3	98.1
DeKalb	DKA44-18	4	12.88	102.9	9.01	96.2	2.62	1.65	1.62	2.14	1.77	9.80	95.1	31.7	98.5	98.7
Vernal	Vernal	2	10.54	84.2	7.48	79.8	2.51	1.00	1.14	1.85	1.31	7.82	75.9	25.8	80.3	98.7
	Mean	**4.3**	**12.52**	**100.0**	**9.36**	**100.0**	**2.76**	**1.88**	**1.66**	**2.27**	**1.74**	**10.30**	**100.0**	**32.2**	**100.0**	**98.0**
	CV %		**3.3**	**3.3**	**5.7**	**5.7**	**7.8**	**9.8**	**10.7**	**8.5**	**7.8**	**6.4**	**6.4**	**5.5**	**5.5**	**1.1**
	LSD 10%		**0.50**	**4.0**	**0.7**	**6.9**	**0.26**	**0.22**	**0.21**	**0.24**	**0.16**	**0.80**	**7.8**	**2.17**	**6.7**	**NS**

* Entered as Experimentals

Table 7. Three-Year Forage Yield - 2017 Roundup Ready Alfalfa Variety Trial in 2020, Pasco, Franklin County, WA
Forage Yield (Ton DM/A)

Planted August 9, 2017		Fall	2018 Harvests		2019 Harvests		2020 Harvests							2018-2020		Percent
		Dorm.	Total	Total	Total	Total	7-May	5-Jun	6-Jul	4-Aug	11-Sep	Total	Total	3 Year Yields		Stand
Company	Entry	Rating	Tons/a	% of Mean	Tons/a	% of Mean	Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Tons/a	% of Mean	Tons/a	% of Mean	17-Sep
DeKalb	DKA43-18RR	4	12.71	101.0	10.1	103.8	2.64	2.18	2.09	2.38	1.91	11.20	103.80	34.04	102.71	97.7
AgReliant Genetics	5R300	5	12.48	99.1	10.4	106.5	2.60	2.12	1.97	2.34	1.86	10.89	100.88	33.77	101.87	97.7
NEXGROW	6427R	4	13.06	103.8	9.8	100.7	2.73	2.15	2.12	2.12	1.76	10.87	100.74	33.76	101.87	98.2
AgReliant Genetics	4R300	4	12.49	99.2	10.0	102.7	2.45	2.06	2.00	2.31	1.81	10.63	98.51	33.16	100.03	97.9
Pioneer	54VR70	4	12.99	103.2	9.2	94.6	2.78	2.00	1.96	2.19	1.78	10.72	99.30	32.94	99.39	98.1
DeKalb	DKA50-20RR	5	12.45	98.9	9.6	98.8	2.57	2.06	1.94	2.32	1.83	10.72	99.35	32.82	99.01	98.3
Nutrien Ag. Solutions	DG 417RR	4	12.27	97.5	9.3	94.9	2.68	2.24	2.06	2.22	1.80	11.00	101.92	32.54	98.17	98.9
DeKalb	DKA44-16RR	4	12.27	97.4	9.6	98.0	2.42	1.97	1.97	2.18	1.75	10.31	95.49	32.14	96.96	98.6
	Mean	**4.25**	**12.59**	**100.0**	**9.8**	**100.0**	**2.61**	**2.10**	**2.01**	**2.26**	**1.81**	**10.79**	**100.00**	**33.15**	**100.00**	**98.2**
	CV %		**3.29**	**3.29**	**2.9**	**2.9**	**6.0**	**6.4**	**5.2**	**4.0**	**4.9**	**3.9**	**3.9**	**2.5**	**2.5**	**1.2**
	LSD 10%		**0.5**	**4.0**	**0.4**	**3.6**	**0.19**	**NS**	**NS**	**0.11**	**NS**	**NS**	**NS**	**1.00**	**3.02**	**1.3**

Table 8. Two-Year Forage Yield - 2018 Alfalfa Variety Trial in 2020, Othello, Adams County, WA

Planted August 8, 2018		Fall	2019	2020 Harvests						Total 2019-2020		2020 Fall
		Dorm.	Total	20-May	17-Jun	16-Jul	12-Aug	Total	Total	Total	Total	14-Oct
Company	Entry	Rating	% Mean	Cut 1	Cut 2	Cut 3	Cut 4	Tons/a	% Mean	Tons/a	% Mean	Regrowth
Alforex Seeds	AFX 155025*	5	109.3	3.32	2.19	1.54	1.51	8.56	110.3	18.88	109.8	4.5
Alforex Seeds	CW A125023*	4	108.0	3.22	2.37	1.54	1.42	8.55	110.2	18.74	109.0	5.0
Nutrien Ag Solutions	DG5315	5	108.2	3.24	2.17	1.45	1.45	8.31	107.1	18.53	107.7	5.0
S&W Seed Company	SW 5207	5	108.1	3.48	2.02	1.32	1.30	8.11	104.6	18.32	106.5	4.0
Brett Young	BYS 5028	5	105.3	3.38	2.01	1.44	1.35	8.18	105.5	18.12	105.4	4.5
Alforex Seeds	AFX 134014*	4	100.6	3.18	2.13	1.48	1.35	8.15	105.1	17.64	102.6	4.0
S&W Seed Company	SW 5213	5	103.4	3.15	1.93	1.37	1.30	7.74	99.9	17.51	101.8	4.5
America's Alfalfa	Ameristand 427TQ	4	98.8	3.31	2.07	1.28	1.40	8.06	103.9	17.39	101.1	3.8
Nutrien Ag Solutions	Dyna-Gro Exp. #1	4	99.2	3.26	1.88	1.30	1.29	7.73	99.7	17.10	99.4	4.8
Blue River Hybrids	Skylark	4	99.1	3.20	1.76	1.20	1.26	7.43	95.7	16.78	97.6	3.8
Alforex Seeds	Magnum 8	4	96.3	3.21	1.79	1.21	1.36	7.58	97.7	16.67	96.9	3.0
America's Alfalfa	Ameristand 445NT	4	95.4	3.36	1.76	1.22	1.29	7.63	98.4	16.64	96.7	3.5
Blue River Hybrids	Swift	4	97.1	3.07	1.89	1.12	1.29	7.37	95.0	16.54	96.2	4.3
Conv. Industry	Check	4	93.4	3.07	1.58	1.03	1.12	6.80	87.6	15.61	90.8	3.3
Conv. Check	Vernal	2	78.0	2.78	1.23	0.99	1.14	6.14	79.2	13.50	78.5	2.3
Mean		**4.2**	**100.0**	**3.22**	**1.92**	**1.30**	**1.32**	**7.76**	**100.0**	**17.20**	**100.0**	**4.0**
CV %			**3.9**	**6.7**	**8.0**	**8.0**	**8.1**	**5.4**	**5.4**	**4.1**	**4.1**	**15.4**
LSD 10%			**4.7**	**0.26**	**0.18**	**0.12**	**0.13**	**0.50**	**6.4**	**0.83**	**4.8**	**0.7**

* Entered as Experimentals

Table 9. Two-Year Forage Yield - 2018 Conventional Alfalfa Variety Trial in 2020, Pasco, Franklin County, WA
Forage Yield (Ton DM/A)

Planted August 9, 2018		Fall	2019		2020 Harvests							2019 & 2020		2019 Fall
		Dorm.	Total	Total	7-May	5-Jun	6-Jul	4-Aug	11-Sep	Total	Total	Total	Total	17-Sep
Company	Entry	Rating	Tons/a	% Mean	Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Tons/a	% Mean	Tons/a	% Mean	Regrowth
W-L Research	WL349HQ	4	10.7	106.7	2.68	2.25	1.92	2.24	1.83	10.93	106.8	21.7	106.7	5.0
Nutrien Ag Solutions	DG5315	5	10.6	105.6	2.75	2.21	1.89	2.25	1.81	10.91	106.6	21.6	106.1	5.0
S&W Seed Company	SW 5213	5	10.4	102.9	2.79	2.27	1.93	2.25	1.78	11.01	107.6	21.4	105.3	4.8
DeKalb	DKA50-17	5	10.4	103.5	2.95	2.14	1.87	2.07	1.63	10.67	104.3	21.1	103.9	4.3
Brett Young	BYS 5028	5	10.3	102.0	2.87	2.26	1.79	2.07	1.69	10.67	104.3	21.0	103.2	5.0
Blue River Hybrids	Finch	5	10.0	99.4	2.91	2.18	1.82	2.11	1.70	10.71	104.7	20.7	102.1	4.3
Nutrien Ag Solutions	Dyna-Gro Exp.#1*	4	10.4	102.8	2.80	1.99	1.65	2.02	1.63	10.09	98.6	20.4	100.7	4.5
S&W Seed Company	SW 5207	5	10.1	100.2	2.83	2.07	1.74	2.04	1.64	10.32	100.9	20.4	100.6	4.0
DeKalb	DKA40-16	4	10.1	100.1	2.74	1.96	1.73	2.03	1.69	10.15	99.2	20.2	99.7	4.5
DeKalb	DKA44-18	4	10.1	99.9	2.72	1.98	1.74	2.07	1.62	10.13	99.0	20.2	99.4	4.8
Blue River Hybrids	Robin	5	10.0	99.3	2.88	1.93	1.71	1.94	1.67	10.14	99.1	20.1	99.2	4.3
Blue River Hybrids	Quail	5	10.0	99.2	2.79	1.85	1.63	1.97	1.63	9.88	96.5	19.9	97.9	4.0
DuPont Pioneer	54Q29	4	9.7	96.2	2.47	2.15	1.85	1.95	1.64	10.06	98.4	19.8	97.3	5.0
Conv. Check	Vernal	2	8.3	82.2	2.62	1.26	1.17	1.40	1.12	7.56	73.9	15.8	78.0	2.0
	Mean	**4.4**	**10.1**	**100.0**	**2.77**	**2.04**	**1.75**	**2.03**	**1.65**	**10.23**	**100.0**	**20.3**	**100.0**	**4.4**
	CV %		**4.0**	**4.0**	**7.0**	**4.6**	**5.4**	**6.4**	**7.2**	**4.9**	**4.9**	**4.1**	**4.1**	**11.4**
	LSD 10%		**0.49**	**4.86**	**0.23**	**0.11**	**0.11**	**0.15**	**0.14**	**0.60**	**5.9**	**1.0**	**4.9**	**0.6**

* Entered as Experimentals

Table 10. Two-Year Forage Yield - 2018 Roundup Ready Alfalfa Variety Trial in 2020, Pasco, Franklin County, WA
Forage Yield (Ton DM/A)

Planted August 9, 2016		Fall	2019		2020 Harvests							2019 & 2020		2019 Fall
		Dorm.	Total	Total	7-May	5-Jun	6-Jul	4-Aug	11-Sep	Total	Total	Total	Total	17-Sep
Company	Entry	Rating	Tons/a	% of Mean	Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Tons/a	% of Mean	Tons/a	% of Mean	Regrowth
Allied Seed	438RR	4	10.3	100.9	2.62	2.10	1.90	2.02	1.66	10.29	103.3	20.55	102.1	5.0
DeKalb	DKA43-18RR	4	10.2	99.9	2.60	2.11	1.91	1.98	1.62	10.23	102.7	20.39	101.3	5.0
Nutrien	DG417RR	4	10.3	101.4	2.52	2.10	1.93	1.93	1.58	10.06	101.0	20.37	101.2	4.8
DeKalb	DKA44-16 RR	4	10.4	102.0	2.54	2.06	1.80	1.92	1.51	9.83	98.6	20.20	100.3	4.5
DeKalb	DKA40-21HVXRR	4	10.0	98.7	2.51	1.98	1.82	1.91	1.57	9.79	98.3	19.83	98.5	4.0
	RR Check	4	9.9	97.1	2.56	1.94	1.78	1.81	1.49	9.58	96.1	19.45	96.6	4.8
	Mean	**4.0**	**10.2**	**100.0**	**2.56**	**2.05**	**1.86**	**1.93**	**1.57**	**9.97**	**100.0**	**20.1**	**100.0**	**4.7**
	CV %		**3.0**	**3.0**	**5.3**	**3.5**	**2.7**	**4.4**	**3.4**	**3.0**	**3.0**	**2.4**	**2.4**	**7.5**
	LSD 10%		**NS**	**NS**	**NS**	**0.08**	**0.06**	**0.10**	**0.07**	**0.37**	**3.7**	**0.59**	**2.9**	**0.4**

Table 11. One-Year Forage Yield - 2019 Alfalfa Variety Trial, Othello in 2020, Adams County, WA
Forage Yield (Ton DM/A)

Planted August 10, 2019		Fall	2020 Harvests						2020 Fall
		Dorm.	26-May	22-Jun	20-Jul	20-Aug	Total	Total	14-Oct
Company	Entry	Rating	Cut 1	Cut 2	Cut 3	Cut 4	Tons/a	% Mean	Regrowth
S & W Seed Company	SW 5210	5	4.22	2.51	1.66	1.60	9.99	108.5	4.5
Brett Young	BYS 40-14	4	4.10	2.56	1.66	1.60	9.92	107.7	4.8
Pioneer Brand	54Q29	4	4.10	2.46	1.61	1.52	9.68	105.2	4.5
Alforex Seeds	AFX154012	4	4.00	2.45	1.67	1.55	9.67	105.0	4.0
Simplot Growers Solution	SGS 47M	4	3.96	2.47	1.63	1.56	9.62	104.5	4.0
Alforex Seeds	AFX164048	4	4.05	2.42	1.54	1.57	9.59	104.1	3.8
Farmers Business Network	F2F6C-418	4	4.31	2.19	1.47	1.54	9.51	103.3	3.5
Alforex Seeds	HybriForce-3600	6	4.05	2.20	1.59	1.67	9.50	103.2	4.8
W-L Research	WL 349HQ	4	3.75	2.43	1.62	1.69	9.49	103.1	4.8
S & W Seed Company	SW 5213	5	3.98	2.44	1.54	1.48	9.44	102.5	4.5
DeKalb	DKA44-18	4	3.86	2.20	1.59	1.59	9.24	100.4	4.5
Nutrien Ag Solutions	Dyna-Gro Exp #4120	4	3.59	2.46	1.64	1.53	9.23	100.3	4.3
Conv. Check	Check 1	4	4.00	2.27	1.43	1.45	9.14	99.3	3.5
W-L Research	WL 377HQ	5	3.90	2.32	1.45	1.47	9.14	99.2	4.8
Simplot Growers Solution	MPIII Max Q	5	4.19	2.06	1.39	1.48	9.13	99.1	3.5
Conv. Check	Pioneer 54H11	4	4.11	2.22	1.33	1.33	9.00	97.7	3.3
Brett Young	BYS-6086	6	3.90	2.11	1.34	1.51	8.86	96.2	4.5
Farmers Business Network	F2F6C-628	6	3.59	2.04	1.49	1.58	8.69	94.4	5.0
America's Alfalfa	AmeriStand 518NT	5	3.44	2.23	1.46	1.53	8.66	94.1	5.0
Forage Genetics	FG C0415SN223*	NA	3.31	2.27	1.52	1.52	8.62	93.6	4.3
Public	Vernal	2	3.35	1.47	1.06	1.33	7.21	78.3	2.0
	Mean	**4.5**	**3.89**	**2.28**	**1.51**	**1.53**	**9.21**	**100.0**	**4.2**
	CV %		**6.1**	**8.4**	**6.9**	**7.8**	**5.1**	**5.1**	**12.6**
	LSD 10%		**0.28**	**0.22**	**0.12**	**0.14**	**0.56**	**6.1**	**0.6**

* Entered as Experimentals
NA =Not Available

Table 12. One-Year Forage Yield - 2019 Conventional Alfalfa Variety Trial in 2020, Pasco, Franklin County, WA
Forage Yield (Ton DM/A)

Planted August 7, 2019		Fall	2020 Harvests							2020 Fall
		Dorm.	7-May	5-Jun	6-Jul	4-Aug	11-Sep	Total	Total	6-Oct
Company	Entry	Rating	Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Tons/a	% Mean	Regrowth
Farmers Business Network	F2F6C-418	4	3.59	1.99	1.98	2.43	2.08	12.07	109.0	4.3
Alforex Seeds	AFX164048	4	3.42	1.95	1.92	2.48	2.10	11.86	107.1	3.8
RR check1	RR check1	4	3.49	2.06	2.02	2.31	1.97	11.84	107.0	4.8
Simplot Grower Solutions	SGS 47M	4	3.26	2.05	2.04	2.44	2.03	11.82	106.7	4.3
S&W Seed Company	SW 5210	5	3.45	1.91	1.84	2.35	2.02	11.58	104.6	4.3
DeKalb	DKA44-18	4	3.33	1.93	1.98	2.24	2.01	11.48	103.7	4.8
Conv. Check 2	Conv. Check 2	4	3.34	1.93	1.85	2.32	1.97	11.41	103.0	4.3
Legacy Seeds	CP5028	4.7	3.44	1.80	1.90	2.26	1.86	11.26	101.7	4.5
Legacy Seeds	CP4823	4.3	3.17	1.93	1.86	2.31	1.99	11.25	101.6	4.3
S&W Seed Company	SW 5213	5	3.26	1.74	1.75	2.30	2.01	11.06	99.9	4.5
DeKalb	DKA40-51RR	4	3.10	1.84	1.90	2.23	1.97	11.04	99.8	4.5
Conv. Check 3	Conv. Check 3	4	3.27	1.91	1.74	2.18	1.94	11.04	99.7	4.0
Farmers Business Network	F2F6C-628	6	3.18	1.80	1.88	2.25	1.87	10.99	99.2	5.0
Pioneer Brand	54Q29	4	3.19	1.76	1.82	2.31	1.88	10.97	99.1	4.5
Simplot Grower Solutions	MPIII Max Q	5	3.29	1.69	1.70	2.26	1.96	10.90	98.5	3.8
NEXGROW	6585Q	5	2.76	1.82	1.88	2.26	2.02	10.73	96.9	5.0
W-L Research	WL 349HQ	4	2.89	1.70	1.87	2.24	1.96	10.67	96.4	4.5
Conv. Check 1	Vernal	2	2.69	1.32	1.55	1.93	1.70	9.19	83.0	3.3
	Mean	**4.5**	**3.16**	**1.83**	**1.85**	**2.28**	**1.96**	**11.07**	**100.0**	**4.4**
	CV %		**8.3**	**10.5**	**6.4**	**4.7**	**6.3**	**4.8**	**4.8**	**14.7**
	LSD 10%		**0.32**	**0.23**	**0.14**	**0.13**	**0.15**	**0.64**	**5.8**	**0.8**

* Entered as Experimentals

Table 13. One-Year Forage Yield - 2018 Roundup Ready Alfalfa Variety Trial in 2020, Pasco, Franklin County, WA
Forage Yield (Ton DM/A)

Planted August 7, 2019		Fall	2020 Harvests							2020 Fall
		Dorm.	7-May	5-Jun	6-Jul	4-Aug	11-Sep	Total	Total	6-Oct
Company	Entry	Rating	Cut 1	Cut 2	Cut 3	Cut 4	Cut 5	Tons/a	% Mean	Regrowth
DeKalb	DKA43-18RR	4.3	3.49	2.05	2.09	2.44	2.17	12.07	107.4	4.3
RR check1	RR check1	4	3.25	1.71	1.90	2.33	2.07	11.86	105.6	3.8
Simplot Grower Solutions	NG6547R	5	3.31	2.09	1.95	2.42	2.08	11.82	105.2	4.3
NEXGROW	6527R.ST	5	2.76	1.35	1.89	2.18	1.98	11.58	103.0	4.3
America's Alfalfa	AmeriStand 455TQ RR	4	2.89	1.77	1.89	2.24	1.99	11.48	102.2	4.8
Pioneer Brand	54VR70	4	3.21	1.98	1.99	2.37	2.08	11.06	98.4	4.5
DeKalb	DKA44-16RR	4.4	3.19	2.06	2.06	2.44	2.06	10.99	97.8	5.0
America's Alfalfa	AmeriStand 545NT RR	5	2.86	1.70	1.83	2.36	2.01	10.97	97.7	5.0
DeKalb	DKA40-21HVXRR	4	3.11	1.83	1.94	2.25	2.00	10.97	97.7	4.5
Simplot Grower Solutions	NG6424R	5	3.23	1.83	1.95	2.30	2.07	10.90	97.0	3.8
DeKalb	DKA50-20RR	4.9	3.36	1.99	1.99	2.33	2.02	10.67	95.0	4.5
America's Alfalfa	AmeriStand 481 HVXRR	4	2.65	1.69	1.85	2.20	1.83	10.46	93.1	4.8
	Mean	**4.5**	**3.11**	**1.84**	**1.94**	**2.32**	**2.03**	**11.24**	**100.0**	**4.4**
	CV %		**8.0**	**11.5**	**5.9**	**4.7**	**5.1**	**5.1**	**5.1**	**16.4**
	LSD 10%			**0.30**	**0.14**	**0.13**	**0.12**	**0.69**	**6.1**	**NS**

Table 14. Forage Quality Constituents and Hay Value per Ton - First Cutting 2017 Alfalfa Variety Trial in 2020, Othello, Adams County, WA

Planted August 10, 2017

Company	Entry	Rating	Protein Content	Amylase Neutral Deterg. Fiber (aNDF)	Ash Content	Fat Content	Lignin Content	Non-fibrous Charbohydrates (NFC)	Net Energy Lactation NEL (Method NRC 2001)	Neutral Deterg. Fiber Digestab. (NDFD 48.)	Total Value of Hay per Ton @ 12% Moist. [1,2,3]
			%	%	%	%	%	%	Mcal/lb	%	$/ton
Alforex Seeds	CW 104014*	4	19.0	36.3	9.94	1.86	5.99	34.8	0.597	49.1	258
Blue River Hybrids	Quail 5	5	19.5	36.8	9.84	1.83	6.20	33.9	0.593	50.0	256
America's Alfalfa	AmeriStand 445NT	4	19.8	37.3	9.52	1.87	6.20	33.4	0.598	49.4	256
America's Alfalfa	AmeriStand 318TQ	3	19.5	37.6	9.55	1.73	6.39	33.6	0.589	48.1	253
Public	Vernema	4	19.0	38.6	9.41	1.76	6.47	33.1	0.584	46.6	246
Alforex Seeds	AFX 460* (CW A113005)	4	18.4	38.4	9.77	1.78	6.57	33.5	0.577	47.3	243
Public	Vernal	2	18.8	39.6	9.32	1.74	6.57	32.4	0.579	47.5	240
Brett Young	Slingshot	5	18.2	40.3	9.99	1.67	6.83	31.9	0.560	47.5	231
	Mean	**3.9**	**19.0**	**38.1**	**9.67**	**1.78**	**6.40**	**33.3**	**0.585**	**48.2**	**248**
	CV %		**4.4**	**5.8**	**5.0**	**6.1**	**6.3**	**3.9**	**2.6**	**4.7**	**5.6**
	LSD 10%		**1.0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0.180**	**NS**	**NS**

* Entered as Experimentals

[1] Calculated at $0.353/ lb of Metabolizable Protein; $0.113/lb of Mcal of energy, $0.06 lb of effective NDF and $-0.076 lb for ineffective fiber. (assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber, $5.00 increase or decrease of value of hay for every point below or above and aNDF 44%, respectively.

[3] Total Value of Hay per Ton @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

Table 15. Forage Quality Estimates RFV, RFQ,Value per Ton of Protein, Energy, Fiber, Adjustment for Cow Intake and Total Value per Ton As Fed From First Cutting of 2017 Alfalfa Variety Trial in 2020, Othello, Adams County, WA

Planted August 10, 2017

Company	Entry	Rating	Relative Feed Value (RFV)	Relative Feed Quality (RFQ)	Value of Metabolizable Protein (@ 55% of C. Protein) per Ton[1]	Value of Energy (MegaCalories) per Ton[1]	Value of NDF Fiber per Ton[1]	Adj. For Feed Intake per Ton[2]	Total Value of Hay per Ton @ 12% Moisture[3]
			Units	%	$/ton	$/ton	$/ton	$/ton	$/ton
Alforex Seeds	CW 104014*	4	164	178	65	119	35	38	258
Blue River Hybrids	Quail 5	5	160	176	67	118	36	36	256
America's Alfalfa	AmeriStand 445NT	4	157	173	68	119	36	33	256
America's Alfalfa	AmeriStand 318TQ	3	157	169	67	117	36	32	253
Public	Vernema	4	150	159	65	116	37	27	246
Alforex Seeds	AFX 460* (CW A113005)	4	153	162	63	115	37	28	243
Public	Vernal	2	145	156	64	115	38	22	240
Brett Young	Slingshot	5	141	152	62	111	39	18	231
	Mean	**3.9**	**153**	**165**	**65**	**116**	**37**	**29**	**248**
	CV %		**8.2**	**9.3**	**4.4**	**2.6**	**5.8**	**37.4**	**5.6**
	LSD 10%		**NS**	**NS**	**NS**	**4**	**NS**	**NS**	**NS**

* Entered as Experimentals

[1] Calculated at $0.353/ lb of Metabolizable Protein; $0.113/lb of Mcal of energy, $0.06 lb of effective NDF and $-0.076 lb for ineffective fiber.
(assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber, $5.00 increase or decrease of value of hay for every point below or above and aNDF 44%, respectively.

[3] Total Value of Hay per Ton @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

Table 16. Alfalfa Yield,Value per Ton of Protein, Energy, Fiber, Adjustment for Cow Intake, Total Value per Ton and per Acre As Fed From of 2017 Trial in 2020 and Average 2018 - 2020, Alfalfa Variety Trial, Othello, Adams County, WA

Planted August 10, 2017

Company	Entry	Rating	1st Cut Yield (12% Moisture)	Value of Metabol. Protein (@ 55% of C. Protein) per Acre[1]	Value of Energy (MegaCalories) per Acre[1]	Value of NDF Fiber per Acre[1]	Adjust. For feed intake per Acre[2]	Nutrient Value of Hay (@ 12% Moisture) per Acre[3]	Total Value of Hay per Ton @ 12% Moisture[3]	2017-2020 Total Value of Hay per Ton @ 12% Moisture[3,4]	2017-2020 Avg. Nutrient Value of Hay (@ 12% Moisture) per Acre[3,4]
			Tons/acre	$/acre	$/acre	$/acre	$/acre	$/acre	$/ton	$/ton	$/acre
America's Alfalfa	AmeriStand 318TQ	3	4.10	273	480	151	127	1030	253	247	2,687
Blue River Hybrids	Quail 5	5	4.07	272	481	146	145	1043	256	250	2,667
Brett Young	Slingshot	5	4.06	252	453	159	74	938	231	240	2,587
America's Alfalfa	AmeriStand 445NT	4	4.20	285	499	152	140	1076	256	254	2,559
Alforex Seeds	CW 104014*	4	3.65	238	435	128	143	945	258	255	2,557
Alforex Seeds	AFX 460* (CW A113005)	4	3.90	246	448	145	110	949	243	253	2,553
Public	Vernal	2	3.30	214	381	126	75	796	240	244	1,837
Public	Vernema	4	2.89	188	336	108	77	709	246	248	1,780
	Mean	**3.9**	**3.77**	**246**	**439**	**139**	**111**	**936**	**248**	**249**	**2403**
	CV %		**9.6**	**10.5**	**9.8**	**11.2**	**39.1**	**11.2**	**5.6**	**2.3**	**6.3**
	LSD 10%		**0.44**	**31**	**52**	**19**	**53**	**127**	**NS**	**7**	**184**

* Entered as Experimentals

[1] Calculated at $0.353/ lb of Metabolizable Protein; $0.113/lb of Mcal of energy, $0.06 lb of effective NDF and $-0.076 lb for ineffective fiber. (assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber, $5.00 increase or decrease of value of hay for every point below or above and aNDF 44%, respectively.

[3] Total Value of Hay @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

[4] Sum of first cutting in 2018, 2020 and second cutting 2019. In 2018 valued nutrients at $0.438/ lb of Metabolizable Protein; $0.099/lb of Mcal of energy, $0.06 lb of effective NDF and $-0.077 lb for ineffective fiber.
In 2019 valued nutrients at $0.35/ lb of Metabolizable Protein; $0.11/lb of Mcal of energy, $0.07 lb of effective NDF and $-0.08 lb for ineffective fiber.

Table 17. Forage Quality Constituants and Hay Value per Ton - First Cutting 2017 Conventional Alfalfa Variety Trial in 2020, Pasco, Franklin County, WA

Planted August 9, 2017			Protein Content	Amylase Neutral Deterg. Fiber (aNDF)	Ash Content	Fat Content	Lignin Content	Non-fibrous Charbohydrates (NFC)	Net Energy Lactation NEL (Method NRC 2001)	Neutral Deterg. Fiber Digestab. (NDFD 48.)	Total Value of Hay per Ton @ 12% Moisture[1]
Company	**Entry**	**Rating**	**%**	**%**	**%**	**%**	**%**	**%**	**Mcal/lb**	**%**	**$/ton**
AgReliant Genetics	Camas	4	23.0	30.2	10.20	1.95	5.19	37.0	0.647	53.0	306
DeKalb	DKA50-17	5	22.4	31.4	10.36	1.88	5.40	36.2	0.633	53.3	296
Brett Young	Slingshot	5	22.3	32.1	10.37	1.88	5.59	35.6	0.627	52.6	292
DeKalb	DKA44-18	4	22.2	32.6	10.07	1.87	5.77	35.5	0.626	52.6	289
Public	Vernal	2	20.9	35.0	9.75	1.76	5.91	34.6	0.610	51.2	272
	Mean	**4.0**	**22.2**	**32.3**	**10.15**	**1.87**	**5.57**	**35.8**	**0.629**	**52.5**	**291**
	CV %		**3.9**	**4.8**	**2.5**	**4.6**	**4.8**	**2.7**	**2.1**	**3.6**	**3.9**
	LSD 10%		**1.1**	**2.0**	**0.32**	**1.11**	**0.34**	**1.2**	**0.017**	**NS**	**14**

* Entered as Experimentals

[1] Calculated at $0.35/ lb of Metabolizable Protein; $0.11/lb of Mcal of energy, $0.07 lb of effective NDF and $-0.08 lb for ineffective fiber (assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber, $5.00 increase or decrease of value of hay for every point below or above and aNDF 44%, respectively.

[3] Total Value of Hay @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

Table 18. Forage Quality Estimates RFV, RFQ,Value per Ton of Protein, Energy, Fiber, Adjustment for Cow Intake and Total Value per Ton As Fed From First Cutting of 2017 Conv. Alfalfa Variety Trial in 2020, Pasco, Franklin County, WA

Planted August 9, 2017		**Fall Dorm.**	**Relative Feed Value (RFV)**	**Relative Feed Quality (RFQ)**	**Value of Metabolizable Protein (@ 55% of C. Protein) per Ton[1]**	**Value of Energy (MegaCalories) per Ton[1]**	**Value of NDF Fiber per Ton[1]**	**Adj. For Feed Intake per Ton[2]**	**Total Value of Hay per Ton @ 12% Moisture[3]**
Company	**Entry**	**Rating**	**Units**	**%**	**$/ton**	**$/ton**	**$/ton**	**$/ton**	**$/ton**
AgReliant Genetics	Camas	4	210	231	79	129	29	69	306
DeKalb	DKA50-17	5	200	221	76	126	30	63	296
Brett Young	Slingshot	5	194	213	76	125	31	59	292
DeKalb	DKA44-18	4	190	211	76	125	32	57	289
Public	Vernal	2	173	190	72	122	34	45	272
	Mean	**4.0**	**194**	**213**	**76**	**125**	**31**	**59**	**291**
	CV %		**6.4**	**7.5**	**3.9**	**2.1**	**4.8**	**13.2**	**3.9**
	LSD 10%		**16**	**20**	**4**	**3**	**2**	**10**	**14**

* Entered as Experimentals

[1] Calculated at $0.35/ lb of Metabolizable Protein; $0.11/lb of Mcal of energy, $0.07 lb of effective NDF and $-0.08 lb for ineffective fiber (assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber, $5.00 increase or decrease of value of hay for every point below or above and aNDF 44%, respectively.

[3] Total Value of Hay @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

Table 19. Alfalfa Yield,Value per Ton of Protein, Energy, Fiber, Adjustment for Cow Intake, Total Value per Ton and per Acre As Fed From First Cutting of Conventional 2017 Alfalfa Variety Trial in 2020, Pasco, Franklin County, WA

Planted August 9, 2017

Company	Entry	Rating	First Cut Dry Matter Yield	Value of Metabol. Protein (@ 55% of C. Protein) per Acre[1]	Value of Energy (MegaCalories) per Acre[1]	Value of NDF Fiber per Acre[1]	Adjust. For feed intake per Acre[2]	2020 Nutrient Value of Hay (@ 12% Moisture) per Acre[3]	2020Total Value of Hay per Ton @ 12% Moisture[3]	2018-2020 Two Year Total Value of Hay per Ton @ 12% Moisture[3,4]	2018-2020 Avg. Nutrient Value of Hay (@ 12% Moisture) per Acre[3,4]
			Tons/acre	$/acre	$/acre	$/acre	$/acre	$/acre	$/ton	$/ton	$/acre
AgReliant Genetics	Camas	4	2.94	231	378	86	203	899	306	2323	285
DeKalb	DKA50-17	5	2.98	228	376	91	187	881	296	2473	278
Brett Young	Slingshot	5	3.22	246	402	100	192	939	292	2354	273
DeKalb	DKA44-18	4	3.19	242	397	101	181	921	289	2448	267
Public	Vernal	2	2.85	205	347	97	129	778	272	2222	262
	Mean	**4.0**	**3.04**	**230**	**380**	**95**	**178**	**884**	**291**	**2364**	**273**
	CV %		**5.2**	**6.1**	**5.6**	**7.2**	**13.7**	**6.3**	**3.9**	**2.1**	**6.1**
	LSD 10%		**0.20**	**18**	**27**	**9**	**31**	**70**	**14**	**7**	**NS**

* Entered as Experimentals

[1] Calculated at $0.35/ lb of Metabolizable Protein; $0.11/lb of Mcal of energy, $0.07 lb of effective NDF and $-0.08 lb for ineffective fiber (assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber, $5.00 increase or decrease of value of hay for every point below or above and aNDF 44%, respectively.

[3] Total Value of Hay @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

[4] Sum of first cutting in 2018 and second cutting 2019. In 2018 valued nutrients at $0.438/ lb of Metabolizable Protein; $0.099/lb of Mcal of energy, $0.06 lb of effective NDF and $-0.077 lb for ineffective fiber.

Table 20. Forage Quality Constituents and Hay Value per Ton - First Cutting 2017 Roundup-Ready Alfalfa Variety Trial in 2020, Pasco, Franklin County, WA

Planted August 9, 2017			Protein Content	Ash Free Neutral Deterg. Fiber (aNDF)	Ash Content	Fat Content	Lignin Content	Non-fibrous Charbohydrates (NFC)	Net Energy Lactation NEL (Method NRC 2001)	Neutral Deterg. Fiber Digestab. (NDFD 48.)	Total Value of Hay per Ton @ 12% Moisture[1]
Company	**Entry**	**Rating**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**$/ton**
DeKalb	DKA50-20RR	5	23.0	31.3	10.5	1.87	5.59	35.669	0.631	53.9	298
AgReliant Genetics	5R300	5	22.5	31.4	10.5	1.85	5.57	36.078	0.629	53.5	296
AgReliant Genetics	4R300	4	23.0	32.4	10.5	1.82	5.72	34.607	0.623	52.8	292
Nutrien	DG 417RR	4	22.4	32.0	10.6	1.90	5.69	35.262	0.624	53.3	292
DeKalb	DKA43-18RR	4	22.1	33.2	10.6	1.83	5.82	34.488	0.615	53.1	284
	Mean	**4.4**	**22.6**	**32.1**	**10.5**	**1.85**	**5.68**	**35.221**	**0.624**	**53.3**	**292**
	CV %		**3.9**	**4.4**	**2.2**	**4.7**	**3.8**	**2.4**	**2.2**	**4.1**	**3.8**
	LSD 10%		**NS**	**NS**	**NS**	**NS**	**NS**	**1.1**	**NS**	**NS**	**NS**

* Entered as Experimentals

[1] Calculated at $0.353/ lb of Metabolizable Protein; $0.113/lb of Mcal of energy, $0.06 lb of effective NDF and $-0.076 lb for ineffective fiber. (assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber, $5.00 increase or decrease of value of hay for every point below or above and aNDF 44%, respectively.

[3] Total Value of Hay per Ton @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

Table 21. Forage Quality Estimates RFV, RFQ,Value per Ton of Protein, Energy, Fiber, Adjustment for Cow Intake and Total Value per Ton As Fed From First Cutting of 2017 Conv. Alfalfa Variety Trial, Pasco, Franklin County, WA

Planted August 9, 2017			**Relative Feed Value (RFV)**	**Relative Feed Quality (RFQ)**	**Value of Metabolizable Protein (@ 55% of C. Protein) per Ton[1]**	**Value of Energy (MegaCalories) per Ton[1]**	**Value of NDF Fiber per Ton[1]**	**Adj. For Feed Intake per Ton[2]**	**Total Value of Hay per Ton @ 12% Moisture[3]**
Company	**Entry**	**Rating**	**Units**	**%**	**$/ton**	**$/ton**	**$/ton**	**$/ton**	**$/ton**
DeKalb	DKA50-20RR	5	200	223	79	126	30	63	298
AgReliant Genetics	5R300	5	200	221	77	125	30	63	296
AgReliant Genetics	4R300	4	192	214	79	124	31	58	292
Nutrien	DG 417RR	4	193	215	77	124	31	60	292
DeKalb	DKA43-18RR	4	185	205	76	122	32	54	284
	Mean	**4.4**	**194**	**215**	**77**	**124**	**31**	**60**	**292**
	CV %		**5.7**	**7.6**	**3.9**	**2.2**	**4.4**	**11.9**	**3.8**
	LSD 10%		**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**

* Entered as Experimentals

[1] Calculated at $0.353/ lb of Metabolizable Protein; $0.113/lb of Mcal of energy, $0.06 lb of effective NDF and $-0.076 lb for ineffective fiber. (assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber, $5.00 increase or decrease of value of hay for every point below or above and aNDF 44%, respectively.

[3] Total Value of Hay per Ton @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

Table 22. Alfalfa Yield,Value per Ton of Protein, Energy, Fiber, Adjustment for Cow Intake, Total Value per Ton and per Acre As Fed From First Cutting of Conventional 2017 Alfalfa Variety Trial in 2020 and Average 2018-2020, Pasco, Franklin County, WA

Planted August 9, 2017			First Cut Dry Matter Yield	Value of Metabol. Protein (@ 55% of C. Protein) per Acre[1]	Value of Energy (MegaCalories) per Acre[1]	Value of NDF Fiber per Acre[1]	Adjust. For feed intake per Acre[2]	Nutrient Value of Hay (@ 12% Moisture) per Acre[3]	Total Value of Hay per Ton @ 12% Moisture[3]	2018-2020 Year Total Value of Hay per Ton @ 12% Moisture[3,4]	2018-2020 Avg. Nutrient Value of Hay (@ 12% Moisture) per Acre[3,4]
Company	**Entry**	**Rating**	**Tons/acre**	**$/acre**	**$/acre**	**$/acre**	**$/acre**	**$/acre**	**$/ton**	**$/ton**	**$/acre**
DeKalb	DKA43-18RR	4	3.00	227	367	97	162	852	284	286	2713
AgReliant Genetics	4R300	4	2.79	219	346	87	163	816	292	301	2677
AgReliant Genetics	5R300	5	2.95	227	370	90	187	873	296	303	2589
Nutrien	DG 417RR	4	2.75	211	342	86	165	804	292	295	2578
DeKalb	DKA50-20RR	5	2.92	230	367	88	186	872	298	296	2514
	Mean	**4.4**	**2.88**	**223**	**359**	**90**	**173**	**843**	**292**	**296**	**2614**
	CV %		**5.1**	**7.5**	**6.7**	**4.4**	**15.5**	**7.9**	**3.8**	**2.1**	**4.7**
	LSD 10%		**NS**	**NS**	**NS**	**5**	**NS**	**NS**	**NS**	**8.1**	**NS**

* Entered as Experimentals

[1] Calculated at $0.353/ lb of Metabolizable Protein; $0.113/lb of Mcal of energy, $0.06 lb of effective NDF and $-0.076 lb for ineffective fiber.
(assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber, $5.00 increase or decrease of value of hay for every point below or above and aNDF 44%, respectively.

[3] Total Value of Hay @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

[4] Sum of first cutting in 2018, 2020 and second cutting 2019. In 2018 valued nutrients at $0.438/ lb of Metabolizable Protein; $0.099/lb of Mcal of energy, $0.06 lb of effective NDF and $-0.077 lb for ineffective fiber.
In 2019 valued nutrients at $0.35/ lb of Metabolizable Protein; $0.11/lb of Mcal of energy, $0.07 lb of effective NDF and $-0.08 lb for ineffective fiber.

Table 23. Forage Quality Constituants and Hay Value per Ton - First Cutting 2019 Alfalfa Variety Trial in 2020, Othello, Adams County, WA

Planted August 10, 2019			Protein Content	Amylase Neutral Deterg. Fiber (aNDF)	Ash Content	Fat Content	Lignin Content	Non-fibrous Charbohydrates (NFC)	Net Energy Lactation NEL (Method NRC 2001)	Neutral Deterg. Fiber Digestab. (NDFD 48.)	Total Value of Hay per Ton @ 12% Moist. [1,2,3]
Company	**Entry**	**Rating**	**%**	**%**	**%**	**%**	**%**	**%**	**Mcal/lb**	**%**	**$/ton**
Public	Vernal	2	20.0	42.6	9.60	1.57	7.06	29.2	0.556	53.2	272
Farmers Business Network	F2F6C-418	4	18.9	40.6	9.68	1.66	6.64	31.9	0.568	50.0	252
Simplot Growers Solution	SGS 47M	4	19.3	38.9	9.63	1.73	6.69	33.2	0.578	49.8	252
Farmers Business Network	F2F6C-628	6	18.9	41.1	9.45	1.66	6.78	31.7	0.566	49.2	248
DeKalb	DKA44-18	4	19.1	40.6	9.23	1.67	6.97	32.2	0.569	49.1	248
Simplot Growers Solution	MPIII Max Q	5	19.0	41.2	9.32	1.64	6.81	31.7	0.567	49.0	248
	Mean	**4.2**	**19.2**	**40.9**	**9.49**	**1.65**	**6.83**	**31.7**	**0.567**	**50.1**	**253**
	CV %		**4.0**	**4.2**	**5.0**	**6.1**	**4.3**	**5.6**	**2.0**	**4.5**	**5.2**
	LSD 10%		**NS**	**NS**	**NS**	**NS**	**NS**	**2.2**	**NS**	**NS**	**NS**

[1] Calculated at $0.33/ lb of Metabolizable Protein; $0.12/lb of Mcal of energy, $0.08 lb of effective NDF and $-0.08 lb for ineffective fiber (assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $5.00 increase or decrease of value of hay for every point below or above and NDFD 47%, respectively.

[3] Total Value of Hay per Ton @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

Table 24. Forage Quality Estimates RFV, RFQ,Value per Ton of Protein, Energy, Fiber, Adjustment for Cow Intake and Total Value per Ton As Fed From First Cutting of 2019 Alfalfa Variety Trial in 2020, Othello, Adams County, WA

Planted August 10, 2019

Company	Entry	Rating	Relative Feed Value (RFV)	Relative Feed Quality (RFQ)	Value of Metabolizable Protein (@ 55% of C. Protein) per Ton[1]	Value of Energy (MegaCalories) per Ton[1]	Value of NDF Fiber per Ton[1]	Adj. For Feed Intake per Ton[2]	Total Value of Hay per Ton @ 12% Moisture[3]
			Units	%	$/ton	$/ton	$/ton	$/ton	$/ton
Public	Vernal	2	131	160	64	115	62	31	272
Simplot Growers Solution	MPIII Max Q	5	138	158	61	117	60	10	248
Farmers Business Network	F2F6C-628	6	139	159	60	117	60	11	248
DeKalb	DKA44-18	4	141	161	61	117	59	10	248
Farmers Business Network	F2F6C-418	4	141	162	61	117	59	15	252
Simplot Growers Solution	SGS 47M	4	150	171	62	119	57	14	252
Mean		**4.2**	**140**	**162**	**61**	**117**	**59**	**15**	**253**
CV %			**5.8**	**5.8**	**4.0**	**2.0**	**4.2**	**74.1**	**5.2**
LSD 10%			**10**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**

[1] Calculated at $0.33/ lb of Metabolizable Protein; $0.12/lb of Mcal of energy, $0.08 lb of effective NDF and $-0.08 lb for ineffective fiber (assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $5.00 increase or decrease of value of hay for every point below or above and NDFD 47%, respectively.

[3] Total Value of Hay per Ton @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

Table 25. Alfalfa Yield,Value per Ton of Protein, Energy, Fiber, Adjustment for Cow Intake, Total Value per Ton and per Acre As Fed From of 2019 Trial in 2020 - Alfalfa Variety Trial, Othello, Adams County, WA

Planted August 10, 2019			**2nd Cut Yield (12% Moisture)**	**Value of Metabol. Protein (@ 55% of C. Protein) per Acre[1]**	**Value of Energy (MegaCalories) per Acre[1]**	**Value of NDF Fiber per Acre[1]**	**Adjust. For feed intake per Acre[2]**	**Nutrient Value of Hay (@ 12% Moisture) per Acre[3]**	**Total Value of Hay per Ton @ 12% Moisture[3]**
Company	**Entry**	**Rating**	**Tons/acre**	**$/acre**	**$/acre**	**$/acre**	**$/acre**	**$/acre**	**$/ton**
Farmers Business Network	F2F6C-418	4	4.89	297	573	290	77	1236	248
Simplot Growers Solution	MPIII Max Q	5	4.76	289	557	286	45	1177	252
Simplot Growers Solution	SGS 47M	4	4.50	278	536	255	64	1134	248
DeKalb	DKA44-18	4	4.38	268	515	259	47	1088	272
Public	Vernal	2	3.81	244	436	237	119	1036	252
Farmers Business Network	F2F6C-628	6	4.08	246	477	244	45	1012	248
	Mean	**4.2**	**4.40**	**270**	**516**	**262**	**66**	**1114**	**253**
	CV %		**7.9**	**8.4**	**7.5**	**9.7**	**78.8**	**9.9**	**5.2**
	LSD 10%		**0.43**	**28**	**48**	**31**	**NS**	**136**	**NS**

[1] Calculated at $0.33/ lb of Metabolizable Protein; $0.12/lb of Mcal of energy, $0.08 lb of effective NDF and $-0.08 lb for ineffective fiber (assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $5.00 increase or decrease of value of hay for every point below or above and NDFD 47%, respectively.

[3] Total Value of Hay per Ton @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

Table 26. Forage Quality Constituants and Hay Value per Ton - First Cutting 2019 Alfalfa Variety Trial in 2020, Pasco, Franklin County, WA

Planted August 7, 2019

Company	Entry	Rating	Protein Content %	Amylase Neutral Deterg. Fiber (aNDF) %	Ash Content %	Fat Content %	Lignin Content %	Non-fibrous Charbohydrates (NFC) %	Net Energy Lactation NEL (Method NRC 2001) Mcal/lb	Neutral Deterg. Fiber Digestab. (NDFD 48.) %	Total Value of Hay per Ton @ 12% Moist. [1,2,3] $/ton
DeKalb	DKA44-18	4	23.7	33.3	11.31	1.95	5.33	32.1	0.621	52.3	279
Farmers Business Network	F2F6C-628	6	23.2	34.7	11.21	1.77	5.55	31.6	0.608	51.9	274
DeKalb	DKA40-51RR	4	23.1	32.8	11.26	1.96	5.27	33.1	0.623	51.6	273
Simplot Grower Solutions	MPIII Max Q	5	22.9	34.8	11.33	1.85	5.53	31.6	0.606	51.7	272
Simplot Grower Solutions	SGS 47M	4	22.9	33.7	10.95	1.89	5.55	32.9	0.616	51.3	271
Conv. Check 1	Vernal	2	22.1	35.8	11.19	1.78	5.62	31.6	0.599	51.7	270
Farmers Business Network	F2F6C-418	4	22.4	35.6	11.79	1.83	5.61	30.8	0.594	51.1	267
Mean		**4.1**	**22.9**	**34.4**	**11.29**	**1.86**	**5.49**	**32.0**	**0.610**	**51.7**	**272**
CV %			**2.8**	**4.4**	**4.4**	**5.0**	**4.4**	**3.8**	**2.6**	**3.4**	**4.2**
LSD 10%			**0.8**	**1.9**	**NS**	**0.11**	**NS**	**NS**	**NS**	**NS**	**NS**

[1] Calculated at $0.33/ lb of Metabolizable Protein; $0.12/lb of Mcal of energy, $0.08 lb of effective NDF and $-0.08 lb for ineffective fiber (assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $5.00 increase or decrease of value of hay for every point below or above and NDFD 47%, respectively.

[3] Total Value of Hay per Ton @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

Table 27. Forage Quality Estimates RFV, RFQ,Value per Ton of Protein, Energy, Fiber, Adjustment for Cow Intake and Total Value per Ton As Fed From First Cutting of 2019 Alfalfa Variety Trial in 2020, Pasco, Franklin County, WA

Planted August 7, 2019

Company	Entry	Rating	Relative Feed Value (RFV)	Relative Feed Quality (RFQ)	Value of Metabolizable Protein (@ 55% of C. Protein) per Ton[1]	Value of Energy (MegaCalories) per Ton[1]	Value of NDF Fiber per Ton[1]	Adj. For Feed Intake per Ton[2]	Total Value of Hay per Ton @ 12% Moisture[3]
			Units	%	$/ton	$/ton	$/ton	$/ton	$/ton
DeKalb	DKA44-18	4	185	207	76	128	49	26	279
Farmers Business Network	F2F6C-628	6	175	196	74	125	50	24	274
DeKalb	DKA40-51RR	4	189	210	74	129	48	23	273
Simplot Grower Solutions	MPIII Max Q	5	174	195	73	125	51	24	272
Simplot Grower Solutions	SGS 47M	4	183	204	73	127	49	21	271
Conv. Check 1	Vernal	2	168	189	71	124	52	23	270
Farmers Business Network	F2F6C-418	4	170	188	72	123	52	21	267
	Mean	**4.1**	**178**	**198**	**73**	**126**	**50**	**23**	**272**
	CV %		**5.9**	**7.5**	**2.8**	**2.6**	**4.4**	**38.2**	**4.2**
	LSD 10%		**13**	**NS**	**3**	**NS**	**4**	**NS**	**NS**

[1] Calculated at $0.33/ lb of Metabolizable Protein; $0.12/lb of Mcal of energy, $0.08 lb of effective NDF and $-0.08 lb for ineffective fiber (assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $5.00 increase or decrease of value of hay for every point below or above and NDFD 47%, respectively.

[3] Total Value of Hay per Ton @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)

Table 28. Alfalfa Yield,Value per Ton of Protein, Energy, Fiber, Adjustment for Cow Intake, Total Value per Ton and First Cut per Acre As Fed From of 2019 Trial in 2020 - Alfalfa Variety Trial, Pasco, Franklin, WA

Planted August 7, 2019

Company	Entry	Rating	1st Cut Yield (12% Moisture)	Value of Metabol. Protein (@ 55% of C. Protein) per Acre[1]	Value of Energy (MegaCalories) per Acre[1]	Value of NDF Fiber per Acre[1]	Adjust. For feed intake per Acre[2]	First Cut Nutrient Value of Hay (@ 12% Moisture) per Acre[3]	Total Value of Hay per Ton @ 12% Moisture[3]
			Tons/acre	$/acre	$/acre	$/acre	$/acre	$/acre	$/ton
Farmers Business Network	F2F6C-418	4	4.08	292	499	213	78	1082	267
DeKalb	DKA44-18	4	3.78	286	484	183	99	1053	279
Simplot Grower Solutions	MPIII Max Q	5	3.73	273	467	189	87	1016	272
Simplot Grower Solutions	SGS 47M	4	3.70	269	469	183	77	998	271
Farmers Business Network	F2F6C-628	6	3.62	268	454	183	88	993	274
DeKalb	DKA40-51RR	4	3.53	261	453	169	80	963	273
Conv. Check 1	Vernal	2	3.06	216	378	159	72	825	270
	Mean	**4.1**	**3.64**	**266**	**458**	**183**	**83**	**990**	**272**
	CV %		**8.9**	**7.9**	**7.9**	**12.1**	**39.5**	**7.7**	**4.2**
	LSD 10%		**0.40**	**26**	**44**	**27**	**NS**	**93**	**NS**

[1] Calculated at $0.33/ lb of Metabolizable Protein; $0.12/lb of Mcal of energy, $0.08 lb of effective NDF and $-0.08 lb for ineffective fiber (assuming aNDF is 90% effective and 10% ineffective fiber).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $5.00 increase or decrease of value of hay for every point below or above and NDFD 47%, respectively.

[3] Total Value of Hay per Ton @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)