2022

Washington State Hay Growers Association

ALFALFA VARIETY TRIALS

QUALITY RESULTS

Conducted by Washington State University Extension

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Cooperating agencies: Washington State University, U.S. Department of Agriculture, Adams, Benton, Franklin, and Grant Counties.

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Alfalfa Variety Trials
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Nine alfalfa trials were harvested for yield in irrigated central Washington State in 2022. 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 the 2018, 2019, and 2020 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. All the Franklin County trials are located on land leased from the City of Pasco and called “City of Pasco” 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.

The 2022 forage year was characterized by a very rainy, unseasonably cold first cutting growth period. We also experienced unexpected breakdowns from the research harvester. This resulted in four large cuttings both in Othello and the City of Pasco locations. Lodging was prevalent at each cutting except for the fourth cutting, resulting in more results variation. The cold wet spring I believe reduced yields compared to other years and was followed by intense summer heat whereby 27 days reached or exceeded 100F in the TriCities and surrounding areas. Even with the best irrigation system, it is difficult to keep up with alfalfa crop ET demands during this phase of the growing season. Autumn cooled off to more seasonal temperatures, which made it nearly ideal for establishing new alfalfa stands.

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 City of Pasco locations. All trials were sprinkler irrigated throughout the April-October growing season. Nozzle spacing is 30x40 9/64-inch nozzles. The frost-free (32°F) period at Othello averages 180 days and 209 days at Pasco, whereas 2022 it was 177 and 211 in 2022.

The trials follow fertility recommendations found in the “Nutrient Management Guide for Dryland and Irrigated Alfalfa in the Inland Northwest” (PNW0611). Fields were fertilized with phosphorus and potassium in the fall of 2021. Conventional trials are sprayed after 3 tri-foliate leaves appear after planting with imazamox with 2,4-DB and 0.25% NIS at establishment. Roundup Ready® trials are sprayed with glyphosate when the plants reach 3 trifoliate leaves.

Each trial is arranged in a randomized complete block (RCB) design with 4 replications. All trials are planted 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.

The 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. Analysis of Variance (ANOVA) is calculated and if variety is significant, the least significant difference (LSD) is calculated. The LSD is used to determine if the varieties are statistically different from each other. If the difference between the 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). In results where there is a variety is statistically significantly better than the worst entry, it is highlighted in yellow as well as those which cannot be separated from the best in the trial.

Tables 1 - 3 contain a summary of the annual total yields for alfalfa varieties from the fall planting in 2019 to 2021 at the Pasco and Othello locations. Yields are presented in percent of the mean of the test for ease of comparison. Table 4 is from National Alfalfa and Forage Alliance's (NAFA) "Winter Survival, Fall Dormancy & Pest Resistance Ratings for Alfalfa Varieties – 2023 Edition and previous editions". For a complete copy of the NAFA document visit https://www.alfalfa.org/varietyratings.php .

Forage yields for each harvest; total season yield for 2022 and the totals for all years of the trials from those planted in the fall of 2019 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 the last cutting was taken on October 14th for both the Pasco and Othello locations and represent visual ratings from 1-5.

The 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. Although it is not a fall dormancy rating it does compare those in the trial for regrowth in the fall. 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 seeded row compared to the number of 6-inch blocks in a plot and calculating the percentage from the total number of 6-inch blocks in the plot.

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. This annual publication aims to provide growers and industry with the best, most reliable quality results possible.

First cutting quality samples were funded by seed companies on the conventional trials for both Othello and Pasco locations and results can be seen in Tables 14 through 25. Only in experiments where enough entries occurred can we do hay quality testing. The method of determining nutrient and fiber value was used according to Dr. William Wiess, Nutritionist from The Ohio State University, who spoke on "Should forages be priced like a sack of nutrients" at 2019 Western Alfalfa and Forage Symposium and can be viewed at http://lecture.ucanr.edu/Mediasite/Play/62cdb31981f745dba980dc695cf48ffa1d and uses NDFD48 as for the value of adjustment. This method allows a total dollar value of hay to be calculated on each variety. The numbers given are 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 fiber-fill adjustment 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. I would be happy to try to answer any questions on how the numbers were calculated.

I want to especially thank Obadiah Sheriff, Ashley Spradling, Steve Fransen, Josefina Guzman, and Rosa Barrios 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 about the trials.

Sincerely,

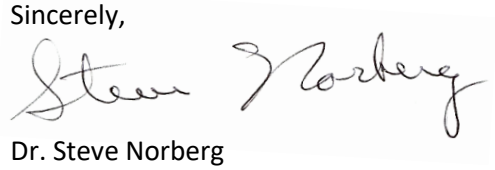

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Table 1. 2022 Summary of Conventionally Sprayed Alfalfa Yield Trials Planted Since Fall of 2017 at WSU Othello Research Farm, WA

	Planted August 10, 2017				Planted August 8, 2018				Planted August 10, 2019				6 YR Avg. of	6 YR Avg. of	6 YR Avg. of
Entry	**2018**	**2019**	**2020**	**3 Yr.**	**2019**	**2020**	**2021**	**3 Yr.**	**2020**	**2021**	**2022**	**3 Yr.**	**2017 & 2018 Trials**	**2017 & 2019 Trials**	**2018 & 2019 Trials**
54Q29									105.2	102.9	103.0	**103.6%**			
Ace*					100.6%	105.1%	97.3%	**100.7%**	107.7%	97.5	102.1	**102.2%**			**101.5%**
AFX 439									105.0%	107.9%	107.3%	**106.6%**			
AFX 460* (CW A113005)	99.5%	109.1%	108.5%	**105.7%**											
AFX164048									104.1%	102.3%	103.4%	**103.2%**			
AmeriStand 318TQ	104.6%	105.3%	106.9%	**105.6%**											
AmeriStand 427TQ					98.8%	103.9%	106.9%	**103.2%**							
AmeriStand 445NT	97.7%	88.3%	98.3%	**94.7%**	95.4%	98.4%	97.1%	**96.9%**					**95.8%**		
AmeriStand 518NT									94.1%	95.9%	92.0%	**94.1%**			
CW 104014	99.8%	115.6%	98.8%	**104.7%**											
DG 4210*									100.3%	104.3%	105.3%	**103.3%**			
DG5315					108.2%	107.1%	107.5%	**107.6%**							
DKA44-18									100.4%	102.5%	107.2%	**103.3%**			
DynaGro Exp. #1					99.2%	99.7%	97.6%	**98.8%**							
F2F6C-418									103.3%	101.4%	101.6%	**102.1%**			
F2F6C-628									94.4%	100.0%	100.2%	**98.3%**			
FG C0415SN223*									93.6%	95.4%	99.5%	**96.1%**			
HybriForce-3600									103.2%	101.6%	100.2%	**101.7%**			
Magnum 8					96.3%	97.7%	100.4%	**98.2%**							
MPIII Max Q									99.1%	96.2%	96.2%	**97.1%**			
Quail 5	103.1%	117.3%	116.8%	**112.4%**											
QuickGold*					109.3%	110.3%	100.3%	**106.4%**							
BYS-6086*									96.2%	94.6%	90.2%	**93.7%**			
SGS 47M									104.5%	102.9%	103.8%	**103.7%**			
Skylark					99.1%	95.7%	97.1%	**97.4%**							
Slingshot	106.0%	112.4%	112.2%	110.2%											
Sureshot*					105.3%	105.5%	103.2%	**104.6%**							
SW 4107	109.6%	109.1%	100.8%	**106.5%**											
SW 5210									108.5%	106.4%	112.8%	**109.1%**			
SW 5207					108.1%	104.6%	98.7%	**103.7%**							
SW 5213	103.8%	107.3%	109.4%	**106.8%**	103.4%	99.9%	103.3%	**102.3%**	102.5%	105.2%	108.2%	**105.3%**	**104.6%**	**105.7%**	**103.8%**
Swift					97.1%	95.0%	97.5%	**96.6%**							
Trifecta III*					108.0%	110.2%	111.1%	**109.7%**							

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	Planted August 10, 2017				Planted August 8, 2018				Planted August 10, 2019				6 YR Avg. of	6 YR Avg. of	6 YR Avg. of
Entry	**2018**	**2019**	**2020**	**3 Yr.**	**2019**	**2020**	**Entry**	**2018**	**2019**	**2020**	**3 Yr.**	**2019**	**2020**	**Entry**	**2018**
Vernal	80.1%	72.6%	77.6%	**76.8%**	78.0%	79.2%	90.7%	**82.9%**	78.3%	88.4%	83.9%	**83.8%**	**79.8%**	**78.3%**	**83.4%**
Vernema	88.4%	74.4%	77.8%	**80.2%**											
WL 349HQ									103.1%	103.3%	103.8%	**103.4%**			
WL 377HQ									99.2%	98.1%	97.8%	**98.4%**			
Avg. Total-Tons/Acre	**10.83**	**10.56**	**9.12**	**30.50**	**9.40**	**7.80**	**9.60**	**26.8**	**9.21**	**10.60**	**8.95**	**28.8**			
LSD (0.10)**	**4.6%**	**4.7%**	**7.1%**	**4.0%**	**4.7%**	**6.4%**	**6.2%**	**4.6%**	**5.1%**	**4.6%**	**7.8%**	**5.0%**			
CV (%)	**5.5%**	**5.7%**	**9.0%**	**4.8%**	**3.9%**	**5.4%**	**5.2%**	**5.9%**	**6.1%**	**5.5%**	**9.2%**	**5.9%**			

* Originally entered as an experimental
** If LSD number is given then it was significant at PR>F 0.10, if not, then it was not significant (NS).

Table 2. 2021 Summary of Conventionally Sprayed Alfalfa Yield Trials Planted Since Fall of 2017 - Near Pasco, WA

	Planted August 9, 2017				Seeded August 9, 2018				Planted August 7, 2019				6 YR Avg. of	6 YR Avg. of	6 YR Avg. of
Entry	**2018**	**2019**	**2020**	**3 Yr.**	**2019**	**2020**	**2021**	**3 Yr.**	**2020**	**2021**	**2022**	**3 Yr.**	**2017 & 2018 Trials**	**2017 & 2019 Trials**	**2018 & 2019 Trials**
457HD+*									101.6%	102.2%	92.6%	**99.3%**			
54Q29	105.2%	105.5%	109.2%	**106.6%**	96.2%	98.4%	97.2%	**97.3%**	99.1%	100.7%	112.5%	**103.5%**	**101.9%**	**105.0%**	**100.4%**
6585Q									96.9%	97.4%	97.3%	**97.2%**			
AFX164048									107.1%	107.3%	108.2%	**107.5%**			
Camas	96.9%	101.7%	100.2%	**99.3%**											
CB1109*					105.6%	106.6%	108.4%	**106.7%**							
CP5028									101.7%	101.7%	90.6%	**98.6%**			
DKA 40-16					100.1%	99.2%	100.0%	**99.8%**							
DKA40-51RR									99.8%	100.7%	103.3%	**101.2%**			
DKA 44-18	102.9%	96.2%	95.1%	**98.5%**	99.9%	99.0%	94.6%	**97.7%**	103.7%	101.8%	104.9%	**103.3%**	**98.1%**	**100.9%**	**100.5%**
DKA 50-17	106.6%	105.0%	101.7%	**104.5%**	103.5%	104.3%	102.4%	**103.4%**							
Dyna-Gro Exp. #1					102.8%	98.6%	104.0%	**101.9%**							
F2F6C-418									109.0%	100.9%	104.2%	**104.5%**			
F2F6C-628									99.2%	98.5%	90.9%	**96.6%**			
Finch					99.4%	104.7%	105.1%	**103.1%**							
MPIII Max Q									98.5%	95.6%	98.2%	**97.3%**			
Quail					99.2%	96.5%	96.0%	**97.2%**							
Rebound 6XT															
Robin					99.3%	99.1%	96.0%	**98.1%**							
SGS47M									106.7%	105.1%	108.7%	**106.7%**			
Slingshot	99.6%	105.5%	108.7%	**104.2%**											
Sureshot					102.0%	104.3%	102.7%	**103.0%**							
SW 4107	100.3%	99.5%	101.3%	**100.4%**											
SW 5210									104.6%	101.5%	116.2%	**106.7%**			
SW 5207					100.2%	100.9%	101.2%	**100.8%**							
SW 5213	104.3%	106.8%	107.9%	**106.2%**	102.9%	107.6%	110.8%	**107.2%**	99.9%	101.1%	104.6%	**101.7%**	**106.7%**	**103.9%**	**104.5%**
Vernal	84.2%	79.8%	75.9%	**80.3%**	82.2%	73.9%	78.4%	**78.2%**	99.2%	98.5%	90.9%	**96.6%**	**79.2%**	**88.4%**	**87.4%**
WL 349HQ					106.7%	106.8%	103.2%	**105.5%**	96.4%	105.7%	102.3%	**101.7%**			
Avg. Total Tons/Acre	**12.52**	**9.36**	**10.30**	**32.18**	**10.10**	**10.20**	**11.06**	**31.37**	**11.10**	**13.20**	**9.57**	**33.80**			
LSD Years (0.10)**	**4.0%**	**6.9%**	**7.8%**	**6.7%**	**4.9%**	**5.9%**	**6.6%**	**4.8%**	**5.8%**	**4.4%**	**5.5%**	**3.9%**			
CV(%)	**3.3%**	**5.7%**	**6.4%**	**5.5%**	**4.0%**	**4.9%**	**5.6%**	**4.1%**	**4.8%**	**3.7%**	**4.6%**	**3.2%**			

* Originally entered as an experimental

** If LSD number is given then it was significant at PR>F 0.10, if not, then it was not significant (NS).

Table 3. 2021 Summary of Roundup Sprayed Alfalfa Yield Trials Planted Since 2017 - Near Pasco, WA

	Planted August 9, 2017				Planted August 9, 2018				Planted August 7, 2019				6 YR Avg. of	6 YR Avg. of	6 YR Avg. of
Entry	**2018**	**2019**	**2020**	**3 Yr.**	**2019**	**2020**	**2021**	**3 Yr.**	**2020**	**2021**	**2022**	**3 Yr.**	**2017 & 2018 Trials**	**2017 & 2019 Trials**	**2018 & 2019 Trials**
54VR70	103.2%	94.6%	99.3%	**99.4%**					103.4%	99.1%	107.8%	**103.0%**		**101.2%**	
6427R	103.8%	100.7%	100.7%	**101.9%**											
Allied Seed 438RR					100.9%	103.3%	106.9%	**103.8%**							
AmeriStand 481 HVXRR									91.0%	92.9%	96.7%	**93.4%**			
DG 417RR	97.5%	94.9%	101.9%	**98.2%**	101.4%	101.0%	97.9%	**100.0%**					**99.1%**		
DKA 40-21HVXRR					98.7%	98.3%	94.9%	**97.2%**	99.0%	94.3%	94.5%	**95.9%**			**96.6%**
DKA43-18RR	101.0%	103.8%	103.8%	**102.7%**	99.9%	102.7%	101.9%	**101.5%**	108.9%	108.4%	106.1%	**107.9%**	**102.1%**	**105.3%**	**104.7%**
DKA44-16RR	97.4%	98.0%	95.5%	**97.0%**	102.0%	98.6%	99.2%	**99.9%**	105.1%	101.1%	104.2%	**103.3%**	**98.4%**	**100.1%**	**101.6%**
DKA50-20RR	98.9%	98.8%	99.3%	**99.0%**					104.0%	101.1%	1000.0%	**101.7%**		**100.4%**	
LG 4R300	99.2%	102.7%	98.5%	**100.0%**											
LG 5R300*	99.1%	106.5%	100.9%	**101.9%**											
NG6424R									101.3%	97.7%	99.2%	**99.3%**			
NG6547R									105.5%	101.1%	103.5%	**103.2%**			
RR Check					97.1%	96.1%	99.2%	**97.6%**	100.2%	98.5%	97.8%	**98.8%**			**98.2%**
Total Tons/Acre	**12.59**	**9.76**	**10.79**	**33.15**	**10.20**	**10.00**	**11.37**	**31.50**	**11.20**	**13.53**	**10.07**	**34.80**			
LSD (0.10)**	**4.0%**	**3.6%**	**NS**	**3.0%**	**NS**	**3.7%**	**NS**	**2.9%**	**6.1%**	**5.0%**	**NS**	**5.5%**			
CV(%)	**3.3%**	**2.9%**	**3.9%**	**2.5%**	**3.0%**	**3.0%**	**7.2%**	**2.3%**	**5.1%**	**4.2%**	**6.9%**	**4.5%**			

* Originally entered as an experimental

** If LSD number is given then it was significant at PR>F 0.10, if not, then it was not significant (NS).

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

Variety	Marketing	FD	WS	BW	VW	FW	AN	PRR	APH[1]	APH[2]	SAA	PA	BAA	SN	SRKN	NRKN	Salt	Tech.
54Q16	Pioneer	4		HR	HR	HR	HR	HR	HR	HR		R		HR				C
54Q29	Pioneer	4		HR	HR	R	HR	HR	HR		R	HR		HR				C
54VQ52	Pioneer	3		HR	HR	HR	HR	HR	HR	HR	R	R		HR				C
54VR70	Pioneer	4		R	R	R	R	HR	HR	R		MR		HR				R
6453Q	NEXGROW	4	2	HR	HR	HR	HR	HR	HR	HR	R	R		R				C
6585Q	NEXGROW	5	2	HR	HR	HR	HR	HR	HR			R		HR			G	C
Ace	BrettYoung	4		HR	HR	HR	HR	HR	HR		R	MR	R	HR				C
AFX 429*	Alforex Seeds	4	2	HR	HR	HR	HR	HR	HR	R			R	R				C
AFX 439*	Alforex Seeds	4		HR	HR	HR	HR	HR	HR	R	HR	R	R	R				C
AFX 457*	Alforex Seeds	4		HR	HR	HR	HR	HR	HR		R	HR		R			G	C
AFX 460*	Alforex Seeds	4	1	HR	HR	HR	HR	HR	HR	R								C
AFX 469*	Alforex Seeds	4	1	HR	HR	HR	HR	HR	HR	MR				HR			G	C
AFX 579*	Alforex Seeds	5	2	HR	HR	HR	HR	HR	HR	R			R	HR			G	C
AmeriStand 416NT RR	America's Alf.	4		HR	HR	HR	HR	HR	HR		R	R		HR			G	R
AmeriStand 427TQ	America's Alf.	4	1	HR	HR	HR	HR	HR	HR	HR		R		HR			G	C
AmeriStand 428TQ	America's Alf.	4	1	HR	HR	HR	HR	HR	HR	HR	R	R		HR				C
AmeriStand 445NT	America's Alf.	4		HR	R	HR	HR	HR	R		HR	R		HR		HR		C
AmeriStand 446NT	America's Alfalfa	4	2	HR	HR	HR	HR	HR	R		R	HR						C
AmeriStand 481 HVXRR	America's Alfalfa	4	2	HR	HR	HR	HR	HR	HR	HR	R	R		R				RX
AmeriStand 518NT	America's Alfalfa	5		HR	HR	HR	HR	HR	HR			HR		HR		HR	G	C
Camas	LG Seeds	4		HR	R	HR	HR	HR	HR		HR	R		HR		HR		C
DG 4120	Nutrien Ag Solutions	4	1	HR	HR	HR	HR	HR	HR	HR	R	R		R				C
DG 4210	Nutrien Ag Solutions	4	1	HR	HR	HR	HR	HR	HR		HR	R		R				C
DKA40-16	DeKalb	4	1	HR	HR	HR	HR	HR	HR	R	R	R		HR			G	C
DKA40-21HVXRR	Dekalb	4	2	HR	HR	HR	HR	HR	HR	R	R	R		R				RX
DKA40-51RR	Dekalb	4	1	HR	HR	HR	HR	HR	HR	HR	R			R				R
DKA43-18RR	DeKalb	4	2	HR	HR	HR	HR	HR	HR	HR				HR		R		R
DKA44-16RR	DeKalb	4	2	HR	HR	HR	HR	HR	HR	R	R	R		R			G	R
DKA50-17	DeKalb	5	1	HR	HR	HR	HR	HR	HR	R		HR		R				C
Hi-Gest 360	Alforex Seeds	3		HR	HR	HR	HR	HR	HR	HR			R				G	C
HybriForce-4420/Wet	Alforex Seeds	4		HR	HR	HR	HR	HR	HR	HR								H
LegenDairy AA	CROPLAN	3	1	HR	HR	HR	HR	HR	HR	HR	R	HR		R			G	C
Magnum 8	Dairyland Seeds	4		HR	HR	HR	HR	HR	HR	R	R	MR	R	R				C
Magnum 8-Wet	Dairyland Seeds	4	2	HR	HR	HR	HR	HR	HR	HR	R	MR	R	MR				C

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Variety	Marketing	FD	WS	BW	VW	FW	AN	PRR	APH[1]	APH[2]	SAA	PA	BAA	SN	SRKN	NRKN	Salt	Tech.
HVX MegaTron	CROPLAN	4	2	HR	HR	HR	HR	HR	HR	HR	R	R		R			G	RX
MPIII Max Q	Simplot Seeds	5	2	HR	HR	HR	HR	HR	HR	R	R	HR		HR			G	C
Nimbus	CROPLAN	5		HR	R	HR	HR	HR	HR			HR		HR		HR	F	C
PGI 529	Alforex Seeds	5	1	HR	R	HR	HR	HR	HR		MR	R	MR	R				C
Quail	Blue River Hyb.	5		HR	HR	HR	HR	HR	HR			R	MR	HR		R		C
Rebound AA	CROPLAN	4	2	HR	HR	HR	HR	HR	HR	HR	R	R		R			G	C
Rebound 6XT	CROPLAN	4	1	HR	HR	HR	HR	HR	HR	HR	R	HR						C
RR AphaTron 2XT	CROPLAN	4	1	HR	HR	HR	HR	HR	HR	HR		HR		H			G	C
RR NemaStar	CROPLAN	5		HR	HR	HR	HR	HR	HR		R	R		HR		R	G	R
RR Saltiva	CROPLAN	5	2	HR	HR	HR	HR	HR	HR		R	HR	MR	HR			G	R
SGS 47M	Simplot Seeds	4	2	HR	HR	HR	HR	HR	HR	R		R		R				C
Slingshot	BrettYoung	5	2	R	HR	HR	HR	HR	HR		HR	HR		HR		HR		C
SW 4107	Alfalfa Partners	4		HR	HR	HR	HR	HR	HR	HR	MR	R		R				C
SW 5210	Alfalfa Partners	5		HR	HR	HR	HR	HR	HR	HR	R	HR		HR			G	C
SW 5213	Alfalfa Partners	5		HR	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 3441.RR	W-L Alfalfas	4	2	HR	HR	HR	HR	HR	HR	HR		R		HR			G	R
WL 349HQ	W-L Alfalfas	4	2	HR	HR	HR	HR	HR	HR	HR		HR		R				C
WL 3521	W-L Alfalfas	5	2	HR	HR	HR	HR	HR	HR	HR	HR	HR		R			G	C
WL375HVX.RR	W-L Alfalfas	5	2	HR	HR	HR	HR	HR	HR	HR		R		HR			G	RX
WL 377HQ	W-L Alfalfas	5		HR	HR	HR	HR	HR	HR		HR	HR		HR		HR	G	C

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

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 H=Hybrid

* 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 occurred. Only data from publications were used.

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

SN Stem Nematode

APH[1] Aphanomyces Race 1

APH[2] Aphanomyces Race 2

Table 5. Three-Year Forage Yield - 2019 Alfalfa Variety Trial, Othello, Adams County, WA
Forage Yield (Ton DM/A)

Planted August 10, 2019		Fall	2020		2021		2022 Harvests						2020-2022		2022 Fall
		Dorm.	Total	Total	Total	Total	31-May	11-Jul	19-Aug	14-Sep	Total	Total	Total	Total	4-Oct
Company	Entry	Rating	Tons/a	% Mean	Tons/a	% Mean	Cut 1	Cut 2	Cut 3	Cut 4	Tons/a	% Mean	Tons/a	% Mean	Stand %
S & W Seed Company	SW5210	5	9.99	108.5	11.3	106.4	3.82	2.89	2.20	1.19	10.10	112.8	31.4	109.1	99.6
Alforex Seeds	AFX 439*	4	9.67	105.0	11.4	107.4	3.75	2.62	2.07	1.17	9.61	107.3	30.7	106.6	98.5
S & W Seed Company	SW5213	5	9.44	102.5	11.2	105.2	3.56	2.69	2.29	1.15	9.69	108.2	30.3	105.3	99.2
Simplot Growers Solution	SGS 47M	4	9.62	104.5	11.0	102.9	3.19	2.74	2.23	1.14	9.29	103.8	29.9	103.7	98.8
Pioneer Brand	54Q29	4	9.68	105.2	11.0	102.9	3.51	2.49	2.12	1.11	9.22	103.0	29.9	103.6	99.4
W-L Research	WL 349HQ	4	9.49	103.1	11.0	103.3	3.45	2.55	2.17	1.13	9.29	103.8	29.8	103.4	98.0
DeKalb	DKA44-18	4	9.24	100.4	10.9	102.5	3.33	2.69	2.46	1.12	9.60	107.2	29.8	103.3	95.8
Nutrien Ag. Solutions	DG 4210*	4	9.23	100.3	11.1	104.3	3.43	2.59	2.19	1.22	9.43	105.3	29.8	103.3	99.3
Alforex Seeds	AFX164048	4	9.59	104.1	10.9	102.3	3.41	2.63	2.09	1.13	9.25	103.4	29.7	103.2	98.8
BrettYoung	Ace*	4	9.92	107.7	10.4	97.5	3.41	2.59	2.10	1.04	9.14	102.1	29.4	102.2	98.9
Farmers Business Network	F2F6C-418	4	9.51	103.3	10.8	101.4	3.25	2.56	2.24	1.04	9.10	101.6	29.4	102.1	97.7
Alforex Seeds	HybriForce-3600	6	9.50	103.2	10.8	101.6	3.30	2.44	2.08	1.15	8.97	100.2	29.3	101.7	96.5
Conv. Check	Check 1	4	9.14	99.3	10.7	100.7	3.22	2.45	1.93	0.94	8.54	95.4	28.4	98.6	99.0
W-L Research	WL 377HQ	5	9.14	99.2	10.4	98.1	3.11	2.58	2.07	0.99	8.76	97.8	28.3	98.4	98.7
Farmers Business Network	F2F6C-628	6	8.69	94.4	10.7	100.0	3.06	2.47	2.24	1.21	8.97	100.2	28.3	98.3	98.3
Simplot Growers Solution	MPIII Max Q	5	9.13	99.1	10.2	96.2	3.02	2.52	2.15	0.92	8.61	96.2	28.0	97.1	96.5
Forage Genetics	FG C0415SN223*	NA	8.62	93.6	10.2	95.4	3.04	2.47	2.18	1.21	8.91	99.5	27.7	96.1	98.0
America's Alfalfa	AmeriStand 518NT	5	8.66	94.1	10.2	95.9	2.92	2.18	2.03	1.11	8.24	92.0	27.1	94.1	98.2
BrettYoung	BYS-6086*	6	8.86	96.2	10.1	94.6	2.99	2.29	1.87	0.92	8.08	90.2	27.0	93.7	98.5
Conv. Check	Conv. Check 2	4	9.00	97.7	9.9	92.9	3.05	2.28	1.75	0.63	7.72	86.2	26.6	92.4	98.7
Public	Vernal	2	7.21	78.3	9.4	88.4	2.91	2.23	1.74	0.62	7.51	83.9	24.1	83.8	95.8
	Mean	**4.5**	**9.21**	**100.0**	**10.6**	**100.0**	**3.27**	**2.52**	**2.10**	**1.05**	**8.95**	**100.0**	**28.8**	**100.0**	**98.2**
	LSD> 10%		**0.56**	**6.1**	**5.5**	**0.6**	**0.38**	**0.25**	**0.26**	**0.15**	**0.82**	**9.2**	**1.7**	**5.9**	**1.7**
	CV %		**5.1**	**5.1**	**4.6**	**4.6**	**9.8**	**8.4**	**10.5**	**11.8**	**7.8**	**7.8**	**5.0**	**5.0**	**1.4**

* Originally entered as an experimental

Table 6. Three-Year Forage Yield - 2019 Conventional Alfalfa Variety Trial, Pasco, Franklin County, WA
Forage Yield (Ton DM/A)

Planted August 7, 2019		Fall	2020		2021		2022 Harvests						3 Yr.	3 Yr.	2022 Fall
		Dorm.	Total	Total	Total	Total	24-May	8-Jul	18-Aug	21-Sep	Total	Total	Total	Total	22-Oct
Company	Entry	Rating	Tons/a	% Mean	Tons/a	% Mean	Cut 1	Cut 2	Cut 3	Cut 4	Tons/a	% Mean	Tons/a	%	Stand (%)
Alforex Seeds	AFX164048	4	11.86	107.1	14.13	107.3	3.37	3.16	2.19	1.64	10.35	108.2	36.3	107.5	93.0
S&W Seed Company	SW5210	5	11.58	104.6	13.37	101.5	3.46	3.52	2.38	1.76	11.12	116.2	36.1	106.7	92.6
Simplot Grower Solutions	SGS47M	4	11.82	106.7	13.84	105.1	3.18	3.19	2.25	1.78	10.40	108.7	36.1	106.7	97.7
Farmers Business Network	F2F6C-418	4	12.07	109.0	13.28	100.9	3.21	3.14	1.99	1.63	9.97	104.2	35.3	104.5	91.2
Pioneer Brand	54Q29	4	10.97	99.1	13.26	100.7	3.34	3.55	2.16	1.72	10.77	112.5	35.0	103.5	97.1
DeKalb	DKA44-18	4	11.48	103.7	13.41	101.8	3.12	3.16	2.12	1.64	10.04	104.9	34.9	103.3	94.3
Conv. Check 2	Conv. Check 2	4	11.41	103.0	13.35	101.4	3.09	3.00	2.28	1.74	10.12	105.7	34.9	103.1	96.7
S&W Seed Company	SW5213	5	11.06	99.9	13.32	101.1	3.25	3.11	2.05	1.60	10.02	104.6	34.4	101.7	96.4
W-L Research	WL 349HQ	4	10.67	96.4	13.92	105.7	3.04	3.11	2.07	1.57	9.79	102.3	34.4	101.7	91.3
Conv. Check 3	Conv. Check 3	4	11.04	99.7	12.42	94.3	3.48	3.17	2.45	1.71	10.80	112.9	34.3	101.4	96.2
RR check1	RR check1	4	11.84	107.0	12.98	98.6	3.20	2.79	2.00	1.44	9.42	98.5	34.3	101.3	94.2
DeKalb	DKA40-51RR	4	11.04	99.8	13.26	100.7	3.10	3.03	2.20	1.56	9.89	103.3	34.2	101.2	92.7
Legacy Seeds	457HD+*	4.3	11.25	101.6	13.46	102.2	2.88	2.84	1.74	1.41	8.86	92.6	33.6	99.3	94.8
Legacy Seeds	CP5028	4.7	11.26	101.7	13.39	101.7	3.11	2.47	1.76	1.33	8.67	90.6	33.3	98.6	86.1
Simplot Grower Solutions	MPIII Max Q	5	10.90	98.5	12.58	95.6	3.12	2.67	2.05	1.56	9.40	98.2	32.9	97.3	93.5
NEXGROW	6585Q	5	10.73	96.9	12.82	97.4	2.81	2.95	1.93	1.63	9.31	97.3	32.9	97.2	89.9
Farmers Business Network	F2F6C-628	6	10.99	99.2	12.97	98.5	2.65	2.74	1.91	1.41	8.70	90.9	32.7	96.6	93.7
Conv. Check	Vernal	2	9.19	83.0	11.14	84.6	2.25	1.61	1.46	0.95	6.27	65.5	26.6	78.7	83.2
Mean		**4.5**	**11.1**	**100.0**	**13.2**	**100.0**	**3.07**	**2.91**	**2.04**	**1.55**	**9.57**	**100.0**	**33.8**	**100.0**	**91.6**
CV %			**4.8**	**4.8**	**3.7**	**3.7**	**6.3**	**9.2**	**10.9**	**6.1**	**4.6**	**4.6**	**3.2**	**3.2**	**5.0**
LSD 10%			**0.64**	**5.8**	**0.58**	**4.4**	**0.23**	**0.33**	**0.27**	**0.11**	**0.53**	**5.5**	**1.3**	**3.9**	**5.5**

* Originally entered as an experimental

Table 7. Three-Year Forage Yield - 2019 Roundup Ready Alfalfa Variety Trial, Pasco, Franklin County, WA
Forage Yield (Ton DM/A)

Planted August 7, 2019		Fall	2020		2021		2022 Harvests						3 Yr.	3 Yr.	2022 Fall
		Dorm.	Total	Total	Total	Total	25-May	8-Jul	18-Aug	21-Sep	Total	Total	Total	Total	27-Sep
Company	Entry	Rating	Tons/a	% Mean	Tons/a	% Mean	Cut 1	Cut 2	Cut 3	Cut 4	Tons/a	% Mean	Tons/a	%	Stand (%)
DeKalb	DKA43-18RR	4.3	12.24	108.9	14.68	108.4	3.39	3.20	2.39	1.70	10.68	106.1	37.6	107.9	94.5
DeKalb	DKA44-16RR	4.4	11.81	105.1	13.68	101.1	3.31	3.04	2.37	1.78	10.49	104.2	36.0	103.3	93.7
Simplot Grower Solutions	NG6547R	5	11.85	105.5	13.68	101.1	3.16	3.04	2.40	1.83	10.42	103.5	36.0	103.2	93.5
Pioneer Brand	54VR70	4	11.62	103.4	13.42	99.1	3.14	3.23	2.65	1.83	10.85	107.8	35.9	103.0	97.0
DeKalb	DKA50-20RR	4.9	11.68	104.0	13.67	101.1	3.07	2.93	2.27	1.80	10.06	100.0	35.4	101.7	97.4
Simplot Grower Solutions	NG6424R	5	11.38	101.3	13.22	97.7	2.86	2.91	2.61	1.60	9.98	99.2	34.6	99.3	92.3
RR check1	RR Check1	4	11.26	100.2	13.32	98.5	3.22	2.77	2.19	1.66	9.84	97.8	34.4	98.8	92.0
DeKalb	DKA40-21HVXRR	4	11.13	99.0	12.76	94.3	2.88	2.86	2.15	1.64	9.52	94.5	33.4	95.9	95.2
America's Alfalfa	AmeriStand 481 HVXRR	4	10.22	91.0	12.57	92.9	2.79	3.05	2.30	1.60	9.74	96.7	32.5	93.4	91.7
Mean		**4.5**	**11.2**	**100.0**	**13.53**	**100.0**	**3.06**	**2.94**	**2.35**	**1.71**	**10.07**	**100.0**	**34.8**	**100.0**	**92.6**
CV %			**5.1**	**5.1**	**4.2**	**4.2**	**7.6**	**12.6**	**13.8**	**5.4**	**6.9**	**6.9**	**4.5**	**4.5**	**2.8**
LSD 10%			**0.69**	**6.1**	**0.67**	**5.0**	**0.28**	**NS**	**NS**	**0.11**	**NS**	**NS**	**1.9**	**5.5**	**3.2**

Table 8. Two-Year Forage Yield - 2020 Conventional Alfalfa Variety Trial, Othello, Adams County, WA
Forage Yield (Ton DM/A)

Planted August 6, 2020		Fall	2021		2022 Harvests						2021 & 2022		2022 Fall
		Dorm.	Total	Total	1-Jun	11-Jul	19-Aug	14-Sep	Total	Total	Total	Total	14-Oct
Company	Entry	Rating	Tons/a	% Mean	Cut 1	Cut 2	Cut 3	Cut 4	Tons/a	% Mean	Tons/a	% Mean	Regrowth
High Quality Check	High Quality Check	3	12.16	108.1	4.50	2.97	2.53	1.33	11.33	109.2	23.49	109.0	3.3
America's Alfalfa	AmeriStand 428TQ	4	11.89	105.7	4.21	3.09	2.83	1.43	11.55	111.4	23.44	108.8	4.3
S&W Seed Co.	SW4306	4	11.92	105.9	4.22	2.97	2.59	1.44	11.22	108.2	23.14	107.4	4.5
W-L Research	WL 377HQ	5	11.71	104.1	4.10	3.14	2.69	1.29	11.23	108.2	22.93	106.4	5.0
S&W Seed Co.	SW5520Y	5	11.74	104.4	4.07	2.90	2.68	1.51	11.16	107.6	22.91	106.3	5.0
Nutrien Ag Solutions	DG 4120	4	11.36	101.0	4.29	2.65	2.61	1.51	11.06	106.6	22.42	104.1	5.0
Legacy Seeds, LLC	LS - 06DR	4	11.49	102.1	4.06	2.93	2.55	1.31	10.84	104.5	22.33	103.6	4.0
Legacy Seeds, LLC	LS - 04SJ	4	11.79	104.8	4.10	2.92	2.27	1.21	10.51	101.3	22.30	103.5	4.5
S&W Seed Co.	SW4412Y	4	11.57	102.8	4.27	2.73	2.23	1.34	10.56	101.8	22.12	102.7	3.3
Legacy Seeds, LLC	LS - 1508	6	11.45	101.8	4.29	2.85	2.19	1.24	10.57	101.9	22.02	102.2	4.3
Pioneer Brand	54Q29	4	11.00	97.8	4.01	2.89	2.66	1.36	10.92	105.3	21.92	101.7	4.3
Bayer US Crop Science	DKA50-17	5	11.01	97.9	3.98	2.96	2.53	1.40	10.88	104.9	21.89	101.6	5.0
NEXGROW	6453Q	4	11.35	100.9	3.92	2.66	2.33	1.32	10.22	98.6	21.57	100.1	5.0
Forage Genetics	FG C0415SN223*	NA	11.07	98.4	3.68	2.87	2.43	1.45	10.43	100.6	21.51	99.8	5.0
RR check	RR check	4	11.31	100.6	3.93	2.67	2.30	1.27	10.17	98.0	21.49	99.7	4.0
BrettYoung	Silverland GT 5	5	10.49	93.2	3.31	2.46	2.43	1.23	9.44	91.0	19.92	92.5	5.0
Public	Vernal	2	9.48	84.2	3.45	2.46	1.83	0.79	8.53	82.3	18.01	83.6	2.0
GO Seed/Jerry Hall	GO-FU Falcata Alfalfa	NA	8.34	74.2	2.65	1.68	1.60	0.16	6.09	58.7	14.44	67.0	1.0
	Mean	**4.2**	**11.25**	**100**	**3.95**	**2.77**	**2.40**	**1.26**	**10.37**	**100.0**	**21.55**	**100.0**	**4.1**
	CV %		**5.7**	**5.7**	**8.4**	**9.2**	**11.2**	**10.4**	**7.0**	**7.0**	**5.9**	**5.9**	**11.6**
	LSD 10%		**0.76**	**6.8**	**0.40**	**0.31**	**0.32**	**0.16**	**0.86**	**8.3**	**1.51**	**7.01**	**1.5**

* Originally entered as an experimental

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

Planted August 7, 2020			2021		2022 Harvests						2 Yr. Totals		2022 Fall
		Dorm.	Total	Total	25-May	8-Jul	22-Aug	21-Sep	Total	Total	Total	Total	14-Oct
Company	Entry	Rating	Tons/a	% Mean	Cut 1	Cut 2	Cut 3	Cut 4	Tons/a	% Mean	Tons/a	% Mean	Regrowth
Alforex Seeds	AFX174083	4	13.63	111.2	3.50	3.58	2.66	1.67	11.41	115.5	25.0	113.1	3.8
Mountain View Seeds	MVS 4220Q	4	13.35	109.0	3.24	3.76	1.99	1.82	10.80	109.4	24.2	109.2	4.5
Pioneer Brand	54Q29	4	13.19	107.6	3.18	3.34	2.13	1.63	10.27	104.0	23.5	106.0	4.5
Bayer US Crop Science	DKA50-17	5	12.96	105.7	2.95	3.34	2.31	1.67	10.27	104.0	23.2	105.0	4.0
Legacy Seeds, LLC	LS - 1508	6	12.89	105.2	3.19	3.44	1.90	1.63	10.16	102.9	23.1	104.2	4.0
Allied Seed	FSG 415BR	4	12.82	104.6	3.17	3.42	1.90	1.60	10.09	102.2	22.9	103.5	4.0
Bayer US Crop Science	DKA44-18	4.4	12.46	101.7	3.04	3.39	2.24	1.68	10.35	104.8	22.8	103.1	4.8
Allied Seed	FSG 527	5	12.61	102.9	2.76	3.69	1.91	1.82	10.18	103.1	22.8	103.0	5.0
Alforex Seeds	AFX 439*	4	12.45	101.6	3.07	3.61	2.07	1.58	10.33	104.6	22.8	102.9	4.0
Wilbur Ellis	Integra 8460	4	12.11	98.8	3.09	3.48	2.21	1.58	10.37	105.0	22.5	101.5	4.3
Alforex Seeds	HybriForce-3600	4	12.81	104.6	3.03	3.20	1.79	1.60	9.61	97.3	22.4	101.3	4.5
Alforex 360	High Quality check	3	12.55	102.4	2.95	3.27	2.06	1.48	9.75	98.7	22.3	100.8	3.5
Alforex Seeds	HybriForce-4400	4	12.30	100.4	3.16	3.36	1.98	1.47	9.96	100.9	22.3	100.6	2.8
Wilbur Ellis	Integra 8520	5	12.31	100.4	2.77	3.50	2.12	1.53	9.93	100.5	22.2	100.5	3.5
S&W Seed Co.	SW5520Y	5	12.61	102.9	2.65	3.38	1.90	1.64	9.58	97.0	22.2	100.2	5.0
S&W Seed Co.	SW4412Y	4	12.19	99.4	2.82	3.43	1.94	1.73	9.92	100.5	22.1	99.9	4.5
RR Check	RR Check	4	12.32	100.5	2.94	3.20	2.09	1.51	9.74	98.6	22.1	99.7	4.3
Nutrien Ag Solutions	DG 4120	4	12.12	98.8	2.87	3.28	1.99	1.74	9.89	100.1	22.0	99.4	4.8
Legacy Seeds, LLC	LS - 04SJ	4	12.40	101.1	2.93	3.08	1.83	1.62	9.46	95.8	21.9	98.8	4.3
Legacy Seeds, LLC	LS - 06DR	4	12.06	98.4	3.11	3.13	1.93	1.59	9.77	99.0	21.8	98.6	4.0
Forage Genetics	FG C0415SN223*	NA	12.07	98.5	2.83	3.17	2.21	1.49	9.70	98.2	21.8	98.3	5.0
Bayer US Crop Science	DKA40-16	4	11.90	97.1	2.80	3.55	1.87	1.61	9.82	99.5	21.7	98.1	4.5
America's Alfalfa	AmeriStand 428TQ	4	11.98	97.8	2.63	3.36	1.99	1.65	9.63	97.5	21.6	97.7	4.5
BrettYoung	Silverland GT 5	5	11.99	97.8	2.71	3.02	1.80	1.66	9.19	93.1	21.2	95.7	5.0
Alforex Seeds	AFX175021	5	11.03	90.0	2.85	3.31	2.03	1.64	9.84	99.6	20.9	94.3	4.5
Public	Vernal	2	10.92	89.1	2.90	2.80	1.72	1.43	8.85	89.6	19.8	89.3	2.3
GO Seed/Jerry Hall	GO-FU Falcata Alfalfa	4	8.92	72.7	3.08	2.27	1.79	0.60	7.75	78.4	16.7	75.3	1.0
Mean		**4.2**	**12.3**	**100.0**	**2.97**	**3.31**	**2.01**	**1.58**	**9.87**	**100.0**	**22.1**	**100.0**	**4.1**
CV %			**5.8**	**5.8**	**9.6**	**8.5**	**18.0**	**7.6**	**6.8**	**6.8**	**4.6**	**4.6**	**11.2**
LSD 10%			**0.84**	**6.9**	**0.34**	**0.33**	**NS**	**0.14**	**0.79**	**8.0**	**1.2**	**5.4**	**0.5**

NA = Not Available
* Originally entered as an experimental.

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

Planted August 7, 2020		Fall	2021		2022 Harvests						2 Year Total		2022 Fall
		Dorm.	Total	Total	25-May	8-Jul	22-Aug	21-Sep	Total	Total	Total	Total	14-Oct
Company	Entry	Rating	Tons/a	% Mean	Cut 1	Cut 2	Cut 3	Cut 4	Tons/a	% Mean	Tons/a	% Mean	Regrowth
Bayer US Crop Science	DKA43-18	4.3	13.92	105.6	3.16	2.97	1.91	1.64	9.78	101.8	23.69	104.0	4.8
America's Alfalfa	Ameristand 416NT RR*	NA	13.52	102.6	3.20	3.35	1.78	1.69	9.92	103.3	23.43	102.9	5.0
Bayer US Crop Science	DKA40-51	3.7	13.24	100.5	3.07	3.47	2.22	1.61	9.86	102.7	23.10	101.4	4.0
NEXGROW	6527R.ST	5	13.25	100.5	3.03	3.04	1.94	1.70	9.80	102.2	23.05	101.2	4.8
Wilbur Ellis	Integra 8471R	5	13.29	100.9	2.79	0.00	2.19	1.55	9.61	100.2	22.90	100.6	5.0
RR check	RR Check 1	4	13.21	100.2	2.87	2.88	1.93	1.57	9.51	99.0	22.71	99.7	4.0
Bayer US Crop Science	DKA44-16	4.4	13.34	101.2	2.90	3.57	1.88	1.57	9.36	97.5	22.69	99.7	4.8
RR check 2	RR check 2	4	12.65	96.0	3.05	0.00	2.09	1.56	9.55	99.5	22.20	97.5	4.3
W-L Research	WL375HVX.RR	5	12.17	92.4	2.80	0.00	1.79	1.55	9.01	93.8	21.18	93.0	4.8
Mean		**4.4**	**13.2**	**100.0**	**2.99**	**2.14**	**1.97**	**1.60**	**9.60**	**100.0**	**22.77**	**100.0**	**4.6**
CV %			**3.3**	**3.3**	**7.8**	**7.6**	**15.3**	**7.3**	**6.5**	**6.5**	**3.9**	**3.9**	**7.7**
LSD 10%			**0.53**	**4.0**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**1.08**	**4.7**	**0.4**

NA = Not available
* = Entered as an experimental variety

Table 11. One-Year Forage Yield - 2021 Othello Alfalfa Variety Trial, Othello, Adams County, WA
Forage Yield (Ton DM/A)

Planted August 10, 2021		Fall	2022 Harvests						2022 Fall
		Dorm.	1-Jun	11-Jul	18-Aug	14-Sep	Total	Total	14-Oct
Company	Entry	Rating	Cut 1	Cut 2	Cut 3	Cut 4	Tons/a	% Mean	Regrowth
S&W Seed Company	SW5615	5	4.14	2.71	2.51	1.41	10.78	108.8	4.5
America's Alfalfa	AmeriStand 416NT RR	4	3.99	2.77	2.24	1.48	10.49	105.9	5.0
Dyna Gro	DG4120	4	3.90	2.69	2.23	1.46	10.28	103.7	5.0
CROPLAN	Rebound AA	4.4	3.85	2.66	2.13	1.41	10.05	101.4	4.5
America's Alfalfa	AmeriStand 428 TQ	4	3.70	2.57	2.13	1.40	9.80	98.9	4.5
RR Check	RR Check	4	3.69	2.65	2.02	1.31	9.67	97.6	3.8
CROPLAN	LegenDairy AA	3.4	3.72	2.58	2.04	1.32	9.65	97.4	4.8
America's Alfalfa	Ameristand 446 NT	4	3.32	2.47	2.23	1.30	9.32	94.0	5.0
Check Conv.	Vernal	2	3.52	2.45	2.13	1.04	9.14	92.3	2.3
	Mean	**3.9**	**3.76**	**2.62**	**2.18**	**1.35**	**9.91**	**100.0**	**4.4**
	CV %		**8.5**	**8.4**	**9.1**	**7.7**	**5.4**	**5.4**	**11.1**
	LSD 10%		**0.39**	**NS**	**0.24**	**0.13**	**0.65**	**6.6**	**0.6**

NA = Not available
* = Entered as an experimental variety

Table 12. One-Year Forage Yield - 2021 City of Pasco Alfalfa Variety Trial, Pasco, WA
Forage Yield (Ton DM/A)

Planted August 11, 2021		Fall	2022 Harvests						2022 Fall
		Dorm.	26-May	7-Jul	22-Aug	21-Sep	Total	Total	17-Oct
Company	Entry	Rating	Cut 1	Cut 2	Cut 3	Cut 4	Tons/a	% Mean	Regrowth
S&W Seed Company	SW5615	5	2.61	3.63	1.84	1.95	10.01	113.3	5.0
Corteva Agriscience	Magnum 8-Wet	4	2.90	3.38	1.89	1.72	9.73	110.0	4.3
Corteva Agriscience	54Q16	4	2.19	3.52	1.95	1.68	9.49	107.3	4.5
Corteva Agriscience	54VQ52	4	2.18	3.18	2.27	1.78	9.46	107.0	4.3
CROPLAN	Nimbus	5	1.88	3.57	2.06	1.68	9.23	104.4	5.0
Corteva Agriscience	HybriForce-4420/Wet	4	2.49	3.00	1.97	1.68	9.10	102.9	3.8
America's Alfalfa	AmeriStand 428 TQ	4	2.15	3.30	1.93	1.54	9.00	101.9	4.5
CROPLAN	Rebound AA	4.4	1.89	3.33	2.05	1.58	8.98	101.6	5.0
WL Research	WL 3521	5	2.12	3.22	1.77	1.60	8.86	100.2	5.0
Pioneer 54H11	Conv. Check 2	4	1.91	3.27	1.75	1.71	8.77	99.2	4.0
Dyna Gro	DG4120	4	1.91	3.22	1.96	1.45	8.75	99.0	5.0
Legacy Seeds	151*	4	2.10	3.07	1.95	1.79	8.73	98.7	4.0
Dekalb 42-22RR	RR Check	4	1.82	3.24	1.83	1.74	8.60	97.3	4.5
America's Alfalfa	Ameristand 446 NT	4	2.09	2.94	1.67	1.52	8.31	94.0	5.0
CROPLAN	LegenDairy AA	3.4	1.91	3.03	1.83	1.43	8.27	93.5	4.5
Legacy Seeds	183*	4	2.03	2.83	1.86	1.47	8.19	92.7	4.3
Legacy Seeds	181*	4	1.86	3.00	1.74	1.47	8.15	92.2	4.8
Check Conv.	Vernal	2	2.00	2.87	1.87	1.40	8.14	92.1	2.0
	Mean	**3.9**	**2.06**	**3.23**	**1.88**	**1.59**	**8.84**	**100.0**	**4.4**
	CV %		**16.2**	**10.0**	**11.9**	**8.5**	**6.9**	**6.9**	**8.6**
	LSD 10%		**0.41**	**0.38**	**NS**	**0.17**	**0.72**	**8.1**	**0.4**

NA = Not available
* = Entered as an experimental variety

Table 13. One-Year Forage Yield - 2021 RR City of Pasco Alfalfa Variety Trial, Pasco, WA
Forage Yield (Ton DM/A)

Planted August 11, 2021		Fall	2022 Harvests						2022 Fall
		Dorm.	26-May	7-Jul	22-Aug	21-Sep	Total	Total	17-Oct
Company	Entry	Rating	Cut 1	Cut 2	Cut 3	Cut 4	Tons/a	% Mean	Regrowth
CROPLAN	RR Saltiva	4.8	3.17	3.19	2.15	1.86	10.36	108.37	5.0
Corteva Agriscience	AFX 463 RR	4	2.93	2.95	2.13	1.94	9.96	104.12	4.5
Dekalb 42-22RR	RR Check	4	3.25	2.95	1.74	1.72	9.66	101.04	4.0
WL Research	WL 3441 RR	5	2.88	3.01	2.06	1.62	9.57	100.04	4.5
America's Alfalfa	AmeriStand 416NT RR	4	2.84	3.00	1.97	1.62	9.44	98.69	4.8
CROPLAN	RR Aphatron 2XT	4	2.43	3.24	1.96	1.80	9.43	98.65	4.5
CROPLAN	RR NemaStar	4.9	2.66	3.06	2.00	1.70	9.42	98.50	5.0
CROPLAN	HVX Megatron	4.2	2.72	3.05	1.74	1.73	9.24	96.58	4.3
4R300	RR Check 2	4	2.58	2.88	1.86	1.66	8.99	94.02	4.5
	Mean	**4.3**	**2.83**	**3.04**	**1.96**	**1.74**	**9.56**	**100.0**	**4.6**
	CV %		**13.8**	**7.8**	**13.8**	**6.3**	**7.1**	**7.1**	**13.0**
	LSD 10%		**NS**	**NS**	**NS**	**0.13**	**NS**	**NS**	**NS**

NA = Not available
* = Entered as an experimental variety

Table 14. Forage Quality Constituents and Hay Value per Ton - First Cutting 2019 Alfalfa Variety Trial, Othello, Adams County, WA

Planted August 10, 2019			Protein Content	Amylase Neutral Deterg. Fiber (aNDF)	Ash Content	Fat Content	Lignin Content	Non-fibrous Carbohydrates (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	22.5	35.1	8.69	5.72	34.34	34.3	0.643	48.7	495
Farmers Business Network	F2F6C-418	4	22.6	35.2	9.27	5.67	33.48	33.5	0.637	48.5	495
Simplot Growers Solution	MPIII Max Q	5	23.7	32.5	9.75	5.46	34.34	34.3	0.651	47.0	487
Farmers Business Network	F2F6C-628	6	21.9	35.5	9.64	5.84	33.52	33.5	0.624	46.7	476
DeKalb	DKA44-18	4	22.5	34.4	9.93	5.77	33.64	33.6	0.629	46.2	474
Simplot Growers Solution	SGS 47M	4	22.1	34.7	9.56	5.86	34.16	34.2	0.629	45.9	469
Mean		**4.2**	**22.5**	**34.6**	**9.47**	**5.72**	**33.91**	**33.9**	**0.635**	**47.2**	**483**
CV %			**3.0**	**4.0**	**4.2**	**5.3**	**3.5**	**2.4**	**1.8**	**3.2**	**2.5**
LSD 10%			**0.8**	**1.7**	**0.49**	**NS**	**NS**	**NS**	**0.014**	**1.9**	**15**

[1] Calculated at $1.07/ lb of Metabolizable Protein; $0.088/lb of Mcal of energy, and $0.25 lb of effective NDF (assuming aNDF is 100% effective).
[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $6.50 increase or decrease of the value of hay for every point below or above an NDFD 47%, 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 Second Cutting of the 2019 Alfalfa Variety Trial, 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	174	194	233	99	152	11	495
Farmers Business Network	F2F6C-418	4	174	192	235	98	152	10	495
Simplot Growers Solution	MPIII Max Q	5	191	205	246	100	141	0	487
Farmers Business Network	F2F6C-628	6	171	184	228	96	154	-2	476
DeKalb	DKA44-18	4	177	189	233	97	149	-5	474
Simplot Growers Solution	SGS 47M	4	176	187	229	97	150	-7	469
Mean		**4.2**	**177**	**192**	**234**	**98**	**150**	**1**	**483**
CV %			**5.4**	**5.9**	**3.0**	**1.8**	**4.0**	**874.9**	**2.5**
LSD 10%			**NS**	**NS**	**9**	**2**	**7**	**12**	**15**

[1] Calculated at $1.07/ lb of Metabolizable Protein; $0.088/lb of Mcal of energy, and $0.25 lb of effective NDF (assuming aNDF is 100% effective).
[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $6.50 increase or decrease of the value of hay for every point below or above an NDFD 47%, 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 2019 Trial in 2022 - Alfalfa Variety Trial, Othello, Adams County, WA

Planted August 10, 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]	Nutrient Value of Hay (@ 12% Moisture) per Acre[3]	Total Value of Hay per Ton @ 12% Moisture[3]	Average 2020-2022 Total Value of Hay per Ton @ 12% Moisture[3,4]	2020-2022 Total Nutrient Value of Hay (@ 12% Moisture) per Acre[3,4]
			Tons/ acre	$/acre	$/acre	$/acre	$/acre	$/acre	$/ton	$/acre	$/acre
Farmers Business Network	F2F6C-418	4	3.70	863	362	567	34	1,826	495	431	3,584
DeKalb	DKA44-18	4	3.78	882	366	564	-15	1,798	495	418	3,372
Simplot Growers Solution	MPIII Max Q	5	3.43	844	344	483	3	1,674	474	428	3,339
Simplot Growers Solution	SGS 47M	4	3.62	830	351	544	-25	1,700	476	413	3,316
Public	Vernal	2	3.31	771	328	503	39	1,641	469	426	3,184
Farmers Business Network	F2F6C-628	6	3.47	792	334	533	-7	1,653	487	415	3,174
Mean		**4.2**	**3.55**	**830**	**347**	**533**	**5**	**1715**	**483**	**422**	**3328**
CV %			**7.4**	**8.1**	**7.4**	**8.4**	**699.1**	**8.2**	**2.5**	**2.0**	**5.8**
LSD 10%			**NS**	**NS**	**NS**	**NS**	**43**	**NS**	**15**	**11**	**241**

[1] Calculated at $1.07/ lb of Metabolizable Protein; $0.088/lb of Mcal of energy, and $0.25 lb of effective NDF (assuming aNDF is 100% effective).
[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $6.50 increase or decrease of the value of hay for every point below or above an NDFD 47%, respectively.
[3] Total Value of Hay per Ton @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)
[4] Sum of first cutting in 2020, 2021 and 2022. nutrients at $0.33, $0.534, $1.072/ lb of Metabolizable Protein; $0.117, $0.116, $0.0876/lb of Mcal of energy; and 0.083, $0.18, $0.246 lb of effective NDF for 2020, 2021 and 2022, respectively.

Table 17. Forage Quality Constituents and Hay Value per Ton - First Cutting 2019 Alfalfa Variety Trial, 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 Carbohydrates (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
Conv. Check 1	Vernal	2	22.0	39.0	9.25	1.50	6.60	31.0	0.595	48.9	501
Simplot Grower Solutions	MPIII Max Q	5	21.6	38.2	9.27	1.58	6.49	32.0	0.600	49.1	496
DeKalb	DKA40-51RR	4	21.9	37.4	9.45	1.57	6.39	32.3	0.603	47.4	485
DeKalb	DKA44-18	4	21.7	37.9	9.60	1.55	6.41	31.9	0.598	47.1	482
Simplot Grower Solutions	SGS 47M	4	20.9	39.0	9.55	1.51	6.58	31.8	0.587	47.2	477
Farmers Business Network	F2F6C-628	6	21.2	39.1	9.67	1.40	6.68	31.4	0.582	46.6	476
Farmers Business Network	F2F6C-418	4	20.4	40.7	8.77	1.46	6.79	31.5	0.583	46.2	472
Mean		**4.1**	**21.4**	**38.8**	**9.36**	**1.51**	**6.56**	**31.7**	**0.593**	**47.5**	**484**
CV %			**3.2**	**3.8**	**7.1**	**6.3**	**3.7**	**2.5**	**1.7**	**3.7**	**2.6**
LSD 10%			**0.8**	**1.8**	**NS**	**NS**	**NS**	**NS**	**0.013**	**NS**	**16**

[1] Calculated at $1.07/ lb of Metabolizable Protein; $0.088/lb of Mcal of energy, and $0.25 lb of effective NDF (assuming aNDF is 100% effective).
[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $6.50 increase or decrease of the value of hay for every point below or above an NDFD 47%, respectively.
[3] Total Value of Hay per Ton @ 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 the 2019 Alfalfa Variety Trial, 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
Conv. Check 1	Vernal	2	148	168	228	92	169	12	501
Simplot Grower Solutions	MPIII Max Q	5	153	173	224	93	165	14	496
DeKalb	DKA40-51RR	4	158	173	228	93	162	2	485
DeKalb	DKA44-18	4	155	169	225	92	164	1	482
Simplot Grower Solutions	SGS 47M	4	148	163	216	90	169	1	477
Farmers Business Network	F2F6C-628	6	148	161	220	90	169	-3	476
Farmers Business Network	F2F6C-418	4	140	154	211	90	176	-5	472
Mean		**4.1**	**150**	**166**	**222**	**91**	**168**	**3**	**484**
CV %			**5.3**	**6.1**	**7.6**	**7.1**	**9.6**	**483.1**	**2.6**
LSD 10%			**10**	**12**	**9**	**2**	**8**	**NS**	**16**

[1] Calculated at $1.07/ lb of Metabolizable Protein; $0.088/lb of Mcal of energy, and $0.25 lb of effective NDF (assuming aNDF is 100% effective).
[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $6.50 increase or decrease of the value of hay for every point below or above an NDFD 47%, respectively.
[3] Total Value of Hay per Ton @ 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 First Cut per Acre as Fed from the 2019 Trial in 2022 - 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]	2020-2022 Total Value of Hay per Ton @ 12% Moisture[3,4]	2020-2022 Avg. Nutrient Value of Hay (@ 12% Moisture) per Acre[3,4]
			Tons/acre	$/acre	$/acre	$/acre	$/acre	$/acre	$/ton	$/ton	$/acre
Farmers Business Network	F2F6C-418	4	3.64	770	327	643	-19	1720	496	375	4,701
DeKalb	DKA44-18	4	3.55	797	326	585	1	1710	501	381	4,661
Simplot Grower Solutions	SGS 47M	4	3.62	783	327	611	4	1724	482	376	4,611
Simplot Grower Solutions	MPIII Max Q	5	3.54	794	328	586	45	1753	477	389	4,589
DeKalb	DKA40-51RR	4	3.52	801	327	569	9	1707	472	380	4,495
Farmers Business Network	F2F6C-628	6	3.01	660	270	510	-9	1432	485	382	4,298
Conv. Check 1	Vernal	2	2.56	583	234	433	28	1278	476	385	3,754
Mean		**4.1**	**3.35**	**741**	**306**	**563**	**8**	**1618**	**484**	**381**	**4444**
CV %			**7.5**	**7.6**	**7.1**	**9.6**	**483.1**	**7.7**	**2.6**	**1.9**	**5.9**
LSD 10%			**0.31**	**69**	**26**	**66**	**NS**	**153**	**16**	**NS**	**324**

[1] Calculated at $1.07/ lb of Metabolizable Protein; $0.088/lb of Mcal of energy, and $0.25 lb of effective NDF (assuming aNDF is 100% effective).
[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $6.50 increase or decrease of the value of hay for every point below or above an NDFD 47%, respectively.
[3] Total Value of Hay per Ton @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)
[4] Sum of first cutting in 2020, 2021 and 2022. nutrients at $0.33, $0.534, $1.072/ lb of Metabolizable Protein; $0.117, $0.116, $0.0876/lb of Mcal of energy; and $0.083, $0.18, and $0.246 lb of effective NDF for 2020, 2021, and 2022, respectively.

Table 20. Forage Quality Constituents and Hay Value per Ton - First Cutting 2020 Alfalfa Variety Trial, Othello, Adams County, WA

Planted August 6, 2020			Protein Content	Amylase Neutral Deterg. Fiber (aNDF)	Ash Content	Fat Content	Lignin Content	Non-fibrous Carbohydrates (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**
GO Seed	GO-FU Falcata	NA	25.1	33.7	9.58	2.03	5.52	5.5	0.655	51.4	535
Public	Vernal	2	22.3	37.5	9.77	1.72	6.17	6.2	0.606	49.1	501
Alforex 360	High Qual. Check	3	22.2	37.0	10.01	1.84	6.06	6.1	0.609	46.9	484
Bayer US Crop Sci.	DKA50-17	5	21.5	40.0	9.52	1.70	6.61	6.6	0.588	45.8	479
Pioneer Brand	54Q29	4	21.3	39.8	10.03	1.66	6.66	6.7	0.579	45.6	473
	Mean		**22.5**	**37.6**	**9.78**	**1.79**	**6.20**	**6.2**	**0.607**	**47.7**	**494**
	CV %		**2.3**	**2.9**	**3.8**	**0.1**	**3.0**	**3.2**	**1.7**	**3.7**	**2.8**
	LSD 10%		**0.6**	**1.4**	**NS**	**0.09**	**0.24**	**1.3**	**0.013**	**2.2**	**17**

[1] Calculated at $1.07/ lb of Metabolizable Protein; $0.088/lb of Mcal of energy, and $0.25 lb of effective NDF (assuming aNDF is 100% effective).
[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $6.50 increase or decrease of the value of hay for every point below or above an NDFD 47%, 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 the First Cutting of the 2020 Alfalfa Variety Trial, Othello, Adams County, WA

Planted August 6, 2020			**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**
GO Seed	GO-FU Falcata	NA	181	208	260	101	146	28	535
Public	Vernal	2	157	176	232	93	163	14	501
Alforex 360	High Qual. Check	3	161	174	230	94	160	-1	484
Bayer US Crop Sci.	DKA50-17	5	144	155	223	91	173	-8	479
Pioneer Brand	54Q29	4	145	155	220	89	172	-9	473
	Mean	**3.5**	**158**	**174**	**233**	**94**	**163**	**5**	**494**
	CV %		**4.2**	**4.7**	**2.3**	**1.7**	**2.9**	**234.1**	**2.8**
	LSD 10%		**8**	**10**	**7**	**2**	**6**	**14**	**17**

[1] Calculated at $1.07/ lb of Metabolizable Protein; $0.088/lb of Mcal of energy, and $0.25 lb of effective NDF (assuming aNDF is 100% effective).
[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $6.50 increase or decrease of the value of hay for every point below or above an NDFD 47%, 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 First Cut per Acre as Fed from 2020 Trial in 2021 – Alfalfa Variety Trial, Othello, Adams County, WA

Planted August 6, 2020			**1st Cut Yield (12% Moisture)**	**Value of Metabol. Protein (@ 55% of C. Protein) per Acre[1]**	**Value of Energy (Mega Calories) 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]**	**Average 2020-2022 Total Value of Hay per Ton @ 12% Moisture[3,4]**	**2020-2022 Total Nutrient Value of Hay (@ 12% Moisture) per Acre[3,4]**
Company	**Entry**	**Rating**	**Tons/acre**	**$/acre**	**$/acre**	**$/acre**	**$/acre**	**$/acre**	**$/ton**	**$/acre**	**$/acre**
Alforex 360	High Qual. Check	3	5.11	1175	479	819	-3	2471	484	435	4,586
Pioneer Brand	54Q29	4	4.56	1005	407	785	-41	2156	473	416	3,754
Bayer US Crop Sci.	DKA50-17	5	4.53	1010	410	784	-34	2170	479	420	3,720
Public	Vernal	2	3.92	910	366	637	54	1967	501	433	3,627
GO Seed	GO-FU Falcata	NA	3.01	782	303	441	85	1611	535	457	3,572
	Mean	**3.5**	**4.23**	**976**	**393**	**693**	**12**	**2075**	**494**	**422**	**3328**
	CV %		**8.0**	**8.8**	**7.5**	**9.0**	**410.0**	**9.5**	**2.8**	**1.7**	**8.4**
	LSD 10%		**0.42**	**108**	**37**	**78**	**64**	**249**	**17**	**9**	**408**

[1] Calculated at $1.07/ lb of Metabolizable Protein; $0.088/lb of Mcal of energy, and $0.25 lb of effective NDF (assuming aNDF is 100% effective).
[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $6.50 ncrease or decrease of the value of hay for every point below or above an NDFD 47%, respectively.
[3] Total Value of Hay per Ton @ 12% Moisture (sum of protein, energy, fiber, & fiber adjustment)
[4] Sum of first cutting in 2021 and 2022. nutrients at $0.534, $1.072/ lb of Metabolizable Protein; $0.116, $0.0876/lb of Mcal of energy; and $0.18, and $0.246 lb of effective NDF for 2020, 2021, and 2022, respectively.

Table 23. Forage Quality Constituents and Hay Value per Ton - First Cutting 2020 Alfalfa Variety Trial, Pasco, Franklin County, WA

Planted August 7, 2020			**Protein Content**	**Amylase Neutral Deterg. Fiber (aNDF)**	**Ash Content**	**Fat Content**	**Lignin Content**	**Non-fibrous Carbohydrates (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**
GO Seed	GO-FU Falcata	NA	24.8	35.7	10.40	1.81	6.06	29.8	0.622	54.4	556
Public	Vernal	2	21.9	37.7	9.87	1.49	6.35	31.7	0.597	48.8	495
Bayer US Crop Sci.	DKA50-17	5	21.7	37.4	10.07	1.56	6.36	31.9	0.595	49.3	494
Alforex 360	High Qual. Check	3	21.8	37.0	9.96	1.60	6.27	32.2	0.601	48.5	488
Pioneer Brand	54Q29	4	21.8	38.1	9.61	1.55	6.52	31.6	0.595	46.8	482
	Mean	**3.5**	**22.4**	**37.2**	**9.98**	**1.60**	**6.31**	**31.5**	**0.602**	**49.6**	**503**
	CV %		**3.7**	**5.3**	**8.8**	**7.4**	**5.2**	**2.5**	**2.3**	**4.2**	**9.5**
	LSD 10%		**1.1**	**NS**	**NS**	**0.15**	**0.41**	**1.0**	**0.018**	**2.6**	**14**

[1] Calculated at $1.07/ lb of Metabolizable Protein; $0.088/lb of Mcal of energy, and $0.25 lb of effective NDF (assuming aNDF is 100% effective).
[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $6.50 increase or decrease of the value of hay for every point below or above an NDFD 47%, respectively.

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 the First Cutting of the 2020 Alfalfa Variety Trial, Pasco, Franklin County, WA

Planted August 7, 2020			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**
GO Seed	GO-FU Falcata	NA	167	199	257	96	154	48	556
Public	Vernal	2	156	174	228	92	163	12	495
Bayer US Crop Sci.	DKA50-17	5	157	176	225	92	162	15	494
Alforex 360	High Qual. Check	3	161	177	226	93	160	10	488
Pioneer Brand	54Q29	4	155	169	226	92	165	-1	482
	Mean	**3.5**	**159**	**179**	**232**	**93**	**161**	**17**	**503**
	CV %		**7.3**	**7.7**	**3.7**	**2.3**	**5.3**	**80.4**	**9.5**
	LSD 10%		**NS**	**17**	**11**	**3**	**NS**	**17**	**14**

[1] Calculated at $1.07/ lb of Metabolizable Protein; $0.088/lb of Mcal of energy, and $0.25 lb of effective NDF (assuming aNDF is 100% effective).
[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $6.50 increase or decrease of the value of hay for every point below or above an 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 First Cut per Acre as Fed from the 2020 Trial in 2022 - Alfalfa Variety Trial, Pasco, Franklin, WA

Planted August 7, 2020			1st Cut Yield (12% Moisture)	Value of Metabol. Protein (@ 55% of C. Protein) per Acre[1]	Value of Energy (Mega Calories) 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]	2021-2022 Total Value of Hay per Ton @ 12% Moisture[3,4]	2021-2022 Avg. Nutrient Value of Hay (@ 12% Moisture) per Acre[3,4]
Company	**Entry**	**Rating**	**Tons/acre**	**$/acre**	**$/acre**	**$/acre**	**$/acre**	**$/acre**	**$/ton**	**$/ton**	**$/acre**
GO Seed	GO-FU Falcata	NA	3.50	900	335	540	170	1945	556	467	3,233
Bayer US Crop Sci.	DKA50-17	5	3.36	755	308	544	51	1657	494	432	3,228
Pioneer Brand	54Q29	4	3.61	816	331	595	-3	1740	482	423	3,197
Alforex 360	High Qual. Check	3	3.35	756	310	537	30	1633	488	439	3,121
Public	Vernal	2	3.29	750	303	537	39	1629	495	435	2,933
Mean		**3.5**	**3.42**	**795**	**317**	**551**	**57**	**1721**	**503**	**439**	**3142**
CV %			**8.0**	**10.1**	**8.5**	**9.4**	**81.4**	**2.8**	**9.5**	**2.6**	**9.8**
LSD 10%			**NS**	**101**	**NS**	**NS**	**59**	**206**	**18**	**14**	**NS**

[1] Calculated at $1.07/ lb of Metabolizable Protein; $0.088/lb of Mcal of energy, and $0.25 lb of effective NDF (assuming aNDF is 100% effective).

[2] Adjustment for fiber impact of milk production due to cows eating more or less ration due to fiber digestibility, $6.50 increase or decrease of the value of hay for every point below or above an NDFD 47%, respectively.

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

[4] Sum of first cutting in 2021 and 2022 nutrients at $0.534, $1.072/ lb of Metabolizable Protein; $0.116, $0.0876/lb of Mcal of energy; and $0.18, and $0.246 lb of effective NDF for 2020, 2021, and 2022, respectively.