

Quantitative Rating of Alfalfa Plants For Growth Rate After Spring Green-up or Harvest.

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Efforts in developing healthy and productive alfalfa varieties often focus on breeding for disease and stress resistant cultivars, for example, breeding for persistence, breeding for adaptation to specific environments, breeding for yield per se, and breeding for quality. Historically, yield and productivity, quality and persistence are objectives of high concern to farmers. Many factors affect the yield, productivity and quality of alfalfa harvests. Recovery time between harvests limits overall alfalfa yields. A faster recovery between harvests shortens the number of days between harvests, which therefore maximizes the number of harvests and net yield for each season. Growers recognize and value the importance of this characteristic for its contribution to the season's net yield per acre. Additionally, fast recovery also contributes to moisture conservation, weed control, and forage quality. Recovery or growth rate was determined by measuring plant height at varying intervals and then comparing growth rate with check varieties. The growth rate of alfalfa varieties described was determined by: Step 1, measuring one or more plant heights (the distance from the soil surface to the top of the canopy) to the nearest centimeter, 3-7 days after spring green-up or after harvest, for the alfalfa variety and for one of the adapted check varieties; Step 2, converting the plant heights obtained in step (1) to growth rate (cm/day) by dividing plant height (cm) by the number of days since spring green-up or harvest; Step 3, repeating steps (1 and 2) every few days from 7 to 21 days after spring green-up or harvest; Step 4, calculating an average growth rate per day for the alfalfa variety and the adapted check variety by summing the growth rates per day obtained in steps (2 and 3) and dividing by the number of measurements; Step 5, converting the average growth rate (cm/day) obtained in step (4) to a percentage of the check variety by dividing alfalfa variety growth rate (cm/day) by the check variety growth rate (cm/day) and then multiplying by 100; and Step 6, calculating the percent faster recovery of the alfalfa variety relative to the adapted check variety by subtracting 100 from the alfalfa variety percentage of the check variety percentage obtained in step (5). Consistent differences in recovery rates between varieties were observed under 3, 4, and 5 cut systems. Varieties with fast recovery ratings exhibited higher forage yield and quality. Development of varieties expressing fast recovery will be helpful to hay growers in various regions to shorten the number of days between cuts, maximize number of harvests, provide greater net yield, conserve moisture, improve weed control, and provide greater forage quality.

Entry	5 cuts			% 4 cuts			% 3 cuts			Ave		% 3 cuts
	cm/day	ARI	Checks	cm/day	ARI	Checks	cm/day	ARI	Checks	cm/day	ARI	Checks
CW 34029	1.84	2.00	132%	2.01	2.00	132%	2.17	2.00	121%	2.01	1.85	128%
CW 35006	1.83	2.00	132%	1.95	1.94	128%	2.11	1.94	118%	1.96	1.81	125%
HybriForce-400	1.41	1.54	102%	1.44	1.43	94%	1.82	1.67	102%	1.56	1.43	99%
WL 319HQ	1.40	1.52	101%	1.63	1.62	107%	1.83	1.69	102%	1.62	1.49	103%
Ameristand 403T	1.35	1.47	97%	1.51	1.50	99%	1.72	1.58	96%	1.53	1.40	97%
Check Mean	1.39	1.51		1.53	1.52		1.79	1.65		1.57	1.44	
Trial Mean	1.56	1.70		1.73	1.72		1.93	1.77		1.72	1.58	
LSD (0.05)	0.11	0.12		0.10	0.10		0.12	0.11		0.11	0.10	
C.V. (%)	4.19	4.19		3.45	3.45		3.91	3.91		3.85	3.85	
R2	0.85			0.88			0.76					

ARI = Adjusted Recovery Index