

OPTIMIZING AMINO15™ APPLICATION TIMING IN WINTER WHEAT- YEAR 2

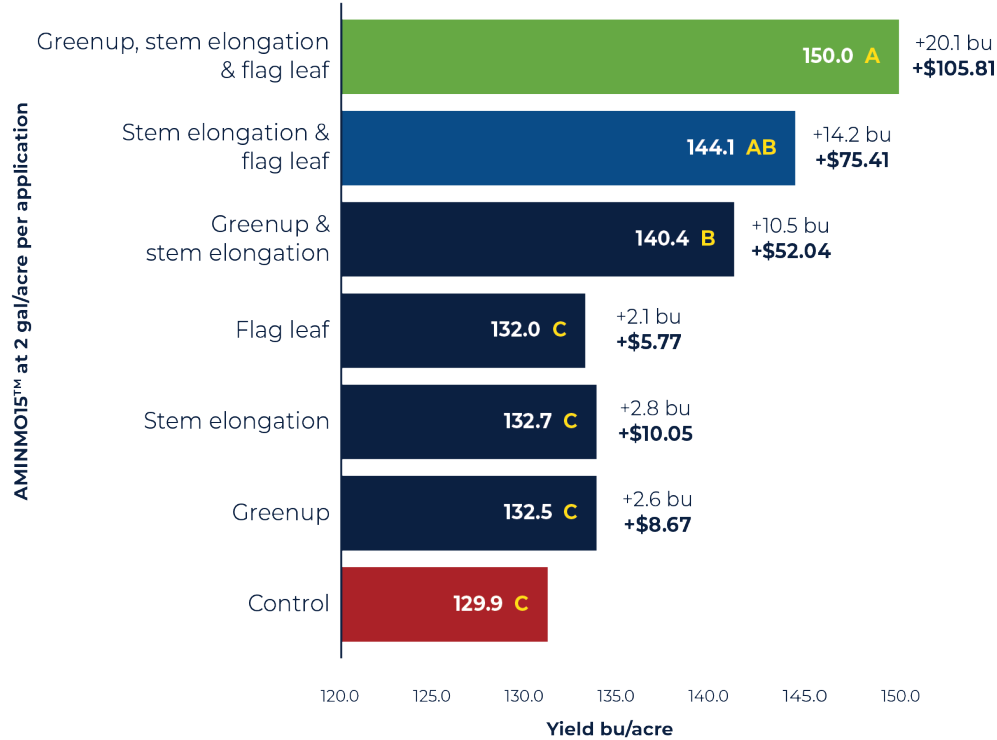
Hubbard Ag Science | Rosalia, WA

- **Single applications** increased yields by 2.1-2.8 bu/ac
- **Dual applications** at stem elongation + flag leaf produced the highest two-application yield at 144.1 bu/ac giving an ROI of \$75.41
- **Triple applications** at greenup, stem elongation, and flag leaf, produced the highest yield at 150.0 bu/ac, an increase of 20.1 bu/ac over the control and a ROI \$105.81
- **Tissue Testing** showed that repeated applications were associated with improved flag-leaf nutrient status, with the stem elongation + flag leaf program increasing nitrogen by 7.4% and pottasium by 19.3% compared with the control.

Amino15™ applications increased yield and profit—especially when applied more than once.

Table 1. Application timing of Amino15™ on winter wheat in Palouse, WA

Application Date	April 3, 2026	April 10, 2026	April 21, 2026
Feekes stage	2	7	9
BBCH stage	22	33	39
Application Description	Greenup	Stem Elongation	Flag Leaf



Effect of Amino15™ application timing on winter wheat yield in the Palouse region, WA – Yr 2.

Different letters indicate significant differences among treatment means (Holm-Sidak multiple range test; P<0.05)
ROI calculated using a soft white wheat price of \$6.45/bu.

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* Results may vary. Always perform a jar test before application

L-CBF RESEARCH TRIAL



TRIAL DETAILS

Variety: Sockeye CL+
Pre-emergence Fertilizer:

Urea Ammonium Nitrate (UAN 32-0-0): 30 gal/ac
Ammonium Thiosulphate (ATS 12-0-0-26S): 3.5 gal/ac
Ammonium Polyphosphate (APP 11-34-0): 2.5 gal/ac

Nutrients Applied lbs:

114 N - 10 P - 0 K - 10 S

Plant Date: 10/5/2025

Emergence Date: 10/22/2025

Harvest Date: 7/31/2026

Population: 1,000,000 seeds/ac

Plot Size: 8 x 30 ft

Replications: 6

SUMMARY

This second-year trial evaluated Amino15™ applied at 2 gal/ac at green-up, stem elongation, and at flag leaf.

For the second consecutive year, yield response generally increased as additional application timings were included.



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Wheat Tissue Nutrient Response

Tissue analysis was used to evaluate how application timing and frequency influenced the nutrient status of the wheat crop. Tissue testing was done by collecting 30 flag leaves during early heading. The flag leaves were collected from different replicates from each treatment, combined into representative samples and submitted to Northwest Agricultural Consultants for analysis. Flag leaves were taken from plants that were not going to be harvested to determine yield. Nutrient concentrations are reported on a dry-weight basis.

Change in tissue nutrient concentration relative to control

TREATMENT	N	P	K	S	Ca	Mg
Control	--	--	--	--	--	--
Stem elongation	+2.8%	+21.7%	17.4%	+10.3%	-3.2%	0.0%
Flag leaf	+5.9%	+17.4%	6.8%	+2.6%	-3.2%	-5.0%
Stem elongation + Flag leaf	+7.4%	+13.0%	19.3%	+15.4%	+8.1%	+5.0%

- The Stem elongation + Flag leaf program increased tissue nitrogen concentration by 7.4% and potassium concentration by 19.3% compared with the untreated control.
- This two-application program also increased tissue sulfur by 15.4%, calcium by 8.1% and magnesium by 5.0%.

Complete tissue-analysis results during early heading

TREATMENT	N	P	K	S	Ca	Mg
	%	%	%	%	%	%
Control	4.71	0.23	2.07	0.39	0.62	0.20
Greenup	4.79	0.23	2.12	0.38	0.64	0.20
Stem elongation	4.84	0.28	2.43	0.43	0.60	0.20
Flag leaf	4.99	0.27	2.21	0.40	0.60	0.19
Greenup + Stem elongation	4.82	0.31	2.23	0.40	0.53	0.18
Stem elongation + Flag leaf	5.06	0.26	2.47	0.45	0.67	0.21
Greenup + Stem elongation + Flag Leaf	5.10	0.28	2.56	0.46	0.64	0.22

Tissue results represent composite samples and are interpreted as descriptive treatment trends.

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SUMMARY

The tissue and yield results followed a consistent pattern: treatments with higher flag-leaf nutrient concentrations were also among the highest yielding. Applying Amino15™ at stem elongation and flag leaf provided a safe and efficient method of delivering foliar nitrogen while supporting crop nutrient status and improving yield.

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