ALFALFA FERTILITY SURVEY OF OREGON, WASHINGTON, AND IDAHO

C. Messman, A. Moore
Oregon State University

ABSTRACT

Understanding alfalfa nutrient status in plants and soils allows researchers and growers to identify the greatest nutrient needs for this important crop. A survey of PNW alfalfa fields is being conducted to accurately summarize alfalfa nutrient uptake and biomass yield potential in response to soil agronomic properties to address this question. Forty alfalfa fields throughout alfalfa production regions in Oregon, Washington, and Idaho were selected for the 2022 survey. The number of fields collected from each region is as follows: Klamath Basin (KB) (n=9), Treasure Valley (TV) (n=10), Magic Valley (MV) (n=11), Willamette Valley (WV) (n=4), and Columbia Basin (CB) (n=6). Soil, above-ground plant biomass, and plant tissue samples of the top 15 cm of each plant were collected at each site from June to August of 2022 regardless of the cutting period. The cutting period was recorded and will be included in the evaluation in case the cutting stage had an impact on nutrient status or yield. The soil will be analyzed for OSU recommended soil agronomic tests. Plant tissue collected from the top 15 cm of the plant will be analyzed for total agronomic nutrients. Yield samples were weighed, dried, and reweighed to calculate the single-cutting dry matter biomass yield. The dry matter yield means and standard error for a single cutting were as follows: KB = 3,792 (647) kg/ha, MV = 3,699 (468) kg/ha, TV = 2,991 (663) kg/ha, CB = 2,779 (510) kg/ha, and WV = 1,704 (276) kg/ha. Single-cutting dry matter yield may be impacted by factors including growing degree days, cutting stage, water availability, and soil acidity, although further analysis is needed for validation. Correlations between soil properties and plant nutrient status will be summarized over the winter of 2022/2023. The field survey will continue during the 2023 growing season to provide a more accurate representation of alfalfa field conditions in the PNW, with final findings to be presented and published in 2024.