

Understanding the Impact of Weed Diversity & Biomass on Alfalfa Forage Yield, Forage Nutritive Value, Animal Performance, & Production Economics

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Established alfalfa is very competitive with most annual weeds. However, because alfalfa establishes very slowly, newly planted alfalfa is very vulnerable to weed competition. While *weed competition can reduce alfalfa biomass production by up 39%*, the reduction in alfalfa biomass is often compensated for by increased weed biomass. In some cases, the weed biomass can be of similar nutritive value as alfalfa. This tendency of some weed species to contribute to the biomass of the whole stand without significantly reducing forage nutritive value has led to arguments that it may be time to change attitude and view weeds as friends of the forage agroecosystem rather than as foes. However, *there are currently no weed biomass thresholds established for alfalfa*. Establishing weed biomass thresholds in alfalfa forages requires assessment of how individual weed species impact biomass yield, forage nutritive value, livestock performance, as well as toxic compound accumulations. In this *integrated research and extension, national coordination project*, we are proposing to utilize designed field studies, on-farm research, and surveys to evaluate weed impacts on alfalfa forage productivity and nutritive value, milk production and production economics as a tool for ecological weed management and optimizing economic returns.