

# Profitable Alfalfa Production Sustains the Environment

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Daniel Putnam has been on the faculty at the University of California-Davis for nearly 30 years, with responsibility in alfalfa and forage cropping systems. He conducts research on agronomic practices, irrigation, salinity, development of unique genes, harvest schedules, variety testing, weed and pest management, forage quality analysis methods, crop rotation effects, alternative forage crops, and interactions of alfalfa and the environment. He was chief editor and author for the book “Irrigated Alfalfa Management for Mediterranean and Desert Zones” and an in-depth website on alfalfa and forages (<http://alfalfa.ucdavis.edu>) and the UC Alfalfa & Forage News blog (<https://ucanr.edu/blogs/Alfalfa/index.cfm>). He is chair of the Western Alfalfa & Forage Symposium and UC California Alfalfa Workgroup, and member of the boards of the National Alfalfa & Forage Alliance and founding board member of the California Alfalfa & Forage Association. He received his BS in Agronomy from Wilmington College, Ohio, and MS and PhD in Plant and Soil Sciences from the University of Massachusetts-Amherst. He has had international experience in Egypt, Saudi Arabia, Pakistan, Morocco, China, Chile, Argentina, Brazil, Mexico, Canada, France, Spain, India, Russia, Senegal, and Poland.

Alfalfa, or lucerne (*Medicago sativa*), is one of the world’s oldest domesticated crop with a history dating before 2,000 CE. However, what is its relevance today? Acreage has declined in the US for various reasons, but alfalfa still competes with wheat as the 3<sup>rd</sup> or 4<sup>th</sup> most important economic crop for farmers (behind corn and soybean) and is important in many regions of the world. It remains a vital component of modern cropping systems due to its high yield, and it’s high preference as a forage crop for dairy animals, beef as well as sheep, goats and horses. Although not widely recognized as a food-producing crop, hundreds of millions of people consume a food product originating with alfalfa each day. Obtaining human foods and other high protein products directly from alfalfa may be in alfalfa’s future, since it is the most productive crop for protein per hectare. However, alfalfa has a more complex value than just as an ‘engine for food production’ and of economic benefit to farmers. It plays a critical role in crop rotation, in conserving and improving soil health, and in wildlife habitat and in carbon and nitrogen conservation, and wildlife habitat. These are broader societal goals. Since high-yield harvests that benefit alfalfa growers are positively correlated with deep roots, stand longevity, and soil biological activity, profitable alfalfa production is closely linked to these environmental benefits. Water demand has severely challenged alfalfa growers in many regions in recent years. Although the crop is often criticized for its water-wasting ways, the reverse is actually true: the deep roots, high water use efficiency, and (most importantly) its ability to produce economic yields when supplies are scarce make alfalfa an important component of a water-challenged future. As we embark upon this World Alfalfa Congress, scientists and farmers alike are challenged to put together a vision for high yielding, high quality, highly profitable, water-efficient alfalfa crops which contribute mightily to the sustainability of agriculture. Profitable alfalfa production sustains the environment.