

DANIEL H. PUTNAM



**WORLD'S BEST
ALFALFA EXPERT**

“Dan was hired in the Department of Agronomy and Range Science (now Plant Sciences), to replace the retired Vern Marble. Vern was highly regarded as a forage and alfalfa specialist and had built his career on extensive contact and travel around California to support county-based advisors and local forage producers. Dan was able to follow Vern’s successful example but added a productive applied research program, created widely used and highly regarded extension publications, including the Alfalfa production manual, an excellent website on forages, which he still maintains.”

– Steve Kaffka, University of California, Davis






“Dan’s work and activities can be regarded as an example of how the land grant-based research and extension model works best, linking campus based basic research and plant breeding with applied research in all areas of importance to alfalfa and forage production, including irrigation, fertility, management and pest control, and the work of extension advisors throughout the state.”

– Steve Kaffka, University of California, Davis

“Forage production was and remains a vital part of California’s agriculture. He was recruited to fill a big job, that required a person with big capacities. He more than met that challenge. I was proud to have him as a colleague and grateful to have him as a friend.”

– Steve Kaffka, University of California, Davis



A photograph showing two men operating a green Wintersteiger harrow in a field. The man in the foreground is wearing a light blue long-sleeved shirt, a wide-brimmed straw hat, and a face mask. The man in the background is wearing a plaid shirt, a brown hat, and a face mask. The harrow is a large green machine with a white tank and a funnel-shaped hopper. The background shows a field of dry, brown earth with rows of young plants in the distance under a clear blue sky.

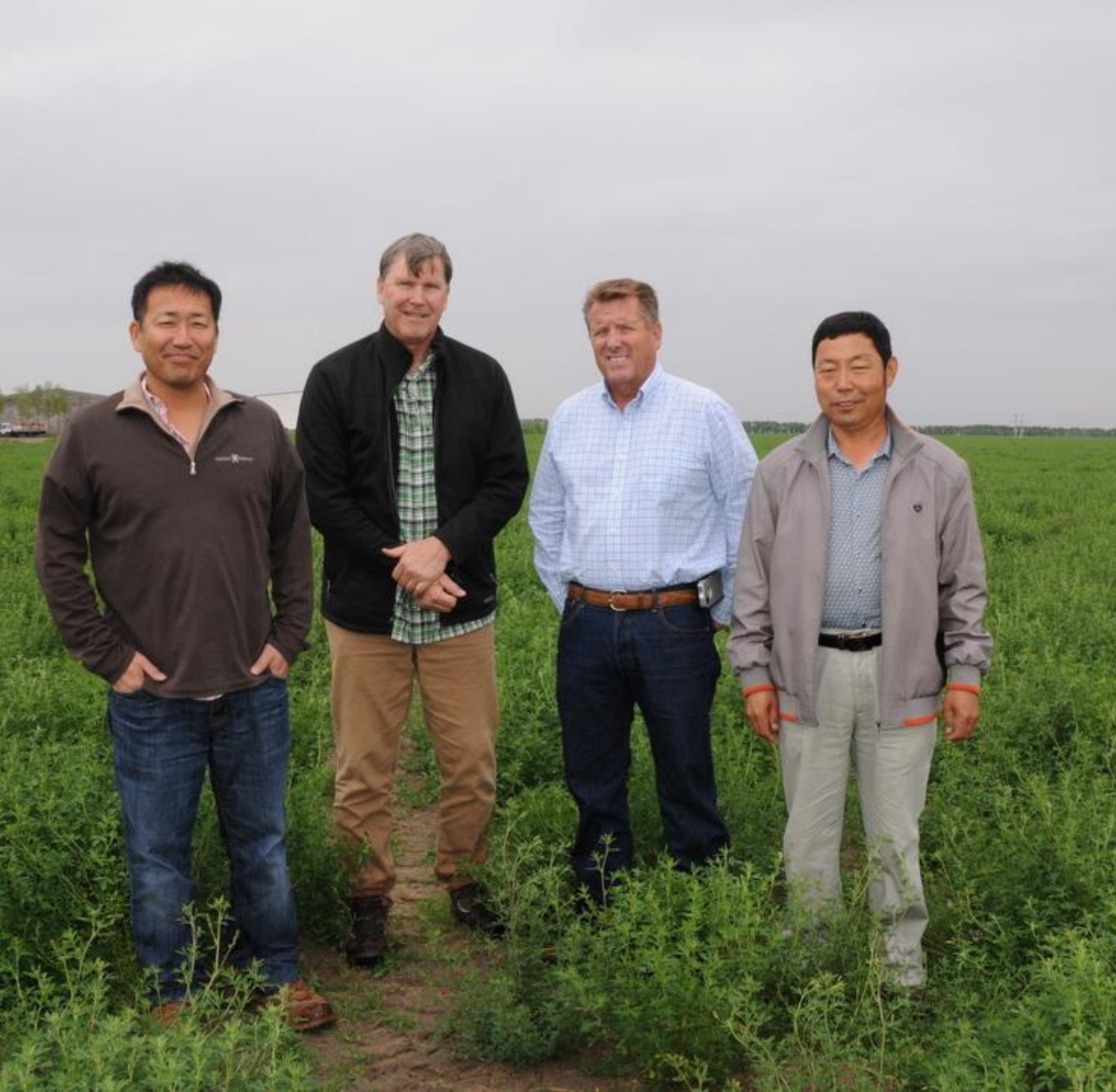
“Dan is a great, hard-working and outstanding individual who has contributed a lot to growers and the research community.”

- Bob Hutmacher, University of California, Davis

“Dan has been willing to jump into so many different areas of research the past several decades. While I am quite sure that Dan's true calling has been his work with alfalfa, it is really remarkable that he has also served as a leader in much of the biofuels research work on sorghum and switchgrass in cooperation with the U.S. Department of Energy and other UC colleagues.”

- Bob Hutmacher, University of California, Davis





“Dan is a versatile individual and insightful researcher who isn't afraid to dive into new-to-him areas of research.”

- Bob Hutmacher,
University of California, Davis

“Dan’s knowledge and expertise combined with the University of California, Davis has provided a much-needed production and quality increase for all of our products. Well done.”

– Rick Staas, San Joaquin Valley Hay Growers Association





“I am grateful to have met Dan. Not only I have learned a lot listening to him in different alfalfa meetings also enjoyed it so much, he has an incredible manner of doing that (always making some funny joke, that I never forget). It is impossible not to admire him as an alfalfa lover that I am!

Thank you, Dan for the valuable time that you gave me visiting you in Davis in 2010 and 2022.”

-Mónica Cornacchione, Argentina

“Dan’s research done here, has and will have a lifetime effect on the most important crops we can produce for the benefit of agriculture and every citizen of the world. Take to heart his knowledge.”

– Rick Staas, San Joaquin Valley Hay Growers Association



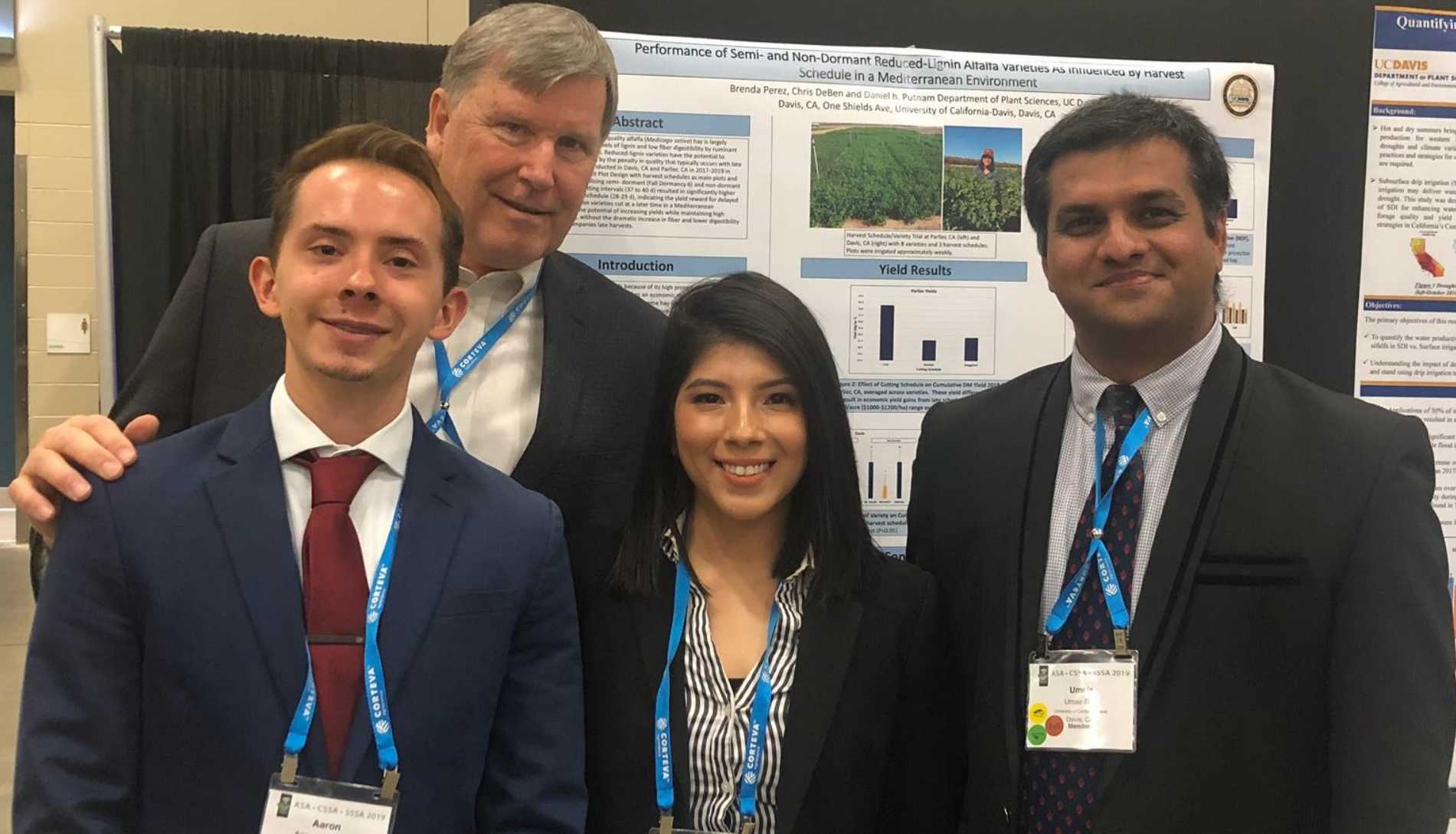
“Dan, thanks for your all you’ve done for the alfalfa and forage industry. It’s been great working with you these past 30+ years, ever since we started collaborating with the UCCE Alfalfa Workgroup team long ago 😊. I’ve especially appreciated your high standards for scientific methodology that ensures data integrity. Thank you.”
Rachael Long, UCCE Advisor Emeritus



Alfalfa Team Leader! 😊







Poster 1620
Brenda Perez, Chris DeBen, Daniel h. Putnam
Department of Plant Sciences, UC Davis

Performance of Semi- and Non-Dormant Reduced-Lignin Alfalfa varieties AS influenced by harvest Schedule in a Mediterranean Environment

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Abstract

Quality alfalfa (Medicago sativa) hay is largely determined by its fiber content and digestibility. Reduced-lignin varieties have the potential to improve alfalfa quality but typically occur with late harvest schedules. This study was conducted in Davis, CA and Parlier, CA in 2017-2018 to evaluate the effect of harvest schedule on alfalfa quality. Plots were established with main plots and subplots for semi-dormant (SD) and non-dormant (ND) varieties. Harvest intervals (37 to 40 d) resulted in significantly higher yields for SD varieties cut at a later time in a Mediterranean climate. The potential of increasing yields while maintaining high quality alfalfa without the dramatic increase in fiber and lower digestibility associated with late harvests.



Harvest Schedule/Variety Trial at Parlier, CA (left) and Davis, CA (right) with 8 varieties and 3 harvest schedules. Plots were irrigated approximately weekly.

Introduction

Yield Results

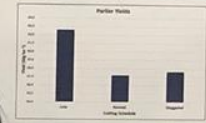


Figure 2: Effect of Cutting Schedule on Cumulative DM Yield 2017-2018 at Parlier, CA, irrigated across varieties. These yield differences were significant (P < 0.05). There were no significant differences in economic yield gains from late harvest schedules (P > 0.05). (Average \$1000-\$1200/ha range)

Quantifying the water productivity, forage yield, and

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Background:

- Hot and dry summers bring challenges for sustainable forage production for western irrigated alfalfa, given periods of drought and climate variability. Improvement in irrigation practices and strategies for coping with reduced water supplies are required.
- Subsurface drip irrigation (SDI) with a combination of deficit irrigation may deliver water more efficiently to crops with drought. This study was designed to understand the potential of SDI for enhancing water productivity (yield/water), forage quality and yield of alfalfa under water deficit strategies in California's Central Valley.

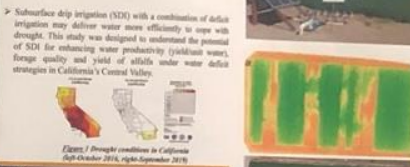


Figure 1: Strong conditions in California 2016-2017 (left) and 2017-2018 (right) during the study period.

Objectives:

- To quantify the water productivity, forage quality, and yield of alfalfa in SD vs. Surface irrigation.
- Understanding the impact of deficit irrigation on yield, quality and stand using drip irrigation techniques.

Applications of 50% of in-season irrigation resulted in approximately 400 mm applied irrigation + rainwater, while the 100% irrigation treatment resulted in approximately 1300 mm applied water (Fig. 3C).

Significant increase of 9% in yield of SDI-Full compared to flood irrigation (Fig. 4A), and a 22% increase in water productivity for SDI compared to flood irrigation used slightly more water.

Over the season were achieved in the deficit treatments with significant reduction in yield during 2017 was observed in T₁ (17.81 kg ha⁻¹ mm⁻¹) and the lowest was in T₂ (15.26 kg ha⁻¹ mm⁻¹) and T₃ (20.25 kg ha⁻¹ mm⁻¹).

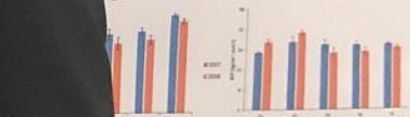


Figure 3: (A) Reduced dry matter yield (kg ha⁻¹) and water productivity (kg ha⁻¹ mm⁻¹)

for supporting and providing alfalfa, USDA NIFA, and UC - ANR.







