

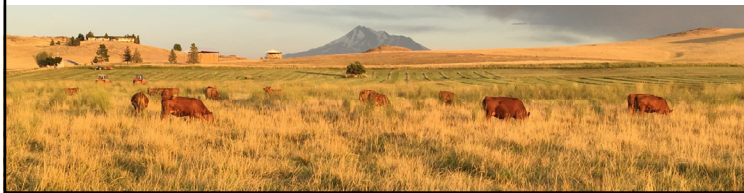
## Research & Resources to Support Irrigated Pasture Operators

Leslie Roche, Ken Tate, Morgan Doran, D.J. Eastburn  
 University of California-Davis, UC Cooperative Extension



### Irrigated Pastures

- Critical resource for producers
- Key component of annual forage calendar
  - Provide management flexibility
  - Short-term alternative in drought
- Increased management efficiency = improved economic viability and environmental quality.






### Irrigated Pastureland Enhancement Program



- Cross-sectional survey of *on-ranch* strategies
- 35 sites, 23 producers (4,000 acres total) across CA
- Gradient of management intensity
  - **Irrigation:** wild flood - pivot
  - **Grazing/harvest:** set stock - rotation/haying
  - **Nutrient:** none (most) - annual fertilization



## Monitoring and Demonstration Sites

- Forage productivity/utilization
- Forage quality and plant community composition/diversity
- Soil nutrient and moisture conditions
- Management
  - Cooperators track livestock numbers, irrigation, fertilization
- Next: water use efficiency

## Irrigated Pasture Information Hub

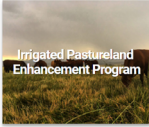
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Irrigated Pasture


Enhancing adoption of sustainable irrigated pasture management strategies is critical to farming and ranching economic viability, environmental quality, and supply of ecosystem goods and services.




Irrigated Pastureland Enhancement Program



Producing Clean Tailwater



Vegetative Buffers and Wetland Filters



Irrigation Impacts on Forage Quality

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rangelsands.ucdavis.edu

## Irrigated Pasture Publications & Resources



**DROUGHT TIP**  
**Managing Irrigated Pasture during Drought**

The necessity of making irrigated pastures will likely increase in the future as a consequence of increasing drought and increased demand for water for the production of higher value crops such as wine, nuts, and vegetables, as well as the urban and recreational demands. Although irrigated pastures for beef and California and other western states are still valued as a ready 70% of irrigated land in the state and account for a significant proportion of irrigated land throughout the West, California's irrigated pasture area has declined from 1.5 million acres in 1982 to 1.1 million acres in 2012. Irrigated pastures have recently been targeted by drought and population in a number of ways that will likely result in further declines in the future. This publication provides information on how to manage irrigated pastures during drought and how to plan for the future of irrigated pastures in California.



**Managing Smutgrass in Irrigated Pastures**

**JOHN SMY, UCCE Extension Specialist, Western Waters, Orosi, CA**  
**JOHN SMY, UCCE Extension Specialist, Western Waters, Orosi, CA**

Smutgrass is a common and persistent weed in irrigated pastures. It is a perennial grass that grows in dense clumps and is highly competitive with desirable forage species. This publication provides information on how to identify, prevent, and manage smutgrass in irrigated pastures.



**Establishing and Managing Irrigated Pasture for Horses**

**JOHN SMY, UCCE Extension Specialist, Western Waters, Orosi, CA**  
**JOHN SMY, UCCE Extension Specialist, Western Waters, Orosi, CA**

This publication provides information on how to establish and manage irrigated pastures for horses. It covers topics such as soil preparation, seed selection, and irrigation management.

Publications available on the UC ANR Catalog  
<http://anrcatalog.ucanr.edu/>

## Irrigated Pasture Publications & Resources



**Integrated Weed Management in Irrigated Permanent Grass Pastures and Hayfields in New Mexico**

**JOHN SMY, UCCE Extension Specialist, Western Waters, Orosi, CA**  
**MARK MERRILL, UCCE Extension Specialist, Western Waters, Orosi, CA**  
**CAROLYNE SCHULTZ, UCCE Extension Specialist, Western Waters, Orosi, CA**

**INTRODUCTION**  
Weed management is a critical component of irrigated permanent grass pastures and hayfields. Weeds can reduce forage quality and yield, and increase the cost of production. This publication provides information on how to identify, prevent, and manage weeds in irrigated permanent grass pastures and hayfields.

Integrated Weed Management in Irrigated Permanent Grass Pasture and Hayfields in New Mexico

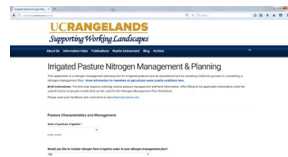
12 pages

New Mexico State University

Available online

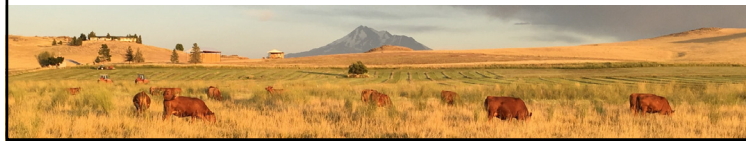


## Irrigated Pasture Nitrogen Management and Planning Application



Web based tool to assist in creating a nitrogen management plan and understanding N management in pasture systems

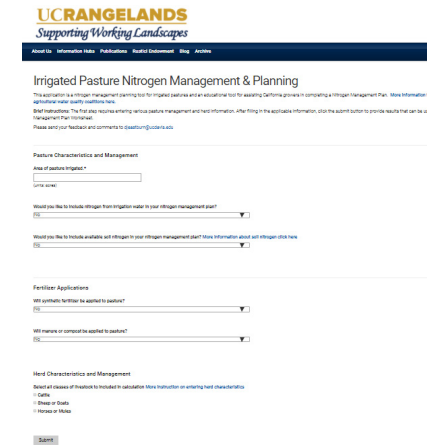
[ranglands.ucdavis.edu/ipnmp](http://ranglands.ucdavis.edu/ipnmp)



## Calculating N budget

### Pasture Variables

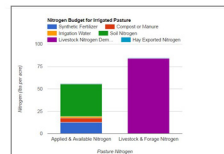
- Irrigated pasture area
- Irrigation water nitrogen
- Available soil nitrogen
- Fertilizer
  - Synthetic or Organic
  - Rate
  - Formulation
- Classes of livestock
  - Species
  - Age class
- Number livestock per class
- Grazing days per class for crop year



## Results produced for N plan worksheet

### Irrigated Pasture Nitrogen Management

#### Results



#### Pasture and Herd Nitrogen Management Planning

Below is a summary of the pasture and herd characteristics

- 5 Crops: Irrigated pasture forage and livestock
- 8 Projected yield: **2.8 ALMs per acre**
- Estimated forage required by livestock: **2800 lbs per acre**
- 13 Nitrogen in required forage for livestock: **84 lbs per acre**
- Projected nitrogen exported as hay: **0.0 lbs per acre**
- 10 Irrigated acres: **20**

#### Nitrogen Applications and Credits

Below is a summary of the nitrogen fertilizers applied, organic material available nitrogen,

- 16 Synthetic nitrogen fertilizers applied: **12.6 lbs per acre**
- 19 Available nitrogen from applied manure/compost: **0 lbs per acre**
- 20 Total nitrogen applied and available: **12.6 lbs per acre**

#### Nitrogen Credits

- 22 Available nitrogen in soil: **36 lbs per acre**
- 23 Available nitrogen from irrigation water: **1.6 lbs per acre**
- 24 Total nitrogen credits: **38 lbs per acre**

NITROGEN MANAGEMENT PLAN WORKSHEET			
1. Crop Year (Month):	A. APRIL	S. FORTY (D)	
2. Monitor: CA			
3. Name:			
<b>LOCAL NITROGEN MANAGEMENT PLAN VALUES</b>			
4. Crop	5. Aerial Application	6. Application	7. Rate (lb N)
8. Crop	9. Synthetic Fertilizer		
10. Acres	11. Total Available N Applied as Synthetic Fertilizer		
12. Acres	13. Total Available N Applied as Organic Material		
14. Name:	15. Total N Applied (lb N/acre)		
16. Name:	17. Total N Applied (lb N/acre)		
18. Name:	19. Total N Applied (lb N/acre)		
20. Name:	21. Total N Applied (lb N/acre)		
22. Name:	23. Total N Applied (lb N/acre)		
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92. Name:	93. Total N Applied (lb N/acre)		
94. Name:	95. Total N Applied (lb N/acre)		
96. Name:	97. Total N Applied (lb N/acre)		
98. Name:	99. Total N Applied (lb N/acre)		
100. Name:	101. Total N Applied (lb N/acre)		

## Hypothetical Irrigated Pasture Scenario

- Irrigated pasture area: **60 acres**
- Irrigation water nitrogen: **360 acre feet** total volume applied with **typical valley surface water levels** of nitrate
- Available soil nitrogen: soil test indicates **15 lbs N per acre**
- Synthetic fertilizer
  - Rate = **100 lbs per acre** for total pasture
  - Formulation = **ammonium sulfate**
- Organic amendment
  - Rate = **None**
- Classes of livestock
  - Species = **Cattle**
  - Type/class = **Cow with calf; cow w/o calf; weaned calves**
- Number livestock and grazing days
  - Cow with calf = **50 head/30 days**;
  - cow w/o calf = **50 head/30days**;
  - weaned calves = **50 head/30days**

