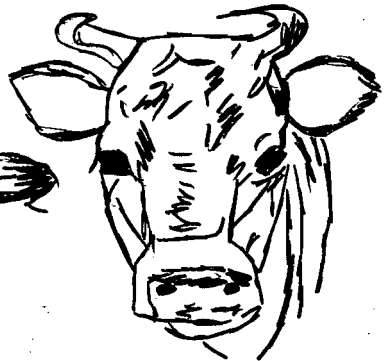





# IRRIGATED PASTURES FOR LIVESTOCK



AGRICULTURAL EXTENSION SERVICE  
University of California  
Farm and Home Advisors Office  
Agricultural Building  
Woodland and West Main Streets  
Visalia, California 93277

UC Cooperative Extension



Prepared by  
Robert F. Miller  
&  
Gale G. Gurtle  
Tulare County Farm Advisors

Co-operative Extension work in Agriculture and Home Economics, College of Agriculture, University of California, and United States Department of Agriculture co-operating. Distributed in furtherance of the Acts of Congress of May 8, and June 30, 1914. George B. Alcorn, Director, California Agricultural Extension Service.

This publication is designed to aid farmers and ranchers in planting and producing irrigated pasture in Tulare County. It contains sample seed mixes, cultural and management recommendations, and a description of the various pasture plants.

Modifications of the pasture mixes listed for cattle may be desirable, depending on the rancher's preferences or special conditions which may exist. Alfalfa is not included in the recommended mixtures because of the bloat hazard. Trefoil is included and does not cause bloat. Strawberry clover is less of a bloat hazard than ladino clover so is recommended in some of the mixes.

The grass species suggested may also be modified. Some ranchers have substituted Pasto Rico or Giant Bermudagrass for Rhodesgrass in the alkaline mix, and while this practice has not been 100 percent successful, it has worked well in a number of instances.

If modification or substitution of the following pasture mixes seems desirable, keep the grass and legume portion in balance and maintain the amount of seed recommended per acre.

UC Cooperative Extension

IRRIGATED PASTURE

SAMPLE SEED MIXES

1. General Mix for Cattle

	<u>Lbs/Acre</u>
Salina Strawberry Clover	3
Tall Fescue	6
Dallisgrass	6
Annual Ryegrass	3
	<u>18 #/Acre</u>

2. Bloat-Free Mix

	<u>Lbs/Acre</u>
Narrowleaf Trefoil	4
Tall Fescue	6
Dallisgrass	6
Annual Ryegrass	3
	<u>19 #/Acre</u>

3. Mix for Sandy Soils or  
Foothill Areas

	<u>Lbs/Acre</u>
Salina Strawberry Clover	2
Narrowleaf Trefoil	3
Dallisgrass	5
Tall Fescue	5
Annual Ryegrass	3
	<u>18 #/Acre</u>



SAMPLE SEED MIXES

4.	<u>Mix for Moderately Alkaline Soils</u>	
		<u>Lbs/Acre</u>
	Narrowleaf Trefoil	3
	Salina Strawberry Clover	2
	Tall Fescue	6
	Rhodesgrass	4
	Annual Ryegrass	3
		<u>18 #/Acre</u>
5.	<u>Mix for Extremely Alkaline Soils</u>	
		<u>Lbs/Acre</u>
	Pasto Rico or Giant Bermudagrass	5 #/Acre

Bermudagrass should be planted on highly alkaline soils, particularly those that have been newly leveled, because of its ability to grow under unfavorable conditions. It should be planted from May 15th to August 15th and be irrigated lightly every three to five days until the stand is established. If a dust mulch exists, the seeding should not be covered, as this operation can cover the seed too deeply.

During the fall, following the second growing season, 3 lbs. of strawberry clover and 6 lbs. of tall fescue/acre should be broadcast and lightly disced in. This planting will greatly extend the pasture season and the performance of the livestock being grazed will be improved, due to the increased variety and palatability of the forage.

SAMPLE SEED MIXES

6. Seed Mix for Sheep

Lbs./Acre

3	Ladino Clover
6	Narrowleaf Trefoil
3	Strawberry Clover
<u>12</u>	<u>#/Acre</u>



7. Seed Mix for Hogs

Lbs./Acre

4	Ladino Clover
4	Strawberry Clover
2	Narrowleaf Trefoil
<u>10</u>	<u>#/Acre</u>



8. Seed Mix for Horses

Lbs./Acre

2	Narrowleaf Trefoil
6	Tall Fescue
6	Dallisgrass
3	Perennial Ryegrass
3	Annual Ryegrass
<u>20</u>	<u>#/Acre</u>



## P L A N T I N G   D A T E S



Irrigated pasture can be seeded from October 1 to March 15. Best results are obtained by pre-irrigation and planting in the fall, allowing the winter rains to germinate the seed. Fall planting is strongly recommended on alkali soil.

## S O I L S

Heavy soils or shallow hardpan soils are best suited for irrigated pastures. Light, sandy soils are not well adapted to pasture production. Irrigated pasture will grow on alkali soils and aid in the reclamation process.

## S E E D I N G   A N D   S E E D B E D P R E P A R A T I O N

The seed mix is generally broadcast either by ground rig or airplane. The complete mix can be sown in one operation, as long as care is taken to keep the seed well mixed to prevent the legumes from separating. The seed can also be drilled with a pasture seed drill.

A fine, firm seedbed is essential to allow optimum germination. Following seeding, the ground should be lightly harrowed or culti-packed. Care should be taken not to cover the seed over one-half inch deep.

SAMPLE COSTS FOR IRRIGATED PERMANENT PASTURE  
TULARE COUNTY - 1971

COST ANALYSIS WORK SHEET  
COST PER ACRE

	<u>SAMPLE COST</u>	<u>YOUR COST</u>
Cash Costs:		
Land preparation, seed, plant, and extra first year costs - \$30.00 - 10 years	\$ 3.00	
Mow, fence work, etc. - 1½ man and 1 tractor hours	\$ 3.00	
Irrigation labor - 5 man hours @ \$2.00/hr.	\$ 10.00	
Irrigation water - 5 acre feet @ \$3.00/acre ft.	\$ 15.00	
Fertilizer - average per year	\$ 7.50	
County taxes	\$ 15.00	
Office, car, telephone	\$ 1.50	
Repairs except tractor - irrigation system and equipment	\$ 2.50	
<b>TOTAL CASH COSTS</b>	<b>\$ 57.50</b>	
Depreciation:		
Irrigation system - original cost \$100	\$ 6.00	
Tractors - 2 hours @ \$1.00/hr.	\$ 2.00	
Other equipment - cost \$10.00 - 10-yr. life	\$ 1.00	
Fences - cost \$10.00/acre 10-yr. life	\$ 1.00	
<b>TOTAL DEPRECIATION</b>	<b>\$ 10.00</b>	
<b>TOTAL CASH AND DEPRECIATION COST</b>	<b>\$ 67.50</b>	



## I R R I G A T I O N

Medium to light textured soils should be irrigated about once a week during the growing season. Heavy soils should be irrigated about every ten days.

Drainage is very important. Water should not stand on the pasture for any great length of time since this will weaken or kill many of the pasture plants and stimulate the growth of water-loving weeds.

## W E E D   C O N T R O L

Weeds can best be controlled by an occasional mowing or shredding immediately following a grazing. This operation will also remove some of the old unpalatable pasture growth and will improve the quality of subsequent forage production.

## F E R T I L I Z A T I O N

In general, grasses respond to nitrogen, and legumes respond to phosphorus. It is sometimes hazardous to fertilize with phosphorus alone because the increased growth and palatability of the legumes may increase the bloat hazard. When fertilizing, nitrogen alone, or a combination of nitrogen and phosphorus should be used.

If additional feed is needed, a quick and economical method of providing it is by applying commercial fertilizer. Sixty pounds or more per acre of actual nitrogen should be applied at any one time, since smaller amounts seldom give an economic response. Nitrogen can be applied in dry form or as a gas or liquid, incorporated in the irrigation water.

## ROTATION GRAZING

Greater forage yields will be obtained by allowing pasture plants a recovery period between grazings. This is best accomplished by fencing the pasture into several subdivisions and rotating the cattle to obtain maximum plant growth. Observations have indicated that the cattle being pastured may gain better if rotation is kept to a minimum. However, under this pasture system less total cattle will be grazed, but a higher daily gain per head will be obtained.

## THE BLOAT PROBLEM

Mortality from bloat is a constant threat to cattle being grazed on irrigated pastures containing clover or alfalfa. Bloat is caused by the cattle or sheep consuming too much bloat-producing forage such as clover or alfalfa in too short a time. For this to occur, the bloat-producing forage must be available and in a highly palatable stage of growth. The percent of clover to grass in a pasture is of little consequence because of the selective grazing habits of the livestock. Several practices will help eliminate the bloat hazard:

1. Don't Turn Hungry Cattle Into A Pasture Containing Legumes.

Fill them with good quality, dry hay and turn them in about mid-morning so that they can be observed during the rest of the day.

## 2. Open the Gates

Rotation grazing increases availability and palatability of bloat-producing plants. By allowing access to all the pastures, the availability and palatability of the forage changes slowly, greatly reducing the bloat hazard.

## 3. Provide Supplemental Feed

If cattle can eat some dry hay their appetite for the pasture will be reduced, thus reducing the bloat hazard. The hay should be of good quality so that some consumption is assured.

## M O L Y B D E N U M

Molybdenum is a mineral which consumed in excess will reduce gains and cause the cattle to have rough hair coats and scour. It is carried in legumes and its effect can be overcome by feeding copper sulfate. A mix containing 50 pounds of salt, 50 pounds of ground barley and 1 pound of copper sulfate, fed free choice, will help correct the problem.

An injectable form of copper can also be used. It may be preferred over feeding, since it assures proper dosage to each head.

The molybdenum problem usually occurs in pastures located in alkali areas, but it is not restricted to these areas. Internal parasites cause symptoms similar to molybdenum and this possibility should not be overlooked.

Excess copper in the rations of lactating dairy cows may cause oxidized flavor in the milk. Dairymen should use care to avoid too much copper in the feed of milking cows.

## NURSE CROPS

Nurse crops, such as barley, or oats, are sometimes planted with the irrigated pasture seed. This practice will result in a greater supply of late winter and spring feed, but will slow down establishment of the pasture. Overall feed needs should therefore be considered before undertaking this practice.

## DESCRIPTION OF PLANTS

### LEGUMES

#### Ladino Clover

This clover produces an abundant amount of forage but because of the severe bloat hazard for cattle it is recommended only for sheep and hogs.

#### Narrowleaf Trefoil

Narrowleaf trefoil will not cause bloat and is quite tolerant to alkali.

#### Strawberry Clover

The Salina strain of strawberry clover is suggested because of its alkali tolerance and superior forage production. Strawberry clover is also recommended because bloat has rarely been observed in cattle grazing on pastures where it is the only clover present.

Tall Fescue

This plant has lost favor because of its aggressiveness, tendency to clump, and coarseness when mature. However, it is an alkali and drought-tolerant perennial and will produce forage under conditions where less hardy plants could not survive. Increasing the seeding rate will result in a higher plant population and will reduce the clumping tendency.

Dallisgrass

This perennial produces heaviest during the hot summer and early fall. It will grow under drought, excessive moisture, and low fertility, therefore is suited to foothill pastures and pasture on sandy or poorer soil. It is unpalatable when matured.

Rhodesgrass

This grass is somewhat coarse and is not relished by livestock. However, because of its extreme tolerance to alkali, it is recommended where these conditions exist.

Perennial Ryegrass

This grass is a short-lived perennial. It is finer stemmed and does not grow as tall as annual ryegrass.

Annual Ryegrass

This grass will produce spring and early summer feed on a newly planted pasture. Because of its rapid and early germination, it shades the ground and reduces weed competition while the more slowly developing perennials are becoming established. It seldom reseeds itself and is not usually seen the second year.

Bermudagrass

Pasture varieties of bermuda should be considered where soil conditions exist that severely limit growth. Since the growth of this species is limited to a short season during the summer it is necessary to get bermudagrass established as soon as possible to lengthen the grazing season.

Revised April 1971

200 c

gjb

-12-

UC Cooperative Extension