

# IRRIGATED PASTURES

FOR LIVESTOCK



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This publication is designed to aid farmers and ranchers in planting and producing irrigated pasture in Tulare County. It contains sample seed mixes for various soil types, 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. For example, some ranchers may wish to reduce or leave out completely the alfalfa suggested because of the bloat hazard. If this is done, trefoil, which does not cause bloat, should be added, or the amount of strawberry clover, which constitutes less of a bloat hazard, should be increased.

The grass species suggested may also be modified. Some ranchers have substituted NK-37 Bermuda 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.

S E E D   M I X E S   F O R  
B E E F   A N D   D A I R Y   C A T T L E

1. Mix For Average To Good Soil:

	<u>Lbs./Acre</u>
Salina Strawberry clover	3
Orchardgrass	4
Perennial ryegrass	2
Annual ryegrass	2
Tall fescue	4
	15 #/acre

2. Mix For Average To Poor Soil:

	<u>Lbs./Acre</u>
Salina Strawberry clover	2
Moapa alfalfa	1
Tall fescue	5
Dallisgrass	5
Annual ryegrass	3
	16 #/acre

3. Bloat-Free Mix:

	<u>Lbs./Acre</u>
Narrowleaf trefoil	3
Orchardgrass or Dallisgrass	4
Tall fescue	4
Perennial ryegrass	2
Annual ryegrass	2
	15 #/acre

4. Mix For Sandy Soils or Foothill Areas:

	<u>Lbs./Acre</u>
Moapa alfalfa	2
Narrowleaf trefoil	3
Dallisgrass	4
Tall fescue	4
Annual ryegrass	3
	<u>16 #/acre</u>

5. Mix For Moderately Alkaline Soils:

	<u>Lbs./Acre</u>
Moapa alfalfa	2
Narrowleaf trefoil	3
Salina Strawberry clover	2
Tall fescue	6
Rhodesgrass	2
Annual ryegrass	2
	<u>17 #/acre</u>

6. Mix For Extremely Alkaline Soils:

	<u>Lbs./Acre</u>
NK-37 Bermudagrass	5

Bermuda should be planted on highly alkaline soils, particularly those that have been newly leveled, because of its ability to grow under these 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 often buries the seed too deeply.

During the fall, following the second growing season, seed mix No. 2 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.

7. Seed Mix For Sheep:

Ladino clover  
Narrowleaf trefoil  
Strawberry clover

<u>Lbs./Acre</u>
3
6
<u>1</u>
10 #/acre



8. Seed Mix For Hogs:

Moapa alfalfa  
Ladino clover  
Strawberry clover  
Narrowleaf trefoil

<u>Lbs./Acre</u>
3
2
2
<u>2</u>
9 #/acre



9. Seed Mix For Horses:

Narrowleaf trefoil  
Orchardgrass  
Tall fescue  
Perennial ryegrass  
Annual ryegrass

<u>Lbs./Acre</u>
2
4
3
3
<u>3</u>
15 #/acre



## P L A N T I N G   D A T E S

Irrigated pasture can be seeded from October 1, to April 1. Best results are obtained by pre-irrigating 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. As long as care is taken to keep the seed well mixed to prevent the legumes from separating out, the complete mix can be sown in one operation. 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, 1966

Cost Analysis Work Sheet

	COST PER ACRE	
	SAMPLE COST	YOUR COST
<b>Cash Costs:</b>		
Land preparation, seed, plant, and extra 1st year costs - \$25.00 - 10 years	\$ 2.50	
Mow, fence work, etc.: 1½ man and 1 tractor hours	2.95	
Irrigation labor: 5 man hours @ \$1.40/hr.	7.00	
Irrigation water: power and district tax	12.00	
Fertilizer: - average per year	7.50	
County taxes	7.00	
Office, car, telephone	1.50	
Repairs except tractor: irrigation system and equipment	2.50	
<b>TOTAL CASH COSTS</b>	<b>\$42.95</b>	
<b>Depreciation:</b>		
Irrigation system: original cost \$100	6.00	
Tractors: 2 1/8 hours incl. 1/6 1st year hours @ 60 cents	1.28	
Other equipment: cost \$10 - 10-year life	1.00	
Fences: cost \$20 - 10-year life	2.00	
<b>TOTAL DEPRECIATION</b>	<b>\$10.28</b>	
<b>TOTAL CASH AND DEPRECIATION COST</b>	<b>\$53.23</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 waterlogging 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 since 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 or phosphorus should be applied at any one time, since smaller amounts seldom give an economic response.

## 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 probably be grazed.

## 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 when in excess will reduce gains and cause the cattle to have rough hair coats and scour. Molybdenum is carried in legumes and its effects 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 also can be used. It may be preferred over feeding, since it assures proper dosage to each individual head.

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

### N U R S E   C R O P S

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. Over-all feed seeds should therefore be considered before undertaking this practice.

# DESCRIPTION OF PLANTS

## Legumes

### Alfalfa:

Moapa is the variety recommended for pasture because of its long growing season and aphid resistance. Alfalfa may cause bloat, but the hazard is reduced as the plant approaches maturity.

### 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 recommended in preference to Ladino clover because it is less likely to cause bloat.

### Orchardgrass:

This perennial grass is one of the most palatable and nutritious pasture plants. It grows best on good soils and is not recommended on poor soils. It requires a fairly high fertility level for best production.

### 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.

### 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.

### Perennial ryegrass:

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

### 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.

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