

PA-NC-53-2

Irrigated Pasture



in

Mendocino County

FARM ADVISOR'S OFFICE

UC Cooperative Extension

IRRIGATED PASTURE IN MENDOCINO COUNTY

Livestock and milk production require an abundant supply of feed at reasonable cost. Natural range and pasture being seasonal require supplementing by irrigated pastures or by higher costing hay and concentrates. Although feed from irrigated pasture is more expensive than that from natural range and pasture, it can be efficiently used to supplement the range during the summer period. It is particularly profitable in dairying, hog production, and in the finishing of beef cattle and lambs, or in carrying breeding herds during the part of the year when good range is not available.

Irrigated pasture is well-adapted to a wide range of soils including some shallow or heavy soils not suited to deep rooted crops. The essential requirement is an adequate supply of irrigation water at a reasonable cost and means for application at frequent intervals during hot weather. With present and probable future prices of meat animals and milk, the returns from irrigated pasture can compete favorably with field crops on our good soils. The outlook for irrigated pasture is good but depends largely on the efficiency of the livestock enterprise for which it is used.

YIELD FROM IRRIGATED PASTURES

Production from these pastures may be measured in "Animal Unit Months," a term used to describe the amount of feed required to nourish a mature steer, or its equivalent, for a month. Local irrigated pastures vary in yields from a low of 7 to a high of 18 animal unit months an acre, with an average of about 12 animal unit months during the eight month period of March through October. Therefore, each acre of the average Mendocino County irrigated pasture should carry one and a half mature head of cattle during the more productive season of the year. Since the pasturage, or feed value, of an animal unit month is about equal to .4 tons of alfalfa hay, twelve animal unit months an acre would be equivalent in feed value to 4.8 tons or roughly 5 tons of hay.

WHAT ARE SOME EQUIVALENTS OF ANIMAL UNIT MONTHS?

During the warmer, more productive season between March and November, the average acre of irrigated pasture in this county should support one milking dairy cow, plus the usual quantity of young and dry stock. For beef animals to efficiently use this type of feed during this eight month period, three weaner calves or two yearlings would be about the right number per acre. About nine feeder lambs or three and a half sows with litters could make good use of each acre of this feed; but remember that attempts to over-graze or to overstock will certainly result in the loss of production.

PROBABLE COST OF GROWING IRRIGATED PASTURE

(See Page 4.)

PLANNING

Planning in advance pays off in the establishment of an irrigated pasture. With a sound program outlined, all phases can be timed and coordinated to the best advantage of the crop. The steps in planting an irrigated pasture are:

1. Land preparation.
2. Seeding mixture suited to soil and stock.
3. Planting properly at the right time.
4. Weed Control.
5. Fertilization as needed.
6. Irrigation of adequate amount and frequency.
7. Management and proper grazing.

LAND PREPARATION.

A fine, firm seedbed is necessary to insure the seeds being planted at the proper depth and to prevent them from working or washing down too deep to germinate; a firm seedbed improves the water holding capacity of the soil so small plants have a better opportunity to go through dry spells. Proper leveling and size of checks are important to subsequent success with flood irrigation.

SEEDING MIXTURES

While irrigated pasture can be grown on a wide variety of soils, the varieties seeded should vary with soil and moisture conditions. The following seeding suggestions are made for the indicated conditions; however, for problem areas, specific recommendations may be secured from the Farm Advisor's Office.

AVERAGE SOIL AND MOISTURE CONDITIONS

<u>Cattle and Sheep</u>		<u>Hogs</u>	
Ladino Clover	3	Ladino Clover	3
Erect Birdsfoot Trefoil	1	Erect Birdsfoot Trefoil	2
Perennial Rye	3	Alfalfa	6
Orchard grass	3		
Tall Fescue	4		
	<u>11#</u> /acre		<u>11#</u> /acre

VERY HEAVY WET SOILS WITH POOR DEBRIDGE

Ladino Clover	2	Ladino Clover	3
Prostrate Birdsfoot Trefoil	2	Prostrate Birdsfoot Trefoil	3
Alsike Clover	2	Alsike Clover	4
Perennial rye	2		
Orchard Grass	3		
Tall Fescue	3		
	<u>11#</u> /acre		<u>10#</u> /acre

VERY LIGHT SOILS WITH POOR MOISTURE HOLDING

<u>CAPACITY</u>			
Ladino Clover	1	Ladino Clover	1
Erect Birdsfoot Trefoil	2	Alfalfa	8
Alfalfa	4	Erect Birdsfoot Trefoil	2
Perennial Rye	2		
Orchard Grass	3		
Tall Fescue	3		
	<u>15#</u> /acre		<u>11#</u> /acre

The desired population of plants for sheep and cattle is approximately 40% legumes and 60% grasses—the grasses are necessary for bloat prevention. 100% legumes is the suggested pasture for hogs as they are not subject to bloat.

PROBABLE COST OF GROWING IRRIGATED PASTURE

Following is a sample set of costs based on local inquiry and study. Costs vary widely from farm to farm. The schedule should be used only as a guide in estimating your costs. These may be inserted in the blank columns provided. This sample schedule is based on a yield of 12 animal unit months of pasturage, an established stand, and irrigation water and investment overhead as they would occur in Potter Valley, where most of our irrigated pasture is located. If pumping out of a river or irrigation well, the investment and depreciation in irrigation facilities would be higher and there would be a power cost for pumping that might be more or less than the district charge for delivered ditch water. The following example is based on flood irrigation. Sprinkler irrigation would involve a higher investment in pipe and sprinklers and perhaps higher labor and pumping costs. Man labor in the following is figured at 85 cents an hour and the small wheel tractor for clipping and mowing at \$1.25 an hour.

SAMPLE COSTS OF GROWING IRRIGATED PASTURE IN POTTER VALLEY

Item and Quantity per acre	Sample Costs		My Costs	
	Per Acre	Per Animal Unit Month	Per Acre	Per Animal Unit Month
Drag, fertilize, clip, etc. 2 man hours and 1 tractor hour per acre for the season	2.95			
Irrigation labor, 6 man hours (for 12 times)	5.10			
Total Labor and Field-power cost	8.05	.67		
Irrigation water, \$1.75 tax plus 3 acre feet at \$2.50 (Potter Valley Irrigation District)	9.25			
Fertilizers and Miscellaneous Average Annual	9.00			
Total Material Cost	18.25	1.52		
General expense, office, phone, car, etc.	1.30			
County taxes, \$100 value @ \$4.20 (1952)	4.20			
Repairs and miscellaneous other overhead	1.00			
Total Cash Overhead	6.50	.54		
Total Cash Costs	32.80	2.73		
Depreciation - Stand, \$25.00 cost spread over 10 years	2.50			
Ditches, border boxes, \$10 over 10 years	1.00			
Fences, \$20 over 20 years	1.00			
Misc. other equipment \$10 over 10 years	1.00			
Total Depreciation	5.50	.46		
Interest on investment at 5%				
Stand, ditches, fences and misc. av. value (half cost) 32.50	1.63			
Land, \$300 an acre	15.00			
Total Interest on Investment	16.63	1.38		
TOTAL ALL COSTS	54.93	4.58		

This sample shows a total cash cost of \$33 an acre or \$2.73 per animal unit month or a total cost including depreciation and interest on investment of \$55 an acre or \$4.58 per animal unit month of feed. With 2.5 animal unit months of pasture equivalent in feed value to a ton of hay, this results in a feed cost of \$6.83 in cash costs or \$11.45 total cost for feed to replace a ton of hay. This green pasturage has high nutritional value and is an economical feed which the animals harvest themselves. Irrigated pasture to yield well must be carefully cared for and grazed moderately. With good management, 15 animal unit months of feed per acre should be obtainable. With above costs per acre the same, this would reduce the total cost per animal unit month to \$3.66 or the equivalent to hay at \$9.15 a ton.

TIME OF PLANTING

Early fall or early spring is the suggested time to plant irrigated pastures. Early fall planting is preferred, but it should be early enough (September) for the plants to be up before severe frosts occur; early spring planting, late February or early March, will give the plants a more favorable opportunity to develop than later spring seeding.

PLANTING METHODS

Planting methods may vary but the important consideration is to be sure the seed is planted not more than a half-inch deep, yet it should be covered to prevent bird and rodent depredations.

Planting may be done by one of the new forage seeders, which consist of a hopper on a cultipacker; grain drill; or broadcasting. When using a grain drill, rice hulls may help to prevent seeds from settling out and will dilute the mixture so that it can be metered out in the desired amounts. About 16 to 20 pounds of rice hulls per acre will generally go through the drill when it is wide open, though this amount may vary. The drill should be calibrated, and the seed thoroughly mixed with the rice hulls. When the seed is broadcast, a cultipacker or ring roller should be used to cover the seed; however, a spike-tooth harrow with the teeth turned back, or a brush drag will do.

IRRIGATION

Frequent shallow irrigations are recommended. Since irrigated pasture is a relatively shallow rooted crop, frequency of irrigation is the important consideration. The irrigation requirements vary with the local climate. An average program in the Russian River Watershed would be 30 to 40 acre inches applied in 12 or 13 irrigations with from 2 to 3 acre inches per irrigation. On the cooler coast, 4 to 6 irrigations of 3 acre-inches per application would ordinarily be adequate. Proper drainage should be provided for best production as water-loving weeds, such as sour dock, sedges, and rushes, are encouraged by poor drainage.

WEED CONTROL

A good weed control program should be initiated before the irrigated pasture is planted. Growing a crop of Sudan grass or a cereal before establishing the pasture will greatly reduce the weed problem. 2,4-D can be used on Sudan grass or cereals to kill many of the broad-leaved weeds.

After the pasture is established, weed control may be accomplished by proper grazing rotation, occasional clipping, or, under certain circumstances, the use of 2,4-D. In pastures where ladino clover is the only legume, 2,4-D can be used effectively and without damage if applied at the right time and by using the correct dosage. 2,4-D should not be applied in amounts over $3/4$ pound per acre, and only in the spring when the clover is growing rapidly and is in a vigorous condition. Grazing should be discontinued a week or two following the application. 2,4-D is not recommended if alfalfa or trefoil are present in the pasture. The Farm Advisor's Office will be glad to give further information on the use of this weed killer.

FERTILIZATION

The general fertilization program provides for fertilization of the legumes which, in turn, produce nitrogen for the grasses. Phosphoric acid, and in certain areas, sulphur, have stimulated clover growth in Mendocino County. Applications of 250 pounds per acre of superphosphate supply the requirements for sulphur and phosphate under most conditions.

Barnyard manure is the best fertilizer available--use your supply to the fullest.

MANAGEMENT

Good management of irrigated pasture maintains a high level of production and proper balance of grasses and legumes. Most essential is to maintain the best

ratio between animals and available acreage.

Overgrazing weakens plants and tends to increase weed problems. Undergrazing can result in unharvested production and lower quality of forage. Pastures should not be grazed when wet as puddling of the soil will result and with it decreased water penetration.

The pasture should be allowed to grow out every few years to give the plants an opportunity to build up root reserves and reseed. This may be done early in the spring and the growth can be utilized for hay. Generally, a lag in production is experienced during late August or early fall. Care should be exercised to assure the pasture sufficient rest to allow the plants to remain ahead of the animals, or the pasture will go into the winter period in poor condition. Clipping the pasture several times a season is an important weed control measure, and also keeps the grasses from becoming coarse and bunched.

Using a pasture harrow to spread cattle droppings will better utilize the fertilizer and will prevent clumping of grasses.

The balance of grasses and legumes should be roughly 40% legumes and 60% grasses for cattle and sheep. This balance can be adjusted to a higher percentage of clover by frequent irrigations or toward grasses by less frequent irrigations. The use of nitrogenous fertilizers can adjust the balance toward a higher proportion of grasses, if desired.

Bloat in cattle and sheep may be prevented by the use of dry hay or straw. Bloat prevention is assisted by rotation grazing in allowing the grasses to become more mature before grazing. If there are specific questions not covered, the Farm Advisor's Office will be glad to discuss individual problems.

Prepared by William H. Brooks, III - Farm Advisor
R. D. Foote - County Director
Agricultural Extension Service