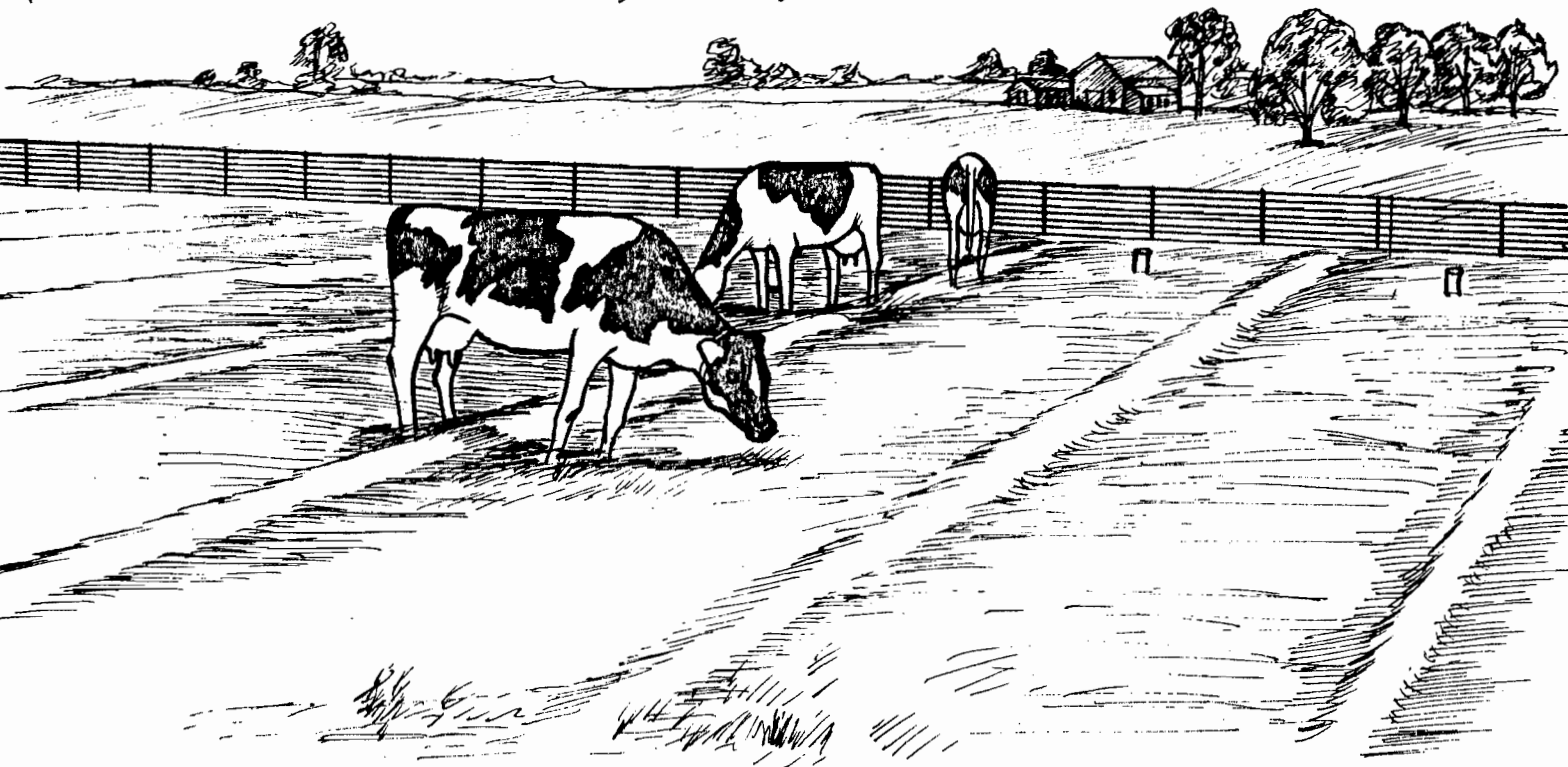


IRRIGATED PASTURES

by W.M.Cory: Farm Advisor



The chief function of an irrigated pasture is to serve as an economical, nutritious source of feed for livestock through the major portion of the year. Under good management it will provide: (1) cheaper and more nutritious feed for livestock, (2) some saving in protein feed supplement, (3) improvement in soil resources, (4) better gains in young stock, (5) low harvest costs because livestock harvest their own feed, (6) a more healthful environment than when confined as in corral feeding, (7) a more evenly distributed farm labor load over the year.

Irrigated pastures can be successfully grown on a wide range of soil types. However, as in other crops, those soils having a more favorable structure and plant nutrient content will produce higher yields. In general, the sandy loam, loam and clay loam soils are to be preferred.

Since an irrigated pasture can normally be expected to have a useful life of 10 or more years, any extra expense incurred in land preparation or installation of irrigation systems that will contribute to the economic and uniform distribution of irrigation water will be repaid over the years of use. The irrigation system used, viz., strip checks, contour checks, or sprinkler will depend upon the topography of the land, the size of stream flow, and the soil type. Where the proposed pasture land is very sandy or will require heavy cuts and fills to level sufficiently to flood irrigate, or where the stream flow is less than 100 gallons per minute, the sprinkler system of irrigation would be preferred. This system should be avoided wherever possible as the water must be delivered to the sprinkler heads at from 40 to 50 pounds pressure for efficient operation. This will add to the pumping cost as one pound of pressure is equivalent to a lift of 2.3 feet.

Pastures require a greater number of irrigations each season than most crops. For this reason, it is particularly important that the land be properly prepared and an adequate irrigation system installed so that a minimum amount of labor will be required for irrigation. Once the land has been planted, very little can be done to improve the irrigation system without destroying the stand, releveling, and re-seeding.

A light irrigation applied at frequent intervals is most essential for a successful pasture. Maintain a moist soil from the surface down to a depth of 18 inches to 2 feet. Sandy loam soils will require irrigation every six to eight days, and loam soils or heavier, every eight to ten days during the summer months. After an irrigation, determine the depth of water penetration. By close observation, the operator can soon learn to regulate the flow of water and time of application to secure proper penetration without wasting water or leaching plant nutrients.

LAND PREPARATION

Where the strip check or contour check system of irrigation is used, level the land carefully. Make ridges about 2 feet wide at the base and 6 inches high after settling. Width and length of checks are governed by the type of soil and head of water available. As a rule, a more efficient use of water is obtained where checks are not over 10 to 18 feet wide and 300 to 450 feet long. A desirable grade is sometimes difficult to obtain. As a guide, a grade of from 2 to 5 per cent on a fine textured soil and from 3 to 10 per cent on a coarse textured soil is to be desired. As water penetrates more slowly into a fine textured soil, checks may be wider and

longer in soils of that type without danger of excess leaching and water loss.

After the ridges have been made, run water through each check to settle the soils and to determine if further grading will be necessary.

SEEDING

The months of November, December, February, and March are usually more favorable for planting.

Fall planting is preferred as the winter rains will germinate the seed on the ridges better than by irrigation. It is a good procedure to irrigate a few days before seeding to be assured of good surface moisture. Seedbed must be firm, moist, free from large air pockets and clods. Seed must not be covered deeply. Equipment used for seeding is: land seeder, end gate broadcast seeder, and drill with grass seeding attachment.

Immediately after seeding and first application of fertilizer, harrow lightly and follow with a cultipacker or plank drag to compress the soil around the seed. If the roller or harrow flattens the ridges too much, use a hay rake to cover seed on the ridge and cultipack parallel with ridges.

SEED MIXTURE

The desired standard of an irrigated pasture is to have green feed through as much of the year as weather will permit. It should provide as nearly a balanced feed as possible. Consequently, a wide selection of grasses and legumes are included in the mixture.

A suggested seed mixture for dairy cattle:

5# Perennial rye grass
5# Orchard grass
5# Tall Fescue

2# Dallis grass
3# Birdsfoot Trefoil (narrowleaf)
2# Ladino clover

22 pounds seed per acre

A suggested seed mixture for horses:

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|------------------|-----------------------------------|
| 5# Orchard grass | 2# Dallis grass |
| 5# Tall Fescue | 3# Tall wheat grass |
| 5# Harding grass | 2# Birdsfoot Trefoil (narrowleaf) |
- 22 pounds seed per acre

A suggested seed mixture for an alkali soil:

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|-----------------|-----------------------------------|
| 4# Tall Fescue | 4# Orchard grass (palestine) |
| 3# Dallis grass | 4# Birdsfoot Trefoil (narrowleaf) |
| 3# Rhodes grass | 4# Salina clover |
- 22 pounds seed per acre

A suggested seed mixture where irrigation water is limited:

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|------------------------------|----------------|
| 3# Tall wheat grass | 3# Tall Fescue |
| 2# Smilo grass | 2# Alfalfa |
| 2# Orchard grass (palestine) | 2# Burr clover |
| 2# Harding grass | |
- 16 pounds seed per acre

FERTILIZATION

Nitrogen will stimulate the growth of grasses. A general recommendation is to apply 40 to 50 pounds of elemental nitrogen per acre per year. Apply one-half the recommended application of nitrogen and phosphates at the time of seeding. Subsequently, apply one-half in February or early March, and the remainder in July. Select the material supplying nitrogen at the lowest cost per unit.

Phosphate will also stimulate pasture plants and is a necessary plant nutrient to be added to local soils if best plant growth is to be secured. Annual applications of 60 to 90 pounds per acre of this material should be made. It can be applied at the same time as the nitrogen with one-half in each application. Apply all fertilizers just prior to an irrigation.

It is too frequently assumed that pasturing livestock will return enough material to the soil to maintain maximum yields. This is not true. Much of the soil fertility is converted into meat, milk, or wool and thus is permanently removed.

MANAGEMENT

A substantial four barbed wire fence with posts set 12 feet apart should enclose the pasture. Division fences may be a safe electric-charged type. The pasture should be separated into two or more fields to permit rotation and recovery of grasses and legumes. Plants should have about a month for recovery between grazing periods and should not be grazed more closely than 5 to 6 inches off the ground.

In certain seasons stock may not be able to keep up with the forage in which one or more divisions may be clipped and made into hay. This will keep weed growth down. Stock in pasture should have access to dry hay and salt blocks. Molasses may also be fed in a trough as a feed supplement. Grass clumps will appear in older pastures. These can be largely avoided by clipping after grazing. Drop-pings can be broken and distributed by harrowing with a chain harrow after an irrigation.

CARRYING CAPACITY

This may vary widely depending on soil and management. However, a well managed irrigated pasture will normally carry the equivalent of two animal units per acre for a year.

ANIMAL UNIT CONVERSION TABLE

	<u>Animal Units</u>		<u>Animal Units</u>
Cattle over 2 years of age	1.00	Sheep, mature	.20
Cattle 1 to 2 years	.75	Lambs 40 to 100 pounds	.15
Calves 3 months to 1 year	.50	Horses, mature, light work	1.00
Swine, mature	.50	Horses 1 to 2 years	.85
Pigs 40 to 100 pounds	.25	Colts under 1 year	.40
Pigs 100 to 200 pounds	.40		

COSTS

The principal items of cost of an irrigated pasture are: leveling, building ridges, installing irrigation system, fencing, and seed. When once established, the main items of cost would be: water, fertilizer, taxes, irrigation, labor, and depreciation on stand and equipment.

Full returns from an irrigated pasture

can be attained only by proper management, which includes: (1) adequate and timely applications of irrigation water, (2) adequate and timely applications of additional plant nutrients, (3) by not permitting general grazing closer than five or six inches, (4) providing a supply of dry roughage, salt, and clean drinking water, (5) destroy perennial weeds, (6) clip pasture when bunches of mature grasses become prevalent.