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Irrigated Pastures

for Washington

**Extension Service
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To pay the costs of irrigating and managing pastures, you need high-producing plant species, enough fertilizer and proper management practices. From Experiment Station research come these suggestions for managing irrigated pastures:

Grass and Legume Mixtures

A simple mixture of one or two grasses and one legume in a pasture will produce as much as complicated mixtures. In addition simple mixtures are easier to manage.

For fertile, well-drained soils, 8 pounds of orchard grass and 1 to 3 pounds of Ladino clover per acre is a good mixture for livestock. One pound of Ladino clover with orchard grass is adequate in most of eastern Washington and in the Columbia Basin. Three pounds are recommended in western Washington. In eastern Washington 5 pounds of alfalfa with 8 pounds of orchard grass may do as well or better than Ladino clover. Alfalfa should be used instead of Ladino clover in eastern Washington if pasture is not irrigated often.

For poorly drained and shallow soil, 4 pounds of Alta fescue, 6 pounds of orchard grass and 1 to 3 pounds of Ladino clover is the best bet for top production.

For alkali soils in the Yakima Valley and the Columbia Basin, 6 pounds of Alta fescue and 4 pounds of strawberry clover will provide the most grazing for your livestock. You can save money by buying from local dealers and making your own mixtures. For additional mixtures for specific soil conditions see your County Extension Agent.

Fertilizers

NITROGEN—100 pounds of available nitrogen per acre each year in at least three applications will bring the best returns in most parts of Washington. Water-soluble nitrogen can be applied through the sprinkler system. Do not apply fertilizer in surface irrigation water since fertilizer may be poorly distributed.

PHOSPHORUS—40 to 60 pounds of phosphate applied in the fall or early spring is usually necessary in western Washington and irrigated central Washington. In eastern Washington phosphate should be used when soil tests show a phosphorus deficiency. Water-

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soluble phosphate can be applied through irrigation systems. Caution: Do not apply other than water-soluble phosphates through the system.

Washington State College maintains a soil testing laboratory at Pullman. Soil tests will help you to find out more accurately your fertilizer needs. See your County Extension Agent for containers and for instructions on taking soil samples.

LIME—Most western Washington soils are acid, but lime has not increased forage production, palatability, or feed value of the grasses and legumes. Before applying lime, check with your County Extension Agent to find out if lime has increased pasture production in situations similar to yours. Most eastern Washington soils do not require lime.

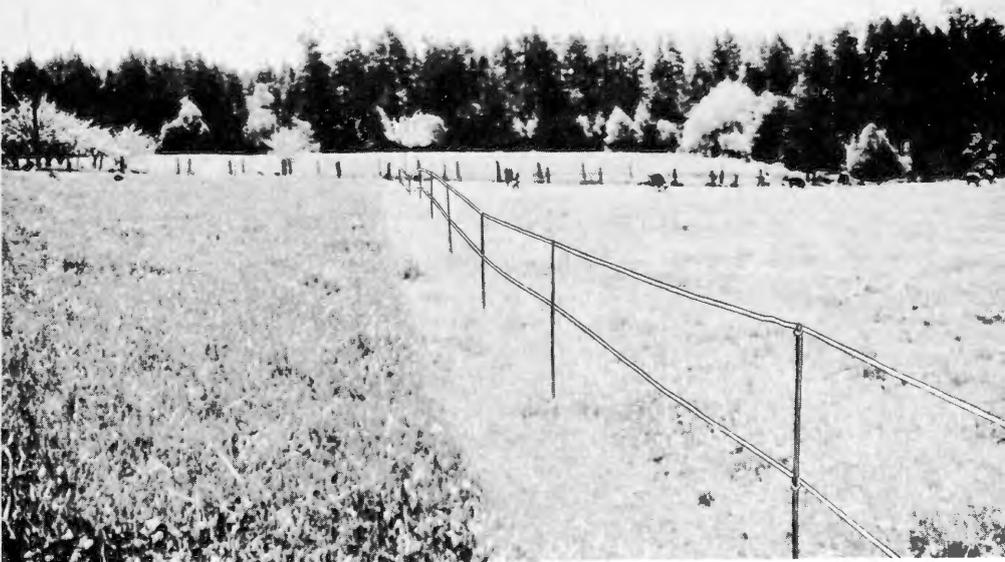
POTASSIUM—Do not use potassium unless soil tests show a need.

MANURE—Each ton of manure contains about 10 pounds of nitrogen, 5 pounds of phosphate, and 10 pounds of potash. Manure exposed to the weather for a long time may lose nitrogen and potash by leaching.

Commercial fertilizer applications can be reduced by half or more if 8 to 10 tons of manure are applied per acre of pasture.

MINOR ELEMENTS—Traces of minor elements have not increased pasture production in Washington research plots.

The pasture on the right has been over grazed. Cattle should have been moved to a new paddock before the pasture was grazed this short.



Management Systems

Grazing management is the key to high yielding irrigated pastures. Good management systems increase yields, reduce selective grazing, cut forage waste and control the quality of the forage.

Any management system should be flexible enough to use all the forage as pasture, hay, or silage. Set up a grazing system so that grazing starts when the forage is 8 to 10 inches high. Remove livestock when 3 to 4 inches of stubble remains. Pastures need 20 to 30 days between grazings to reach the recommended height.

Do not attempt to graze irrigated pastures as soon as they start growing in the spring.

Leave about a 6-inch stubble on irrigated pasture for winter. Legumes grazed too closely will be damaged by heaving and winter injury.

Occasionally you may need to clip the pasture to prevent patchy grazing, control weeds, and remove the seed stalks and poor-quality forage.

During the spring lush growth, some of the paddocks may be mowed and the forage used as silage or hay.

Plow irrigated pastures and grow a clean-up crop at least once each 5 years.

A number of different systems of grazing management are now being used. Let's look at advantages and disadvantages of each system.

Continuous Grazing

Livestock are placed on one field and left for the season. The only place for continuous grazing is on dryland pastures where it is impractical to cross-fence, or in grazing the aftermath of hay or silage.

Advantages

- Small investment in fence
- Low management cost

Disadvantages

- Lower production
- Large amounts of forage wasted
- Irrigation or fertilization is difficult when pasture is being grazed
- Maintaining the desired composition of grass and legumes is difficult
- Weed control is difficult
- Patchy grazing results
- Late summer production is less
- Taking advantage of high-yielding grass and legume mixtures is difficult

Standard Rotation

The pasture is divided into 4 to 6 paddocks. The livestock are moved every 4 to 6 days. Standard rotation grazing should be used on most irrigated pastures.

Advantages

Ten to twenty-five per cent increase in production over that of continuous grazing
Fertilizing and irrigating are done more easily
Management is easier
Desirable composition of high-yielding grass and legumes can be kept more easily
Forage waste is reduced
Weed control is easier

Disadvantages

High cost of fencing
Clipping is needed for weed control and to prevent patchy grazing
Paddock arrangement must be well designed or irrigation may be difficult
Supplying water to livestock is usually more difficult

Ration Grazing or Strip Grazing

The cattle are given only the amount of forage they will consume in a given time, usually one day and occasionally one-half day. This type of grazing should be used for high-producing dairy herds or on farms where pasture acreage is limited.

Advantages

Production increased about 25 per cent over continuous grazing
Very little waste
Rapid regrowth of pastures
Flexible use of forage
Low permanent fencing costs
No clipping costs
Less selective grazing
Manure distributed more evenly
Weed problem lessened

Disadvantages

The one big disadvantage is the labor required to move the fence each grazing period
Difficult to arrange paddocks to fit an irrigation system

Green Chop

The material is chopped green in the field, hauled to the cattle, and fed in dry lot. Green chop is recommended only if you have large herds. Machinery costs are too high for most small operations.

Advantages

Saves more of the plant nutrients
No fencing costs
Irrigating and fertilizing are easier
No tramping or fouling of forage
No droppings to spread
Bloat hazard reduced
Less danger of stand reduction

Disadvantages

High machinery costs
Manure must be spread back on the land
Careful management required
Difficult to manage so that the feed is at the right stage for harvesting throughout the growing season
Labor costs are high



Sprinkler irrigation can be used on steep slopes or on light, shallow soils where surface irrigation cannot be used.

Weed Control

Good management on irrigated pasture is a good way to control most weeds which must be controlled to obtain top forage production.

Most weeds can be controlled by combining pasture management with 2,4-D. The 2,4-D itself is not poisonous to livestock when used at the recommended rates. But, when it is sprayed on poisonous weeds 2,4-D may make these plants more palatable to livestock. When used as recommended, 2,4-D does not injure established pasture grasses.

Legumes other than white or Ladino clover are often severely injured or killed when sprayed with 2,4-D. One pound or one quart of 2,4-D amine per acre will control most broadleaved weeds in a good pasture. It will not kill white or Ladino clover.

Mix the 2,4-D with water and apply it once or twice during the season, depending upon the weed growth. The first application should

be made while the annual weeds are young and actively growing or when the perennial weeds are in the pre-bud or early bud stage. A follow-up spraying in late summer or early fall may be desirable if weed regrowth is heavy.

Water hemlock which often grows in irrigated pastures is considered Washington's most poisonous weed.

Remember, pasture management is the key to the weed control problem. Combining proper management with 2,4-D makes weed control easier.

Preventing Bloat

1. Use enough nitrogen during the growing season to keep the grass in an active growing state.

2. Let the plants grow to 10 inches high before grazing in early spring. Later in the season, the extra height is not as important in reducing bloat.

3. Do not turn cows out on pasture when they are very hungry.

4. Have plenty of water and salt available to the cattle all the time.

5. Have dry roughage such as straw or coarse grass hay available. Do not use high-quality alfalfa hay.

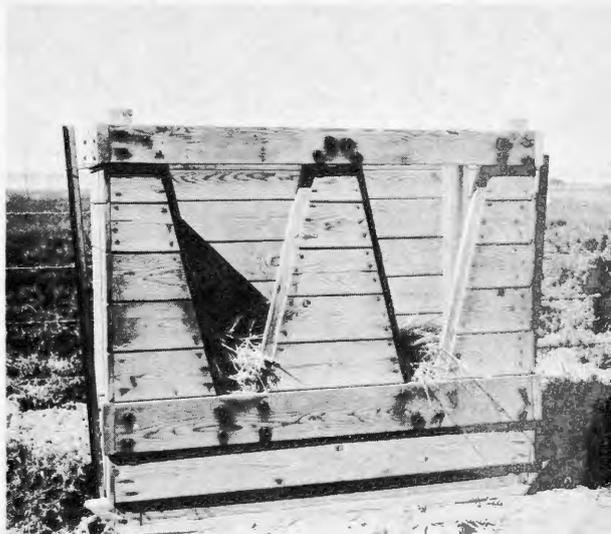
6. Mow a swath or two and allow the forage to wilt before turning the cattle on the pasture. **Straw feeder for cattle on pasture.**

7. Leave cattle on pasture. Avoid constant changing of cattle to and from pasture feeding.

8. Get rid of the chronic bloaters.

9. Do not depend on complicated mineral mixtures to control bloat.

10. The most effective bloat control program is good management.



THERE'S MORE TO COME . . .

Pasture studies at the Western Washington Experiment Station, Puyallup, are investigating milk production of cows on orchard grass fertilized with nitrogen and on Ladino clover-grass mixtures.

Species, variety, and fertilizer studies are being carried on at experiment stations at Puyallup, Pullman, Vancouver, Mt. Vernon, and Prosser.

Irrigated pastures at Prosser include Ladino clover and alfalfa with orchard grass and tall fescue. These pastures are being grazed with yearling steers to determine beef production on different species.

When the studies are completed, your County Extension Agent will have the results to pass on to you.

The pasture shown on the cover is a good mixture of orchard grass and Ladino clover.

