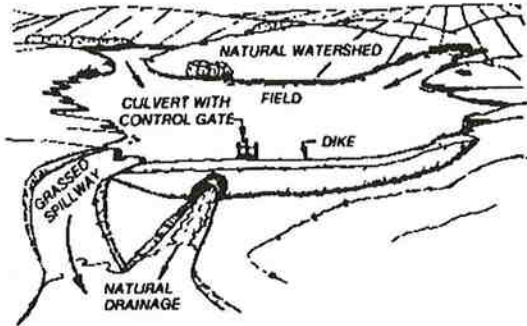


Backflood Irrigation



Spring backflood irrigation is not a new technology. For years farmers have used a variety of methods to increase the amount of water stored in the soil from the spring snowmelt.

The low development and operating costs of backflooding make it an inexpensive way to increase crop and forage production.

Backflood Designs

There are four basic backflood designs. The topography, the amount and source of water, and the type of farming that's being carried out will determine the design of the system used.

- 1) **Controlled drainage** systems use ditches and other structures to control and divert water from sloughs.
- 2) **Diverslon** is the least complicated of spring backflood irrigation systems. A dike across a natural water run holds water on the land until the water has served its purpose.
- 3) **Pumped diverslon** systems use water from creeks or rivers to irrigate fields.
- 4) **Pumped drainage** systems are used in areas where the topography does not allow for adequate natural drainage. Water is pumped off from a sump at the lowest end of the field and into a natural watercourse.

Operating a Backflood System

The object is to fill the root zone and then use the stored water during the growing season.

Cropping the soil dry each season prevents the buildup of subsoil water levels and ensures the soil will be dry enough to absorb water the following spring.

If the subsoil gets oversaturated, the only way it can dry is by evaporation, which brings salts to the surface. Oversaturating also cuts down on yields because it causes shallow rooting and plants suffer during hot, dry weather.

Generally, water is left on the field until it has saturated the soil to 0.9 metres (3 feet). A probe can be used to measure the moisture depth. After draining, further downward water movement will keep salts from coming to the surface and will also allow the surface of the land to dry quickly.

Backflood Irrigation Farming

There are no hard and fast rules about how to get maximum production out of backflood irrigation farming. However, in general terms:

- Fertilizer requirements will be greater because of continuous cropping and maximum recommendations should be applied, in spring, to get best results.
- Soil testing, especially for nitrogen, should be done annually.
- Herbicides should be applied as required.
- Straw buildup on shorelines can be a problem, so a fall cultivation to anchor the straw is required.

Crop Selection

Crops best suited for backflood irrigation fields are those with root systems that can go down far enough to use all the moisture that's stored in the subsoil.

Durum wheat, spring wheat, and coarse grains are well suited to spring backflooding. Winter wheat can be grown, but can be damaged by extended flooding or erosion.

Bromegrass and timothy are well suited for growing in reclaimed slough areas that drain quickly.

Alfalfa can be grown on backflood land, but can only tolerate flooding 7 to 10 days after the frost comes out of the ground.

Pulse crops and oilseeds are not recommended as part of the crop rotation.

Returns from crops produced with backflood irrigation are similar to summerfallow crops, but are more reliable on an annual basis.

PRFA provides technical assistance to farmers for planning the most suitable water supply for their farms.

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