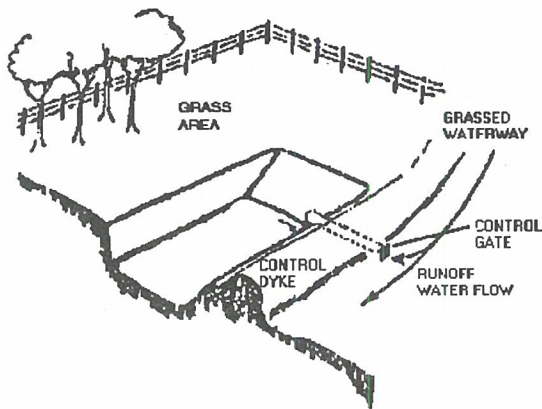


# WATERfacts 2

## Dugout Water Quality



Dugouts are an important water source for many farms, and maintaining water quality in them should be a priority. When properly located and managed, dugouts can provide an assured supply of good quality water.

Poor quality water in dugouts is caused by an accumulation of silt and high nutrient levels which promote organic buildup through algae and weed growth. Both problems usually originate outside of the dugout, and are associated with dirty water coming from the surrounding drainage area. The problem can be reduced by ensuring only clean water enters the dugout. This can be achieved through proper watershed management and site selection.

### Watershed Management

The drainage area must be carefully assessed to ensure only good quality water runs into the dugout.

When evaluating a watershed, consider:

- topography and land use within the drainage area
  - steep slopes on finely tilled soils can result in soil erosion during spring runoff and heavy rains
  - eroded silts and topsoil, carried by surface water runoff, cause quality problems and create high nutrient levels which encourage the growth of algae and weeds

- buildup of silt and organic matter reduce storage capacity and water depth
- **good soil conservation practices that prevent water and wind erosion will protect and enhance the quality of surface water runoff**
- location and condition of tributaries
  - properly maintained grassed watercourses prevent soil erosion problems
  - sedimentation ponds can be used to reduce the level of silts and nutrients flowing into a dugout
- snow trapping capabilities
  - snow traps can help ensure a dependable water supply and prevent erosion
  - natural snow traps, such as treed areas and coulees, are effective
  - planted tree shelterbelts and snow fencing help catch snow and prevent erosion
- potential pollutants
  - identify and isolate pollution problems associated with livestock, refuse areas and chemical hazards to prevent water contamination

### Site Selection

Proper dugout site selection is important to a high quality water supply.

- Dugouts should be conveniently located to the farmstead and able to catch maximum runoff
- Avoid direct drainage from livestock facilities, refuse areas, highly erodible land and chemical hazards to prevent contamination of dugout water
- Sloughs and marshy areas with high organic growth are not suited for proper development and maintenance
- Diversion dikes and inlet control structures should be used to control the quality of water entering the dugout

- Sheltered sites reduce evaporation losses, but treed areas should be kept back from the dugout to avoid contamination from leaves and to allow proper site maintenance
- A grassed buffer zone around the dugout allows easy maintenance and prevents contamination from agricultural activities such as cultivation and crop spraying
- Foundation conditions should be investigated at the site to ensure no subsurface or soil problems exist (see WATERfacts 6)

By ensuring only good quality water will be entering the dugout site, a properly designed and constructed dugout can provide a sustainable, good quality water supply.

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

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