



FIGURE 4. TRENCH SILO

moisture grain from a horizontal silo. For limited oxygen-type storages there is a minimum amount of high moisture grain which must be removed each day since the surface of the grain is not exposed to air. A farmer may remove a few inches one day and then wait several days before removing additional grain from this type of storage. Increased versatility in feeding is permitted with this type of storage system.

In any case, whether the storage is conventional or limited oxygen, the grain should not be allowed to stand in a feeder for any extended period of time. Grain which is exposed to air for extended periods of time tends to mold and create animal health problems which are difficult to treat medically. Only the amount of grain that will be eaten in a given allowable time should be placed in the feeder since high moisture grain spoils rapidly. The allowable time depends upon the temperature of the surrounding air and consumption rate. Many producers have experienced trouble feeding high moisture grain in self-feeding livestock feeders.

Acid Treatment of Grain

When properly applied, acid-type grain preservatives kill and inhibit development of the fungi (or molds) and related microorganisms in grain, and continue almost indefinitely to prevent mold growth. The embryo of the grain kernel is also killed, so there is essentially no respiration or other biological activity. The mode of action is not known for certain, although the process is often likened to preserving foods in vinegar (a dilute acetic acid solution). Preservation is associated at least partly with the low pH in treated grain, although reduction of pH to similar levels using other kinds of acids does not prevent mold growth.

The best mold inhibitors, considering efficiency, cost, and safety, are propionic acid and closely related compounds. These include propionic, propionate and ammonium isobutyric acids, and a few salts