University Extension
UNIVERSITY OF MISSOURI COLUMBIA

Drought Information

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Ways to "harvest" water

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The ideas presented here include ways to take advantage of any fortuitous rainfall or to transfer water from one location to another. The ASCS is cost-sharing pumping costs for transferring water from one location to another under the ECP (Emergency Conservation Program) in some counties in Missouri. Other practices, such as buried pipelines for livestock water, are also being cost-shared. Contact your county ASCS office (Agricultural Stabilization and Conservation Service) for more details.

Ways to Capture Rainfall

From Buildings or Concrete Lots

One obvious source of rainwater is to gutter all buildings to a cistern, tank or pond. For maximum storage efficiency, some ponds may need a plastic liner to prevent seepage losses, especially in southwest Missouri.

Each 1,000 square foot of roof (or concrete lot) will collect about 623 gallons per inch of rainfall. One inch of runoff from an acre equals about 27,150 gallons.

From Farmsteads and Fields

Normally we don't look too favorably on runoff from farmsteads as a source of water but it may look better in times of extreme drought. Frequently, we need to increase the amount of runoff into a pond for faster recharge.

Construction of a temporary diversion to increase the area draining into the pond is a low-cost way to accomplish quicker recharge. If the farmstead contains a large area of roof and concrete lots, the runoff per unit area will be higher than for ordinary fields and pasture.

If the diversion intercepts water from a waterway for a terrace system, a vast increase in the incoming draining area may be accomplished.

An ideal solution would be to extend a diversion to an ever-flowing source of water such as a spring-fed stream. An alternative is to place a temporary dam across an intermittent draw (stream) and pray for a runoff-producing rain. A draw below a paved road will receive a high percent of runoff.

Water Transfers

Water can be economically pumped for long distances through temporary (portable) pipe if the increase in elevation is not substantial.

Very conservatively, one gallon of diesel fuel might pump 60,000 gallons of water 1,746 feet horizontally (at the rate of 1,000 gallons/minute) through an 8" diameter aluminum irrigation pipe or 5,077 feet horizontally through a 10" pipe.

Conversely, one gallon of diesel fuel will lift only about 20,000 gallons of water 100 feet vertically. (These calculations are based on pump and drive efficiencies of approximately 50 percent.)

From Ponds and Reservoirs

Water from ponds and reservoirs could be used for household use if properly treated. Treatment will usually include filtration and chlorination.

From Lagoons

Water for limited irrigation purposes may be pumped from lagoons (household, livestock or municipal).

From Intermittent Streams

Water can be pumped from intermittent stream flows by placing a temporary dam (such as planks) across the stream and being ready to pump fast whenever stream flow occurs (following rainfall or snow melt). An alternative to the dam is to dig an impoundment basin in the stream, or to one side of the stream, so that the intake pipe for the pump will have sufficient submergence to supply the pump.

From Flowing Streams

Water may be pumped from flowing streams without creating an impoundment if the stream is sufficiently deep. If the stream flow is less than the pumping rate, an impoundment and intermittent pumping will be required.

FOR HELP

We suggest that you contact your Area Agricultural Engineering Extension Specialist for assistance, especially with pumping problems such as pump and pipe selection.