

Drought Readiness Is Good Management

UNIVERSITY PARK (Centre Co.) — Some weather experts are saying that we may be at the beginning of a drought cycle similar to the cycle from the mid-'50s to the mid-'60s. "This may or may not be true," says Dr. Elwood Hatley, Penn State professor of agronomy. "Unfortunately we have no control over the weather, but a little planning can take at least some of the risk out."

It is important to keep in mind the economics of crop management. "Switching crops may reduce risks from a production standpoint, but it is a waste of resources if the alternative crop cannot be sold at a profit or utilized on the farm," says Hatley. "Once the cropping decisions are made, good management of your farm will reduce the risks and ultimately increase profits."

Hatley says the economics of sound management are clear. Four types of information are useful in developing a strategy to minimize the impact of weather-related

stress:

- long range weather patterns
- the capacity of various soils to hold water
- the ability of various plants to withstand environmental stress
- management techniques

"All of this information must fit together like a puzzle to form a management plan," says Hatley.

Pennsylvania farmers should monitor long-range forecasts and incorporate appropriate changes into an overall production plan. "You don't have to be a meteorologist to know that from mid-July through August it is going to be hot and probably dry in Pennsylvania," says Hatley. Even though long-range forecasts are not reliable they do indicate general weather patterns for specific areas.

"Manage all of your resources to minimize the impact of drought and environmental stress," he adds. "While drought cannot be predicted or avoided, farmers can take measures to reduce the

effects."

Soils vary in ability to hold water for future plant use. Water holding capacity is determined by soil depth and soil texture. Sandy or coarse soil will not retain as much water as clay or fine-textured soil. The depth of soil available for root growth is a major determinant of how much water is available for plant use. A deep, fine-textured soil will have a greater amount of water available for plant use than a shallow coarse-textured soil and will not require rain as often during the growing season. "Field records are an excellent predictor of a soil's water-holding capacity," says Hatley. "These records are the key in determining what to plant and how to manage a specific field."

Plants can be managed to help provide a hedge against environmental stress. The amount of stress a plant can tolerate varies greatly with the stage of growth. Stress is most severe during the

reproductive stage of plant growth. This means that damage is less severe if stress happens during germination, vegetation, grain fill or the maturity stage. Farmers can plant some crops so the reproductive stage arrives during the least stressful period or in a field where the effects of drought will not be so severe.

Deciding what species to plant is a management tool to reduce environmental stress. "For example," says Hatley, "in some fields it might be safer to plant sorghum than corn. Sorghum is more drought tolerant than corn. Unlike corn, sorghum has the capability of going dormant if put under stress. Corn will just keep trying to grow, even under extreme drought conditions."

Also, corn has a reproductive period of only about two weeks. If corn is severely stressed during that period, the crop can be lost. Soybeans, on the other hand, have a reproductive period of about five weeks. During that period the plants can adapt to drought condi-

tions. If soybeans are stressed they can abort up to 60 percent of their blossoms and still make a crop.

In some cases it may be possible to select plants with a different root system as another hedge against drought. Sunflowers can survive drought conditions better than corn because they are able to absorb more water from the soil.

Varying plant types is yet another hedge against drought. Cool season grains, such as spring oats and spring barley, will be at their reproductive stage in early to mid-June or about 60 days after emergence. Warm season grasses, such as corn, will reach their reproductive stage from mid-July to early-August. On the other hand, winter grains, such as winter wheat, will reach the reproductive stage as early as mid-May. Hatley says that having crops which reach the sensitive reproductive stage at various times during the growing season provides alternatives. "You're more likely to produce a crop with more than one grain."

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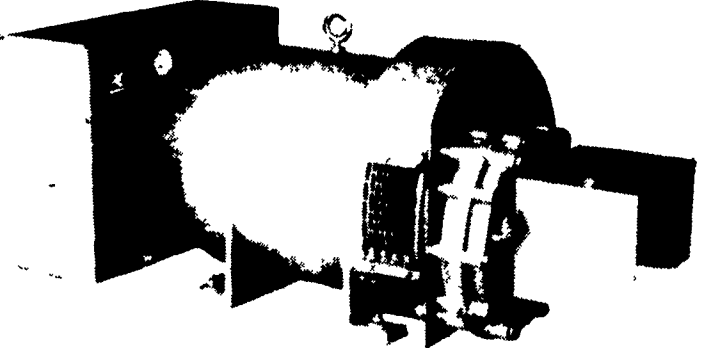
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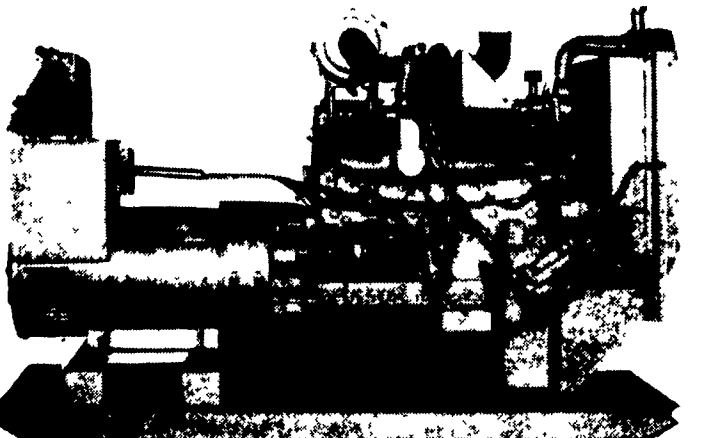
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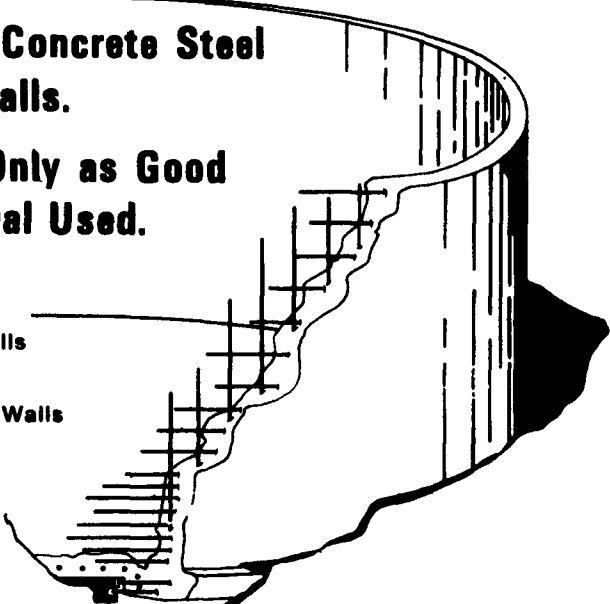
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