AGRI-BRIEFS
AGRONOMIC NEWS ITEMS

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GET THE MOST FROM EVERY DROP OF WATER

In areas where adequate moisture is a concern, agronomists talk about how to get the most yield from each inch of water in the soil, a term called water-use efficiency. Imagine a field covered with a 24-in. sponge. A sponge this size could hold between 10 and 12 in. of rain and store it. The soil acts like a huge sponge, providing the nutrients and water to sustain crop growth. We can manage this topsoil to get the most from the stored water. Some common ways to make the most of this resource are to:

- Provide proper and balanced nutrition to grow a healthy plant with a vigorous root system that explores the deep soil profile for moisture.
- Retain as much crop residue on the surface as possible to catch and retain water, reduce evaporation, and minimize erosion.
- Select the appropriate crop varieties and utilize timely planting to avoid peak periods of moisture stress.
- Control weeds that compete with crops for moisture.
- Use the minimum amount of cultivation necessary to perform important field operations. Each disturbance of the soil results in enhanced moisture loss.

A look at wheat production in the Columbia Basin (Pendleton, Oregon) illustrates how water-use efficiency has increased over the last 35 years as a result of various practices.

Between 1967 and 1996, spring wheat yields increased an averaged of 1.2 bushels per acre each year in a wheat/fallow rotation. Although there are swings above and below this average annual increase, the upward trend remains consistent. Wheat yields in 1940 averaged 45 bu/A with a precipitation of 16.5 in., resulting in 2.7 bushels per inch of precipitation. Yields in the range of 85 bushels per acre in the 1990s with the same amount of rainfall reflect a water-use efficiency of 5.1 bushels per inch of rainfall—**almost double the yield with the same amount of water!**

While several factors (such as improved genetics and pest control) have contributed to this remarkable improvement, USDA scientists report that proper plant nutrition is one of the most important contributors to this yield boost. They report that this improvement reflects the “importance of having sufficient soil fertility to allow the wheat crop to take full advantage of additional soil moisture in favorable rainfall years.”

Careful attention to soil fertility and good soil management can go a long way towards converting every drop of available soil moisture into profitable yields.

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