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Drought effects on the home garden

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The effects of a prolonged drought can be seen this year and for some time to come. The quality and yield of fruits and vegetables in the home garden will be reduced for both annual and perennial crops this year. For perennial plants, the drought effects will extend into next year and possibly even into several years.

One of the first signs of moisture stress is a slight yellowish or grayish cast of the leaves. This is followed by wilting and rolling of leaves and, if severe, shedding of leaves and fruit. These symptoms can be from other causes, also, such as waterlogged soil, diseases or insects. Some plants wilt on hot days because the transpiration rate is higher than the rate water is being absorbed by the roots.

Plant growth is slowed. The quality of succulent vegetables is lower because of premature woodiness, stringiness and toughness. Salad crops will not be tender and crisp. Fruit size will be reduced. Buds and flowers will abort on green beans and lima beans. Peppers, tomatoes and watermelons may have blossom end rot. Mites may attack tomatoes and other plants. The results--reduced yield and poor quality.

The above are some of the immediate effects on both annual and perennial crops. There are some effects on the perennial crops, especially fruits, that will not be noticed until next year. These include poor bud formation for next year's crop. Trees and vines are weakened and are more subject to disease and insect damage. Weaker plants are more subject to freeze injury, also. Root systems may be damaged to the extent that they do not take up water and nutrients to support new top growth the following year. The results would be reduced yield and quality in the next year as well.

Prolonged droughts are more newsworthy and receive more attention. However, droughty periods are frequent, accompanied by high temperatures, during the summer that can have the same effects on home gardens.

Normally, we do not think as much about droughts during the cooler months. But plants need some water even when they are dormant. Roots produce grow some and plant cells in above-ground parts also continue to need water to function. Droughts that extend into the winter deprive plants of needed moisture. This could result in damage to the root system or prevent the development of new roots that will be needed to support new top growth the following year.

If the subsoil moisture that was depleted is not replenished, there may not be sufficient moisture for the next year. It may take several years to replace the subsoil moisture depending on the amount depleted and the amount of rainfall.

Many crops, both annual and perennial, need bees for pollination. Bees are not as active when during hot, dry weather. Pollination of fruit will be insufficient. Fruit will not set, or it will be misshapen. Even if there is sufficient pollination, lack of moisture will prevent proper fertilization of the ovary, which will cause poor fruit set and misshapen fruit.

Irrigation, if possible, is the best solution. Trickle irrigation is preferred over other types because it uses less water and places water near the roots. Irrigation should start before the plants become stressed. One to 2 inches of water per week generally will be sufficient. Sandy, rocky or shallow soils need more water than heavy or deep soils.

Water may be applied in two applications rather than one. Avoid daily, shallow watering that does not moisten the root zone, and overwatering that pushes out the air in the soil and suffocates the root system.

As fruit nears maturity, its size has been set. If a large amount of water becomes available to the plant all at once from rainfall or watering, the fruit may split open and become useless. Tomatoes, plums, cherries, and peaches may be affected.

Organic mulch on the soil surface will reduce evaporation and help to keep the root zone cooler. Several inches of mulch can be applied around apple, peach and other fruit trees; grape vines; and brambles. Taper the mulch down to the soil level next to the plants. Surface mulch also works well around vegetables.

Organic matter that has been incorporated into the soil also helps to retain moisture, especially on sandy soils. This can be done in the fall or in the spring several weeks before planting.

Shade screens placed on the south to southwest of plants to shield plants from the sun during the hottest part of the day help relieve stress. Wrapping newly planted fruit trees with paper or burlap helps prevent sunscald and the possibility of further damage from diseases and insects attacking the injured area.

Using a water soluble fertilizer in the irrigation water may also be beneficial. However, fertilize on the light side. Avoid anything, either chemical or mechanical, that will add further stress to the plants.