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For Publication in *The Daily Mountain Eagle*

From now until spring, many local retail stores, garden centers, and nurseries will be packed with new plant material just waiting to be planted. Along with ornamental plants that help spruce up our home landscapes, fruit trees are also a popular selection.

There are many things to consider when selecting fruit types and varieties to grow in home orchards. Disease resistance, winter heartiness, required management, pollination requirements, and your home site conditions are just a few. It is far more difficult than purchasing the first apple, pear, peach, etc. tree that you find offered for sale.

The amount of cold needed by a plant to resume normal spring growth following the winter period is commonly called “chilling requirement”. Plant species as well as fruit tree varieties vary greatly in their winter chill hour requirement. Chill hours is also an important thing to consider when selecting types and varieties of fruit to grow.

During the fall and winter deciduous fruit plants (those that shed their leaves) enter a dormant period which is generally referred to as the plants “rest period”. Plants enter their rest period in the fall as air temperatures begin to drop into the 40’s, leaf fall occurs, and visible growth stops.

What happens inside the fruit tree next is nothing short of remarkable. Plants enter their rest period as the level of growth regulating chemicals or hormones changes. As the growth inhibitors increase and the growth promoting hormones decrease, the plant stops growing and goes to rest. As the chilling requirement of the plant is met by cold winter temperatures, the level of growth promoting hormones increase and the growth inhibiting hormones actually decrease in structures we call buds. The higher levels of growth promoting hormones allow the normal resumption of growth, flowering, and fruiting later in the spring.

So what happens when fruit trees do not get enough winter chilling? This is a classic example of what happened during the winter of ’99 when it stayed warm the entire winter. Fruit trees that do not receive enough chill hours do not go into true dormancy or rest. They are highly stressed and very likely to have disease, insect, growth, and fruiting problems. The stress

can be so severe that the tree actually dies as many did last year. Think how you feel when you go three or even four nights in a row with no sleep and you will know what your fruit trees go through when they do not get their proper number of chill hours.

Temperatures of approximately 35 to 55 degrees provide most of the chilling effect needed by fruit trees; however, the most efficient temperature to provide chilling is 45 degrees. Temperatures of 32 and under actually do not provide chilling that the plant needs and instead can actually cause cold damage. In addition daytime temperatures of 70 or higher for four hours can negate up to 36 hours of chilling. Walker County has received an average of 1,100 – 1,200 chill hours over the past ten years, but during '99 we received less than 60 percent of that number.

Here is where things get a little complicated. Once the chilling requirement of your fruit tree is satisfied, the buds begin to swell and break dormancy as the temperature climbs above 40 degrees. Each type of fruit and variety has a particular heat unit or “growing degree hour” requirement to reach a given level of bud, flower, and fruit development. The growing degree hours are totaled and can be used to predict the stage of development of your fruit trees. For example, peaches usually require 10,000 to 13,000 GDH's to reach 50 percent bloom stage after their chill hours are met. The combination of chill hour requirement and growing degree hours will determine whether varieties flower early, mid-season, or late season. For example muscadines, grapes, and figs have a very low chill hour requirement but a very high growing degree hour requirement so they have no trouble getting their chilling and they flower late in the season, this makes them an ideal fruit to grow here in Walker County. On the other hand many plum varieties have not only a low chill hour requirement but also a very low growing degree hour requirement so they are very early bloomers and are frequently bitten back by late frosts.

Apples tend to flower late in the season compared to fruits such as peaches and plums because the standard varieties have high chilling requirements and high growing degree hours. So what can we learn from all this? The idea fruit is one that fits in the average chill hour range for the area that you are going to grow it in combined with a very high growing hour requirement. This will help ensure that you get later flowering and much more consistent fruit crops. Many home orchard owners simply go down to the garden shop or nursery and simply buy the variety of fruit trees that are on hand or else they have their mind set on one particular variety. From now on when you purchase fruit trees, inquire about the variety's chill hour requirements as well as its growing degree hour requirements. Select

only those varieties that fit your chill hour zone and that have the highest growing degree hour requirements. I promise that you will be much happier with your fruit selections.