

# FRUIT NOTES



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## Keeping Up With Trends

Long-term success in fruit production is dependent on staying abreast of new varieties, rootstocks, training systems and cultural practices. It is also dependent on maintaining a steady supply of high-quality fruit to meet market demands. If customers are forced to seek alternate sources of fruit, they may not return. To maintain uniform yield levels over time, and to avoid large expenditures involved in removing and replanting entire orchards and vineyards, consider replanting about 5 to 7 percent of your acreage each year. Expenses for this will be relatively uniform from year to year and can, therefore, be budgeted accurately. It will also enable you to keep up with market demands, new rootstocks and improved techniques in production and marketing.

Custom propagation is becoming a more common practice by nurseries. Therefore, it is becoming increasingly necessary to anticipate future needs and to place orders for trees and vines well in advance of anticipated planting dates – especially in the case of varieties and rootstocks that are in high demand.

## Site Selection and Preparation for Future Plantings

Site selection may well be the most important decision ever made in the life of an orchard, vineyard or other small fruit crop. Virtually every aspect of production and marketing will be affected by the planting site to one degree or another. Once the site has been selected, numerous factors that could affect crop performance need to be considered. Due to the time involved in preparing the site for planting, preparation should begin at least six months, to a year or longer, in advance of planting. The goal should be to prepare a favorable environment, both in and above the soil surface, for proper growth and fruiting.

Points to consider in site selection include marketing, elevation in relation to surrounding land, degree and direction of slope, soil characteristics such as

pH, fertility, depth and drainage, water availability and quality, wildlife pressure and previous field history.

Marketing should be one of the first points considered in locating a fruit crop planting. If the crop is to be marketed retail on the farm, factors such as distance from a population center, types of roads and ease of finding the farm are all factors to evaluate. Adequate parking at the market is a very important consideration to marketing your product. If produce is to be delivered to off-site markets, distance and road conditions are still points to consider since costs involved in delivering produce to the market and the time you or your employees are away from the farm will be affected.

Elevated sites offer some passive protection against radiation frosts. Cold air, being heavier than warm air, settles into low areas. By locating on a site higher than surrounding land, the planting may escape radiation frost damage in some instances. A general rule of thumb often used regarding elevation is that for every 100 feet increase in elevation, you can expect a 5 to 10° F increase in temperature during a radiation frost event.

Degree of slope is more of a safety consideration than a plant growth consideration. Trees and vines will perform satisfactorily on virtually any slope. However, you should avoid planting on slopes that are steep enough that you do not feel safe operating equipment or having family members or employees operating equipment. Proper care of orchards and vineyards means that you will be in the planting a lot, often under less than ideal conditions.

Plantings on a north-facing slope tend to have less winter injury and be less prone to frost damage than ones on south-facing slopes. Fruit will ripen a little earlier in the growing season on south-facing slopes than those on north-facing slopes which may provide a marketing advantage in some situations. Soils on south-facing slopes tend to be a bit shallower, warmer, drier and lower in organic matter content than soils on north-facing slopes. Differences in irrigation and fer-

tility management should be expected. Disease pressure might be less on a slope that faces the east as fruit and foliage should dry off earlier in the morning than on other slopes where morning sun is not as prevalent.

Most fruit crops perform best on soils having a pH in the range of 6.0 to 6.5. Blueberries are the exception to this – they prefer soils having a pH of about 5.0 to 5.2. Highly fertile soils are not necessarily desirable for many fruit crops as the excess vigor comes at a cost of delayed fruiting, reduced fruit bud initiation, increased pest pressure due to a reduction in sunlight, air and spray penetration throughout the canopy, reduced fruit color and reduced fruit quality. When taking soil samples in advance of planting, it is suggested that samples be collected at two depths: 1 to 8 inches and 8 to 16 inches. Prior to planting, it is possible to deep incorporate lime and nutrients. Once trees and vines are in the ground, attempts at deep incorporation of soil amendments would result in damage to root systems, therefore postplant soil testing should be limited to the upper 8 inches of soil.

Other soil-related criteria include rooting depth and water drainage. A minimum of 30 inches of rooting depth before encountering a rock shelf or hardpan that would limit root penetration is desired. The more area that a plant's root system can occupy, both in depth and lateral distribution, the more capable the plant will be in weathering such stresses as drought and low fertility. Poor water drainage, both surface and internal, is undesirable for fruit crops. While diverting water from a site by ditching and/or tiling can be effective in many cases, it involves extra expense in site preparation. For some of the more shallow-rooted fruit crops, constructing raised beds on which to plant can allow utilization of a site that would otherwise be unacceptable from a water drainage standpoint.

Water issues in site selection include distance from the planting, quantity and quality. With the high cost of orchard and vineyard establishment and maintenance, the ability to irrigate for drought and frost protection can be valuable in getting plant survival and growth and regular cropping. The closer that the water supply is to the planting, the less expensive it will be to get water for irrigation and for spraying. Look at how much water is available and when it is available. If irrigation will be used for frost protection, is the pond size or the stream flow rate adequate to meet the demands? Irrigating at the rate of 0.2 inches of water per hour requires applying about 5,400 gallons of water per acre per hour. Water sources should be capable of supplying this amount for eight hours for three consecutive nights. If drought control is the main concern, will there be adequate stream flow or impounded water in ponds to supply the necessary water in midsummer? Water quality is also a major concern in regards to food safety. The presence of feedlots upstream or cattle with access to ponds used for irrigation pur-

poses can result in contamination that could create food safety concerns with produce. Wildlife damage is becoming a greater problem in fruit production. Deer can cause considerable crop damage beginning at the time of planting and extending through the life of a planting. Bird pressure can cause heavy crop losses and increased fruit rot problems as a result of feeding. In areas where the likelihood of severe wildlife damage exists, costs involved in installing protective measures such as fencing and netting should be included in crop budgets.

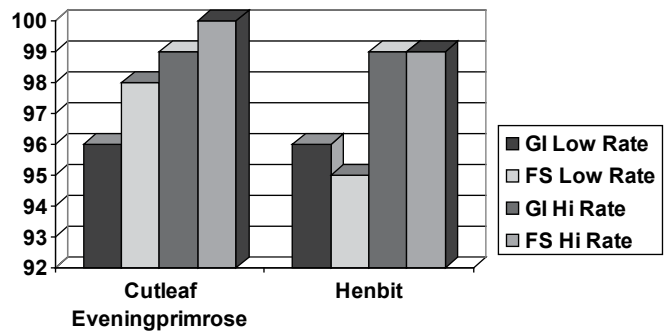
Previous history of the field to be planted is important from several standpoints. If the site has been used for growing crops, have persistent herbicides been used that could impact survival and growth of trees and vines? If verticillium-susceptible crops were grown in the field, it is a good idea to let several years elapse before planting another verticillium-susceptible crop in that field. If the field was recently cleared, enough time should be allocated to permit proper site preparation.

### Gramoxone Inteon vs. Firestorm *It's a Tie!*

A few years ago Syngenta replaced Gramoxone Max with a new paraquat formulation called Gramoxone Inteon. Gramoxone Inteon has been used in fruit preemergence herbicide trials as a standard non-selective postemergence herbicide.

During the past 2 or 3 years Gramoxone Inteon has provided excellent non-selective weed control, however growers (from different states, growing different crops, more than 1 year) have expressed concern about its activity on weeds. Firestorm, a generic paraquat formulation, is being marketed to growers across the Southeast and it has a favorable reputation with growers.

In an effort to address grower concerns a trial was conducted this winter comparing Gramoxone



**Figure 1.** Percent control of cutleaf eveningprimrose and henbit 14 days after treatment with Gramoxone Inteon and Firestorm applied at two equivalent rates<sup>1</sup>.

<sup>1</sup>GI = Gramoxone Inteon; FS = Firestorm; Low Rate = 0.63 lb ai A<sup>-1</sup>; Hi Rate = 1.0 lb ai A<sup>-1</sup>

contributed by Wayne Mitchem, Weed Specialist, NC State Univ

Inteon and Firestorm. Each formulation was applied at two equivalent rates. Their effectiveness was evaluated 7 and 14 days after treatment. All treatments provided 100 percent control of common chickweed 7 days after treatment. Observations made 14 days after treatment indicated that cutleaf eveningprimrose control from Gramoxone Inteon and Firestorm ranged from 96 to 100 percent (Figure 1). Henbit control 14 days after treatment ranged from 95 to 100 percent (Figure 1) with Firestorm and Gramoxone Inteon. Data was subjected to statistical analysis and there were no differences in control related to the herbicide treatments.

Results from this trial do not indicate any control advantage associated with the use of Firestorm rather than Gramoxone Inteon. However one can conclude that Firestorm is just as effective as Gramoxone Inteon at controlling these common winter annual weeds. As a grower you can use this information and the market place to determine your product of choice.

### **Dealing with the Effects from 2007**

The freeze damage from April 2007, combined with the drought and high temperatures during summer caused more damage in fruit crops than we realized at the time. Problems were more evident in vineyards than in tree fruits. Severe trunk splitting was frequently observed. Many vines continued to decline as the summer progressed with rates of vine death being higher than normal. The incidence of crown gall increased substantially due to cold injury in the vine. Blind wood (areas on cordons having no viable buds or shoot growth) was also quite common.

The top priority in managing damaged orchards and vineyards is to return the planting to its full production potential as soon as possible. With this in mind, cropping this year becomes a secondary consideration. This does not mean that cropping should be eliminated in damaged plantings. On the contrary, a certain level of cropping may be desirable as a way to control excess vigor in trees and vines. Without a crop, damaged trees and vines may grow too strongly which creates problems maintaining the plant within the desired size range. However, an excessive crop load can cause trees and vines to continue their decline and to slow down recovery.

During pruning, it is important to plan for a "normal" crop. Removing too much wood will result in too few buds for fruit and excess vigor in the remaining growing points. As 2008 progresses, it will become more obvious whether or not the plant can handle the crop on it and still recover from the damage sustained last year. Once that is determined, the cropload can then be adjusted to the proper level. Keep in mind that a normal crop on a healthy tree or vine can become an excessive crop on a weak tree or vine. Thinning will

be a critical issue in plant recovery. In apples, there appears to be a heavy bud load, although some of the buds do not appear to be real strong. If good weather persists through bloom and fruit set, an excessive crop could occur. If that occurs, early, aggressive thinning will be very important. In grapes, it may be necessary to come back and prune more and/or cluster thin to adjust the fruiting load.

Fireblight infection hit late and hard in 2007. This year, efforts need to be focused on cleaning up infected wood by pruning, using copper sprays as bloom approaches and applying streptomycin sprays during bloom when weather conditions favor infection. If weather conditions favorable to infection persist during bloom, streptomycin sprays might need to be applied every three days. Streptomycin has limited "kickback" activity and does not persist very long, either. It does not redistribute in the tree so as new blooms open, they are totally unprotected from fireblight infection. Once a bloom has reached petal-fall, fireblight infection is no longer a threat to it. Refer to page 54 in the "2008 Integrated Orchard Management Guide for Commercial Apples in the Southeast" for important information on the use of streptomycin sprays.

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**Fruit Notes**

**From:**

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