



Extension Cotton Newsletter 7-1-10

Plant Growth Regulators

Recent moisture and warm temperatures have promoted vigorous growth in much of Oklahoma's cotton acreage. As of this writing we are receiving another blessing from the sky with significant chances of rain predicted for the 4th of July weekend. Most early May planted cotton that has been adequately protected from fleahoppers is beginning to or will soon be blooming. Traditionally this has been the time most producers are considering the use of a plant growth regulator (PGR). Determining the need for a PGR is the first step. Typically we utilize internode length to help make this determination. Counting the uppermost un-furled leaf as 0 we count down 5 nodes on the plant. The distance between nodes 4 and 5 represents the most recently complete growth. This distance will not increase any more. All the nodes above the 4th node are still in the process of growing and therefore cannot be used to make this determination. If this distance between the 4th and 5th node is two inches or greater, then a growth regulator may be utilized. If it is less than two inches a growth regulator is not necessary as long as the fruit load on the plant is good. It's also important to remember that plant growth regulators are used primarily to promote earliness, crop uniformity and control plant height. They accomplish this by helping the plant to maintain a growth habit that focuses on reproduction (fruiting) as opposed to vegetative growth. Although vegetative growth (development of the structure...stalk and branches) is very important early in the season as it relates to yield potential, it can also be counter-productive later on, especially if early fruit retention is low. Typically a significant loss of early-season fruit results in a period of vigorous vegetative growth before the plant's focus returns to reproduction. This is definitely something to avoid. A heavy fruit load is always the best natural growth regulator program. A well fruited plant will always maintain a good steady growth pattern compared to one that experiences fruit loss. The time it takes for the plant to recover from the fruit loss and begin setting new fruit causes a significant delay in maturity. As we all know, delays in maturity can often result in significant yield loss. As always, an early crop is the best crop! So, there are some things to remember when considering the use of a PGR. First and foremost, never consider the use of a PGR unless you expect soil moisture conditions to remain good for the next 10-14 days and the crop is not experiencing any type of stress (moisture, herbicide injury, disease, etc.). Secondly, remember that mepiquat accumulates within the plant so multiple applications have an additive effect...it's better to start out with modest rates and add more rather than over-apply an initial application. Third, know your variety. If you are using a variety for the first time and may be unsure of the growth habit, check with the seed company. All seed companies are very familiar with the growth habits of their varieties and those characteristics are typically listed in annual variety guides. Usually the only time varieties exceed their known growth habit is when excessive nitrogen is present (usually when cotton follows alfalfa or peanuts). In those instances, above average growth can be expected and PGR strategies need to be more aggressive. The standard PGR strategy has been 8 oz/A (of the traditional products containing mepiquat chloride) at 1st bloom, with a possible sequential application in 10-14 days if necessary. In recent years, several new products have become available, some of which require different rate structures. Two of the newer products available are Pentia and Stance. Pentia utilizes the traditional rate structure (similar to Pix or generic mepiquat chloride), while Stance requires a different rate

structure due to its formulation. A typical PGR strategy in irrigated cotton, utilizing the traditionally formulated products (Pix, Pentia, Mepex, etc.), would be 6-8 oz/A at first bloom with the possibility of a sequential 4-8 oz/A application 10-14 days later. A typical Stance program in irrigated cotton would be 2 oz/A at first bloom with the possibility of a sequential 2 oz/A application 10-14 days later. In addition, it is very important for those using Stance for the first time to remember the lower rate structure in order to avoid an accidental overdose. For dryland cotton a much more conservative approach is necessary. Since mother nature's is the only irrigation we receive in dryland production it is doubly important that we make sure our crop will not experience any moisture stress in the next 10-14 days after application. Also, lower rates are suggested in dryland. A good PGR strategy for vigorously growing dryland cotton is 4 oz/A (traditional mepiquats...Pix, Pentia, Mepex, etc.) at 1st bloom. If vigorous growth conditions still exist fourteen days later, a second application may be warranted. If Stance is the product of choice, 1.5-2 oz/A can be applied at first bloom. It is important to remember that in dryland cotton PGR's should only be applied to vigorously growing cotton with good soil moisture and a favorable forecast. For help determining your needs for a plant growth regulator or to further discuss any of these topics please feel free to call or come by the office.

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