Plant Mapping

69. Cotyledons. What are they? Why are they unique? Why are they important in regard to height-to-node-ratio?

Cotyledons are the only leaves on the plant that are directly across from each other. Plant height is measured starting at the cotyledon scares and going to the terminal.

70. Height-to-node ratio. How is it determined? What can you learn from it? Management considerations.

After plant height is determined then the number of nodes on the plant is counted. The number of nodes divided into the plant height provides you with the average node length. This is commonly referred to as height-to-node ratio and it tells you how well the plant is growing. If the plant is growing slowly then it is usually due to stress. If the stress can be relieved then plant growth will return to normal. If the plant is growing to rapidly then a plant growth regulator may need to be applied to slow down the plant growth.

71. How is percent boll set determined and why is that important?

The percent boll set is determined by counting the number of fruiting positions (squares or bolls) and this number is divided into the total number of squares and bolls that remain on the plant. In most cases that will provide a number less than 1. Multiply this number by 100 and that gives you the percent of boll set. Until you reach flowering you would like to keep square set at more than 80 percent, after the third week of flowering if the percent of boll set is 75 percent or more the cotton crop is doing well.

72. What percent of the cotton yield comes from first position bolls?

You can find differences on this number but most will agree that at least 70 percent of the total lint yield comes from first position bolls. First position bolls are the first boll developed on the fruiting branches.

73. How do you decide when to apply a growth regulator?

If you measure the length of the top five nodes on the cotton plant and it averages more than 2 inches an application of a plant growth regulator such as mepiquat chloride is needed. The problem is by that time the plant is large and the amount of mepiquat chloride needed to raise the entire plant mass to 10 parts per million is high (16 to 32 ounces per acre). Many irrigated producers will make a mepiquat chloride application when 50 percent of the plants have their first matchhead size squares. This reduces the cost and achieves the same results.

74. Nodes-Above-White-Flower. What can you learn from it? Management considerations. At the time when the first boom appears on the cotton plant the number of nodes above that position indicates the vigor in the plant. Preferably there would be nine nodes above the top white flower when blooming begins. As the plant retains more bolls and stress increases the white flower will get closer to the top of the plant. When you reach the point that there are only four nodes above the top white flower you have reached cut out and over 95 percent of the bolls that will contribute to yield is now on the plant. Through the use of fertilizer and irrigation the length of boll set can be extended and cut out can be delayed which increase the number of bolls on the plant and ultimately the yield of both seed and lint.

75. What is anthesis?

Like many plant terms, there is more than one way to say something. When you say anthesis has begun it means that the plant is now blooming or flowering.

76. It is true to say that on the first day of bloom most of the potential crop yield exists on the cotton plant.

77. What is the flower color of Upland cotton (Gossypium hirsutum) on the first day of bloom? White

78. What is the flower color of Pima cotton (Gossypium barbadense) on the first day of bloom? Yellow

79. All cotton lint develops from the tiny cells located on the outer surface of the seed.

Irrigation

80. Is stressing the cotton good for developing drought resistance in the cotton plant?

Root development needs soil moisture to continue in its expansion if you stress the plant then the expansion is reduced in proportion to the amount of stress. To maximize root development you would like to avoid all plant stress.

81. If the cotton plant wilts in the heat of the day--it is time to water? Why?

The cotton plant will wilt during the heat of the day as a survival mechanism. By reducing the leaf surface area there is less leaf area for the light to hit. Within the microclimate of this wilted leaf is lower temperatures and higher relative humidity which allows it to remain alive for a longer period of time. Once the stress is removed (sunset) then the leaves expand and the plant looks healthy the next morning. Just because the cotton plant wilts in the afternoon does not mean that an irrigation is needed.

Fiber Quality

82. The fiber length occurs in 15 to 25 days after bloom.

83. What conditions are needed to reach the genetic fiber length potential of a cotton variety?

Since the fiber length is reached in 15 to 25 days after bloom then the genetic potential of the crop can be reached if all stresses are removed. The two most likely to impact cotton in our area is soil moisture and nutrients. If both are adequate during the time of fiber elongation then the genetic potential can be reached.

84. Micronaire influences start shortly after bloom and continues until the cotton is terminated. What is the micronaire premium range and who is that important to? Why?

Micronaire from a marketing aspect is used as a best guess on cotton maturity and fiber fineness. The desired range is 3.5 to 4.9 and preference is given to the cotton in the 3.8 to 4.2 range. With the fine fiber cottons that we produce now it would be better to incorporate the instruments into the classing of cotton that would accurately measure fiber fineness and then develop the correlations to cotton maturity.

85. Does genetics or environment influence fiber strength the most?

Without question fiber strength is highly influenced by genetics. It may vary by 2 grams per tex in a given year but the strong varieties will be at the top each year and the weak varieties will be at the bottom.

86. How late can a boll be set and develop quality lint?

Definitely discussed often. The question references quality, not open. In our area we need to have a boll started by September 1 to have a good chance to develop quality fiber with weight. The discussion is last date to have an open boll and that is around September 14 but the problem is boll retention is lower, quality lint is not developed and lint weight is low.

87. What should the moisture content of the lint be below before it is packed into a cotton module?

The preference is to have lint at 12 percent moisture or less. If you are measuring module temperature and you have a quick rise or a continued rise in temperature then the gin needs to be contacted and the module processed as soon as possible. Most of the time this relates back to moisture problems in the module.

88. It is true to say if the temperature inside the module rises 20 degrees overnight or passes 120 degrees it should be ginned ASAP.

89. How do you estimate yield by boll counting?

A close guess on yield is based on one boll per inch of row equaling a bale of cotton. With the smaller boll cotton that we are raising this has to be adjusted but it will get you in the ball park most years when your counting mature bolls.

90. How do you estimate yield loss?

Pick up the lint and seed in a know area. Measure the width and length in feet which gives you the square feet and then divide the total square feet picked up by 43560 which will give you the portion of an acre harvested. Weigh the lint and seed and multiply by 0.38 to give you the lint picked up based on a 38 percent turnout. This weight will need to be converted to pounds and divided by the portion of the acre picked up. This will be a good estimate on the amount of lint lost per acre.