

Cotton Questions

Disease Questions

41. Ascochyta (wet weather) blight problems can be recognized by
- d. Pale brown to ashen spots on the leaves surrounded by a narrow dark brown border

Concerning Seed

42. Variety selection. Conventional vs. Biotechnology. Determinate vs. Indeterminate. Stormproof vs Open locks. Selecting a cotton variety from tests previously conducted.

Variety selection is difficult since most varieties are not around more than three or four years. The number of conventional varieties is less than a dozen and most seed companies don't have plans to develop any for public sale. Biotechnology has given a wide range of choices with insect resistant genes and weed resistant genes currently on the market and drought tolerant genes soon to be released. These choices come with a price tag that keeps producers from taking full advantage of the technology. Most of the varieties planted are moderately determinant to indeterminate which allows them to go through a stress period of heat and moisture and still recover and make a decent yield. Most picker cottons are opened boll and easier to harvest with either a picker or a stripper. The stormproof cotton occasionally shows its value when weather delays occur. The stormproof cotton will retain the lint where the lint in the picker cotton generally strings out and yield loss occurs.

43. Cottonseed germination tests. Warm germination test? Cool germination test? Combine the two results to obtain the cool-warm vigor index. What does the number mean? Why is that important?

Generally if planting conditions are poor with marginal soil temperatures, then seed with the highest possible Cool-Warm Vigor Index or CWVI, should be planted. As conditions improve and become more conducive to stand establishment, lower quality seed can be planted. The Cool-Warm Vigor Index, developed by Dr. Norman Hopper--Professor of Seed Physiology at Texas Tech, is a measure of the seed's germination, and vigor. The CWVI is a combination of the warm germination test results (obtained from counts after four days of incubation) and results from a cool germination test (results obtained after seven days of incubation). Seed lots with an index of 160 or greater have "Excellent" vigor, 159-140 is "Good"; 139-120 is "Fair" and less than 120 is "Poor". Generally if planting conditions are poor with marginal soil temperatures, then seed with the highest possible CWVI should be planted. As conditions improve and become more conducive to stand establishment, lower quality seed can be planted. The Texas Department of Agriculture's Seed Laboratory in Lubbock will perform the germination tests for a fee.

44. What is an acceptable level for Free Fatty Acid content in cottonseed kept for planting?

There are several measurements available to determine seed quality. All give a good estimation of quality, but measure different aspects. When all the tests are used in conjunction with each other, a true picture of seed quality is apparent. Free fatty acids (FFA) alone only serves as a rough estimate. In general, cotton seed that contains less than 1% FFA are considered good quality, but seed testing 1.5%

or higher may be weak. If the FFA content is above the 2-3% level, something has caused the seed to deteriorate. The standard germination test that is performed on all cotton seed is conducted under ideal conditions. Eighty percent germination seed should produce an 80% stand under warm, ideal planting conditions. It is possible to have low FFA seed with a good warm germ, and still have poor vigor seed.

45. The pointed end of a cottonseed is called a micropyle.

46. What emerges from the pointed end of the cottonseed when it germinates?

The primary root (Radicle)

47. The domed shaped end of the cottonseed is called a chalaza.

Planting

48. What impact does cold temperatures have on newly planted cotton?

If the temperature drops in the 40 to 50 degree range for several days, root cold injury can occur. If the soil temperature is in the 50 to 60 degree range, you can expect the emergence of the crop to be very slow. This slow emergence allows seedling disease more opportunity to damage the root system which will weaken the plant.

49. Should cotton planting be delayed if weeds and wheat are drying down?

If delayed planting is an option then it should be considered since weeds and wheat serve as host to several pests that attack cotton. As wheat dries down the insects move to more succulent plants. If cotton happens to be emerging at that time the impact of the insects feeding on the young cotton can be dramatic and yield losses may result.

50. What should be the soil temperature at planting time?

As a rule of thumb planting should be delayed until the soil temperature at the eight inch depth averages a minimum of 60°F for 10 days (temperature should be taken at 8 a.m.). Allowing soil temperatures to increase before planting will cut the time needed for germination and seedling emergence and helps to ensure healthy, uniform stands.

51. What is the correct planting depth on cotton?

It also is important to use high-quality seed and plant in a firm, well prepared seedbed with adequate moisture. Seed should be planted at a depth of 1 to 2 1/2 inches, depending on soil type and availability of moisture. Planting too deep can significantly reduce plant population and seedling health. It is better to delay planting than to plant seed too deep.

52. What is the recommended seeding rate (plant population) for cotton?

Planting rates should be based on a target plant population. Under irrigation three to four plants per foot

on 40-inch rows is adequate for maximum yield. Higher planting rates increase seed costs, have adverse effects on yield and quality and intensify seedling disease problems. Under favorable dryland conditions, a plant population of two to three plants per foot is sufficient on 40-inch rows. Seed size varies among varieties and should be considered when planting. Under dryland conditions, any stand greater than 45,000 plants per acre (3.4 plants per foot) is excessive most years.

53. Will foliar feeding seedling cotton increase yield?

In most cases foliar feeding may help the initial growth and health of the plant but it usually doesn't result in an increase in yield in West Central or Far West Texas.

54. A new node on the main stem is formed every 3 to 5 days.

55. The part of the stem between the two nodes is called an internode.

56. On most picker varieties of cotton the first fruiting branch forms at node number 7 or 8.

57. Why does a fruiting branch have a crooked (zig-zag) shape?

The branches from which fruiting buds arise are called fruiting branches, or sympodia (meaning "multiple feet"), because each fruiting branch contains multiple meristems. Fruiting branches have a "zig-zag" growth habit, as opposed to the straight growth habit of the vegetative branches. The initial growth of a fruiting branch is terminated once a fruiting bud forms. The fruiting branch, however, initiates a new growing point, called an *axillary meristem*. The axillary meristem is located at the base of a leaf that subtends the newly formed fruiting bud. The zig-zag" growth habit is a consequence of the stop-and-go growth of the fruiting branch.

58. On a fruiting branch a new square is formed every 5 to 7 days.

59. Why can't glyphosate herbicide be applied to Roundup Ready Cotton after the fourth true leaf stage?

A late application of glyphosate usually results in fewer seeds being developed. The glyphosate is a systemic herbicide and the material is moved to actively growing tissue. Since it moves glyphosate into the area of the plant where the square is developing it makes changes in the male portion of the flower resulting in less pollen being released and fewer seeds developing. Since lint develops from the seed coat then less lint is developed and yield is reduced.

60. When should I stop soil applied nitrogen applications in a developing cotton crop?

The last soil applied application of nitrogen should be made prior to the 1/3 grown square stage. Uptake of water and nutrients is beginning to increase rapidly at this stage and the plant will need time to recover from root injury resulting from the soil applied application before it reaches the peak uptake period of moisture and nutrients.

61. If nitrogen is lost due to rain after the cotton blooms what should be considered?

Foliar feeding of nitrogen should be considered if you know it will be limiting seed and lint production.

62. How much urea can be applied at one foliar application?

A foliar application of up to 5 pounds of actual nitrogen can be made on a weekly basis without resulting in plant injury as long as the plant is actively growing.

63. How soon after a foliar application of nitrogen will it be detectable in the cotton boll?

The nitrogen can be found in the cotton boll within 6 hours after a foliar application. Within 24 hours more than 80 percent of the nitrogen will move into an unstressed plant.

64. I noticed after the last weather front that I have a lot of small bolls on the ground. Why?

Four days of solid cloud cover resulted in a loss of small cotton bolls. The gap of boll set was due to the cloud cover and carbohydrate stress that resulted. The bolls 1 to 4 days old were aborted by the plant. There is not anything that the producer can do about this. What needs to be watched closely is the plants reaction to the reduced fruitload and the increased amount of soil moisture. If the plant growth is out of control an application of mepiquat chloride may be needed. The sooner it is put on the less that will be needed to get the job done. Basically, you have to get the amount of mepiquat chloride to approximately 10 parts per million to slow plant growth; the larger the plant the more growth regulator needed.

65. When should I consider replanting cotton?

If cotton has less than two plants per foot with a lot of skips then replanting could be considered. If you have a uniform stand with one healthy plant per foot, a normal yield can be achieved if ideal growing conditions and a warm open fall occurs.

66. What should I do about hail damaged cotton stands?

Allow at least five days before trying to assess the damage. Examine the plants looking for scars and

bruises and determine the number of healthy plants that remain. If cotton has less than two plants per foot with a lot of skips then replanting could be considered. If you have a uniform stand with one healthy plant per foot, a normal yield can be achieved if ideal growing conditions and a warm open fall occurs.

67. Can it be too hot for cotton?

Yes. The ideal growing temperature is: daytime temperatures from 80 to 92 degrees. Nighttime temperatures from 68 to 78 degrees. If cotton gets above 100 degrees it will go into a survival mode and the plant performance is drastically reduced.

68. What is a heat unit and how is it determined?

For cotton the heat unit is based on a temperature of 60 degrees. This is the lowest temperature that the cotton plant will develop at. To determine the number of cotton heat units for a particular day you take the maximum air temperature and combine it with the minimum air temperature and divide that total by 2 then subtract the base temperature of 60. The heat unit can be used to determine plant emergence, predict development of nodes, estimate boll opening and trigger harvest aid applications.