Mid Summer Requirements

At this time of year it is time to take tissue tests of the renovated crop and submit them to the lab. Very soon the strawberry will set bud and nutrition plays a major role in how much bud is set. Zinc and Boron applications are very important at this time. Nitrogen and Potassium levels have a tendency to slip and potasssium is difficult to get into the plant late in the season. This year with the rain we have had late season Potassium should not be a problem unless there has been a lot of root damage but a tissue test will confirm the status.

If you have not already done so, soil analysis should be taken so that you can prepare for the second application of fertilizer in late August early September.

Nutrient Deficiencies

In order to understand the nutreint requirements of a strawberry plant we need to understand the requirements at the differenet stages as I have outlined in previous Newsletters. If we have to list the Nutrients in order of difficiencies as we see them they would be as follows in order of the nutient most often deficient

to least: Nitrogen, Boron, Potassium, Calcium, Sulfur, Magnesium, Phosphorous, Zinc, Manganese, Iron, Copper.

Nitrogen

Nitrogen deficiencies usually show up in older tissue first, The reason for this is that as the plant becomes deficient it will translocate the major elements from the older leaves to the younger developing tissue. Symptoms are leaves begin to turn pale green and then yellow as the deficiency progresses and eventually the leaves turn a red colour with the large viens remaining green. Leaves will eventually turn a yellow colour and necrosis will take over causing death. Younger leaves will emerge and remain green but their size will be reduced. The calyx of the strawberry will turn red.

It is a must to monitor Nitrogen levels during those stages that we have idendtified as critical. A strawberry plant as it approaches fruit set will change rapidly in its Nitrogen requirements.

BORON

The first symptom of this deficiency will show up as tip burn or bluntging off of the new emerged leaves. If Boron deficiency is not corrected rhizoctonia crown rot may appear.

The growth of runners will be reduced and distance between mother and

daughter plants will decrease. The mother plant will stop growing completely until the deficiency is corrected.

Flower initiation and flower bud development is inhibited and the production of pollen and its viability will be reduced.

Flower size will be small and the obvious sign is a space between the flower petals. Fruit will be small and disfigured. If Boron defieciency is only temporaty fruit may not be disfigured but will be small with few viable seeds. Late flowers will blast and not form fruit.

Root growth is restricted and turns black which inhibits the uptake of other nutrients especially Potassium.

Boron levels in the tissue must be greater than 30 ppm and in the case of late sseason Potassiunm uptake we will want to maintian Boron greater than 60 ppm.

POTASSIUM

The oldest leaves are effected first. This first appears as a tanning or browning of the younger mature leaf blade upper margin. As this deficiency progresses onward the tanning or browning appears on the upper leaf like paint brush marks and advances to the mid rib at the base of the leaf and on to part of the petiole. The leaf will eventually become necrotic and die.

CALCIUM

At first this deficiency looks like Boron deficiency as the leaves emerge from the crown with tip burn and the blunt end. With Calcium deficiency however the entire leaf will be disfigured. Without Calcium there is nothing to build new cells therefore the tissue is disfigured.

The petiole will have brown elongated flecking on them and the under sides of the leaves will have globs of sap oozing fron the viens.

Seed on the fruit will be densely packed together because the fruit is unable to expand due to poor cell formation.

Root damage occurs before sympotms show up on the leaves. Root hairs stop growing and die back. The tip of the primary root is killed followed by branch rootlet development behing the dead tip.

SULFUR

Sulfur deficiency is often times mistaken for Nitrogen deficiency. Leaves turn a light green colour and remain yellow do not turn red as with nitrogen deficiency nor does the calyx turn red. In most cases one of the leaflets will be smaller than the other two.

A tissue test or the nitrogen test kit that we use will easily determine if it is N or S.

MAGNESIUM

Foliage symptoms affect the old leaves with the young leaves remaining green.

Usually shows up as light green spots that can barely be seen with the naked eye. If you shade the leaf from the sun it is easier to pick out these areas.

As it progresses a reddish purple colour starts to develop near the leaf margin and progresses inward between the viens. In early stages the leaf will have a green band at the margin of the leaf but as Mg deficiency progresses the discoloured areas become necrotic and die. The light green areas between the viens become necrotic spots.

Petioles remain unaffected where as with potassium deficiency they developed lesions.

ZINC

Zinc deficiency begins as a pale colour to the leaf. As it progresses a green halo appears around the serrated margins of young leaves with the center of the leaf having a uniform intervienal chlorosis. As the deficiency progresses the leaf will begin to turn red where this chlorosis is most pronounced. Leaf size will also be stunted.

PHOSPHORUS

Early symptoms are a dark greenish purple sheen to the upper surface of the leaf. As the deficiency progresses the entire leaf surface will take on a purplish colour with the lower surface more pronounced than the uppersurface.

Blossoms will be delayed and stunted.

Roots will die back, become stunted and dark.

MANGANESE

The young foliage develops a pale green colour as the first symptom. Unlike the Zinc deficient leaf thaere is not green margin. The leaf takes on a netted chlorotic appearance.

As the deficiency progresses the chlorotic areas become necrotic fron the outside edge of the leaf inward and the leaf cups upward. The necrosis spreads inward between the viens but it gradually kills the entire leaf as it progresses towards the midrib.