

**Title: Evaluating the effect of Apogee for Control of Runner Growth in Annual Plasticulture Strawberries on Cover Crop and Weed Growth**

**Progress Report**

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**Objectives**

- 1) To determine the effect of Apogee to control strawberry runner development on the growth of the annual ryegrass cover crop.
- 2) To determine the effect of Apogee to control strawberry runner development on weed development.

**Justification and Description:**

In some parts of the Southeastern U.S. fall runner development in annual plasticulture strawberries is a common, if not a perennial problem. This is especially true strawberry producing area of Southeast VA. Many growers in this area have to remove runners every year. Some experts suggest delaying the planting date. This would be possible for some growers, but others have other enterprises that prevent them planting later in the season. Also, transplanting at the recommended time in the fall usually results in the right amount of branch crown development in the spring. Therefore, many producers in Eastern Virginia and elsewhere are locked into a planting time that means they have to deal with fall runners.

In addition to some growers having to deal with runners every year, warm mild falls like 2007 can result in many growers over large geographical areas having to deal with runners some years. Again, these producers are planting at the recommended time for their area. Long term forecasts are not reliable enough to make a decision to delay planting. Another issue is that plants have to be ordered several months ahead of time. Again, those plants are ordered to arrive at the proper planting time. Some producers can't hold them for a week or two once they are received; and plant vigor can suffer even under proper "storage" conditions. The plant growers also need to move them out so they keep production going.

Therefore, annual plasticulture strawberry producers need a tool to help them manage runner development if and when it occurs. Apogee from BASF seems to be a possible tool for managing strawberry runner development. Discussions with BASF scientists and the data from limited trialing have indicated that Apogee is effective in reducing runner development. However, there are still issues with rate and timing that need to be refined.

David Handley, Extension Small Fruit Specialist in Maine has been evaluating Apogee to reduce strawberry runner development in that area. He is using a solution of approximately 150 ppm when runners are visible from the crown (less than 1 inch long). He then uses a follow up application 2 to 3 weeks later. It would seem reasonable that such an approach would work for us in the Southeastern U.S. However, we need to determine the number of applications need in the Southeast, especially during warm falls. Also, since the per acre rate changes when application rates change, BASF has indicated that they do not want to use a ppm rate. Therefore, the appropriate rate of active ingredient per acre to control strawberry runners without creating a negative impact on fruit production needs to be determined.

***Trials conducted in Virginia during 2009 and 2010 have shown very promising results. Apogee is influencing the number of runners and the vigor of runner development in the fall after planting annual plasticulture strawberries.***

***Another issue facing strawberry growers is the management of the annual ryegrass cover crop in the middles between the plastic mulch. For good germination the annual ryegrass generally needs to be sown immediately after laying the plastic mulch to take advantage of the loose soil and available moisture. However, in mild falls that can mean the annual ryegrass is more vigorous than desired. Therefore, many growers may need to apply low rates of graminicides to suppress annual ryegrass growth. However, this practice must be used with care, since it can lead to resistance issues. Killing the ryegrass too early will cause premature decomposition of the mulch limiting erosion control and weed suppression. Since Apogee is a crop growth regulator, could it be used not only to limit runner development, but also control the growth of the annual ryegrass?***

***In the fall of 2010 trials, it was observed that weeds were being suppressed by the Apogee treatments. Since herbicides are generally not applied to the middles in the fall, the use of Apogee to control weeds while controlling runner development would be an extra value.***

## **Procedure**

Plugs of 'Chandler' strawberries will be planted earlier than recommended to insure runner development. The three optimum rates of Apogee for suppression of runner development will be determined from the 2009 and 2010 trials (0.18, 0.24, 0.30 and 0.36 lb ai/A). These rates will be applied at first sign of runner development (When an average of 10% of plants exhibit to runner development). Three different application frequencies will be evaluated: one week, two week and three week re-treatment intervals. All of these will be compared to an untreated check plot.

Plots (experimental units) will consist of one (1) double row containing 20 plants. Experimental design will be a randomized complete block with a minimum of 3 replications at each location.

Trials will be conducted at 2 locations; Southwest Virginia and North Carolina. If funding is sufficient, a 3<sup>rd</sup> location in Southeastern Virginia will be included.

Data collected will include suppression or vigor of the annual ryegrass cover crop, weed control or suppression, as well as an evaluation of runner development and any visible plot effects in the fall along with subsequent yield data in the following spring.

**Preliminary Results:** In North Carolina and Virginia strawberry plug plants were planted in October. Treatments have not been applied at this time. It is anticipated that they will be applied in the near future. In addition, in North Carolina a field of ryegrass was planted to determine the effect of Apogee on ryegrass suppression and weed control.