BEDDING PLANT MEDIA EVALUATION

Debra Schwarze
University of Minnesota

A good growing media can be comprised of many things, as long as support and drainage are supplied.

Bedding plants are a major crop for many of the growers in our area. Having high quality bedding plants for sale can make or break a growers year. While many components go into producing high quality bedding plants, the media used is one of the basic requirements.

A good growing media can be comprised of many things, as long as support and drainage are supplied. The type of media used can be a formulation a grower has worked on for many years, or it may be the simplicity of using a pre-mix. Whatever the media may be made up of, a good media can be the basis for a good bedding plant season. Given a like set of growing conditions, how would your media match up?

Given a like set of growing conditions, how would your media match up?

This past spring we contacted growers from throughout our area to see if they would be willing to have their bedding plant media participate in a comparison with media from other growers. Sixteen growers participated, along with three media from the university. We asked that the media be ready for planting, with any amendments the grower would add.

To make our evaluation relevant to most growers, two common bedding plants were used, Super White Elfin Impatiens and Blue Flash Grandiflora Petunia. Plugs were planted into flats in April 25, 1991. The flats were placed in a greenhouse section at the university.

To make our evaluation relevant to most growers, two common bedding plants were used, Super White Elfin Impatiens and Blue Flash Grandiflora Petunia.

The initial soil test was taken on April 30, 1991, using soil directly from the growers. This test would give a benchmark for data taken at the end of the experiment. All flats of plants were given identical treatment in the greenhouse. Throughout the experimental period, the plants were treated with constant liquid feed at a 200-0-200 ppm rate. The fertilizers used were calcium nitrate and potassium nitrate. To see if there would be a difference in damage from possible fungi, half of each petunia flat was drenched with Banrot on May 2, 1991. To help control plant size, B-Nine was applied to the petunias at a rate of 2500 ppm on May 7, 1991.

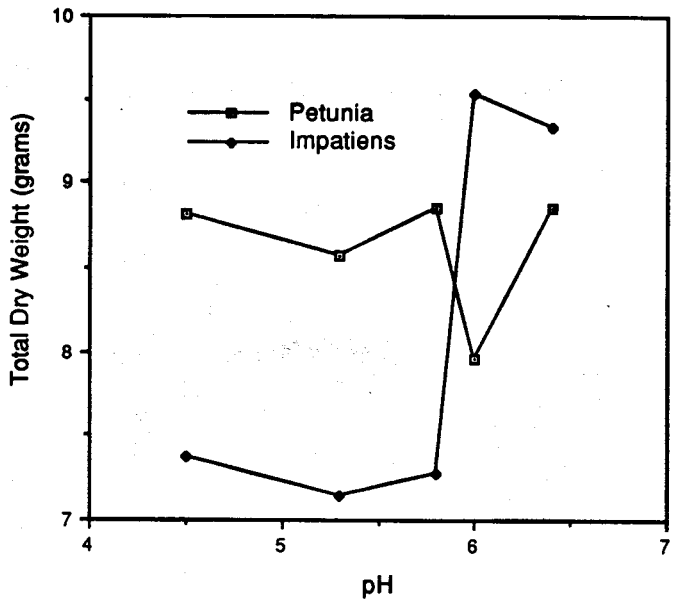

Figure 1. The effect of pH on petunia and impatiens dry weight.

So that we could monitor the progress of

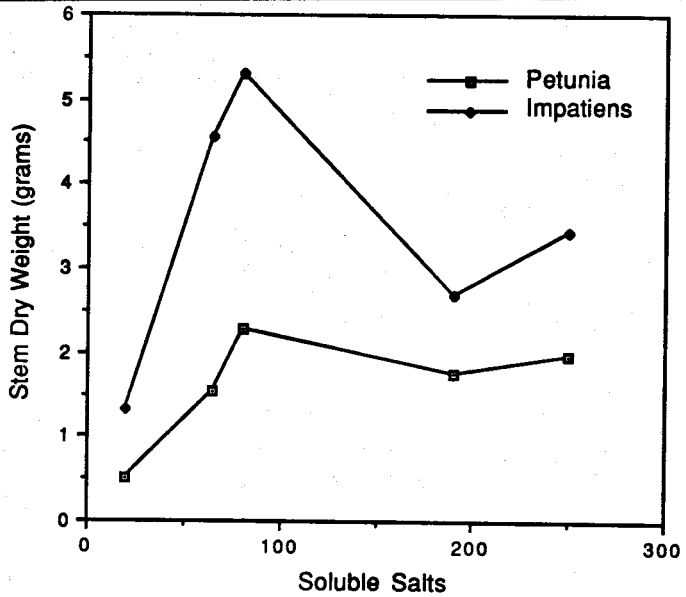

Figure 2. The effect of soluble salts on petunia and impatiens stem dry weight.

RESULTS

Initial pH values ranged from 4.5 to 6.4. Final pH values ranged from 4.7 to 7.7. Interestingly, the initial pH of the media had no significant effect on any of the data taken for either the petunias or the impatiens (Figure 1).

In evaluating the performance of the 19 media we concentrated on how initial media pH, soluble salts, nitrate levels and potassium levels affected growth of impatiens and petunia plants.

Interestingly, the initial pH of the media had no significant effect on any of the data taken for either the petunias or the impatiens.

the plants, a soil test was taken May 24, 1991. Just prior to this test a single application of phosphoric acid was made to the flats to maintain a reasonable pH. This acid application was used because water pH at the university is 8.2.

In evaluating the performance of the 19 media we concentrated on how initial media pH, soluble salts, nitrate levels and potassium levels affected growth of impatiens and petunia plants. At the conclusion of the experiment the following measurements were taken: pack height, branch number, flower number, flower dry weight, leaf number, leaf dry weight, stem dry weight and total plant dry weight.

Stem and leaf dry weight of both petunia and impatiens increased slightly as the total soluble salts increased up to 75-100. Branch and leaf number of both petunia and impatiens increased when total soluble salts levels were 125 to 150 (Figure 2).

Total plant dry weight of petunia and impatiens was greatest when the nitrate levels were between 150 and 250. This is the optimum range of nitrate that we aim for in our soil tests. In general, this will

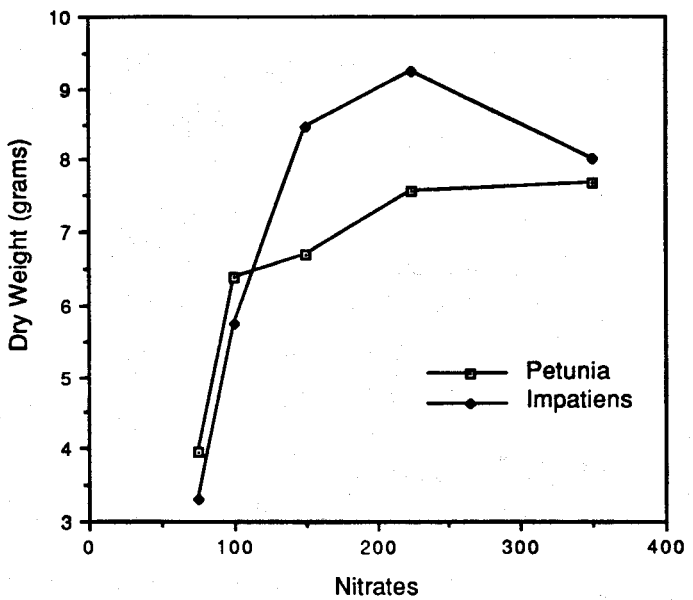

Figure 3. The effect of nitrates on petunia and impatiens dry weight.

Total plant dry weight of petunia and impatiens was greatest when the nitrate levels were between 150 and 250.

Total plant dry weight of petunia and impatiens decreased when the potassium levels were above 40.

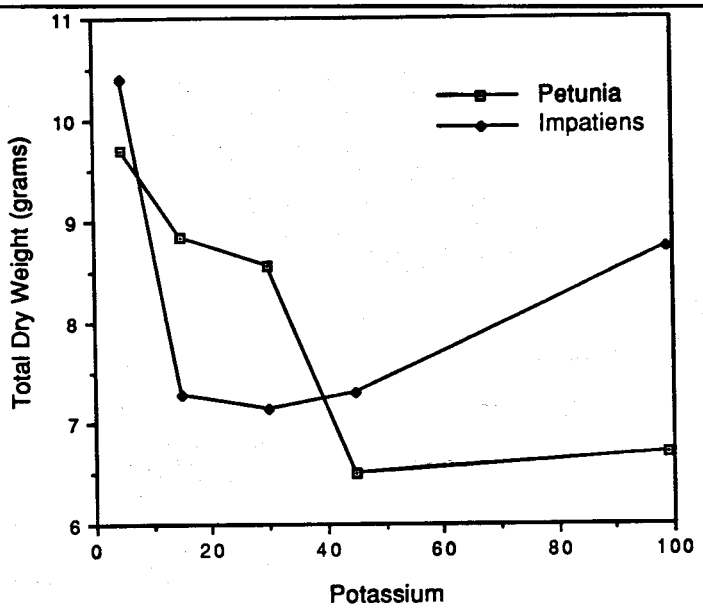

Figure 4. The effect of potassium on petunia and impatiens dry weight.

Media pH, soluble salts, nitrate and potassium levels had relatively little effect on final petunia and impatiens plant quality in our study.

produce a good, healthy crop (Figure 3).

Total plant dry weight of petunia and impatiens decreased when the potassium levels were above 40. Once again this reflects the results we are trying to achieve in a soil test (Figure 4).

CONCLUSIONS

Media pH, soluble salts, nitrate and potassium levels had relatively little effect on final petunia and impatiens plant quality in our study.

The bottom line is, it really didn't matter what media we used, as long as the media provided good drainage and allowed for the plants to get the nutrients they needed, the bedding plants produced were marketable. Being able to supply the nutrients to the plants appears to be the more critical aspect of bedding plant production.

The bottom line is, it really didn't matter what media we used, as long as the media provided good drainage and allowed for the plants to get the nutrients they needed, the bedding plants produced were marketable.