

# NEMATODES vs IMPATIENS

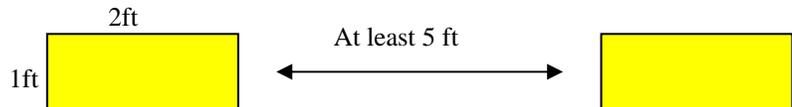


Root knot nematodes are very small, colorless, and nearly impossible to see with your naked eye. However, these little devils wreak havoc on plants by piercing plant cells and feeding on their juices. Although you may not be able to see the actual culprit, the damage the nematode causes is relatively easy to recognize. Swollen “knots” or “galls” develop where the nematode feeds. These galls can block the uptake of water and nutrients, causing a plant to look permanently wilted even after it is watered. In addition, nematode feeding makes roots more susceptible to infection by root rots and other fungi. The problem is there are not many effective ways for homeowners to combat this pest. Recently, the University of Florida tried using a mustard seed product as a soil additive to combat the nematode foe. In this project we will observe impatiens, which are infamously susceptible to root-knot nematodes to see if the addition of a mustard seed product helps in the nematode battle.



## DAY 1

### *Step 1- Choosing your Beds*



First you must choose your planting sites. Choose

2 *separate* locations that are at least 5 ft apart. Each planting area will be 2ft by 1ft. The two areas should receive relatively equal amounts of sunlight, hopefully partial shade. There are certain plants that are notorious for attracting nematodes. For the purpose of this exercise, you should plant your impatiens in the vicinity of these plants to increase the likelihood of a nematode encounter. Plants such as boxwood, hibiscus, ligustrum, pittosporum, wax myrtle, gardenia, rose, lantana, ixora, and Japanese holly are likely to harbor nematodes. *Hint:* if you have one of the above plants and it has always been a problem for you, there is a good chance that may be due to nematodes.



Stand in front of one of your beds and flip a coin. Heads means you will add the mustard seed to this bed. Tails mean this bed will be your control, and the mustard seed will go in the opposing bed. Using the premarked tags labeled mustard seed and control, place them in the corresponding beds so you can remember which bed is which.

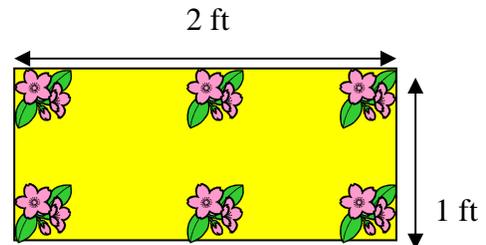
### *Step 2- Prepping the beds*

Now that you have picked 2 SEPARATE areas for impatiens, prepare both beds in exactly the same way, tilling and weeding. Add the fertilizer supplied for each bed. Sprinkle the mustard seed on top of the mustard seed bed. Mix the

mustard seed into the top few inches of soil, and water it in. You need to let the mustard seed take effect for a week before you plant the impatiens.

### DAY 7 end of week 1

After a week has passed you can plant your impatiens (which you have been watering faithfully all week). Six plants will go in each bed as is shown in this drawing.



#### SOME RULES

1. Make sure to water each bed equally.
2. Make sure to weed each bed equally with the same amount of lax or vigor.
3. Maintain the plants in both beds exactly the same way, fertilizing as needed, following the manufacturer's labeled instructions.

### END of week 8

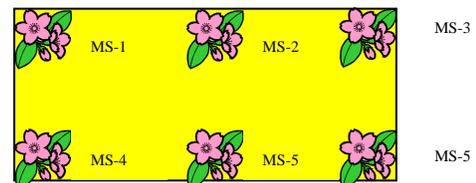
#### HARVEST DAY

Your efforts will now be rewarded as you find out whether or not the mustard seed had any effect on nematode damage to impatiens.

1. Fill out the data table noting plants types that are within 5 ft. of this bed, and what has been planted there before (remember grass counts).

2. Assign each plant a code to help you remember which is which. You

may want to write the codes on small pieces of paper and place them in front of their corresponding plants. Plants in the mustard seedbed will be coded as shown (MS-1, MS-2, MS-3, MS-4, MS-5, and MS-6). Plants in the control bed (no mustard seed) will be numbered in the same fashion with the codes (C-1, C-2, C-3, C-4, C-5, C-6).



3. Measure the height of each plant in centimeters (from the soil to its apex, highest point) and record this in the table. If you are unable to take a plant's height either because it died or some other reason, mark a dash on the chart and explain the dash under the comments section.

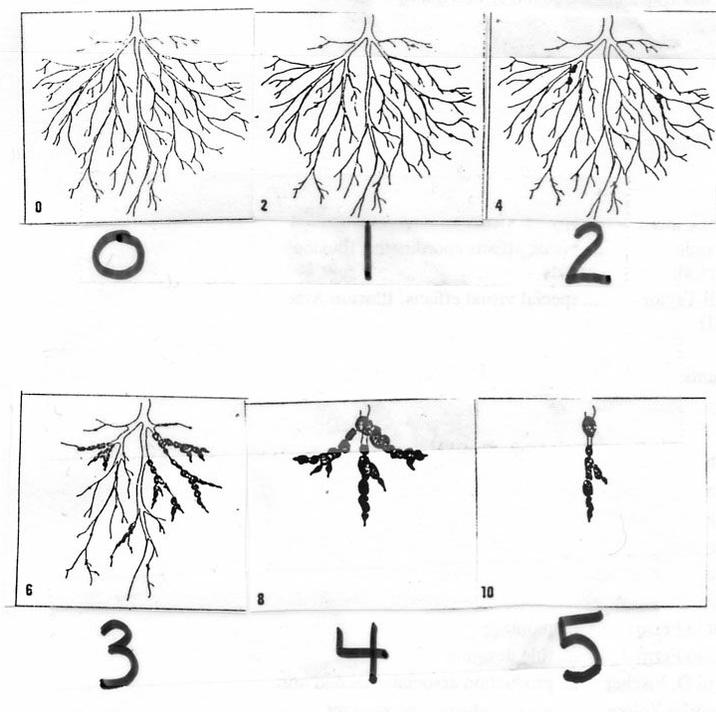


4. Take the width (diameter) of each plant at its widest point, in centimeters again. Finish recording both height and width for both plots.

5. Take a step back to analyze both plots. You are going to award places to each plant. Give 1<sup>st</sup> place to your very best looking specimen (the biggest, healthiest looking, with the most

flowers). Award second place, 3<sup>rd</sup>, and so on down the line. There might be a point at which a few of the plants look very similar. If so, award them all the same place. For example, if both the C-4 and C-1 plants are stellar looking specimens, award them both 1<sup>st</sup> place. If the C-3, MS-2, and C-5 plants look the next best, award them all 2<sup>nd</sup> place. Don't feel obligated to use 1<sup>st</sup> through 12<sup>th</sup> places. Award places to the best of your ability to discriminate between winner and loser impatiens.

6. Dig up all your impatiens, and lay them out next to their labels. Use the attached galling chart to evaluate the rate of galling.



0= no galls, not a single one

1= one or two galls but they are very small and hardly noticeable

2= a number of small galls and one or two larger galls

3= quite a number of large galls and a noticeably smaller root system

4= extensive large galls but a root system beyond the tap root

5= horrible, ugly, ugly galling, not much of a root system outside the tap root

## CONCLUSIONS

Don't forget to write any comments, such as how this project can be improved. Finally, do not forget to turn your data in to the extension office so it can be compiled. If you would like to learn more about root knot nematodes you may read the articles at these websites.

### Websites

<http://edis.ifas.ufl.edu/IN034>

<http://edis.ifas.ufl.edu/NG013>

If you have any questions, feel free to contact your county extension agent.

### BED WITH THE MUSTARD SEED

NAME \_\_\_\_\_

Date of incorporating mustard seed \_\_\_\_\_

Date of planting impatiens \_\_\_\_\_

Date of harvesting impatiens \_\_\_\_\_

What plants are within 5 ft of this bed?

What plants were planted there within the past year?

Plant	Height centimeters	Width centimeters	Appearance rating 1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> .....	Galling rate	Additional Comments
MS-1					
MS-2					
MS-3					
MS-4					
MS-5					
MS-6					

**CONTROL- NO MUSTARD SEED**

NAME \_\_\_\_\_

Date of incorporating mustard seed \_\_\_\_\_

Date of planting impatiens \_\_\_\_\_

Date of harvesting impatiens \_\_\_\_\_

What plants are within 5 ft of this bed?

What plants were planted there within the past year?

<b>Plant</b>	<b>Height centimeters</b>	<b>Width centimeters</b>	<b>Appearance rating 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>.....</b>	<b>Galling rate</b>	<b>Additional Comments</b>
<b>C-1</b>					
<b>C-2</b>					
<b>C-3</b>					
<b>C-4</b>					
<b>C-5</b>					
<b>C-6</b>					