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PLANT & PEST ADVISORY

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Early Season Issue

Asian Soybean Rust Found in US in Late 2004 and Early 2005

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Asian soybean rust (SBR), a potentially destructive pathogen of soybean and vegetable bean crops in the United States, was first reported in Louisiana in November 2004. Since that time SBR has been found in 9 states and traveled as far north as Tennessee late last year. Importantly, ***SBR was found in southern Florida on February 23, 2005 on Kudzu.*** Asian soybean rust has impacted soybean crops in other parts of the world in recent years. First identified in Japan in early 1900 the disease has spread across China and Asia and in the mid 1990's appeared in Africa followed by South America in 2001. All commercial soybeans are, and many vegetable bean crops appear to be, susceptible to SBR. Soybean rust may also infect weeds, such as Kudzu and Crown Vetch, as well as forage crops such as White and Crimson Clover. An extensive effort has been made to track the progress of SBR in the US. Growers who plant soybean crops in their rotations, as well as produce crops such as dry, green, snap, butter and lima bean, broad and fava bean need to track and follow the potential progress of SBR in the US. Soybean rust can be controlled with preventative fungicide applications. Currently, compounds that have labels for Soybean rust control in New Jersey include azoxystrobin (Quadris, Headline, Group 11) and chlorothalonil (Bravo, Echo, Group M5). Section 18's are currently being sought for additional fungicides for use on SBR on soybean and vegetable bean crops in New Jersey. For more information on SBR and how you can also track its progress in the US please visit the website: http://www.ces.ncsu.edu/depts/pp/soybeanrust/index.php.

Knowing your FRAC groupings for fungicide use and fungicide resistance management

FRAC, or the Fungicide Resistance Action Committee, was developed to help provide fungicide resistance management guidelines for 'at or high risk' fungicides. At or high risk fungicides have a high probability for fungi to develop resistance to because of their mode-of-action (MOA). Fungicides with chemistries that have a specific target site of activity against fungal pathogens, unfortunately, have a high risk for losing efficacy. Even so, fungicides with similar chemistries and similar MOA's may also allow fungi to develop cross-resistance, where a fungus that develops resistance to one fungicide in the group may also develop

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Case Study: Using the PSNT for Pumpkin Correctly Predicts Yield Response

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The Presidedress Soil Nitrate Test (PSNT) is a soil test used to predict if the amount of available nitrogen (N) in the soil is adequate for obtaining good yields. Results of PSNT will indicate whether or not a sidedress N application is needed. The PSNT is inexpensive, approximately $8 per sample. PSNTs are conducted by taking soil samples from the top 12 inches of the soil. The ideal time to perform this test in pumpkins is just before the pumpkin vines "lay over" and begin to run. Since excess (N) can be harmful to pumpkins by increasing vegetative growth leading to decreased fruit set, the PSNT can be a useful tool in avoiding excess N application.

As a pumpkin grower, I recently participated in the SARE (Sustainable Agriculture Research & Education) Farmer/Grower grant program where I experimented with the PSNT for pumpkins. Dr. Joseph Heckman, Extension Specialist in Soil Science with Rutgers Cooperative Research and Extension acted as the technical advisor. Dr. Heckman assisted in designing the study, making decisions based on PSNT results, and assessing the yields.

The study was conducted in the summer of 2004. With the intent of increasing the amount of N available to the pumpkin crop, peas were planted in the same field the pumpkins were going to be planted in. Prior to planting the peas, 70 lbs./A N was broadcast applied as 500 lbs/A of 14-7-14. Pea vines were incorporated by disking prior to their maturity, and the pumpkins seeded in mid-June. The three varieties planted were Baby Pam, Howden, and Howden Biggie. The pumpkins were not fertilized prior to planting.

When the pumpkin vines reached approximately 6 inches in length, 12-inch soil samples were taken from the field and sent to a lab for the PSNT. The results of the PSNT indicated all of the plots in the study fell below the minimum requirement for a sidedress application. For the PSNT, results above 25 ppm indicate that there is sufficient nitrogen available in the soil and no fertilizer applications are needed. Results falling below 25 ppm indicate that a sidedress application is necessary. All plots in the study were in the range of 15-16 ppm. Heavy rainfall received throughout the 2004 season may have affected the amount of available soil nitrogen.

Since all plots required a sidedress application, Dr. Heckman recommended varying fertilizer rates to determine how the rates would affect pumpkin yield and quality. The following rates were sidedress applied on July 30th: no fertilizer, 25 lbs N/A, 50 lbs N/A, and 75 lbs N/A. For each rate, pumpkins were weighed and rated for rind color and handle quality. There were no significant differences in rind color or handle quality for the varying fertilizer rates. The average weights (tons/A) were:

	Average weight (tons/A)		
Fertilizer Rate (lbs N/A)	**Baby Pam**	**Howden**	**Howden Biggie**
0	2.43	11.16	12.16
25	3.11	14.55	15.21
50	2.69	11.90	12.82
75	2.86	11.32	13.35

The 2005 New Jersey Commercial Vegetable Production Recommendations for pumpkins are 50-100 lbs/A total nitrogen; (25-50lbs/A broadcast and disked in, followed by 25-50 lbs/A as a sidedress application when vines start to run).

These field trial results demonstrated clearly that PSNT correctly predicted that the pumpkin crop yields would respond to a N sidedress application. Yields were highest with 95 lbs/A total N applied, near the high end of Rutgers 2005 recommended range. This indicates Rutgers Commercial Recommendations are a broadly sufficient guide for a wide range of growing conditions. The highest yield result at 95 lbs./A total N also leads us to suspect that not only did the pea crop not "trap" early applied N, but that there was also no immediate measurable benefit contributed to the pumpkin crop from pea N-fixation. Under similar field conditions, such as a pumpkin crop following a legume like peas, and under normal rainfall conditions, the PSNT might predict that sidedress N is not needed.

For more information on the PSNT visit: http://www.rce.rutgers.edu/pubs/pdfs/e285.pdf. ❑