An Emerging Nematode Problem in Sweet Potato
Dr. Charles Overstreet, Extension Nematologist LSU AgCenter

Sweet potato producers in Louisiana have had a number of nematode problems for many years. The Southern root-knot and reniform nematodes have been the main problems in our state. Either of these two nematodes can cause serious losses to sweet potato (Figure 1). Unfortunately, a new species of root-knot nematode has recently been found attacking sweet potato in North Carolina. This nematode was first identified in China growing on the roots of the pacara earpod tree and has the scientific name of Meloidogyne enterolobii. At this time a common name has not been adopted for this nematode.

This nematode is very close to that of the Southern root-knot nematode and has likely been confused with it. This new species has a similar host range to our common Southern root-knot nematode. It does produce very large galls when compared to those of the Southern root-knot nematode and is recognized as being the most damaging species of the tropical root-knot species. This nematode is considered a highly aggressive species meaning that it has a high infestation rate on the roots of host plants and cause more severe galling than any other root-knot nematode. It attacks a wide range of crops that we grow in Louisiana including sweet potato, cotton, soybean, numerous vegetables such as tomato, bean, okra, watermelon, beet, potato, and pumpkin, and many other weeds and ornamentals. Losses to some crops such as tomato have been as high as 65%. In other countries such as Brazil, areas that are heavily infested with this nematode become unsuitable for cultivation of a susceptible crop. A number of countries are now considering this nematode as a potential quarantine pest.

The major concern with M. enterolobii is that this nematode species has the ability to break the resistance of plants that are normally resistant to the Southern root-knot nematode (Figure 2). This includes varieties of sweet potato that have been carefully selected and released with resistance against root-knot. Covington, Evangeline, Henandez, LA 05-11, and Beauregard were evaluated against M. enterolobii and all found to be very susceptible. This could have serious implication to our growers since currently there are no varieties that would have resistance against this new pest.

Meloidogyne enterolobii has not been reported in Louisiana. Plants that have Southern root-knot nematode resistance and are seriously damaged by root-knot would be an indication that this nematode is present. We do plan to do some survey work in the sweet potato producing areas this summer to see if this nematode might already be present. Producers should be on the lookout during harvest for damaged roots.
particularly if a resistant variety against root-knot is planted.

There has not been research into the use of nematicides for management of *M. enterolobii*. However, the use of fumigants is likely to be the best approach. Because of our current problems with the nematodes that are already present such as reniform nematodes, fumigation is still one of the best methods. Use a resistant cultivar when the Southern root-knot nematode is present.

One of the best management strategies for this nematode is to avoid getting it in the first place. Since it can readily spread on infected storage roots, we urge our producers to be careful and not accidentally introduce this nematode pest into Louisiana. Once *M. enterolobii* has been introduced into an area, it will be difficult to control or eradicate them.

Figure 1. Damage to the susceptible variety Beauregard from the Southern root-knot nematode commonly found in Louisiana. A) Severe galling to small roots and lack of development of storage roots; B) Blisters or pimples present on the storage roots. Root-knot nematode females are visible under the raised areas (see insert).

Figure 2. Damage to sweet potato from *Meloidogyne enterolobii*. A) Damage to Covington sweet potato from a field in North Carolina; B) Less severe damage but still showing numerous blisters with the nematodes beneath (images from Brandon Parker in North Carolina).

New Herbicide Technology Impacts on Sweet Potato Production
Dr. Donnie K Miller, Weed Scientist LSU AgCenter

Soybean and/or cotton varieties capable of withstanding over-the-top application of either 2,4-D (Enlist Cropping System®) or dicamba (Xtend Cropping System®) specific products have gained full regulatory approval for commercialization in 2017. Although highly beneficial in labeled crops with respect to weed control, concerns exist regarding off-target movement to susceptible/sensitive crops. Label specific language that includes restrictions for application must be followed in order to mitigate potential of off-target spray movement to these crops. In addition, in Louisiana certification of attendance at company provided training regarding these new herbicides (Engenia®, Xtendimax®, and Enlist Duo®) must be provided for purchase/use of these products.

Off-target movement or sprayer contamination of 2,4-D and dicamba is a major cause for concern due to the financial impacts these events could have on sweet potato production, given the high cost of inputs required to produce the crop. With these concerns in mind, research was conducted in by the LSU AgCenter in 2016 to evaluate impact of reduced rates of these hormonal herbicides in combination with glyphosate on growth and yield of the crop. Preliminary findings from application at timings that correspond to application of these products in row crops indicate reduced rates encountered in off-target or tank contamination events are much more pronounced and detrimental when occurring 30 days after planting compared to 10 days after planting. This difference was attributed to sweet potato plants having much greater leaf surface area to intercept spray at the later application timing. In addition, negative long term yield impacts were greater with the highest rate applied, 1/10th of the labeled use rate, and with dicamba in comparison to 2,4-D. Although not negatively impacting yield, lower rates of each compound (1/33th to 1/100th of the labeled use rate) did result in significant injury symptoms including leaf twisting, yellowing/purpling, and reduced growth and subsequent ground cover.
As a result of this research, producers with multi-crop farming operations are cautioned to thoroughly follow all sprayer cleanout procedures on the label when previously spraying one of the combination herbicides evaluated or to devote different equipment to spraying Xtend® and Enlist® crops. In addition, proper consideration should be given to planting these crops in close proximity to sweet potato production fields and make herbicide applications under environmental conditions that are not conducive to off-target spray movement.

**Louisiana Sweet Potato Producers Granted New Insecticide and Nematicide Labels for 2017 Field Season**

*Dr. Tara Smith, Research Coordinator, LSU AgCenter Sweet Potato Research Station*

Louisiana has been granted a 24 (c) Special Local Needs Label for Admire Pro insecticide. With this label, the pre-harvest interval (PHI) for soil applications has been shortened to 60 days. The use rate for soil applications remains (4.4-10.5 oz./acre). The higher rate is recommended for soil dwelling insects including wireworms and white grubs. The maximum amount of this product allowed per crop season is 10.5 or (0.38 lb. ai/acre). This label is valid through February 20, 2022 or until otherwise amended.

Besiege Insecticide is currently labeled for use on sweet potato in Louisiana. This product contains both chlorantraniliprole (9.26 %) and lamda-cyhalothrin (4.63%). The use rate for this product is 6.0 – 9.0 fl oz./ acre. Besiege will be another option in managing Lepidopteran insects in sweet potato.

Louisiana has also received a 24 (c) Special Local Needs for Nimitz for use on sweet potato to control Root Knot, Stubby Root and Lesion Nematode species. The application rate is 3.5-5.0 pints per acre. Nimitz can be applied either broadcast or banded over the field using coarse droplets from conventional spray equipment. It should be applied with a minimum of 20 gallons of water per acre and mechanically incorporated to a depth of 4-8 inches. It is recommended to apply supplemental irrigation 3-5 days after application. Applications should occur 7-10 days before transplanting. We have evaluated this product in only one year (2016). The primary target species in Louisiana is root knot nematode. Root knot population in 2016 trials were very low.

Also labeled in 2017, for nematode control in sweet potato in Louisiana and Mississippi is AgLogic 15G aldicarb. The rate for this product is 10 – 20 lbs. /acre, with a 120 day pre-harvest interval. Telone fumigant remains the primary nematicide used in Louisiana sweet potatoes. We intend to evaluate the various nematicides in small plot replicated trials and in on-farm strip trials during 2017.

I anticipate that 2017 will be another active year for cucumber beetles and other insects we routinely manage throughout the season. We have experienced a very mild winter thus far in 2016-2017, which is usually a good indicator of increased insect pressure the following spring and summer. Please read and follow all label directions. Preplant insecticides should be applied as close to planting as possible in accordance with label directions to maximize efficacy. Please remain diligent in scouting your fields throughout the season.

Please contact me should you have any questions regarding insect or nematode pest management programs for sweet potato in 2017.

**Varieties and advanced lines**

*Dr. Don LaBonte, Professor LSU Plant Science*

Burgundy – This was released a couple of years ago, and I really liked what I saw in the field this year. Yield was comparable to Orleans. One of the top lines in our trials. It does look very different. It has a deep red almost purple skin. Nicely shaped and deep orange flesh. I have consider this a premium tasting sweet potato with a high sucrose content; definitely something to consider for shrink wrapping. Advanced lines I am looking closely in 2017 include 14-31. This is a red skin line which consistently had high yield and nice shape – even in poor performing plots. I like it for the earliness; a very desirable feature. Ok flavor. Some disease resistance concerns so we will test again this year. 13-81 has been a solid performer. It has a very...
bright red skin and when skinned an under layer of skin is the same color so little damage shows through if cured. A very good flavor, but I do notice oxidation of the baked product from roots from stressed fields. Skinning resistance is always a key need for the industry. I just wonder if this kind of skin trait will help us deal with skinning damage and help speed up harvest operations. The skin color is definitely different and will require different marketing efforts. 13-84 has a traditional skin color – which I really like. Lots of things in the “yes” column – yield, shape and flavor. If plant beds are solid then definitely one for the future. Our nurseries generated over 38,000 true seeds in 2016. Each one has the potential of becoming a new variety so the quest continues!

A brief description of the MarketReady Program

Dr. Pamela Hodson, Adjunct Professor Ag Economics Dept. LSU AgCenter

MarketReady Producer Training Program for those producers interested in selling products to restaurants, grocers/wholesalers/retailers and schools/institutions. MarketReady provides professional marketing education and covers key business functions: packaging, pricing, supply, delivery, storage, invoicing, insurance, Good Agricultural Practices (GAP), Food Safety Modernization Act (FSMA)

MarketReady Producer Training Program also includes a “Buyers Panel” where producers gain an understanding of the requirements for selling to restaurants, grocery and food services buyers.

Soon an Eventbrite registration will be set up but if your producers want to register soon, send to Melanie Way mway3@lsu.edu

Sweet Potato Events and Happenings

Mr. Myrl Sistrunk, Extension Associate LSU AgCenter

- Ag Alley is held each year in conjunction with Ag Expo in West Monroe, LA. Fourth grade students were brought in to learn about different aspects of agriculture, including sweet potatoes. The sweet potato alley featured information on production, economics, sweet potato products and sweet potato grades.

Students had a chance to get hands on experience and actually grade sweet potatoes. Part of the display was set up to simulate a row of potatoes and students had to select #1’s, canners, or jumbos out of the display. Approximately 650 students participated in this event. The sweet potato alley was also part of the two day Ag Expo where attendance was estimated at 10,000.

- Ag Adventures was held at the Delhi Civic Center in Delhi, LA for 2nd and 3rd graders. Nine hundred fifty students attended this event, where the sweet potato alley was again featured.

- The 2017 Sweet Potato Field Day will be held August 17, 2017 in Morehouse Parish at Venoy Kinnaird Farms. More information will be forth coming throughout the season on this event.

- The Louisiana Sweet Potato Commission will meet on March 30 in Baton Rouge at the Louisiana Department of Agriculture and Forestry Building.

-Ag Magic will be held on the LSU Campus at Parker Coliseum April 3-7. This event attracts school groups and the general public. The sweet potato display will be featured at this event.

- Recently the Northeast Regional 4-H Cookery Contest was held. Dishes competing at the regional level had to win in their respective parish contests. There were several outstanding dishes prepared for this competition. The winning dish was entered by Kaden Byrd of Concordia parish. The recipe is highlighted in this issue of the sweet potato newsletter.

- Pay attention to the changes that are being implemented for Worker Protection Standards (WPS). These will significantly impact the sweet potato industry. Producers need to pay attention to the annual training needs, expanded training, age restrictions, exclusion zones,
field posting, and record keeping. I would highly suggest you or someone in your operation become certified as a Worker Protection Standard Trainer.

Pictures from Ag Alley, Carol Osborne, AgCenter Communications and LSU Recruitment

The sweet potato alley aimed to teach youth about production, product development and how sweet potatoes are graded for the market, AgCenter sweet potato agent Myrl Sistrunk said. Different grades of potatoes have different value to the farmer, Sistrunk said. “We have potatoes set up like a row of sweet potatoes in the field and we give them a chance to go through and pick out the canners, No. 1s and jumbos and see how they do,” he said.

Featured Recipe
Northeast Region Cookery Contest-Sweet Potato Category- Kaedyn Byrd, Concordia Parish, 1st Place
Sweet Potato Cheese Supreme Pie

Ingredients:
1 Graham cracker pie crust, crumbled
2 eggs, beaten
1 ¼ cup sugar
8 ounce package cream cheese, softened
¾ cup condensed milk
2 (3 ounces) boxes vanilla pudding and pie mix
2 cups sweet potatoes, mashed
½ teaspoon cinnamon
1 cup whipped topping
Pecans to decorate – optional
Extra whipped topping for top of cake

Instructions:
Preheat oven to 325 degrees. Press crumbled graham cracker crumbs into bottom of baking dish. Beat the eggs, sugar and cream cheese until fluffy. Pour over crust and bake for 20 minutes at 325 degrees. Let cool. Combine milk, pudding, sweet potatoes and whipped topping; mix well. Pour over cream cheese layer. Top with whipped topping and sprinkle pecans over the top if desired and chill.

Yields: 8-10 servings.

LSU AgCenter Extension personnel are available to assist you with all of your crop needs. Please call on us if we can be of assistance.

Sweet Potato Extension Associate
Myrl Sistrunk
318-428-3571
318-267-6712 (cell)
msistrunk@agcenter.lsu.edu

Coordinator LSU AgCenter Sweet Potato Research Station, Tara Smith
318-435-2155
318-557-9501
tsmith@agcenter.lsu.edu

Sweet Potato County Agents

Morehouse Parish
And West Carroll Parish
Bruce Garner
318-428-3571
318-331-9481 (cell)
bgarner@agcenter.lsu.edu

St. Landry, Evangeline, And Acadia Parish
Vince Deshotel
337-948-0561
vdeshotel@agctr.lsu.edu

Avoyelles Parish
Justin Dufour
318-964-2249
jdufour@agcenter.lsu.edu

Franklin Parish
Carol Pinnell-Alison
318-435-7551
cpinnell-alison@agctr.lsu.edu