

LOUISIANA SWEET POTATO NEWS

Spring 2020

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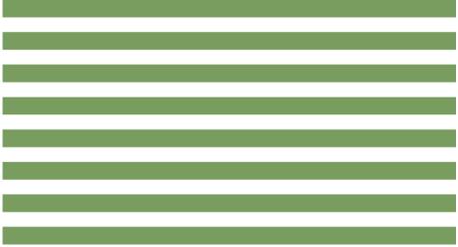


Visit our web site: https://www.lsuagcenter.com/portals/our_offices/research_stations/sweetpotato

Update on Sweet Potato Breeding Program

Dr. Don LaBonte, Professor and Director LSU AgCenter School of Plant, Environmental and Soil Sciences

Beds are in and plants are coming up. One of the lines, 16-283 is one I have my eye on. It has that classic Beauregard look and has performed exceptionally well. A top yield performer in 2018 when growth conditions were ideal in many of my test plots. It definitely held its own in 2019 although yield was more similar to Orleans



which is not unexpected because of the heat and drought - yield always tends to cap out. I was pleased that the roots shaped nicely and number count per hill was there in some really tough environments. It also tastes good and stores well. My only concern was plant bed production. I had a few beds in 2019 that gave me concern - is it a poor sprouter or was it poor quality roots I bedded? I normally bed out a number of boxes of roots from each of the test plots I had the previous year. This gives me a range of quality as I intentionally harvest some plots way too late. I am seeing some good stands of 16-283 locally. A few farm plots are weak though - roots were stressed to begin with, and I seemed to have had some bedding equipment malfunctions which buried some too deep. There are more beds in north Louisiana I will be examining soon so I should have a good sense shortly. Another line that did very well is 17-171 - a red skinned line. It has consistency from plot to plot, high yield and good shape in different soil types. I know... its red, but still looks very nice. We had some great looking new lines selected in 2019 that I am excited to trial and look forward to the season starting.

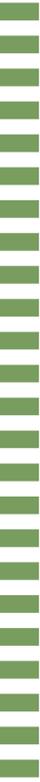


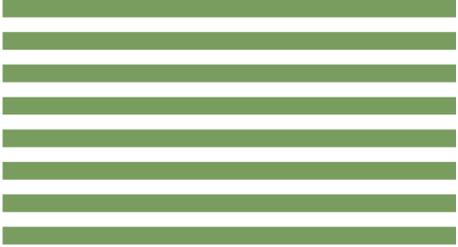
Watson named new LSU AgCenter Nematologist

Dr. Tristan Watson was born and raised in Alberta, Canada. He obtained his PhD in biology from the University of British Columbia and subsequently spent two years as a postdoctoral research associate at the University of Florida. His prior research experience has focused on integrated nematode management on tree fruits, small fruits, vegetables, and alternative crops (hop, hemp, and artichoke).

As the new assistant professor of nematology in the Department of Plant Pathology and Crop Physiology at Louisiana State University, Dr. Watson has state-wide responsibility for nematode management on all crops grown in Louisiana. He also serves as the director of LSU AgCenter's Nematode Advisory Service, which provides nematode diagnostic services to growers, extension agents, and research personnel.

Dr. Watson is excited to establish a research program that addresses key nematode problems on sweetpotato. He intends to determine the distribution of plant-parasitic nematodes, including the invasive guava toot-knot nematode, in sweetpotato production regions within the state and conduct fundamental research on nematode interspecific interactions that may limit the establishment of invasive nematode pests on sweetpotato. He plans to also evaluate new nematicide formulations, along with other nematode management approaches, in a fully integrated pest management strategy for this important crop.





2020 LOUISIANA SWEET POTATO UPDATE – Taking Extra Precaution During COVID-19 Pandemic

Mr. MYRL SISTRUNK, EXTENSION ASSOCIATE, LSU AgCenter

The COVID-19 virus has created peculiar times for everyone. We have seen church services cancelled, schools and universities closed, public events cancelled and sporting events at schools, colleges and professional level cancelled. Even school and college graduations are in question or postponed until late summer. Social media is being used in very creative ways to maintain the educational process for school systems, college classes, conducting meetings, news reports and business activities.

We must face the fact that our world has changed. Time will only tell when normalcy will return. I believe even then we will all be working in the “new normal” and our routines will be different because of this situation.

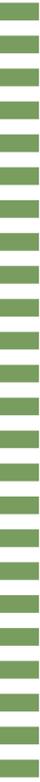
Agriculture has been deemed an essential business and still has to carry on business as best as it can to provide the food and fiber for the world. Every farm needs to take steps to prevent the spread of coronavirus that might affect a farm operation.

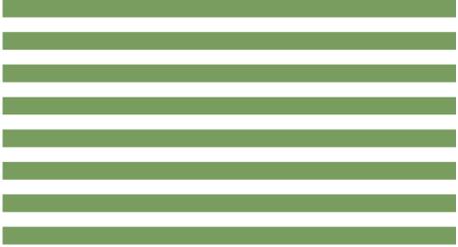
Sweet potato operations require a large work force to produce, package and ship sweet potatoes. As producers, you need to plan, prepare, and implement effective infection prevention control measures. Since everyone has a vital role or job that must go on in producing the crop it is necessary to keep everyone as healthy as possible.

Encourage sick employees to stay home and take necessary precautions. With the large number of people involved in production and packing it is not always possible to keep distances between personnel due to the transplanting methods, harvesting methods or equipment used, and packing lines used in the industry. Spread out the workforce when possible to limit contact and exposure. Look at possible ways to limit contact such as shift work, varying break times, varying meal times, arrival and departure times. Housing of employees might be another issue that needs to be addressed. Transportation to and from field operations needs to be looked at. Sharing of tools and equipment is another possible area. You might consider assigning certain people to certain tractors and or trucks used on farm.

Employees should wash hands often, use hand sanitizers with at least 70% alcohol, and encourage them to avoid facial contact of hands to eyes, nose and mouth. Consider how to sanitize common areas of transportation, tools, locker rooms, office, breakrooms, bathroom, and toilet fixtures to manage risk. We already do Worker Protection training for employees prior to them working, so a training to emphasize the importance of sanitary practices might need to be added with the WPS training. All of this will take more time and effort but we need to keep everyone as safe as possible.

The goal is to keep everyone in the operation healthy so they can perform their jobs as needed. Help them understand that they are crucial to the success of the farm operation. A safe and healthy workforce is essential to maintain farm operations.





Sweetpotato Seed is Your Future

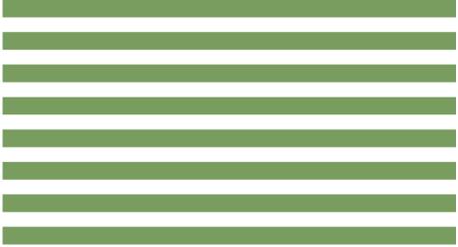
Chris Clark, Dept. Plant Pathology & Crop Physiology, LSU AgCenter

It seems obvious to say that seed is the future for any crop, but like many other things, it is something we often take for granted or just plain forget. There may be no crop for which the quality of seed is more important than for sweetpotato where we use storage roots for 'seed'. As with other crops propagated from vegetative plant parts, sweetpotato accumulates some pathogens, especially viruses, in the seed. In addition, the use of roots to propagate sweetpotato also can bring problems with mutations and with soil-borne and root-infecting pathogens or insects that infest roots, like weevils. Foundation seed programs began in sweetpotato in the 1940s primarily to manage the problem of mutations including, but not limited to those that cause light-colored flesh sectors in orange-fleshed sweetpotatoes. Farmers who use early generation seed rarely have any significant problems with mutations, but if we get lax in using good seed, we could see problems with mutations resurface.

Since the 1990s, most discussion of sweetpotato seed quality has centered around managing viruses. This is probably because of the difficulty, time, and expense involved in producing sweetpotato plants that are free of viruses, the sweetpotato industry was late to adopting virus-tested seed, and it has required considerable investment to improve and maintain this capability. Involvement of the clean plant programs in different states with the National Clean Plant Network (NCPN) has helped support the investments needed, provided new opportunities for educational outreach about clean seed, and has improved the quality and quantity of clean seed available. The support of NCPN has been invaluable in helping to clean up new sweetpotato breeding lines, maintaining nuclear stocks of clean tissue cultures, and ramping up production of foundation plants. However, by law NCPN cannot support 'nursery' operations, which are the equivalent of certified seed programs in sweetpotato. We have been able at the Sweet Potato Research Station to reduce the rate of virus infection in foundation seed from 100% prior to going to virus-tested seed in 1999 to 9% in 2013 just by starting each year with virus-tested tissue culture plants, and after intensive efforts to eliminate morning glories and other sources of viruses to less than 1% in 2017. However, the foundation seed produced still must be increased on-farm for one year before the farmer has enough seed to plant for tablestock production and in most cases, this will be used another year or two after that. During this time, virus re-infection can be very high. Research and extension efforts are needed to develop ways to produce certified seed that can reduce this re-infection so that the industry can realize the full benefits of the foundation clean plant efforts.

Bacterial soft rot is a sporadic problem in sweetpotato. It is not usually something most farmers worry about, but occasionally, it can cause a melt-down. This disease causes problems because the bacterium that causes it can be latent, not causing any symptoms, in sweetpotato plants throughout the year-long life cycle of the sweetpotato. It appears that the chances of storage roots becoming contaminated goes up when fields are flooded, but in many cases, the bacteria may contaminate the roots without causing soft rot. Later, when warm temperatures or low oxygen events occur, they can trigger soft rot. One of the most dangerous times is when seed are pre-sprouted at high temperatures (80-85° F), it can activate the bacteria which then spread throughout the seed during the bedding process. Plastic sealed too tight on the plant beds can also contribute to the problem. Clean seed is a key to managing this potential problem.

In the winter 2014 edition of this newsletter, we pointed out that an unusually high incidence of black rot was observed during the 2014 harvest in North Carolina. In 2015, reports came in of black rot suddenly appearing in several other states including Alabama, Mississippi, and Missouri, and in 2018 one sample was found in



Louisiana. Unfortunately, it is not possible to definitively prove how black rot got to these other states, but it was a very striking reminder that diseases like black rot can be spread on seed roots, as well as on slips that are pulled rather than being cut an inch above the soil. Other diseases like foot rot and scurf can also be spread the same way.

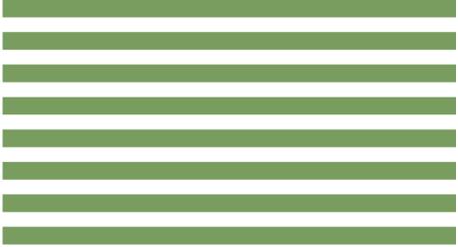
We probably best remember the most recent incident. In March of 2018, a load of sweetpotatoes from North Carolina that was to be used as seed arrived in Louisiana heavily infected with the guava root-knot nematode (GRKN), *Meloidogyne enterolobii*. In 2020, other loads of sweetpotato from North Carolina were intercepted and found to have GRKN. Again, sweetpotato as a root crop is the perfect carrier for root-infecting pathogens. In some cases, most of the roots were heavily infected and the problem was obvious, but in other cases, only a few infected roots were found thanks to the expertise and diligence of inspectors from LDAF. In integrated pest management schemes we often try to keep diseases below thresholds set to reduce the chances of economic damage, but when the pathogen is one that does not occur in Louisiana, it is important to have a zero threshold to prevent it from being introduced and established. A lot of emphasis has been put on surveying for GRKN by collecting soil samples from fields and testing them for the presence of the nematode. This is reliable when there is a reasonably high population of the nematode spread through the field, but it can be hit or miss when trying to detect a small population that may occur in an isolated spot in the field. Our experiences in 2020 indicate the value of inspecting the storage roots – either on a packing line, laid out in beds, or on the truck. The damage on a few roots can sometimes be picked up with such an inspection when it is missed by soil sampling. Carefully inspecting seed roots before they go into the beds can save a lot of trouble later.

Most of the problems of moving diseases on sweetpotato seed roots have come from using sweetpotatoes that were not certified, inspected seed. Seed certification and inspection programs have been developed to minimize the chances of diseases, insects, and mutations causing problems in sweetpotato seed. While there is no guarantee of 100% success using certified, inspected seed, the increase in cost is small compared to the cost of the problems that can occur using sweetpotatoes that introduce any of the above problems.



Not all the problems with producing seed roots and slips are caused by diseases or pests. We have seen several instances of new varieties that have some outstanding characteristics but don't always produce plants as we would like. Evangeline is but one example. Several times Evangeline has been bedded that was slow to sprout, had many blank spots in the beds, and the plants were highly variable in size. Yet, when we used Evangeline roots from the foundation seed program to test various treatments for three years, each year Evangeline was the best plant producer in our beds, even in the untreated controls. We have seen several times in recent years that seed of a given variety saved from different locations but cured, stored, and bedded side-by-side could have very different plant production. On this basis, it appears that something happens in the field during the previous growing season that affects the ability of the seed to sprout. Usually, the mother roots remain in good condition in the beds, without any obvious disease, until well after other lines have sprouted. Unfortunately, we do not know what causes this effect or whether we can learn to control conditions in the production field to improve the sprouting ability of seed roots.

Because of our recent experiences with viruses, black rot, GRKN, varieties that sprout erratically, and more, a group of research, extension and industry people got together this winter to submit a proposal for a planning grant to the USDA Specialty Crop Research Initiative led by Dr. Mark Shankle at Mississippi State University and entitled: "CleanSEED: A planning project to ensure the sustainability of U.S. sweetpotato seed programs". It will be months before we know whether this is chosen to be funded. If it is funded, the group will be looking for industry representatives to help in the planning process that will hopefully lead to funding for research and extension programs to improve seed quality in the sweetpotato industry. Even if it is not funded, it clearly indicates that this is a priority area for the sweetpotato industry and we need to find ways to improve our education about the value of clean seed, improve our ability to produce a greater quantity of early generation clean seed, and improve overall adoption of the use of clean seed in the industry.



LSU AgCenter Announces Edible, Ornamental Sweetpotato, Karol Osborne

Hobby growers have a new edible option for their ornamental gardens by way of a Louisiana favorite: the sweet potato.

Developed by LSU AgCenter breeders in collaboration with [FitzGerald Nurseries](#), of Kilkenny, Ireland, the sweet potato selections are marketed in North America through Concept Plants and in Europe by FitzGerald as Treasure Island sweet potatoes.

The breakthrough ornamentals are the first edible and ornamental sweet potatoes to hit the market and were recently recognized with a Green Thumb Award in the Edible Plants category from the Direct Gardening Association.

“Our intention was to develop a series of sweet potato plants with everything from white and orange to purple flesh, and we really tried to capture a lot of different looks with foliage,” said LSU AgCenter plant breeder [Don La Bonte](#).

The new varietal selections under a FitzGerald Nurseries and Graines Voltz entry were also awarded a “coup de coeur” at the Concours Innovert competition during the salon du vegetal show, one of Europe’s leading garden plant shows held in France. The term “un coup de coeur” literally translates as “a blow to the heart,” commonly used as an expression of sudden, strong attraction or passion for something.

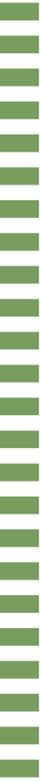
While Louisiana consumers have long recognized sweet potatoes for their versatility in favorites like fries, pies and sides, the edible ornamental varieties also provide nutritious leaves for colorful and tasty additions to salads, stir-fries and smoothies.

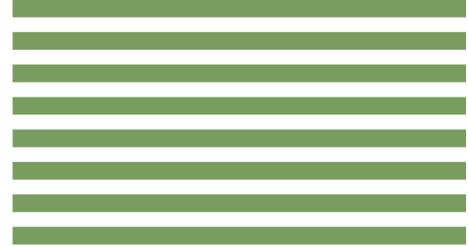
The tuberous sweet potato root is widely considered a nutritional superfood as a good source of vitamins B and C and is high in fiber, iron, calcium and antioxidants.

The edible leaves of the Treasure Island varieties are also high in lutein, a carotenoid found in high quantities in spinach, kale and carrots, La Bonte said.

The plants are easy to grow, perform well over a wide range of growing conditions and offer the added bonus of an edible root harvest in the fall, he said.

Perfect in landscapes, especially where space is an issue, a broad range of foliage colors from showy chartreuse to deep purple will give growers many options.





The outer skin of the tubers also varies in shape and color from deep purple to light orange, while flesh colors vary from white to light and dark oranges to purple.

Sweet potatoes are not planted from seed but from plugs or slips, which are small rooted pieces of tuber produced from cuttings.

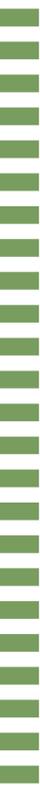
“The trick with a sweet potato plug is to bury it deeper than the original plug depth to capture a couple of the fresh nodes underground so fresh, more attractively shaped roots will develop,” La Bonte said.

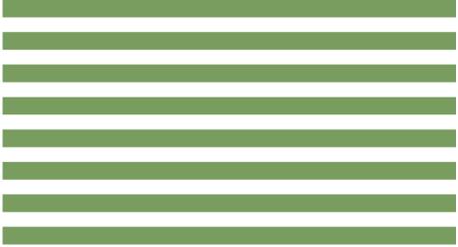
The Treasure Island sweet potato line will feature five varieties, each named for islands in French Polynesia, including Kaukura, Makatea, Manihi, Tatakoto and Tahiti.

“Plants are available for the first time in 2020 in Europe and USA in limited numbers,” said FitzGerald Nurseries owner Pat FitzGerald.

The new varieties are being test marketed in the U.S. in 2020 with a wider distribution planned in 2021.

Gardeners can purchase plants through local garden stores and mail order via Thompson and Morgan, U.K., FitzGerald said. In Europe, growers can buy planting material through FitzGerald Nurseries, Graines Voltz and Hithil.





Remind Text Message System Being Used to Update Clientele Tara Smith and Myrl Sistrunk

As you all know, the LSU AgCenter remains open during the COVID-19 pandemic. Your LSU AgCenter Sweet Potato Research and Extension Team is available to meet your crop needs as you move forward into the 2020 production season. Research activities at the Sweet Potato Research Station are moving forward, while social distancing. We are optimistic that we will see you all in person at our field day, which is scheduled for August 20, 2020 at the Sweet Potato Research Station in Chase, LA.

The REMIND text message system is being used to send timely crop updates and other information to you.

Text @laspotato to 81010 to receive timely crop updates in 2020. Contact Tara Smith or Myrl Sistrunk with Questions. Wishing for all of you health and wellness and a great 2020 sweet potato crop!

2020 LOUISIANA SWEET POTATO UPCOMING EVENTS:

LSU AgCenter Sweet Potato Field Day – August 20, 2020, Sweet Potato Research Station Chase, LA



For more information, contact the LSU AgCenter Sweet Potato Research Station
P.O. Box 120 | Chase, LA 71324 | Phone: 318-435-2155 | Myrl Sistrunk 318-267-6712, Dr. Tara Smith 318-557-9501
Office Hours: Monday – Friday 7:30 a.m. – 4:30 p.m.

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