

A REPORT FROM THE
EXECUTIVE DEAN
OF AGRICULTURE AND NATURAL RESOURCES

Report to the New Jersey State Board of Agriculture
November 2014



(L-R) Brad Hillman, Bob Goodman, Doug Fisher, Bill Meyer, Bruce Clarke and Stacy Bonos observe a plot of tall fescue at the Rutgers Plant Science Research and Extension Farm.
Photo source: New Jersey Department of Agriculture


New Jersey Secretary of Agriculture Doug Fisher visited the Rutgers Plant Biology Research and Extension Farm in Adelphia in September. Faculty from the Turfgrass Breeding Project at the Rutgers Center for Turfgrass Science gave Fisher a tour of research plots and discussed types of grasses being evaluated and studied for breeding. On hand for the tour were **Brad Hillman**, senior associate director, NJAES and director of research; and Executive Dean of Agriculture and Natural Resources, **Bob Goodman**; and members of the Department of Plant Biology and Pathology **William Meyer**, professor of plant biology and pathology and director of the Rutgers Turfgrass Breeding Project; **Stacy Bonos**, assistant professor and turfgrass breeder; and **Bruce B. Clarke**, extension specialist in

turfgrass pathology and director of the Center for Turfgrass Science. The team toured research plots involving turfgrass breeding projects for drought tolerance in tall fescue, salinity tolerance in perennial ryegrass and for sustainable, low-maintenance use. According to **Bonos**, conducting these extensive evaluation trials in New Jersey provides the industry with information regarding which cultivars perform well in New Jersey. Additionally, research has demonstrated that turf performance in New Jersey is a good predictor for performance throughout the northern half of the U.S. The Rutgers Turfgrass Breeding Project research involves evaluating nearly 20,000 selections of turfgrasses throughout the growing season. Breeding efforts also involve developing perennial grasses for biofuel. Research is focusing on switchgrass with improved disease resistance and biomass yield on marginal land. The Rutgers Turfgrass Breeding Project is also evaluating the biomass yield potential of Miscanthus as a biofuel.

A local organic popcorn farmer, Farmer Steve's Popcorn, is cooperating with Extension Specialist **Joe Heckman's** Soil Fertility Research and Extension Program to find better ways of producing this high-value crop in New Jersey. The group is exploring ways of using cover crops to grow and fix biological nitrogen to grow in rotation with the organic popcorn. The cover crop of special interest is a tropical legume called sunn hemp (*Crotalaria juncea* L.). This legume, when planted in early summer, grows as tall as corn by the end of the season and produces a substantial amount of biomass. Contained within this biomass is a considerable amount of fixed nitrogen that can be used to grow next year's crop of organic popcorn. One of the challenges of using sunn hemp as a cover crop is that the plant height and

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abundance of biomass can be difficult to mow, chop, and till into the soil. Nevertheless, sunn hemp appears to have good potential as a cover crop for New Jersey to build soil organic matter and provide on-farm nitrogen. The findings from this research project being conducted on certified organic cropland at the Rutgers Snyder Research and Extension Farm should be useful to both conventional and organic farmers.

The Regional Excellence in Extension Awards were presented during the 127th Annual Meeting of the Association of Public and Land-grant Universities in Orlando, FL, Nov. 2-4. Winning the award for the Northeast Region was **Richard Van Vranken**, Atlantic County agricultural and resource management agent, for the innovative creation of the Ethnic Produce Production and Marketing Working Group, which introduces niche markets to producers for unique crops catering to immigrant consumers looking for fresh vegetables and herbs of their homelands. The Extension Awards are given annually to Cooperative Extension professionals who excel at programming, provide visionary leadership, and make a positive impact on constituents served. Five regional awards were presented.

Equine business owners do not often complete written business plans or financial analyses, so an Equine Business Planning Course on the subject was offered this year. A three-hour class was given once a week for seven weeks. A collaborative group of Rutgers professionals and farmers developed a workbook to guide the class over the seven-week course. Evaluations revealed changed opinions on the importance of business planning to the success and sustainability of a business. Faculty and staff involved were **Carey Williams**, extension specialist in animal sciences; **Laura Kenny**, program associate, animal sciences; and **Robin Brumfield**, extension specialist in agricultural, food and resource economics.

Several New Jersey hydroponic vegetable operations are expected to comply with the USDA Good Agricultural Practices third party audit in 2015 in order to continue their sales to current buyers. Hydroponic systems often recirculate irrigation water and this water can pose a human health risk should the water become contaminated. Potential routes of contamination in a hydroponic operation can come from workers, rodents, and run-off into water storage tanks. A research project assessed generic E. coli levels in sampled hydroponic water and samples were taken 10 times on a weekly basis this past summer. Sampling results showed that there were low levels of generic E. coli; all were lower than the current open recreation water standards used in third party audits. This sampling data will also be helpful in assessing hydroponic operations compliance with the Food Safety Modernization Act regulations, which will be implemented starting in 2017. The project was funded by the Phillip Alampi Extension Fund. **Wesley Kline**, Cumberland County agricultural and resource management agent and **Meredith Melendez**, Mercer County agricultural senior program coordinator were the investigators.

Of Interest:

Two new instructional videos were produced at Rutgers Snyder Research Farm and funded through the Phillip Alampi Fund. "Tiller Safety & Maintenance for Beginning Farmers" covers safe operation and maintenance of the BCS walk-behind tractor: filling gas; starting; using the kill switch; using gears; using



plow, rototiller, furrower, sickle bar mower attachments; clean up; transporting; and maintenance. The video can be viewed at <http://youtu.be/Hx26qDejNeQ>. “Breaking Ground for Beginning Farmers” looks at how effective the BCS 732 tiller and attachments are for primary tillage. Some plots are too small for a tractor but too big for hand tilling. Snyder Research Farm interns put the BCS through its paces to show its capacity on both fallowed and cultivated land using the rotary plow and tiller attachments. The video can be viewed at <http://youtu.be/gdYlj2iPUiE>.



*Professor Ilya Raskin with Rutgers Scarlet Lettuce.
Photo by Nick Romanenko*

Rutgers Professor in Plant Biology **Ilya Raskin**'s laboratory, using a non-transgenic process of tissue culture, developed a deep burgundy red lettuce that has elevated levels of polyphenols – two to three times that of blueberries. The high polyphenol lettuce has been named Rutgers Scarlet Lettuce (RSL). Rutgers has patented and licensed RSL to Nutrasorb LLC, a Rutgers spin-off company that specializes in enhancing phytoactive compounds in foods. Nutrasorb has granted a license to Shamrock Seeds as the exclusive seed dealer for RSL. Shamrock specializes in vegetable seed for commercial growers in the major salad growing regions in the U.S. and anticipates interest from growers throughout the U.S. RSL seed is available to large and medium size farms—there is a minimum purchase requirement—which must sign an agreement to use the licensed product. Commercial growers can obtain the RSL seed for growing as loose leaf lettuce or baby greens. Research has shown that ‘polyphenol’ plant pigments in fruits and vegetables - antioxidant phytochemicals that tend to prevent or neutralize the damaging effects of free radicals such as anthocyanins—that color deep red and purple foods such as blueberries, acai, blackcurrant and red wine—protect against diabetes, cardiovascular disease, memory loss, inflammation, and cancer.

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