

# COLLEGE OF MICRONESIA-FSM YAP CAMPUS

## AGRICULTURAL EXPERIMENT STATION

INFORMATION  
BULLETIN

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(FOCUS ON NONI)

### **Pests and Diseases of Noni**

**Noni stem borer – (*Lamprosema chagoalis*):** Stem borers are yet another group of destructive pests identified for the first time in noni plants. The damage is associated with a moth that lays eggs at the tips of growing branches or fruits. Caterpillars (6 – 8 mm in size) that hatch from feed on the soft tissues within the stem, hollowing out the stems and disrupting its upward growth. Infected branches eventually die out.

For the first time caterpillars were successfully reared in our laboratory to help with its identification. Ms. Alma Solis, Research Entomologist, Systematic Entomology Laboratory, Agricultural Research Service of United States Department of Agriculture at Beltsville, Maryland identified the taxonomy of this moth (read article on Pacific Islands Distance Diagnostics and Recommendation System).

**Noni root-knot disease** - Root knot disease  
(...contd. on page 2)

Cross section of the stem apex showing caterpillar (arrow) inside (above). Terminal branch of noni stem split open (below) - caterpillars inside devour the tissues and disrupt upward growth of branches. Adult moths (inset) lay their eggs at the apex of the stem



### **Pacific Islands Distance Diagnostics and Recommendation System**



**G**eographic location of our islands often pose hurdle in timely diagnosis of pest and disease samples. Shipping to faraway laboratory and waiting for results can give samples time to decay and infestations time to spread.

To overcome these obstacles, the Agricultural Development in the American Pacific project and College of Tropical Agriculture and Human Re-

sources' (University of Hawaii) Plant and Environmental Protection Sciences Department have teamed with the University of Georgia to form the Pacific Islands Distance Diagnostics and Recommendation System (PIDDRS). PIDDRS is a secure Internet-based system for rapid diagnosis of agricultural problems. In 2005, Agricultural Experiment Station received this system to implement distance diagnostics in Yap.

(contd. on Page 2)



**Antioxidants** are substances that may protect cells from the damage caused by unstable molecules known as “free radicals.” Free radicals are highly reactive chemicals that attack molecules by capturing electrons and thus modifying chemical structures. Free radical damage may lead to cancer. Antioxidants interact with and stabilize free radicals and may prevent some of the damage free radicals otherwise might cause. Well-known antioxidants include a number of enzymes and other substances such as vitamin C, vitamin E and beta carotene (which is converted to vitamin A) that are capable of counteracting the damaging effects of oxidation. Antioxidants are also commonly added to food products like vegetable oils and prepared foods to prevent or delay their deterioration from the action of air.

these diseases can be cured, treated or prevented. Rather, it means that in scientific studies, people who consumed significant levels of antioxidants had lower incidence of these diseases including:

- Prostate cancer
- Skin cancer
- Colon/rectal cancer
- Heart disease
- Congestive heart failure
- Stroke
- Alcohol induced apoptosis (cell death common in alcoholics)
- Advanced macular degeneration (a disease that progressively destroys the macula - the central part of retina in the eye - impairing central vision)



**Fruits and vegetables are rich sources of antioxidants**



Noni juice and powder possess high antioxidant properties and scientific research reveals that it has more antioxidant properties than grape seed extract and Pycnogenol, a common antioxidant health supplement available in the market.

Numerous scientific studies have shown that by consuming foods and supplements which are rich in antioxidant properties, the incidence of diseases associated with the consequences of free radical oxidation can be reduced. This does not mean that

**Good medicine is bitter to the taste - Anonymous**

(from page 1)..is caused by a group of plant parasitic nematodes (*Meloidogyne* spp.) known as the root-knot nematodes. These nematodes have wide host range and are able to infect many plant species. The nematodes live in the soil and attack young noni roots. Their feeding and reproductive activities cause the noni roots to swell, develop galls and to crack open. After roots have cracked open, other microorganisms like fungi and bacteria enter the noni roots and cause rotting. Typical above ground symptoms include yellowing of leaves, stunted growth, resulting in decline in yield. Disease often begins when seeds or cuttings are planted in nematode-infested soil. Nematodes are spread through contaminated soils, media, tools and shoes and surface water runoff. Root-knot nematodes can be effectively controlled by using sterile media for growing plants, treating media prior to planting and by application of use of compost and chicken manure around the root zone while planting.



Photo courtesy: Dr Scot Nelson  
Symptoms of root-knot disease include swellings, galls, unthrifty root growth and root rot. Each of these tiny galls contains thousands of nematodes inside. As the roots grow, the galls become larger and roots crack open.

**Pacific Distance** ..... (from page 1) The Distance Diagnostics through Digital imaging is an innovative system that allows textual information and descriptive images to be submitted directly from anywhere for rapid evaluation by resource professionals at any University that have the diagnostic capability. The PIDDRS technology, which includes microscopes, a digital camera, and a computer, is paired with the state of the art database and web

**“PIDDRS - distance is no barrier to teamwork”**

based sample submission interface to facilitate the transfer of images and text to other Universities for evaluation. PIDDRS permits diagnosis of digital samples in as little as 24 hours and provides an on-line recommendation database and the system proves that distance is no barrier to teamwork.

Agricultural Experiment Station of Yap Campus is a registered user of this system. Please contact for any help in the identification of pest and disease problems.

**Disclaimer:** The information provided in this information sheet is meant for educational purpose only. For any medical conditions, always consult a qualified medical practitioner.

**Published by:** Agricultural Experiment Station, College of Micronesia-FSM, Yap Campus, P.O. Box 1226, Colonia, Yap, FM 96943. Tel: 350-5752; Fax: 350-2325; E-mail: muru@comfsm.fm