

West Hawaii Today

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Growing food security -- one garden at a time

by Janis Wong And Koh Ming Wei
Special To West Hawaii Today

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School gardens are sprouting and growing in 50 schools around Hawaii Island. These gardens, coordinated by the Hawaii Island School Garden Network, encourage youngsters and their families to plant and eat tropical food plants. The experience creates opportunities to connect to the land and the culture. Real life outdoor studies are connected to classroom knowledge in these outdoor living laboratories where children discover principles of land and water stewardship through sustainable education.

The network was created in 2007 by the Kohala Center as part of its dedication to Hawaii's food self-reliance, while answering the call for a sustainable educational experience for young people. The network provides teachers, administrations and communities with resources, knowledge and funding opportunities for creating and building outdoor classrooms.

Hauoli Mau Loa Foundation, Ulupono Initiative, Hawaii Community Foundation's Youth Matters Network and others who believe that flourishing gardens mean flourishing communities have also provided support.

On Oct. 16, the Kohala Center is sponsoring a benefit luncheon, "Seeds of Hope," for the network from 10:30 a.m. to 1 p.m. on board the Golden Princess in Hilo Harbor. Princess Cruise Lines is giving this luncheon to the network as a gift of support. The event's complete program is available at kohalacenter.org/seedhope/aboutseed.html. Tickets are available for \$50 by contacting Molly Hui by Friday. Call 887-6411 or e-mail mhui@kohalacenter.org.

Koh Ming Wei, director/educator at the Hawaii Sustainable Education Initiative, a Waldorf inspired one-room schoolhouse in Honokaa, coordinates the Kula o Mala Community School Garden where more than 300 community members play and learn, shares her thoughts on sustainable education.

"It is essential in sustainable education to teach others to recognize the limits so that we do not go beyond satisfying 'vital needs.' I find the garden the most important teaching tool for teaching limits," Ming Wei said.

"When the children first start gardening, they have visions of acres tilled and prepped for growing food. Buoyed by their enthusiasm and innocence, they want to work a very large space. I start by suggesting that they stake out a smaller space, dig all that up and prep it before expanding. The digging up of weeds and turning of soil is usually the first indication of the limit of their capacity. After about 15 minutes, a 20-by-40-foot space for six children seems like a daunting amount of land to till by hand. We are limited by how much we can physically do.

"After the soil is prepared, it is planting time. For many children, tomatoes are often the most popular vegetable. I think it is the shiny red fruit that attracts them. A few months later, when we have many, many bushels of tomatoes to process, I hear 'enough already.' The next year, the children wisely plant fewer plants. We learn that we are limited by how much we can manage.



Root-knot nematodes can cause severe damage to host plants and steps to reduce their numbers should be taken when their presence is determined.
- Scot Nelson | Special To West Hawaii Today



Click Photo to Enlarge

Nitrogen nodules on a legume family plant can be mistaken for root-knot nematode damage. - Missouri Botanical | Garden Plant Finder

"During growing season, weeding has to be done consistently. A few days of neglect results in an unruly space with masses of tangled green species. The children quickly learn that it is better to weed for a few minutes every day than to leave weeding for a massive once-a-week task. We are limited by how much for which we can be responsible.

"Along with weeding is the task of composting and fertilizing. The children learn to recognize plants that need nourishment. They learn to dress the area with the compost we make throughout the season. However, there is only so much compost to be shared among all the garden beds. They have to decide which areas need it more immediately, and which areas can wait until the next batch of compost is ready. Sometimes this discussion is heated and emotional, as the children are attached to certain beds more than others. Soon we realize that we are limited by the resources we have, and also that we are limited by the access we have to these resources.

"Learning to live within limits is part of what sustainable education is about. This important lesson of limits is vital to the health and perpetuation of our community," she said.

Appreciating nature's abundance is another lesson learned. On Saturday, the network will sponsor a student farmers market at the Kohala Country Fair in Hawaii. It's a chance to meet student gardeners and help support their programs.

Wong coordinates media relations for the Kohala Center. Ming Wei is director of the Hawaii Sustainable Education Initiative and coordinates the Kula o Mala Community School Garden in Honokaa.

Tropical gardening advice

Winnie asks: I just pulled up my string bean plant, as it seemed to be finished producing. The roots were very knobby with lots of bumps on them. Is this root-knot nematode? If so, what should I do?

Answer: The bumps or nodules you describe could be knots of root-knot nematodes or nitrogen nodules. All bean plants are nitrogen fixers and collect nitrogen from the air that they sequester in their roots for later nutrition.

Without seeing the roots, it's hard to tell what you have. Check the photos here or online to see which looks like what you have. If they are nitrogen nodules, that's a good thing. If they are root-knot nematode knots, you may want to take some action to prevent them spreading in your garden.

Root-knot nematodes are the plant pathogen *Meloidogyne* sp. They infest plant roots by entering the root tissue where they cause small growths, galls or knots on the roots. Above ground symptoms are generally characterized by poor growth and stunting caused by the plant's reduced root system and its reduced ability to take up water and nutrients. Wilting and symptoms of nutrient deficiencies may also occur.

The only way to positively identify nematode problems is to examine the roots for the tell tale damage. Though the knots may appear similar to nodules caused by nitrogen-fixing bacteria, you can usually distinguish between the two by close examination. Galls or knots caused by nematodes actually become part of the root and cannot be easily removed. The nitrogen nodules, however, are loosely attached and can be rubbed off easily.

If you suspect your roots were attacked by nematodes, you may want to seek out nematode resistant varieties of plants you'd like to grow. The University of Hawaii College of Tropical Agriculture and Human Resources sells vegetable seeds that are resistant. Check its seeds order form atctahr.hawaii.edu/seed.

Planting nematode-resistant or repelling plants can help since if nematodes do not have a suitable food supply their numbers will decline. Rotate crops in beds you suspect are infected. Use a grass crop such as corn or a nematode suppressive crop as a rotation alternative. Some gardeners have reported nematode damage reduction from interplanting African marigolds but no research has been done to support this. Some research has shown velvet bean to be a nematode suppressant.

Some success with nematode suppression has been achieved by covering moist soil with clear plastic in full sun during the hottest time of year. Solarizing the soil by maintaining high soil temperatures for four to six weeks can kill nematodes.

Keep your plants healthy. Regular mulching and the incorporation of manure or compost may help to reduce nematode numbers in the soil. Hot, dry conditions can stress plants and encourage nematodes. Keep roots cool and supply adequate moisture and fertility

to maintain plant health.

This column is produced by Diana Duff, local organic farmer and Kona Outdoor Circle education adviser.

Gardening events

- **Tuesday:** "Beekeeping" meets with Richard Spiegel from 6 to 8 p.m. at the North Hawaii Education and Research Center in Honokaa. It is part of the "Sustainable Agriculture for Hamakua" series. Contact Donna Mitts at 936-2117 for more information.

- **Wednesday:** "Drying and Storage for Parchment and Green Coffee" is held from 1 to 4:30 p.m. at Daifukuji Soto Mission Hall in Honalo. Free for Kona Coffee Farmers Association members and \$10 for nonmembers. For reservations, call Sarah at the University of Hawaii College of Tropical Agriculture and Human Resources office in Kainaliu at 322-4892 or e-mail her at shashimo@hawaii.edu or contact Mary Lou Moss at 329-7239 or Marylou@cuppakona.com.

- **Ongoing:** Plant advice lines -- consult with Master Gardeners and Tropical Gardening advisers from 3 to 6 p.m. Mondays at the Kona Outdoor Circle at 329-0462 or 9 a.m. to noon Thursdays at the University of Hawaii Cooperative Extension Service, 322-4892, and Tuesdays and Fridays at UH CES in Hilo at 981-5199.

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