Winners of IPNI 2010 Crop Nutrient Deficiency Photo Contest

IPNI has announced the winners of the 2010 Crop Nutrient Deficiency Photo Contest. "We received a record number of submissions in 2010 so we are also glad to see a continued growth in interest for our contest," noted IPNI President Dr. Terry Roberts. "It is proving to be a valuable way for our readers to share their examples of nutrient deficiency in crops, and show off their field observation and photography skills."

This year's group of entrants was indeed global in scope and our judges were provided with a very diverse collection to evaluate. Entries were judged on the overall visual quality of the image and any supporting data provided. IPNI extends congratulations to all winners and thanks to all entrants. Please look for details later in 2011 as we start-up the contest again.

Grand Prize: Mg Deficiency in Avocado

Grand Prize (USD 200) – Luiz Antônio Zanão Júnior, Agricultural Research Institute of Paraná, Ponta Grossa, Paraná, Brazil, captured this image of an avocado plant in Uberlândia, Minas Gerais State. It had received Mg fertilizer only during crop establishment, 8 years ago. Older leaves are showing advanced interveinal chlorosis, with necrosis developing in the highly chlorotic tissue between the veins and occasionally along the leaf margins. These leaves dropped off prematurely. Plant tissue analysis and soil test values both indicated a deficiency of Mg.

Nitrogen Category: N-Deficient Cabbage

First Prize (USD 150) – James Walworth, Department of Soil, Water and Environmental Science, University of Arizona, Tucson, Arizona, USA, provided an interesting N deficiency example for cabbage, which was being grown in a zero N plot as part of a soil fertility field trial in Palmer, Alaska.

Runner Up (USD 75) – P. Jeyakumar, Department of Crop Physiology, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu, India, captured a close-up of N deficiency in cowpea 40 days after sowing. The crop exhibited gradual yellowing of old as well as young leaves. The veins remain green and the acute deficiency causes stunted growth and leaf drying. The leaf tissue N content was less than 1.18% and the available soil N was 78.6 kg/ha. The problem is alleviated by two foliar sprays of urea at 0.5% at an interval of 10 days.

Abbreviations and notes: Mg = magnesium; N = nitrogen; P = phosphorus; K = potassium; S = sulfur; B = boron.

Phosphorus Category: P-Deficient Sweet Potato

First Prize (USD 150) – Dr. S. Srinivasan, Agricultural College and Research Institute, Killikulam, Tamil Nadu, India, shot this close-up showing P deficiency in a one-month-old severely stunted sweet potato plant. The plant received no P after planting and is showing classic symptoms such as purpling in lower leaves while upper leaves have a dark green color. Poor root growth was also observed. The soil test (Olsen-P) revealed that P content was very low (less than 1.8 mg P/kg). Leaf tissue analysis also registered a lower value of 0.11%.

Runner-Up (USD 75) – Dr. Ch. Srinivasa Rao, Central Research Institute for Dryland Agriculture, Hyderabad, Andhra Pradesh, India, submitted this conspicuous example of purple pigmentation in maize during cob formation stage (Hybrid DHM 117). While being grown in a P omission plot, the soil had low available P at 7 mg/kg (Bray) and leaf analysis indicated a P content of 0.21 % in deficient leaves. Weak and small size cobs were also observed.

Potassium Category: K-Deficient Grapevine

First Prize (USD 150) – James Fisher, Soil Solutions LLC, Malvern, Pennsylvania, USA, submitted this example of K deficiency in grapevine. The shot was taken pre-harvest (October) and soil testing confirmed the visual symptoms of K deficiency, which were exacerbated by a slight Mg deficiency.

Runner-Up (USD 75) – Muthukumar Bagavathiannan, University of Arkansas, Fayetteville, Arkansas, USA, shot this classic example of K deficiency in corn wherein K-deficient plants exhibited chlorosis along the leaf margins and tips of the older leaves. The symptoms spread from the tip to the base then turn necrotic. In severe cases such as this one [photographed during early grain filling stage (R2 to R3)], the leaves appear dry and scorched along the edges and tips.

Other Category: S-Deficient Corn

First Prize (USD 150) – Matt Wiebers, The Mosaic Company, Plymouth, MN, USA, provided this example of S deficiency in corn taken in a farm field near Cedar Falls, Iowa, during V5 stage. The site was light textured, but the nutrient deficiency was likely enhanced by the fact that this was the first corn crop to follow a multi-year hay crop at this site. Tissue tests confirmed S deficiency.

Runner-Up (USD 75) – Yogesh Mahida, Arya Agro Biotech and Research Center, Borsad, Gujarat, India, submitted this very interesting case of B deficiency in papaya (honey dew variety). Plants in this plantation were 1 to 1.5 years old. The bumpy appearance on these fruits is a symptom of B deficiency.