2012 Crop Nutrient Deficiency Photo Contest Winners

IPNI has announced the winners of the 2012 Crop Nutrient Deficiency Photo Contest. We are pleased to note that photo submissions were once again strong across all categories and many excellent photos were received from around the globe. Our judges were faced with many tough choices on deciding which entries would gain top honors. In the majority of cases, preference was given to those well-photographed entries that provided a good representation of the impact of the deficiency to the plant, adequate soil and/or plant tissue nutrient analyses information, and some details concerning current or historical fertilization at the site.

IPNI extends our congratulations to all winners and we thank all entrants for submitting images to our annual contest. We encourage all to please check back with the contest website maintained at www.ipni.net/photocontest for details on submitting your fresh entries for 2013!

Best Overall Image

Grand Prize (USD 200): Iron (Fe) Deficiency in Plum. Sala Florin, Banat's University of Agricultural Sciences and Veterinary Medicine, Timisoara, Romania, captured this image of iron deficiency in plum grown on a pre-luvisol soil type. The deficiency occurred due to the temporary storage of limestone near plum trees for application on nearby farmland. Water from rainfall washed enough limestone into the soil to cause iron deficiency as indicated by elevated Ca levels in the affected soil compared to the unaffected soil. The leaf iron content of affected trees was 11.4 ppm compared with 23.6 ppm in unaffected tree leaves.

Nitrogen (N) Category

1st Prize (USD 150): N-Deficient Corn. Guillermo Roberto Pugliese, Bunge Argentina S.A., Tres Arroyos, Buenos Aires, Argentina, provided a close up shot of N deficiency in corn (var. Dekalb 670). The soil at the site tested low in N content at 60 kg N/ha.

Runner-up (USD 75): M.R. Umesh, University of Agricultural Sciences, Raichur, Karnataka, India, captured a field image of corn plants taken at the end of silking stage. There was slight drying of stigmata (silk) 64 days after planting. Plants had stunted and a lesser number of leaves, delayed tasseling, and either immature or no setting of cobs compared with non-N deficient leaves. Lower leaves were dried up and younger leaves remained light green. Veins had dried up and the V-shaped yellowing of leaves was also prominent.

Abbreviations and notes: N = nitrogen; P = phosphorus; K = potassium; Ca = calcium; B = boron; Fe = iron; me = milliequivalents; ppm = parts per million.

Phosphorus (P) Category

1st Prize (USD 150): P-Deficient Corn. S. Srinivasan, Assistant Professor of Crop Physiology, Agricultural College and Research Institute, Tamil Nadu Agricultural University, Killikulam, Vallanadu, Tamil Nadu, India, submitted this noticeable example of P deficiency in 20-day old corn plants grown in a P omission plot. The purpling of corn tissues is due to the accumulation of reddish-purple anthocyanin pigments. Root growth was also greatly reduced. Available (Olsen-P) content in the soil was quite low (less than 1.9 mg P/kg). Leaf tissue analysis also registered a low value of 0.10%.

Runner-Up (USD 75): Nathan D. Mueller, South Dakota State University, Brookings, SD, USA, shot this close-up showing P deficiency in hybrid corn at V4 growth stage. Soil test P (Mehlich-3) was low (<20 ppm) for this Eudora silt loam. Application of P fertilizer did decrease or eliminate P deficiency symptoms.

Potassium (K) Category

1st Prize (USD 150): K-Deficient Apple. Bruce Scott, E.E. Muir & Sons, Laverton North, Victoria, Australia, submitted this classic example of K deficiency in apple leaves (var. Pink Lady) 2 weeks prior to harvest. Deficiency symptoms showed marginal leaf scorch and small and poorly-colored fruit. Dry matter leaf analysis showed a K content of 0.7%, whereas the desirable range is 1.2 to 1.8% K.

Runner-up (USD 75): K-Deficient Bitter Gourd. Manoj Kumar Sharma, Irrigation Management and Training Institute, Kota, Rajasthan, India, shot this characteristic example of K deficiency in a bitter gourd hybrid, wherein K-deficient plants exhibited marginal yellowing and scorching of older leaves. Plant analysis of this K-deficient crop found 2.0% K, while soil available K (ammonium acetate extractable K) was 60 kg/ha.

Other Category (Secondary and Micronutrients)

1st Prize (USD 150): Calcium (Ca) Deficiency in Tomato. Manoj Kumar Sharma, Irrigation Management and Training Institute, Kota, Rajasthan, India, provided this example of Ca deficiency in an 85-day-old tomato crop. Tomato fruits exhibited this blossom end rot, which is associated with Ca deficiency. Soil status (ammonium acetate extractable Ca) was 0.7 me/100 g. Plant analysis found 0.2% Ca.

Runner-up (USD 75): Boron (B) Deficiency in Cauliflower. Kaushik Batabyal, Dept. of Soil Science and Agricultural Chemistry, College of Agriculture, Agartala, Tripura, India, submitted this interesting case of B deficiency in cauliflower at early curd maturity stage. The soils of experimental area tested low in available B (0.38 mg/kg). Even the rhizospheric soil had low available B content (0.30 mg/kg). Besides, the deep tube well water used for irrigation contained negligible amounts of B. Boron concentration in the curd was only 12.9 mg/kg dry weight, which was much below the critical plant tissue B concentration of 17.8 mg/kg.