Disease or herbicide damage?

Ajay Nair
Department of Horticulture
Practical Farmers of Iowa 1-18-2019
Proper identification is the key

- Make the best use of your smartphone
- Keep a tab on daily activities carried in and around your crop
- Are the symptoms localized in the field?
- Is there a pattern?
Clues to chemical injury include uniformly distributed symptoms that appear *suddenly* in the entire field or within areas in the field and *absence* of plant pathogen signs (e.g. fungal mycelium, fruiting structures, or spores; or bacterial ooze)
Interveinal chlorosis: Magnesium deficiency

Fertigation with Cal-Mag and Epsom salt along with foliar sprays of Epsom
Sudden death

Cupping of leaves

Herbicide drift

Cupping of leaves
Paraquat damage
2,4-D damage on tomatoes

Tomato leaves cupping
Response could be cultivar specific

Scarlet Red

Jet Star
This is not herbicide drift. This is physiological leaf rolling.
Indeterminate cultivars of tomato are reported to be more sensitive to this disorder than determinate cultivars.

My recommendation would be to:
1. reduce stress on plants as much possible, 2. Don’t overfertilize and overwater, 3. Avoid severe pruning
Presumably 2,4-D drift on melons
Bleaching at the base of leaflets: Glyphosate damage
Bending and twisting: classic herbicide damage symptom

Sulfentrazone damage
Outgrowths on stem

Prodiamine damage
Dicamba damage
Spray drift from adjacent sweet corn plot: The product sprayed Lexar (Syngenta). Active ingredient: s-metolachlor, atrazine, and mesotrione
Physiological disorders can look like disease.

Browning of head: heat related
Tomato transplants in the high tunnel: Sudden death
Heat stress on tomato inside high tunnels: sides fail to open; 140°F; kill
Sunburn in pepper
Anything noticeable in this picture?
Tomato hornworm

Dipel (Bt formulation) @ 1 lb/A (2 teaspoons per gallon)

Two sprays in 3-4 day interval
Nutrient deficiency: Calcium
Irregular watering

Blossom end rot
Progression of blossom end rot

Nutrient deficiency: Calcium
Irregular watering
Take home message

- Proper identification is the key
- Do some investigative work
- Weather data: mesonet.agron.iastate.edu
- Pictures of individual plants and the entire field
- Communication with neighbors and IDALS
Contact

Dr. Ajay Nair
145 Horticulture Hall
Department of Horticulture
Iowa State University
Email: nairajay@iastate.edu
Phone: 515-294-7080

SUSTAINABLE VEGETABLE PRODUCTION

http://extension.iastate.edu/vegetablelab
Here we go!