

Identifying Herbicide Injury in Potato

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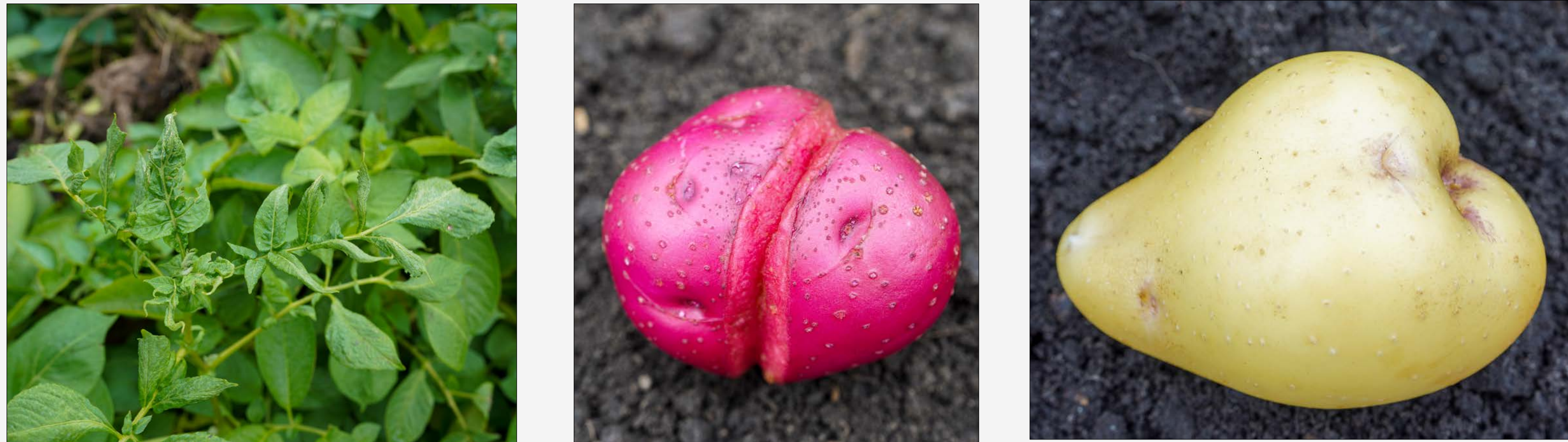
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Background

The number of herbicide injury problems in potato are more commonplace, causing many questions by potato growers. Injury from herbicides can be a result of soil carryover, herbicide residues in seed, or exposure of plants to herbicides. As a result, potatoes can have poor emergence, chlorosis, necrosis, growth reduction, misshapen tubers, reduced yield and nonacceptable residues. The objective of this poster is to demonstrate various herbicide injury symptoms to assist potato growers in improved identification. Soil carryover symptoms can include wide areas in the field with symptoms, slow emergence of plants, roots that are pruned or brown or bottle brushed, stunting of plants once emerged, shortened stolons, early tuber set or malformed tubers. Symptoms of residues in seed include erratic and slow emergence, no dominate stem, malformed leaves, enlarged stems, shortened internodes, or unnatural growth. Symptoms of in-season exposure can be manifested as misshapen leaves, yellowing of leaves, elongated leaflets and cracking or malformed tubers. Determining if injury is caused by herbicides or another source will be important in managing and marketing potatoes.

Plant Exposure

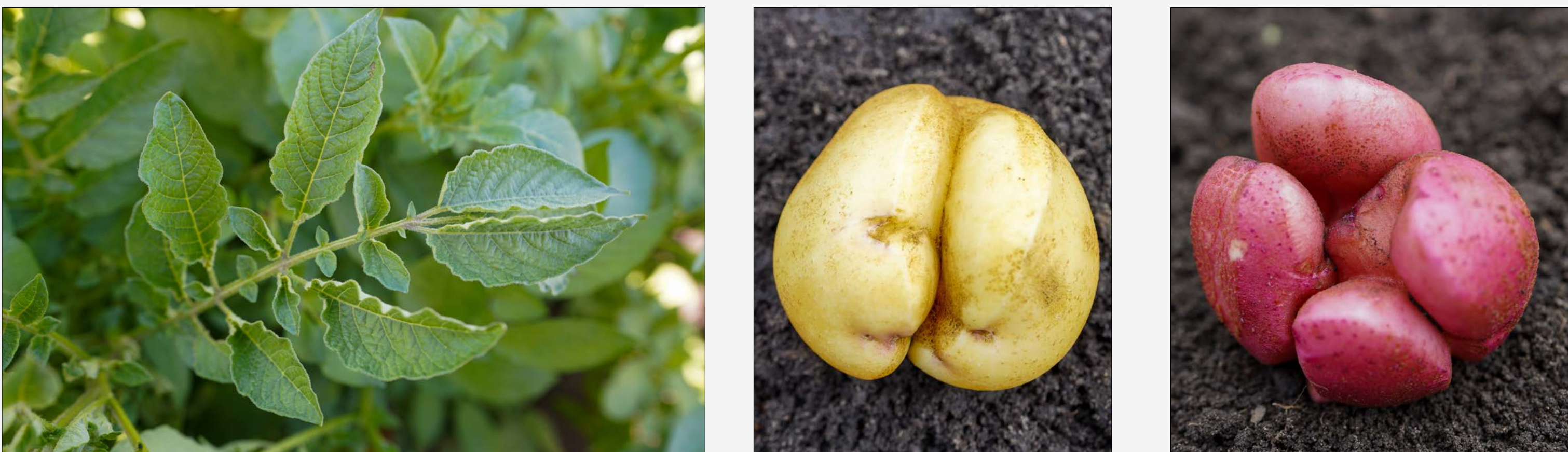
- Typically damages happens in leaves but can also injure tubers.
- Translocating herbicides will affect new growth (leaves/tubers).
- Contact herbicides will affect what they touch (new & old leaves).
- Injury to leaves shows immediately to a few weeks after exposure.
- Look for patterns on field edges and in sprayer paths.



Plant growth regulators (such as 2,4-D, dicamba, clopyralid) can cause twisting of leaves, stems, cupped leaflets, wrinkled leaflet margins, tubers that are cracked, pointed and misshapen.



Glyphosate causes yellowing of youngest leaves, stunted plants, malformed tubers with cracks and elephant hide.



ALS-inhibitors can cause yellowing of new growth, elongate and wrinkled leaflets, tubers that crack and are malformed.



Metribuzin

Bromoxynil (Buctril)

Clomazone (Command)

Sulfentrazone



Mesotrione (Callisto)

Flumetsulam (Python)

Flumioxizan (Chateau)

Soil Carryover

- Symptoms may include slow emergence, malformed leaves, pruned, brown or bottle brushed roots, stunting of plants once emerged, shorten stolons, early tuber set and/or malformed tubers.
- Look for wide swaths of area or whole field showing symptoms.



Imazapyr soil carryover causes bottle brushed roots and malformed tubers, small leaflets and stunted plants.

Clopyralid soil carryover causes bending, twisting, curling of leaves and stems, and reduces plant size.

Seed Contamination

- Symptoms include an erratic and slow emergence pattern; no dominate stem, causing multiple stems; malformed leaves that are twisted, have wavy margins, are small, and could have yellow or purple leaves; shortened internodes and reduced plant height; unnatural growth.
- Look for scattering of plants throughout the field that express injury.



Dicamba contaminated seed causes emergence problems the next growing season with varying degrees of epinasty.



Glyphosate contaminated seed causes erratic emergence problems the next growing season, loss of apical dominance, malformed leaves and shortened plants.

What To Do

- Act immediately by contacting your State Department of Agriculture to determine the steps needed to document herbicide injury and ascertain what may be needed for a formal complaint.
- How to sample:
 - Use clean gloves and bag
 - Take multiple plant samples (if seed issue, sample tubers and wash)
 - Label samples and take pictures
 - Place on ice
 - Ship overnight to reputable laboratory

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