Quick Guide to Herbicide Injury on Soybean

Plant Growth Regulators
Ex. dicamba, 2,4-D, 2,4-DB, and clopyralid

Protox (PPO) Inhibitors
Ex. lactofen, fomesafen, carfentrazone, and acifluorfen

Amino Acid Synthesis Inhibitors
Ex. imazethapyr, cloransulam, chlorimuron, and glyphosate

Photosystem I and II Inhibitors
Ex. atrazine, bentazon, metribuzin, and paraquat

Others
Ex. trifluralin, quizalofop, glufosinate, mesotrione, acetochlor, and S-metolachlor

Images are identified on the back of sheet.
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Symptoms can vary depending on the respective herbicide and the route (soil or foliar) of soybean exposure to the herbicide.

**Plant Growth Regulator**

**Injury Symptoms:**
- Injury is first noticed on newly developed tissue or leaves.
- Stunting and inhibition of roots; improper root development.
- Translocated in xylem and phloem.
- Stunted and cupped leaves; strapping of veins; parallel venation.
- Twisting of stems and petioles (epinasty).

**Images:**
- A) dicamba
- B) dicamba
- C) clopyralid
- D) severe cupping

**PPO Inhibitor**

**Injury Symptoms:**
- Little translocation following foliar application.
- Contact leaf burn from foliar application.
- Leaf crinkling and plant stunting.
- Injury typically increased with humidity and temperature.
- Stem lesions from soil-applied treatments.

**Images:**
- A) fomesafen
- B) sulfentrazone
- C) carfentrazone
- D) flumioxazin

**Amino Acid Inhibitor**

**Injury Symptoms:**
- Translocated in xylem and phloem.
- Stunted plants.
- Slow development of symptoms following foliar applications.
- Leaf yellowing or chlorosis of leaf margins.
- Purple to dark red veination on the underside of leaf.
- May resemble potassium deficiency of soybean cyst nematode.

**Images:**
- A) thifensulfuron
- B) chlorimuron
- C) prosulfuron
- D) glyphosate

**Photosystem I and II Inhibitor**

**Injury Symptoms:**
- Little (xylem) to no translocation following foliar applications.
- Triazines: leaf margin burn and interveinal chlorosis; older leaves affected first.
- Paraquat: Water-soaked early; chlorosis and necrosis of leaf tissue; exposure via drift occurs as speckling; symptoms develop quickly.
- Others: Necrotic spots, speckled chlorosis, or bronzing.
- Symptoms often increase in severity with increased humidity and air temperature.

**Others**

**Injury Symptoms:**
- Pigment Inhibitors: Bleaching and whitening of plants; eventual necrosis.
- Chloroacetamides: Leaf crinkling and drawstring.
- Thiocarbamates: Leaf crinkling and puckering; bud-seal.
- Dinitroanilines: Swollen and cracked hypocotyls; stunted plants; crinkled leaves; callus tissue from soil splash; may cause lodging and breakage; stubby roots.

**Images:**
- A) S-metolachlor
- B) quizalofop
- C) isoxaflutole
- D) mesotrione

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