SOYBEAN HERBICIDE INJURY I

1. Acetanilide herbicide injury, preemergence

2. Dinitroaniline, preplant incorporated

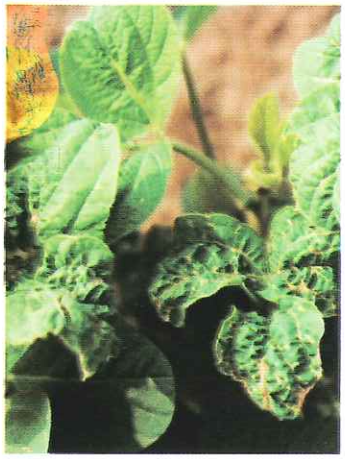
3. Pendimethalin, preemergence

4. Vernolate, preplant incorporated

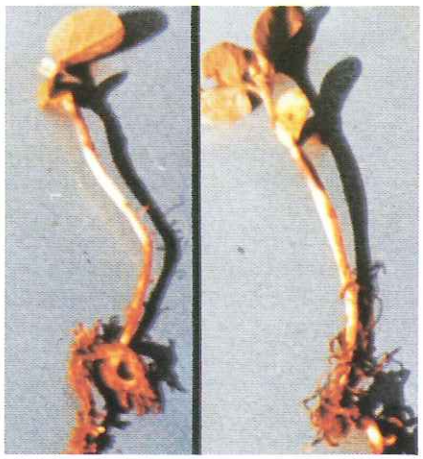
5. Linuron, preemergence

6. Metribuzin, preplant incorporated

7. Atrazine carryover



8. Bifenox, preemergence



9. Chloramben, preemergence

10. Hail injury

UNIVERSITY OF ILLINOIS COLLEGE OF AGRICULTURE
COOPERATIVE EXTENSION SERVICE
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HERBICIDE INJURY NO. 3

URBANA, ILLINOIS

SOYBEAN HERBICIDE INJURY I

1. Acetanilide herbicide injury, preemergence.— Misapplication of acetanilide herbicides such as alachlor (Lasso) and metolachlor (Dual) may cause a slight puckering of the first few soybean leaves. Injured plants may also have leaves showing a "drawstring effect;" the midrib of the leaf is shortened, giving the injured leaves a heart-shaped appearance.

2. Dinitroaniline herbicide injury, preplant incorporated. — Excessive rates of dinitroaniline herbicides such as trifluralin (Treflan), profluralin (Tolban), fluchloralin (Basalin), and pendimethalin (Prowl) may result in early injury denoted by pruned lateral roots, swollen and cracked hypocotyls, and stunted, crinkled leaves.

Dinitiroaniline injury can be reduced by selecting proper rates, accurate application, and uniform incorporation. Plant quality soybean seed under conditions favoring rapid emergence and vigorous early growth.

3. Pendimethalin, preemergence. — Preemergence treatments of dintroaniline herbicides such as pendimethalin (Prowl) and oryzalin (Surflan) occasionally cause symptoms of soybean injury that include girdling or callusing of plant stems at the soil surface. Stems may later lodge or easily break off at the soil surface. Injury may occur because of misapplication or where prolonged periods allow the chemical to remain in a concentrated layer on the soil surface.

4. Vernolate, preplant incorporated. — Vernolate (Vernam) is a thiocarbamate herbicide chemically related to butylate (Sutan+) and EPTC (Eradicane).

Vernam may cause early injury symptoms of stunted tops with crinkled, malformed leaves; however, plants usually outgrow the injury. Severe soybean injury called bud seal may occur from excessive rates of Vernam, or if Sutan+ or Eradicane are applied to soybeans by mistake.

5. Linuron, preemergence. — Interveinal chlorosis (yellowing) and necrosis (browning) of soybean leaves may result from preemergence treatments of linuron (Lorox). Heavy rain also may splash treated soil on to the leaves and cause necrotic spotting or "splash burn."

6. Metribuzin, preplant incorporated. — Metribuzin (Sencor, Lexone) is a triazine herbicide which is applied preemergence or preplant incorporated and may cause injury similar to linuron (No. 5). These herbicides are photosynthetic inhibitors that are taken up by the roots and may cause brown necrotic areas to develop between the leaf veins.

Older tissue usually develops the first signs of injury. However, plants can outgrow this injury if the growing points (buds) have not been injured.

7. Atrazine carryover. — Atrazine residue may cause a range of symptoms on soybean leaves, from slight mottling through necrotic areas to dead plants. Atrazine residues in combination with metribuzin may cause synergistic or additive injury for soybeans following corn.

8. Bifenox, preemergence. — Preemergence treatments of diphenyl ether herbicides such as bifenox (Modown) and oxyfluorfen (Goal) may cause early injury. Symptoms include general stunting and leaf crinkling. Heavy rain may splash treated soil on emerging leaf tissue, resulting in necrotic spotting of tissue.

9. Chloramben, preemergence. — Chloramben (Amiben) injury is not very common, but occasionally appears as stunted top growth. Examination of the plant roots will reveal a proliferation of abnormal, stubby roots from excessive chloramben accumulation in or around the seed during germination.

10. Hail injury. — Soybeans have the ability to recover from herbicide injury or stress which occurs prior to bloom and pod formation unless secondary stresses (injury, drouth) occur.

When soybeans are small, the loss of 100 percent of their leaves may result in only a 20-25 percent yield reduction. The same loss of leaves after pods are formed may cut yields by 80-85 percent.

Photo credits: Joe Paul Downs, Michael D. K. Owen, Ellery L. Knake, Marshal D. McGlamery; University of Illinois at Urbana-Champaign, Extension Agronomists.

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