

4. Does SCN interact with other diseases?

It is common for other soybean pathogens* to be present in SCN-infested fields and for interactions among the pathogens to occur.

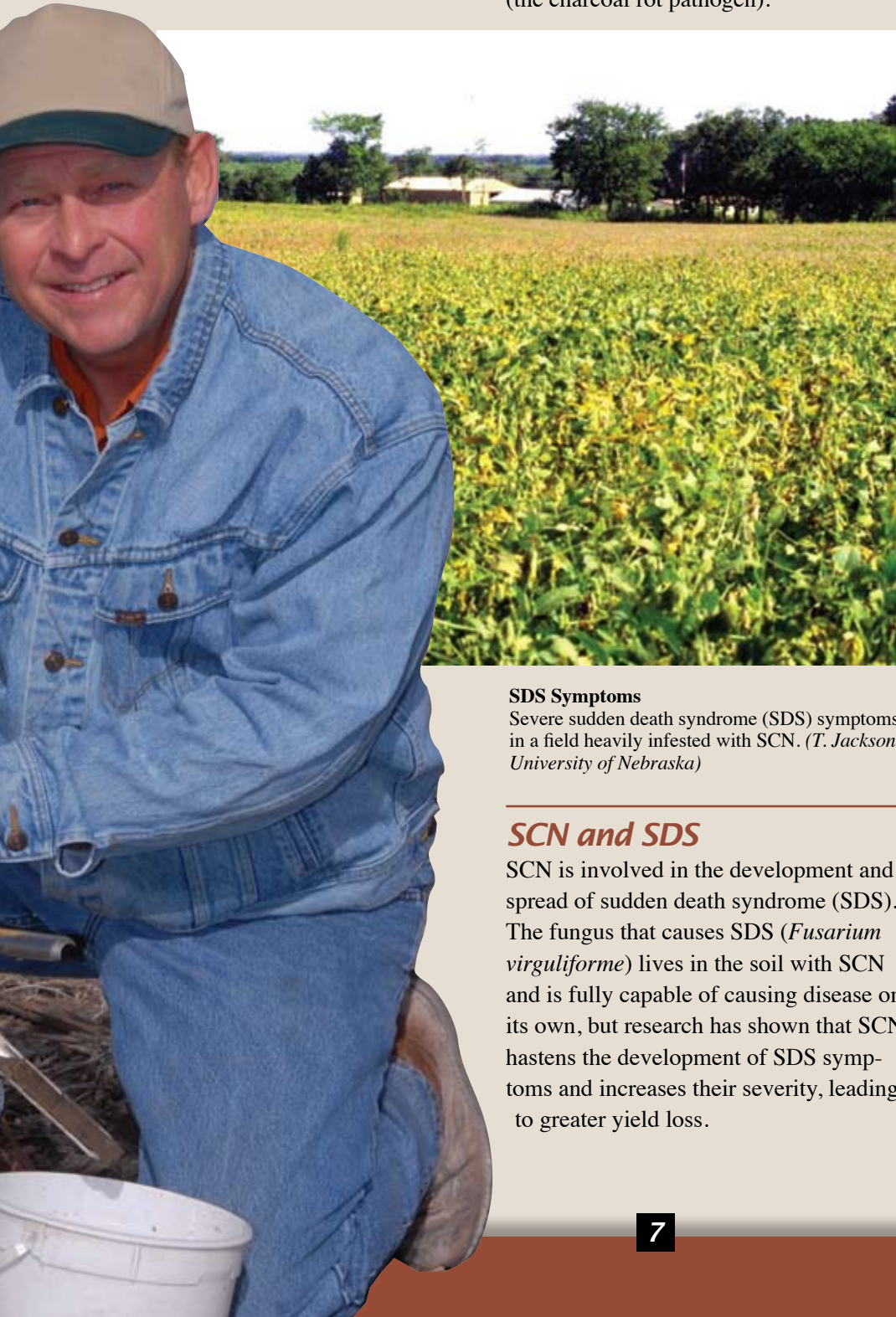
Infection by SCN juveniles and the eruption from roots by the maturing

females create openings in the root surface that can serve as entry points for other soil-borne soybean pathogens such as *Pythium*, *Rhizoctonia*, *Phytophthora*, *Fusarium* (the cause of sudden death syndrome, Fusarium wilt, Fusarium root rot) and *Macrophomina* (the charcoal rot pathogen).



Multiple Interactions

A row of soybean plants affected by SCN, charcoal rot and potassium deficiency, all at the same time.



**A soybean pathogen is a disease-causing agent: a fungus, bacterium, nematode or virus. Soybean pathogens often require specific environmental conditions in order to cause disease. Infection by one pathogen may affect the plant's response to other stresses, including other pathogens.*

SDS Symptoms

Severe sudden death syndrome (SDS) symptoms in a field heavily infested with SCN. (T. Jackson, University of Nebraska)

SCN and SDS

SCN is involved in the development and spread of sudden death syndrome (SDS). The fungus that causes SDS (*Fusarium virguliforme*) lives in the soil with SCN and is fully capable of causing disease on its own, but research has shown that SCN hastens the development of SDS symptoms and increases their severity, leading to greater yield loss.

SCN and brown stem rot

Brown stem rot (BSR) of soybeans is a stem and root disease [right] caused by the fungus *Phialophora gregata*, which lives in the soil. Soybean plants infected with SCN are infected earlier in the season with the BSR fungus, and the BSR disease is more severe in SCN-infected plants than in plants not infected with the nematode. Even soybean varieties that are resistant to BSR disease become infected and develop the BSR disease when the plants are also infected with SCN. It is not known exactly how SCN makes BSR more severe.

Nematologists, plant pathologists and soybean breeders have combined efforts to address the

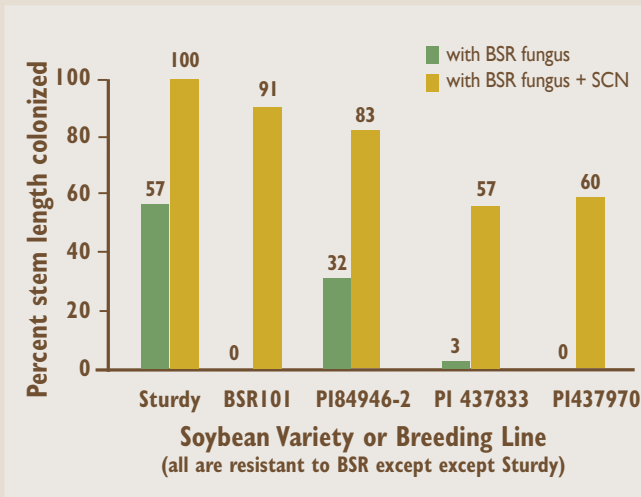


BSR Symptom
Internal stem rotting symptom of brown stem rot (BSR) disease. (Tylka)

problems posed by these soybean disease interactions. Soybean varieties have been developed with resistance to more than one pathogen. Important examples in northern varieties are those with resistance to both SCN and *Phytophthora* root rot, while several southern varieties are resistant to both SCN and root-knot nematodes. Information on specific resistance should be available from local sources.

Treat SCN first

What do you do if you have both SCN and another soybean disease in your field? Most people would recommend that you take care of the SCN problem first. Why? Because SCN is always present and reducing soybean yields, regardless of the environment, while fungal diseases such as SDS and BSR don't develop and reduce soybean yields every year.



BSR Graph
Infection of five soybean varieties by the fungus that causes brown stem rot (BSR) disease. Green bars are infection of the varieties with the BSR fungus alone and gold bars are infection of the varieties by the BSR fungus when also infected with SCN.



Symptomatic soybean plants growing in an SCN-infested field in Illinois. (G.R. Noel, USDA-ARS)