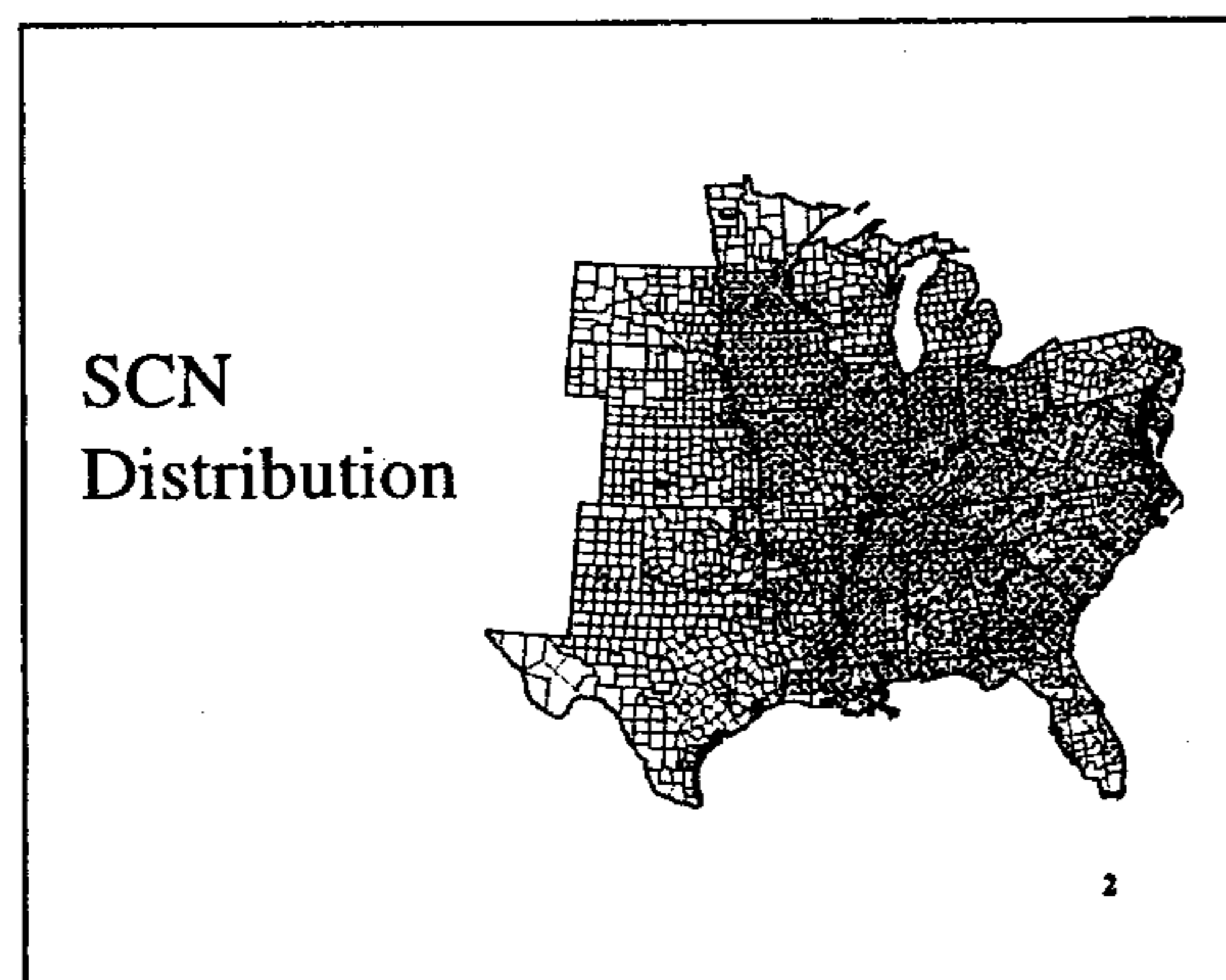
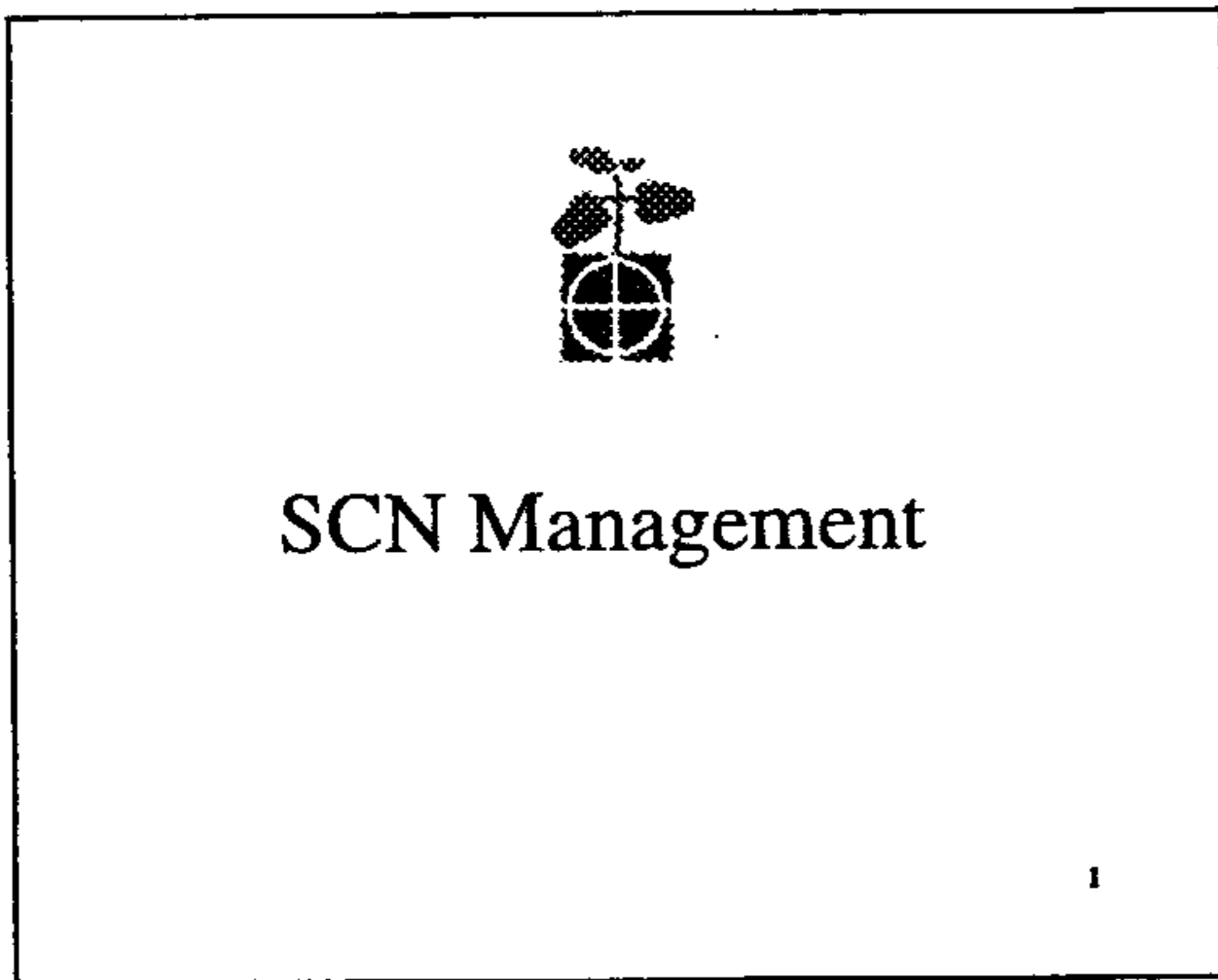
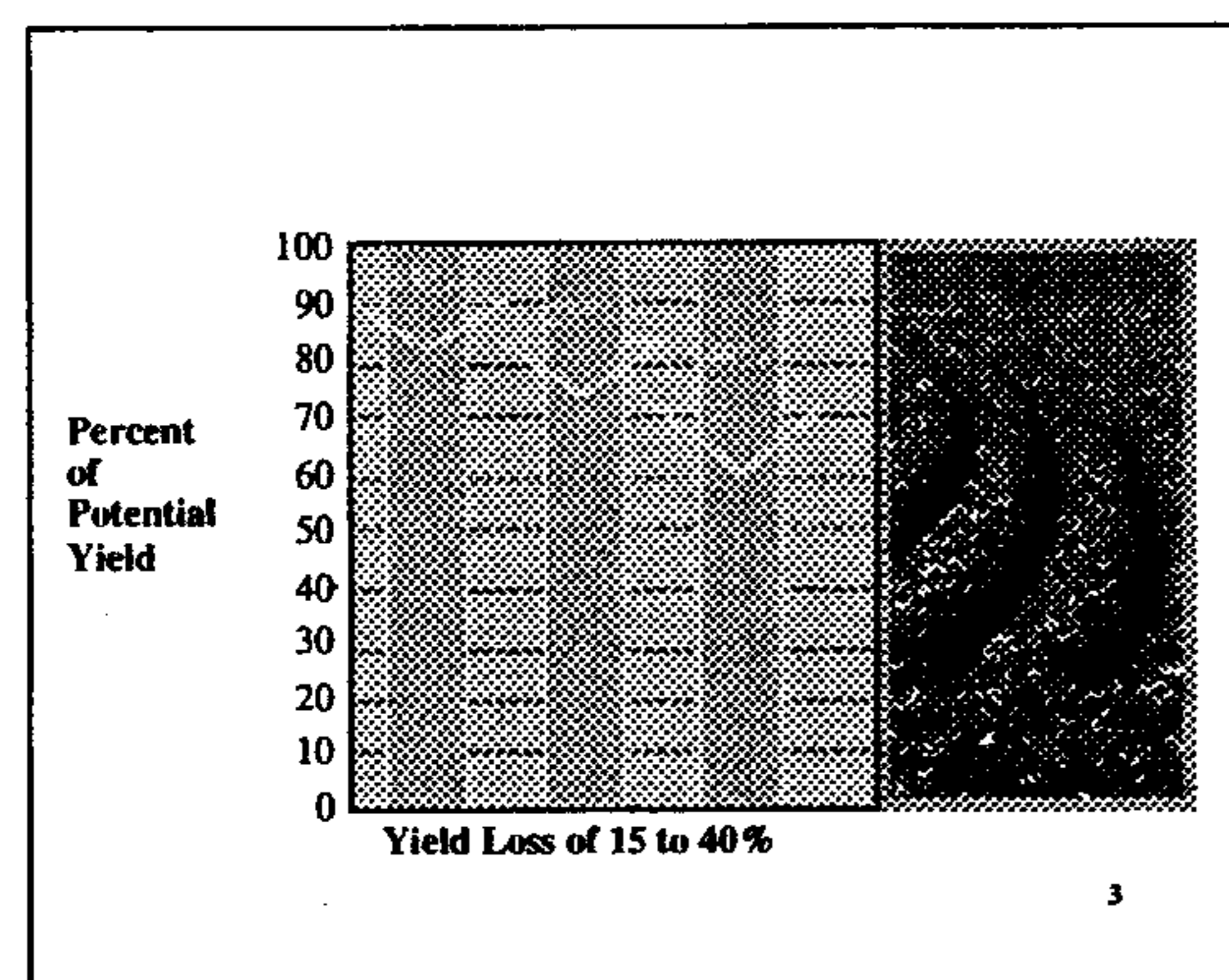


# SCN Management Slide Series



Soybean cyst nematode or SCN is the most important soybean pest in the Midwest. SCN occurs throughout the region and is widespread in every major soybean-producing state. SCN is a perennial problem to soybean farmers. Each year, producers lose profits to SCN. In 1997, soybean cyst nematode reduced soybean yields by 209 million bushels.



SCN often is a “silent” partner in soybean production stealing 15%, 25% and up to 40% of your yield without you ever seeing an above-ground disease symptom. Soybean cyst nematode cannot be eliminated but proper management can maximize yields and minimize SCN reproduction.

Fall is the best time to sample soil for SCN



4

The first step in SCN management is to monitor soybean cyst nematode population densities. If a field is slated for soybeans in the spring, sample for SCN in the fall. You can sample soil for SCN nearly any time of the year, but fall sampling is convenient and gives the producer the opportunity to use SCN population density information when ordering seed for spring planting. Monitoring SCN population densities is important in determining if management strategies have been effective or if they need to be revised.

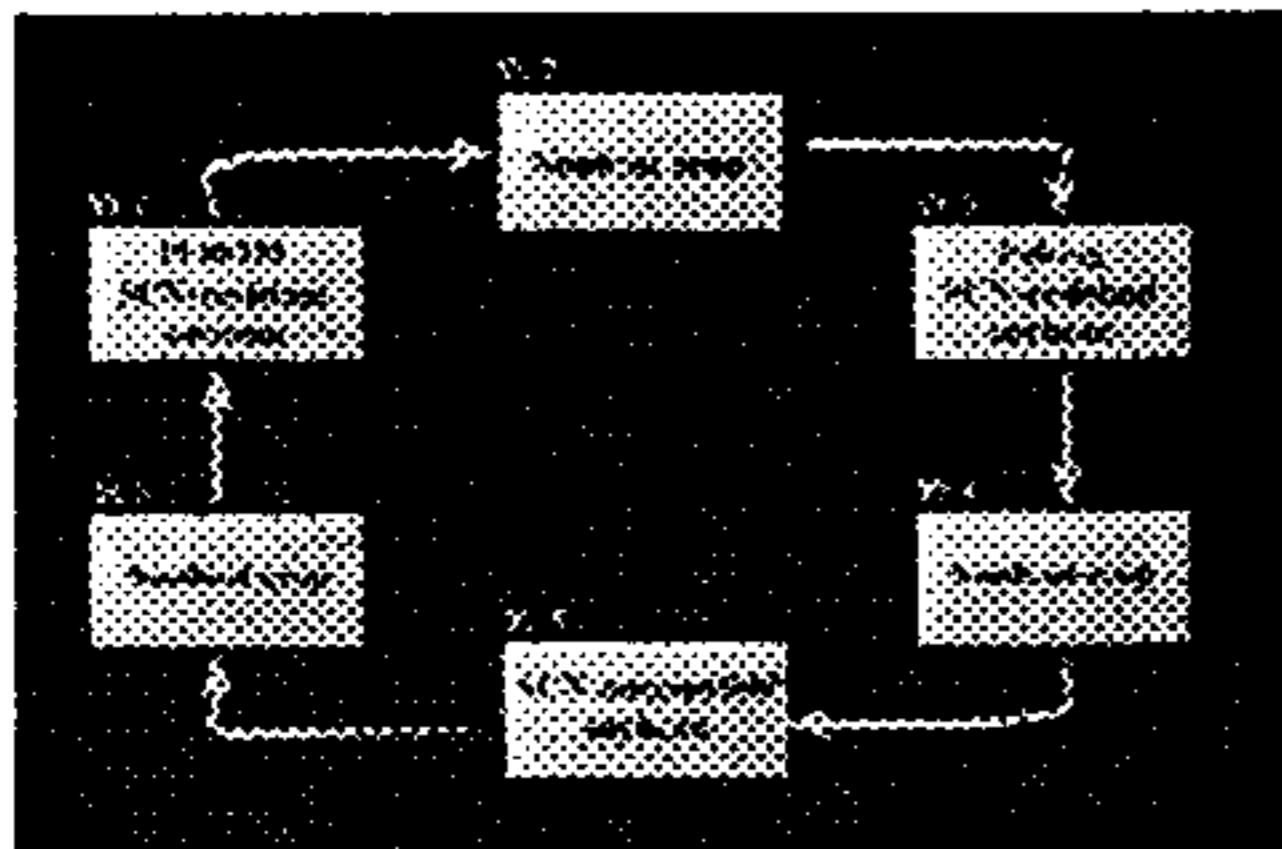
### Manage SCN with rotation

**Non-host Crops**

- Corn
- Small grains
- Alfalfa
- Red clover

**Host Crops**

- Dry beans
- Snap beans



5

SCN, an obligate parasite, requires a suitable host such as soybeans to reproduce. Planting nonhost crops, such as corn, wheat, alfalfa, red clover, etc. (depending on the state), reduces SCN population densities. SCN will feed and reproduce on plants other than soybeans. Other hosts include dry beans and green beans (insert other crops as relevant to the state). Avoid planting host crops in SCN-infested fields as SCN population densities could also increase on these crops.



SCN management:

Seed selection

6

Cornerstones in SCN management are SCN-resistant varieties coupled with rotation to nonhost crops. SCN population densities will not increase and may decline when SCN-resistant varieties are planted. Newer SCN-resistant varieties do not demonstrate the yield drag seen in older SCN-resistant varieties. SCN-resistant varieties will outyield SCN-susceptible varieties on heavily infested soils. Be aware that SCN-resistant varieties are not immune to SCN and could be damaged by high SCN population densities. It is wisest to reduce SCN population densities by planting nonhost crops before growing SCN-resistant soybeans.

Know your source of resistance and rotate with other sources

- IOWA ROTATION SCHEME**
- Y1 - non-host
  - Y2 - Res. Bean (PI88788)
  - Y3 - non-host
  - Y4 - Res. Bean (Peking)
  - Y5 - non-host
  - Y6 - Suscp. Bean

7

For example, in Iowa:

A six-year rotation including nonhost crops, resistant and susceptible soybean varieties is recommended. In Iowa, we recommend rotating the sources of resistance. Rotating the source of resistance may slow the development or “shift” in SCN races within a field and prolong the usefulness of certain varieties or SCN-resistant parents. Changing resistant varieties will not necessarily change the source of resistance. Check with your seed dealer to determine which source of resistance was used to develop the resistant varieties available.

Know your source of resistance and rotate with other sources

- Peking
- PI 88788
- PI 437654
- PI 209332

8

SCN-resistant varieties have been developed from the plant introductions listed here. Plant introductions, or PIs, are imported, and sometimes wild, relatives of our cultivated soybean. Each of these PIs has a unique resistance to specific populations or races of soybean cyst nematode. The most common SCN race in the Midwest is race 3 and all resistant varieties are resistant to race 3. Some SCN testing laboratories offer SCN race determination but the best management strategy may be to monitor SCN population densities in fields planted with SCN-resistant varieties. It is important to know which source of resistance was used in developing the resistant variety you are planting. If SCN population densities increase when a resistant variety is planted, a race other than race 3 may exist in the field. A resistant variety developed from another source of SCN resistance should be planted in that field in the future.

Crop rotation with non-host crops is highly effective in reducing numbers of SCN. The plot on the left was rotated, and produced much higher yields and lower SCN numbers than the other plot.



9

Growing SCN non-host crops (such as corn, oats, or alfalfa) can be effective in reducing numbers of SCN. The plot on the left was rotated, and produced much higher yields and lower SCN numbers than the other plot.

## How SCN spreads

- Soil peds in seed
- Animals
- Wind
- Water
- Farm equipment
- Anything that moves soil

10

SCN is a small roundworm and cannot go far under its own power, but SCN moves readily in soil. Anything that moves soil can spread SCN, including water, wind, birds, livestock, farm equipment, even soil peds in seed.

## Equipment sanitation

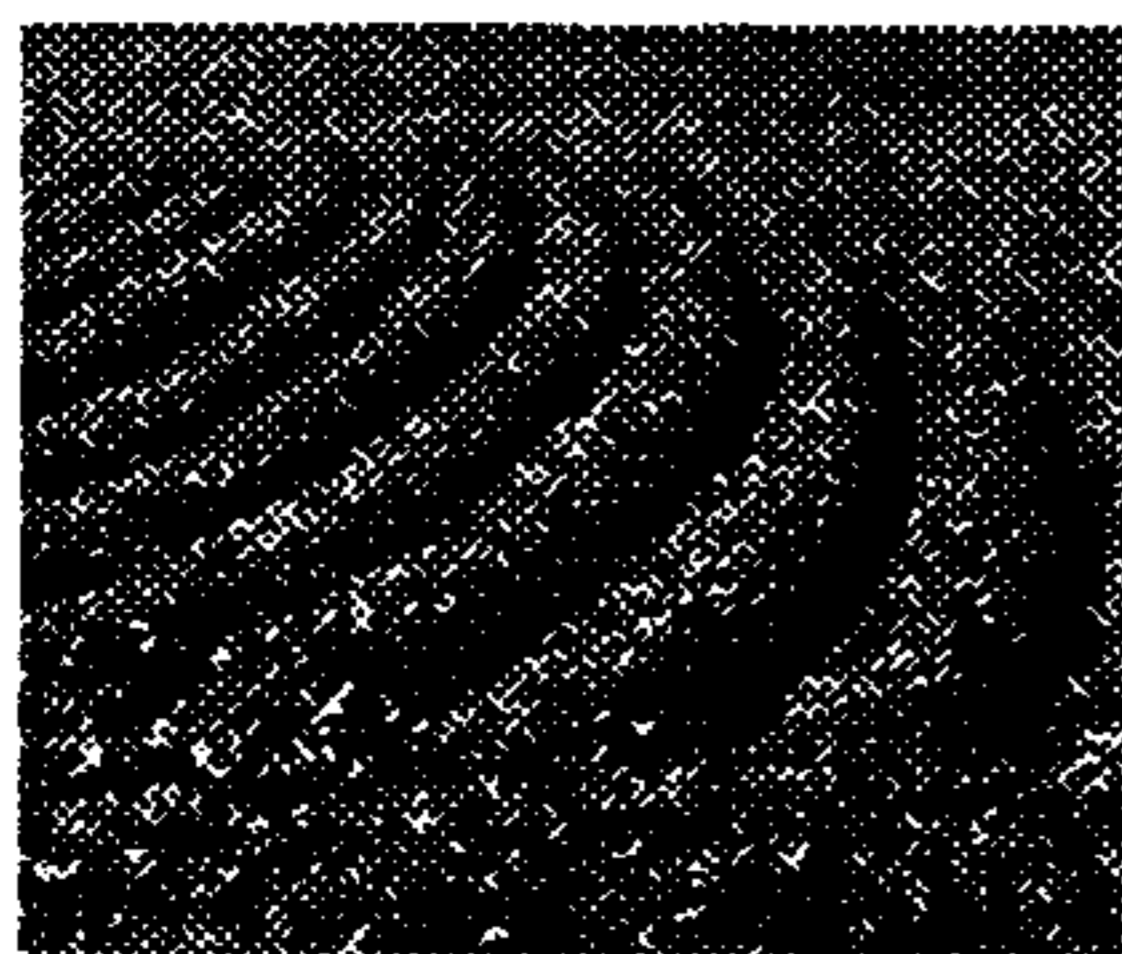


11

Avoid moving SCN from infested to uninfested fields. Soil clinging to tractor and truck tires or equipment can spread SCN. Work uninfested fields first. Power wash equipment after working infested fields to remove soil and SCN. Avoid bin run seed which may contain soil peds that could introduce SCN into clean fields. Be aware that custom applications of fertilizer, lime or pesticides may introduce SCN into your field, since SCN-infested soil may be carried on equipment tires from infested fields to your clean fields.

## Maintain plant health

- Control weeds
- Control pests
- Manage fertility
- Control diseases



12

Maintaining good plant health will not reduce SCN numbers but it may reduce yield loss. Maintain high soil fertility and good soil structure in SCN-infested fields. Weeds compete with soybean plants for soil moisture and nutrients. Effective weed control is essential for maximum yield in all fields. Insect and disease control also increases plant health and minimizes SCN impact on yield.

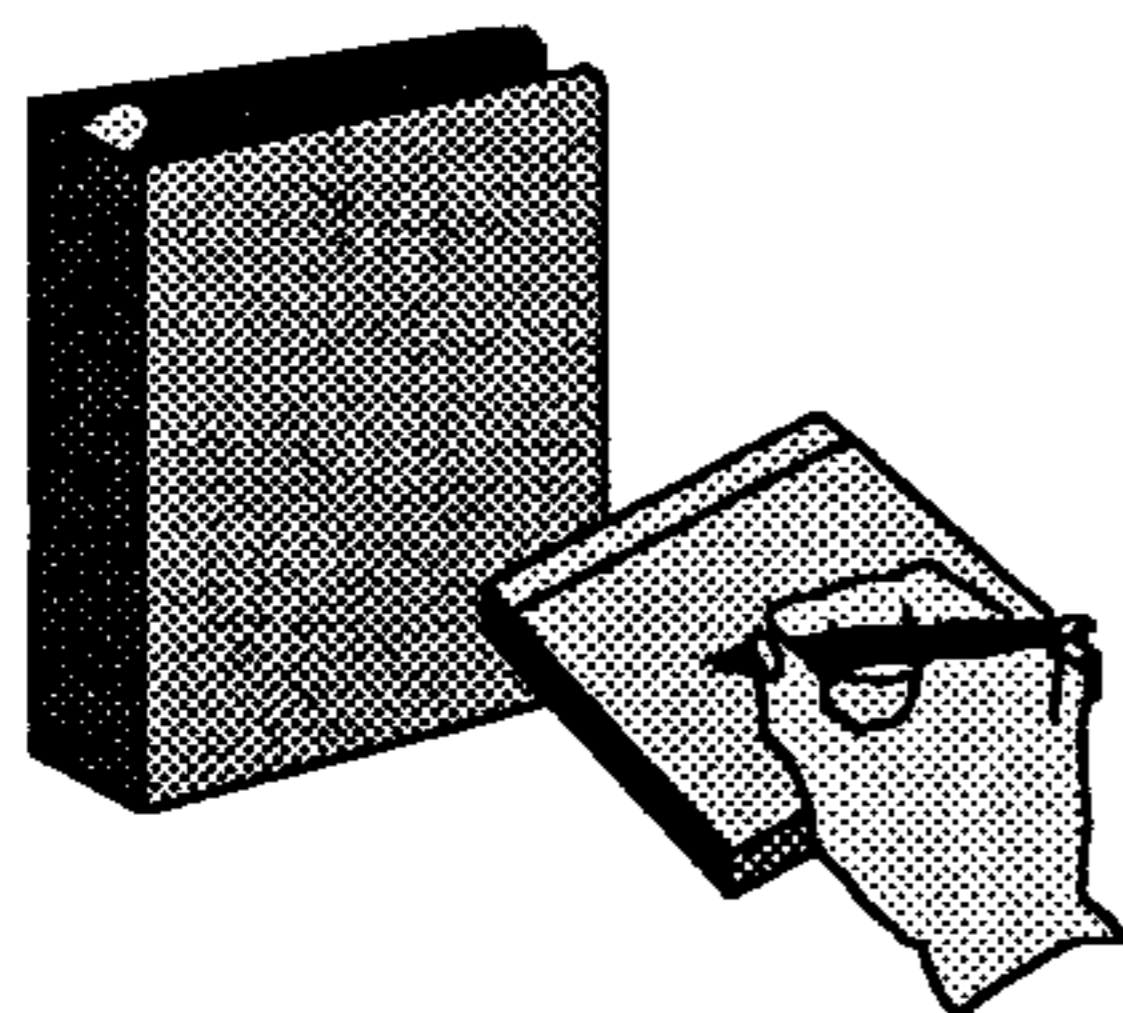
## SCN management:

Nematicides

13

A limited number of nematicides are available that may reduce yield loss due to SCN but will not reduce SCN population densities. If a producer has high SCN population densities and must plant SCN-susceptible soybeans, a nematicide will give early season protection against SCN. This will reduce yield loss, although SCN numbers in the soil will increase throughout the growing season and will be as high or higher than if a nematicide was not used. Nematicides will increase production costs. They should be considered an emergency management option and not a routine management plan. Planting SCN-resistant varieties is a better option in terms of long-range management of SCN and environmental safety.

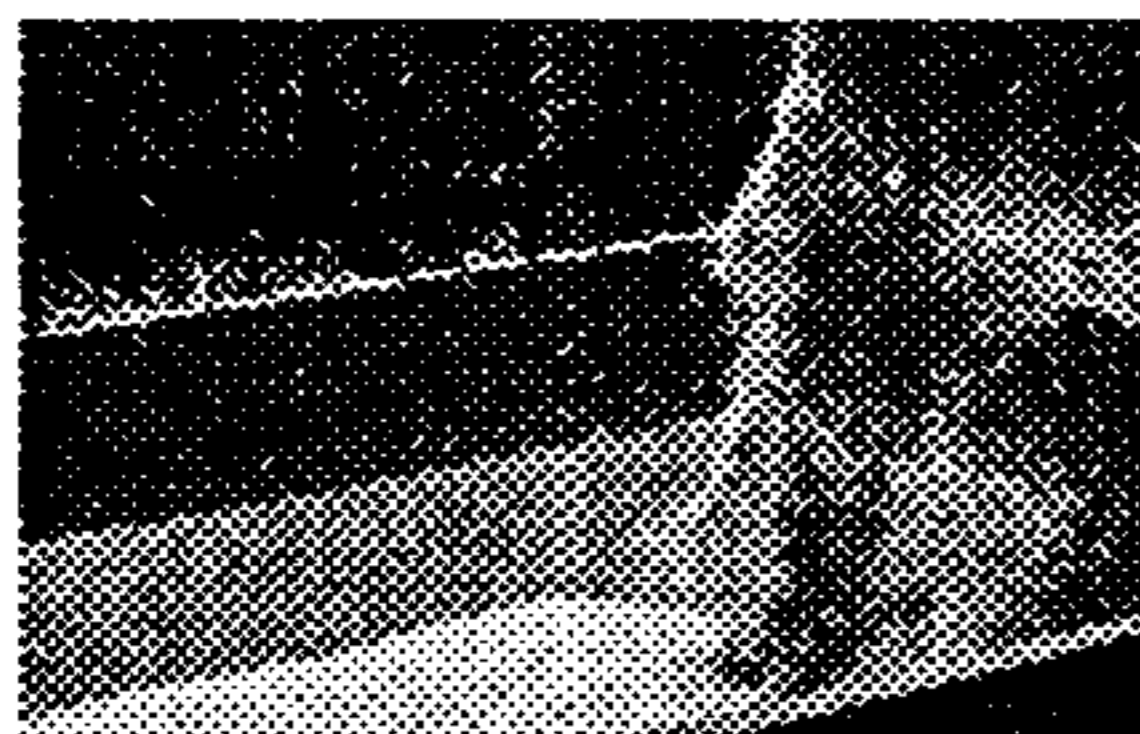
## Record keeping is vital



14

Long-term record keeping and monitoring SCN population densities within fields are vital to SCN management. Monitoring SCN population densities on a yearly or an every-other-year basis will provide evidence of the efficacy of the management strategies employed. Are SCN populations falling, rising or staying the same? If they are rising or staying the same, a change in management strategy is indicated. Recording the SCN-resistant variety planted and its source of resistance is useful if you are rotating sources of resistance or want to determine if the source of resistance was effective.

SCN  
will cause  
yield loss



15


Monitor yield. The first symptom of SCN is yield loss. Combine yield monitors can identify areas of the field where yields are lower, which may indicate the presence of SCN.

Infested?

YES      NO


    

DON'T KNOW



16

The damage from SCN is not always obvious in a field. The best way to know if you have SCN is to take a soil sample and have it tested for SCN. If you find out you have SCN, don't panic. Although SCN is a serious soybean pest, it can be managed and managed profitably.

Take the test.  Beat the pest.

---

**The  
SCN**  
COLLUSION

17

Before you can beat the pest, you must take the test.