Residue management and Soil Health

Brown's Ranch

Same Field

June 16, 2009
Corn planted into
previous years’ cover
crop residue

July 1, 2009
Rapid residue
decomposition

Arthropods: Microscopic to Several Inches

- Shred large plant residue and mix with soil
- Improve soil structure by burrowing and creating fecal pellets
- Stimulate additional microbial activity
- Help control disease causing organisms
- Regulate populations of other members of the soil food web

Crop Residue Treasure or Trash?

- Treasure
  - Erosion control
  - Nutrients
  - Organic matter and soil quality
  - Soil moisture conservation
  - Weed control
- Trash
  - Seeding issues
  - Crop issues

FIGURE 6. Residue cover – relative soil loss relationship. With 30% residue cover, soil loss is reduced 70%.

Millipedes

Shredders

- Shred large plant residue and mix with soil
- Improve soil structure by burrowing and creating fecal pellets
- Stimulate additional microbial activity
- Help control disease causing organisms
- Regulate populations of other members of the soil food web

Earthworms bury litter, shred organic matter, & stimulate microbial decomposition.

Plant Residue Shredders

- Burrow
- Redistribute

Soil mites such as this Ametrop species process crop residues into soil organic matter

Emphasis on Soil Organic Matter Management

(Earthworms in Chile field at Deming, NM. Chile planted into Rye Cover Crop)

Taking crop residues away from the fields will compromise agricultural sustainability

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Agro.Tech.Note.76