

Cover Crops & Water Quality



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Big Creek Middle Smoky Hill River Watersheds – Kanopolis Reservoir

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Cover Crops & Water Quality

- **What's the Water Quality Issue?**
 - Kanopolis Reservoir – sediment and eutrophication issues
- **WHY? Total Maximum Daily Load (TMDL)**
 - the amount of a pollutant that a body of water can have at any given time and still meet it's designated use
- **HOW? Reduce TMDLs for:**
 - Total Nitrogen (TN)
 - Total Phosphorus (TP)
 - Total Suspended Solids (TSS)
 - *E.coli* bacteria (fecal coliform)



Pollutants, Sources & Issues

- **Total Nitrogen (TN) & Total Phosphorus (TP)**
 - **Source:** Human & Animal Waste and Fertilizer
 - **Issue:** Groundwater pollution, Algae blooms, Foul taste and odor in drinking water sources, and Depleted oxygen in water bodies can create fish kills
- **Total Suspended Solids (TSS)**
 - **Source:** Conventional tillage, fallow, overgrazing, overutilization, bare landscapes, streambanks, construction, etc.
 - **Issue:** Sedimentation
- ***E.coli* bacteria**
 - **Source:** Human & Animal Waste
 - **Issue:** Human health concerns



Benefits of Cover Crops

Cover Crops can be a dynamic component of any Cropping System regardless of what you grow and can create diversity in your systems!

<https://mccc.msu.edu/>

Midwest Cover Crops Council is a great resource for knowledge and information

**Be sure to pick-up the
Cover Crops Field Guide**



Benefits of Cover Crops

– Reduce Soil Water & Wind Erosion

- Living roots as many days out of the year = hold soil particles in place
- Keeps plants and root systems in the soil profile
- Keeps soil covered = reduces fallow periods
- Improve water infiltration = less run-off



– Conserve Soil Moisture

- Keeping soil covered with residue/cover crops reduces evaporation
- Trap surface water and infiltration improves



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Benefits of Cover Crops

– Protect Water Quality

- Less run-off reduces TN, TP, TSS
- Helps reach TMDL goals

– Improve Soil Health

- Increase organic matter to soil profile
- Tap roots can penetrate compacted soil layers
- Increase the sequestration of carbon
- Increase food for soil fauna like earthworms



Benefits of Cover Crops

– Reduce Fertilizer Inputs

- Greater uptake of soil profile nutrients especially N
- Scavenger for nutrients especially N

– Reduce Herbicide Inputs

- Suppress weed pressure due to competition or canopy



Benefits of Cover Crops

- Reduce Fuel Costs & Equipment Operations
- Reduce Labor Inputs
- Reduce Feed Costs
- Extended Livestock Grazing
- Provide Wildlife Habitat



Obstacles of Cover Crops

- **Future crop yield drag**
- **Reduction in soil moisture**
- **Herbicide resistance weeds**
- **Cost of seed & planting**
- **Seasonal labor limits**
- **Termination costs and timing**
- **Lack of equipment**



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- Questions

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