

COVER CROPS & PHOSPHORUS LOSS

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the CHALLENGE: reducing phosphorus loss from agricultural land and improving water quality

Agricultural streams and ditches export excess phosphorus (P), nitrogen (N), and sediments to sensitive downstream ecosystems. This contaminates drinking water, fuels algal blooms with “dead zones” and harms fish and mussels.

Fertilizer nutrients enter streams/ditches via tile drains, especially in Winter and Spring when fields are bare.

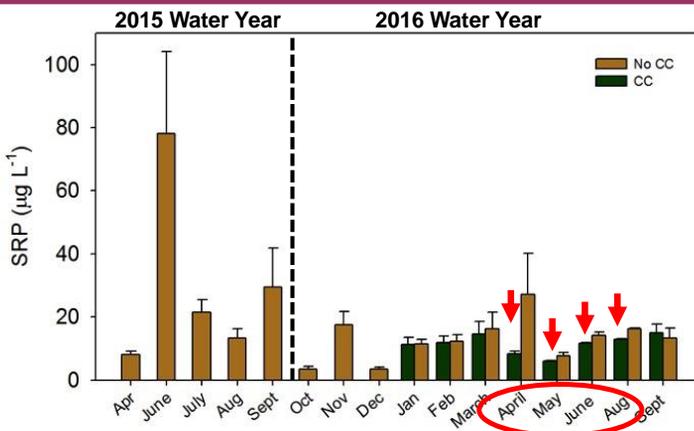
our STRATEGY

GOAL: Retain nutrients/soils on fields and reduce stream export.

Cover crops are planted after cash crop harvest and their growth coincides with critical times for nutrient export from tiles to streams/ditches. We are measuring their impact in two watersheds: Shatto Ditch and Kirkpatrick Ditch.



Kirkpatrick Ditch RESULTS so far

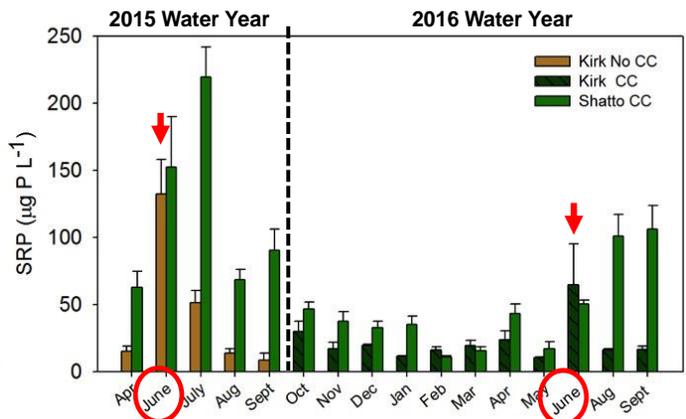


Cover crops do not increase loss of dissolved phosphorus from tile drains

- In 2015, before cover crops, tile drain SRP concentrations are variable in Summer-Fall, and consistently lower in Winter-Spring.
- After cover crops, in 2016, SRP is lower in April through August, and similar during the remainder of the year.
- Results are similar to patterns in Shatto Ditch tiles; planting cover crops does not increase dissolved phosphorous loss from tiles.

Stream dissolved P varies seasonally in Kirkpatrick Ditch

- Kirkpatrick stream water SRP concentrations before and after ~23% of acres were planted in cover crops. By comparison, Shatto Ditch Watershed has had ~67% cover crops since Oct 2013.
- Kirkpatrick Ditch has generally lower SRP concentrations compared to Shatto Ditch; but 2015 was more variable than 2016 for both.
- So far, June was the only month to show decreased dissolved P, before and after cover crops.



CONCLUSIONS: Cover crops provide a farmer-initiated solution to fertilizer management. Our data suggest that cover crops are not increasing dissolved P loss from tiles, and during some seasons prevent P loss from tile drain outlets.



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