ABSTRACT

Cover crops provide a variety of ecosystem services including erosion protection, soil building, nitrogen sourcing and scavenging, and weed, disease and pest management. The range of cover crop choices includes grasses, brassicas and legumes. While cereal rye dominates cover crop establishment, other cover crops are increasingly under consideration to provide specific environmental and agronomic services to cropping systems. Considerable plot- and field-scale research has been performed for numerous cash/cover crop combinations; however farmer access to performance and application information relevant to the Midwest region is limited. To provide farmers guidance for cover crop selection, a matrix tool was developed for the crop management zones of the Midwest.

The matrix tool is patterned after the cover crop characteristics charts in the SAN/SARE book "Managing Cover Crops Profitably" detailing: 1) performance and roles, 2) cultural traits, 3) planting and 4) potential advantages and disadvantages. The information will be more detailed and specific for the Midwest region and sub regions including adding more cover crop choices, including varieties when known to be different, and considering additional roles or traits of cover crops.

The matrix tool will compile existing information and research results from the region, gleaned from experts in each state as well as published research and extension articles. The matrix tool will be made available in paper form and on the web in a form easy to use for farmers as well as NRCS and other conservation or farm advisors. The matrix tool is being developed through a collaborative effort of the Midwest Cover Crops Council that includes states Midwestern states and Ontario. The development process will be described and example data presented.

PROBLEM STATEMENT

- Widespread cover crop adoption and usage by farmers has been hampered in the Great Lakes and Upper Mississippi River basins in part due to the lack of:
  - Knowledge of cover crop alternatives
  - Understanding of cover crop agronomic and environmental functions
  - Insight into economic and agronomic risks
  - Accessibility to specific cover crop application information
  - Considerable local information has been generated by universities, agricultural organizations and farmers throughout the region on cover crop performance and application, however this information:
    - Resides within multiple organizations and systems
    - Varies in form and format
    - Is often difficult to locate
    - Does not lend itself to making cover crop decisions

A system is required which:
- Consolidates knowledge within the region
- Provides a common format
- Implements a regional database

Supports farmer cover crop decision-making

BACKGROUND

Since its inaugural summit in 2006, the MCCC has been committed to developing a tool to support cover crop decision-making, termed the Regional Matrix Tool, reflecting the grid or matrix structure of the information.

Andy Clark, Coordinator, SARE Outreach authored an excellent handbook entitled Managing Cover Crops Profitably which details cover crops and their application broadly at the national scale.

This reference was chosen as the basis for the information and data structure for a regional system.

CONCEPT

Local cover crop knowledge and application information from throughout the Great Lakes and Upper Mississippi River basins can be consolidated into a centralized database.

This information will add regional specificity and applicability over Managing Cover Crops Profitably.

A web-based tool can be developed to assist farmer cover crop decision-making using the information from this database.

REGION

- Great Lakes and Upper Mississippi River basins represented by the MCCC
  - Illinois
  - Indiana
  - Iowa
  - Michigan
  - Minnesota
  - North Dakota
  - Ohio
  - Wisconsin

DATA EXAMPLE

WEB RESOURCES

The MCCC website is a vehicle for:
- Soliciting cover crop information
- Accessing the Regional Matrix Tool
- Web-based tools to be developed to assist farmers in identifying species and production systems appropriate for their locations that:
  - Meet their goals for using a cover crop
  - Are appropriate within their crop rotation systems
  - Minimize or identify the agronomic and economic risks associated with their use

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