• **Cover crops** are a “tool” that can provide substantial benefits to improving soil health, productivity and farm profitability.

• **Cover crops are not** a “silver bullet” but work best in combination with diverse crop rotations, no-till, and livestock integrated into the cropping enterprise through planned grazing.

• **Complex cover crop blends**, or “biological primers,” typically consist of eight or more plant species in the mix.

• **Biological primers** have demonstrated their effectiveness in jump-starting the biological systems in many soil types and farm applications.

• **The more diverse** the complex cover crop mix, the better the response from soil microbes and the higher level of drought tolerance.

• **Biological primers** are customized to meet the needs and goals of a particular field and farm operation.

• **Previous crop history** and future cropping plans for a particular field are essential in determining a specific cover crop blend.

• **A sound crop rotation** must include representatives from each of the four major crop types: cool-season grasses, cool-season broadleaves, warm-season grasses and warm-season broadleaves (see table below for examples).

• **Drill and planter boxes** are filled only one-third full when planting complex cover crop blends to minimize small seed from sifting to the bottom of the seed box.

• **Aim for 750,000-1,000,000 seeds per acre** in cover crop blends.

• **Complex cover crop blends** may be mechanically harvested as forage; however, the greatest biological and economic impact typically occurs when grazing livestock harvest approximately one-third of the cover crop and trample the remainder to protect the soil and feed microbes.

**RESOURCES**

- **YouTube:** Search “Innovative No-till”
- **Burleigh Co., N.D. Soil Health Web Page:** bcscd.com
- **Cover Crop Chart:** mandan.ars.nrcs
- **Midwest Cover Crop Council**
- **SmartMix Calculator™:** greencoverseed.com

**EXAMPLES OF MAJOR CROP TYPES**

- **Cool-season grasses:** Oats • Barley • Wheat • Annual rye • Cereal rye • Triticale
- **Cool-season broadleaves:** Field pea • Red clover • Hairy vetch • Common vetch • Turnip • Daikon radish
- **Warm-season grasses:** Sorghum-sudan • Millets • Corn
- **Warm-season broadleaves:** Soybean • Cowpea • Sunflower • Buckwheat

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