Digging Deeper with ISAP: Cover Crop Mixes

Cover crop mixes are a great tool that can be used to address a wide range of field concerns and production goals. This resource is meant to guide your design of a cover crop mix that is applicable to your production environment, highlight various considerations of mix designs, and support your development of an adaptive strategy to successfully use multispecies cover crops on your farm.

Why should you use a mix? What are your goals and needs?

- Balance C:N ratio
- Improve nitrogen production
- Suppress weed growth
- Grazing or forage production
- Root diversity to remediate soil issues: compaction, erosion, or water infiltration
- Wildlife habitat/food (above & below ground)
- Maximize growth following a small grain crop

How should you design your mix?

Choose species that have complementary growth windows, plant architectures, and nutrient uptake capabilities to address and achieve your specific goals.

When including the following species in a mix, plan to make the following adjustments:

- Grasses: Reduce overall composition to ¼-½ of a full rate
- Legumes: Keep near full rates
- Brassicas: Reduce rates to 1-5 lbs total

Be adaptable and willing to play with mix recipes until you find what works for you. Don't be locked in to one mix; try different recipes to see what works best.

What considerations should you take into account?

- Management requirements for each species
  - Establishment (planting technique, timing, depth, winter survivability)
  - Species characteristics (termination method/timing, impact of vining vs. upright plant types)
  - Potential impact on cash crop (pest attraction, C:N ratio, etc.)
- Equipment needs (planter attachments, weight/downforce, ability to apply nutrients)
- Cost/benefit ratio for a mix vs. single species cover crop

Mixes Before Corn

This simple, low cost mix would provide erosion control, a flexible termination window, and if terminated early, a low chance for significant, long-term N tie-up. Rapeseed has overwintering potential if planted early. For late planting, consider camelina.

Beginner Overwintering Mix

Winter Wheat | 15-20 lbs
Winter Barley | 15-20 lbs
Rapeseed or Camelina | 1-5 lbs

Termination Timing:
10-14 days before planting
Approx Cost:
$25/acre

This advanced, low C:N ratio mix would be relatively easy to plant into. Barley and triticale are early maturing grass options. Vining legumes, such as vetch or peas, could be substituted if planter set-up can handle vining plant types.

Advanced Overwintering Mix

Winter Barley or Triticale | 20-30 lbs
Crimson Clover | 8-12 lbs
Rapeseed or Camelina | 1-4 lbs

Termination Timing:
Early termination or plant green
Approx Cost:
$45/acre

Mix Before Soybeans

Most growers use cereal rye ahead of soybeans for weed control. While legumes may be expensive, with lower benefits in this case, brassica cover crops can be relatively cheap, competitive options for diversity by adding a taproot to complete rye's fibrous root system.

Standard Overwintering Mix

Cereal Rye | 30-60 lbs

Rapeseed or Camelina | Up to 4 lbs

Termination Timing:
Early termination or plant green
Approx Cost:
$20-35/acre

Mix After Small Grains

Cover crops after a small grain are the best way to add diversity. There are endless possibilities depending on the goal. This option has a mix of nutrient scavenging and production ability, different root types, and is an excellent pollinator/wildlife food source.

Summer Mix

Grain Sorghum | 1 lb
Spring Oats | 10 lbs
Cowpeas | 16 lbs
Radish | 2 lbs
Buckwheat | 6 lbs
Sunflower | 2 lbs

Termination Timing:
Winterkill
Approx Cost :
~$45/acre

Additional Resources:

ISAP's Cover Crop Seed Dealers Directory | ilsustainableag.org/cover-crop-seed-dealers-directory
ICCON Cover Crop Cocktails Webinar Recordings | bit.ly/ICCONyoutube
PennState Extension: Making the Most of Mixtures | bit.ly/PennSt_CoverCropMixes

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