

Specific Cover Crops – What fits your operation?



Dave Robison, Agronomist
The C/SCO Companies

C/SCO had 100+ Cover Crop Plots
in 4 states in 2009/2011



What fits after WHEAT?

- The “tool box” is wide open!
 - For forage production
 - For nutrient sequestration
 - For nitrogen production
 - For building soil organic matter
 - Etc...etc...etc...
- **CAUTION**...DO NOT plant too early
 - Early August works best!

Pro-Max® Hybrid BMR Sudangrass



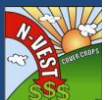
- Planted after wheat for cattle silage
- 62” in 31 days after planting
- Harvested 4.5 DM/ac in 2010 (2 cuts)
- High quality feed
- Excellent soil builder

Drill in after wheat...
Early Aug - Early Sept



N-Vest® Cover Crops

- Standard N-Vest® Mixes
 - Groundbreaker Mix
 - Crimson Cover-All Mix
 - Soil Builder Brand Annual Ryegrass Blend
 - NutriBuilder Mix
 - Forager Mix
- University and farmer tested and designed



Pea + Radish Mixture

- Austrian Winter Peas + GroundHog™ Radish
- 35#/acre



Austrian Winter Peas

Disadvantages

- Best to be incorporated
- Generally Winterkills
- Needs at least 5-6 weeks growth for best results
- Only one grazing/harvest can be expected

Advantages

- Produces 60-120#/acre N
- Generally Winterkills
- Easy to kill with herbicides



Cover Crop Radishes

Disadvantages

- Should not be sown too early in the summer – potential reseeding
- May not be sown too late (need at least 6-7 weeks growth for best results)
- Hard seed may come up in spring
- Smell at spring thaw

Advantages

- Potentially deep penetrating large tuber
- Enhances soil percolation
- Usually reduces soil compaction
- Earthworm "Heaven"
- Voracious scavenger of nutrients
- Good for Grazing

Austrian Winter Peas and Radish in Mixture...30" tall peas



60-120# N produced



Austrian Winter Peas and Radish in Mixture...10-14" deep tuber



Taken from field of Groundbreaker Mix near Ashland, OH



Peas/Chickling Vetch/Radish 3/8/2011 – Bowling Green, OH



GroundHog™ Radish with Crimson Clover



Some Radishes have multiple lateral roots

Crimson Clover + Radish Mixture



Crimson Clover
GroundHog Radish



Crimson Clover

Disadvantages

- VNS or older varieties will possibly winterkill
- Some hard seed

Advantages

- Can produce up to 140 units of N/acre within 90 days following wheat
- Earthworm "Heaven"
- Easy to kill
- Excellent new (early and more winterhardy) varieties are available (limited supply)

Crimson Clover -2



Advantages

- Works very well as a companion to Radishes, Annual Ryegrass, etc...
- Deep and fibrous root system (21" deep in Fulton County, IN sp 2010)

Medium Red Clover

Disadvantages

- May get too tall in wheat and affect harvest



Advantages

- Produces 75-100# N
- Good root system-soil builder
- Easy to frost seed into wheat
- Often least cost cover crop
- Easily killed
- Excellent for forage

Annual Ryegrass

Disadvantages

- May be difficult to kill
- Many varieties rarely live through the winter



Advantages

- New Winterhardy varieties are available
- Deep and fibrous root mass
- Excellent scavenger of N
- Works well with aerial application
- Excellent for forage
- Plant early Aug – Mid Sept.

Harvest/Kill Annual Ryegrass early



- Kill before jointing
- Be ready for 2nd spray
- Harvest before heads appear for best forage

Forager Mix after wheat Oats, Rye, and Turnips for Grazing



N-Vest® Forager Mix Oats, Rye, and Turnips –after corn



N-Vest® Forager Mix Oats, Rye, and Turnips for Grazing

- 1 Bu Cereal Rye + 1-1/2 bu oats + 5# Appin Turnips
 - Can yield as much as 5 ton/acre
 - Cattle have gained 3.5#/head per day on this mix in central Illinois (Ed Ballard's on-farm data)
- Graze stalks + this mix = priceless!
- *This mixture has worked VERY well for Iowa and Nebraska producers over the past 10 years! (Aerial applied into corn)*

Winter Rye (Cereal Rye)

Disadvantages

- May have allelopathic characteristics
- May "get away from you" in the spring and become difficult to kill

Advantages

- Can be planted later than any cover crops with greatest opportunity to succeed
- Works well with aerial application
- Good rooting depth
- Excellent winterhardiness
- Scavenges N



Oats in Ingham County, MI plot April 2010



Other cover crop options – Winter Barley

- Makes excellent feed or haylage
- Up to 2 weeks earlier harvest than wheat
- Less N needed for top crop
- Excellent scavenger of N
- More tolerant of low fertility
- Less winterhardy than rye

Valor Winter Barley



- Short-Awned Winter Barley (less harvesting/feeding issues)
- Early maturing
- High yielding for grain and forage
- Top choice for dairy and hog producers

Seed Cost Matters

- There are “no good deals” on “Cheap” Seed...
- Especially not on ARG, Radishes, Turnips, Hairy Vetch, etc...
- VNS (often times) ≠ Very Nice Seed!

No good deals on cheap seed...



Farmer “saved” 5¢/# on cheap seed {50¢/acre} (left) and now has a “disaster” on his hands!
Good radishes on right cost a bit more but have the tubers farmers want.



What about inter-seeding into Corn and Soybeans

- Many of the above products work for this too!



Very little top growth does not mean very little root growth.

- Four inch tall Annual Ryegrass with 21" deep roots
- 15" deep radish roots that had 2" tall tops and a "pencil" sized tuber
- 12" deep crimson clover roots under a 2" tall top (with many nodules)
- 35" deep roots on oats that had 20-25" tall top growth (prevented planting situation planted in early September)
- 30" deep roots on radishes that had 20-25" tall top growth and 2-3" diameter tubers (prevented planting situation planted in early September)
- 12" deep roots under 18" tall Austrian Winter Peas (planted in late August after wheat)
- 20" deep cereal rye roots with 6" tall top growth (planted in late August after wheat)

What cover crops are best for aerial application?

- Cereal grains (Oats/Cereal Rye/Wheat/Triticale)
- Annual Ryegrass
- Clovers
- Brassicas (Radishes/Turnips/Kale/Rape)
- Hairy Vetch

What cover crops to avoid when aerial applying

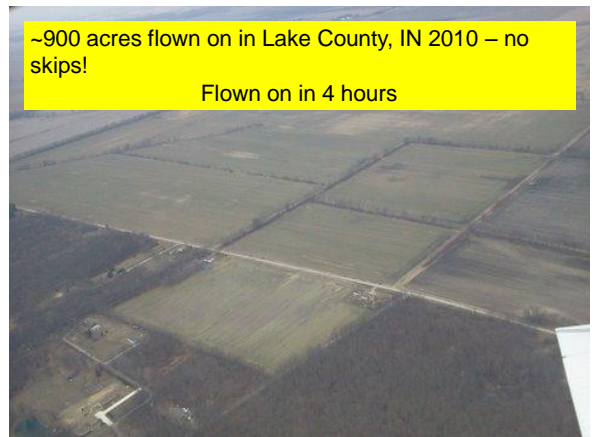
- Cowpea
- Austrian Winter Peas
- Field Peas
- Buckwheat
- Mustards – (it will work but you'd better NOT get any on the neighbors!)
- Summer Annual grasses (Sorghum-Sudangrass/Sudangrass/Teffgrass)

But there is a right way (and a wrong way) with aerial application!



~900 acres flown on in Lake County, IN 2010 – no skips!

Flown on in 4 hours



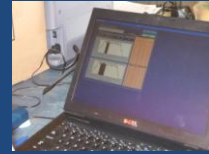
AgriFlite and CISCO Seeds field testing- getting it right!



AgriFlite – Wakarusa, IN



Seed captured and measured – then the flight pattern determined



Seed unloads into the plane in less than 60 seconds!



Photo from Joe Nester



Seed loads into the chopper in several minutes

A beautiful stand flown into corn



Aerial applied in central Indiana –
Robison farms, Greenwood, IN



This is the proper time to apply cover
crops into corn



This is WAY too early!



The proper time to fly into Soybeans
(30's and 15's)
– 7's need to be more mature



Application too early on Soybeans



30" rows vs. 7" rows



Sunlight makes a BIG difference



Annual Ryegrass not flown on properly

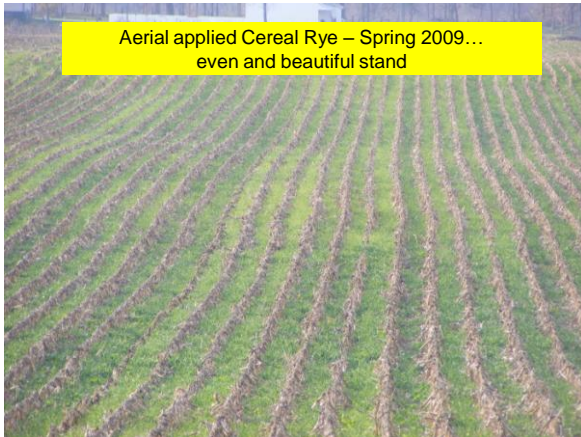


Excellent coverage is important



Corn harvest with Covers growing large at harvest!





Tips to remember

- Timing of application is critical to success
- “Be Patient-but Be Ready” is a good attitude to have
- Actual coverage is very important
 - These are NOT “sprinkle crops”
- Establishment systems still need more refining
- Research products, cc fertility needs
- Research aerial applicators...don’t just look at \$/ac
- Try some cover crops!

