Specific Cover Crops – What fits your operation?

Dave Robison, Agronomist
The CISCO Companies

CISCO 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

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

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

Austrian Winter Peas

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

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

Taken from field of Groundbreaker Mix near Ashland, OH
GroundHog™ Radish with Crimson Clover

Crimson Clover + Radish Mixture

Crimson Clover -2

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)

Medium Red Clover

Disadvantages
• 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

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)
• May get too tall in wheat and affect harvest
**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.

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**Harvest/Kill Annual Ryegrass early**

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

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**Forager Mix after wheat**

- Oats, Rye, and Turnips for Grazing

**N-Vest® Forager Mix**

- Oats, Rye, and Turnips –after corn

**Forager Mix after wheat**

- November

**N-Vest® Forager Mix**

- 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

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**N-Vest® Forager Mix**

- Oats, Rye, and Turnips for Grazing

**Winter Rye (Cereal Rye)**

- 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)

Advantages
• Excellent for winter/spring grazing
• Excellent for spring haylage
• May have allelopathic characteristics (improved weed control)

Other popular combinations
• Oats and Radish
  – 2bu Oats + 5# Radish
  – Dies over winter
  – Very good cover
  – Great for controlling winter annuals
  – Great for holding/scavenging nutrients

Oats

Disadvantages
• Bin run oats will have weed seed in them
• Winterkills

Advantages
• Scavenges N
• Deep and fibrous root mass
• Works well with aerial application
• Excellent for forage
• Winterkills

Root Density of Grass Cover Crops

Winter Rye - less dense
Annual Ryegrass - greater root density

GroundHog Radish and oats mixed together helped Rulon Farms gain 9 bu./acre in corn yield the following year.

Green in photo is wheat from previous crop
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
- 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!

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)

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 cereals rye roots with 6” tall top growth (planted in late August after wheat)
- 12” deep roots under 18” tall Austrian Winter Peas (planted in late August after wheat)

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!

Seed captured and measured – then the flight pattern determined

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!

www.plantcovercrops.com

Aerial applied Cereal Rye – Spring 2009… even and beautiful stand

A smart N. treatment in the future of your farm
Available through
Cover Crops • USA
dave@plantcovercrops.com
www.plantcovercrops.com

Cover Crop 1 month after aerial seeding
Lake County, IN October 2010