

## 2005 New Kent Cover Crop Study

**Cooperators:** Producer: Boogie and Wayne Davis  
 Extension: Paul Davis, New Kent/Charles City VCE; Wade Thomason,  
 Grain Specialist, Virginia Tech  
 Agribusiness: Brian Noyes, District Director and Jim Wallace,  
 Water Quality Specialist, Colonial Soil and Water  
 Conservation District

**Tillage:** None, No-Till drilled into harvested corn stalks

**Soil Type:** Altavista, fine sandy loam

**Variety:** Rye – Early Graze      Barley – Barsoy  
 Triticale – Trical 485      Oats – Brooks

**Previous Crop:** NO-TILL corn

**Fertilization:** Broadcast - None  
 Winter N - See graph – Either 0#, 25# or 50# February 19, 2005

**Herbicides:** Burn down 1.5pts Gramoxone Extra May 5, 2005

**Following Crop:** Full season soybeans planted May 12, 2005

**Fungicides:** None

**Insecticides:** None

**Planted:** Early – October 4, 2004/Mid – October 18, 2004/  
 Late – November 10, 2004

**Harvested:** June 24, 2005

### New Kent Cover Crop Nitrate Samples

Small Grain	DOP	ppm Nitrate			Total
		0 - 12"	13 - 24"	25 - 36"	
Rye	Early	2	1	2	5
Rye	Mid	3	1	3	7
Rye	Late	4	2	6	12
Trical	Early	4	2	3	9
Trical	Mid	4	2	3	9
Trical	Late	4	3	8	15
Barley	Early	3	3	4	10
Barley	Mid	3	1	3	7
Barley	Late	4	3	5	12
Oats	Early	4	2	3	9
Oats	Mid	3	2	3	8
Oats	Late	4	4	4	12

DOP                      Samples taken 2/3/2005  
 Early - 10/4/04  
 Mid - 10/18/04  
 Late - 11/10/04

**2005 Cover Crop Study Plot Outline  
New Kent, VA**

		Barley Early	Trical Late	Rye Late	Trical Mid	Oats Late	Barley Mid	Rye Early	Oats Mid	Trical Early	Barley Late	Rye Mid	Oats Early
1)	0 # N												
2)	25# N												
3)	50 # N												
4)	0 # N												
5)	50 # N												
6)	25 # N												
7)	50 # N												
8)	0 # N												
9)	25 # N												

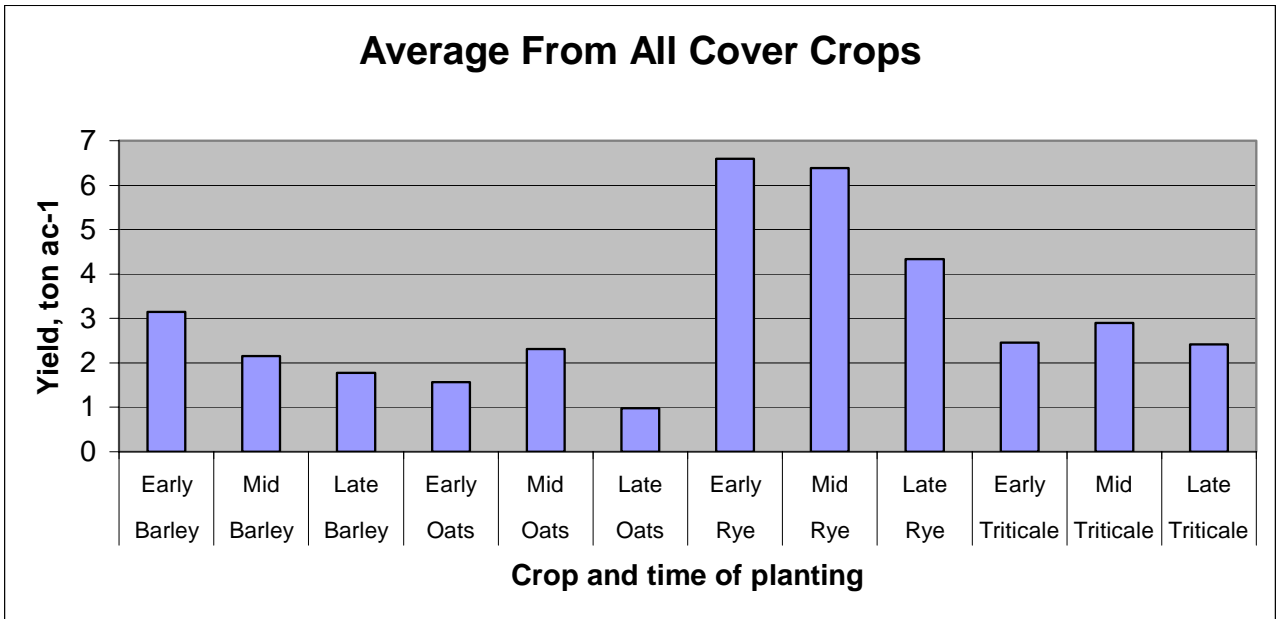
\*\*\* Each treatment was 20' x 45'

Applied 30% UAN on 2/9/2005 @ 0#, 25#, 50#/acre.

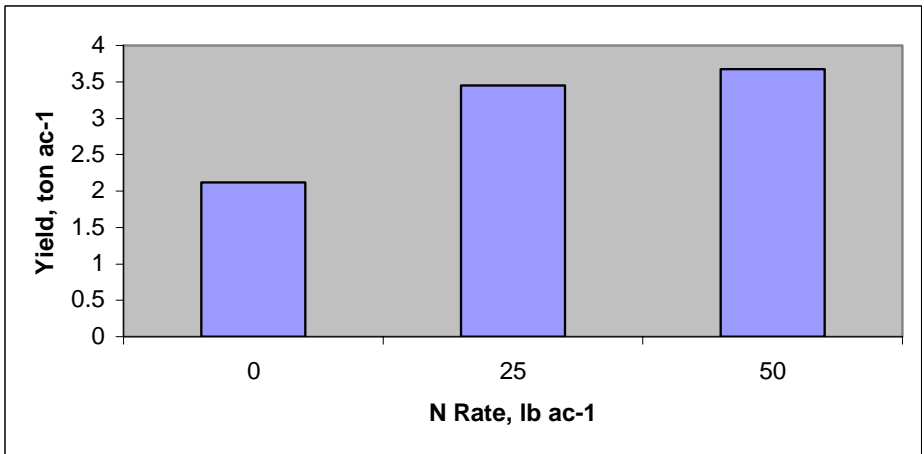
<b>Varieties</b>	<b>Seeding Rate lbs/Ac</b>
Rye - Early Graze	50#
Barley - Barsoy	60#
Oats - Brooks	60#
Triticale - Trical 485	50#

## 2005 New Kent Cover Crop Study Yield Results

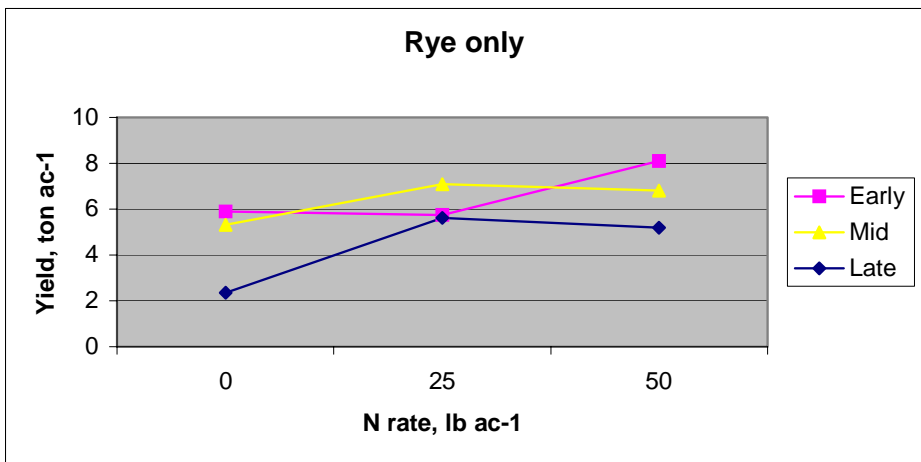
### Average From All Cover Crops



**GRAPH I**



**GRAPH II**



**GRAPH III**

**N applied  
2/19/2005**

## **Discussion:**

Small grains make good cover crops that reduce erosion, trap unused nutrients and improve soil quality by producing biomass that increases soil organic matter. This study looked at four different small grains at three planting dates and three nitrogen fertilizer rates.

Graph I on the preceding page shows rye planted either October 4 or October 18 yielded over 6 tons of dry matter per acre. Rye planted on November 11 yielded nearly 4.5 tons of dry matter which was more than the early plantings of oats, barley and triticale. The late planted rye showed the greatest response to nitrogen fertilizer in February. All three planting dates yielded nearly 6 tons of dry matter per acre at 25 lbs. of nitrogen per acre in February. This is just a one year study at a single location and much more work needs to be done before blanket small grain cover crop recommendation can be made.

Other barley and triticale cultivars would work better than Barsoy (too short) and Trical 485 (not winter hardy enough). Taller the better because these cover crops will be planted into and killed before lodging problems might occur.

Caution should be taken anytime you are following one small grain crop, wheat, for example, after a small grain cover crop in the same year. There is an increased risk of Take-All disease which is a soil borne fungus that kills small grain roots and causes white seed heads. This is mainly a problem in poorly drained, wet soils and/or low fertility soils.

Please take advantage of both small grain and legume winter cover crops to improve your soil quality. Virginia has a new Cover Crop BMP Cost-Share program for this year. I hope it will work into your farming operation.