

# Developing New Low-input No-till Systems Using Cover Crops

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05/11/2004



**Hairy Vetch - June 4, 2004**



Cereal Rye - June 4, 2004



**Cereal Rye - June 4, 2004**



June 8, 2004

A wide-angle photograph of a field of Hairy Vetch. The field is mostly dry and yellowish-brown, with a central path or area that is greener. The background shows a line of trees and a utility pole. The text "Hairy Vetch - June 25, 2004" is overlaid in yellow at the bottom center.

Hairy Vetch - June 25, 2004



An aerial photograph of a large agricultural field. The field is densely packed with cereal rye, which appears as a mix of dry, golden-brown stalks and patches of vibrant green. The green areas are likely weeds or young plants that have emerged. The field is divided into long, parallel rows that stretch towards the horizon. In the far distance, a line of trees and a small body of water are visible under a clear sky.

**Cereal Rye - June 25, 2004**

A close-up photograph of a field of cereal rye. The ground is covered with a thick layer of dry, light-brown straw mulch. Numerous small, green, leafy plants are growing through the mulch, indicating the early stages of a new crop or a weed infestation. The plants are scattered across the field, with some appearing more densely packed than others.

**Cereal Rye - June 25, 2004**



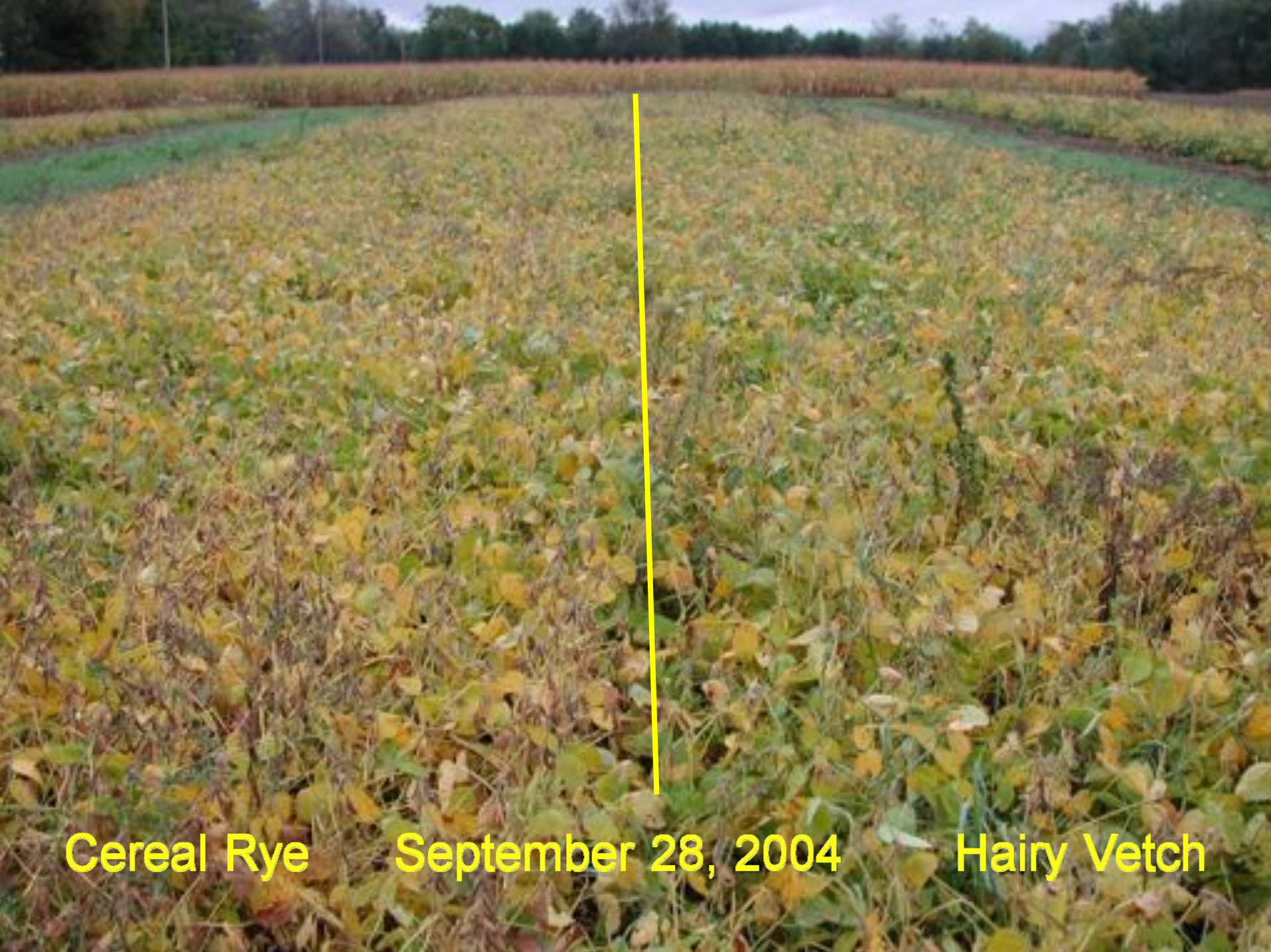
**Cereal Rye**

**July 21, 2004**

**Hairy Vetch**



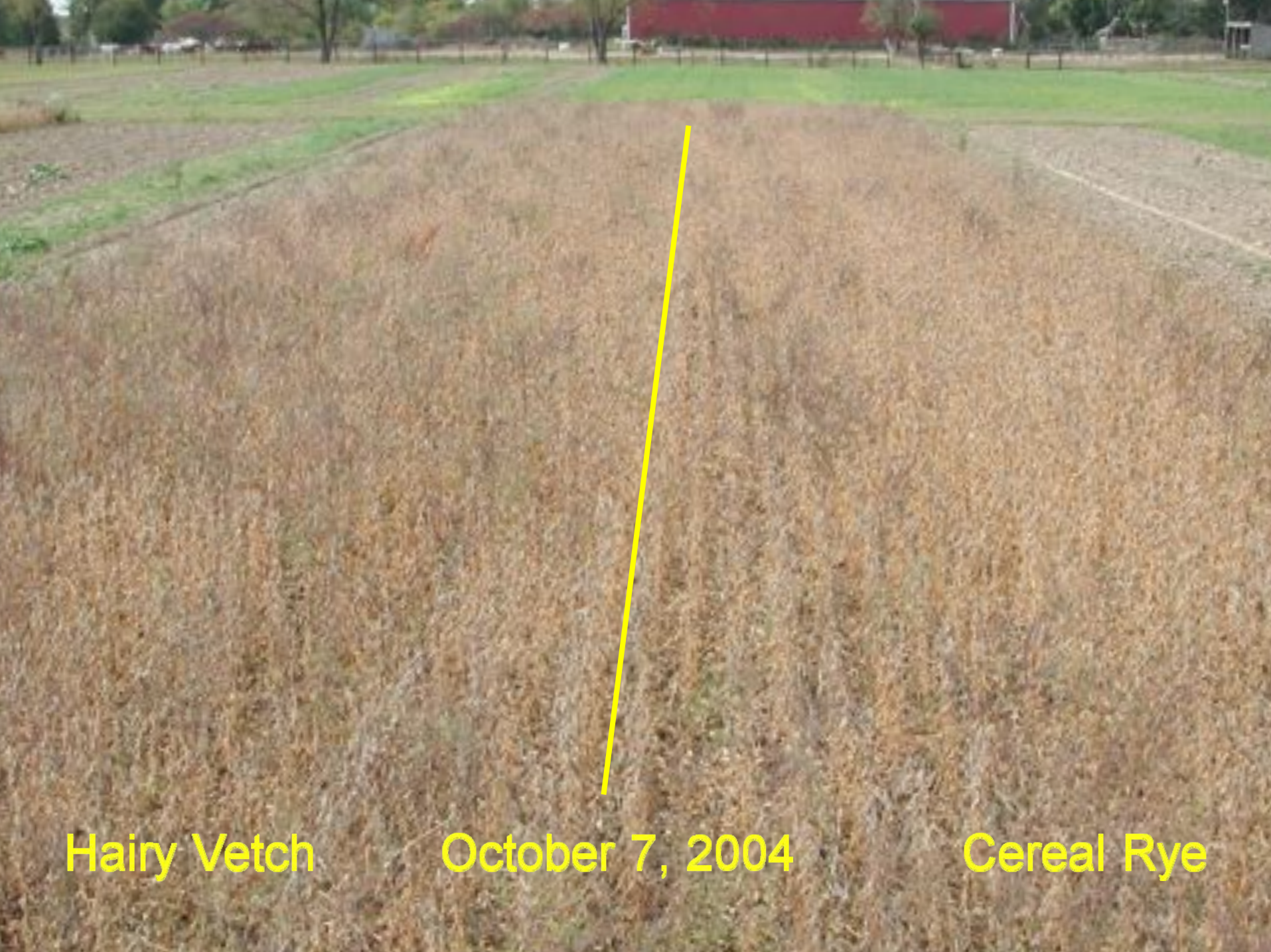
Cereal Rye - July 21, 2004



Cereal Rye

September 28, 2004

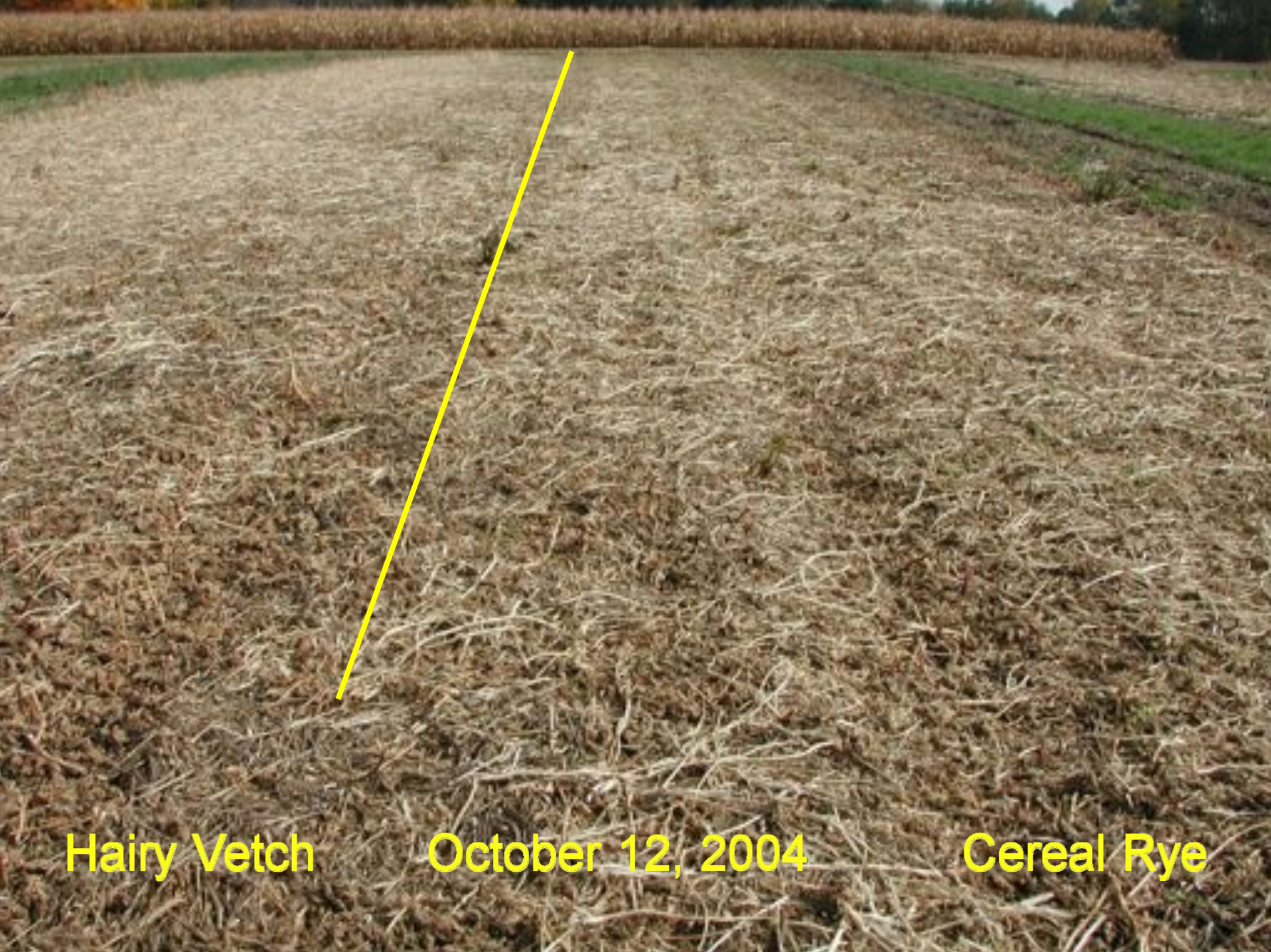
Hairy Vetch



Hairy Vetch

October 7, 2004

Cereal Rye



Hairy Vetch

October 12, 2004

Cereal Rye

A close-up photograph of a field of dry, brown cereal rye grasses. The grasses are thin and brittle, with some showing the characteristic three-veined structure of rye. They are growing in a field of dark brown soil, which is visible between the clumps of grass. The overall appearance is that of a dormant or late-harvested crop.

**Cereal Rye - October 12, 2004**



# No-till Organic Soybean in Crimped/Rolled Rye and Hairy Vetch, 2004

Cover crop	bu/A	standard error
Hairy Vetch	58	3.3
Winter Rye	62	2.0

# No-till Organic Soybean in Crimped/Rolled Rye and Hairy Vetch, 2005

Cover Crops Planted On August 25, 2004

bu rye	lbs vetch	yield	std dev
1	0	20.0	0.3
2	0	20.8	1.6
3	0	20.1	1.3
0	30	13.5	0.4
3	15	17.2	0.0
2	20	16.4	0.4
1	30	15.3	2.4
0	0	18.9	6.1

# Organic No-till Soybeans - 2006


		cover crop		crimping/planting			
trt	planting date	rye (bu/a)	Vetch (lbs/a)	25-May	June 2	June 5	June 15
1	15-Sep	2.5	0	--	--	crimped/planted	--
2	15-Sep	2.5	0	--	crimped	crimped/planted	replanted
3	15-Sep	2.5	0	--	--	planted/crimped	replanted
4	Aug 24	0	30	crimped	crimped	crimped/planted	--
5	Aug 24	0	30	--	crimped	crimped/planted	replanted
6	Aug 24	0	30	--	--	crimped/planted	replanted
7	Aug 24	2	25	--	--	crimped/planted	--
8	Aug 24	2	25	--	crimped	crimped/planted	replanted
9	Aug 24	2	25	--	crimped	crimped/planted	replanted

A photograph of a field of rolled or crimped rye. The plants are densely packed and appear to be in a late stage of growth, with some showing signs of being rolled or crimped. The color is a mix of green and brownish-yellow, suggesting some plants are starting to dry out. The field extends to the horizon under a clear sky.

**Grass weeds in rolled/crimped rye**



**Organic Rowed Soybeans**



30" rows  
30 bu/A

Rolled rye  
9 bu/A

9/22

202



Pumpkin rows established with band sprayer  
May 19, 2006



Rolling/crimping following burndown  
June 1, 2006



# W. K. Kellogg Biological Station Land & Water Program Projects for 2008

- ❖ Red clover into rye and wheat
  - ❖ Comparison of red clover seeded winter wheat and rye: at planting, frost seeded, early April, and after wheat harvest for the following years corn crop.
- ❖ Cover crops as N source for organic field corn
  - ❖ Comparison between red clover, hairy vetch, and no cover crop in organic corn for corn yields.
- ❖ Organic tillage trial
  - ❖ Comparison between fall and spring moldboard plowing and chisel plowing red clover frost seeded into wheat for number of tillage operations, weed pressure, and corn yields.
- ❖ Organic N sources for organic tomatoes
  - ❖ An evaluation of organic production of tomatoes using five sources of nitrogen following a cover crop of rye or hairy vetch for quality and yield. (SWMREC)
- ❖ Slurry seeded bio-suppressant cover crops for organic field crops

# W. K. Kellogg Biological Station Land & Water Program

## Projects for 2008

- ❖ Pumpkins with rye cover crop
  - ❖ Comparison of weed control strategies for no-till organically and conventionally grown pumpkins using rolled/crimped rye as a weed suppression crop for pumpkin quality, pumpkin yield, and weed suppression. (SWMREC & KBS)
- ❖ Rye varieties for no-till soybeans
  - ❖ Comparison of five varieties of rye for an organic no-till soybean system for rye growth, rye maturity, weed suppression, and soybean yield.
- ❖ On farm no-till rye
  - ❖ Comparison of four on farm experiments with rye crimped and soybeans no-tilled into organic and conventional systems for weed control, timeliness, and soybean yields.
- ❖ Organic soybeans
  - ❖ Comparison between no-till soybeans into crimped rye and a traditional rowed organic system. (Clarksville)



Soybeans in Rolled Rye

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[Cover Crops in Cropping Systems](#)

[Organic Field Crop Research](#)

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The Cover Crops Program at the [W.K. Kellogg Biological Station / Michigan State University](#) focuses on integrating cover crops into Michigan field crop systems. Our goal is to make information from research readily available so farmers can make better decisions about using cover crops on their farms. Use the links above to explore information on growing cover crops successfully on your farm.

www.covercrops.  
msu.edu



White clover growing in blueberries



Crimson clover



Cereal rye fall seeded into blueberries

For more information, contact [Dale Mutch](#) or [Todd Martin](#) at Michigan State University's Kellogg Biological Station Land and Water Program, 3700 E. Gull Lake Dr., Hickory Corners, MI. 49060-9516, or call 800-521-2619.



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Farmers, researchers and educators teaming up for sustainable and organic ag solutions in the Great Lakes region

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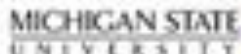
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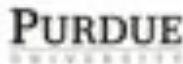
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### In this issue

- [Agricultural research site in transition to organic production: notes from the "home stretch"](#)
- [Economic returns per acre from an experimental organic farm in West-Central Illinois](#)
- [Perennial wheat: a new crop for Michigan?](#)
- [Soil organic matter in a continuous corn cropping system](#)
- [Is nitrogen a moving target? Lessons from a 15-year corn rotation trial](#)
- [Michigan field research sites needed for study on biological control of soybean aphid](#)
- [New soil ecologist at Michigan State](#)
- [One-day training for new CSA growers offered in Michigan](#)
- [Michigan organic apple field day includes integrated hog project](#)
- [Tri-State Organic IP Video session 5: Introduction to Organic Markets and Certification](#)
- [Reports from organic growers](#)

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Cathy Eastman and Edmond Zabojski (Illinois Natural History Survey); Michelle Wander, Darin Eastburn, John Maslunas, Leslie Cooperband, Deborah Cavanaugh-Grant, Dan Anderson, Carmen Ugarte, Shin-Yi Lee, and Isabel Rosa, (University of Illinois); Jonathan Lundgren (USDA Northern Grain Research Laboratory, Brookings, South Dakota)

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Project

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Thank You