

# Dual Purpose Cover Crops

Goals: Improve profitability, resiliency, and sustainability

Dairy Twilight Meeting  
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Feed is the *largest* annual expense on Northeast Dairy Farms:

- In 2011, feed expenses increased by over \$300/animal, reaching \$1578/animal (New England Milkshed Assessment, 2012)
- In 2012, feed expenses increased by \$189/animal, reaching \$1,767/animal (Northeast Dairy Farm Summary, 2013)
- In 2013, feed expenses increased by \$82/animal, reaching \$1,849/animal (Northeast Dairy Farm Summary, 2014).
- In 2014, feed expenses increased by \$24/animal, reaching \$1,873/animal (Northeast Dairy Farm Summary, 2015)
- **46.6% increase from 2011 to 2014**

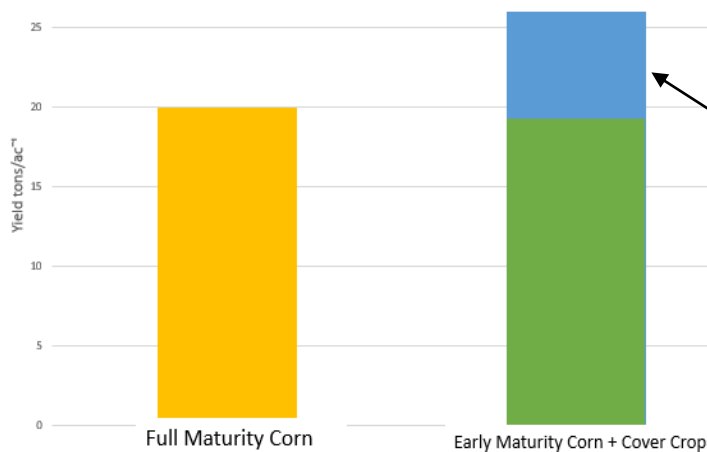


Fig 1. Estimated increased yield with harvested cover crop. Total production in double cropping system with dual purpose cover crops yields more than full maturity corn alone.

UMass 2014 Corn Hybrid Evaluations, average silage yields based on maturity:

- Short Season (<95 days) 26.9 tons/A
- Mid Season (95-100 days) 24.7 tons/A
- Full Season (>100 days) 27.5 tons/A

(Statistically speaking, there's no difference between these yields)



Fig 2. Planting Date  
Experiment: Spring Regrowth

Planted 9/1/14

Planted 10/1/14

Fall 2014	Average tons/A <sup>-1</sup> at 65% moisture for baleage & 3" left for regrowth, harvested 11/4/14	Average number of 650lb bales/A <sup>-1</sup>	Average Net Profit/A <sup>-1</sup>	Average RFV
Planted 9/1	2.0	6.3	\$182.39	177.8
Planted 9/15	1.6	4.8	\$118.73	173.8
Planted 10/1	0.3	0.9	<b>\$58.14</b>	171.5

Table 1. Estimated yields and profits/A<sup>-1</sup>. Calculations assume \$100/A<sup>-1</sup> seed expense, \$15/wrapped bale labor, material, and fuel expenses, and \$60 value per bale. Financial model for net profit estimation is under development.

Spring 2015	Average tons/A <sup>-1</sup> at 65% moisture for baleage & 3" left to allow for mower, harvested 5/18/15, 85% heading	Average number of 650lb bales/A <sup>-1</sup>	Average Net Profit/A <sup>-1</sup>	Average RFV
Planted 9/1	4.9	15.0	\$523.87	84.9
Planted 9/15	4.2	12.8	\$448.75	89.4
Planted 10/1	2.3	7.0	\$246.70	93.45

Table 2. Estimated yields and profits/A<sup>-1</sup>. Calculations assume \$15/wrapped bale labor, material, and fuel expenses, and \$50 value per bale due to low RFV. Financial model for net profit estimation is under development.

### Planting Date Experiment

Three dates of planting of Rye, seeded at 110 lbs/A

- 9/1: On Time
- 9/15: Late
- 10/1: Very Late

### Total, Average Yield (65% Moisture) & Profit from Fall & Spring

- 9/1: \$706, 6.9 tons/A
- 9/15: \$567, 5.8 tons/A
- 10/1: \$189, 2.6 tons/A



Fig 5. Rye, Wheat, Triticale: Spring regrowth and N applications

Rye, 50 lbs N/A

Rye, 25 lbs N/A

Triticale, 25 lbs N/A

All seeded at 110 lbs/A on 9/1, after manure application (same nutrient profile as above)

Fall 2014	Average tons/A <sup>-1</sup> at 65% moisture for baleage & 3" left for regrowth, harvested 11/4/14	Average number of 650lb bales/A <sup>-1</sup>	Average Net Profit/A <sup>-1</sup>	Average RFV
Rye	2.3	7.2	\$223.37	156.7
Triticale	2.4	7.3	\$228.30	162.8
Wheat	2.5	7.6	\$239.94	152.7

Table 3. Estimated yields and profits/A<sup>-1</sup>. Calculations assume \$100/A<sup>-1</sup> seed expense, \$15/wrapped bale labor, material, and fuel expenses, and \$60 value per bale. Financial model for net profit estimation is under development.

Spring 2015	Average tons/A <sup>-1</sup> at 65% moisture for baleage & 3" left to allow for mower, harvested 5/18/15, 85% heading	Average number of 650lb bales/A <sup>-1</sup>	Average Net Profit/A <sup>-1</sup>	Average RFV
Rye, 0lbs/N	3.9	12.0	\$420.00	88.0
Rye, 25 lbs/N	5.2	16.0	\$546.00	92.8
Rye, 50 lbs/N	6.0	18.5	\$618.00	90.6
Triticale, 0 lbs/N	3.5	10.8	\$376.90	101.3
Triticale, 25 lbs/N	4.6	14.2	\$495.40	101.2
Triticale, 50 lbs/N	4.8	14.8	\$516.90	100.7
Wheat, 0 lbs/N	3.1	9.5	\$333.80	111.9
Wheat, 25 lbs/N	3.6	11.1	\$387.70	107.9
Wheat, 50 lbs/N	3.3	10.2	\$355.40	109.7

Table 4. Estimated yields and profits/A<sup>-1</sup>. Calculations assume \$15/wrapped bale labor, material, and fuel expenses, CAN expense, and \$50 value per bale due to low RFV. Financial model for net profit estimation is under development.

Fall & Spring	Profit	Tons/A <sup>-1</sup>
Rye, 0lbs/N	\$643.37	6.2
Rye, 25 lbs/N	\$769.37	7.5
Rye, 50 lbs/N	\$841.37	8.3
Triticale, 0 lbs/N	\$605.20	5.9
Triticale, 25 lbs/N	\$723.70	7.0
Triticale, 50 lbs/N	\$745.20	7.2
Wheat, 0 lbs/N	\$573.74	5.6
Wheat, 25 lbs/N	\$627.64	6.1
Wheat, 50 lbs/N	\$595.34	5.8

Table 5. Estimated yields and profits/A. Calculations include parameters outlined in Tables 3 and 4.

2014 Northeast Dairy Farm Summary: <https://www.farmcrediteast.com/DFS.aspx>

Corn Hybrid Trials (35 Years): <https://ag.umass.edu/crops-dairy-livestock-equine/research/corn-hybrid-evaluation-reports>

USDA 2014 Crop Production Summary: <http://www.usda.gov/nass/PUBS/TODAYRPT/cropan15.pdf>