



Corn/Forage Update 2014



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Today's topics....

2013 Corn silage variety results

--cover crops

--Northern Corn Leaf Blight

Problem weeds ...how should they be handled?

--hedge bindweed/field bindweed

--new weeds..where do they come from?

Timing of herbicide applications...

Rootworm...Is it a problem and should you be concerned?

--rotations

Aminopyralid herbicides—what you need to know

2013 Maine Corn Hybrid Performance Trial



Funding provided by local seed companies, the University of Maine Cooperative Extension

Special thanks to John Stoughton and the farm crew at Misty Meadows Farm for hosting the trial and helping with planting and harvesting.

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A Member of the University of Maine system



Figure 1. Effect of Relative Maturity on Corn Silage Yield (corrected to 30% DM) (2013)

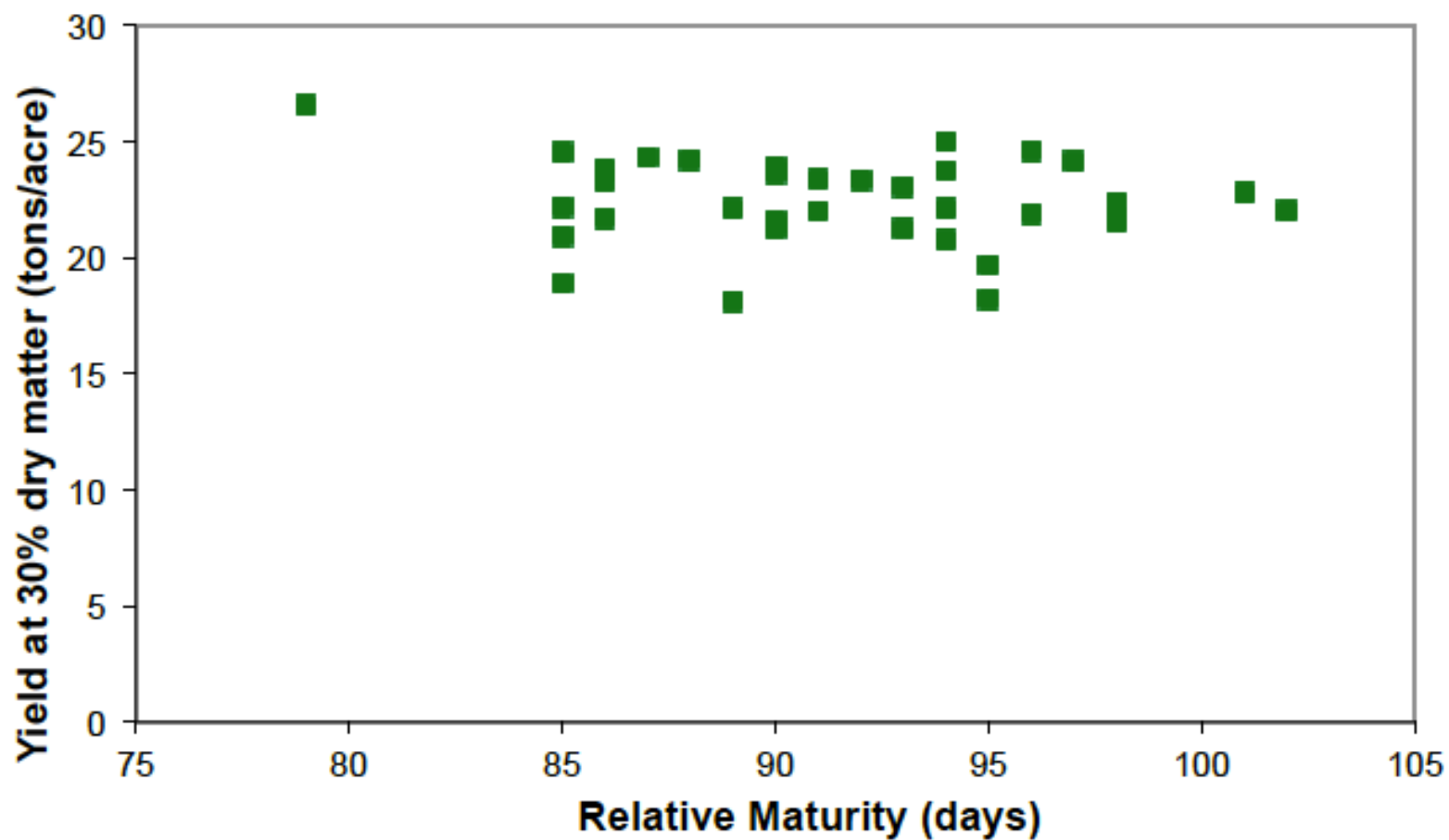


Figure 2. Effect of Relative Maturity on Expected Milk Yield Per Acre (2013)

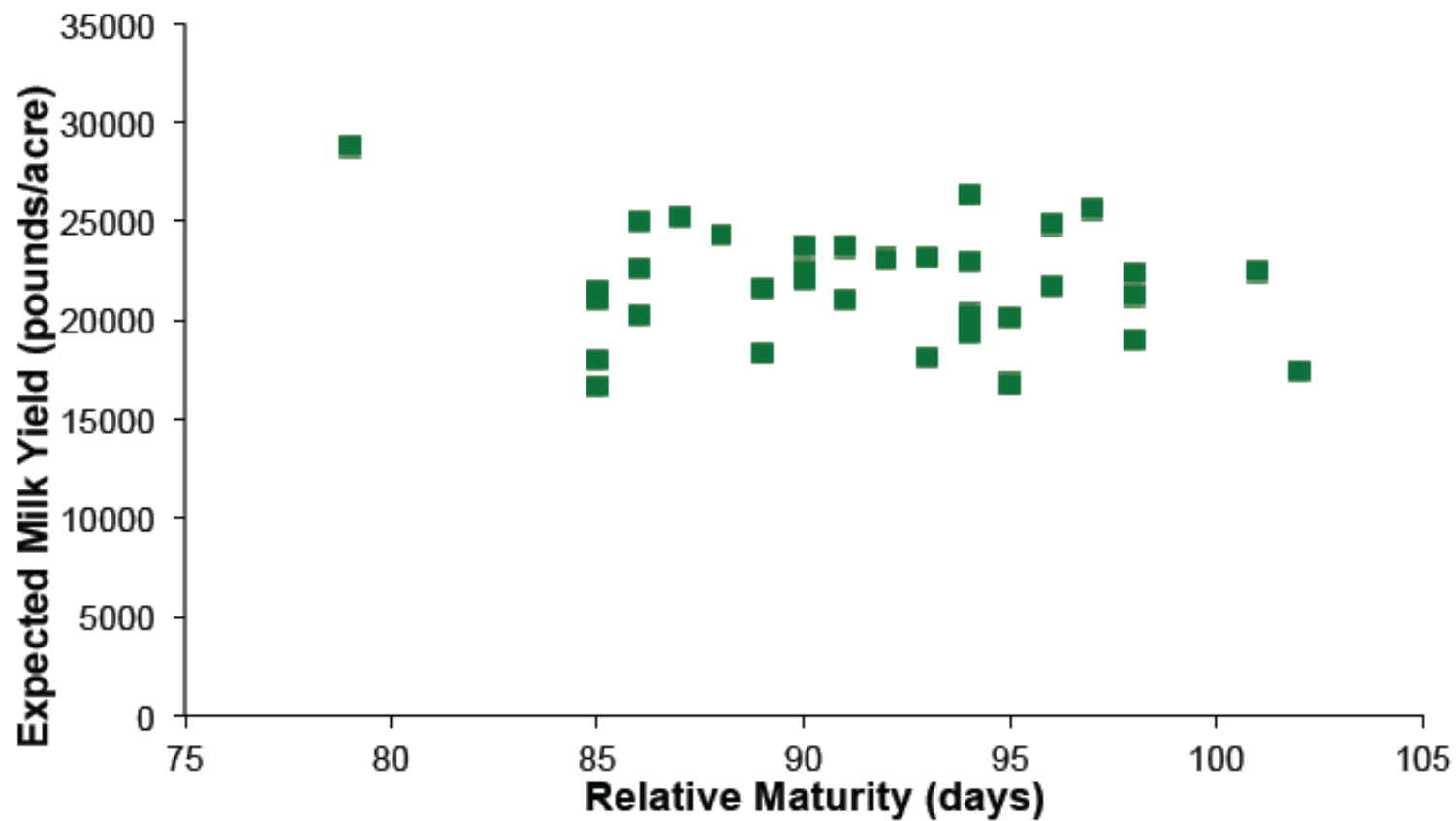
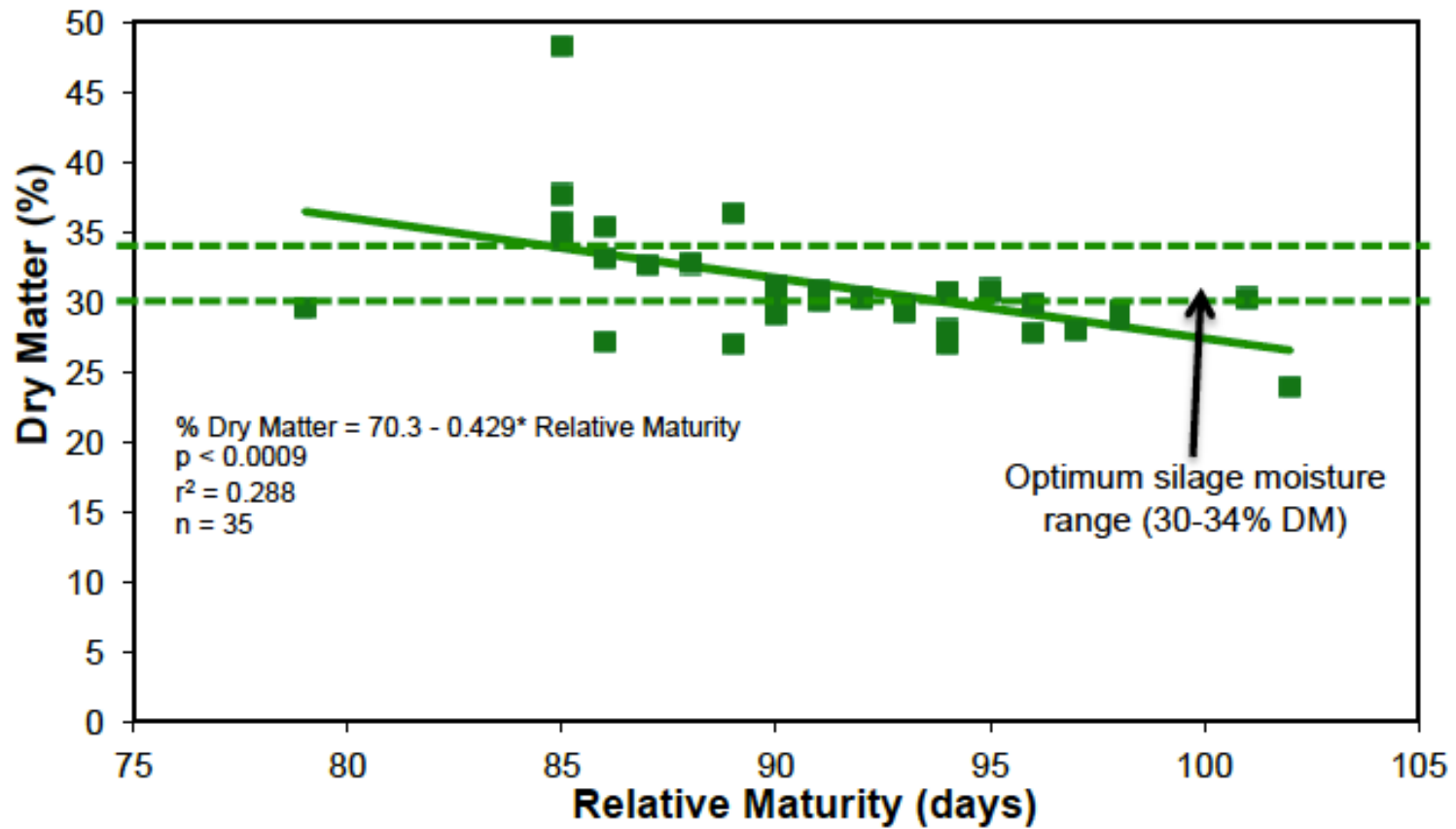


Figure 3. Effect of Relative Maturity on Dry Matter (2013)



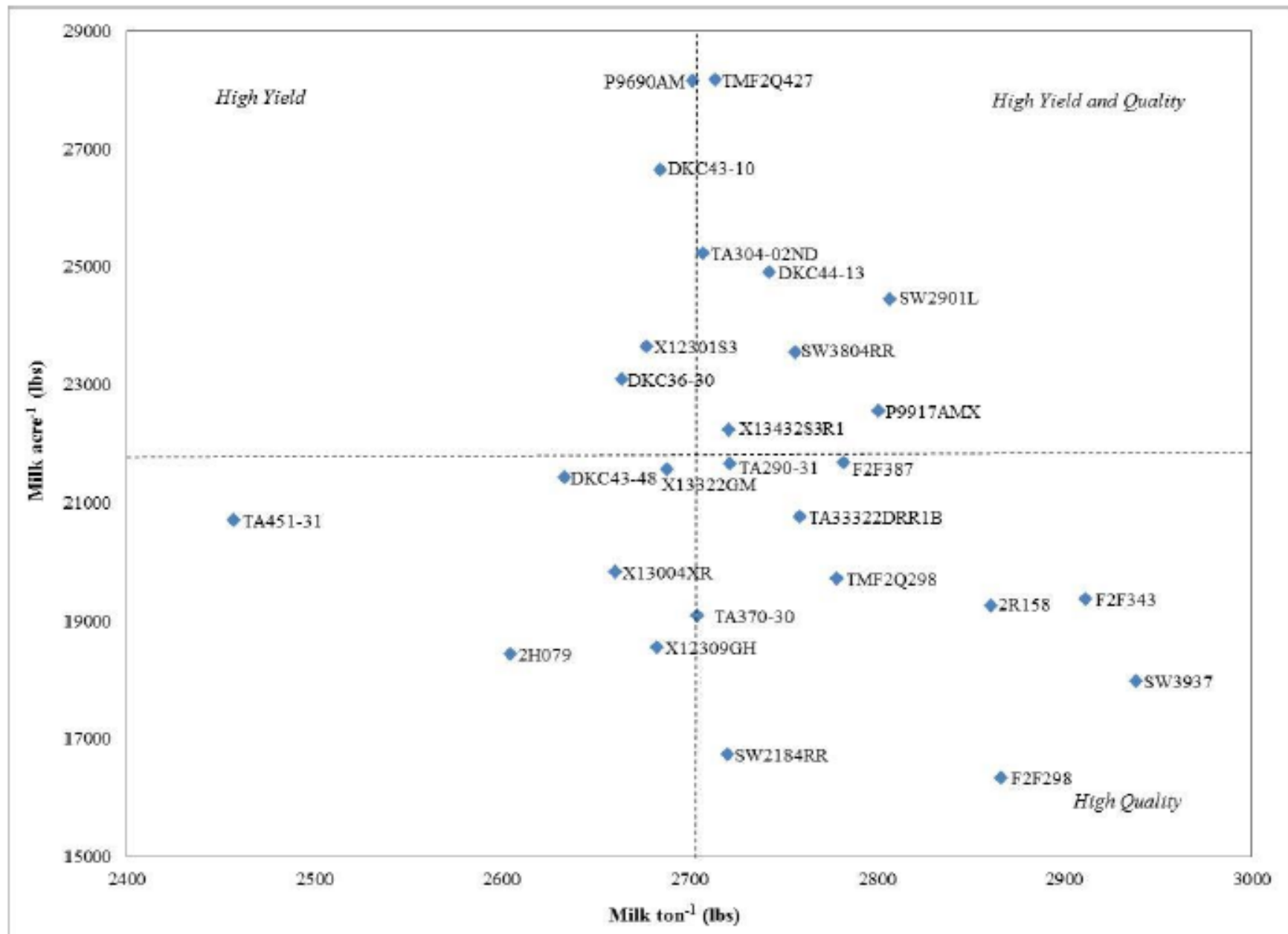


Figure 1. Relationship between milk per ton and milk per ac⁻¹ for short season corn silage varieties grown in Alburgh, VT. Dotted lines represent the mean milk per ton⁻¹ and milk per ac⁻¹.



Cover crops.....More than just soil erosion

- field moisture
- nitrogen capture and retention
- soil organic matter
- weed control



Fields with cover crops will dry out faster !!



Other reasons to switch to no-till corn systems...

Time.....

Harvesting first cutting earlier will have an impact on purchased grain costs.....

Higher quality first cutting will allow you to feed higher forage rations leading to healthier cows and higher components

Cover crops



Winter triticale

May 23

Yield 2 ton DM/
acre





Other benefits of no-till corn and cover crops..

Soil Quality!!!!

CORNELL SOIL HEALTH TEST REPORT

SOIL HEALTH TEST REPORT

NNY Dairy

E-MAIL:

Tel:

E-MAIL:

Tel:

Agent:

Agent:

Continuous corn silage,
Moldboard plow
Occasional manure

clay soil

DATE: 5/2/2006

SLOI 0-2'

DRAINAGE:

Year 2 Corn silage
Zone till
Fall rye cover + manure

silty
clay

PERCENTILE RATING*

PERCENTILE RATING*

	INDICATORS	VALUE	RATING	CONSTRAINT	PERCENTILE RATING*			VALUE	RATING	CONSTRAINT	PERCENTILE RATING*		
					Worst	50th Percentile	Best				Worst	50th Percentile	Best
PHYSICAL	Aggregate Stability (%)	15.4	2	eration, infiltration, rooting			41.6	9					
	Available Water Capacity (m/m)	0.22	8				0.23	9					
	Bulk Density (g/cc)	1.44	1	rooting, water transmission			1.17	10					
	Surface Hardness (psi)	200	2	rooting, water transmission			179	6					
	Subsurface Hardness (psi)	275	6				299	5					
BIOLOGICAL	Organic Matter (%)	3.8	3				6.3	10					
	Active Carbon (ppm)	634	6				860	10					
	Potentially Mineralizable Nitrogen (µgN/ gdwsoil/week)	16.1	10				9.6	10					
	Root Health Rating (1-9)	5	5				3	8					
CHEMICAL	pH (see attached CNAL Report)	6.5	10				6.4	10					
	Extractable Phosphorus (see attached CNAL Report)	26	6	ss			23	6					
	Extractable Potassium (see attached CNAL Report)	172	10				136	9					
	Micronutrients (see attached CNAL Report)	ADEQUATE	10				ADEQUATE	10					
OVERALL QUALITY SCORE (out of 100)			MEDIUM		57.7		83.2	GOOD					

Sample Description

DRY SOIL

WET SOIL

Test Results

No-till 4 years, rye cover crop (chemically killed) and liquid manure surface applied



7.81 ppm CO₂-C
SLAN: 390 lb/a N
SOM: 5.12%

Conventional tillage and liquid manure, but rye cover crop last 5 years and killed by incorporation



6.50 ppm CO₂-C
SLAN: 378 lb/a N
SOM: 4.64%

Conventional tillage, liquid manure incorporated, no cover crops



3.14 ppm CO₂-C
SLAN: 350 lb/a N
SOM: 3.96%

*Soils provided by Rick Kersbergen, UME Extension.

‡ A laboratory version of this test called the Soil Biology Test is available from UME Soil Test Lab in Orono Maine



What were some of the
issues we saw in 2013?

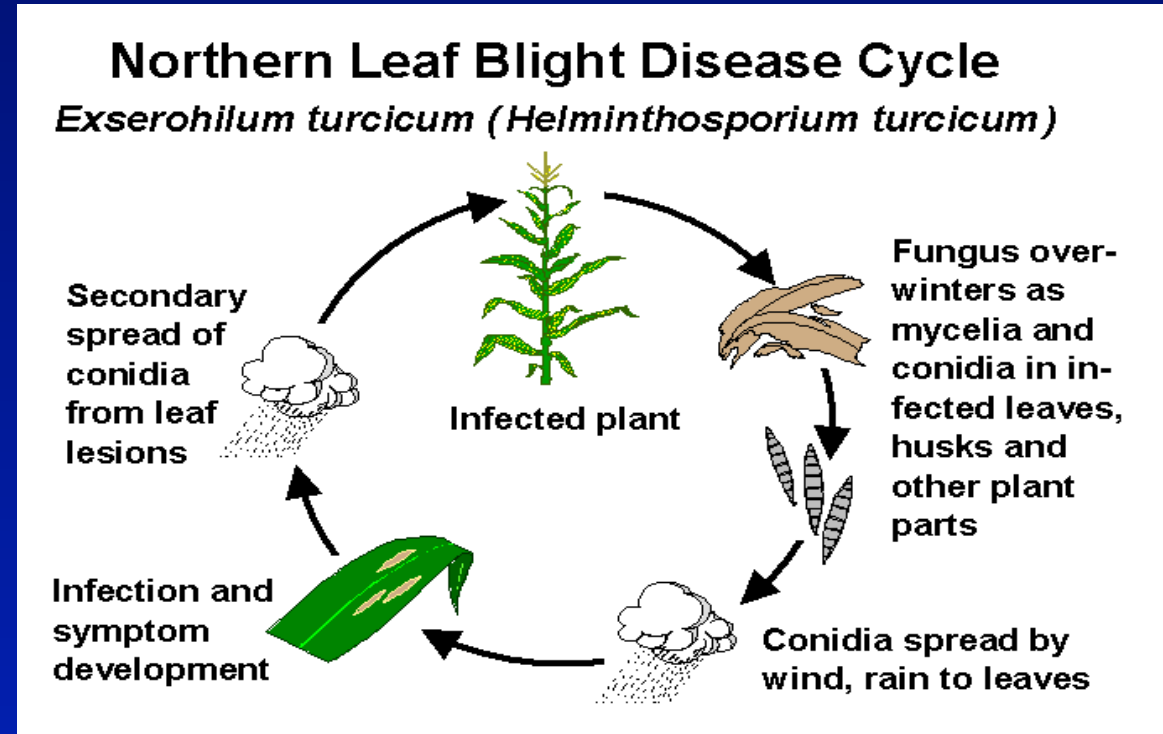
Northern Corn Leaf Blight



Figure 2. Characteristic tan cigar shaped lesions of NLB (photo Univ. KY)

Northern Corn Leaf Blight...an emerging issue?

Northern corn leaf blight is caused by the fungus *Exserohilum turcicum*. It overwinters as mycelia and conidia in diseased corn stalks



--Fungicides available to protect the corn from this disease they are generally not considered cost effective in corn silage systems

--Resistant hybrid selection should be a priority. Hybrids with above average resistance to NLB should be planted

--This disease has been seen primarily in continuous corn silage fields...a reason to rotate!

Leaf Blight Management

Plant resistant hybrids



University of Vermont Short Season Corn Variety trials 2013

If you could increase your corn silage yield by 15-20% without increasing your fertilizer bill.....

Table 5. Harvest characteristics of 27 short season corn silage varieties – Alburgh, VT, 2013.

Hybrid	RM	Harvest	Yield	Plant
		DM	35% DM	disease
		%	tons ac ⁻¹	1-10 scale
SW2184RR	83	42.7	17.5	5.00
2H079	79	43.0	19.9	6.33
2R158	83	48.5	19.1	5.67
SW3804RR	95-97	40.4	24.4	2.00*
DKC36-30	86	42.1	24.7	2.00*
DKC43-10	93	40.0*	28.2*	1.33*
DKC43-48	93	38.2*	23.3	1.67*
DKC44-13	94	39.0*	25.9*	1.33*
F2F298	88	42.0	16.3	4.67
F2F343	92	41.3	19.1	3.67
F2F387	95	37.0*	22.3	4.00
P9690AM	96	43.7	29.6*	3.33*
P9917AMX	99	40.7	23.0	1.33*
SW2901L	86	42.4	24.9	1.67*
SW3937	94-96	44.3	18.4	6.67
TA290-31	89	44.7	22.7	3.33*
TA304-02ND	89	38.7*	26.4*	1.67*
TA33322DRR1B	91	39.4*	21.5	1.00*
TA370-30	92	41.8	20.2	2.67*
TA451-31	95	39.2*	24.1	1.67*
TMF2Q298	89	35.4*	20.0	1.00*
TMF2Q427	96	38.7*	29.7*	1.33*
X12301S3	91	41.8	25.1*	3.00*
X12309GH	93	42.7	19.8	5.00
X13004XR	80	47.0	21.6	6.00
X13322GM	94	41.0	22.9	3.67
X13432S3R1	93	37.2*	23.2	1.33*
<i>LSD (0.10)</i>		4.81	4.68	2.48
<i>Trial Mean</i>		41.2	22.7	3.05

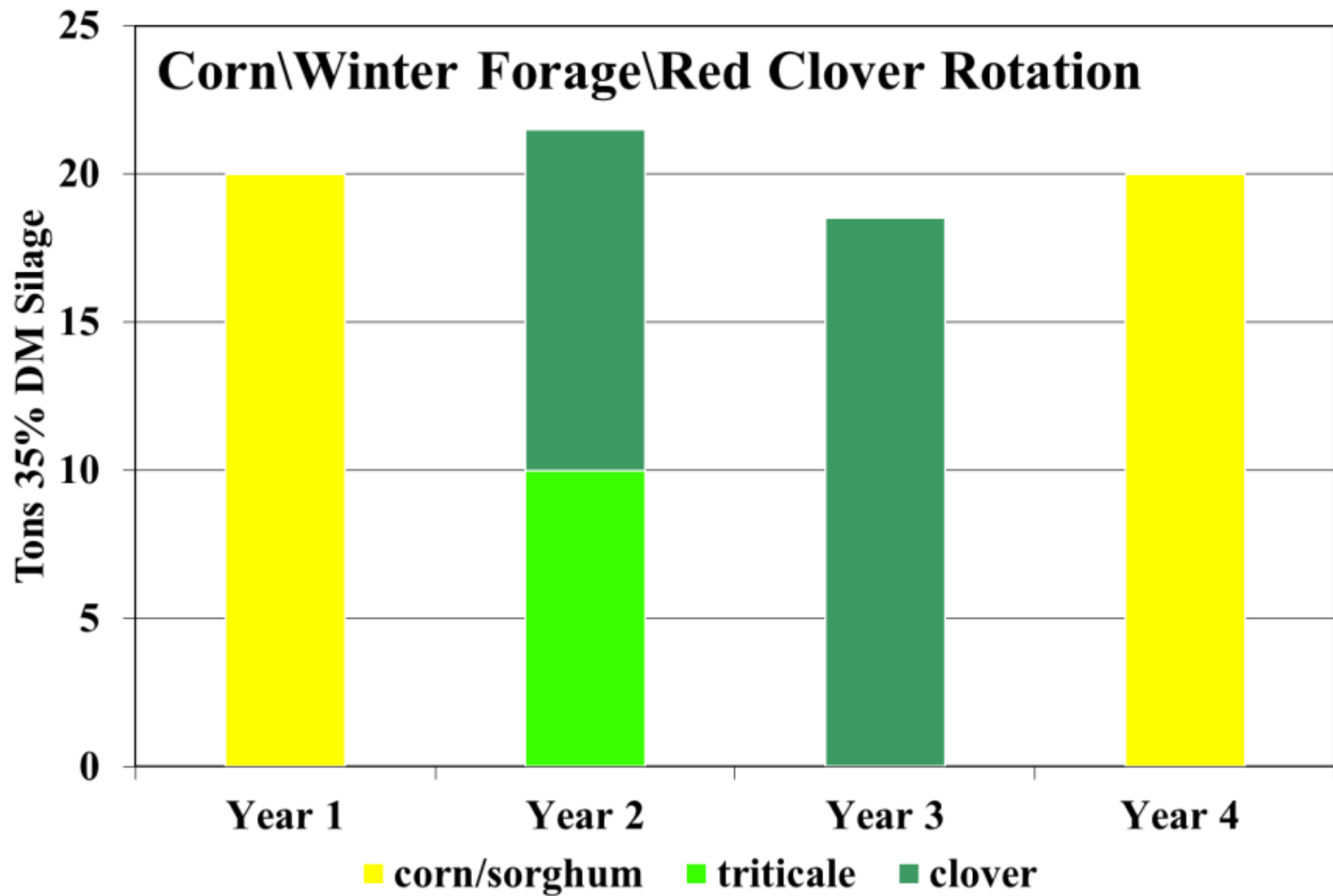
Treatments indicated in bold had the top observed performance.

* Varieties that did not perform significantly lower than the top performing variety in a particular column are indicated with an asterisk.

What might you think about to improve corn silage production? **Rotations...**

“Red Clover can produce yields equal or exceeding alfalfa for the first two – three years. Utilized in a short rotation with no-till corn, very high yield can be achieved on soils that traditionally had not produced a reliable forage supply. The combination of wide (>80%) swath with uniform, low density swath from removal of deflectors, can produce the same or better forage on somewhat poorly drained soils as is produced by alfalfa on well drained soils.”T. Kilcer, NY





So What are the benefits...

---After two years of high clover yield you can fall kill and no-till, or spring plow, and then plant **corn for 15 – 20% yield increase** due to rotation effect, no root worm issues, and all the nitrogen needed to grow the crop.

---Utilizing **no-till** for the corn, and minimum or no till for the winter forage and frost seeded clover; **Rock picking** and soil erosion is minimized.

---The most important issue is that the **clover** with even a modicum of good management (soil test, liming), **establishes very well** and with few if any weeds. It is a shade tolerant and aggressive seedling.

---Rootworms and corn diseases can't build to high economic levels as the crops are quickly switched from summer energy crop to winter forage to perennial legume, and back to summer energy again.

Rootworms...are they a problem on your farm?



- Scout for adults in late July early August for following year
- Rotations are a great way to control problems
- If you have problems...discuss options...Bt corn versus seed treatments of Cruiser or Poncho or soil insecticide

Problem weeds and weed control issues from 2013....



Glyphosate tolerant corn mistakes...



What is the mistake here?

Field/Hedge Bindweed

Post-emergence is the only option for control during the corn year

--read label directions carefully!!

--corn plant sensitivity is an issue

--control vs elimination?

Distinct ---dicamba and diflufenzopyr

Table 1. Hedge bindweed control and grain corn yields 1 year after treatment with postemergence herbicide applications in 2004 and 2005 at Aurora, NY.

Herbicides*	Rate Amt/A	Control (%)		Yield (Bu/A)	
		Alone	+ 4 oz/A Clarity	Alone	+ 4 oz/A Clarity
Clarity	8 oz	88	-	144	-
Clarity	16 oz	91	-	145	-
Distinct**	4 oz	89	-	143	-
Distinct**	6 oz	92	-	150	-
RU WeatherMax	22 oz	61	87	111	135
Beacon	0.76 oz	17	87	32	143
NorthStar	5 oz	83	-	149	-
Exceed	1 oz	76	87	127	143
Permit	1 oz	31	89	54	145
Yukon	8 oz	89	-	141	-
Steadfast	0.75 oz	75	86	137	127
Untreated		0	-	15	-
LSD (0.05)				25	25

* Applied with 0.25% NIS and 2.5% UAN.

** Registration pending in NY State.

What is this weed?



What is this weed?

Biennial
Wormwood
Artemisia biennis

How did it come to
Maine dairy farms?





Figure 4. Photo showing spikelike flower head of a mature biennial wormwood plant in early September (left) and mid-October (right) at Fargo, N.D.

plant is capable of producing up to 1 million seeds per plant.

Herbicide recommendations:

Active ingredients of postemergence herbicides that provide greater than 80 percent control of biennial wormwood include :

atrazine, bentazon, clopyralid, dicamba, glufosinate, glyphosate, MCPA and 2,4-D.

Postemergence herbicides must be applied to seedlings that are less than 3 inches (8 centimeters) in height (Fronning and Kegode 2004b).

Biennial wormwood becomes very tolerant to postemergence herbicides when plants are greater than 3 inches tall.

Aminopyralid Herbicides....caution!!!

Aminopyralid is the active ingredient in **Milestone** and **Forefront** herbicides

Broadleaf weed control in pastures was the main agronomic labeled use

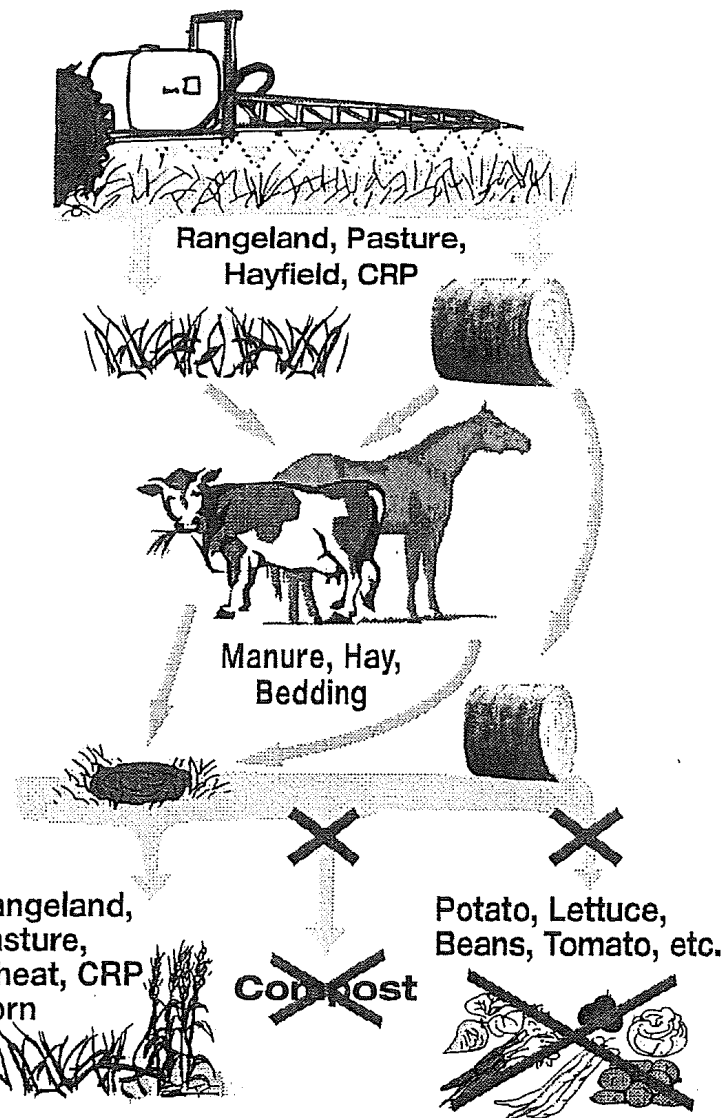
Provided excellent Smooth Bedstraw control...but....

This Active ingredient is very, very persistent

IMPORTANT USE PRECAUTIONS AND RESTRICTIONS TO PREVENT INJURY TO DESIRABLE PLANTS

- Carefully read the section *"Restrictions in Hay or Manure Use ."*
- It is mandatory to follow the *"Use Precautions and Restrictions"* section of this label.
- Manure and urine from animals consuming grass or hay treated with this product may contain enough aminopyralid to cause injury to sensitive broadleaf plants.
- Hay can only be used on the farm or ranch where product is applied unless allowed by supplemental labeling.
- Consult with a Dow AgroSciences representative if you do not understand the "Use Precautions and Restrictions". Call [1-(800) 263-1196] Customer Information Group.

Forage and Manure Management



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Alternatives to Milestone and Forefront for Bedstraw Control

--Control seed formation
for a year by cutting early

--Improve fertility and soil
pH to encourage aggressive
grass growth

--Crossbow herbicide
applied in late summer or
early fall is very effective if
combined with the above
practices.

Grass Rust and Forages



Rust on Grasses

- Most grasses susceptible to rusts
- Prevalence and severity vary year to year
- Stem and crown rust occur in late summer and early fall



Signs of Rust

- Reddish brown pustules
- Seen on entire plant
- Forages appear orange to red
- Late in season



Impact on Yield and Quality

- Reduces yield (up to 37%)
 - Associated with reduction in tillers
- Reduces palatability
- Reduces digestibility
- Rust is not toxic to livestock
 - Respiratory issues in horses?
- Weakens grasses—may lead to increased winter injury



Factors Favoring Rust

- Low fertility (in particular nitrogen)
- Low water availability
- Susceptible cultivars
- Seasons with excess rain may have rust outbreaks due to depletion of available nitrogen
- Cool nights with heavy dew and light, frequent rainfall add to the ideal conditions for rust to develop

Resistant vs. Susceptible Varieties



Rust Resistant Orchardgrass Varieties

Variety

BARIDANA

BENCHMARK

BRONC

DAWN

MAMMOTH

MEGABITE

POTOMAC

PROGRESS

Maturity

late

early

medium late

medium

early

medium

early

medium-early