

Ray Styer
Rockingham County
North Carolina



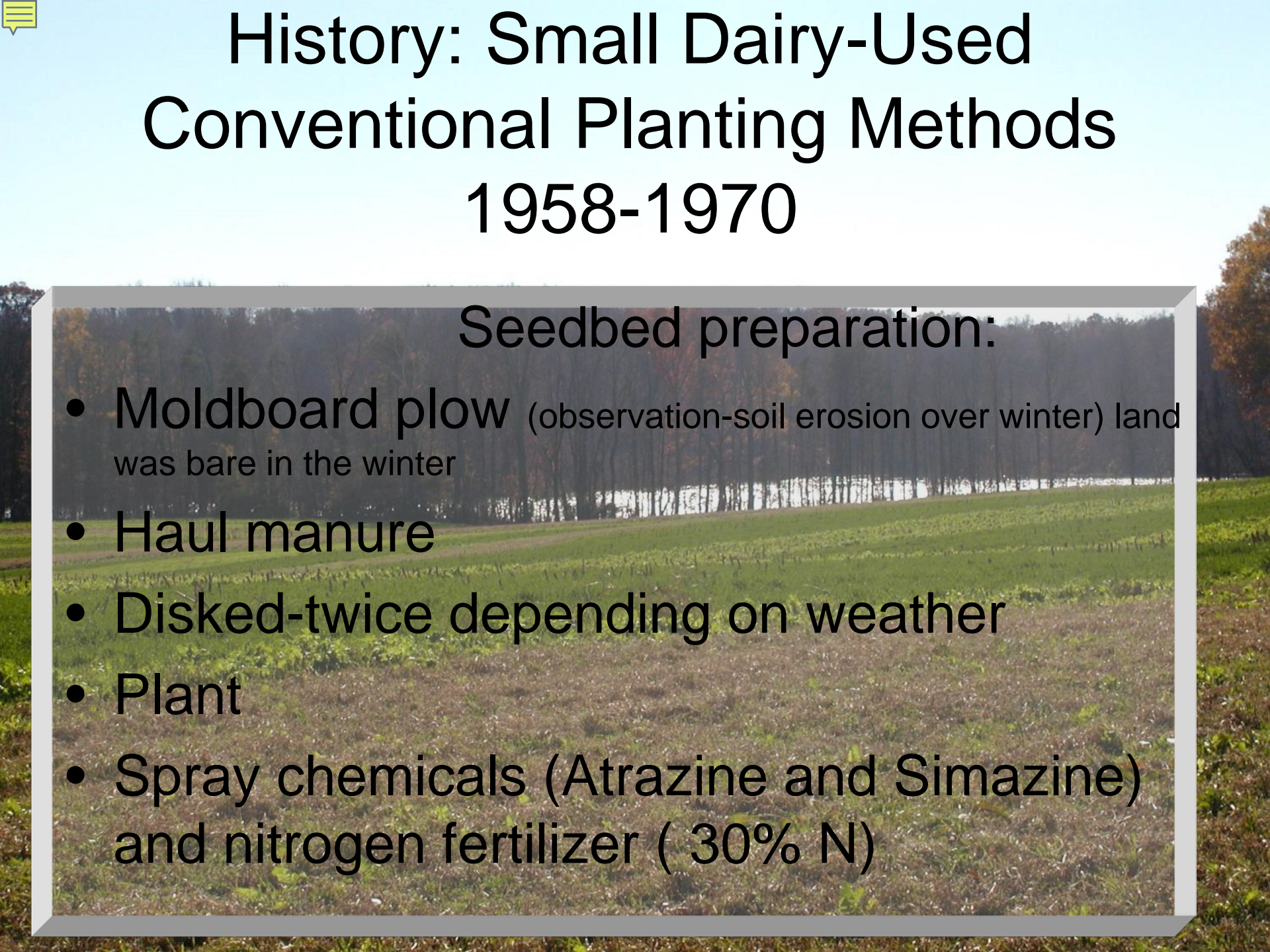
155 Acre Farm





History: Small Dairy-Used Conventional Planting Methods 1958-1970

Seedbed preparation:


- Moldboard plow (observation-soil erosion over winter) land was bare in the winter
 - Haul manure
 - Disked-twice depending on weather
 - Plant
 - Spray chemicals (Atrazine and Simazine) and nitrogen fertilizer (30% N)
- 



Beginning Cover

In the early years planted in natural cover :

- **Chickweed, Henbit and Manure**
 - **Ground was covered-but no rapid improvement in soil quality**
 - **Lack of residue returned to the land**
- 



Mainly No-Till Since 1970

Reasons for changing from conventional-tillage to no-tillage

Number 1 reason:

“ Time “


A man in a blue shirt and red cap is operating a red tractor pulling a white Ray brand no-till planter in a field of tall grass. The planter has several white seed boxes and is moving through the field. The background shows a line of trees and a clear sky.

100 percent no-till

- **Early 1970's Ray began to consider the effects of tillage**

1970 Started Using Annual Rye As A Cover Crop






In The Present: Ray uses Crimson Clover, Rye, Radish, and Vetch combined together.





Combining Rye And Vetch As Cover Crops

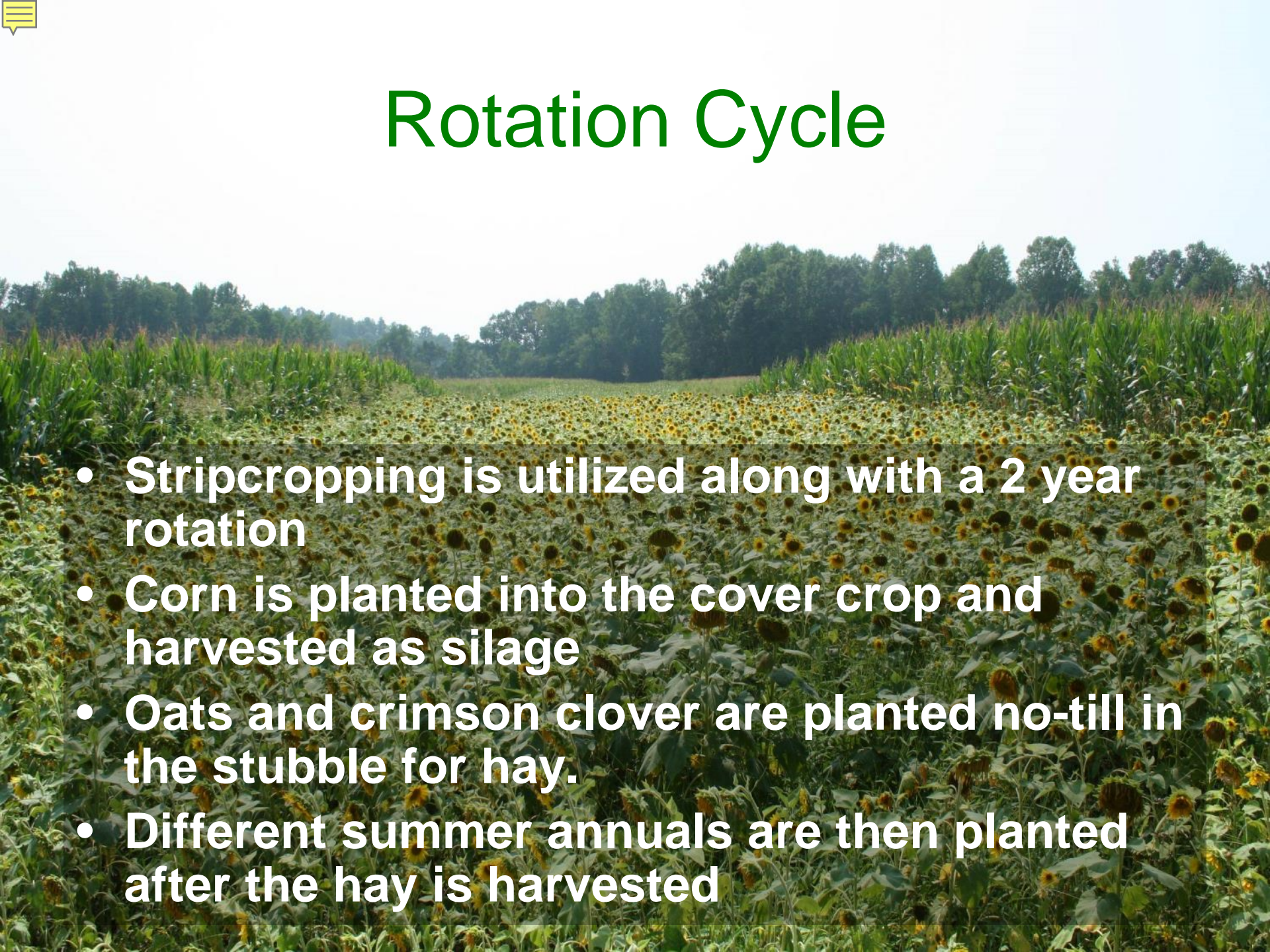
- Mixture of one bushel rye + 15 pounds vetch + 5 pounds crimson clover
 - Plant by mid September
 - Set drill for 1 to 1.25 bushel rye per acre
 - Most growth from mid-March to planting time
 - Rye is 6-7 feet tall, vetch will creep up the rye plants (trellis effect)
 - Clover holds it's own amidst all this
- 

Additional Considerations

- **Roots systems from different species are contributing to the soil structure**
- **Rye residue is mulching the soil, reducing the temperature and retaining moisture and no erosion is apparent**
- **Soil is covered between the silage and succeeding crop**



Rotation Cycle

- 
- Stripcropping is utilized along with a 2 year rotation
 - Corn is planted into the cover crop and harvested as silage
 - Oats and crimson clover are planted no-till in the stubble for hay.
 - Different summer annuals are then planted after the hay is harvested

Roll down the cover crop



Spray Roundup on Cover Crop



Plant Crop



How Ray Does It!

Rolling Cover Crop with Old Culti-Packer





Seasonal Management of the Crop

- **Spray Roundup for Johnson Grass (“Roundup Ready” corn seed used)**
- **Corn is 18 inches tall**
- **No additional nitrogen applied**

Ray Styer uses cheap and undependable government labor to roll down his cover crop



Spray Cover Crop After Roll Down



Planting Corn Into Cover Crop Mix





Corn emerges through the rolled cover crop





Future Cover Crops

- Diakion Forage Radishes (brassicas)
- Why?
- Used for “biotillage”
- Reduce compaction, attract earthworms, soak up nitrogen
- Produces roots 12 to 18” deep and 1 to 2” in diameter

Growing Radishes







Nutrient Utilization



How much Manure?

- 10.53 tons/acre.
- 65-70 steers (5 months) produce 228 tons of manure-enough for 24.0 acres



- **The Manure provides: 42 lb. N/ac. 53 lb. P/ac. and 96 lb. K/ ac. for 24 acres.**
- **With present volume of manure- takes 2 years to cover farm completely.**



Nutrients And Benefits Provided By Cover Crop

- Vetch decomposes quickly-provides Nitrogen for microbial breakdown of Rye
- Rye provides *3000-10,000 lbs. of dry matter per acre per year, it suppresses weeds/pests, and sequesters available nitrogen,
- Crimson Clover provides additional N
- Crimson Clover, Rye, and Vetch grown as companion crops supply adequate nutrients for Corn Silage

***Managing Cover Crops 3rd Edition SARE Publications**

Economics- Ray compares his no-till system:

With Cover Crops	
Rye (1 bu./ac.) <i>Seed cost</i>	\$15.00
Vetch (20 lb./ac) <i>Seed cost</i>	\$39.00
Radish (4 lb./ac) <i>Seed cost</i>	\$10.00
Cr. Clover (5 lb./ac.) <i>Seed cost</i>	\$ 8.00
Round up	\$7.00
Cover Crop Planting/Rolling per AC.	\$ 25.00
Total	\$104.00 per/ac.

<u>Without</u> Cover Crops	
18-46-0 *(18 units of N)	\$58.00
*(162 units of N) (30% N) Oct. 2007 price-	\$135.00
Round up	\$ 7.00
2 lb Atrazine and Simazine	\$ 12.00
Total	\$212.00 per/ac.

*Units of N recommended by NC State University

\$108.00/ ac. savings

Harvest and Feed Value



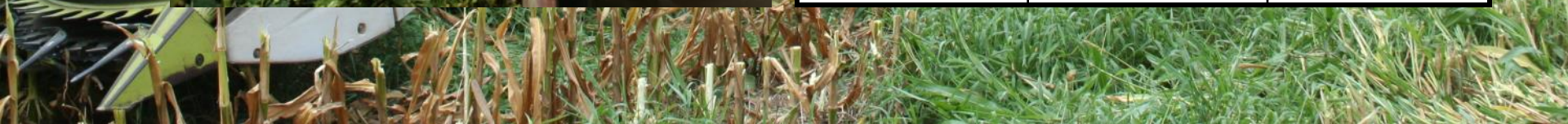
Hemroyd, The Soil Swine sez
“you gotta have quality feed”!



Harvest and Feed Value



Type of sample	Rays Silage	Desired Range
Crude Protein	7.78	6.6-8.0
Acid Detergent Fiber (ADF)	28.21	22-29
Total Digestible Nutrients (TDN)	68.09	65-68
Net Energy Lactation (NEL)	70.45	67-70





HIGH SOIL QUALITY LEADS TO HIGH
SILAGE QUALITY.

Ray's silage provides enough energy- no extra corn needs to be added to the feed ration!

Which saves \$ 1,638.00 for every 65 head of stocker steers!



Reasons to farm this way?

- Time savings
- Cost savings by reducing petroleum based inputs
- Reduce dependency on petroleum based inputs
- Healthy soils help reduce impact of drought
- Healthy soils provide consistent high quality feed
- Healthy soils have increased infiltration; reduce impacts to local rivers and lakes
- Healthy soils reduce overall pest problems

Ray Styer's Family



“I recognize the right and duty of this generation to develop and use the natural resources of our land: but I do not recognize the right to waste them, or to rob, by wasteful use, the generations that come after us.” *Theodore Roosevelt, c. 1902*