

# Surviving a Nutrient Management Plan

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# Disclaimer

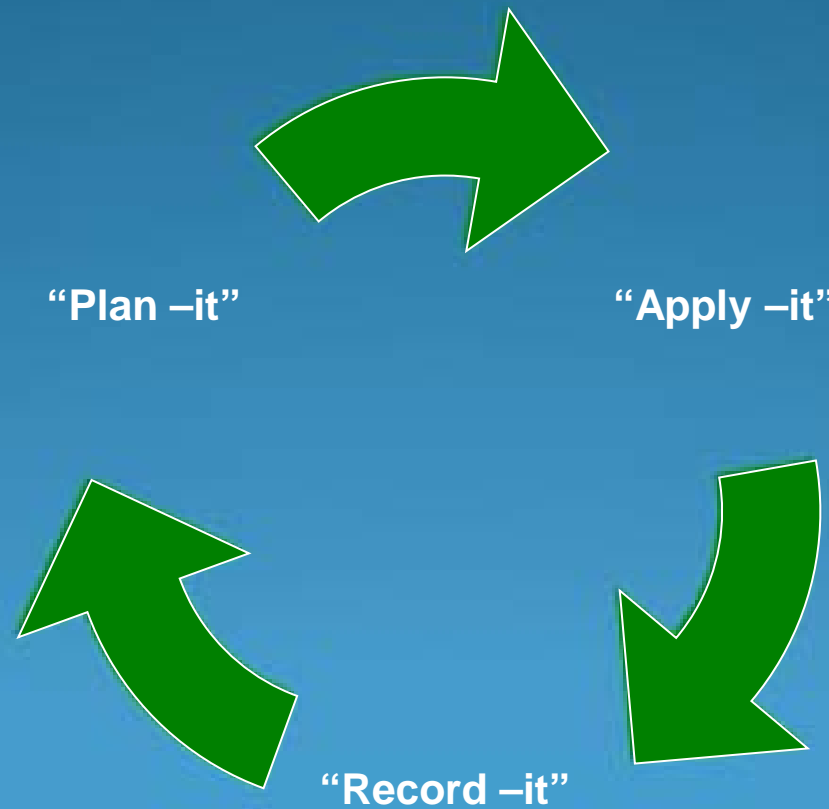
This presentation is an overview of some of the items needed to develop a Nutrient Management Plan (NMP) and establish a value for your manure. There are many ways to develop a plan and value manure and many environments in which could cause protocols to change. If you are in need of a NMP for environmental regulation purposes I would recommend you contact an Agricultural Consultant to help you fine tune your operations Nutrient Management Plan!

# Maximize manure value!

To maximize the value of manure you must manage the source, amount, timing, placement, and form of each manure application to balance the soil nutrient inputs with crop requirements.

# Make “- - it” happen!

The secret to success!



# The 10 Components of a NMP

1. Field mapping and environmental assessments
2. Soil Testing
3. Crop sequences
4. Estimated yield potentials
5. Nutrient source, quantity and form
6. Recommended timing
7. Recommended methods
8. Recommended rates
9. Recordkeeping
10. Annual review and update

# “Plan it” Components

## 1. Field mapping

- Aerial photo
- Soil type
- Topography
- Designated sensitive area
  - Residences
  - Surface waters
  - Wells
- Environmental Assessments



# RUSLE2

- Revised Universal Soil Loss Equation (RUSLE 2)
- Inputs
  - Climate Data
  - Soil Type Data
  - Slope and Slope length
  - Conservation Practices (Terraces, contour strips, etc)
  - Estimated yields by predominate soil type
  - Residue Management (Tillage, Manure, etc.)

# P Index

- Phosphorous Loss Index (P-Index)
- Inputs
  - Gross Erosion (tons/acre)
  - Sediment Trap Factors
  - Distance from a stream
  - Soil Test (P) & Planned application of (P)
  - Soil Types & Tillage Practices
  - Tile and Drainage

# “Plan it” Components

## 2. Soil Testing

- Take at least one representative sample per 10 acres.
  - Grid, Zone, or Compost
- Analyze for Ph, P, and K at minimum
- Sample at least once every 4 years.



# “Plan it” Components

## 3. Crop sequence

- Previous, Current, and planned crop
  - Nutrient Credits
  - Planned Crop Requirements
- Crop rotation
  - How often will you apply manure?
  - What are those crops nutrient needs?
- Nutrient Balances
  - Match nutrient application with crop sequence needs!

# “Plan it” Components

## 4. Estimated yield potentials

Suggested Option to determine yield goals!

- Individual farm proven yields
- USDA Ag Statistics county yield averages
- Predominate soil type yield estimate

# “Plan it” Components

## 5. Nutrient source, quantity and form

- What types manures are available?
- What types of manure storage structures?
- How much will be generated?
- Are they liquid, solid or slurry?
- How do we manage application and handling?
- Manure Analysis Results
- Manure Nutrient Availability
  - Solid vs. Liquid
  - Availabilities can vary

# “Apply it” Components

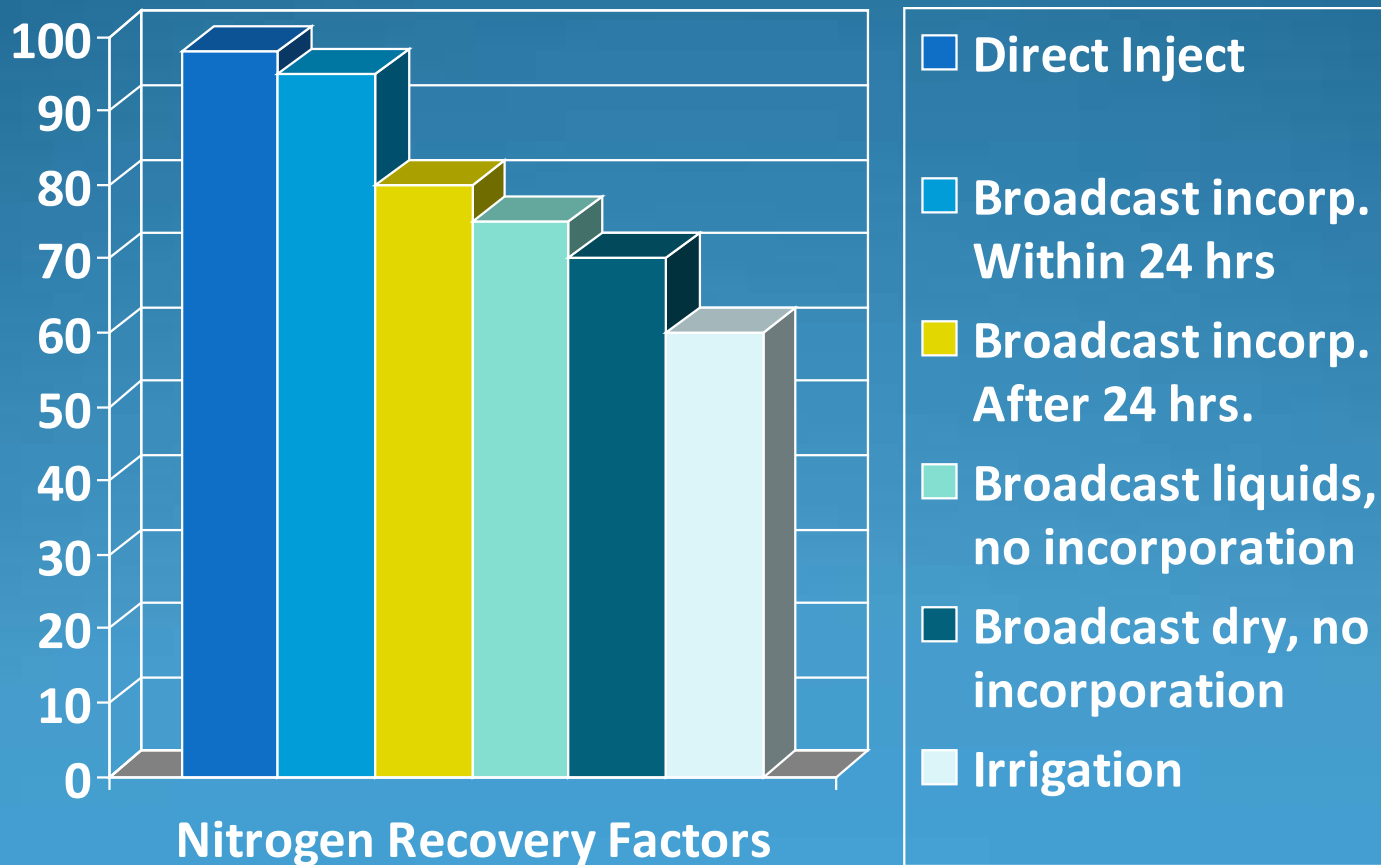
## 6. Recommended application timing

- Fall, summer, or spring
- Winter frozen ground applications (Good or Bad)
- Ground Temperatures and N losses.
- Time application close to crop uptake needs.



# “Apply it” Components

## 7. Recommended application methods and N losses



# “Apply it” Components

## 8. Recommended application rate

1. Determine planned crop
2. Determine Yield goal
3. Determine N credits (legume and manure)
4. Determine P and K needs (soil tests and removals)
5. Correlate nutrient needs with nutrient applications
6. Supplement with commercial fertilizers

# “Record it” Components

## 9. Recordkeeping (minimums)



- Harvest crop and yield
- Application Location in the field
- Application Date
- Application Rate
- Application Method
- Manure sample

# “Review it” Components

- PSNT Soil nitrate testing
- End of season stalk testing
- Standard soil fertility testing (every 4 years min)
- Yield Analysis (where did we go wrong, or did we?)
- When was the last time I applied this field.

# Manure, Asset or Liability?

We have learned!

- Components of a Nutrient Management Plan
- Factors affecting nutrient losses and availabilities.
- Factors to determine a manure application rate.
- So, what is my manure worth?

# Nutrients Supplied and Crop Needs

	Ammonium N	Organic N	Total N	P205	K20	Sulfur	Zinc
Manure Nutrient Content (lbs/ton)	0	0	22	16	14	2.8	0.5
Nutrient Availability Factors	0.7	35%					
Available Nutrients (lbs/ton)	0	0	5.4	16	14	2.8	0.5
Nutrient Recommendations (Year 1)	Corn		175	75	60	5	2.5
Nutrient Recommendations (Year 2)	Corn		175	75	60	5	2.5
Nutrient need for 2 years (lbs/acres)			350	150	120	10	5

# Application rates and quantities of nutrients supplied

Load Capacity (tons/load)	20
Manure Application Rate (tons/acre)	20

N	P	K	S	Zn
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Total Nutrients Available (lbs/load)		107.8	320	280	56	10
Total Nutrients Available (lbs/acre)		107.8	320	280	56	10

# Manure Value

		N	P	K	S	Zn	
Fertilizer Nutrient Costs (\$/lb.)	Totals	\$0.25	\$0.45	\$0.45	\$0.20	\$1.50	
	Value / Ton	<b>\$16.16</b>	\$1.35	\$7.20	\$6.30	\$0.56	\$0.75
	Value / load	<b>\$323.15</b>	\$26.95	\$144.0	\$126.0	\$11.2	\$15.0
	Value / Acre	<b>\$323.15</b>	\$26.95	\$144.0	\$126.0	\$11.2	\$15.0
Estimated Value of Yield Increase	\$17.50						
Total Value of Manure	\$340.65						
Cost of Manure (or cost to haul)	\$240.00						
Net Value of Manure	\$100.65						

# Capturing manure value

- Even application and rate
- Soil and Manure sampling
  - If soil test are high it may be a cost to you!
  - If manure tests are low it may be a cost to you!
- Get the right equipment (size and type)
- Keep good records for future placement

# “NMP” Is it worth it?

## Pros

- Increase profits
- Maximize Fertilizer Efficiencies
- Reduce commercial fertilizer needs
- Stay in regulatory compliance
- Improve environmental quality
- Improve Soil Quality

## Cons

- Too much paper work
- Government Regulated
- Takes to much time
- Expertise and Equipment Costs
- Not Flexible pro-actively
- Nutrient Variability

Creating a good Nutrient Management Plan has its challenges, but as we have found those challenges can be managed. Implementing the plan you have developed is the next challenge.

Thank you and Good Luck!

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