

# Midwest Soil Improvement Symposium:

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*Research and Practical Insights into Using Gypsum*

## *Applying Gypsum: When, How and How Much*

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# APPLYING GYPSUM: HOW, WHEN AND HOW MUCH

Ron Chamberlain, GYPSOIL™ Division of  
Beneficial Reuse Management

# Topics

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- ☐ Physical properties
- ☐ Storage
- ☐ Loading
- ☐ Spreading
- ☐ Timing
- ☐ Rates

# Gypsum

- Unlike any other bulk-applied material
- Requires learning process
  - ▣ Once you figure it out, it's not difficult



# Gypsum Characteristics

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- Physical properties vary, depending on source
- FGD gypsum
  - Fine tan-colored powder, damp to the touch
    - Similar to slightly damp flour
- Gypsum from manufacturing
  - White to grey powder with somewhat larger crystalline structure
- Tendency to bridge

# Storing Gypsum



- ❑ Ideal: Under cover
- ❑ Can be stored in open on turn-row, or farm lot

# Storing Gypsum in Open

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- > 200 ft. from nearest stream or drainage
- Scrape ground bare (remove stalks, grass & debris)
- Pile to a peak
  - If rain, surface will seal and water will run off
- Pile so water drains away from bottom of pile
- As with all farming materials, keep away from livestock, pets, children

# Equipment

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## □ Ideal:

- Stainless steel box with steep (45° angle) sides
- Belt at least 20" wide
- Twin spinners
- Independent belt and spinner controls
- Remove non-essential interior gates, partitions, braces



# Equipment

- New Leader 3020 with G4 control unit



# Equipment



- Chandler little & lime spreader

# Equipment

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- BBI Litter spreader





# Spreader Box

- ❑ Requires steep, slick sides
- ❑ Clean and coat rusted areas
- ❑ If not stainless, use plastic liner
- ❑ Treat with SLIP-Plate graphite film coating



# Spreader Set Up



- Raise rear gate no more than 3"-5"
- Adjust spinners for best pattern
  - ▣ Move further from drop
  - ▣ Reduces tendency for heavier pattern on edges

# Loading

- Place gypsum on sides, not center
- Feather out on bed rather than dropping all in one pile
- Do not pile heavily against rear gate





# Calibrating Spreader

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- Load spreader about 1/3 full
- Apply to field
- Check:
  - Rate
  - Flow
  - Pattern
- Adjust belt and spinners controls as needed
- Increase the load size until you are comfortable



# Timing

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- Apply GYPSOIL any time that it is appropriate to be in the field without damaging the soil or the crop



# Ideal Application Periods

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- ☐ After any alfalfa cutting once hay is baled
- ☐ After wheat harvest
- ☐ After soybean or corn harvest
- ☐ Before planting

Avoid applying on snow-covered ground to minimize wind or water loss.

# Incorporation?

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- Gypsum is soluble; there is no need to incorporate
- But there's no harm in applying prior to tillage either
- GYPSOIL is flexible!

# Rates

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- Experience is best teacher
- Depends on objectives, circumstances
- Typical rates
  - For sulfur fertilization of alfalfa
    - 300-500 lbs/acre
  - For amending soil
    - 1 to 2 ton/acre every 1 to 2 years
  - Established use rates for peanuts, potatoes, other specialty crops

# Soil Test CEC is Guide

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ORGANIC MATTER	PHOSPHORUS						POTASSIUM	MAGNESIUM		CALCIUM	SODIUM		pH		CATION EXCHANGE CAPACITY	PERCENT BASE SATURATION (COMPUTE			
	P <sub>1</sub>	P <sub>2</sub>	BICARBONATE P		K		Mg		Ca		Na		SOIL	BUFFER	C.E.C. meq/100g	% K	% Mg	% Ca	% H
	WEAKER GRAY 1-3	STRONG GRAY 1-3	OLIVE										pH 1-1	INDEX					
PERCENT RATE	ppm RATE	ppm RATE	ppm	RATE	ppm	RATE	ppm	RATE	ppm	RATE	ppm	RATE							
2.4		12		22			128		190		1344		6.3	6.9	9.6	3.4	16.5	70.0	10.1
2.4		24		37			101		195		1620		5.8	6.7	12.3	2.1	13.2	65.9	18.8

CEC

<10

10-15

>15

Rate

0.5 T/A

1.0 T/A

2.0 T/A

Goal: Base saturation of Ca = 70% to 85%

# Typical Cost

Typical applied cost:  
\$25-\$45/Ton

Transportation cost is main  
variable

Price set at retail

Mined gypsum generally  
much higher cost



# GYPSOILS's Expanding Distribution System

## □ Illinois

- |                            |  |
|----------------------------|--|
| □ Heartland Ag Group, Ltd  | Hintzsche Fertilizer, Inc.             |
| □ Midwest AgSolutions, LLC | Southern FS                            |
| □ Tri-County Chemical, Inc | Van Horn Inc                           |
| □ Wabash Valley FS         | Ag Spectrum Company/Ag Solutions Group |
| □ Dahm Companies Jackson   | AgVenture Seeds                        |

## □ Indiana

- |                            |                            |
|----------------------------|----------------------------|
| □ AgLime Trucking          | Brookfield Sand and Gravel |
| □ Clouser Crop Solutions   | Co-Alliance Mulberry       |
| □ CPS Straughn             | DeHaven Soil Service       |
| □ Fischer Spraying Service | Kentuckiana Trucking, Inc  |
| □ Premier Ag               | Steve Meyer Trucking Inc.  |
| □ Superior Ag              | A E Reality Group          |
| □ Ag Plus                  | Flat Rock Fertilizer       |
| □ Jackson Jennings Coop    | Kova Fertilizer            |
| □ Monticello Farm Services | New Ross Grain             |
| □ Motes Farm Services      | Premier Ag                 |
| □ Sudan Farms              | Vision Ag                  |
| □ Wilson Fertilizer        | Brad Brown                 |

## □ Wisconsin

- |                                 |                               |
|---------------------------------|-------------------------------|
| □ Ag Ventures                   | Agri Partners                 |
| □ Common Sense Soil Systems LLC | Conserv FS                    |
| □ Cooperative Plus, Inc.        | Country Visions Cooperative   |
| □ Forever Sandfill              | Frontier FS Cooperative       |
| □ Kettle Lakes Coop             | Krutza Spreading, LLC         |
| □ Kutz Farms LLC                | Landmark Services Cooperative |
| □ Servco FS Cooperative         | Short Lane Ag                 |
| □ Weninger Asphalt Paving       | DeLong Cooperative            |
| □ Glen Schneider                | Larson Cooperative            |
| □ Heartland Co-op               | Wi River Co-op                |
| □ Lyle Hundertmark              | Midwest Ag Solutions LLC      |

# Summary

- ❑ Applying gypsum is not difficult, just new for many
- ❑ Like any ag material, store properly
- ❑ Use the right equipment; avoid rusted or painted boxes
- ❑ Set up, calibrate, practice with partial loads
- ❑ Apply any time it's appropriate to be in the field
- ❑ Match the rate to your objectives and need



Thank You!

Questions?