

**NATURAL RESOURCES CONSERVATION SERVICE**  
**CONSERVATION PRACTICE STANDARD**  
**AMENDING SOIL PROPERTIES WITH GYPSIFEROUS PRODUCTS**

(Acre)

CODE 801

**DEFINITION**

Using gypsiferous products to change the physical or chemical properties of soil.

**PURPOSES**

- Improve soil physical/chemical properties to reduce soil erosion and improve infiltration.
- Reduce dissolved phosphorus concentrations in surface runoff and subsurface drainage.
- Reduce the potential for pathogen transport from areas of manure and biosolids application

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies where gypsiferous products will be used to alter the physical and/or chemical characteristics of soil to help achieve one of the above purposes.

**This practice does not apply to soils with a sand content of 70% (loamy sand) or more, soils with pH of <5.8, or organic soils.**

To remediate sodic soils, use Indiana (IN) Field Office Technical Guide (FOTG) Standard (610) Salinity and Sodic Soil Management.

**CRITERIA**

**General Criteria Applicable to All Purposes**

Use of this standard requires compliance with all applicable federal, state, and local laws and regulations.

**Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service State Office, or download it from the Field Office Technical Guide for your State.**

**Soil physical and chemical condition will be evaluated** according to an NRCS-approved process to determine need, timing, placement, and rate.

Follow the IN FOTG Standard (590) Nutrient Management standard's General Criteria and Additional Criteria to Improve or Maintain the Physical, Chemical, and Biological Condition of the Soil to Enhance Soil Quality for Crop Production and Environmental Protection.

**Validation of product.** It is the responsibility of the amendment provider to furnish the following documentation to the producer:

- Chemical analysis of the product, which will include the calcium and sulfur content,
- Content of heavy metals and other potential contaminants (radium, cadmium, boron).

Flue gas desulfurization (FGD) gypsum that is produced after the removal of fly ash is acceptable for these uses.

**Additional Criteria to Improve Soil Physical/Chemical Properties to Reduce Soil Erosion and Improve Infiltration and Percolation**

When the above evaluation cannot be utilized in a timely manner, apply up to 2 tons/acre of gypsum on the soil surface (not incorporated) in year 1 when no crop is growing.

Gypsum may be applied to pasture fields anytime livestock are not present.

#### **Additional Criteria to Reduce Dissolved Phosphorus Concentration in Surface Runoff and Subsurface Drainage**

**General Use on High P Soils** – When the above evaluation cannot be utilized in a timely manner apply up to 2 tons/acre broadcast on the soil surface (not incorporated) when soil test phosphorus (STP) is greater than two times the “adequate level” for crop production, or when the P Index rating for the field is **HIGH** or **VERY HIGH**.

**Manure Application** – Broadcast on the soil surface (not incorporated) up to 1 ton/acre of gypsum within 5 days after manure application or prior to the next runoff event, whichever occurs first.

#### **Additional Criteria to Reduce the Potential for Pathogen Transport**

Apply up to 2.0 tons of gypsum within 5 days after manure or biosolid application, or prior to the next runoff event after manure application, whichever occurs first.

### **CONSIDERATIONS**

#### **General Considerations**

Long-term use of gypsum or using rates higher than given in the criteria can have adverse impacts on soil or plant systems. This can include:

- Raising the soil pH to a level that is detrimental to plant growth or nutrient balance.
- Creating a calcium imbalance with other mineral nutrients such as magnesium, potassium, and phosphorus.
- Potassium leaching and deficiencies.
- Raising the amount of trace metals and boron to a level that may have a negative effect on the soil and plant chemistry.

#### **Additional Considerations for Improving Soil Physical/Chemical Properties to Reduce Soil Erosion and Improve Infiltration and Percolation**

There is some research that shows gypsum application can increase crop rooting depth, total root biomass, and nitrogen uptake. While these effects are not well-

documented, these are benefits that may accrue from using gypsum.

### **PLANS AND SPECIFICATIONS**

Plans and specifications will include the following information as a minimum:

- The source of the product, e. g., flue gas desulfurization, mined, etc.
- Purpose(s) for its use, and the planned outcomes,
- Chemical analysis of the amendment product,
- Soil and/or plant analyses that demonstrate the need for the amendment,
- Application methodology, including rates, timing, sequence of application with other nutrient materials (i.e., manures, biosolids, fertilizers), mixing instructions, etc.
- Required soil and plant analyses after application to determine the effectiveness of the amendment as appropriate.

### **OPERATION AND MAINTENANCE**

Do not allow livestock access to stacked gypsum.

Do not resume grazing until rainfall or irrigation has washed gypsum off of the vegetation.

1. Do not apply gypsum after the soil test calcium level exceeds the maximum level established by the Land Grant University.

### **REFERENCES**

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