

# ENDURABreak™

## Nutrient Releasers

EnduraBreak™ adds an assortment of microorganisms, enzymes and a variety of bio-stimulant food sources tailored to break down stalks and stubble into usable nutrients for your soil.

### Add EnduraBreak to revive your soil.

- Microbes and fungi to revive the soil ecosystem
- Break down organic crop residue
- Release nitrogen and phosphorous back into soil
- Suppress disease organisms



EnduraBreak, 60 days post-harvest



## THE VALUE OF BREAKING DOWN RESIDUE<sup>1</sup>

Understanding the nutritional value of the remaining plant residue allows us to estimate the overall nutrient value that can be returned to the soil if broken down. To determine the nutritional value we must first estimate the amount of stalks and stubble left in a field.

### SOYBEANS

#### Step 1. Residue per acre

Bushel (yield) per acre X lbs. per bushel seed weight = lbs. of seed

Assumes dry weight = 29% seed, 17% stems

#### Step 2. Total dry matter produced

Value from Step 1 ÷ 0.29 = \_\_\_\_\_

#### Step 4. Final calculations

Create a calculation for the total nutrient value of the remaining residue

#### Step 3. Total stem dry matter produced

Value from Step 2 X 0.17 = \_\_\_\_\_

#### Step 4. Estimate nutrient value removed via stems

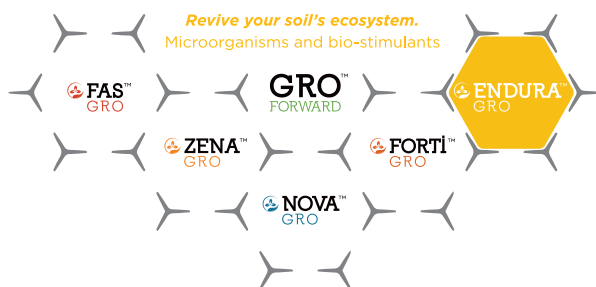
Value from Step 3 x stem nutrient concentrations = \_\_\_\_\_

Assumes 0.60% N, 0.09% P<sub>2</sub>O<sub>5</sub>, 0.36% K<sub>2</sub>O

Multiply by fertilizer value (see Table 3 on reverse side)

Table 1. Example calculations for soybean residue

50 bu. / acre X 60 lbs.	=	÷ 0.29	X	X 0.17	X	X 0.60 X 0.09 X 0.36	X	X 0.17 X 0.25 X 0.13	=	Value of stover (\$ / acre)
Grain yield x lbs. / bushel seed weight		Seed % by dry weight		Total dry weight (stems) removed		Stem nutrient concentrations removed		Fertilizer value		\$ / acre
3,000		10,345		1,759		10.55 N 1.58 P <sub>2</sub> O <sub>5</sub> 6.33 K <sub>2</sub> O				1.80 N 0.40 P <sub>2</sub> O <sub>5</sub> 0.80 K <sub>2</sub> O 3.00



# NUTRA-CROP™

## THE VALUE OF BREAKING DOWN RESIDUE<sup>1</sup>

Understanding the nutritional value of the remaining plant residue allows us to estimate the overall nutrient value that can be returned to the soil if broken down. To determine the nutritional value we must first estimate the amount of stalks and stubble left in a field.

### CORN

#### Step 1. Residue per acre

Bushels (yield) per acre X 56 = Residue dry matter per acre [commonly used estimate: 8,000 lbs. / acre]

#### Step 2. Stubble residue removed per acre

Value from Step 1 X appropriate number in table = \_\_\_\_\_

**Table 2.** Harvest method, amount of residue removed

Harvest method	Approx. amount harvested
Shredding and raking	80%
Raking only	65%
Combine windrow only	50%
Cattle grazing	25%

#### Step 4. Final calculations

Create a calculation for the total nutrient value of the remaining residue.

**Table 4.** Example calculations for corn residue

Grain yield (bu. / acre) x 56 ÷ 2,000	=	Estimated stover (tons / acre)	X	Harvest method from Table 2 (%)	X	Nutrient value from Table 3 (\$ / ton)	=	Value of stover (\$ / acre)
140		3.9		0.80		5.35		16.69

#### Nitrogen Release in Corn

- Approximately 50% of nitrogen will be tied up in the residue, eventually available through decomposition.
- Nitrogen release rate increases with tillage and above normal rainfall.

#### Nutrients Remaining After Grazing

- Cattle only consume approximately 25% of the available residue; 98% of nitrogen, phosphorus, and potassium will be excreted.

#### Step 3. Estimate nutrient value

Assess dry matter and account for soil fertility, hybrid and growing conditions.

**Table 3.** Example, estimated corn residue from 100% dry matter, 140 bu. / acre

Fertilizer	Estimated fertilizer value (\$ / lb.)	Average amount of nutrients in stover (lb. / ton)	Estimated residue value (\$ / ton)
Nitrogen (N)*	0.17	15.0	2.50
Phosphate (P <sub>2</sub> O <sub>5</sub> )	0.22	5.9	1.30
Potash (K <sub>2</sub> O)	0.13	25.0	3.25
Other Nutrients <sup>†</sup>			0.50
Organic Matter <sup>†</sup>			0.30

#### Consider Conservation Requirements

- Most conservation plans request at least 30% crop residue after planting to qualify as conservation tillage.

**Rate\*\*** (Depending on plant types and soil conditions)

**Row Crops:** 1.7 oz. / acre broadcast

**Turf & Field Grasses:** 1.7 to 3.4 oz. / acre

**Mixing instructions:\*\***

17 oz. per 2.5 gal. of water

\* Nitrogen value should be omitted if field will be rotated to soybeans next year.

\*\* Always read and follow label directions. Use in accordance with recommendations of a qualified individual or institution or an approved nutrient management plan.

<sup>†</sup> University of Minnesota

<sup>1</sup> Estimating the Nutrient Value in Corn and Soybean Stover. Iowa State University, University Extension. Fact Sheet BL-112. December 2002.