MARCH 2021
1ST QUARTER EDITION

FARM INSIGHT

FARM INSIGHT Featured Content

In Next Month's FARM INSIGHT

* Learn How to Optimize Your Crop Stands to "Jump Start Yield"
* Learn How to Weatherproof Your Crops for the Impending Drought

HOW TO MANAGE CROP RESIDUE

Managing crop residue is pivotal to lowering cost, improving yield and profitability.

Farming is all about managing resources, including money. You can be a low-cost producer and maximize profits by *Controlling the Controllables*.

Proper crop residue management is such a controllable. That's why ProfitProAG puts crop residue management as number one in the Recipe for Success. We call crop residue management the "*Second Harvest*."

Crop production is all about energy availability. Forty-five percent of the plant's mass is made up of carbon. Glucose is made up of 45% carbon. It takes 100 lbs. of carbon to produce one bushel of corn and 300 lbs. for a bushel of soybeans. Thus, harvesting the crop residue and sequestering the carbon in the soil, enhances the availability of carbon to the plant through soil respiration and the release of carbon into the plant canopy during the growing season.

Top producers know that managing crop residue offers a proven way to cut their fertility bill, control diseases/insects/weed pressure and boost the yield potential of their next crop. **Did you know a 250 bu/A corn crop contains approximately $180.00 worth of nutrients and 8,000 lbs. of carbon in the residue per acre?**

Often, the missing link in effective residue digestion is the lack of fungal activity in the soil. We need a bacterial to fungi ratio of 1:1 minimum, but preferably 1:4. The use of soil and foliar fungicides dramatically reduce beneficial fungal populations.

Continued on the next page...

Consider these benefits of the Crop Residue Digestion Program that reduce costs and increase profit potential:

- **Faster warm-up** – less residue allows faster soil warm-up for earlier planting
- **Easier tillage** – soils that are alive and more aggregated require less horse-power and fewer tillage trips
- **Easier planting** – less residue means less hair-pinning and less risk of plugging
- **Lower fertilizer costs** – recycling nutrients in residue can reduce purchased inputs
- **Build organic matter** – accelerated residue breakdown means more carbon (organic matter) in the soil
- **Retain nutrients** – organic matter helps keep nutrients in the soil and protects water quality

Managing crop residue at a higher level starts with solid information and proven results. If you're interested in this overview of ProfitProAG's Recipe for Success and Crop Residue Digestion Program, let's continue the conversation. Please contact us and we can custom design a program/system that will allow you to quickly capture the value of your crop residue.

The key controllables that impact profitability include:

- **Manage crop residue**
- **Optimize crop stands**
- **Boost soil health & plant health**
- **Minimize plant stress (*hint – discover the value of ethylene inhibitors)***
- **Reduce tillage cost**
- **Utilize crop rotation & cover crops**
- **Biologically treat manure**

Corn on Corn Residue Management

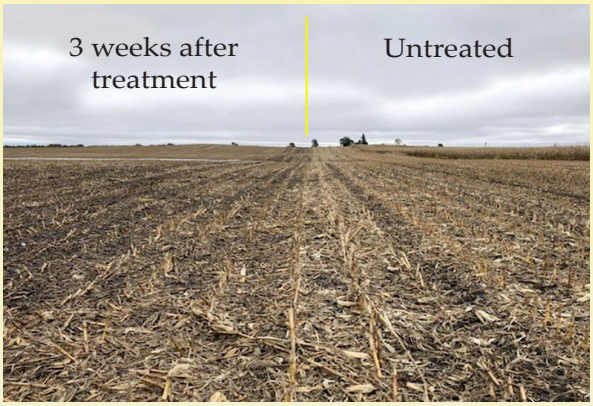
Digested Residue

Undigested Residue

Soybeans on Corn Residue Management

Digested Residue

Undigested Residue



Stalk from field 4 weeks after treatment

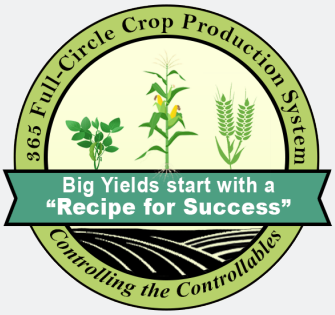
Stalk from field untreated

"Improve Soil Health, Retention of Nutrients, Water Quality and Profit Potential"

How's Your "Second Harvest" This Spring?

Has your corn residue been breaking down adequately over the winter, or is it still on the soil surface from previous crops? Even with fall tillage, it still may not break down properly. If it's not breaking down efficiently, it's costing you money—and more. Don't assume you can apply a residue breakdown program just in the fall. It can be applied in the spring as well.

Successful corn production starts with *controlling the controllables*, and that includes proper residue management.



Residue management is so important that it's Phase 1 of ProfitProAG's 3-phase Recipe for Success for better crop production. Top producers know that managing this residue efficiently is a 'second harvest.' It offers a proven way to cut your fertilizer bill.

Consider this: a 200 bu/A corn crop can offer 40 pounds of nitrogen (N), 50 pounds of phosphorus (P) and 110 pounds of potassium (K) from the residue, based on conservative estimates, along with 45% carbon. This translates into money. Don't leave money on the table—or in the field.

Never Underestimate the Power of Microbes

Effective residue management can occur in the spring or fall. ProfitProAG offers a variety of products to help jumpstart your second harvest, including **MeltDown™** (Environoc 501 for organic production), a mixture of 25 microbes that helps break down cellulose and lignin found in tough-to-digest corn stalks. We also offer **Eubio-NBS (c10)**, a natural biological stimulant that can be used with MeltDown. It works with existing microorganisms and applied microbes to speed up the crop-residue digestion process.

These products boost the second harvest, which allows you to cut back on tillage, improve soil health and nutrient retention, enhance nitrogen fixation, help soil warm up faster in the spring, reduce disease and insect pressure, and improve yield potential and profit potential. Never underestimate the power of microbes to break down residue efficiently and recycle nutrients for long-term benefits.

Better Residue Management Means Better Crop Stands

There are so many benefits that come with proper residue management that it's easy to overlook some basics that become essential this time of year. Breaking down residue contributes to more uniform planting, which leads to more even stands.

Uniform planting is connected to proper planting depth, which is critical to minimizing plant stress and protecting corn yield potential. While proper planting depth isn't news, it's still a challenge today, due to planters running too fast or too much residue hindering proper planting depth.

The ideal planting depth for corn is 2 to 2½ inches. If the seed is planted too shallow (less than 1½ inch deep), nodal roots will be just below or on the soil surface. This may result in rootless corn, where corn is holding on by only the mesocotyl. It may also result in injury if the growing point is exposed directly to herbicides. In addition, the soil surface may be too hot for the nodal roots to grow properly.

If seed is planted too deep (3 inches or more), the seedling needs extra energy to push the coleoptile to the soil surface. Under these conditions, the coleoptile may split, causing the plant to leaf out under the soil surface. A variety of factors can aggravate this problem, including soil compaction, surface crusting and cold, wet conditions.

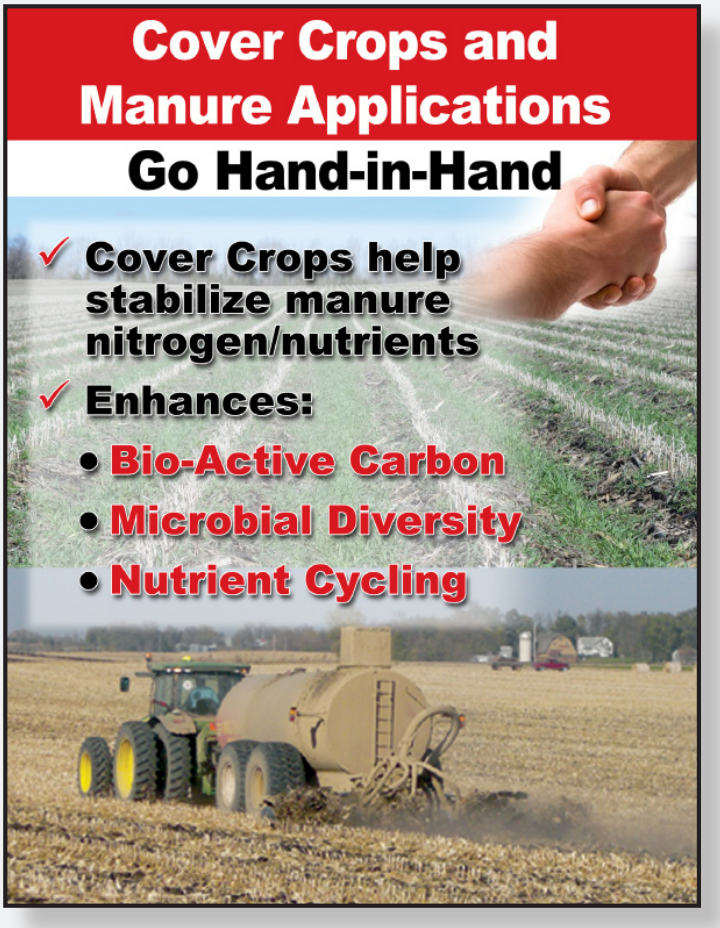
When you manage residue properly, you can avoid a lot of these challenges and manage proper seed planting depth for better corn stands and higher yield potential.

Crop Residue Digestion Programs, Cover Crops and Manure Applications

The combination of a crop residue digestion program and cover crops is the ultimate in achieving healthy soil, higher crop yield potential and enhanced crop quality. These regenerative, sustainable practices will improve your short-term and long-term profitability.

Even if a cover crop program isn't implemented, the crop residue digestion program will allow you to achieve many benefits of a cover crop program, including biodiversity, building bioactive carbon, nutrient balance/availability, lower pest pressure and reduced soil toxins.

The residue digestion program applied before or after manure applications (liquid or dry) will enhance the in-field digestion and utilization of the manure.



Where Do I Start with Residue Management?

ProfitProAG offers two products that are easy to apply and give you a jumpstart on proper residue management in your fields.

- **MeltDown™** (Environoc 501 for organic production) is a mixture of 25 microbes, including organic crop residue digesters, organic acids and nitrogen. It's designed to break down cellulose and lignin found in tough-to-digest corn stalks.
- **Eubio-NBS (c10)** is a natural biological stimulant that can be used with MeltDown. It works with existing microorganisms and applied microbes to speed up the crop-residue digestion process. It boosts the microbes' ability to multiply faster, increasing digestive enzymes and secondary metabolite production. This enhances the residue digestion process and feeds the soil food web.

2021 Corn "Recipe for Success:" What You Need to Know

If 300-bushel corn sounds good, what if 400-bushel corn were possible? "You have to produce approximately 36 million kernels per acre to achieve 400 bu/A corn," says Dr. Jim Ladlie, founder and owner of ProfitProAG.

While conventional wisdom focuses on everything from fertilizer to fungicides to achieve higher yields, what if there were more to it than that? "There is more to the story, but first let's run some numbers to calculate the components of corn yield," Ladlie says.

Ears per Acre

- 36,000,000 kernels ÷ 1,000 kernels/ear = **36,000 ears/A** (36,000,000 kernels ÷ 90,000 kernels/bu = **400 bu**)
- 34,000 ears/A ÷ 1,000 kernels/ear = **34,000,000 kernels/A** (34,000,000 kernels/A ÷ 90,000 kernels/bu = **378 bu**)
- Kernel density & test weight plays a factor

Rows per Ear

- 32,000 ears x 16 x 35 = 17,920,000 kernels ÷ 90,000 kernels/bu = **199 bu/A**
- 32,000 ears x 18 x 35 = 20,160,000 kernels ÷ 90,000 kernels/bu = **224 bu/A**
- *By adding two rows of kernels around per ear (always think in two's), you gain 25 bu/A*

Kernels per Row

- 32,000 ears x 18 x 35 = 17,920,000 kernels ÷ 90,000 kernels/bu = **224 bu/A**
- 32,000 ears x 18 x 50 = 28,800 kernels ÷ 90,000 kernels/bu = **320 bu/A**
- *By adding 15 kernels per row, you gain **96 bu/A***

Test Weight (weight & density of each kernel)

- 300 bu x 56 lbs/bu (at 15.5% moisture) = 16,800 lbs
- 300 bu x 61 lbs/bu (at 15.5% moisture) = 18,300 lbs ÷ 56 lb/bu (market stand per bushel) = 327 bu/A or **+27 bu/A more corn**

While today's corn genetics contain tremendous yield potential, stress from nutrient deficiencies, insects and crop diseases can impact everything from row number to kernels per row. Fortunately, you can take steps to control these controllables. It's as simple as 1-2-3 with ProfitProAG's 3-phase Recipe for Success.

Get Seedlings Off to a Good Start

Phase 1 starts with proper residue management. You can read more about this starting on page 3.

Phase 2 focuses on taking the right steps at planting. This is the time to protect seeds properly. The right biological seed coating system gets seedlings off to a strong start and enhances plant health. We encourage you to look at ProfitCoat seed coatings available in liquid or dry from ProfitProAG.

We encourage you to look at ProfitCoat seed coatings from ProfitProAG. ProfitCoat is available in a liquid formulation and as a dry planter box. It's available for all organic and conventional crops from vegetables to row crops. We also have inoculants for legumes. In trials, ProfitCoat increased top growth and root growth by 40% at 12 days of seedling growth and increased yields from 8 up to 25 bu/A in corn and up to 16 bu/A in soybeans.

Beyond the Barn Series
Dealing with Manure

Spring is Near, Manure Issues will Appear

Spring brings warm weather, sunshine and new life of all kinds—including flies. If you have manure pits, you know what a pain these flies can be. Then there's the crusting and foam that can result from manure build-up over the winter. If you'd like to stay ahead of the game this spring, take a look at **Manure Master Plus** products. They harness the power of microbes to liquefy manure, minimize crusting and cut down on bottom solids. When the manure in the bottom of the pit has a liquid consistency, this makes agitation and pumping a lot easier. It also means more phosphorus and potassium availability, too. If you'd like to boost the value of manure and reduce handling costs, call us today to discuss your options.

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Let's Talk Yield

Intrigued by some of the ideas you've seen here? Want to know more about how to put the Recipe for Success to work on your acres? We welcome your questions to start the conversation. Thank you and God bless.

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