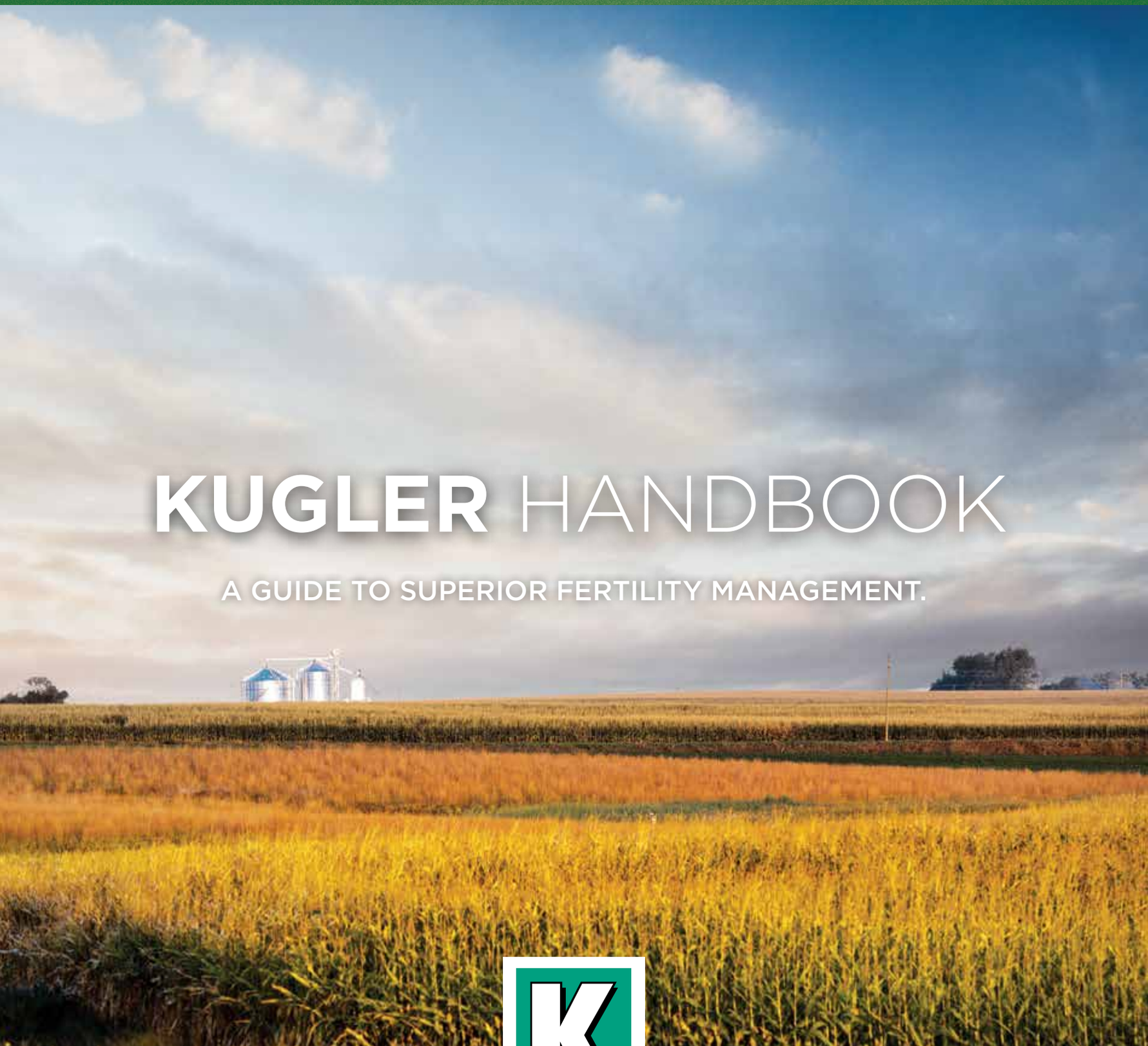

KUGLER HANDBOOK

A GUIDE TO SUPERIOR FERTILITY MANAGEMENT.

KUGLER

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With fewer choices in agriculture, the ones you have left matter even more.

Twenty years ago you probably had a number of local dealers offering seed, chemicals and equipment. How many do you have today?

Fifteen years ago you had several choices on where to sell your grain. Are there fewer choices now?

In the past 10 years, how many times has ownership changed in the companies, businesses and banks you do business with?

The fact is that mergers, acquisitions and buy-outs have reduced the number of choices you have as a producer. And they've changed who you do business with. That means you have to pay special attention to the choices and the reliable people that are still available to you. You make all the decisions about your fertility program. And that type of control and choice is getting harder to find nowadays. So make the most of it by doing business with your local Kugler KQ dealer.

Your local Kugler KQ dealer is someone committed to your success—and your hometown. That dealer has been a friend and neighbor for years. His business depends on your success, so he's going to work hard to make sure your fertility program performs.

Rural America is important to Kugler Company, because it's our home, too. We're a family-owned and operated company headquartered right here in the Heartland, next to the producers we serve.

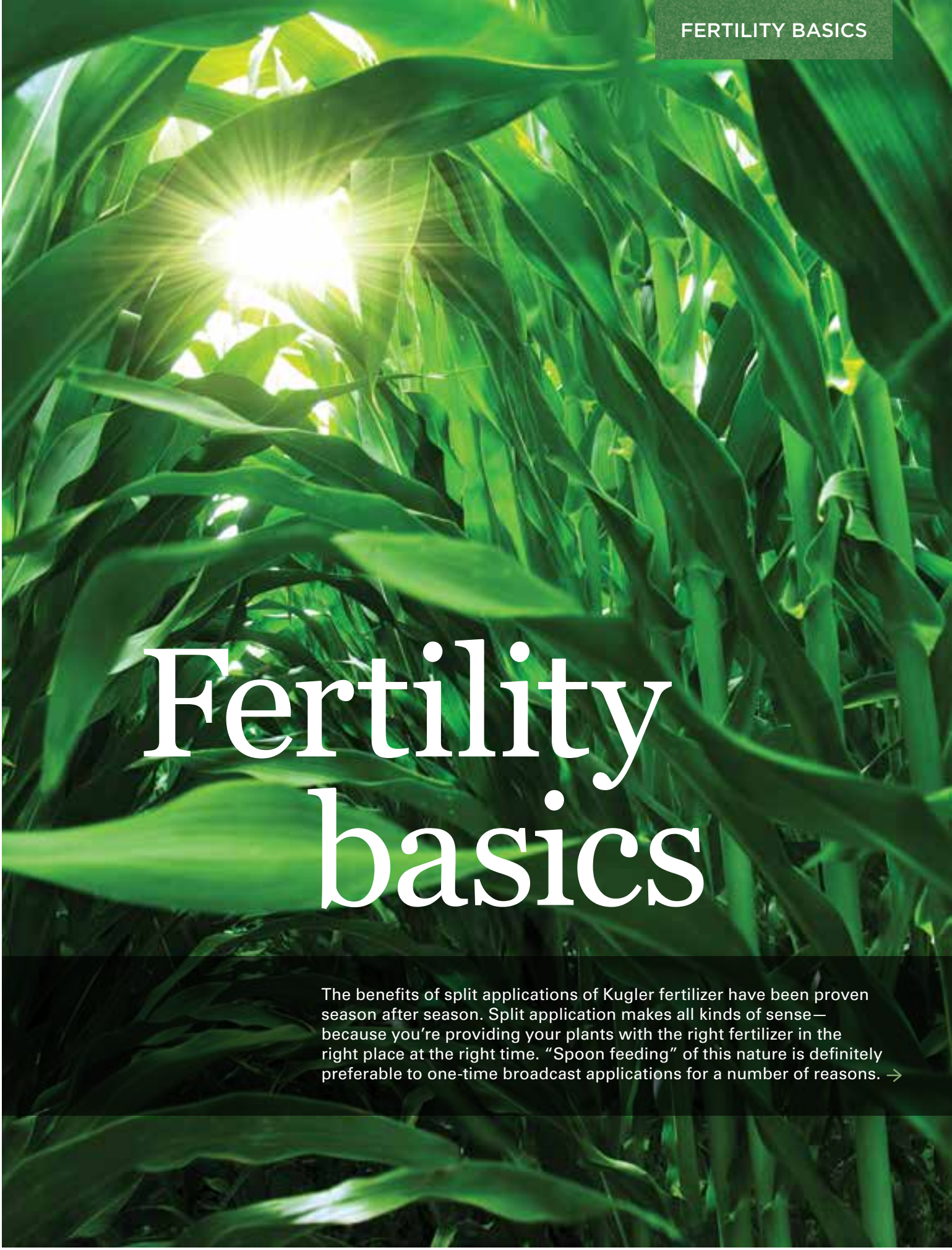
We've built a network of Authorized Kugler KQ dealers who know fertility and want to use that knowledge to help producers in their hometown enjoy success. In a time of large mega-companies and everchanging ownership, that's a refreshing alternative—one that you can use to your advantage.

On behalf of all of us at Kugler Company—and our authorized Kugler KQ dealers—here's to a great growing season. We look forward to working in partnership to help you succeed.

Diane Kugler
CEO

John Kugler
Co-President

Mike Kugler
Co-President



Fertility basics

The benefits of split applications of Kugler fertilizer have been proven season after season. Split application makes all kinds of sense—because you're providing your plants with the right fertilizer in the right place at the right time. "Spoon feeding" of this nature is definitely preferable to one-time broadcast applications for a number of reasons. →

Feed the plant, not the field.

Genetics Change Nutrients

As your crop grows, its need for nutrients fluctuates. Split applications allow you to help your plants at critical points in their growth cycle to help assure optimum results—and help your plants reach their genetic potential.

Season-Long Flexibility

By splitting applications of Kugler fertilizers, you can address specific plant deficiencies all season long. You also have more opportunities to make management decisions — instead of having to live with what you thought was going to happen earlier in the year.

Spreading Out Your Cash

Put all your fertilizer on at the beginning of the season, and you've just committed dollars that may not offer a return. By splitting your fertilizer application, you spread out your cash over the season. And that can be very important if you have a crop loss due to drought or hail — and need to pull in your horns.

Getting More from Marginal Land

The right Kugler fertility program can help you turn marginal fields into contenders —and it's a heck of a lot less expensive than adding more ground. What would an additional 10 to 15 bushels per acre on that marginal ground do for your bottom line?

Conservation of Moisture

On dry land acres, retaining moisture is a top priority. Dumping on large amounts of ammonia significantly reduces moisture levels in soil, while split applications of Kugler fertilizers can help conserve valuable moisture for dry land crops.

Matched to Your Management

A sound fertility program using split application of Kugler fertilizers allows you to customize your fertilizer program to your unique management methods, tillage choice, hybrids/varieties and irrigation.

Better for the Environment

Split applications of Kugler fertilizer help you deliver the nutrients your crop needs all season long—without overloading the soil with nutrients that leach into groundwater runoff or tie up in the soil.

The right answers & the right questions.

Your authorized Kugler KQ dealer knows what to ask before you get specific recommendations on your fertility program. As you work with your Kugler KQ dealer, you will want to consider these factors in developing your fertility program:

CROP

What you're growing and the genetics you choose will affect the type of nutrients you apply—and when you apply them.

SOIL pH The acidity or alkalinity of your soil determines how readily available the nutrients are to your plants.

SOIL NUTRIENTS A comprehensive soil test will tell you what's available and the capacity of your soil to store nutrients.

MANAGEMENT METHODS Seed genetics and placement. Fertilizer timing pre, post and foliar. It all matters in your fertilizer program.

FIELD HISTORY Every field is different—and it's important to know where you're starting from so you can measure the success of your Kugler KQ fertilizer program.

OTHER FACTORS Soil temperature, planting date, compaction, and other factors are also important to consider in your fertility program.

As you develop your Kugler fertility program, you'll also want to take into account:

- The hybrid/variety you're planting
- Placement and split applications
- Other information on your operation that may affect your fertility

The dirt *on* soil tests.

The characteristics of your soil have a dramatic effect on the success and effectiveness of your fertility program. That's why a soil test is critical before you begin planning your fertility program. You'll need several samples from each field, since soil quality and texture can vary widely—and your fertility program will need to be matched accordingly.

We're talking a complete soil test here, not just an assessment of phosphorus and zinc levels. At minimum, your soil test should include the following data:

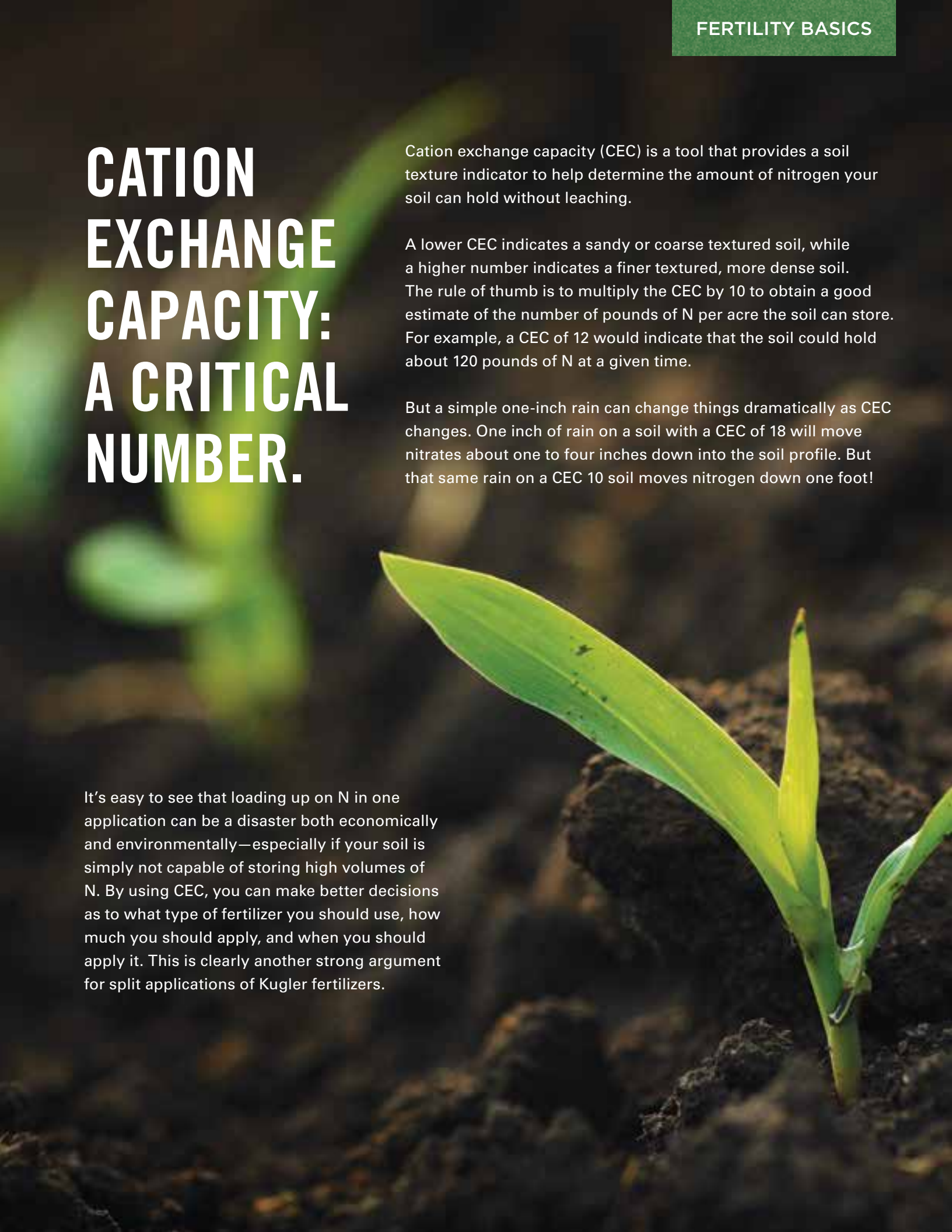
- Soil pH
- Cation exchange capacity
- Soil texture
- Nitrogen level (ppm)
- Phosphorus level (ppm)
- Potassium level (ppm)
- Sulfur level (ppm)
- Zinc level (ppm)
- Levels of other secondary and trace minerals such as calcium, magnesium, sodium, manganese, copper and iron

CATION EXCHANGE CAPACITY: A CRITICAL NUMBER.

Cation exchange capacity (CEC) is a tool that provides a soil texture indicator to help determine the amount of nitrogen your soil can hold without leaching.

A lower CEC indicates a sandy or coarse textured soil, while a higher number indicates a finer textured, more dense soil. The rule of thumb is to multiply the CEC by 10 to obtain a good estimate of the number of pounds of N per acre the soil can store. For example, a CEC of 12 would indicate that the soil could hold about 120 pounds of N at a given time.

But a simple one-inch rain can change things dramatically as CEC changes. One inch of rain on a soil with a CEC of 18 will move nitrates about one to four inches down into the soil profile. But that same rain on a CEC 10 soil moves nitrogen down one foot!



It's easy to see that loading up on N in one application can be a disaster both economically and environmentally—especially if your soil is simply not capable of storing high volumes of N. By using CEC, you can make better decisions as to what type of fertilizer you should use, how much you should apply, and when you should apply it. This is clearly another strong argument for split applications of Kugler fertilizers.

The effect of pH *on* fertility.

Soil pH is really an indicator of your soil's ability to use fertilizer. Here are a couple of examples of the importance of understanding the pH of your soil.

LOW pH (high acid): The acid in the soil tends to reduce the number of microbes in the soil—and it's the microbes that convert the fertilizer into food the plants can use. Fewer microbes means you run the risk of overfeeding the soil—and having a large percentage of your fertilizer do you no good at all.

HIGH pH (high calcium): Under high pH conditions, adequate phosphorus may be indicated on the soil test, but it probably isn't available to the plant because it's tied up in the soil. You think you have enough P, but your plants know better. You just won't find out until it's too late.

MAYBE IT'S TIME YOU APPLIED YOURSELF.

Many growers are opting to apply fertilizer themselves— saving the cost of custom application and enjoying the ability to fertilize when they need to—instead of waiting their turn. It's also efficient, since you're already going over the field anyway. And that also reduces soil compaction.

The key to optimum efficiency is the fertilizer you choose to apply. Quality is a critical issue—and that's why Kugler fertilizers are the choice of growers who want to make the most of their time and fertilizer investment. Kugler fertilizers are formulated to flow smoothly—without clogging or gumming up.

It really isn't that difficult or expensive to set up your own application equipment. A typical fertilizer application set-up includes a pair of saddle tanks, a pressure system (pump) and the hoses and orifices needed for each row.

You'll probably also need a fertilizer storage tank or a nurse tank. Your Kugler KQ dealer can deliver your Kugler fertilizer direct to your farm so it's on site when you're ready to hit the field. And your dealer can also provide guidance on equipment selection and set-up. If you're not interested in self application, many Kugler KQ dealers offer application services. When your Kugler KQ dealer handles your fertilizer application, you can be assured of accuracy, high quality Kugler products—and best of all, outstanding service and value.

It's not just about fertilizer. *It's about* TIME.

You typically have a very small window of time to get into the field—especially at planting.

If you have trouble with your fertilizer gumming up and plugging screens, you spend less time putting seed in the ground and more time fixing headaches. But that's exactly what happens with low quality liquid fertilizers that don't have Kugler quality behind them.

We understand that time is money. So Kugler fertilizers are of the highest quality — formulated to flow smoothly and cleanly—keeping you on the tractor instead of on the fritz.

And there's another concern: When screens and orifices plug up, you don't always notice right away. So you end up skipping rows or entire sections of your field. You've just affected yield —and that plant you'd hoped to perform for you has suddenly become just another weed.

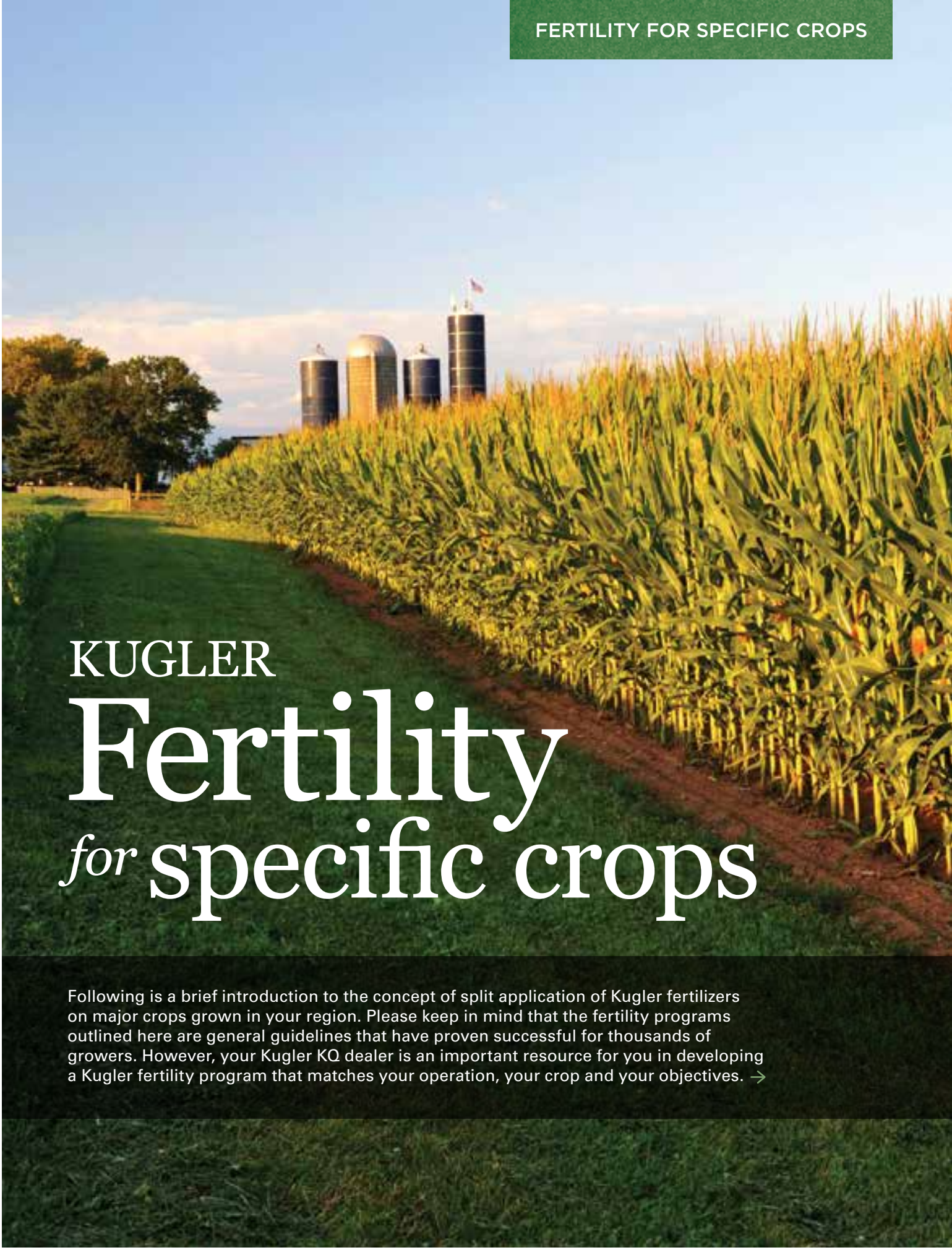
If self-applying is in your future, then Kugler fertilizers are a wise choice. At Kugler, we've developed proprietary technology that allows us to attain a level of quality that is unmatched.

In other words, nobody else can make Kugler fertilizers. Competitors may "copy" Kugler products, but the difference will show up when you apply them. And by that time, it's a little late in the game.

With Kugler KQ fertilizers, you won't see this!

If you've put up with this mess, you've been using poor quality starter fertilizer. Instead of working together, the nutrients fight each other—causing separation and settling that plugs up screens on your equipment .

The quality of Kugler fertilizers assures a constant flow of fertilizer at all times—with no plugging or settling.



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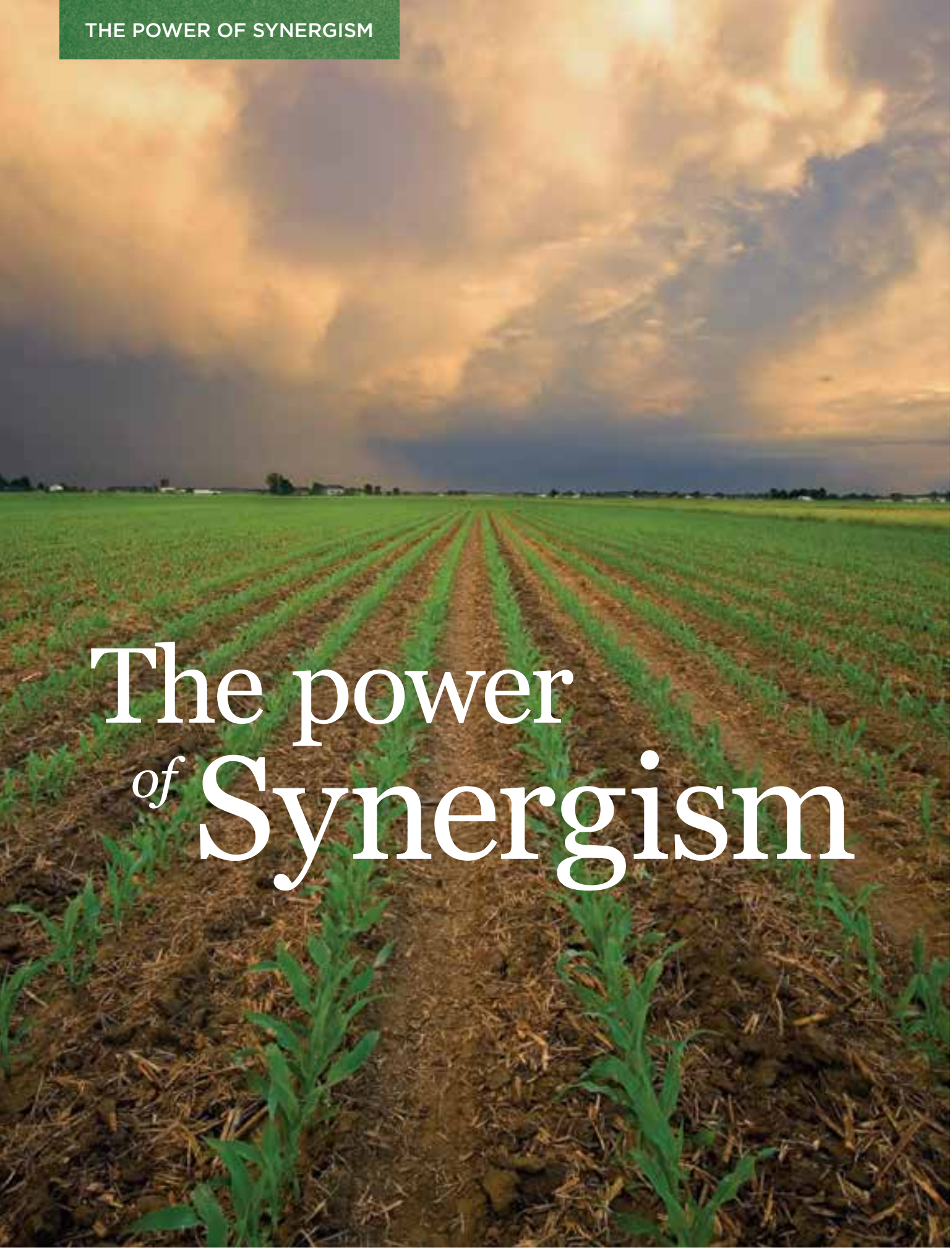
Fertility *for* specific crops

Following is a brief introduction to the concept of split application of Kugler fertilizers on major crops grown in your region. Please keep in mind that the fertility programs outlined here are general guidelines that have proven successful for thousands of growers. However, your Kugler KQ dealer is an important resource for you in developing a Kugler fertility program that matches your operation, your crop and your objectives. →



The power of Synergism

How Kugler KQ fertilizers *make the most of* NUTRIENTS.

The nutrients in each Kugler fertilizer are specifically formulated to deliver better results than if you applied them separately. It's a concept called synergism—and it's basic to all Kugler fertilizers.

Synergism is important because the relationship between nutrients is complex. For example, sulfur and potassium work together to help your crop better utilize nitrogen. Zinc aids in grain formation and helps the plant absorb water, which carries all nutrients throughout the plant system. Without these additional nutrients, your crop simply cannot reach its yield potential.

Kugler fertilizers use the "Power of Synergism" to get the most out of the nutrients in your fertility program. And, when you add split applications throughout the growing season, you put that power right where your plants need it—when they need it most.

The role of major nutrients *in* Kugler fertilizers.

Apply just one or two nutrients in your fertilizer program, and you'll be missing out on the "Power of Synergism" that occurs in Kugler fertilizers. Each nutrient not only does its own job, but helps other nutrients do theirs as well. Here's a look at the role of nutrients in Kugler fertilizers:

NITROGEN The Superstar
Nitrogen is the basic building block of the plant. It controls the uptake of all other nutrients and is essential for carbohydrate production. Different hybrids use nitrogen in different amounts at different stages of growth. This fact, combined with the concern of increased nitrate levels in groundwater, makes a strong argument for split applications of smaller amounts of fertilizer— a program that perfectly fits Kugler KQ fertilizers.

PHOSPHORUS The Energizer
Phosphorus in Kugler fertilizers is in the form of high quality polyphosphate. Phosphorus is used to form sugars and starches in the plant. It is critical to rapid seedling, root and shoot growth and is necessary for energy storage and transfer. Phosphorus helps build disease resistance and helps overcome the effects of soil compaction.

POTASSIUM The Regulator
Potassium (potash) helps keep water and food moving through the plant. It is involved in more than 60 enzyme systems, regulates the opening and closing of plant pores, and is required in every major step in building protein. Potassium interacts with almost all other essential plant nutrients. It aids in photosynthesis and regulates nitrogen uptake.

SULFUR The Synthesize In
Kugler fertilizers, sulfur is in the form of ammonium thiosulfate (ATS) and Potassium Thiosulfate (KTS). Sulfur helps make more efficient use of nitrogen and helps increase the availability of other nutrients. Sulfur is essential in developing plant protein, developing enzymes and forming chlorophyll.

ZINC The Activator Zinc helps the plant form chlorophyll and enzymes. Zinc also helps the plant absorb water—and water carries all the nutrients throughout the plant. Zinc helps in grain formation, root formation and protein synthesis—and is particularly important during early plant growth.