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# Cibus: A Pioneer In Gene Editing, The Future Of Agriculture

Oct. 27, 2023 10:55 AM ET | Cibus, Inc. (CBUS) | 24 Comments | 2 Likes



#### About this article

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## Summary

Gene editing, a non-GMO technology, has the potential to revolutionize agriculture by increasing crop yields, making plants more resilient, and meeting the challenges of climate change.

Cibus, a company specializing in gene editing, partners with agricultural giants to develop crops with desirable traits.

The company's gene editing technology is protected by roughly 400 issued patents, giving it a significant advantage over competitors.

The company has already bred several traits into major crops and delivered these plants back to its partners.



Ekaterina Markelova

**Disclaimer:** I served on the company's board for 21 years, from its inception until it went public in June. I hold a position in its stock. I am no longer an insider, and I wrote the following note using publicly available information.

## **Investment Thesis**

Cibus, Inc. (NASDAQ:CBUS) an agriculture biotech, went public in June through a reverse merger with Calyxt, with Calyxt getting 5% of the merged entity and Cibus, 95%. Cibus uses its patent-protected gene editing technology to breed crops with valuable traits such as disease resistance, herbicide tolerance, and more efficient use of fertilizers, among many others. In my survey of the competitive marketplace, no other gene editing company is close to having products in the market. The technology is non-GM, which vastly reduces regulatory burden and market acceptance. The technology can also solve problems such as plant diseases that no other breeding technology has been able to address. Through licensing deals the company partners with major seed companies, which then sell these crops to their existing customers. Cibus has already transferred several traits back to its partners, and using only the deals already in place, Cibus should have revenues over \$1 billion in *seven* years, and close to \$2 billion in *eight* years (\$1.773 billion in the merger document, as can be seen from the screen grab under 'Value Proposition'). While this might seem a stretch for a company with tiny revenues, these future revenues are highly probable because the traits are now in the hands of partners, who already have market share and whose customers are familiar with the crops.

With what I expect to be lofty gross margins of 85% and rapid growth, I believe the company deserves a lofty multiple. Even using Cibus' ultra-conservative discount rate of 23.7%, a 15x multiple, and an expected EBIDTA of \$1.5 billion (from the merger document), working backward, my calculation gives you a ballpark present value of about \$200 a share. Given that the company has already delivered several traits back to its big-ag partners, the major risk is that Cibus needs to raise additional money before it gets revenues from the traits it has already delivered to partners. That said, it has been able to raise capital throughout its 23 years existence and has several options beyond its \$200 million shelf registration.

# **Company Overview**

Founded in 2001, Cibus has spent the past *two* decades adapting, optimizing, and automating gene editing technology for agriculture and other applications involving plants and micro-organisms. Because gene editing works within the genome of a given organism, it does not import any foreign genetic material, which means that it is non-GMO and thus not subject to the regulatory burden and market resistance that encumber GMO crops. Cibus uses gene editing to breed plants with traits that improve farmer incomes by increasing yields, lowering expenses, or protecting crops from various threats. Think of a trait as an attribute of a given crop. The easiest way to understand a trait is to use the analogy of the *smartphone*. If you *envision* a plant as a *smartphone*, each trait would be an app.

Here's an example: A syndrome called pod shatter poses a persistent problem for canola farmers. Pod Shatter simply means that, during wind and rain storms, the pods can break open prematurely, dumping the seeds on the ground where machines can't pick them up, which reduces yields per acre by between 10% and 40%. Using its gene editing technology, Cibus bred a canola plant that virtually eliminates pod shatter. The trait has already been delivered to some of its partners, and as its value to farmers becomes known, the trait should broadly penetrate the canola market.

Cibus develops a trait by first studying the genomics of a particular vulnerability such as pod shatter. Once its scientists know the exact edits that are required to reduce pod shattering, they use a chemical construct called an oligonucleotide to edit specific parts of a plant's genome. [It should be noted that all plant breeding, including natural selection, involves changes to a plant's genome; the difference with gene editing is that the changes are targeted and not blind, or random]. Once the edits have been made, the scientists then nurture the single cells into plants through cell culture, and then test plants in the greenhouse and the field.

In essence, gene editing is natural selection at warp speed, and it's targeted rather than random. Gene editing can also make simultaneous edits in multiple parts of the genome, which promises to offer solutions to complex genetic problems, such as disease and drought resistance; problems that are too complicated for all other types of plant breeding. For instance, with existing GMO technology, achieving more than a very few such changes becomes a practical impossibility because after each change the changed plants have to be found in an ever-larger population through a process called back-crossing. Typically, it takes *six* generations to inculcate a trait that involves a change in one specific part of a plant's genome. If a trait requires changes in, say, *eight* specific places in the genome (as is the case with pod shatter), to achieve 95% reliability, after all the crosses, the GMO researcher would have to find one plant in a field of 200,000 plants. And if you want to breed a plant with multiple traits, the odds of finding such a plant quickly get to Mega Millions lottery levels. By contrast, Cibus' gene editing technology can make multiple changes simultaneously with no need for multiple generations of crossings. Because gene editing mimics normal plant breeding, gene-edited traits can go from the lab to field testing in as much as one-tenth the time and a fraction of the cost of GMO traits.

A long-sought goal of plant breeders has been to breed crops resistant to fungal diseases. Fungicides are expensive, and often environmentally harmful. They also destroy fungal diversity in the soil and thus can pave the way for the emergence of resistant strains, some of which can jump to humans. For instance, *Candida Auris*, a drug-resistant fungus that kills half of those afflicted within 90 days, may have originally jumped from the farm to humans. Plant breeders have been stymied in developing a fungus-resistant plant because it involves changes in several different parts of the genome. Cibus tackled fungal resistance and has announced significant progress in breeding a canola resistant to another fungus, scleratinia or white mold. Because the genetic pathways are similar across several crops, Cibus can simultaneously pursue disease resistance for a number of crops.

Cibus' business strategy is to partner through licensing agreements with major seed companies. The companies deliver their elite seeds to Cibus. These crops already have market acceptance, and seed companies partner with Cibus to breed crops that farmers are asking for, meaning that there is a ready and eager market for these crops once they have been tested and deemed ready for distribution.

Cibus enhances the crop with one or more traits (another virtue of gene editing is that it enables Cibus to efficiently stack several traits in one crop), field tests the crop, and then delivers it back to the partner, which does its own testing before marketing the enhanced seed to its customers. Cibus has already delivered *three* different traits, in canola and rice, back to its partners, and has *three* more in advanced stages of development.

The company's non-agricultural division, Nucelis, has also entered into a collaboration with Procter & Gamble to help that company meet its sustainability goals by developing low-carbon and environmentally friendly ingredients.

## The Global Context

The emergence of gene editing as a technology that can deal with complex problems such as disease resistance and drought has come in the nick of time. The world faces a looming crisis as it needs to find a way to feed *two* billion additional people at a time when all other breeding technologies are struggling to improve yields. Indeed, the global food system is on a knife edge. The Russian invasion of Ukraine underscored the fragility of world food supplies when the disruption of grain exports from Ukraine and Russia threatened food supplies for 400 million people. According to the UN, 60% of the undernourished people in the world get their grain from the region. Supplies from bumper crops elsewhere averted that potential famine, but now Asia and Africa are threatened by a shortage of rice on the export market. If minor disruptions in major crops threaten famines now, imagine how it will be 25 years from now when agriculture will have to feed an additional *two* billion people, and climate change has accelerated?

Among the challenges even now facing agriculture are limits on fresh water and the expansion of arable land, and the negative effects on food production attendant to climate change, whose impacts include heat-related yield reductions, and floods and droughts in the world's breadbaskets. I believe that gene editing will power the next agricultural revolution. Having surveyed various agricultural technologies, in my view, Cibus is the leading candidate to pioneer that change, by virtue of the fact that it is far advanced of competitors in delivering improved crops to partners and customers.

## The Value Proposition

First off, here are the projections from page 145 of the merger document.

Cibus Global Fina	nci	ai Pr	oje	cuol	15									
	For the Year Ended December 31 (\$ in millions)													
		Y 22		γ )23	1	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
Total Revenue	\$	1.4	\$	2.6	\$	8.4	\$ 39.3	\$82.8	\$199.6	\$309.4	\$539.2	\$833.2	\$1,322.7	
Income Before Interest and Taxes	\$(4	9.9)	\$(	57.2	) \$	(55.6)	\$(27.4)						\$1,233.4	
Adjusted Income Before Taxes	\$(5	50.01	sr	573	1 5	(557)	\$(27.6)	\$ 57	\$1103	\$205.1	\$406 5	\$665.4	\$1,087.3	\$1 495 0
Adjusted Net		,	-1	0110		(0011)	4(27.0)			4200.1	4100.0	2005.1	\$1,007.5	\$1,105.0
Income (Loss)	\$(5	50.01	\$(	57.3	) \$	(55.7)	\$(27.6)	\$ 5.2	\$104.8	\$169.7	\$340.4	\$559.6	\$ 917.0	\$1,256.6
Adjusted EBITDA	\$(4	13.1)	\$(	47.1	) \$	(41.8)	\$(13.5)	\$19.3	\$124.2	\$218.7	\$419.7	\$680.9	\$1,105.1	\$1,502.7
Free Cash Flow	\$(!	52.6)	\$(	61.1	) \$	(57.8)	\$(16.3)	\$15.2	\$111.6	\$173.4	\$340.2	\$561.6	\$ 921.6	\$1,260.8

#### Projections from merger document (merger document)

Rather than compete with ag giants, Cibus' strategy is to partner with them through licensing agreements. Everybody benefits. Farmers get a crop that they will want to *buy* because it will increase their incomes. The seed partner takes some portion of the increased value and pays Cibus some portion of this increased value as a royalty.

Such licensing agreements are mutually beneficial. The seed company gets a more valuable crop that will increase its income from existing customers, as well as a tool for expanding its market. Cibus gets a royalty as well as the benefit of the advertising, marketing, and distribution power of a well-established company.

Again, using the example of pod shatter, Cibus has publicly announced 9 initial customers (page 13 of Exhibit 99.1 under the 8-K on Sep 6, 2023) accounting for 15 million of the 28 (same slide as above) million acres of canola the company considers an addressable market. From this trait alone, Cibus will get between \$5 and \$10 an acre (same slide as above, page 13). It has already transferred the trait back to some of its partners. As news of increased revenue due to reduced pod shatter filters through the canola farm community, other potential partners will very likely adopt the trait lest they lose their customers to companies selling pod shatter-resistant crops.

Also, Cibus can stack traits so that a customer buying pod shatter might also *buy* seeds with both pod shatter and herbicide tolerance (which means the crop can survive weed killers), and, eventually, disease resistance. Cibus already has partners for herbicide tolerance in canola, but also in soybean where its first partner is **Group Don Mario**, the fourth largest soybean seed provider in the world (GDM claims that 40% of the world's soybeans come from GDM genetics). In roughly *four* years, it is expected that GDM will start selling herbicide-tolerant soybeans in GDM's market -- roughly 75 million acres -- providing Cibus with a trait fee the company expects to be between \$5 and \$7 an acre.

Cibus' most valuable traits in development involve breeding disease-resistant crops. As noted, the company has announced that it has targeted Sclerotinia, a fungus that destroys crops and requires farmers to resort to fungicides that pollute the water. The disease-resistance trait is valuable because no other technology has been able to develop a sclerotinia-resistant plant. Between its canola and soybean partners Cibus anticipates an 80 million acre addressable market (50 million acres soybean, 28 million acres canola), that could ultimately produce greater than \$500 million in royalties a year (trait fees could vary with the severity of crop losses and the costs of alternative treatments such as fungicides). As noted earlier, the company has announced significant breakthroughs in breeding these tougher plants.

Add together the addressable acreage for traits already developed or in advanced stages, for canola, rice, and soybean, and it comes to about 260 million acres. With trait royalties to Cibus guided to be in the \$5-\$10 range, the company expects to see between \$1.25 billion and \$2 billion in revenues once its partners have significant market penetration at the beginning of the next decade. As listed on page 145 of the merger document (cited below), the company projects about \$40 million in revenues for 2025 and then \$200 million for FY 2027. It's *important* to reiterate that these estimates are based on traits that have already been delivered (or are soon to be delivered) to partners. As noted Cibus is likely to have very high profit margins. In my view, these very large margins on a fast-growing company should imply software-like multiples, meaning that with just those revenues, sometime early in the next decade, the company could be worth well north of \$40 billion, or more than 100 times its present market capitalization.

These numbers don't include traits that are earlier in the development process for the enormous markets for corn and wheat. Nor do they include a number of environmentally valuable crops such as a plant substitute for palm kernel oil, which could reduce illegal forest clearing in tropical Asia. Nor do they include royalties from products under consideration such as a non-allergenic peanut. The crucial aspects of Cibus' gene editing technology are protected by a palisade of roughly 400 issued and pending patents. No other gene editing company is anywhere near as advanced as Cibus in getting field-proven traits to customers.

Then, there's another way we can look at the numbers.

Using the company's SEC filings, we can actually back into a rough estimate of what the company sees as its baseline future revenues. In 2014 as a private company, Cibus sold 10% (pg. 29, 10-Q on Jun 30, 2023) of the future revenues from its core gene editing technology to investors. The obligation to royalty holders surfaces in quarterly statements as a royalty liability (page 10 of the 10-Q cited above). In the latest filing, the liability rounds to \$149,000,000. The filing states that in determining the liability, the company used a discount rate of 23.7% and a period of 30 years (the life of the units). We also know that even though the company has delivered several traits back to its partners, the partners' own testing and field trials mean that significant revenues will begin to ramp up steeply in 2029. The remaining term of the units from 1929 will be 15 years. Using the 23.7% discount rate implies that the company believes that its existing deals will yield a ballpark figure of \$3.6 billion (based on my simple calculation) in cumulative earnings for the royalty units during that period. Since that accounts for 10% of revenues, the company expects something on the order of \$36 billion in cumulative revenues to Cibus Global. Divide by 15, and we get expectations of an average of \$2.33 billion in annual revenues, not much more than what can be inferred from the expectations for the deals in place for canola, rice, and soybean. The number is also not much larger than the company's expected revenues for these crops for 2032 (as the royalty liability is discounted over a 30-year time frame, future revenues could be expected to include some revenues for wheat and other crops, but not revenues from Nucelis, its microorganisms division) as listed on page 145 of the document sent to shareholders for the merger with Calyxt.

For instance, the projections on page 145 of the merger document estimate that the company will go cash flow positive in 2026 and in 2032 will have \$1.74 billion in revenues and adjusted EBITDA of \$1.5 billion. It's likely these numbers exclude revenues from the company's Nucelis division (because the numbers cited align closely with projected revenues from existing deals on canola, rice, and soybean) which focuses on ingredients, oils, fragrances, and other microorganism-related products.

From either of these perspectives, I believe the present market cap significantly undervalues the company. If we take \$30 billion to be the expected value of the company when it gets the full benefit of present deals (a bit more than *eight* years from now, and using 20x adjusted EBITDA), even using the 23.7% discount rate, we get a valuation of about \$4.4 billion, or 14 times the present market cap of the company (at \$15 a share). In fact, the only way one can get to the current present value of the company using the 23.7% discount rate is to use an EBITDA multiple of 1. That's some haircut!

To sum up, Cibus has already successfully bred *three* traits into its partners' crops and is in the advanced stages of delivering *three* more. The seed company partners will sell these enhanced seeds to existing customers for its seeds, and also seek to expand their market share. This is analogous to a biotech selling an enhanced version of a drug that already has FDA approval. The probabilities of market acceptance are extraordinarily high. In Cibus' case, these traits (along with soybean traits in the process) alone could bring in close to \$2 billion in sales, and I don't know whether this number includes revenues from Nucelis' deal with Procter & Gamble or any other deals for traits that might come along over the next *eight* years. Again, if this company were a biotech at a similar stage, the discount rate would be significantly less than 23.6%, and the multiple on projected sales would be vastly higher than one.

So, we have a commercial-stage company, with a proven, extraordinarily valuable technology, ring-fenced by patents and years ahead of its competitors. And yet, the market is pricing it as a venture stage company with a promising, but unproven technology and no customers.

## How can this happen?

One answer is liquidity risk. It will be more than *two* years before the company is cash flow positive (given the traits already delivered to partners). The company still needs to raise a significant amount of money, and it's possible that it will take longer than projected for the company to become cash flow positive. As of June, the company had \$50.9 million in cash (per 10-Q). On Oct. 18, 2023, the company filed an 8-K, announcing a strategic realignment, one aspect of which would be to reduce the monthly cash burn by a reduction in force from 242 to 185 full-time employees. In that 8-K, Cibus wrote that it expects that with the reduction, existing cash will fund operations until early in the first quarter of 2024.

The risk is real (and the stock has taken a hit after the release of the 8-K), but the company has several options beyond a secondary stock offering to raise the money needed. These include selling a trait for a non-strategic crop, advances on royalties from partners as demand for their traits ramps up, and selling another piece of future revenues, among several other options. Moreover, the company has successfully raised money throughout its 21-year history. Now that it's moving products into the market with the marketing muscle of major seed companies behind them, its story for investors is much stronger than during any previous fundraising effort.

Another issue that might explain the company's undervaluation is a persistent misunderstanding about the nature of the technology. Such misunderstandings are understandable because the technology is dealing with biology and biochemistry at its most fundamental level. That very educated people have difficulty understanding the tech was dramatically demonstrated in 2018 when the European Court of Justice rejected the carefully researched report of its own Advocate General and issued an opinion lumping gene editing with GMO. It based its opinion on easily refuted arguments, and that raised such a howl in the scientific and agriculture communities that, in July 2023, the European Commission undid that ruling (calling it "not fit for purpose"), and certified that certain gene editing techniques are no different than traditional plant breeding in that there is no introduction of foreign genetic material. This reconciled the EU with established opinions of the world's major agricultural markets, and will eventually open a market of hundreds of millions of acres for Cibus.

I believe this technology will drive the next agricultural revolution. That said, it's a difficult story to tell in a way that ordinary people and investors can understand. Eventually, the numbers will speak for themselves.

### Conclusion

Cibus is pioneering the use of gene editing in agriculture. The technology is proven, is non-GMO, and is vastly cheaper and faster than any other plant breeding technology. Gene editing can also address complex problems such as plant diseases that stymie all other plant breeding techniques. The company has already delivered enhanced crops to several partners, which are preparing to sell these crops to existing customers. Deals on just *three* crops, already delivered or in process, will likely produce roughly \$2 billion in revenues (8-K filed 09/06/2023) with full market penetration around 2032. The main risk facing the company is the need to raise additional funds before Cibus becomes cash flow positive, likely in a bit more than *two* years. This risk, however, does not justify the company's severe undervaluation. The disconnect between its present market valuation and true worth will eventually resolve, and I expect that this will happen long before the company reaches even a billion in revenues.

This article was written by



Im primarily a writer -- see eugenelinden.com -- but I also have had a separate career in finance. I served for fifteen years as Chef Investment Strategist for Bennett Management, a family of distress hedge funds, and I have also served as a director of several private and public companies. Over the years my writings have ventured into finance. I wrote early articles about distress investing for TIME and Fortune, as well as essays for TIME on market volatility and game theory. I co-wrote with Leon Levy, his book, The Mind of Wall Street.

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Analyst's Disclosure: I/we have a beneficial long position in the shares of CBUS either through stock ownership, options, or other derivatives. I wrote this article myself, and it expresses my own opinions. I am not receiving compensation for it. I have no business relationship with any company whose stock is mentioned in this article

I served on Clbus' board for 21 years, from the company's inception until it went public in June. I am no longer and insider and have no business relationship with the company.

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Con	nments (24)	Sort by	Newest
EBITDAC	xbizo		05 Nov. 2023, 12:

Premium Comments (414) | + Follow

5 Nov. 2023, 12:48 PM

06 Nov. 2023, 3:25 PM

v

It won't be long until they have to raise cash - weeks not months. If they can raise enough to reach cash flow breakeven, it becomes investable for me. But if they come up short, it means investors that know the company best have doubt about reaching milestones in between. In any case, a pre-revenue company money raise likely means a drop in share price no matter how undervalued it may be. All cash raised is destined to be spent prior to revenue start.

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#### Plain As The Nose On Your Face

Premium Comments (2) | + Follow

@xbizo I do understand the point you are making, but I think you overstate the case, to some extent.... Yes, the company needs to find financing until cash flow breakeven. That's not a hidden fact... The fact that the stock has tumbled since the reverse merger means that the cost of additional financing - if done with equity - will be more dilutive than once thought... Agreed Agreed Agreed... But... The last thing I would do right not is try to raise \$200 MM this year. The company is making progress, so why raise all the money you need for two and half years today? They'll have more customers in 9 - 12 months, and a better story ... Second, I don't know that equity is the only source of funding right now available to the company. It is probably the most expensive... Third, while I do not know what will be the bottom on this stock, I do know that at a current market cap of \$250 MM, the company's long term prospects makes this highly attractive, whatever the actual dilution is... You can fine tune your entry all you want, but let's not lose sight of whether you want to own this company at this price... The answer is Yes!

Seply Reply 🖒 Like (2)

Premium Comments (414) | + Follow



06 Nov. 2023, 5:26 PM

@Plain As The Nose On Your Face Point taken. Financing could be convertible debt and may not be a public offering. I hope that the cash path forward is made pretty clear after this round, not leaving us guessing as we

Reply பி ike

are now.

	14596212 Comments (1.37K)   + Follow	06 Nov. 2023, 7:25 PM								
	<ul> <li>@Plain As The Nose On Your Face It's just business/stock-market ABCif you'll have to hit the market with dilution, hit as big, as you can (=max.need).</li> <li>Of course you can only raise, what you need (min. need)the short sellers would love it (a lot depends on the market sentimenta rule of thumb).</li> <li>Any debt for a small high risk company like this would have interest in the 20% directiona crippling from the beginning.</li> </ul>									
	😒 Reply 👌 Like									
Ν	NT 61 Investing Group Comments (1.05K)   + Follow	Yesterday, 9:18 AM								
	<ul> <li>@xbizo I'll let someone else figure out if these two events are good or bad for the company's financial prospectsA. The CEO, who has a lot of skin in the game, recently loaned CBUS \$5M @ 12%it's in 1 of their SEC filings; B. the company downsized from 242 FTEs to 185 last month. I'm assuming that has something to do with synergies from the merger.</li> <li>RegardlessCBUS reports its quarter tomorrow. So we'll know more. Or not. I'm particularly interested in any deals they might announce with big ag companies.</li> </ul>									
	FWIW, couldn't resist the stock in the \$10-11 range. I very much like the risk/reward ratio h risk.	nere. But risk is always								
	GLTA									
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bill20		31 Oct. 2023, 11:05 AM								
Premiu	m Comments (140)   + Follow									
	impressed that CBUS could recruit Jim Collins to the BOD. In about one month after his app ned from the BOD. Any thoughts on this unusual development?	pointment, Collins								

*@bill2019* I looked into that as well. My understanding is that it was due to his personal situation and had nothing to do with or from the company. Company should have put something out. Query whether *@Eugene Linden* or *@JohnMauldin knows anything.* 

😒 Reply 🛛 🖄 Like (1)

В



Plain As The Nose On Your Face

31 Oct. 2023, 10:28 AM

Premium Comments (2) | + Follow

I consider myself a value investor, more than anything else, but I got involved in this company pre-merger, and have followed it on its course of scientific break throughs and business milestones.

I am well aware that small caps are being treated poorly in the market place and that startups (and that really isn't the right term for this company) are seeing their valuations cut as they seek additional funding from venture capital.

This company needs additional funding.

But as a value investor, one of things I have always used as a consideration in making an investment is what have the insiders paid. Now the CEO, and Fidelity (a long time investor), paid ~\$31.50/share in the spring.

Now I expect they did that thinking that the stock was going to trade up as the story got out. But if they aren't dopes, and they aren't, then the assigned value of \$660 MM for the enterprise still has some relevance to me as the company now trades at \$225 MM market cap...

Yes there will be more dilution than I think the insiders expected, but is today's share price a bargain? Yes! is my answer as a value investor.

The author has the belief that the enterprise will be worth \$40 Billion some day. I actually don't disagree with him.

So as a growth investor, I like this stock even more.

#### BRUNEDAV

Investing Group Comments (204) | + Follow

27 Oct. 2023, 4:58 PM

Mauldin is in and has promoted it

 N NT 61

28 Oct. 2023, 12:23 PM

Investing Group Comments (1.05K) | + Follow

@BRUNEDAV Didn't know what you were talking about but Googled:

www.mauldineconomics.com/...

"Now let's look at one of my larger non-core holdings. (Next week we will look at others.) Genomics is an area you may already know I'm passionate about, both for advances in human science and in agriculture. I am intrigued with advances underway in bio-agriculture and gene editing—especially "nature identical" (read non-GMO) gene edited plant traits that improve crop yields and/or enable sustainable, low-carbon plant production. "You may be familiar with CRISPR technology that improves the speed and accuracy of genetic edits. It's a tool that can accelerate research into diseases such as cancer and mental illness. It can also be used in bio-agriculture science.

"A trait is a DNA characteristic. For example, some people are tall, some small, some blue-eyed, others browneyed. Some are more prone to a specific disease, others have stronger immune systems. Plants have traits, too, and this is where the science gets very interesting.

"Farmers plant their fields with the goal of producing as much as possible, known as crop yield. But things like the weather and plant diseases are challenging. They also must deal with variations in genetic seed traits that can predispose plants to be weaker and less productive.

"Gene editing can make plants resistant to drought or disease or insects. In turn, that means less irrigation and less chemical spraying, which saves money and the environment. Gene editing can also make plants far more productive and boost the yield of each plant. More yield means more crops and revenue.

"The problem is that this technique produces crops that are considered GMO—genetically modified organisms —where a plant has been altered using genetic engineering. Many countries have, or are considering, banning GMO foods.

"Cibus, Inc. (CBUS) has developed a way to solve this problem. The company's editing process mimics how it happens in nature, exactly like evolution. There is no foreign DNA. The process just accelerates the natural process by several orders of magnitude.

"In the US, Cibus's process is considered non-GMO. The EU is nearing a vote that, if approved, will do the same. Regulators around the world are seeing how this process, by accelerating what happens in nature, can improve crop production and reduce chemical dependence for a growing world. Better for the crop, better for humans, and better for the planet.

"I invested in Cibus on a private basis, but it is now public. Cibus did a reverse merger into a company that had assets and patents they think useful, but had financial issues. That merger happened June 1 of this year. Any track record you see before that on a quote was the old company. There was some selling among those older shareholders. I (rather obviously) think the stock price is currently way too low, but then I love all my "children." That is good news for new investors, though, as the price is now not far from where I (and others) bought it on a private basis.

"While it should be obvious, if the stock goes up my assets will go up. Cibus started out as "explore" and still is, but I have hopes that it becomes "core" as the years progress. I see this company as a very long-term play. Mauldin Economics rules state very clearly that I will notify you three days before I sell."

Arr Reply 🖉 Like (1)

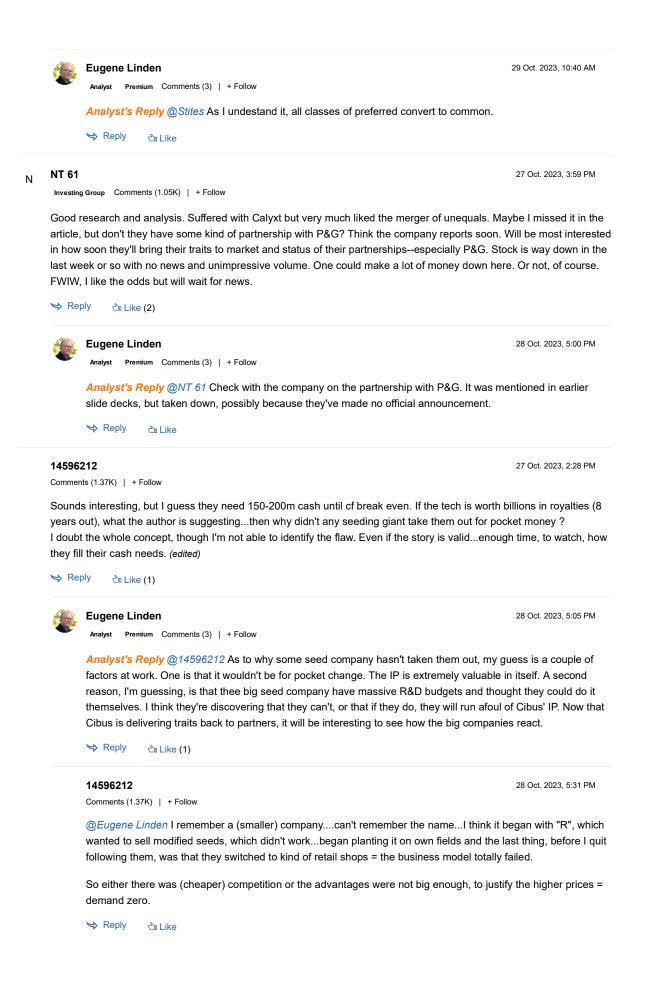
#### S Stites

27 Oct. 2023, 4:50 PM

Investing Group Comments (54) | + Follow

What is Cibus class B stock? How is it different from Cibus class A stock? What is Cibus class F stock? How will these different classes of Cibus stock be treated or participate in potential future Cibus IPOs or mergers? *(edited)* 

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12 of 14

NT 61 30 Oct. 2023, 11:10 AM Ν Investing Group Comments (1.05K) | + Follow @14596212 "I think it began with "R" Think you mean Arcadia--symbol: RKDA. Arcadia's story--not a good one--has no lessons for what will or won't happen with Cibus. Seply 🗢 🖒 Like (1) 14596212 30 Oct. 2023, 11:45 AM Comments (1.37K) | + Follow @NT 61 Yeah, thank you. I meant them. Well, they were in the gene editing space too. There are many lessons to be learned with the Arcadia story. If Cibus will repeat their way is another/new story. Seply Reply **∂**⊔Like NT 61 30 Oct. 2023, 11:57 AM Ν Investing Group Comments (1.05K) | + Follow @14596212 Arcadia went public too early and was never properly capitalized. And they never had the partnerships or followers in the financial community that CBUS already has. RKDA has IT -- but not close to what CBUS has. The one thing they have in common at this point is that neither has made money. We'll see what happens. Am very interested in CBUS report in a week or so. Not so much for their earnings as for announcements re their pships!

To put it differently, RKDA's problem was not its technology--it was/is its management. Jury is out on CBUS management.

Best!!

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#### 14596212

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30 Oct. 2023, 12:26 PM

@*NT* 61 The main lesson (btw. just watched them, never bought) for me was: The story looked nice, pretty logical and straight....didn't help. (*edited*)

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01 Nov. 2023, 11:27 PM

27 Oct. 2023, 11:49 AM

@*NT 61* They have patents on the technique but not the end product right? For example there are other methods to product a modified seed.

"In March, Corteva announced that the early-stage use of proprietary gene editing technology to address several North American corn diseases was advancing through the company's R&D pipeline. Using CRISPR, the company can precisely co-locate disease resistance traits that already exist within the corn genome. With this recent peer-reviewed research, Corteva demonstrates that disease resistance genes move naturally to help plants fend off attacks from pathogens - but do so very slowly.

"A plant deals with a wide variety of pathogens, prompting its genes to naturally move around in the genome to resist disease and increase survivability," said Wendy Srnic, Vice President Biotechnology, Corteva Agriscience. "However, this natural gene mobility occurs too slowly to effectively address the rapid growth of disease and climate-related pressures facing farmers around the globe. Through our research, we have validated the ability to mirror the movement of genes, enabling us to apply new breeding techniques to deliver seed that can better withstand field-level challenges."

It sounds quite fluid. Is it actually possible to produce a standardized product or there is some variability in the seeds here?

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B bill2019

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@*NT* 61 I am holding my CBUS position through my Calyxt position. Owned some RKDA for few months. I thought Calyxt had interesting seed trait lines and its Tallin process would provide a steady stream of traits. I was wrong about Calyxt...and still do not understand why its soybean traits did not deliver greater marketplace value. So, we will see if pure play seed trait companies can thrive, or if the big conglomerates control the seed trait market through internal R&D. (*edited*)

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#### Pineapple\_Paul

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Great article. Lots of small caps are facing headwinds in the current environment. That means if you pick a winner it can really run.

Disagree with this article? Submit your own. To report a factual error in this article, click here. Your feedback matters to us!