

CONVERSATIONS ON STRATEGY

PODCAST
TRANSCRIPT

Michael W. Parrott

“Weaponizing Food Insecurity: The Violent Extremist Threat to Precision Agriculture in the United States”

This episode explores the intersection of food insecurity and precision agriculture in the United States with author Michael W. Parrott, an expert in Special Operations Forces counterintelligence. Drawing from his experience in combat zones and research, Parrott discusses the vulnerabilities of the agricultural industry and the potential nexus with violent extremist organizations globally. He delves into the evolving tactics of these groups, the role of precision agriculture in modern farming, and the importance of enhancing security measures to protect against cyber and physical threats. Parrott emphasizes the imperative of studying the impact of nation-states and non-state actors on agriculture and calls for proactive measures to fortify the industry against emerging risks.

Keywords: food insecurity, VEOs, violent extremist organizations, China, DJI Agriculture

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Stephanie Crider (Host)

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I’m talking with Michael W. Parrot, author of “Weaponizing Food Insecurity: The Violent Extremist Threat to Precision Agriculture in the United States,” from [Emerging Technologies and Terrorism: An American Perspective](#), which was published by the US Army War College Press in April 2024.

Parrott is the former Special Operations Forces Counterintelligence Integration Course Director at the Joint Special Operations University on MacDill Air Force Base in Florida.

Welcome to Conversations on Strategy, Mike.

Michael W. Parrott

Thank you, Stephanie, and thank you to the US Army War College Strategic Studies Institute for allowing me to talk on today’s podcast.

Host

We’re glad to have you. So let’s just jump right in. The title of your chapter [is] “Weaponizing Food Insecurity: The Violent Extremist Threat to Precision Agriculture in the United States.” Why did you choose to write on this topic?

Parrott

Well, that’s a great question, Stephanie. [There are] a couple reasons. One, I’ve got a counterintelligence background, so trying to protect our nation’s secrets from foreign intelligence entities is one of my number one priorities. Secondly, I joined the military as a [chemical weapons of mass destruction/chemical biological, radiological, and nuclear or] CWMD/CBRN specialist. So, dealing with biological, nuclear, [and] chemical weapons. So, I really looked heavily into that arena. And then lastly, I grew up in a rural agricultural area in California.



Michael W. Parrott
“Weaponizing Food Insecurity: The Violent Extremist Threat to Precision Agriculture in the United States”

So, I wanted to kind of give back to my roots and look at some of the threats that I had come across specifically regarding the agricultural industry.

I saw what was going on over in the Russia-Ukraine War—specifically with the devastation to Ukraine’s agricultural industry—I looked back [and thought] this would be a great topic. And I know that our adversaries, specifically violent extremist organizations and terrorists around the world, are always looking at these conflicts to see what new tactics, techniques, and procedures they can employ, how they can leverage emerging technology to their benefit at low cost to no cost and still have a devastating effect.

Historically, if you look back at Ukraine, it’s been the breadbasket for Russia, the broader region, and now, even the world. So, believe it or not, one key area of Ukrainian national power that Russia decided to attack was its agricultural sector. As of August 2023, Russia’s successful drone attacks on Ukrainian grain storage depots had destroyed over 270,000 metric tons of grain. These attacks resulted in Ukrainian losses far surpassing \$34.25 billion, roughly 25 percent of the country’s [gross domestic product or] GDP.

For the inhabitants of the developing world, such as African, Middle Eastern, and Asian nations that are dependent upon Ukraine’s grain provisions, the war is [taking] a toll. They are anguishing from the global food crisis and food insecurity that has been further exacerbated by the Russian-Ukraine War.

So, when I look at my 20 years of experience fighting in the global war on terror in Afghanistan and Iraq, I learned specifically that our adversaries would adapt and improve their tactics. I saw this with the improvised explosive devices [and] then the explosively formed projectiles—the EFPs—and now leveraging emergent technologies to enhance their modes of attack and their modus operandi. We see this down along the southern border with the cartels employing bomb-dropping drones to target other cartels as well as to target security forces there in Mexico.

When the call for papers came out, I wanted to make sure I was able to contribute academically back to the broader knowledge, and so I chose to write on this topic.

Host

Let’s talk a little bit more about Russia and Ukraine. How do the Russian attacks on Ukraine’s agriculture industry correlate to violent extremist organizations and the threat to the American homeland?

Parrott

VEOs, or violent extremist organizations, as you quote it—specifically, religiously motivated terrorists—are by far the largest and most impactful expression of extremism today. Groups like al-Qaeda, Hamas, Hezbollah, and the Islamic State in Iraq and Syria, known as ISIS, fall into this category. So, they are constantly seeking that recognition and that influence. These VEOs have used drones inside and outside the conflict zones for a myriad of reasons, ranging from surveillance, intelligence gathering, and perpetrating attacks. The widespread, diverse, sophisticated, and rapid advancement in VEO drones is employing these inexpensive, commercially available, and easy-to-use unmanned systems previously reserved for only nation-states. The proliferation of affordable commercial drones provides VEOs with more effective platforms to use in future operations and attacks, and it’s not a matter of if, it’s a matter of when they will do this here in the homeland.

VEOs are learning from the war in Ukraine, the attacks by Hamas on Israel and the Houthis in the Red Sea, and against US forces in the Middle East and the Levant are proof [of] that. Additionally, VEOs continue to advance their capabilities and reach within the virtual domain, enabling them to infiltrate and take control of drones and Internet of Things technologies to gain access to commercial drones operating anywhere in the world. This includes within the agricultural industry. Taking it back to what I wrote on, one of the 16 critical infrastructure sectors within America is the agricultural industry.

Michael W. Parrott
**“Weaponizing Food Insecurity: The Violent Extremist Threat
to Precision Agriculture in the United States”**

The FBI is concerned specifically with this threat because the incapacitation or destruction of any one of these sectors could have debilitating or deadly effects that span from public health to national security. In 2021, the FBI notified agricultural cooperatives across the country regarding cyber threat actors exploiting networks, systems, and application vulnerabilities within the food and agricultural sector.

In my chapter, I provide hypothetical attack vectors violent extremist organizations may use to target, exploit, and attack the homeland using commercial agricultural drones.

Host

Let's talk more about agricultural drones. What type of drones are you talking about specifically? Can you describe why they pose a vulnerability or a threat?

Parrott

Before I discuss these agriculture drones, I want to take a minute and explain how the proliferation of unmanned systems and applications in the agricultural industry continues on an unprecedented scale.

These technologies allow farmers to increase overall yields while reducing resource consumption, a practice commonly referred to as “precision agriculture.” Precision agriculture employs a variety of embedded and connected technologies that rely on remote sensing, global positioning systems, and communication systems to generate big data that leverage data analytics and machine learning for more precise application of agricultural and livestock management inputs—such as fertilizer, seeds, pesticides, ultimately resulting in lower costs and higher yields. This convergence of technology and globalization in the agricultural sector increases exposure to and the risk of attacks from state and non-state actors in both the physical and the virtual domains.

Recent technological developments in unmanned systems, data applications, and the Internet of Things continue to modernize the agricultural industry while increasing vulnerabilities in global food supplies. With the advent of quad- and multi-copter drones, getting back to your question, that are highly versatile, vertical takeoff and landing craft, the agricultural enterprise is projected to undergo significant advancements over the next decade. As more and more drones are put into service, the array of systems and applications needed to control them is also projected to rise. Each is susceptible to internal and external manipulation, corruption, and the use in future attacks by state and non-state actors.

Host

I have a follow-up question here if you'll entertain it. Is this specifically large conglomerate commercial farms we're talking about that are thousands and thousands of acres, or is the 200-acre family farm also a potential target?

Parrott

Right now, the majority of these are larger farms, especially in South and Central America and then also here in the homeland. But I have seen these drones being used on farms where they're anywhere from 500 to 1,000 acres. So, as these become more prolific and the costs and the barriers to entry continue to be lowered, especially with the increase in the number of Chinese companies selling these drones, specifically DJI and DJI Agriculture, that is increasing the number of these drones operating here in the US as well as across the globe.

Michael W. Parrott
“Weaponizing Food Insecurity: The Violent Extremist Threat to Precision Agriculture in the United States”

Host

What can America’s agricultural industry do to protect against these vulnerabilities?

Parrott

Well, I’ll briefly cover some of the ways that America’s agricultural industry can become more resilient. Ultimately, they have to become more resilient. Safeguarding agricultural operations from physical and virtual threats requires active security measures. The current US government structure is not organized or empowered to effectively protect the agricultural sector because of the number of private entities and corporations that operate in the space.

Therefore, it’s incumbent on each of these farms, businesses, and organizations to ensure that they implement appropriate vetting and security procedures for their employees to prevent insider threats as well as create system redundancies and establish proper cyber hygiene. That last one is key. With all these being interconnected, that’s how the adversaries and criminal organizations are able to easily enter and take control of these systems. Within the cyber domain, cybersecurity and law enforcement officials advocate for system administrators to remain vigilant [and] update their software and hardware security measures early and often.

Additionally, [educating] workers and family members on how to protect company technology, [identifying] signs of radicalization, and [reporting] concerns to the appropriate authorities is paramount in strengthening the industry’s defenses.

Host

I love that there’s something individuals can do instead of just waiting for new and better legislation or something that’s out of their control.

Parrott

No, I agree. I mean, we use the moniker, “See something, say something.” And that’s ultimately what the next step is. You need to also take ownership and look at yourselves to make sure that you are doing everything possible to protect your investment. Because ultimately, that’s what we’re talking about is these private farms or these corporations, they need to be able to protect themselves from these adversaries.

Host

Well, I know we could go on and on, and there’s a lot more detail in your chapter.

For this conversation, do you have any closing comments before we go?

Parrott

In closing, due to the wide array of threats nation-states and non-state actors pose to the agricultural industry inside and outside the country, there’s several topics that warrant future research investigation. Close examination of state actors’ use of technology to gain coercive control of other nations’ agricultural industries is very needed. The Chinese Communist Party’s economic and technological investments in US agriculture are an extreme cause for concern. The economic consequences of this form of infiltration, exploitation, and coercion could make the September 11th attacks’ economic impacts pale in comparison. Legislative restrictions on the Chinese Communist Party and other nations’ course of activities are highly warranted.

We’ve seen it in the news with the Chinese businesses buying up land here in the US near military installations, as well as their efforts in the bioeconomy and the impacts that has.

Michael W. Parrott
“Weaponizing Food Insecurity: The Violent Extremist Threat to Precision Agriculture in the United States”

Host

Tell me about any surprises that you may have found in your research.

Parrott

I did a large amount of research. Some of the things that I did find very interesting was the propensity for us to (and when I say us, [I mean] the US government and our allies and partners across the globe) try to water down the term radicalization or violent extremist organizations or Islamic terrorist organizations rather than just calling them what they are. When we try to recategorize them or we try to lessen the effect, that tends to detract from the heinous acts that they’re committing and the impact that they’re having on people here in the US as well as abroad.

The other piece that I found really interesting in my research was the amount of control and monopoly that China has on agricultural drones across the globe. I mean, DJI and DJI Agriculture have such a large monopoly on these drones that with their new national security law and the requirement for these companies to sign agreements that allow China to take all their data and use it, it is extremely concerning from a counterintelligence perspective.

Host

Interesting. Thank you for making time to speak with me and chat about this really important topic. It was a pleasure talking with you today.

Parrott

I want to say thank you to yourself, the US Army War College Strategic Studies Institute, and the NATO Centre of Excellence for Defence Against Terrorism for the opportunity to contribute my chapter to this project and for the continued advancement of academic research in the counterterrorism field of study.

Thank you.

Host

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