Pharming, Farming & Biopharming

What is Pharming?

(1) Unlike genuine farming where you buy direct from the farm, Pharming involves computers or servers and the use thru installation of **malicious software code** (malware) on a victim device (s) which sends this person to a spoofed website. At this spoofed site, he or she may be tricked into offering their personal data or login credentials for a website online service.

(2) The exploitation is also viable in use of the **DNS** [domain name system] which translates domain names or web addresses into Internet Protocol [IP] addresses which enable computers to read them. A computer reads the IP and tells another where a websites location is and connects to it's specific DNS server.

(3) DNS Servers contaminated will direct users to an alternative or fake IP address.

Web Browsers store this information [DNS cache] so it does not have to revisit the server each time a user searches for it. The DNS server and DNS cache are both vulnerable to pharming attacks by cyber criminals.

Computer users unknowingly pick-up Malware such as Trojan horse or a virus through intentional malicious email or software downloads which redirects the users to spoofed websites created by the attacker.

Cache infections enable attackers to target multiple users on DNS servers and unprotected routers. This is especially prevalent on free or public Wi-Fi networks.

Pharming and Phishing are not the same thing

Phishing attacks lure victims into giving up their data and credentials through malicious emails, texts, and other forms of direct messaging. These messages are from a fraudulently trusted sender and express some sense of urgency to generate web contact. A hyperlink connects users to the spoofed sites for data gathering. This impacts business resulting in data breaches that cause financial and reputational damage.

Pharming is an outcome of Phishing which is much more dangerous as these attacks are designed to shield the attackers from users.

Protection Against Pharming

Installing, run, and maintaining an antivirus, spyware and anti-malware software are the most trusted means of protection. This software recognizes and blocks suspicious behavior and malware. As cybersecurity evolves, updating these varied programs and use of additional tools is required to ensure safety from the latest pharming tactics. Following the advice in warning (s) of the anti-viral ware is

suggested even if websites look legitimate. There are also programmed Firewalls and encryption use through agency's as added internal security measures.

The use of a trusted internet service provider (ISPs) which automatically filters bogus farming redirects in prevention use pharmed websites. Avoidance of those internet services with great deals and special offers is crucial if it is not a trusted, secure ISPs.

When surfing the web, it is important for users to become cautious of website through the use of the Hypertext Transfer Protocol Secure (HTTPS). This https:// protects users as an encrypted website which cannot be intercepted by an attacker. This is most urgent when using financial institutions or those housing delicate information. You must also check website URLs for mistakes such as spelling errors. This is a common issue as shortened web link in an email or minor edits to the URL are often links to duplicate websites. Never click a deal that looks to good, a shortened website or links from unknown sources.

Example: Bitly is a company which offers shortened forms of URLs

E-commerce or e-shopping deals



Secure VPNs (Virtual private networks), using secure DNS servers again aid is avoiding pharming attacks targeting DNS cache contaminating.

Changing default passwords, such as found on consumer routers and wireless access points, eliminates ease through cross use of such features. Unique passwords minimize access using default passwords from similar devices.

Enabling authentication is another means of controlling such attack vectors. Making use of additional layers of security to online accounts (2 or more-factor authentication) is recommended. Either additional information, question answer, authenticator application or a code sent to a users phone.

These same websites may forward security alerts which require the user to confirm the request of the provider or report it as a case of fraud.

How to Know if you are Pharmed?

If and when an attacker is successful at 'pharming' accounts there are always belated tell tale signs of strange activities:

a. Unexpected charges on credit cards, debit cards, or PayPal accounts
b. Password changes on social media and other online accounts not initiated by user
c. New posts or sent messages on social media services user has not created
d. New friend request with people the user did not add onto social media
e. New programs appearing on a device that a user did not download or install

f. Unfamiliar web design as imitated logos, buttons, and other items on valid websites

Examples: (1) 2007 banking institutions (50) attacked in U.S., Europe, and Asia

(2) User information from 3000 infected computers sent to Russian servers

(3) Venezuela's public call for volunteers to join development list of associate Workers with worldwide guide associations working in the country 2019 as a duplicate site posted seven days after the first went live with similar IP's

(4) 2015 clients of UTStarcom or TR-Link switches as attackers claim to be from the big telecom organization of Brazil



Biopharming

The biotech companies, since 1990s, has suggested the use of food and feed crops as growth sites in the production of proteins and industrial chemicals they do not make naturally. Plant-made pharmaceuticals (PMPs) are produced genetically engineering plants to produce specific compounds. The process, although unapproved by the FDA, uses the insertion of foreign genes coding into plant cells. This mode of production of therapeutic proteins, monoclonal antibodies, and vaccines is viable in the use of chloroplast DNA which contain chlorophyll. As over 100 chloroplast in each cell, the inserted gene can amplify the gene and produce large amounts of the corresponding protein.

Scientist utilize 'gene altering' when altering an animals own DNA or to splice in new DNA called transgene, from another species. These transgenes are primarily used to make human proteins which offer medical value. This transgene is secreted into the animals milk, eggs, or blood and collected and purified. This process has been reflective upon cattle, sheep, goats, pigs, chickens, and rabbits. The modified animals then produce useful proteins and drugs.

To produce modified transgenic animals themselves, the DNA gene is introduced into a single cell, such as a fertilized egg, before it begins to duplicate and form a new organism. The ones tested and truly transformed with the new gene are inserted into a surrogate mother's uterus to develop. The transgene or promoter is only turned on in the mammary gland. A transgenic animal will produce the protein

without damaging its own health as it is ready part of its biological make-up and hence, its offspring through cloning or breeding.

The animals are flexible reproduction, easily maintained and the delivery system is through milking. The protein encoded with the transgene is recovered in large quantities. This process is hopeful in resulting therapeutic products, vaccines and other medications at a cheaper cost to manufacturers.

Currently Utilized For:	Diabetes	growth hormone
	Enbrel	arthritis medicine (Apher 2003)

Currently Testing:	anti-thrombin III	tissue plasminogen activator [blood clots]
	erythropoietin [anemias]	blood clotting factors VIII and IX [hemophilia]
	alpha-1-antitrypsin [emphysema and cystic fibrosis]	

The most common grown crops for the PMP initiative are corn, tobacco, and rice upon U.S. fields. Research into other plausible field solutions are safflower, soybean, tomato, sugarcane, alfalfa, and potato. In 2002, PMP test crops were grown in 34 U.S. sites. Having a solid understanding of each crops environmental dangers and it's physiology are advantageous as this pharmaceutical production in plants must maintain high standards yielding high quality outcomes as it will be regulated and monitored from conventional crop harvesting techniques. Those companies developing these PMP crops are therefore limited in farmers who will benefit economically and localized fields to produce their bio-pharmed product enterprise.

Spidergoat Silk

Spiders are not farmable insects as they are migratory, feed off of one another, and territorial. This is not conducive to harvesting silk. Thus, scientist has learned that when genes for dragline silk are isolated and put into 'goats' and expressed in their mammary glands, the animal produced silk proteins in its milk that could be spun into a fine thread. This thread offers all the properties of spider-made silk and can be utilized in manufacturing bulletproof vests, thinner thread for surgery, and stitches or indestructible clothes.

Biopharming and Animal Research

As with most scientific animal experimentation, there is always the risk of causing suffering or harming it. Success with injecting the DNA genes into the host finds that it is not always receptive within the target tissue or at the accurate levels. This means that it can attach itself outside of the mammary gland and

present as toxic to the animal. It can lead to birth defects, poor brain development, cancer, arthritis, diabetes, or other health problems.

The use of a 'retrovirus' is to avoid such problems through it's introduction into the cell attracted to where the genes have been injected. This is predictable mechanism aimed at sequences which do not harm the normal cellular function and protect the development process. The alternate procedure is in use of more focused screening methods in evaluation of the transgenes functioning prior to uterine implantation.

As we're informed, approximately 1% of the injected eggs are successful in live birth burdening the high cost to both animals lives and monetary means. This does not compare to the human lives protected through it's use for protein production. Some of these same proteins can be retained in human blood, yet, not volume enough to fulfill the need. Blood donation is also a source of unwanted contamination of products derived by this process.

Homo-sapiens make proper use of plants as a food resource, for raw materials and as a source of medicine. Bio-technology techniques enable the formation of new species with unknown characteristics.

Ex. A. Timber for buildings

B. wheat for making bread

C. medicine

D. malting of barley; barley provides sugar and thence ethanol (alcohol) in beer

E. the production of oil and margarine from rapeseed

For about 25 years, foreign gene splicing processes have been used by scientist who are presently getting closer to creating sustainable genetically modified plant-made medicines. Corn, soy, canola and fruits tomatoes and bananas can produce disease-fighting drugs and vaccines which are now going through rigorous testing. Though the success of this strategy would revolutionize the drug industry there is the danger of pollen carrying the gene for the product being blown in the wind, as it can be transferred to plants outside the perimeters of the production zone. A natural crop in this instance, infected by the wind blown 'gene' which enters our food supply, can alter it's outcome; thus, the species is considered contaminated.

However, the Biotechnology Industry Organization (BIO) suggests that new rules will make pharming distinct in nature from cropping that future contamination is preventable. Most prevalent are isolation techniques in distancing field splotches of focused plant foods. Having been so well researched, food products such as corn thought best as a food resource, are safer in providing pure protein for medicinal use.

The Evolution of Farming

During my research into current trends in farming, I found an Agriculture Bill introduced into the Welsh farming community designed to define farming throughout it's next decade. It seemed to be grounded in the finding of 'climate change' and it's global impact. It sets ability's for farmers to (1) keep their land, (2) produce food sustainably and (3) deal with the climate emergency.

England, as well, has put forth it's own subsidy reform farmers and environmental work. In their lands, farmers are to be rewarded for adopting climate and nature friendly regenerative farming practices exercising wisdom as we know, in order to grow crops, farmers use water, sunlight and air for photosynthesis and nutrients. Potassium, Phosphate, and Nitrogen are most important.

Covid-19 and it's onset toward becoming a pandemic, was the causation of our international food supply falling for it's 'surplus' status into our present day state of despair and questions as to how best each country can sustain it's annual distribution of goods. Those in the agriculture industry understood the need for farmers to destroy crops of value well into the millions of pounds recognizing their inability to move forward with sales due to schools, theme parks, cruise lines, factories, restaurants etc… shutting down. As some crops cannot be stored until ready for use because of rotting it was destroyed. If the existing crops were not destroyed, they were grinded back into the ground and milk and eggs destroyed. These markets housed approximately 50% of our food consumption outside of the home. Another 25% was unable to make it to retail outlets.

25% unable to make it to retail:

a. supply and demand the same
b. how and where access to it changed
c. farms are designed to fit whatever you 'they' supply

Farmers have devised their systems to befit the specific interest of generating income within their crops and crop manufactured products. As the pandemic spread and loss occurred their individual production set-ups where thrown off course resulting in revenue losses which equate to about 10 to 25% relative to lower prices and lack of sales. As what is fair is not always equal. Too, this situation caused a 37% food insecurity. A farmers debt is measured by his state of liquidity. Intricate factors of measurement are (a) financial efficiency, (b) solvency, (c) profitability, (d) repayment capacity and variables of **land** in for business use and that of land lost.

Now, higher food prices are a trigger toward a global crisis that will drive millions into extreme poverty, magnifying hunger and malnutrition, while threatening to erase hard won gains in development. This most directly impacts the economics of low to middle income countries as they spend a large portion of their income on food compared to high income countries. Analyst watched food prices decline by 8.5% in August 2022 as grain reduced (-8/3%), oils and meals (-13/1%) and beverages + raw materials dropped 2..3%. Fertilizers fail 3.7%. The latter, fertilizers, is also a negative benefactor of the ongoing Russia and Ukraine War.

The ability to farm crops is relative to fuel and fertilizer cost. As we look back in time, the farm crisis of the 70'S and 80's prevention was grounded in lowering fuel cost. We find historically, farmers were forced to either loose or creatively survive such incidents. In Mississippi, a family farmer, Mr. Scott, resolved his crisis through flooding his land and creating a catfish farm. As there was said to be 'no' federal money for Black farmers, the conversion into a fish farm as his white counterparts had done, salvaged his profit temporarily. As he gave half of what he needed as payback, his loan terms changed and his land was foreclosed upon. This is one of a multitude of means through which farmers, especially black farmers, were forced into losing their land or discontinuing with their annual harvest. Prices for equipment were very high or the farmers were being continuously denied loans and access to USDA's supplements of fertilizer, equipment, loans etc…..

In 1997, the government was sued for discrimination by Black Farmers and the Scotts became a marque family in the lawsuit. In time, there would be 70,000 claims presented. In response to the lawsuit, 1 billion was said to have been paid out by USDA, yet, 60,000 claims were not heard. In 2010, the U.S. government allotted 1.15 billion to make-up for losses along with outreach and education programs for minority's. And still, land rent is high, tropical storms cause damage to land and crops, floods present, and commodity pricing was down. This forced some into 'rental' of land to other small farmers and others sold 'crop' insurance as added income.

Time has nudged corporations, such as Pitt Chemical, to began hiring farmers to farm for their products. In having done so, African American farmers down in Mississippi once again felt betrayed and disregarded as a said businesses paid a higher wage to their White African counterparts. These immigrant farmers who they trained and brought into the state took hold as the state held a 39% unemployment rate among it's county's. Pitt's Chemical was then sued by the local farmers for a list of discrepancy's.

Of late, this same body of farmers have sued the federal government once again behind an apparent 'watering down' of a $4billion package aimed for a debt relief program it established for farmers. Minority farmers once again claim to have not 'reaped' the benefit it was proposed to extend. After being held up in court for 18 months, it was replaced in August with the 'Inflation Reduction Act of 2022'. This Act does not prioritize 'minority' farmers and leaves them uncertain regarding protecting their land ownership as Black farmers have suffered such great loss over past years.

Under the guise and rules of 'fair play' corporate investors are in need as the U.S. relinquished only 5 billion for farmers from the annual Agriculture budget.

World Bank Funding Resources

As climate change edges more and more into the economics of each country, there are considerations for increased financing and recognition through other means of support, for those farmers adhering to protocol and changes most highly recommended. This global concern offers extended care for those whose economy's obligate them to take hold of World Bank Funding support. These economies lack the ability to afford the food volume required to sustain their populations. In Dutch country, Dutch farmers are found to be selling land and moving to other nations such as Germany. Some blame the 'climate change' initiatives for their decisions as they've expressed the Nitrogen water quality and air pollution are reasons why.

There are considerable loans, grants and projects throughout the globe which fall under the financial care and consideration of the World Bank organization. In short these are just a few examples of where the funding gathered from nations around our world goes annually:

1. $315 million loan : Supports Chad, Ghana, Sierra Leone
2. $500 million Emergency Food Security Resilience Supply Project : Egypt
3. $130 million loan for Tunisia
4. $2.3 billion Food System Resilience Program : Eastern and Southern Africa
5. $87.8 U.S. million Livestock Dairy Development Project : Bangladesh
6. $150 million IDA credit : Senegal

Vertical Farming



Introduction

This new structural shift in farming, vertical vegetation, is indoor farming which is believed to enable massive growth of crops. Though there are limited resources, the technological enhancements have made it reliable, efficient, LED lighting specific which defeats it prior evaluation findings as a non-reliable and inefficient method and farming resolution. Inside, the crops are untouched organic products having refrained from exposure to the hazardous environmental elements. Zero pesticides are required, seasonally controlled environment agriculture (CEA) for temperature, insects and other factors. The resulting high quality food are of high standard and in a greater variance relative to types and flavors than in traditional farming methods.

The Worlds population count is continuously growing despite the efforts of select countries at containing it birth rate over the past years. Feeding the world has proven to bee an expensive task requiring consistent research for more cost effect approaches in funding and growing safe, high quality food. Food experts are seeking new paths to reform the existing food system. Though it will not supply enough food for the masses, indoor farming is one such venture discussed for well over five years.

Vertical farming is an indoor process during which crops are grown on top of each other. It enables for a greater yield of crop. This reduces the square footage typically required for typical farming. They do not use sunlight or soil and can grow in water, out of water, or with their roots soaking in nutrient water. This filtered purified water consist of a carefully calculated mix of plant-specific nutrients as it circulates to the plants. Reliance upon energy efficient LED lighting as a regular resource of photosynthesis. It also allows for careful, easy tracking of each plant product.

Farmers are developing technological resolutions for vertical farming that infringe upon the economic & community success and environmental hazards we are faced with. These encompass the following:

a. water waste
b. loss of land arable
c. use of pesticides
d. food safety
e. jobs for the community
f. inexpensive method [no farm equipment]
g. safer work environment
h. endless food supplier
i. smartphone visual for round the clock monitoring

Near Richmond, Virginia, ground has broken for the construction of a 120 acre vertical farm campus. The farm company has plans to begin production late 2023 and anticipates around 20 million pounds for its variation of crops. This farm plans to make history as the first to grow indoor farmed berries and pesticide free leafy greens. This in measure of a $300 million investment will also assure jobs for the surrounding Virginia community's broadening it's agriculture and technology industry's.

Historically, The Hanging Gardens of Babylon were décor of the Neo-Babylonian Empire. This is thought to be the earliest form of such gardening style. The Aztecs used marshy 'rafts' hanging in rivers and shallow lake beds which are today known as chinampas seen in Mexico City. And in the 1600's, the French and Dutch held 'fruit walls' to protect the fruit absorbing day heat and releasing it at night. This concept spread to 19th century Paris.

Fertilizer and the Russia, Ukrainian War

Did you know that up until the onset of this 2022 war, Russia exported 11% of the world's urea and 48% of the ammonium nitrate? Were you aware that Russia and Ukraine together supply 28% of the fertilizers made from nitrogen (N), phosphorous(P) and potassium(K). The U.S. alone imported $23 million worth of fertilizer during 2021 from Ukraine.

Globally, the impact of the Covid-19 pandemic up against this Ukraine-Russia conflict, has interrupted further the availability and pricing stability of fertilizers. This is especially notable to the 48 'poorer' and economically unstable country's who relied upon Ukraine and Russian exports. Hence, the farmers whom find the estimated 150% increase unaffordable. This is an impending hindrance to food production, crops, stability. The wars disruption of shipping is sending millions into hunger within some of our poorest countries. This could plausibly impose the onset of globally undernourished country's and community's. The 'real risk' of famine and 2023 crop transitions amongst the inaccessibility of foodstuff is looming as some suggest country's have begun to 'hoard'. China has blocked it's exports of urea sighting prices and at home shortages. The creation of alternative means to continue farming without any form of stoppage is essential to survival of the masses and protection against negative quality control matters.

This reality has inspired governments to look toward repurposing resources for fertilizer imports and distribution while inspiring internal economically advantages to local farmers and tense retailers as they are purchasing what they can afford and not what they need. It is catch twenty-two as with most things as we see this 'fertilizer crisis' as a pain and others as means of profit as industry officials notice annual income increases approximately six times normal rates.

Farmerline, an organization which connects and provides a country's need for seed, fertilizer and financing, recognized the need to shift and import fertilizer and food from alternative country's. This against the currency rate changes and imposed tariffs further enhances the struggle to pay.

In the U.S. one Louisiana based company, in June 2022, CF has indicated that it has functions haphazardly fulfilling orders from within the U.S. and foreign lands. This benefited the corporation through higher demand and higher prices with intake raging to $883 million from $151 million earned during the previous years season. As in the pharmaceutical industry, CF is investing in plants that will utilize renewable energy sources or those that absorb the carbon emissions from the use of gas and leaves the underground.

Back in April, restrictions were imposed against Russian imports as this required ships to inform insurance carriers of their intended journey's which in-turn increased the fees for cargo to exit the indicated ports. And, the sanctions against Russia disrupted intentions despite U.S. indicating it did not object. Now in the fall of 2022 we are faced with the destruction of the Crimea access bridge roadway and the limitations it puts upon port use ending thoughts of exporting urea and other food items.

In The News Around The World

Latin America Stymied

In an effort to restore a sense of normality into the farming community, Colombia has received funding from the U.S. Agency for International Development for food security in it's region which encompasses Colombia, Guatemala, Haiti, Honduras and Peru. Mercy Corps has been another resource of fertilizer and seed costs as farmers attempt transitioning to food crops. Colombia has seen the skyrocketing fertilizer prices and it's direct association to local farmers choosing to plant 'coca' plants and not more usable crops such as coffee which require it's use. It knows this financial burden will stymy crop production and force the younger into the cities.

Amish Farmer Raided

An Amish Farmer, Amos Miller, was recently raided by the FBI and fined $300,000 along with an order to cease operations citing USDA standards. This farmers alleges that the typical Agri Agency's (USDA associates) which are 'fertilizer' croppers are the supporting body for this agency seeking to destroy his independent organic farm revenue. He doesn't befit their standards as use of 'chemicals' is against his religious beliefs and he has successfully farmed without them for over 30 years. The farm does not utilize electricity, fertilizer, or gasoline. He also devised a 'private' 4000 member food club membership distributing his locally farmed goods. This, he believes, is seen as taking power and leverage from the government through his farm club while generating annual revenue without the added expense of fuel and fertilizer use.

Geneva

Back on October 3rd, it was reported that United Nations was in talks with Russian fertilizer distributor to cut the current prices. It also sought to restore ammonia product transport as with the July 22 restart of grain and fertilizer shipments. This is a sensitive zone. If successful with this strategy, it would increase shipments and alleviate affordability issues and an availability crisis later.

Somalia

On October 28th it was said that a vessel sent by the United Nations World Food Program (WFP) arrived at the Ukrainian Black Sea port with intention of delivery wheat to Somalia as it had to Ethiopia, Yemen, and Afghanistan. As of October 30th, Russia has suspended its Ukraine grain deal as it is in sync with the explosion suffered in Somalian city of Mogadishu.

Europe

European Farmers are said to have decided to grow plants requiring less nutrient fertilizers such as peas, cut herds and slashing out tractor use. This against the tormented corn production will weigh heavily against 2023's crop rotation and production.

The Mississippi River

The rivers drying up and becoming more of an obstacle as an U.S. export channel for corn, soybeans, and believed to be path of half of our global supplies. Less of a river strains the use of larger ships for transport. This along with the seasons weather setbacks and inflation for farming tools is traumatic

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