

Clean Works combines UV Light, Hydrogen Peroxide and Ozone to create an Environment that eliminates Dangerous Microbes, Pathogens, Yeast and Mold on Produce without using Water



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Interview conducted by:
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CEOCFO: Mr. VanderVeen, what is the idea behind Clean Works Corporation?

Mr. VanderVeen: The technology of Clean Works came out of our Caramel Apple business Court Holdings Limited, we operate with our partner Paul Moyer. In 2014, one of our competitors had a significant issue with listeria in the Caramel Apple business, which impacted the entire industry. For us to get through this, we had to come up with a solution which eliminated pathogens, such as Listeria, without using water. We developed our clean flow process and have run our process with great results for over 3 years now. We have been working with the Dr. Keith Warriner and the University of Guelph on the validation and have been getting up to 99.99% pathogen reduction on apples, with our shelf life extended by close to 25%. We have now been running the processes in various processing locations on various fruits and produce such as lemons, avocados, mixed greens and getting similar results.

CEOCFO: How is this done today and why is it not good enough?

Mr. VanderVeen: One of the main methods used in the food industry is washing by water with other chemicals added as the fruit and produce are packaged. Scientific studies show that while the field dirt can be removed, there is a low degree of pathogen removal. From our standpoint, that left a lot of room for improvement and created some concerns for us. We needed a step to eliminate pathogens, that didn't utilize water.

CEOCFO: What is Clean Verification? How does it work?

Mr. VanderVeen: Clean Verification is a system that significantly reduces microbial counts, pathogens such as listeria, e - Coli ect., on produce, without using water. It is a combination of UV light, hydrogen peroxide and ozone that is contained within an environment that creates the hydroxyl radicals. These radicals then seek out and destroy the microbes that are present on the produce which we eat. Not only does this address the health issues created by microbes, it also reduces the yeast and mold which impacts the shelf life of the produce.

CEOCFO: Has something similar been tried? Is it a matter of the amount of the different items that you are putting together? Is it the process itself? Is it that no one has been able to figure out how to do it?

Mr. VanderVeen: Ozone has been used in storage rooms for several years with very limited success. The way that it was applied created more issues with the room itself. UV light is a process that is used with fresh juices and is effective in that industry. Hydrogen peroxide is well known for its cleaning benefits. Our process combines these three elements and brings us to a new level.

When we pass the produce through our Clean Flow and Clean Batch process, the activation and cleaning is done within the equipment. Nothing escapes into the environment. The by products are water and oxygen. This process is new, it is innovative, and we believe that is it going to be game changing in the industry.

CEOCFO: *How do you go from what you have to everybody getting the benefit? What are your next steps? What is the one year plan and long-term vision as well?*

Mr. VanderVeen: We have been running further testing and validating the parameters of our technologies. In conjunction with this, we are expanding our organization to take the technology from the laboratory and small production scale, to full processing and packing house scale. We have been fortunate enough to be working with some true leaders in the produce industry and have full scale units operational in several packing houses in California and Canada. We are also working closely in the food service industry and will be introducing the technology in the food preparation segment of the airline industry.

Our immediate plan is to assess the potential scope of the business, invest in development for broader applications, and scale the business for order fulfillment. We truly believe that the Clean Flow process will have a significant impact on the food industry, not only here in North America, but it will also have a global reach, and we need to be ready for this.

“Finally, there’s a scientifically validated alternative to washing. I think of Clēan Verification as a firewall between the field and the dinner plate.”- Mark VanderVeen

CEOCFO: *What has been the response when you approach someone with what you have developed?*

Mr. VanderVeen: In the Produce industry, the excitement and positive engagement is high as there is a real need to provide the customer with safe, convenient raw produce which is ready to eat. When you present a system that reduces pathogen, reduces water and extends shelf life, there also is some skepticism, “this is too good to believe.” As with all new processes and innovations, there has to be proof of effectiveness. The work that we have done with Dr. Warriner, and the University of Guelph as a third party validation of the process has proven its effectiveness and brought us a tremendous amount of credibility. With the proven results we are having with the full scale equipment, we are really starting to gain traction.

The Food Safety and Scientific communities are also very supportive of our process as we have won several prestigious Innovation awards over the past three years. In 2017 we won the Premiers Award for Food Excellence, in 2018, the Ontario Center of Excellence award, and 2019 we received the Innovation Award from the International Association for Food Protection.

CEOCFO: *How does cost come into play?*

Mr. VanderVeen: From a standpoint of cost, you have the initial capital investment of the equipment. The operation cost is relatively low as all of the active ingredients are generated within our equipment. The only consumable is the low rate of hydrogen peroxide.

The cost benefits however are extremely high. When you take into consideration the consumption of water and the chemicals added to the cleaning baths, this is a heavy weight on operational costs. Our process is waterless and can significantly reduce the need for multiple wash systems. This in conjunction with our collective need to decrease our global water consumption, the ROI really starts to shorten up.

We are still expanding our research for shelf life extension for fruits and vegetables, ranging from strawberries to avocados, to lemons, and everything in between. By extending the life of the product, and reducing spoilage, the cost of waste is dramatically reduced. We certainly have seen this in our own facility over the past three years.

CEOCFO: *Would you tell us a little bit about the business model? Are you selling a piece of equipment? Is there an additional relationship with the person buying the equipment?*

Mr. VanderVeen: We are evolving our business model as we move forward to determine the best way to bring the technology to market. We do need to look at global applications for this technology, and the development of a support network to do so. Our current focus is to get our equipment into as many packing houses as possible and work closely with our customers every step of the way. Our internal manufacturing operations are meeting order fulfillment demands and we are developing strategies to expand as demand increases.

CEOCFO: Are you seeking investment or partnerships as you grow and look to introduce your machinery to more and more potential customers?

Mr. VanderVeen: We have great shareholders with the company and are fully invested and engaged in this process. Part of our business model over the years is geared to expanding our footprint through strategic alliances. We are always open to discussion.

CEOCFO: Is there any regulatory compliance that you fall under?

Mr. VanderVeen: The elements that we use in this process fall under generally accepted standards. We have run numerous validation testing to ensure the absence of any residual, with no changes to the organoleptic properties of the produce. We have been worked very closely with Health Canada and provided a unit to their facilities in Ottawa to run their own independent testing. They have used our process to look at the effectiveness on norovirus and hepatitis A, resulting in effective log count on both viruses.

CEOCFO: What surprised you through the whole process of creating CleanWorks?

Mr. VanderVeen: We started down this path to come up with a solution to help save our little Caramel Apple Company, and what we developed is a process that will have a substantial impact on the way the produce industry can provide Clean Food items to all consumers. Sometimes necessity is the mother of invention. As Dr. Warriner puts it; "Produce is a high-risk commodity. Finally, there's a scientifically validated alternative to washing. I think of Clēan Verification as a firewall between the field and the dinner plate."

Overall, it makes us feel great, Clean Works is not only providing safety from a pathogen reduction standpoint, and extending shelf life, but also with the reduction of food waste while saving one of our most precious natural resources; water.

It is going to impact so many people's lives, by providing safe food supplies around the world.

