

Providing LatAm the leading technology to feed humanity

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EDITORIAL NEW CHALLENGES

Dear friends, customers and suppliers:

In 2017, in the countries where we operate with our customers and suppliers, they have obtained positive changes political and more economic stability allowing a foundation for new investment growth and confidence in the industries, especially the food industry.

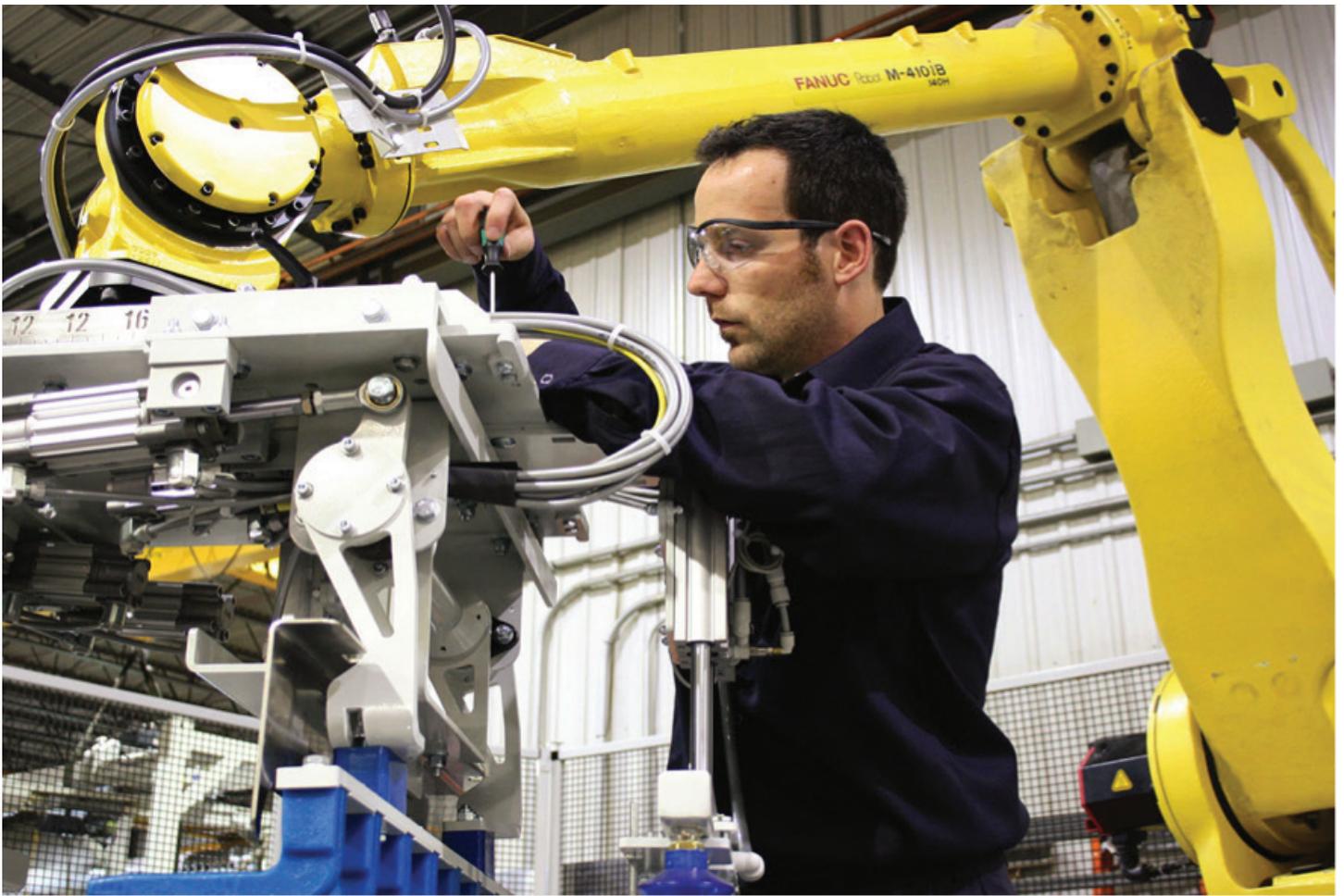
CBH International based on these worldwide changes is prepared, ready and is committed to face them. We have and are investing in our technical and executive team in order to progress alongside the new technology of those companies we represent providing LatAm with the leading technology to feed humanity, positioning ourselves as a market leader, thereby becoming an integral part of the growth strategies of our customers and suppliers.

With these background and knowing that from the year 2007 onwards it has been an accelerated technological growth in the world that implies keeping all the processes and learning at the same pace, therefore CBH International is facing the challenge of advancing hand-in hand with this tendency over the last decade in order to offer you cutting edge technology and the best service by adding value to your investment.

I would like to wish you a Happy 2018 filled with blessings, health and wellbeing for your family, wishing each and every one of you and your companies a bright future and thanking you for the opportunity to work with you.



Caroline B. Hofland.
(CEO CBH INTERNATIONAL)



ROBOTIC PALLETIZERS

CBH INTERNATIONAL, along with its partners, offers our customers several robotic technologies for the food industry, such as, baggers, packers and palletizers, etc.

In an attempt to reduce costs, and ensure accuracy, safety and effectiveness, these technologies have evolved to the point that we are already talking about a fourth industrial revolution.

The key element of the system is a robot that can autonomously perform the tasks assigned by a programmable logic controller. Another crucial component is the gripper (end-of- arm tooling), which generally is customized to handle specific products.

Based on the pallet configuration, the robot forms multiple layers after removing the products from a conveyor belt.

A summary of its features and benefits is included hereunder:

- **Speed:** up to 40 bags per minute, but again, the speed of a robotic palletizer varies greatly according to the products handled. For example, it may place up to 1,200 cans per minute on a pallet.

- **Maintenance:** fewer mechanical components mean reduced downtime and increased reliability (estimated MTBF: 55,000 hours).

Nevertheless, supervisors need specialized training with respect to maintenance.

- **Versatility:** several grippers provide the robot with great versatility and this is one of the most important elements of the robotic palletizer. The specialized end-of- arm tooling can be adapted to almost every need. From vacuum to lateral grippers, with (gripper fingers or magnet grippers), they are designed to handle multiple types of containers at once, regardless of their shape.

- **Space:** equipment dimensions may vary depending on the system configuration, its the flexibility allows for installation in confined spaces, while complying with the latest safety standards.

- **Price:** manufacturing costs have been reduced, resulting in increased sales of more and more systems, because the price is comparable to a conventional palletizer.

**Author: Alex Salguero.
Business Unit Manager - CA**



MAREL WATER TREATMENT RELATION – CBH



Nowadays, wastewater treatment in the industrial sector is one of the biggest problems for the environment.

Industrial waste is one of the major sources of contamination for ecosystems where it is disposed.

Lakes, ponds, rivers, mangroves and coastlines are some of the

places affected by industrial waste, hence local flora and fauna are the most affected.

Furthermore, human beings can be harmed too, as many of these contaminated places are sources of fresh water, or situated near towns and cities that use this water for different purposes.

Marel Water Treatment, formerly known as AQUA Industrial Watertreatment B.V., offers an effective solution for waste water treatment, primarily focused on food-related industries.

Marel provides solutions for disposal of sewage, fresh water discharges, reuse of water, and sludge treatment. CBH International has been working with Marel Water Treatment for more than 20 years. Various wastewater treatment plants have been installed among the different food industry areas in the countries where we operate.

Wastewater treatment plants ensure that wastewater meets the required parameters of oil and grease, COD, BOD, total phosphorous, total nitrogen, suspended solids, among others.

How does it work?

In 2017, we installed wastewater treatment plants equipped with the latest technology these, and the plants apply a biological process. It starts with a primary treatment where the largest dirt particles are removed through a rotating filter. A dissolved air flotation unit (DAF) is used for the next step, removing smaller suspended solids, oils and grease. This can be performed by using a physical or physical-chemical process, depending on the amount of suspended solids or dissolved oils and grease.

Next, there is the secondary treatment, which is also referred to as biological treatment. The first step is the denitrification, where the nitrate is transformed into nitrogen gas, reducing the amount of oxygen needed for bacteria to break down the organic components. Subsequently there is an aeration process, when the system, through depth or surface aeration, oxygenates the water to ensure a high concentration of bacteria, also known as the activated sludge process, which can break down the organic components. Finally, through another flotation unit, this

activated sludge is separated, obtaining high quality water in the effluent. It is common to add sodium hypochlorite to the water discharged in the effluent.

Result

This process ensures that the effluent will not affect the ecosystem, or it could also be reused for exterior cleaning. On the other hand, the biological sludge is dewatered and therefore can be used for composting. In conclusion, Marel Water Treatment is the best solution for companies with a high level of environmental responsibility, and for all food related-industries in the near future.

Author: Michel Ochoa
Business Unit Manager



BAD ODOR ELIMINATION



Since 2009, SCANIO SYSTEMS, SL, along with specialized laboratories, has developed formulas through molecules and effective applications that eliminate bad odors, which occur in industrial food processes, farms, sewers, homes, transportation (trains, buses), shops, offices, shopping malls, residences, hotels, restaurants, bars, etc.

The neutralizing molecules released by Scanio Systems nebulization equipment react with the bad odors, giving way to new molecules that do not smell.

For every bad smell its respective "antidote" is applied; and at the same time, it adds a mild fragrance that enhances the perception in a few seconds!

Neutralizers are NOT air fresheners, or biocides, or bactericides. They do not pollute, are not toxic and do not contain solvents.

Depending on the area being treated, different types of nebulizers can be used:



TL nebulizer



Scandor nebulizer



Column Diffuser



Dry steam diffuser

1

SOLUTION

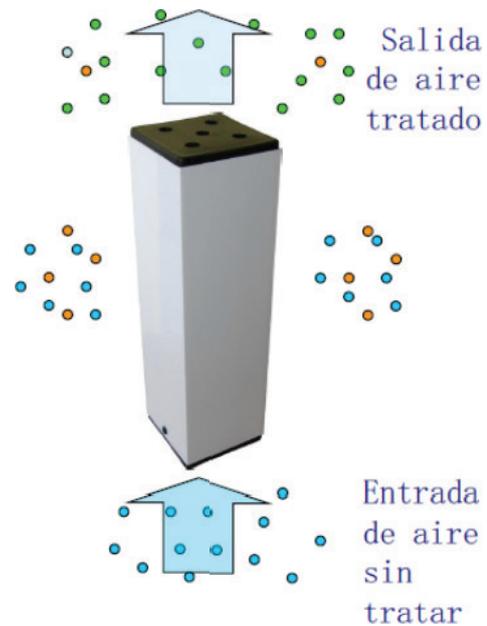
retirement homes, funeral services, lounges, mess halls, smoking areas, garbage collection areas, shops, offices, bars, bathrooms, humidity problems, etc.

The column diffuser distributes active molecules contained in the charge through a dynamic ventilation system, adjustable to different speeds, which allows for adapting the intensity of the odor treatment to the size of the space covered.

It is hung on the wall in a place where air circulation maximizes the distribution of the active molecules.

A diffuser can effectively treat an area of 30 to 150 m². For larger spaces, additional devices must be used, or neutralizer must be charged in the air conditioning system.

- The charging time depends on the intensity of the odor to be treated.
- Typically lasts one to two months.



2

SOLUTION

farms, buildings, etc.

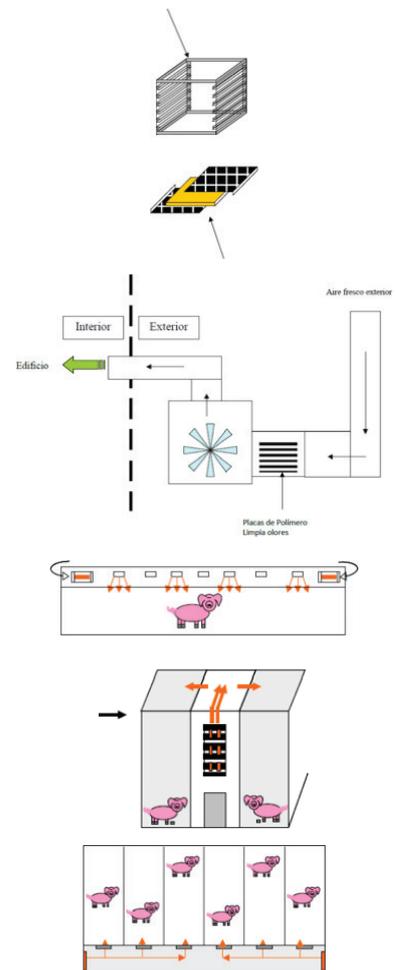
The main components of air in a pig farm, based on concentrations perceived by the sense of smell, are:

- Ammonia
- N-butyric -acid
- N-valeric -acid
- Heptanal

The polymer is released in a linear amount of active molecules during the entire spectrum of sublimation. It inhibits foul-smelling odors related to pigs (own smell, boar taint, secreted pheromone) and those from the degradation of pig manure.

Placed under airflow, the active compounds are released into the ambient air. These molecules, with strong reactive powers, will be attached progressively to the bad smelling compounds, thereby impregnating the volumes to be treated and achieving the best dissociation balance, and consequently the desired olfactory balance. The mixture of foul-smelling gas and active molecules will be perfectly homogeneous. The contact surface shall be optimal and contact time will be sufficient to obtain the best reduction results. Due to the fact that sublimation is continuous, the concentration of the active compounds in the volume of the enclosure will be maintained throughout the gel stage, thereby ensuring uniform treatment over time. This system has great advantages:

- No investment in expensive and sophisticated equipment.
- No energy, no maintenance problems or control.
- An active compounds' concentration of active compounds of continuous treatment in the area's volume during the life of the gel.
- Deodorization of the surrounding perimeter of the farm and buildings treated.



Courtesy of José María Parcerisa
Scanio Systems S.L.

NATURAL BEAK SMOOTHING

Beak treatment is a preventive measure to reduce damage caused by injurious pecking (such as feather pecking, vent pecking and cannibalism) and thereby improves livability and uniformity of the flock.

For many farmers beak treatment is a necessary procedure which, at a minimum, is relatively laborious and time consuming. The known methods of beak treatment are infrared beak trimming in a hatchery or mechanical hot blade debeaking on a farm.

The biggest concerns relate to mechanical hot blade debeaking which causes stress with birds and has an impact on their performance early in the production cycle. This causes open wounds where bacteria can enter freely causing infections and resulting in increased bird mortality.

Making an open wound, where bacteria can enter freely could cause infections, resulting in an increased mortality.

**Testresults reference houses Böckermann farm Germany*

Animal welfare

Furthermore, the welfare of birds increasingly gains importance in the poultry industry resulting in banning any cosmetic treatments, including beak treatment.

The breeder farmer is not only interested in the number of eggs. The total chick output, lay mortality and general bird health become more important.

Animal welfare standards vary significantly from country to country. Recent developments in certain European countries indicate that beak treatment of broiler breeders and layers is or will be forbidden in the near future.

Without beak treatments, birds will have long sharp beaks resulting in extra feed waste (3g/bird/day) and a higher risk of cannibalism.

Feeding and beak smoothing at the same time?

Roxell once more takes the lead and provides a high quality and durable solution for the new market trends and upcoming animal welfare regulations.

At Roxell, we believe we should use nature as a reference to develop new feeding solutions. The animal behavior and the design of our feeding systems go hand in hand.

Therefore we launch the 'Natural Beak Smoothing concept'. The beak growth of your broiler breeders will be controlled continuously while they are fed.

This new solution guarantees bird performance, feed saving and compliance with the animal welfare regulations.

No Cosmetic Treatments



Animal welfare

Varian standards vary significantly from country to country

2%



Less mortality and well shaped beaks compared to IR-trimming

Natural Beak Smoothing

Economic Impact:

Avoidance of the cost of beak treatments

€ 0,07 / bird

Average feed saving in case of birds with well shaped beaks vs. birds without any treatment

± 3 g/bird/day** = €0.14/bird/flock

Less mortality with Natural Beak Smoothing vs. infrared beak trimmed birds (flock on a Broiler Breeder rearing farm)

± 2% less mortality = €0,06/bird

- Better uniformity
- More day-old-chicks/hen

- Avoid stress on birds
- Improve the performance of your birds
- Comply with the animal welfare regulations

Feed saving
in case of
birds with
well shaped beaks



3g.
bird / day

More eggs / Hen



Higher Fertility

€0,26 - 0,42/bird

Total direct saving



Economic impact	Natural Beak Smoothing	Infrared	Hot blade	Non-treated birds
Additional Cost beak treatment	-	€0,07	€0,06	-
Additional Feed waste	-	no extra waste	no extra waste	no extra waste
Additional Mortality /flock	-	2% extra	3% extra	0,5% extra mortality
Total losses and risks	-	€0,31	€0,42	€0,26

**Feed saving: <http://www.wattagnet.com/articles/21914-germany-england-and-the-netherlands-likely-to-face-beak-trimming-bans>



Courtesy Roxell



RENDERING TRANSFORMING BYPRODUCTS

BENEFITS OF THIS SUSTAINABLE PROCESS IN AGRIBUSINESS

Rendering, in general, is the transformation of byproducts resulting from primary processes of the livestock industry to added-value components for the production of feed.

How does it work?

By means of thermal treatment in a digester, the byproducts of animal processing are subjected to a thermodynamic process, which combines temperature and pressure to evaporate all of the water content of the aforementioned byproducts until a dry, crushed product is obtained. The resulting paste is a mixture from which flour is obtained, and animal origin oil is extracted using a press. These products are used as components and additives in the Feed Manufacturing Industry.

Benefits

Rendering is one of the first recycling solutions implemented in the Agroindustry. Since the twentieth century, byproducts of the meat industry have been used to take advantage of the protein content in early stages of animal production.

The first advantage of this recycling system is that, through the rendering process, value is added to what was treated as slaughterhouse waste for a long time, converting it into byproducts used as raw material in other processes. This translates into a reduction of operational costs due to waste management and monetary gains arising from the commercialization of flours, oils and other animal origin additives.

The benefits are not limited to economic returns, but extend to environmental benefits as well, being an efficient way to manage this waste that is hazardous to health and highly contaminant. Industries are interested in reducing the impact on the environment, and rendering is a valid mechanism for

appropriate waste management, transforming waste into usable byproducts.

The challenge that CBH has been fulfilling is to achieve sustainable processes that reduce the ecological footprint and that are economically sustainable, per se, converting an expense into an investment. This takes place under our mission to continuously provide solutions to the Agroindustry.



Author: Ricardo Garcia
Technical and Commercial Coordinator

PROFITABLY EXPANDING THE POULTRY MEAT SCOPE

Marel Poultry's portfolio includes convenience food production solutions. Convenience systems add value to existing products like whole roilers, drumsticks, wings or breast fillets. They also offer profitable opportunities for downgraded parts, trims, bits and pieces, mince, residual meat and skin. The ever changing market for convenience products provides plenty of opportunities on which to capitalize



Marel Further Processing equipment follows on seamlessly from upstream poultry processing operations, opening up countless opportunities for attractive and profitable end products. Solutions for meat mass preparation, portioning and forming, marinating, coating, frying, cooking and freezing are available. These can be combined with solutions for downstream processes such as batching, packing, check weighing and labeling.

A WIDE VARIETY OF END PRODUCTS

A proper further processing set-up allows for production of all kinds of profitable products. Examples are whole muscle marinated and/or cooked products, like ready-to-eat wings, drumsticks, whole products and marinated sliced breast fillets. In addition, all kind of coated products (whole muscle, portioned, formed, bone-in or boneless) can be produced, from known classics such as nuggets and patties to very natural looking tenderloins or fixed weight natural looking fillets. All these products are made from bits and pieces, mixed with whole muscle meat, left over after calibration or fillet trimming processes.

PROCESS STEPS: FROM PREPARATION TO PACKING

A common first step in further processing is to prepare the meat mass. Marel meat preparation systems prepare mass in a hygienic, efficient and user-friendly way. They are known for their robustness, low service requirements and long, trouble free production runs. Marel Poultry offers highly automated systems for grinding, mixing and emulsifying meat mass.

PORTIONING

Portioning products out of bits and pieces is the RevoPortioner's core business.

This well-known low pressure portioning system produces an endless variety of products which are truly consistent in shape, weight and size. The system retains the whole muscle meat structure and texture as much as possible, with virtually no rework, downgraded products or waste (less than 0,3% meat leakage). The RevoPortioner releases products gently from the rotating drum, using air only. The total cost of ownership is extremely low, mainly due to very low meat leakage, low maintenance cost and less need for cooling agents.

MARINATING

Marinating adds value to products and offers possibilities in virtually all markets, with new tastes and applications being created all the time. Small batches can be processed inline, wet or dry, larger or smaller products, with or without bone and with or without additives (like vegetables). The result is accurate pick up and the uniform distribution of marinade. This means saved labor and reduced give-away.



COATING

Marel Poultry supplies appropriate systems for virtually all types of coating.

A good coating increases product yield and improves bite, taste and presentation. It also strengthens and protects products during freezing. There is a very large number of possible coatings, be they wet, dry, or a combination of both. Marel's coating systems deliver simply and efficiently the exact process sequence needed. The trend towards crispy ovenable products opens up interesting new opportunities.

FRYING

Frying is an important heat treatment step in the production process. The coating is fixed and products acquire an attractive, golden crispy finish and taste. Frying contributes to food safety, product quality, taste, presentation and longer shelf life. Marel's fryers are equipped with an oil management system for extended oil life and thus higher yields.

COOKING

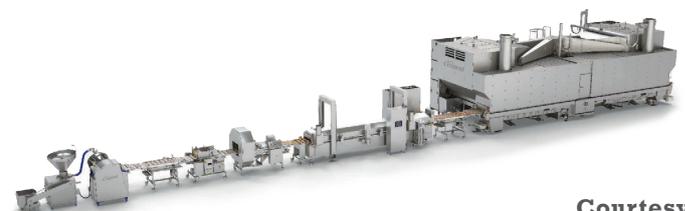
Cooking is yet another way of adding value to products. In addition to Marel's

LinearOven and SpiralOvenup, the high-volume ModularOven consists of two separated towers with separate controls for temperature, dew point and air speed. This offers full flexibility, allowing steaming, cooking or roasting in two different cooking climates. The ModularOven ensures the highest product quality and yield available in the industry.

FREEZING

During freezing, the enzyme reaction causing color and flavor changes as well as loss of nutrients is slowed down.

This preserves the taste, texture and nutritional values of foods over long periods of time. Using preferred suppliers Marel offers freezing solutions for all desired capacities and product requirements, from single, low capacity machines to complex equipment combinations.



Courtesy:
Frank Regouin - Marel Further Processing

THE MAJESTY CHARGE

Fighting Prostate Cancer

CBH values our customers and vendors, so much that we encourage each of them to get tested for Prostate Cancer starting at the age of 40.

Every year CHB International donates a portion of our Net Profit to the Prostate Cancer Foundation (PCF) to fund research of better treatments and a cure for Prostate Cancer.

The PCF funds more than 1,500 programs at nearly 200 research centers in 20 countries.

This initiative is done in memory of Bas W.Q. Hofland.

*To donate, go to
www.pcf.org/BasHofland*



Early Detection saves lives. Get Tested.



CBH SOCIAL RESPONSIBILITY

THE MAJESTY CHARGE

Fighting against Prostate Cancer



This initiative was started to honor the life and accomplishments of Bas W.Q. Hofland.

Bas was born in The Netherlands and from an early age he knew what he wanted and steadfastly traced the course of his life. In his short lifespan, his passion and intensity made him reach many accomplishments, both in his private and professional life. He was an innovator within the food industry. His legacy is present as the creator of the well-known “ Buffalo Wings”.

Bas finished studying in the USA; he decided to settle there and found in Caroline the love of his life. Both spouses careers progressed, they found a wonderful home in Suwanee GA and were blessed with the birth of their daughter Nicole.

Given his sudden illness he was forced to change plans, but he never admitted defeat. He faced the battle and was successful to use the time he had left . All the way to the end and he kept control and was entirely devoted to his family, leaving as a legacy his spirit and his teachings.

For donations: [www.pcf.org/ BasHofland](http://www.pcf.org/BasHofland)





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