The Dutch Approach to Greenhouses
Whether you’re looking for a new business opportunity, expanding your existing greenhouse operation or if you are just curious of what greenhouses have to offer, DutchGreenhouses™ is happy to assist for you to take the next step.
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"Access to healthy fresh fruits and vegetables is not to be taken for granted."
A Short Story

“The idea of fresh fruits and vegetables at the local market came crashing down”

It was about 20 years ago that I had the privilege to work and live with an organization in a remote corner of the earth, in Papua New Guinea. This is a country in the South Pacific and is as close to Paradise as it can possibly get. Papua New Guinea even has the Bird of Paradise on the country flag!

Here in paradise, we didn’t grow anything of our own. On a regular basis, the local villagers held a small food-market at our station. This way, we always had access to fresh fruits and vegetables and we were helping the local community in a way that didn’t interfere with their cultural habits.

But then, out of nothing, we were hit by a significant increase in costs. The always nice fresh fruits and vegetables were suddenly raised in price. It was perceived that the villagers where taking advantage of us. As a member of the board, I decided to cross the river and talk to the locals in person. Here, it was brought to my attention that the costs of “plant-medicine” (read: pesticides) had gone up.

I was shocked. The idea of fresh fruits and vegetables at the local market came crashing down. It turned out to be impossible for the villagers to grow any food without the “medicine”. The plants where hit by numerous pests and the only way to protect them was by using large amounts of pesticides.

Here in the middle of Paradise, our imagination of eating the best nature can offer was even worse than the vegetables we bought at the supermarket in any Western country.

Back in the greenhouses in The Netherlands we were always trying to create a climate that we had here in the South Pacific. The produce coming from greenhouses doesn’t have any residue of pesticides on them, as greenhouses are operated in a completely balanced bio-sphere. Pest entering the greenhouses are taken care of by continuous monitoring and by introducing natural enemies of these pests. With strict hygiene protocols we minimize every risk, ensuring a safe and stable production without the use of pesticides.

I had learned a valuable lesson by this experience in Papua New Guinea. Access to healthy fresh fruits and vegetables is not to be taken for granted. Even under the best possible growing circumstances, growing remains a challenge. With my company DutchGreenhouses™, I am fortunate to play a small part in the supply of healthy vegetables by exporting Dutch technology.

Edo Raus

CEO of DutchGreenhouses™
About Us

“Together we are DutchGreenhouses™”

DutchGreenhouses™ represents a select group of companies in the greenhouse industry. The multiple fields of expertise are all united under the commercial brand of DutchGreenhouses™. These intensive partnerships result in complete greenhouse projects according to the highest Dutch quality standards.

With a collective drive to facilitate growth in the places where it is needed most, the commercial greenhouse alliance is focused on the export of their technological solutions. With an abundance of international experience, a DutchGreenhouse™ can provide growers and investors around the world with a fruitful start.

The approach of DutchGreenhouses™ leaves the expertise with the true specialists. Companies that owe their very existence to being the best in their field. The Dutch partners have their focus on one discipline only, making these individual companies centers of knowledge, innovation and manufacturing expertise. Integration of the diverse systems into complete commercial greenhouse projects is made possible by clear communication and understanding.

Together we are DutchGreenhouses™.
Part of a movement:
New offices in the World Horti Center in 2017

At the end of last year the construction started of the World Horti Center. This is to become the global knowledge and innovation center of horticulture. The World Horti Center is a unique collaboration between private held companies, trade organizations, education and government.

It will become the absolute center of innovation, knowledge transfer and business activities in the world of horticulture. The World Horti Center will be home to a permanent Dutch greenhouse technology exhibition, the current Demokwekerij.

DutchGreenhouses™ will have its own representation office and demonstration room in this magnificent building. It fits perfectly in our corporate vision to export Dutch technology across the globe. DutchGreenhouses™ finds it of great importance to be actively involved in this new facility which combines technology, innovation and education under one roof.

The official opening will take place in early 2018, whereas our offices will be open at the end of 2017.
The Dutch Approach to Greenhouses

Over the years The Dutch Approach has become a notable planning and management practice reaching far beyond water management. It has proven to be an effective method to realize complex planning projects and has been put to the test in a broad range of industries and in military missions.

In all greenhouse projects, alliances are created between different entities to meet the varying demands in the most efficient manner. The standardized greenhouse designs are used as tool for growth, research and decision making. This method makes it able to develop, optimize and integrate complete greenhouse projects with required information on the table.

Another fundamental aspect of The Dutch Approach to Greenhouses makes the local population a key stakeholder in each project. By utilizing local resources for a competitive advantage, a Dutch greenhouse aims to leave behind a heritage of agricultural knowledge, technological improvement and economical well-being.

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- By involving the local population, a Dutch greenhouse can leave behind a heritage of agricultural knowledge, technological improvement and economical well-being.
What to Grow?

The choice of crop is a crucial factor for the economical feasibility and success of a commercial greenhouse operation. The revenue of cultivated crop is responsible for returning on the investment of the greenhouse and its operational costs. Crop varieties, suitable for greenhouse cultivation, therefore differentiate themselves from open-field varieties.

In greenhouse cultivation, crops are categorized into Vegetables, Flowers, Potted plants, Herbs & Leafy Greens and in Soft Fruits. This categorization is based on the crop characteristics but also on the applied cultivation method. Tomato is the single most popular crop to be cultivated in greenhouses and comes in numerous varieties. Choices between truss- cocktail- and cherry tomatoes can be made to target niche markets. The same applies for all ornamental crops, where the variety is the result of decades of selective breeding.

Local to Local

Tapping into local market demand is in many cases the easiest way to start off with a greenhouse operation. By producing a crop or crop variety that is not yet available in local supermarket chains, off-take could be ensured when promoted well. Due to minimal transportation costs, the potential is there to be able to compete with imported crops.

Vegetables, flowers and ornamentals grown in a Dutch greenhouse are cultivated in a safe and environmental friendly way. This characteristic is used with great on the global market to differentiate greenhouse-cultivated crops from open field produce. Products with “biologically grown” label have earned a premium place in the supermarkets.

Monoculture or Multiple Crops

Monoculture is the practice of specializing in one specific crop rather than cultivating multiple crops. This very principal has helped the Westland Region to become that what it is today. Growers had made the choice to specialize in one crop, where neighbors chose for a different crop. Monoculture ensured for an increase in production quantity and quality whilst lowering production costs.

The desire, however, to grow multiple crops in one greenhouse is not uncommon. This desire is especially strong for entrepreneurs in greenhouses who want to test the marketplace and do not want to bet on one horse with a crop. Because the handling of ornamentals and vegetables are worlds apart, it is advised to stay within the “vegetable range” or “ornamental range” when considering multiple crops. To benefit of the economies of scale, the number of cultivated crops is to stay as low as possible.
How to Grow?

Greenhouses are historically based on customized designs for each project. The sizes of the greenhouses have always been limited to the allocation of parcels in The Netherlands. Over the years this has resulted in greenhouses in all shapes and sizes without a Dutch standard.

However, after years of contemplation, engineering and consolidation, standards have now been created. These greenhouse standards are used as a tool for growth, research and decision making.

The pre-designed greenhouses provide growers and investors with information they need, when they need it. By knowing what to grow and where to grow it, the best economics for a greenhouse operation can be determined. With all information at hand from the very beginning, the customers’ interests are served.

The Greenhouses

A numerous pre-designed greenhouse layouts are suited to cultivate a wide variety of crops. They are the result of decades of experience with the Dutch Venlo-model and start from approximately 5,000m² and end at 40,000m². The units are all optimized for efficiency and anticipate on growth.

The greenhouses can be sized-up to a standardized size of 4 times the unit, which can be spread out over multiple construction phases.

Crop Requirements

The greenhouses come with all the hardware required for a certain crop cultivation. From the hanging gutters for vegetable greenhouses to Ebb & Flow table systems for lettuce cultivation, it has all been pre-designed and integrated within the complete solutions.

Options such as grow lights are provided in a comprehensible overview to determine whether they are of added value to the crops.

Climate Requirements

Each greenhouse is designed to preform well in multiple climatic regions. All technical installations related to climate management are on a modular basis to allow an optimal configuration to be made easily. High pressure fogging installations in combination of larger ventilation windows may be required in hotter climates whereas extra heating tubes are required for cold areas.
Where to Grow?

The world is home to many different climates and all sorts of weather. Entire civilizations are characterized by the climates they have been dealing with for centuries. It is the reason why agriculture is such a diverse field of practice and why its form varies from region to region.

Greenhouse technology gives us the tools to cultivate desired crops regardless of the outside factors. To provide the plants inside with the conditions that they need to thrive in, we create an internal climate. This enables us to grow what we want, where we want.

In most cases, however, the greenhouse has to be a profitable endeavor. Applying technology to the greenhouse comes at a cost of investment and often also at a cost of operation. Every investment made must therefore be returned by the sales of the produce. The consideration of market prices is therefore of equal importance as the climatic location in which the greenhouse is to be built in.

Managing the Climates

By introducing smart technology, greenhouse climates can be managed regardless of the local climate conditions. Applying heating systems allows us to grow tropical crops in cold regions. Introducing cooling systems, de-humidification systems or by applying addition humidity to the greenhouse may result in better growing climate. Adding carbon dioxide can improve the photosynthesis of the plants even further, increasing in quality and quantity of production.

Level of Investment

No matter in which region the greenhouse is located, the climatic circumstances can be overcome. However, technology to overcome these climate challenges come at an investment. The initial investment in the greenhouse is to be considered strongly but the operational costs also have to be taken into account. Reducing labor through automation and investing to save on energy consumption can therefore create a competitive advantage to the greenhouse operation.
“Invest too much and you may not be able to sleep at night...”

Invest too much and you may not be able to sleep at night; invest too little and you may not be able to reach your production goals. Balancing the technological solution against the income generated by the greenhouse makes or breaks a greenhouse operation. Though many technological solutions are available, the solutions might not always be appropriate.

In greenhouse economics, the factors of what-, how- and where to grow come together. This with the aim to return on investment quickly and to create a successful business for the long term. Tapping into market demands by crop selection, doing it on a scale which anticipates on growth and also keeping production costs as low as possible.

The largest operational costs of a greenhouse are energy, human resources and of course natural recourses. Operational requirements are defined well in advance of each given greenhouse project. With this approach, an investigation of local costs and market prices gives us a good insight in the potential of the greenhouse. This way, we take advantage of the local situation, creating a competitive advantage.

Feasibility Studies and Business Plans

Feasibility studies are a good starting point for every greenhouse project. Because the investment possibilities and operational requirements have already been sorted out in great detail, only local costs market prices are yet to be acquired in order to sketch a good financial overview of the greenhouse project. This overview is of great value to assess the greenhouse investment and to increase its financial feasibility. Strengths and weaknesses can be derived from the data which allows the project to be fine-tuned in order to create a good business opportunity.

The feasibility study of the greenhouse makes for a perfect foundation to either write or have a bankable business plan written. The business plan forms a complete financial and operational plan for the greenhouse project for internal use, but also to acquire capital.
Creating partnerships and intensively working together is the key to the development of Dutch greenhouses around the world. Working together with the right partners for each specific project means continuously strengthening each other. These intensive collaborations have made Dutch greenhouses what they are today.

Selecting the best partners for each situation makes each project more efficient. The majority of the mechanical installations are sourced from Dutch producers, ensuring the highest quality standard available. However, large essential elements of the greenhouse can, if desired by customers, be sourced from a local partner rather than being imported from The Netherlands. Creating a perfect synergy between all elements is the essence of the Dutch greenhouse manufacturers.

Having access to quantified data about hundreds of greenhouses has led to the development of the standardized Dutch greenhouses. The dots have been connected between privately held engineering firms, knowledge institutes and manufacturers to create the standards for documentation, instruction and design. Besides the construction and technical installations of the greenhouse, the right tools for crop maintenance, harvesting and handing are combined to serve the customers around the world. Dutch greenhouses can therefore be seen as a manifestation of collaboration in the fields of engineering, manufacturing and procurement.
Greenhouse Construction

An efficient workflow defines the Dutch greenhouse construction industry. This is the case for the process of engineering, procurement and especially the construction of the greenhouse. Greenhouses are designed to be assembled easily and quickly. A greenhouse however, is of great value and the consequences of error and success are considerably large.

The greenhouse construction is therefore handled under strict supervision by a professional supervisor. Supervisors are experienced Dutch greenhouse builders who accompany local subcontractors on each step of the assembling process. With clear instruction manuals and videos, the right equipment and a number of local construction companies, a greenhouse is relatively easily and quickly constructed.
Education & Training

Education plays a fundamental part in the success of a greenhouse operation. Personnel is one of the largest operational expenditures, education of the personnel should therefore not be taken lightly. Providing the staff with a proper training before they commence, helps to reduce accidental damages to crops, spot potential diseases and increases the workflow.

Empowering the greenhouse personnel not only with the right tools but also with the right training makes that the tasks at hand can be performed well and in time. A special course is developed to train a selected group of people to become the managers of the greenhouse which at their turn educate the other staff. This educational program in The Netherlands provides them with hands on experience and with the reasoning why certain tasks need to be performed at a certain time in a certain way.

Agronomic Training

In a modern greenhouse operation there are different levels of staff and disciplines. For all these management positions specialized training-programs are created. For the chief-agronomist however, a trainings course is not sufficient. Hands-on experience is the only way to learn the ropes of greenhouse growing.

This hands-on teaching method has been used for generations of growers in the Westland region in The Netherlands. Agronomic knowledge and crop management has always been transferred from father to son in the family greenhouse business. Today, we use the same principle, but intensify and shorten the learning process.

With each greenhouse project, a Dutch grower is installed for one or two years. In this period, the Dutch agronomist is capable to teach the trade to a selected staff-member. This Dutch Approach has proven to be the best way to transfer agronomic skills and knowledge across the globe.