



Netherlands Enterprise Agency

TASTE THE FUTURE

strategy document

Food horticulture in
Colombia, positioning
Dutch know-how and
technology

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Summary

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horticulture production zone outside Medellín

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1 Introduction

This document is the result of a short study commissioned by the Agricultural Attaché Network at the Royal Netherlands Embassy in Bogotá (LAN Bogotá), led by Mrs. Patricia de Vries – Van Loon, Agricultural Counsellor.

For the study, information was gathered in Colombia and The Netherlands. In Colombia, N&S del Trópico has done research into the current state of play of food horticulture production, as well as expected trends for the future. N&S del Trópico has conducted interviews with actors along the vegetable chain in Colombia and has complemented and validated the information from these interviews with qualitative research and a literature review. The findings from this study were reported separately in “Taste the Future Report - The potential of food horticulture in Colombia” Similarly, in The Netherlands, team GRO (RVO) has conducted qualitative research and interviews with Dutch horticulture companies - mostly suppliers - to gauge interest of the sector in developments in Colombia and to gain insight into lessons learned from projects in Colombia and from experiences with strategic collaboration and positioning elsewhere in the world. GRO and N&S del Trópico jointly presented and validated their findings at a round table meeting in The Hague and at a meeting at the Agrofuturo in Medellín.

The main findings of N&S del Trópico and team GRO are presented in this strategy document. Based on the findings, a set of recommended interventions is then formulated on how to best position Dutch companies and knowledge institutes in relation to the (expected) development of the horticulture sector in Colombia.

Horticulture in Colombia 2020

Colombia needs to feed its fast-growing cities. As the urban population - already at 80% - and the Colombian middle class is expected to grow, there will be a growing demand for higher quality, healthier, more sustainable and more diversified food in the cities. The Colombian horticultural sector is not likely to be able to meet these future challenges, without undergoing a major transformation: the sector is currently made up of mostly low-income, small growers in a basic low-tech production system. Some technification of the sector is needed to improve the productivity, quality and sustainability of food production in Colombia and controlled environments are likely to become more common. This is particularly so for the cultivation of “fruit” vegetables like tomatoes, bell peppers and cucumbers but also for lettuce and herbs, where at the moment unprotected, open field production is the standard. Food losses also need to be reduced by better connecting farmers to the markets and by improving postharvest technologies and agro-logistics. Of course, the sector in Colombia – as elsewhere in the world – is expected to meet these challenges whilst minimizing its impact on the environment and reducing its use of natural resources, principally water. All in all, food horticulture in Colombia faces major challenges in the future, in a difficult environment characterized by increasing pressure from climate change, urbanization (resulting in lack of employees), among others.

Dutch contribution to sustainable growth

Dutch knowledge institutes and companies, for example those specialized in cropping systems, post-harvest and logistics for horticulture food products can make an important contribution to sustainable growth and transformation of the horticultural sector in Colombia. This study presents the current state of play of production and market for horticulture food products in Colombia and describes expected developments, challenges and potential of the sector. Protected cultivation of vegetables in Colombia is still in its (pre-)infancy. Major changes (on large scale) in the short term cannot be expected. However, projected developments in the mid- to long term warrant a strategy that combines dialogue with agenda-setting and capacity building. The focus is on production for the national market and on the more intensive crops like fruit vegetables and lettuce and fresh herbs. Given developments in niche markets, it is also recommended to keep a close eye on high-end niche players (maybe even conduct a small study), bearing in mind that these niches offer the best opportunities for Dutch suppliers of technology to the sector. With good partnering, supporting the construction of an Impact Cluster could be considered as a way to ‘proof the concept’ of mid-tech horticulture in Colombia.



2 The findings

The research done in Colombia and The Netherlands led to the identification of ten pre-requisites for successful Dutch positioning in domestic market food horticulture, on a distant market with little Dutch presence. These pre-requisites will be briefly discussed in this chapter. They are related to the following topics:

At the Colombian side:

1. Market
2. Supply chain
3. Business environment
4. Knowledge and capacity
5. Quality regulation

At the Dutch side:

6. Commercial interest
7. Offer
8. Partnership
9. Instruments
10. Matchmaking

Based on our evaluation of each of these pre-requisites, a set of recommendations for possible interventions by LAN Bogota will be given in the next chapter.

MARKET

Domestic demand for diverse, good quality and safe certified food by a growing middle class with a certain size, conscious of healthy (nutritious and safe) food Hydrology

In general, consumption of fruit and vegetables in Colombia is very low. The average daily consumption is about 1/3 of the daily consumption recommended by supranational organizations such as the World Health Organization (WHO) and Food and Agriculture Organization of the United Nations - FAO (Colombian Ministry of Health and Social Protection and FAO, 2013). Especially the lower income groups that make up more than 70% of the population, spend very little money on vegetables and they tend to buy bulk products such as potatoes, carrots, tomatoes and onions. By contrast, people with higher incomes consume a broader variety of higher-end vegetables such as specialty lettuce, cherry tomatoes, zucchinis, cucumbers and certified and organic vegetables. Medellín (24%) and Barranquilla (22%) are the cities with the highest percentage of their urban population in income stratum 4 to 6 (upper middle class to wealthy).

Middle- and higher-income classes are expected to grow between now and 2030 (from 1,5% to 3,1%), while the number of very poor people is expected to diminish (from 25% to 20% of the total population). And, as the average income of Colombian families increases, so will most probably the consumption of vegetables, including the consumption of higher-end vegetables. In addition, there is a trend towards healthier consumption patterns, including more expensive vegetables and specialized products.

All in all, currently the market in Colombia for vegetables is underdeveloped due to relatively low overall consumer demand and a preference for low-quality bulk product. However, as incomes increase over the coming years and the trend towards healthy living continues, the market for more diverse and higher quality vegetables is expected to expand. In fact, niches in the market are already successfully anticipating this development. Most notable in this respect are the producers of specialty products that supply higher-end restaurant chains and higher-end supermarkets. Also, the already large but still growing and diversifying out of home consumption, with a tendency to healthier food gives rise to an expansion of the market for these higher-end vegetables.



SUPPLY CHAIN

Presence of a network of mid-to-high end supermarket outlets, foodservice, infrastructure to access markets, logistic systems, links to markets

Currently, the food supply chain in Colombia is highly inefficient and characterized by high levels of intermediation: products, especially those of small and medium-sized farmers, may pass through as many as five intermediaries before reaching their final destination. This gives rise to low traceability of fresh produce, as shipments from different farmers commonly get consolidated along the way. The packaging of bulk products is very basic - bags, plastic crates and cardboard boxes - which does not help to preserve the quality of the products and forces producers to harvest before physiological maturity. Within Colombia, products typically travel long times and distances, as most urban centers where consumption is concentrated are geographically far removed from the main production regions and roads in general are in bad condition - Medellín and Bogotá being possible exceptions.

In general, the prices of vegetables are determined by the supply and demand at wholesale markets. Coordination and planning of supply based on demand are very limited. This leads to flooding of the market at certain moments and limited supply at other times and consequently to low predictability for growers in terms of prices and profitability. Colombia has a number of supermarket chains that cater to a specific segment of the market; the variety and quality of the vegetables on offer generally corresponds closely with the market segment. Fruit and vegetables are also widely sold at so-called 'Fruvers', the independent stores that sell specifically fresh fruits and vegetables.

Overall, Fruvers and the majority of supermarkets offer a basic assortment of vegetables. A supermarket chain like Grupo Exito (with retail formulas like Exito and especially Carulla) offers more variety and higher quality vegetables (certified organic and/or Good Agricultural Practices), often in ready-to-eat packaging and portions. Packaging material at supermarkets is commonly made of single use plastic, very little compostable or recyclable materials are being used yet and if so, mostly in the bio/organics niche market. A few first signs of change in the supply chain can be seen when looking at the niche of specialty products, fancy lettuce types, mini vegetables and cress. In that niche, supply is (almost) direct from the grower to the retailer and there is much more joint planning of production. Good Agricultural Practices (GAP), as certified by the Instituto Colombiano Agropecuario (ICA), are a standard requirement and logistics and packaging are more developed. This change can also be observed in the supply of the food service industry which has strict requirements of food safety, quality and a continuous flow and volume of homogeneous products.

BUSINESS ENVIRONMENT

Organization of growers, local incentives to invest, access to markets for foreign companies, presence of medium / large scale vegetable growers

The business environment for vegetable growers in Colombia is underdeveloped. There are currently no organizations dedicated exclusively to the support of vegetable growers. The main focus of the Ministry for Agriculture and Rural Development is on rural development through price guarantees, while producers' organization Asohofrucol deals almost exclusively with growers of fruit and vegetables for export. Thus, growers of vegetables for the national market are not organized and receive little support with regard to collective learning, knowledge, access to finance, access to markets, etc. Overall, Colombian growers (including vegetable growers) are individualists, who are not used to knowledge sharing and tend to be protective of their own knowledge. Most growers are small and use very basic production methods.



The findings

There are some medium and large growers that are generally ICA GAP compliant and still apply fairly basic production methods. Only a very small number of niche growers have a different approach and produce higher-end products in much closer collaboration with the clients. Access to finance for the sector is limited – and linked to land tenure informality - and is often mentioned as a bottleneck, especially by small growers. There appears to be a combination of limited availability of funding and a lack of sound business proposals in the sector. Colombia does not have particularly high trade barriers, however, the introduction of new technologies on the Colombian market may not always be easy. Unfamiliarity with the technology combined with risk avoidance and unclear division of responsibilities amongst/within authorities, have resulted in very long drawn out processes for access to market for biological control through natural enemies for example.

Knowledge levels are low and training and capacity building at the growers' level is needed to boost productivity. Improving productivity is the key word that Colombian growers use but they don't have the tools nor knowledge to work on this. Similarly, policy makers seem to have a fairly limited perspective on the sector. A broader policy frame – not only supporting growers' income through guaranteed prices, but raising agricultural productivity and viewing agriculture in relation to societal challenges/SDG's such as food safety and food security, health, sustainability, etc. would help to lift the profile of the sector and raise awareness of its importance and the need to modernize production methods.

KNOWLEDGE & CAPACITY

Knowledge structure in the country to train advisors and growers

The sector has a low technical knowledge level related to productive aspects, greenhouse management, fertigation, integrated pest and disease management, post-harvest and logistics. The earlier mentioned lack of organization means that most growers rely for technical assistance on the commercial distributors of agrochemicals and seeds. Providing technical assistance through a more neutral, impartial organization such as the National Learning Service (SENA for its abbreviation in Spanish), could help to broaden the perspective of growers and boost knowledge levels. SENA is a trusted and well-known organization that could take on this role, after its trainers had been properly trained in the subject matter.

There are many universities throughout the country that teach agronomy or agronomic engineering, as well as research bodies such as Agrosavia and CIAT, that receive public funding and provide extension services (mainly provision of new/improved seeds). Universities are of a good level and carry out a lot of fundamental research, but they appear to operate rather isolated from the sector and often do not cater to the needs of growers in the fields as far as horticultural crops are concerned. Colombian agronomists in turn lack specialized knowledge in horticulture: certainly, the management of controlled conditions in the greenhouses and irrigation and fertigation management are largely unfamiliar territory to them.

DEMOKAS

With support from the Dutch government a high technology greenhouse was installed at the university of Utadeo: the 'Demokas', officially known as 'Knowledge & Training Centre Horticulture Colombia', close to Bogotá.

This demonstration project was, amongst other things, envisioned to serve as a training center and practically functioning example of technological advancement in greenhouse horticulture. Since its opening, several training courses have been given and there is a plan to start a university career in horticulture at Utadeo. However, so far Utadeo/Demokas has not been able to reach out to the sector with their training courses. From this experience and the limited impact of the Demokas in Colombia, a few lessons can be drawn with regard to the Colombian involvement in such a project: 1) identifying the right Colombian partner is crucial, 2) the needs of Colombian growers need to be the starting point – a supply driven approach doesn't work, 3) scale is crucial to prove the business case of technology/controlled environment production, 4) practical accessibility needs to be ensured – a project should be located in a production area.

QUALITY REGULATION

Government regulations for quality and food safety requirements (supervision, enforcement, capacity for implementation, traceability of products)

Government regulation for food quality and safety is in place in Colombia, where INVIMA (part of the Ministry of Public Health) and ICA (part of the Ministry of Agriculture and Rural Development) are responsible for its implementation. Currently, residue analyses are carried out only on vegetables of producers certified with GAP by ICA (a total of 116 producers of vegetables by August 2019), or an estimate of 10% of vegetables in high-end supermarkets. The results in that segment of the market are good – as should be expected. However, the vast majority of growers in Colombia are currently not GAP-certified and the quality and safety of their vegetables is not under the scrutiny of INVIMA and ICA. The main bottleneck here is the lack of traceability due to a high level of intermediation and movement of products, which means that any excess of residues or other quality problems found in the markets cannot be traced back to the grower at this moment. On the other hand, the higher market segments show a strong demand for GAP-certified produce and GAP implementation is expected to grow in Colombia.

COMMERCIAL INTEREST

Willingness from Dutch companies and/or investors to expand their market, attentive to adapting to local needs and with ability to invest mid to long term

So far, Dutch horticultural growers are not interested in producing in Colombia, as the country has not positioned itself (yet?) as an exporter of vegetables. By contrast, Dutch suppliers of greenhouses, systems, substrate, seeds etc. see the potential of Colombia and several have included Colombia in their international ambitions and/or strategy. Generally, these companies have done some market research and are well aware of both the opportunities and the bottlenecks related to vegetable production in Colombia. Most are aware of the need for a long-term presence and are in a ‘wait & see’ mode. Some Dutch companies are more active and willing to invest in market research and (some) local representation. Several companies also expressed an interest in setting up a proof-of-concept project in Colombia: a commercially viable production unit, where production could be done and tested with two or three different technology levels so as to prove the business case. Ideally, such a proof-of-concept unit and its results could be shared with the sector in Colombia and there would be opportunity for training and capacity building on-site – see Annex 1 for main characteristics of a proof-of-concept project in comparison to other known initiatives in Colombia. In general timing is also crucial: at this moment the market for greenhouse technology for food and cannabis production worldwide is booming, which means there is little time and energy left to spend on more difficult and more limited markets such as Colombia.

OFFER

Ability of the Dutch horticulture sector to provide added value and adaptive technology that fits Colombian conditions (which is not yet available)

Most Dutch companies are outspoken about the need, and their own willingness, to offer ‘adaptive technology’ and have done so successfully in other projects, in other parts of the world. Technology should be fitted to local conditions, both physical and entrepreneurial. At the same time, there appear to be some doubts as to whether Dutch suppliers of greenhouses especially, are really able to match Colombian needs. If growers in Colombia want to start producing in greenhouses, the greenhouses would need to be very basic and very low cost – a segment of the market maybe more familiar to Spanish and Israeli suppliers. In the slipstream of a broader introduction of basic greenhouses, Dutch climate control technology (e.g. ventilation, extractors, screens), growing in substrate (e.g. coconut fiber), fertigation (water and fertilizers), control of pests (e.g. *Prodiplosis longifila* by insect screens), internal transport systems, mechanization (e.g. application of crop protection products) may help to boost productivity growth in Colombia.

Suppliers of seeds, substrates, etc. report working with local representation on the development of products and solutions tailored to the situation in Colombia. Several indicated seeing opportunities to improve productivity in Colombia through relatively simple changes (like high wire crop hooks, substrates like coco fiber, application of fertilizers through drip irrigation, white plastic ground cover, shading, improved airflow and ventilation). For them, the question is how and where to get an entrance into the market, which will allow them to demonstrate the impact of such changes.

More attention and time are needed to understand the real needs of Colombian growers on the basis of which a Dutch solution can be presented and/or a matching proposition by Dutch suppliers can be designed. Regional ‘roundtable’ meetings may be one way to help identify the needs of Colombian growers and present possible solutions.

The findings

PARTNERSHIP

A broad Dutch proposition (awareness, knowledge, demo, technology, inputs) to cover diversity of a horticultural economic cluster

Dutch horticulture has the know-how and practical hands-on experience to help solve one of the biggest societal challenges facing the world in the near future: how to produce food of sufficient quality and in sufficient quantity in an efficient and sustainable manner. In the Colombian context, the majority of growers are focused on their day-to-day issues and broad high-tech solutions are far-removed from their reality.

Nevertheless, from the Dutch perspective, it may still be wise to develop an integral concept/solution or a broad proposition for Dutch horticultural production – ref. Tomatoworld <https://www.tomatoworld.nl/nl>. This may appeal to ‘unusual suspects’ in Colombia: the earlier mentioned new investors, that may come from outside the sector, or from sectors such as poultry or dairy, bring an entrepreneurial spirit and see high tech horticultural production as a business opportunity. Several interviewees expressed an interest in such an approach. For this to happen, a broad diversity of Dutch private partners would need to participate to jointly develop the business case for such a proposition. A (public-private) proof of concept-approach is envisioned, with adapted technology, capacity building coupled with a productive earning model. In such a broad proposition, support by the Dutch government may help by linking the proposition to societal challenges such as food safety and food security and sustainability challenges like climate change, scarcity of water, food waste, etc.

Although there is a wish for developing a broad proposition and partnership, this has so far not been tested in practice in Colombia, or indeed in Latin America outside of Mexico. It would require Dutch companies to collaborate and overcome competition between them. Management could be done by a well-connected, transparent and trusted party in The Netherlands whose only goal is to construct a robust and broad partnership, with fair and transparent agreements between members about roles, responsibilities, costs and benefits and a clear shared objective and proposition. Experiences in other similar projects, e.g. “Growing Solutions” in Kenya show that such an approach can be very successful.

Importance of knowledge & training

The general aim of the knowledge & training part is to serve as a two directional bridge between the Dutch proposition and Colombian growers and their challenges. One way of fulfilling this aim is by developing a training curriculum for growers on applied (low tech) greenhouse technology and practical improvements, and offer it in the production regions (Antioquia, Valle del Cauca, Risaralda, Boyacá and Santander), linked to specific challenges there, such as water quality or quantity, soil management etc. A collaboration with CCI (Corporación Colombia Internacional), to organize field days for growers around practical application of technology, should also be explored further. Direct contact with growers should result in a wealth of information with which Dutch technology, practical supplies and inputs can be incrementally more focused on and adapted to local needs.

The training & knowledge part of the proposition

A broad Dutch proposition would ideally include a knowledge & training component. The knowledge & training component can involve Dutch institutes as WUR and Nuffic and can potentially be developed and organized in collaboration with existing initiatives and/or partners in Colombia:

Utadeo

Utadeo university; train staff in high tech greenhouse management; specialty courses for Colombian growers, including the specialization in Technology in Protected Horticulture; physical infrastructure of Demokas;

Saenz Fety

representative of primarily Dutch know-how, technology and products, active in further development of Colombia food horticulture; its Innovation and Development Center which also serves as a demonstration project for technology that the company sells; training, field days and technical visits;

SENA national learning service;

national geographic reach through regional training centers; training for growers free of cost

Maybe Dutch support can be found for the development of such a practical training curriculum and a Train the Trainer program for the instructors of SENA. Practical detailing of the training & knowledge component should be done as part of the concrete development of the proposition.

INSTRUMENTS

Availability of Dutch instruments to facilitate the different stages of accessing the market

Several different types of support instruments of the Dutch government are available to companies that want to be active in the horticulture sector in Colombia (see figure below). Furthermore, some of the instruments are quite broad and can to some extent be molded to the needs of the project. PSD Toolkit is aimed at improving the enabling environment in Colombia, this is a valuable tool for the agricultural counsellor to coordinate efforts to improve conditions in Colombia and create opportunities for Dutch business.

In general, Dutch companies are familiar with the available instruments and seem to have a realistic view on instruments, that are mostly seen as an 'extra' support, not main driver for projects.

In addition, the Dutch-Colombian Chamber of Commerce - Holland House is located in Bogotá. Holland House is a not-for-profit private partnership through which Dutch business and several branch organizations have joined forces in order to promote the interest of Dutch businesses in Colombia. As such, Holland House is an important asset for Dutch business in Colombia and has also supported Dutch horticulture business and/or initiatives. Its presence and knowledge are appreciated by Dutch companies in the sector.

MATCH MAKING

Well-facilitated and organized support to reach equal minded partners

In some other countries (like Ethiopia and Kenya) Dutch growers have acted as trailblazers in flower and/or vegetable production. In Colombia, there are no Dutch vegetable growers, nor do they appear to be interested in investing in production in Colombia for the national market at this moment. Thus, Dutch suppliers need to forge partnerships directly with Colombian growers and / or investors. Higher-end growers for specialty restaurants or high-end supermarkets may be a good match, given the quality requirements and continuous and steady need for volumes for their products.

In addition, many sources in Colombia point to the presence of potential new entrants in vegetable sector in Colombia. These newcomers are believed to be younger generation 'urban elites' who have inherited land and have an entrepreneurial mindset and/or investors from other agricultural sectors such as poultry or dairy that have capital and see the potential of the horticultural sector. So far, however, these potential new entrants have not 'materialized'. Identifying them, understanding their interests and needs and linking their needs to a targeted Dutch proposition, may offer real opportunities for both sides. This is however, neither a quick, nor a sure win. As mentioned earlier, match making for such a targeted, high-end proposition is a puzzle of many pieces. For this to happen, LAN Bogota, Holland House and a neutral process-coordinator in The Netherlands would need to make a coordinated effort.

Overview RVO instruments Colombia



The findings



Lessons learned

The Dutch horticultural sector in general does not find it easy to collaborate; trust is low and focus tends to be on individual gain, not on the shared goals and benefits. For Colombia there have been two collaborative initiatives which involved Dutch companies, from which some lessons can be drawn for the future:

Demokas:

- 1) Get an expert with knowledge of horticulture and projects involved.
- 2) Be clear and transparent about project partners' roles and responsibilities.
- 3) Check the motivation of each of the project's participants: is everybody aligned?
- 4) Local situation (needs and desires) should be the point of departure.
- 5) Get a trusted, well informed and independent 'jobber' or project manager whose only goal is to construct a robust and broad partnership and help it deliver the project successfully.
- 6) Government support/subsidy should be viewed as an 'extra', not the principal motivation or determinant factor.

PIB:

- 1) Initiative needs to come from companies.
- 2) Partnership should be forged and managed by an independent project manager.
- 3) Project management needs to be local.
- 4) Formulating a broad proposition or partnership should ideally be preceded by an effort to find a Colombian partner or investor, so the project/proposition can be defined jointly.

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3 Recommendations and actions

In this chapter, we offer recommendations and suggest actions to help position Dutch companies and knowledge institutes in relation to the (expected) development of the horticultural sector in Colombia. We suggest two approaches: one aimed at traditional, low-tech growers and another, aimed at the emerging 'next generation' niche growers in Colombia. Finally, a few suggestions are made for a more general 'explain, excite and explore' approach.

Approach to traditional growers

The Colombian horticultural sector is mostly small-scale, low tech and very basic. At the moment and in the near future, this part of the sector appears to offer limited opportunities for Dutch companies in the horticultural sector. However, given the expected developments in the mid-term future, it seems wise to stay connected. Presence and a better understanding of the needs of the Colombian growers will help to connect the sector to the right (Dutch) solution at the right time. Instead of showcasing Dutch technologies and solutions in a supply-driven way (as has been done in the past e.g. Demokas) it is recommended to focus on demand in Colombia. This does not have to be a passive approach but can also include helping to uncover an unarticulated demand or to help create awareness of opportunities and thus demand.

The recommended approach with regard to traditional growers Colombia is in other words to respond positively to any request for help (whenever possible) and try to gain a better understanding of Colombian needs and ambitions and to tap into the possibilities those may offer. To this end, the main proposed actions are to provide support in technical issues and round table dialogues.

Technical assistance with regard to agro-logistics.

Respond positively to the request of the Colombian government for technical assistance with regard to agro-logistics. The Colombian government wants to work on improving agro-logistics, a field that has also been identified as problematic in this study and where significant improvements can be made towards efficient supply chains with less intermediation and more direct deliveries, contract or program-based production, improved packaging and (cold chain) logistics to reduce food waste due to loss of quality and damaged products, among others.

The technical assistance in this field can be focused on areas where there may be quick wins and/or where there is a potential to contribute to societal challenges such as reducing food loss, providing decent jobs, sustainable production and consumption - thus opening up a broader policy dialogue on the importance of a productive and robust horticultural sector and its role in the future of Colombia. To ensure more practical impact and create possible business opportunities for Dutch companies, close cooperation could be sought with a high-end supermarket chain or foodservice provider, through a 'building value chains' approach: close cooperation and joint planning between partners in the chain, technology and finance for production.

Goals: a) Prove that The Netherlands has valuable expertise and know-how that can be applied for practical improvements in Colombia, b) use the opportunity to connect agro-logistics to a broader perspective on the sector, c) identify business opportunities for Dutch companies.

Roundtable dialogues

Establish roundtable dialogues with Colombian growers, government and sector representatives and Dutch organizations and companies to promote knowledge sharing, build network presence and to gain better insight into the actual needs of the Colombian growers. A twice-yearly dialogue, around specific, preferably fairly practical themes, based on the reality in the field – ideally proposed by Colombian partners.

Goals: a) Gain a better understanding of actual bottlenecks for the sector, as well as future ambitions/opportunities, and b) further position The Netherlands as a trustworthy partner that is able to provide suitable solutions.

NB. It is likely that in the context of a roundtable dialogue, the lack of knowledge amongst Colombian growers is mentioned as an important bottleneck. If this is the case, LAN Bogota could start to develop the market by exploring ways to raise awareness amongst rural growers on controlled environments and a practical approach towards improving productivity and product quality, through training on basic greenhouse technology by SENA. At the level of producers and farm workers SENA appears to be the most relevant partner. A Dutch partner would need to be identified for training by curriculum development and a Train the Trainer approach. Where necessary, visits to The Netherlands could be facilitated on specific subject e.g. supply chain management. In addition, specific practical expertise could be contracted for specific assignments through PUM.



Approach to 'the next generation' niche growers

Bearing in mind that the high-end niches offer the best opportunities for Dutch suppliers of technology to the sector, it is recommended to keep a close eye on the high-end niche market. With a well-coordinated effort on both the Colombian and Dutch side and good partnering, a step by step match making approach could lead to the inception of a 'proof of concept' -project for mid-tech horticulture in Colombia. This would allow for demonstration of greenhouse technology with sufficient size of production and appropriate level of technology in a commercial setting, including practical field trials with improved varieties and integrated pest management. In such a context, the benefits in terms of productivity and product quality can be demonstrated, and the business case can be proven.

Setting up a demonstration unit

Setting up a demonstration unit is a puzzle of many pieces:

- In Colombia an investor needs to be found who is willing to share the results of the project and to allow other growers to access the proof of concept site.
- A broad partnership of Dutch supplier companies needs to be built that are willing and able.
- Moreover, efforts on both sides need to be closely coordinated: setting up a Dutch partnership is easier with the prospect of a Colombian partner and, conversely, finding a possible Colombian partner is easier based on an outline of a Dutch proposition and a partnership that is able to deliver.

This is a conundrum that Dutch companies have so far not been able to break – despite some serious efforts - nor are they likely to be able to do so without the support of a third (government) party.

Match making step by step

A step-by-step support for match making requires dedicated effort, time and funding. For it to happen, LAN Bogota, Holland House and a neutral process-coordinator in The Netherlands would need to make a concerted effort to support and coordinate the process.

- The main responsibility of LAN Bogota is to initiate and coordinate the strategy. As the principal government liaison, one of the roles the counsellor could also play is to highlight the SDG/societal challenges aspects of the proof-of-concept project. This cannot be expected from Dutch business, but is an important part of the proposition, one that will also facilitate G2G contact on the topic;
- Holland House is a commercially oriented partner in Colombia that could take charge of identifying potential next generation growers in Colombia and opening up the conversation with these parties on their needs and interests and how these may match with a Dutch proposition;
- A neutral process-coordinator in The Netherlands is needed to construct a robust and broad partnership, with fair and transparent agreements between members about roles, responsibilities, costs and benefits and a clear shared objective and proposition.

In all of this it is important that the driving force behind this initiative remains squarely with private parties: i.e. Dutch companies on the Dutch side and with the Colombian investor in Colombia. Without concerted effort between the above-mentioned parties, however, a private initiative is unlikely to be successful. Thus, communication about the intentions and strategy is needed to give potential lead companies a push and some confidence.

Recommendations and actions

General approach and activities

In addition to above mentioned targeted actions, the agricultural counsellor can help to position The Netherlands and the Dutch sector in Colombia, by continuously taking the opportunity to 'explain, excite and explore', as explained hereby.

Explain

A short video and/or a small exhibition/high quality poster presentation, presenting facts and figures related to food horticulture and global challenges such as climate change and food security – developed in collaboration with Tomatoworld and exhibited at Utadeo with link to Demokas the exhibition can be used during a trade fair or round table meetings, supplier events of supermarkets/food service, or field days for growers organized in collaboration with CCI (ideally combined with a pilot site for practical implementation of technology); a flyer showing a step-by-step approach to technology in horticulture and the benefits of each step; use G2G contacts for agenda-setting related to the promotion of healthy diets and the importance of implementation of food safety regulations - by collaborating with ASOHOFrucol in their 'come sano, vive sano' -campaign for example;

Excite

showcase in an inspiring way, Dutch innovations and their benefits, e.g. those related to water efficiency in horticulture; showcase practical examples of circular economy with a strong agricultural/horticultural component; seduce potential new Colombian investors in the sector by positioning the high-end niche of the sector as an exciting and interesting investment opportunity.

Explore

be curious and initiate a study into quick wins related to the introduction of basic technology (from companies such as Horticoop, Royal Brinkman, Van der Knaap, Dutch Plantin, Klasmann-Deilmann, Hotraco or UFO Supplies); ways to connect and build up confidence in high-end niche growers and their clients around particular themes.



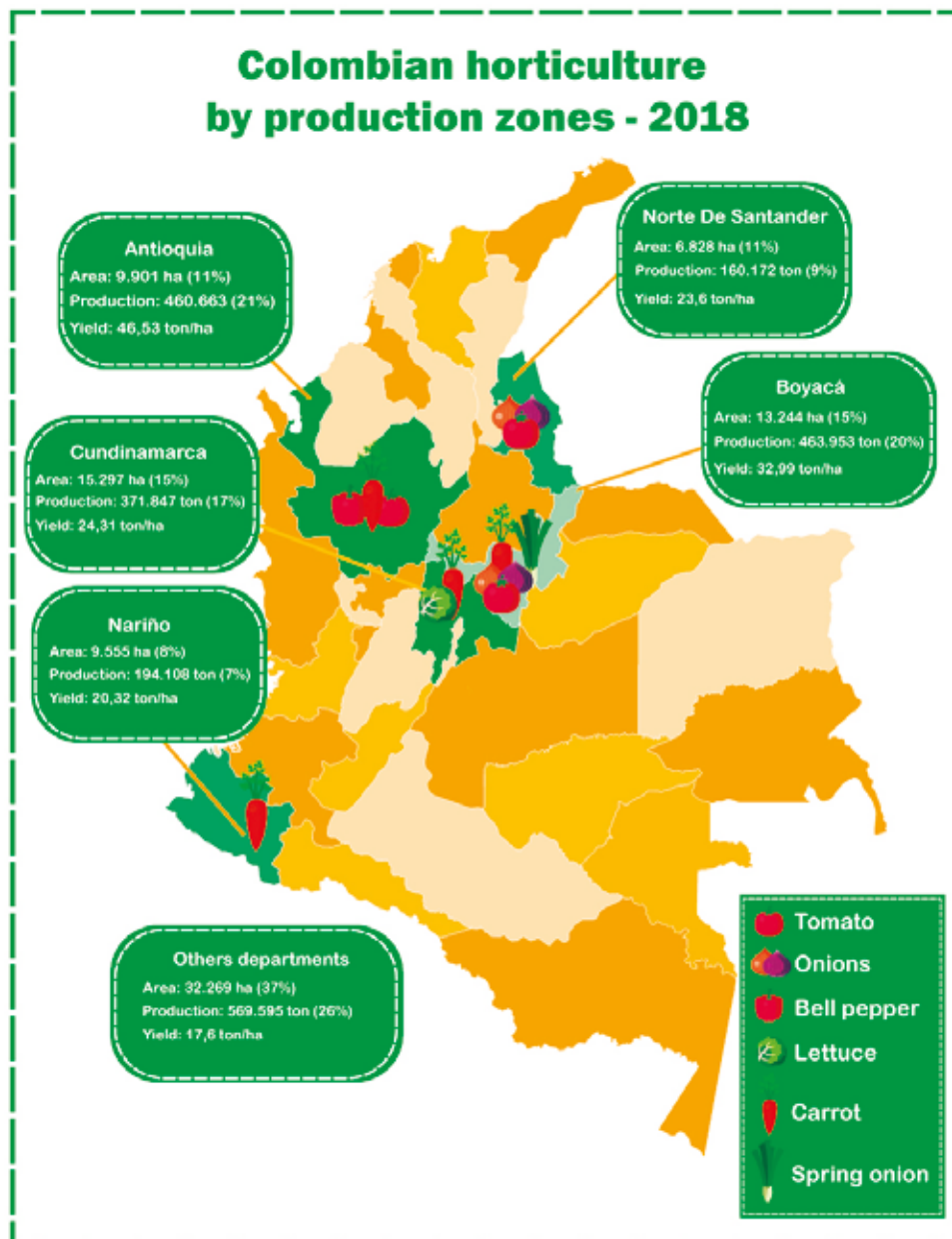


TASTE THE FUTURE

strategy document

Food horticulture in
Colombia, positioning
Dutch businesses

Annexes



ANNEX 1 Comparison - Proof of concept project to Demokas and a private Colombian company

	Proof of Concept project	COL supplier of inputs and technology	Demokas
Aim	Provide practical insight into commercial exploitation of greenhouses for food horticulture in Colombia: Insight into 1) practical application of low/mid/high technology and 2) the commercial business case (economic results) per technology level incl. practical training for workers who will operate the green houses	Agronomic evaluation of seeds (requirement for ICA with import of seeds) and promote the transfer of innovative and applied technology	Showcase and transfer of high-level Dutch Greenhouse technology
Initiator	Colombian business (high end supermarket/food service company) in fresh produce industry that has a need to improve its supply chain with Dutch technology	Private company	Consultant and small group of Dutch companies, triggered by possibilities of Transition Facility Colombia
Proposition Based on a broad, well thought out proposition, with transparent, clearly defined roles for all participants	YES	YES, own initiative	No overall shared goal. Lack of transparency, interference by personal interests. No long-term view on what to do with the greenhouse (location, size, level of technology, etc.)
Commercially viable	YES	YES	NO
Iterative process between identifying Colombian investor (E- investor's needs) and defining the proposition and consortium	Close coordination between LAN – HH, commercial counterpart in Colombia and Dutch consortium	Private company in driver's seat Yes, especially for suppliers (of vegetables) of the Colombian business partner	Dutch consultant with some of the consortium members in driver's seat – supply driven
Technical level	LOW - MID (HIGH?)	MID - HIGH	HIGH
Demonstration site accessible for Colombian growers including training on site	YES especially for (vegetables) suppliers of the Colombian business partner	YES more for commercial purposes than for academic/training purposes	YES mostly for academic purposes.
Partnership	Consortium of Dutch companies: development of software and hardware for total concept Colombian business partner: finance and guarantee of purchasing produce	N/A	'Accidental' collection of Dutch supplier companies: supply of parts for Demokas Utadeo: gain and spread knowledge on greenhouse management
Coordination of Dutch consortium	Neutral, expert coordinator without commercial interest in the project who works as a match maker between needs and possible suppliers of solutions ("pull" strategy).	N/A	Consultant and consortium partners with commercial interest in project ("push" strategy)
Principal role Dutch government	1. Match maker (LAN, together with HH) 2. Connect project to policy priorities/SDGs/societal challenges in Colombia (food security and food safety)	N/A	Financial support (RVO.NL)
Location in production area	YES	Partially, since greenhouses producing vegetables are located throughout the country and not so much in the Bogota region	NO

ANNEX 2 Activities in the Netherlands

Activities in the Netherlands comprise interviews and a round table meeting on food horticulture in Colombia.

Interviews were held with a selection of providers of hardware (greenhouses, heating, production systems, sorting- and packaging), software (automation, water / nutrients, climate, data management), research and innovation, production, pest control as well as improved seeds.

Total number of interviewees in the Netherlands is 24

Participants of the round table meeting on food horticulture in Colombia The Hague, september 4th 2019

Angela Barendregt, Hoogendoorn greenhouse technology	abr@hoogendoorn.nl
Koen van Woudenberg, Ridder greenhouse technology	k.vanwoudenberg@ridder.com
Marc de Ruiter, Marc de Ruiter consultancy	marc@marcderuiter.com
Anton Filippo, LBP Rotterdam	afi@lbp.net
Jose Lozano, Wageningen University & Research	jose.lozano@wur.nl
Rick Oome, Hotraco	R.Oomen@Hotraco.com
Cristobal Fabrega, Koppert crop protection	cfabrega@koppert.nl
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Arjan Levarht, M. Levahrt & Zonen B.V.	alevarht@levarht.nl
Piet Enthoven, Enthoven agricultural expertise	Penthoven45@gmail.com
Ben van der Heide, VDH Foliekassen	bpvdheide@foliekassen.com
Chris de Nie, Min. of Agriculture, Nature and Food Quality	j.c.denie@minInv.nl

Interviews in the Netherlands

Marc de Ruiter, consultancy	Marc de Ruiter - consultancy (demokas)
Ria Hulsman, academic	Wageningen University & Research
Martin Helmich, greenhouse technology	Hoogendoorn greenhouse technology
Angela Barendregt, greenhouse technology	„
Steven Büter, governmental	NBSO Queretaro, Mexico
Jan -Willem v Bokhoven, consultancy	Holland House
Joep van den Bosch, greenhouse technology	Ridder greenhouse technology
Regnier ten Haaf, greenhouse technology	„
Koen van Woudenberg, greenhouse technology	„
Chris de Nie, governmental	LNV, Dutch Ministry of Agriculture, Nature and Food Quality
Bettina Denker, governmental	RVO-T&U, Netherlands Enterprise Agency
Jose Lozano, academic	Wageningen University & Research
Gabriëlle Nuytens	Topsector T&U
Natalia Galvis	CIAT
Robert van Donk, greenhouse technology	Bosman van Zael greenhouse technology
Cristobal Fabrega, crop protection	Koppert
Hans Bouman, seeds greenhouse	Rijk Zwaan, seeds
Ben Sosef, greenhouse technology	Royal Brinkman
Eva Verschoor, governmental	RVO/BDC, Netherlands Enterprise Agency, in Colombia
Miranda van den Ende, consultancy	Tomatoworld
Ben van der Heide, greenhouse technology	VDH Foliekassen
Kees van Veen, multinational tomatogrower	Agrocare
Theo van Vliet, multinational tomatogrower	Combivliet
Elsbeth Visser, governmental	RVO-PSD, Netherlands Enterprise Agency

ANNEX 3 Activities in Colombia

Activities in Colombia comprise desk research, visits and interviews and validation of the results by N&S del Trópico, completed with presentations and discussions of the preliminary results of the diagnostic:

- > with participants of the sector at Expo Agrofuturo in Medellín, Colombia
- > with the LAN Bogotá

Diagnostic horticultural food sector in Colombia.

Title: Taste the Future. The potential of food horticulture in Colombia

Analysis of state of play & Exploration of possibilities for (further) positioning the Dutch horticultural sector in Colombia.

Desk research by Arno van der Maden and Maria Isabel López, June to September 2019

Horticultural food sector in Colombia: focus on intensive vegetable crops (e.g. tomatoes, bell peppers, lettuce and fresh herbs).

Visits and interviews:

- Government organizations
- Non-government organizations
 - > Chambers of Commerce
 - > Research
 - > Education
- Growers
- Supermarkets (and other retail)
- Foodservice
- Horticultural supplies (seeds, technology, etc.)





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