

Grow|OS





Producing fresh food in cities semi natural with low energy demand and low space demand against lowest costs.

Installing Grow OS an agricultural operating system for the world on which Crop Profiles are best greenhouse settings for the most efficient transport of installed equipment

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Introduction | Summery

Grow Indus is specialized in the development, licensing, production and trade of bio-physical, bio-chemical and bio-biotech software and hardware technology in an open, non-discriminatingly way based on an agricultural operating system named Grow|OS.

We develop an open source based agricultural OS (Operating System) to which any sensor or switch or functional unit manufacturer can port to (first on bit level to the Linux kernel, second on functional level to the OS). By this we create a hardware neutral software platform, on which hardware generic 'Crop Profiles' can be build by universities, research institutes and farmers.

Crop Profiles are a set (from day one to harvest day) in a 24 hour time schedule placed best variable settings of each in a high tech greenhouse controllable facet for the maximum or specification targeted flora growth.

Facilitating fully hardware independent the implementation of research results in creating the best artificial (physical, chemical and yet biological) setting for high tech environments that stimulate natural plant growth, 'off-season' and/or 'off-climate' and/or 'specific characteristic', is what we do.

This makes the developed Corp Profiles applicable in any Grow|OS based greenhouse, independent to what sensing/switching/functional hardware brands are used.

Compare it with Microsoft Windows and for example printing: Each printer has a Windows driver, so any Windows Application can produce just the prints they want without any concern about hardware controlling the printer in doing so, that's the job Windows and the printer driver takes care of. They application just can say to the printer controlling part of Windows: print this and it will be done.

By Grow|OS the makers of Corp Profiles (the best settings of each grow facet for a specific crop placed in 24 hour time frames from day one to harvest day) don't have to know and communicate with all used greenhouse sensing/switching/functional devices/equipment brands/versions.

By Grow|OS they just can say to the OS: (we want this value on that time)^x and the Grow|OS takes care of it by 'talking' these values to the in the greenhouse used equipment. Grow|OS is about 'fooling' or 'mislead' nature processes in benefit of mankind and in respect for the natural processes.

The possibility of growing vegetables, fruit, flowers, pharma, fish and seafood quicker, bigger, with potential increasement of latent specific characteristics and by lower temperatures and in other seasons than they are used to in their natural habitat is our challenge.

This reduce the energy consumption of growing vegetables, fruit, flowers, pharma, fish and seafood tremendously. Our main field of research is the use of low energy light technology, which mislead the temperature sensors of vegetables, fruits, flowers, pharma, fish and seafood and therefore let them increase their grow process even if the real temperature is lower.

But we don't stop their. In a closed greenhouse there are so many grow facets that can be controlled, stimulated or lowered (in days of market oversupply) by bio physical, chemical, biological technology.

Our final goal is to stimulate nature as much as possible in delivering the agriculture products people wants, when they want them and where they want them by low cost prices.

'Producing the best agricultural products closest to the consumption areas locally anywhere in the world with low energy demands and low space demands and by low cost prices is our target.'

We think that our Grow|OS and the Crop Profiles build on top of that will give really a Second Agricultural Revolution, on which the GM (Gen Modification) movement will be just a confused side by watcher.

Introduction | Technology

We strongly believe in, and work hard on facilitating implementation of any bio-physical, bio-chemical and bio-biological-technology by our Grow|OS any easy (and thereby low priced).

Trying to understand more and more about the physiology of flora (and maybe later-on also fish and seafood) and the possible influences we can have in respect of these complex processes.

We create a standard software platform for a new maximal effective, low cost artificial voluminous greenhouse based habitats.

We aren't and will not be involved in gen-technology. Bio physics is about 'fool' / 'mislead' flora by giving them controlled some artificial signals. In our opinion creating new spices by human is a dangerous development, which (if it stays continued on this intensive level by market demand) almost certain will lead to eco-systems seriously threatening mega biological catastrophes.

Bio-physical technology is for the moment our main scope of research, just because there is a lot to gain in a short period for relatively low budgets. But in bio-chemical technology and bio-biological technology there are also certainly great new worlds to explore.

A strong example of use of one of the new bio-physical technology in high tech greenhouses and the results of it: Using of specific targeted light spectra generated by the new generation LED's (light emitting diode's) in full computer controlled special designed artificial full technological controlled greenhouse based habitats. By the use of these specific targeted light spectra, we are able to stimulate (but you can also say 'mislead' or 'fool') the bio-system (in control of the plant bio physiology) who controls the natural processes in plants to grow action. They get mixed signals: the light sensor says: perfect time to grow, the temperature sensor of flora tells: not the perfect time to grow, the bio-system of flora then takes the average value and the flora will grow by lower temperatures as they should do by their natural higher temperatures.

An attractive side facet of the implementation of Grow|OS is that it is a development platform on which both big brands/corporations as small innovative start-ups can deploy their technology. This because the OS create instant market for their products and development costs/earning are as close to each other than possible. Also joint-ventures between high tech startup's and big market corporations will be come common practice by a development platform like Grow|OS is.

An attractive facet of the of the development model of Crop Profiles (build on Grow|OS) is that scientists and ambitious specialized farmers mingle on equal base and in respect of each other: they can not improve their own work independent from each other, but need each other knowledge to improve their own performance.

Introduction | Goals

Making massive producing of vegetables, fruit, flowers, herbs, pharma, fish and seafruit worldwide 'off-season' and/or 'off-climate' possible is our main goal. And of course is our target to make this possible against lowest cost prices, closest to served consumption areas, with low energy consumption and with low space demand.

We achieve these huge goals by 1) delivering the best type of technological agricultural Grow|OS platform to the world (OS software), 2) stimulating porting (software connection) of any hardware sensor or switch or combined solution to this Grow|OS 3) stimulating of the production of the best Grow Crop Profiles in this OS (application software), 4) stimulating cost effective production of the best technological greenhouses functioning on this OS by licensing the best production model (licensing production plants IP based), 5) realizing joint Crop Profiles joint ventures all over the world and 6) realizing Greenhouse production joint ventures all over the world.

Yes, we want to become the 'world serving' agricultural 'open source' version of Microsoft/Windows of the agriculture industry worldwide. Without the excessive high profits of Microsoft and with more development continence awareness than Microsoft has shown the world in return for her central role in Office ICT. Just building a good long term business and making some money for the investors in/by doing the right thing.

Bio Physical, Bio Chemical, Bio Biological (all three combined in Grow|OS) and GM are the four extra cards added to improvement by natural selection the world has got since mankind starting agriculture.

We certainly hope GM that by the success of bio-physical, bio-chemical and bio-biological technology (integrated in Grow|OS) will be considered a wrong possible direction of the past and will be abandoned by governmental legislation.

Introduction | Indus

Grow Indus CV is born within and still yet related to Indus Corporation. Part of a group of 68 innovative companies, with a passion for profit, performance, people and planet.

Indus Corporation is best to be described as a front runner in creating businesses that are located on the cutting edge frontlines of today's economical, technological, informational, agricultural and sociological developments.

By extended internal knowledge of these developments they are able to create this frontline type of businesses with a very attached low risk profile. And they combine this knowledge with good stable conservative business principles. Combining these two mayor advantages makes that the businesses they create, addresses actual market demands and are healthy in terms of profit and funding.

Innovation is their passion, continuity their mission. They like to create healthy business models and companies based on these on the cutting edge of any economical, technological, informational, agricultural and sociological development.

More recognizing or mind place able is Indus Corporation best to be described as a commercial development organization. Both good developments (functioning and volume) as good profits (continuity and funding) seeking.

Influences |

Influences | GM

We don't change nature its nature in anyway by use of GM (Gen Modification) technology. Our bio-physical, bio-chemical and bio-biological technical research is born by our (on mathematical odds based) doubts concerning the danger of uncalculated risks gen-technology.

We think the current common sense views on both nuclear explosion energy (not the harmless -but yet undiscovered- nuclear fusion part of it) and gen-technology are full of uncalculated risks, that wants to be forgotten by the stakeholders within those two industries.

Messing around with the basic concepts of nature is not a wise thing to do. Gentech will definitely face one day its own Chernobyl (nearly nine tons of radioactive material - 90 times as much as the Hiroshima bomb - were hurled into the sky), but with one mayor difference: Nuclear plants doesn't reproduce themselves, biological live does and there will be no cure for that.

Gen Modification is gambling with this mayor -total unrevealed in each gentech promotion- mayor risk factor. This 'respect for the stability of nature' is our strong motivation in to be dedicated to exploring the possibilities of bio-physical, bio-chemical and bio-biotechical technology (and off-course the continuing huge possibilities of natural selection) as a serious competitor for the gen modification focused industry.

GM is about making copy machines with any possible control on what will be copied after shipping from the factory. GM is for blind ambitious, un-patient scientists.

We strongly believe in, and work hard on the enormous 'bleu ocean' (as in: enormous not yet filled in area) type of the new possibilities bio-physical-technology. Implementation of bio-physical technology will create a new generation of maximal effective, low cost artificial voluminous greenhouse based habitats.

We aren't and will not be involved in gen-technology. In our opinion creating new spices by human is a dangerous development, which (if it stays continued on this intensive level by market demand) almost certain will lead to eco-systems seriously threatening mega biological catastrophes.

Gen-technology creates (by artificial instant DNA technology and not by computer aided accelerated smart and quicker natural selection) new specifications to spices, which are after being released (by being spices: so capable of self-regenerating or/and aggressive-blending) a danger to our in million years formed and stablelized eco-systems.

Therefore we see gen-technology as a wrong/poisoned sidestep in the development of science which mankind will regret enormously afterwards. A not wise (impatiant, to easy, mankind's today's limited knowledge complete over-estimating and nature's duplicating/blending/mutating strong powers forgetting/disrespecting) shortcut on the proven wise and effective process of natural breeding of more attractive plant specifications. Our strong motivated opposition to gen-technology stimulates us in searching for the best possible bio-physics technology. By searching for effective bio-physics technology we want to lower the demand for gen-technology.

We're certainly not against new technology, we like it very, very much, it's our birth ground. But we're not blindfold ourselves like the GM lobby.

Influences | PeakOil

PeakOil is the name of a theory in the world wide energy market that around the year of 2010 oil prices will begin a never ending rapidly rise (till all global resources are used a proximally around the year of 2040). This abnormal price rise will be caused by increasing demand of developing countries like China and descending supply by drying of current mayor and new easy to explore fields.

Recently Boone Pick (the Oracle of Oil, currently still CEO BP Capital with 56 year experience in the oil industry) states on CNBC: 'the actual production of 85 million barrels a day is the maximum production ever will be accomplished, from now on (if demands still will grow, and that will be the increasing energy demands of the emerging asian economies) prices will go up, up, up'. This broadcast can be found on YouTube.

PeakOil will make everything that heavily uses energy (so also by air cargo imported vegetable, fruit, flowers, herbs, pharma, fish and seafood) parallel rapidly expensive.

The bio-physics technological development within our company will lead within less than 5 years from now to a very low energy demanding type of agricultural industry, that can supply locally each type of vegetables, fruit and flowers the whole year around. This will prevent the need of in natural climates grown 'off-season' by air cargo fly-in vegetables, fruit and flowers in the northern parts of the world, just by the time the PeakOil market mechanism will increase jet-fuel rates so high that by air cargo fly-in vegetables, fruit and flowers will become to expensive for common people.

As said: If PeakOil really will happen, all by air cargo imported fresh vegetables, fruit and flowers will become to expensive for the common people. Therefore we see it as our main challenge to develop and deliver technology that will make local (fresh) producing all type of vegetables, fruit and flowers anywhere in the world possible, especially in the northern part of the world. The for health reasons necessary fresh vegetable, fruit and flowers than will still available for everyone in society the whole year round against low prices. Otherwise from start of PeakOil¹ on, in the winter only the 'in-season' and 'in-climate' vegetables such as cabbage and sauerkraut or canned or frozen food (with the same energy consumption 'from grow to kitchen' as bio-physics fresh food) will be affordable for the common people.

The possibility growing vegetables, fruit, flowers, herbs, pharma (and later-on even fish and seafood) by lower temperatures than they are used to in their natural habitat is our challenge. This reduce the energy consumption of growing vegetables, fruit, flowers, herbs, pharma, fish and seafood tremendously.

Our main field of research is the use of low energy light technology, which mislead the temperature sensors of vegetables, fruits and flowers and therefore let them increase their grow process even if the real temperature is lower.

In the graph under this page on our website you can see that world production is almost 3 years now (2005, 2006 and 2007) on a stable 85 mbd. This explains the price explosion since 2005. And when 85 mbd the max day production ever is, than declining is the next phase. Increase of demands by every western economy and certainly by the emerging Asians economies, combined with a decline of supply. Each economist can tell the effect on the prices of these two opposite market forces.

Declining from 85 mbd is no maybe, but a fact of exploration curves. Recently the government of Norway has decided not to explore the enormous gas reserves in the giant Troll field, because this should increase severely the oil production decline rate of Troll.

Influences | Soil Prices

The price of soil is and becomes more and more an important component in the build-up of food prices, certainly in case of food production in urban dominated areas where soil prices becomes more and more expensive.

By low oil prices food production can easily done far away from consumption areas. For example: all the iceberg lettuce that is consummated in the East Coast of the US, is produced in the West Coast of the US and is daily transported from West Coast to East Coast by reefer trains.

By rising of oil prices the balance between distance (transport costs) and climate (greenhouse based artificial climate costs) will be re-shuffled, certainly if new greenhouse technology makes artificial environments available with low energy consumption.

Fresh food will be produced more and more in consumption areas, storable and slow (is equal to low energy demanding) transportable food (wheat, fish and meat) will be produced more and more outside consumption areas.

This development will increase soil prices in urban areas even more, unless corporations and governments choose for high-density low-space-demanding (equal to high tech, which is not equal to not-natural) productions methods.

National governments and city counsels must take local food production (in basements under new buildings, new roads and new artificial hills, etc) into there development plans otherwise food prices will drive people out of their cities. This is not bad prophesy, but just adding some/all economical developments into a future image.

Influences | CO² Reduction

The IPCC (Intergovernmental Panel on Climate Change) scientists and Mr. Al Gore as politician and media personality have made a severe statement on the problem of CO² emission and the possible effects on Climate Change. Discussions about them being complete right are not the main issue, history will tell, the main issue is they have certainly a positive effect in environmental behavior of governments, companies and individuals, much more than Meadows had in 1972 had with his report "The Limits to growth: a global challenge" made for the Club of Rome, which had low effect on governmental and individual behavior.

Everybody (latterly everybody) in the whole world see the necessary of less pressure on environments very clear after IPCC and Al Gore, leading to re-orientation on any raw material and energy use.

The same way we see other (a little not main stream radical and also a lot of scientific) opinions beside IPCC and Al Gore that must be taken in account of this issues, we also think that economical factors will rule. Not CO² emission reduction concern, not environmental care, but just a rising oil price will give us less CO² emission, expensive things are used less. Money always talks loader than anything else and money takes each day the same message by continuous rising oil prices.

The CO² reduction movement therefore will be complexly taken over by the energy saving industry, less use of energy is directly less CO² emission. In Holland we see this twist from talking to caring already in the Governmental Policy as declared on Prinsjesdag 2007.

Grow|OS is mainly about saving energy (on production, storage and transport) of vegetables, fruit, flowers, herbs, pharma, fish and seafood.

Influences | Terps

Terp is a word in the dutch language that is common used in the world for describing a artificial hill as part of water management in times before dike-building. The first people who entered the low lands live on natural hills, the natural hills was their protection ('dry/high harbor') in times of high water. When these natural hills became over crowded, people make their own artificial hills for their farm buildings or did it in a joint structure with others.

In areas/countries equal or even under sealevel the terp concept is gaining rapidly in popularity by the climate change discussions: some scientist see controlling incidental or rising high water levels no longer as the only valid option. The powers of an rising the sea are much much stronger than the defending structures mankind can made. Sequential to this new look gains the terp new popularity.

Terp structures can be made of sand, but that gives two mayor problems: 1) low lands are weak lands: the terp will just drown it the soil by its weight 2) sand deposits in low lands in the neighborhood of seas gives certainly soil salination problems.

Building new dikes as road, roads as dikes and terps as plateaus based on empty concrete structures is a solution more and more become and more a concept in water management of low lands in the neighborhood of seas.

These empty concrete structures are so perfect for growing vegetables, fruit, flowers, herbs, fharma, fish and seafruit under control of Grow|OS by Crop/Fish Profiles. TNO is searching for use possibilities for these new to be develop giant spaces.

Facets |

Facets | Physical

Bio-physical, bio-chemical and bio-biotech technology is the integration of each controllable single facet important for the grow process (light and specific light spectra, temperature, water, soil, air and specific CO², air moisture, air pressure, different (preferable biological) fertilizers and other elements to one complete automatic computer controlled solution.

By this integrated artificial environment technology we give growers the possibility to deliver expensive niche type of plants (vegetables, fruit and flowers) both 'off-season' and/or 'off-climate' when the prices are high due low or even no supply.

Examples of current bio-physical technology in mainstream agriculture are available: the assimilation lighting (always light with specific lamps above plants) is the most well know (expensive energy consuming and natural night darkness effecting) form of today everywhere used bio-physics. An other (less known) example is freezing plant seed before planting it by farmers. This increase grow power tremendously because it fakes spring conditions and just have been frozen seed gets spring-like grow power by this.

The bio-physical, bio-chemical and bio-biological technological development within our company will lead within less than 5 years from now to a very low energy demanding type of agricultural industry, that can supply locally each type of vegetables, fruit, flowers, herbs, pharma, fish and seafruit the whole year around.

This will prevent the need of in natural climates grown 'off-season' by air cargo fly-in vegetables, fruit and flowers in the northern parts of the world, just by the time the PeakOil¹ market mechanism will increase jet-fuel rates so high that by air cargo fly-in vegetables, fruit and flowers will become to expensive for common people.

There are a lot of possible physical technologies that can be explored, from killing by sound frequency of parasites to many, many other possibilities.

¹ PeakOil is the name of a theory in the world wide energy market that around the year of 2010 oil prices will begin a never ending rapidly rise (till all global resources are used a proximally around the year of 2040). This abnormal price rise will be coursed by increasing demand of developing countries like China and descending supply by drying of current mayor and new easy to explore fields. PeakOil will make everything that heavily uses energy (so also by air cargo imported vegetables and fruit) parallel rapidly expensive.

Facets | Chemical

The fact that biological physiology can be influenced by chemicals was the start of the Green Revolution after World War II: fertilizers (mainly N/P/K chemicals) has made giant monoculture agriculture possible, with ditto effects on world production and thereby on world prices.

In recent years, the knowledge that flora needs more than N/P/K and water grows each year. Biological life is more complex than we thought it was. Flora 'eats' more than just N/P/K and the fertilizer industry tries to improve their products more and more.

Science has overgrown her arrogance: not the things that we know are leading, finding the things we don't know become leading. A complete turn-around in scientifically behaviour/focus/attitude.

It's clear that biological life needs more than just N/P/K, but we don't know anything or at least far to little of the biological physiology. There are some beautiful examples: In parts of Australia commercial agriculture became possible after they concluded that the soil had a natural absence (low presence) of copper. After they added copper to the fertilizer, agriculture their became commercial possible.

It's clear that each crop demands it own elements for maximal harvest performance beyond N^x , but we don't know yet anything or at least very little about it.

There is a complete world to explore. With thanks to the ecological movement, who has pressed us to respect nature more than we did and make a emotional (not scientifically) appeal to the world for the complexity of biological physiology. These pressure has result in / opened a complete new field of research in emulation of natural processes in large commercial conditions. Biological based agriculture for the whole world is not a option yet, but getting as close as possible is certainly a commercial goal of any LFE (Large Farm Enterprise).

In closed greenhouse agriculture there are a lot more options for the chemical site of agriculture. Increasing CO^2 levels during light exposure times, increasing O^2 levels during dark (flora sleeping) hours, increasing continuous O^2 levels by flora roots, adding specific crop related elements in the water supply, crop specific fertilizers, daytime dependent fertilizer adjustments, etc, etc, etc.

There is a complete new world to explore. The only thing we know is that these world exists. The rest we must find out from now on. Exploring these world was not commercial interesting because we could do very little in practising these knowledge, but with the Grow Indus OS and Crop Profiles, the world can implant each new knowledge very quick. Just because placement of a unit and addressing it from a Crop Profile by the Grow|OS make implementation very easily and quick possible. The only thing is proven or by an Institute certified measured effect of it.

That's the good thing about an open source platform: development of any functional extension build on the platform will become very easily: making development of extensions on the platform attractive for a large number of companies, universities, institutes, hardware manufactures and of course crop specific knowledge driven farmers.

Facets | Biological

For the same reasons mentioned by chemical facets, we could draw the conclusion that certainly will be some biological influences possible on flora physiology and that we know really very little about this.

There are some things we do already: we use bees for pollination, we use wasps and lady beetles for eating different types parasites, but certainly there will be more to discover. In both active function influences and in just being in the neighbourhood catalytic influences.

Examples of possibilities? Too many! A role with some not advanced flora/fauna that exposes to the greenhouse in by the OS switching speed/quantity. Etc, etc, etc.

Targets |

Targets | Realization Steps

Our first target is understanding general bio physiology more and more. Including the possible influences or effects of bio-physical, bio-chemical and bio-biological technology. Just knowing more and more of all the bio-physical ways to influence flora growth. We have chosen (for economical reasons) to limit our research activities to the field of hardware/software technology. Making the OS and starting with porting of hardware devices to it.

Our second target is understanding flora/crop type specific bio-physics/bio-chemicals/bio-biotics. Research in terms of effects of improved specific software settings of our technology for a specific type of flora must be done by our prototype customers. This area is too wide to research for us. No funds will ever be able to do such enormously wide research. We use the data our customers provide us for this. We analyze this data by our data collecting and data digging servers. Our target is to use this data to develop as much as needed flora type specific software data file that controls all bio-physics facets within our software technology for optimal grow results of each type of flora. Our biological staff talks to customers with high grow results if they want to share their setting secrets to us. But not everyone is willing to do this, some see their successful settings data as 'the secret of the chef of the restaurant', as their huge unique weapon in production for getting a better market position.

Our third target is extending the number of devices that have a port (software interface) to the Grow|OS. The more devices that port to the OS, the wider the OS can service the agricultural industry.

Our fourth target is extending the use of the OS and this way lowering production costs more and more by promoting it. Our prototypes only will be used for research, after that producers of commercial niche type of flora will start ordering, after that the regular mainstream agricultural companies will adapt our technology. Only by lowering the production cost of our technology, it will have the impact we want it to have.

Our overall target is that the whole mainstream greenhouse based agricultural (vegetable, fruit, herb and flower) industry will use our technology to grow large quantities of high quality vegetables, fruits, herbs and flowers for the lowest cost price with much lower energy consumption than they do these days.

Later on our Grow|OS maybe also will be deployed in the fish farming, because there is the same need for measuring values and adjusting values by switching of devices.

Targets | Feeding the World

By both increasing oil prices (needed for production, storage and transport: our current agriculture system consumes heavily oil), increasing soil prices in city neighborhoods, and also by prices competence between food and bio-oil, food prices will rise substantial the next years.

Energy Price = Food Price will become worldwide the most used mathematical formula for the next years.

The world needs to slow down in energy use and stop living like there are never ending energy sources, unless they are found and that is not the case at this moment. Climate change discussions will be outdated by the energy price. The economical effect of the oil price will bring Al Gore and George Bush in the same room, working on the same case.

We living in a oil age. Rising oil prices will impact the price level of each facet (product or service) in our economies. Unless this will be compensated by more efficiency economical growth will become a facet of the past of many economies worldwide. If the main price component ask for more money, than there is less left for the other price components.

Soil Price = Food Price will become worldwide the second most used mathematical formula for the next years.

An other facet of agricultural production is the soil price. Soil prices in the neighborhood of our current cities are rising and rising and rising, by increasing people density. Soil prices in rural areas are rising in the same speed as oil prices are rising, just because the farmer can choose these days to produce food or produce bio-oil and the price of products (and so also soil) is made by it economical value.

In our opinion there is not such a thing as over-population in the world. Not in terms of food, not in terms of energy. Yes, if we don't change our energy use, each new birth increases the energy problem and yes, if we continue to concentrate our population in cities, over-population will be there (locally). Over-population is a local (concentration instead of spreading) problem and over-population is a energy-policy related problem.

The earth is so wide, it can give a good life to 10 times the current population, if energy use will reduced dramatically and the production of it is made sustainable and if we prevent urbanization and stimulate sub-urbanization. The only government in the current world who really understand is the Chinese Federal Government. They really want to stop urbanization, not by repression, but by upgrading the quality of life in rural areas.

Grow|OS addresses both the Oil Price = Food Price and Soil Price = Food Price issue. By producing food by a low-energy and low-space demanding system.

Leftwing people and organizations will resist the strong technological/innovative operating Grow|OS based production of food, fruit, flowers and herbs, by it's not complete natural. Our answer to them is: it's to closed to natural we can get if we still want to eat in the future. If you proclamate a full natural lifestyle, be the front runner in new developments and leave the city and start a full natural life in a rural area of your choice in respect with the nature there. But the enormous gap between talking left and acting right is a not to sell proposition any more. Act what you preach or stop hypocrite preaching.

Let's feed the world, by technology, as close to natural processes as we can. Let's face it: food is life demand 2 (right after breading).

And as said: Grow|OS could also be used in commercial fish farms beneath agriculture greenhouses.

Grow|OS | Operating System

Grow|OS is a transparent conversion layer between a wide variety of greenhouse sensing and controlling hardware on the one side and the best crop specific settings on the other side.

What is the effect of Grow|OS? Grow|OS makes it possible to convert the right crop settings to sensors and switches and integrated functional units of which the maker of a crop profile never has heard of. It makes crop profiles hardware independent. Crop profiles just gives the right setting values placed in a time frame to Grow|OS and Grow|OS make sure that these values are realised.

Grow|OS is best to described as a translating of commanding agency. Farmers or institutes define the best (max result, lowest energy use, just in time harvestable) settings in a time frame (Crop Profiles). They don't have to worry about reading from and talking to technology: that is what Grow|OS does for them. So they make their best settings and Grow|OS 'translate' these to the hardware that realises these settings for them.

Grow|OS will have a huge effect on agricultural production and therefore on the agricultural market. Crop maximalization treatment knowledge will be 'kept' or 'put' in just a datafile that can be deployed anywhere in the world. It will initiate a complete revolution in greenhouse based agriculture. Now crop specialization and scale enlargement is the number one development (because crop knowledge makes the profit), after/by Grow|OS, crop specialization and scale enlargement will completely descend as developments of the past. Farmers will be able to grow any crop the best way in any (also low) qualities with the best quality and for the lowest costprice. Off-season and off-climate. As close as possible to the consumption areas.

Grow|OS will change both agricultural production and availability of its products placed in seasons tremendously. Grow|OS will make vegetable, fruit, flowers, herbs and fish affordable available to any world inhabitant, even when oil prices reaches rocket high positions and in areas where soil is very expensive.

Grow|OS also will have impact on the way urban development plans will be designed. Creating underground food production facilities that doesn't consume expensive earth surface soil/space.

Grow|OS | Device Porting

Each manufacturer of any sensing or switching devices will 'port' their devices to Grow|OS. Because after that porting (making a software interface) the demand for their devices will explode from the new emerging market of high tech greenhouse agriculture.

Each new ported device of a manufacturer will widens the footprint of Grow|OS, will give Grow|OS more impact, making it more the standard OS for high tech greenhouse agriculture.

Each new ported device with a new function will widens the possibilities for a Crop Profile maker. There will be a load of types of sensors and switches ported to Grow|OS, making more and more facets sensorable and switchable/controllable and increasing possibilities.

The more sensorable/swichable/controllable, the better Crop Profiles can perform in giving maximum quantity/quality/timing/specifications.

Grow|OS | Functional Units

There is already an industry that delivers greenhouse facet units. Facets like temperature, watering etc. These manufacturers will port (interface) their complete unit to Grow|OS by one integrated port, handling a lot of intelligence within their facet unit.

Grow|OS is just a platform which will stimulate the initiation of complete new type of industries. The whole flora/crop physiology influencing industry is as young as a baby and will develop in a very short period to a strong grown-up part of the economy.

There is a really a complete world to explore. Not only by flora/crop physiologists, but also by technological driven people/inventors/companies/corporations. For sure a company like Philips will dive deep, very deep the next years in de agricultural high tech based on Grow|OS, the same way they have done the last years in health technology.

All computer manufacturers that has been pushed out of the market by the few remaining successful computer brands (or currently being squeezed in production prices by them) will certainly dive into the agricultural high tech devices. The barrier for entering the agricultural technology market is much lower than for entering the medical technology market. And by Grow|OS there is an easy to contact user community.

Grow|OS | Construction Designs

There will be a complete new industry that builds new type of greenhouses. The current market leaders must adapt completely new ideas of shrimp away as suppliers of the past. New greenhouses will be located in multi-story buildings, under roads/highways, in containers. Massive soil consuming plans are developments of the past. Time to adapt to new technologies and new locations and a new look on the market.

These days greenhouse agriculture is a politics driven industry. Holland is the greenhouse of European supermarkets. Not only by crop/production/logistical knowledge or historical reasons, but mainly by the subsidy on energy costs the government of Holland give to greenhouse farmers.

The new type of greenhouses will be realized anywhere where consumption is. Demand Location = Supply Location will be the market rule. Fresh products will be become even more fresh than they are these days.

Architects will implant greenhouses in all their new building designs. Including solar power generating devices. To realise energy neutral or even energy positive greenhouses. Greenhouses will be everywhere and mainly invisible in presence.

Grow|OS | Data Warehouse

Each Grow|OS CPU unit (the central computer where the OS is performing) has an connection to the Internet. Wired (DSL) or wireless (HSDPA, UMTS or GPRS). This connection can be turned off if wanted.

This connection can feed sensor-data and respons-data to the Grow|OS mainframes for further analysis in combination with GPS/season/weather/croptype/harvest-result data.

This connection also makes it possible to download easily OS updates, new Crop Profiles, Crop Profile updates, weather forecasts, remote monitoring (including by in-greenhouse cams).

Some Crop Profile suppliers will demand this connection as part of there IP right protection and/or as part of their Crop Profile payment structure (payment based on result Crop Profile suppliers).

Grow|OS | Crop Profiles

The holy grail of high tech greenhouse based agriculture. Digital concentrated crop harvest maximalization knowledge. One simple file does the trick (giving harvest maximalization). The best farmer for this crop in just one file.

Making off-season and off-climate grow possible by orchestrating each device (in a timeline per device) to one beautiful goal: quick, cheap, quality food production.

Crop Profiles will be made by seed (genetical material) suppliers (maximal adjusted on their natural or modified gen material), by passionate crop specific farmers, by universities and institutes.

Crop Profiles will be sold, rented, developed. There will grow a Crop Profile creating industry: a marriage between agriculture / physiological science / mathematic science / biological science / chemical science / physical science.

The more type of devices are ported to Grow|OS, the more possibilities Crop Profiles will have to influence flora physiology in terms of grow/defense/timing.

Crop Profiles will feed the world in highest possible quality against lowest possible prices. Too stupid to mentally adapt (too odd for quick mind adoption), but certainly the situation of tomorrow.

GM will (let's hope not) rule open agriculture, Crop Profiles based on Grow|OS will rule greenhouse agriculture.

Prototypes |

Prototypes | Universities

Only international acknowledged universities can order directly by our international sales and also gets an 10% scientific discount in exchange of an online data connection from the greenhouse to our collecting data servers. The sensor and switch grow data collected combined with the grow log book data of the greenhouse, we use for interpretation of results. We dig into this data to improve bio-physical, bio-chemical and bio-biotical technology. This is the mathematical scientific part of our R&D work.

Prototypes | Device Manufacturers

As said: agricultural high tech will become a booming/emerging market worldwide. Any technological hardware manufacturer will have it's own agritech startup with devices ported to Grow|OS. These startups certainly will order a prototype as development unit for their device development/testing.

Prototypes | Greenhouse Builders

As said: The world market for greenhouses will explode. But the next generation high tech greenhouses will be complete different from the current generation low tech greenhouses. In technology, in size, in location, in shape.

Current greenhouse builders will certainly order a Grow|OS based greenhouse prototype. They need to adjust to this new developments or descending in economical performance.

Prototypes | Seed Enhancers

Seed enhancers their policies will be enormously influenced by Grow|OS. By Grow|OS they can deliver 'the whole nine yards' by combining best seeds and best settings.

Grow|OS will give seed enhancers third tool in conquering the market (they had natural selection, they got GM and they now get Grow|OS). Smart seed enhancers dive very deep in Grow|OS.

They will work together with the best growers in determine the best gen material and best settings, for being able to deliver farmers the best (quality, quantity, produce time, delivery date) harvests.

Prototypes | Governments

Governments that want to make seriously work out of planning low priced food supply in/after Peak Oil certainly will order a Grow|OS greenhouse prototype, to expose it to the market partners in food production and distribution within their jurisdiction.

Prototypes | Farmer Cooperatives

Farmer Cooperatives can join our research, development, practical engineering, practical testing by ordering our current available prototypes of high-tech all-in-one greenhouses, and feed us back with the data files the CPU (central processing unit) generates. We dig for the best facet setting of each bio-physics facet within all this to us delivered data. Universities which wants to open a bio-physics technological academy we support with a small discount on the common market prices, because they will supply us with much high quality data.

Grow Indus deliver her test versions only by market distribution partners, we don't sell directly because we see each by our website generated sale as an opportunity for gaining a new market distributor. We do this because we want to limit our marketing expenses as much as possible, so that we can use our budget fully for R&D (Research & Development) and PI (Production Improvement). This way each sale gives us also a new distribution partner, funded with the instant sale margin we offer the distribution partner.

Our resellers/distributors margin structure is simple: 5% for just sending the order in, 10% for sending the order with and a signed obligation to exposure in-store marketing (which we than will deliver to the outlet). Retail chains will receive an extra 2.5% headquarter overhead fee. These margins may seem low, but they are market conform and in absolute profit, they are attractive by the turnover amount per order (like by all other capital intensive products in the world).

Payments must be done to the reseller. 50% by ordering and 50% by delivery. Because new market parties don't want to have risk exposure on a new product, we guarantee resellers for not picked up orders: when they return the product they don't we cancel the invoice of second payment (50% order amount minus their margin) and the can hold their margin on the pre-paid 50%. In most countries there is a VAT (Value Added Tax) on each sold product, this will be handled by the reseller, who will charge you for that.

Delivery will be done on the reseller address. Our logistical system is capable also to deliver directly from our warehouses to any giving address in the world. But in this case payment by ordering must be fully done, so not 50% by ordering and 50% by delivery, but 100% by ordering. Most new resellers prefer this combo of payment/delivery, because it give them a nice profit on just a quarter of an hour sales work.

Ordering one of our experimental high-tech all-in-one bio-physics greenhouses therefore can be done easily anywhere in the world. Just download the order form by the information desks of any local retailer (or retail outlet from the big national chains) in construction or garden materials. The necessary forms (and order instructions for buyer and retailer) can be downloaded at the bottom of this page.

Prototypes | Food Manufacturers

For food manufacturers become closed chain supply more and more important. Preventing of expensive brand damage, prevention of costs of recalls, controlled product liability, planned supply, stable quality, defined specifications, defined conditions (like no GM etc) and contract based low possible prices are the reasons why manufacturers like closed chain supply so much.

Grow|OS and Crop Profiles combined with a trustful grower, give food manufacturers anything the like. Food Manufacturers will order Grow|OS prototypes to convince their contract growers of the possibilities available when they switch to Grow|OS and Crop Profiles. Crop Profiles give food manufacturers influence in the grow process.

Prototypes | Fish Industry

The fish industry is developing a huge problem: increasing market demands and descending supply from seas.

Artificial habitats will become necessary if they want to save the biosphere of the sea (which is their only valid future option), besides stimulating a more divers seafood demand by consumers.

Beneath Crop Profiles there will also grow a Fish Profile development industry: the right settings for good fauna life and maximal 'harvest'. Controllable by the retail chains who wants only sell fish that has lived a quality life.

Prototypes | Pharma Industry

The pharmaceutical industry is growing a huge demand for natural (mostly flora based) component supply. Crop Profiles on Grow|OS will give them controlled supply of a stable / highest quality.

The pharma industry can use Grow|OS tremendously.

Prototypes | Retail Chains

Retail Chains can profit from our research, development, practical engineering, practical testing by ordering our current available prototypes of high-tech all-in-one greenhouses, and feed us back with the data files the CPU (central processing unit) generates. We dig for the best facet setting of each bio-physics facet within all this to us delivered data. Universities which wants to open a bio-physics technological academy we support with a small discount on the common market prices, because they will supply us with much high quality data.

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Prototypes | Dealers

Agricultural Dealerships (like tractors etc) can profit from our research, development, practical engineering, practical testing by ordering our current available prototypes of high-tech all-in-one greenhouses, and feed us back with the data files the CPU (central processing unit) generates. We dig for the best facet setting of each bio-physics facet within all this to us delivered data. Universities which wants to open a bio-physics technological academy we support with a small discount on the common market prices, because they will supply us with much high quality data.

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Governments |

For governments these days there are more important issues to address than terrorism. 2007 en 2008 will be complete other years than 2001. 2001 has shocked us, we have react in panic, now other issues demands an answer or runs the agenda. Anticipating the effects of rising energy prices is a good starter. High oil prices will change economies (and therefore lives and societies) completely.

In this Umfield governments must address the availability and price of food. New situations, new tasks. Fighting terrorism is only breaking down civil rights. Governments must take care of their inhabitants, not control them. The last thing we want is a DRR type of society, with equal economical performance.

Governments can not ignore any longer the future effects of rising oil prices. The challenge for political involved people and government officials is changing the steer wheel of priorities.

Fighting terrorism is defensive, not building or contributing and will lead to governmental control states, with descending economies. Addressing effects of a changing world is the offensive act what governments should do. Not next year. This year.

Governments must actively promote local food production in a low energy demanding and low space demanding way. Not protective, but just guiding.

Grow Indus advices (continental, national, regional and also local) governments by production of governmental food supply policy plans and by organizing governmental policy conferences concerning food supply of big cities when oil prices climb due to Peak Oil, in the same way Indus Corporation advises governments in making their economy vital and sustainable (and not controlled and weak) by innovation.

Newsroom |

Non-disclosed contract with an university in Holland.

Non-disclosed contract with a governmental research institute in Holland.

Non-disclosed contract with an international electronic device manufacturer in Holland.

Contact |

[Click here for order info of the experimental test versions of our high-tech total-control greenhouses.](#)
[Click here for an actual list of distributors/retailchains/dealers per country.](#)
[Click here for contact our international sales team.](#)

[Click here for our photo gallery.](#)

[Click here for current media exposure of Grow Indus.](#) [Click here for contacting our media officer.](#)
[Click here for our office address details with a google earth map of our office location.](#)
[Click here for possibilities us attending bio-physics technology promoting workshops on your university.](#)

Business Cases |

These page will not be published on the final international website. The business case can be divided in five phases: 1) the proclamation and prototype phase, 2) the device porting phase, 3) the profile phase and 4) the exploitation phase.

1) The proclamation and prototype phase is about define the OS basic, getting a great number market parties and governments involved and creating a serial production of prototypes based on the OS. This phase is funded consultancy/support fees and by the sale of a maximum number of Grow|OS powered prototype greenhouses for E 43.500 each.

The concept of Grow|OS is total new and has huge economical impact. Therefore there will be a massive/smart serial PR campaign focused on general/economical media based/hooked on six actual societal-economical already existing media themes: 1) high oil price triggers new technologies 2) peakoil and food production 3) bio-physics technology new scientific area 4) GM got a strong competitor called OS 5) food production in/by the cities 6) new terps gives food and security. Giving an (almost guarantee) that Grow|OS exposure will be in the media the next 6 months, with not only national coverage, but certainly also international. Partnerships empowers media attention. Each new partnership is also some new media attention. Who have, will be giving is the main rule in PR (a type like Paris Hilton can confirm this severely), more exposure attracts even more exposure.

2) The porting phase is funded by hardware device of functional unit manufacturers. They see the enormous sales possibilities for their devices when they are ported to Grow|OS and want to port their devices as soon as possible. Grow Indus will support / organise the porting of devices/units by/for hardware manufacturers. Basically this is making a margin on support or on outsourcing.

There will be a massive/smart PR focused on hardware manufacturer specialised media, with a prominent role for the market value of vegetables, flowers, fruit, herbs, fish and seafood. Any device manufacturer will port existing devices to or develop specifics for Grow|OS if they see the huge value of the fresh market.

3) The profile phase is funded by everyone who develops crop profiles. Grow Indus supports them commercially with advices (Grow Indus knows the possibilities the best), modules (additional basic functions to the OS) and services (data collection).

There will be a massive/smart PR focused on fresh industry (vegetables, fruit, flowers, herbs, fish and seafood plus the trade/retail) specialized media.

4) The exploitation phase is funded by advising governments and companies and project participation in creating local food production based on Grow|OS. The OS and it's Crop Profiles than has proven themselves over and over again, so the final phase is the best where and how (implementation). This phase is the capital phase. IPO funded or market funded based on governmental guarantees, or a mix of those two.

There will be a massive/smart PR focused on governments and institutionals for stimulating investments in Grow|OS drive greenhouses in terps in/nearby cities, so that cities become more food independent.



ORDER FORM FOR ORDERING BY ANY HARDWARE/GARDEN STORE
A PROTOTYPE OF A GROW|OS BASED HIGH TECH GREENHOUSE OF GROW INDUS
WITH A SALESPRICE OF E 43.500 EXCLUSIVE LOCAL VALUE ADDED TAX

ORDER PART

Company Name	Purchase Order Number
Contact Person	Email Address
Date	Delivery Address (if different of reseller's warehouse)
Phone Number	
VAT Percentage	
Price Included VAT	
Signature	

Customer, just go with this order form to your nearby hardware/garden store. They will assist you in ordering your Grow|OS based high tech greenhouse. Depending on local retail/ecommerce law mostly a Value Added Tax (VAT) must be calculated over the sales price of E 43.500 ex. VAT. Your reseller always will require a 50% down-payment (E 21.250 plus VAT) by ordering, because the ordered product is not in the standard assortment of the reseller and will give you in return a store specific down-payment receipt, separate from this order form. If you desire an other delivery address than the reseller's address, reseller will ask for 100% (E 43.500 plus VAT) down-payment. Delivery will take place proximally 13 weeks after order date.

OUTLET PART

Company Name	Purchase Order Number
Contact Person	Email Address
Date	Delivery Address
Phone Number	
VAT Number	
CoC Number	
Signature	Invoice Address

Reseller, you can facilitate this order with a sales margin for you. You are advised to acquire an 50% down-payment by ordering, because the ordered product is not a standard assortment item for you. If customer desires an other delivery address than resellers address, you are advised to acquire a full 100% down-payment. Your payment term of the down-payment to Grow Indus CV Amsterdam Holland of down-payment part of sales price plus VAT minus reseller margin is 30 days. The margin you can reduce is: 5% (E 2.175 ex. VAT) for just sending the order in, or 10% (E 4.350 ex. VAT) if your sign a contract to expose in-store marketing (which a salesmen will deliver to your outlet). These margins may seem low, but they are market conform and in absolute profit, they are attractive by the turnover amount per order (like by all other capital intensive products in the world). We insure you for not picking up the order after delivery to your company. Your payment term or the final-payment from the reseller to Grow Indus CV Amsterdam Holland of final-payment part of sales price plus VAT minus reseller margin is also 30 days. Credits are only possible when Grow Indus gets a credit limit from a debtor insurance company on your company, otherwise the order only get notated by arriving of the payment minus your margin.

CHAIN PART

Company Name	Purchase Order Number
Contact Person	Email Address
Date	Delivery Address (if different of outlet address)
Phone Number	
VAT Number	
CoC Number	
Signature	Invoice Address

Retail chain, you will receive an additional 2.5% (E 1.087 ex. VAT) head office overhead fee, if you promote the Grow|OS based high tech greenhouses in your chain related media. Currently Grow Indus has no other products yet than this prototype. Grow Indus will distribute in the future a lot of greenhouse devices that are suitable for Grow|OS based greenhouses.

Email sales@growindus.com if you want assistance of one of our account managers
An actual PDF file of this form is on growindus.com/orderform downloadable
Grow Indus CV Lange Stammerdijk 12 1109 BN Amsterdam Holland Europe CoC 34275762
Email a scanned version to orders@growindus.com



low energy and low space off-season and off-climate flora grow technology

GROW INDUS

developing bio-physics technology for feeding the world during/after peak oil