Arzaq Group

GREENHOUSES,
TURNKEY PROJECTS

Arzaq Group

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History of Arzaq Group

Arzaq group – Company for greenhouse production and Construction is engaged in the development and production of greenhouses and agricultural growth and marketing technology for foreign and local markets. The company was formed in 1972 in Palestine and is considered to one of the leading companies at home and abroad in this field. In the year of 2010 company's offices and production line were located in Irbid – Jordan to be considered as one of our active branches in the Middle East. There are representatives of the company in Spain, Central America and most Arab countries .
The company constructed many projects including agricultural technology training in more than 20 countries worldwide, and for the past two years it constructed projects in Central America in Gaza and angola .

Arzaq Group's comprehensive approach to greenhouse Turnkey Projects (TKP) begins with an initial free-of-charge feasibility check, and covers a multitude of details until design, construction and installation are completed. And that's not all, with ongoing technical, agronomic and commercial support; we are there to help you optimize your growing methods and crops to evolving international market conditions.

Arzaq Group's unique Global-Local approach to greenhouse TKP is based on the knowhow of our local agronomic experts around the globe. It allows us to work hand-in-hand with you not only during the greenhouse project, but for many years afterward.
Arzaq Group, one of the world leaders in turnkey greenhouse projects is committed to providing all the elements you need for high quality, cost effective yields. Whether its greenhouse structures control and monitoring systems, or specialized greenhouse irrigation systems, Arzaq Group is the name you can rely on. And when it comes to an over-all solution tailored to your specific needs, Arzaq Group Turnkey Greenhouse Projects (TKP) unit is right there with a comprehensive answer that ensures you benefit from leading-edge agro-technology and agronomic support.

Strategy & Objectives of the TKP –Greenhouses

1. Strategy :

In response to decline the traditional agricultural products and the shrinkage of the agriculture frontier, efforts to improve the economics of rural products must focus on increasing profitability per unit area. This presupposes a change in production techniques used so as to reduce costs, as well as an effort to diversify production. The project will enhance the efficiency and qualities of agriculture production by promoting new corps, greater value added, and increase productivity through sustainable use of water, soil and natural resources. It will also reduce the use of agriculture chemicals and introduce different types of certification for products that would reach more profitable nice markers.

2. Project Objectives :

The main objectives of the project are:

- To increase the income and improve the quality of life of the farmers by developing a TKP of greenhouses, packing house and a nursery. This can enhance the competitiveness of agriculture production system on an economic sustainable basis.
- Decrease unemployment and Increase labor force in a stable modern agriculture sector.

Description of the main projects :

The company established and executed projects in great number of countries throughout the world, in the following four colossal projects that were set up in the last three years:

- Mexico :-

Arzaq Group established the project by means of turnkey concepts, structural territory of the greenhouses were 80 hectares of greenhouses, packinghouse and nursery. The project is destined to the increases of tomatoes and peppers.
The project was funded by the government of Mexico ; the greenhouses were set up in Bacha California. The project in Mexico understands as one of the big projects that executed in the Latin America and presents a jump of plank to marketing and advancement in the markets of center and South America, addition to hardware, the company provides solutions of software including professional consulting for two crops (year to the value), agronomists, and use of agriculture inputs to the activity that supported by high quality products such as (seeds, fertilizers, and extermination materials) .
The products of the project were exported to the United States markets, implementation of the marketing done by the company (Prime Time) one of the leading companies in the American market.

- *El Salvador :-*

Arzaq Group executed a project by the method of turnkey extent of the project stood on 40 hectares of greenhouses, nursery and packinghouse, like in the Mexican project; the company gave a professional accompaniment during the year of the first activity.
The investment in the nursery and in the packinghouse, the product of the project (bell pepper) was exported to the Canadian market by “Rubel” this company is a leader in marketing of agricultural products to North America.

- *Nicaragua :-*

Arzaq Group executed a turnkey project of 10 hectares of greenhouses, packing house and nursery, the establishment of the project permitted after an establishment of strategic Partnership of three promoters and businessmen that act in the branch of the agriculture (rice, sugar, etc) Because of the hidden potential in the project, the partners decided to expand the project with additional 130 hectares.

- Gaza –Palestine :-

Project of 40 hectares of greenhouses in Gaza only metal construction works were done by Arzaq Group (non turnkey).
The project was funded by the GAP.

- Tubas –Palestine :-

On the year 2006, Our Company implemented a project in Tubas / West Bank - Palestine construction of (3.5 hectares) of greenhouses for the production of fresh herbs, primarily chives, dill, coriander and chives.
The project was established by the Palestinian Agribusiness Partnership Activity project (PAPA), funded by the U.S. Agency for International Development (USAID). We signed a new contract with the USAID to establish another (3 hectares) in the same area.

- Jordan:-

- Arzaq group implemented a project in FIFA - Hashemite Kingdom of Jordan and included the installation of greenhouses on an area of 70 acres in order to sweet peppers, tomatoes, cantaloupe production project was the establishment by the Jordanian partners.
- Arzaq group implemented a project in the(bridge Damia area) - Hashemite Kingdom of Jordan and included the installation of greenhouses on an area of 20 acres in order to produce tomatoes, and modern nursery.
- Arzaq group implemented a project in (Krymeh area) - Hashemite Kingdom of Jordan include packaging on 1.2 acres, and mini green house modern facilities with side ventilation in order to produce cucumber .

➢ Arzaq group implemented a project in (khaldeh area – almafraq) - Hashemite Kingdom of Jordan include packaging on 7 order to produce cucumber on hydroponic system .

- South America, chile :-

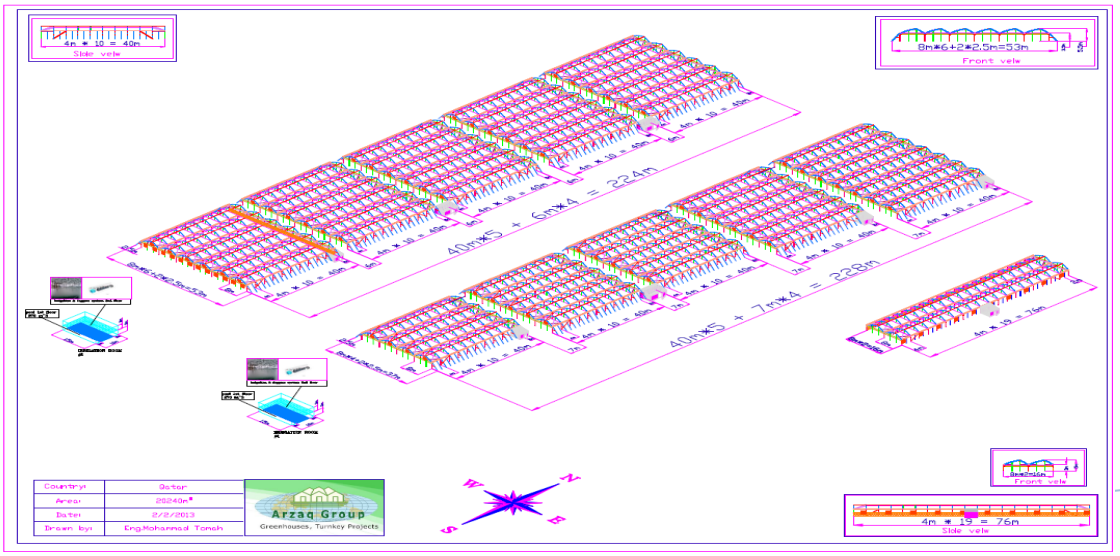
From 2011 to 2013, Arzaq Group implemented a project in accordance with the principle of (turnkey) on a land area of 50 acres of greenhouses and facilities, packaging and nursery in order to planting the organic cucumber, the company has provided advice and support professional during the first year of direct action.

- South America, Panama :-

From 2006 to 2013, Arzaq Group has implemented several projects on a land area of 80 acres of greenhouses in order to planting sweet peppers and tomatoes, the company have provided professional advice and support during the first year of direct action.

- State of Qatar – Doha :-

In 2013 Arzaq Group has implemented in Doha - Qatar and included the installation of greenhouses on an area of 35 acres in order to produce all kinds of vegetables, strawberries and includes a nursery with a very high-tech ,



Management and operation of completed projects and follow-up (turnkey projects) :

If the complete installation of the project team of workers by Arzaq group company to training and rehabilitation of local cadres to carry out their tasks to manage the project in terms of technical and is calculated by the cost of training of the staff within a separate agreement by the length of time agreed upon between Arzaq group and the beneficiary.

Establishing and building agricultural projects :

Arzaq Group specializes in fabrication and installation of greenhouses, and implementation of integrated agricultural projects in all parts of the world, either way delivered ready for use or in any other manner consistent with the customer's requirements. The project includes the construction of engineering planning and construction of the greenhouse and building Nurseries and equipment to take care of small plants and build facilities for the packages and the mobilization of crops in preparation for shipment.
In our quest for the benefit of our customers and ensure the success of the projects that we oversee it, we are providing counseling and advice along the stages of project planning, and also offer agricultural professional advice since the stages of the development of seed germination in the nursery right up to the completion of the first harvest of the crop yields in the greenhouse. And the parallel level take care of the customer to provide all materials, equipment and manpower needed to create the infrastructure to build a greenhouse and nursery and building of packing.
Before embarking on the choice of site Green house and determine the engineering specifications and determine the raw materials that go into manufacturing, we have to take into account a number of important factors, including the type of crop and the way the implant (in the soil or in artificial soil), and the type of soil and terrain and climate and other conditions. To ensure the success of the project is bound to the customer provides us with information and detailed and accurate data about these factors.

The project includes the construction of the following :

1-Green houses building
2-Nursery .
3-Packing building .
4-Fertilization and irrigation room .
5-Pools of water storage .

Greenhouse Planning :

Arzaq Group plans to complete the pledge by taking into account what is provided by the customer data from climatic and soil data and other factors associated with the region, which will be the project. Gaining climatic data of great importance in all matters relating to the selection of model green house and must include data minimum temperature and maximum and the accompanying humidity (minimum and maximum) and the intensity of ultraviolet radiation (UV) and data on rainwater deposition and the

speed of the maximum wind and details on the wind direction and the amount of rainfall in most cases Should all climatic data aggregation day for the last three years at least.

Measurements of Green house :

Width and length of green house is determined according to the terrain and model of the building and the type of crop and the method of implantation (normal soil or artificial soil). Green house height is determined based on climatic data for the project .

Buildings and equipment greenhouse internal model :

Likely, that these things are determined according to the data of climate and crop varieties. Arzaq group have multiple styles available from buildings that can suitability prevailing climate in the area where the construction of the project will be of the type (temperature, climate is tropical, subtropical, dry or cold) as well as to the type of crop (flowers, ornamental plants, vegetables, herbs, medicinal, aromatic and flavoring , nurseries, etc.).

It is important that the installation of the building so that they are "gutters" and headers swarms plants channels in the face of North-South. Put the buildings in this direction leads to the exposure of plants to a larger amount of light, which will eventually grow to be better and to produce the best quality.

Upper window :

Upper windows installed in greenhouses if the temperatures require it, as well as in accordance with the size of the project. May keep the upper window is open

or closed, according to climate conditions. Open upper window will reduce heat buildup inside the greenhouse significantly, while locked reduces the leakage rate from the heat inside the greenhouse in cold regions. In the wet climate works the upper window to relieve the humidity during rainfall .

Curtains :

Constitute a section of the curtain wall of the greenhouse building, so this cover is wrap up and configure a window along the length of the building. The closing curtains are in the rainy season and when there's low temperatures, as well as when heavy winds. The curtains open when there's high temperatures and humidity, with the aim of ventilation gases. The closing is open and the curtains either manually or mechanism.

Anti insect net :

The installation of 50 mesh anti insect nets at all points of entry to the greenhouse (side entrances and roof windows) will reduce damage caused by pests such as whitefly, mites and thrips (which are virus carriers). These nets also prevent the intrusion of birds which can cause significant damage to crops. Preventing the intrusion of pests to the greenhouse will significantly reduce the need for the use of pesticides and consequently save substantial amounts of money.

Covers :

Covers can be made of Polyethylene or Polycarbonate. Polyethylene covers include the following additives: IR, Anti fog and UVA. The life span of the cover usually depends on its thickness.

Equipment for improving and controlling the micro climate :

This equipment is designated to modify or control the relative humidity, UV radiation, temperature, winds and rainfall in the greenhouse in order to obtain the optimal climatic conditions for the crop growth. The control can either be manual or automatic. Hereunder are the climatic control components used in the greenhouse:

- **Air circulation fan :** 24 inch diameter device installed within the greenhouse. It serves to reduce the accumulation of humidity that encourages the development of plant diseases. In addition, it disperses the air, resulting in a better distribution of heat when the greenhouse is heated.
- **Ventilators :** In the event of strong winds it is possible to used 20 ventilators per hectare in order to create a vacuum in the greenhouse to prevent the laceration of the plastic whereas when a wet pad is used – 50 ventilators per hectare are required.
- **Cooling Pad (wet paid) :** This is the most effective cooling method available. It involves a process of water vaporization in the air which results in a reduction in the temperature within the greenhouse which consequently increases air humidity. When the cooling pad method is used, the pad is placed on the north side and the ventilators should be installed on the south side. In regions where the air humidity is relatively high, the pad is ineffective as it is only possible to vaporize small amounts water in such areas.
- **Heating :** Where the temperature in the greenhouse is low, heaters are used to heat the expanse of the greenhouse. The heating is performed using hot water or hot air. The required amount of heat is generated by the use of heating gas, diesel oil, fuel oil or hot water. Heating is an important factor in the adequate development of the crops and results in optimal yields and a better quality of fruit.
- **Screens :** There are various types of automatic or manual screens:

- ***Thermal screen :*** Plastic sheets which, in the winter, are spread around the greenhouse above the plants in order to preserve energy during the heating process.

- ***Shading screen :*** A knitted or woven screen made of narrow aluminium strips. In the summer, when the UV radiation is strong, the screen provides shade (and reduces the heat in the greenhouse) and prevents damage to the fruit. If the density of the screen is higher than 50%, it can also be used as a thermal screen. Be careful not to leave the screen spread when the UV radiation is low otherwise the plants could sprout to a height which will detrimentally affect the yield and quality of the fruit.

- ***Foggers :***

Foggers are designated to increase the humidity in the greenhouse by creating a foggy atmosphere. They are operated when the humidity in the greenhouse is less than 60%. In the event that the irrigation water is rich in calcium, it is essential to desalinate them **by the reverse osmosis method.** The use of desalinated water will reduce the accumulation of calcium on the foliage and the fruit which otherwise results in the disqualification of the crop and serves to prevent the obstruction of the foggers which causes an unequal spread of the fog.

- ***Covering the floor of the greenhouse :***

It is advisable to cover the floor with a "Palrig" black and white woven carpet with the white side facing up. The cover increases the light in the greenhouse (an essential factor in the event of low UV radiation) and prevents the development of weeds. Covering the ground also ensures that the greenhouse is kept free of dust, branches, and dry leaves and from rotten fruit which falls on the ground and which increases the risk of the development of disease within the plants. The cover also prevents the pollution of the substrate due to the dispersal of dust on the substrate.

- ***Substrates (soil-less media) :***

Crop growing on substrates (hydroponics) enables better availability of the nutrients and water sources to the plants, better irrigation and pest control and consequently the production of higher quality yields than those obtained from the soil. Similarly, these substrates provide a solution to the factors which limit the development of the crops, such as soil disease, salinity, faulty drainage, shallow soil etc. It is possible to use different types of substrates such as volcanic stones, perlite, rock wool and organic materials (coconut).

- ***Containers :***

Made of polypropylene at a height of 15cm and at a variable width depending on the type of crop (40-100cm). The substrates are placed in the container in rows. The drainage water drains up to the tips of the container rows which are connected to the PVC drainage pipe. The drainage water is led in the hose to outside of the greenhouse to a collection well. Subsequently, the drainage water is pumped by an immersed pump and led to drainage water reservoir for recycling or irrigation of other crops.
When preparing the infrastructure, it is important to ensure that the gradient runs along the container rows, to drain the substrate.

• Recycling :

The drained water from the substrate reaches a reservoir pool. The water is combined and mixed with clean water in accordance with the ratio determined depending on the quality of the water and the concentration of nutrient elements in the drainage water. The drainage water should be disinfected in order to prevent the spread of diseases which harm the crops. The recycling of drainage water saves approximately 50% of the water and fertilizers required and thereby prevents the pollution of ground water and the environment – predominately in regions in which underground water is relatively high.

• Reservoirs :

When crops are grown in substrates **with recycling** it is of great important to construct reservoirs to ensure the continuous supply of water to the crops, the collection of drainage water from the greenhouses and the disinfestations of the irrigation water. It is generally necessary to construct four reservoirs: two for the well water and its disinfestations and two for the collection of drainage waters and its disinfestations. In the event that there is no concern of the existence of disease in the well water, it is unnecessary to disinfect this water and therefore the number of reservoirs can be reduced to three.

• Irrigation system :

Irrigation in greenhouses is performed by the dripping method. The drip irrigation is carried out by two or more lateral drip per container row (depending on the type of crops and the width of the container). The recommended distance between the drippers is 15 cm along the length of the dripper line. The flow rate of the dripper is 1.2 liters per hour.

• Fertilizing system :

The process of fertilizing in substrates requires the use of fertilizers which cannot be mixed due to precipitation or decomposition. It is therefore necessary, in the preparation of fertilization solutions, to use 4-5 tanks where each tank is connected to a fertilizing pump. One of the tanks contains acid in order to reduce the pH levels of the irrigation water to 6.0. The system also comprises of a mixer to dissolve and mix the fertilizers in order to measure exact amounts of the fertilizer as well as filters to prevent the clogging of the drippers by residues of fertilizers or other materials. The system includes an EC and pH control.
Fertilization is carried out using variable concentrations according to the stage of the crop growth.

• Computerization :

The installation of a computer facilitates the automatic control of the climate in the greenhouse, the irrigation, the fertilizing and the recycling. In the event that the crops are grown in the soil and especially so when in small areas, the fertilizing and irrigation systems can be operated manually.

• Pesticide Sprayer :

Pesticide sprays ensure uniform, quick and effective treatment against disease and pests. They also enable biological control to be carried out without the use of pesticides, resulting in a significant financial saving.

• Nursery :

The nursery is designated to supply high quality plants for the greenhouses of the project or for other growers in the area. The nursery includes – in addition to some of the equipment and systems mentioned above (such as: ventilators, cooling pad, net 50 mesh and fertilizing system) – the following equipment :

- ✓ **Aluminium tables :** 80 cm high on which seed trays can be placed.
- ✓ **Trays:** For sowing in organic substrates such as peat and vermiculite.
- ✓ **Irrigation :** This is performed with the use of an automatic irrigation system in "booms" which sprinkles the water in a uniform manner on the plants. The booms are operated by a control system and ensure the uniform development of the plants.
- ✓ **Seed sowing machine :** This system sows the trays in a uniform and exact manner and in the substrates and thereby saves seeds whose cost is relatively high. The plants which the nursery produces are well developed and uniform both vis-à-vis the sprouting as well as vis-à-vis the root system. In such a situation, the plants grow very quickly into the substrates and develop in a uniform manner in the greenhouse.

Packaging house :

The construction of a packaging house is carried out in accordance with international standards.

- The building:

The structure of the building is made of steel and is wide and high. The building is ventilated and isolated with the use of an insulating material which preserves a stable and relatively low temperature. The doors of the packaging house are electrical. The roof and the sides are covered with galvanized iron sheets and painted white to deflect excess UV radiation.

- Sorting machine:

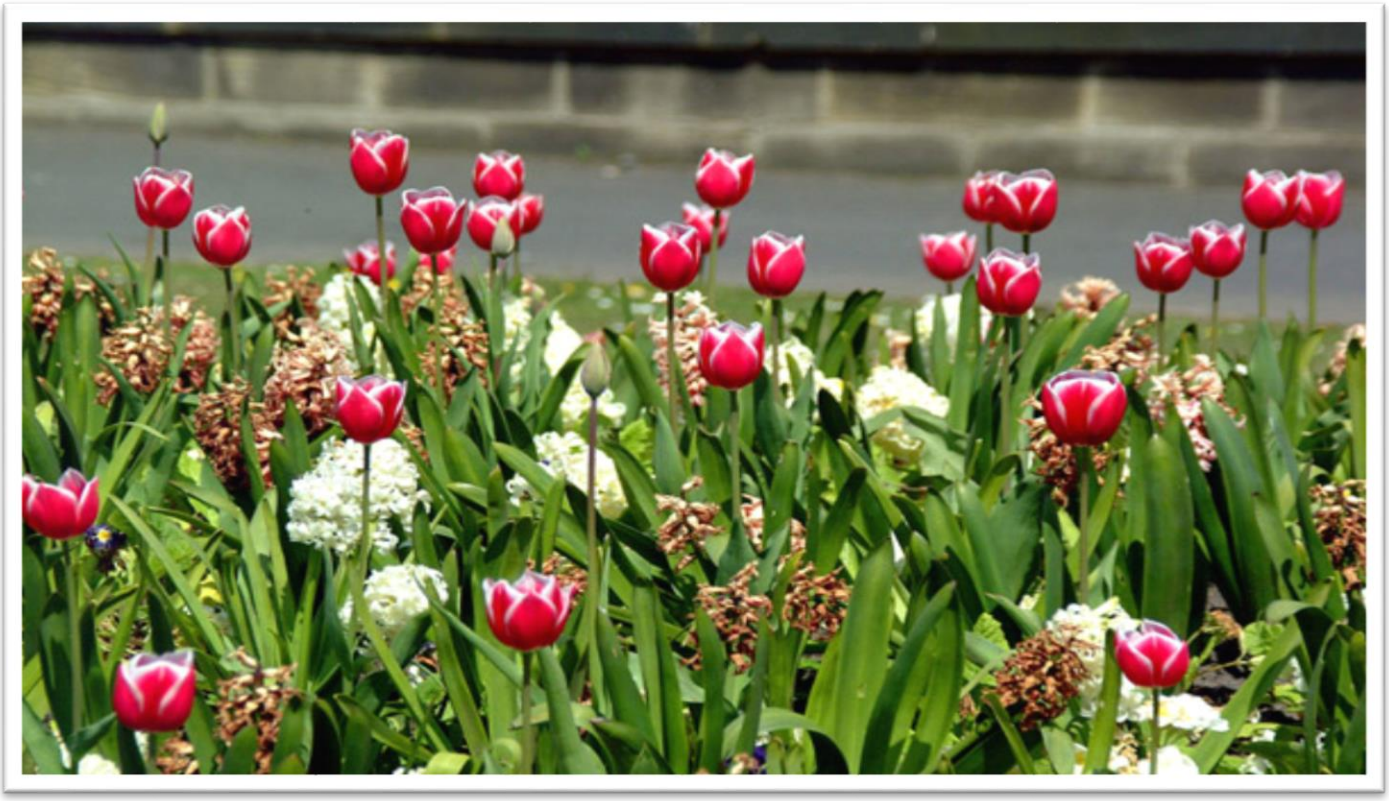
This machine enables the fruit to be rinsed with hot or cold water as well as the drying and sorting of the fruit according to its size, color and weight.
Rinsing the fruit with purified water is an important part of the cleaning process to remove dust and pesticides as well as to prevent bacteria which is liable to cause damage during the storage and the transportation of the fruit.
The fruit is rinsed and packaged in accordance with the criteria set out by the authorities in the United States of America, Canada and Europe.

- Refrigerators:

Refrigeration chambers ensure the maintenance of the required temperature and humidity level for each type of fruit. The size of the refrigerator is determined in accordance with the amount of fruit which will be stored during any particular harvest season.

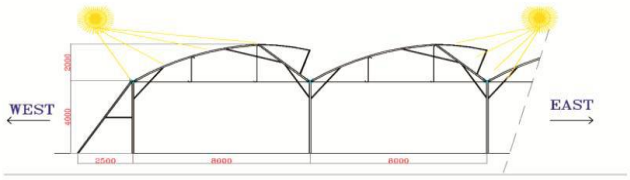
Notes :

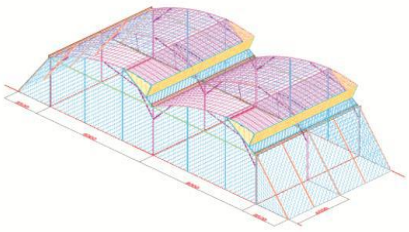
1. The use of all of the equipment and systems mentioned in this brochure is not essential in every greenhouse. The selection of the
equipment and systems is determined in accordance with the prevailing soil, crop and climatic conditions in the region of the project.
2. Due to the fact that the planning and design of each project depends on a variety of factors such as climate, water sources and quality, type of soil, topography etc. arzaq group is not liable for any fault or failure which is liable to occur to the project as a consequence of incorrect data provided by the customer.
3. The attached contract is the sole document binding upon arzaq group and the customer.
4. The provision of written or verbal warranties by “arzaq group” is conditional upon the professional and adequate management of the project by the customer and the timely implementation of the tasks determined in advance by both parties.



EVEREST 8000 - 9600, With window permanently opened

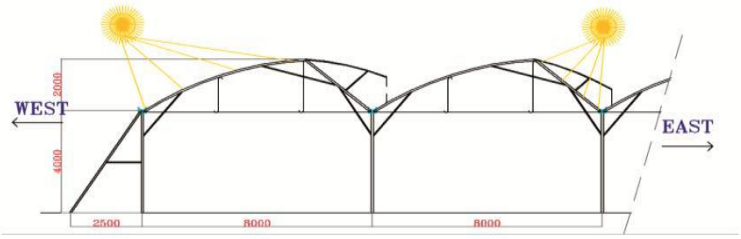
- ✓ Designated for areas where the temperature doesn't drop below 10 degrees for tomato growing and doesn't exceed 15 degrees for capsicum growing.
- ✓ The window opened permanently 1.40 meter, while raining reduces the humidity minimally inside the greenhouse.
- ✓ The windows protected from winds (17.5% ventilation from the roof area).
- ✓ Asymmetric model, reduces the sun shine on the morning till the noon, as a result the temperature drops 4 degrees. From the afternoon till the evening increases the sun shine. This technique is a big advantage for the growing process (relatively to the symmetric models).
- ✓ The condensation water doesn't ski to the greenhouse's floor.
- ✓ A structure semi free of welding.
- ✓ The whole construction made of galvanized steel and closed profiles.
- ✓ The plastic closure made with aluminum profile.
- ✓ Resistant to wind up to 150km/hr. and trellising of 25kg/sqm.

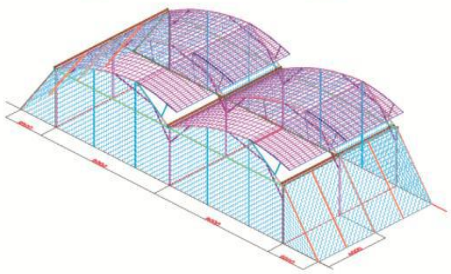




EVEREST 8000-9600, With a window to be opened and closed

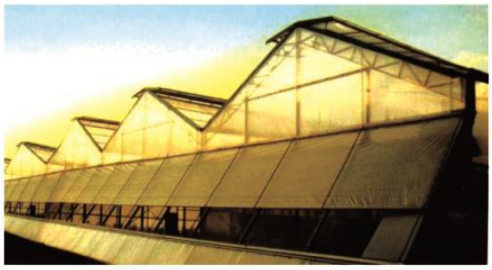
- ✓ Designated for areas where the temperature doesn't drop below 10 degrees and doesn't exceed 30 degrees the window opens up to 1.60 meter (20% ventilation from the roof area)
- ✓ While raining, the window can be left opened for 1.40 m, this act reduce the humidity in the greenhouse relatively to the outside one.
- ✓ The windows protected from winds
- ✓ Asymmetric model, reduces the sun shine on the morning till the noon, as a result the temperature drops 4 degrees. From the afternoon till the evening increases the sun shine.
- ✓ This technique is a big advantage for the growing process (relatively to the symmetric models)
- ✓ The condensation water doesn't ski to the greenhouse's floor
- ✓ A structure semi free of welding
- ✓ The whole construction made of galvanized steel and closed profiles
- ✓ The plastic closure made with aluminum profile
- ✓ Resistant to wind up to 150 km/hr. and trellising of 25 kg/hr .





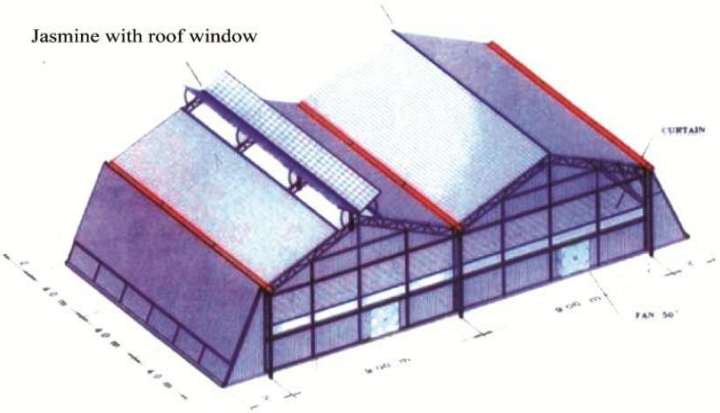
JASMINE UP TO 9.6 METER WIDTH

- ✓ Possibility for ventilation from the roof .
- ✓ Designated for very cold areas while the snow melting is done by ovens and very warm areas while reduction of heat can be done with wet pads technology.
- ✓ Inflexible covering with expectancy of 15 years.
- ✓ Galvanized construction.
- ✓ Resistant to wind up to 150 km/hr. and trellising of 25 kg/sqm.



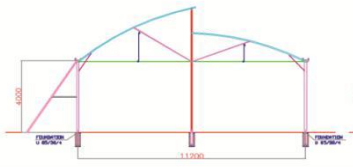
Jasmine without roof window

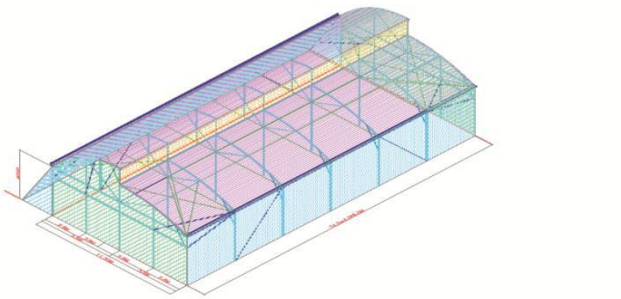
Jasmine with roof window



TAJ 11200 With window permanently opened

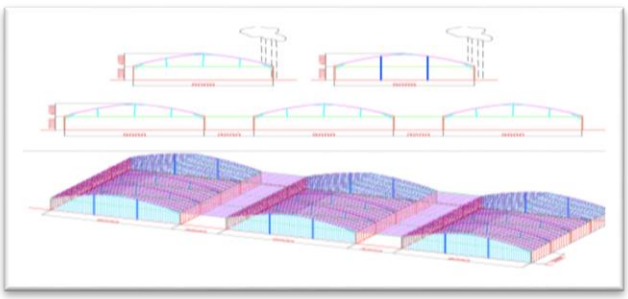
- ✓ Designated for areas where the temperature doesn't drop below 10 degrees for tomato growing and doesn't exceed 15 degrees for capsicum growing.
- ✓ The window opened permanently 1.20 meter.
- ✓ A structure semi free of welding.
- ✓ The whole construction made of galvanized steel and closed profiles.
- ✓ The plastic closure made with aluminum profile.
- ✓ Resistant to wind up to 150 km/hr. and trellising of 25 kg/sqm .





Mini Greenhouses

- ✓ Growing area 100% of total area (compared to 85% in old models)
- ✓ Possibility to leave the curtain opened while raining (less humidity inside)
- ✓ Structure with closed profiles
- ✓ Greenhouse without any welding
- ✓ Plastic sheet cover attached by aluminum profiles
- ✓ Structure with galvanized steel .



Aquaculture for the 21stcentury

ARZAQ-GROUP is a family owned company and a cooperative. one of the first companies that initiated the greenhouse industry in the country decades. ARZAQ Group is a large corporate of greenhouse manufacturer, with extensive experience in organic agriculture and aquaculture, offers "Turnkey" Projects in all parts of the world. In these projects, ARZAQ will design and construct Greenhouses, Nurseries and Packing houses. Therefore, it will assist the customers and facilitate their business until the first crop season. The customer will have a role in obtaining related material by providing all the material, the workers and other services for infrastructure preparation of the greenhouses, nurseries, packing houses and offices. The **ARZAQ GROUP** team specializes in total planning and construction solutions for new generation commercial Zero-Discharge recirculating intensive aquaculture supported by hydroponics (algae) Land-based, fully enclosed, no-pollution green technology for growing marine, freshwater or ornamental fish in farms and hatcheries .

We have experts in all fields related to aquaculture :

- Water Biologist, Environmental microbiologist specializing in the research, development, and operation of microbiological denitrifying bioreactors.
- Veterinarian,, highly experienced aquaculture biologist, and veterinarian, Successfully provided fish veterinary and biological services to multiple intensive fresh and saltwater closed-containment farms.
- Aquaculture, highly regarded recirculating aquaculture engineer with substantial experience in planning, permitting, design, construction and project management, and operations of RAS facilities throughout the world.
- Under the supervision of the General Manager of the Company: Mr. Hussam Abu Moch

Species :-

Focus on high value warm-water, marine and freshwater species :-

- Warm-water species with consistently high market prices present the most lucrative opportunities for Arzaq Group production

- Culture conditions are fully controllable. There is no limit to cultivatable species so long as a reliable fingerling supply exists .

Cultivatable Species Include

Med. Sea Bass (salt)

Yellowtail (salt)

Grey Mullet (salt/fresh)

Highlight :

The zero discharge system is cost effective & commercially proven in 2 farms, resulting in 1000 tons annual production of fish.
Under controlled conditions, any location, any climate extreme. Offers flexibility and wide variety of fish species to select for cultivation, Constant, up to weekly, fresh fish supply to your local market Modular design: each modular unit = 100 ton production capacity= option for simultaneous growth of different species. Made-to–measure cost effective system components for low energy usage Investment Returned after 2-3 full zero discharge growth cycles for most species.

Turnkey marine / freshwater / ornamental zero-discharge system design and construction including dedicated greenhouse assembly Ongoing technical and biological support by expert set up team
Over the last decade international fish production has increased With the growing consumer demand for edible fish. Fish farming capacity must keep pace with this demand against reduced natural sources. Are isolated from potential environmental contaminants, there is no risk of the “off-flavor” caused by some algae growth, soil run-off or residual pesticides. All this guarantees a high quality edible fish with consumer appeal. Accreditation (e.g. ISO, HACCP,) or other statutory requirements including Quarantine and Bio-Security, are supported when applying the zero-discharge design.

Commercial Applications: ARZAQ GROUP has overcome many of the obstacles that have slowed progress in other enclosed fish culture systems. The system uses innovative, specially-developed filter systems in conjunction with natural biochemical processes .Together, these processes balance and regulates the system which ensures fish are grown in the best possible environment, achieving high production levels and superior fish product quality A highly efficient recirculation saltwater aquaculture process for producing fish at variable yield densities of up to 70 kg per cu meter of water ensures the

commercial feasibility of farming commercially valuable fish in urban and rural regions. To date, our commercial experience with this technology has evolved in stages.
a 1000 ton fish yearly production site is operational in upstate New York. All subsequent sites successfully raised and marketed Gilthead Sea Bream (Sparusaurata) a popular Mediterranean saltwater high value edible species .

ABOUT: Raise Fish Anywhere (ARZAQ GROUP) has developed a proven, innovative fully closed zero discharge recirculated fish culture system. The system uses innovative, specially-developed filter systems in conjunction with natural biochemical processes. Together, these processes balance and regulate the system. This ensures fish are grown in the best possible environment for achieving high productivity and superior fish product quality.

The ARZAQ GROUP team can plan, design and construct any type of commercially viable intensive or semi-intensive aquaculture system for growing saltwater (our speciality) freshwater or ornamental fish – in any climate, in any location
Raise Fish Anywhere offers total turnkey solutions for:
100% fully closed, zero discharge systems semi-closed systems open systems.

* *Some pictures of fish draft :*

Each member of the **ARZAQ GROUP** team is a specialist professional with absolute expertise in their field. This ensures that all design, technical, biological and construction services are cost effective and delivered on time according to agreed specifications. The multi-disciplinary RFA team also provides reliable support and guidance following construction and installation.

Products :

ARZAQ GROUP special feature are our made-to-measure system components, many of which are produced on our premises, delivered and ready for on-site use. In addition to dedicated greenhouse construction services, ARZAQ GROUP builds tailor made protein skimmers (Foam Fractionators), Biofilters, CO2 strippers, Fluidized Bed Reactors, water oxygenation and filtration equipment, cooling pads for use in hot, dry climates, pools/tanks and more.

Zero-Discharge IP

- Group is world leader in zero-discharge aquacultureArzaq

Company team intimately involved in development, testing, and operations of successively larger models zero-discharge facilities, from a 1-ton R&D model to 60-ton (annual production) commercial beta.

Company team participated in the design, construction and operation of the zero-discharge bioreactor for the world's largest commercial scale zero-discharge system. While under company supervision, the facility produced and sold Mediterranean sea bream, seabass, and yellowtail.

No other company in the world has equivalent hands-on, real-world knowledge and experience zero-discharge aquaculture.

- IP Arzaq Group

Company owns right, title, and interest to Israeli patent application #21530 for the Company's zero-discharge fish cultivation technology. The application was filed in March, 2012.

Company will file for patent protection in country upon funding.

Company is collaborating with Company biologist, to incorporate his patent pending denitrifying “micro-reactors” into the zero-discharge system. These micro-reactors improve system performance and enhance copy protection. Substantial design work is complete, and Arzaq Group expects to file a patent application .

Product Advantages :

- Locally Produced – Super fresh product with long shelf-life. Product "food miles" and time to market kept to absolute minimum

- Healthy & Clean – fish feed contains no hormones or GMO's. Fish not exposed to heavy metals. Cleanest possible product

- Competitively Priced –"day fresh", domestically produced product will sell at ex-farm prices equal to "days old" imports

- Sustainable – product meets stringent criteria for sustainable fish – a rapidly emerging consumer trend. Any fish meal or fish oil content in feed sourced from sustainable fisheries

- Controllable Production – regular and reliable production volumes and schedules of most profitable species. This is critical for today's commercial fish buyers.

Fish Project in USA :




Arzaq Group

Greenhouses, Turnkey Projects