



Meadow Mushrooms

Last year was mainly dominated by the recovery from the economic downturn. The financial crisis also impacted on the mushroom industry. Just like every other company, the Christiaens Group also felt the effects. Getting the go ahead for projects tended to take longer. The level of turnover noted in 2009 and 2010 was good, partly thanks to the increasing demand for complete projects.

This trend started to emerge some years ago and is set to gain in importance. Businesses want to involve the fewest possible number of partners in projects. The advantages this offers include a faster completion time thanks to shorter lines of communication, a lower risk of defects and experienced project management which ultimately results in lower-priced and better projects.

As well as for complete projects, you are still welcome to contact us for equipment including machines, climate controllers, air treatment units, lorries, shelving, etc. Our large volume of turnover means we can purchase equipment for a very competitive price allowing us to offer you attractively priced and high end quality products.

A large company is engaged in a continual process of improvement. The lines of communication have become even shorter and the organisation of the project teams has been synchronised better. This means that projects are more tightly structured so that our service to our customers improves as a result.

Innovations and developments remain key at our organisation. An important development that is currently being seen is heating and cooling in the base of the beds. This method allows more accurate control of the compost temperature, enabling savings to be realised in time and energy. We are also actively developing new methods of automated harvesting. We will explain further details to you. We are currently building a state of the art tunnel plant for Bio Fungi in Hungary. This plant should be operational in mid-2011. Various elements have been developed for this tunnel company to make the operations even more hygienic and efficient.

If you would like to find out more about our company, see a selection of the projects we have realised, find our contact details etc. please visit www.christiaens.com





Phillips

[USA]

When Phillips Mushroom Farms, with headquarters in Kennett Square Pennsylvania, saw the need to reenter the white Agaricus mushroom production business after a 20 year hiatus, we looked around for the best possible facility because most of the growing rooms in the Kennett Square area date back to the 1920's and have been updated and retrofitted to try to meet the new and ever expanding food safety requirements.

Having traveled to Europe on numerous occasions and having had the opportunity to visit state-of-the-art composting & growing facilities, we made the decision to look there for the design of a new structure.

Our composting co-op, Laurel Valley Farms, had already used The Christiaens Group for Phase I bunkers and Phase II tunnels, so we had some experience in Dutch technology and construction.

Phillips made the decision in December of 2007 to purchase a tract of land in Cecil County, Maryland, about 70 Km from the main facility. This large property made it a viable location for the new construction and future expansion.

At the same time, Phillips Mushroom Farms entered into a contract with The Christiaens Group to provide the technology and equipment for twenty-five, 907 sq meter growing rooms and an additional room for HVAC equipment. The new facility would be called Warwick Mushroom Farms LLC.

Site preparation began in May 2008, and the building footers were poured in September of that year. A harsh winter slowed construction and while the finishing touches were being put on the building, the first room was filled with Phase II compost on July 16, 2009. Additional rooms were phased in over the next 6 weeks and harvesting of the first room began in mid-August 2009.

Today the facility is harvesting 3 flushes of white Agaricus mushrooms on an 8 week schedule and has the capacity of 4,846 metric tons per year. With exceptional quality and production at this facility, a 16 room expansion is planned for early 2011.

Because the building is constructed with insulated steel panels, sanitation and food safety standards are easily achieved.

There are many mushroom design and construction companies throughout the world. After much research and meetings with a few companies we chose The Christiaens Group for the project. In our opinion The Christiaens Group is the leader in design and technology. While long distance working relationships are difficult, the assistance that Christiaens provided during construction and commissioning was unsurpassed.



Photo Credits:
Interior photos: *The Cecil Whig*
Aerial photos: *Adelma Gregory-Bunnell*



Trademark

[Canada]



Trademark is the new company of the Champs Group. Christiaens Group was given the order for a turnkey project in 2009. The project involved 12 growing rooms each with a surface area of 756m². Building commenced in January 2010, and six months later the new company was up and running.

In January 2010 an order was confirmed for the expansion of the tunnel company Mycelco. This company supplies the compost for the mushroom farm. The tunnels were operational five months after building started so the compost could be ready in time for the new farm.



Monterey

[USA]

Monterey Mushrooms, Inc. was established in 1971 as a family- owned and operated farm in Royal Oaks, California. Today, Monterey is vertically integrated and able to control all aspects of mushroom production from seed to customer/ consumer. An international, multi-facility company, with 10 mushroom growing farms strategically located throughout America.

Monterey constantly invests in upgrading its farms. They recently built 5 phase 1 bunkers on the site in Princeton with the aim of creating higher and more consistent quality. Christiaens supplied the air treatment and process control equipment for this project.

The most recent expansion is currently under construction in San Miguel, Mexico. The project involves 8 growing rooms each of 950m². Here too, the technical installation is from Christiaens.





Adelaide

[Australia]

Project

The current project included the building of 30 grow rooms each with 4 rows each of 6 shelves high and 1.2m wide and a capacity of 778m² growing area. Two of the rooms were halved by putting a wall down the middle giving four rooms for research and development.

There is a central alleyway 10m wide to allow for easy movement of product from each room to the central check station and cooling facilities via a central conveyor system.

There is also extensive storage area, amenities, operating offices, a training room, pre pack facilities and a spacious lunch room.

Coolroom facilities for 200 pallets, 2 vacuum coolers, a central air duct are all part of the advancement of this project. The plant room is centrally located as are the cooling facilities and amenities block

Production

The project built by Christiaens was planned to be done in two halves. The first half included all the amenities, plant room and cooling facilities and once this was completed, production commenced filling two room a week while the second half was being built. This began in March 2009.

The main build of the facility was completed in June 2009 and after shelves were erected and some fine tuning of plant and equipment the Company commenced full production in November 2009.

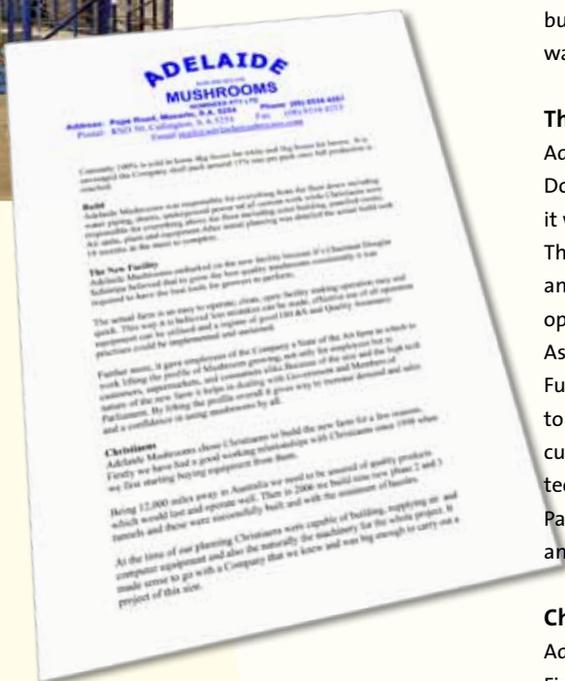
From April 2010 the Company has been averaging around 110,000kg per week and it is anticipated to level out on full production at 132,000kg per week.

Note: Adelaide Mushrooms is a supplier of fresh mushrooms to supermarkets, retailers and Institutions and 100% is sold on the fresh market.

The Company supplies all states of Australia with a heavy input into South Australia, Western Australia and Victoria, and is recognised as a leader in the quality stakes in Australia for a number of years.

Currently 100% is sold in loose 4kg boxes for white and 3kg boxes for brown. It is envisaged the Company shall pack around 15% into pre pack once full production is reached.





Build

Adelaide Mushrooms was responsible for everything from the floor down including water piping, drains, underground power and all cement work while Christiaens were responsible for everything above the floor including outer building, panelled rooms, Air units, plant and equipment. After initial planning was detailed the actual build took 18 months in the main to complete.

The New Facility

Adelaide Mushrooms embarked on the new facility because it's Chairman Douglas Schirripa believed that to grow the best quality mushrooms consistently it was required to have the best tools for growers to perform.

The actual farm is an easy to operate, clean, open facility making operation easy and quick. This way it is believed less mistakes can be made, effective use of all operation equipment can be utilised and a regime of good OH &S and Quality Assurance practises could be implemented and sustained.

Further more, it gave employees of the Company a State of the Art farm in which to work lifting the profile of Mushroom growing, not only for employees but to customers, supermarkets, and consumers alike. Because of the size and the high tech nature of the new farm it helps in dealing with Government and Members of Parliament. By lifting the profile overall it gives way to increase demand and sales and a confidence in using mushrooms by all.

Christiaens

Adelaide Mushrooms chose Christiaens to build the new farm for a few reasons. Firstly we have had a good working relationships with Christiaens since 1998 when we first starting buying equipment from them.

Being 12,000 miles away in Australia we need to be assured of quality products which would last and operate well. Then in 2006 we build nine new phase 2 and 3 tunnels and these were successfully built and with the minimum of hassles. At the time of our planning Christiaens were capable of building, supplying air and computer equipment and also the naturally the machinery for the whole project.

It made sense to go with a Company that we knew and was big enough to carry out a project of this size.





Wankum Mushrooms

[Germany]

Following intensive preparation 2009 saw the construction of a new mushroom farm according to a completely new concept. The five owners had decided to set up a farm applying new techniques and innovations used for growing and harvesting. The focus here was on a number of aspects including improving the picking performance, increasing the productivity of the compost and energy efficient growing practice.

It is common knowledge that the highest picking performance is obtained from an upper bed with plenty of room. This knowledge was used and translated into an idea of creating a bed with a single layer and without any obstructions to picking.

At the farm run by one of the five owners a growing room was transformed according to this concept. Trials were performed for several years to investigate matters such as the best distribution of air, compost management in the bed, the right picking equipment to use and the filling weight of the compost in relation to the quality.

Technical installation:

A heat pump was installed at the farm. This pump supplies the cooling required on the farm, while the heat that is released is also used on the farm. Any surplus heat is extracted using a condenser. In cold periods, when heat production is insufficient to meet the demand, a steam boiler and a heat exchanger are used to introduce additional warmth.

To create the best air distribution pattern for the mushrooms the way air is distributed has been modified. A cloth, which acts as a plenum duct, is attached to the ceiling. This distributes air through the cloth at low speed in a homogenous pattern over the entire surface of the beds.





Innovation:

An entirely new technique in mushroom growing is heating and cooling in the base of the beds. The shelving in the beds incorporates plates which water flows through. The temperature of this water is regulated by a cooling and heating circuit. As the energy exchange with the compost is far more direct the temperature can be managed far more accurately. The compost temperature fluctuates far less than in conventional farms where the compost temperature is controlled via the air temperature.

This technique offers a number of advantages:

- effective and accurate control of the compost temperature
- mycelium colonises the casing soil far quicker
- energy saving
- uniform emergence of the mushrooms
- higher productivity per ton of compost
- better spread of pinheads on the beds
- more picking days

The technique can also be applied in existing shelving systems/farms.

Future:

The farm has been built on a site where future expansion has been taken into account. At the moment the farm numbers seven growing rooms, but there is space for a total of 28 growing rooms.

The farm has also been configured to allow the harvesting and logistic activities to be automated. As the mushrooms are grown on single layer beds with the shelving located in an open space with plenty of room for movement developing and using picking robots will be far simpler.





Biga LLC

[Armenia]

We recently completed a mushroom farm in Armenia. To lower the investment costs an approach was taken whereby the ceiling of the growing room is also the roof of the building. This method considerably reduces the costs involved in construction. The entire building is placed on a slope in the same way as greenhouses are to enable good drainage of the roof and floor. The growing rooms are filled with phase 3 compost in blocks, supplied by a Dutch firm. This allows mushrooms to be produced without the need to invest in a compost production plant. A heat pump combined with a well is used at the farm to help achieve considerable energy savings.

Official opening with president of Armenia.





Champinter

[Spain]

In 1977, the Cooperative Society CHAMPINTER was set up to spread the word about the excellent reputation of the Manchuela mushroom, considered by gourmets to be the “white gold” of their kitchen.

“The first project we built with Christiaens was started in 2006. The project comprised 5 bunkers and 14 tunnels. Due to the rising demand for phase 3 compost we decided to construct additional tunnels. In 2010 we gave Christiaens the order to build another 18 phase 2/3 tunnels. This project is finished in the spring of 2011. The tunnels have a capacity of 1300 tons of phase 3 compost a week.”

“Champinter chose the Christiaens Group because of the outstanding results they produced on the first project.”

www.champinter.com



Germinados de Compost

[Spain]

In view of the higher demand for phase 3 compost, Germinados has decided to expand its compost plant. Initially nine tunnels and three bunkers were built. The decision has now been made to expand the plant by in total eight tunnels and two bunkers. The first phase of this expansion was ready early 2011. Germinados chose to place as many tasks as possible in the hands of a single partner. All the elements after the concrete floor has been laid will be supplied by Christiaens – from the steel structure up to and including the installation of the electronics.

 **GERMINADOS**
de **Compost**



Mushroom Exchange

[Australia]

Mushroom Exchange is part of Costa Exchange. Costa Exchange is one of Australia's largest growers, packers and distributors of fresh fruit and vegetables. Part of this concern is Mushroom Exchange with various branches all over Australia. With six growing sites around Australia, Mushroom Exchange is one of the largest producers of mushrooms with total production amounting to around 370 tons per week. Mushroom Exchange is a fully vertically integrated chain with its own spawn production, compost production, growing and harvesting sheds and marketing operations.

On one of the sites near Perth a phase 2/3 tunnel complex was built in 2009. The main motivation was to get higher production from the existing farm. Christiaens won the order to provide a turnkey project.





Karol Kania i Synowie

Karol Kania i Synowie Sp. z o.o.

[Poland]

In 2008 construction started of a new compost facility in the east of Poland. As the project was entirely new, the project could be built fully according to the customer's specifications. The start up phase consisted of 12 bunkers and 22 tunnels, which were put into operation in 2009. Another 22 tunnels were built a year later. Christiaens assisted Kania in designing and setting up the new company.

'We chose the Christiaens Group as they have a lot of experience in projects in a variety of climatic conditions. Their quotation included tried and tested, complete systems for the production of phase 1 2 and 3.'

For more information about the company visit www.kania.net.pl.





Christiaens Group

| the power of combined experience |

Warwick Mushrooms, USA	16 growing rooms
Parwan Mushroom, Australia	12 growing rooms
Loonbedrijf Hendriks, Netherlands	2 Head end filling machine
Gulf Mushrooms, Oman	Growing equipment
Moni Champignonkwekerij, België	7 Growing rooms
Mycolim, Netherlands	9 Growing rooms / Spawn testing facility
BioFungi, Hungary	9 Phase 2/3 tunnels/ 2 Phase 1 bunkers / 1 Biofilter
BATEC, China	2 Growing rooms
Germinados, Spain	4 Phase 2/3 tunnels
Laurel Valley Farms, U.S.A.	1 Phase 2/3 tunnel, 4 bunkers
All Seasons, Canada	7 Phase 2/3 tunnels
Champinones San Miguel, Mexico	8 Growing rooms
Majestic Mushrooms, Australia	6 growing rooms
Walkro, The Netherlands	Several machineries Phase 2/3 facility
Boglarchamp, Roemenia	6 growing rooms
Dohme , Germany	7 Phase 1 bunkers

| Christiaens Group |

Witveldweg 104 - 106 - 108
5961 ND Horst - The Netherlands

info@christiaensgroup.com
www.christiaens.com
tel. +31 (0)77 399 95 00