



Refrigeration in the Agricultural Industry

“As a contribution to the availability of food for a constantly growing population demanding quality products from the agricultural industry, Centigrade Refrigeration provides solutions in refrigeration focusing on energy efficiency and food safety.”

Agricultural producers use a variety of refrigeration systems to extend the shelf life of perishable materials. Cooling not only reduces the potential for spoiling due to bacterial growth but also reduces humidity levels for some products. Refrigeration may also be used during sorting, processing, packaging, and storage.

DON'T LET HEAT COST YOU MORE MONEY

Heat is a major challenge for farmers. In livestock operations, excessive heat can cause animals to be unhealthy, which means they won't mature at the same rate, and more may die, reducing your yield at finishing. Meanwhile, fresh fruits and vegetables can spoil right after harvest if they're not chilled properly.

Fruit and vegetable farmers must cool many of their products quickly after harvest; removal of field heat is important to maintaining produce quality and shelf life.

This large refrigerated room is used to hold wholesale vegetables prior to distribution. Fruit and vegetable farm refrigeration systems are operated most intensively during the warmest months of the year, often when electrical costs are at their highest levels. Improving energy efficiency of refrigeration systems can therefore lead to significant savings. This can be accomplished by:

- Pre-cooling produce with cold water before putting it into refrigerated areas.
- Improving insulation of the refrigerated cold storage area.
- Reducing infiltration of warm air through the doors, cracks, and other openings.
- Regular maintenance and servicing of refrigeration equipment.
- Utilizing energy-efficient compressors, heat exchangers, and refrigerants.
- Taking steps to prevent and detect refrigerant leakage.

Fresh produce like peas, fine beans, peppers and many other vegetables require low temperatures as soon as they are harvested to maintain quality. This means that farmers need to invest in cold rooms at their farms if they are to meet good standards for other produce.

Dairy farmers also rely heavily on refrigeration equipment, but on a daily rather than seasonal basis. Dairy farming is one of the most energy-intensive agricultural operations, using electrical power to operate vacuum pumps and to pump water, ventilate structures (heat and cool), provide lighting, heat water, and, most importantly, refrigerate milk.



Refrigeration systems with scroll compressors are 15% to 20% more efficient than traditional reciprocating compressor systems. These compressors can be used for cooling milk or for space conditioning, such as a walk-in cooler. In addition to high-technology refrigeration equipment, a variety of supplemental refrigeration technologies are available to reduce energy costs. Well water-cooled plate heat exchangers can be used to pre-cool the milk before it enters the bulk tank.

Heat-recovery units can scavenge the discharge heat from refrigeration equipment to supplement water-heating needs while increasing the efficiency of the refrigeration system slightly. A refrigeration heat recovery (RHR) unit consists of a water storage tank and a heat exchanger. The heat exchanger can be separate from the water tank or jacketed to the outside of the storage tank and covered with insulation and a protective shell.

Innovative systems and equipment can help agricultural producers increase energy efficiency and reduce energy costs. Energy-efficient refrigeration equipment and technologies can lower energy expenses and improve productivity. Maximum profitability from refrigerated agricultural products is only possible if the equipment is reliable and operating efficiently.



HEAT STRESS ON ANIMALS IS EXPENSIVE

Animals need to stay cool and comfortable to take in food, experience proper weight gain, or maintain production. When animals can't stay cool, they experience heat stress, and that causes significant costs to the industry. Cooling is a great way to head off heat stress to animals.

Other product uses for the agricultural industry Storage

Insulated panels provide an effective storage solution to the farmer. The panels keep the interior naturally cooler for storage of feed and

seed stores.

Grow Rooms

Cost savings are important and by using insulated panels combined with an irrigation system and including a grow lamp system, farmers can now grow their own seedlings on a larger scale to ensure a higher crop yield.

Dry Room

Dry rooms are essential during mushroom farming and insulated panels create the best environment for our favorite fungi. Keep them cool, dark and dry with a room specially constructed for them using insulated panels.

Preparation/Processing Room

If your stock requires washing and/or preparation, an insulated preparation/processing room is the perfect solution. An insulated room can be created anywhere on your property, and, if you add a water supply, can help cool produce right next to the field before transporting them to your cold room.

Meat Processing

A combination of two or more insulated rooms can provide the perfect environment for the processing and storage of livestock following slaughter. After the skin has been removed, the carcasses can be moved into a cold room and hung until temperature reaches 7 ° C, moved into a clean processing room with a constant temperature of lower than 12 ° C. After this, the processed meat can then be moved back into a cold room to cool down prior to further processing or directly to a freezer room.

Poultry Farming

An chicken coop constructed from insulated panels provides a much safer environment for the chickens inside. Specialist rooms for raising broilers can also be designed and constructed using insulated panels. Cleaning rooms, preparation rooms, cold rooms and freezer rooms can be connected to process your chicken for delivery to market.

Residential Uses

Insulated panel rooms have their uses on the home front too. Most farms include a personal orchard and vegetable garden. These harvests are often used to make jams, condiments, pickles and more. A cold room in the home provides more storage for these harvests, ensuring longer freshness at the correct temperatures and taking some pressure off the kitchen.

Freezer rooms are great here too. Not only do they provide more space, but they also make it easier to get to the products needed.

A small grow room can help you get an earlier start on your next crop, allowing for more harvests per year. Make it air-conditioned and you could even grow winter crops year round.

If you make cheese, these rooms make the perfect cheese caves, and for those who like to make their own deli meat products, they're excellent meat caves as well.

Tools sheds, garden sheds, feed sheds, the possibilities are endless.

"Our goal is to offer the best solution, analyzing all the alternatives and proposing the most efficient, reliable and sustainable to the client."

