Abstract

The Human Genome Sciences, Inc. (HGS) is an industry leader in monospecific islet cell transplantation for the treatment of Type 1 diabetes. The success of this technology is dependent on the availability of quality research animals. To support the growing research needs of the company, HGS is expanding its vivarium and is implementing a new animal housing system. This new system is designed to meet the requirements for maintaining quality research animals, and our maintenance requirements that cost less overall. Disposable, disposable caging systems are very quick. Cost recovery periods for HGS systems are approximately 3.0 to 4.0 years, (indeed, when compared to traditional housing systems. The HGS vivarium requires approximately 30% less labor than traditional because for animal care is more efficient. In addition, the area dedicated to animal housing is reduced, which is also a great benefit to the company. The disposable caging system is designed for the use of pre-sterilized by the manufacturer, so there is no need to have a large autoclave dedicated to animal housing on site. Cages arrive such as clean sterile cage storage, clean cage processing and soiled cage processing, must be allocated to support this standard. The disposable cage systems have a great effect on facility design, equipment cost and labor required to maintain a vivarium. The initial cost was certainly one of these factors. Additionally, economy of space, maintenance, annual expense and environmental savings. The HGS vivarium requires approximately 25% less space than traditional because the area dedicated to cage cleaning and autoclaving facilities and equipment are not needed with disposable caging, which represents a significant cost and space savings. The HGS vivarium is one of the few facilities in our area utilizing 100% disposable caging. The new system is also more environmentally friendly: 1) cages and cage supplies are recycled by the manufacturer; 2) due to complete the risk of cross contamination within the animal colony as each cage replacement comes with a new sterile cage. In traditional equipment sanitation is greatly reduced, and space allocated for clean cage storage is eliminated. Also, disposable caging reduces the maintenance cost. The HGS vivarium employs a new animal housing system that uses disposable caging. The new disposability cage for TRADITIONAL cage with disposable caging systems cost significantly more to operate and maintain, as compared to vivaria designed around the use of disposable caging systems. Vivaria designed around the use of traditional caging systems cost significantly more to operate and maintain, as compared to vivaria designed around the use of disposable caging systems.

Introduction

There were several key factors to determine the feasibility of creating an on-site vivarium to serve the needs of HGS researchers. The overall cost and maintenance of traditional housing systems required increased labor and space as compared to disposability cage systems. The number of staff required to handle the maintenance and cleaning of traditional systems was increased by 50% as compared to disposability cage systems. One of the critical issues for housing systems is labor efficiency. The design, equipment cost and labor required to maintain a vivarium. The initial cost was certainly one of these factors. Additionally, economy of space, maintenance, annual expense and environmental savings. The HGS vivarium requires approximately 25% less space than traditional because the area dedicated to cage cleaning and autoclaving facilities and equipment are not needed with disposable caging, which represents a significant cost and space savings. The HGS vivarium is one of the few facilities in our area utilizing 100% disposable caging. The new system is also more environmentally friendly: 1) cages and cage supplies are recycled by the manufacturer; 2) due to complete the risk of cross contamination within the animal colony as each cage replacement comes with a new sterile cage. In traditional equipment sanitation is greatly reduced, and space allocated for clean cage storage is eliminated. Also, disposable caging reduces the maintenance cost. The HGS vivarium employs a new animal housing system that uses disposable caging. The new disposability cage for TRADITIONAL cage with disposable caging systems cost significantly more to operate and maintain, as compared to vivaria designed around the use of disposable caging systems. Vivaria designed around the use of traditional caging systems cost significantly more to operate and maintain, as compared to vivaria designed around the use of disposable caging systems.

Vivarium Design: Traditional Caging vs. Disposable Caging

The decision to use a disposable caging system in the vivarium has allowed to: 1) increase the capacity of the limited space; 2) have more control of the research environment; 3) lower the required budget. In the first 5 years of operation, HGS expects to save an estimated $5,000,000 in labor and maintenance costs. This is due to the reduced cost of labor and maintenance associated with disposability cage systems. The equipment used to sanitize traditional caging is very expensive and re-usable. The labor costs of cage sterilization and autoclaving require significant amounts of chemicals, water, steam and energy. The estimated annual cost is for labor, and autoclaving equipment is approximately $1,500,000. The cost for disposability cage systems is very low. In a single system cage sterilization and autoclaving equipment require $60,000. The labor costs of cage sterilization and autoclaving in disposability cage systems is $250,000. The savings for the first 5 years is $4,750,000. The disposability cage system is designed for the use of pre-sterilized by the manufacturer, so there is no need to have a large autoclave dedicated to animal housing on site. The use of disposability cage systems is designed for the use of pre-sterilized by the manufacturer, so there is no need to have a large autoclave dedicated to animal housing on site. The use of disposability cage systems is designed for the use of pre-sterilized by the manufacturer, so there is no need to have a large autoclave dedicated to animal housing on site.

Benefits of Employing New Technology in Human Genome Sciences Vivarium

- **Construction and Equipment Cost Reduction**
  - **Total Initial Equipment Cost**: $2,207,000
    - **Labor Costs for Traditional Caging**: $987,600
    - **Labor Costs for Disposable Caging**: $280,000
  - **Annual Washroom Labor**: $95,000
    - **Annual Washroom Utilities**: $97,375
  - **Washroom Maintenance and Supplies**: $48,400
  - **Chemical Expense**: $726

- **Operational and Maintenance Costs**
  - **Initial Equipment Costs**: $1,594,601
  - **Annual Plant Labor**: $116,411
  - **Annual Plant Maintenance**: $59,964
  - **Chemical Expense**: $4,810
  - **Sterile Supplies Cost**: $1,600
  - **Sterile Autoclave Cleaning**: $1,000

- **Environmental Impact**
  - **Cost of Plant Labor**: $115,411
  - **Cost of Sterile Supplies**: $5,000
  - **Cost of Autoclave Cleaning**: $2,000

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Disposing of unused animal cages and bedding reduces the disposal cost. This is due to the reduced cost of labor and maintenance associated with disposability cage systems. The equipment used to sanitize traditional caging is very expensive and re-usable. The labor costs of cage sterilization and autoclaving require significant amounts of chemicals, water, steam and energy. The estimated annual cost is for labor, and autoclaving equipment is approximately $1,500,000. The cost for disposability cage systems is very low. In a single system cage sterilization and autoclaving equipment require $60,000. The labor costs of cage sterilization and autoclaving in disposability cage systems is $250,000. The savings for the first 5 years is $4,750,000. The disposability cage system is designed for the use of pre-sterilized by the manufacturer, so there is no need to have a large autoclave dedicated to animal housing on site. The use of disposability cage systems is designed for the use of pre-sterilized by the manufacturer, so there is no need to have a large autoclave dedicated to animal housing on site. The use of disposability cage systems is designed for the use of pre-sterilized by the manufacturer, so there is no need to have a large autoclave dedicated to animal housing on site.