



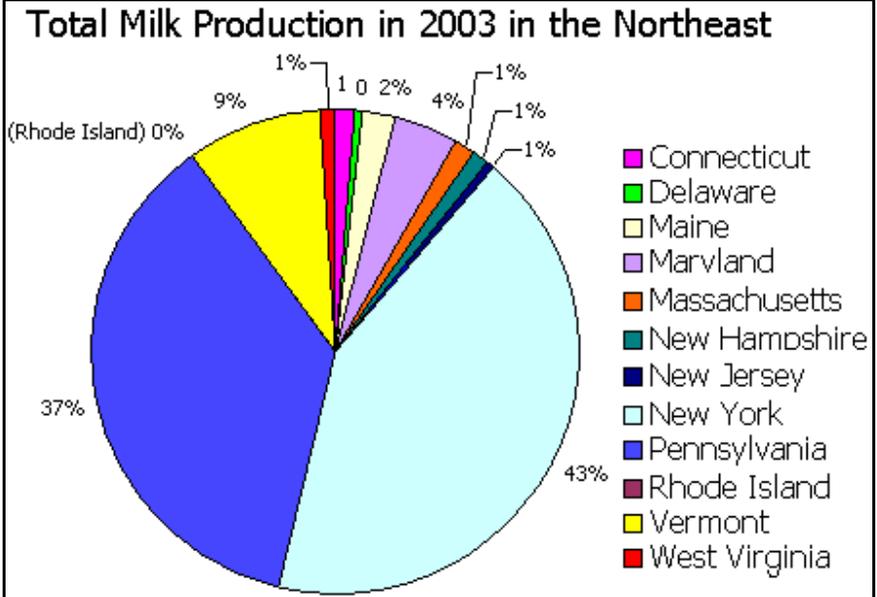
I. Occupational Health Profile Hispanic Dairy Workers

Hispanics are an increasing presence in the Northeast dairy workforce. According to the NYCAMH/NEC Dairy Workforce Study, a population based study of work related injuries in NY, PA and VT dairy workers, Hispanics accounted for close to 20% of the dairy workforce in 2003.

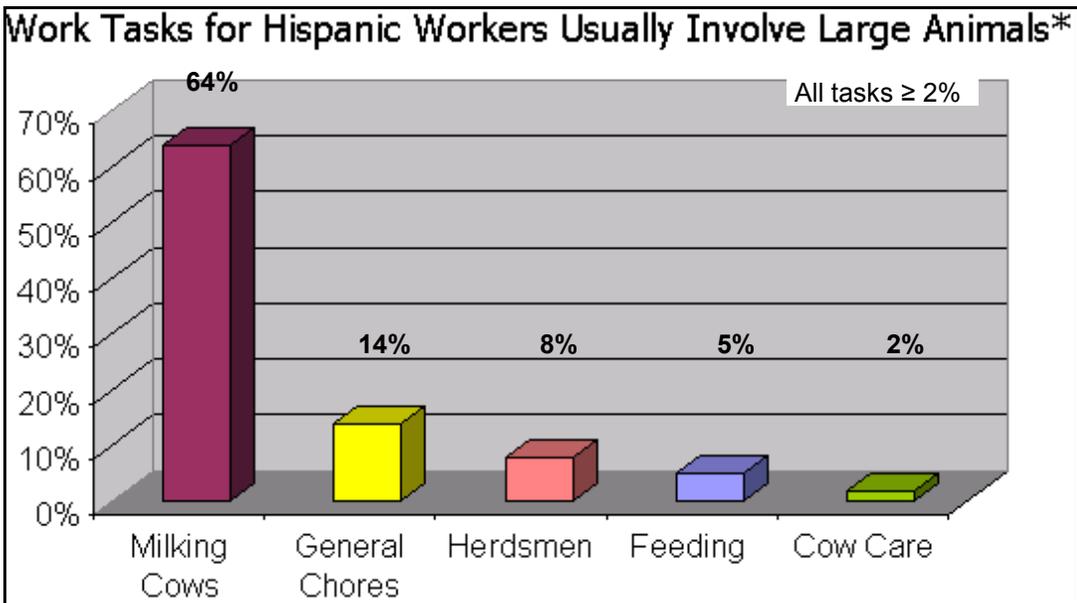
Most common work tasks.....page 1
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Dairy Injuries on New York Farms

Results from a two year population based study of 600 farmers and farmworkers in New York [Pratt et al, 1992] reveal injury rates for dairy farmers/workers of 16.6%. Work on larger farms appeared to increase the risk of work-related injuries, as well as long work hours. According to NIOSH 1993 estimates, dairy accounted for 41% of lost time injuries.



“Latest U.S. Dairy Statistics,” by the USDA National Agricultural Statistics Service. [Dairy Statistics](#), 2004.

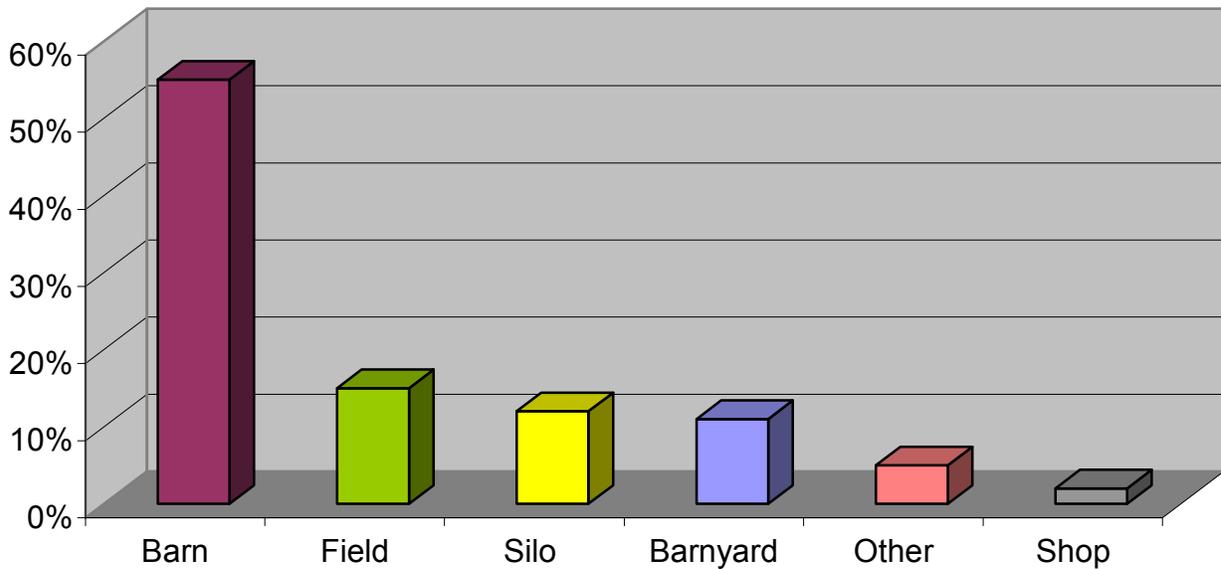


* Figures based on NYCAMH/NEC Dairy Workforce Study

Reference:
 Pratt DS, Marvel LH, Darrow D, Stallones L, May JJ and Jenkins P. 1992. The Dangers of Dairy Farming: The Injury Experience of 600 Workers Followed for Two Years. *Am J Ind Med.* 21:637-650.

Circumstances Surrounding Dairy Injury Events

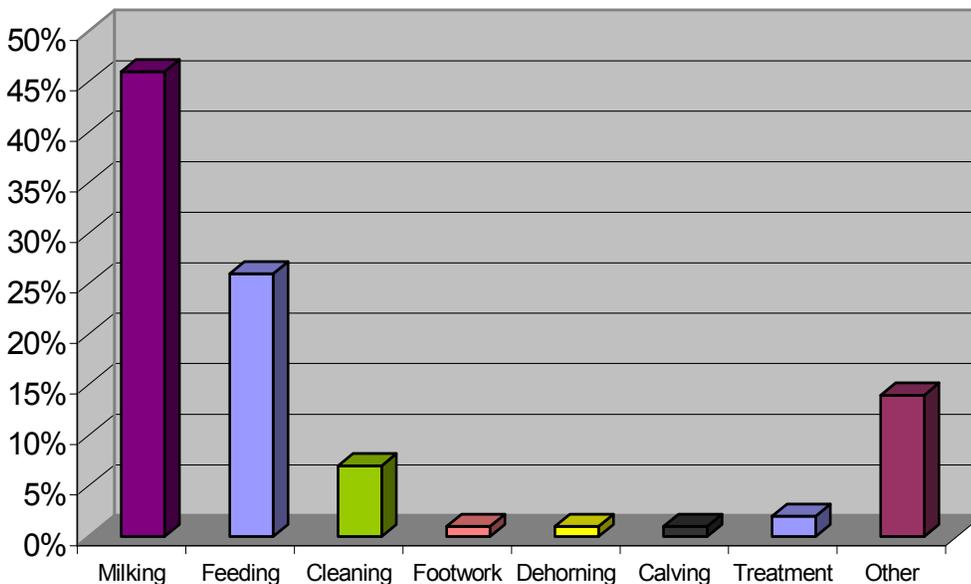
Injury Event Locations (Pratt et al, 1992)



Pratt DS, Marvel LH, Darrow D, Stallones L, May JJ and Jenkins P. 1992. The Dangers of Dairy Farming: The Injury Experience of 600 Workers Followed for Two Years. *Am J Ind Med.* 21:637-650.

Tasks Involved in Dairy Related Animal Injuries* (Boyle et al, 1997)

*cases only



Milking-milking by hand, milking into container, milking into a pipeline.
Feeding-use of tractors, skid steers, augers, wheel barrels, forks, buckets and manual labor.
Cleaning-removing manure from barn, lots or pens.
Footwork-trimming/ doctoring hooves for maintenance or health.
Dehorning-removing horns with a hot iron, saw, wire or gouge dehorner.
Calving-assisting with difficult births.
Treatment-surgery, vaccinations, implants, delousing.
Other-herding, fencing, etc..

Boyle D, Gerberich SG, Gibson RW, Maldonado G, Robinson RA, Martin F, Renier C and Amandus H. 1997. Injury from Dairy Cattle Activities. *Epi.* 8(1):37-41.

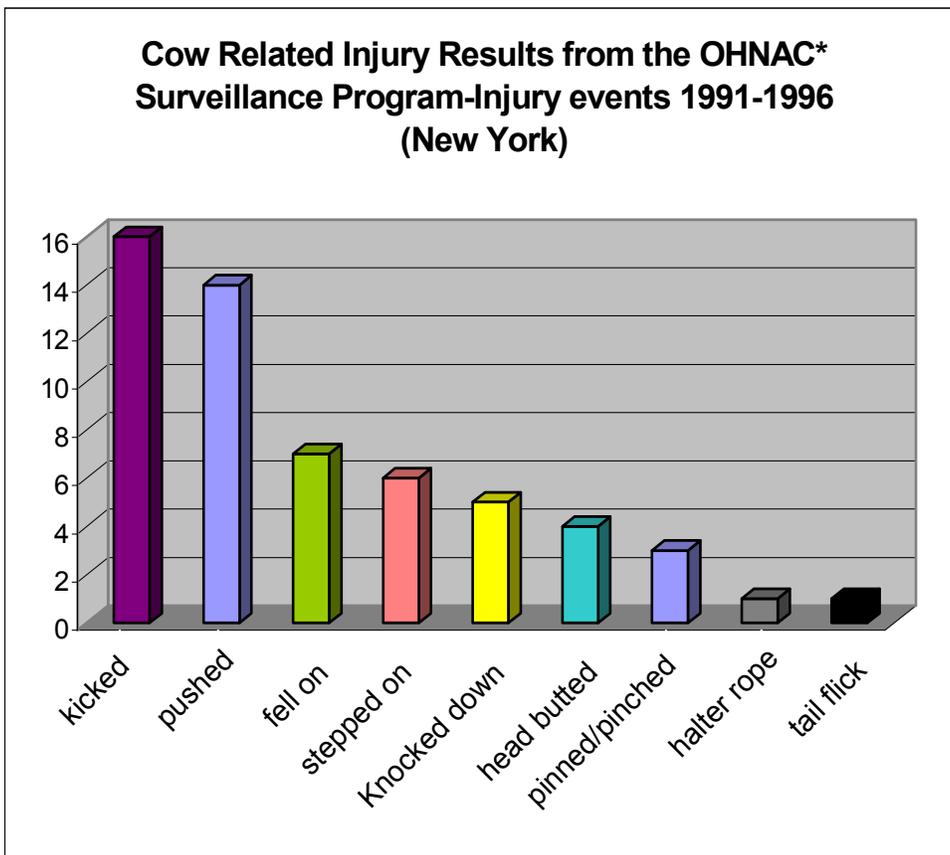
The Nature of Dairy Injuries Relating to Animal Contact

Injuries Connected with Dairy Animal Contact (Boyle et al, 1997)

Abrasion, Contusion.....	27%
Sprain, Strain, Torn ligament.....	26%
Fracture, Dislocation, Traumatic rupture, Crushing, Mangling.....	17%
Laceration, puncture.....	12%
Miscellaneous injuries.....	18%

Boyle D, Gerberich SG, Gibson RW, Maldonado G, Robinson RA, Martin F, Renier C and Amandus H. 1997. Injury from Dairy Cattle Activities. *Epi.* 8 (1):37-41.

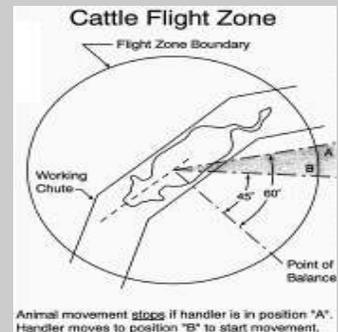
**Cow Related Injury Results from the OHNAC*
Surveillance Program-Injury events 1991-1996
(New York)**



Casey GM, Grant AM, Roerig DS, Boyd J, Hill M, London M, Gelberg KH, Hallman E, and Pollock J. 1997. Farm Worker Injuries Associated with Cows. *AAOHN Jour.* 45(9):446-450.

Patient Advice on Animal Handling:

- Never approach a cow from directly behind it—talk to it softly and touch it gently as you approach.
- Proper lighting in cattle facilities is imperative—cattle will balk at shadows.
- Move cattle toward lighted areas, not dark areas.
- Understand a cow's flight zone and use their response to you to move them where you want them to go.
- Cattle are more com-



fortable and are more easily moved when they are in a group rather than alone.

- Facilities should be properly designed and maintained for safe animal handling.

(see patient ed. section for Spanish and Haitian Creole materials)

Respiratory Problems in Dairy Farmers

Exposures to dusts and toxic gases is not uncommon to dairy workers. Conditions such as Organic Dust Toxic Syndrome, Farmers Lung and Silo Filler's Disease can all be linked to exposures found in the dairy farming environment. In practice, asthma and bronchitis are the most common respiratory problems associated with barn work.

Organic Dust Toxicity Syndrome

Prevalence of up to 20% in some farming populations

Presentation:

(Onset 4-12 hours after exposure to ex-
tremely high levels of organic dust)

- Fever
- Cough
- Chest tightness
- Fatigue
- Chills
- Muscle aches and pains
- + Shortness of breath
- - Benign course of the disease



Organic Dust Toxicity Syndrome— important facts:

- No significant hypoxia
- Minimal findings on chest X-ray
- Does not lead to permanent scarring changes in lungs
- Symptoms seldom last > 2-5 days
- Does not require hospitalization
- Can be treated with Aspirin

Organic Dust Toxicity Syndrome follows work in very dense dust from:

- Silo uncapping
- Decayed hay
- Grain storage bins

Susceptibility increases with increased levels of dust.

Job tasks linked to exposures:

- Opening silos
- Work with compost materials
- Cleaning out corn cribs
- Cleaning out grain storage bins

Patient Advice:

- Put a little water on the source of the dust
- Use two-strap disposable dust masks that have been fitted properly and stored in air-tight containers
- Improve ventilation



MSHA / NIOSH
Approved
Dust / Mist
Mask

Rask-Anderson A. 1989. Organic Dust Toxic Syndrome among Farmers. *British Journal of Industrial Medicine*, 46:233-38.

Von Essen S, et al. 1990. Organic Dust Toxic Syndrome: An Acute Febrile Reaction to Organic Dust Distinct from Hypersensitivity Pneumonitis. *Clinical Toxicology*, 28(4):389-420.

Respiratory Problems in Dairy Farmers

Farmer's Lung and Silo Filler's disease

Farmers Lung (hypersensitivity pneumonitis) is far less

common than Organic Dust Toxicity Syndrome—

*Prevalence of less than 5% in most farming populations**

Presentation:

(Onset 4-12 hours after exposure to moderate levels of organic dust)

- Dyspnea
- Fever
- Cough
- Chest tightness
- Fatigue
- Chills
- Muscle aches and pains

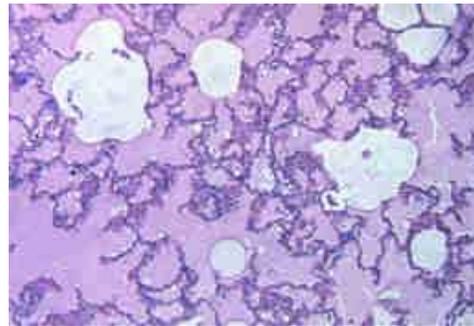


Farmers Lung— important facts:

- Causes significant hypoxia and leukocytosis
- Chest X-ray usually abnormal
- Easily mistaken for pneumonia
- Resolves quickly with steroids
- Usually requires hospitalization
- Can lead to permanent scarring changes in lungs
- Need to assure adequate dust avoidance and protection to prevent recurrences

Farmers Lung Patient advice:

- 1) use moisture to prevent aerosolization of dust.
- 2) use ventilation to prevent exposure to dust.
- 3) use two-strap, NIOSH-approved respirator when dust can not be entirely avoided.



Lung tissue slide of Silo Filler's Disease.

Silo Filler's Disease:

Inhalation of silo gas from some silos filled during past week—mainly corn silage.

- Dense gas with bleach-like odor is sometimes present
- High levels of NO₂ can cause severe alveolitis or ARDS
- Onset of cough, SOB within 2 hours of exposure
- Requires hospitalization, O₂ monitoring and steroids

Silo Filler's Disease Patient

Advice: If silo must be entered, do it immediately after filling with the blower going. Entrance is acceptable again after two weeks and after blower has been running for 30-45 minutes. Have someone check on you periodically.

Ergonomic Considerations in Dairy Work

Explanation of Work Tasks

Milking:

Parlor milking-Cows are milked in a raised area eliminating the need to bend or squat. Workers wash the teats with sprayers hanging from the ceiling, removing milk from the udder prior to milking and attaching the milking unit (around 6 lbs.). Pipeline milking- milking units are transported to the animals. Equipment is either carried by the milker or on a cart. The milking unit weighs about 8-10 lbs. Involves more overhead work and work at shoulder level.

Feeding Cows/Calves: Ergonomic risks in this task are governed by the degree of mechanization. The process can be very labor intensive or not depending on the automation of techniques. Climbing into the silo or mow and picking up bags of feed 50-100 lbs may be required. A shovel full of feed can weigh up to 33 lbs. Calves are usually fed milk from a nipple or bucket (bottles weighing around 4 lbs, buckets up to 35 lbs). Feeding requires sustained forward bending/reaching, gripping of bucket, heavy lifting and carrying materials long distances.

Cleaning Barn: Cleaning grates and stalls involves pulling or pushing a shovel across the stall surface and depositing waste into the gutter. Stalls are usually swept, as well and the task involves frequent twisting, bending and sustained forward reach. After stalls are cleared of debris bedding is placed on the floor of the stall. This requires retrieval of bales and involves repetitive lifting and bending, ladder climbing and carrying 40-50 lbs over uneven or slippery surfaces. Milking units and equipment also needs to be washed and involves sustained forward bending, repetitive lifting, sometimes heavy lifting and a sustained reach.

Different Milking Environments



Ergonomic Considerations in Dairy Work

Results from NYCAMH PATH* analysis.

• A breakdown of time spent in awkward postures:

Percentages presented indicate the portion of time the worker spends in each posture. 21% of milking time is spent bearing loads of 5-10 lbs and 8% of time bearing loads of 10-30 lbs.

Milking Cows-involves more at risk postures than feeding and barn cleaning

30% of time in moderate hip flexion-
upper leg bent more than 20°



13% of time, knee in bent position-
at least one knee bent 35° or more



12% of time knee in squatting position-angle of both knees at least 90°



7% of time kneeling-at least one knee touching ground



Other tasks such as cleaning the barn and feeding cows involve mostly neutral postures. However these tasks do involve load bearing:

Barn cleaning-

- loads of 5-10 lbs 37% of time
- 10-30 lbs 13% of time
- 30-75 lbs 9% of time

Feeding cows-

- ◆ loads of 5-10 lbs 13% of time
- ◆ loads of 10-30 lbs 13% of time
- ◆ loads of 30-75 lbs 7% of time

*Information gathered using PATH analysis in orchards. PATH is an acronym that stands for Posture-Activities-Tools-Handling and this method of analysis allows for the quantification of ergonomic risk factors in work tasks.