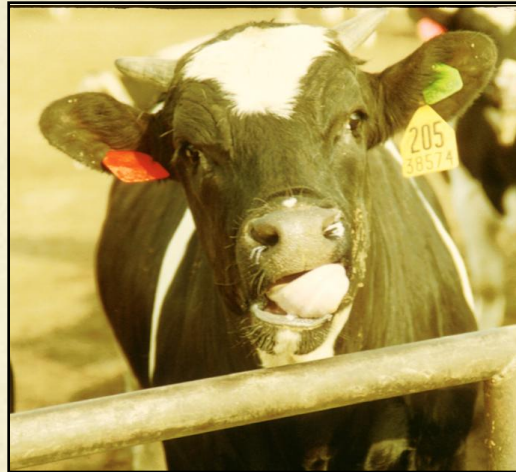


Animal Welfare

6th edition



Temple Grandin

Department of Animal Sciences
Colorado State University



**If a needle breaks
off in an animal,
it may end up in
a piece of meat at
the grocery store**

STEELES MARKETS
CELEBRATING 50 YEARS
THANK YOU FOR
YOUR PATRONAGE

WESTEND KIWE 2.95
12 2/\$3.00
7-UP E 1.50
A/C CHEERIOE 3.29
20\$.49
TOMATO SAUCE
EC OLIVE
SF E
TOM
FRU

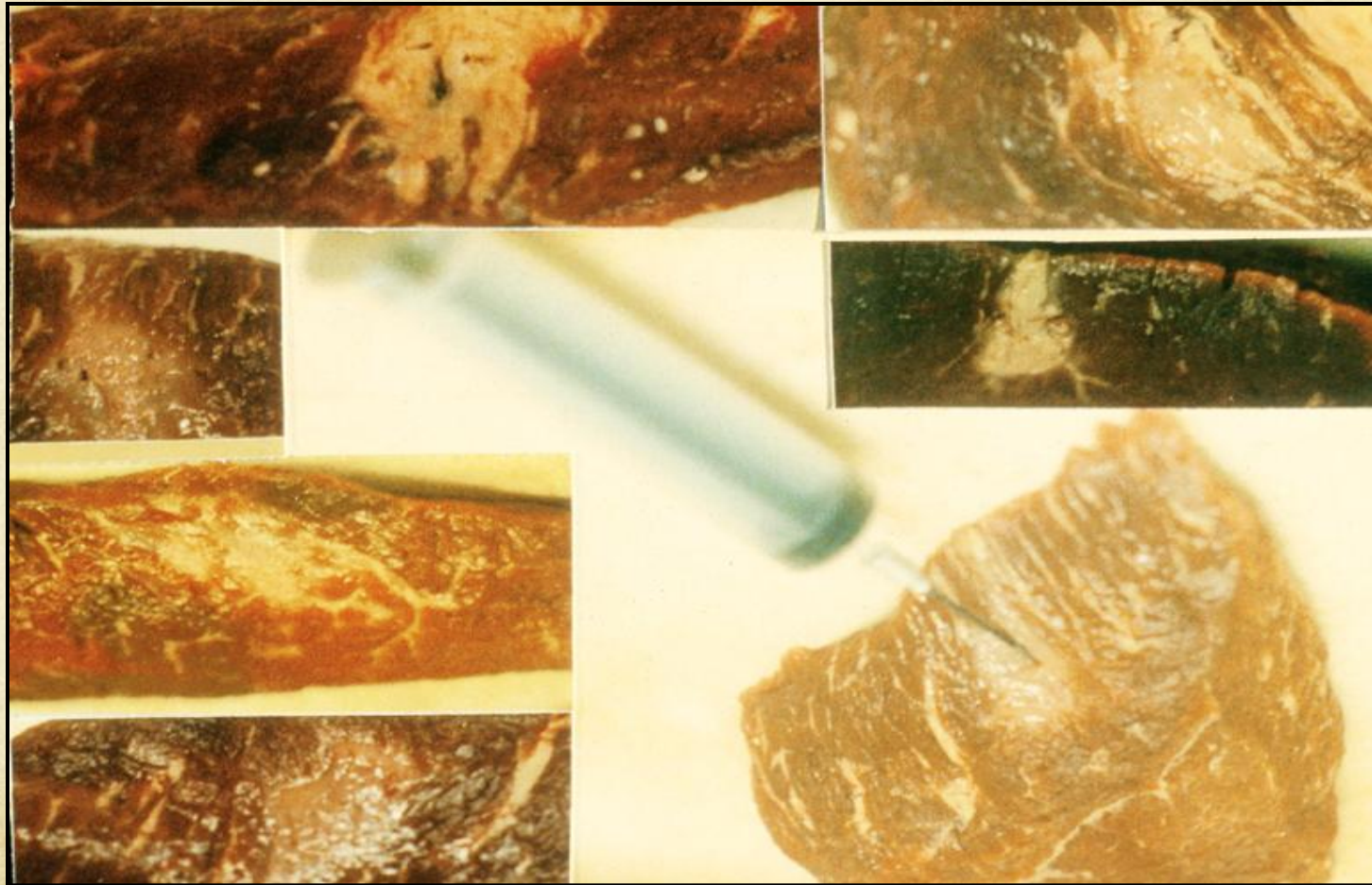
STEEL'S MARKETS

0 201008 40909
COUNTRY STYLE SPARE RIB
SELL BY 05-23-95
NET WT. 5.08 lb
UNIT PRICE \$1.79
TOTAL \$8.99

SAFE HANDLING INSTRUCTIONS
THIS PRODUCT WAS PREPARED FROM INSPECTED AND PASSED MEAT AND/OR POULTRY. SOME FOOD PRODUCTS MAY CONTAIN BACTERIA THAT COULD CAUSE ILLNESS IF THE PRODUCT IS MISHANDLED OR COOKED IMPROPERLY. FOR YOUR PROTECTION, FOLLOW THESE SAFE HANDLING INSTRUCTIONS:
COOK THOROUGHLY
KEEP HOT FOODS HOT. RE-REFRIGERATE LEFTOVERS IN 2 HOURS.
KEEP REFRIGERATED OR FROZEN. THAW IN REFRIGERATOR OR MICROWAVE.
SEPARATE FROM OTHER MEAT AND POULTRY. SEPARATE FROM SURFACES.

DO NOT CONTACT AMERICAN C.P. INC.

**Injects given to a calf will form
scar tissue that will remain in the meat**



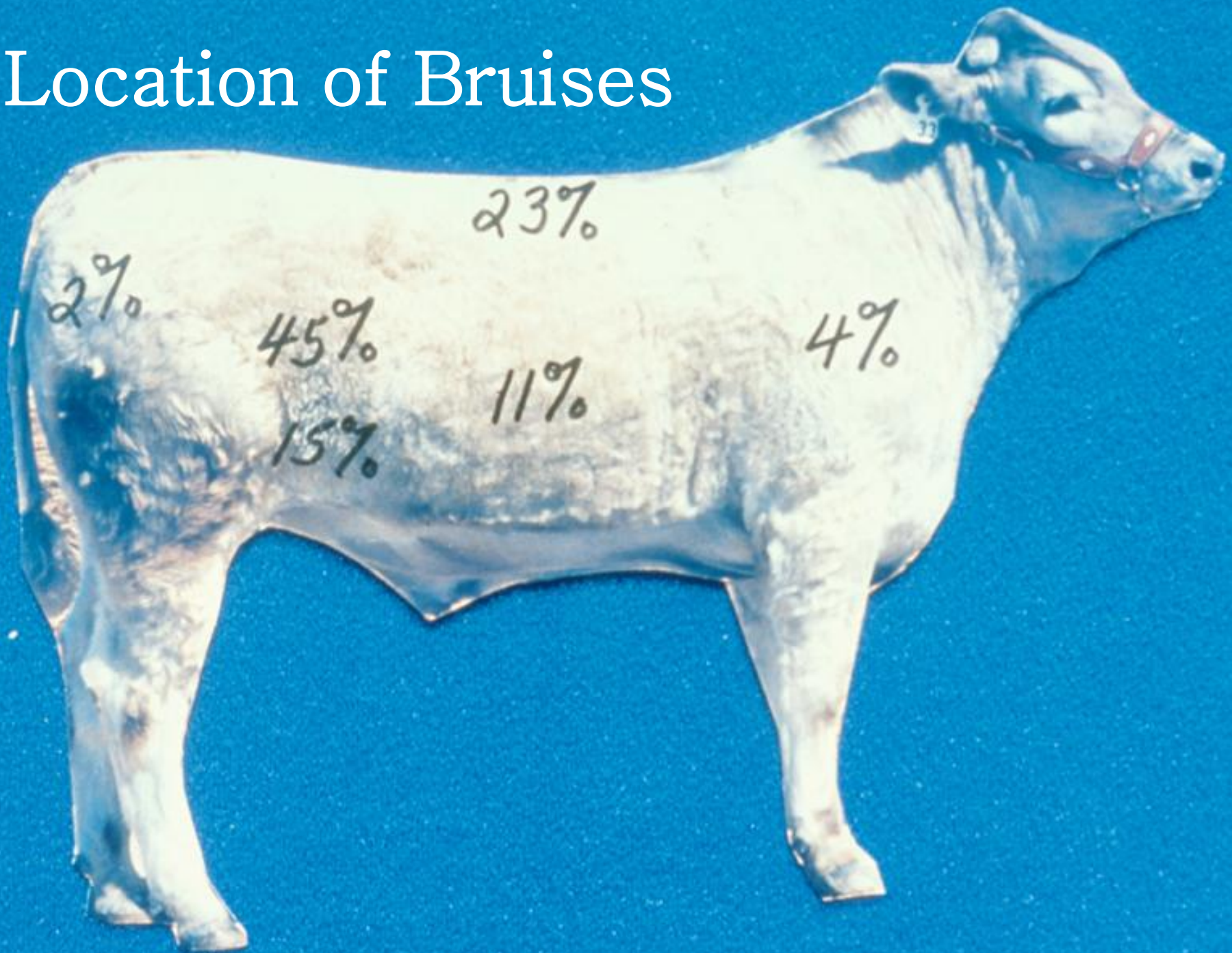


Bruise on a Cow Carcass

**Bruised meat
must be cut out
and cannot be
used for human
consumption**



Location of Bruises



**Padded
Edge on
Truck
Door**



**Rough
handling
doubles the
amount of
bruising**




**Protruding
metal angle
will cause
severe
bruises**





**Entire rear of
trailer opens to
prevent bruising
during unloading**

A close-up photograph of a metal railing. The railing consists of a vertical post and two horizontal bars. The metal appears to be galvanized steel. The edge of the horizontal bar is sharp and pointed. The background is a concrete wall and some greenery.

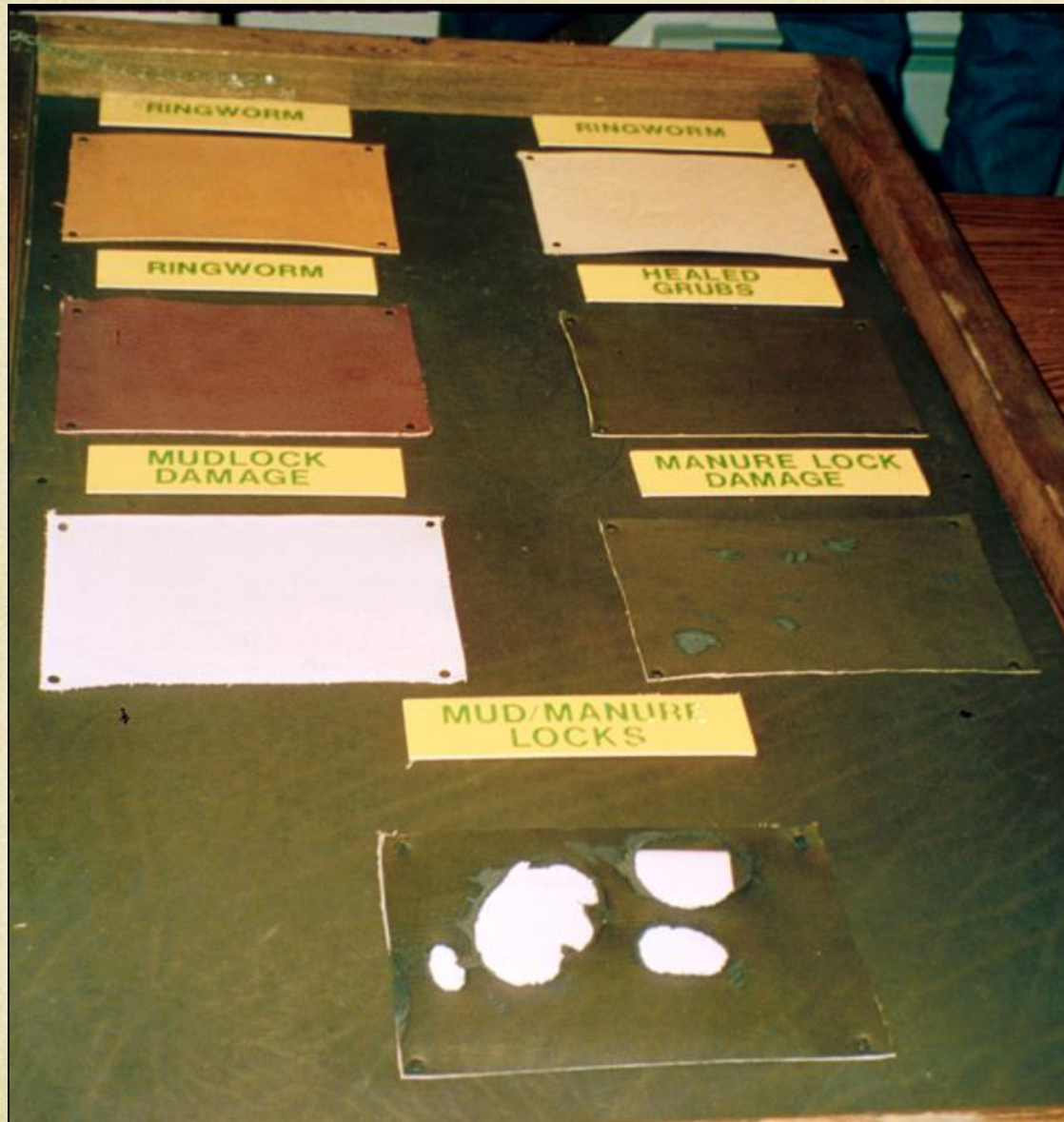
**Sharp edge
with a small
diameter will
cause bruises**



**Poorly
maintained
facilities will
increase
bruising and
injuries**

Cattle with no horns have less bruising





**Hide
damage
caused by
mud lice
and grubs**



**Calves branded on the ribs will
have extensive hide damage**



**Hide damage by a
stick with a nail in it**

Holding People Accountable For Losses Will Reduce Bruises And Improve Meat Quality



Increasing Concern About Animal Welfare Around The World

- **Restaurant chains and grocery stores audit suppliers on both animal welfare and food safety. U.S. welfare audits of meat plants started in 1999**
- **The O.I.E. World Organization for Animal Health has animal welfare guidelines published in 2008 in The Terrestrial Animal Health Code**
- **Europe has increasing strict animal welfare regulations for farm animals**
- **Cargill and JBS-Swift both started video auditing over the internet in 2010**

OIE (2008) Codes

Animal Welfare Cover

Slaughter and Transport

- Electric prods should be battery operated only
 - Electric prods should not be used on goats and sheep of any age or on calves and piglets
 - Conscious animals should not be thrown, dropped, or dragged
-

The Millennial Generation is
More Concerned About Where
Their Food Comes From

Students today are getting
further and further removed
from Agriculture

31% have never been on a farm

Nicholas Widmar, 2013
Purdue University

50% of young adults in
the UK failed to connect
pigs with bacon

Credit: LEAF, 2012

Survey of 1,000 U.S. Consumers

Question

Agree Disagree

Is housing pregnant sows in crates humane?	18%	64%
-----------------------------------------------	-----	-----

Oklahoma State Univ., 2007

The Legal Rights of Animals are Changing

Many Universities have courses in Animal Rights Law. The trend started early 2000.

THURSDAY, APRIL 25, 2002

THE WALL STREET JOURNAL.

*Is a Chimp a 'Person'
With a Legal Right
To a Lawyer in Court?*

* * *

Prof. Tribe of Harvard Allies
Himself With the Friends
Of 1,500 Captive Primates

By DAVID BANK

In her dog's best interest: Patti Dalby says her Rottweiler Guinness should not be removed from his companion Rottweiler, Roxie. Dalby's former boyfriend says Guinness should move to his new home in Montana.

By Richard Willing
USA TODAY

Courts across the country are being asked to treat pets as more than just property. Take Guinness, the Rottweiler at the center of a bitter custody dispute. What's best for him?

Brooks Brann and Patti Dalby, alas, are no longer a couple. But their dogs, Guinness and Roxie, are going strong, and therein lies the problem.

Guinness and Roxie, a neutered male and a spayed female, live happily in the backyard of the Newport Beach, Calif., home that their human companions shared until last year, when Brann moved to Montana. The Rottweilers, Dalby says, are gentle, playful and "absolutely devoted to one another" — the "model," she adds wistfully, for a committed relationship in any species.

So when a court meets in December to decide whether Brann can take Guinness, the case will seem more like a child custody dispute than a fight over property. In a procedure unheard of a few years ago but now increasingly common, Dalby will ask a judge to consider not just who has legal title to Guinness but where the dog would be better off living.

Guinness and Roxie are part of a growing movement that asks courts to abandon centuries of precedent and treat pets not as property or livestock but as something akin to humans. Critics say the movement could create chaos in the courts and send pet-care costs soaring if veterinarians are hit with a wave of malpractice suits.

**Cover
story**



Please see COVER STORY next page ►

Animal Welfare Gallup Poll

62% of the people in the United States believe that there should be strict laws protecting farm animals.

2003

Conversations with Airline Passengers about Animal Welfare

- ✓ One third had no opinion on sow gestation stalls.
- ✓ One third mildly opposed. "It does not seem right"... bothered by the sow not being able to turn around.
- ✓ One third very opposed to sow gestation stalls
- ✓ Most people stated that pigs housed in groups on a bare concrete slotted floor was acceptable.





**Sow gestation
stall pictures
used in survey**



Pig pictures used in survey



Survey of 1,000 U.S. Consumers

Question	Agree	Disagree
Farmers and food companies put their own profits ahead of treating animals humanely	64%	21%
Farm animals raised on small farms have a better life than those raised on corporate farms	69%	13%

Oklahoma State Univ., 2007

Survey of 1,000 U.S. Consumers

Question	Agree	Disagree
Is housing pregnant sows in crates humane?	18%	64%

Oklahoma State Univ., 2007

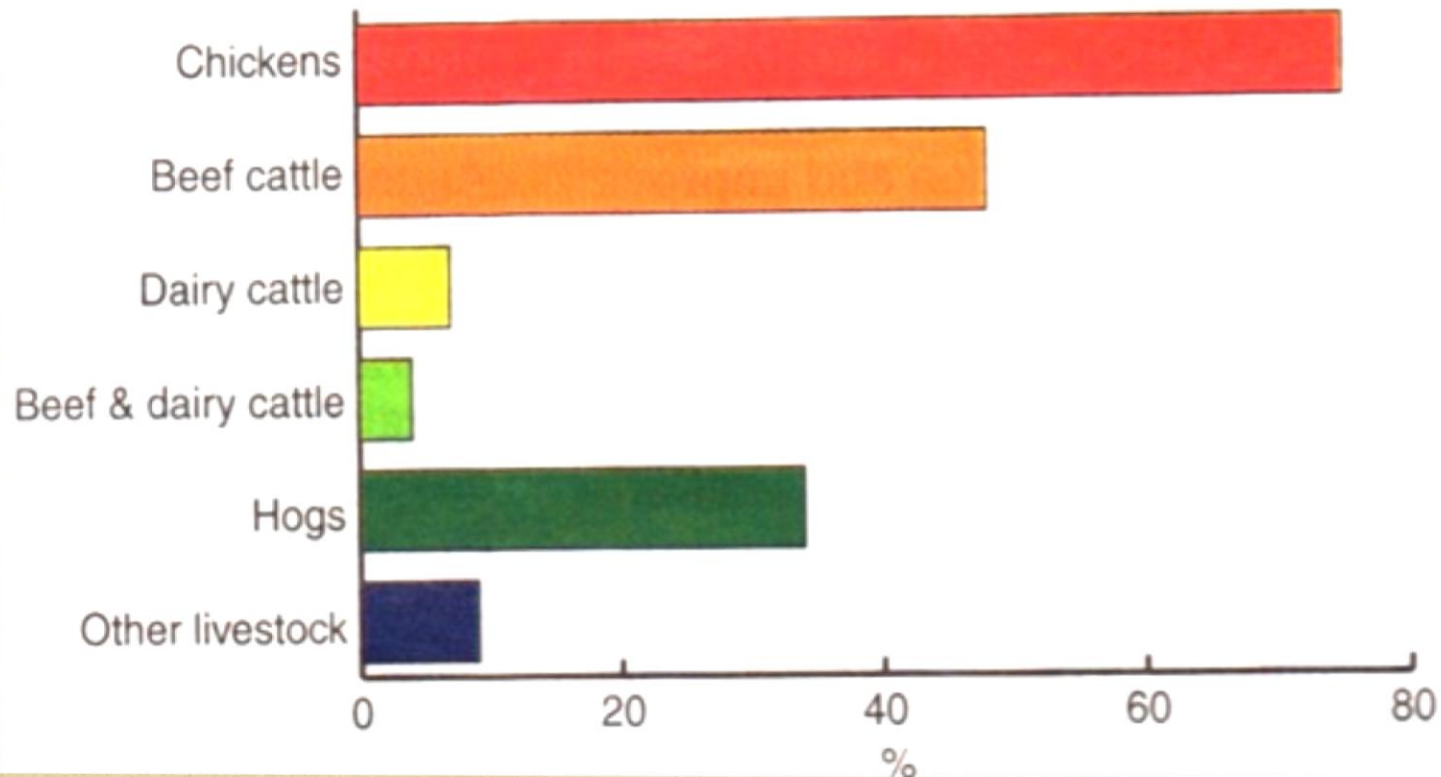
Texas A&M Study on Societal Attitudes on Animal Welfare Legislation

	Animal Activist	General Public	Livestock Producers
Veal Bill	94%	74%	53%
Downed Animal Act	93%	64%	48%
Poultry Slaughter Act	93%	50%	25%

General public attitudes are intermediate on support of animal welfare regulations

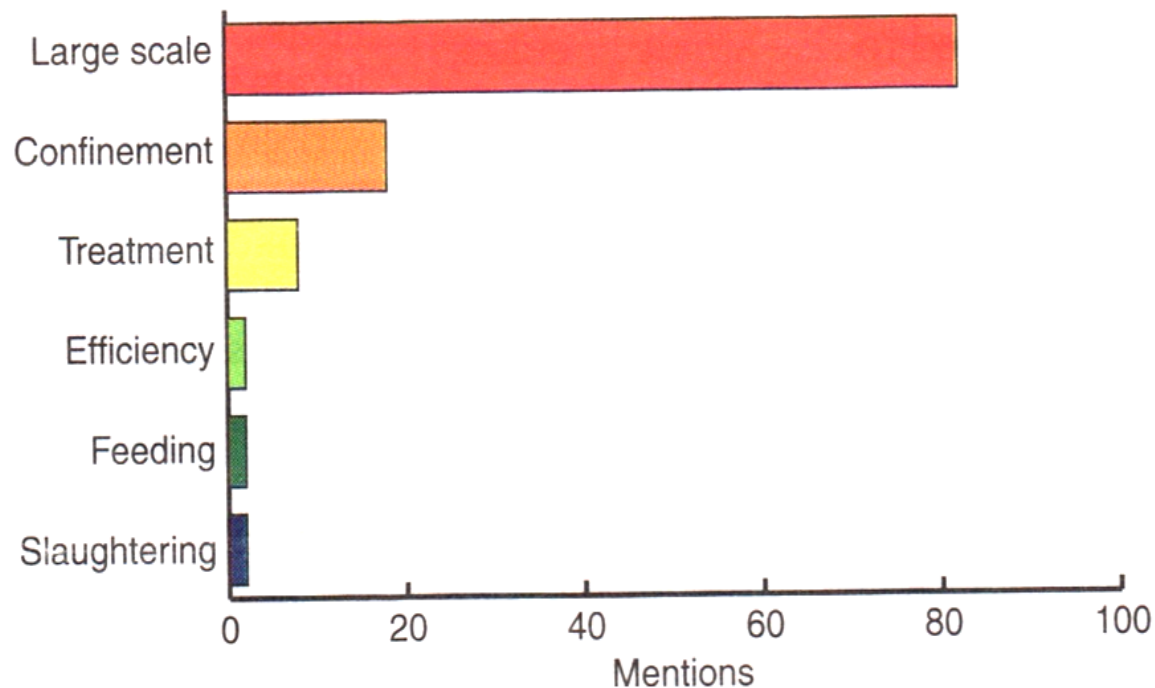
2009 Consumer Survey Cattlemen's Beef Board

1. Percentage of consumers associating livestock production with factory farming



2009 Consumer Survey

2. Practices consumers associate with factory farming



Source for Figures: **Cattlemen's Beef Board.**

Ohio Survey 2007

Consumer Willing to Pay More

Local	72%
Humane	59%
Organic	51%
Fair Trade	57%

The Five Freedoms

- Freedom from hunger and thirst
- Freedom from discomfort
- Freedom from pain, injury or disease
- Freedom to express normal behavior
- Freedom from fear or distress

Four Guiding Principles of Animal Welfare

-
- Maintain basic health (science based)
 - Prevent pain, fear, and distress (science based)
 - Animals can perform natural behavior (science based)
 - Live in natural elements (ethical issue)
-

Dave Fraser, University of British Columbia

**Health is Essential for
Welfare but Health
Alone is not
Sufficient for Good
Animal Welfare**

Organic and Natural Health Welfare Issues

- Poor producers may not treat sick animals that need antibiotics
 - Poor managers may not be able to control lice or parasites
 - Good managers select animals that are more hardy and less susceptible to disease and parasites
 - Good organic management of disease emphasizes prevention and not treatment
-

Chickens and Rats Self Medicate with Pain Killers

- Artificially create an arthritic joint
 - Provide two feeders or water bowls
 - One contains a bitter tasting pain killer and the other contains plain feed or water
 - Animals choose the pain killer when the joint is inflamed and switch away from it as the joint heals
-

Colpaert et al., 2001

Animal Based Outcome Measures of Welfare to Maintain Health and Prevent Pain, Fear, and Distress

- Lameness
- Body Condition
- Lesions
- Handling Scoring
- Bruises
- Death Losses and Sickness
- Coat Condition – Organic

All items measured as a percentage of animals on the farm that are not in compliance

LAMENESS

23% of U.S. dairy cows are lame*

*** Lameness varies between dairy herds from 8 to 52%. Top 10% of dairies only 5% lame**

(Espejo et al., J. Dairy Science, 2006; Nigel Cook 2003, University of Wisconsin)



Scoring System for Animal Welfare Must be Simple

Score the Worst Leg on Dairy Cows

1. No hock lesions
 2. Hairless only
 3. Swelling smaller than baseball
 4. Swelling larger than baseball
-

Fulwider et al., 2007

Survey of 113 Freestall Dairies for Swollen Hocks

Best 20% of Farms
Farms

Worst 20% of

0%

9 to

24%





**High Death Losses May Occur in
Areas Where Dairy Bull Calves
Have Little Economic Value**

The Single Most Important Issue is Having an Animal that is Fit for Transport



OIE (2008) Welfare Code

Animals Unfit for Travel

- Sick, injured, weak, disabled or fatigued
 - Unable to stand unaided or bear weight on each leg
 - Blind in both eyes
 - Cannot be moved without causing additional suffering
 - Newborn with unhealed naval
-

OIE (2008) Welfare Codes

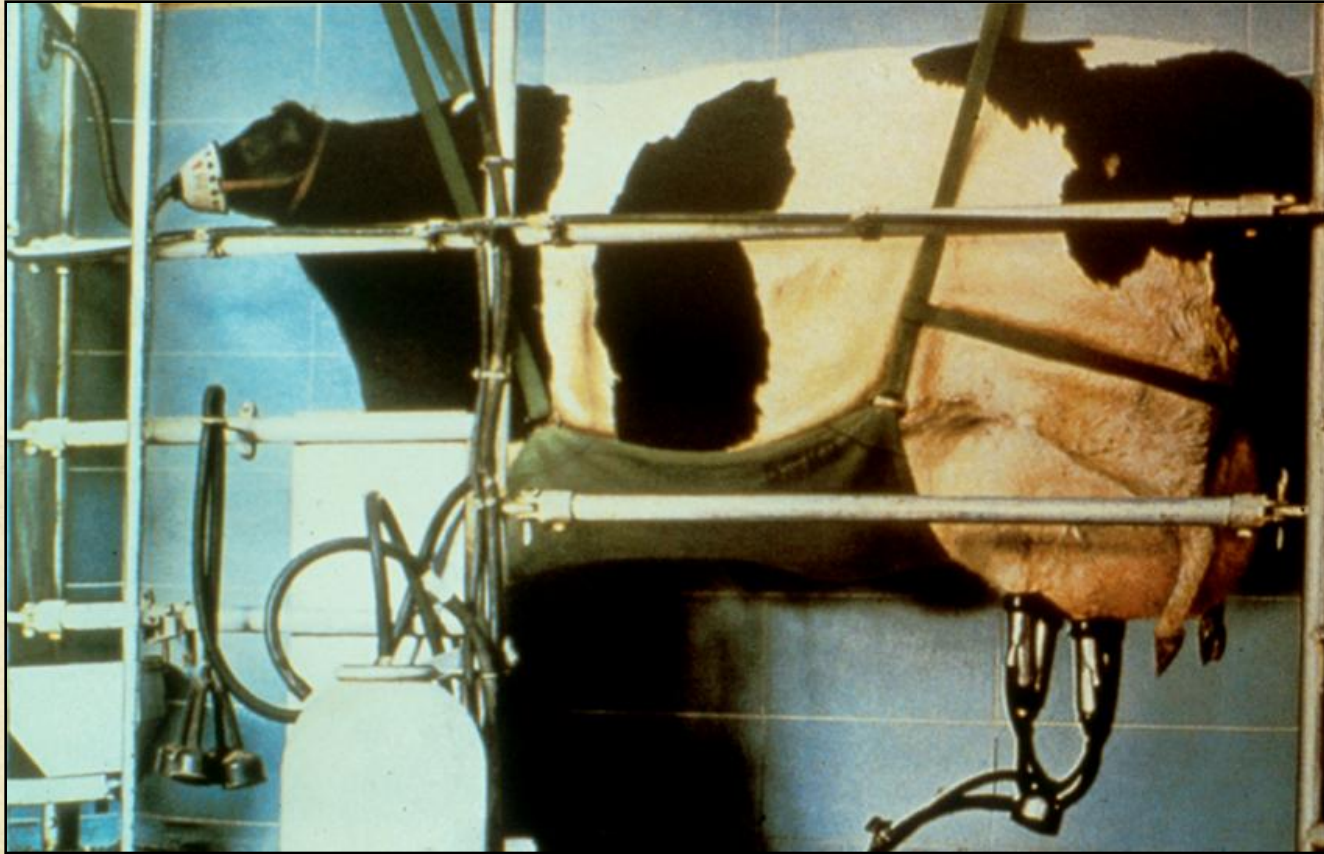
Animals Unfit to Travel

- Females traveling without young which have given birth within previous 48 hours
 - Pregnant animals in final 10% of gestation at unloading
 - Those whose body condition would result in poor welfare because of expected climatic conditions (land only)
 - Animals with unhealed wounds from recent surgical procedures such as dehorning (sea only)
-

*Select
Breeding
Stock with
Sound Feet
and Legs.*



Pushing animals past their biological limits can cause major animal welfare problems



Dr. Michael Fox, HSUS

Welfare Standards for Surgical Procedures Vary Greatly

- Some procedures are banned in some countries or programs. Examples: Tail docking cows and pigs
 - Research studies clearly show that anesthetics and analgesics should be used for dehorning
 - Do procedures at a young age
-

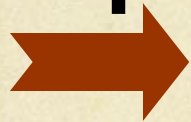
Examples of Behavioral Needs


- Be able to turn around
 - Roughage feed for ruminants
 - Appetite drive problems in sows and broiler breeders genetically selected for rapid growth
 - Instinctual hardwired behavioral needs such as a hen seeking a secluded nest box
 - Straw or other material for animals to manipulate
-

How to Measure the Motivation to Perform a Certain Behavior

- Number of times an animal will push a lever to get what it wants

- Amount of weight it will lift to open a door to get what it wants:

 The motivation of a hen to lay her egg in a secluded nest box is equal to 30 hours off feed

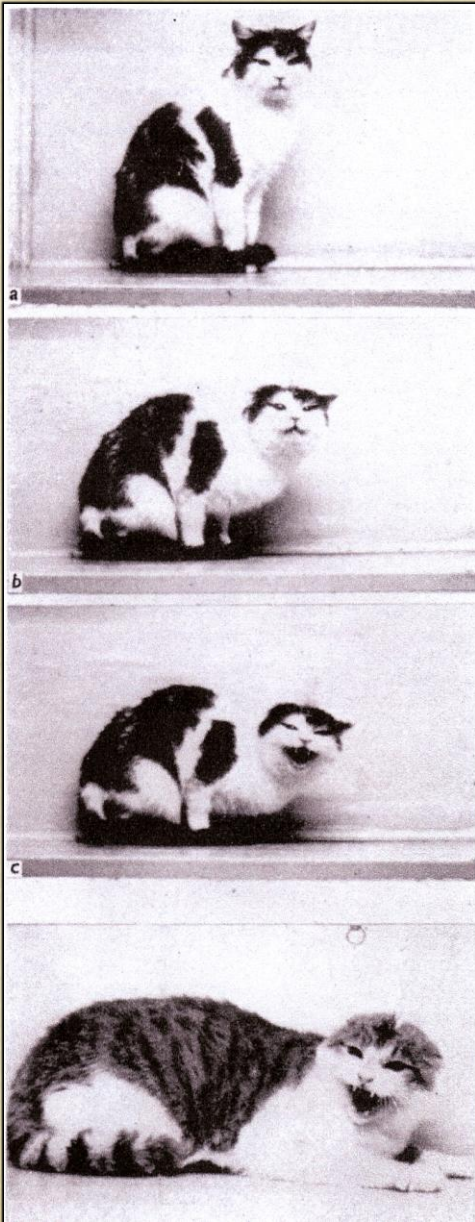
 The motivation to dust bath is much lower

Core Emotions: Subcortical Brain Systems are the Driver's Behavior

- Fear – Amygdala
 - Rage – Hypothalamus
 - Panic/Separation Anxiety – Periaqueductal area of brain stem
 - Seeking – Nucleus accumbens
-

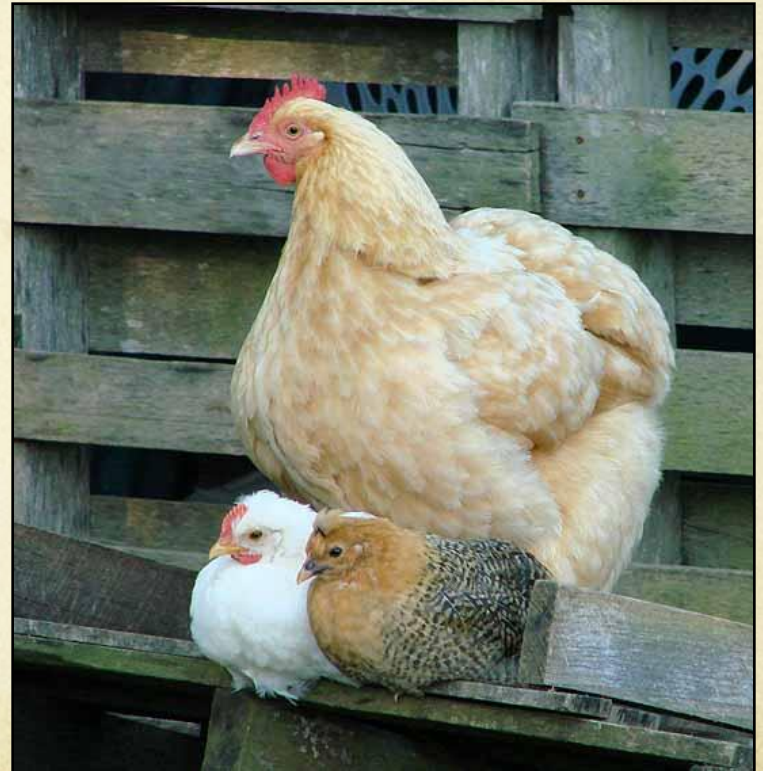
Jaak Panksepp, 1998

**Aggression and rage
occur when the
hypothalamus is
electrically stimulated
(Hess, 1957; Bard, 1928)**



Gerbils and Hens Need

Hiding places to keep fear turned off



J.M. Faure in France Studied Two Core Emotions That Have a Genetic Basis

- Fearfulness
- Panic – Separation Anxiety

Faure called it *Social Reinstatement*

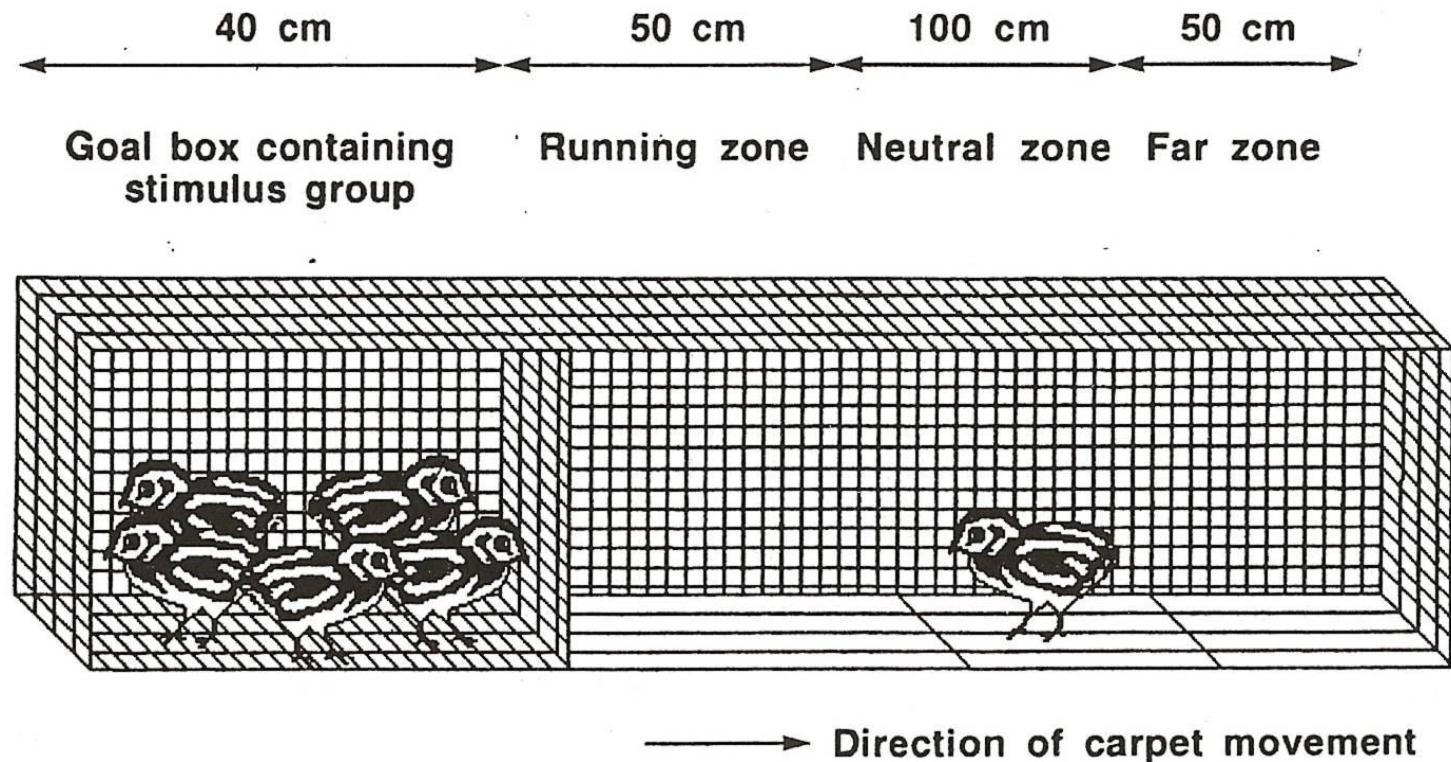


FIGURE 8.1 Schematic plan of the treadmill apparatus-used to measure social reinstatement behavior in Japanese quail chicks.

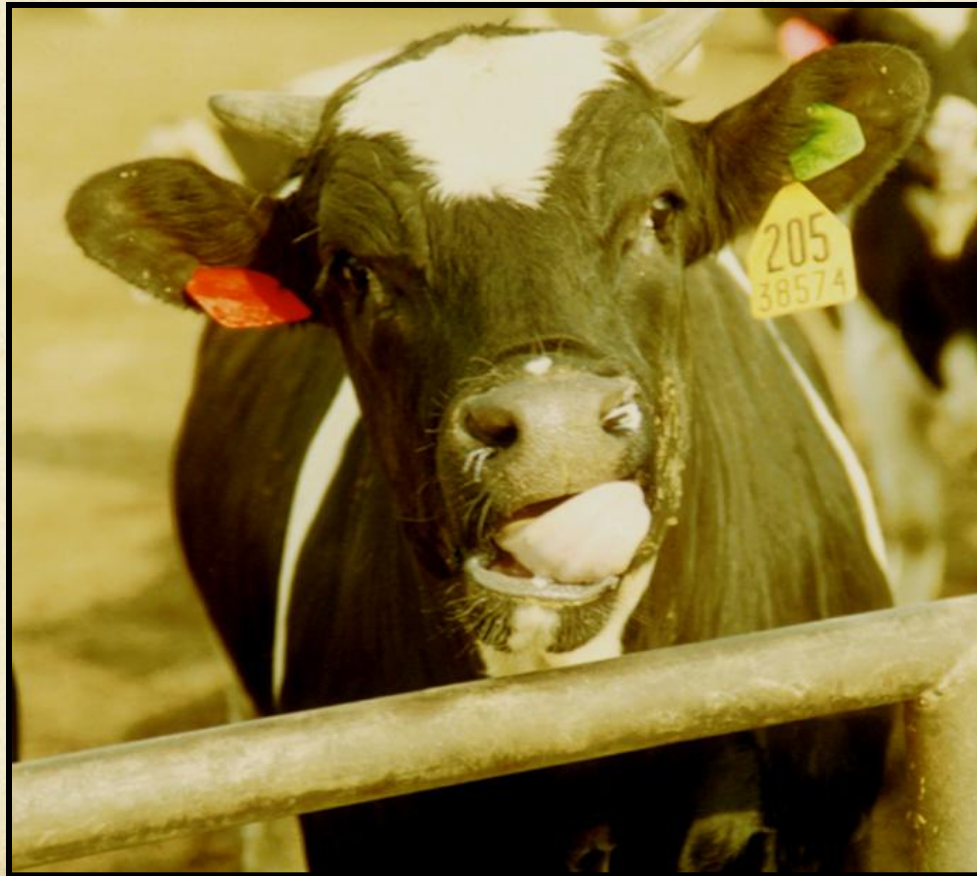
Apparatus for Measuring Strength of Separation Anxiety Emotion

Four Separate Genetic Lines of Quail

1. High Fear, High Panic, Separation Anxiety (natural type)
2. High Fear, Low Panic
3. Low Fear, High Panic
4. Low Fear, Low Panic



Tongue rolling in a Holstein steer genetics may be a factor





Animals in a barren environment often perform stereotypies such as pacing

Housing For Sows:

Two Animal Welfare Issues



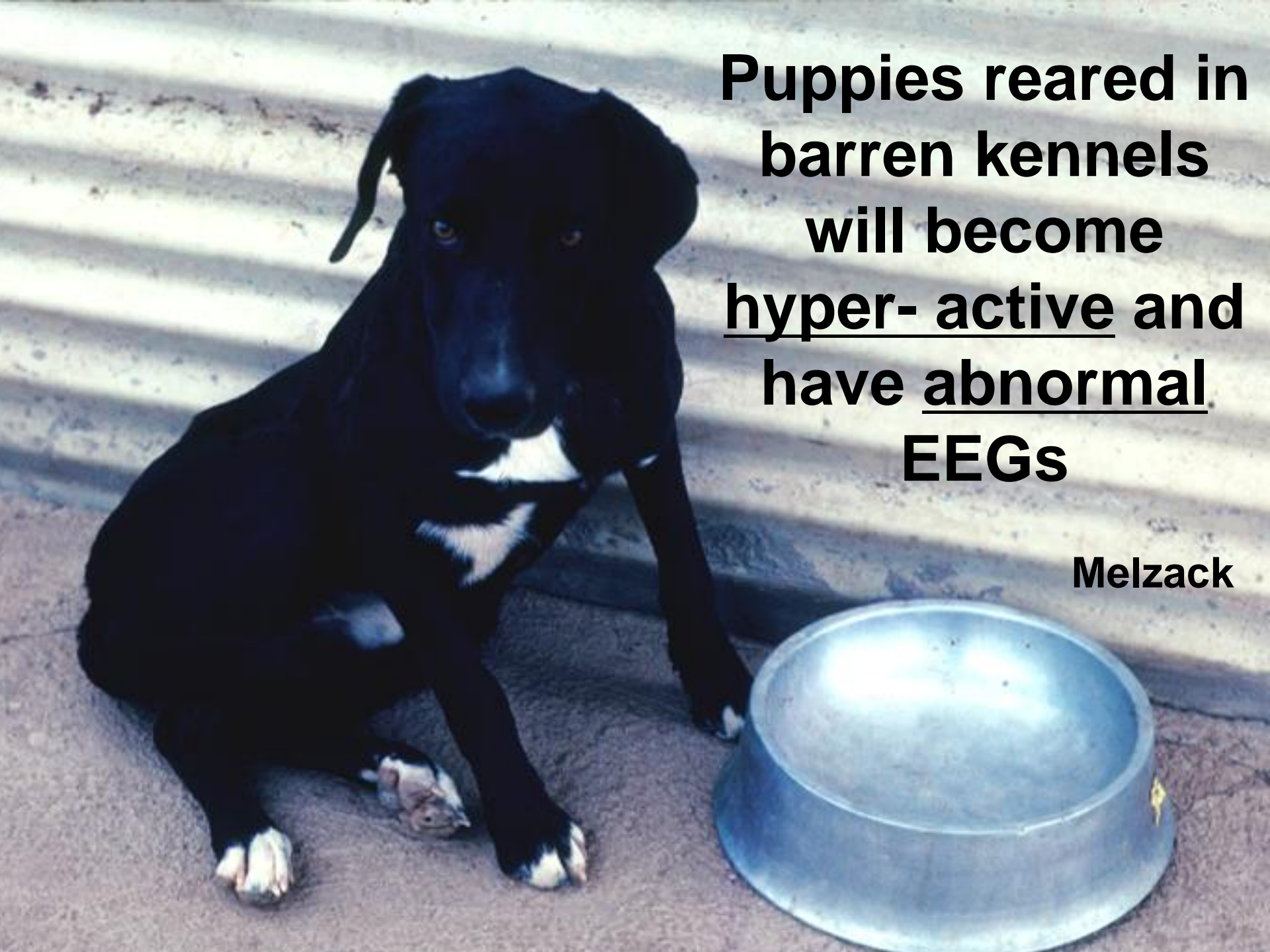
1. Restriction of movement
2. Lack of roughages to manipulate and eat



Bar biting in a sow

**Providing roughages to eat will
reduce abnormal behavior**



A black puppy with white markings on its chest and paws is sitting on a concrete surface. To its right is an empty, shiny metal food bowl. The puppy is looking directly at the camera. The background shows shadows from a building or fence.


**Puppies reared in
barren kennels
will become
hyper- active and
have abnormal
EEGs**

Melzack



**Rats reared in
barren cages
required more
anesthetic than rats
reared in cages with
many objects to
manipulate**

Dept. of Psychology
University of Illinois

A dark-colored horse is shown in profile, performing a cribbing behavior. The horse's head is raised, and its mouth is clamped onto a thick, light-colored wooden post. The horse is wearing a dark halter with a metal bell. The background shows a wooden structure, possibly a stall or part of a barn, with a corrugated metal roof. The lighting is bright, suggesting an outdoor or well-lit indoor environment.

Cribbing should be prevented from starting. Difficult to stop after it is established

Pig prefer soft objects to chew on. Measured with switches connected to a counter



Grandin, 1989

Environmental Enrichment Reduces Fearfulness and Startle Response in Piglets

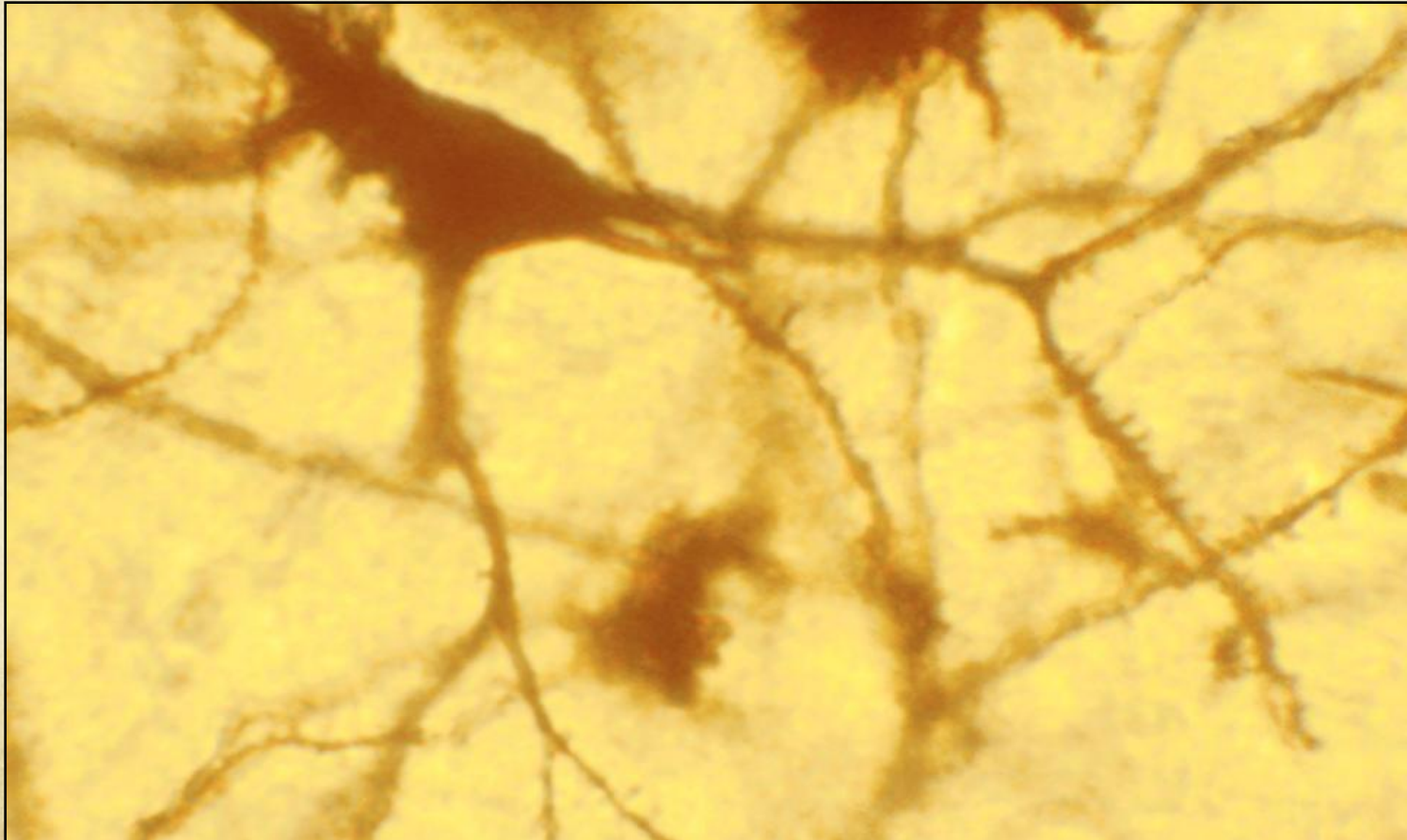
Excitability Ratings by Observer Blind to Treatment

Control	Daily Petting	Cloth Strips	Both
3.85	2.0	2.85	1.17

$P < 0.03$

Grandin, 1989

Piglets raised in barren pens grew abnormal dendrites in their somatosensory cortex because they rubbed their noses in the middle of the night



Pigs raised in barren pens were more excitable and startled more easily





Pigs reared in enriched pens were calmer

Providing Natural Elements – Pigs Reared Outside Spend Hours Rooting and Chewing





Pigs housed on straw

**Living outside is nice
during fair weather**



**In the winter time the pigs
may have better welfare
inside a building**



Nature is Harsh



**A modern slaughter would be preferable
to being eaten alive by a predator**

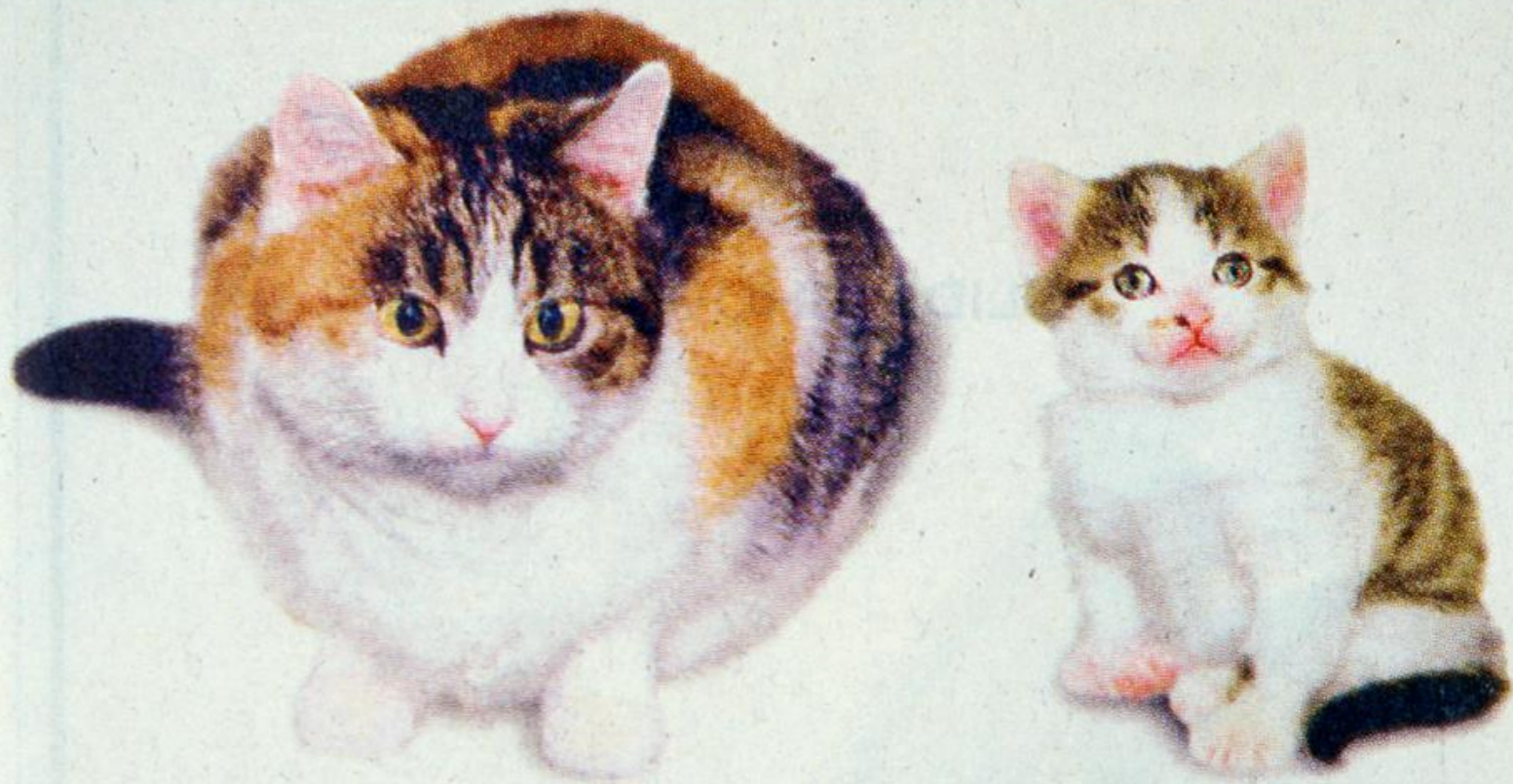


Does a pig need a mud hole?



- Science provides data to help people make good ethical decisions
- Ethics is especially important with animals of little economic value
- Some ethical decisions cannot be based on science

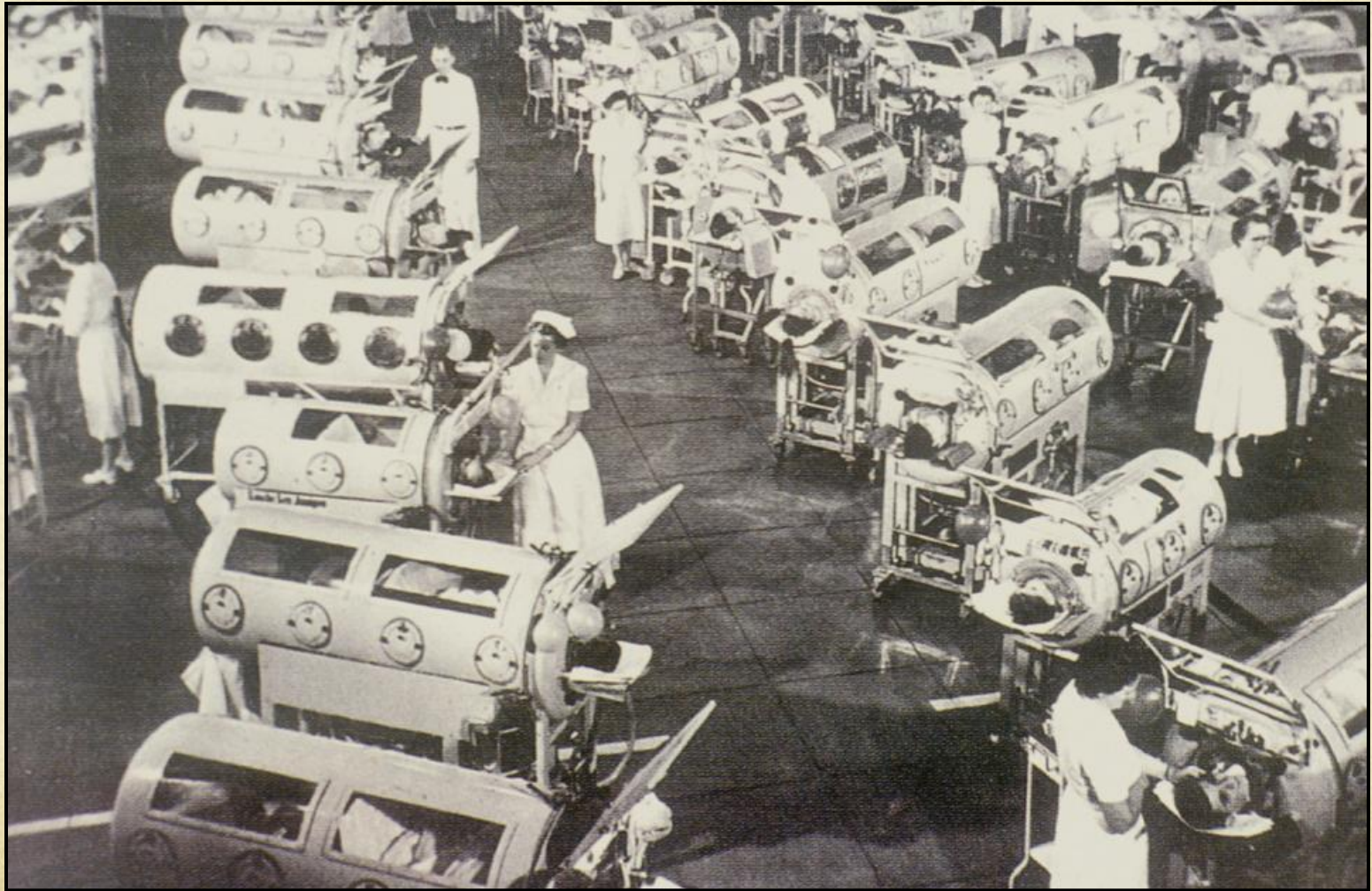
Forever? With Cloning, Kitty



College of Veterinary Medicine, Texas A&M University

Ushering in pet cloning are donor, Rainbow, left, and offspring, cc.

What Are These????



www.grandin.com