

# Livestock Cloning Update

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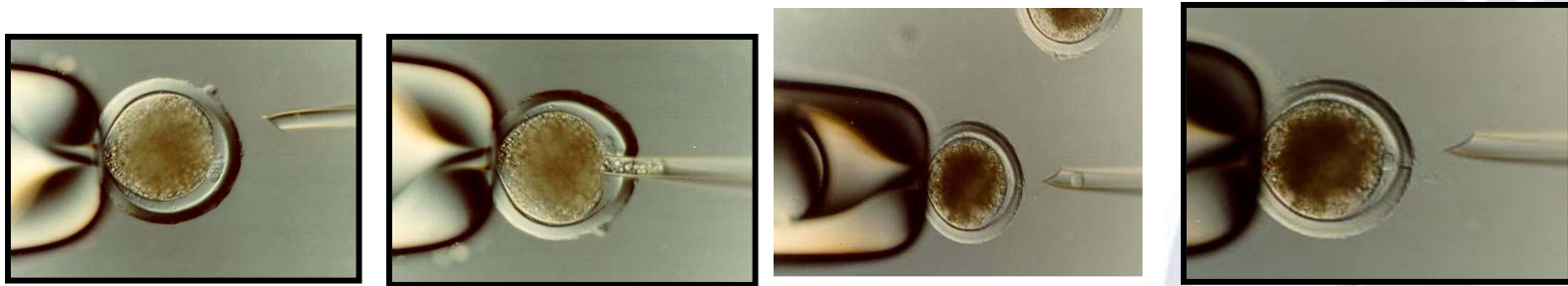
Biotechnology Industry Organization

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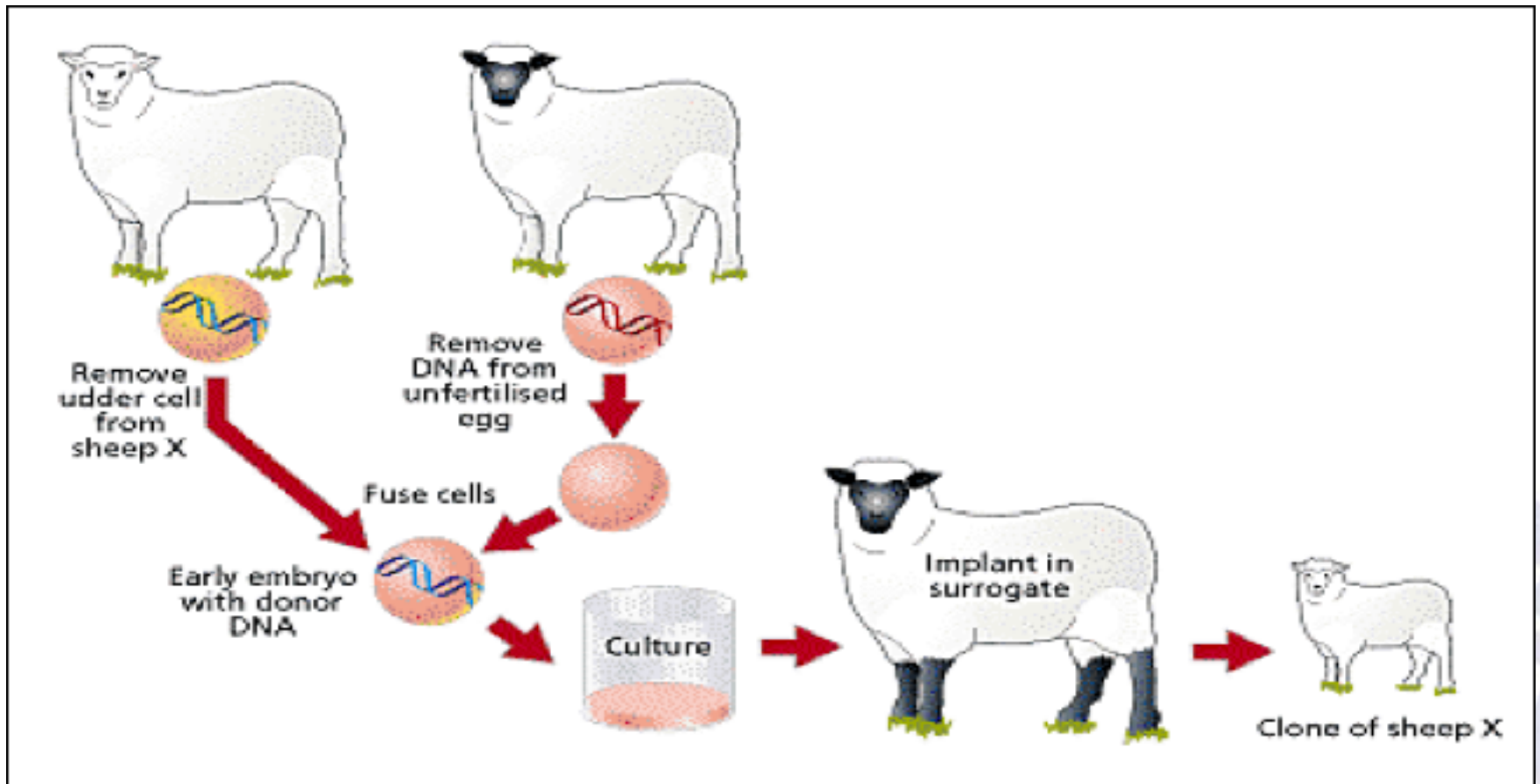


# What is Cloning?

- An **assisted reproductive technology** to breed an animal that is genetically identical to the single donor animal (identical twins separated in time).
- Offspring, which are not animal clones, will provide most of the food.



# The Cloning Process



# Animal Clones



**Elite, Genetically Identical  
Angus Clones**



# Benefits of Cloning

- The National Academies of Science:
  - Animal clones would have “increased genetic merit for increased food production, disease resistance, and reproductive efficiency.”
- Cloning helps to rapidly and reliably spread the best genetics throughout a herd
  - Meets demand for semen, embryos and/or offspring of best animals
  - Healthy animals produce healthy foods
  - Meets consumer demand for high-quality, safe food
  - Improve U.S. food supply and food exports

# Safety of Food from Animal Clones

## FDA Final Risk Assessment:

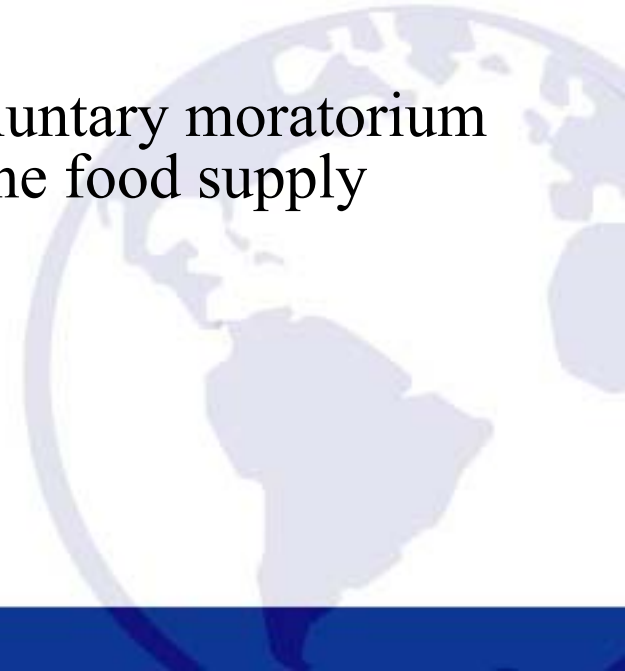
- Foods from livestock produced *via* cloning, and from their offspring, are as safe to eat as foods from conventionally-produced livestock
- No unique health risks for clones and their offspring compared to conventionally-produced livestock
- No labeling required
- No unique regulations required



# Safety of Food from Animal Clones

## USDA

- Facilitate the marketing of meat and milk from clones and their offspring;
- Will work closely with stakeholders to ensure a smooth and seamless transition;
- Encouraged industry to maintain their voluntary moratorium on sending food from animal clones into the food supply during the transition time.



# Animal Welfare

**Purpose:** To improve health and well-being of animals

- No unique health risks to animal cloning technology
- No more invasive than other accepted forms of assisted reproduction
- As healthy as animals bred through other accepted reproductive techniques
- More than 10 federal laws ensure public health and safety as animal cloning technology evolves



# Supply Chain Management Program

- Food industry coalition of over 20 groups
  - Allows tracking of cloned animals
  - Provides choice in the food supply
  - Beef, pork and dairy
- Not a safety or health program
- Allows potential marketing/purchasing claims
- December 2007, ViaGen and Transova Genetics announced the program; AgInfoLink will manage the registry

# Supply Chain Management Program

- Education and identification program
- Cloned animals only
- Specifics
  - Client education
  - Animal identification and registry
  - Affidavits
  - Marketing incentive



# Public Awareness

- Food industry initiated coalition:
  - Food retailer survey was conducted
  - Values a united effort by national organizations to take the lead on providing materials
- Consumer tool kit developed
- Materials at [www.clonesafety.org](http://www.clonesafety.org)



# Transition Period

- Smooth transition is the goal
- Educating international markets
- Initiating an economic analysis by Economic Research Service
- Discussions with stakeholders
- Supply Chain Management Program and working with USDA



# Transition Period

- Marketing of offspring may proceed so clones will begin to be used in breeding programs
  - Sexually produced offspring are not clones
  - Consumers will likely never eat food from a cloned animal
  - It will 3-5 years before offspring will contribute to the food supply
- Cloning technology will now be slowly adopted



# Transition Period

- Supply Chain Management Program is the core of the transition period
  - SCM allows for ‘no-clone’ food supply lines
  - Provides choice in the world’s food supply
  - Supports smooth trade transactions
- Cloning coalition will continue to work on SCM and on public awareness



# Reactions

- Media has been balanced with respect to acceptance by consumers; still continues to be misinformation
  - Example, “cloned food”
- Labeling is only possible through use of the SCM Program and for clones only
- Some are discussing why not label?



# Labeling 'Debate'

- A few food retailers are publicly stating they will not use food from clones in their products
- Activists spread misinformation and fear particularly about animal welfare, offspring
- FDA Labeling Policy: Product has changed:
  - Nutritionally
  - Health-related characteristics (allergenicity, toxicity, composition)



# International

- Several countries have risk assessments with same conclusions of safety-
  - EU (EFSA), France, NZ, AU, Japan
  - Canada and Argentina are initiating risk assessments
- Scientific groups providing guidelines-
  - International Embryo Transfer Society,
  - World Animal Health Organization (OIE)
  - Federation of Animal Science Societies



# Conclusions

- Cloning allows farmers and ranchers to produce healthier offspring for healthful meat and milk
- The science is clear, the technology is safe
- SCM has been implemented
- Cloning is being adopted slowly and will be entering the marketplace in the next few years



# Information Sources on Cloning

- **BIO**
  - <http://bio.org/foodag/>
- **Clone Safety**
  - [www.clonesafety.org](http://www.clonesafety.org)
- **FDA**
  - <http://www.fda.gov/cvm/CloneRiskAssessment.htm>
- **International Food Information Council (IFIC)**
  - <http://www.ific.org/research/biotechres.cfm>
- **University of Maryland Center for Food, Nutrition and Agricultural Policy (CFNAP)**
  - [http://cfnap.umd.edu/Topline\\_of\\_Animal\\_Cloning\\_121406.pdf](http://cfnap.umd.edu/Topline_of_Animal_Cloning_121406.pdf)