

Will Enhancements in Genetic Technology Change the Dairy Aisle?

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Overview

- What is cloning?
- How is it currently used?
- How is it currently regulated?
- What comes next?

This presentation is not legal advice.

What is Cloning?

Livestock Reproduction

A

Traditional Breeding

Natural mating
and selection

B

Assisted Reproductive Technology (ART)

Artificial insemination

In vitro fertilization

Embryo transfer

C

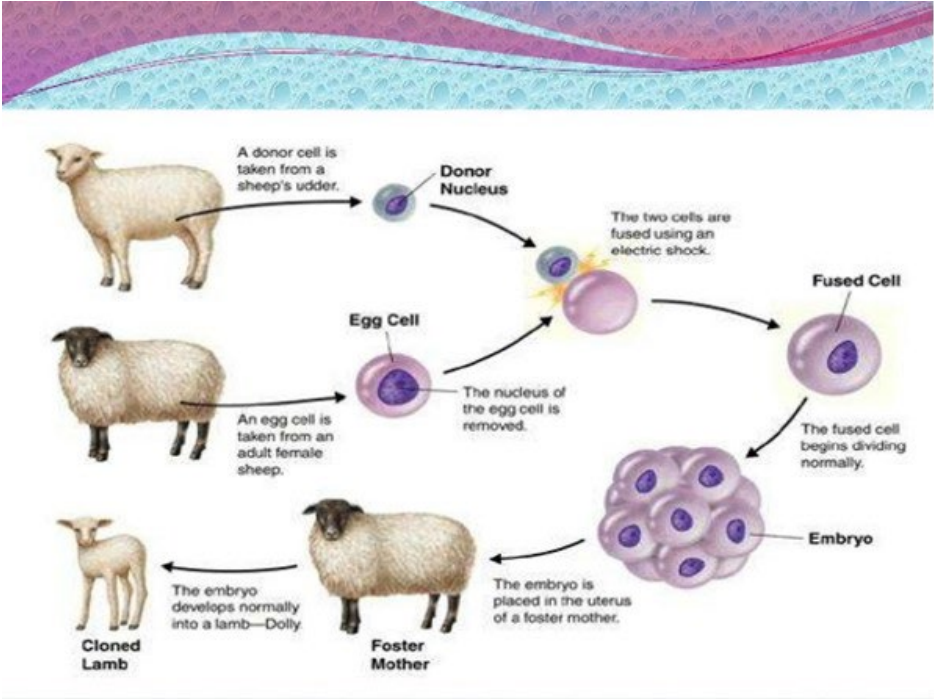
Cloning

Embryo splitting

Embryonic cell nuclear transfer
(ECNT)

Somatic cell nuclear transfer (SCNT)

SCNT Cloning Process

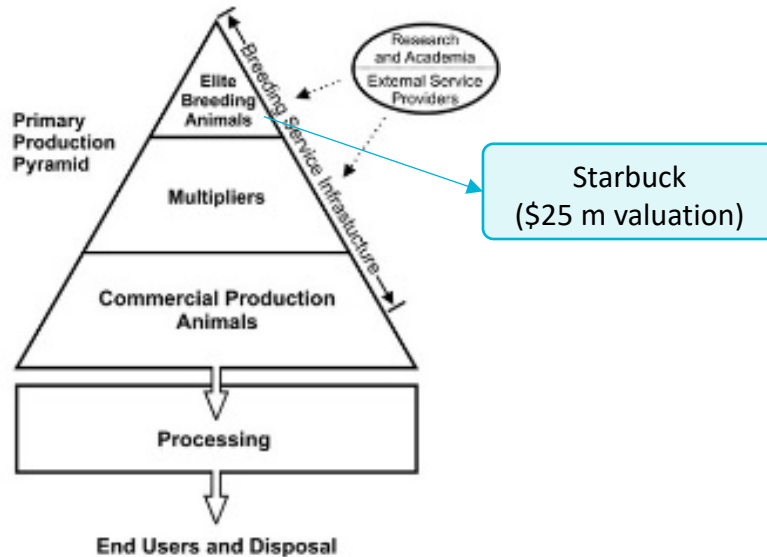


Source: Scientific opinion on the impact of SCNT cloning of cattle and swine on food and feed safety, animal health and the environment. Health Canada; November, 2023

How is it Currently Used?

Breeding

Idealised Breeding and Production Pyramid



Research and
gene-editing

Why clone/gene-edit?

- Disease resistance
- Suitability to climate
- Animal quality/performance
- Market preference (e.g. specific proteins)

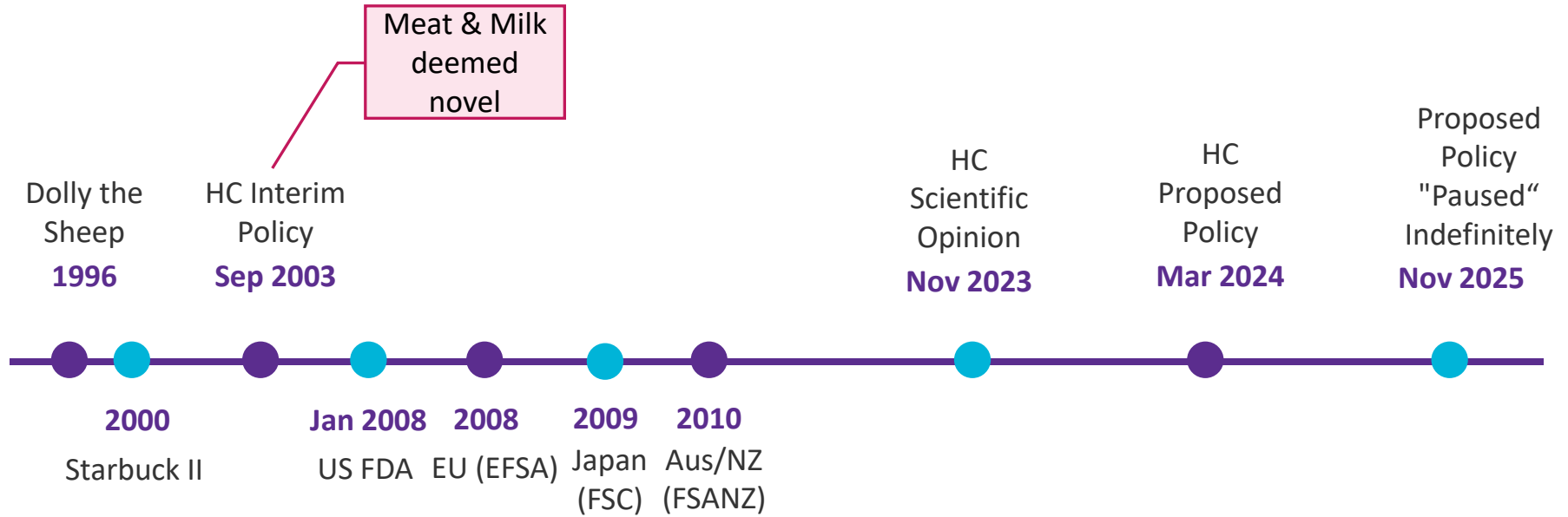
Source: Scientific opinion on the impact of SCNT cloning of cattle and swine on food and feed safety, animal health and the environment. Health Canada; November, 2023

How is it Currently Regulated?

In Canada – Novel Food

- Pre-market assessment required before any food product derived from a clone or clone offspring can be sold
- Currently no approvals in Canada for foods from cloned animals or their offspring
- No domestic food production or importing, including as ingredients in other food products
 - If a farm has a cloned cow or offspring, measures needed to segregate these animals and their derived products to prevent inadvertent sale

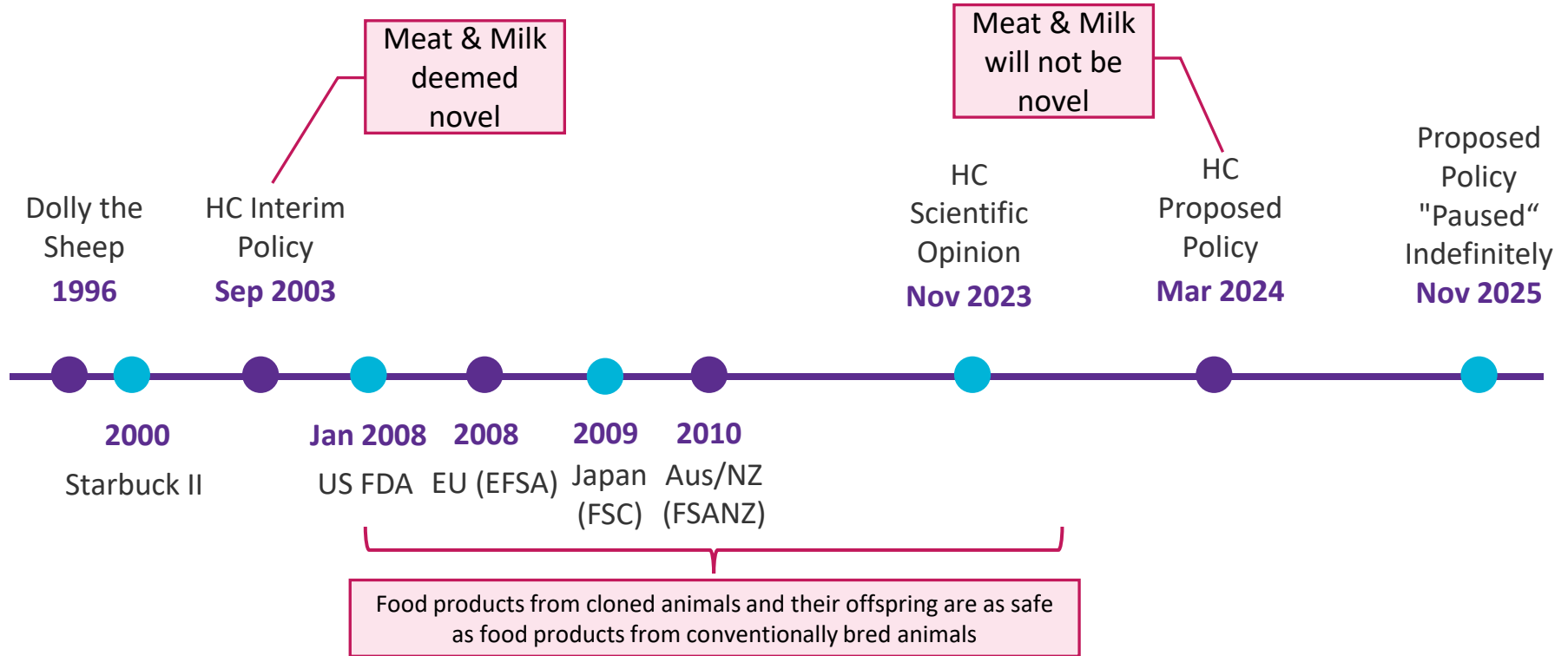
Regulatory Timeline



Food Directorate Interim Policy on Foods from Cloned Animals

*“Until more is known about the products of this technology, Health Canada will consider foods produced from livestock developed using SCNT and the progeny of such livestock to be captured under the definition of ‘**novel food**’ in the Food and Drug Regulations in that they have been obtained by a reproductive technology which has not previously been applied to generate animals that would be used to manufacture foods (meat, eggs, milk, etc.) and which may result in a **major change** in these foods.”*

Regulatory Timeline



Government of Canada

Scientific Opinion & Proposed Policy Update

Scientific Opinion:

“When considering their use as food or feed, available data indicates that there are no biologically significant differences in the composition of foods derived from healthy SCNT cattle and swine clones versus food from healthy animals produced through natural breeding and other ARTs.”

Proposed Policy Update:

“foods derived from SCNT cloned cattle and swine and their offspring would no longer be considered novel foods and as such would no longer be subject to pre-market notification under Division 28, Part B of the Food and Drug Regulations.”

Novel Food (FDR Part B Division 28)

"novel food"

means any of the following substances and foods, other than a supplemental ingredient or supplemented food:

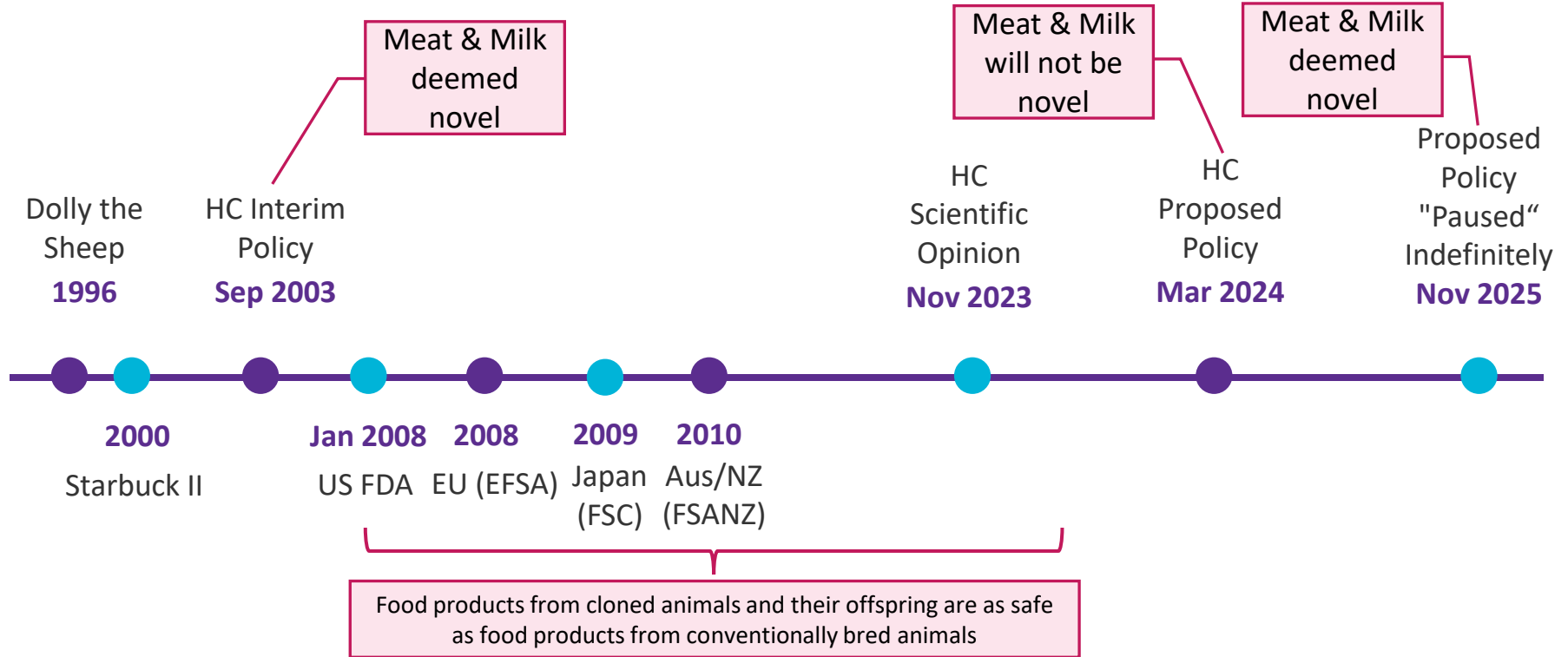
- (a) a substance, including a microorganism, that does not have a history of safe use as a food;
- (b) a food that has been manufactured, prepared, preserved or packaged by a process that (i) has not been previously applied to that food, and (ii) causes the food to undergo a major change; and**
- (c) a food that is derived from a plant, animal or microorganism that has been genetically modified such that...

"major change"

means, in respect of a food, a change in the food that, based on the manufacturer's experience or generally accepted nutritional or food science theory, places the modified food outside the accepted limits of natural variations for that food with regard to

- (a) the composition, structure or nutritional quality of the food or its generally recognized physiological effects;
- (b) the manner in which the food is metabolized in the body; or
- (c) the microbiological safety, the chemical safety or the safe use of the food.

Regulatory Timeline



Indefinite Pause

“The science underpins Health Canada’s conclusion that food products made from these animals and their progeny are as safe and nutritious as foods from traditionally bred animals. This is consistent with the interpretation of other trusted jurisdictions.

The Government of Canada has received significant input from both consumers and industry about the implications of this potential policy update. The Department has therefore indefinitely paused the policy update to provide time for further discussions and consideration.

*Until the policy is updated, **foods made from cloned cattle and swine will remain subject to the novel food assessment. There are currently no approved foods from cloned products on the market in Canada.***”

What Comes Next?

- Clones and their offspring
 - Novel food pre-market notification
 - Policy review?
- Gene-edited animals
 - Novel food pre-market notification
- “The Labelling Debate”

Case study: PRRSV-Resistant Pigs

- Novel food application submitted **December 2023** for Health Canada approval of genetically-edited pigs
- LONO approving PRRSV-resistant pigs published **January 23, 2026**

“Health Canada is of the opinion that foods derived from PRRSV-R pigs are as safe and nutritious as foods from currently available pigs.”

“In Canada, food labelling is required when there are well-established health risks or significant changes to the nutritional qualities... Because Health Canada found no health and safety concerns, no special labelling is required for foods from these PRRSV-resistant pigs.”

PRRSV-R Pigs: Public Reaction

March 2026: Public campaign launched calling for mandatory labelling of gene-edited pigs and derived food products

Canadian Pork Council says it supports bids to gain public acceptance for pigs gene edited for resistance to PRRS, as some consumer and agriculture groups call for mandatory labelling.

“We know domestic and international consumers will want to educate themselves on this technology, but it is important to note there is no mechanism to track or segregate this product through supply chains,” the Canadian Pork Council said in a March 3 statement.

Given the challenges of labelling, the council said it supports work to gain public acceptance for pork from these gene edited pigs.

“Public opinion polls in Canada show that over 80 per cent of Canadians simply want to know where genetically engineered foods are,” Sharratt [coordinator with the Canadian Biotechnology Action Network] said. “It’s been 25 years now that genetically engineered foods have been on the market somewhere, and yet people still want labelling.”

René Roy, chair of the Canadian Pork Council and a pork producer based in Quebec, says he doesn’t think consumers want the genetically engineered pork on their plates. He says he will not breed PRRSV-resistant pigs on his own farm.

“We do not feel confident that the consumer, not only Canadians but also the rest of the world, would be comfortable buying the product. That’s how we’re feeling right now.”

*Source:
No way to segregate gene edited pigs Canadian Pork Council says as groups call for labeling. Canadian Cattlemen, March 3, 2026.
Group calls on Health Canada to make labels mandatory for gene-edited pork. Food in Canada, March 3, 2026.*

The Labelling Debate

- **Health Canada:** if there are no health and safety concerns, no special labelling is required
- **CFIA:** method of production claims can be made on voluntary basis
- Consumer transparency and “right to know”
- Practical considerations (e.g. product segregation)

So... will enhancements in genetic technology* change the dairy aisle?

Short term: probably not

Long term: likely, but the how is still unclear

** SCNT cloning and gene-editing*

Questions?

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