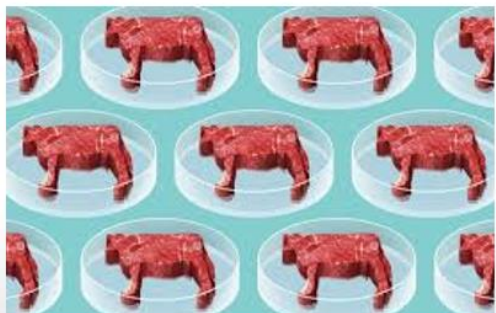


Edible-bovine-cell burgers, anyone?

Potential regulatory pathways for lab made meat in Canada



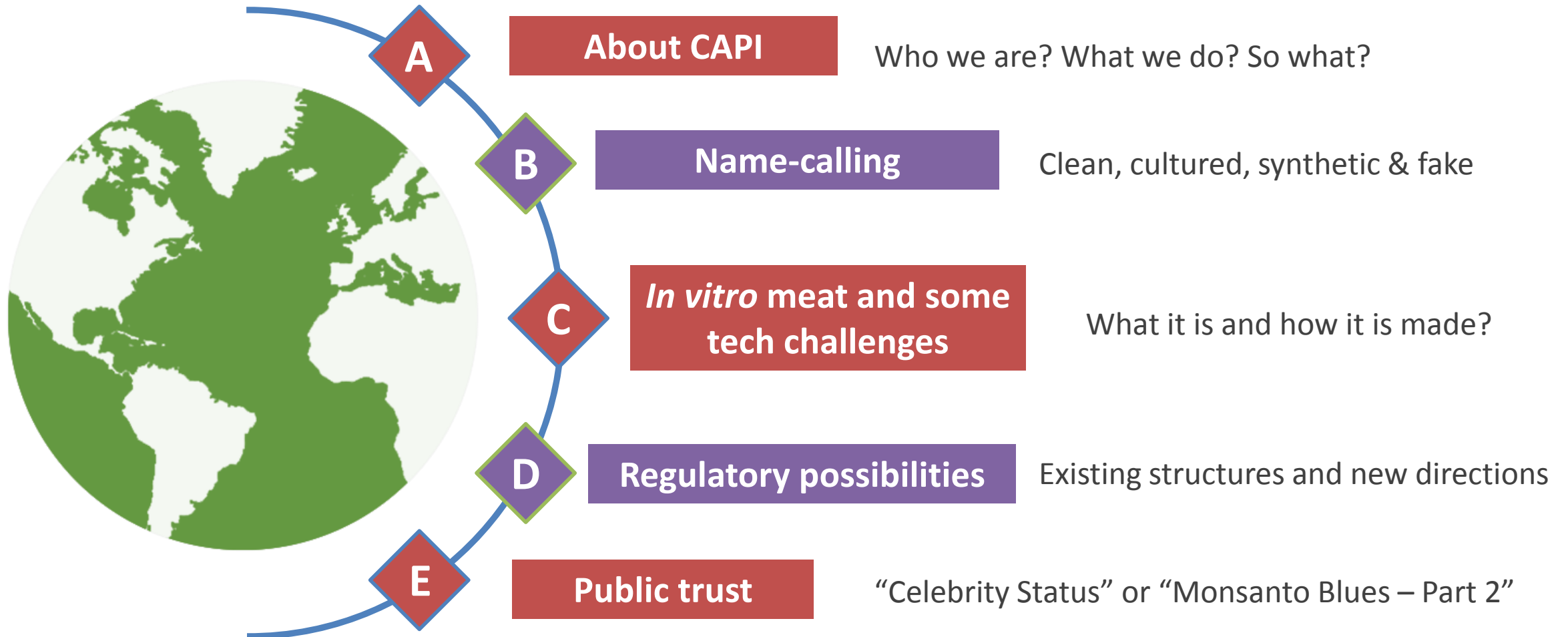
Dr. Don Buckingham, President and CEO of CAPI

Presentation to the CFA's
Committee on Lab Made Commodities
Quebec City, Quebec
Monday, July 15, 2019

My ag and food roots are showing ...



Overview of session



Who is CAPI?

- FORMED in 2004 as an independent, neutral agricultural policy think tank consolidating sound research and stimulating thinking about policy issues for a more viable Canadian agriculture and food sector
- VISION: providing global leadership in trusted sustainable agriculture and food systems that enhance the health, wealth and well-being of Canadians
- MISSION: leading, catalyzing and coordinating independent strategic and policy analysis on emerging agri-food issues, engaging stakeholders in dialogue, and advancing public policy

How do we operate?

- Core Professional Staff (in Ottawa)
- Board of Directors (with deep experience and expertise in all parts of the agri-food value chain)
- Advisory Committee (for general and specific value-chain insights)
- Full, Associate and Honourary Members (for particular insights)
- Leveraged Researchers (for academic and policy contributions)

Looking forward

- Concentrating our efforts under 4 primary and 1 cross-cutting pillars
 - * Enhancing Natural Capital
 - * Optimizing Growth
 - * Facilitating Trade
 - * Securing Public Trust
 - * Innovation and Uptake of Technology

- Channelling our policy research through:
 - * Promoting dialogue among agri-food stakeholders
 - * Synthesizing research and policy approaches
 - * Completing “gap” research

- An active, engaged, neutral think-network for agri-food

Name-calling – What is “meat”? What is “lab-made meat”?

Meat

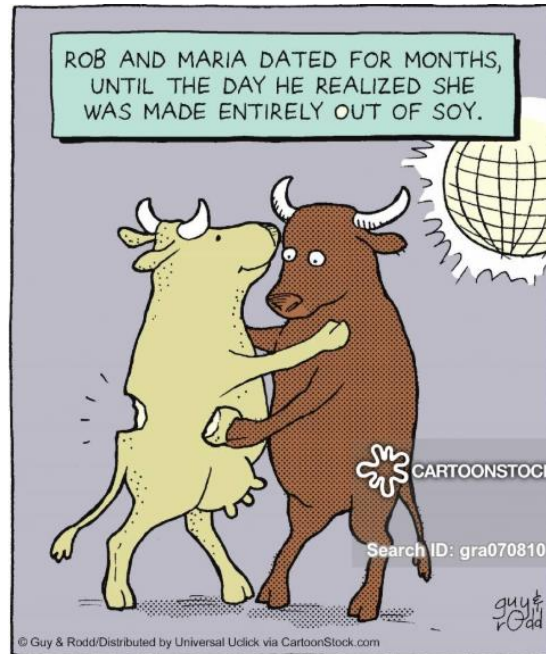
- *Oxford English Dictionary* – **“the flesh of an animal or bird eaten as food”**
- *(CAN) Food and Drug Regulations* – “the edible part of the skeletal muscle of an animal that was healthy at the time of slaughter” (s. 14.002)

Meat product

- *(CAN) Safe Food for Canadians Regulations* – “the carcass of a food animal, the blood of a food animal or a product or by-product of its carcass or any food that contains the blood of a food animal or a product or by-product of its carcass” (s. 1)

Lab made meat

- (also known as cultured meat, in vitro meat, synthetic meat, cellular meat, cell-cultured meat, clean meat, fake meat) – is it meat? (Plant-based “meats” are another story)



- **The players**
 - Conventional animal meat protein
 - Plant-based meat replacement protein
 - Cellular lab made meat protein

- **The current state of play**
 - Animal protein replacement market currently at less than 1% but growing
 - Strong social media, marketing and \$\$ push
 - No commercially-available lab made meat yet

- **The challenges**
 - Taste and price
 - Technological hurdles to scaling up
 - Regulatory environment
 - Consumer uptake

Lab-made meat – why it is a news and investment phenomenon



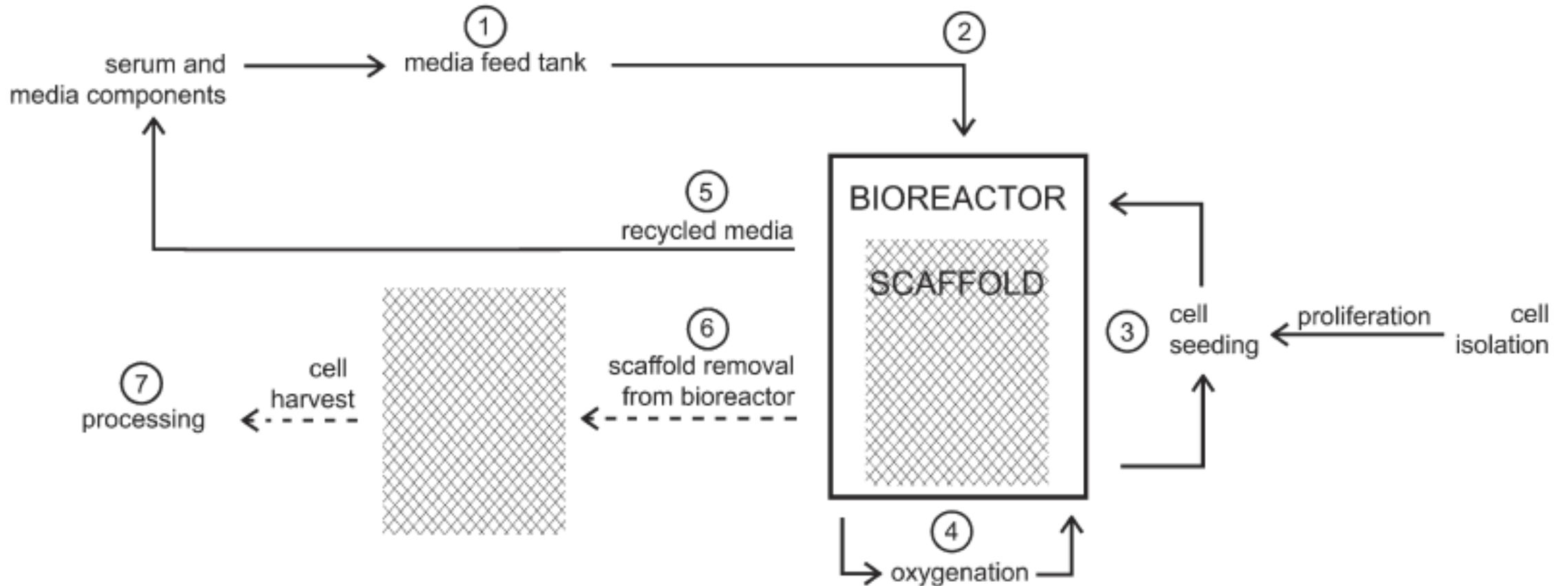
- Promises
 - Resolution of animal welfare issues
 - Elimination of GHG emissions and biodiversity benefits through displacement of conventional meat animals
 - Potential for designer health and nutrition outcomes for humans

Brewing up lab meat – what you need



- Starter cells
- A medium with nutrients
- An oxygenator
- A scaffold
- A bioreactor
- A collection system

Brewing up lab meat – it's a bit complicated!



Regulatory Possibilities in Canada



1. Current regulatory scheme is sufficient
 - Two avenues
 - lab made meat is “meat” like conventional meat
 - Lab made meat is a “novel” food
2. Regulatory scheme will need to create a new process for approval of lab made meat
3. At very least, regulatory amendments will be required



Future Meat Technologies
Animal Free, Earth Friendly



MEMPHIS
M E A T S



- Approvals of “Novel Foods”
 - No provision for animals yet in Canada
 - Adapting plant and microbial provisions
- What are the Americans doing?

Meeting the standard of “novel” food



- “Novel” because:
 - Lab made meat won’t be considered to fit definition of “meat”
 - Components of lab made meat are novel
 - Processes of lab made meat are novel
 - Lab made meat will rely on GM components

Ongoing Regulatory Structures for all Meat



- Licencing and inspection of production facilities
- Naming and labelling
- Instructions for use and post-purchase care of product
- Applying these rules to imports

Uptake of lab made meat and public/consumer trust



- Taste
- Cost
- Fulfillment of claims re:
 - GHG emissions
 - Safety
 - Health and nutrition
- Hype and investment
- The “GMO shadow”
- Push-back from conventional producers

How can CAPI help?

*Thanks for your
attention.*



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