Sound Check
The Future of Ag
The exponential evolution of the cell phone

1973 2002 2018
Thinking about the future

Having experience is no longer an advantage. It only means you are an expert in the past.
If the future is different than the past, how safe is your business?
Yesterday.
In ag-food, we need to think bigger

Google = $13 billion

Monsanto + Bayer = $1 billion

Source: 2017 Global Crop Symposium
In the next **three years**

I will be making technological **upgrades/changes**

- **46%** - To become more efficient in core productions
- **31%** - To manage business data/information
- **24%** - I will not be making any technology changes in the next three years
Tech **changes**
over the past year **by sector**
Why are you not adopting a new technology?

51% - High cost of advanced technologies

33% - Payback period on the technology is too long

27% - Investment not necessary for continuing operations

14% - I am unsure of how to compute the economic benefit
You don’t have to have the latest technology, but you will **compete** against those **who do**.
Artificial Intelligence and the Internet of Things
Ag is lagging in IOT applications

Source: 2017 ONE Alltech Conference, data from Agriweb
Key moments in AI’s timeline

1955
Artificial Intelligence (AI) is born

1960

1970

1980

WINTER
Key moments in AI’s timeline

- **1990**: WINTER
- **1999**: Aibo – The first consumer robot
- **2000**: Roomba – Robot that learns to navigate and clean houses
- **2002**: 2002
- **2014**: Alexa – Intelligent virtual assistant
Artificial intelligence will make our lives easier

Predicted market size of VR/AR software for different use cases in 2025*

- Enterprise and public sector: $16.1b
- Healthcare: $5.1b
- Engineering: $11.6b
- Real estate: $4.7b
- Retail: $2.6b
- Military: $1.6b
- Education: $1.4b
- Video entertainment: $0.7b
- Videogames: $3.2b
- Live events: $4.1b

Total: $35b

*base case scenario
2017 Goldman Sachs Global Investment
Move using left joystick
Look using right joystick or... just turn your head
Push “B” to start
Let’s talk about robots
Robots have shown remarkable advancements
Robots have shown remarkable advancements.
Driverless is here
Picking vegetables
Use infrared technology to manage disease
Autonomous will impact trucking and warehousing.
3D printing offers just-in-time delivery
Data
Data is the new oil.
Data isn’t about collection, it’s about connection.
Estimated Amount Of Data Generated By The Average Farm Per Day

Source: OnFarm. BI Intelligence Estimates. 2015
I have a deep seated mistrust of the digitalization of my farm information and so I avoid it as much as possible.

- Crop producer, Ontario
Data interpretation will be essential
We don’t need precision ag... we need decision ag
Blockchain changes the game on traceability and food safety
Advanced science
“Science will not tell you what your policy should be.”

John Butterworth, The Guardian
DNA testing will allow for targeted crop protection
Substitutes for milk and animal proteins are hot
Welcome to the Future of food
Snack Foods are the next food trend
Plant-based hamburgers solve market demand
Cultured meat is the solution for many economies
Pay attention to Culture and social norms
We are in an era of transformational change
“The answers are easy, it’s the questions that are difficult”

Dr. Suess
Who will the winners be?

- Artificial intelligence
- Connectivity and data
We have a responsibility to do more

“The 20\textsuperscript{th} century belonged to Canada. The 21\textsuperscript{st} century belongs to agriculture.”

The Honourable Lawrence MacAulay, Minister of Agriculture and Agri-Food
Canada is ready.
Are you ready?
There will always be a place for human labour
Canadian labour gap by sector

Source: CAHRC 2017
Canadian labour gap by region

Source: CAHRC 2017