2018 Western Canadian Wheat Grain Farming in Canada
What I Will Talk About

- Show you my farm
- How I choose the crops I grow
- The strong sustainability outcomes my farm delivers
  - Clean air
  - Clean water
  - Clean land
- What I am doing to deliver high quality safe wheat to you
  - Pesticide management
  - Harvest and storage practices
  - Limiting mycotoxins
  - Keep it Clean program

www.CanadianWheat.ca
This is a map of Canada. The red dots show the areas where wheat is grown in the country.

You can see that the majority of production is in the three western Prairie provinces. While there is significant production in the eastern regions, the majority of my presentation to you will be focused on the western growing region.
Map showing the location of my farm in relations to the rest of Western Canada.
How I make my Cropping Decisions
The key driver for my cropping decisions is profitability, which includes soil and plant health.

My farm is my business. Governments in Canada do not tell me what to grow or try to influence these decisions. My planting choices are made to ensure the long term economic and environmental sustainability of my operation. To ensure I stay in business and have a legacy to pass down to future generations.

“Profitability” is both a short term and long term question. In the short term I am looking at prices. If wheat prices are moving up I will increase my wheat. This is why you will see, in upcoming presentations, the rapid growth in canola hectares in Western Canada. It is a profitable crop. The revers it true too. If wheat is not profitable I will minimize the number of hectares sown to wheat.

Ultimately what you our customer is able to pay for my crops is a big reason why I choose to grow certain crops.

Long run sustainability also depends on keeping the soil and water healthy and minimizing plant diseases. This means I need to rotate the crops that I grow. I usually have a three year rotation of cereal crops, like wheat, canola and a pulse crop
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Factors that Influence
Crop Selection

3. Specific Variety Choices

- Price potential is a key driver along with yield potential.
- Disease and insect resistance along with other agronomic traits such as strong straw are important.
- Based on potential premium for quality, factors like protein content also come into play.

Canadian farmers have a strong reputation for producing high-quality nutritious wheat. This reputation is important to me because it helps ensure the profitability of my farm into the future.

Quality factors into the varieties I choose to grow. I choose to grow varieties that:

- Yield well
- Are resistant to disease and pests
- Have the combination of protein, gluten strength and end use functionality that customers are seeking
- Resistant to weathering, such as sprouting
- Have strong straw to allow for straight cut harvesting (more on this later)
Proud to be a Sustainable Producer
Modern Canadian agriculture has a very good story to tell on sustainability. I am proud of my record as a Canadian farmer.

Modern practices such as conservation tillage are increasing the health of my soils, reducing the amount of fuel I use and reducing soil and wind erosion. Precision agriculture, which uses satellites to precisely steer my equipment, maximizing the efficiency of crop inputs, further reducing fuel use and protecting water from nutrient run-off.

Modern plant breeding is giving me varieties that are maximizing nutrient use efficiency – giving us plants that produce more grain from less inputs.

To me sustainability means that the next generation of farmers to work my land will be given clean air, clean water and clean land and an environment that is healthier than when I started farming.

My farm is sustainable because of modern agricultural practices and modern crop inputs like fertilizers and pesticides. I need these tools if I am going to pass a healthy farm on to the next generation.
The trend in the efficiency of land use in the production of spring wheat is clearly seen in this chart which shows the changes over a period of 30 years.

Agronomic developments have led to substantial yield improvements, resulting in a much more effective and efficient use of the production land base. These are the yield improvements of spring wheat from 1981 to 2011.

Expressed per unit of spring wheat produced, land use efficiency has improved by 35%.
Improvements in energy use have also been dramatic.

Energy use in production of spring wheat decreased by 6% between 1981 and 2011, on a per hectare basis.

This is at the same time that energy per hectares is going down, production per hectare is going up. This takes us to the next chart which shows the energy use per tonne produced was reduced by 39% during the same time period.

The yield of spring wheat increased by 59% during this period. These trends suggest that further improvements can be expected.
The red line shows the actual energy use in the prairies since 1981. The purple line, which follows very closely, is the long term trend line.

Not only has the energy needed to produce a tonne of Canadian wheat dramatically gone down over time, the trend is telling us it will continue to go down over time.
I mentioned that soil organic matter is important to me. This is one key expression of the health of my soil.

This chart shows how the organic matter on the prairies is changing over time. Back in 1981, soil organic matter was being depleted. But modern agriculture – including new plant breeding techniques, precision agriculture, conservation tillage– has changed this picture dramatically. Organic matter in prairie soils is increasing every year.

What does this mean? Well it means my soil is healthier today than it was in 1981. It is more productive, it is less susceptible to wind and soil erosion and my farm is sequestering more and more carbon dioxide every year.

Modern agriculture means my land is healthier and more productive. Modern agriculture means I am delivering clean air and clean water. Modern agriculture means these measures are getting better every year. This is what sustainable means to me.
This is a map of the prairie growing region, showing the increases in organic matter each year. All of the green regions are showing significant increases in organic matter each year.

All of that organic matter is also sequestered carbon, demonstrating another way modern Canadian agriculture is helping reduce greenhouse gasses.
Reducing wind and water soil erosion is another measure of sustainability.

Again, modern Canadian agriculture is delivering on the goal of handing healthy land to future generations.

This map shows the very low incidence of soil erosion across the prairie growing region.

This picture was not always this way. The adoption of conservation tillage has meant that Canadian farmers are leading the way in the world regarding soil erosion losses. I am proud of this fact.

You can be as well, given the understanding that when you buy Canadian you are buying sustainable.
Delivering Quality Best Management Practices Minimizing Residues and Mycotoxins
As a farmer, I know that producing export quality wheat starts with planting the best seed and managing it carefully.

Modern pesticides, properly applied, help ensure that my crop has the opportunity to make the most efficient use of the water and nutrients available. This is one of the key tools that has allowed me to deliver on the sustainability promise that I have just outlined to you.

Canada’s science-based regulatory system is one of the strongest and most rigorous in the world. The Pest Management Regulatory Agency (part of Health Canada) employs over 350 scientists whose sole purpose is to conduct evaluations of new and existing products. A product must go through over 200 different health and environmental studies before approval is given for use.

“Science-based” is also the basic foundation of best management practices I follow on my farm. I only apply pesticides registered by the Government of Canada. I follow the rates and timing listed on the label to help ensure that the potential for residues is minimized.

The rigorous science-based Canadian process that generates the labels I follow gives me confidence in the safety of the grain I deliver to you.
Fusarium head blight (FHB) is becoming more prevalent in Western Canada, causing yield and quality losses.

Farmers across Canada have adopted best management practices that help minimize the potential for infection.

Best practices include:
• Regular scouting of fields to spot the infection as quickly as possible
• Use of resistant varieties
• Use of fungicides when appropriate
• Rotating crops to minimize disease pressure

I want to emphasize this last point. Good management of crop rotations helps me minimize disease, weed and pest pressures. Preventing disease or pests before they appear helps minimize the pesticides that I need to use. This is good because pesticides are expensive and I work to minimize their usage in order to increase the profitability of my farm.

Crop rotations that reduce weed pressure also help prevents buildup of herbicide resistant weeds and maximize nutrient use efficiency.
Harvest practices have changed considerably in the last 20 years.

One of the most important developments is harvesting by straight cutting the crop. In the past it was necessary cut the crop before harvest and let it mature in the swath. This made the kernels more susceptible to weathering and fungal infections that could damage quality.

Developments of new varieties and farming techniques have allowed most Western Canadian producers to move away from swathing and to harvesting the crop as it stands. This helps reduce weathering, critically important in difficult years like it was in 2016, and minimize the risk of infections that cause quality loss. The Canadian Grain Commission and Cigi will talks more about this later in the seminar.

Straight cut harvesting also helps reduce the amount of fuel and time I have to spend in the filed, allowing me to better time the harvest to maximize the quality potential of my crop.

I also need to mention the return of the organic matter to the filed in a way that allows it to decompose with minimal tillage. This is one of the reasons why we are
Canadian farmers have the capacity to store at least one crop on-farm. This storage is not in run down wooden sheds. Western Canadian on farm storage is very sophisticated. The storage on my farm today is more sophisticated than the corporate grain handling elevators of 20 and 30 years ago.

Individual bins on my farm have the capacity of 1,500 metric tonnes. All are equipped with aeration fans that help cool the grain after harvest and draw down moisture. Modern storage silos are sealed against incursion of moisture and pests.

It might seem difficult to think that -30 Celsius is a good thing. However, it is when it comes to grain storage. The extremely cold temperatures in Western Canada reduces the potential for the growth of storage mycotoxins like Ochratoxin A and also helps prevent insect development.

Some of the key best storage practices that I follow on my farm include:

• Cleaning bins thoroughly prior to storing new grain

• Only use approved bin treatments, like diatomaceous earth, if treatment of insects is necessary (rare)

• Ensuring that crops are harvested or dried to a moisture level safe for storage.
These are some pictures of my on-farm storage system. As you can see this includes large silos equipped with aeration and constructed to prevent moisture and pest problems.
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Keep it Clean
Cereals Program
Canada exports over 20,000,000 metric tonnes of cereals grains (wheat, oats and barley) annually. We know that you, and the rest of our customers around the globe, expect, quality products that meet or exceed the demands around grain safety and quality.

Shipments that contain things like, excessive pesticide residues or mycotoxins such as ochratoxin (OTA) and deoxynivalenol (DON) can derail export and damage Canada’s reputation.

I am proud of the way I farm to produce high quality food for you. But I know that we can always look for ways to improve practices to ensure safe high quality food.

This is why Cereals Canada is leading the Keep it Clean – Cereals campaign aimed at increasing the knowledge and understating of the best practices on proper management of pesticides and practices to minimize issues like OTA and DON.

We know that not all countries approve new pesticides at the same time and the Keep it Clean – Cereals campaign is designed to inform producers when not to use new product because they might cause problems in key customer markets.

The Keep it Clean – Cereals campaign is one more way the Canadian value chain is working together to consistently deliver what you need.
The Canadian grain industry is serious about listening to our customers. This is why you see such a strong delegation here today.

What you tell us at forums like this does matter. Feedback from customers results in changes to Canadian regulations. For example, the Canadian Grain Commission recently worked with the value chain to modernize the wheat classification system because of customer concerns regarding the gluten strength of CWRS.

Your input also will have an impact on ongoing research into new Canadian wheat varieties. Cereals Canada, together with Agriculture and Agri-Food Canada, is leading an ongoing process to ensure that Canadian wheat research meets the needs of both Canadian farmers as well as our customers. “Consistently Deliver on Customer Quality Needs is one of our top priority areas. We know that in order to be successful we need to deliver the quality that you need – not just today but into the future as well.

Ensuring food safety is also a key research priority area for us. Canada is looking to continuously improve on the control of mycotoxins and working to ensure we are meeting the science-based regulatory requirements in each of our customers’ markets.