World Demand, future risk and where food use is going
Global Food Demand

• To meet global food demand in 2050, agricultural production must be 60 percent higher by weight than in 2005.

Alexandratos and Bruinsma, 2012
Global Food Demand

• Increases in food demand are due to:
  – population growth,
  – changes in diets,
  – higher incomes
  – and urbanization
Global Food Demand

• Global agricultural production for commodities in major commodities is projected to grow at 1.5% annually, on average, compared to 2.1% in the previous decade.

• Overall demand for agricultural products (including food, feed, fibre and biofuels) is expected to increase 1.1 percent per year from 2005/07 to 2050, down from 2.2 percent per year in the past four decades.
Cereals and Oilseed Increases

– World cereals production must increase by 940 million tonnes to reach 3 billion tonnes;
– meat production must increase by 196 million tonnes to reach 455 million tonnes;
– and oilseed crops by must increase by 133 million tonnes to reach 282 million tonnes.
Canada Share of Global Food Demand

If the increases are realized

– Canadian cereals production would need to increase 28.2 MMT by 2050;
– Canadian oilseed production by 5.87 MMT
Population

• The world population, is forecasted to increase 32%
Population

• Asia will remain the world’s most populous region in the 21st century, but Africa will gain ground.

• The world population is expected to rise throughout the 21st century, although this growth is projected to decelerate markedly in 2050 to 2100.
Dietary Change

- Sugar, fat, and animal product consumption are increasing in almost all regions of the world.

![Projected change in meat and dairy consumption, 2005 to 2050](chart)

Data from Alexandratos and Bruinsma, 2012
Dietary Change

• Food consumption is increasing on a global scale—from 2,250 calories per person per day in 1961 to 2,750 calories in 2007 to a projected 3,070 calories by 2050.

• Despite increased consumption, South Asia and sub-Saharan Africa will continue to have the lowest daily food caloric intake per capita.

• South Asia will quadruple its meat consumption from 2005 to 2050.
Dietary Change

• Consumption of cereals, followed by vegetable oils and livestock products, has increased fastest.
• Low- and middle-income countries are expected to consume more meat and dairy to 2050.
• By 2050, Latin America, Near East/North Africa and East Asia will have a per capita food consumption similar to that of high-income countries in 1990.
Dietary Change

Meat and Dairy Demand

• Global animal protein consumption has more than doubled since 1970.
• Meat consumption in low- and middle-income countries—except for China and Brazil—is projected to grow 75 percent from 2005 to 2050
• On average, every citizen consumes 39 kilograms of meat per year.
Dietary Change

Meat and Dairy Demand

• Producing calorie energy and protein from livestock takes an estimated 2.5 to 10 times more energy than from grain.

• The production of animal protein must be more than tripled if the projected global population of 9 billion people in 2050 were to consume meat and dairy at current North America and Europe levels (PBL 2009).
What are the Risks to Food Demand
Risk to Food Security

• Production shortfalls, price volatility and trade interruptions remain a threat to global food security.

• Rising prices for both crop and livestock products are projected over the coming decade due to a combination of slower production growth and stronger demand, including for biofuels,
Food Waste

• Roughly one-third of food produced for human consumption, about 1.3 billion tonnes per year, gets lost or wasted globally—
Food Waste

• Per-capita consumer waste is estimated to be 95 to 115 kilograms per year for Europe and North America, but only 6 to 11 kilograms per year in Sub-Saharan Africa and South Asia (Gustavsson et al. 2011).
Biofuels – Risk or Help?

• One of the most contentious issues on the plant
• Two-sided argument
• Driven by subsidies and government polices
Bio Fuel-Emissions

• The two key factors that determine whether biofuels lead to lower or higher greenhouse gas emissions than fossil fuels are:
  – How the biomass (the basis of the biofuel) is produced and harvested. This process could emit carbon through, for example, fertilizers and machinery.
  – Where the biomass is produced. Biofuel production that leads directly or indirectly to land use change emits high levels of carbon.
Biofuels – Risk or Help?

• 40% of the US corn crop is used for biofuel
• 60% of EU rapeseed is used for biofuel
• Largest biofuel industries in North America, Central & South America followed by Europe
Biofuels – Risk or Help?

• When compared to fossil fuels, manufactured liquid biofuels do not necessarily produce fewer greenhouse gas emissions - But they do consume needed food supplies
Biofuels – Risk or Help?

• It is generally accepted that bioenergy has the potential of either increasing or reducing food security
• The effects of biofuels development on national food security can be significantly different
Biofuels – Risk or Help?

• The general trend is that food is becoming more expensive
• Besides biofuels, other factors are driving up food prices.
Bio Fuel

• Using good cropland to expand [liquid] biofuel production will likely exacerbate global warming the same way as directly converting forest and grasslands (Searchinger et al. 2008: 1240).

• Continued expansion is largely due to biofuel policies, primary among them use mandates and tax incentives, (USDA 2011) and high crude oil prices.
Climate Impacts on Crops

• Global impacts of climate change on yields cannot be estimated due to variation among locations and crop types. But the overall impact on grain is negative.

• —the potential yield loss is about 5 percent for each degree Celsius of global warming.
Impacts on Food Security

- Many crop yields are expected to decline due to long-term changes in temperature and rainfall and increased climate variability.
- The outcome may be higher food prices,
Impacts on Food Security

• Farming families may benefit from higher food prices—

• Climate shocks like droughts and floods impact how people access food through work, trade and transfers, such as from relatives who live in other climates (Devereux 2007).
Sustainable food production

• A huge “buzz word,” sounds good but still a long way from reality

• Soil damage, climate change, water and energy availability are all challenges for farming and food security

• Sustainable agriculture can benefit from 'system' approaches and farmers' participation
Where Do Oats Fit Into All This
Oats Are a Small Global Factor

- Corn: 37%
- Wheat: 30%
- Sorghum: 3%
- Rye: 1%
- Oats: 1%
- Mixed Grain: 1%
- Millet: 1%
- Total Oilseed: 17%
- Barley: 6%
More Oats Consumed for Feed
Greatest Risk for the Oat Market

• Declining value for oat growers and feed users
  – Resulting in lower trending area and production and depleted oat supplies - 
    **its about net returns**
• Yield lag compared to other crops due to a serious lack of funding
• Reduced funding
  – Less money for agronomic and nutritional research
• Mature demand markets
  – Food demand will not sustain the oat market
  – Need higher feed demand-specifically horse demand
• Oats will fall into contract
  – Substantial cost increases to food companies
  – Loss of research/marketing funding
  – Increased unpredictability
Mature Oat Markets
Mature Canadian Oat Markets

- 99% US oat imports
- 98% US oat product imports
- 22% Mexico oat imports
- 66% Mexico oat product imports
- 60% Japan oat imports

Most produced with Canadian oats

Price Buyer

Quality
Mature Oat Markets

• Growth in the oat product & cereal/snack bar markets will be led by food companies & consumer demand.
Regional Hot Cereal Demand

Western Europe & N. America – 000 mt

Latin America & Eastern Europe – 000 mt

- Eastern Europe
- Latin America
- North America
- Western Europe
Food Demand for Oats Not Enough
Canadian Seeded Oat Area and North American Oat Demand

Rising mill demand unable to stem oat area declines, area following feed use down.
Total Canadian Feed Use

000 mt

US Equine Demand
On Farm feed use
What Can Be Done

• It all starts with adding value to the crop – for growers and end-users
• Stem and then reverse area and production declines
  – This leads to higher funding for research
• Increase research - agronomic and nutritional
  – Yield, disease resistance
  – Higher beta glucan for humans and horses
  – Improve starch, fiber and hull for horse demand
References

• Nikos Alexandratos and Jelle Bruinsma -FAO
• Joint FAO/OECD study
• Thank you

Oatinformation.com
Production falling to demand…
Contracting around the corner!