



# AIC2018

Education in Agricultural Sciences and  
Technology - Ready for the Future?

## Envisaging Future Graduates Forum Presentation

Dr. Tom Jensen, P.Ag., Director, North America  
International Plant Nutrition Institute

Helping Students Learn about Future Careers in  
Agricultural Science

# Reaching Out to and Influencing Agriculture's Future Students, Workers, Business Persons, and Scientists



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• A not-for-profit, scientific organization dedicated to responsible management of plant nutrients for the benefit of the human family, [www.ipni.net](http://www.ipni.net)

## Member Companies



BHP Billiton



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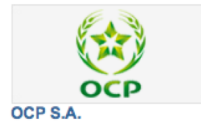
K+S KALI GmbH



The Mosaic Company



Nutrien



OCP S.A.



PhosAgro



Shell Sulphur Solutions



Simplot



Sinofert Holdings Limited

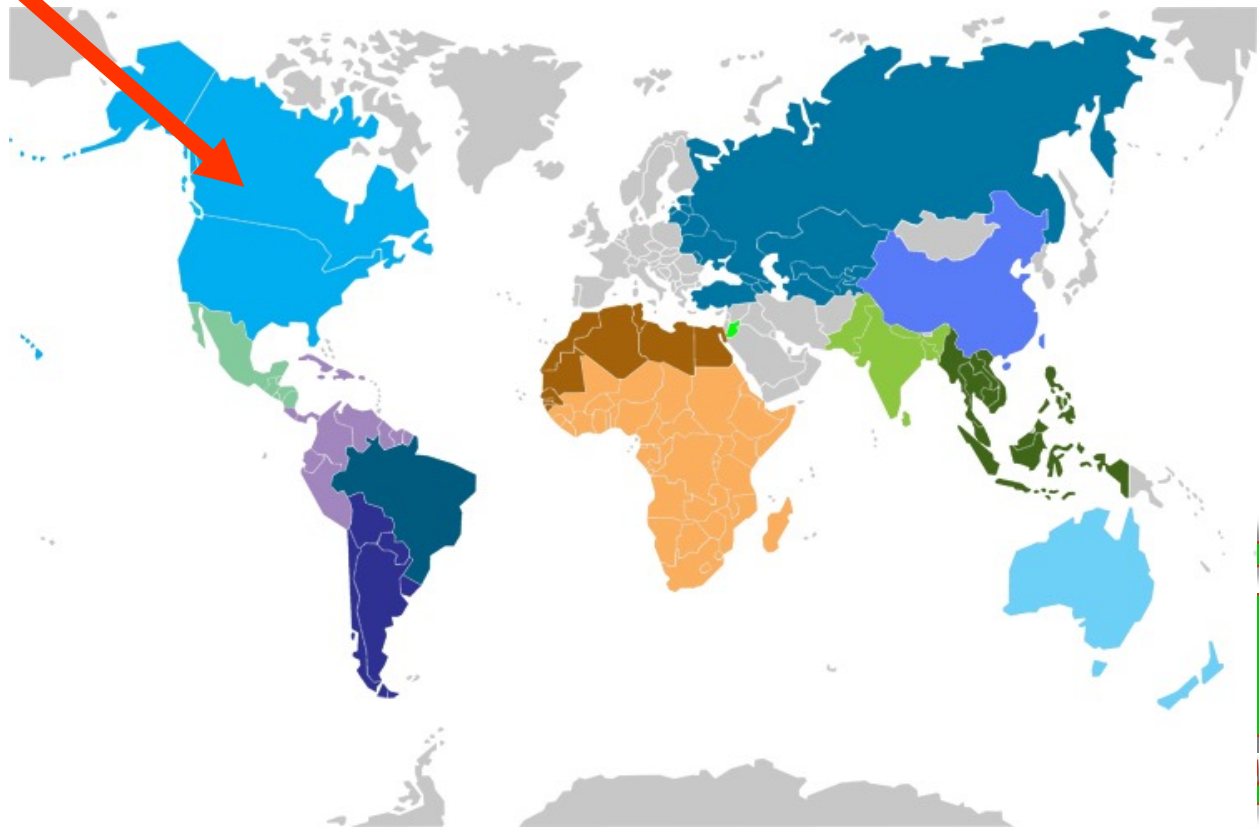


Yara International ASA



**IPNI**

**Northwest North America**



# Can we fill all the future vacant positions in the work force

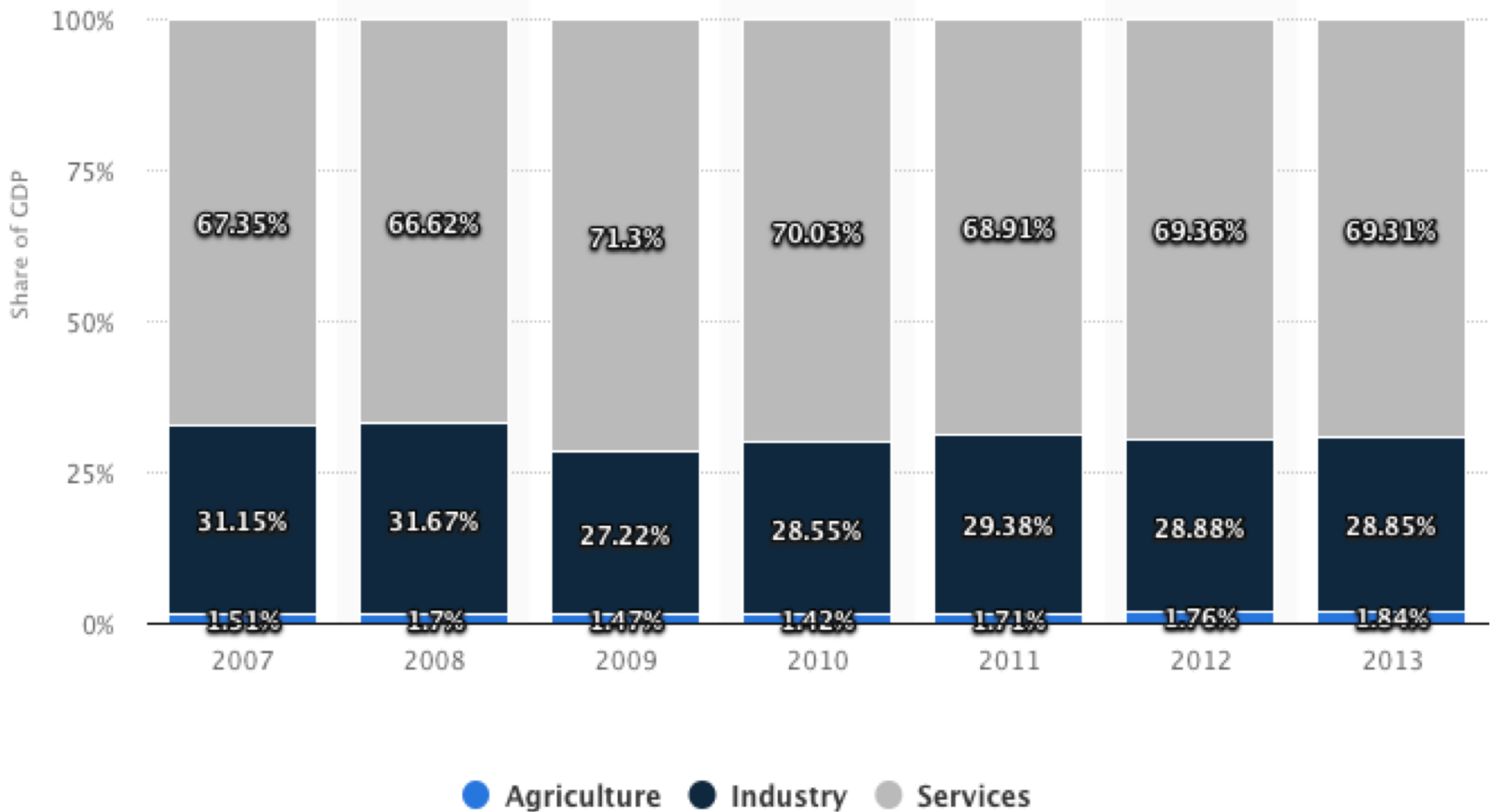
- Good bye to the Baby Boomers

	2017		
	Population	Labour Force	Employment
	thousands		
<b>Both sexes</b>	<b>29,901.7</b>	<b>19,663.0</b>	<b>18,416.4</b>
15 to 24 years	4,352.3	2,781.7	2,458.3
15 to 19 years	1,981.1	979.9	824.6
20 to 24 years	2,371.2	1,801.8	1,633.8
25 years and older	25,549.4	16,881.2	15,958.1
25 to 44 years	9,731.0	8,498.6	8,024.7
25 to 34 years	4,970.6	4,311.9	4,044.5
35 to 44 years	4,760.5	4,186.7	3,980.2
45 to 64 years	9,907.3	7,542.0	7,135.9
45 to 54 years	4,935.7	4,260.4	4,043.7
55 to 64 years	4,971.6	3,281.6	3,092.2
65 years and older	5,911.1	840.6	797.5
55 years and older	10,882.7	4,122.3	3,889.7

**21%**

# Canadian Gross Domestic Product

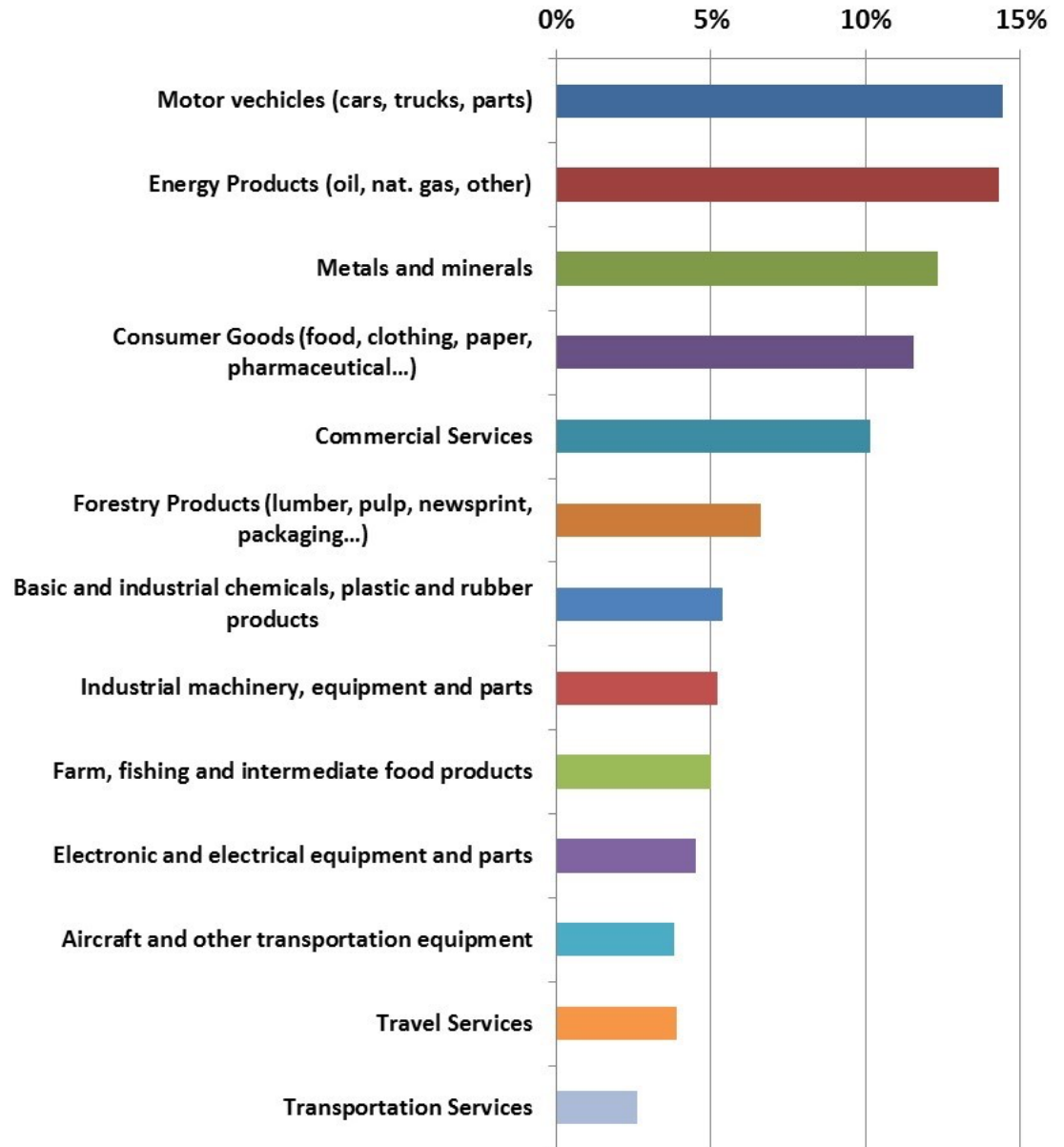
– 69% Services; 29% Industry; **2% Agriculture**



- Agriculture, fishing and food, **5% of exports**

<http://www.investorsfriend.com/canadian-gdp-canadian-imports-and-exports/>

Canadian Q4 2016 annualized Export Segments %



- Percent of Canada's workforce in Agriculture, **≈1.5%**

### Employment by industry

	2013	2014	2015	2016	2017
	thousands				
<b>All industries</b>	<b>17,691.1</b>	<b>17,802.2</b>	<b>17,946.6</b>	<b>18,079.9</b>	<b>18,416.4</b>
Goods-producing sector	3,910.1	3,897.1	3,870.4	3,833.0	3,875.9
Agriculture	314.0	305.1	294.9	289.2	279.5
Forestry, fishing, mining, quarrying, oil and gas <sup>1</sup>	368.1	372.6	354.9	326.8	329.6
Utilities	135.0	136.9	137.0	137.2	132.6
Construction	1,369.8	1,371.5	1,371.2	1,385.0	1,409.3
Manufacturing	1,723.1	1,711.0	1,712.4	1,694.8	1,724.8
Services-producing sector	13,781.0	13,905.1	14,076.2	14,246.9	14,540.5
Wholesale and retail trade	2,710.7	2,729.3	2,732.7	2,745.9	2,809.6
Transportation and warehousing	882.9	896.8	917.2	907.4	943.7
Finance, insurance, real estate, rental and leasing	1,078.8	1,083.8	1,102.9	1,127.0	1,171.3
Professional, scientific and technical services	1,310.9	1,333.3	1,365.8	1,393.7	1,448.8
Business, building and other support services <sup>2</sup>	740.9	734.8	760.6	766.4	756.6
Educational services	1,226.5	1,236.9	1,274.1	1,270.0	1,285.0
Health care and social assistance	2,189.9	2,219.7	2,292.3	2,339.3	2,383.2
Information, culture and recreation	756.7	757.2	750.6	782.4	789.3
Accommodation and food services	1,169.6	1,207.5	1,210.6	1,212.7	1,210.8
Other services (except public administration)	795.3	795.1	761.8	774.9	781.3
Public administration	918.9	910.7	907.4	927.3	961.0

1. Also referred to as Natural resources

2. Formerly Management of companies, administrative and other support services.

Source: Statistics Canada, CANSIM, table [282-0008](#).

Last modified: 2018-01-05.



# Influences on students for studies and a future career?

- Influential persons
  - Parents
  - Teachers
  - Relatives
  - Friends
- Media
  - Social
  - Internet
  - Television
  - Streaming movies/TV shows
  - TED presentations
- Job experiences
  - Summer and part-time

## Top 8 jobs of the future in Canada, according to Monster.ca:

1. Teacher
2. Information security analyst
3. Market research analyst
4. Construction manager
5. Lawyer
6. Registered nurse
7. Software developer
8. Marketing manager

<https://shawglobalnews.files.wordpress.com/2016/09/jobsdemand21.jpg?quality=70&strip=all&strip=all>

# Envisaging Students to a Future Career in Agricultural Science

- How do we help students have a positive mental image of agriculture, and visualize agriculture as a career, in advance of decisions on what they field they will study?
- Help them consider working in agriculture.





# How can Agriculture Reach out to Students?

- Agriculture in the Classroom, in many provinces
- Science Curriculum
  - Depends on the province when they include agriculture related topics
  - Opportunities
    - Agriculture week
    - Grade 3 Science - Soils
    - **Grade 4 Science - Crops and Food**

# Grade 4 Science



INTERNATIONAL  
PLANT NUTRITION  
INSTITUTE



Tom Jensen,  
Agriculture Scientist,  
Crop Production

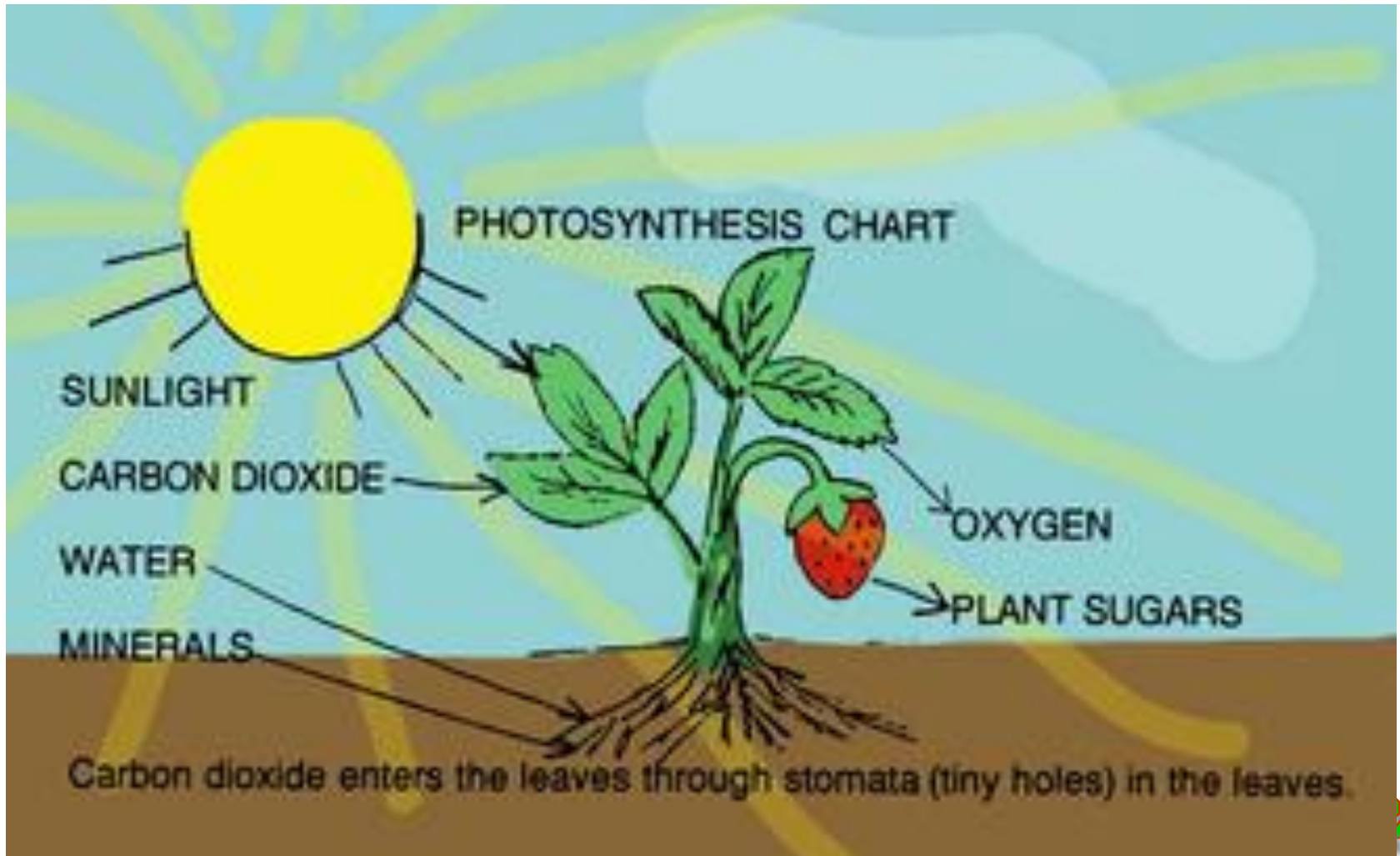
# Why do we eat food?



# Food comes from Farms



Chloroplasts make sugar (glucose), using sunlight. This is called Photosynthesis



# Farmers have fields of soil





# Farmers place seeds in the soil



# The seeds germinate and grow



The seedlings grow into a crop



The crop grows through the summer and ripens in the fall



# Farmers harvest the crop



Farmers sell the wheat grain,  
that is sold to make flour



# Flour



Flour is used to make bread





# Grinding wheat to make flour



# Irish Soda Bread Crackers

Mix as follows:

1. 100 ml milk  
+ 3 tablespoon of oil  
In small container

2. Mix 200 ml flour  
+ 1 tablespoon sugar  
+ 1 teaspoon baking soda  
+ 1 baby spoon salt  
In a bowl

3. After dry ingredients are mixed  
add in the milk and oil mixture into the bowl, mix all  
together.

4. Spray plate with thin coat of PAM

5. Spread dough even on plate

6. Bake in microwave 5 minutes, watch out it is hot



# University Classes

- Guest lectures
  - Agriculture classes
    - Agronomy
    - Soil Fertility
    - Soil Reclamation
    - Sustainable Agriculture
  - Geography classes
    - Introductory Soils
      - 50% Geography students, 30% Environmental Science students, 20% Agriculture Major Science Students
    - Management of Agricultural Soils
      - 50% agriculture science, 25% environmental science, 25% geography





# Summer Jobs

- Research Centres
  - Agriculture and Agri-Food Canada
  - Provincial Agriculture
  - Private Industry
    - Chemical companies
    - Consulting agronomists
    - Farm businesses
    - Food processing
    - Grain companies

A Great and Rewarding Career in Agriculture  
for a little farm boy who liked science and agriculture





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