



OPEN SCHOOL BC

Sustainable Resources 12: Agriculture Introduction Assignment

Student Name _____

Student No. _____ Date _____

Address _____ Postal Code _____

Based on the instructions provided by your school, complete the following *Sustainable Resources 12: Agriculture* assignment independently and return it to your teacher.

Questions

10 marks

Contents:

8 pages

Assignment time:

1 hour

Before you start, read these important tips.

1. Read each question carefully before answering.
2. Answer all questions to the best of your ability.
3. Take your time. Check your work before handing in the assignment.
4. Write neatly and check your spelling.

In this introduction assignment, you will learn the difference between mixed and specialized farming and between extensive and intensive farming. Read the information carefully then answer the questions that follow. (10 marks)

Mixed Farming

The nursery song *Old MacDonald Had a Farm* gives a good description of *mixed farming*. Old MacDonald had a cow, a pig, a horse, a dog, chickens—you could go on as long as your lungs held out. To feed all those animals (and his family) he probably also had a vegetable garden, several hectares of grain and hay, and some pasture. Each year or so he'd rearrange what was growing where.

Until this century, mixed farming was the norm all over the world. It's still common in many regions. If your main goal is to feed yourself and your family, mixed farming has many advantages:

- The human consumers living on the farm get a balanced diet.
- If disease or poor economic conditions strike one crop or one species of farm animal, the others will pull the operation through.
- The system takes care of itself. Livestock and poultry manure are good fertilizers for the soil, so the grains and grasses grow well. Because the grains and grasses grow well, there is plenty for the animals to eat.
- A selection of livestock and poultry acts as natural pest and weed control. For example, grazing sheep and goats in the same field ensures that the weeds get eaten down, not just the grass, and chickens rambling through the yard are happy to pick off the unwanted bugs for their breakfast.
- Crop rotation helps prevent a large build-up of pests that attack a particular crop. It also preserves soil fertility.

Today, however, most Canadians expect more from life than a healthy place to live and good food to eat. We also want consumer goods such as cars and telephones, and opportunities for other experiences, such as travel and education. You can't grow these things on a farm, so you must sell farm produce and get money to buy the things you want.

When the main goal is making a profit in today's complex, world-wide economic system, *specialization* has typically been seen as the most efficient system.

Specialized Farming

A specialized operation focuses on one area of agriculture. This may be raising cows and calves, producing eggs, or growing cherries. There are two main advantages to specialization:

- Since the entire operation is geared toward producing one or two commodities, it can become very efficient.
- The farmer can focus on developing skills in one area, and can invest money in equipment specifically designed to handle the product. This usually means a higher volume production at a lower cost.

When farmers specialize, they can also form groups, such as the Cattleman's Association, to help make certain that government policies and regulations help support their industry.

Specialization has its own problems, however. It's easy to over-produce one commodity, and the economy of entire regions can come to depend on one crop. For these reasons, the areas that are most specialized in agriculture require the greatest amount of government regulation to keep the income to the farmer and the supplies to the consumer at the same levels all the time. Poultry, dairy, and grain producers are examples of specialized, highly regulated agricultural activities.

After several decades of increased specialization, we're also no longer able to ignore the environmental problems caused by this method of agriculture. The problems are:

- The specialized grower must purchase large quantities of manufactured fertilizer.
- The crop farmers who take the manure from specialized livestock or poultry raisers have greater challenges in using the manure in ways that don't pollute the ground water or surface water.
- Monocultures (operations that produce one crop only) drain the soil of whatever nutrients the plant likes best, and encourage the build-up of insect populations, disease, and other pests such as rodents.

Insecticides: How Helpful?

Insect pests have insect enemies (predators) that rely on the pests as food. If you kill off all the pests with a broad-spectrum pesticide, the pest-eating bugs also die. When the pests move back, they have no predators, and their population can build up much faster than the predator population.

Monocultures typically deal with these problems by the application of manufactured fertilizers and pesticides. This is not only getting to be expensive, but seems to be having the long-term effect of actually increasing the problem.

Old MacDonald Had a Feedlot

So far we have categorized agricultural activities by the type of commodity produced and whether or not the enterprise is mixed or specialized.

There's one more important classification to consider: whether the enterprise is *extensive* or *intensive*. The main difference is in the amount of profit expected per hectare of land.

- Extensive agriculture takes up a *large area* of land relative to the amount of produce. The profit per hectare is not expected to be high. The farmer or rancher hopes to make a good profit with a relatively *low* investment in labour. Labour costs can be kept down by using mechanical tending and harvesting equipment, or by selecting livestock that require little tending.
- Intensive agriculture takes up a *smaller* area of land relative to the amount of produce. The profit per hectare is expected to be high, which makes the farmer or rancher willing to invest in relatively high levels of labour and other expenses. The intensive work may be accomplished by lots of manual labour, such as hand-picking blueberries, or sophisticated mechanization, such as a computer-controlled greenhouse.

Range Sheep

*These sheep are fed on several hundred hectares of relatively infertile rangeland. This is an **extensive** operation. If they were fed in a small pasture with grain supplements, it would be an **intensive** operation.*



The quality and location of land often determines whether the agricultural activity would best be intensive or extensive.

- If the land is relatively infertile, you'll need a lot of it to get in a good harvest or raise a large herd of livestock. If the infertile land is cheap, there is still a chance of making a good profit.
- Intensive, soil-based agriculture is a good way to make a living if the land is extremely fertile—you can expect a high yield from a small area. Since fertile land is expensive, it must be worked intensively to make up for the cost of purchasing it.
- Land located near major markets (such as cities) or transportation routes is usually valuable, whether or not it is fertile. Again, it must be used intensively to make up for the cost of purchase. Intensive, non-soil based agriculture (e.g., greenhouses, poultry barns) does not rely on soil fertility.

More crowded parts of the world, such as Europe and Asia, have practised intensive agriculture for centuries. Canada has areas of intensive use and areas of extensive use. As the growth of urban centres threatens fertile farmland, and technology offers new methods and species, intensive agriculture is on the rise.

MARKS

Questions

Here are some brief descriptions of how people are making a living in agriculture. For each example, decide whether the activity is *intensive* or *extensive* and whether it is a *mixed* or *specialized* operation. (2 marks each)

1. Joy and Kevin run a nursery near Kamloops. They produce flats of flower seedlings to sell to home gardeners. They have two 10 m X 30 m greenhouses where they start the plants. They plant the seeds in late winter, hoping to have the young plants ready to sell to garden centres in early spring.

2. Roger supplements his income as a welder by selling eggs. He has three dozen chickens on his 1.2 hectare property just outside of Prince George. The chickens run free over the fields in summer, but are also housed and fed grain in winter. He sells the eggs from his house as *Farm-Fresh Free-Range Eggs*. They sell for approximately \$0.50 a dozen more than grocery store eggs.

3. Western Sky Farms is a 200 hectare operation in the Peace River area. Their main crop is wheat, but they have experimented with Canola and rye as additional crops in some years.

4. Karen and Bob have a 30 hectare farm in the suburbs of Victoria on Vancouver Island. They have 23 head of beef cattle, a boarding stable for horses, and fresh raspberries in the summer. The horses and cattle are mostly kept in paddocks, with regular turn out into small pasture areas. They sell or trade some of the beef, and slaughter some for personal consumption. The horse manure is composted and spread on the fields, as well as being bagged and sold to home gardeners from a stall on the side of the road.

INTRODUCTION ASSIGNMENT

MARKS

5. Morgan Ltd. is a company that runs a feedlot in the lower mainland. They have three full-time employees to manage 100 to 200 head of cattle. The cattle are kept in pens, with regular manure pickup by a waste management company. They have large barns to store feed.
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Total