Activity 1

LATEST AND GREATEST

STUDY QUESTION: How are people persuaded to try new ideas? Who makes the changes?

THE ACTIVITY: Students invent, build, and market a farm tool.

CURRICULUM FIT:

SOCIAL STUDIES
- Topic B - Alberta: Its People in History.

MAJOR CONCEPTS
- Change, resourcefulness, lifestyle, occupations.

LESSON CONCEPT
- The world is in a constant state of change.

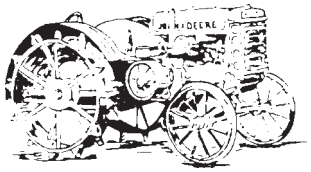
Technological innovations respond to changing needs while at the same time creating an additional need for change. Albertans adjust their lifestyle to meet new opportunities and challenges.

AGRICULTURE CONCEPTS: Economic Importance
Capital and Technology: Intensive Nature of Agriculture

PURPOSE:
- To develop the concept of change through the study of mechanization on Alberta farms.
- To explore the future possibilities of advanced technology in agriculture.
- To experience a problem solving situation.

MATERIALS REQUIRED: Art supplies.
Miscellaneous building supplies.
Optional - tape recorder or video camera.

TIME REQUIRED: 2 - 5 class periods.



BACKGROUND - For the Teacher

The time required to complete this lesson has been left to your discretion. The complete exercise could involve a good measure of class and home study time. While the concepts are clearly outlined in the social studies curriculum, the skills required include those from language arts, drama and art disciplines.

The objective of this lesson is to get students actively involved in creating a new product which they must market to the rest of the class.

PROCEDURE

Part 1
Introduction

1. Introduce the concept of change through a class discussion. Review the history of farm mechanization and how it is a good illustration of a factor which created a change in Alberta's history.
2. Using the resources supplied, review the development of farm machinery. Three areas of the history should be emphasized.
   a) The types of tractors introduced and some of their features.
   b) The effects that mechanization had on the industry.
   c) The human element of change including:
      - attitudes to change
      - the ripple effects of major changes
      - the impact of mechanization on rural lifestyles.

Part 2
Problem Solving

3. Divide the class into groups and challenge them to invent a new or renovated machine to do a simple farm chore.
   a) A machine helps people to do work. Examples of classroom work that is made easy by machines include pencil sharpening and stapling.
   b) Discuss various jobs that are done on a farm (e.g., ploughing, threshing). The jobs could be as simple as pitching hay into a feeder.

Concept 1

We use machines to help us do jobs.
- Pencil sharpeners are used to sharpen pencils.
- Tractors are used to help with farm work.

We now have electric pencil sharpeners, but not everyone has one. Many of us still use a hand sharpener.

There are very advanced tractors working on farms too, but not everyone has one.

Concept 2

When we make changes we sometimes keep a part of the past while starting to accept new things.

Part 3
Construction of a Model

4. Have the students build or draw their inventions
5. Have the students demonstrate the completed models. Be sure to include such information as materials and operation directions.

Part 4
Marketing

6. Ask the groups to create advertisements to sell their inventions.

Some suggested selling techniques may be:
- Role play (a door to door salesperson for example).
- Posters or print ads.
- Radio commercials done on a tape recorder.
- T.V. commercial done on a video tape.

Part 5
Conclusion

7. Review the exercise. Have the students present their marketing schemes to the class.

FOR DISCUSSION

1. Do the students think the inventions might be superior to existing machines?
2. Did the implement require extensive change on the part of the buyer in order to be utilized?
3. Could some of the inventions revolutionize the industry?
4. Were the inventions based on previous models or were they a totally new idea?
5. How did the class respond to the advertising campaign? Is this typical of most people?

RELATED ACTIVITIES

1. Take a trip to a local museum.
2. Visit a small town fair.
3. Visit a farm to view the range and age of machinery in use.
4. Write to an implement dealer for information on their latest machinery line.

Mechanization of Alberta Farms

Farm tractors provided the technology which revolutionized the industry and stimulated human resourcefulness resulting in a dynamic sequence of change.

The first gasoline tractors were built in the 1880's. They did not gain general acceptance for many years. Economical, mechanical and political problems hindered the replacement of draft animals by machines.

> "For the ordinary grain farmer, the gasoline tractor was an interesting experiment which he followed in the pages of the ***Grain Grower's Guide*** or the ***Farmer's Advocate***, not something in which he would invest $1700 (the price of the cheapest model entered in the 1909 Winnipeg competition). Those few who had the courage or the foolhardiness to do some of the experimenting on their own farms soon discovered that gasoline tractor engineering was still in its infancy. Primitive electrical systems meant that starting was complicated and uncertain - Hart Parr's 1910 manual listed nineteen steps for starting the engine - and a popular joke lampooned the tractor farmer who left his machine running all night during seeding rather than risk a restart the next morning. Drive gears were not enclosed and were made of cast iron so that dust and dirt caused rapid wear in dry weather. Heavy steel wheels, sometimes six and eight feet in diameter, made tractor field work impossible when the weather was wet. Breakdowns were common, costly, and time-consuming. When broken crankshafts, warped clutches, dead magnetos, burned-out bearings, or faulty plugs put a machine out of action, parts were difficult to obtain. Throughout Canada and the United States, scores of independent manufacturers tried to turn out tractors for farm use and few stayed in business long enough to establish reliable parts networks."[1]

It was in the early nineteen-twenties that the first modern tractors came on the market. Equipped to deliver power through drawbar, belt pulley and power take-off, and with their enclosed gears, automotive type steering and better protection from dust, they paved the way for more attractive and efficient operation.

Then in the thirties, came the rubber-tired tractors with their higher speed operation and lower operating costs. This higher speed meant machinery to suit. The old implements, designed for the pace of the team, were not sufficiently durable for the stress placed upon them by this new power change. The result was the opening of a whole new field, and a challenge to the ingenuity of that rapidly expanding group of professionals, the agricultural engineers.

So the one-way succeeded the plow and the combines followed the binder, while in the field of haying machinery many changes were to occur. Then, too, motor trucks, grain loaders and grain cleaners all helped to reduce the farmer's chores and allow more efficient use of his limited, busy-season time.

But the story of farm mechanization in Alberta and the West has not been one of steady progression. During depression and unemployment there was little demand for farm mechanization, but the labour shortage of the war years and the now growing need for products of the farm have resulted in a steadily increasing demand for better and still better equipment.

Although in the mid 1920's the tractor was coming more and more into use for general farm work, it was as yet by no means accepted by the majority of farmers. "Farmers are finding it more economical to work their lands with horses than with tractors," said the Livestock Commissioner in 1924. "And," he continued, "while there is a place for the tractor on the large farm, it will only be used in conjunction with horses."

But the tractor was gaining favour and, by 1928, since the work could be done much more quickly, more and more tractors were appearing on the farms. Economically, however, the horse remained in favour, and this showed strongly when in the 1930's the dark clouds of depression gathered. But shortly before this, the sale of tractors was heavy, and some firms were trading tractors for horses and shipping the horses east. Still, said the horse lover, there will remain a demand for good farm horses, since the tractor cannot entirely replace the horse on Alberta farms.

And when, in 1930, effects of the depression began to be felt, there seemed to be some truth in their assertion. With the low price of wheat and the high price of gasoline and oil, the horse for farm use was again in favour. "The farmers of late years have been relying on motor power," said the Livestock Commissioner in 1931, "and therefore have not been raising many colts. In the past year a great many were forced back into using horses, and this created considerable demand."

As late as 1938 we find the Alberta Department of Agriculture advising:

> "The demand is still growing, even though gradually, for draft horses for farm work. This is possibly due to the steady migration of settlers from the southeastern section of the province (most recently known as the drought area) to the northern part of the province, where in many cases, these settlers are now using horses in place of their previously used farm tractors and machinery, which have now become worn and depleted, and also to the fact that the smaller land holdings are more adapted to horse work."
>
> It was not until after the war years, with their demand for increased production and their farm labour shortage, that the tractor again became the prime motive power on the farm.
>
> Power machinery for field use does not of course tell the whole story of farm mechanization. Electricity on the farm and the labour saving devices of dairying, and stock raising are a far cry from pioneer days, or from even the more advanced type of agriculture practiced in Alberta twenty years ago."[2]

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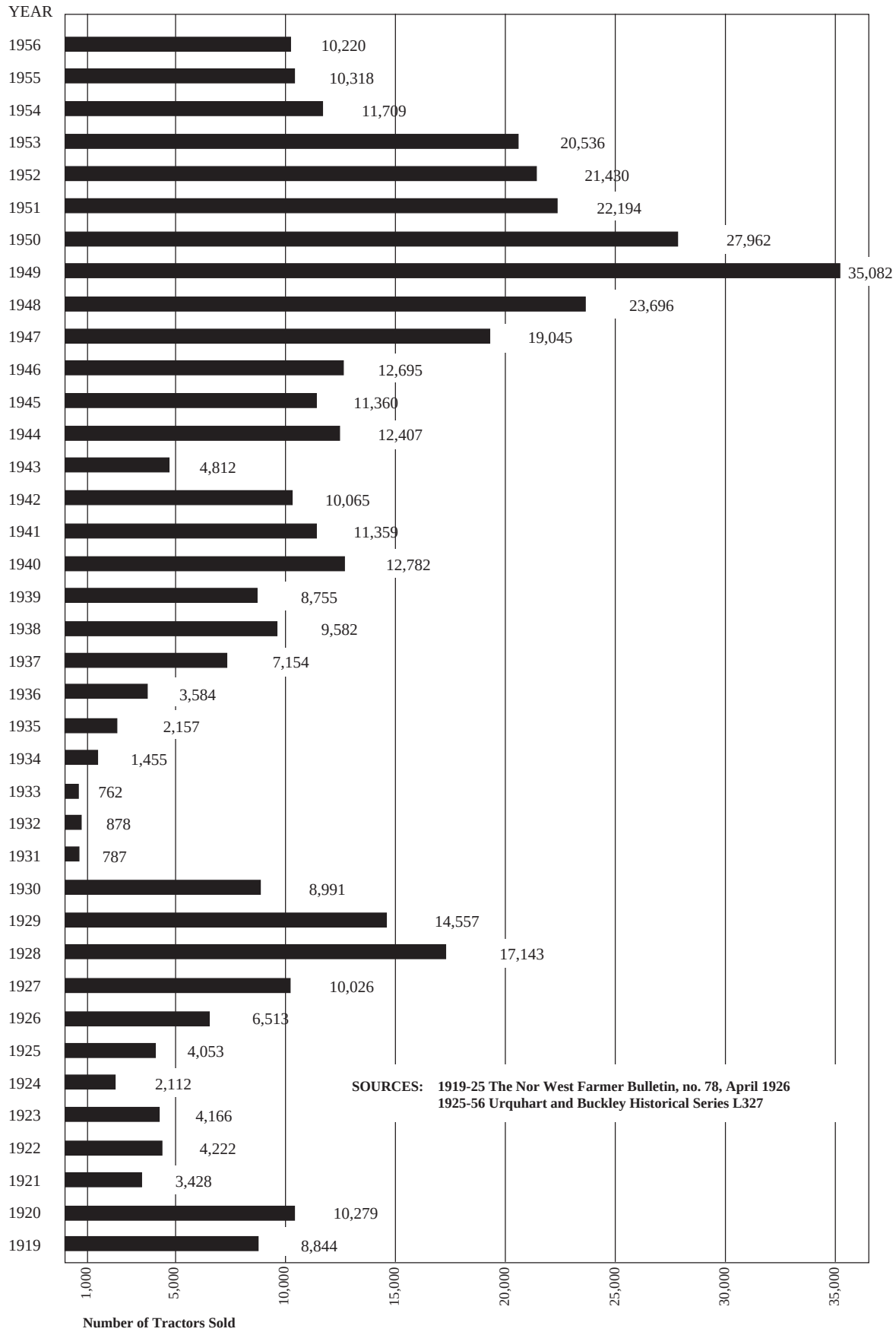
1. Alberta Agriculture Historical Review, E.B. Swindlehurst, 1967.
2. "The Adoption of the Gasoline Tractor in Western Canada", Robert E. Ankli, H. Dan Heisbert, John Herd Thompson, 1980.

Factors That Influenced the Acceptance of Modernization on Farms in Alberta

a)	**Ability to purchase.**	- Farm product prices must be sufficient to warrant investing in new machinery. - Yields must be sufficient to receive good profit after payment of capital expenditures.
b)	**General economy.**	- The availability of credit. - Effects of the depression of the 1930's.
c)	**Personal need.**	- Shortage of manpower during the war years. - Costly labour.
d)	**Mechanical reliability.**	- Early tractors were unreliable and parts were often unavailable. The farmer's mechanical skills were not advanced enough to do repairs.
e)	**Efficiency of the new methods as compared with traditional methods.**	- Many studies were done to compare the performance of tractors and horses to do farm work.
f)	**Major world events.** **(See graph - page 1.7.)**	- The Great Depression. - World War II.

NOTE
Many farms used a combination of horse and tractor power prior to 1945. After that time, tractor power was used on the majority of farms.

Tractor Sales in the Prairie Provinces 1919-1956



SOURCES: **1919-25 The Nor West Farmer Bulletin, no. 78, April 1926**
1925-56 Urquhart and Buckley Historical Series L327

Inventions were always welcome if they could help to reduce the labour of farming.

Owen Gilbert's invention.
Stookers, 1930.

Provincial Archives of Alberta.
H. Pollard collection, P738.

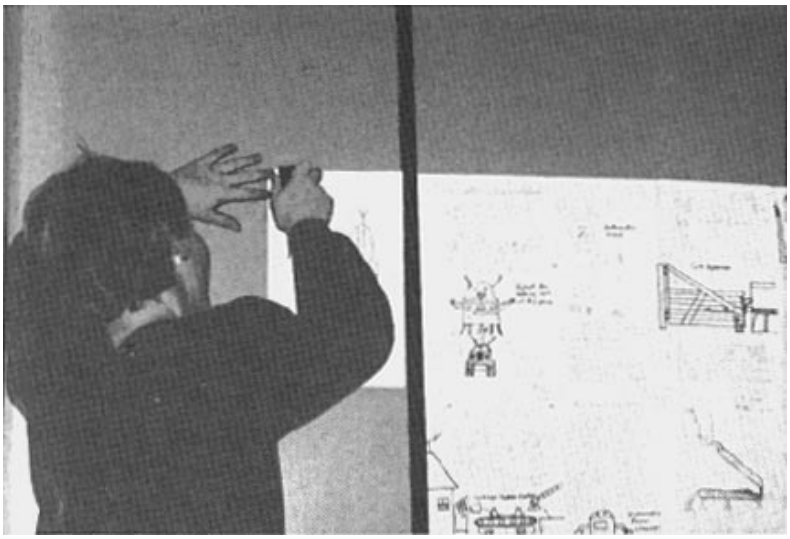
Combine Harvesting near Lethbridge, 1948.
Provincial Archives of Alberta.
H. Pollard collection, P724.

Hay Making was a Boy's Job.

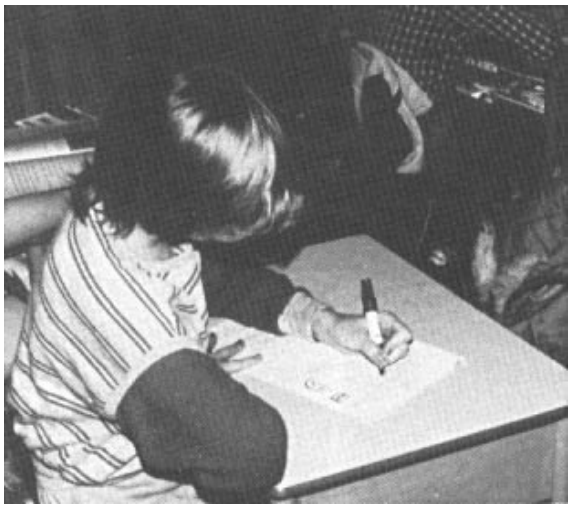
Horse drawn rake, 1915.
Provincial Archives of Alberta.
A 9615.

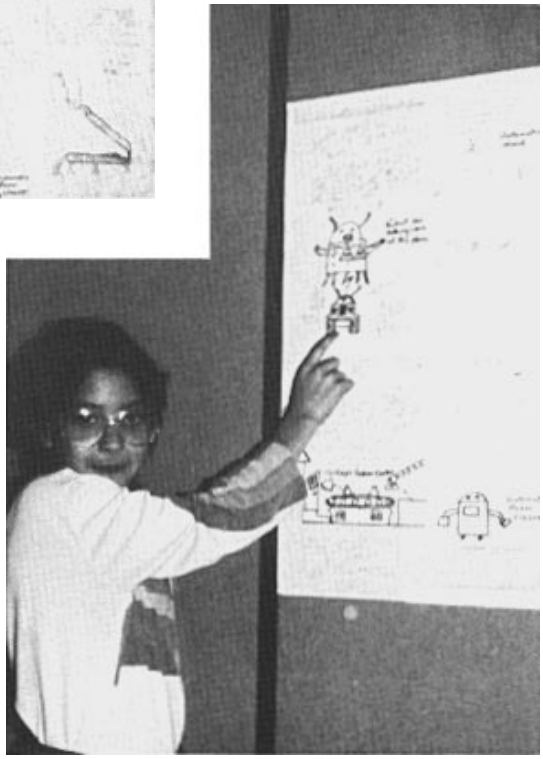
Ploughing Scene near Calgary, 1884.

Provincial Archives of Alberta.
E. Brown collection, B78.



Students from Joe Clark School in High River create, display and market their inventions.





"Students were very keen about designing, sharing and selling their own machines."

The acceptance of tractor power was slow.

Scenes from Fort Edmonton Park kindly donated by Al Kosmak.