

HISTORICAL IMPACT OF TECHNOLOGY ON THE POTATO INDUSTRY

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INTRODUCTION

In 1899 oxen were the power source that potato producers relied on to produce a quality crop. We are reminded of ox power when, occasionally, modern farm equipment turns an ox shoe up from the soil. The ox shoe is a historical artifact that represents the technology of one hundred years ago. How far will technology take us in the next one hundred years? What is new technology today will be laughably outdated one hundred years from now. One day a potato grower may find a cell phone or an irrigation sprinkler in a potato field and regard it as we do the ox shoe.

HISTORY OF IDAHO POTATOES

The year 1836 brought the first potato producer to Idaho. Henry Spalding, a missionary, taught Nez Perce Indians how to grow potatoes at his Lapwai mission. Ultimately his mission was unsuccessful and he was forced to leave, along with his agricultural practices.

In the 1840s Mormon pioneers looking for a settlement outside of Salt Lake City, Utah crossed the border into what is now Franklin, Idaho. These settlers discovered that potatoes grew well and Idaho potatoes began to prosper. The discovery of gold in the 1860s increased the production of potatoes throughout Idaho to feed an ever-increasing population of miners. The increased production of potatoes in Idaho led to exports to California in 1876. At that time ZCMI shipped 2.5 million pounds of potatoes for \$23,045 to San Francisco.

In 1882 the USDA estimated the value of Idaho's potato crop to be \$250,000. Just twenty-two years later in 1904 Idaho's crop was worth more than a million dollars. Yield from that time has consistently increased to the current average of 350 cwt/acre. Like yield, the number of acres planted in Idaho has also increased to 400 thousand acres in 1998.

TECHNOLOGY MILESTONES

Several technological milestones helped the Idaho potato industry thrive and expand. One milestone was the development of a potato variety ideally suited for Idaho. The Russet Burbank, originally believed to be a cull by its developer Luther Burbank, would go on to be the predominate variety produced in Idaho. Idaho built its potato fame on the growers' ability to produce high-quality Russet Burbanks.

Idaho was one of the first states to establish a potato seed certification program. Originally seed certification was developed to assure varietal purity. However, it also reduced what was commonly known as "running out", now known to be caused by seed-born viruses.

Water brought the Idaho desert to life. Early pioneers dug ditches to carry water to their fields. In the early 1940s sprinkler irrigation was introduced. Sprinkler irrigation along with light aluminum pipes no longer required flat lands to be developed as potato fields.

The internal-combustion engine was introduced in the 1920s. Prior to this time horse and human power limited the amount of acreage that could be cultivated. Tractors could work all day and were much faster.

Soil fertility is important in growing any crop and is especially important in the production of potatoes. Chemicals allowed growers to increase fertility, control pests, and increase quality. Originally, chemicals were spread by hand. Today, chemicals are spread with precision by plane, specialized ground sprayers, and irrigation systems.

ACCEPTANCE

Biotechnology and precision agriculture are agricultural buzzwords at the turn of the century. Acceptance of these ideas varies among the diverse people of the U.S. Throughout history there have been many ideas that have ridden out the unacceptable phase that consumers tend to create. The history of technology tells us that it takes 15 to 40 years for new technology to be accepted by society.

Percy Spencer, an engineer, first developed the microwave oven in 1947. Amana developed the first home microwave oven in 1955. However, consumer concerns such as radiation, cancer, blindness, sterility and impotence made the microwave look like a dud. For fifteen years less than 1% of U.S. households owned a microwave. Fears started to subside and by 1995 more than 85% of US households owned a microwave oven.

Genetically modified foods have only been on the market for five years. If consumer acceptance follows the microwave oven pattern, it will take another ten years before we get to the front end of the consumer acceptance range. Perhaps in 10 years, society will be praising biotech companies for their work and expertise in their respective fields. Until then they are forced to ride out the phase of social unacceptance.

SUMMARY

Advancements in technology have allowed potato growers to make amazing progress in yields and quality. Currently, as in the past, new technology is often met with resistance. The creative drive that exists in a free-market economy will only increase the number of advancements in the next 100 years. Time is needed for consumers to accept new technology. The acceptance timeline could be shortened if products are developed that appeal to consumers rather than just producers.