PHOTO: DAKOTA TERRITORIAL MUSEUM

The Yankton Municipal Airport became an important addition to the community's ability to not only reach out to (and be reached by) other markets, but to serve area customers with services such as crop dusting

Crop Dusters: More Than Just Dusting Anymore

Technology Has Charted A New Course For Aerial Agriculture

BY DILLON DWYER
dillon.dwyer@yankton.net

While it hasn't been called "crop dusting" for nearly half a century since the switch from dust to liquid applicants, aerial application is still one of the quickest and most efficient ways for farmers and ranchers to fight noxious weeds, crop funguses and pests without risking damage to their crops.

"Imagine you have a field of beans and your crops are growing big and doing well, but then you get a bunch of bugs chewing on them like aphids," said Jake Hoffner, a former aerial applicator. "Now, imagine having to drive over that crop to spray those bugs and the damage it will cause to your crops. That is the biggest advantage to aerial application besides its quickness. There is no damage to crops from driving over top of them."

Aerial application, as we know it today, has its roots dating back to the 1920s. The idea was developed by the United States Agriculture Department and Army Signal Corps at McCook Field aviation station in Dayton, Ohio. A Curtiss JN-4 aircraft was the first to be modified to spread lead arsenate over crops at local farms to kill catalpa sphinx caterpillars. After successful testing, the first commercial operations began to form in 1924.

Since its inception, the advancement of aircraft technology has been the single most important factor behind the evolution of aerial application. The practice hit its stride between the 1930s and 1960s and began to spread to countries outside the United States. The process continued to streamline itself with additions of the latest technologies.

"Every year, there is some kind of new gadget," Hoffner said. "Whether it's a nozzle or certain product that gives you less drift when spraying, there is always something new to add to your plane that makes the process easier. The biggest advancements that I have enjoyed are GPS, turbine engines and air-conditioning."

Hoffner started his own crop dusting company, Hoffner Flying, in 1984. He owned and operated the business for 28 years before selling the company and pursing other opportunities in city politics and small aircraft sales. During the peak of his operation, Hoffner netted approximately $1 million in sales and served an average of 350 customers in 14 counties across South Dakota, Nebraska and Iowa.

While spraying crops for fungus and pests wasn't panning out during the early years of his application business, Hoffner found a lucrative niche in spraying range and pasture land for weeds.

COURTESY PHOTOS

Crop dusting has been an important component to agriculture. Recent technological advances have created dramatic changes in aerial agriculture, allowing to become safer, less expensive and more precise.

"At the time, there wasn't much crop treatment for corn or beans," Hoffner said. "If I did range land, I knew I would have lots of work because every year pastures needed to be sprayed for noxious weeds."

While trying to figure out a business plan that would support his continued operation as an aerial applicator, Hoffner also had to navigate the minefield of challenges that make aerial application a hazardous profession.

"It's very dangerous when you are flying an average of 135 mph at about six to 10 feet off the ground all day," Hoffner said. "Then you have to watch out for what is around you like powerlines, trees, yards, farmsteads and other people. There are also so many different things you have to calibrate in order to get the right amount of crop protectant on at each location. It's easy to get bogged down with a mind full of things to think about."

Throughout his years in the cockpit, Hoffner found relief, increased efficiency and profitability through upgrading his airplane. The first major upgrades that marked the start of a new era in his aerial application business were the introduction of the turbine-powered aircraft and GPS system in 1996.

The switch from a reciprocating engine to a turbine powered engine meant better aerodynamics and more power for Hoffner's aircrafts. The lighter engines also meant less fuel consumption and, ultimately, increased profitability.

"The switch to turbine engines was crucial

DUSTERS | PAGE 7B

Transport

From Page 5B

The Dakota Southern railroad line started with three engines, two passenger cars, two baggage cars and 45 freight cars. In the fall of 1873, the line added an engine and another 25 freight cars to its roster. The journey from Yankton to Sioux City by rail took approximately three hours and 20 minutes to complete.

"Dakota Southern had been a shot in the pocketbook of Yankton's commercial interests, which were suddenly in a position to claim some very desirable Indian and military business upriver," Karolevitz wrote.

Around the time of the railroad boom in Yankton, businesses like Auler Ohlman and Co., importers of Kentucky whiskey; Yankton Iron Works; Norton's Wagon Factory and Blacksmithing; Fred Shaubers harness manufactory and Excelsior Flour Mill began to take hold and expand their businesses.

"Although the railroad played a major part in the decline of riverboat traffic, the two means of transportation worked hand in hand to embrace the economy of Yankton," Karolevitz wrote.

Coulson Packet Line, a shipping company that operated riverboats along the upper Missouri River, worked closely with the railroad to ship things upriver from Yankton to different military outposts. The railroad would bring the supplies into Yankton and Coulson Packet would ship them the rest of the way along the river.

In 1880, the railroad would finally make its way west of Yankton and mark the beginning of the end for the riverboat industry that had brought both direct and indirect employment to the Yankton community. However, it was the flood of 1881 that hammered the final nail in the coffin by destroying most of the vessels located in Yankton at that time. The final riverboat used for hauling supplies out of Yankton was sold in 1885 marking an end to the once booming industry.

While the railroad would continue to supplement the manufacturing and shipping industry in Yankton into modern times, the next major advancements would come in the form of highway transportation and bridges across the Missouri River. The Meridian Highway Bridge and Discovery Bridge were instrumental in supporting highway transportation across the Missouri River. Those bridges along with the development of highways 81 and 50 would lead to more reliable and faster overland travel locally and nationally. Where a train ride would take several hours to ship supplies from Yankton to Sioux City, highway travel has shortened that journey to about an hour's worth of time.

Currently, Yankton's major forms of industry are agriculture, healthcare, manufacturing and tourism. The city is home to major manufacturing businesses like Manitou Americas, Dakota Trailers, Butler Manufacturing, Applied Engineering, Kolberg-Pioneer, Inc., Vishay Dale Electronics, Bow Creek Metal, Inc., and numerous other industrial organizations.

No matter what century, the need for quality transportation has always been the determining factor behind industry growth in Yankton. The river provided the first opportunity for the area to develop as an industrial center in South Dakota, and every advancement in travel since then has allowed the surrounding industrial markets to grow in accordance.