Technology & Innovation

Innovations & new technology has enabled the industry to remain successful & relevant even during the hardest of times

Station Innovations

Perhaps the greatest early revolution was the introduction of galvanized iron wire. The first patent was sought in 1837 in France for galvanic paint. The next few years saw this developed into a process that is still used today. Essentially iron is coated with Zinc to prevent it rusting, it was cheap, easy and fairly low maintenance. For farmers, this innovation lessened the spread of scab amongst sheep and prevented flocks from mixing.

Drafting sheep, Moutere Station
© Moutere Station

In the 1860's, the swing gate for drafting sheep was introduced which made life significantly easier for farmers. Instead of catching and lifting each sheep over into separate yards, the device saved hours of back breaking work by creating an easy way to change the output of a race between two yards or more, just by swinging a gate.

In 1888 steam powered shearing machines appeared in New Zealand. These were mostly used on large farms where the initial cost and maintenance expenses could be justified. Oil-fuelled engines enabled smaller farms to adopt mechanised shearing as it was a much cheaper and dependable system. As electricity reached into sheep farming areas in the early 20th century, many farmers would make the switch to electrical shearing machines.

The earliest wool presses were introduced from Australia but New Zealand also had its own. Donald and Sons of Masterton were responsible for some of the first New Zealand Wool Presses in the 1920's. The claimed advantage of Donald's No. 1 press was its portability, enabling it to be taken to the wool, instead of vice versa. Two men were able to operate the system and create a bale of wool in about 6 minutes. The No. 2 provided for the sewing of the filled bale with a patented system of hinges, one of which was described as 'joggle eyed'.

According to Historic Sheep Stations of the South Island, Galloway Station was one of the first to weigh fleeces in the 1960's. Fleece weighing allows farmers to gain an understanding of flock performance and wool quality.

Transport

McNamara Bob (Bullocky Bob) c1895
on Old bridge Road Alexandra

CSM 96.869

Initially sledges were the common vehicle of the earliest times, followed by bullock drays and then four-wheeled bullock wagon. In the early run- holding days, horses were a valuable commodity, seen as a sign of wealth and progress and often the only horse on a run would be owned by the 'boss'. By the 1860's horses became more common but a true transportation revolution occurred with the introduction of motor power.

Vehicles powered by internal combustion engines had obvious advantages of speed and efficiency over horses. The first motor cars in Central Otago appeared around 1904 and over the next 15 years were quickly adopted as they became more easily available and the costs dropped.

The first tractors were imported in 1904 and by the 1920's lighter and more manoeuvrable makes had become common throughout the county.
The 1940's saw experiments using planes for aerial topdressing. Previously this had to be done by human power alone. Planes greatly sped up the process, allowing a greater area of land to be covered more quickly.

As four wheel drive vehicles became available, most noticeably around WWII, they became the preferred method of accessing the steep and rugged country of large runs. In the 1970's farm motorbikes and 'quad-bikes' became another way to transport materials, workers and even occasionally stock.
Today the use of helicopters has also become more common, again to speed up a variety of tasks which includes dropping poisoned bait and lifting fencing materials.

Refrigeration

A good example of how farmers used new technology to develop their industry was in the recognition of refrigeration. In 1882 the first shipment of refrigerated meat left the ports of Otago destined for England. Although the second shipment failed, it was the beginning of a refrigeration revolution. The ships opened up a new market for sheep meat which heralded a new era for sheep farmers. Wool prices had been dropping and this new exportation avenue provided a much needed boost to the industry. Farmers and companies invested in meat-freezing works, which were established throughout Otago but largely near coastal areas like Dunedin and Oamaru.

The 'Dunedin' refrigeration ship, c1810s
Image courtesy Te Ara

Pests and Diseases

New Zealand has historically taken a very strong standpoint on disease control and this has prevented a lot of the more serious diseases reaching our shores. The major diseases faced by run-holders were worms, scab and anthrax.

Sheep scab was the most serious disease for early run-holders. Caused by a mite, infected animals lose their wool and condition. A 'Scab Ordinance' was passed in 1849 to control the introduction of infected sheep. Treatment was by dipping sheep in a mixture of boiled tobacco with the occasional addition of salt, sulphur or arsenic. By the 1880's New Zealand was largely scab free.

There were several outbreaks of anthrax from the 1880's to the early 1900's. The cause was found to be bones imported from India that were to be used in fertiliser. The government put strict measures in place in 1903 to reduce these outbreaks.

Lung worms and worms of the gut were major problems in young sheep in the early 1880's. The first treatments included dosing the infected sheep with a mixture of turpentine and milk. Hydatid, a type of parasitic worm, had become well established in New Zealand by the late 19th Century. In the late 1950's a massive control effort began and by 1999 New Zealand was pronounced free of the worms.

Feral dogs were another problem for many early farmers because they attacked flocks and carried diseases and small pests like fleas. Poisoning, shooting and eventually the introduction of Australian stag hounds were all methods implemented by the early run-holders. This led to the complete eradication of the wild dog population throughout Central Otago and the greater Otago region.

It became apparent that the introduction of rabbits by British colonialists was ill-considered, when they quickly bred and became a real problem throughout New Zealand but particularly in Central Otago. In New Zealand, rabbits do not have the natural predators such as foxes which provide some level of population control in England. Rabbits were competing for food with sheep and caused erosion of the land. By the late 1870's rabbits were becoming a real worry for farmers who were losing money as a direct result.

RABBITING Inspecting a day's catch at Millers Flat c1911
L-R Jim Wihou, Jack Walker, Bill Smith, Bill Faigan,
Sam McClelland, Jack Sheehysen, Ollie Hall

CSM R0798

The early 1890's saw a number of attempts to control the rabbit population including rabbit netting fences and poisoning. In 1906, according to Robert Jopp of Moutere Station, one poisoning killed an estimated 80,000 rabbits. As the problem continued, Jopp invented a rabbit fumigator where gas was directed down rabbit holes killing the rabbits as they hid. In 1948 the 'Killer Policy' was introduced which gave high priority to the killing of rabbits. 1954 saw the development of 'Compound 1080'; an odourless, colourless, and tasteless poison that was the perfect weapon in the fight against the rabbit population. As a result of this poison, rabbit numbers were decimated and many areas have been revegetated since the 1960s.

Scanning

Developments in recent years have been less ground-breaking but no less useful. The early nineties saw the introduction of pregnancy scanners for ewes. The many benefits of scanning include; the management of the flock by knowledge rather than guesswork; the identification of dry ewes earlier; the identification of twins and singles and the ability to adjust feed accordingly. Scanning has led to better live-weights of lambs and therefore greater profits